PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of	
CERTAIN MAGNETIC TAPE CARTRIDGES AND COMPONENTS THEREOF	**INV. NO. 337-TA-1058**

INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND RECOMMENDED DETERMINATION ON REMEDY AND BOND

Administrative Law Judge Clark S. Cheney

(August 17, 2018)

Appearances:

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TABLE OF ABBREVIATIONS

CDX	Complainant's demonstrative exhibit
CIB	Complainant's initial post-hearing brief
CPB	Complainant's pre-hearing brief
CPX	Complainant's physical exhibit
CRB	Complainant's reply post-hearing brief
CX	Complainant's exhibit
Dep.	Deposition
JX	Joint Exhibit
RDX	Respondent's demonstrative exhibit
RIB	Respondent's initial post-hearing brief
RPX	Respondent's physical exhibit
RPB	Respondent's pre-hearing brief
RRB	Respondent's reply post-hearing brief
RRX	Respondent's rebuttal exhibit
RX	Respondent's exhibit
SIB	Staff's initial post-hearing brief
SPB	Staff's pre-hearing brief
SRB	Staff's reply post-hearing brief
Tr.	Transcript

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Administrative Law Judge Clark S. Cheney

(August 17, 2018)

Pursuant to the Notice of Investigation, 82 Fed. Reg. 25333 (June 1, 2017), this is the Initial Determination in the matter of *Certain Magnetic Tape Cartridges and Components Thereof*, Investigation No. 337-TA-1058. 19 C.F.R. §§ 210.10(b), 210.42(a)(1)(i).

For the reasons stated herein, I have determined that a violation of section 337 of the Tariff Act of 1930, as amended, has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain magnetic tape cartridges and components thereof with respect to U.S. Patent Nos. 7,029,774 and 6,674,596. I have also determined that no violation of section 337 has occurred with respect to U.S. Patent No. 6,979,501.

I. INTRODUCTION

A. Procedural History

On April 28, 2017, complainants Sony Corporation; Sony Storage Media Solutions Corporation; Sony Storage Media Manufacturing Corporation; Sony DADC US Inc.; and Sony Latin America Inc. (collectively "Sony" or "complainants") filed a complaint alleging violations of section 337 based upon the importation into the United States, the sale for importation, and the sale within the United States after importation of certain magnetic tape cartridges and components thereof by reason of infringement of certain claims of U.S. Patent No. 6,674,596 ("the '596 patent"); U.S. Patent No. 6,979,501 ("the '501 patent"); and U.S. Patent No. 7,029,774 ("the '774 patent"). *See* 82 Fed. Reg. 25333 (June 1, 2017).

On June 1, 2017, the Commission instituted this investigation to determine:

> whether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain magnetic tape cartridges and components thereof by reason of infringement of one or more of claims 1-19 of the '596 patent; claims 1-6 and 8 of the '501 patent; and claims 1-11 and 15-20 of the '774 patent, and whether an industry in the United States exists as required by subsection (a)(2) of section 337.

Id. at 25334.

The named respondents are FUJIFILM Holdings Corporation of Tokyo, Japan; FUJIFILM Corporation of Tokyo, Japan; FUJIFILM Media Manufacturing Co., Ltd. of Kanagawa, Japan; FUJIFILM Holdings America Corporation of Valhalla, NY; and FUJIFILM Recording Media U.S.A., Inc. of Bedford, MA (collectively, "Fujifilm" or "respondents"). *Id.*

The Commission Investigative Staff ("Staff") is also a party to this investigation. *Id.*

On March 8, 2018, Sony moved without opposition for partial termination of this investigation with respect to claims 2-4, 9, 11, 15, and 18-20 of the '774 patent, claim 3 of the

'501 patent, and claims 14-19 of the '596 patent. *See* Mot. 1058-022. The motion was granted on March 22, 2018. See Ord. No. 26.

An evidentiary hearing was held May 8-11, 2018, to determine whether section 337 has been violated by reason of the importation and sale of the accused magnetic tape products and components thereof based upon infringement of one or more of: (i) claims 1, 5-8, 10, 16, and 17 of the '774 patent; (ii) claims 1, 2, 4-6, and 8 of the '501 patent; and (iii) claims 1-13 of the '596 patent (collectively, the "Asserted Patents").

B. The Private Parties

1. Complainants

a) Sony Corporation

Sony Corporation is a Japanese corporation with a principal place of business located at 1-7-1 Konan, Minato-ku, Tokyo, 108-0075, Japan. Complaint ¶ 11. Sony Corporation owns all rights, title, and interest in and to the Asserted Patents. *Id.* ¶¶ 39, 45, 51.

b) Sony Storage Media Solutions Corporation

Sony Storage Media Solutions Corporation is a Japanese corporation with a principal place of business located at 1-7-1 Konan Minato-ku, Tokyo, 108-0075, Japan. Sony Storage Media Solutions Corporation is a wholly owned subsidiary of Sony Corporation. *Id.* ¶ 12.

c) Sony Storage Media Manufacturing Corporation

Sony Storage Media Manufacturing Corporation is a Japanese corporation with a principal place of business located at 3-4-1 Sakuragi, Tagajo, Miyagi, 985-0842, Japan. Sony Storage Media Manufacturing Corporation is a wholly owned subsidiary of Sony Storage Media Solutions Corporation, which, as noted above, is a wholly owned subsidiary of Sony Corporation. *Id.* ¶ 13.

d) Sony DADC US Inc.

Sony DADC US Inc. is a Delaware corporation with a principal place of business located at 1800 North Fruitridge Avenue, Terre Haute, Indiana, 47804, USA. Sony DADC US Inc. is a wholly owned subsidiary of Sony Corporation of America, which itself is a wholly owned subsidiary of Sony Corporation. *Id.* ¶ 14.

e) Sony Latin America Inc.

Sony Latin America Inc. is a Florida corporation with a principal place of business located at 5201 Blue Lagoon Drive, Suite 400, Miami, Florida, 33126, USA. Sony Latin America Inc. is a wholly owned subsidiary of Sony Corporation of America, which itself is a wholly owned subsidiary of Sony Corporation. *Id.* ¶ 15.

2. Respondents

a) Fujifilm Holdings Corporation

Fujifilm Holdings Corporation is a Japanese corporation with its principal place of business at 7-3 Akasaka 9-chome, Minato-ku, Tokyo, 107-0052, Japan. *See* Resp. to Complaint ¶ 21. Fujifilm Holdings Corporation is a holding company, and respondents Fujifilm Corporation, Fujifilm Holdings America Corporation, and Fujifilm Recording Media U.S.A., Inc., are subsidiaries of Fujifilm Holdings Corporation. *Id.*

b) Fujifilm Corporation

Fujifilm Corporation is a Japanese corporation with its principal place of business at 7-3 Akasaka 9-chome, Minato-ku, Tokyo, 107-0052, Japan. *Id.* ¶ 21. Fujifilm Corporation is an operating company and a wholly owned subsidiary of Fujifilm Holdings Corporation. Fujifilm Corporation leads the design, manufacture, and sale of Fujifilm magnetic tape media. *Id.*

c) Fujifilm Media Manufacturing Co., Ltd.

Fujifilm Media Manufacturing Co., Ltd., is a Japanese corporation with its principal place of business at 12-1 Ohgi-cho 2-chome, Odawara, Kanagawa, 250-0001, Japan. *Id.* ¶ 23. Fujifilm Media Manufacturing Co. is a wholly owned subsidiary of Fujifilm Corporation.

d) Fujifilm Holdings America Corporation

Fujifilm Holdings America Corporation is a Delaware corporation with its principal place of business in, Valhalla, New York. RIB at 7. Fujifilm Holdings America Corporation is a wholly owned subsidiary of Fujifilm Corporation. *See* Resp. to Complaint ¶ 24.

e) Fujifilm Recording Media U.S.A., Inc.

Fujifilm Recording Media U.S.A., Inc., is a Delaware corporation with its principal place of business at 45 Crosby Dr., Bedford, MA, 01730-1401. *Id.* ¶ 24. Fujifilm Recording Media U.S.A., Inc., is a wholly owned subsidiary of Fujifilm Holdings America Corporation, which, as noted above, is a wholly owned subsidiary of Fujifilm Corporation. Fujifilm Recording Media U.S.A., Inc., is the manufacturing, marketing, and sales arm for Fujifilm Corporation's professional broadcast video and data tape recording media business in the United States. *Id.*

C. The Technology at Issue

The technology in this investigation relates to magnetic tape recording. Complaint ¶ 3. Magnetic tapes are used by companies across a wide range of industries for data storage backup systems and fast access data libraries.

The accused Fujifilm tape products and the alleged Sony and IBM domestic industry products both follow the Linear Tape-Open ("LTO") format. *Id.* "Linear" recording refers to a method of arranging data in parallel tracks that linearly span the length of the tape. *Id.* ¶ 4.

The LTO format was developed by an organization known as the LTO Consortium, which was originally formed by International Business Machines ("IBM"), Hewlett Packard

("HP") and Seagate (now Quantum) in 1998. *Id.* The LTO Consortium sets forth technical specifications for the LTO format. *Id.* First generation LTO tapes (LTO-1) became available in 2000 and newer generations have been released over time, including LTO-2 (2003), LTO-3 (2005), LTO-4 (2007), LTO-5 (2010) and LTO6 (2012) and LO-7 (2015). *Id.* ¶ 7.

Standard LTO tapes are rewritable, meaning that data can be written to the tape many times and read from the tape many times. These standard tapes are also referred to as "R/W" tapes, for "read/write" or "rewritable." *See* CIB at 5; 118. In some applications, however, it is desirable to write data to the tape once and then protect the written data against erasure or overwriting. *See id.* at 5. Tapes that can only be written to once are called "WORM" tapes, for "write once, read many." *Id.*

All parties agree that the asserted claims of the '774 and '501 patents are directed to magnetic tape media. CIB at 8; RIB at 166, 167, 171; SIB at 7-8. All parties further agree that the asserted claims of the '596 patent are directed to a system that involve both a tape cartridge and a tape drive. CIB at 8; RIB at 166; SIB at 8-10.

D. The Accused Products

Sony accuses Fujifilm LTO-4, LTO-5, and LTO-6 tapes[1] of infringing various asserted claims of the Asserted Patents. *See* Complaint ¶¶ 26, 27; CIB at 9.

1. The '774 patent

With respect to the '774 patent, Sony accuses the following Fujifilm products (both rewritable tapes and WORM tapes) of infringing the claims indicated below:

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[1] Fujifilm makes some LTO-4, LTO-5, and LTO-6 tapes for IBM. Sony does not accuse those IBM-branded tapes of infringement. According to Sony, tapes made by Fujifilm for IBM enjoy a license to the Asserted Patents. *See* CIB at 9.

U.S. Patent No. 7,029,774: Fujifilm Accused Products			
Claim	**LTO-4**	**LTO-5**	**LTO-6**
1	X		X
5	X		X
6	X		X
7	X		X
8	X		X
10	X		X
16	X		X
17	X	X	X

CIB at 22-36.

2. The '501 patent

With respect to the '501 patent, Sony accuses the following Fujifilm products of infringing the claims indicated below:

U.S. Patent No. 6,979,501: Fujifilm Accused Products						
Claim	**LTO-4**		**LTO-5**		**LTO-6**	
	R/W	**WORM**	**R/W**	**WORM**	**R/W**	**WORM**
1	X	X	X	X	X	X
2	X	X	X	X	X	X
4	X	X	X	X	X	X
5	X	X	X	X	X	X
6	X	X	X	X	X	X
8			X	X	X	X

Id. at 118-140.

3. The '596 patent

With respect to the '596 patent, Sony accuses the following Fujifilm products of infringing the claims indicated below:

U.S. Patent No. 6,674,596: Fujifilm Accused Products						
Claim	LTO-4		LTO-5		LTO-6	
	R/W	WORM	R/W	WORM	R/W	WORM
1	X	X	X	X	X	X
2		X		X		X
3	X	X	X	X	X	X
4		X		X		X
5		X		X		X
6	X	X	X	X	X	X
7	X	X	X	X	X	X
8	X	X	X	X	X	X
9		X		X		X
10		X		X		X
11		X		X		X
12		X		X		X
13		X		X		X

Id. at 145-152.

E. The Domestic Industry Products

Sony alleges two main categories of products to be articles protected by the Asserted Patents. The first category comprises LTO-4, LTO-5, and LTO-6 tape cartridges manufactured by Sony.[2] The Sony-manufactured cartridges are labeled with the Sony brand or are labeled as OEM products for [redacted]. *See* Complaint ¶¶ 86, 87; CIB at 9 (citing CX-0008C at Q/A 8-13; CX-1229C).

The second category of alleged domestic industry articles comprises IBM 3592 products. Sony contends that IBM produces the 3592 products under a license from Sony.[3] IBM 3592 tape

[2] Section VII.B below discusses the nature and location of Sony's alleged domestic industry activities.

[3] Section VII.C below discusses the nature and location of the alleged IBM domestic industry activities.

cartridges have a proprietary format and can only be used in an IBM 3592 drive.[4] As with LTO tapes, there have been several generations of IBM 3592 tapes. The record shows that the format for [redacted]. CX-1304 at Q/A 25.

1. The '774 patent

With respect to the '774 patent, Sony asserts that the following Sony-manufactured LTO tape cartridges practice the claims indicated below:

U.S. Patent No. 7,029,774: Sony-Manufactured Tape Cartridges			
Claim	**LTO-4**	**LTO-5**	**LTO-6**
1	X	X	X
5	X	X	X
6	X	X	X
7	X	X	X
8			X
10	X	X	X
16	X	X	X
17	X	X	X

CIB at 37-40.

Sony also asserts that various generations of licensed IBM 3592 tape cartridges practice the following claims of the '774 patent:

[4] IBM 3592 tape cartridges differ from LTO tape cartridges in this respect. LTO tape cartridges made by one manufacturer are interoperable with LTO drives made by various manufacturers. This difference will be discussed in the following sections.

U.S. Patent No. 7,029,774: IBM 3592 Tape Cartridges				
Claim	**IBM 3592 Gen. 1**	**IBM 3592 Gen. 2**	**IBM 3592 Gen. 3**	**IBM 3592 Gen. 4**
1		X		X
5		X		X
6		X		X
7		X		X
8		X		
10		X		X
16		X	X	X
17		X	X	X

Id. at 37-40.

2. The '501 patent

With respect to the '501 patent, Sony asserts that the following Sony-manufactured LTO tape cartridges practice the claims indicated below:

U.S. Patent No. 6,979,501: Sony-Manufactured Tape Cartridges						
Claim	**LTO-4**		**LTO-5**		**LTO-6**	
	R/W	**WORM**	**R/W**	**WORM**	**R/W**	**WORM**
1			X	X	X	X
2			X	X	X	X
3			X	X	X	X
4			X	X	X	X
5			X	X	X	X
6			X	X	X	X
7			X	X	X	X
8			X	X	X	X

Id. at 83-87.

Sony also asserts that licensed IBM 3592 Generation 3 tape cartridges practice the following claims of the '501 patent:

U.S. Patent No. 6,979,501: IBM 3592 Tape Cartridges				
Claim	**IBM 3592 Gen. 1**	**IBM 3592 Gen. 2**	**IBM 3592 Gen. 3**	**IBM 3592 Gen. 4**
1			X	
2			X	
4			X	
5			X	
6			X	
8			X	

Id. at 83-87.

3. The '596 patent

With respect to the '596 patent, Sony asserts that Sony-manufactured LTO tape cartridges, when used with compatible LTO drives, practice the following claims:

U.S. Patent No. 6,674,596: Sony-Manufactured Tape Cartridges						
Claim	**LTO-4**		**LTO-5**		**LTO-6**	
	R/W	**WORM**	**R/W**	**WORM**	**R/W**	**WORM**
1	X	X	X	X	X	X
2		X		X		X
3	X	X	X	X	X	X
4		X		X		X
5		X		X		X
6	X	X	X	X	X	X
7	X	X	X	X	X	X
8	X	X	X	X	X	X
9		X		X		X
10		X		X		X
11		X		X		X
12		X		X		X
13		X		X		X

Id. at 145-152.

Sony also contends that IBM 3592 tape cartridges (generations 1-4, comprising models JA, JB, JC, JD, JJ, JK, JL, JR, JW, JX, JY, and JZ), when used with compatible IBM 3592 tape drives (generations 2-5A; comprising models TS1120, TS1130, TS1140, TS1150, and TS1155), practice the following claims of the '596 patent:

U.S. Patent No. 6,674,596: IBM 3592 Tape Cartridges & Drives								
Claim	IBM 3592 Gen. 1 System		IBM 3592 Gen. 2 System		IBM 3592 Gen. 3 System		IBM 3592 Gen. 4 System	
	R/W	WORM	R/W	WORM	R/W	WORM	R/W	WORM
1	X	X	X	X	X	X	X	X
2		X		X		X		X
3	X	X	X	X	X	X	X	X
4		X		X		X		X
5		X		X		X		X
6	X	X	X	X	X	X	X	X
7	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X	X
9		X		X		X		X
10		X		X		X		X
11		X		X		X		X
12		X		X		X		X
13		X		X		X		X

Id. at 145-152.

II. JURSIDICTION & IMPORTATION

A. Subject Matter Jurisdiction

Section 337 confers subject matter jurisdiction on the Commission to investigate, and if appropriate, to provide a remedy for, unfair acts and unfair methods of competition in the importation, the sale for importation, or the sale after importation of articles into the United States. *See* 19 U.S.C. §§ 1337(a)(1)(B) and (a)(2). Sony filed a complaint alleging a violation of this subsection. Accordingly, the Commission has subject matter jurisdiction over this investigation under section 337 of the Tariff Act of 1930. *See Amgen, Inc. v. U.S. Int'l. Trade Comm'n*, 902 F.2d 1532, 1536 (Fed. Cir. 1990).

B. Personal Jurisdiction

Fujifilm has appeared and participated in this investigation. The Commission therefore has personal jurisdiction over Fujifilm. *See, e.g., Certain Optical Disk Controller Chips &*

Chipsets & Prods. Containing Same, Including DVD Players & PC Optical Storage Devices, Inv. No. 337-TA-506, Initial Det. at 4-5 (May 16, 2005) (unreviewed in relevant part).

C. *In Rem* Jurisdiction

Fujifilm does not dispute that the Commission has *in rem* jurisdiction over the accused LTO-4, LTO-5 and LTO-6 tape media products and components thereof that have been imported into the United States. *See* RIB at 8. In fact, Fujifilm has stipulated to the importation of the accused LTO-4, LTO-5, and LTO-6 tape media products and components thereof into the United States. *See* JX-7C. Accordingly, the Commission has *in rem* jurisdiction over the LTO-4, LTO-5 and LTO-6 tape media products and components thereof.

D. Importation

As noted above, Fujifilm has stipulated to the importation of the accused LTO-4, LTO-5, and LTO-6 tape media products and components thereof into the United States. *See* JX-7. Accordingly, the importation requirement of section 337 is satisfied.

III. RELEVANT LAW

A. Claim Construction

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*) (internal citations omitted), *aff'd*, 517 U.S. 370 (1996). Claim construction resolves legal disputes between the parties regarding claim scope. *See Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d at 1314, 1319 (Fed. Cir. 2016).

Evidence intrinsic to the application, prosecution, and issuance of a patent is the most significant source of the legally operative meaning of disputed claim language. *See Bell Atl.*

Network Servs., Inc. v. Covad Commc'ns Grp., Inc., 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips v. AWH Corp*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (*en banc*); *see also Markman*, 52 F.3d at 979. As the Federal Circuit explained in *Phillips*, courts must analyze each of these components to determine the "ordinary and customary meaning of a claim term" as understood by a person of ordinary skill in the art at the time of the invention. 415 F.3d at 1313.

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips*, 415 F.3d at 1312 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). "Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claims terms." *Id.* at 1314; *see also Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001) ("In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to 'particularly point[ ] out and distinctly claim[ ] the subject matter which the patentee regards as his invention.'"). The context in which a term is used in an asserted claim can be "highly instructive." *Phillips*, 415 F.3d at 1314. Additionally, other claims in the same patent, asserted or unasserted, may also provide guidance as to the meaning of a claim term. *Id.*

The specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "[T]he specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography

governs." *Id.* at 1316. "In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor." *Id.* As a general rule, however, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Id.* at 1323. In the end, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be . . . the correct construction." *Id.* at 1316 (quoting *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

In addition to the claims and the specification, the prosecution history should be examined, if in evidence. *Id.* at 1317; *see also Liebel-Flarsheim Co. v. Medrad Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). The prosecution history can "often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Phillips*, 415 F.3d at 1317; *see also Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) ("The purpose of consulting the prosecution history in construing a claim is to 'exclude any interpretation that was disclaimed during prosecution.'").

When the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence (*i.e.*, all evidence external to the patent and the prosecution history, including dictionaries, inventor testimony, expert testimony, and learned treatises) may be considered. *Phillips*, 415 F.3d at 1317. Extrinsic evidence is generally viewed as less reliable than the patent itself and its prosecution history in determining how to define claim terms. *Id.* at 1317. "The court may receive extrinsic evidence to educate itself about the invention and the relevant technology, but the court may not use extrinsic evidence to arrive at a claim construction that is

clearly at odds with the construction mandated by the intrinsic evidence." *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 977 (Fed. Cir. 1999).

B. Infringement

In a section 337 investigation, the complainant bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. *See Spansion*, 629 F.3d at 1349. This standard "requires proving that infringement was more likely than not to have occurred." *Warner-Lambert Co. v. Teva Pharm. USA, Inc.*, 418 F.3d 1326, 1341 n.15 (Fed. Cir. 2005).

1. Literal infringement

Literal infringement is a question of fact. *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1332 (Fed. Cir. 2008). "Literal infringement requires the patentee to prove that the accused device contains each limitation of the asserted claim(s). If any claim limitation is absent, there is no literal infringement as a matter of law." *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000).

2. Indirect infringement

Section 271 of the Patent Act defines both direct infringement and the two categories of indirect infringement, active inducement of infringement and contributory infringement. 35 U.S.C. § 271(a), (b), and (c). There can be no indirect infringement absent direct infringement. *See Limelight Networks, Inc. v. Akamai Technologies, Inc.*, 134 S.Ct. 2111, 2117 (2014); *Aro Manufacturing Co. v. Convertible Top Replacement Co.*, 365 U.S. 341 (1961); *see also Met-Coil Sys. Corp. v. Korners Unltd., Inc.*, 803 F.2d 684, 687 (Fed. Cir. 1986) ("Absent direct infringement of the patent claims, there can be neither contributory infringement . . . nor inducement of infringement.") (citations omitted).

a) Inducement of infringement

Section 271(b) of the Patent Act prohibits inducement of infringement: "[w]hoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b). *See DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1305 (Fed. Cir. 2006) *(en banc)* ("To establish liability under section 271(b), a patent holder must prove that once the defendants knew of the patent, they actively and knowingly aided and abetted another's direct infringement.") (citations omitted). "The mere knowledge of possible infringement by others does not amount to inducement; specific intent and action to induce infringement must be proven." *Id.* (citations omitted). A violation of section 337 may arise from an act of induced infringement. *Suprema*, 796 F.3d at 1351-52 (*en banc* opinion).

b) Contributory infringement

Section 271(c) of the Patent Act prohibits contributory infringement. *See* 35 U.S.C. § 27l(c). "Under 35 U.S.C. § 27l(c), a party who sells a component with knowledge that the component is especially designed for use in a patented invention, and is not a staple article of commerce suitable for substantial noninfringing use, is liable as a contributory infringer." *Wordtech Sys., Inc. v. Integrated Networks Solutions, Inc.*, 609 F.3d 1308, 1316 (Fed. Cir. 2010). To establish contributory infringement in a section 337 investigation, it must be shown that "(1) there is an act of direct infringement in violation of section 337; (2) the accused device has no substantial non-infringing uses; and (3) the accused infringer imported, sold for importation, or sold after importation within the United States, the accused components that contributed to another's direct infringement." *Spansion*, 629 F.3d at 1353.

C. Statutory Subject Matter (35 U.S.C. § 101)

The determination of whether a patent's claims are directed to subject matter that is patentable under 35 U.S.C. § 101 is an issue of law. *See CLS Bank Int'l v. Alice Corp Pty.*, 717

F.3d 1269, 1276 (2013) (*en banc*) (citing *Bancorp Servs., LLC v. Sun Life Assurance Co. of Can.*, 687 F.3d 1266, 1273 (Fed. Cir. 2012)). 35 U.S.C. § 101 delineates four categories of patentable inventions: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title." 35 U.S.C. § 101; *see also Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1366 (Fed. Cir. 2015). The Supreme Court has identified "'[l]aws of nature, natural phenomena, and abstract ideas'" as patent-ineligible exceptions to 35 U.S.C. § 101. *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 714 (Fed. Cir. 2014), *cert denied. sub nom. Ultramercial, LLC v. WildTangent, Inc.*, 135 S. Ct. 2907 (2015) (quoting *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014)) ("*Alice*"). Thus, for example, "[p]atents that merely claim well-established, fundamental concepts fall within the category of abstract ideas." *Cyberfone Sys., LLC v. CNN Interactive Grp., Inc.*, 558 Fed. App'x 988, 991 (Fed. Cir. 2014) (citing *Bilski v. Kappos*, 561 U.S. 593, 611-12 (2010)). An invention, however, "is not rendered ineligible for patent simply because it involves an abstract concept." *Alice*, 134 S. Ct. at 2354 (citing *Diamond v. Diehr*, 450 U.S. 175, 187 (1981)).

The Supreme Court has enunciated a two-part analysis for determining whether patent claims are directed to eligible subject matter. *See Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1374 (Fed. Cir. 2016). The first question is whether a claim is drawn to an abstract idea. *Id.* (citing *Alice*, 134 S. Ct. at 2355). If the claim is drawn to an abstract idea, the second question is whether the claim recites an "'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 134 S. Ct. at 2357 (quoting *Mayo Collaborative Servs. v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289, 1294, 1298 (2012)

("*Mayo*")). In this regard, using a computer to implement or manipulate an abstract idea does not necessarily make the claimed configuration patent-eligible. *See Ultramercial*, 772 F.3d at 717 (quoting *In re Bilski*, 545 F.3d 943, 963 (Fed. Cir. 2008)); *see also Bancorp Servs.*, 687 F.3d at 1278, *cert. denied*, 134 S. Ct. 2870 (2014) ("[A]dding a 'computer aided' limitation to a claim covering an abstract concept, without more, is insufficient to render the claim patent eligible.'") (quoting *Dealertrack, Inc. v. Huber*, 674 F.3d 1315, 1333 (Fed. Cir. 2012)). Additionally, the Federal Circuit has indicated that claims directed to improving computer functioning by the use of unconventional methods may appropriately be patented. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) ("[W]e find it relevant to ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea, even at the first step of the *Alice* analysis.").

In *Enfish*, the Federal Circuit explained that:

> [i]n setting up the two-stage *Mayo/Alice* inquiry, the Supreme Court has declared: "We must first determine whether the claims at issue are directed to a patent-ineligible concept." That formulation plainly contemplates that the first step of the inquiry is a meaningful one, *i.e.*, that a substantial class of claims are *not* directed to a patent-ineligible concept. The "directed to" inquiry, therefore, cannot simply ask whether the claims *involve* a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical product and actions *involves* a law of nature and/or natural phenomenon-after all, they take place in the physical world. . . . [R]ather, the "directed to" inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether their character as a whole is directed to excluded subject matter.

Id. *Enfish* therefore provides, among other things, that the "directed to" inquiry functions as a filter to claims, when interpreted in view of the specification, based on whether their character as a whole is directed to a patent ineligible concept.

Enfish also explains that claims directed to improvements of existing technology (*e.g.*, computer functionality—including those directed wholly to non-structural software-based improvements) can be patent eligible in contrast to claims directed to "a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool" and that the determination is made by looking to the applicant's specification. *Id.* at 1335-1336. Nevertheless, the use of generic computer technology, however "specific" to the particular environment, will not provide eligibility, if the functionality described constitutes an abstract idea. *See TLI Commc'ns LLC v. AV Auto., LLC*, 823 F.3d 607, 611 (Fed. Cir. 2016) (holding that 35 U.S.C. § 101 applies where "the specification makes clear that the recited physical components merely provide a generic environment in which to carry out the abstract idea of classifying and storing digital images in an organized manner").

D. Validity

A patent is presumed valid. *See* 35 U.S.C. § 282; *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2242 (2011). A respondent who has raised patent invalidity as an affirmative defense has the burden of overcoming this presumption by clear and convincing evidence. *See Microsoft,* 131 S. Ct. at 2242. As with an infringement analysis, an analysis of invalidity involves two steps: determining the scope of the claim and comparing the properly construed claim with the prior art to determine whether the claimed invention is anticipated and/or rendered obvious. *Tate Access Floors, Inc. v. Interface Architectural Resources, Inc.*, 279 F.3d 1357, 1365 (Fed. Cir. 2002).

1. Anticipation (35 U.S.C. § 102)

Under 35 U.S.C. § 102, a claim is anticipated, and therefore invalid, when "the four corners of a single, prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention

without undue experimentation." *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 904 (2001). To be considered anticipatory, the prior art reference must be enabling and describe the applicant's claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention. *See Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000).

2. Obviousness (35 U.S.C. § 103)

Under 35 U.S.C. § 103, a patent may be found invalid as obvious if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a). Because obviousness is determined at the time of invention, rather than the date of application or litigation, "[t]he great challenge of the obviousness judgment is proceeding without any hint of hindsight." *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 655 F.3d 1364, 1375 (Fed. Cir. 2011).

When a patent is challenged as obvious, the critical inquiry in determining the differences between the claimed invention and the prior art is whether there is an apparent reason to combine the known elements in the fashion claimed by the patent at issue. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417-418 (2007). Thus, when a patent is challenged as obvious, based on a combination of several prior art references, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007) (citations omitted).

Obviousness is a determination of law based on underlying determinations of fact. *Star Scientific*, 655 F.3d at 1374. The factual determinations behind a finding of obviousness include: (1) the scope and content of the prior art, (2) the level and content of the prior art, (3) the differences between the claimed invention and the prior art, and (4) secondary considerations of non-obviousness. *KSR*, 550 U.S. at 399 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966)). These factual determinations are referred to collectively as the "*Graham* factors." Secondary considerations of non-obviousness include commercial success, long felt but unresolved need, and the failure of others. *Id.* When present, secondary considerations "give light to the circumstances surrounding the origin of the subject matter sought to be patented," but they are not dispositive on the issue of obviousness. *Geo. M. Martin Co. v. Alliance Mach. Sys. Int'l.*, 618 F.3d 1294, 1304-06 (Fed. Cir. 2010). For evidence of secondary considerations to be given substantial weight in the obviousness determination, its proponent must establish a nexus between the evidence and the merits of the claimed invention. *See W. Union Co. v. MoneyGram Payment Sys. Inc.*, 626 F.3d 1361, 1372-73 (Fed. Cir. 2010) (citing *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995)).

3. Written Description and Enablement (35 U.S.C. § 112, ¶ 1)[5]

The hallmark of the written description requirement is the disclosure of the invention. *See Ariad Pharm., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*). The test for determining the sufficiency of the written description in a patent requires "an objective

[5] The Leahy-Smith America Invents Act ("AIA") amended portions of the Patent Act of 1952, and provided that its provisions would "take effect upon the expiration of the 1-year period beginning on the date of the enactment of this Act and shall apply to any patent issued on or after that effective date." Pub. L 112-29, § 35. The AIA was enacted on September 16, 2011, and the effective date of the AIA for most sections, including § 112, was September 16, 2012. This investigation involves patents that issued before the effective date of the AIA. Accordingly, I will refer to the paragraphs of pre-AIA § 112 by paragraph number.

inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art. Based on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed." *Id.* Compliance with the written description requirement is a question of fact and "the level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology." *Id.*

To satisfy the enablement requirement a patent specification must "contain a written description of the invention . . . to enable any person skilled in the art . . . to make and use the same." 35 U.S.C. §112, ¶ 1. The specification must enable a person of ordinary skill in the art to practice the claimed invention without undue experimentation. *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc.*, 617 F.3d 1296, 1305 (Fed. Cir. 2010). Although a specification need not disclose minor details that are well known in the art, this "rule" is "merely a rule of supplementation, not a substitute for a basic enabling disclosure." *Auto. Tech. Int'l Inc., v. BMW of N. Am.*, 501 F.3d 1274, 1283 (Fed. Cir. 2007) (*quoting Genentech, Inc. v. Novo Nordisk, A/S*, 108 F.3d 1361, 1366 (Fed. Cir. 1997)). "It is the specification, not the knowledge of one killed in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement." *Auto. Tech.*, 501 F.3d at 1283.

Enablement is a question of law with underlying questions of fact regarding undue experimentation. *Transocean*, 617 F.3d at 1305. The factors weighed by a court in determining whether a disclosure requires undue experimentation include: (1) the quantity of experimentation necessary, (2) the amount of direction provided, (3) the presence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7)

the predictability of the art, and (8) the breadth of the claims. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

4. Indefiniteness (35 U.S.C. § 112, ¶ 2)

A claim must also be definite. Pursuant to 35 U.S.C. § 112, ¶ 2, a patent specification "shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, ¶ 2. Section 112, ¶ 2 requires "that a patent's claims, viewed in light of the specification and prosecution history inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc.* v. *Biosig Instruments, Inc.,* 134 S. Ct. 2120, 2129 (2014). A patent claim that is indefinite is invalid. 35 U.S.C. § 282(b)(3)(A).

E. Domestic Industry

For a patent-based complaint, a violation of section 337 can be found "only if an industry in the United States, relating to the articles protected by the patent . . . concerned, exists or is in the process of being established." 19 U.S.C. § 1337(a)(2). Under Commission precedent, this domestic industry requirement of section 337 consists of an economic prong and a technical prong. *See Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 12-14, 2009 WL 5134139 (U.S.I.T.C. Dec. 2009). The complainant bears the burden of establishing that the domestic industry requirement is satisfied. *See Certain Set-Top Boxes and Components Thereof*, Inv. No. 337-TA-454, Final Initial Determination at 294, 2002 WL 31556392 (U.S.I.T.C. June 21, 2002) (unreviewed by Commission in relevant part).

1. Economic prong

Section 337(a)(3) sets forth the following economic criteria for determining the existence of a domestic industry in such investigations:

> (3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned –
>
> (A) significant investment in plant and equipment;
>
> (B) significant employment of labor or capital; or
>
> (C) substantial investment in its exploitation, including engineering, research and development, or licensing.

Given that these criteria are listed in the disjunctive, satisfaction of any one of them will be sufficient to meet the economic prong of the domestic industry requirement. *See Certain Integrated Circuit Chipsets and Prods. Containing Same*, Inv. No. 337-TA-428, Order No. 10, Initial Determination (unreviewed) (May 4, 2000).

2. Technical prong

The technical prong of the domestic industry requirement is satisfied when the complainant in a patent-based section 337 investigation establishes that it is practicing or exploiting the patents at issue. *See* 19 U.S.C. § 1337(a)(2) and (3); *Certain Microsphere Adhesives, Process for Making Same and Prods. Containing Same, Including Self-Stick Repositionable Notes,* Inv. No. 337-TA-366, Comm'n Op. at 8, 1996 WL 1056095 (U.S.I.T.C. Jan. 16, 1996). "The test for satisfying the 'technical prong' of the industry requirement is essentially [the] same as that for infringement, *i.e.*, a comparison of domestic products to the asserted claims." *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1375 (Fed. Cir. 2003). To prevail, the patentee must establish by a preponderance of the evidence that the domestic product practices one or more claims of the patent. It is sufficient to show that the products practice any claim of that patent, not necessarily an asserted claim of that patent. *See Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm'n Op. at 38 (U.S.I.T.C. Aug. 1, 2007).

IV. U.S. PATENT NUMBER 7,029,774

United States Patent Number 7,029,774, entitled "Magnetic Recording Medium with Backside to Decrease Recording Surface Embossment," issued to James A. Greczyna, Brian D. Brong, and Stephen R. Ebner on April 18, 2006. JX-0003 at cover page ('774 patent). The patent issued from Application Number 11/135,783 filed on May 23, 2005. *Id.* The patent is assigned on its face to Imation Corporation. *Id.* The evidence indicates that Imation assigned this patent to Sony on August 3, 2015. CX-0007C at Q/A 58-67 (direct witness statement of Hiroshi Kamitani); CX-1081 at 3; JX-0139C.

The '774 patent describes specific properties of a magnetic recording medium in the form of a tape that is commonly wound around a spool inside a tape cartridge. JX-0003 at Figure 1, 1:16-20, 1:51-67; *see* CX-0002C at Q/A 44, 47 (direct witness statement of Sony's expert, Dr. Bogy); RX-0003C at Q/A 546, 550 (direct witness statement of Fujifilm's expert, Dr. Wang). The tape cartridge might take the shape of an audio tape, video tape, or computer tape, and the magnetic recording medium might be referred to as the magnetic tape within the tape cartridge. JX-0003 at 1:7-10, 1:16-17; *see* CX-0002C at Q/A 44. Depending on the context, the word "tape" may refer to either the tape cartridge or the magnetic tape. The tape cartridge can be inserted into a tape drive that extracts the magnetic tape from the cartridge, reads data from or writes data to the tape, and then returns the tape to the cartridge. CX-0002C at Q/A 44.

The physical structure of the tape 30, shown below in Figure 2 of the '774 patent, comprises four layers. JX-0003 at Abstract, Figure 2, 3:34-6:62. Layer 32 is referred to as the substrate, with top surface 38 and bottom surface 40. *Id.* at 3:34-4:9. Support layer 50 "extends over and is bonded to the top surface 38 of the substrate," and the "magnetic recording layer 52 extends over and is bonded to the top surface 54 of the support layer 50." *Id.* at 4:12-31. The magnetic recording layer 52 contains recording surface 56 upon which data is recorded. *Id.* at

4:12-63. Backside layer 36 "extends along and is bonded to t ıe bottom surface 40 of the substrate 32." *Id.* at 3:34-50. The purpose of backside layer 36 is to improve the durability, electroc ınductivity, and tracking characteristics of the t ıpe. *Id.* at Abstract, 1:38-41.

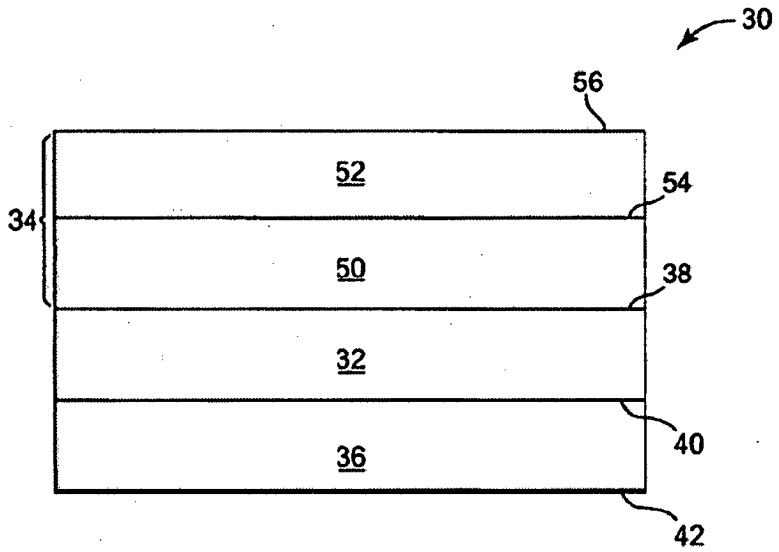
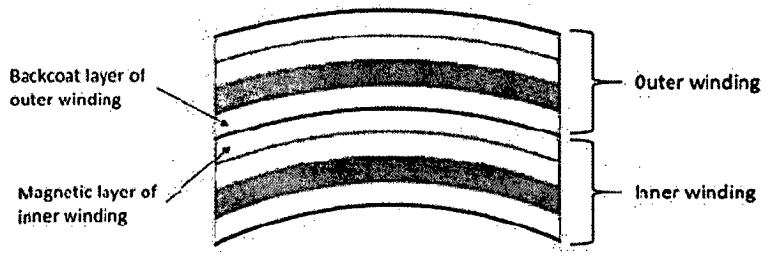


Fig. 2

ıccording to the '774 patent, the backside layers that existed at the time were formed by disbursi ıg "relatively large particles" on a relatively smooth s ırface in order to "decrease friction ınd increase durability." *Id.* at 2:1-5. These "relatively la ge particles" were a problem because, when the tape was wound around a spool, the peaks of the particles on the backside layer of one section of the tape would come into contact with the magnetic particles on the top magneti : layer of a different section of the tape, and coul l leave "imprints, pits, or emboss ıents" on t ıe magnetic layer. *Id.* at 2:5-24. Sony's e ‹pert, Dr. Bogy, provided a graphic, which is e bedded below, to illustrate how the backside la yer (yellow) of one section of tape comes into co ıtact with the magnetic layer (blue) of anoth ır section of tape when it is wound around a spo ›l. CX-0002C at Q/A 49 (describing CDX-0002C at 4). The "imprints, pits, or embo ssments" le ł by the backside layer on the ma ınetic layer are undesirable because they can "da ıage the rec ›rding characteristics of the magnetic recording tape." JX-0003 at 2:21-23.



The '774 patent endeavored to alleviate the embossments on the magnetic layer while improving the durability and frictional characteristics of the tape by specifying surface properties of the backside that were different than those of the backside layers that existed at the time. *Id.* at 2:23-28. The difference between the conventional backside surface and the backside surface described in the '774 patent can be seen by comparing Figures 1 and 3 of the patent, below. *Id.* at 5:18-21; *see id.* at 5:47-51 ("As illustrated in FIG. 3, the peaks 64 and the valleys 66 are exaggerated for illustrative purposes only. The peaks 64 are generally not as large as the peaks seen with a bimodal backside surfaces (see for example peak 20 of FIG. 1.").

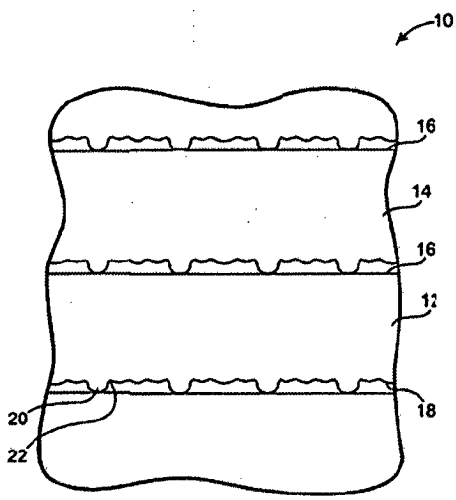


Fig. 1
(PRIOR ART)

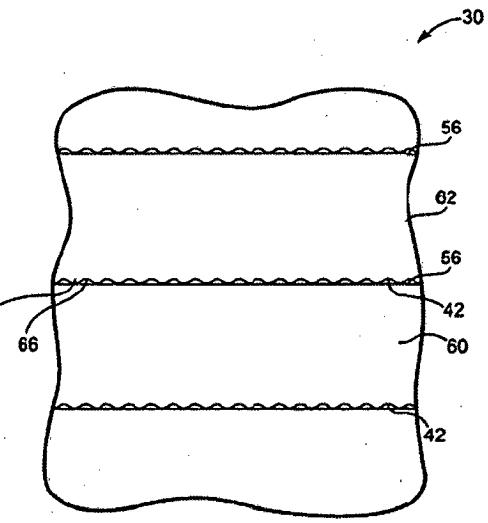


Fig. 3

Specifically, as shown in Figure 3, the backside of the invention has a large number of peaks with relatively small and uniform heights so that a "relatively large plurality of peaks 64 contact[s] the recording surface 56 of an adjacent winding 60 or 62." *Id.* at 5:52-55. These

peaks form a "relat vely random" surface, which the '774 patent describes as "approaching a Gaussia ı surface," instead of the "typical bimodal backside surfa :e" of the conventional tapes shown i ı Figure 1. *Id.* at 5:18-21. According to the '774 patent, the structure of the backside more un formly dist ibutes the load transferred from the adjacent re :ording surface such that "the number of pits or e ıbossments formed in recording surface 56 ar : decreased and/or the pits or emboss ıents forme l are less pronounced." *Id.* at 5:39- 5:25.

he '774 pa ent describes the physical characteristics of t ıe backside surface by using measure ments such as "skew, peak height mean, pea :-to-valley oughness, plateau ratio, and kurtosis." *Id.* at 8:10-9:13. According to the example measurem nts provided in the patent, a backside according to the invention exhibits decreased values for these surface measurements. *See id.* at 9:56-12:49. Specifically, Table 1 in the patent spe :ification, embedded below, "illustrates that Examples 1 and 2 exhibit decreased skew, peak mean height, peak-to-valley roughne ss, plateau atio, and kurtosis with respect to Comparative Examples C1-C4." *Id.* at 9:58-61.

TABLE 1

	Surface Measurement Parameters				
Example	Skew (R_{sk})	Peak Mean Height (R_{pm})	Peak-to-Valley Roughness (R_z)	Plateau Ratio (R_{pm}/R_z)	Kurtosis (R_{ku})
1	0.30	177 nm	291 nm	0.61	3.4
2	0.40	172 nm	276 nm	0.62	3.5
C1	0.53	234 nm	346 nm	0.68	4.3
C2	0.80	327 nm	449 nm	0.73	5.6
C3	0.90	369 nm	515 nm	0.72	5.2
C4	0.89	482 nm	675 nm	0.71	5.2

Id. at 10:1-14.

A. The Asserted '774 Patent Claims

Sony asserts claims 1, 5, 6, 7, 8, 10, 16, and 17 of the '774 patent in this investigation. Asserted claims 16 and 17 depend on unasserted independent claim 15, and therefore include the limitations of claim 15. 35 U.S.C. § 112, ¶ 4. Those claims provide:

1. A magnetic recording medium comprising:
a substrate defining a first surface and a second surface opposite the first surface;
a magnetic side formed over the first surface of the substrate and defining a recording surface; and
a backside coated on the second surface of the substrate and configured to decrease embossment of the recording surface, the backside defining a backside surface opposite the substrate, the backside surface having a skew less than about 0.5 and a kurtosis less than about 4.0.

* * * * *

5. The magnetic recording medium of claim 4, wherein the peak-to-valley roughness is less than about 300 nm.

* * * * *

6. The magnetic recording medium of claim 1, wherein the backside surface has a plateau ratio of less than or equal to about 0.65.

* * * * *

7. The magnetic recording medium of claim 1, wherein the kurtosis value is less than or equal to about 3.7.

* * * * *

8. The magnetic recording medium of claim 1, wherein the magnetic recording medium has a skirt signal-to-noise ratio of greater than about 0.2 relative dB along a substantial entirety of a total length of the magnetic recording medium.

* * * * *

10. The magnetic recording medium of claim 1, wherein the magnetic recording medium has a small error rate of less than about 0.5 errors/m along a substantial entirety of a total length of the magnetic recording medium.

* * * * *

15. A magnetic recording medium comprising:
a substrate defining a first surface and a second surface opposite the first surface;
a magnetic side coated on the first surface of the substrate and defining a recording surface; and
a backside coated on the second surface of the substrate and configured to decrease the embossment of the recording surface, wherein the backside defines a backside surface opposite the substrate, the backside surface having a peak height mean less than about 200 and a peak-to-valley roughness less than about 325 nm.

* * * * *

16. The magnetic recording medium of claim 15, wherein the backside surface has a skew less than about 0.5.

* * * * *

17. The magnetic recording medium of claim 15, wherein the peak-to-valley roughness is less than about 300 nm.

JX-0003 at 12:51-61, 13:4-14, 13:21-24, 14:1-16.

B. Level of Ordinary Skill in the Art

Sony, Fujifilm, and Staff largely agree on the level of a person of ordinary skill in the art as of the date of the '774 invention, with only slight differences in their proposals that do not affect the substantive analysis in this investigation. CIB at 14 (citing RX-0003C at Q/A 562; CX-0002C at Q/A 82); RIB at 12 (citing RX-0583C at Q/A 19-20; CX-0012C at Q/A 72-73); SIB at 27 (citing CX-0002C at Q/A 88; RX-0003C at Q/A 562). Given the evidence of record cited by the private parties and Staff, and that the parties' positions would not be changed or materially altered under either of the proposed definitions, I find that a person of ordinary skill in the art can be either of the following:

1. A person with "a bachelor's degree in materials science, physics, mechanical engineering, electrical engineering, or a closely related field, and at least five years of experience in the [field] of magnetic recording media production, or a master's degree or higher in materials science, physics, mechanical engineering, electrical engineering, or a closely related field, and at least three years of experience in the field of magnetic recording media production. A person with less education but more relevant practical experience may also meet this standard, as would a person with more education but less practical experience." CX-0002C at Q/A 82.

2. "[A] person with (a) a bachelor's degree in materials science, electrical engineering, mechanical engineering, chemistry, or a closely related field, and at least five years of experience—either in industry or academic research—relating to magnetic tape, or (b) a master's degree or higher in materials science, electrical engineering, mechanical engineering, chemistry, or a closely related field, and at least three years of experience—either in industry or academic research—relating to magnetic tape. A person with less education but more relevant practical experience, or more relevant education but less practical experience, may also meet this standard." RX-0003C at Q/A 562.

C. Claim Construction and Indefiniteness

There are six disputed claims relevant to the asserted claims of the '774 patent:

1. skew;
2. kurtosis;
3. peak height mean;
4. peak-to-valley roughness;
5. plateau ratio; and
6. small error rate.

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 9-11 (May 25, 2018); Order No. 39 (June 29, 2018) (granting motion).

Only the first term, skew, requires construction. The construction of the other terms do not affect any issue in this investigation, and therefore the terms need not be construed. *See* RIB at 12; SRB at 2; *Vivid Techs., Inc. v. American Sci. & Eng'g, Inc.*, 202 F.3d 795, 803 (Fed. Cir. 1999); *Vanderlande Indus. Nederland BV v. Int'l Trade Comm.*, 366 F.3d 1311, 1323 (Fed. Cir. 2004).

1. "skew"

The term "skew" appears in asserted independent claim 1 and dependent claim 16, and is incorporated by dependency into asserted claims 5, 6, 7, 8, 10, and 17. The parties propose the following constructions for this term:

Sony	Fujifilm	Staff
R_{sk} the third moment of a roughness distribution and measures the asymmetry of the surface profile about a mean plane of the surface being evaluated	Indefinite or alternatively, "Skew is the third moment of a roughness distribution"	R_{sk} the third moment of a roughness distribution and measures the asymmetry of the surface profile about a mean plane of the surface being evaluated, as measured using an optical interferometer, such as a Wyko® Optical Interferometer

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 9 (May 25, 2018).

