

**UNITED STATES INTERNATIONAL TRADE COMMISSION**  
**Washington, D.C.**

In the Matter of

**CERTAIN INTEGRATED CIRCUIT  
CHIPS AND PRODUCTS CONTAINING  
THE SAME**

**Inv. No. 337-TA-859**

**COMMISSION OPINION**

**I. INTRODUCTION**

On March 21, 2014, the presiding administrative law judge (“ALJ”) issued her final initial determination (“ID”) in this investigation, finding no violation of Section 337 with respect to certain integrated circuit chips alleged to infringe claims 1-10 of U.S. Patent No. 6,787,928 (“the ’928 patent”). The Commission determined to review-in-part the final ID on May 22, 2014 and requested briefing on the issues under review.

Having considered the ID, the submissions of the parties, and the relevant portions of the record, the Commission has determined to affirm-in-part, reverse-in-part, and vacate-in part the final ID. Specifically, the Commission (1) affirms the ALJ’s construction of the claim term “spaced apart” with the additional discussion provided herein; (2) modifies the ALJ’s construction of “lower electric-conduction layer”; (3) modifies the ALJ’s construction of the “wherein” clause of claim 10 and determines that Realtek’s “substantial or significant” position was not waived; (4) affirms the ALJ’s literal infringement findings for claims 1-9; (5) supplements the ID’s reasoning supporting infringement of claim 1 by the [ ]; (6)

reverses the ALJ's finding of no infringement of claim 10 by the [ ]; (7) modifies the ALJ's infringement finding of claim 10 for the [ ]; (8) vacates the ALJ's finding of no infringement under the doctrine of equivalents for the [ ]; (9) reverses the ALJ's findings that claims 1-10 are anticipated by the Ker application; (10) affirms the ALJ's findings that claims 1-3 and 6-9 are anticipated by MS410B and MS410B2; (11) reverses the ALJ's finding that claim 10 is anticipated by MS410B and MS410B2; (12) reverses the ALJ's determination that claims 4-5 are not obvious in view of MS410B or MS410B2 in combination with the Ker application/Ker patent; (13) takes no position on whether claims 1-3 and 6-10 are obvious in view of MS410B and MS410B2; (14) takes no