The specification provides an explicit definition for skew:

> Skew (Rsk) is the third moment of a roughness distribution and measures the asymmetry of the surface profile about a mean plane of the surface being evaluated. Negative skew indicates a predominance of valleys, while positive skew indicates a predominance of peaks. Skew illustrates load carrying capacity, porosity and other characteristics. Negative skew generally is a criterion for a good bearing surface. With regard to magnetic recording medium 30, it is generally desirable to decrease positive skew by decreasing the predominance of high peaks, and, consequently, decreasing the number and/or size of pits or embossments. However, it is also generally desirable to maintain at least a low level of positive skew to decrease the excess frictional forces on the magnetic recording medium that can cause handling problems during use of the magnetic recording medium. In one embodiment, the magnetic recording medium 30 has a skew of less than about 0.5.

JX-0003 at 8:13-29 (emphasis added).

Nevertheless, Fujifilm argues that the term is indefinite because the inventor's definition improperly mixes two different concepts. RIB at 12-14. Fujifilm starts with the observation that the specification describes measuring the surface parameters using a "Wyko® Optical Profiler" machine. JX-0003 at 8:4-9. Fujifilm then refers to the documentation for that machine,

excerpted below, w ich states that skew can be measured as (i) "R_{sk}," measured "about the mean line," or (ii) "S_{sk}," easured "about the mean plane." J C-0116.

Term	Definition	Calculation	Use
		* * * * *	
R_{sk}	Skewness is a measure of the asymmetry of the profile about the mean line. Negative skew indicates a predominance of valleys, while positive skew is seen on surfaces with peaks.	$R_{sk} = \frac{1}{nR_q^3}\sum_{i=1}^{n}(Z_i - \bar{Z})^3$	R_{sk} illustrates load carrying capacity, porosity, and characteristics of non-conventional machining processes. Negative skew is a criterion for a good bearing surface.
		* * * * *	
S_{sk}	Skewness measures the asymmetry of the profile about the mean plane. Negative skew indicates a predominance of valleys, while positive skew is seen on surfaces with peaks.	$S_{sk} = \frac{1}{MS_q^3}\sum_{j=1}^{N}\sum_{i=1}^{M}\eta^3(x_i, y_j)$	S_{sk} can illustrate load carrying capacity, porosity, and characteristics of non-conventional machining processes. Surfaces that are smooth but are covered with particulates have positive skewness, while a surface with deep scratches/ pits will exhibit negative skewness. If S_{sk} exceeds ±1.5, you should not use average roughness alone to characterize the surface. Skewness is very sensitive to outliers in the surface data.

Fujifilm poi nts out that the definition of "skew" in the specification conflates the R_{sk} moniker with the S_{sk} requirement that the measureme nt be "about a mean plane." RIB at 13. Fujifilm's expert, Dr. Wang, opines that certain products, such as the Sony LTO-1 tapes, will only sat sfy the claimed values for skew when using the R_{sk} for mula but will fall outside the claimed values whe n using the S_{sk} formula. RX-0003C at Q/A 861. He concludes that a person of ordinary skill in the art would therefore not have been able to determine with reasonable certainty whether a roduct infringes the claim. *Id.*

Inventors m y provide a definition for a term in the specification "that differs from the meaning it would otherwise possess." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (*en banc*). Then an inventor does so, the law is clear that "the inventor's lexicography governs." *Id.* A person of ordinary skill in the art readi ng the term "skew" in the asserted claims in view of the specification would therefore understa nd that the erm is defined as "the third moment of a rough ness distribution and measures the asymmetry of the surface profile about a mean plane of the surface being evaluated," regardless of how such a person might have otherwise understoo d the term.

Accordingly, the '774 patent informs, with reasonable certainty, a person of ordinary skill in the art what "skew" requires such that the term is not indefinite. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014).

Staff's proposed construction adds a requirement that "skew" must be "measured using an optical interferometer, such as a Wyko® Optical Interferometer." Staff bases its proposal on the following paragraph in the specification. SIB at 28-29.

> In one embodiment, the backside surface 42 is analyzed to determine values for a plurality of surface measurement parameters. More particularly, the backside surface 42 is analyzed to determine the surface measurement parameters using a Wyko® Optical Profiler manufactured by Veeco Instruments, Inc. of Tucson, Ariz., or other suitable device. More specifically, the values used throughout this application were measured using a Wyko® Optical Interferometer. In one example, at least a portion of the surface measurement parameters analyzed includes skew, peak height mean, peak-to-valley roughness, plateau ratio, and kurtosis.

JX-0003 at 8:2-12 (emphasis added).

Staff recognizes that the inclusion or elimination of its additional proposed requirement "does not have any material effect on any issue in this investigation, because both Sony and Fujifilm used optical interferometers when measuring the surface parameters" and therefore Sony's proposed construction "would also be appropriate." SIB at 29 n.8; *see* CX-0002C at Q/A 219 (Sony's expert, Dr. Bogy, testifying that his "infringement [and] domestic industry opinions" do not change under Staff's proposed construction). I will therefore not consider whether Staff's additional proposed language is necessary because "only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Accordingly, the term "skew" is construed to mean "the third moment of a roughness distribution and measures the asymmetry of the surface profile about a mean plane of the surface being evaluated."

D. Infringement

Sony alleges that Fujifilm's LTO-4 and LTO-6 tape products infringe claims 1, 5, 6, 7, 8, 10, 16, and 17 of the '774 patent, and that Fujifilm's LTO-5 tape products infringe claim 17. CIB at 19. Sony relies on measurements of the physical characteristics of the products, Fujifilm's documents, admissions of Fujifilm witnesses, and its expert's opinions to support its allegations. *Id.* at 19-36 (citing evidence). Sony's expert, Dr. Bogy, provided his opinions on the evidence and set forth a limitation-by-limitation infringement analysis for the asserted claims. CX-0002C at Q/A 267-354 (citing to and explaining evidence).

Staff agrees that Fujifilm's LTO-4 and LTO-6 products infringe claims 1, 7, 8, and 10, but disagrees that the LTO-4 and LTO-6 products infringe claims 5, 6, 16, or 17, or that the LTO-5 products infringe claim 17. SIB at 36-51 (citing evidence). For the latter claims, Staff contends that Sony did not properly measure the "peak-to-valley roughness" or the "plateau ratio" of the accused products. SIB at 8-11, 42-49-51.

Fujifilm does not provide test results or measurements of its own products as counter-evidence that its products do not meet the limitations of the asserted claims. *See* Tr. at 667:25-668:11, 669:2-5 (Dr. Wang). Fujifilm instead attacks Sony's evidence to argue that Sony failed to meet its burden to prove infringement. Fujifilm specifically claims that Sony's measurements of the accused products are not sufficient to establish infringement, arguing that (1) Sony's expert analyzed the data from the wrong tapes, (2) Sony's expert did not properly determine whether the accused products decrease embossment, (3) Sony's expert incorrectly measured skew, (4) Sony's expert incorrectly measured skirt signal-to-noise ratio, (5) Sony's

expert incorrectly measured small error rate, and (6) Sony's expert incorrectly measured peak height. RIB at 15-25.

To prove that Fujifilm infringes the asserted claims of the '774 patent, Sony "must establish by a preponderance of the evidence that one or more claims of the patent read on the accused device literally or under the doctrine of equivalents." *Spansion, Inc. v. Int'l Trade Comm'n*, 629 F.3d 1331, 1349 (Fed. Cir. 2010) (internal quotations and citations omitted). The preponderance of the evidence standard "simply requires proving that infringement was more likely than not to have occurred." *Warner-Lambert Co. v. Teva Pharm. USA, Inc.*, 418 F.3d 1326, 1341 n.15 (Fed. Cir. 2005). This burden never shifts to Fujifilm—"the risk of decisional uncertainty stays on [Sony]." *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008).

Based on the evidence and arguments of the parties mentioned above and set forth in detail in the following subsections, I find that Sony has established by a preponderance of the evidence that Fujifilm's LTO-4 and LTO-6 tape products infringe claims 1, 5, 6, 7, 8, 10, 16, and 17 of the '774 patent, and that Fujifilm's LTO-5 tape products infringe claim 17.

1. Sony's expert more likely than not directed and relied on the measurements of the correct products.

Fujifilm accuses Dr. Bogy of providing unreliable infringement opinions that should be given no weight because he did not direct the testing as described in his witness statement, he did not know how the accused product samples were mounted, he did not know what condition the samples were in when they were tested, he did not know which testing settings were used by the testing facility, and he did not know which actual tapes were tested by the testing facility. RIB at 18. To establish Dr. Bogy's lack of direction and knowledge, Fujifilm points to screenshots taken from the facility's testing equipment that display timestamps of between September 10 and

20, 2017. *Id.* at 15-16 (citing CX-0258C; CX-0259C; CX-0260C; CX-0261C; CX-0262C; CX-0263C; CX-0264C; CX-0265C; CX-0266C; CX-0267C; CX-0268C). Fujifilm concludes that the tests shown by these screenshots "were taken without Dr. Bogy's involvement, and not on the Horizon-purchased tapes on which he relies" because Dr. Bogy testified that the tapes were shipped to the testing facility on September 27, 2017, which was after the date shown on the screenshots, and that he visited MAC in October to start the testing that he describes in his witness statement. *Id.* at 17-18.

Fujifilm has waived this argument by not raising it in its pre-hearing brief. *See* RPB at 19-31; *cf.* SRB at 6; CRB at 3 n.2. This investigation is governed by the ground rules of Chief Judge Bullock. Notice of Amended Ground Rules (Aug. 18, 2017) (EDIS Doc. ID 620450). Ground Rule 8.2 states that the "pre-trial brief shall set forth a party's contentions on each of the proposed issues" and "[a]ny contentions not set forth in detail as required herein shall be deemed abandoned or withdrawn, except for contentions which a party is not aware and could not be aware in the exercise of reasonable diligence at the time of filing the pre-trial brief." *Id.* at 13. Fujifilm offers no reason for its failure to raise this argument in its pre-hearing brief, and there is no indication that Fujifilm was not fully aware of the facts underlying its argument well before the deadline for filing its pre-hearing brief. *See* CRB at 3 n.2 (representing that Sony's infringement contentions incorporated the evidence upon which Fujifilm now relies); CRB at 5 n.4 (stating that Fujifilm chose not to depose MAC during discovery); SRB at 6. Fujifilm cannot now present this argument for the first time in its post-hearing brief.

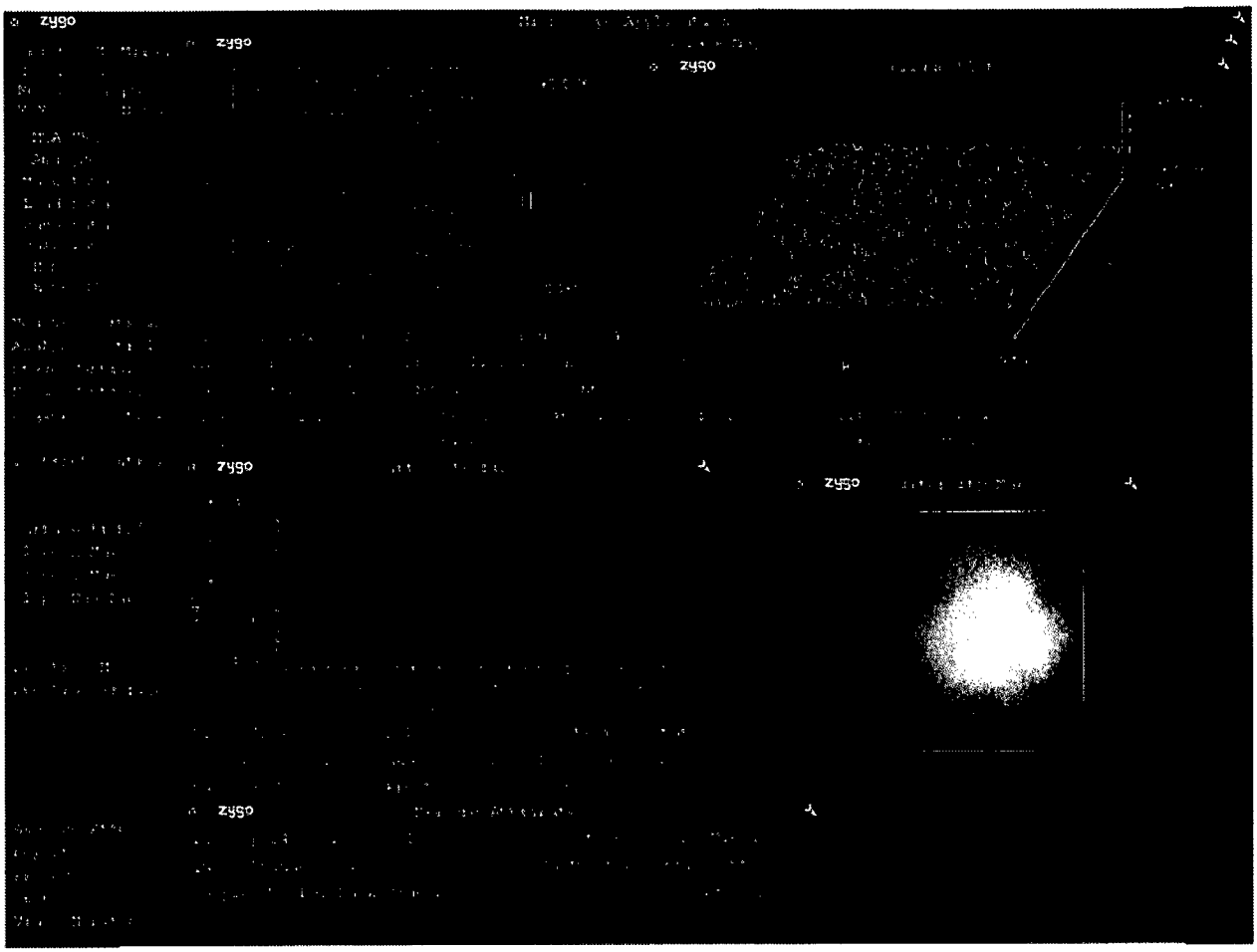
Even if Fujifilm did not waive this non-infringement argument, the evidence it relies on does not sufficiently disrepute the evidence that Dr. Bogy's opinions were based on measurements from the correct products.

Sony went about gathering its evidence of infringement by engaging an independent testing lab—Measurement Analysis Corporation ("MAC")—to measure certain properties of the accused products at the direction of its expert, Dr. Bogy. CIB at 20; CX-0002C at Q/A 94-96 (direct witness statement of Dr. Bogy). The undisputed evidence shows that "MAC is a well-known, respected, and trusted laboratory in the industry of magnetic recording media" and is used by Sony, Fujifilm, and others in the regular course of their businesses to test and measure the physical, surface, functional, and structural characteristics of their magnetic recording media. CX-0002C at Q/A 95. MAC also provides Compliance Verification (CV) testing for magnetic tape manufacturers to verify their compliance with the respective LTO specifications. *Id.*; Tr. at 219:20-220:10 (Dr. Bogy testifying that "[e]ach LTO member has to submit its tapes to MAC every year for compliance verification."); JX-0134 at 2. As a result of its regular testing for these companies, MAC has developed standard industry-accepted procedures for taking the types of measurements it performed for Dr. Bogy. CX-0002C at Q/A 96.

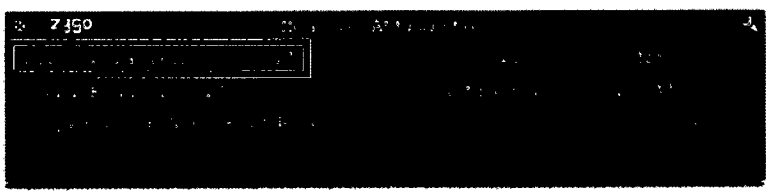
Dr. Bogy testified that he directed Sony's counsel to purchase accused products from a company called Horizon Systems and then ship the products to MAC. *Id.* at Q/A 98-100; *see* CX-0382C (packing list from Horizon Systems showing that certain tapes were shipped on September 27, 2017, to Sony's counsel). Dr. Bogy opined that the purchased products appeared to be authentic and materially identical to the same products purchased from other vendors. CX-0002C at Q/A 100-101. Dr. Bogy further testified that he visited MAC's laboratory in October, met with their technicians and engineers who were performing the tests, and inspected and approved MAC's equipment, testing procedures, preparation of the tapes for testing, test setup, the testing itself, and the recording of test data. *Id.* at Q/A 97.

According to the documents provided by MAC in this investigation, it received forty-nine magnetic tape media cartridges of nine different types of cartridges from Sony's counsel on October 5 and 12, 2017. JX-0134 at 2. It then performed various tests on the cartridges and produced a "Final Report" on October 25, 2017, that Dr. Bogy used to help form his infringement opinions. CX-0002C at Q/A 105; JX-0134. This report describes the testing setup and procedure, and summarizes the data and measurements MAC obtained from the testing. CX-0002C at Q/A 106; JX-0134. MAC also produced separate measurement data and reports for surface roughness, missing pulse, and skirt signal-to-noise ratio. *Id.* at Q/A 109-111 (citing surface roughness documents at CX-0074, CX-0075, CX-0077, CX-1700, CX-1703, CX-1706, CX-1712, CX-1715, and CX-1718; missing pulse documents at CX-1687C, CX-1690C, CX-1693C, JX-0134C, CX-1702C, CX-1705C, CX-1708C, JX-0134C, CX-1714C, CX-1717C, CX-1720C, and JX-0134C; and skirt signal-to-noise ratio documents at CX-1686C, CX-1721C, JX-0134C, CX-1692C, CX-1723C, JX-0134C, CX-1707C, CX-1723C, JX-0134C, CX-1713C, CX-1725C, and JX-0134C).

Some of the files generated by MAC consist of screenshots from the display of the testing equipment that show various measurement results and associated metadata. *See* CX-0258C. For example, the screenshot below is from the Zygo "Microscope Application" that shows certain test results for "Sample V-6 BOT Back Side_1." *Id.*



The bottom section of these screenshots, titled "Measure Attributes," supposedly displays the date and time the test was run. In its post-hearing brief, Fujifilm excerpts and annotates this section for nine of the screenshots, each of which shows a date before Sony's counsel purportedly purchased the tapes relied on by Dr. Bogy. RIB at 15-17. For example, the screenshot for "Sample V-6" above, a portion of which is excerpted below, contains a timestamp of "Thu Sep 14 16:13:07 2017" as annotated with a yellow box by Fujifilm's counsel. *Id.* at 15 (excerpting and annotating CX-0258C).



As an initial matter, Dr. Bogy did not testify that he relied on the screenshots to form his opinions. *See* CX-0002C at Q/A 109-111 (listing the exhibit numbers for the testing summaries and reports from MAC, not exhibit numbers for the screenshots). The only reference to the screenshots in his direct witness statement is to explain the difference between 3D and 2D topographic data. CX-0002C at Q/A 134-135 (citing CX-0073). He instead relies on the Final Report, which he calls the "summary report," produced by MAC as well as other evidence that shows the measurement results of the products. *See id.* at Q/A 105 The Final Report states that the information contained therein was generated from the products it received on October 5 and 12, 2017. JX-0134 at 2.

Further, after he was presented with Fujifilm's line of questioning for the first time at the hearing and asked to explain, Dr. Bogy testified that the date on the screenshot "is something that's called an attribute and is put in by the operator, not coming from the measurement software." Tr. at 272:15-273:21. He explained that the operator of the equipment is not necessarily concerned with setting the date because the screenshots are not intended to be used as evidence. *Id.* And, when describing his own experience with the testing equipment, Dr. Bogy testified that the date stamped on the results by the equipment does not correspond to the date the test was taken if he does not change the date shown on the system. *Id.*; *see id.* at 273:25-274:3 ("I have recently . . . noticed that the date on my Zygo screen was 2008.").

The documentary evidence corroborates Dr. Bogy's testimony. The screenshots excerpted and annotated by Fujifilm's counsel in its post-hearing brief are for samples V-6, VI-1, IV-1, III-1, I-1, V-1, IV-6, VI-6, and II-1. RIB at 15-17. The Final Report states that MAC received on October 5 and 12, 2017, the magnetic tape media cartridges labeled "I-1~4, II-1~4, III-1~4, IV-1~9, V-1~10, VI-1~10, VII-1~4, and VII-6~9," where the tilde supposedly represents

a range such that I-1~4 comprises four cartridges labeled I-1, I-2, I-3, and I-4. JX-0134 at 2. That the sample numbers are identical between the Final Report and the labels affixed to the cartridges received by MAC as described by Dr. Bogy is evidence that the screenshots were taken for the same tapes described in the report.

The raw data underlying the Final Report also shows a date for each test that comports with the timeline proffered by Dr. Bogy. For example, CX-0074C is a spreadsheet that contains the surface roughness data for the Fujifilm LTO-4 product. CX-0002C at Q/A 311. This spreadsheet has a date of "10/10/17" for sample "QE-G4-001." CX-0074C. As shown in CX-0021C, a single physical tape cartridge is labeled with both "IV-1" and "QE-G4-001." The raw data is therefore evidence that the tapes received by MAC on October 5 and 12, 2017, were tested by MAC after they were received.

Viewing the evidence as a whole establishes that the accused products purchased on September 27, 2017, and received by MAC on October 5 and 12, 2017, are more likely than not the same tapes whose measurements appear in the Final Report dated October 25, 2017, and in the underlying data relied on by Dr. Bogy. Fujifilm has therefore failed to establish that the opinions of Sony's expert based are unreliable on this basis.

2. Sony properly relied on evidence of the claimed physical characteristics to establish that the accused products more likely than not have "a backside surface . . . configured to decrease embossment of the recording surface."

Fujifilm argues that Sony failed to present evidence that the accused products have "a backside surface . . . configured to decrease embossment of the recording surface" as required by independent claims 1 and 15. RIB at 18. Fujifilm's argument, however, is not persuasive because Fujifilm misunderstands the evidence proffered by Sony.

Fujifilm's support for its argument comes solely from its cross-examination of Sony's expert, Dr. Bogy:

> Q. Okay. Now, Doctor, when it says decrease embossment, what does that mean? Decrease relative to what?
>
> A. Relative to what it would have been if they did not have the surface properties in the claims of the patent.
>
> Q. Okay. Now, you did not do any comparative testing showing embossment levels in the accused products as compared with some other products; correct?
>
> A. I did not.

Tr. at 205:9-22. From this testimony, Fujifilm concludes that Sony was required to conduct "relative" or "comparative" testing of the accused products. RIB at 18-19. Fujifilm does not suggest or propose how such testing would be done or which reference products the accused products could be tested against. Fujifilm only argues that Sony's failure to perform this comparative test requires a finding of non-infringement.

Dr. Bogy's testimony on this issue was more thorough than Fujifilm presents. His testimony that led up to the cross-examination questions was that a backside surface is configured to decrease embossment if it has the claimed surface characteristics. CX-0002C at Q/A 304-307. For support, he relies to the disclosure in the '774 patent that decreasing specific surface measurement values leads to "a decrease in the number of and/or level of pits or embossments formed in adjacent layers of tape . . . ." *Id.* at Q/A 305 (citing '774 patent at 9:62-66). He also relies on the deposition of an inventor of the '774 patent, who testified that "the surface structure of the backside coating" "allowed it to minimize embossment into the magnetic coating." *Id.* at Q/A 306 (citing JX-0026 at 36:9-37:1).

Dr. Bogy's complete testimony establishes that the accused products more likely than not have a backside configured to decrease embossment because they have surface characteristics

that a person of ordinary skill in the art would understand results in decreased embossment. This indirect evidence of infringement is sufficient. *See Spansion*, 629 F.3d at 1352 ("[The patent owner's] burden to show infringement by a preponderance of the evidence does not require physical validation of all indirect evidence.").

Fujifilm argues that this "configured to decrease embossment: limitation will be improperly read out of the claims if it can be met by simply showing that the accused products have the claimed surface characteristics. RIB at 19 (citing *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1171 (Fed. Cir. 1993)); RRB at 27-28 (same). Fujifilm's argument is misplaced because this limitation has not been construed (nor did Fujifilm propose that it should be construed) such that it will always be satisfied when the claimed surface characteristics are met. Instead, Sony established that the accused products satisfy this limitation under the specific facts in this investigation through indirect evidence. Fujifilm could have attacked Sony's evidence that a person of ordinary skill in the art would understand that certain surface characteristics would result in decreased embossment, or put forth evidence of its own that its products did not decrease embossment even though they had the claimed surface characteristics. Fujifilm chose not to present any such evidence or argument, so the evidence offered by Sony on this matter is unrebutted in the record, and convincing. *See* SIB at 28.

3. Sony's measurements and calculations of "skew" are sufficient to show that the accused products satisfy the limitation.

As set forth above, the limitation "skew" in asserted claims 1 and 16 is construed as "the third moment of a roughness distribution and measures the asymmetry of the surface profile about a mean plane of the surface being evaluated." Section IV.C.1, *supra*. Fujifilm argues that Sony failed to provide evidence of infringement under this construction because its expert "relies solely upon R_{sk} evaluated about a mean line, rather than a mean plane." RIB at 20. Fujifilm

clarifies that the issue "isn't whether the ***data*** is 2D or 3D; it's whether the ***calculations*** are about a mean line or plane." *Id.* (emphasis in original). Fujifilm contends that Sony's expert did not calculate the surface profile about a mean plane because he calculated R_{sk} separately for each row and then averaged the rows together. *Id.* (citing CX-0002C at Q/A 64 ("If the measurements are over an area, then the summation series would be data points in an area and not just a line.").)

Regardless of whether Fujifilm's interpretation of the construction of "skew" is correct, the evidence shows that Sony's measurements and calculations of skew were about a mean plane. Sony's expert, Dr. Bogy, testified that skew is calculated according to the following formula, where "n" is the number of surface height data points in the sample:

$$R_{sk} = \frac{1}{n(R_q)^3} \sum_{i=1}^{i=n} (Y_i)^3$$

CX-0002C at Q/A 62. Fujifilm's expert states, without explanation, that this formula "is a one-dimensional summation that measures asymmetry about a mean line." RX-0583C at Q/A 149. But Dr. Bogy explains that "this formula applies whether the measurements are over a single trace (line) or over multiple traces (lines) that form a scanned area," and that, for a scanned area (or plane), "the summation series would be data points in an area and not just a line." *Id.* at Q/A 64; *cf.* Tr. at 227:9-228:5 (Dr. Bogy explaining that a measurement along a line is in two dimensions because the line is one dimension and the height of every point on the line is the second dimension).

As for the measurements taken of the accused products, Dr. Bogy testified that each sample comprised measurements at 1000 points along a line, and 1000 lines within the sample window. Tr. at 227:16-229:22 ("1000 rows and 1000 columns" results in "a million data points in that measurement"); CX-0002C at Q/A 128-131 ("MAC took 3D measurements"); JX-0134 at 5. Dr. Bogy further testified that the software used by MAC calculated the surface parameters,

including skew, by taking into account all of the measured data points. CX-0002C at Q/A 128, 140-141; JX-0134 at 5 ("The 3D topographic data was used to calculate . . . R_{sk} (Skewness) . . . .").

The evidence therefore shows that Sony's measurements of the data used to calculate skew were "about a mean plane" and its calculations were also "about a mean plane." Accordingly, Fujifilm's argument that skew must be calculated "about a mean plane," even if correct, has no impact on Sony's infringement analysis.

4. Sony's measurements of the "peak-to-valley roughness" are sufficient to show that the accused products satisfy the limitation under any proposed construction.

Staff contends that Sony's measurements of the accused products are not sufficient to establish that the "peak-to-valley roughness is less than about 300 nm" limitation of asserted claims 5 and 17, and the "peak-to-valley roughness less than about 325 nm" limitation of independent claim 15 upon which asserted claim 16 depends, are met. SIB at 42. Staff similarly contends that Sony's measurements are not sufficient to establish that the "plateau ratio of less than or equal to about 0.65" limitation of asserted claim 6 is met because each proposed construction for "plateau ratio" is based in part on "peak-to-valley roughness." *Id.*; *see* Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 10 (May 25, 2018).

Specifically, Sony and Fujifilm propose that "peak-to-valley roughness (Rz) is an average maximum profile of the ten greatest peak-to-valley separations in the evaluation area," which is taken verbatim from the specification. Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 10-11 (May 25, 2018); JX-0003 at 8:38-40. Staff's proposed construction inserts an additional requirement that "the peak-to-valley separations are determined by measuring the distance from the top of a peak to the bottom of an adjacent

valley," which is also taken verbatim from the specification. Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 10-11 (May 25, 2018); JX-0003 at 8:40-42. Staff also proposes that the measurement be taken by "an optical interferometer, such as a Wyko® Optical Interferometer" for the same reasons as discussed above in relation to the construction of the "skew" limitation. Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 10-11 (May 25, 2018); SIB at 34; Section IV.C.1, *supra.*

Sony contends that the difference between their construction and Staff's construction "has no impact on infringement/invalidity because meeting Sony's/Fujifilm's proposed construction necessarily meets Staff's construction."[6] SIB at 18. Sony's expert, Dr. Bogy, explains "the numbers that we get from taking the highest peaks and lowest valleys without regard to the adjacent issue is greater than the number you would get if you restricted the valleys - - lowest valleys to be adjacent to the highest peaks." Tr. at 255:14-259:1. Fujifilm's expert, Dr. Wang, agrees that calculating "the 10 greatest peak-to-valley separations in the area regardless of whether those peaks and valleys [are] adjacent . . . is necessarily greater than or equal to a measure that is limited to adjacent peaks and valleys." RX-0003C at Q/A 703. In

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[6] Staff contends that Sony waived its ability to argue that its measurements necessarily produce greater values than measurements performed under Staff's construction. SRB at 8-9. Sony's pre-hearing brief on this issue states only that "Fujifilm's LTO-4 tapes have a backside surface having a peak-to-valley roughness of 135.39 nm, and Fujifilm's LTO-6 tapes have a backside surface having a peak-to-valley roughness of 119.84 nm." SPreB at 31. Sony's pre-hearing brief did not specifically call out the mathematical tautologies underlying its argument here, but Fujifilm's expert had done so in his direct witness statement that was exchanged prior to the pre-hearing brief deadline. RX-0003C at Q/A 703. Staff does not contend any party is prejudiced by Sony repeating Fujifilm's experts' opinions in its post-hearing brief, nor did Staff object to the relevant testimony of Sony's expert at the hearing. *See* Tr. at 255:14-259:1 (Dr. Bogy). I will therefore consider Sony's argument in this instance.

other words, because the claim limitations require the peak-to-valley roughness to be less than a certain value, an incorrect measurement that necessarily creates a higher number than a correct measurement will show infringement if the resultant measurement falls below the claimed value. Sony's measurements therefore constitute acceptable evidence of infringement if Staff's construction of the limitation is correct. *See Spansion*, 629 F.3d at 1352.

Assuming that Sony's measurements sufficiently establish that the accused products have a peak-to-valley roughness under the claimed limit, Staff contends that the measurements are insufficient to satisfy the "plateau ratio of less than or equal to about 0.65" limitation of claim 6. SRB at 9. Staff explains that the "peak-to-valley roughness" measurement is the denominator in the "plateau ratio" calculation, so a measurement that results in a necessarily greater peak-to-valley roughness value than required will also necessarily reduce the resulting plateau ratio. *Id.*; *see* JX-0003 at 8:55-57 (defining plateau ratio as "R_{pm} / R_z" where R_{pm} is the peak height mean and R_z is the peak-to-valley roughness value). For example, where the numerator is constant (*e.g.*, 1), the value of a ratio with a denominator of 2 (*i.e.*, ½) is greater than the value of a ratio with a larger denominator of 4 (*i.e.*, ¼).

Staff's argument as to "plateau ratio" appears correct according to basic mathematics, but Staff raised this argument for the first time in its reply post-hearing brief. Staff does not cite to the transcript or any other part of the record to show that Sony was put on notice of Staff's argument. Accordingly, Sony did not have the opportunity to present counterarguments or citations to the evidence that might explain how its measurements might still establish that the accused products more likely than not infringe claim 6 in light of Staff's assertions. For example, as Staff recognizes, it is "unclear how much larger the actual plateau ratios would be" under a measurement done according to Staff's proposed construction. SRB at 9. Further, it is

unclear if or how Sony's measurement of peak-to-valley roughness also impacts the measurement of peak height mean, which is the numerator of the plateau ratio, such that any increase in the value of the peak-to-valley roughness measurement would be negated by a corresponding increase in the value of the peak height mean measurement. Sony might have put evidence in the record that the plateau ratios calculated pursuant to Staff's proposed construction of "peak-to-valley roughness" would still fall below the limit in claim 6, but Sony was not given the opportunity to cite to any such evidence in response. And Fujifilm did not present any argument or evidence that its products do not satisfy the "plateau ratio" limitation under Staff's proposed construction. RIB at 15-25; RRB at 24-29. Because Sony was not able to respond to Staff's argument raised for the first time in its reply brief, I will not consider it. *See* G.R. 11.3 ("The post-trial reply brief shall discuss the issues and evidence discussed in the initial post-trial briefs of each opposing party . . . .").

In sum, Sony's measurements constitute proper direct evidence under Sony's and Fujifilm's proposed construction of "peak-to-valley roughness" and proper indirect evidence under Staff's proposed construction. Accordingly, a construction of "peak-to-valley roughness" to resolve the differences between the parties' constructions will not resolve a controversy between the parties in this investigation. *See Vivid Techs.*, 200 F.3d at 803.

5. Sony's expert properly relied on the specifications associated with the accused products to measure "skirt signal-to-noise ratio" and "small error rate."

Fujifilm argues that Complainant's expert, Dr. Bogy, "applied a flawed methodology for measuring" the skirt signal-to-noise ratio ("skSNR") of asserted claim 8 and the small error rate of asserted claim 10. RIB at 20-24. Claim 8 requires that "the magnetic recording medium has a **skirt signal-to-noise ratio** of greater than about 0.2 relative dB along a substantial entirety of a total length of the magnetic recording medium," and claim 10 requires "the magnetic recording

medium has a **small error rate** of less than about 0.5 errors/m along a substantial entirety of a total length of the magnetic recording medium." JX-0003 at 13:11-14 (emphasis added), 13:21-14 (same).

The fundamental disagreement between the parties is whether these two measurements must be made according to the ECMA-319 specification, also known as the LTO-1 specification, or whether the measurements can be guided by the specifications of the individual products, as Sony did in this investigation. Specifically, Sony tested Fujifilm's LTO-4 products using an LTO-4 drive head and reference tape as set forth in the LTO-4 specification, and it tested Fujifilm's LTO-6 products using an LTO-6 drive head and reference tape as set forth in the LTO-6 specification. CX-0002 at Q/A 166-174, 194-199 (Dr. Bogy's direct witness statement). Fujifilm argues that Sony should have tested Fujifilm's LTO-4 and LTO-6 products using an LTO-1 drive head and reference tape pursuant to the ECMA-319 specification as Fujifilm's expert, Dr. Wang, did in this investigation for non-LTO-1 prior art tapes. RIB at 21; SIB at 47.

The claims do not specify a particular method of measuring the properties at issue. Nor does the specification of the '774 patent, which teaches only that "[o]ne example method of measuring the skirt signal to-noise ratio is described in ECMA International Standard 3.19." JX-0003 at 12:27-29. As Staff and Sony recognize, there is no legal basis for importing this "one example" from the specification into the claims. SIB at 27 (citing *Varco, L.P. v. Pason Sys. USA Corp.*, 436 F.3d 1368, 1373 (Fed. Cir. 2006); *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1374 (Fed. Cir. 2005)); CIB at 32-33 (citing *Phillips*, 415 F.3d at 1320). Fujifilm's counterargument that there is no basis for reading the commercial specifications for the accused products into the claims is also correct. RIB at 23.

Indeed, there is no basis for reading any specific measurement methodology into the claims, and thus no reason to construe these limitations to impose such a requirement. A person of ordinary skill in the art would recognize that the skSNR and small error rate values required by the claims would be measured in a way appropriate for the specific magnetic tapes. This is because different types of magnetic tapes can have a different properties, "including the number of data tracks, the locations of the data tracks, the width of gap between data tracks, the width of a data track, and the length of each bit recorded on a data track." CX-0012C at Q/A 194 (rebuttal witness statement of Dr. Bogy); CX-0002C at Q/A 168 (direct witness statement of Dr. Bogy); *see* RX-0583C at Q/A 177 (Fujifilm's expert, Dr. Wang, testifying that "ECMA-319 and the LTO specifications require a reference tape that is selected as the standard reference for the product generation for various measurements including skirt SNR"). In particular, the measurement of both skSNR and small error rate requires writing and measuring data from the data tracks, and using a drive head that does not match up with the specific tape parameters will "result in improper and inaccurate measurements." CX-0012C at Q/A 197; Tr. 225:4-17.

Whether skSNR and small error rate were measured in a way appropriate for the specific tapes is a factual question of infringement, not a legal question of claim construction. *Cf. ADC Telecommunications, Inc. v. Switchcraft, Inc.*, 281 Fed. Appx. 989, 992-993 (Fed. Cir. 2008) (nonprecedential) (holding that, because the claims did not require any particular testing method for the disputed limitations and the specification lacked clear guidance of a particular testing method, "[t]he parties' dispute over the proper testing method is therefore a factual question that the district court properly submitted to the jury").

Fujifilm argues that Sony's measurements of the LTO-4 and LTO-6 products that Sony took pursuant to the respective LTO-4 and LTO-6 specifications are not sufficient to show infringement for three reasons.[7]

First, Fujifilm points out that the LTO-4 and LTO-6 specifications are confidential such that a person of ordinary skill in the art would not necessarily have access to the specifications. RIB at 21-22; Tr. at 262:5-266:14 (Dr. Bogy testifying that a person needs to be a member of the LTO consortium to access the LTO specifications). This matters, according to Fujifilm, because using confidential specifications to determine infringement "deprives the '774 [p]atent of its public notice function." RIB at 22 (presenting this assertion as attorney argument without any citations, and not explaining what "public notice function" it is referring to, or what such "public notice function" requires). Fujifilm's angst is misdirected. A company who manufactures an LTO-compliant tape according to the relevant LTO specification would necessarily have access to the LTO specification to properly measure the skSNR and small error rate of the tape in order to determine if the tape falls within the claimed limitations. Measuring the physical properties of LTO-4 and LTO-6 tapes according to their respective specifications is therefore proper.

Second, Fujifilm points out that the LTO-4 and LTO-6 specifications did not yet exist at the time of the invention of the '774 patent. RIB at 24. Fujifilm argues that a person of ordinary skill in the art at the time of the invention could not have performed the measurements in the same way as Sony's expert, which makes Sony's measurements improper. *Id.* But, as discussed above, such a person would have recognized that a tape should be measured in a way appropriate

[7] Fujifilm also contends that Dr. Bogy did not follow the IBM 3592 specification when measuring the IBM 3592 tapes. RIB at 22-23. But the IBM 3592 tapes are not accused of infringement, and Fujifilm does not explain how its contention, even if true, would result in non-infringement of the accused products.

for the specific magnetic recording medium. *See* Tr. 692:8-693:16 (Dr. Wang testifying that skSNR "is a relative measurement made in comparison to a reference tape," and that a person of ordinary skill in the art "would have known at the time of the invention that a standard reference tape is tied to a particular specification"). A person of ordinary skill in the art would have understood that the asserted claims are not limited to products that exist only before or at the time of the invention, and that after-arising products would have to be measured in ways appropriate for those products. *See Innogenetics, N.V. v. Abbott Laboratories*, 512 F.3d 1363, 1371-72 (Fed. Cir. 2008) ("Our case law allows for after-arising technology to be captured within the literal scope of valid claims that are drafted broadly enough."); *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 878-80 (Fed. Cir. 2004) (finding that the claim limitation "regularly received television signal" was broad enough to encompass digital signals even though no televisions that could receive digital signals existed as of the filing date).

Third, Fujifilm argues that Sony's approach improperly requires that an accused product be commercialized with an associated specification. RIB at 23. Fujifilm points out that the embodiments in the '774 patent were not commercial products, and that the claims are directed to the magnetic tape rather than to a cartridge that embodies a commercial product. But neither Sony nor Staff assert that the claims can only cover commercial products or that only commercial specifications can be used to determine whether the physical properties of magnetic tape satisfies the claim limitations. The claims only require that the magnetic tapes at issue have certain properties. Whether or not the properties were properly measured is a factual infringement issue. The magnetic tapes at issue here happen to be commercial products and an acceptable standard for measuring their physical properties happens to be set forth in a corresponding commercial specification. To answer the hypothetical posed to Dr. Bogy at the

hearing, "a tape engineer working at a new start-up company in Silicon Valley [would] be able to determine whether or not they are infringing claims 8 and 10" by measuring the physical properties of its tape according to an appropriate method, which might be specific to that specific tape. *See* Tr. 180:10-15.

In sum, claims 8 and 10 set forth values for skSNR and small error rate that fall within the scope of the invention. The claims do not specify a specific methodology for measuring those values, nor does the specification require a single methodology be used for every type of tape. A person of ordinary skill in the art at the time of the invention would understand that the values would be measured in a way appropriate for the specific tape at issue, as different types of tapes with different properties may require different measurement methodologies. Sony established that the properties of the accused LTO-4 and LTO-6 products can be appropriately measured by following the respective LTO-4 and LTO-6 specifications. Sony's expert therefore properly relied on the measurements of the skSNR and small error rate of the accused products performed according to those specifications.

6. Sony's measurements of the "peak height mean" are sufficient to show that the accused products satisfy the limitation under any proposed construction.

Fujifilm argues that the "measurement methodology" of Complainant's expert, Dr. Bogy, "does not satisfy any party's proposed constructions . . . [that] require 'peak height mean' to include the mean height of all peaks." RIB at 5 (emphasis added). Asserted claims 16 and 17 depend on claim 15, which requires "a peak height mean less than about 200 [nm]." JX-0003 at 14:1-16.

Fujifilm contends that Dr. Bogy "used only . . . 'the single highest peak found in each sampling area'" and discarded the remaining peaks, instead of using all peaks. RIB at 25 (quoting CX-0002C at Q/A 68). But that is not what Dr. Bogy did. The support for Fujifilm's

contention comes from the portion of Dr. Bogy's direct witness statement where he discusses general technical concepts. For peak height mean, Dr. Bogy explained that, "[i]n mathematical terms, Peak Height Mean for a measured sample area is determined by dividing the evaluated surface into multiple sampling areas and calculating the mean average of the single highest peak found in each sampling area." CX-0002C at Q/A 68.

Dr. Bogy's statement of peak height mean "in mathematical terms" is not relevant for two reasons. *See* CIB at 30.[8] First, the '774 patent defines peak height mean as "the mean height of peaks 42 extending above a standard plane of backside surface 42 over the length of the magnetic recording medium," which all parties regurgitate in their proposed constructions for the term. JX-0003 at 8:30-33; Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 9-10 (May 25, 2018). Second, the measurements relied on by Dr. Bogy comply with this definition. As he testified, "MAC obtained the peak height mean based on the full set of the 1000x1000 data set by deriving the mean height of the peaks extending above the standard plane in the full data set." CX-0002C at Q/A 141. Staff also points out that the device MAC used to obtain the peak height mean value calculates "the arithmetical average height of all peaks," which complies with the proposed constructions. SIB at 50 (quoting Tr. at 712:9-713:16 (Dr. Wang testifying about the manual for the software used in connection with the Zygo machine) and citing CX-0275 at 487 (the manual for the software used in connection with the Zygo machine)).

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[8] Sony's arguments regarding "peak height mean" are included in the "Direct Infringement of Claim 6" section of its "Corrected Initial Post-Hearing Brief," even though the "peak height mean" limitation only appears in asserted claims 16 and 17 through their dependency on claim 15. CIB at 30.

Sony's measurements therefore constitute proper evidence of "peak height mean" as required by claims 16 and 17.

E. Domestic Industry – Technical Prong

Sony alleges that (1) its LTO-4 and LTO-5 products practice claims 1, 5, 6, 7, 10, 16, and 17 of the '774 patent; (2) its LTO-6 products practice claims 1, 5, 6, 7, 8, 10, 16, and 17; (3) the IBM 3592 Gen 2 (JB, JX) products practice claims 1, 5, 6, 7, 8, 10, 16, and 17; (4) the IBM Gen 3 (JC, JY, JK) products practice claims 16 and 17; and (5) the IBM 3592 Gen 4 (JD, JZ, JL) products practice claims 1, 5, 6, 7, 10, 16, and 17. CIB at 37. Sony's evidence that these products practice the claims is from "the same testing protocols that it used to evaluate infringement" of the accused products. CX-0002 at Q/A 355-519 (Sony's expert, Dr. Bogy, citing to and explaining documentary evidence to provide a limitation-by-limitation analysis of how the domestic industry products practice the asserted claims); CIB at 37-40 (citing evidence); SIB at 51-52 (same).

For the same reasons as set forth in its infringement analysis, Staff agrees that the domestic industry products satisfy the limitations of the claims except for the "peak-to-valley roughness" and "plateau ratio" limitations of claims 5, 6, 16, and 17. SIB at 52. Staff concludes that the technical prong is therefore satisfied because "Sony's LTO-4 and LTO-5 tape products and IBM's 3592 Generation 4 products practice claims 1, 7, and 10 of the '774 patent, and . . . Sony's LTO-6 tape products and IBM's Generation 2 tape products practice claims 1, 7, 8 and 10 of the '774 patent." *Id.*

Fujifilm's initial post-hearing brief states only that "Sony has failed to show the DI Products practice these claims for the same reasons" as it argued for infringement, and its reply post-hearing brief states only that "Sony's DI arguments fail for the same reasons as its infringement analysis." RIB at 26; RRB at 30.

As discussed above, I rejected Fujifilm's and Staff's arguments that the evidence relied on by Sony is insufficient to establish infringement. Accordingly, based on the evidence and the arguments of the parties, I find that Sony established by a preponderance of the evidence that (1) its LTO-4 and LTO-5 products practice claims 1, 5, 6, 7, 10, 16, and 17 of the '774 patent; (2) its LTO-6 products practice claims 1, 5, 6, 7, 8, 10, 16, and 17; (3) the IBM 3592 Gen 2 (JB, JX) products practice claims 1, 5, 6, 7, 8, 10, 16, and 17; (4) the IBM Gen 3 (JC, JY, JK) products practice claims 16 and 17; and (5) the IBM 3592 Gen 4 (JD, JZ, JL) products practice claims 1, 5, 6, 7, 10, 16, and 17. The technical prong of the domestic industry is therefore satisfied. *See* 19 U.S.C. § 1337(a)(2) and (3); *Certain Microsphere Adhesives, Process for Making Same and Prods. Containing Same, Including Self-Stick Repositionable Notes,* Inv. No. 337-TA-366, Comm'n Op., 1996 WL 1056095, at *8 (U.S.I.T.C. Jan. 16, 1996).

F. Invalidity and Unpatentability

Fujifilm contends that the IBM 3592 Generation 1 tapes render invalid asserted claims 1, 5, 6, 7, 8, 10, 16, and 17 of the '774 patent and the Sony AIT-3[9] tapes render invalid asserted claims 1, 5, 6, 7, 16, and 17 under 35 U.S.C. § 102. RIB at 26-36. Fujifilm also contends that both tapes render claims 8 and 10 obvious under 35 U.S.C. § 103 in view of the knowledge and experience of a person of ordinary skill in the art. *Id.* at 36-37. Next, Fujifilm contends that the asserted claims are rendered obvious over the Sasaki patent in view of the knowledge and experience of a person of ordinary skill in the art. *Id.* at 37-40. Fujifilm further contends that the

[9] Sony states that Fujifilm's invalidity contentions are not directed to all AIT-3 tapes, but only the SDX3-100C product. CIB at 40 n.9. Fujifilm explains that "SDX3-100C refers to a model of AIT-3 compatible tape cassette." RIB at 22 n.3. Staff clarifies that Sony's SDX3-100C tapes are compatible with Sony's AIT-3 format. SIB at 60. No party provides a reason why the distinction is relevant. I therefore refer to the prior art product as "AIT-3" without determining whether the moniker applies to all AIT-3 tapes or only to the SDX3-100C product.

asserted claims are invalid under 35 U.S.C. § 112 for failing to satisfy the written description and enablement requirements,[10] and that the claims are unpatentable under 35 U.S.C. § 101 for claiming "the abstract idea of a tape with a normal backside distribution." *Id.* at 40-47.

Sony disagrees with Fujifilm's contentions of invalidity. CIB at 40-62. Staff agrees with Sony that Fujifilm has not met its burden to establish that the claims are invalid under any of its theories. SIB at 53-70.

A patent is presumed valid. 35 U.S.C. § 282; *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 100 (2011). A respondent who has raised patent invalidity as an affirmative defense, whether through section 102, 103, or 112, has the burden of overcoming this presumption by clear and convincing evidence. *See* Microsoft, 564 U.S. at 101-114. "Although not susceptible to precise definition, clear and convincing evidence has been described as evidence which produces in the mind of the trier of fact an abiding conviction that the truth of [the] factual contentions are highly probable." *Buildex Inc. v. Kason Indus., Inc.*, 849 F.2d 1461, 1463 (Fed. Cir. 1988) (internal quotations and citations omitted).

The respondent's ultimate burden to prove invalidity never shifts to the complainant to prove validity, but once the respondent satisfies its burden of persuasion, the complainant has "the burden of going forward with the evidence" that the prior art does not anticipate the claim, that the written description supports the claim, or whatever is necessary to respond to the respondent's theory of invalidity. *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327

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[10] Fujifilm also contends that the claims are invalid as indefinite under 35 U.S.C. § 112 because a person of ordinary skill in the art would not understand, with reasonably certainty, the meaning of the term "skew." RIB at 12-14, 45. This contention is addressed in the claim construction section above, as the parties briefed this issue in the claim construction portions of their post-hearing briefs. Section IV.C.1, *supra*.

(Fed. Cir. 2008). Regardless of the evidence put forth by both sides, "the risk of decisional uncertainty stays on the [respondent]" such that "if the fact trier of the issue is left uncertain, the [respondent] loses." *Id.*

Based on the evidence and arguments of the parties set forth in detail in the following subsections, I find that Fujifilm did not present clear and convincing evidence that (1) the IBM 3592 Generation 1 and Sony AIT-3 tapes anticipate or render obvious the asserted claims, (2) Sasaki renders obvious the asserted claims, (3) the asserted claims are not enabled, and (4) the asserted claims are not adequately described. I also find that the asserted claims are directed to patentable subject matter as required by 35 U.S.C. § 101.

1. Fujifilm did not prove by clear and convincing evidence that the IBM 3592 Generation 1 and Sony AIT-3 tapes anticipate or render obvious the asserted claims.

Fujifilm contends that two commercial products that existed at the time of the '774 invention—IBM's 3592 Generation 1 tapes and Sony's AIT-3 tapes—anticipate asserted claims 1, 5, 6, 7, 16, and 17, that IBM's 3592 Generation 1 tapes anticipate asserted claims 8 and 10, and that both products render obvious asserted claims 8 and 10 when combined with the knowledge and experience of a person of ordinary skill in the art. RIB at 26-37 (citing evidence).

Sony and Staff do not contest that the products qualify as prior art under the relevant provisions of 35 U.S.C. § 102. Sony and Staff also do not contend that the products were considered by the Patent Office during the prosecution of the '774 patent. *See* JX-0003 at cover page.

Regarding the IBM 3592 Generation 1 tapes, the evidence shows that the tapes were sold, offered for sale, and used in the United States by September 2003, which was before the asserted invention date of the '774 patent. RIB at 26-27 (citing RX-0003C at Q/A 575-588 (explaining

JX-0028C; RX-0023; RX-0109; RX-0110; RX-0301; RX-0304; RX-0312; RX-0316)). Fujifilm retained two experts, Dr. Wang and Dr. Raeymaekers, to measure surface roughness values for eight different IBM 3592 Generation 1 tapes, although Fujifilm only offered up Dr. Wang as a witness at the hearing. *See* RX-0003C (direct witness statement of Dr. Wang); CX-1544C (expert report of Dr. Raeymaekers). Both experts independently directed Evans Analytical Group Laboratories ("EAG") to measure surface roughness parameters (*e.g.*, skew, kurtosis, peak-to-valley roughness, plateau range, and peak height means) of the tapes using the Contour GT-X8 optical profilometer manufactured by Bruker Corporations. RX-0003C at Q/A 656, 659; CX-1544C ¶ 13. Dr. Wang also relies on skSNR and small error rate measurements of the IBM 3592 Generation 1 tapes conducted by a technician at the Fujifilm Recording Media Research Laboratories in Odawara, Japan. RX-0003C at Q/A 730, 738. Dr. Wang then walked through the evidence to provide a limitation-by-limitation anticipation and obviousness analysis for the asserted claims. RX-0003C at Q/A 575-591, 617-640, 656-665, 671-760, 783-793 (citing to and explaining documentary evidence).

As to the Sony AIT-3 tapes, the evidence shows that the tapes were made, used, and offered for sale in the United States in 2000 and 2001, which was before the filing date of the '774 patent. RIB at 33 (citing RX-0003C at Q/A 603-615 (explaining JX-0012C, JX-0013C, RX-0305, RX-0308, RX-0309, RX-0310, RX-0311, RX-0403C, RX-0407C, RX-0411C, RX-0412C)). For these tapes, Fujifilm retained only Dr. Raeymaekers to measure the surface roughness values, and Dr. Wang relied on his review of Dr. Raeymaekers' expert report to form his opinions on the methodology and measurements underlying his conclusions. RIB at 33; RX-0003C at Q/A 643-649; Tr. at 696:7-10. The AIT-3 tapes were not tested for skSNR or small error rate values as required by claims 8 and 10 of the '774 patent. Dr. Raeymaekers directed the

same company (EAG) to measure the same values using the same equipment as was used for the IBM 3592 Generation 1 tapes, although there were "minor differences in mounting and measurement parameters" that no party contends are relevant. RIB at 33 (citing RX-0003C at Q/A 641, 660, 666-668). Dr. Wang then walked through the evidence to provide a limitation-by-limitation anticipation and obviousness analysis for the relevant claims. RX-0003C at Q/A 592-615, 641-649, 666-742, 761-783, 794-797 (citing to and explaining documentary evidence).

Sony contends that Fujifilm's acquisition, preparation, mounting, measurements, and calculations of measured values of the prior art tapes are all unreliable. For the reasons discussed below, the evidence shows that Fujifilm reliably acquired and prepared samples of the tapes, but did not reliably mount, measure, or calculate some of the measured values of the samples. Fujifilm has therefore failed to prove by clear and convincing evidence that the prior art tapes anticipate or render obvious the asserted claims of the '774 patent.

a) The evidence does not indicate irregularity in the sample preparation of IBM 3592 Generation 1 tapes by Fujifilm's experts.

Both of Fujifilm's experts, Dr. Wang and Dr. Raeymaekers, directed EAG to measure the same physical IBM 3592 Generation 1 tapes. Sony and Staff contend that their reports of the measurements are not reliable because their descriptions of the tape preparations are inconsistent. Sony and Staff, however, selectively cite to portions of Dr. Wang's testimony and ignore other portions where Dr. Wang explains how his report is consistent with Dr. Raeymaekers report.

Sony and Staff argue that the reliability of the measurements directed by Dr. Wang and Dr. Raeymaekers is called into question because their descriptions of the preparation of the tape samples for testing cannot coexist. CIB at 43; SIB at 53-54. Each expert describes opening the same tape cartridge, removing the tape reel from the cartridge, and cutting about 20 meters from the front of the reel. Specifically, Dr. Wang testified that he instructed EAG to "open the

cartridge by removing the screws," "remov[e] the reel of magnetic tape" and cut away "at least about 20 meters of the tape . . . to ensure that we were past the leader portion." RX-0003C at Q/A 657. Dr. Raeymaekers similarly reported that a "testing sample was prepared . . . by unscrewing the screws holding both halves of the cartridge together, and pulling the cartridge apart," removing the tape reel from the cartridge, and removing "[t]he first 20 meters or more of the tape on the reel . . . starting from the leader pin" to "ensur[e] that a portion of the magnetic recording tape (not the leader tape) was sampled." CX-1762 ¶¶ 15-17. According to Sony and Staff, only one of the experts, not both, could have removed the first 20 meters of the tape from the tape reel, starting from the leader pin, as there is only one first 20 meters of tape starting from the leader pin. CIB at 43; SIB at 53-54; CX-0012C at Q/A 153-154.

Fujifilm points to other testimony from Dr. Wang that seems to explain this inconsistency. RRB at 10. Dr. Wang testified that the technician at EAG opened the cartridge, cut the samples, mounted some of the samples, and performed some measurements while Dr. Wang was physically present. Tr. at 717:12-713:4. He elaborated that the technician "collected two sample segments spaced about a few meters apart . . . to create one test sample for my surface roughness measurements, and a second sample for Dr. Raeymaekers' measurements" after "first remov[ing] the leader tape." RX-0003C at Q/A 659. This explanation makes sense. Dr. Wang's report that EAG prepared both samples at the same time is consistent with Dr. Raeymaekers' report. CX-1762 ¶ 16 ("A testing sample was prepared as follows."). The description by both experts that the first 20 meters of the tape was removed credibly refers to the same action by EAG in preparing samples for both experts, not two separate conflicting events.

Perhaps anticipating Fujifilm's response, Sony and Staff both contend that taking two samples from the same tape at the same time exposes the second sample to the environment

while it is waiting to be prepared and tested. CIB at 43; SIB at 54. Sony and Staff rely on the testimony of Sony's expert that taking two samples could be problematic because it could "alter[] the properties of the surfaces of the tapes and impact the results of [the] measurements." CX-0012C at Q/A 161. However, Dr. Wang testified that "EAG measured the surface roughness of the mounted samples shortly after they were cut and mounted" or, if the "samples were measured within a day or two," EAG "placed the slides in plastic clean room containers, which kept the tape surface from contact with any other surface or air currents, and stored them in laboratory conditions." RX-0003C at Q/A 661. He concluded that storing the tape in this manner "would not impact its surface roughness measurements." *Id.* The testimony of Sony's expert that storing a sample before measuring it "could" alter its properties does not directly address or rebut Dr. Wang's testimony of what actually occurred.

The preparation of the samples tested by EAG for Dr. Wang and Dr. Raeymaekers therefore appears to be reliable.

b) The evidence indicates that the IBM 3592 Generation 1 and Sony AIT-3 tapes tested by Fujifilm have the same characteristics as the same tapes that existed as of the critical prior art dates.

Fujifilm asserts that the IBM 3592 Generation 1 and Sony AIT-3 tapes qualify as prior art to the '774 patent because they were sold or offered for sale more than one year before the invention of the subject matter claimed by the '774 patent. *See* RIB at 26-27. Sony does not challenge that, as a general matter, IBM 3592 Generation 1 and Sony AIT-3 tapes were sold or offered for sale during the relevant time, but Sony argues that Fujifilm failed to establish that the tapes that were tested for this investigation "are representative of products as they were on-sale or in use in the United States" 13 to 15 years prior. CIB at 47.

Fujifilm provided evidence to establish that some of the IBM 3592 Generation 1 tapes it tested were acquired during the relevant timeframe and stored pursuant to Fujifilm's standard

archival policies procedures. RX-0002C at Q/A 27-57 (witness statement of Hiroaki Takano). For the Sony AIT-3 tapes, Fujifilm showed that its expert opened new tapes with markings that indicated manufacturing dates before May 2003. RX-0003C at Q/A 642-649. Fujifilm's expert also testified that the tapes appeared new with no signs of damage due to exposure to extreme conditions that might damage the tape. *Id.* at 618-649.

Sony complains that Fujifilm did not do enough to show that the surface roughness and signal measurements of the prior art tapes were not affected by temperature or humidity variations during the period of time the tapes were in storage. CIB at 47-48. For example, Sony states that Fujifilm's expert did not perform an independent investigation of the temperature and humidity variations over this period of time for the facility where the tapes were stored. *Id.* at 48 (citing Tr. at 673:19-679:10). Sony's expert explains that such an investigation is necessary because the characteristics of tapes "change over time depending on the environment in which they are maintained and what the tapes are subject to, such as humidity, temperature, dusts, impurities, gas, and physical transportation or movements of the tapes." CX-0012C at Q/A 208-217.

Sony's complaints do not sufficiently rebut Fujifilm's evidence because they are not directed to these specific facts. For example, Sony does not asset that Fujifilm's archival process actually, or even likely, fell outside of the proper temperature and humidity ranges, despite deposing Fujifilm's employee who testified on this topic. Similarly, Sony's expert asserts that the passage of time can erode characteristics of the tapes, but he does not provide an opinion as to whether the amount of time that passed in this case would be likely to have an effect, and if so, what effect it would have. *See* CX-0012C at Q/A 206-217.

The evidence does not show any irregularities in treatment of the prior art tapes that could impact their physical characteristics in a way that would cause them to wrongly satisfy the claim limitations 13 to 15 years after they were manufactured. Sony's complaints are theoretical in nature and divorced from specific facts of the physical tapes relied on by Fujifilm, and therefore do not sufficiently disrepute Fujifilm's evidence.

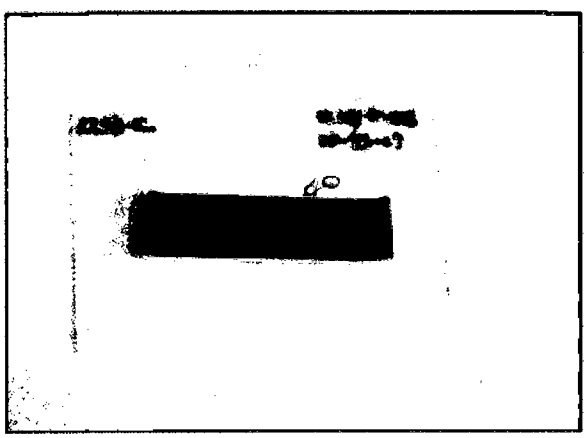
c) Fujifilm did not establish that the tape mounting procedure used by its experts resulted in reliable measurements.

Fujifilm's experts instructed EAG to measure the surface roughness values of the prior art IBM 3592 Generation 1 and Sony AIT-3 tapes by stretching the tape samples between two pieces of double-sided tape. Sony and Staff point to evidence that indicates this specific mounting procedure can produce unreliable measurements, and that it likely did produce unreliable measurements in this case. Fujifilm does not sufficiently rebut this evidence, and accordingly does not clearly and convincingly establish that that values produced by its measurements of the prior art tapes are reliable.

Sony and Staff argue that Fujifilm's surface roughness measurements of the prior art tapes are not reliable because the samples were "mounted onto a glass slide that had two pieces of double-sided tape affixed at two ends, so that the sample was stretched taut between the two pieces of double-sided tape . . . ." SIB at 54-55 (quoting RX-0188 ¶ 38 (purportedly Appendix 6 to Dr. Wang's expert report), which not in evidence (see Respondents' Final Exhibit List at 7 (May 25, 2018) (listing RX-0188 at "withdrawn")), and citing CX-0012C at Q/A 136-140, which is Dr. Bogy's rebuttal witness statement where he quotes and characterizes RX-0188 ¶ 38); *id.* at 55 (quoting CX-1544 ¶ 17 (Dr. Raeymaekers' expert report)); CIB at 42; Tr. at 831:14-834:9 (testimony of Dr. Bogy); *contra* RX-0003C (Dr. Wang's direct witness statement, where he uses the phrase "gently laid" to replace the "stretched taut" language he used in his expert report).

Staff an l Sony also ›oint out that Dr. Raeymaekers placed a metal ‹asher on top of the magnetic tape after it was tap :d to the slide. SIB at 55; CIB at 4 :; *see* RX-0)03C at Q/A 660 (embedding RDX-0002C at 88).

Sony and St ıff contend that this mounting met ıod is not r :liable because (1) stretching the sam ›le taut coul ł subject the sample to mechanical strain that ıaterially changes the surface roughne ›s character ıstics, and (2) using double-sided ape could :ause the mechanical tape to float or curve above the slide that prevents a proper measurement. SIB at 55; CIB at 42-43; CX-0012C at Q/A 141-151. Sony's expert, Dr. Bogy, testified that pr ›per surface measurements of magneti : tapes requires the tape sample to lie flat witho ıt curvature or deformations, and without being subject to tension or force. CX-0012C at Q/A 132-133. This is particularly the case here, according to Dr. Bo ;y, because the measurements are on the nano .eter scale. Tr. 834:21-835:6. He expl ıins that usi ıg double-sided tape, which at a thi :kness of 5) µm is thicker than magnetic tape at 8.9 µm, can :ause the measured part of the tape to be "not flat." CX-0012C at Q/A 144. He opines that the picture of Dr. Wang's sample, which is em ›edded below, shows "some curvatur ɜ in the sam ›le." *Id.*



Id. (embedding RD :-0002C at 96); *see* RX-0003C at Q'A 660 (sa .e).

In addition to testimony by Dr. Bogy, Sony and Staff cite to admissions by Fujifilm's expert that this mounting method can lead to unreliable results. At the deposition of Dr. Raeymaekers, which was read into the record during the cross-examination of Dr. Wang, he testified that "it's possible in the general context" that the mounting method "may have caused local defect[s] that would have caused some outliers." Tr. at 696:11-697:10. Dr. Raeymaekers further declared that certain measurements "were, in my opinion, outliers, possibl[y] caused by a local surface defect due to tape cutting, mounting, or handling and shipping." CX-0012C at Q/A 149 (Dr. Bogy testifying about CDX-0006C at 1, which embeds Table 1 and paragraph 92 from CX-1760, a declaration from Dr. Raeymaekers that is not in evidence); *see id.* at Q/A 150 (Dr. Bogy testifying about CDX-0006C at 2, which embeds lines 99:17-100:17 from the deposition transcript of Dr. Raeymaekers that is not in evidence). Dr. Bogy points out that these outliers resulted in measurements that were more than 1000% and more than 2000% different than other measurements for the same characteristics. *Id.*

Fujifilm responds that Sony and Staff's criticism is mere speculation because Dr. Bogy did not observe the tests performed by Dr. Wang and Dr. Raeymaekers, and that Sony did not test the tapes itself. RIB at 31-32. But Sony was not required to observe Fujifilm's measurements or perform its own measurements as Fujifilm's burden to prove invalidity never shifts to Sony to prove validity. *Tech. Licensing*, 545 F.3d at 1327. Sony's and Staff's arguments about the curvature in the tape samples and resulting outliers is based on the evidence presented by Fujifilm, and is not mere speculation by Sony's expert.

Fujifilm also points to Dr. Wang's testimony on redirect that the results of the nine measurements from three different regions of the tape "are very consistent," which, according to Fujifilm's attorneys, contradicts Sony's and Staff's "speculation." *Id.* at 31 (citing Tr. at

718:19-719:13). However, Dr. Wang's testimony that the measurement values "are very consistent" does not indicate whether the values are consistently correct or consistently incorrect. Dr. Wang's testimony is also of limited value because he admitted that, outside this investigation, he never "personally used any device to measure surface roughness of the backside of a magnetic tape." Tr. at 697:20-698:4.

Finally, Fujifilm argues that its expert's use of double-sided tape was appropriate because a different expert for Sony in the -1012 investigation testified that he mounted the magnetic tape using "scotch tape," and another of Sony's experts in this investigation, Dr. Bhushan, testified that he has previously used double-sided tape to mount tape samples. *Id.* at 13 (citing Tr. at 824:3-825:2, 357:25-358:3). But Sony's expert in the -1012 investigation testified that he used scotch tape, not double-sided scotch tape, and Fujifilm does not explain how the different mounting method applied to different products for measuring properties claimed by different patents informs the mounting method of the products in this investigation for the properties claimed by the '774 patent. And Dr. Bhushan's testimony does not help Fujifilm's argument. He testified: "So using double-sticky adhesive tape, in my opinion, is less desirable. Although I've used it, I would prefer to use water, but I love the Vacuum Chuck [used by Sony's experts]. That's a perfect way to mount a sample." Tr. at 357:1-358:3. Dr. Bhushan never testified that he used double-sticky adhesive tape to measure the prior art products for the properties claimed by the '774 patent, or that doing so would create reliable results.

I find that Sony and Staff have pointed to sufficient evidence to establish that Fujifilm's mounting procedure for the prior art magnetic tapes was not clearly and convincingly reliable. The evidence shows that the tape samples were stretched and/or positioned to float above the slide, instead of lying flat against the slide. The experts are in general agreement that this

mounting procedure can lead to unreliable results, and Dr. Raeymaekers' measurements indeed shows outliers. Even if outliers were corrected for, the evidence shows that this mounting procedure is not one that produces reliable results, particularly where the measurements are taken on the nanometer scale.

d) Fujifilm did not establish that its measurements and calculations of the surface roughness values of the IBM 3592 Generation 1 and Sony AIT-3 tapes result in reliable values.

Fujifilm's two experts—Dr. Wang and Dr. Raeymaekers—directed EAG to measure the same properties of different physical tapes for both the IBM 3592 Generation 1 and Sony AIT-3 products, and to measure some of the same properties in different ways. Sony and Staff assert that the same measurements of different tapes for the same product should result in the same or similar values, but Fujifilm's measurements resulted in significantly different values. They argue that these different values "indicate a serious, potentially systematic flaw with [Fujifilm's] testing." SIB at 57-59; *see* CIB at 45.

Sony and Staff first point out that Dr. Wang measured skew and kurtosis three different ways, and they argue that these measurements are not reliable because the values resulting from the respective measurements should be, but are not, substantially equivalent. CIB at 44; SIB at 56. The evidence shows that Dr. Wang measured skew as R_{sk}, which is a 2D measurement, once according to the ISO 4287 standard and once according to the ASME B46.1 standard, and as S_{sk}, which is a 3D measurement. RX-0003C at 674-678; CX-0012C at Q/A 170. He also measured kurtosis as R_{ku}, which is a 2D measurement, once according to the ISO 4287 standard and once according to the ASME B46.1 standard, and S_{ku}, which is a 3D measurement. RX-0003C at Q/A 685-686; CX-0012C at Q/A 170. He reported his result of measurements from samples from eight different tapes as follows:

	S_{sk}	R_{sk} (ISO)	R_{sk} (ASME)
IBM 3592 Gen 1	0.35±0.05	0.20±0.03	0.27±0.04
Sony SDX3-100C	0.14±0.18	0.30±0.06	0.40±0.08

	S_{ku}	R_{ku} (ISO)	R_{ku} (ASME)
IBM 3592 Gen 1	3.41±0.12	2.80±0.04	3.19±0.08
Sony SDX3-100C	3.56±0.69	3.08±0.40	3.98±0.58

RX-000)C at Q/A 679, 682, 689, 691 (embedding RDX-0002C at 52-55).

Sony and St iff next point out that Dr. Raeymaekers measured five Sony AIT-3 (SDX3-100C) tapes, and th y argue that these measurements a e not reliable because the values are not substant ally equivalent.[11] CIB at 44-45; SIB at 56-57. Dr. Bogy's testimony compared some of the mea urements t ken by Dr. Raeymaekers, embedd d below, t highlight the discrepancies. CX-001)C at Q/A 183 (embedding CDX-0006C at 11 (excerpting CX-1761, which is not in evidence but is desc ibed by Dr. Bogy as Appendix D to Dr. Raeymaekers' expert report)).

Tape Type	Tape ID	Loc	Rpm [nm]	Rz [nm]	Rpm/Rz	Rsk	Rku	Ssk	Sku
Sony SDX3-100C	R399-1	3	53	101	0.52	0.35	3.49	-0.01	2.97
Sony SDX3-100C	R672-BOT-2	3	133	215	0.62	0.49	4.31	0.40	4.66

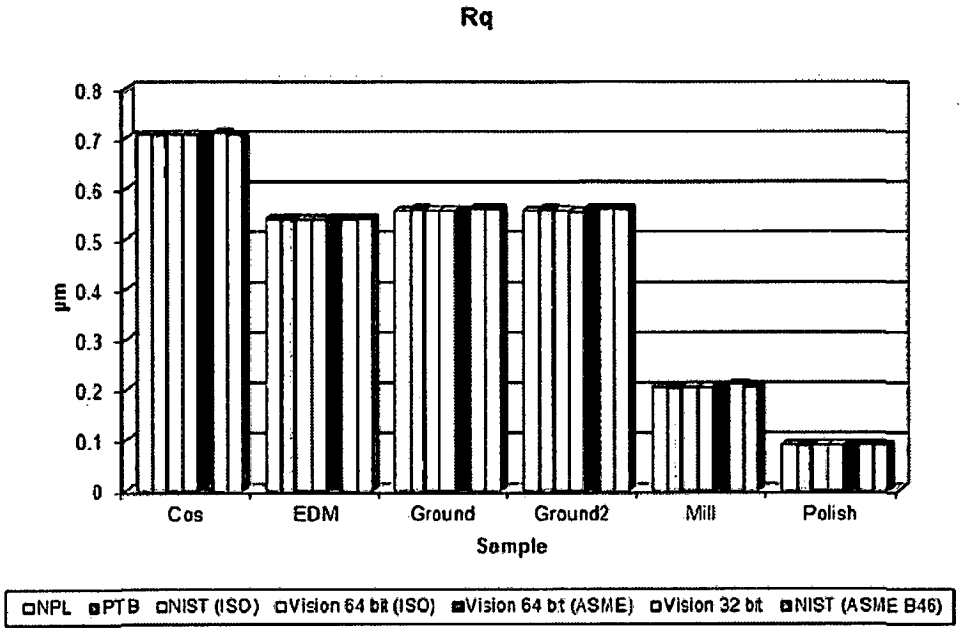
Tape Type	Tape ID	Loc	Rpm [nm]	Rz [nm]	Rpm/Rz	Rsk	Rku	Ssk	Sku
Sony SDX3-100C	R672-BOT-2	3	133	215	0.62	0.49	4.31	0.40	4.66
Sony SDX3-100C	Q802-3	1	77	150	0.51	0.36	4.14	0.02	3.56

[11] Sony and Staff also rely on Dr. Bogy's testimony regarding discrepancies in Fujifilm's measure ments of Sony LTO-1 and HP LTO-1 tapes. CIB at 44 (citing CX-0012C at Q/A 171-177); SI 3 at 56-57 (citing CX-0012C at Q/A 168-177). Even though those tapes are not asserted as prior art against t he '774 patent, Dr. Bogy concludes that "the discrepancies, regardless of the product tested, indi cate to me that there are problems with their testing methodology." CX-0012C at Q/A 173. Without more explanation or evidence, I fail to see how measurements of non-prior art tapes informs the reliability of the mea urements of the prior art tapes. I will therefor only consi ler the evidence relating to the prior art tapes for this issue.

Dr. Bogy concludes that discrepancies from 50% to over 100% undermine Dr. Wang's conclusions regarding reliability. *Id.* at Q/A 184-185. Dr. Wang reaches the opposite conclusion, that these measurement values are "remarkably consistent, as evident from the tight distribution of measurements and the low standard deviation values." RX-0003C at Q/A 664.

Unfortunately, neither expert provides any credible evidence to back up their opposite conclusions about the reliability of the data. Dr. Bogy's explanation that the 3D measurement is just a collection of 2D measurements and therefore should result in substantially equivalent values makes sense. CX-0012C at Q/A 174. But so does Dr. Wang's explanation that 2D and 3D measurements might result in different values because the averaging of the individual measurements occur at different stages. RX-0583C at Q/A 151. The evidence on this issue therefore consists of competing conclusory statements by both experts.

Dr. Bogy's conclusion that the values resulting from the ISO and ASME standard should be substantially equivalent also makes sense, but he does not provide any reliable evidence backing up his assertions that (1) the values should be substantially equivalent or (2) the resulting values are not substantially equivalent. To support his conclusion, he refers to the documentation for the machine used by Fujifilm's experts used to obtain measure and calculate their values. CX-0012C at Q/A 174-177. This document contains a chart, embedded below that illustrates the results of measurements performed by the manufacture under different measurement and calculation standards. Tr. at 839:2-22; CX-0276 at 25. Dr. Bogy testified that this chart shows that the surface roughness values should be "substantially equivalent" between the ISO (yellow) and ASME B46 (dark blue) standards. CX-0012C at Q/A 174-177.



However, Dr. Bogy failed to explain how the chart showing R_q in tenths-of-micrometers translates to skew and kurtosis. He only testified that R_q appears in the denominator outside the summation for skew and kurtosis, but he did not explain how the units for R_q (micrometers) translates to the units for skew and kurtosis, or how equivalence between R_q measurements would inform equivalence between skew or kurtosis calculations. Tr. at 835:13-21, 840:6-22.

In its reply brief, Fujifilm responds that the measurements by its experts show differences that are less than the measurements between Sony, as reported in the complaint filed in this investigation, and the measurements of Sony's expert. RRB at 6-9. This response, however, is waived because Fujifilm did not allude to this argument in its pre-hearing brief or its initial post-hearing brief. *See* Ground Rule 8.2, 11.1. Sony therefore did not have an opportunity to respond to this argument in order to disagree with or explain such differences. For example, in compiling its complaint, Sony may have measured different tapes using different equipment than its expert, unlike Fujifilm's experts who measured the same tapes using the same equipment.

As a result, I am left with competing expert testimony that different measurements and calculations of the same products are either "remarkably consistent" or unreliable because they are "not substantially equivalent." The raw data, however, leans against Dr. Wang's conclusion that the results are remarkably consistent. For example, his S_{sk} measurements of the eight IBM 3592 Generation 1 tapes range from 0.30 to 0.40, and his measurements for all three skew values range from 0.17 to 0.40. RX-0003C at Q/A 679 (showing S_{sk} measurements of 0.35 ± 0.05, R_{sk} (ISO) measurements of 0.20 ± 0.03, and R_{sk} (ASME) values of 0.27 ± 0.04). Dr. Raeymaekers' S_{sk} measurements of five Sony AIT-3 (SDX3-100C) tapes range from -0.04 to 0.32, and his measurements for all three skew values range from -0.04 to 0.48. *Id.* at Q/A 682 (showing S_{sk} measurements of 0.14 ± 0.18, R_{sk} (ISO) measurements of 0.30 ± 0.06, and R_{sk} (ASME) values of 0.40 ± 0.08). The kurtosis measurements have similar variance.[12]

Fujifilm has therefore not met its burden to establish that the prior art products invalidate the claims of the '774 patent because I am uncertain whether or not Fujifilm's measurements and calculations resulted in reliable values. *Tech. Licensing*, 545 F.3d at 1327 ("the risk of decisional uncertainty stays on the [respondent]" such that "if the fact trier of the issue is left uncertain, the [respondent] loses").

e) Fujifilm did not establish that the LTO-1 specification discloses an appropriate methodology for measuring the IBM 3592 Generation 1 tapes for skSNR and small error rate.

Claims 8 and 10 of the '774 patent require that the values of skirt signal-to-noise ratio ("skSNR") and small error rate fall within the claimed limits. Fujifilm only relies on

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[12] Fujifilm argues that documents reflecting Sony's own testing of the AIT-3 tapes in August 2003 shows values for peak-to-valley roughness that falls within the claimed range. RIB at 34-36. Even if this evidence is persuasive, it does not address Fujifilm's measurements for the other claimed characteristics of the magnetic tapes, such as skew and kurtosis.

measurements of the IBM 3592 Generation 1 tapes, not the Sony AIT-3 tapes, as directly disclosing these limitations. To establish that the IBM 3592 Generation 1 tapes satisfy the limitations, its expert, Dr. Wang, relied on measurements performed by a Fujifilm engineer who used an LTO-1 drive head and reference tape. Sony and Staff argue that the use of the LTO-1 drive head and reference tape was improper for measuring the IBM 3592 Generation 1 tapes because the IBM 3592 Generation 1 tapes do not comply with the LTO-1 specification.

As explained above in response to Fujifilm's assertion that Sony's measurement of the accused products was inappropriate because Sony measured the tapes according to their respective specifications, "[a] person of ordinary skill in the art at the time of the invention would understand that the [skSNR and small error rate] values would have to be measured in a way appropriate for the specific tape at issue, as different types of tapes may require different measurement methodologies." Section IV.D, *supra*. I held that Sony established that the LTO-4 and LTO-6 specifications disclosed appropriate methodologies for measuring the respective LTO-4 and LTO-6 products. *Id.* Sony now poses the reverse question: whether the LTO-1 specification discloses an appropriate methodology for measuring the non-LTO-1 IBM 3592 Generation 1 tapes.

Fujifilm's expert justifies his use of the LTO-1 specification to measure characteristics of the IBM 3592 Generation 1 tapes because, as he concludes, "a [person of ordinary skill in the art] would understand to be appropriate given the guidance in the patent specification and ECMA-319 itself." RX-0003C at Q/A 720. I rejected Fujifilm's similar assertion regarding infringement that the '774 patent teaches such a person that all magnetic tapes should be tested according to the LTO-1 specification. Section IV.D, *supra*.

Sony presents convincing evidence that measuring the IBM 3592 Generation 1 tapes according to the LTO-1 specification was not appropriate. Its expert, Dr. Bogy, testified that measuring skSNR and small error rate requires reading and writing data from data tracks on the magnetic tape. CX-0012C at Q/A 197. He explained that performing this measurement on an IBM 3592 Generation 1 tape using an LTO-1 drive head "would result in improper and inaccurate measurements" because the LTO-1 drive head has larger dimensions relative to the tracks of the IBM 3592 Generation 1 tape. *Id.* at Q/A 197-198 (embedding CDX-0006C at 16 (excerpting and annotating JX-0128 at 60 (LTO-1 specification) and JX-0099C (IBM 3592 Generation 1 specification)), which is reproduced in relevant part below and shows relevant properties of the ECMA-319 / LTO-1 specification on the left and the same properties of the IBM 3592 Generation 1 specification on the right).

[redacted]

Dr. Bogy further explained that Fujifilm's unexpectedly low small error rate measurement of 0.008 errors/m for the IBM 3592 Generation 1 tapes is "consistent with the improper use of an incompatible drive head" because "the measured signal would be expected to be stronger than if the tapes were measured using their appropriate read and write heads." *Id.* at Q/A 198-199 ("This [small error rate] is far lower than later generations of tape of the same format"); *see* RX-0003C at Q/A 739. As to skSNR, Dr. Bogy explained that the errors are

compounded because the values measured from an IBM 3592 Generation 1 tape are compared the values measured from an LTO-1 reference tape to compute a final skSNR value. CX-0012C at Q/A 200. According to Dr. Bogy, the only proper way to measure skSNR is to compare the tape being tested against "a reference tape corresponding to the type of magnetic tape being tested." *Id.* at 201-202.

Fujifilm's expert testified on redirect that the "plated test" that he used to measure skSNR did not create issues with the track being aligned because the writing and reading are "essentially performed simultaneously." Tr. at 719:14-720:12. However, he did not directly address Dr. Bogy's criticisms regarding small error rate, or explain how the "plated test" values for a reference tape with different dimensions than the tape being tested results in a reliable skSNR value.

Fujifilm attempts to justify its expert's use of the LTO-1 specification for the IBM 3592 Generation 1 tapes by arguing that Sony's measurements of the IBM 3592 Generation 2, 3, and 4 products for its domestic industry had the same alleged deficiencies. RRB at 12-13. Fujifilm contends that Sony's testing firm, MAC, could not have matched the tapes with an LTO drive head because [redacted] at 13 (citing JX-0096C at 65 (IBM 3592 Generation 4 specification)). But Fujifilm does not contend that Sony's measurements of its domestic industry products were deficient for this reason. *See* RIB at 26; RRB at 30. Nor does Fujifilm sufficiently rebut Dr. Bogy's testimony that MAC chose an appropriate drive head and "adjust[ed] parameters in the testing system, such as to make it equal to what's in the IBM 3592 head." Tr. at 279:19-280:22.

In view of Sony's evidence, Fujifilm's evidence that the IBM 3592 Generation 1 tapes disclose the skSNR and small error rate values required by claims 8 and 10 is not clear and convincing.

Fujifilm then argues, in the alternative, that the IBM 3592 Generation 1 and Sony AIT-3 tapes render claims 8 and 10 obvious because the skSNR and small error rate values in those claims "would have been obvious based on the backside roughness" values and the knowledge of a person of ordinary skill in the art. RIB at 36-37. As evidence, Fujifilm relies on the deposition testimony of one of the inventors of the '774 patent, Dr. Ebner, who stated that he was not aware of anything else that contributes to the claimed skSNR and small error rate properties other than achieving the skew, kurtosis, peak height mean, and peak-to-valley roughness values that are claimed by the '774 patent. JX-0026C at 99:17-100:7. Fujifilm's expert also testified that a person of ordinary skill in the art would have known that embossment "can lead to decreased skirt SNR" and would have been motivated to achieve skSNR values that "are significantly higher than the minimum requirements of the tape specification." RX-0003C Q/A 785-793.

As explained above, Fujifilm did not meet its burden to establish that the IBM 3592 Generation 1 and Sony AIT-3 tapes had the backside roughness values claimed by the '774 patent at the time of the invention. Fujifilm's assertion that the claimed backside roughness values would obviously result in the claimed skSNR and small error rate values therefore lacks its antecedent reliance.

Further, Fujifilm's obviousness arguments are presented as inherency arguments: that satisfying the claimed skew, kurtosis, peak height mean, and peak-to-valley roughness values will necessarily satisfy the claimed skSNR and small error rate values. The testimony of its expert and the '774 patent inventor, however, only indicate that the claimed skew, kurtosis, peak

height mean, and peak-to-valley roughness values may result in the claimed skSNR and small error rate values. This is not sufficient. *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991) ("The mere fact that a certain thing may result from a given set of circumstances is not sufficient.") (citations omitted); *see Ecolab, Inc. v. Paraclipse, Inc.*, 285 F.3d 1362, 1375 (Fed. Cir. 2002) ("each claim in a patent is presumptively different in scope").

Fujifilm does not brief this issue in the framework provided by *KSR* or *Graham*, but the testimony of its expert (which Fujifilm does not cite to in its opening post-hearing brief) uses the language from KSR that "a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." RX-0003C at 788; *see KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Fujifilm's expert, however, only testifies generally that a person of ordinary skill in the art would have known that decreasing backside protrusions would have led to increased signal output which would have resulted in higher skSNR, and therefore would have been motivated to adjust those parameters affecting backside protrusions to achieve higher skSNR. RX-0003C at Q/A 788-789; *see id.* at 792-793 (corresponding testimony for the small error rate limitation). Its expert does not explain why the specific values claimed in the '774 patent would have been obvious, or that a person of ordinary skill in the art would have been motivated to achieve those specific values, instead of skSNR and small error rate values that were improved but were still outside of the claimed values.

Fujifilm has therefore failed to prove by clear and convincing evidence that the IBM 3592 Generation 1 tapes anticipate claims 8 and 10 of the '774 patent, or that the IBM 3592 Generation 1 or Sony AIT-3 tapes render obvious those claims.

2. Fujifilm did not prove by clear and convincing evidence that Sasaki renders obvious the asserted claims.

Japan Unexamined Patent Application Number P2002-121324 published on November 7, 2003, as JPA2003-317228 ("Sasaki"), and lists Sony Corporation as the applicant and Futoshi Sasaki as the inventor. RX-0117 at 1. Fujifilm contends that Sasaki renders the asserted claims of the '774 patent obvious in view of the knowledge of a person of ordinary skill in the art. RIB at 37-40 (citing evidence). Fujifilm's expert, Dr. Wang walked through the evidence to provide a limitation-by-limitation obviousness analysis for the asserted claims. RX-0003C at Q/A 798-827 (citing to and explaining documentary evidence).

Sony and Staff do not contend that Sasaki was considered by the PTO during the prosecution of the '774 patent. *See* JX-0003 at cover page. Sony and Staff also do not contest that Sasaki qualifies as prior art to the '774 patent under the relevant provisions of 35 U.S.C. § 102.

Sasaki is directed to improving the durability of a magnetic tape by specifying limits for the size and frequency of "excessively large protrusions." RX-0003C at Q/A 800-801 (quoting RX-0017 at [0014]-[0015]). Sasaki teaches that these limits will reduce the damage to the magnetic layer and "minimize the amount of structural imprints of the protrusions from the back coat imprinted onto the magnetic layer when wound." *Id.* at 6.

Sony and Staff point out that Sasaki does not mention the skew, kurtosis, peak height mean, peak-to-valley roughness, plateau ratio, skSNR, or small error rate characteristics that are claimed by the '774 patent, nor values within the claimed limits for those characteristics. CIB at 52; SIB at 63. Fujifilm does not argue that Sasaki directly discloses any parameter other than peak height mean. RRB at 18 (citing Tr. at 818:23-819:1 (Sony's expert admitting that "the average height of all the backside peaks for the magnetic tape taught by Sasaki is less than 100

nanometers")). Based on Sasaki's supposed disclosure of peak height mean, Fujifilm's expert concludes that a person of ordinary skill in the art would have understood that reducing the peak height mean would also reduce the peak-to-valley roughness. RX-0003C at Q/A 809. However, he provides no support that Sasaki's teachings would make it obvious to reduce the peak-to-valley roughness below the claimed value. RX-0003C at Q/A 809. Since no asserted claim of the '774 patent requires only the peak height mean limitation, Fujifilm has not met its burden to prove that Sasaki clearly and convincingly discloses all of the characteristics for any claim even if it discloses the peak height mean.

Regarding the other limitations, Fujifilm argues that a person of ordinary skill in the art would have found it obvious to follow the teachings of Sasaki to produce a magnetic tape with values within the claimed limits because Sasaki is directed to addressing the same problem as the '774 patent. RIB at 38 (citing RX-0003C at Q/A 800, 803). Fujifilm's support for this statement comes from the deposition of one of the inventors of the '774 patent, Dr. Ebner, who testified that "there's nothing unique about the materials and the manufacturing process" described in the '774 patent. RX-0003C at Q/A 803; JX-0026C at 117:6-10, 148:1-8; *see* JX-0026C at 37:9-22 (Dr. Ebner testifying that "the novelty was the tape construction – the tape itself, the roughness of the backside, regardless of the formulation or process used, that structure"). Fujifilm then concludes, without explanation, that "a [person of ordinary skill in the art] could have followed the teachings of Sasaki to make a tape with reduced larger surface protrusions, resulting in lower skew, kurtosis, peak height mean, and peak-to-valley roughness." RIB at 38 (citing RX-0003C at Q/A 800-804). As to the skSNR and small error rate characteristics being obvious, Fujifilm relies on the same arguments it made with regards to the prior art tapes, which was rejected above. RIB at 39.

Fujifilm's inapt extrapolation of Dr. Ebner's statement and the resulting conclusory testimony of its expert do not satisfy its burden to prove by clear and convincing evidence that Sasaki, which fails to teach or disclose every characteristic of any asserted claim, renders the asserted claims of the '774 patent obvious. Nor has Fujifilm established that a person of ordinary skill in the art would be motivated to modify the teachings of Sasaki to make the magnetic tape claimed by the '774 patent. Sasaki teaches the "excessively large protrusions" on the backside of the tape should be reduced to prevent damaging the magnetic tape, whereas the '774 patent teaches how to decrease embossment and improve signal-to-noise ratios and small error rates by creating a magnetic recording medium with a number of specific values for various backside surface roughness characteristics. *Compare* RX-0117 at [0015], [0018]-[0019] *with* JX-0003 at 3:33-67; *see* CX-0002C at Q/A 57-60; CX-0012C at Q/A 269-294. Sasaki's teachings are simply different than what is claimed by the '774 patent.

3. Fujifilm did not prove by clear and convincing evidence that the asserted claims are not enabled.

Fujifilm contends that the asserted claims "are not enabled for their full ranges." RIB at 41. Specifically, Fujifilm argues that "a skew less than about 0.5" is not enabled for values less than zero, "kurtosis less than about 4.0" is not enabled for values less than about three, "greater than about 0.2 relative dB" is not enabled for values greater than about one relative dB, and "peak height mean less than about 200 nm" and "peak to valley roughness less than about [325/300] nm" is not enabled for a perfectly flat surface. *Id.*

The evidence Fujifilm relies on for its argument comes from the testimony of Sony's expert, Dr. Bogy, who Fujifilm cross-examined at the hearing. *See* RIB at 41-43. Dr. Bogy testified that a person of ordinary skill in the art would understand that the claimed values approach "approximately a Gaussian distribution, which has a skew of zero and a kurtosis of

three." CX-0012C at Q/A 338. Fujifilm then elicited testimony from Dr. Bogy that the specification does not enable skew values below about zero. Tr. at 809:15-17.

Fujifilm does not cite the testimony of its expert witness, Dr. Wang, in its initial post-hearing brief, but Dr. Wang's testimony on this issue focuses on the embodiments in the specification. *See* RX-0003C at Q/A 866-877. Specifically, Dr. Wang testified that the skew limitation is not enabled because "the smallest skew value achieved by the inventors . . . is 0.30" and the '774 patent "does not disclose what modifications would be needed to obtain a skew value of less than 0.30." *Id.* at Q/A 866 (citing JX-0003 at Table 1, 10:1-15).

The basic test for determining whether a claim is enabled is to ask whether a person of ordinary skill in the art can practice the invention without undue experimentation. *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993). "The boundary between a teaching sufficient to enable a person of ordinary skill in the field, and the need for undue experimentation, varies with the complexity of the science." *Storer v. Clark*, 860 F.3d 1340, 1350 (Fed. Cir. 2017).

Fujifilm did not present any evidence as to what experimentation a person of ordinary skill in the art would have to engage in to practice the invention. For example, neither the testimony of its expert or its cross-examination of Sony's expert steps through any of the "*Wands* factors" that "may be considered when determining if a disclosure requires undue experimentation." *See Cephalon, Inc. v. Watson Pharma., Inc.*, 707 F.3d 1330, 1336 (Fed. Cir. 2013) (citing *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988) (enumerating the factors as: "(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.")). In its reply post-hearing brief, in response to this

criticism, Fujifilm attempts to shoehorn its expert's testimony into the *Wands* factors. However, the gloss put on the expert's testimony by Fujifilm's attorneys belies that his actual testimony does not address how much experimentation would be needed to practice the invention, and whether such experimentation is undue. *See* RX-0003C at Q/A 866-877.

Further, "[o]pen-ended claims are not inherently improper . . . [and] may be supported if there is an inherent, albeit not precisely known, upper limit and the specification enables one of skill in the art to approach that limit." *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1376-77 (Fed. Cir. 2007) (quoting *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1572 (Fed. Cir. 1991)). Both experts here recognize that a person of ordinary skill in the art would understand that "[t]he claimed ranges for these parameters approach Gaussian distributions." RX-0003C at Q/A 809 (Dr. Wang); CX-0012C at Q/A 338 (Dr. Bogy). Fujifilm does not address whether the specification enables such a person to approach Gaussian distributions for the claimed parameters, or what amount of experimentation might be needed to do so.

Some amount of routine experimentation is permitted, but whether the experimentation is undue or not is Fujifilm's burden to prove by clear and convincing evidence. *Cephalon*, 707 F.3d at 1336. Fujifilm does not satisfy its burden here.

4. Fujifilm did not prove by clear and convincing evidence that the specification of the '774 patent does not adequately describe the asserted claims.

Fujifilm's arguments that the claims do not satisfy the written description requirement are premised on the same arguments that it makes for why the claims are not enabled; that the inventors did not have possession of the full scope of the claimed ranges. RIB at 44-45. The Federal Circuit has made clear, however, that "[a] claim will not be invalidated on section 112 grounds simply because the embodiments of the specification do not contain examples explicitly

covering the full scope of the claim language." *Falko-Gunter Falkner v. Inglis*, 448 F.3d 1357, 1366 (Fed Cir. 2006) (quoting *LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005)).

Fujifilm has not presented any non-conclusory evidence that the embodiments in the specification are not sufficient to reasonably convey to one of ordinary skill in the art that the inventors had possession of the claimed invention. Its expert simply testifies that the inventors did not describe lower values than those disclosed in the specification. *See* RX-0003C at Q/A 878-887 ("As Table 1 of the '774 Patent shows, the species disclosed by the '774 Patent do not support the broad ranges recited in the claim."). This evidence is not sufficient to prove by clear and convincing evidence that the inventors did not possess the claimed invention. *See Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1320 (Fed. Cir. 2003).

5. The asserted claims are directed to patentable subject matter.

Fujifilm's final argument is that the claims of the '774 patent are directed to an abstract idea and are, therefore, unpatentable. Specifically, Fujifilm asserts that the claims "are directed to the abstract idea of magnetic media with a normal back surface distribution and beyond" and that the claims "recite no significant structures or manufacturing methods." RIB at 46. Fujifilm is incorrect. The claims are plainly directed to an article of manufacture, which is patent-eligible subject matter. 35 U.S.C. § 101; *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980).

The specific structures of the claims include "a substrate," "a magnetic side formed over the first surface of the substrate, defining a recording surface," and "a backside coated on the second surface of the substrate . . . the backside defining a backside surface opposite the recording surface." JX-0003 at 12:51-61. Indeed, entire sections of the patent, entitled "The Substrate," "The Magnetic Side," and "The Backside," are devoted to describing the different portions of the claimed structure. *Id.* at 3:63-6:62.

The backside surface of the claimed structure also has certain physical characteristics that the patent teaches must be specifically configured, for example using certain manufacturing methods and compositional factors, including the selection of the type and specific size of particles, to produce a backside surface of the magnetic tape that has a distribution approaching a Gaussian or normal service. *Id.* at 4:65-6:62. Thus, a magnetic tape with the claimed backside surface structure is not a result of random chance, or a naturally occurring phenomenon. It must be specifically manufactured, and the '774 patent discloses to those skilled in the art how to do so. *Id.*

Accordingly, the asserted claims of the '774 patent recite an article of manufacture that is eligible for patent protection under 35 U.S.C. § 101.

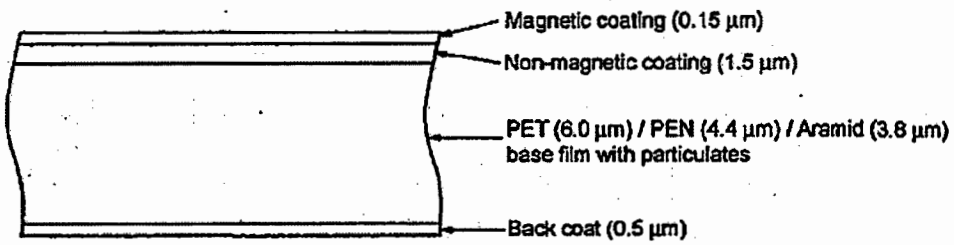
V. U.S. PATENT NUMBER 6,979,501

United States Patent Number 6,979,501, entitled "Magnetic Recording Medium Having a Smooth Biaxially Tensilized Film Substrate," issued to Christopher A. Merton on December 27, 2005. JX-0002 at cover page ('501 patent). The patent issued from Application Number 10/822,885 filed on April 13, 2004. *Id.* The patent is assigned on its face to Imation Corporation. *Id.* The evidence indicates that Imation assigned this patent to Sony on August 3, 2015. CX-0007C at Q/A 58-67 (direct witness statement of Hiroshi Kamitani); CX-1081 at 3; JX-0139C.

The invention disclosed in the '501 patent concerns the "dimensional stability" of magnetic tapes. JX-0002 at 2:3-9. If the dimensions of a tape fluctuate by expanding or shrinking, the tracks on the tape shift so that the recording head fails to properly align to the data tracks. CX-0001C at Q/A 97 (direct witness statement of Dr. Bhushan). The patent explains that due to "increases in track density and the like, dimensional stability of the tape has become an issue." JX-0002 at 5:2-7. In other words, as data track density increases, small fluctuations in

tape dimension can result in the head being off-track. CX-0001C at Q/A 97. To mitigate these problems, the '501 patent postulates that it would be beneficial if the dimensions of a tape do not shrink or expand due to changes in temperature or humidity. JX-0002 at 2:5-9; CX-0001 at Q/A 84-95.

To achieve dimensional stability in the tape, the '501 patent teaches using a "biaxially tensilized substrate." JX-0002 at 5:8-11. To understand that term as it is used in the patent, some background about a typical tape structure will be helpful. The patent lists as prior art a "Magnetic Tape Storage Roadmap," published by the National Storage Industry Consortium in February 2002. *Id.* at cover ("NSIC Roadmap"). The NSIC Roadmap illustrates the layers of a typical magnetic tape as follows:



JX-0115 at 13 (Figure 18).

In the prior art figure above, the layer with the label beginning "PET" is the substrate. The '501 patent teaches the substrate is a non-magnetic layer. JX-0002 at 1:53-54. The patent lists exemplary substrate materials for tapes, including "polyesters such as polyethylene terephthalate (PET), polyethylene naphthalate (PEN), a mixture of polyethylene terephthalate and polyethylene naphthalate; polyolefins (e.g., polypropylene); cellulose derivatives; polyamides; and polyimides." JX-0002 at 1:54-59.

The '501 patent calls the layer on top of the substrate the front coating. *Id.* at 1:28-39. The front coating may itself comprise two layers: a support layer formed on the substrate and a thin magnetic layer formed on the support layer. *Id.* The support layer is typically non-magnetic

and generally comprised of a non-magnetic powder dispersed in a binder. *Id.* The magnetic layer comprises a metal particle powder or pigment dispersed in a binder. *Id.* Data is recorded on the tape by using electromagnetic fields to configure the position of particles in the magnetic layer. *See* RX-0003C at Q/A 83. Magnetic tapes may also have a backside coating applied to the opposing side of the substrate. *Id.* at 1:43-46.

With this background in mind, I return to the patent's teachings about a biaxially tensilized substrate. The patent teaches that substrate films traditionally have been tensilized—or stretched—in the down-web, or machine direction, in order to improve the ability of the film to handle the accelerations and decelerations of linear tape drives. *Id.* at 4:65-5:2. The patent proposes to improve the dimensional stability of the tape by stretching the substrate in two directions (biaxially), not just one. The patent teaches that biaxial tensilization decreases the coefficient of thermal expansion of the substrate and decreases the coefficient of hygroscopic expansion of the substrate. *Id.* at 5:8-11. In other words, a tape that has been stretched in two directions will hold its shape better through changes in temperature and humidity.

The '501 patent describes at least one embodiment in which a substrate film is stretched in two directions. *See id.* at 5:18-31. In the embodiment, the substrate film is preheated and then passed through two sets of nip rolls, which operate at different speeds to stretch the film longitudinally. *Id.* at 5:22-24. The substrate film is then stretched in the cross-web direction by holding the outer edges of the film in gripping devices and moving the gripping devices apart by about 325% or more. *Id.* at 5:25-31. The substrate film is heated as the width increases. *Id.* at 5:29-31.

The patent teaches using biaxial tensilization to match the dimensional stability of a tape to the dimensional stability of the magnetic recording head. *Id.* at 4:13-14, 11:5-18. The patent

describes an embodiment in which the substrate is biaxially tensilized to such an extent that the resulting composite magnetic tape "has a thermal expansion similar or equal to the thermal expansion of the magnetic head, generally from about 5 ppm/C to about 10 ppm/C." *Id.* at 4:44-50; *see also id.* at 2:43-47. In comparing the thermal expansion of the inventive tape to that of a magnetic head, the patent teaches that "[m]ost magnetic recording heads are manufactured on Al_2O_3-TiC wafers, which have a thermal expansion of 7 ppm/C." *Id.* at 4:49-51; *see also id.* at 2:48-49.

The patent also discloses a range of conditions in which the invention should exhibit dimensional stability. It explains that the cross-web dimensional difference between the magnetic and recording head should be less than 900 microns per meter over a 35 degree temperature range and over a 70% relative humidity range. *Id.* at 4:30-33.

A. The Asserted '501 Patent Claims

Sony asserts independent claim 1 and dependent claims 2, 4, 5, 6, and 8 of the '501 patent. The asserted claims are reproduced below:

> 1. A magnetic recording medium comprising a biaxially tensilized substrate having a front side and a backside, a longitudinal direction and a crossweb direction, said substrate having a magnetic layer formed over said front side of said substrate comprising magnetic pigment particles, and a binder system therefor; said magnetic recording medium having a cross web dimensional difference from a substrate wafer of an Al_2O_3—TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%, and a coefficient of thermal expansion having a value said magnetic recording medium having a coefficient of thermal expansion of from about 5 ppm/C to about 10 ppm/C, said coefficient of thermal expansion being from about 50% to about 150% of the coefficient of thermal expansion for the substrate wafer.
>
> * * * * *
>
> 2. A magnetic recording medium according to claim 1 having a Wyko surface roughness of less than 10 nm.
>
> * * * * *
>
> 4. A magnetic recording medium according to claim 1 wherein said biaxially

tensilized substrate is selected from the group consisting of polyesters, polyolefins, cellulose derivatives, polyamides, and polyimides.

* * * * *

5. A magnetic recording medium according to claim 1 wherein said biaxially tensilized substrate comprises a substrate subjected to film tensilization, said substrate being selected from the group consisting of polyethylene naphthalate and polyethylene terephthalate.

* * * * *

6. A magnetic recording medium according to claim 1 wherein said substrate has a thickness of from about 1 to about 10 microns.

* * * * *

8. A magnetic recording medium according to claim 1 wherein the magnetic recording medium has a hygroscopic expansion coefficient of less than about 7 ppm/% RH.

JX-0002.

B. Level of Ordinary Skill in the Art

Sony, Fujifilm, and Staff all agree that with respect to the '501 patent, a person of ordinary skill in the art would have a bachelor's degree in materials science, physics, electrical engineering, mechanical engineering, chemistry, or a closely related field, and at least five years of experience in the magnetic recording media field or a master's degree or higher in materials science, physics, electrical engineering, mechanical engineering, chemistry, or a closely related field, with an emphasis in magnetic recording media, and at least three years of experience in the magnetic recording media field. CIB at 66; RIB at 50; SIB at 77. Based on the evidence of record, I adopt the level of skill proposed by the Sony, Fujifilm, and Staff. CX-0001C at Q/A 206; RX-0003C at Q/A 120-22.

C. Claim Construction and Indefiniteness

The private parties and Staff have agreed to the construction of the following terms in the asserted claims of the '501 patent:

Claim Number	Term	Agreed Construction
1, 4, 5	biaxially tensilized	having been subjected to tensilization in both the machine direction and the crossweb direction
1	35 degrees	35 degrees Celsius
1	longitudinal direction	machine direction (MD)
1	crossweb direction	transverse direction (TD)
2	Wyko surface roughness	surface roughness measured by an optical interferometer, such as a Wyko optical interferometer

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 1 (May 25, 2018); Order No. 39 (June 29, 2018) (granting motion). Accordingly, I adopt the agreed-upon constructions for the purposes of this investigation.

There are three disputed claims relevant to the asserted claims of the '501 patent:

1. tensilized/tensilization;

2. dimensional difference from a substrate wafer of an Al_2O_3-TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%; and

3. said coefficient of thermal expansion being from about 50% to about 150% of the coefficient of thermal expansion for the substrate wafer.

Id. at 4-5.

1. "tensilized" / "tensilization"

The words "tensilized" and "tensilization" appear in claims 1, 4, and 5 of the '501 patent. Fujifilm and Staff argue that Sony has not timely preserved a construction of these terms beyond the agreed construction of "biaxially tensilized" noted in the chart above. Sony argues that "tensilized" should be interpreted according to its plain and ordinary meaning, which Sony contends means "subjected to a process of heating and stretching, followed by heat setting or stabilization."

I find that Sony has forfeited any argument that "tensilized" requires any additional construction beyond the interpretation the parties agreed to for the phrase "biaxially tensilized."

When the parties exchanged proposed constructions according to the deadlines in the procedural schedule, no party argued that "tensilized" required a separate construction outside of the phrase "biaxially tensilized." Later, the parties jointly moved for leave to amend their constructions, and leave was granted. *See* Order 25. But even at that late stage no party argued that "tensilized" required a separate construction. Fujifilm and Staff formulated their positions and defenses based on Sony's representations in the claim construction phase. Sony, the complainant, has not explained why it could not have timely alerted the other parties to the specialized interpretation it now seeks. In these circumstances, I find Fujifilm and Staff are entitled to hold Sony to the agreed upon construction of "biaxially tensilized" without further interpretation of the term "tensilized." And in any event, I find that the construction of "biaxially tensilized" originally agreed by the parties is not erroneous.

2. "dimensional difference from a substrate wafer of an Al_2O_3-TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%"

The limitation "dimensional difference from a substrate wafer of an Al_2O_3-TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%" appears in asserted claim 1, and is incorporated by dependency into asserted claims 2, 4, 5, 6, an 8. The parties propose the following constructions for this term:

Sony	Fujifilm	Staff
plain and ordinary meaning, i.e., difference in dimensional change from a Al_2O_3-TiC substrate wafer having 7ppm/C coefficient of thermal expansion and 0 ppm/%RH coefficient of hygroscopic expansion of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%	indefinite	indefinite

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 4-5 (May 25, 2018).

The dispute with respect to this limitation turns on the aluminum oxide titanium carbide (Al_2O_3-TiC) term. All parties agree the claim requires a comparison between the expansion of the claimed magnetic recording medium and a ceramic substrate wafer made from Al_2O_3-TiC. Fujifilm and Staff recognize that the coefficient of hygroscopic expansion (CHE) property of an Al_2O_3-TiC substrate wafer "is known to be 0," but they contend that the coefficient of thermal expansion (CTE) property can vary "from about 6 to about 8 ppm/C." RIB at 80; SIB at 94. Without knowing the specific coefficient of thermal expansion in question, Fujifilm and Staff argue that claim 1 is indefinite because it is impossible for one skilled in the art to determine whether a product falls within the scope of the claimed invention with reasonable certainty.

Sony, on the other hand, contends that this limitation should be interpreted according to its plain and ordinary meaning. Sony asserts that the plain meaning of the aluminum oxide titanium carbide term requires an Al_2O_3-TiC wafer with a CTE of 7 ppm/C. CIB at 68-71.

Sony's assertion is supported by the intrinsic record. The '501 patent teaches that an Al_2O_3-TiC wafer has a CTE of 7 ppm/C: "Most magnetic recording heads are manufactured on

Al_2O_3-TiC wafers, which have a thermal expansion of 7 ppm/C." JX-0002 at 4:49-51 (emphasis added).

Fujifilm and Staff point to extrinsic evidence indicating that a person of ordinary skill in the art may have known that an "Al_2O_3-TiC bi-phase ceramic" can have "different proportions of the alumina phase and the titanium carbide phase" resulting in an "Al_2O_3-TiC substrate [with] CTE values at least ranging from about 6 ppm/°C to about 8 ppm/°C." RX-0003C at Q/A 102. However, even if some substrate wafers of an Al_2O_3-TiC bi-phase ceramic could have CTE values that are slightly above or below 7 ppm/C, the evidence shows that a person of ordinary skill in the art would have known that an Al_2O_3-TiC substrate has standard properties that include a CTE of 7 ppm/C. CX-0001C at Q/A 263-275 (Dr. Bhushan testifying that the "CTE of Al_2O_3-TiC bi-phase ceramic is a known, standard value to a person of ordinary skill"). For example, the inventor of the '501 patent testified that the Al_2O_3-TiC substrate were "known" by a person of ordinary skill in the art, and could be "looked up." JX-0027C at 96:97-113 (deposition transcript of Dr. Merton). The NCIS Roadmap also states that the thermal expansion of a tape drive head substrate is 7 ppm/°C. JX-0005 at 39; JX-0115 at 13-14.

The '501 patent makes clear that the claims refer to the well-known "substrate wafer of an Al_2O_3-TiC bi-phase ceramic," not an outlier or theoretical Al_2O_3-TiC bi-phase ceramic substrate wafer. The specification states that the CTE of the "most commonly used magnetic recording heads is about 7 ppm/C," and that "[m]ost magnetic recording heads are manufactured on Al_2O_3-TiC wafers, which have a thermal expansion of 7 ppm/C. JX-0002 at 2:48-49, 4:49-51. The specification also compares the thermal expansion of one embodiment of the invention to other tapes that have not been tensilized. The right column (with the heading "Gen

1 PEN Biaxially tensilized (balanced)") reflects one embodiment of the invention incorporating a substrate that has been biaxial tensilized:

Tape type Substrate type Tensilization		Gen 1 PEN MD tensilized	Gen 1 PEN Semi-MD tensilized	Gen 1 PEN Biaxially tensilized (balanced)
thickness substrate	microns	6.0	6.0	6.0
MD modulus substrate	GPa	8.8	7.8	6.9
TD modulus substrate	GPa	5.9	6.4	7.2
TD thermal substrate	ppm/C	12.9	8.7	2.9
TD hygroscopic substrate	ppm/% RH	12.6	10.6	8.7
thickness tape	microns	8.9	8.9	8.9
TD thermal tape	ppm/C	14.0	12.0	7.2
TD thermal relative head	ppm/C	7.0	5.0	0.2
TD hygroscopic tape	ppm/% RH	8.9	8.6	6.8

Id. at 11:5-19. The table reproduced above shows "TD thermal relative head" for each of three examples, and in each case the values in the row labeled "TD thermal relative head" are 7 ppm/C less than the values in the row labeled "TD thermal tape." JX-0002 at 11:5-18. This indicates that the dimensional change per degree Celsius for the magnetic recording head used in all three examples was 7 ppm/C. CX-0001C at Q/A 219, 262. Therefore, the '501 patent indicates that a person of skill in the art would know that the claimed "substrate wafer of an Al_2O_3-TiC bi-phase ceramic" has a CTE of 7 ppm/C.

The prosecution history is consistent with the disclosures of the specification. During prosecution, the applicant originally presented an independent claim reciting, *inter alia*, a magnetic recording medium "*for use with* a magnetic recording head," wherein the magnetic recording medium had "a cross web dimensional difference from said magnetic recording head" of certain claimed amounts. *See* JX-0005 at 20, claim 1 (emphasis added). The examiner rejected the original claim for various reasons and noted that the claim was "directed to a

magnetic recording medium" and therefore the phrase "for use with a magnetic recording head" would be "considered a statement of intended use and not a claim limitation." The examiner also noted that "limitations to the magnetic head do not further limit the medium." *Id.* at 45.

In response to examiner's statements, the applicant disagreed with the examiner's decision "not to give any weight" to the features of the recording head recited in the claim. *Id.* at 75. The applicant explained that the invention included a discovery that a more stable magnetic tape can be made "by equalizing certain physical properties such as thermal and hydroscopic expansion of the magnetic recording tape to similar physical properties present in the magnetic recording head." *Id.* The applicant presented a new claim 12 and stated that the new claim "relates the properties of the magnetic recording tape to the properties of the material of which *the industry standard magnetic recording head* is formed." *Id.* (emphasis added). Claim 12 was then allowed and issued as claim 1.

Viewing the applicant's statement in the prosecution history that the issued claims are directed to "the industry standard magnetic recording head" together with the specification's teachings that "most" heads in the industry "are manufactured on Al_2O_3-TiC wafers, which have a thermal expansion of 7 ppm/C," it is clear that a person of skill in the art would understand that claim 1 is directed to the standard "substrate wafer of an Al_2O_3-TiC bi-phase ceramic," which has a CTE of 7 ppm/C. *See* JX-0002 at 4:49-51.

Fujifilm next argues that a person of ordinary skill in the art would not know with reasonable certainty how to measure the "dimensional difference" because the "claims, the specification, and the prosecution history are silent on the instruments, methods, and conditions to measure the CTE or CHE of a given sample." RIB at 83-85. Specifically, claim 1 requires a "difference in dimensional change . . . over a temperature range of about 35 degrees, and over a

relative humidity range of about 70%," and Fujifilm contends that a person of ordinary skill in the art would not know the starting and ending temperature and humidity values to perform this differential analysis, or what instrument to use. *Id.*

Different tapes have different operating ranges, as Sony recognizes, but the claims inform a person of ordinary skill in the art that they cover a magnetic recording medium with an operating range "over a temperature range of about 35 degrees, and over a relative humidity range of about 70%." JX-0002 at cl. 1; CIB at 71. The patent further teaches such a person that a magnetic recording medium with a "dimensional difference from a substrate wafer of an Al_2O_3-TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter" over this operating range "will provide superior smoothness and recording medium." JX-0002 at 2:22-30.

Tapes with an operating range "over a temperature range of about 35 degrees, and over a relative humidity range of about 70%" were (and are) well-known in the art, and are referenced in the '501 patent. For example, the LTO-1 specification, also known as the ECMA-319 specification, specifies that the operating range is over a temperature range from 10-45°C, and over a relative humidity range from 10-80%. JX-0128 (LTO-1 specification); CX-0001C at Q/A 98-104, 111. Sony's expert, who "published a number of peer-reviewed papers" on CTE, CHE, and the dimensional stability of magnetic tape media, testified that "[g]iven how long magnetic recording media, particularly LTO, has been around, a person of ordinary skill in the art" would know that "typical" operating conditions for these tapes describes "a range of 10 to 45 C and 10 to 80% relative humidity." CX-0001C at Q/A 98-100, 111 (citing JX-0114). The '501 patent also used the "Ultrium® Generation 1 [tape], commercially available from Imation Corp.," which is an LTO-1 tape, to record and disclose the decrease in the "thermal and hygroscopic

expansion coefficients . . . when there is an increase in the cross web modulus of the substrate." JX-0002 at 10:60-11:19.

A person of ordinary skill in the art would therefore understand with reasonable certainty that the claims cover magnetic recording media with an operating range "over a temperature range of about 35 degrees, and over a relative humidity range of about 70%," of which the LTO-1 tapes referenced in the specification are an example. The starting and ending temperatures and humidity values of these tapes are well known, as are the instruments and parameters to test the tapes. *See* CX-0001C at Q/A 98-116, 142-188.

Accordingly, claim 1 is not indefinite because a person of ordinary skill in the art would understand with reasonable certainty that the claim covers the standard Al_2O_3-TiC substrate with a CTE of 7 ppm/C. Sony's proposed construction of the "dimensional difference from a substrate wafer of an Al_2O_3-TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%" limitation as "difference in dimensional change from a Al_2O_3-TiC substrate wafer having 7ppm/C coefficient of thermal expansion and 0 ppm/%RH coefficient of hygroscopic expansion of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%" is thereby adopted.

3. "said coefficient of thermal expansion being from about 50% to about 150% of the coefficient of thermal expansion for the substrate wafer"

The limitation "said coefficient of thermal expansion being from about 50% to about 150% of the coefficient of thermal expansion for the substrate wafer" appears in asserted claim 1, and is incorporated by dependency into asserted claims 2, 4, 5, 6, and 8. The parties propose the following constructions for this term:

Sony	Fujifilm	Staff
plain and ordinary meaning, i.e., the coefficient of thermal expansion of the medium being from about 3.5 to 10.5 ppm/C	indefinite	indefinite

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 5 (May 25, 2018).

Fujifilm and Staff both contend that this limitation "suffers from the same indefiniteness defects discussed" with the "dimensional difference from a substrate wafer of an Al_2O_3-TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%" limitation, above. RIB at 85; SIB at 97.

Accordingly, for the same reasons as set forth above, claim 1 is not indefinite because a person of ordinary skill in the art would understand this limitation with reasonable certainty. Sony's proposed construction of the "said coefficient of thermal expansion being from about 50% to about 150% of the coefficient of thermal expansion for the substrate wafer" limitation as "the coefficient of thermal expansion of the medium being from about 3.5 to 10.5 ppm/C" is thereby adopted.

D. Infringement

Sony alleges that Fujifilm's LTO-4, LTO-5, and LTO-6 tape products infringe claims 1, 2, 4, 5, and 6 of the '501 patent, and that Fujifilm's LTO-5 and LTO-6 tape products infringe claim 8. CIB at 72. Sony relies on measurements of the physical characteristics of the products, specifications for the accused products, Fujifilm's documents, admissions of Fujifilm witnesses, and its expert's opinions to support its allegations. *Id.* at 72-83 (citing evidence). Sony's expert, Dr. Bhushan, provided his opinions on the evidence and set forth a limitation-by-limitation

infringement analysis for the asserted claims. CX-0001C at Q/A 310-590 (citing to and explaining evidence).

Sony's measurements of the accused products were conducted by MAC under the direction of its expert, Dr. Bhushan, on a "Universal Tape Evaluation System" (UTES) using laser scanning microscopy (LSM), following the relevant LTO specifications for measuring CTE. CX-0001C at Q/A 103-104, 142-159 (citing JX-0134C (summary report created by MAC); CX-0045C), 174-188. Dr. Bhushan testified that he used the same instrument and method that MAC uses in its regular course of business to "certify that the various LTO-1 tapes made by different manufacturers met the TDS [transverse dimensional stability] requirements of the LTO-1 specification," and that Fujifilm and Sony also use in the ordinary course of their businesses to test the later generations of LTO tapes. *Id.* at Q/A 112-116 (citing CX-0052C; JX-0131C), 142, 164-188. Dr. Bhushan concluded that a person of ordinary skill in the art "would have considered an LSM-based method to be appropriate, accurate, and reliable for determining the TDS, CTE, and CHE of magnetic recording media." *Id.* at Q/A 170. Staff agrees that the UTES instrument and LSM method used by Sony's expert was appropriate for measuring the CTE values of the accused products. SIB at 76-78.

Fujifilm responds that Sony failed to meet its burden to prove that the accused products infringe the asserted claims because the UTES instrument "was neither the type of instrument that the inventor used, nor was it a commonly accepted instrument for measuring CTE at the time of the alleged invention," and accordingly, it "yield[ed] materially different results from then-commonly accepted instrument used by the inventor." RIB at 54-56. Fujifilm points out that the inventor of the '501 patent used a "Thermomechanical Analysis" (TMA) instrument, not a UTES instrument, and "held the TMA chamber at constant dew point or constant humidity and

measured the CTE over a temperature range of 23 °C to 45 °C." RX-0583C at Q/A 60-62 (citing JX-0027C). Fujifilm's expert, Dr. Wang, testified that the difference between the UTES and TMA instruments is significant because they apply different types and amounts of tension to the tape: UTES applies tension in the machine direction while measuring dimensional differences in the transverse direction, while TMA applies tension in the direction being measured. *Id.* at Q/A 64. For support, Dr. Wang measured the same IBM 3592 Generation 3 tape using both MAC's UTES instrument and a TMA instrument, and found that the UTES measurement resulted in a CTE of 9.1 ppm/C whereas the TMA measurement resulted in a CTE of 2.7 ppm/C. *Id.* at Q/A 66.

The claims of the '501 patent do not require a specific instrument or method be used for measuring the CTE values of the magnetic recording media. Nor does the specification inform a person of ordinary skill in the art of a specific measurement instrument or method. Fujifilm's only evidence of the instrument and method used by the inventor comes from the deposition of the inventor, but this was not knowledge within the realm of information available to a person of ordinary skill in the art. *See* Tr. at 657:5-659:24 (Dr. Wang agreeing that his knowledge of the instrument, method, conditions, and tension to be applied when measuring the tape examples in the specification of the '501 patent came from the deposition of the inventor). Instead, as Dr. Wang testified, the '501 patent "presumed [that a person of ordinary skill in the art] knows how to do CTE measurements." *Id.*

A person of ordinary skill in the art would recognize that the CTE values required by the claims would be measured in a way appropriate for the specific magnetic tapes. Here, the LTO specifications associated with the accused products specify how CTE should be measured, and the evidence shows that MAC's UTES instrument and method is the industry standard for

measuring the CTE values of the accused products. Fujifilm notes that the '501 patent is not limited to LTO tapes, which is true. However, a person of ordinary skill in the art may recognize that different types of tapes may require different types of instruments and methods to measure CTE values, such that a person measuring a non-LTO tape may not follow the guidance of the LTO specification to determine whether the tape fell within the scope of the claim. Whether CTE is measured in a way appropriate for the specific tapes is a factual question of infringement. *Cf. ADC Telecommunications, Inc. v. Switchcraft, Inc.*, 281 Fed. Appx. 989, 992-993 (Fed. Cir. 2008) (nonprecedential) (holding that, because the claims did not require any particular testing method for the disputed limitations and the specification lacked clear guidance of a particular testing method, "[t]he parties' dispute over the proper testing method is therefore a factual question that the district court properly submitted to the jury").

Regarding Fujifilm's contention that the UTES instrument and a TMA instrument apply different types and amounts of tension to the tape, Dr. Bhushan explained that the "tension at which you make a measurement, as long as it's below or equal to the drive tension, should have no bearing on the value of thermal expansion or dimensional stability or hygroscopic expansion." Tr. at 328:3-8. And there is no evidence that the amount of tension applied by MAC to the accused products was not below or equal to the drive tension. *See* CRB at 35 (citing to JX-0134 at 3, JX-0128 at 21, 59, JX-0104C at 22, 65, CX-0029C at 22, 65 and CX-0030C at 25, 66, to explain that the tension magnitude and direction applied by MAC to the accused products was "well-within the tension used in the normal operation . . . as evidenced by the tension tolerances set forth in the LTO specifications"). Further, Dr. Wang's criticisms of the UTES instrument are of questionable credibility in part because Dr. Wang had "never used a MAC instrument" and

"never observed a MAC instrument being operated by someone else" prior to this investigation. Tr. at 611:20-612:17.

As evidence that the UTES instrument used by Sony produced incorrect CTE values, Fujifilm put forth its own measurements of the accused products using a TMA instrument that resulted in values outside of the asserted claims. RIB at 56; RX-0583C at Q/A 115-116, 118 (Dr. Wang testifying that the Fujifilm LTO-4, LTO-5, and LTO-6 were measured using the TMA instrument to have CTE values of 2.7 ppm/C, 1.4 ppm/C, and 3.3 ppm/C, respectively). However, as Staff notes, Fujifilm's measurements if its own products are of questionable reliability because "the testing was performed by a Fujifilm employee[,] Fujifilm's expert omitted key information about the testing protocol[,] sample preparations are not documented or provided[,] Fujifilm's expert did not observe the testing in person[, and] Fujifilm's expert did not have extensive experience using the thermomechanical analyzer used for the measurements." SIB at 78 (citing CX-0001C at Q/A 457-479). Sony further points to evidence that the TMA instrument used by Fujifilm was not properly calibrated. CIB at 77-78 (citing CX-0011C at Q/A 778-781; RX-0202C; Tr. at 366:6-367:23, 623:4-625:16).

The conclusion above that the measurements from the MAC UTES instrument were reliable further supports Sony's argument that Fujifilm's measurements from the TMA instrument were not reliable. Both experts agree that the UTES and TMA instruments, if used correctly, should produce similar CTE values for the same tape, yet the values generated by the Fujifilm employee using the TMA instrument were significantly different than those of the professional independent testing firm using the UTES instrument. Tr. at 328:3-8 (Dr. Bhushan), 598:11-17 (Dr. Wang); CX-0001C at Q/A 105-107 ("CTE and CHE are material properties that are determined by the material itself. It would be like saying that the boiling point of water was

different depending on if you used a digital thermometer or a mercury thermometer."), 171-173. Dr. Wang further agreed that a person of ordinary skill in the art could use the MAC UTES instrument and method to measure the CTE of a magnetic recording medium. *Id.* at 611:10-25. The evidence therefore supports Sony's contention that the UTES instrument and method was appropriate for measuring CTE values of the accused products.

Based on the evidence and arguments of the parties, I find that Sony has established by a preponderance of the evidence that Fujifilm's LTO-4, LTO-5, and LTO-6 tape products infringe claims 1, 2, 4, 5, and 6 of the '501 patent, and that Fujifilm's LTO-5 and LTO-6 tape products infringe claim 8, so long as those claims are valid.

E. Domestic Industry – Technical Prong

Sony asserts that its LTO-5 tape products and the IBM 3592 Generation 3 (JY, JC) tape products practice claims 1, 2, 4, 5, 6, and 8 of the '501 patent, and that its LTO-6 tape products practice claims 1, 2, 4, 5, and 6. CIB at 83-87; SIB at 79-80. Sony's expert, Dr. Bhushan, cites to and explains the evidence to provide a limitation-by-limitation analysis of how the domestic industry products practice the asserted claims. CX-0001C at Q/A 608-907.

Fujifilm argues that Sony failed to prove that the Sony LTO-5 and LTO-6 tapes and the IBM 3592 tapes do not practice the claims of the '501 patent because "Dr. Bhushan used the same inappropriate instrument and high stress conditions to measure CTE" and "Dr. Wang used a TMA to measure the CTE of an IBM 3592 Gen 3 tape at 2.7 ppm/C, which is outside the claimed range of 'from about 5 ppm/C to about 10 ppm/C.'" RIB at 57. These arguments mirror Fujifilm's non-infringement arguments and are therefore rejected for the same reasons as discussed above. *See* Section V.D, *supra*; RRB at 35-36 ("Sony's DI arguments are unpersuasive for the same reasons as their infringement analysis."); SRB at 18 ("Fujifilm relies on the same arguments that it made in connection with Sony's infringement analysis . . . these

arguments fail because the evidence shows that Sony's testing was appropriate and reliable, whereas Fujifilm's testing was not.").

For the IBM 3592 tapes, Fujifilm argues that the tapes have an operating range of 16-32°C, which does not satisfy the 35-degree temperature range of claim 1. RIB at 57 (citing Tr. at 338:3-14; CX-0011C at Q/A 404). As Staff notes, Fujifilm failed to assert this argument in its pre-hearing brief, and it is therefore waived. G.R. 8.2; SRB at 18; *see* RPB at 86-87.

Accordingly, based on the evidence and the arguments of the parties, I find that Sony established by a preponderance of the evidence that its LTO-5 tape products and the IBM 3592 Generation 3 (JY, JC) tape products practice claims 1, 2, 4, 5, 6, and 8 of the '501 patent, and that its LTO-6 tape products practice claims 1, 2, 4, 5, and 6. The technical prong of the domestic industry is therefore satisfied, so long as those claims are valid. *See* 19 U.S.C. § 1337(a)(2) and (3); *Certain Microsphere Adhesives, Process for Making Same and Prods. Containing Same, Including Self-Stick Repositionable Notes,* Inv. No. 337-TA-366, Comm'n Op., 1996 WL 1056095, at *8 (U.S.I.T.C. Jan. 16, 1996).

F. Invalidity

Fujifilm contends that (1) the Imation 9840[13] tape cartridge renders asserted claims 1, 2, 4, 5, 6, and 8 invalid under 35 U.S.C. § 102; (2) the Meguro reference renders asserted claims 1, 2, 4, 5, 6, and 8 invalid under 35 U.S.C. § 102; (3) the Meguro-2 reference renders asserted claims 1, 2, 4, 5, and 6 invalid under 35 U.S.C. § 102; (4) the Imation LTO-1 tape medium

[13] Fujifilm refers to this product as "Imation 9840" whereas Sony and Staff refer to this product as "StorageTek 9840." Sony assigns the "StorageTek 9840" label to the product apparently in an attempt to distinguish a product measured in 2002 from a product measured within the past year, which it labels the "Imation BlackWatch 9840" tape. For the reasons discussed below, I reject Sony's distinction. I will therefore refer to the product as "Imation 9840," as that is the label that the party with the burden of proof has chosen to assign.

renders asserted claims 1, 2, 4, 5, 6, and 8 invalid under 35 U.S.C. § 103 in view of the knowledge and experience of a person of ordinary skill in the art and/or the NSIC Roadmap; (5) the Imation 9840 tape cartridge renders asserted claims 1, 2, 4, 5, 6, and 8 invalid under 35 U.S.C. § 103 in view of the knowledge and experience of a person of ordinary skill in the art and/or the NSIC Roadmap; (6) the Imation 9840 tape cartridge renders asserted claim 2 invalid under 35 U.S.C. § 103 in view of the knowledge and experience of a person of ordinary skill in the art and Imation LTO-1; and (7) the Takahashi reference renders asserted claims 1, 2, 4, 5, 6, and 8 invalid under 35 U.S.C. § 103 in view of the knowledge and experience of a person of ordinary skill in the art and/or the Kobayashi reference. RIB at 58-79. Fujifilm further contends that the asserted claims are invalid under 35 U.S.C. § 112 for failing to satisfy the written description and enablement requirements.[14] *Id.* at 86-89.

As an initial matter, Sony contends that Fujifilm is estopped from proffering Megura, Megura-2, Takahashi, Kobayashi, and the NSIC Roadmap as invalidating references in this investigation because it relied on, or could have reasonably raised, those references when it filed an *inter partes* review (IPR) challenge to the '501 patent at the U.S. Patent Office. Under the estoppel provisions for IPR proceedings in 35 U.S.C. § 315(e)(2), Sony asserts that Fujifilm is prohibited from asserting these prior art references in this investigation. CIB at 87-88 (noting

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[14] Fujifilm also contends that the claims are invalid as indefinite under 35 U.S.C. § 112 because a person of ordinary skill in the art would not understand, with reasonably certainty, the meaning of the limitations (1) "dimensional difference from a substrate wafer of an Al_2O_3—TiC bi-phase ceramic formed from aluminum oxide and titanium carbide of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%" and (2) "said coefficient of thermal expansion being from about 50% to about 150% of the coefficient of thermal expansion for the substrate wafer." RIB at 52-54, 79-85. These contentions are addressed in the claim construction section above. *See* Sections V.C.2 and 3, *supra*.

that "the PTAB recently issued a Final Written Decision rejecting Fujifilm's validity challenge in Fujifilm's IPR proceeding on the '501 patent, finding Claims 1-10 patentable"); *id.* at 88 n.35 (citing the public version of the final written decision from the PTAB). Staff argues that 35 U.S.C. § 315(e)(2) only estops the "petitioner in an inter partes review," and Staff notes that it was not a petitioner or even a party to the IPR. SRB at 19. Staff is correct. Regardless of whether 35 U.S.C. § 315(e)(2) estops Fujifilm, as contended by Sony, the statute does not prevent Staff from raising the references in this investigation, which it did. Staff's contentions that these references invalidate the asserted claims of the '501 patent must therefore be addressed.[15]

Regarding the substance of Fujifilm's invalidity contentions, Sony disagrees with Fujifilm. CIB at 87-100. Sony's main response regarding anticipation and obviousness appears to be that the Imation 9840 product, Megura reference, Meguro-2 reference, and Takahashi reference all fail to expressly or inherently disclose (1) "a biaxially tensilized substrate," (2) "a cross web dimensional difference" over the claimed conditions, (3) "a coefficient of thermal expansion" over the claimed conditions, and (4) "said coefficient of thermal expansion" required by claim 1. CIB at 88-89. As an initial matter, Sony's expert appears to rely at least in part on a construction for "tensilized" that was rejected. *See* Section V.C.1, *supra*. Sony also appears to assert that the prior art must disclose CTE and CHE over the entire "a temperature range of about 35 degrees and over a relative humidity range of about 70%" in order to satisfy claim 1. CIB at 89 (citing CX-0011C at Q/A 178-185, 260-271, 346-357, 410-421). Sony is correct that claim 1

[15] Additionally, I find below that the '501 patent is invalid based on the sale and use of a prior art product before the priority date for the '501 patent. Arguments based on the on-sale bar are not allowed in IPR proceedings and no estoppel applies to such arguments. *See* 35 U.S.C. §§ 311(b), 315(e)(2).

requires a "cross web dimensional difference from a substrate wafer . . . of less than 900 microns/meter over a temperature range of about 35 degrees, and over a relative humidity range of about 70%." However, neither the claims nor the specification requires that test measurements be taken at each degree of temperature or at each percentage point of humidity. If the prior art discloses representative CTE or CHE measurements that would be understood by person of ordinary skill in the art to demonstrate the claimed range, it is enough. *Cf. ClearValue, Inc. v. Pearl River Polymers, Inc.*, 668 F.3d 1340, 1345 (Fed. Cir. 2012) (holding that a prior art range of "150 ppm or less" disclosed the claimed "50ppm" limitation because there was "no evidence demonstrating any difference across the range"); *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003) (recognizing that a prior art reference discloses a claim limitation "when the claimed range and the prior art range do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties"); *see* JX-0027C at 73:23-82:5 (Dr. Merton, the inventor of the '501 patent, testifying that CTE of the magnetic recording medium disclosed in the specification is uniform between 25 to 35 to 45 degrees, and down to 10 degrees, when measured using a constant dew point or humidity level). Sony's overarching argument is therefore rejected, and its specific arguments for each prior art product or reference will be addressed below.

Based on the evidence and arguments of the parties set forth above, and in detail in the following subsections, I find that Fujifilm presented clear and convincing evidence that (1) the Imation 9840 product renders claims 1, 2, 4, 5, 6, and 8 of the '501 patent invalid as anticipated; (2) Meguro renders claims 1, 2, 4, 5, 6, and 8 invalid as anticipated; (3) Meguro-2 renders claims 1, 2, 4, 5, and 6 invalid as anticipated; (4) the Imation LTO-1 product in combination with the knowledge and experience of a person of ordinary skill in the art and/or the NCIS Roadmap

renders claims 1, 2, 4, 5, 6, and 8 invalid as obvious; and (5) Takahashi in combination with the knowledge and experience of a person of ordinary skill in the art renders claims 1, 2, 4, 5, 6, and 8 invalid as obvious. I also find that Fujifilm did not present clear and convincing evidence that the asserted claims of the '501 patent are not enabled or adequately described in the specification.

1. The Imation 9840 product anticipates claims 1, 2, 4, 5, 6, and 8.

Fujifilm asserts that Imation exclusively manufactured the magnetic recording media and cartridges for the 9840 product, which was sold to the public starting in the late 1990s. RIB at 58 (citing RX-0003C at Q/A 156; Tr. at 662:19-22). For evidence of the relevant properties of the 9840 product, Fujifilm relies on a June 2002 presentation by Dr. Merton, the inventor of the '501 patent, that documents his measurements of the tape, the testimony of Dr. Merton, and testing done by Fujifilm's expert within the last year.[16] *Id.* (citing RX-0003C at Q/A 158-160). Fujifilm's expert, Dr. Wang, stepped through the evidence to provide a limitation-by-limitation explanation of how the 9840 product he tested satisfies each limitation of the asserted claims. RX-0003C at Q/A 296-341.

Sony first asserts that Fujifilm failed to prove that the 9840 product was commercially available during the relevant time such that it qualifies as prior art. CIB at 90. However, Fujifilm presented overwhelming evidence to show that the 9840 product was commercially

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[16] Unlike the measurements of the accused products that Staff noted were "performed by a Fujifilm employee[,] Fujifilm's expert omitted key information about the testing protocol[,] sample preparations are not documented or provided[,] Fujifilm's expert did not observe the testing in person[, and] Fujifilm's expert did not have extensive experience using the thermomechanical analyzer used for the measurements," the measurements of the Imation 9840 product were performed by "a well-known independent lab, EAG Laboratories" under Dr. Wang's direction. SIB at 78; RX-0003C at Q/A 305.

available at the relevant time. JX-0002C at 120:12-21, 230:8-24, 261:1-262:14; Tr. at 661:6-25; RX-0003C at Q/A 156-157; RX-0328; RX-0330; RX-0337; RX-0338; RX-0360; RX-0379; RX-0397; RX-0398; RX-0399; RX-0400.

Second, Sony asserts that Fujifilm failed to prove that the "Imation BlackWatch 9840" tapes tested by Dr. Wang for this investigation are the same as the "StorageTek 9840" tape measured by Dr. Merton, and therefore have the same relevant properties. CIB at 90-91. Again, the evidence shows that Imation only produced one type of 9840 tape media, all with the same features, and Sony does not present convincing evidence to show otherwise. Tr. at 662:19-22; 663:7-11.

Third, Sony asserts that Fujifilm failed to show that the 9840 product had a biaxially tensilized substrate. CIB at 91. The evidence here shows that the 9840 product used a Q11 substrate, which is the same substrate used in the inventive embodiment of the '501 patent and is therein described as having a biaxially tensilized substrate, and Sony did not present convincing evidence to call Fujifilm's evidence into doubt. JX-0027C at 120:12-21, 145:20-22, 213:13-215:17, 230:25-231; RX-0003C at Q/A 299.

Fourth, Sony asserts that Dr. Merton's measurements of the 9840 products depicted in his June 2002 presentation were unreliable because the instrument he used to obtain those measurements was later replaced by a more reliable instrument. CIB at 91-92. Although modern instruments are more reliable, the evidence shows that the instrument used by Dr. Merton was sufficiently reliable to perform the relevant measurements, and the measurements, even after applying the margin of error, satisfy the claim limitations. RX-0034C at 8 (showing the measurement accuracy of Dr. Merton's machine as 15 ppm, resulting in a measurement of 518 ppm ± 15 ppm, which falls below the 900 microns/meter limit of claim 1); RX-0003C at

Q/A 309-314; *compare* RX-0003C at Q/A 308 (Dr. Merton's measurements showing CTE of 8.4 ppm/C and CHE of 6.7 ppm/%RH) *with id.* at Q/A 321 (Dr. Wang's measurements showing CTE of 8.6 ppm/C and CHE of 6.6 ppm/%RH).

Fifth, Sony asserts that Fujifilm's measurements of the 9840 product for this investigation are not reliable because Dr. Wang failed to apply a correction factor to the resulting measurements. CIB at 91. However, Dr. Wang explained that he did apply a correction factor, which was less than 0.1%. Tr. at 621:12-622:7, 650:21-25.

For claim 2, Sony argues that Fujifilm has not met its burden to establish that the 9840 products satisfy the surface roughness limitation because the product measured by Dr. Wang "does not demonstrate surface roughness for the StorageTek 9840 tested in 2002 at Imation." CIB at 93. As I found above, the evidence shows that the 9840 product measured by Fujifilm for this investigation reliably informs the characteristics of the 9840 product. Sony makes no assertion that Dr. Wang's measurements do not satisfy the "Wyko surface roughness of less than 10 nm." Because I have credited Dr. Wang's measurements, I need not address Fujifilm's contention that "the knowledge and experience of a [person of ordinary skill in the art and/or the NSIC Roadmap" or the Imation LTO-1 product can be combined with the 9840 product to arrive at an invention with the requisite Wyko surface roughness. *See* RIB at 75-76.

For the foregoing reasons, Fujifilm showed by clear and convincing evidence that the Imation 9840 product anticipates claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

2. Meguro anticipates claims 1, 2, 4, 5, 6, and 8.

Japanese Patent Application Number P2001-3412160 published on May 16, 2003, as Publication Number 2003-141708 ("Meguro"), and lists Katsuhiko Meguro and Masatoshi Takahashi as the inventors. RX-0124 at 1. Fujifilm and Staff assert that Meguro anticipates claims 1, 2, 4, 5, 6, and 8 of the '501 patent. CIB at 62-66; SIB at 87-88. Fujifilm's expert, Dr.

Wang, stepped through the evidence to provide a limitation-by-limitation explanation of how Meguro satisfies each limitation of the asserted claims. RX-0003C at Q/A 138-140, 214-256.

Sony first argues that Meguro does not disclose a "biaxially tensilized substrate," but Sony's argument relies on a construction of "tensilized" that has been rejected. CIB at 93. Sony next argues that Meguro only discloses CTE between 23-50°C, not the 35°C range required by claim 1, and a CHE of 50-80 %RH, not the 90% range required by claim 1. *Id.* at 94. As discussed above, the prior art need not disclose measurements at every degree or percentage of humidity in the claimed range, as long as a person of ordinary skill in the art would understand that the cross web dimensional difference of the disclosed tape remains linear over those ranges. *See* Section V.F, *supra*. Dr. Wang testified that the temperature and relative humidity ranges disclosed in Meguro would be understood by a person of skill in the art to demonstrate that the disclosed tape demonstrates CTE and CHE across the ranges in claim 1, and Sony did not present any compelling contrary evidence. RX-0003C at Q/A 239-240.

Regarding claim 2, Sony argues that Meguro's disclosure of "center-line surface roughness average of 0.1 to 4.0nm" does not disclose the "Wyko surface roughness of less than 10 nm" limitation. CIB at 94. Sony explains that the surface roughness of claim 2 is that of the recording medium, whereas the surface roughness of Meguro is only of the nonmagnetic supporting member. *Id.*; CX-0011C at Q/A 286-288. Sony's expert concludes that "the surface roughness of the supporting member does not necessarily indicate anything about the surface roughness of the magnetic recording medium." CX-0011C at Q/A 289. Although Sony's expert may be correct in the abstract, the full quote from Meguro that Sony excerpted is that "[t]he magnetic recording medium according to the present invention is preferable because the surface has extremely superior smoothness, as indicated by the center-line surface roughness average of

0.1 to 4.0 nm with the cutoff value of 0.25 mm but preferably within the range of 0.5 to 3.0 nm." RX-0124 ¶ 0082 (emphasis added). Meguro therefore discloses the limitation of claim 2.

Regarding claim 6, Sony argues that the thickness of the substrate in Meguro for example 9, which Fujifilm relies on for the disclosure of claim 2, is 62 microns, which does not satisfy the "about 1 to about 10 microns" limitation. CIB at 94. Fujifilm, on the other hand, relies on the teaching of Meguro that the "thickness of the nonmagnetic supporting member used for a computer tape is within the range of 3.5 to 7.5 μm (preferably 3 to 7 μm)." RX-0124 ¶ 0075. Meguro's "computer tape" teaching relied on by Fujifilm is different than the teaching in relation to example 1 relied on by Sony that a "floppy® disk" has a thickness of 62 microns, and a person of ordinary skill in the art would have recognized that the 62 micron substrate of example 1 did not inform the thickness of the substrate in example 9. *Id.* ¶ 94. Although Meguro states that example 9 was "fabricated through the same method as that was used for the working example 6" with some caveats, and that example 6 was "fabricated through the same method used for working example 1," nothing in Meguro suggests that examples 6 or 9 use the same 62 micron substrate as example 1. *Id.* ¶¶ 0101, 0104. As Dr. Wang testified, a person of ordinary skill in the art "would have understood that a magnetic tape medium is much thinner than a magnetic floppy disk," that 10 microns was "very thick for the early 2000s," and that a thickness greater than 50 microns would have been impossible. RX-0003C at Q/A 254. Meguro therefore discloses the limitation of claim 6.

Accordingly, for the foregoing reasons, Fujifilm showed by clear and convincing evidence that the Meguro anticipates claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

3. Meguro-2 anticipates claims 1, 2, 4, 5, and 6.

United States Patent Application Number 10/413,510 was published on December 4, 2003, as Publication Number 2003/0224213 ("Meguro-2"), and it lists Katsuhiko Meguro and

Masatoshi Takahashi as the inventors. RX-0366 at cover page. Fujifilm and Staff assert that Meguro anticipates claims 1, 2, 4, 5, and 6 of the '501 patent. CIB at 66-68; SIB at 88-89. Fujifilm's expert, Dr. Wang, stepped through the evidence to provide a limitation-by-limitation explanation of how Meguro satisfies each limitation of the asserted claims. RX-0003C at Q/A 147-149, 257-295.

For the same reasons as with Meguro, Sony argues that Meguro-2 does not disclose a "biaxially tensilized substrate" or CTE and CHE values across the entire ranges claimed by the '501 patent. CIB at 95-96. These same arguments have been rejected above.

Accordingly, for the foregoing reasons, Fujifilm showed by clear and convincing evidence that the Meguro anticipates claims 1, 2, 4, 5, and 6 of the '501 patent.

4. The Imation LTO-1 product in combination with the knowledge and experience of a person of ordinary skill in the art and/or the NCIS Roadmap renders claims 1, 2, 4, 5, 6, and 8 invalid as obvious.

The Imation LTO-1 product, also referred to as the Ultrium Generation 1 product, is identified in the '501 patent as a prior art magnetic recording medium manufactured by Imation. JX-0002 at 10:60-66. The NCIS Roadmap is a document titled "Magnetic Tape Storage Roadmap February 2002" that was published by National Storage Industry Consortium ("NSIC"), as noted above in the background description of the '501 patent. JX-0115; RX-0003C at Q/A 150. NCIS was, at the time of the Roadmap, "a leading consortium of more than 50 companies and universities in the field of magnetic tape." RX-0003C at Q/A 151-155. Fujifilm specifically relies on the section of the NSIC Roadmap titled "Recording Media Technology" that discusses optimizing linear density, track density, and layer density of magnetic media to increase tape capacity and performance. *Id.* at Q/A 154. Fujifilm's expert, Dr. Wang, stepped through the evidence to provide a limitation-by-limitation explanation of how the Imation LTO-1

product in combination with the knowledge and experience of a person of ordinary skill in the art and/or the NSIC Roadmap satisfies each limitation of the asserted claim. *Id.* at Q/A 352-386.

As explained in the '501 patent, the inventor changed "the substrate used in a magnetic recording medium, Ultrium® Generation 1, commercially available from Imation Corp., from a tensilized polyethylene naphthalate to a polyethylene naphthalate film having been biaxially tensilized." JX-0002 at 10:60-66. In other words, the '501 patent teaches that the LTO-1 product was not biaxially tensilized as required by claim 1. *See* CX-0001C at Q/A 511. According to Dr. Wang, the NSIC Roadmap discloses the same biaxially tensilized substrate used by the inventor of the '501 patent for the invention. RX-0003C at Q/A 359 (citing JX-0115 at Table 12 (NSIC Roadmap); JX-0027 at 198:5-199:12 (deposition transcript of Dr. Merton); JX-0002 at Table 1).

Sony does not appear to dispute the disclosure of the NSIC Roadmap, but does dispute that a person of ordinary skill in the art would motivated to use the disclosure of the NSIC Roadmap to change the medium in the Imation LTO-1 product in a way to make the claimed invention. CIB at 98. Sony's expert, Dr. Bhushan, explains that such a combination would make the LTO-1 tape inoperable for its intended purpose of "interchangeability and performance with LTO-1 certified drives" because of the "strict and numerous requirements . . . as set forth in the LTO-1 format specification." CX-0011C at Q/A 506-514. Dr. Bhushan's explanation presupposes that a person of ordinary skill in the art would not alter an LTO-1 product if such an alteration would make the product non-compliant with the LTO-1 format specification. However, there is no evidence that a person of skill in the art motivated to "improve the dimensional stability of a magnetic recording medium" (*see* RIB at 73) would only consider the LTO-1 format specification to the exclusion of a different or new format specification. Indeed,

the NSIC Roadmap appears format-agnostic. *See* JX-0115 at 2 (referring generally to "linear tape recording formats"). The evidence therefore shows that a person of ordinary skill in the art would be motivated to combine the biaxially tensilized substrate disclosed in the NSIC Roadmap with the LTO-1 product to improve the dimensional stability of the tape. *See* RIB at 73 (citing RX-0003C at Q/A 353).

Sony next argues that Dr. Wang improperly relies on the inventor's testimony, impermissible hindsight, and incorrect claim interpretation. CIB at 98. Sony, however, fails to identify the supposed error in Dr. Wang's evaluation of the inventor's testimony. Sony also never states what impermissible hindsight or incorrect claim construction Dr. Wang applied. Similarly, Sony asserts that "Dr. Wang fails to demonstrate how this combination renders [the dependent] claims obvious and [that] Dr. Wang's proposed combinations are improper" without explaining the shortcomings in Dr. Wang's analysis. *Id.* Fujifilm has put forth clear and convincing evidence, and I decline to make Sony's rebuttal arguments for them. As the Seventh Circuit observed in its now familiar maxim, "[j]udges are not like pigs, hunting for truffles buried in briefs." *United States v. Dunkel*, 927 F.2d 955, 956 (7th Cir.1991).

Accordingly, the evidence shows that the combination of the Imation LTO-1 product with the NSIC Roadmap discloses each limitation of the asserted claims, and that a person of ordinary skill in the art would have been motivated to make this combination.

Sony argues that secondary considerations of non-obviousness preclude finding that the combination of the Imation LTO-1 product with the NSIC Roadmap renders the asserted claims obvious. CIB at 100. Sony specifically asserts that the "knowledge at the time taught away from the '501 invention" such that a person of ordinary skill in the art would not "consider matching CTE and CHE of **composite** recording media to standard Al-TiC, as required by the '501

invention." *Id.* (emphasis in original). Sony explains that the knowledge at the time was that "substrate properties dominate tape properties" so that "it was desirable to match the CTE of the substrate to the standard Al-TiC substrate CTE (7ppm/C)" instead of matching the CTE of the tape to the Al-Tic substrate. *Id.* (emphasis added). To support its assertion, Sony points to the NSIC Roadmap, which states that "it is desirable to match thermal expansion of the tape substrate with that of the head substrate." *Id.* (citing CX-0011 at Q/A 675 (citing JX-0115 at 13-14)). However, the NCIS Roadmap also states that the "physical properties of both the substrate and the magnetic/nonmagnetic layers affect the properties of a tape and should be taken into account" and that "the goal is to match thermal expansion of the tape in the TD to that of the head substrate." JX-0115 at 13, 14 (emphasis added).

Sony also points to the "Richards" publication that states that "mechanical properties of tapes are dominated by substrate properties." *Id.* (citing CX-0011 at Q/A 676 (citing RX-0127 at 5)). The Richards publication states that "the best that a tape designer can do is try to match the thermal expansion of the head." RX-0127 at 5. Sony's evidence is not a "clear discouragement" of matching the CTE and CHE of the tape to the Al-TiC substrate. *See Santarus, Inc. v. Par Pharm., Inc.*, 694 F.3d 1344, 1356 (Fed. Cir. 2012).

Accordingly, Fujifilm has shown by clear and convincing evidence that the combination of the Imation LTO-1 product with the knowledge and experience of a person of ordinary skill in the art and/or the NSIC Roadmap renders invalid as obvious claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

5. Takahashi in combination with the knowledge and experience of a person of ordinary skill in the art renders claims 1, 2, 4, 5, 6, and 8 invalid as obvious.

Japanese Patent Application Number P2000-311769 published on April 26, 2002, as Publication Number P2002-123928 ("Takahashi"), and lists Takahashi Masatoshi and Doshita

Hioaki as inventors. RX-0123 at 1. United States Patent Application Number 10/203,346 published on June 12, 2003, as Publication Number 2003/0108775 ("Kobayashi") and lists Ieyasu Kobayashi, Shinji Muro, and Hirofumi Murooka as inventors. RX-0378 at cover page. Fujifilm only asserts that Kobayashi is part of an invalidating combination in the event that Sony's proposed construction of "tensilized" is adopted, which it is not. RIB at 78-79; *see* Section V.C.1, *supra*. Therefore, only the combination of Takahashi with the knowledge and experience of a person of ordinary skill in the art is effectively asserted as an invalidating combination. Fujifilm's expert, Dr. Wang, stepped through the evidence to provide a limitation-by-limitation explanation of how the Imation LTO-1 product in combination with the knowledge and experience of a person of ordinary skill in the art satisfies each limitation of the asserted claims. RX-0003C at Q/A 165-213, 449-456.

Sony argues that a person of ordinary skill in the art would not modify Takahashi to use Kobayashi's "biaxially oriented polyester film" because such a person would not "merely swap" substrates because substrate selection can affect performance. CIB at 99. However, Sony does not dispute that Takahashi discloses a "biaxially tensilized substrate" if its untimely construction of "tensilized" is rejected. CRB at 42-43. Thus, there is no need to rely on Kobayashi for that limitation.

Sony also argues that Takahashi does not disclose CTE and CHE values that compass the entire ranges claimed by the '501 patent, but this argument has been rejected above. *Id.* at 43; *see* Section V.F, *supra*.

To the extent that Sony intends its statement that "Takahashi fails to disclose all the limitations of the Asserted Claims" to preserve arguments not articulated, it does not. I decline to make Sony's arguments for them. *See Independent Towers, WA v. Washington*, 350 F.3d 925,

929 (9th Cir. 2003) ("We decline, however, to sort [through] the noodles in search of [the plaintiff's] claim.").

Finally, as explained above, Sony's argument that secondary considerations of non-infringement teach away from the combination has been rejected. *See* Section V.F.4, *supra*.

Accordingly, Fujifilm has shown by clear and convincing evidence that the combination of Takahashi with the knowledge and experience of a person of ordinary skill in the art renders invalid as obvious claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

6. Fujifilm did not prove by clear and convincing evidence that the specification of the '501 patent does not adequately describe the asserted claims.

Fujifilm advances two arguments that all of the asserted claims of the '501 patent are invalid for lack of written description. CIB at 86.

First, Fujifilm asserts that claim 1 and dependent claim 8 include limitations drawn to broad ranges, but that the specification describes only a single example within those claimed ranges. *See id.* From that assertion, Fujifilm summarily concludes, without any supporting citation, that a person of ordinary skill in the art "would have understood that a single example is insufficient to support that the inventor had possession of the entire claimed range." Fujifilm's conclusion is flatly at odds with controlling precedent from the Federal Circuit, which states that "[a] claim will not be invalidated on section 112 grounds simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language." *Falko-Gunter Falkner v. Inglis*, 448 F.3d 1357, 1366 (Fed Cir. 2006) (quoting *LizardTech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005)). Fujifilm's attempt to distinguish *Falko-Gunter Falkner* based on comparing the particular claims at issue there from the claims of the '501 patent is unpersuasive. *See* CRB at 44. Fujifilm cannot, by presenting an undeveloped written description argument, shift onto Sony a burden to show that the asserted

claims satisfy the written description requirement of § 112. The asserted claims are presumed to be valid, and thus to satisfy all the requirements of § 112. Here, the conclusory assertions in Fujifilm's briefing, and the single conclusory question and answer pair of its expert, Dr. Wang, do not amount do not amount to clear and convincing evidence that any of the asserted claims fail to satisfy the written description requirement of § 112. RIB at 86 (citing RX-0003C at Q/A 527).

Fujifilm's second written description argument appears to be contingent in nature. Particularly, Fujifilm argues that, "under Dr. Bhushan's interpretation of the claim, the '501 Patent discloses no embodiments that meet the claim limitations and fails to describe the claimed invention in sufficient detail that a POSA can reasonably conclude that the inventor had possession of the claimed invention." RIB at 86 (citing RX-0003C at Q/A 528). The underlying reasoning is that, during the deposition of the inventor of the '501 patent, he disclosed that the "single embodiment example disclosed in the '501 Patent was not measured under" testing conditions that Sony's expert, Dr. Bhushan, indicated were necessary to determine infringement. *See id.* (citing JX-0027, 73-75, 78; CX-0011C at Q/A 337, 734). Fujifilm then appears to reason that, because the inventor did not measure the properties that appear in the table presented with example 1 of the '501 patent according to the protocol presented by Dr. Bhushan, example 1 cannot provide written description support for the asserted claims. *See id.*

Fujifilm's second written description argument, like its first, is unpersuasive. Particularly, Fujifilm's argument strays from the relevant test for written description, which asks "whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*). Instead,

Fujifilm presents extrinsic evidence, in the form of inventor testimony, that the properties reported for example 1 in the '501 patent were obtained via a method that might not be suitable to establish infringement. In so doing, Fujifilm, and its expert, fail to address what a person of ordinary skill would understand from the '501 patent's actual disclosure. Moreover, Fujifilm's argument erroneously suggests that, because the inventor's measurement methods may not suffice to show infringement, the embodiment he disclosed in the '501 patent would not indicate to a person of ordinary skill that he possessed the invention claimed therein. That conclusion simply does not follow. Accordingly, Fujifilm has also failed to prove, by clear and convincing evidence, that any asserted claim of the '501 patent lacks written description based on its second argument.

7. Fujifilm did not prove by clear and convincing evidence that the asserted claims are not enabled.

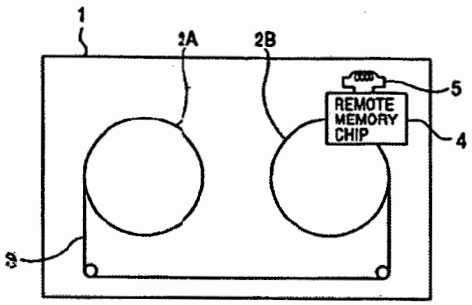
Fujifilm argues that all asserted claims of the '501 patent are invalid for lack of enablement. RIB at 87. However, Fujifilm's briefing falls well short of establishing invalidity due to lack of enablement by clear and convincing evidence. Particularly, neither Fujifilm in its briefing, nor its expert in his testimony, address the underlying factors that govern the enablement inquiry. *Compare In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988) *with* RIB at 87-88 *and* RX-0003C at Q/A 529-531. While it is possible that some portion of the two pages of Fujifilm's briefing and three question and answer pairs from Fujifilm's expert may read on one or more of the eight factors that inform whether a disclosure would require undue experimentation, the Commission is not in the business of completing a party's arguments for them. As Staff correctly notes, "[a] patent is presumed valid, and, as the challenger, it is Fujifilm's 'burden to show by facts supported by clear and convincing evidence that the patent was not enabling.'" SIB at 98 (citing *U.S. v. Telectronics, Inc.*, 857 F.2d 778, 785 (Fed. Cir.

1988); *Cephalon, Inc. v. Watson Pharmaceuticals, Inc.*, 707 F.3d 1330, 1339 (Fed. Cir. 2013) ("Watson had the burden to show by way of testimony or documentary evidence the amount of experimentation needed")). Here, the conclusory assertions in Fujifilm's brief and its expert's witness statement, which are ambiguous at best in their relation to the factors underlying a proper undue experimentation determination, do not amount to clear and convincing evidence of a lack of enablement. Accordingly, I find that Fujifilm has failed to establish, by clear and convincing evidence, that any of the asserted claims are invalid for lack of enablement.

VI. U.S. PATENT NUMBER 6,674,596

United States Patent Number 6,674,596 is entitled "Memory In Cassette Has Use Restriction Recorded In Read-Only Memory." JX-0001 at cover page ('596 patent). The patent issued from Application Number 09/524,909, and claims priority to Japanese Patent Application Number P11-072042 having a date of March 17, 1999. *Id.* It issued on January 6, 2004, and lists Yoshihisa Takayama as the sole inventor and Sony Corporation as the assignee. *Id.*

The '596 patent claims a tape drive for reading from and writing to a specific type of tape cassette that has solid-state memory in addition to a magnetic tape. *Id.* at Abstract. The solid-state memory, which is also referred to as nonvolatile memory on remote memory chip 4 shown in figure 3A of the '596 patent, below, can store management information such as "manufacture information and serial number information of each tape cassette, the tape width and length, the tape material, information relevant to a record of using recorded data in each partition, user information, and the like," which "are used for management of the writing/reading to/from the magnetic tape 3." *Id.* at 4:6-30, figure 3A; *see also id.* at 4:48-55, figure 3B (showing the nonvolatile memory on a contact chip instead of a remote chip).



According to the '596 patent, the solid-state memory can allow the recording media to function as a write-once read-many ("WORM") storage device. *Id.* at 1:35-37, 17:19-18:65. The '596 patent describes other WORM storage devices that existed at the time of the invention, such as compact disks, but asserts that it was not possible to prevent re-writing of data on magnetic tapes before the invention. *Id.* at 1:12-43.

c. The Asserted '596 Patent Claims

Sony asserts claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13 of the '596 patent in this investigation. Asserted claims 2, 3, 6, 7, and 8 depend on independent claim 1, asserted claim 4 depends on claim 3, and asserted claim 5 depends on claim 4. Asserted claims 10, 11, 12, and 13 depend on independent claim 9. These claims provide:

> 1. A tape drive apparatus comprising:
> tape drive means for running a magnetic tape and writing/reading information to/from the magnetic tape, wherein the magnetic tape is enclosed in a tape cassette;
> memory drive means for reading and writing management information by performing a predetermined communication process with a memory, wherein the memory is included in the tape cassette for storing the management information for managing the writing/reading of information to/from the magnetic tape by the tape drive means;
> a use-recognition information detector for detecting from the memory use-recognition information designating a use for the tape cassette; and
> a controller for controlling an operation of the tape drive means based on the use-recognition information detected by the detector,
> wherein the use-recognition information is stored in a read-only area in said memory.
>
> * * * * *
>
> 2. The tape drive apparatus according to claim 1, wherein, when said

controller controls the tape drive means for writing data to the magnetic tape, said controller controls said tape drive means to use a last writing position on the magnetic tape as a writing start position.

* * * * *

3. The tape drive apparatus according to claim 1, wherein said controller controls the tape drive means to write an identification information of the tape cassette stored in said memory together with write data on the magnetic tape.

* * * * *

4. The tape drive apparatus according to claim 3, further comprising:
an identification-information comparator for comparing the identification information stored in said memory and the identification information written on the magnetic tape.

* * * * *

5. The tape drive apparatus according to claim 4, wherein said controller controls the operation of the tape drive means based on a result of a comparison of the identification information comparator.

* * * * *

6. The tape drive apparatus according to claim 1, wherein said controller performs data reading based on the use-recognition information detected by the detector.

* * * * *

7. The tape drive apparatus according to claim 1, wherein said memory comprises a read-only area and a rewritable area.

* * * * *

8. The tape drive apparatus according to claim 1, wherein said memory drive means comprises interface means for transmitting data between the memory and the memory drive means.

* * * * *

9. A tape drive apparatus comprising:
tape drive means in which, when a tape cassette including a magnetic tape is loaded, said tape drive means runs the magnetic tape and writes/reads information to/from the magnetic tape;
memory drive means in which, when the tape cassette includes a memory for storing management information for managing the writing/reading of information to/from the magnetic tape, said memory drive means reads or writes the management information by performing a predetermined communicating process with the memory;
a first identification-information detector for detecting first identification information of said tape cassette stored in said memory;
a second identification-information detector for detecting second identification information of said tape cassette stored on the magnetic tape;
identification-information determining means for determining whether the first and second identification information detected respectively by the first and second identification-information detectors coincide with each

other;
a controller for executing only a particular operation based on a result of a determination by said identification-information determining means.

* * * * *

10. The tape drive apparatus according to claim 9, wherein when said controller controls the tape drive means for writing data to the magnetic tape and said controller further controls said tape drive means to use a last writing position on the magnetic tape as a writing start position.

* * * * *

11. The tape drive apparatus according to claim 9, wherein said controller controls the tape drive means to write on the magnetic tape an identification information of the tape cassette stored in said memory, as well as to write data on the magnetic tape.

* * * * *

12. The tape drive apparatus according to claim 9, wherein said controller performs data reading based on the use-recognition information.

* * * * *

13. The tape drive apparatus according to claim 9, wherein said memory comprises a read-only area and a rewritable area.

JX-0001 at 21:21-22:43.

B. Level of Ordinary Skill in the Art

Sony, Fujifilm, and Staff largely agree on the level of a person of ordinary skill in the art as of the date of the '596 invention, with only slight differences in their proposals that do not affect the substantive analysis in this investigation. CIB at 105 (citing CX-0003C at Q/A 132-138); RIB at 90 (citing RX-0004C at Q/A 60-66; CX-0003C at Q/A 136); SIB at 99 (citing CX-0003C at Q/A 132-133; RX-0004C at Q/A 63). Given the evidence of the record cited by the private parties and Staff, and that the parties' positions would not be changed or materially altered under either of the proposed definitions, I find that a person of ordinary skill in the art can be either of the following:

1. A person with "a bachelor's degree in mechanical engineering, electrical engineering, or a closely related field, and at least two to three years of experience in the field of magnetic tape systems. A person with less education but more relevant practical experience (or vice versa) may also meet this standard." CX-0003C at Q/A 133.

2. "[A] person with a bachelor's degree in mechanical engineering, electrical engineering, or a closely related field, and two to three years of experience in the field of magnetic

tape systems. A person with less education but more relevant practical experience may also meet this standard." RX-0004C at Q/A 63.

C. Claim Construction and Indefiniteness

The parties agreed upon the constructions of the following terms:

1. "management information" as "[m]anufacture information, serial number information, the tape width and length, the tape material, information relevant to a record of using recorded data in each partition, user information, and other information that can be used in the managing of the writing/reading of data to/from the magnetic tape";

2. "identification information" as "[i]nformation that can be used to identify"; and

3. "identification-information determining means [for determining whether the first and second identification information . . . coincide with each other]" as "Function: determining whether first and second identification information coincide with each other / Structure: system controller 15, and equivalents."

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 1-2 (May 25, 2018); Order No. 39 (June 29, 2018) (granting motion). Accordingly, I adopt the agreed-upon constructions for the purposes of this investigation.

The parties also agree that the following limitations are *not* governed by 35 U.S.C. § 112, ¶ 6:

> "a controller for controlling an operation of the tape drive means based on the use-recognition information detected by the detector";
>
> "controller [that] controls the tape drive means for writing data to the magnetic tape [and said controller further] controls said tape drive means to use a last writing position on the magnetic tape as a writing start position";
>
> "controller [that] controls the tape drive means to write an identification information of the tape cassette stored in said memory together [as well as to / with] write data on the magnetic tape";
>
> "controller [that] controls the operation of the tape drive means based on a result of a comparison of the identification information comparator";
>
> "controller [that] performs data reading based on the use-recognition information [detected by the detector]"; and
>
> "a controller for executing only a particular operation based on a result of a determination by said identification-information determining means."

Id. at 2-4. Accordingly, these limitations will not be treated as means-plus-function limitations for the purposes of this investigation.

The parties assert a dispute over seven claim terms in the '596 patent:

1. tape cassette;
2. use-recognition information;
3. read-only area;
4. writing/reading, writes/reads and to/from;
5. a) tape drive means for running a magnetic tape and writing/reading information to/from the magnetic tape [claim 1],
   b) said tape drive means runs the magnetic tape and writes/reads information to/from the magnetic tape [claim 9];
6. memory drive means [for reading and writing/that reads or writes] management information by performing a predetermined communication process with a memory; and
7. interface means for transmitting data [between the memory and the memory drive means/of the management information].

Id. at 5-9.

Notwithstanding the parties' assertions, only three groups of terms require construction for resolution of this investigation: (1) "tape cassette," (2) "writing/reading," "writes/reads," "to/from," and (3) "memory drive means [for reading and writing/that reads or writes] management information by performing a predetermined communication process with a memory." The construction of the other terms do not affect any issue in this investigation, and therefore the terms need not be construed. *See Vivid Techs., Inc. v. American Sci. & Eng'g, Inc.*, 202 F.3d 795, 803 (Fed. Cir. 1999); *Vanderlande Indus. Nederland BV v. Int'l Trade Comm.*, 366 F.3d 1311, 1323 (Fed. Cir. 2004).

1. "tape cassette"

The term "tape cassette" appears in asserted independent claims 1 and 9 and dependent claims 3 and 11, and is incorporated by dependency into asserted claims 2, 4, 5, 6, 7, 8, 10, 12, and 13. The parties propose the following constructions for this term:

Sony	Fujifilm	Staff
housing with magnetic tape	housing with magnetic tape wound around two reels	Construction of this term is unnecessary. If construction is required, however, this term should be construed as "housing with magnetic tape."

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 5 (May 25, 2018).

The core dispute between the parties is whether a "tape cassette" must have two reels, or if a tape with a single reel can satisfy the limitation. The language of the claims only requires the tape cassette to enclose the magnetic tape, and does not specify a limit to the number of reels the cassette may or may not contain. *See* JX-0001 at 21:24. Nor does any party argue that the specification limits a tape cassette to two reels. RRB at 48; CIB at 106; CRB at 47; SIB at 102.

Fujifilm's argument instead starts with the premise that the plain and ordinary meaning of "tape cassette" requires two reels, and that the specification does not expand the ordinary meaning of "tape cassette" to encompass a single-reel housing. RRB at 48. To establish that the plain and ordinary meaning of "tape cassette" requires two reels, Fujifilm attempts to differentiate the term "cartridge" from the term "cassette." Fujifilm argues that "cartridge" is a reel-ambiguous genus whereas "cassette" is a specific two-reel species. RIB at 92; RRB at 48. As evidence, Fujifilm points to the hearing transcript from the 337-TA-1050 investigation, which is not part of the record in this investigation, the testimony if its expert on direct and cross examination, technical books and articles, and dictionary definitions. RIB at 92-93 (citing Tr. at

741:19-742:7 ("Cartridge is a superset, if you will, more expansive than a cassette. Cassette is limited to two reels, in my opinion"); RX-0004C at Q/A 163-180 (discussing RX-0214 to RX-0220); CX-0411 at 4 (defining a cassette as having "reels which are driven on their axis"); RRB at 48-49 (citing RX-0216 at 147, 149). For example, Fujifilm cites a textbook published in 1999 entitled "Magnetic Recording: The First 100 Years" has the section heading "Cassette (Two Reels) or Cartridge (One Reel)." RX-0214 at 186.

Sony counters that the '596 patent uses "cartridge" and "cassette" interchangeably, not as a genus and species. CIB at 106 (citing JX-0001 at 9:50-55, 14:23-28, 20:3-18, figure 23; CX-0003C at Q/A 273-276; CX-0013C at Q/A 130). Sony then argues that cartridges were understood to have one or more reels, and by implication so were cassettes. *Id.* As evidence, Sony points to the cross-examination testimony of Fujifilm's expert, an inventor of the '596 patent, dictionary definitions, Fujifilm's asserted prior art, and Fujifilm's patent applications. CIB at 47-48 (citing Tr. at 742:1-7; JX-0081C at 29:17-30:9, 33:4-37:13; CX-0410; CX-0411; CX-0412; CX-0413; RX-0211; RX-0212; RX-0224 at 1:16-17; CX-0413 at [0008]). For example, a U.S. Patent Application listing Fujifilm as the assignee that published as 2003/0025021 states that "magnetic tape cassettes are available in two types . . . the second type comprising magnetic tape wound around a single reel which is also housed rotatably in the case (this is a so-called one-reel type)." CX-0413 at [0008]. As to Fujifilm's evidence that shows a cassette would be understood as limited to two reels, Sony argues that those sources "are largely irrelevant because they define analog A/V cassettes" instead of cassettes in general. *Id.* (citing CX-0013C at Q/A 131-132).

I find the specification uses "cartridge" and "cassette" interchangeably. For example, the specification states that "when writing is performed ***using the tape cassette 1 . . . a cartridge***

serial number stored in the remote memory chip **4** as identification information of the tape cassette **1** is written in the data area A1 . . . ." JX-0001 at 9:50-55 (emphasis added). Similarly, the specification also states that: "a serial number that is ASCII-based 32-character information is stored ***as a cartridge serial number***, and the code number of the manufacturer ***of the tape cassette 1***, which is a manufacture identifier, is stored as manufacturer ID." JX-0001 at 14:23-28 (emphasis added). In addition, in the Object and Summary of the Invention section, when describing this same operation, the specification refers to "tape cassette's serial number" rather than "cartridge serial number," again suggesting the interchangeability of "cartridge" and "cassette." JX-0001 at 2:48-56; *see id.* at 4:21-25, 20:44-49. While Fujifilm is correct that such language could be consistent with a definition of cartridge that is a superset of cassette, the better reading is that the specification does not make such a distinction.

Moreover, the extrinsic evidence and associated expert testimony cuts both ways. The evidence relied on by Fujifilm largely supports the understanding that the cassette being discussed had two reels, and the evidence relied on by Sony largely supports the understanding that a cassette was defined based on it having a magnetic tape within in, not based on the number of reels.

The invention described and claimed in the '596 patent is not concerned with the number of reels in the tape cassette. Nor does the evidence show that a person of ordinary skill in the art would understand the '596 patent to be directed to only those housings that have two reels. Accordingly, the term "tape cassette" is construed to mean "housing with magnetic tape" and does not require a particular number of reels.

2. "writing/reading," "writes/reads," and "to/from"

The terms "writing/reading," "writes/reads," and "to/from" appear in asserted independent claims 1 and 9, and are incorporated by dependency into asserted claims 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, and 13. The parties propose the following constructions for these terms:

Sony	Fujifilm	Staff
plain and ordinary meaning, i.e., "writing or reading, writes or reads, and to or from, respectively"	indefinite	Construction of this term is unnecessary. If construction is required, however, this term should be construed with its plain and ordinary meaning, which is the claim language itself. Alternatively, this term should be construed as "writing or reading," "writes or reads," and "to or from, respectively."

Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 6 (May 25, 2018).

Thus, the question is whether these terms are indefinite. Fujifilm argues that the terms are indefinite because a person of ordinary skill in the art would not have known what the forward-slash ("/") in the term refers to. RIB at 96-97. For example, in claim 1, Fujifilm asserts that such a person would not have known whether the limitation "tape drive means for running a magnetic tape and writing/reading information to/from the magnetic tape" requires a tape drive that can write to *and* read from a magnetic tape, or a tape drive that can only write to *or* read from a magnetic tape. *Id.*

"Definiteness is to be evaluated from the perspective of someone skilled in the relevant art . . . at the time the patent was filed." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2128 (2014). In order to be sufficiently definite, the "claims, viewed in light of the

specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty." *Id.* at 2129.

The specification uses the forward-slash convention to describe reading and writing functionality. For example, the specification describes an interface for "writing/reading to/from the nonvolatile memory to a tape streamer drive" and then "writing and reading management information concerning data writing to and data reading from the nonvolatile memory" so that "the operations of writing to and reading from the magnetic tape 3 can be efficiently performed." JX-0001 at 4:31-39 (emphasis added). The specification also uses the forward-slash convention in other contexts as an "and" or an "inclusive or." For example, the specification describes "loading/unloading" as "loading and unloading." *Id.* at 4:40-47. Indeed, it would make little sense if a tape drive could perform only one of these functions. The specification similarly describes a "compression/decompression circuit" that can perform both compression and decompression functionality. *Id.* at 7:3-20, 7:50-57.

Further, as Sony and Staff point out, the extrinsic record is replete with evidence that a forward slash was a well-known and widely-used convention in the magnetic storage field. *See* CIB at 112; SIB at 107-108. For example, Fujifilm's own marketing literature and patent filings, and the patent filings of Fujifilm's expert, use the forward slash to indicate reading and writing capabilities. Tr. at 780:6-19 (Fujifilm's expert testifying that "full read/write capability" in a Fujifilm document "refers to the tape drive being capable of reading and writing the identified media"), 783:14-25 (Fujifilm's expert testifying that he used the phrase "read/write channel" in a patent application on which he is listed as an inventor), 784:5-16 (same), 784:14-785:20 (Fujifilm's expert testifying that he used the phrase "[t]he controller 42 provides a control signal to a R/W channel circuit 44 during read/write operations" in a patent on which he is listed as an

inventor), 787:14-788:2 (Fujifilm's expert testifying that a patent assigned to Fujifilm uses the phrases "read/write of data" and "read/write controller"), 788:5-789:8 (Fujifilm's expert testifying that a patent assigned to Fujifilm uses the phrases "read/write device" and "the present invention related to a cartridge memory read/write device reading/writing data signals of a cartridge memory"), 789:9-791:2 (Fujifilm's expert testifying that a patent application assigned to Fujifilm uses the phrase "reading/writing data from/to said first memory," although the claims issued without the slashes).

Fujifilm focuses on the cross-examination testimony of Sony's expert, Dr. Mowry, to support its position. RIB at 98-99. Dr. Mowry testified that the best interpretation of the forward-slash is that it is neither an "and" nor an "or, but it is "an association of writing of information to the magnetic tape, reading information from the magnetic tape." *Id.* at 98 (quoting Tr. at 439:19-23). However, he then went on to testify that "inclusive 'or' is probably the best way to interpret this claim language if we need to replace the slash" and that "inclusive or . . . [is] very close to the concept." CX-0003C at Q/A 363; Tr. at 439:24-440:2. Fujifilm has not established that a person of ordinary skill in the art would not understand what a forward-slash means in the context of the '596 patent. Fujifilm has therefore not met its burden to establish that claims 1 and 9 are indefinite. *See Nautilus*, 134 S. Ct. at 2130 n.10.

Accordingly, Sony's proposed construction is adapted, with the understanding that the term "or" in Sony's construction is an inclusive or (sometimes written as "and/or"), not an exclusive or. *See* CIB at 113 n.42. "Writing/reading" is construed as "writing or reading," writes/reads" is construed as "writes or reads," and "to/from" is construed as "to or from."

3. "memory drive means"

The memory drive means limitation appears in asserted independent claims 1 and 9 from which claims 2-8 and 10-13 respectively depend.[17] As discussed in more detail below, this term is relevant to Fujifilm's prior art defenses.

All parties agree that the claimed "memory drive means" should be construed as a means-plus-function limitation pursuant to 35 U.S.C. § 112, ¶ 6, and all parties agree that the function of the means is reading and writing management information, which is information that can control whether the tape can be written to or not. The dispute arises over the structure disclosed in the '596 patent that corresponds to the function. The parties propose the following constructions for this term:

[17] Although the memory drive means term is recited differently in each of independent claims 1 and 9, the parties do not contend that the differing recitations affect the determination of whether SCSI buffer controller is a corresponding structure required for all of the embodiments of the memory drive means.

Sony's Proposed Construction	Fujifilm's Proposed Construction	Staff's Proposed Construction
This limitation is governed by 35 U.S.C. § 112 ¶ 6. Function: reading and writing management information by performing a predetermined communication process with a memory Structure: System Controller 15 of Figure 1 with SCSI Buffer Controller 26 and Remote Memory Interface 30 of Figures 1 and 2 (for tape cassettes with remote memory chips) or predetermined connector part of 9:10-20 (for tape cassettes with contact memory) and their equivalents	This limitation is governed by 35 U.S.C. §112 ¶ 6. Function (claim 1): reading and writing management information Function (claim 9): reads or writes the management information Structure: System Controller 15 of Figure 1 with SCSI Buffer Controller 26 and Remote Memory Interface 30 of Figures 1 and 2 (for tape cassettes with remote memory chips) or predetermined connector part of 9:10-20 (for tape cassettes with contact memory) and their equivalents	This limitation is governed by 35 U.S.C. § 112 ¶ 6. Function: reading and writing management information by performing a predetermined communication process with a memory Structure: System Controller 15 of Figure 1 with SCSI Buffer Controller 26 and Remote Memory Interface 30 of Figures 1 and 2 (for tape cassettes with remote memory chips) or predetermined connector part of 9:10-20 (for tape cassettes with contact memory) and their equivalents

Joint M tion for Le ve to File Second Amended Joint ist of Prop sed Claim Terms, Exhibit A at 7-8 (lay 25, 201).

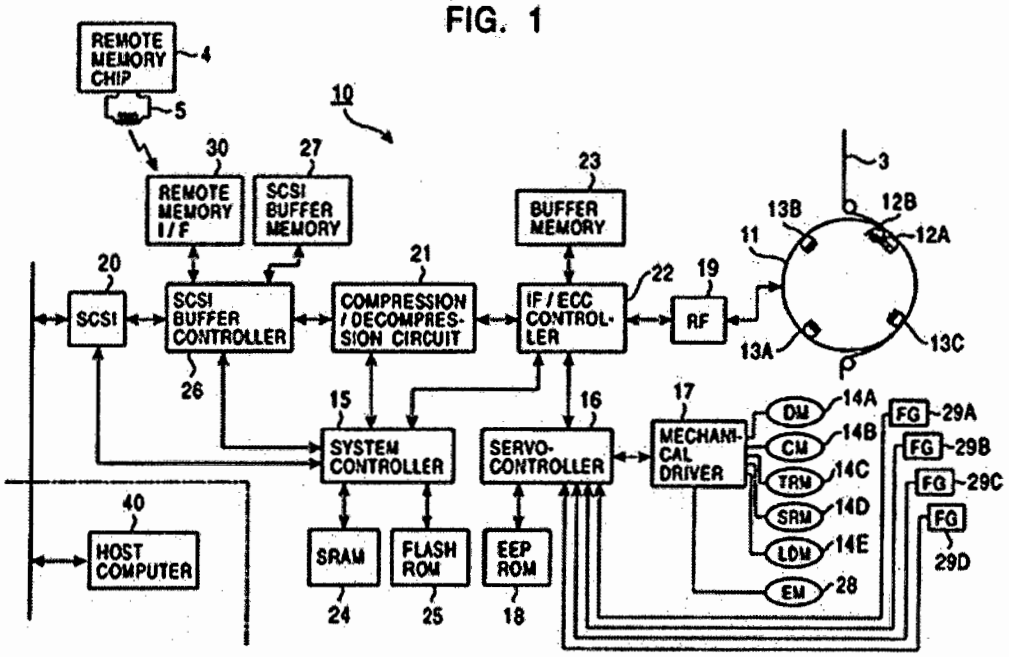
o understa d the dispute over the corresponding structu e, it helps to know that all parties agree the '596 patent discloses two embodiments of the invention. *See* CIB at 109; RIB at 95. In both e bodiments, the tape cassette has a memor that contains management information. In one embodiment, the memory on the cassette is called a "remote memory" and it communicates with the drive wirelessly. JX-0001 at 7:59-8:9. In another embodiment, the memory on the cassette is called the "contact memo y" and it communicates with the drive through contact pins. *Id.* at 9:10-20. As can be seen from the abo e table, the parties generally agree that the stru ture corresponding to the "mem ry drive eans" includes SCSI buffer

controller 26. *See* RIB at 94; *see also* CIB at 109; SIB at 106. The parties dispute, however, whether the SCSI buffer controller 26 is corresponding structure in both the remote memory embodiment and the contact memory embodiment. *See* CIB at 109; RIB at 95.

Sony and Staff contend that SCSI buffer controller 26 is a corresponding structure for the memory drive means for both the remote and contact memory embodiments. CIB at 109-110; SIB at 106; SRB at 23-24. According to Sony and Staff, SCSI buffer controller 26 is directly involved with the function performed by the memory drive means for both embodiments, *i.e.*, reading and writing management information. CIB at 109-110; RRB at 23-24. Sony and Staff each contend that the SCSI buffer controller 26 is necessary structure and thus corresponds (along with other components) to the recited memory drive means for all embodiments covered by the asserted claims.

Fujifilm asserts that SCSI buffer controller 26 is not part of the memory drive means in the contact memory embodiment for two reasons. RIB at 95. First, Fujifilm argues that the contact memory embodiment disclosed in the '596 patent does not describe or depict the use of SCSI buffer controller 26 for reading and writing management information. RIB at 95-96; RRB at 52. Fujifilm contrasts this lack of express disclosure by pointing out that Figure 1 of the '596 patent expressly illustrates the remote memory embodiment in which remote memory chip 4 communicates with system controller 15 by way of remote memory interface 30 and SCSI buffer controller 26:

FIG. 1



RIB at 95.

Second, Fujifilm points out that the '596 patent states that system controller 15 may "directly access" the contact memory in the contact memory embodiment. RIB at 95-96 (citing JX-0001 at 9:18-20); RRB at 52 (citing same). Fujifilm argues that SCSI buffer controller 26 is not a corresponding structure because it is not "required" or "needed" for writing to or reading from the memory in the contact memory embodiment given that contact memory can be "directly" accessed by system controller 15. RIB at 96; RRB at 52.

In assessing means-plus-function claims, "[s]tructure disclosed in the specification qualifies as 'corresponding structure' if the intrinsic evidence clearly links or associates that structure to the function recited in the claim." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1352 (Fed. Cir. 2015). Thus, the issue here is whether the '596 patent clearly links or associates SCSI buffer controller 26 with the functions performed by the memory drive means in the

contact memory embodiment. That issue is difficult to resolve because the '596 patent disclosure is open to alternative interpretations.

In particular, the '596 patent explains that in the contact memory embodiment, the terminals of contact memory are "electrically connected" to system controller 15 such that system controller 15 can "directly access" contact memory:

> By connecting the connector part to the terminal part 106, the five terminals of the contact memory, 105A, 105B, 105C, 105D, and 105E are electrically connected to the system controller 15. This enables the system controller 15 to directly access the contact memory 104 of the loaded tape cassette 1.

See JX-0001 at 9:10-20. This disclosure is ambiguous. The disclosure could be understood to mean that system controller 15 is electrically connected to contact memory without the need for intervening components, but there is no express disclosure of which intervening components could be eliminated. Fujifilm contends that the passage means there is no need for the intervening SCSI buffer controller 26, but it might just as well mean that there is no need for remote memory interface 30, for example.

The parties' experts disagree as to the correct interpretation of this disclosure. Sony's expert, Dr. Mowry, testified that SCSI buffer controller 26 is part of the tape drive hardware irrespective of the memory type. *See* CX-0003C at Q/A 388-393. Accordingly, "there needs to be a SCSI buffer controller, which will deal with the differing data transfer speeds between the tape drive's system controller and the host computer, on the one hand, and the system controller and the memory, on the other." *Id.* at Q/A 390. Fujifilm's expert, Dr. Messner, testified that a SCSI buffer is only needed for temporary data storage when data is being moved from one region to another in order to account for speed mismatch. RX-0004C at Q/A 237. According to Dr. Messner, there would be no speed mismatch, and therefore no need for a SCSI buffer, in the contact memory embodiment. *Id.*

What is disclosed by a patent specification is a question of fact, and I find that the evidence of record favors interpreting the SCSI buffer controller as corresponding structure for the memory device means in the contact memory embodiment.[18] *See In re Hayes Microcomputer Prods., Inc.*, 982 F.2d 1527, 1541-43 (Fed. Cir. 1992); *Ranpak Corp. v. Storopack, Inc.*, 168 F.3d 1316 (Fed. Cir. 1998) (unpublished) (holding that the determination of the corresponding structure may include questions of fact). The parties agree that the function performed by the memory drive means relates to reading and writing management information stored on remote memory chip 4 (in the remote memory embodiment) or in contact memory 104 (in the contact memory embodiment).[19] The nature of the management information stored does not differ based upon the type of memory; the only difference is the manner in which the management information is retrieved from the memory by system controller 15. *See, e.g.*, JX-0001 at 4:54-55, 12:4-17:18, 20:31-35. In addition, there is no indication in the '596 patent that the use of the management information changes depending upon its source (*i.e.*, whether it is retrieved from remote memory chip 4 or contact memory 104) or the mechanism by which it is retrieved by system controller 15. The '596 patent does teach, however, that the management information from the memory chip is shared with a host computer in order to determine subsequent read/write operations. *Id.* at 18:1-12, 48-65; *see also* CX-0003C at Q/A 390-392.

For example, the '596 patent explains that management information stored on the memory chip is used to restrict reading and writing to the tape media in WORM operations. JX-

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[18] The parties do not dispute that the SCSI buffer controller is a corresponding structure for the memory device means in the remote memory embodiment.

[19] The '596 patent collectively refers to the remote memory chip 4 and contact memory 104 as "memory-in-cassette" or "MIC." *See* JX-0001 at 4:56-58; 12:4-16.

0001 at 17:20-25; 19:56-62; 20:3-18. In describing these functions, the '596 patent expressly indicates that they are performed in both the remote and contact embodiments. *Id.* at 20:31-35. In addition, the '596 patent explains that "when writing is performed, identification information, such as the serial number of the tape cassette stored in the memory, is written on the magnetic tape together with write data. This enables the magnetic tape and the memory in the tape cassette to have common information." *Id.* at 20:44-49. Sony's expert explained that a SCSI buffer controller is necessary for this type of function to occur where there are different data transfer speeds between the system controller and host computer and the system controller and the memory on the cassette. *See* CX-0003C at Q/A 390; *see also* RX-0004C at Q/A 237. I find that the SCSI buffer controller is clearly associated with the reading and writing function performed by the memory drive means. The '596 patent specification links the recited functions of the memory drive means to the SCSI buffer in relation to communicating with a host computer and writing information to the tape media. *See Williamson*, 792 F.3d at 1352. Accordingly, a SCSI buffer controller shall be considered to be a part of the corresponding structure of the recited memory drive means for both the remote and contact memory embodiments.

D. Infringement

Sony alleges that Fujifilm's WORM LTO-4, LTO-5, and LTO-6 tape products infringe claims 1-13 of the '596 patent when used with compatible tape drives, and that Fujifilm's rewritable LTO-4, LTO-5, and LTO-6 tape products infringe claims 1, 3, and 6-8 when used with compatible tape drives.[20] CIB at 118-139; SIB at 112. Sony's evidence of Fujifilm's direct

[20] Allegations that Fujifilm's LTO-4, LTO-5, and LTO-6 non-WORM products infringe claims 4, 5, 9, 11, 12, and 13 are foreclosed. Order No. 19.

infringement activities consists of documents, emails, deposition testimony, and the testimony of its expert. CIB at 139-140 (citing evidence); CX-0003C at Q/A 773-885 (same). Sony's evidence of literal infringement consists of Fujifilm documents, website printouts, deposition transcripts, format specifications, and its expert's analysis of the products. CIB at 118-139 (citing evidence); CX-0003C at Q/A 139-176, 423-772 (same). Sony's expert, Dr. Mowry, walked through the evidence to provide a limitation-by-limitation infringement analysis for the asserted claims. *Id.* at Q/A 29-30, 139-176, 423-772.

Sony also alleges that Fujifilm indirectly infringes claims 1-13 of the '596 patent by inducing and contributing to the direct infringement by others, including customers and users of the accused Fujifilm products. CIB at 140-144 (citing evidence); CX-0003C at Q/A 30, 808-893 (same). Sony's evidence of the underlying acts of direct infringement by others consists of public reports, sales information, emails, test specifications and agreements, deposition testimony, testimony of a Fujifilm's witness, and the testimony of its expert. CIB at 140-141 (citing evidence); CX-0003C at Q/A 808-841 (same). Sony's evidence of induced infringement consists of documents provided from Sony to Fujifilm, test specifications and agreements, website printouts, product brochures and presentations, deposition testimony, testimony of a Fujifilm witness, and the testimony of its expert. CIB at 141-143 (citing evidence); CX-0003C at Q/A 842-883 (same). Sony's evidence of contributory infringement consists of documents provided from Sony to Fujifilm, specifications, deposition testimony, testimony of a Fujifilm witness, and the testimony of its expert. CIB at 144 (citing evidence); CX-0003C at Q/A 842-866, 884-893 (same).

Staff agrees with Sony that Fujifilm directly infringes the asserted claims by testing its accused tapes in compatible tape drives in the United States, but Staff asserts that this infringing

activity is not a violation of section 337 because the evidence does not show that Fujifilm imports both the accused tape products and the compatible tape drives together. SIB at 120 (citing *Certain Electronic Devices with Image Processing Systems, Components Thereof, and Associated Software*, Inv. No. 337-TA-724, Comm'n Op. at 13-19, USITC Pub. 4374 (Feb. 2013)). Staff further agrees with Sony that Fujifilm induces and contributes to the direct infringement by others in the United States, and this act of inducement is a violation of section 337. SIB at 120-124.

Fujifilm argues that it does not directly infringe the '596 patent (1) by importing the accused tapes because the tapes as imported do not meet the claim limitations, or (2) by testing the accused tapes after importation because it uses either licensed IBM drives or specialized hardware that does not have the required features. RIB at 102-103. Fujifilm argues that the accused tapes do not literally infringe the asserted claim because (1) the tapes contain a single reel instead of two reels, (2) Sony did not prove that the tapes have the required memory drive means or interface means, (3) the tapes do not store use-recognition information in a read-only area of memory, and (4) the tapes do not have identification information at the time of manufacture and sale by Fujifilm. RIB at 103-112. Fujifilm argues that it does not induce the direct infringe infringement of others because Sony did not prove that Fujifilm had the specific intent to induce infringement. RIB at 115-117. Finally, Fujifilm argues that it does not contribute to the direct infringement by others because use of the accused tapes with licensed IBM tape drives constitutes a substantial non-infringing use. RIB at 112-115.

Based on the evidence and arguments of the parties set forth in detail in the following subsections, I find that Sony has proven by the preponderance of the evidence that Fujifilm's inducement of and contribution to the predicate acts of direct infringement by others can form a

basis for a violation of section 337. I therefore need not reach the question of whether Fujifilm's own acts of direct infringement can form a basis for a violation of section 337.

1. The claimed "tape cassette" is not limited to products that have two reels.

Fujifilm argues that its accused tape cartridges do not satisfy the "tape cassette" limitations of claims 1, 3, 9, and 11 because they contain a single reel. RIB at 103. Fujifilm's non-infringement argument requires that its proposed construction for "tape cassette" be adopted, but its proposed construction was rejected. Section VI.C.1, *supra*; *see* RIB at 103; SIB at 113. This non-infringement argument is therefore also rejected.

2. Section 112 does not require the LTO CM Reader in the accused products to have an internal structure that is equivalent to the internal structure of the remote memory interface described in the specification.

Independent claims 1 and 9 both require a "memory drive means [for reading and writing/that reads or writes] management information by performing a predetermined communication process with a memory." JX-0001 at 21:21-39, 22:1-27. Dependent claim 8 further requires an "interface means for transmitting data [between the memory and the memory drive means/of the management information]." *Id.* at 21:64-67. All parties agree that the "memory drive means" and "interface means" limitations are means-plus-function limitations governed by 35 U.S.C. § 112 ¶ 6. Joint Motion for Leave to File Second Amended Joint List of Proposed Claim Terms, Exhibit A at 6-7 (May 25, 2018). All parties also agree that the corresponding structure for these limitations requires a "remote memory interface 30." *Id.*

Figure 1 of the '596 patent, embedded below, shows the remote memory interface 30 in the top-left corner of the block diagram of the inventive tape streamer drive:

FIG. 1

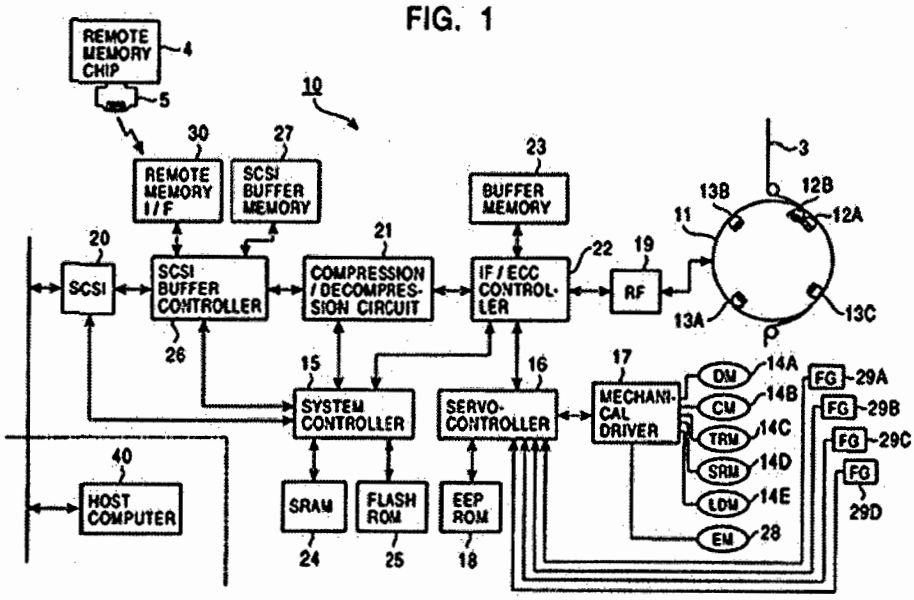
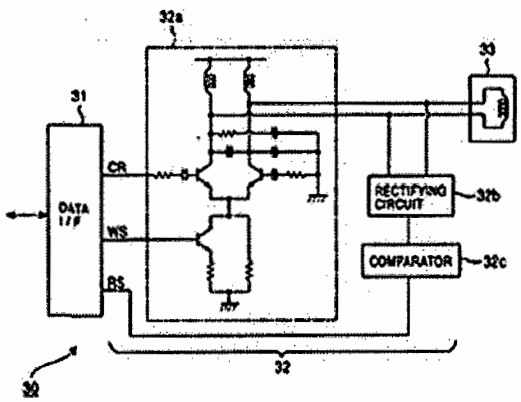


Figure 2 of the patent, embedded below, shows a block diagram of the internal structure of the remote memory interface 30:

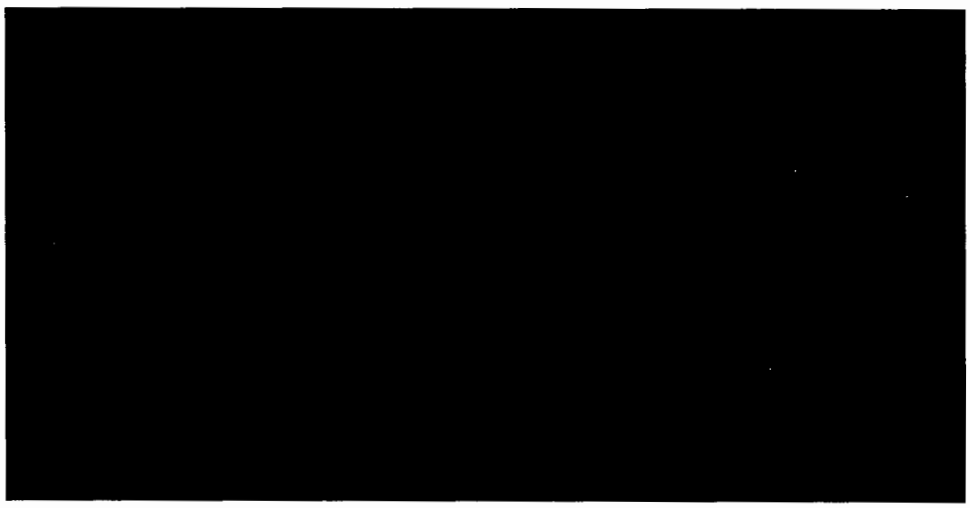
FIG. 2



According to the '596 patent, the remote memory chip 4 of a tape cassette "can transmit data by performing radio communication with a remote memory interface 30 of FIG. 1, in a tape streamer drive using an antenna 5." *Id.* at 4:17-20. Specifically, when a tape cassette is loaded into the "tape streamer drive, 10 of FIG. 1," "the remote memory chip is set to be in condition

capable of performing data input/output with the system controller 15 via the remote m mory interface 30." *Id.* at 7:59-64.

Sony points to the "LTO CM Reader" of an .TO tape drive as satisfying the remote memory interface st:ucture. CIB at 121-122. Sony's expert, Dr. lowry, testified that the LTO CM Reader is depicted in Figure F.5 of the LTO-4, L 'O-5, and LTO-6 specifications, and that [redacted] CX-0003C at Q/A 507-508 (referring to CDX-)03C at 319 (embedding Figure F.5 from the LTO-6 specifica ion)). This figure with descriptive ext is embedded below.



JX-0090C at 188.

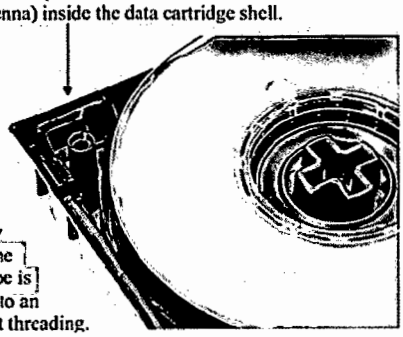
Sony also points to a Fujifilm marketing brochure that depi :ts a CM (cartridge memory) reader. Dr. Mowry ncluded a demonstrative, excerpted below, where he identified the cartridge memory in the broc ıure in green with a green arrow, a ıd where he highlighted the relevant text from the brochure i ı yellow. *Id.* at Q/A 512 (embedding CDX-0003C at 320 (embedding CX-0392)).

Fujifilm 13.56 MHz LTO Cartridge Memory (LTO-CM)

LTO Cartridge Memory (LTO-CM) uses Inductive Coupling. An inductive coil in the drive, library picker or external LTO CM-Reader powers and communicates with the LTO CM electronic module (EEPROM/antenna) inside the data cartridge shell.

This passive RF interface has a range of up to 20mm from the reader-coil to the cartridge CM (the closer the better). The CM stores 4 KB of information as 128 X 32 byte blocks and data transfers to and from the CM in 32 byte blocks.

CM for Ultrium2 is the same as Ultrium1; however, it is factory programmed with new Ultrium2 parameters. As a tape is loaded, the drive's CM-Reader reads the CM and the tape is identified. If an Ultrium2 tape is inserted into an Ultrium1 drive it immediately ejects without threading.



See also id. at Q/A 513-525 (testifying about JX-002 3C, CX-05 1, CX-0562, CX-0564, CX-1149C).

Finally, Son · points to the testimony of Fujifilm's expert, Dr. Messner, who testified that "each L O tape drive has a CM reader in it." Tr. at 745:15-17. Dr. Messner also agreed that the LTO sp cifications "include some requirements wit respect to how the LTO CM reader communicates with the memory in the cartridge" and that the LT) CM reader has an antenna. *Id.* at 74 5:4-19.

)espite this undisputed evidence, Fujifilm argues that Sony did not meet its burden to show that the accus d products have a "memory drive means" bec use Sony did not identify in the accu ed product the same internal structures of the remote me nory interface 30 depicted in Figure 2 of the '596 patent. RIB at 104. In other words, Fujifilm asserts that the remote memory interface structure identified in the accused products must have every internal component as shown i Figure 2 a id as described in the '596 patent. *Id.* at 105-1)6 (arguing that the following compon nts are necessary structures: "a data interfa e (I/F) 31; an RF interface 32 (which includes RF-modulation/amplification circuit 32a), a rectifying ci cuit 32b, a comparator 32c, and an ntenna 33"). Fujifilm then argues that Figu e F.5 of the LTO specifications cannot

satisfy Sony's burden because it is a "cartoon" [redacted] *Id.* (citing JX-0090C at 188).

Fujifilm is correct that Sony is required to "point to structure in the accused products that corresponds to the Remote Memory Interface 30 of Figures 1 and 2," but Fujifilm is incorrect that the structure in the accused products must have the same components or internal structure as the remote memory interface in the '596 patent. Section 112 does not require a component-by-component equivalence between the relevant structure identified in the patent and the portion of the accused device asserted to be structurally equivalent. *Odetics, Inc. v. Storage Tech Corp.*, 185 F.3d 1259, 1266-68 (Fed. Cir. 1999) ("The individual components, if any, of an overall structure that corresponds to the claimed function are not claim limitations. Rather, the claim limitation is the overall structure corresponding to the claimed function."). Fujifilm's reliance on *Intellectual Sci. & Tech., Inc. v. Sony Elecs., Inc.*, is misplaced because, in that case, the expert's conclusory statement did not pinpoint where the accused structure was found in the accused devices. 589 F.3d 1179, 1184-85 (Fed. Cir. 2009). Here, Dr. Mowry identified with particularity where the accused remote memory interface—the LTO CM Reader—was found in the accused products.

In sum, Sony pointed to sufficient evidence that the accused products perform the identical function as the "memory drive means" and "interface means" limitations, and that they perform that function in relevant part with the LTO CM Reader, which is equivalent to the remote memory interface as disclosed in the specification. *See Kearns v. Chrysler Corp.*, 32 F.3d 1541, 1548 n.8 (Fed. Cir. 1994) (quoting *Carroll Touch, Inc. v. Electro Mechanical Systems, Inc.*, 15 F.3d 1573, 1578 (Fed. Cir. 1993)). Fujifilm's assertion that Sony did not establish that the internal structure of the LTO CM Reader is not the same as the internal

structure of the remote memory interface described in the '596 patent is premised on an incorrect legal requirement.

3. The evidence shows that the accused products comprise a read-only area of memory in which use-recognition information is stored.

Claim 1 of the '596 patent requires "use-recognition information" that is "stored in a read-only area" of the tape cassette memory. JX-0001 at 21:21-39. Dependent claims 7 and 13 require that the tape cassette memory "comprises a read-only area and a rewriteable area." *Id.* at 21:61-63, 22:41-43.

Sony identifies the "Cartridge Type" and "Format Type" fields of the accused products as meeting the "use-recognition information" limitation, and asserts that "the LTO specifications [redacted]." CIB at 127-128 (citing CX-0003C at Q/A 600-646; JX-0090 at 144; JX-0091C at 143; JX-0104C at 140). Staff agrees that these fields satisfy the "use-recognition information" that is "stored in a read-only area" limitations. SIB at 115-118.

Sony's expert, Dr. Mowry, explains that the LTO specifications, excerpted below as highlighted by Sony, [redacted]." CIB at 128; CX-0003C at Q/A 601-607 (explaining Table D-1 from the LTO-4, LTO-5, and LTO-6 specifications), 613-622. He further explains that the LTO specifications mandate that the [redacted]. CX-0003C at Q/A 605-609.

[redacted]

ıccording to Sony's expert, the [redacted] *Id.* at Q/A 610, 623. The [redacted] *Id.* at Q/A 611-612, 6 !4-629; Tr. ıt 484:11-485:22 (Dr. Mowry testifyin ɜ that [redacted].

Fujifilm argues that Sony did not establish that the accused products store the Cartridge Type and Format T /pe data in read-only memory for hree reasons. First, Fujifilm points to a portion ɔf the LTO specification that describes the [redacted] RIB at 108-109 (citing FX-0090C at 145-146; RX-0584C at Q/A 245–247, 255; Tr. a: 796:2-7). Fujifilm admits that it [redacted] *Id.* at 109-110 (citing RX-058 4C at Q/A 246-250; Tr. at 458:17-460:4, 796:2-20). This arg ıment does not discount Sony's evidence beca ıse Fujifilm does not point to

any evidence, or even make an assertion, that the [redacted]. *See* Tr. at 765:12-766:13 (Dr. Messner testifying that a change to the [redacted]. And, even if it does change, the evidence shows that it only [redacted]. *See* CX-0003C at Q/A/ 633. Fujifilm's speculation that the Protected Pages could become writable does not, in view of Sony's evidence, support an implication that the Protected Pages ever become writable. *See* Tr. at 467:3-11 (Dr. Mowry testifying that an [redacted]

Further, even if Fujifilm did establish that the Protected Pages on some of the accused products became writable prior to initialization, there are other accused products where the Protected Pages remain read-only, and those products meet this limitation. *Cf. Virnetx, Inc. v. Cisco Systems, Inc.*, 767 F.3d 1308, 1322 (Fed. Cir. 2014) (holding that the patent owner does not bear the burden to show that the accused product "has no non-infringing mode of operation," and citing *Z4 Technologies, Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1350 (Fed. Cir. 2007) ("[I]nfringement is not avoided merely because a non-infringing mode of operation is possible.")). And the evidence shows that the Protected Pages are read-only after initialization and thus meet this limitation after that point. Tr. at 484:12-485:22. There is ample circumstantial evidence that the accused products are initialized in the United States when users insert the tapes into compatible drives for the first time, thereby forming the basis for an underlying act of direct infringement necessary for Sony's indirect infringement allegations. *See*

SIB at 121 (citing evidence that "Fujifilm sells [redacted] of LTO-4, LTO-5 and LTO-6 tape products in the United States annually" and that its "customers use[] the tapes according to their intended use").

Second, Fujifilm argues that the memory containing the Cartridge Type and Format Type is not read-only upon importation, [redacted]. RIB at 109-110. Fujifilm's argument is only relevant if its actions of direct infringement under 35 U.S.C. § 271(a) form the basis for a violation of section 337. As discussed in Section VI.D.4, *infra*, I need not reach this issue because I find other acts sufficient to support a finding of infringement and a violation of section 337.

Third, Fujifilm argues that Sony has not established that the [redacted] instead of physically reviewing of the accused products. RIB at 110-111. Sony's reliance on the LTO specifications, which the accused products undisputedly comply with, is sufficient to establish by a preponderance of the evidence that the [redacted]. *See Spansion, Inc. v. Int'l Trade Comm'n*, 629 F.3d 1331, 1349 (Fed. Cir. 2010). Fujifilm could have rebutted Sony's evidence by putting forth contrary evidence, for example, that its products do not comply with the relevant LTO specifications, but it did not do so. *See* Tr. at 801:12-802:2 (Fujifilm's expert testifying that the accused products comply with the LTO specifications); *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008).

4. The imported tape cartridges cannot satisfy the tape drive limitations of the asserted claims, and therefore are not articles that directly infringe the claims at the time of importation.

The parties agree that Fujifilm imports the accused LTO-4, LTO-5, and LTO-6 tape cartridges into the United States. JX-0007C. The parties also agree that the claims require a tape drive in addition to the tape cartridges, and that Fujifilm does not import the tape drives with the

tape cartridges. The question, therefore, is whether Fujifilm's importation of the tape cartridges is the importation of an article that infringes the '596 patent. 19 U.S.C. § 1337(a)(1)(B)(i).

In *Suprema Inc. v. International Trade Commission*, the Federal Circuit held that the importation of an article that infringes under 35 U.S.C. § 271(b) (the inducement statute) can support a section 337 violation when the predicate acts of direct infringement occur in the United States. *Suprema Inc. v. Int'l Trade Comm'n*, 796 F.3d 1338, 1345, 1352-53 (Fed. Cir. 2015) (en banc). That is the controlling law.

Sony alleges that third parties directly infringe the asserted claims in the United States by "offering to sell, selling, and using the accused Fujifilm LTO products in LTO drives in the US." CIB at 140. Specifically, Sony provides evidence that "Fujifilm sells [redacted] of LTO tapes in the US each year" to "vendors who re-sell the tapes" and "enterprise customers who either sell or use them." *Id.* (citing CX-0003C at Q/A 809-826, 860-866; CX-0552; CX-1326C; CX-1133C; RX-0014C; JX-0022C; JX-0025C; JX-034C; JX-0043C; JX-0053C; JX-0054C). Sony also alleges and provides evidence that downstream purchasers of the accused products "infringe by using them in their intended manner of use (*i.e.*, with drives to store data in an LTO-compliant manner)." *Id.* (citing CX-0003C at Q/A 814-27, 837, 860-893; JX-0039, JX-0040, JX-0041, JX-0042, JX-0043, JX-0044, JX-0045C). Sony's evidence does not include proof of actual use or sales in the United States by Fujifilm's customers or downstream purchasers of the accused products; Sony instead relies on circumstantial evidence that the vast amount of accused products in the United States being used according to their intended purpose, and the accompanying sales of the accused products, are acts of direct infringement. *Id.* (citing *In re Bill of Lading Transmission and Processing Sys. Patent Litig.*, 681 F.3d 1323, 1336 (Fed. Cir. 2012)).

Staff agrees that Sony's evidence is sufficient to meet its burden of establishing the underlying acts of direct infringement. SIB at 120-122 ("[I]t is a more than reasonable inference that Fujifilm's customers used Fujifilm's LTO-4, LTO-5, LTO-6 products that they purchased according to their intended use in compatible LTO-4, LTO-5, LTO-6 tape drives . . . .").

Fujifilm does not dispute Sony's evidence of direct infringement by third parties. *See* RIB at 112-117. Instead, Fujifilm argues that the accused tape cartridges as imported cannot be "articles that infringe" under section 337 for the purposes of direct or indirect infringement because the asserted claims require a tape drive in addition to the tape cartridges. *Id.* at 102. *Suprema* forecloses Fujifilm's argument. In *Suprema*, the Federal Circuit affirmed the Commission's finding that the respondent induced infringement of the asserted claims at the time of importation by importing accused scanners into the United States with the requisite knowledge and intent, where the underlying act of direct infringement occurred when the scanners were integrated with software and used in the United States. 796 F.3d at 1342-43, 1352.

Here, the evidence shows that third parties more likely than not use the accused products with compatible LTO drives in a way that infringes the asserted claims of the '596 patent. As discussed below, Fujifilm induces that infringement, just as the respondent induced infringement in *Suprema*.

5. The evidence shows that Fujifilm had the requisite knowledge of the '596 patent and of infringement of the patent as required for induced and contributory infringement, and the specific intent to bring about the infringement as required for induced infringement.

Liability for both induced and contributory infringement "requires knowledge of the patent in suit and knowledge of patent infringement." *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1926 (2015) (citing *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S.

476, 488 (1964)). Fujifilm asserts that it did not possess the requisite knowledge because Sony only accused Fujifilm of infringing claims 14-19 of the '596 patent, not the asserted claims, prior to 2016. RIB at 116. Fujifilm also asserts that knowledge of how the LTO drives operate "is within the purview of the drive manufacturers, not Fujifilm," so it could not have known that the drives met the claim limitations. *Id.*

The evidence shows that Fujifilm [redacted]. *See* CIB at 141 (citing evidence); SIB at 122 (same). For example, a deputy manager in Sony's Intellectual Property division testified that [redacted] CX-0007C at Q/A 51-54 (testimony of Hiroshi Kamitani).

The evidence also shows that Fujifilm knew that its accused tape cartridges infringed the asserted claims of the '596 patent when used with a corresponding LTO tape drive, or that Fujifilm was willfully blind to the infringement. *See Warsaw Orthopedic, Inc. v. NuVasive, Inc.*, 824 F.3d 1344, 1347 (Fed. Cir. 2016) ("[W]illful blindness can satisfy the knowledge requirement for active inducement under § 271(b) (and for contributory infringement under § 271(c)), even in the absence of actual knowledge." (citing *Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754 (2011)). In September 2015, Sony provided Fujifilm with a claim chart showing how Fujifilm's accused products infringed non-asserted claims 14-16 of the '596 patent, which are directed only to the tape cartridges, [redacted]. CX-0007C at Q/A 16-25; CX-0565C (the claim chart); CX-0566C (letter from Sony to Fujifilm on February 25, 2016, where Sony notified that its LTO tape

cartridges practiced the '596 patent); *see* CX-0003C at Q/A/ 855-859. Fujifilm is correct that unasserted claims 14-16 contain limitations directed only to tape cartridges, not tape drives. But this distinction does not negate Fujifilm's undisputed knowledge of the '596 patent and how relevant claim elements map to Fujifilm products. Tr. at 93:18-24 (Fujifilm's counsel in opening statement stating that claims 14-19 of the '596 patent "are very similar" to the claims at issue here), 94:6-11 (stating that, in comparison to claim 14, "claim 1 adds, we believe, nothing new, nothing unique"). For example, unasserted independent claim 14 requires a recording medium with a memory that stores "use-recognition information" in a read-only area. JX-0001 at 22:44-52. Asserted independent claim 1 requires a tape drive apparatus that reads the memory of the recording medium, including the "use-recognition information [that] is stored in a read-only area" of the memory. *Id.* at 21:21-39, 22:1-27. Further, as discussed above, the accused tape cartridges are intended to be used with compatible LTO tape drives that have the functionality described in the asserted claims, and Fujifilm either knew or was willfully blind to the use by third parties. *See also* CX-0003C at Q/A 884-92.

Liability for induced infringement, but not contributory infringement, also requires specific intent to bring about the infringement. *Commil*, 135 S. Ct. at 1928; *Nalco Co. v. Chem-Mod, LLC*, 883 F.3d 1337, 1357 (Fed. Cir. 2018). Circumstantial evidence can support a finding of specific intent to induce infringement. *Vanda Pharm. Inc. v. W.-Ward Pharm. Int'l Ltd.*, 887 F.3d 1117, 1129 (Fed. Cir. 2018). "Inducement can be found where there is '[e]vidence of active steps taken to encourage direct infringement,' which can in turn be found in 'advertising an infringing use or instructing how to engage in an infringing use.'" *Takeda Pharm. U.S.A., Inc. v. W.-Ward Pharm. Corp.*, 785 F.3d 625, 630-31 (Fed. Cir. 2015) (quoting *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 936 (2005)).

To establish Fujifilm's intent, Sony points to Fujifilm's product literature, website, and domestic customer support for the accused products. CIB at 141-142 (citing evidence); *see* SIB at 122-123 (same). This evidence shows that Fujifilm instructs and encourages customers to use the accused products with compatible LTO drives to store and protect data. *See* CX-0003C at Q/A 867-883 (Sony's expert, Dr. Mowry, explaining CX-0135C; CX-0400; JX-0045C; JX-0092, JX-0093, JX-0094). For example, a Fujifilm product brochure for the accused products instructs users on which drive models are compatible with which cartridges. CX-0400. When users use the accused products with compatible LTO drives, the cartridges are initialized and operate pursuant to the LTO specifications. CX-0003C at Q/A 561-573, 861-862, 888. In this case, Fujifilm's advertising and instructing users how to perform infringing actions evidences that Fujifilm had specific intent to bring about the infringement. *See Vanda Pharm.*, 887 F.3d at 1129-1133.

Fujifilm argues that the use of the accused products in licensed tape drives is a substantial non-infringing use that negates any specific intent that it might have to infringe the patents. RIB at 115 (citing *Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348, 1365 (Fed. Cir. 2003); *Takeda Pharm.*, 785 F.3d at 630). Fujifilm's argument is unavailing to avoid liability for inducement of infringement. A company that supplies an article that can be used in noninfringing ways (sometimes called a "staple article") may yet be liable for infringement when that company has knowledge of the patent and intends others to use the staple article to infringe.

The drafters of the Patent Act[21] understood this from the beginning. Giles S. Rich explained, "There is no reason to construe paragraph (c) [of section 271 of the Patent Act] as in any way a limitation on paragraph (b), which stands by itself. There have been recent cases of active inducement wherein the thing sold had non-infringing uses but acts additional to the mere sale resulted in active inducement and liability for infringement." Rich, *Infringement under Section 271 of the Patent Act of 1952*, 21 Geo. Wash. L. Rev. 521, 539 (1953). Another drafter, L. James Harris, explained that potential noninfringing uses of a staple article are no defense to liability for inducement under section 271(b): where one supplies a staple article and induces others to use that article for infringement, "a person would be guilty of the something more than merely selling a staple article of commerce. It then would be an infringement whether it concerned a staple article or not." Harris, *Some Aspects of the Underlying Legislative Intent of the Patent Act of 1952*, 23 Geo. Wash. L. Rev. 658, 696 (1954-55) (citing testimony of Giles S. Rich before Congress). The Supreme Court has interpreted the Patent Act consistently with the drafters' understanding. In *Grokster*, the Supreme Court explained that "the Patent Act's exemption from liability for those who distribute a staple article of commerce, 35 U.S.C. § 271(c)," does not extend "to those who induce patent infringement, § 271(b)." 545 U.S. 913, 935 n.10 (2005). *Cf. Sanofi v. Watson Labs. Inc.*, 875 F.3d 636, 646 (Fed. Cir. 2017) (noting that

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[21] Congressman Crumpacker stated that "[w]hen the courts, in seeking to interpret the language of the [Patent] Act, go through the ritual of seeking to ascertain 'the intent of Congress' in adopting same, they would do well to look into the writing of these men--[P.J.] Federico, [Giles S.] Rich, [L. James] Harris--as they, far more than any member of the House or Senate, knew and understood what was intended by the language used." "Symposium on Patents," Summary of Proceedings, Section of Patents, Trademark and Copyright Law (Chicago: American Bar Center, 1962) 143. The Supreme Court has also heavily relied on Judge Rich's testimony when interpreting section 271 of the Patent Act. *Dawson Chem. Co. v. Rohm & Hass Co.*, 448 U.S. 176, 204-14 (1980).

"[s]ection 271(b), on inducement, does not contain the 'substantial noninfringing use' restriction of section 271(c), on contributory infringement," and that "a person can be liable for inducing an infringing use of a product even if the product has substantial noninfringing uses"); *see also Certain Products Containing Interactive Program Guide and Parental Control Technology*, Inv. No. 337-TA-845, Comm'n Op., at 18 (Nov. 12, 2013).

Here, the evidence shows that Fujifilm had knowledge of the '596 patent, had knowledge of the direct infringement by third parties in the United States, and had the specific intent to induce that infringement. The potential of non-infringing uses for some Fujifilm tapes in some drives does not shield Fujifilm from liability for inducing infringement. I find that Fujifilm induced infringement under 35 U.S.C. § 271(b), and that it imported articles that infringe under section 271(b) of the Patent Act in violation of section 337 of the Tariff Act of 1930.

6. The authorized sale of IBM tape drives constitutes a substantial non-infringing use to defeat Fujifilm's liability for contributory infringement.

Liability for contributory infringement requires, among other things, that the accused party sells, offers to sell, or imports a component of a patented machine, where the component constitutes a material part of the invention and is not suitable for substantial non-infringing use. 35 U.S.C. § 271(c). Fujifilm imports the accused tape cartridges, which are components of the asserted claims of the '596 patent that require both a tape drive and a tape cartridge. An accused tape cartridge therefore must constitute a material part of the invention claimed in the '596 patent, and not be suitable for substantial non-infringing use, in order for Fujifilm to be held liable for contributory infringement.

Fujifilm argues that the accused tape cartridges are suitable for substantial non-infringing use because the tape cartridges can be used in LTO tape drives manufactured by IBM. RIB at 112-113. Fujifilm asserts that the use of its cartridges in IBM's drives do not infringe the

asserted claims because IBM licenses the '596 patent from Sony. *Id.*; CX-1044C. Fujifilm relies on the doctrine of patent exhaustion to argue that "Sony cannot assert its patent rights in the combination of an IBM LTO drive and a Fujifilm LTO cartridge," which makes the combination a non-infringing use. RIB at 112. All parties appear to agree that IBM's tape drive constitute approximately [redacted] the use of Fujifilm's accused tape cartridges in the United States, which Fujifilm argues is substantial. RIB at 114 (citing RX-0584C at Q/A 326–333); SRB at 71 (citing RIB at 114).

The doctrine of patent exhausting imposes a limit on the patent owner's right to exclude. *Impression Prod., Inc. v. Lexmark Int'l, Inc.*, 137 S. Ct. 1523, 1531 (2017) (*Lexmark*). Specifically, when a patent owner sells an item, that item "is no longer within the limits of the monopoly" and instead becomes the property of the purchaser "with the rights and benefits that come along with ownership." *Id.*

As an initial matter, Fujifilm presents only tenuous evidence to support its assertion that IBM has a license to the '596 patent such that a sale of an IBM tape drive is an authorized sale. Fujifilm's initial brief only cites to the Sony-IBM agreement (CX-1044C) and another document that is not in evidence (CX-1419C) for its assertion. RIB at 112. The Sony-IBM agreement, however, [redacted]. CX-1044C. The agreement on its face appears to be a cross-license between Sony and IBM to certain patents and certain products, [redacted]" but Fujifilm does not cite any evidence that the language of the cross-license includes a license to the '596 patent or covers the relevant IBM LTO tape drives. *Id.*

Fujifilm's reply brief provides only a general citation to the economic domestic industry portion of Sony's initial post-hearing brief, at pages 174-175, for the proposition that the Sony-

IBM agreement "grants IBM a 'broad' right to 'sell and otherwise transfer' products practicing the '596 Patent." RRB at 64. In footnote 50 on page 174 of its reply brief, Sony does state that IBM LTO drives are "IBM Licensed Products" pursuant to the agreement. SIB at 174-175 n.50 (citing CX-0007C at Q/A 89). And, although Fujifilm does not make this assertion, the Sony-IBM license does appear include [redacted] CX-1044C [redacted] As patent exhaustion is an affirmative defense, Fujifilm bears the burden to prove by a preponderance of the evidence that IBM's sale of authorized tape drives exhausts Sony's rights to the '596 patent. *Jazz Photo Corp. v. ITC*, 264 F.3d 1094 (Fed. Cir. 2001), abrogated on other grounds by *Lexmark*. Fujifilm's post-hearing briefing skated over the predicate requirement that Sony authorized IBM's sale of its LTO drives, but the evidence in the record discussed in Sony's brief indicates that IBM's tape drives are more likely than not licensed under the '596 patent.

The next question is whether IBM's sale of its LTO tape drives for use with Fujifilm's unlicensed tape cartridges is an authorized sale. If IBM complies with the license when selling the LTO drives, then Sony has, in effect, authorized the sale, even if purchasers did not comply with any post-sale restriction imposed by IBM. *Lexmark*, 137 S. Ct. at 1535. If Sony has not given IBM the authority to sell the LTO tape drives for use with Fujifilm's unlicensed tape cartridges, then such a sale cannot exhaust Sony's rights. *Id.*

Sony points to [redacted] of the Sony-IBM agreement to argue that "third-party infringers like Fujifilm" are specifically excluded. SIB at 165-166. [redacted]:

[redacted]

[redacted]

CX-1044C [redacted] This section does not restrict IBM's sale of the LTO tape drives, and therefore Sony's right to exclude how a third-party purchaser uses the LTO tape drives appears to be exhausted.

The remaining question for the issue of patent exhaustion is whether Sony's rights to exclude others from practicing a claim that requires both a tape drive and a tape cartridge can be exhausted by the authorized sale of the tape drive alone. In other words, does a person have authority to practice a claim to a system requiring both a tape drive and a tape cartridge if the person has authority to use the tape drive without restriction?

The facts of *Quanta Computer, Inc. v. LG Elecs., Inc.*, are similar enough to these facts here for that precedent to be dispositive of this issue. 553 U.S. 617 (2008). *Quanta* involved method claims that covered the reading and writing of data between microprocessors and memory using buses. *Id.* at 621-623. The accused infringer combined authorized microprocessors with unauthorized memory and buses in a way that practiced the claimed inventions. *Id.* at 624. The Supreme Court held that the authorized sale of the microprocessors exhausted the claims that included limitations to the microprocessors as well as limitations to the memory and buses. *Id.* at 630-632.

The Court in *Quanta* first reasoned that the authorized microprocessors substantially embodied the patent because there was no reasonable use for the microprocessors other than incorporating them into computer systems that practice the asserted patents, and a microprocessor "cannot function until it is connected to buses and memory." *Id.* at 632. Similarly, the Fujifilm tape cassettes have no reasonable use other than incorporating them with associated LTO tape drives that practice the asserted claims, and vice versa, because there is no

evidence that the cassettes can function as intended until they are used with the drives, and vice versa. *See* RIB at 113 (quoting Sony's pre-hearing brief).

The Court in *Quanta* next reasoned that the authorized microprocessors "embodied essential features of the patented invention" because they "constitute a material part of the patented invention and all but completely practice the patent." *Quanta*, 533 U.S. at 632-633 ("Everything inventive about each patent is embodied in the [microprocessors]."). The Court explained that "the only step necessary to practice the patent is the application of common processes or the addition of standard parts" to the microprocessors. *Id.* at 633. The "nature of the final step" to practice the patent of connecting the microprocessor to buses and memory was "common and noninventive." *Id.*

Like the claims in *Quanta*, the asserted claims of the '596 patent cover the authorized product—the IBM LTO tape drives—in combination with an unauthorized component—the accused Fujifilm LTO tape cartridges. For example, claim 1 requires a "tape drive means" for reading/writing information to/from a magnetic tape in a tape cassette, where the tape drive comprises a "memory drive means" for reading and writing management information from and to a memory in the tape cassette, a "use-recognition information decoder for detecting from the memory use-recognition information designating a use for the tape cassette," and a "controller for controlling an operation of the tape drive means based on the use-recognition information." JX-0001 at 21:21-39. The magnetic tape, memory, management information, and use-recognition information recited by the claims are all part of the tape cassette. *Id.*

There is no evidence that the limitations directed to the tape cassette comprise only "standard" or "common" parts. *See Quanta*, 533 U.S. at 632-633. However, Fujifilm has established that the limitations directed to the tape cassette are "noninventive." *Id.* Fujifilm

points out that the USPTO invalidated claims 14-19, which only contain limitations to the tape cassette, not the tape drive, because those claims were known in the prior art, or were obvious. RIB at 113-114 (citing RX-0128). The limitations directed to the tape cassette in claims 1-13 mirror the limitations in the now-invalid claims 14-19, and are accordingly non-inventive. This situation is similar to *LifeScan Scotland, Ltd. v. Shasta Techs., LLC*, where the Federal Circuit held that method claims directed to two components were exhausted by the sale of one of the components because the other component was known in the prior art. 734 F.3d 1361, 1369-70 (Fed. Cir. 2013); *see id.* at 1372 ("[I]f one item in the patented combination is either unpatented or if the patent on it is invalid, and the inventive concept resides in the second item, then the sale of the second item exhausts a product patent in the combination.").

Accordingly, IBM's authorized sale of LTO tape drives exhausts Sony's rights to exclude others from using those drives in combination with Fujifilm's tape cartridges in a way that practices the asserted claims of the '596 patent. A third party that uses IBM's LTO tape drives in combination with the accused products is not a direct infringer of these claims.

Even though the use of IBM's LTO tape drives in combination with the accused products is a non-infringing use, it must be a "substantial non-infringing use" to escape liability under 35 U.S.C. § 271(c). Fujifilm argues that such use is substantial because the evidence shows that IBM's market share of LTO tape drives averages around [redacted] in the United States. RIB at 114 (citing RX-0584 at Q/A 326-333 (Fujifilm's expert, Dr. Messner, explaining RX-0263C [redacted], RX-0264C [redacted] and RX-0401C [redacted]

[redacted] JX-0140C [redacted]; *see* CRB at 59 [redacted]. This use is substantial because it is "not unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental." *Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1327 (Fed. Cir. 2009).

Accordingly, Sony has not met its burden to prove that Fujifilm contributes to the direct infringement of third parties in the United States by selling or importing the accused tape cartridges. I do not find a violation of section 337 based on the importation of articles that contribute to infringement of the '596 patent.

E. Domestic Industry – Technical Prong

Sony alleges two main categories of products to be articles protected by the '501 patent. The first category comprises LTO-4, LTO-5, and LTO-6 tape cartridges manufactured by Sony.[22] The Sony-manufactured cartridges are labeled with the Sony brand or are labeled as OEM products [redacted]. *See* Complaint ¶¶ 86, 87; CIB at 9 (citing CX-0008C at Q/A 8-13; CX-1229C). The second category of alleged domestic industry articles comprises IBM 3592 products. Sony contends that IBM produces the 3592 products under a license from

[22] Section VII.B below discusses the nature and location of Sony's alleged domestic industry activities.

Sony.[23] IBM 3592 tape cartridges have a proprietary format and can only be used in an IBM 3592 drive.[24]

With respect to the first category of products, Sony contends (1) its LTO-4, LTO-5, and LTO-6 Read/Write tape cartridges, when used with compatible LTO drives, practice claims 1, 3, and 6-8 of the '596 patent, and (2) its LTO-4, LTO-5, and LTO-6 WORM cartridges, when used with compatible LTO drives, practice all of the asserted claims. CIB at 145. Sony's evidence that these products practice the claims when used as intended mirrors the evidence it relies on for proving that the accused products infringe. *Id.* at 144-145 (citing CX-0003C at Q/A 159, 177-185, 861, 894-1004, 1286-1300 (citing evidence); CX-0346; CX-0727; CX-0881; CX-0882; JX-0106). Staff agrees. SIB at 124.

Fujifilm's initial and reply post-hearing briefs simply state that "[f]or the same reasons the Fujifilm LTO cartridges do not infringe, the Sony LTO cartridges do not practice the Asserted Claims." RIB at 117; RRB at 66. As discussed above, I have rejected those arguments. I found that third parties practice each element of the asserted claims of the '596 patent by using Fujifilm tapes in drives in the intended manner. Accordingly, based on the evidence and the arguments of the parties, I find that Sony established by a preponderance of the evidence that that (1) its LTO-4, LTO-5, and LTO-6 Read/Write tape cartridges, when used with compatible LTO drives, practice claims 1, 3, and 6-8 of the '596 patent, and (2) its LTO-4, LTO-5, and LTO-6 WORM cartridges, when used with compatible LTO drives, practice all of the asserted

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[23] Section VII.C below discusses the nature and location of the alleged IBM domestic industry activities.

[24] IBM 3592 tape cartridges differ from LTO tape cartridges in this respect. LTO tape cartridges made by one manufacturer are interoperable with LTO drives made by various manufacturers. This difference will be discussed in the sections below.

claims. The technical prong of the domestic industry is therefore satisfied. *See* 19 U.S.C. § 1337(a)(2) and (3); *Certain Microsphere Adhesives, Process for Making Same and Prods. Containing Same, Including Self-Stick Repositionable Notes,* Inv. No. 337-TA-366, Comm'n Op., 1996 WL 1056095, at *8 (U.S.I.T.C. Jan. 16, 1996).

With respect to the second category of alleged domestic industry products—the licensed IBM 3592 products—Sony contends that (1) the Generation 1-4 IBM 3592 WORM products (JA, JB, JC, JD, JJ, JK, JL, JR, JW, JX, JY, and JZ), when used with compatible IBM 3592 tape drives, practice claims 1-13 of the '596 patent, and (2) the Generation 1-4 IBM 3592 Read/Write products practice claims 1, 3, and 6-8. CIB at 145-151. Sony provides evidence that the "3592 products operate in the same way using virtually the same information as LTO products" for the purposes of the asserted claims. *Id.* (citing CX-0003C at Q/A 193-212, 1015, 1023-1027, 1301-1313; CX-0406; CX-0580; CX-0849; CX-1152C; CX-1304 at Q/A 25-30, 58-86; CX-1330C; JX-0028C at 68:21-69:16; JX-0046C at 34:22-35:2, 40:3-10, 41:19-42:14; JX-0095C; JX-0096C; JX-0097C; JX-0098C; JX-0099C; JX-0137; JX-0138; JX-0101C; JX-0138C).

Staff agrees that the evidence shows that "the IBM domestic industry products practice claims 1-13 of the '596 patent." SIB at 124-125 (citing CX-0003C at Q/A 1005-1254).

Fujifilm argues that Sony's evidence regarding the IBM 3592 products "suffer[s] from the same failure of proof as for the LTO products." RIB at 117 (citing RX-0584C at Q/A 384-446). I rejected Fujifilm's arguments that Sony failed to prove that the Sony LTO products practice the asserted claims of the '596 patent, and I similarly reject Fujifilm's blanket argument here.

For the IBM 3592 products, Fujifilm further argues that "Dr. Mowry's analysis for DI is additionally unreliable, because he uses the LTO Specifications to fill in gaps in the

documentation for IBM 3592 products." *Id.* at 117-118. Fujifilm's argument is unpersuasive. The practice of a patent claim can be inferred through circumstantial evidence. Sony has carried its burden to show that it is more likely than not that the IBM 3592 products when used with compatible 3592 drives practice each limitation of each asserted claim of the '596 patent. Fujifilm's conclusory argument does not overcome Sony's showing. Sony has satisfied the technical prong of the domestic industry requirement.

F. Invalidity

1. Fujifilm did not prove by clear and convincing evidence that Platte anticipates the asserted claims.

Fujifilm contends that U.S. Patent No. 6,128,148 ("Platte") anticipates claims 1-13 of the '596 patent. RIB at 118-127. Platte discloses an electronic memory device for use on a magnetic tape cassette. RX-0224 at 1:12-15. The electronic memory device of Platte can contain information relating to the type of cassette or tape media, or can store information relating to authorized uses (*e.g.*, types of playback and protections against unwanted overwriting, erasure, or copying) of the tape media. *Id.* at 2:35-45, 3:22-39, 5:41-62. The stored information in the memory device can be communicated to a memory tape device. *Id.* at 4:39-53. Platte describes that the memory tape device, such as a camcorder or video recorder, can read and write data to the magnetic tape cassette based upon the information received from the memory device. *Id.* at 2:52-57, 3:33-35, cl. 2.

Sony and Staff argue that Platte does not anticipate claims 1-13 because it fails to teach a memory drive means that includes a SCSI buffer controller as a component of the corresponding

structure. *See* CIB at 153-154; SIB at 125-126.[25] In response, Fujifilm does not identify any structure or component in Platte that constitutes a SCSI buffer controller but instead asserts that a SCSI buffer controller is not a corresponding structure required in all of the embodiments of the asserted claims. *See* RIB at 121; *see also* RRB at 70 and SIB at 126.

In my claim construction above, I determined that a SCSI buffer controller is a part of the corresponding structure of the recited memory drive means. Platte discloses a memory drive means for performing the function of reading and writing management information to and from a memory chip on a tape cassette, but it does not teach the structure linked to the claim term "memory drive means" or any equivalent to that structure. Specifically, Platte does not teach a SCSI buffer controller, and Fujifilm has not argued that some other structure in Platte is equivalent to the structure covered by the claim term. Therefore, Platte fails to disclose the memory drive means of independent claims 1 and 9 as well as claims 2-8 and 10-13 depending respectively therefrom. Accordingly, I find that Fujifilm has failed to demonstrate by clear and convincing evidence that Platte anticipates claims 1-13 of the '596 patent under 35 U.S.C. § 102.

2. Fujifilm did not prove by clear and convincing evidence that Sawada anticipates asserted claims 1, 6, 7, and 8.

Fujifilm contends that Japanese Patent Publication Number H6-60470 ("Sawada") anticipates independent claim 1 and dependent claims 6-8 of the '596 patent. *See* RIB at 127-132. Sawada discloses a recording medium cassette with a mounted memory and a recording and playback device for use with the cassette. The mounted memory includes information that

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[25] Sony and Staff also contend that Platte fails to teach other features of the asserted claims. *See* CIB at 153-157; SIB at 126. I do not address these additional arguments given my determination that Platte fails to teach a SCSI buffer controller or equivalent structure as a component of the structure corresponding to the claimed memory drive means.

prevents impermissible "dubbing" of sound and data signals recorded on the cassette. *See* RX-0213 ¶¶ [0001], [0008], [0010]. The mounted memory includes a plurality of terminals that enable dubbing prohibition and other information to be communicated to the recording and playback device. *Id.* ¶ [0010]. Example recording and playback devices include video tape recorders and video cassette recorders. *Id.* ¶ [0001]. The dubbing prohibition information is stored in a non-rewriteable portion of the memory, which can also include other data pertaining to the characteristics of the tape and cassette (*e.g.*, type, format, length, and hub diameter) and manufacturing information (*e.g.*, manufacturer name, manufacture date, country of origin). *Id.* ¶ [0035].

Sony and Staff assert that Sawada does not anticipate claims 1 and 6-8 of the '596 patent because Sawada does not disclose "use-recognition information designating a use for a tape cassette" or a detector for detecting the same. CIB at 159; RIB at 127. Sony also contends that Sawada fails to teach a memory drive means that includes a SCSI buffer controller as a component of the corresponding structure for performing the functions of the memory drive means. CIB at 158.[26] I address each of these arguments in turn.

Fujifilm contends that use-recognition information includes the dubbing protection disclosed in Sawada. *See* RIB at 130-131 (citing RX-0004C at Q/A 578-580). Fujifilm argues that this is so because dubbing protection constitutes a use for which a storage tape is adapted. *Id.* Sony and Staff respond that the use-recognition information described in the '596 patent

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[26] Sony also contends that Sawada fails to teach several other features of claims 1 and 6-8. *See* CIB at 157-160. I do not address these additional arguments given my determination that Sawada fails to teach "a controller for controlling an operation of the tape drive means based on the use-recognition information detected by the detector" or a SCSI buffer controller or equivalent structure to the structure corresponding to the claimed memory drive means.

delimits reading and writing activities performed on the loaded tape (*e.g.*, to prevent the information stored on the tape from being erased or rewritten), where the cassette information in Sawada controls writing activities on *other* tapes, not the tape with the memory. CIB at 159; RIB at 127. Put differently, Sony and Staff argue that the dubbing protection of Sawada does not affect the reading and writing operations performed on the tape itself thereby protecting the content of the tape.

Even if Fujifilm is correct that the dubbing protection of Sawada constitutes use-recognition information, Sawada would nevertheless fail to anticipate claims 1 and 6-8 because the dubbing protection of Sawada is not utilized "for managing the writing/reading of information to/from *the* magnetic tape," as required by the claims. JX-0001 at cl. 1. The claims also require a controller that responds to use-recognition information from the magnetic tape to control the writing of information to or the reading of information from that same magnetic tape. *Id.* at 2:29-34, 21:15-19; *see also* CX-0013C at Q/A 353, 354. The dubbing protection of Sawada, however, does not provide information by which the tape drive can be controlled with respect to the writing of information to or the reading of information from the loaded tape; instead the dubbing protection places restrictions on reading and writing operations that occur on other tapes located in other tape drives. Thus, even if the dubbing protection of Sawada constitutes use-recognition information, it is not information used by a controller to control the operation of the tape drive whereby information is written to or read from the loaded tape as is required by independent claim 1 and the claims depending therefrom, including dependent claims 6-8.

In addition, as discussed above, I have determined that a SCSI buffer controller should be considered to be a part of the corresponding structure of the memory drive means recited in

independent claim 1. Fujifilm does not identify any structure or component in Sawada that constitutes or is equivalent to a SCSI buffer controller, and instead asserts that a SCSI buffer controller is not a corresponding structure required by independent claim 1. *See* RIB at 130; RRB at 76. Fujifilm has not shown that Sawada teaches structure covered by the "memory drive means" of the '596 patent or equivalents to that structure.

For the forgoing reasons I find that Fujifilm has failed to establish by clear and convincing evidence that Sawada anticipates claims 1 and 6-8 of the '596 patent under 35 U.S.C. § 102.

3. Fujifilm did not prove by clear and convincing evidence that Platte in view of the knowledge of a person of ordinary skill in the art and/or Kano renders obvious asserted claims 1-13.

Fujifilm contends that Platte renders claims 1-13 of the '596 patent invalid as obvious in view of the knowledge of a person of ordinary skill in the art and/or Japanese Patent Publication Number H09-161451 ("Kano") (RX-0095). *See* RIB at 132-137. Kano discloses a data library system in which writing operations are performed in parallel across multiple tape cassettes where the tape cassettes have a built-in nonvolatile memory. *See* RX-095 at Abstract, ¶¶ [0001], [0005]. The nonvolatile memory of Kano stores "volume information and partition information set for the tape by the system at initialization of the tape, and header information that is maintenance information related to the tape." *Id.* ¶ [0005]. The data library system of Kano also includes a SCSI interface by which data can be exchanged with a host computer and which can be recorded on the tape media. *Id.* at [0004]. Among other things, Fujifilm relies on Kano as disclosing the use of a SCSI interface for exchanging information between a nonvolatile memory 4 and a host computer 25. *See* RIB at 133. Fujifilm contends that the SCSI components of Kano could be adapted for use with Platte. *Id.* at 133 and 137.

Sony and Staff assert that Platte alone or in combination with the knowledge of a person of ordinary skill in the art and/or Kano would not render claims 1-13 of the '596 patent obvious because Fujifilm failed to demonstrate by clear and convincing evidence that a person of ordinary skill in the art would combine the video cassettes disclosed by Platte with the data library system of Kano. *See* CIB at 161-165; RIB at 128-129. For example, Sony contends that there is no basis to combine the teachings of Platte and Kano to arrive at the claimed "memory drive means" that includes a SCSI buffer controller as a component of the corresponding structure. *See* CRB at 69-70. I analyze the Fujifilm's proposed obviousness combinations in turn below.

a) Platte in view of the knowledge of a person of ordinary skill in the art.

As discussed above, Platte does not teach the memory drive means of claims 1-13 of the '596 patent because it does not disclose a SCSI buffer controller or equivalent structure for performing the recited function of the memory drive means. In this regard, Fujifilm has failed to adduce evidence that the knowledge of a person of ordinary skill in the art would supply that deficiency. Instead Fujifilm relies on Kano for that teaching. *See* RIB at 133; RRB at 79-80. I therefore find that Fujifilm has failed to demonstrate by clear and convincing evidence that the combination of Platte and the knowledge of a person of ordinary skill in the art would render claims 1-13 of the '596 patent invalid as obvious.

b) Platte in view of Kano.

The primary dispute between the parties is whether a person of ordinary skill in the art would combine the teachings of Platte and Kano. Fujifilm contends that it is appropriate to combine the teachings of Platte and Kano because they utilize similar hardware and are also both directed "to the same field of use and applications for the cassettes and drives." RIB at 136.

Fujifilm asserts that combining the features disclosed in Kano (*e.g.*, a SCSI buffer controller) with Platte would be "trivial" and could be accomplished with a reasonable expectation of success. *Id.* at 135. Fujifilm's expert Dr. Messner testified that Platte and Kano "are each directed to providing tape cassettes for use in similar fields" and that the '596 patent "does not purport to have invented a new technique for communicating between a video recording and playback device and the memory in a tape cassette, and discloses only known components for communication between a memory and a tape drive." RX-0004C at Q/A 933, 945. Dr. Messner contends that it would have been obvious to combine known components "to communicate between the tape-cassette memory and the video recording and playback device, so that data could be transferred back and forth." *Id.* at Q/A 945. Dr. Messner also pointed to similarities between the teachings of Platte and Kano that would motivate their combination, such as they each "disclose tape cassettes in which magnetic tape is wound around two reels." *Id.* at Q/A 934.

Sony and Staff argue that those skilled in the art would not combine Platte and Kano. CIB at 161-165; SIB at 129. In particular, both argue that those having ordinary skill in the art would not combine the tape/video cassettes of Platte with the complex data library described in Kano. CIB at 163; SIB at 129. Sony argues that there would be no expectation of success for combining Platte and Kano given that there would be significant design and programming challenges for doing so. CIB at 164-165.

Sony's expert Dr. Mowry testified that those skilled in the would not be motivated to combine Platte and Kano because "Platte is directed to users of camcorders who make home videos and to video rental stores who lend prerecorded cassettes to customers to take back to their homes" whereas Kano "relates to enterprise grade tape library systems." CX-0013C at Q/A 587. Dr. Mowry asserted that the "technical and practical disconnect" between Platte and

Kano would prevent those skilled in the art from being motivated to combine their teachings. *Id.* Dr. Mowry also explained that "Kano and Platte target different categories of tape media products, and are directed to different levels of hardware," and therefore those skilled in the art would not have looked to Kano to supply the deficiencies of Platte. *Id.* at Q/A 593; *see also id.* at Q/A 590 ("The attempt to combine Platte, which pertains to prerecorded cassettes for video rental stores and blank cassettes for use in personal camcorders, and Kano, which pertains to a large-scale tape library system for enterprise storage, would require substantial design and programming work.").

The experts also provided conflicting testimony regarding whether there would be an expectation of success from combining Platte and Kano. For example, with respect to the tape cassette of Platte and the tape drive means of Kano, Fujifilm's expert Dr. Messner opined that their combination would be successful because "[o]ne of skill in the art would look to Kano to provide the details of the helical scanning recorder to read from and write to the camcorder and videocassettes of Platte." RX-0004C at Q/A 939. Dr. Messner also asserted that "[a]ccessing the tape-cassette memory of Platte in the tape streamer drive of Kano using the interface of Kano is a simple use of known elements to achieve a predictable result." *Id.* at Q/A 946. In contrast, Sony's expert Dr. Mowry stated that there would be no expectation of success from combining Platte and Kano because "[c]ombining Platte and Kano implicates an array of hardware and firmware design challenges that, in my opinion, would have been very difficult for one of ordinary skill in the art to implement." CX-0013C at Q/A 590; *see also id.* at Q/A 599. Dr. Mowry argued that it would be incorrect to assume that Platte and Kano could be successfully combined. *Id.* at Q/A 589.

The determination of "whether there is a reason to combine prior art references is a question of fact." *See Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1367 (Fed. Cir. 2012). Here, the parties have each made arguments as to whether a person of ordinary skill in the art would combine the teachings of Platte and Kano. Although Fujifilm has offered evidence that one skilled in the art would and could successfully combine the teachings of Platte and Kano, there is also evidence of record to the contrary. *Cf.* RX-0004C at Q/A 928-950 and CX-0013C at Q/A 457-469, 585-594, 597-608. The experts also offered contradictory testimony regarding other bases purportedly motivating the combination of Platte and Kano. *Compare* RX-0004C at Q/A 950 *with* CX-0013C at Q/A 603-605; *compare* RX-0004C at Q/A 947-949 *with* CX-0013C at Q/A 600-602.

"The burden falls on the challenger of the patent to show by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so." *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007); *see also Kinetic Concepts*, 688 F.3d. at 1360. Given the significant conflicting testimony, I find that Fujifilm has failed to establish by clear and convincing evidence that one skilled in the art would combine the teachings of Platte and Kano thus rendering claims 1-13 of the '596 patent invalid as obvious. *See Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008) ("Failure to prove the matter as required by the applicable standard means that the party with the burden of persuasion loses on that point—thus, if the fact trier of the issue is left uncertain, the party with the burden loses.").

In view of the forgoing, I find that Fujifilm has failed to establish by clear and convincing evidence that Platte renders the claims 1-13 of the '596 patent invalid as obvious in view of the knowledge of a person of ordinary skill in the art and/or Kano.

4. Fujifilm did not prove by clear and convincing evidence that Sawada in view of Kano renders obvious asserted claims 1-13.

Fujifilm contends that Sawada renders the claims 1-13 of the '596 patent invalid as obvious in view of Kano. RIB at 137-141. Sony and Staff disagree. CIB at 165-166; SIB at 128. The parties' respective arguments generally parallel those made with respect to the combination of Platte and Kano discussed above. Namely, the parties dispute whether those skilled in the art would be motivated to combine the teachings of Sawada and Kano as proposed by Fujifilm and whether there would be an expectation of success from doing so.

Fujifilm asserts that those skilled in the art would have been motivated to combine Sawada and Kano and would have had a reasonable expectation of success from the combination. *See* RIB at 138. Fujifilm contends Sawada and Kano both relate to tape media cassettes and therefore a person skilled in the art would combine their teachings. *Id.* Fujifilm also asserts that the "there is no 'fundamental incompatibility' that would prevent such a combination." *Id.* (citing *Certain Magnetic Data Storage Tapes*, Inv. No. 337-TA-1012, Comm'n Op. at 47 (Mar. 8, 2018)).

Sony and Staff contend that Fujifilm has not established a motivation for why a person of ordinary skill in the art would combine the teachings of Sawada and Kano, or that there would be a reasonable expectation of success from doing so. For example, Sony contends that "Sawada and Kano are completely different and non-compatible systems each with their own hardware, software, and data formats." CIB at 165. In this regard, Sony posits that the design and

programming challenges would present significant challenges for combining Sawada and Kano. *Id.* Staff agrees. SIB at 128.

As was the case with Platte and Kano, there is competing testimony as to whether those skilled in the art would combine the teachings of Sawada related to video cassettes with the data library described in Kano, and whether there would be a reasonable expectation of success from doing so. *Compare* RX-0004C at Q/A 804-902 *with* CX-0013C at 471-533. For example, Fujifilm's expert Dr. Messner testified that Sawada and Kano both "both disclose a similar tape cassette. The tape cassettes in each reference have magnetic tape wound around two reels, and also have built-in memory for storing operational information (including management information and identification information)." RX-0004C at Q/A 809; *see also id.* at Q/A 810-811. Dr. Messner further testified that those skilled in the art would have an expectation of success from combining the components of Sawada and Kano because doing so would constitute "nothing more the use of known elements to yield predictable results." *Id.* at Q/A 839; *see also id.* at 812.

Sony's expert Dr. Mowry disagreed with each of Dr. Messner's contentions regarding the motivation to combine Sawada and Kano. *See* CX-0013C at 473-475 (addressing RX-0004C at Q/A 809-811). For example, Dr. Mowry contended that the mere fact that Sawada and Kano disclose tape cassettes and refer to video tape recorders does not provide sufficient basis to combine their respective teachings. *Id.* at Q/A 473; *see also id.* at Q/A 482-483, 486. In addition, Dr. Mowry testified that there are "significant differences between the tape library system of Kano and the personal entertainment application of Sawada" and that they each "pertain to different technology and different products and address different market needs." *Id.* at Q/A 477-478. According to Dr. Mowry, Fujifilm and Dr. Messner also failed to explain how

those skilled in the art would integrate the "disparate technology" described in Sawada and Kano. *Id.* at Q/A 478.

Although Fujifilm has offered evidence that one skilled in the art would and could successfully combine the teachings of Sawada and Kano, Sony has offered at least equally compelling testimony and evidence to the contrary. I therefore find that Fujifilm has failed to establish by clear and convincing evidence that one skilled in the art would combine the teachings of Sawada and Kano thus rendering claims 1-13 of the '596 patent invalid as obvious. *See Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008).

In view of the forgoing, I find that Fujifilm has failed to establish by clear and convincing evidence that Sawada renders the claims 1-13 of the '596 patent invalid as obvious in view of Kano.

VII. DOMESTIC INDUSTRY – ECONOMIC PRONG

A. Introduction

Sony argues that it has satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(B) based upon (i) the investment and economic activities of three Sony Corporation subsidiaries (Sony Latin America Inc. ("SOLA"), Sony DADC US Inc. ("Sony DADC"), and Sony Services and Operations of Americas ("SSOA")) and (ii) the maintenance and research and development expenses of its cross-licensee IBM related to IBM's 3592 products.[27] CIB at 9-10, 166, 174. Sony contends that the combined expenditures of the Sony subsidiaries and IBM amount to at least [redacted] attributable to the '596 patent, at least [redacted]

[27] The 3592 products include Generation 1-4 IBM 3592 tapes (JA, JB, JC, JD, JJ, JK, JL, JR, JW, JX, JY, and JZ) and the TS1120, TS1130, TS1140, TS1150, and TS1155 tape drives in which the 3592 tapes operate. *Id.* at 146, 186-187; *see also* CX-1304C at Q/A 13-16.

[redacted] attributable to the '501 patent, and at least [redacted] attributable to the '774 patent. *Id.* at 166. Sony also asserts that IBM's research and development expenditures satisfy the economic prong under section 337(a)(3)(C). *Id.* at 186-187. Sony argues that the above expenditures associated with the domestic industry products are quantitatively and qualitatively significant and substantial. *Id.* at 187-191. Sony asserts that these expenditures are significant and substantial weather considered together or broken apart as follows:

	'596 Patent	'501 Patent	'774 Patent
IBM's R&D Investments	[redacted]	[redacted]	[redacted]
Sony and IBM's Remaining Prong (B) Investments	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]	[redacted]

Id. at 188 (citing CX-0004C at Q/A 235).

Fujifilm disputes that the investments of either the Sony subsidiaries or IBM are sufficient to satisfy the economic prong. RIB at 142-144. With respect to the Sony subsidiaries, Fujifilm argues that Sony's activities are akin to those of an ordinary importer given that all of the Sony domestic industry products are made in Japan. *Id.* Fujifilm contends that the domestic activities performed by the Sony subsidiaries do not, on their own, show the type of significant investments required to satisfy the economic prong of the domestic industry requirement. *Id.* at 144-150. For example, Fujifilm argues that Sony's domestic labeling activities are not sufficient to constitute a domestic industry. *Id.* at 145. Fujifilm also asserts that other of Sony's expenses, such as those ascribed to "distribution and logistics" and overhead (*e.g.*, rent, insurance, utilities), are unrelated to design, engineering, manufacturing, and assembly; or do not add value to the imported products and therefore should not be considered for determining whether a domestic industry exists. *Id.* at 147-150. Fujifilm further contends that the Sony subsidiary costs

incurred outside of the United States for certain non-technical employees (*i.e.*, Mr. Clark and Mr. Sasaki) should not be considered for establishing a domestic industry. *Id.* at 150-155.

As to IBM's activities and expenditures, Fujifilm primarily argues, as detailed below, that the Sony-IBM license does not cover the IBM 3592 products. *Id.* at 156-166. Fujifilm contends that Sony cannot rely on expenditures associated with the IBM 3592 products to satisfy the domestic industry requirement. *Id.* at 157.

Fujifilm also argues that even if the IBM 3592 products were licensed, it would be improper to impute IBM's expenditures associated with 3592 tape drives to the '774 and '501 patents because they are directed only to tape media. *Id.* at 167-173. And even if it was appropriate to consider expenses for the 3592 tape drives with respect to the '774 and '501 patents, Sony has nevertheless failed to allocate its expenses to only those portions of the 3592 tape drive that are necessary to exploit those patents. *Id.* at 172 (citing *Certain Video Game Systems and Wireless Controllers and Components Thereof*, Inv. No. 337-TA-770, Comm'n Op. at 67-68 (Oct. 28, 2013)).

Fujifilm additionally argues that Sony cannot rely on IBM's research and development expenses to establish the economic prong under section 337(a)(3)(B). *Id.* at 174-175; RRB at 92-94. Rather, Fujifilm contends that such expenses can only be properly credited under section 337(a)(3)(C), and that Sony has failed to demonstrate the required nexus between those expenditures and the patented technology. RIB at 174-175.

Finally, Fujifilm asserts that Sony's and IBM's expenditures are neither qualitatively nor quantitatively significant. *Id.* at 176-180.

Staff contends that the investments of the Sony subsidiaries are insufficient to satisfy the economic prong. *See* SIB at 130-141. Staff argues that the activities of the Sony subsidiaries are

not the type of expenditures that can satisfy the economic prong in the first instance, but even if they were, Sony has failed to demonstrate that those expenditures are qualitatively and quantitatively significant. *Id.* at 131, 140-141. For example, Staff asserts that SOLA and Sony DADC's labeling activities may be a qualifying activity, but that Sony failed to adduce evidence sufficient to demonstrate that those labeling activities are "significant" within the meaning of section 337. *Id.* at 134, 136.

Staff asserts that IBM's maintenance and research and development expenditures do not satisfy the economic prong under section 337(a)(3)(B) with respect to the '774 and '501 patents, but do satisfy it with respect to the '596 patent. *Id.* at 130, 145-152. Staff finds that IBM's expenditures for maintenance and research and development associated with articles protected by the '596 patent are quantitatively and qualitatively significant. *Id.* at 150-151.

Finally, Staff asserts that Sony has failed to demonstrate that IBM's investments satisfy the economic prong under section 337(a)(3)(C) because Sony has failed to establish a nexus between IBM's research and development expenditures and the patented technology. *Id.* at 152.

B. A Domestic Industry Does Not Exist Based on Sony Subsidiaries

As to its subsidiaries, Sony asserts that they employ labor and capital in support of the Sony domestic industry products in the United States, and that these "investments relate to custom labeling, customer service, warehousing and logistics, distribution, and order management" falling within the scope of section 337(a)(3)(B). CIB at 166. I consider the economic activity of each subsidiary below.

1. SOLA

SOLA, which is based in Miami, Florida, and has facilities in Park Ridge, New Jersey, through its Americas Media and Energy Group ("AMEG"), supports Sony's LTO business in the United States by performing warehousing, distribution, labeling, packaging and customer

support activities. CIB at 167. SOLA employees "track sales and inventory, maintain supply chains and distribution channels, process orders, respond to customer complaints, provide customer service, and package and label products." *Id.* Approximately [redacted] square feet of SOLA's facilities are dedicated to LTO operations. *Id.* (citing CX-0004C at Q/A 108-120; CX-0006C at Q/A 20-25). Sony explains that the "B2B tape group" within AMEG employs [redacted] individuals and is responsible for LTO and other storage products. *Id.*

Sony argues that SOLA incurred both fixed costs (*e.g.*, wages, expenses from business trips, rent for office space, and some indirect personnel costs) and variable costs (*e.g.*, advertising and promotion, logistics, customer service and warranty, commissions, and royalties) for the domestic B2B tape business. *Id.* After excluding advertising, promotion, and commission expenses, Sony estimates that the combined fixed and variable costs for SOLA including fiscal year 2015 through September of fiscal year 2017 were approximately [redacted]. *Id.* at 168 (citing CX-0004C at Q/A 118-121; CX-0006C at Q/A 28-60; CX-0862C; CDX-0004C at 26; JX-0149C; JX-0150C).

Sony also relies on expenses related to SOLA employee Mr. Charlie Clark. *Id.* Mr. Clark "leads a team that interfaces with Sony's OEM customers and serves as a conduit between Sony's development team in Japan and its OEM customers in the United States." *Id.* According to Sony, total investments related to Mr. Clark for fiscal year 2015 through September of fiscal year 2017 were approximately [redacted]. *Id.* (citing CX-0004C at Q/A 135-138; CX-0006C at Q/A 83-90; CX-0008C at Q/A 53; CDX-0004C at 27; CX-1097C; CX-1098C).

SOLA's investments and expenditures are not tracked on a per-product basis. *Id.* at 169-170. Sony employed a sales-based method to allocate a portion of SOLA's investments

and expenditures to the domestic industry products. *Id.* The results of that allocation method are reproduced below:

	FY 2015 Revenue	Percent of B2B Tape Media Revenue	FY 2016 Revenue	Percent of B2B Tape Media Revenue	FY 2017 (through September) Revenue	Percent of B2B Tape Media Revenue
LTO-4	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
LTO-5						
LTO-6						
LTO-4 OEM[28]			-		-	
LTO-5 OEM			-		-	
LTO-6 OEM			-		-	

Id. at 170 (citing CX-4C at Q/A 122-130; CX-6C at Q/A 65-81; CDX-4C at 23-25; JX-135C; JX-149C; JX-150C; CX-1225C).

Sony conducted a "unit-based allocation" with respect to Mr. Clark's expenses because he deals with Sony's OEM products [redacted]. *Id.* The results of that analysis are reproduced below:

	FY 2015	FY 2016	FY 2017 (through September)	Total
SOLA's Investments in the '596 and '774 Patents (LTO-4, 5, 6)	[redacted]	[redacted]	[redacted]	[redacted]
SOLA's Investments in the '501 Patent (LTO-5, 6)				

[28] According to Sony, SOLA handled a portion of Sony's OEM sales in the United States for a portion of fiscal year 2015. *Id.* (citing CX-6C at Q/A 72-74).

Id. at 170-171 (citing CX-4C at Q/A 131, 140; CDX-4C at 22, 26). Sony contends that Fujifilm has not challenged the above calculations. *Id.* at 171.

Fujifilm argues that SOLA imports Sony domestic industry products from SSMS in Japan and sells the Sony-branded LTO tape products in the United States, Canada, and Latin America, and that it does not manufacture LTO tape products in the United States. RIB at 7. Fujifilm also contends that the expenses attributed to SOLA are overstated and should not be considered because they include "cost of goods" (*a/k/a* "COGS") that were manufactured in Japan. *Id.* at 151 (citing CX-0004C (Prowse WS) at Q/A 121-123, 129-130; CDX-0004C at 0023-0025; JX-0149C, CX-0862C; JX-0150C; JX-0082C (Taniguchi Dep.) at 85:3-12, 105:6-15).

Fujifilm also disputes that the expenses associated with Mr. Clark's activities can be properly considered. *Id.* at 153-154. Fujifilm argues that the evidence of record demonstrates that "no one at SOLA (including Mr. Clark) designs, researches or develops, manufactures, or assembles LTO products in the United States." *Id.* at 153 (citing JX-0074C (Murai Dep.) at 26:20-29:9). Fujifilm points out that Sony's expert, Dr. Prowse, testified that Mr. Clark merely "acts as a liaison to Sony's OEM customers" and "is a contact person between Sony and its OEM customers and handles negotiations and other tasks related to implementing Sony's LTO business plan in the United States." *Id.* (citing CX-0004C (Prowse WS) at Q/A 135). Fujifilm also points out that Mr. Clark has authored internal Sony documents stating that "all tape development and quality control/failure analysis" is performed in Japan. *Id.* (citing JX-0140C at 4). Fujifilm also argues that Mr. Clark's compensation consists of [redacted] unrelated to product development. *Id.* (citing Prowse, Tr. 146:20-148:19; CX-0006C (Murai WS) at Q/A 90; CX-1097C; CX-1098C). Fujifilm reasons that Mr. Clark performs nothing other than sales and marketing activities. *Id.* at 154.

Staff reaches the same general conclusion as Fujifilm. SIB at 132-135. Staff asserts that Sony's evidence demonstrates the following SOLA expenses:

Year	Appx. Fixed Costs	Variable Costs	% of Total B2B Media Sales	Total Investments
2015	[redacted]	[redacted]	[redacted]	[redacted]
2016				
First Half 2017				
Total Fixed & Variable Costs Investments				

Id. at 133 (citing CX-0004C at Q/A 131-132). Staff also cites to the expenses Sony identified for Mr. Clark. *Id.* at 133-134 (citing CX-0004C at Q/A 135-138; CX-0006C at Q/A 83-90; CX-0008C at Q/A 53; CDX-0004C at 27; CX-1097C; CX-1098C). Staff concludes, however, that none of the identified expenses are qualifying investments for purposes of satisfying the economic prong of the domestic industry requirement. *Id.* at 134-135.

With respect to SOLA's expenses, Staff contends that they consist of "tracking sales and inventory, maintaining supply chains and distribution channels, processing orders, responding to customer complaints and offering customer service, and packaging and labeling products," and that SOLA employees do not provide technical support. *Id.* at 134 (citing Prowse, Tr. at 143:14-144:9, 145:3-15). Staff also notes that Sony's expert admitted that the warehousing, distribution, and logistics activities performed by SOLA's B2B tape group are akin to the activities of an importer. *Id.* (citing Prowse, Tr. at 144:10-24). Staff concludes that "SOLA's investments are the type incurred by any importer, and are therefore not qualifying investments under the Section 337 statute." *Id.* (citing *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm'n Op. at 39 (August 1, 2017)).

Staff reaches a similar conclusion regarding Mr. Clark's activities. *Id.* at 134-135. According to Staff, the evidence shows that Mr. Clark performs sales and marketing activities,

such as "interfacing with Sony's OEM customers" and "developing Sony's OEM business in the United States." *Id.* at 134 (citing CX-0006C at Q/A 90; Prowse, Tr. at 146:20-148:19). In this regard, Staff notes that the vice president of SOLA's AMEG group (Mr. Murai) testified that a significant portion of the money Mr. Clark was paid was for [redacted] *Id.* at 135. Staff agrees with Fujifilm that Mr. Clark performs nothing other than non-qualifying sales and marketing activities. *Id.*

2. Sony DADC

Sony indicates that Sony DADC's facilities in New York, New York; Agoura Hills, California; Terre Haute, Indiana; and Bolingbrook, Illinois, support Sony's OEM LTO business. CIB at 171. Sony contends that there are four categories of Sony DADC expenses associated with the Sony domestic industry products: (1) labor related to management distribution, packaging, and labeling services for LTO products; (2) facilities costs associated with activities involving the Sony domestic industry products; (3) customer service activities associated with the Sony domestic industry products, including Sony DADC's Global Platform Service (GPS); and (4) transportation services associated with the Sony domestic industry products. *Id.* at 171-174; CX-0004C at Q/A 47; CX-0005C at Q/A 7-39.

With respect to labor related to distribution, packaging, and labeling services for LTO products, Sony contends that Sony DADC receives imported shipments of LTO products from SSMS in Japan, checks for inventory discrepancies, validates label sequences, visually inspects products, and ships products to Sony's OEM customer warehouses or end users. *Id.* at 171-172. In addition, Sony DADC employs [redacted] full-time employees that apply customer-specific bar codes to LTO tapes pursuant to customer requirements. *Id.* Sony argues that this custom labeling is a "value-added step" and a "critical service" because "[m]any DADC customers view LTO tapes

as unusable unless they are labeled." *Id.* (citing CX-0004C at Q/A 48-51; CX-0005C at Q/A 18-37; CX-0008C at Q/A 51-52; JX-0043C at 128:3-18; JX-0054C at 202:21-203:1).

Regarding facilities costs associated with activities involving the Sony domestic industry products, Sony contends that Sony DADC's domestic industry activities occur in the approximately [redacted] square foot Building F at its Bolingbrook facility, and that "approximately [redacted] square feet of Building F is specifically used for LTO operations, such as shipping, receiving and storage" and include LTO-dedicated equipment. *Id.* at 172 (citing CX-0004C at Q/A 54-61; CX-0005C at Q/A 37-46). Sony estimates, based on square footage used, that rent and fixed costs of Building F allocable to LTO products is [redacted] percent of the rent and [redacted] percent of the fixed costs. *Id.* at 172-173 (citing CX-0004C at Q/A 57-62; CX-0005C at Q/A 40-41; CX-0860C; JX-0144C).

As to customer service activities associated with the Sony domestic industry products, including Sony DADC's GPS, Sony asserts that there are [redacted] full-time employees in its GPS division "who perform customer service, interface with OEM customers, and handle finance activities related to LTO Products." *Id.* at 173 (citing CX-0004C at Q/A 63-72; CX-0005C at Q/A 9, 48-52).

Finally, regarding transportation services associated with the Sony domestic industry products, Sony states that "Sony DADC employees deal with LTO-related transportation issues and communicate with FedEx and UPS, for example, regarding LTO shipments." *Id.*

Sony identifies the following expenses for the Sony DADC activities set forth above:

	Prior to FY 2015	FY 2015	FY 2016	FY 2017 (through September)	Total
Distribution, Packaging, and Labeling	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Building F					
GPS		[redacted]			
Transportation					
Total LTO Related Expenditures	[redacted]	[redacted]	[redacted]		

Id. (citing CX-0004C at Q/A 52-85 CDX-0004C at 18; CX-0860C, CX-1223C; JX-0132C; JX-0143C; JX-0144C). Sony performed a further allocation of Sony DADC's expenses as a function of the number of units processed by Sony DADC related to the Sony domestic industry products:

	2015	Percent of Total	2016	Percent of Total	2017	Percent of Total
LTO-4	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
LTO-5						
LTO-6						
Total Units to U.S. Customers						

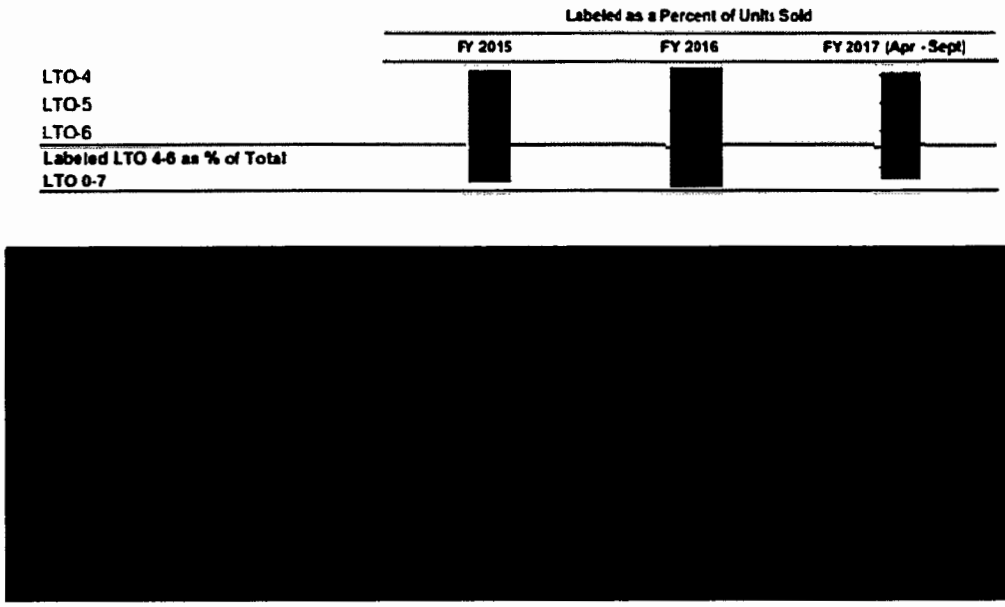
Id. at 174 (citing CX-0004C at Q/A 93; CDX-0004C at 17; JX-0132C; JX-0146C). Sony contends that, based on this allocation, "Sony DADC's domestic investments in labor and capital for the Sony DI Products totaled [redacted]" all of which is attributable to the '596 and '774 patents, and approximately [redacted] of which is attributable to the '501 patent. *Id.* (citing CX-0004C at Q/A 97-107; CDX-0004C at 16, 18).

Fujifilm offers several arguments disputing that Sony DADC's expenses can be utilized to establish a domestic industry. As an initial point, Fujifilm contends that none of Sony DADC's entities design, engineer, manufacture, assemble, or perform any R&D on any Sony domestic industry product. RIB at 148 (citing JX-0063C (Buchicchio Dep.) at 5:8-6:7; JX-0062C (Buchicchio Dep.) at 21:2-6, 180:3-13; JX-0074C (Murai Dep.) at 26:20-29:2; JX-0082C (Taniguchi Dep.) at 31:1-15, 65:1-5, 66:3-14). In this regard, Fujifilm points out that the activities in Bolingbrook consist primarily of "shipping, receiving and storage, including performing the labeling activities" for imported Sony domestic industry products. *Id.* (quoting CX-0004C (Prowse DWS) at Q/A 58). Fujifilm also contends that Sony DADC's GPS labor relates only to financial and non-technical customer service. *Id.* at 148-149 (citing JX-0062C (Buchicchio Dep.) at 75:16-76:1, 102:18-103:4). Given that Sony DADC's GPS labor does not relate to product design, development, and manufacture, Fujifilm argues that it is inappropriate to consider any associated overhead expenditures (*e.g.*, building rent, utilities, and telecommunications equipment) in determining whether a domestic industry has been established. *Id.*

Fujifilm also argues that Sony has failed to establish how, and to what extent, the activities performed by Sony DADC add value to the imported domestic industry products. *Id.* at 149-150. According to Fujifilm, the only "evidence" of an added value came from Sony's economic expert who opined that "meeting customer requests adds value." *Id.* (citing CX-0004C (Prowse WS) at Q/A 275; RX-0585C (Vander Veen WS) at Q/A 163-164). Fujifilm contends that the lack of evidence showing that Sony DADC's activities add value to the domestic industry products further demonstrates that Sony DADC's overhead expenses should not be considered as domestic industry investments.

Fujifilm also levels several criticisms at the analysis performed by Sony's economic expert, Dr. Prowse. First, Fujifilm argues that Dr. Prowse should not have considered pre-2015 expenses when calculating Sony DADC's expenses. *Id.* at 150. Fujifilm contends that Sony did not manufacture products in the United States between 2011 and 2015, and that expenses dating from 2011 are too remote to be given weight. *Id.* (citing CX-0004C (Prowse WS) at Q/A 82-85; RX-0585C (Vander Veen WS) at Q/A 30-35; *Certain Video Game Systems & Controllers*, Inv. No. 337-TA-743, ID at 169-170 (Nov. 2, 2011)).

Next, Fujifilm asserts that Dr. Prowse's unit-based allocation improperly "accounted for *all* LTO-4, LTO-5 and LTO-6 products that were imported from Japan, despite that DADC only labels a small subset of them." *Id.* at 152 (citing CX-0004C (Prowse WS) at Q/A 88-90, 93, 98; CDX-0004C at 18). Fujifilm argues that this approach failed to differentiate between "the labor used to perform labeling operations from labor that is simply used to receive and ship the imported products." *Id.* (citing Prowse, Tr. at 131:2-17, 142:3-18, 143:14-144:2, 145:3-15). According to Fujifilm this distinction is important because Sony DADC's activities as to tapes that are not domestically labeled are no different than the actions of a normal importer. *Id.* In this regard, Fujifilm notes that only between [redacted] percent of all imported domestic industry products in the last two years were labeled by Sony in the United States.



Id. at 147 (citing J -0145C; RX-0585C (Vander Veen RWS) at /A 60-61). In addition, the applied labels only ost [redacted] each. *Id.* at 176 (citing JX-0062C (Buchicchio Dep.) at 63:18-21).

Finally, Fujifilm argues that Dr. Prowse incorrectly included Sony DADC's "transportation services" where those activities merely consisted of expenses for employees who "deal with LTO-related transportation issues and communicate with FedEx and UPS, for example, regarding LTO shipments." *Id.* at 152-153 (citing CX-00 4C (Prowse WS) at Q/A 73). According to Fujifilm, Dr. Prowse testified that such expenditures are those of an ordinary importer. *Id.* (citing Prowse, Tr. at 135:11-20, 138:20-140:7, 144:14-24).

Staff cites the same financial data cited by Sony and discussed above. Staff concludes, however, that the data fails to establish a domestic industry. SIB at 135-140. First, Staff concludes that "[t]he evidence does not show that the expenses for distribution, packaging, and labeling are qualitatively or quantitatively significant." *Id.* at 136. Staff observes that the Sony domestic industry products are not manufactured in the United States and points out that Sony and its expert characterized this subset of investments as only covering checking for inventory

discrepancies, validating the correct label sequences, dealing with shipping or distribution issues, and then shipping the product to Sony's OEM customers or customer warehouses. *Id.* In Staff's view "[t]here appears to be no activities of the type described in the statute—such as engineering or research and development—at all." *Id.* Staff reasons that there is nothing qualitatively or quantitatively significant about the distribution and packaging services, and that they are more like the activities of an importer. *Id.* With respect to the labeling activities, Staff observes that Sony failed to identify the expenses solely related to that activity. *Id.* at 137 (citing Prowse, Tr. at 130:11-131:17; 132:10-133:6). Staff also posits that, to the extent Sony DADC's labeling expenses may qualify toward establishing a domestic industry, such expenses are not significant since the evidence shows that only a small percentage of imported tapes are domestically labeled. *Id.* (citing Prowse, Tr. at 130:3-8; JX-0145C; RX-0585C (Vander Veen WS) at Q/A 60-61).

Second, with respect to facilities costs associated with Building F activities at the Bolingbrook facility, Staff asserts that none of the activities in the Bolingbrook facility involve the types of activities normally considered as part of a domestic industry. *Id.* at 138. Rather, they merely relate to shipping, receiving, storage, and labeling. *Id.*

Third, as to Sony DADC's GPS, Staff compares them to SOLA's distribution, packaging, and labeling activities, and concludes that these activities "are neither qualitatively nor quantitatively significant" and "are not the types of investments that typically qualify for purposes of satisfying the economic prong of the domestic industry requirement." *Id.* at 138-139.

Fourth, Staff concludes that the evidence fails to show that Sony DADC's transportation expenses are attributable to the Sony domestic industry products in order to satisfy the economic

prong of the domestic industry requirement. *Id.* at 139. Staff reasons that the transportation services are the type usually performed by an ordinary importer. *Id.*

Staff also agrees with Fujifilm that Sony DADC's pre-2015 expenses should not count towards satisfying the economic prong. *Id.* at 139-140. According to Staff, Sony's expert testified that the pre-2015 expenses did not relate to technical support "and that it was not possible to determine how much of the investments were attributable to the labeling activities alone." *Id.* (citing Prowse, Tr. at 140:8-142:18).

3. SSOA

Sony indicates that SSOA includes [redacted] employees in Laredo, TX who "provide technical support and quality assurance work related to Sony's LTO and other tape products." CIB at 173 (citing CX-0004C at Q/A 141-159; CX-0006C at Q/A 21-26, 91-96). According to Sony, one of these employees, Mr. Sasaki, "spends approximately [redacted] percent of his time supporting Sony's OEM LTO business."[29] *Id.* Based on this estimation and the fact that Mr. Sasaki works on other non-DI LTO products, Sony estimates that SSOA's domestic investments totaled approximately [redacted] (from fiscal year 2015 through September 2017), all of which is attributable to the '596 and '774 patents and approximately [redacted] of which is attributable to the '501 patent. *Id.* (citing CX-0004C at Q/A 141-159; CX-0006C at Q/A 91-96; CX-0863C; CX-1099C; CX-1173C; CDX-0004C at 28-29).

Fujifilm argues that SSOA's expenses associated with Mr. Sasaki's salary do not establish a domestic industry because the evidence fails to show that he handles technical issues related to the Sony domestic industry products. RIB at 154. For example, Fujifilm points to the

[29] Sony does not appear to allocate any expenses for the other SSOA employee, Mr. Nakashima.

fact that only a very small number of calls to SSOA were for complaints regarding the Sony domestic industry products:

Year	Total Calls	Calls Related to Domestic Industry Products
2017	n/a	[redacted]
2016	[redacted]	[redacted]
2015	[redacted]	[redacted]

Id. (citing RX-0089C; RX-0585C (Vander Veen WS) at Q/A 100-108). Fujifilm also notes that Dr. Prowse acknowledged that there was no information available to measure Mr. Sasaki's contributions to the development of Sony's domestic industry products. *Id.* (citing Prowse, Tr. at 149:16-150:10). Fujifilm also points to evidence demonstrating that when Mr. Sasaki did provide technical support he did so from outside of the United States. *Id.* (citing RX-0090C; RX-0088C; JX-0080C (Sasaki Dep.) at 12:15-13:25, 23:2-24:2, 61:10-62:1, 79:9-17).

Staff relies on the same financial data cited by Sony and discussed above. SIB at 140-141. Staff acknowledges that "[t]echnical support is ordinarily considered an appropriate domestic industry expense," but questions whether Mr. Sasaki's work actually qualifies as "technical support." *Id.* According to Staff, the evidence shows that Mr. Sasaki "provides customer sales support, such as dealing with discrepancies in price or quantity of tapes sold to customers" and that when a customer does have a technical problem with a product, Mr. Sasaki refers them to technicians in Japan. *Id.* Staff also asserts that Sony's expert was unable to identify any contributions made by Mr. Sasaki to the development of Sony's domestic industry products. *Id.* at 141 (citing Prowse, Tr. at 149:16-150:10). Finally, Staff notes that Sony's expert did not provide testimony that SSOA's expenditures on their own are quantitatively and qualitatively significant. *Id.*

4. Analysis

The Commission has explained that "[t]he economic prong requirement exists to assure that domestic production-related activities, as opposed to those of a mere importer, are protected by the statute." *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm'n Op. at 39 (August 1, 2007). This distinction assesses, in part, the qualitative significance of an investment. *See Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm'n Op. at 27 (Feb. 17, 2011) (explaining that "the magnitude of the investment cannot be assessed without consideration of the nature and importance of the complainant's activities to the patented products in the context of the marketplace or industry in question"). However, such "qualitative factors alone are insufficient" to show that an investment is significant or substantial. *Lelo Inc. v. Int'l Trade Comm'n*, 786 F.3d 879, 885 (Fed. Cir. 2015). Rather, section 337(a)(3) "requires a quantitative analysis to determine whether there is a 'significant' increase or attribution by virtue of the claimant's asserted commercial activity in the United States." *Id.* at 883.

In addition, for purposes of section 337(a)(3), the Commission has determined that the term "significant" requires "an assessment of the relative importance of the *domestic activities*." *Certain Concealed Cabinet Hinges and Mounting Plates,* Inv. No. 337-TA-289, Comm'n Op. at 11 (Jan. 8, 1990) (emphasis added); *see also Certain Printing and Imaging Devices and Components Thereof*, Inv. 337-TA-690, Comm'n Op. at 27 (Feb. 17, 2011) (explaining that in assessing significance, "[t]he Commission has also assessed the relative domestic contribution to the protected article by comparing complainant's product-related domestic activities to its product-related foreign activities").

Within the above framework, I find that the expenditures of the Sony subsidiaries fail to establish the economic prong of the domestic industry requirement under section 337(a)(3)(B) because they are not qualitatively and quantitatively significant.[30]

First, I agree with both Fujifilm and Staff that the Sony subsidiaries' activities regarding the domestic industry products are largely those of an ordinary importer, and are thus not quantitatively or qualitatively significant. In making this determination I have considered whether the Sony subsidiaries perform any significant qualifying activities in the United States sufficient to elevate them from simply being importers of the Sony domestic industry products. In this regard, I find that the actions of the Sony subsidiaries do not contribute in any significant manner to the manufacture of, or an increased value for, the Sony domestic industry products.

For example, the evidence clearly shows that the domestic industry products are fully manufactured in Japan, and that no further steps are required for them to operate upon arrival in the United States. *See* JX-0063C (Buchicchio Dep.) at 18:20-19:2. The only additional "manufacturing" Sony does in the United States is labeling a fraction the imported cartridges. Sony characterizes this work as "a critical service" because "[m]any DADC customers view LTO tapes as unusable unless they are labeled." CIB at 170. The evidence shows, however, that the labeling activities consist of adding a [redacted] label to only approximately [redacted] percent of the imported Sony domestic industry products. *See* JX-0062C (Buchicchio Dep.) at 63:18-21; Prowse, Tr. at 128:15-24. Based on these facts, such labeling activities do not have a sufficiently significant economic and financial impact to demonstrate the type of significant investment that is required by the economic prong of the domestic industry requirement.

[30] Sony does not assert that the expenditures of the Sony subsidiaries satisfy either of section 337(a)(3)(A) or section 337(a)(3)(C).

I also note that much of Sony's argument with respect to labeling is not supported by record evidence. For instance, Sony does not cite to any evidence of record supporting its assertion that domestic labeling is "a critical service" or that any, much less many, of Sony DADC's customers considered unlabeled LTO tapes to be unusable. *See* CIB at 170. Indeed, it is unclear from the record how the lack of a label makes an LTO tape functionally unusable. Instead, Sony's argument appears to conflate "saleable" with "marketable." *See Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, at 42 ("[T]he bulk condoms [are] not useable or saleable as imported, the lubrication added in the United States is directed to the practice of certain patent claims…."). As noted above, there is no evidence that the imported Sony domestic industry products cannot be used or sold without domestically added labels. Indeed, there is evidence to the contrary. *See* JX-0063C (Buchicchio Dep.) at 18:20-19:2 (indicating that that Sony domestic industry products for [redacted] are shipped unlabeled). Moreover, as noted above, the evidence establishes that only between [redacted] percent of the Sony domestic industry products are domestically labeled. *See* JX-0145C; RX-0585C (Vander Veen RWS) at Q/A 60-61. It certainly cannot be the case that the remainder of the imported Sony domestic industry products are not "saleable" to or "useable" by consumers.

In addition, to the extent Sony contends that domestic labeling is a "value added" activity, Sony has failed to quantify the value actually added from that activity. *See Lelo*, 786 F.3d at 883. This point is particularly significant given that Sony's own witness testified that Sony labels just a "small subset" of the imported domestic industry products. *See* RX-0585C (Vander Veen WS) at Q/A 60. Thus, based on the forgoing, I find that the application of a [redacted] label on only approximately [redacted] per cent of the imported Sony domestic industry

products does not constitute a quantitatively or qualitatively significant activity or expense alone, or in conjunction with, any other activity of the Sony subsidiaries.

The majority of the remaining domestic support activities of the Sony subsidiaries consist of sales, warehousing, and distribution. These activities do not constitute significant "domestic production-related activities," and do not have any meaningful bearing on the practice of the Sony domestic industry products given that those products are manufactured entirely outside of the United States. *See, e.g., Certain Printing and Imaging Devices and Components Thereof*, Inv. 337-TA-690, Comm'n Op. at 30 (Feb. 17, 2011). I note particularly that the evidence fails to show that Mr. Clark performs anything other than sales and marketing activities. *See* CX-0006C at Q/A 90; Prowse, Tr. at 146:20-148:19; CX-0004C (Prowse WS) at Q/A 135; JX-0140C; CX-0006C (Murai WS) at Q/A 90; CX-1097C; CX-1098C.

Finally, Sony offered evidence that Mr. Sasaki provides technical support to purchasers of Sony's domestic industry products. *See* CIB at 173 (citing CX-0004C at Q/A 141-159; CX-0006C at Q/A 91-96; CX-0863C; CX-1099C; CX-1173C; CDX-4C at 28-29). Providing technical support constitutes an activity that can be credited toward satisfying the economic prong. The evidence shows, however, that when Mr. Sasaki provided technical support that he did so from outside of the United States. *See* RX-0090C; RX-0088C; JX-0080C (Sasaki Dep.) at 12:15-13:25, 23:2-24:2, 61:10-62:1, 79:9-17. The evidence also shows that SSOA fielded very few calls related to the domestic industry products:

Year	Total Calls	Calls Related to Domestic Industry Products	Percent
2017	n/a	[redacted]	[redacted]
2016	[redacted]	[redacted]	[redacted]
2015	[redacted]	[redacted]	[redacted]

See RX-0089C; RX-0585C (Vander Veen WS) at Q/A 100-108. As can be gleaned from the above data, of the [redacted] calls to SSOA during 2015 and 2016, only [redacted] percent related to the Sony domestic industry products. Moreover, no evidence has been cited establishing that any of those [redacted] calls related to a technical issue. Thus, while it may be the case that Mr. Sasaki provided some domestic technical support regarding the Sony domestic industry products, the evidence fails to demonstrate that the expenditures associated with his doing so were qualitatively or quantitatively significant.

In view of the foregoing, I find that the expenditures of the Sony subsidiaries are quantitatively and qualitatively insignificant and therefore fail to satisfy, alone or in conjunction with the IBM expenses (discussed below), the economic prong of the domestic industry requirement under section 337(a)(3)(B).

C. A Domestic Industry Exists Relating to IBM 3592 Products

1. The Sony-IBM License.

Sony and IBM have entered into two cross-license agreements relevant to this investigation. The first is dated March 30, [redacted]. CX-1058C. The second is dated March 25, [redacted]. CX-1044C. The two licenses are identical in all respects relevant to this investigation and therefore will be referred to as the "Sony-IBM license." *See* CX-1058C, CX-1044C; CIB at 174 n. 49; SIB at 141. According to Sony, IBM is a licensee of the Asserted Patents and the economic prong of the domestic industry requirement is satisfied based on IBM's expenditures relating to the IBM 3592 products. CIB at 9-10, 174. Staff agrees. SIB at 141. Fujifilm contends that the Sony-IBM license is defective and does not cover certain IBM 3592 products. RIB at 178-179. Accordingly, Fujifilm asserts Sony cannot rely on expenditures related to IBM 3592 products to support its domestic industry claim.

The dispute regarding the Sony-IBM license concerns three sections of the license. First, [redacted] of the license grants IBM a license to [redacted] CX-1044C at 6. Second, [redacted] grants IBM the right to [redacted] *Id.* The parties call this the '[redacted] provision. Finally, [redacted] states that that the [redacted] *Id.* (emphasis added). The source of the dispute arises from this last section: Why is there a reference to the claims of [redacted] in a section concerning the right to [redacted]

Sony contends that [redacted] grants IBM a license under the Asserted Patents [redacted]. CIB at 175. Staff agrees. SIB at 142-143. Sony further asserts that [redacted] allows IBM [redacted] including the 3592 and LTO products at issue. CIB at 175, 178. Sony argues that, when read in the context of [redacted] the subsequent recitation in [redacted] is a clear typographical error. *Id.* at 179 (citing CX-1058 at 15-16). According to Sony, any other conclusion is nonsensical and inconsistent with the intent of Sony and IBM because "Sony has no reason to condition a license to infringe Sony's patents on simultaneous infringement of IBM's patents" and "IBM likewise has no reason to bargain for a license from Sony that only covers products simultaneously covered by IBM's own patents." *Id.*; *see also* CX-1230C; CX-1046C; CX-1047C; CX-0007C at Q/A 71, 85. Staff agrees. SIB at 143. Given their mutual understanding of the operation of the license agreements, Sony and IBM agree that the licensed products include: "(i) IBM 3592 tape products: JA; JB; JC; JD; JJ;

JK; JL; JR; JW; JX; and JY; and (ii) IBM LTO tape products LTO-1, LTO-2, LTO-3, LTO-4, LTO-5, LTO-6, and LTO-7" and 3592 tape drives. CX-1046C.

Fujifilm disagrees that Sony can rely on IBM's 3592 tapes and 3592 tape drive products to establish the economic prong of the domestic industry requirement. RIB at 156. Fujifilm argues that the Sony-IBM license—as written—does not cover IBM's 3592 tapes, and therefore prevents Sony from relying on IBM's 3592 tapes to establish the economic prong. *Id.* at 156-166. According to Fujifilm, [redacted] of the Sony-IBM license allows IBM to [redacted] covered 3592 tapes but not to have 3592 tapes [redacted]. *Id.* at 159. In Fujifilm's view, the [redacted] rights are addressed separately and exclusively in [redacted] of the license. *Id.* at 159-160. Fujifilm contends that [redacted] further limits IBM's [redacted]. Putting it all together, Fujifilm argues that the only products IBM can have others make are products that practice the claims of [redacted] that IBM has cross-licensed to Sony under the agreement. RIB at 160-162; *see* CX-1058C at 15, 16. Thus, Fujifilm contends that Sony must demonstrate that the IBM 3592 tapes [redacted] before it may assert that the IBM 3592 tapes are licensed domestic industry products. *Id.* at 162; *see id.* at 8 (citing RX-0005C (Vander Veen WS) at Q/A 27). Fujifilm argues that the reference to [redacted] has a valid business purpose and is not a typographical error. Fujifilm further argues that even if the reference to IBM is an error, it was not timely corrected so as to be applicable in this investigation. *Id.* at 156-162.

Staff contends that the Sony-IBM license covers the IBM 3592 family of products by virtue of the [redacted] grant to IBM [redacted] SIB at 142. Staff contends that [redacted] applies regardless of who designs or

manufactures products for IBM, and that such an interpretation is consistent with the understanding of Sony and IBM. *Id.* (citing CX-1046C; CX-1047C; *Cyrix Corp. v. Intel Corp.*, 77 F.3d 1381, 1384-87 (Fed. Cir. 1996)). With respect to [redacted], Staff asserts that the evidence demonstrates that [redacted] includes a typographical error that as written "does not make much sense and does not grant anything to IBM." *Id.* at 143-144 (citing CX-1230C). Staff contends that the typographical error in [redacted] creates an "ambiguity" leading to an "absurd result where IBM gains nothing from a cross-license." *Id.* at 144-145. Because the Sony-IBM license is governed by New York law, Staff asserts that the Sony-IBM license should be interpreted to carry out the intention of the parties, and that [redacted] should be read as referring to [redacted]" *Id.* at 145 (citing CX-1230C; *1414 APF, LLC v. Deer Stags, Inc.*, 834 N.Y.S. 2d 133, 135 (1st Dept. 2007)).

In evaluating Sony's domestic industry assertions based on IBM's activities, I begin with the language of the statute. Section 337 requires that an industry in the United States exist, or be in the process of being established, with respect to the articles protected by a patent. *See* 19 U.S.C. § 1337(a)(2). The statute also requires certain types of investments in the United States with respect to such articles. *See* 19 U.S.C. § 1337(a)(3). Articles protected by the patent include those articles that practice the claims of the patent under authorization from the patent owner. *See Certain Electronic Imaging Devices*, Inv. No. 337-TA-850, Comm'n Op. at 92-95. (April 21, 2014). Because the test for determining whether an article is protected by the patent "is essentially same as that for infringement," the Patent Act informs the issue. *See Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1375 (Fed. Cir. 2003). In this regard, the Patent Act describes infringement as action by those who make and use the invention "without authority." *Id.* § 271(a).

Notably, the Patent Act does not state that authority to practice a patented invention must be granted in writing. *See Waymark Corp. v. Porta Systems Corp.*, 334 F.3d 1358, 1364 (Fed. Cir. 2003) ("Only assignments need be in writing under 35 U.S.C. § 261. Licenses may be oral."). While a written contract or license may provide evidence of permission to practice a patented invention, such writing are not the only acceptable form of evidence. Thus, the question before me is whether there is adequate evidence in the record establishing that IBM is practicing the Asserted Patents with Sony's permission. Sufficient evidence of authorization from Sony for IBM to practice the patent claims, even if not reduced to writing, can suffice to bring the IBM 3592 tape products within the umbrella of domestic industry products upon which Sony may rely.

Here, the evidence shows that since at least as early as 2010, IBM has had Sony's authorization to manufacture articles and/or have articles manufactured on IBM's behalf that are both protected by the Asserted Patents and that would otherwise be subject to a claim of infringement but for Sony's authorization. For example, by letter dated August 21, 2017, Sony and IBM memorialized that both parties have been operating with the mutual understanding that [redacted] of both the [redacted] licenses grant IBM the right to [redacted]. *See* CX-1230C at 1. Similarly, by letters dated October 25, 2017, and November 9, 2017, Sony and IBM again confirmed that [redacted] of the licenses allows IBM to [redacted] the IBM 3592 products and that [redacted] allows IBM to [redacted]. *See* CX-1046C and CX-1047C. Sony also provided testimony from Mr. Hiroshi Kamitani, a participant in the license negotiations between Sony and IBM, explaining that the letters exchanged between Sony and IBM were intended to confirm "the understanding of the

agreement that Sony and IBM have had all along with respect to the language of the agreement." CX-0007C at Q/A 85. Mr. Kamitani further testified that [redacted] of the Sony-IBM license (the [redacted] section) was always intended to allow IBM to [redacted]. *Id.* at Q/A 90-95.

The evidence of record establishes that the IBM 3592 products are manufactured with authority from Sony, regardless of whether the Sony-IBM license fully and accurately reflects that intention. I conclude, therefore, that Sony can rely on IBM's 3592 products as domestic industry products.

Alternatively, to the extent I am required to interpret the Sony-IBM license to determine whether it covers IBM 3592 tape products, I find that it does. The Sony-IBM license is governed by New York law. *See* CX-1058C at 42-43; *see also* CIB at 3, 176; RIB at 158; SIB at 144. Under New York law, "courts may as a matter of interpretation carry out the intention of a contract by transposing, rejecting, or supplying words to make the meaning of the contract more clear" when "some absurdity has been identified or the contract would otherwise be unenforceable either in whole or in part." *Wallace v. 600 Partners*, 634 N.Y.S.2d 669, 717 (1995).

Here, there is no credible evidence or explanation as to why Sony and IBM would have entered into a contract in which IBM licensed itself to [redacted] practice its own patents. Although Fujifilm offers a theory explaining how the Sony-IBM licenses could be interpreted as written, that theory does not square with the weight of the evidence of record. *See* RIB at 161. As explained above, Sony has offered evidence regarding Sony's and IBM's intentions when they entered into the license agreements, and Sony has also provided evidence

demonstrating that Sony and IBM have acted in accord with that mutual understanding. *See* CX-1230C at 1; CX-1046C; CX-1047C; CX-0007C at Q/A 85, 90-95.

The mostly likely explanation here is that there is a mistake in [redacted] of the license. *See, e.g.*, *Ross v. Shearman*, 95 A.D.3d 1100, 1101 (2d Dep't 2012) (holding that a contract providing for payment of a losing party's attorney's fees was absurd and reading the contract to require payment of the prevailing party's attorney's fees). Therefore, I find that a New York court would interpret the Sony-IBM license to include products [redacted] that are covered by the licensed Sony's patents regardless of whether those products also practice IBM patents. For this additional reason, I find that Sony can rely on domestic investments related to IBM 3592 products when proving a domestic industry.

2. Issues unique to the '774 and '501 patents.

As discussed above, Fujifilm and Staff disagree with Sony as to whether IBM's maintenance and research and development expenditures can be relied upon to satisfy the economic prong under sections 337(a)(3)(B) or (C) with respect to the '774 and '501 patents.

Fujifilm asserts that the domestic industry for the '774 and '501 patents extends at most to expenditures relating to IBM 3592 tape cartridges and cannot include expenditures relating to IBM 3592 tape drives. Fujifilm contends that the '774 and '501 patent claims are directed to tape media and that tape drives are not articles protected by the patents. RIB at 167 (citing *Certain Video Game Systems & Wireless Controllers*, Inv. No. 337-TA-770, Comm'n Op. at 66 (Oct. 28, 2013)). In support of its position, Fujifilm asserts that magnetic tape cartridges are a separate article of commerce from tape drives, and therefore Sony's ability to rely on IBM's expenditures beyond those tape cartridges is limited. *Id.* at 167-168 (citing *Modular Structural Systems*, Comm'n Op. at 12-13; *Cell Culture Microcarriers*, Comm'n Action and Order at 37; *Certain Concealed Cabinet Hinges & Mounting Plates*, Inv. No. 337-TA-289, ID, 1989 WL

608804, at *55, *147 (Sep. 28, 1989)); *see id.* at 144. Fujifilm argues that it does not matter that IBM 3592 tapes and 3592 drives are designed to be used together. *Id.* (citing *Modular Structural Systems*, Comm'n Op. at 37; *Cell Culture Microcarriers*, Comm'n Action and Order at 37; *Concealed Cabinet Hinges*, 1989 WL 608804, at *55, *150). Fujifilm further argues that the domestic industry is limited to the article of commerce in which a patented component is physically incorporated. *Id.* (citing *Personal Computers*, Comm'n Op. at 41; *Certain Double-Sided Floppy Disk Drives & Components Thereof*, Inv. No. 337-TA-215, USITC Pub. 1860, ID at 56 (May 1986); *Certain Kinesiotherapy Devices & Components Thereof*, Inv. No. 337-TA-823, Comm'n Op. at 35 (Jul. 12, 2013); *Integrated Circuit Chips*, Comm'n Op. at 48). Fujifilm also asserts that the media of the '774 and '501 patents can be utilized in non-3592 drives. *See id.* at 169-172. Finally, Fujifilm contends that IBM's expenditures for maintenance and research and development can only be attributed to 3592 tape drives, and not 3592 tape cassettes or media. *Id.* at 173 (citing CX-0004C (Prowse WS) at Q/A 167; RX-0585CX (Vander Veen WS) at Q/A 122, 124-127).

Staff comes to the same conclusion as Fujifilm. SIB at 145-148. Staff reasons that because the '774 and '501 patents claim tape media the articles protected by the patents "at most extend to tape cartridges, but do not properly extend to tape drive products." *Id.* at 146. In this regard, Staff asserts that Sony's expert failed to allocate IBM's expenditures only to 3592 tapes, and the evidence of record demonstrates that the majority of IBM's investments were directed to tape drives, not tape cartridges. *Id.* at 147 (citing Tr. at 152:15-22; RX-0585C at Q/A 126, 127 (citing JX-0034C at 90-93; JX-0046C at 108; JX-0028C at 121-125; JX-0037C at 25-27; RX-0454C at 4018; CX-0721C)).

I return again to the words of the statute. In section 337 investigations, the domestic industry is defined by "articles protected by the patent." *See* 19 U.S.C. § 1337(a)(2)-(3). I have already determined that the IBM 3592 tapes practice the claims of the '774 and '501 patents. Thus, IBM 3592 tape cartridges are articles protected by the '774 and '501 patents. *See Alloc*, 342 F.3d at 1375.

But that determination is not the end of the question. "The Commission has held that in certain circumstances, the realities of the marketplace require a modification of the principle that the domestic industry is defined by the patented article." *Video Game Systems & Wireless Controllers & Components Thereof*, Inv. No. 337-TA-770, Comm'n Op. at 66 (Oct. 28, 2013) (citing *Certain Modular Structural Systems*, Inv. No. 337-TA-164, Comm'n Op. at 12 (June 1984).) Thus, I must determine whether the realities of the marketplace for IBM 3592 tapes indicate that the domestic industry includes investments beyond those directly related to the patented article. I find that the realities of the marketplace require further analysis in this investigation.

Sony's arguments in this regard are similar to those set forth, but ultimately rejected, in *Certain Modular Structural Systems*. Inv. No. 337-TA-164, Comm'n Op., 0084 WL 951886 (June 1984). Specifically, Sony contends that the IBM 3592 tapes and 3592 tape drives form a system despite the fact that neither the '774 patent nor the '501 patent is directed to a system.[31] CIB at 182. However, *Certain Modular Structural Systems* is not the only investigation in which the Commission has addressed this issue. In other investigations, the Commission has explained

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[31] Sony also argues that the 3592 tapes and 3592 drives are critical to one another given that they cannot operate independent of one another. CIB at 181-182 (citing Prowse, Tr. at 166:2-4; CX-1304C at Q/A 20, 147).

that additional components beyond the patented articles can be considered in the domestic industry analysis where those additional products enable exploitation of the claimed subject matter. *See, e.g., Video Game Systems*, Inv. No. 337-TA-770, Comm'n Op. at 68 and 70. An "important" factor in making that determination is whether the alleged domestic activities "have a direct relationship to exploitation of the patented technology." *Id.* at 67. Activities "far removed from the technology protected by the patent" should not be included. *Id.*; *see also Certain Integrated Circuit Chips and Products Containing The Same*, Inv. No. 337-TA-859, Comm'n Op. at 36 (Aug. 22, 2014).

Although it is possible to exploit the '774 and '501 patents through all manner of tapes, including LTO and other formats, it is *not* possible to exploit IBM 3592 tape cassettes—articles protected by the patent—without an IBM 3592 drive. It is undisputed that IBM 3592 tapes can only be used in an IBM 3592 drive. Thus, the reality of the marketplace developed around the IBM 3592 family of products is that IBM 3592 tape drives are necessary to use IBM 3592 tapes and vice versa.

The IBM 3592 products present a situation quite similar to that in *Video Game Systems*. In that investigation, the Commission found that the domestic industry products included some non-patented components "which enable [Complainant] to exploit the technology of the claimed toy wands." Inv. No. 337-TA-770, Comm'n Op. at 68. The wands could not be exploited absent certain electronic receivers and software of the devices they attached to. *Id.* at 70. The situation here is similar. Participants in the memory tape marketplace do not purchase an IBM 3592 memory storage tape if they cannot write or read data from it. And data cannot be written or retrieved from an IBM 3592 tape without an IBM 3592 drive. Thus, the evidence of record shows that the "realities of the marketplace" dictate that the IBM 3592 tapes protected by the

'774 and '501 patents cannot be "exploited" absent their use in conjunction with IBM 3592 tape drives that do not themselves practice the '774 and '501 patent claims. Accordingly, in considering whether the economic prong has been satisfied for the '774 and '501 patents, I find that the unique facts of this investigation indicate that expenditures associated with IBM 3592 tapes and IBM 3592 tape drives should be considered.

3. Employment of labor and capital for research and development relating to articles protected by all asserted patents under section 337(a)(3)(B).

Sony asserts that it has satisfied the economic prong of the domestic industry requirement under section 337(a)(3)(B) because "IBM has made significant investments in labor and capital for maintenance operations and development and commercialization work related to its licensed 3592 tape and drive products." CIB at 180-181; *see id.* at 9-10, 146, 166, 174, 186-187. Sony ascribes [redacted] in expenses for labor associated with maintenance and operations for the 3592 family of products between 2014 and September 2017. *Id.* at 183 (citing CX-0004C at Q/A 176-178; CX-0718C; CX-1304C at Q/A 167). Sony also ascribes [redacted] in expenses for labor associated with research and development for the IBM 3592 family of products since 2012. *Id.* at 185 (citing CX-0004C at Q/A 210-215; CX-0870C; CX-1304C at Q/A 145). Sony allocated these expenditures to each Asserted Patent as follows:[32]

[32] Sony offered two sales-based allocations for IBM's investments in maintenance operations. *See* CX-0004C at Q/A 177-206.

	Allocation Method 1 Maintenance Operations[33]	Allocation Method 2 Maintenance Operations[34]	Research and Development[35]
'596 Patent	[redacted]	[redacted]	[redacted]
'501 Patent			
'774 Patent			

Id. at 183-184, 186; *see also* CX-0004C at Q/A 196, 205.

Sony indicates that the labor and maintenance operations allocated to the IBM 3592 products include direct labor costs (*i.e.*, account management, project management, and on-site maintenance) and indirect labor costs (*i.e.*, infrastructure support, IT, management staff, and maintenance technicians). *See* CIB at 182-183. According to Sony, "IBM employed approximately [redacted] full-time equivalents in 2014 for on-site direct labor." *Id.*

Sony asserts that IBM's research and development activities for the 3592 products occur primarily in Tucson, Arizona and Almaden, California. *Id.* at 184 (citing CX-1304C at Q/A 87). According to Sony, the Tucson facility utilizes approximately [redacted] percent of the space in two buildings and houses [redacted] people ([redacted] percent of whom are engineers) devoted to the development, testing, and support of 3592 products. *Id.* (citing CX-1304C at Q/A 88, 90, 93-95; CX-0004C at Q/A/ 209). The Almaden facility includes a pilot line for developing and testing manufacturing processes and prototype 3592 tape systems. *Id.* (citing CX-0004C at Q/A/ 209). The [redacted] employees at the Almaden facility devote approximately [redacted] percent of their time to development work related to 3592 products. *Id.* (citing CX-1304C at Q/A 125-129; CX-0004C at Q/A 209).

[33] Estimated from fiscal year 2014 through September of fiscal 2017. *See* CX-0004C at Q/A 196.

[34] Estimated from fiscal year 2014 through September of fiscal year 2017 based upon North American revenue. *See* CX-0004C at Q/A 205.

[35] Estimated from fiscal year 2012 to September of fiscal year 2017. *See* CX-0004C at Q/A 205.

According to Sony, IBM does not track its research and development expenditures for each different 3592 system (*i.e.*, TS1120, TS1130, TS1140, TS1150, and TS1155), but IBM was able to provide an estimate of expenditures devoted to each system between 2012 and 2016:

	2012	2013	2014	2015	2016
TS1120/TS1130					
TS1140					
TS1150					
TS1155					

Id. at 185 (citing CX-0004C at Q/A 217-218; CDX-0004C at 33; CX-1304C at Q/A 147-154).

Fujifilm argues that IBM's expenditures relate to tape drives and cannot be considered to support a domestic industry in tape media practicing the claims of the '774 and '501 patents, as discussed above. *See* RIB at 173. As to the '596 patent, Fujifilm contends that Sony cannot rely on IBM's tape and drive investments because the Sony-IBM license does not cover the 3592 family of products. *Id.* at 174. Fujifilm also contends that IBM's research and development expenses can only be properly credited under section 337(a)(3)(C), not subparagraph (B), and that Sony has failed to demonstrate the nexus between IBM's research and development expenditures and the patented technology required under section 337(a)(3)(C). *Id.* at 174-175.

In assessing IBM's 3592 expenditures, Staff concludes that IBM's maintenance and research and development expenditures do not satisfy the economic prong under section 337(a)(3)(B) with respect to the '774 and '501 patents, as discussed above, but do satisfy subparagraph (B) with respect to the '596 patent. *Id.* at 130, 145-152. Staff contends that the '596 patent claims a tape drive apparatus as well as a tape cassette. RRB at 39. Staff reasons that IBM's investments related to the 3592 tape drives therefore relate to articles protected by the '596 patent. *Id.* For example, Staff observes that "the evidence shows that IBM invested at least [redacted], and possibly [redacted] in labor and capital for maintenance" for articles

covered by '596 patent.[36] RIB at 148 (citing CX-0004C at Q/A 199-205; CDX-0004C at 31, 36; JX-0125C; CX-0718C; CX-1095C; CX-1101; CX-1190; CX-1729). Staff also points to evidence of record demonstrating that IBM invested [redacted] related to the articles protected by the '596 patent. *Id.* at 151 (citing CX-0004C at Q/A 199-205; CDX-0004C at 33, 35, 36; JX-0125C; CX-0718C; CX-1095C; CX-1101; CX-1190; CX-1729). Thus, Staff submits that IBM's expenditures for maintenance and research and development associated with articles protected by the '596 patent are quantitatively and qualitatively significant. *Id.* at 150-151.

My previous determinations have resolved many of these issues. As discussed above, I have determined that the maintenance and research and development expenditures associated with the IBM 3592 tapes and 3592 tape drives should be considered when determining whether the economic prong has been satisfied for the '774 and '501 patents. I have also rejected Fujifilm's contention that the IBM 3592 products are not authorized by Sony.

The remaining issue is Fujifilm's contention that research and development expenses are the exclusive province of subsection (C), and cannot be considered under subsection (B). The Commission has repeatedly—and again recently—made clear that labor expense associated with research and development can be used to satisfy the economic prong under section (B). Particularly, in *Certain Robotic Vacuum Cleaning Devices*, Inv. No. 337-TA-1057, Comm'n Op. at 11 (August 1, 2018), the Commission noted that it "has rejected the legal theory that labor costs from research and development can only be considered under subparagraph (C)." The Commission explained that this has been the case since the passage of the 1988 Omnibus Trade and Competitiveness Act that codified sections (A) and (B) and added subsection (C). *Id.* at 12

[36] Based upon the two different sales-based allocations Sony offered for IBM's investments in maintenance operations. *See* SIB at 149.

("Since the 1988 Act, the Commission has permitted expenditures on plant and equipment and labor and capital employed in engineering and research and development activities to support a domestic industry under subsections (A) and (B), so long as the asserted expenditures satisfy the plain language of the statutory text."). This position is consistent with a number of prior Commission decisions.

For example, in *Certain Ground Fault Current Interrupters*, the Commission permitted research and development expenses to be considered under subsection (B). Inv. No. 337-TA-739, Comm'n Op. at 80 (June 11, 2012). In doing so, the Commission explained that "Leviton presented domestic industry evidence organized according to 'articles protected by the patent' when evaluating plant, equipment, labor, and capital expenses," that Leviton GFCIs were articles that practiced the asserted patents, and that "virtually all research and development of the Leviton GFCIs occurs in the United States." *Id.* at 78-80.

Citing *Certain Ground Fault Current Interrupters*, the Commission arrived at a similar conclusion in *Certain Electronic Imaging Devices*, Inv. No. 337-TA-850, Comm'n Op. at 92-95. (April 21, 2014). In fact, the Commission addressed this issue directly. *Id.* at 92-93 ("In other words, Respondents essentially argued that Apple's research and development investments should be considered under subsection 337(a)(3)(C) and not under subsection 337(a)(3)(B). The Commission has made no such requirement in the past."). For example, the Commission indicated that expenses for labor and capital for research and development could be considered under subsection (B) where "Flashpoint provided individual head counts for Apple engineers working on research and development for the iPhone 4S and iPhone 5 in the United States." *Id.* at 93.

The Commission also credited research and development work under subsection (B) in *Certain Marine Sonar Imaging Devices, Including Downscan and Sidescan Devices, Products Containing the Same and Components Thereof*, Inv. No. 337-TA-921, Comm'n Op. at 54, 64 (Jan. 6, 2016). In that case, the Commission found that Navico's expenditures from 2009 to 2014 of a confidential amount in the domestic design, development, service, repair, and support of the LSS-1 products constitute a significant employment of labor and capital under section 337(a)(3)(B). In doing so, the Commission again cited evidence of record indicating that "the research and development [was] performed on products practicing each of the asserted patents, [that] resulted in the creation of a new products category that consumers found valuable," and expressly noted that "[t]he record also shows that Navico conducts the vast majority of its research and development in the United States." *Id.* at 63-64.

As can be seen, the Commission has consistently allowed research and development expenses to be included under subsection (B). In some instances, certain research and development expenses may even qualify as both an investment in a domestic industry product under subsection (B) and an investment in a patent covering that product under subsection (C). *See, e.g.*, *Certain Electronic Imaging Devices*, Inv. No. 337-TA-850, Comm'n Op. at 95-96. (affirming the ALJ's finding "that Apple and Motorola made substantial investments in research and development under subsection 337(a)(3)(C) based on the same facts on which he based his finding under subsection 337(a)(3)(B)"); *see also Certain Integrated Circuit Chips*, Inv. No. 337-TA-859, Comm'n Op. at 42 ("Our caselaw demonstrates that a complainant's evidence of its investment in a protected article that practices the patent ordinarily also can support the inference that the investment was itself an exploitation of the patent.").

Consistent with the precedent reviewed above, I find that IBM's research and development investments can be considered under subsection (B) in order to establish the economic prong of the domestic industry requirement.

In sum, I find that all of the maintenance and research and development expenditures associated with the IBM 3592 products relied upon by Sony shall be considered in determining whether the economic prong of the domestic industry requirement has been satisfied under section 337(a)(3)(B).

4. Research and development investments relating to articles protected by all asserted patents under section 337(a)(3)(C).

Sony also argues that IBM's expenditures for labor and capital associated with research and development of 3592 tapes and drives satisfies the domestic industry requirement under section 337(a)(3)(C). CIB at 186. Sony contends that a nexus exists between the IBM 3592 products and the technology of the Asserted Patents. *Id.* In particular, Sony argues that the '501 patent is directed to "increased track density and increased performance when media is used with a drive," that the '596 patent enables "increased reliability and security and improves the interoperation of the cartridge memory, tape media, and drive," and that the '774 patent provides improvements in signal strength and performance. *Id.* (citing CX-0001C at Q/A 221-224; CX-0003C at Q/A 74-76, 98-101; CX-0002C at Q/A 60).

Fujifilm and Staff contend that Sony has failed to demonstrate a nexus between the IBM expenditures and the patented technology, and thus Sony cannot establish the economic prong under section (C). RIB at 174-175; SIB at 152.

For the reasons set forth above, I have determined that research and development expenditures associated with the IBM 3592 tapes and 3592 tape drives constitute domestic industry products with respect to the Asserted Patents. That determination includes findings that

(i) 3592 tapes and drives are articles practicing the '596 patent and (ii) 3592 tape drives are necessary to exploit 3592 tapes practicing the '774 and '501 patents. *See Certain Integrated Circuit Chips*, No. 337-TA-859, Comm'n Op. at 36 and *Video Game Systems*, Inv. No. 337-TA-770, Comm'n Op. at 68). With that in mind, Commission precedent "demonstrates that a complainant's evidence of its investment in a protected article that practices the patent ordinarily also can support the inference that the investment was itself an exploitation of the patent." *Certain Integrated Circuit Chips*, Inv. No. 337-TA-859, Comm'n Op. at 42. Thus, the question is whether that "ordinary inference" applies here, where the domestic industry products—at least for some of the patents (*i.e.*, the '774 and '501 patents)—include non-patented articles (and their associated research and development expenses) necessary to "exploit" the asserted patents.

Given that I have determined that investments relating to the 3592 tape drives should be considered when evaluating the domestic industry relevant to all of the Asserted Patents, it follows that investments associated with the research and development of those tape drives are an "investment [that is] itself an exploitation of the patent." Therefore, I find that IBM's research and development investments can be considered under subsection (C) in order to establish the economic prong of the domestic industry requirement.

5. The significance of IBM's investments.

Sony argues that IBM's expenditures associated with the 3592 products are quantitatively and qualitatively significant and substantial. *Id.* at 187-191. For example, Sony points to IBM's 3592 research and development expenses:

	'596 Patent	'501 Patent	'774 Patent
IBM's R&D Investments	[redacted]		

Id. at 188 (citing CX-0004C at Q/A 235).

Sony further asserts that the quantitative significance of IBM's expenditures is demonstrated when compared to North American sales revenue:

	'596 Patent	'501 Patent	'774 Patent
IBM's Maintenance Investments (2014 – Complaint)	[redacted]		
Sales Revenue in Practicing Tape Products	[redacted]		
DI as a Percentage of Revenue	[redacted]		

	'596 Patent	'501 Patent	'774 Patent
IBM's Development Investments (2014 – Complaint)	[redacted]		
Sales Revenue in Practicing Tape and Drive Products	[redacted]		
DI as a Percentage of Revenue	[redacted]		

Id. at 189 (citing CX-0004C at Q/A 197-205, 220-221; CDX-0004C at 31, 33, 35, 36; CX-0718C; CX-0870C; JX-0125C).

Finally, Sony asserts that IBM's domestic industry product expenditures are qualitatively significant within the U.S. marketplace. *Id.* Among other things, Sony cites to the importance of IBM's expenditures as a function of initially creating and now maintaining the 3592 line of products. *Id.* at 190-191 (citing CX-0004C at Q/A 283-287; CX-0008C at 63-64; CX-1304C at Q/A 120-122, 166; JX-0046C at 23:12-30:1, 60:6-22; CX-1729; RX-0450 at 21).

Fujifilm argues that IBM 3592 expenditures lack significance because Sony failed to demonstrate that those expenditures added any value to the IBM 3592 products. *Id.* at 179. Fujifilm points out that this lack of significance is further demonstrated by the fact that IBM's revenue and expenses associated with the 3592 products constitutes only a very small portion of IBM's overall revenue and expenses. *Id.*

Staff finds that IBM's expenditures for maintenance and research and development associated with articles protected by the '596 patent are quantitatively and qualitatively

significant.[37] *Id.* at 150-151. For example, Staff observes that "the evidence shows that IBM invested at least [redacted], and possibly [redacted] in labor and capital for maintenance" for articles covered by '596 patent. *Id.* at 148 (citing CX-0004C at Q/A 199-205; CX-0718C; CX-1095C; CX-1101; CX-1190; CX-1729; CDX-0004C at 31, 36; JX-0125C). Staff also points to evidence of record demonstrating that IBM invested [redacted] related to the articles protected by the '596 patent. *Id.* at 151 (citing CX-0004C at Q/A 199-205; CX-0718C; CX-1095C; CX-1101; CX-1190; CX-1729; CDX-0004C at 33, 35; 36; JX-0125C).

Based on the evidence of record, I find that IBM's investments are quantitatively significant as required by section 337(a)(3)(B) as well as quantitatively substantial as required by section 337(a)(3)(C). This conclusion is true with respect to the absolute dollar amounts invested to exploit each of the Asserted Patents and as reflected as a percentage of the IBM North American revenue attributable to the products exploiting each of the Asserted Patents. *See* CX-0004C at Q/A 197-205, 220-221, 235; CDX-0004C at 31, 33, 35, 36; CX-0718C; CX-0870C; JX-0125C. That these investments led to a proprietary storage format for IBM supports a finding that they are qualitatively significant as well. *See* CX-0004C at Q/A 283-287; CX-0008C at 63-64; CX-1304C at Q/A 120-122, 166; JX-0046C at 23:12-30:1, 60:6-22; CX-1729; RX-0450 at 21.

Accordingly, I find that Sony has demonstrated that the identified IBM investments exploit the inventions protected by '596, '501, and '774 patents and satisfy the economic prong of the domestic industry requirement under both section 337(a)(3)(B) and section 337(a)(3)(C).

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[37] In view of Staff's determination that IBM's expenditures did satisfy the domestic industry requirement under section 337(a)(3)(C) because there was no nexus with the Asserted Patents, Staff did not address whether such expenses are "substantial" as required in subsection (C). *See* SIB at 152.

VIII. CONCLUSIONS OF LAW

1. The Commission has personal jurisdiction over the parties, and subject-matter jurisdiction over the accused products.

2. The importation or sale requirement of section 337 is satisfied as to Fujifilm.

3. Fujifilm's LTO-4 and LTO-6 tape products infringe claims 1, 5, 6, 7, 8, 10, 16, and 17 of the '774 patent.

4. Fujifilm's LTO-5 tape products infringe claim 17 of the '774 patent.

5. The asserted claims of the '774 patent are not invalid and are directed to patentable subject matter.

6. Fujifilm's LTO-4, LTO-5, and LTO-6 tape products infringe claims 1, 2, 4, 5, and 6 of the '501 patent.

7. Fujifilm's LTO-5 and LTO-6 tape products infringe claim 8 of the '501 patent.

8. The Imation 9840 product anticipates claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

9. Japanese Patent Publication Number 2003-141708 ("Meguro"), anticipates claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

10. United States Patent Publication Number 2003/0224213 ("Meguro-2"), anticipates claims 1, 2, 4, 5, and 6 of the '501 patent.

11. The combination of the Imation LTO-1 product with the knowledge and experience of a person of ordinary skill in the art and/or the NCIS Roadmap renders invalid as obvious claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

12. The combination of Japanese Patent Publication Number P2002-123928 ("Takahashi"), with the knowledge and experience of a person of ordinary skill in the art renders invalid as obvious claims 1, 2, 4, 5, 6, and 8 of the '501 patent.

13. The asserted claims of the '501 patent are not invalid for lack of written description or enablement.

14. Fujifilm induces infringement of claims 1-13 of the '596 patent.

15. The asserted claims of the '596 patent are not invalid.

16. The technical prong of the domestic industry requirement for all of the Asserted Patents has been satisfied.

17. The economic prong of the domestic industry requirement has been satisfied for all of the Asserted Patents.

IX. RECOMMENDED DETERMINATION ON REMEDY & BOND

The Commission's Rules provide that the administrative law judge shall issue a recommended determination concerning the appropriate remedy in the event that the Commission finds a violation of section 337, and the amount of bond to be posted by respondents during Presidential review of the Commission action under section 337(j). *See* 19 C.F.R. § 210.42(a)(l)(ii).

A. Limited Exclusion Order

Under section 337(d), the Commission may issue a limited exclusion order directed to a respondent's infringing products. *See* 19 U.S.C. § 1337(d). A limited exclusion order instructs the U.S. Customs Service to exclude from entry all articles that are covered by the patent at issue that originate from a named respondent in the investigation. *See Fuji Photo Film Co. Ltd. v. Int'l Trade Comm'n*, 474 F.3d 1281, 1286 (2007).

Sony argues that an exclusion order and/or a cease and desist order must issue when there has been a violation of section 337. *See* CIB at 197-198. Because Fujifilm has violated section 337, Sony contends, a limited exclusion order is warranted against Fujifilm, its affiliates, parents, subsidiaries, and/or other related business entities, and its successors or assigns. *See* CIB at 198.

Fujifilm does not dispute that a limited exclusion order should issue if a violation of section 337 has occurred. *See* RIB at 185. Fujifilm argues, however, that any issued exclusion order should (i) be delayed by at least six months, (ii) be limited to Fujifilm-branded LTO-4, LTO-5, and LTO-6 products and components thereof, and (iii) expressly exclude both IBM-branded LTO-4, LTO-5, and LTO-6 products manufactured by Fujifilm for IBM and LTO-7 products that were excluded from this investigation. *Id.* According to Fujifilm, delaying enforcement of the exclusion order would permit affected U.S. customers sufficient time to transition to other storage solutions (*e.g.*, in LTO-7 tapes). *Id.* at 185-186.

Staff submits that the evidence supports recommending a limited exclusion order without delay. According to Staff, there are other suppliers who could supply tapes. SIB at 155 (citing CX-0004C at Q/A 305-309, 313, 344). Staff asserts that Fujifilm's proposed exception for IBM-branded products is unnecessary. *Id.* Staff does support, however, inclusion of a certification provision because Fujifilm makes other LTO tape products that are not accused in this investigation and that are provided to a third-party licensed under the Asserted Patents. *Id.* (citing *Certain Ground Fault Circuit Interrupters and Products Containing Same*, Inv. No. 337-TA-615, Comm'n Op. at 28 (March 26, 2009); *Certain MEMS Devices and Products Containing Same,* Inv. No. 337-TA-700. Comm'n Op. at 27 (May 13, 2011)).

In the event the Commission finds a violation, I recommend that a limited exclusion order issue prohibiting the importation of all the accused products found to infringe the Asserted Patents. There should be no delay in issuing the order. I do recommend, however, tailoring the exclusion order to incorporate Fujifilm's proposed exception for IBM-branded LTO-4, LTO-5 and LTO-6 products and their components given that such products are manufactured and

imported pursuant to a license granted by Sony. I do not recommend including a provision regarding LTO-7 products given that they were not a part of this investigation.

I further note that no party has requested an exception for products sold to or used by the U.S. Government as set forth in 19 U.S.C. § 1337(l), which provides that:

> Any exclusion from entry or order under subsection (d), (e), (f), (g), or (i), in cases based on a proceeding involving a patent, copyright, mask work, or design under subsection (a)(1), shall not apply to any articles imported by and for the use of the United States, or imported for, and to be used for, the United States with the authorization or consent of the Government.

19 U.S.C. § 1337(l). Recognizing that such a provision is typically present in the Commission's exclusion orders, I recommend inclusion of such a provision.

B. Cease and Desist Order

Under section 337(f)(1), the Commission may issue a cease and desist order in addition to, or instead of, an exclusion order. *See* 19 U.S.C. § 1337(f)(1). The Commission generally issues a cease and desist order directed to a domestic respondent when there is a "commercially significant" amount of infringing, imported product in the United States that could be sold, thereby undercutting the remedy provided by an exclusion order. *See Certain Crystalline Cefadroxil Monohydrate,* Inv. No. 337-TA-293 USITC Pub. 2391, Comm'n Op. on Remedy, the Public Interest and Bonding at 37-42 (June 1991); *Certain Condensers, Parts Thereof and Prods. Containing Same, Including Air Conditioners for Automobiles,* Inv. No. 337-TA-334 (Remand), Comm'n Op. at 26-28, 1997 WL 817767, at *11-12 (U.S.I.T.C. Sept. 10, 1997).

In the event a violation of Section 337 is found, Sony contends that a cease and desist order is appropriate because "as of September 30, 2017, [redacted]. *See* CIB at 198 (citing CX-

0004C at Q/A 355-371; JX-0041C at 326:7-327:4; JX-0007C; CX-0947C). According to Sony, during September 2017, for example, Fujifilm sold approximately [redacted]. *Id.* at 199 (citing JX-0119C). Similarly, during May 2017, Fujifilm sold approximately [redacted]. *Id.* (citing CX-0004C at Q/A 364; JX-0119C; JX-0120C). Sony also points to Fujifilm's inventory of components and bulk cartridges for manufacturing LTO-4, LTO-5, and LTO-6 tape products. *Id.* (citing CX-0004C at Q/A 368-369; CX-0950C; CX-0952C; CX-0954C; CX-0955C; CX-0956C; JX-0007C).

Fujifilm contends that Sony has failed to demonstrate that Fujifilm maintains a commercially significant inventory of infringing products in United States. *See* RIB at 186. According to Fujifilm, [redacted]. *Id.* (citing RX-0585C at Q/A 216, 217; RX-0431C). This inventory includes products for licensed sales to IBM. *Id.* (citing RX-0585C at Q/A 221-222).

Staff recommends issuance of a cease and desist order because "[t]he evidence shows that Fujifilm has a commercially significant inventory of accused products in the United States as well as components that are used to manufacture the accused tapes." SIB at 156 (citing CX-0004C at Q/A 355-371).

Should the Commission find a violation of section 337, I recommend that a cease and desist order issue to Fujifilm from selling its accused products because Fujifilm maintains a

commercially significant inventory of the accused products and components thereof in the United States. *See* CX-0004C at Q/A 355-371.

C. Bond During Presidential Review

Pursuant to section 337(j)(3), the Administrative Law Judge and the Commission must determine the amount of bond to be required of a respondent during the 60-day Presidential review period following the issuance of permanent relief, in the event that the Commission determines to issue a remedy. *See* 19 U.S.C. §1337(j)(3). The purpose of the bond is to protect the complainant from any injury. *See* 19 C.F.R. § 210.42(a)(1)(ii), § 210.50(a)(3).

When reliable price information is available, the Commission has often set the bond by eliminating the differential between the domestic product and the imported, infringing product. *See Microsphere Adhesives, Processes for Making Same, and Prods. Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, USITC Pub. 2949, Comm'n Op. at 24 (Dec. 8, 1995). In other cases, the Commission has turned to alternative approaches, especially when the level of a reasonable royalty rate could be ascertained. *See, e.g., Certain Integrated Circuit Telecomm. Chips and Prods. Containing Same, Including Dialing Apparatus*, Inv. No. 337-TA-337, Comm'n Op. at 41, 1993 WL 13033517, at *24 (U.S.I.T.C. June 22, 1993). A 100 percent bond has been required when no effective alternative existed. *See, e.g., Certain Flash Memory Circuits and Prods. Containing Same*, Inv. No. 337-TA-382, USITC Pub. No. 3046, Comm'n. Op. at 26-27 (July 1997) (imposing a 100% bond when price comparison was not practical because the parties sold products at different levels of commerce, and the proposed royalty rate appeared to be *de minimus* and without adequate support in the record).

Sony asserts that a 100 percent bond is appropriate. *See* CIB at 199. Sony argues that although the Commission usually sets bond rates based on the price differential between the domestic industry products and the accused products, it will set a 100 percent bond when

accurate pricing information is unavailable or unreliable. *Id.* at 199-200. According to Sony, accurate pricing information is not available here thus warranting a 100 per cent bond. *Id.* at 200 (citing CX-0004C at Q/A 372-389; JX-0043C at 88:5-10).

Fujifilm argues that Sony has failed to carry it burden of establishing a bond value and in doing so has ignored its own pricing data. *See* RIB at 186-187 (citing CX-0004C at Q/A 388; CX-0008C at Q/A 71). In particular, Fujifilm argues that Sony and its expert have failed to substantiate their claim that it was not possible to determine a price differential. *Id.*

Staff argues that Sony has not carried its burden to prove that a 100 percent bond is warranted given that the parties exchange pricing information and Fujifilm was able to perform a price comparison. *See* SIB at 157 (citing RX-0585C at Q/A 227-268).

Should the Commission find a violation of section 337 by Fujifilm, I do not recommend imposition of a bond. Even though a 100 percent bond may be warranted where price comparison is not practical, Sony has failed to establish that a price differential cannot be determined, especially given that Fujifilm was able to perform a price comparison. *See* RX-0585C at Q/A 227-268; *see also Certain Flash Memory Circuits and Prods. Containing Same*, Inv. No. 337-TA-382, EDIS No. 3046, Comm'n. Op. at 26-27 (July 1997). Given the absence of any evidence or argument by Sony that an alternatively valued bond is appropriate, I find that Sony has failed to carry its burden that any bond is warranted. Accordingly, I do not recommend imposition of any bond during the Presidential review period.

X. PUBLIC INTEREST

In connection with this Recommended Determination, and pursuant to Commission Rule 210.50(b)(1), 19 C.F.R. § 210.50(b)(1), the Commission ordered that the presiding administrative law judge

> shall take evidence or other information and hear arguments from the parties or other interested persons with respect to the public interest in this investigation, as appropriate, and provide the Commission with findings of fact and a recommended determination on this issue, which shall be limited to the statutory public interest factors set forth in 19 U.S.C. §§ 1337(d)(1), (f)(1), (g)(1).

82 Fed. Reg. 25334 (June 1, 2017).

Before issuing a remedy for a violation of section 337, the Commission must consider the effect of the remedy on the following public interest factors: (1) the public health and welfare; (2) competitive conditions in the U.S. economy; (3) the U.S. production of articles that are like or directly competitive with those that are the subject of the investigation; and (4) U.S. consumers. *See* 19 U.S.C. §§ 1337(d)(1), (f)(1). The Commission begins this analysis with the understanding that the public interest favors the protection of intellectual property rights by excluding infringing products. *See, e.g., Certain Two-Handle Centerset Faucets & Escutcheons & Components Thereof,* Inc. No. 337-TA-422, Comm'n Op. at 9 (July 21, 2000). It is rare for the Commission to determine that the public interest considerations outweigh the patent holder's rights. *See Spansion Inc. v. Int'l Trade Comm'n,* 629 F.3d 1331, 1360 (Fed. Cir. 2010). The Commission can, however, tailor the remedy to minimize the impact on the public interest. *See e.g., Certain Personal Data and Mobile Commc'ns Devices & Related Software,* Inv. No. 337-TA-710, Comm'n Op. at 83 (delaying the effective date of an exclusion order based on competitive conditions in the U.S. economy).

A. Public Health and Welfare

Sony submits that exclusion of magnetic tape products that are primarily used for backing-up and archiving data will not have an adverse effect on the public health and welfare in the United States. *See* CIB at 191 (citing CX-4C at Q/A 296-300); see also JX-43C at 150:11-21).

Fujifilm indicates that the Accused Products do not implicate any critical public health, welfare or safety concerns of the Commission. *See* RIB at 181.

Staff asserts that "[t]here is no allegation that an exclusion order in this investigation would affect the public health and welfare." SIB at 153 (citing RPB at 263-268).

The evidence shows that the availability of Accused Products has no critical effect on the public health, safety and welfare in the United States. Accordingly, I find that there is no evidence that the public health and welfare will be adversely affected by an exclusion order in this investigation, and I also find there is no reason to forego or delay issuance of an exclusion order on this basis.

B. Competitive Conditions in the United States Economy

Sony submits that the requested relief will not diminish competition within the market for LTO tape products. *See* CIB at 192 (citing CX-4C at 76-84, Q/A 310-339). Sony contends there would be little or no impact on the LTO market from the requested relief because (i) Fujifilm will be able to continue to supply LTO-4, LTO-5, and LTO-6 tape products on an OEM basis to licensees such as IBM, and (ii) LTO tape sales are shifting away from the accused products. *Id.* at 192-193 (citing CX-4C at Q/A 305-309, 324-337, 339; JX-43C at 144:20-145:6; CX-1436 at 141-155; CDX-4C at 49-52; JX-119C; JX-121C; CX-8C at Q/A 33; JX-109C; CX-1326C at Q/A 21-22; CX-552 at 9). Sony also notes that Fujifilm's own sales projections indicate that by time a remedial order issued in this investigation, LTO-4, LTO-5, and LTO-6 tape products would account for less than [redacted] Fujifilm's LTO sales. *Id.* at 193 (citing CX-1326C at Q/A 22; JX-109C). Finally, Sony argues that Fujifilm [redacted]. *See* CIB at 193-195.

Fujifilm argues that it is the lone domestic manufacturer of LTO tapes. *See* RIB at 181 (citing RX-0005C (Vander Veen DWS) at Q/A 36). Fujifilm accuses Sony of attempting to monopolize the LTO market in the United States. *Id.* (citing RX-0078C (SNY-ITC0922829) at 50-51; RX-0005C (Vander Veen DWS) at Q/A 65). Fujifilm asserts that there will be "disastrous consequences" in the United States if Sony achieves exclusivity in the LTO market because in the past five years Fujifilm has manufactured more than [redacted] LTO-4, LTO-5 and LTO6 tapes in the United States at its Bedford, Massachusetts facility. *Id.* (citing RX-0431C (FF-SONY-ITC2_00317973)). Fujifilm asserts that entry of an exclusion order may cause Fujifilm to close certain of its domestic manufacturing facilities, potentially leaving more than [redacted] U.S. residents without jobs. *Id.* at (citing RX-0001C at Q/A 23, 83). Fujifilm also contends that an exclusion order would also potentially jeopardize production of other generations of LTO products (*e.g.*, LTO-7) and would represent an "existential threat" to Fujifilm's ability to continue any domestic manufacturing, including Fujifilm's ability to provide licensed products to IBM. *Id.* (citing RX-0005C (Vander Veen DWS) at Q/A 45-47). In contrast, Fujifilm asserts that Sony currently performs no LTO manufacturing in the United States and instead manufactures its LTO tape products exclusively in Japan. *Id.* (citing RX-0005C (Vander Veen DWS) at Q/A 49; JX-0069C (Kato Dep.) at 81:1-85:4; JX-0062C (Buchicchio Dep.) at 21:2-6; JX-0082C (Taniguchi Dep.) at 31:1-15). In this regard, Fujifilm notes that Sony closed its last domestic manufacturing facility in 2009, leaving over 300 employees without jobs. *Id.* (citing JX-0069C (Kato Dep.) at 81:1-85:4). Thus, Fujifilm concludes that "[a]n exclusion order that eliminates domestic manufacturing to reward an outsourcer of manufacturing jobs and importer of foreign-goods is inconsistent with U.S. trade policy and not in the public interest." *Id.*

Staff submits that an exclusion order would have little to no impact on the LTO market because Fujifilm would still be able to sell 3592 tapes to IBM. *See* SIB at 153 (citing Vander Veen, Tr. at 574:19-23; CX-0004C at Q/A 305-309, 313). Staff also notes that because the LTO market follows a trend where newer generation LTO tape products overtake market share from older generations, the sale of newer generation tapes, such as LTO-7, will overtake sales of the older LTO-4, LTO-5, and LTO-6 tapes that are the subject of this investigation. *Id.* (citing CX-0004C at Q/A 332, 335-337; JX-109C; CX-1326C at Q/A 21-22). Thus, Staff concludes that exclusion of Fujifilm's LTO-4, LTO-5, and LTO-6 tapes will have minimal effect as LTO-7 sales increase. *Id.*

The evidence shows, based on Fujifilm's own calculations, that a remedial order issued in 2018 as to LTO-4, LTO-5, and LTO-6 products would impact less than [redacted] of Fujifilm's domestic LTO sales in view of the transition to newer generation LTO products. *See* CX-1326C at Q/A 22; JX-109C. Given that there is no evidence to conclude that this trend will not continue, any immediate impact on Fujifilm with respect to LTO-4, LTO-5, and LTO-6 products should diminish. *See, e.g.,* CX-0004C at Q/A 332, 335-337; JX-109C; CX-1326C at Q/A 21-22. Moreover, Fujifilm will still be able to manufacture and sell LTO-4, LTO-5, and LTO-6 products pursuant to their license with IBM and to manufacture and sell future generation LTO products. *See* Vander Veen, Tr. at 574:19-23; CX-0004C at Q/A 305-309, 313, 324-337. I am unconvinced by Fujifilm's assertions of dire consequences.

Accordingly, I find that there is no evidence that the competitive conditions in the U.S. economy will be adversely affected by an exclusion order in this investigation, and I also find there is no reason to forego or delay issuance of an exclusion order.

C. Production of Like or Directly Competitive Products in the United States

Sony submits that if the requested relief is granted, "production of like or directly competitive articles with respect to Fujifilm-branded and unlicensed OEM LTO-4, LTO-5, and LTO-6 tape products will remain robust." CIB at 195 (citing CX-4C at Q/A 301-309). Sony argues that not only will it continue to manufacture and supply LTO-4, LTO-5, and LTO-6 tape products, but that Fujifilm will be able do so also for IBM. *Id.* (citing JX-43C at 141:23-142:6; 145:1-6; JX-54C at166:1-5). Sony also argues that other manufacturers could enter or re-enter the market as well, and notes that three other manufacturers have obtained authorization to manufacture LTO-4, LTO-5, and LTO-6 tape products. *Id.* (citing CX-8C at Q/A 97-104; CX-4C at Q/A 344; CX-881; CX-882; CX-883; CX-884; CX-1216C).

Sony also asserts that consumers have the option of utilizing non-LTO products as well as newer generation LTO products, including those manufactured and sold by Fujifilm, that would not be subject to an exclusion order and which are progressively replacing the LTO-4, LTO-5, and LTO-6 products. *Id.* at 195-196 (citing JX-43C at 141:23-142:6; Vander Veen, Tr. at 569:20-570:4,573:25-574:10). Sony further argues (i) that their LTO-6 products are interchangeable with Fujifilm's LTO-6 products within the marketplace and (ii) that they have the ability and excess capacity to "increase its production of LTO-4, LTO-5, and LTO-6 to meet any shift in demand that results from the exclusion of the Accused Products." *Id.* at 196 (citing CX-4C at Q/A 322, 324-332; CX-8C at Q/A 55-66; CX-1224C; CX-1229C; CX-1084 at 6). Sony argues that Fujifilm has not correctly estimated the market "shortfall" of LTO-4, LTO-5, and LTO-6 products that would result from an exclusion order. *Id.* at 196-197 (citing RX-5C at Q/A 60,Q63; Vander Veen, Tr. at 561:2-564:3, 567:25-568:10; CDX-4C at 52; CX-1132C). Finally, Sony contends that Fujifilm has not properly assessed whether Sony can meet the resulting demand. *Id.*

Fujifilm contends that although there is a public interest in protecting intellectual property owners from unfair competition, the public interest requires protecting the *domestic* industry. RIB at 182 (citing *Certain Microprocessors, Components Thereof, & Products Containing the Same*, Inv. No. 337-TA-781, ID at 369 (Dec. 14, 2012)). Fujifilm asserts that as the only domestic manufacturer of LTO tape products that it has the only "real" domestic industry, and that entry of an exclusion order would destroy that industry with respect to not only the accused of LTO-4, LTO-5, and LTO-6 products, but to all LTO generations. *Id.* at 182-183. In making this argument, Fujifilm cites to its argument regarding competitive conditions in the U.S. economy discussed above. *Id.*

Staff asserts that an exclusion order would not affect the production of like or directly competitive articles. *See* SIB at 153. According to Staff there are several reasons for this conclusion: (i) Fujifilm will still be able to permissibly supply IBM with LTO tapes; (ii) Sony will be able to continue production along with three other companies that have been authorized to sell and manufacture LTO-4, LTO-5, and LTO-6 tapes; and (iii) users can also switch to newer generation tape products or to other storage media. *Id.* at 153-154 (citing Vander Veen, Tr. at 568:21-574:23; CX-0004C at Q/A 305-309, 313, 323, 344).

As discussed above, the evidence shows that there will be a diminishing impact, if any, of an exclusion order with respect to Fujifilm's LTO-4, LTO-5, and LTO-6 products because of Sony's (and others') ability to supply the same or similar products to the market, including by Fujifilm by virtue of manufacturing licensed LTO tapes to IBM. *See* Vander Veen, Tr. at 568:21-574:23; CX-0004C at Q/A 305-309, 313, 323, 344; JX-43C at 141:23-142:6; 145:1-6; JX-54C at166:1-5; CX-8C at Q/A 97-104; CX-881; CX-882; CX-883; CX-884; CX-1216C).

In view of the forgoing, therefore, I find that there is no evidence that an exclusion order would have an adverse effect on the production of likely or directly competitive products in the United States, and therefore also find there is no reason to forego or delay issuance of an exclusion order on this basis.

D. United States Consumers

Sony submits that an exclusion order will have minimal or no adverse effect on U.S. consumers. *See* CIB at 197. Sony contends the evidence shows that the LTO market would remain robust and competitive were an exclusion order issued. *Id.* Sony further asserts that "if anything, the requested remedies will benefit consumers by promoting innovation and increasing product quality and diversity through enforcement of intellectual property rights." *Id.* (citing CX-4C at Q/A 340-354).

Fujifilm argues that an exclusion order would harm U.S. consumers because it would likely result in the elimination of domestic companies and jobs. *See* RIB at 183 (citing RX-0602C (SNY-ITC0371630) at 20). Fujifilm also contends that an exclusion order would result in a shortage of LTO-4, LTO-5, and LTO-6 products in the United States that Sony cannot easily supply. *Id.* (citing Complainants' Responsive Statement of Public Interest Under Section 210.8(b), April 28, 2017, EDIS Doc ID 612038, at 5; JX-0086C (Yamaguchi Dep.) at 18:10-11). According to Fujifilm, Sonly has a capacity of producing only [redacted] LTO- LTO-4, LTO-5, and LTO-6 tapes, and would need to more than [redacted] that capacity to ensure a sufficient supply of such tapes to U.S. consumers. *Id.* at 184. Fujifilm argues that this issue is particularly acute because Sony's tapes are manufactured at Japanese facilities that have previously been damaged and shut down resulting in worldwide shortages of Sony tapes. *Id.*

Fujifilm also requests, in the event an exclusion order is issued, that it be delayed by at least six months to allow U.S. consumers sufficient time to switch to more current LTO generations (*e.g.*, LTO-7) so as to minimize any negative impact on those consumers. *Id.* at 185.

Staff submits that U.S. consumers will not be negatively affected by an exclusion order because there will still be available competitive LTO products as well as alternative storage systems. *See* SIB at 154. According to Staff, the availability of such alternative storage systems will provide a "check" against Sony unreasonably raising LTO prices due to the exclusion of Fujifilm products. *Id.* (citing Vander Veen, Tr. at 570:17-571:22).

I find that the evidence of record demonstrates that U.S. consumers of LTO products will have ample alternative choices for LTO products, including LTO-4, LTO-5, and LTO-6 products manufactured by Fujifilm for IBM. I find that there is no evidence U.S. consumers will be adversely affected by an exclusion order in this investigation. Therefore, there is no reason to forego or delay issuance of an exclusion order on this basis.

In view of the forgoing, I find that the evidence shows that the public interest considerations do not weigh against or warrant tailoring any remedy in this investigation.

XI. INITIAL DETERMINATION

Based on the foregoing, it is my Initial Determination that the asserted claims of U.S. Patent No. 7,029,774 are not invalid and are infringed by Fujifilm; that the asserted claims of U.S. Patent No. 6,674,596 are not invalid and that Fujifilm induces infringement of those claims; and that the asserted claims of U.S. Patent No. 6,979,501 are invalid. I further find that the domestic industry requirement has been satisfied for U.S. Patent No. 6,674,596 and U.S. Patent

No. 7,029,774.[38] Accordingly, I find that there has been a violation of section 337 in the importation of articles that infringe U.S. Patent No. 6,674,596 and U.S. Patent No. 7,029,774.

I hereby certify to the Commission this Initial Determination and the Recommended Determination.

The Secretary shall serve the confidential version of this Initial Determination upon counsel who are signatories to the Protective Order (Order No. 1) issued in this investigation. A public version will be served at a later date upon all parties of record.

Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall become the determination of the Commission unless a party files a petition for review pursuant to 19 C.F.R. § 210.43(a) or the Commission, pursuant to 19 C.F.R. § 210.44, orders on its own motion a review of the Initial Determination or certain issues therein.

Within seven days of the date of this document, each party shall submit a statement to Cheney337@ustic.gov stating whether or not it seeks to have any portion of this document redacted from the public version. Any party seeking to have any portion of this document redacted from the public version thereof shall attach a copy of this document with red brackets indicating any portion asserted to contain confidential business information.[39] The parties'

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[38] I have found that Sony has shown authorized articles practicing the claims of U.S. Patent No. 6,979,501, but those articles are not protected by the '501 patent because I have found that the claims practiced are invalid.

[39] If the parties submit excessive redactions, they may be required to provide an additional written statement, supported by declarations from individuals with personal knowledge, justifying each proposed redaction and specifically explaining why the information sought to be redacted meets the definition for confidential business information set forth in Commission Rule 201.6(a). 19 C.F.R. § 201.6(a).

submissions concerning the public version of this document should not be filed with the Commission Secretary.

SO ORDERED.

Clark S. Cheney
Administrative Law Judge

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **Initial Determination on Violation of Section 337 and Recommended Determination on Remedy and Bond** has been served by hand upon the Commission Investigative Attorney, Sarah Sladic, Esq., and the following parties as indicated, on October 2, 2018.

Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

On Behalf of Complainants Sony Corporation, Sony Storage Media Solutions Corporation, Sony Storage Media Manufacturing Corporation, Sony DADC US Inc., and Sony Latin America Inc.:

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☐ Via Hand Delivery
☑ Via Express Delivery
☐ Via First Class Mail
☐ Other:_____

On Behalf of Respondents FUJIFILM Holdings Corporation, FUJIFILM Corporation, FUJIFILM Media Manufacturing Co., Ltd., FUJIFILM Holdings America Corporation, and FUJIFILM Recording Media U.S.A., Inc.:

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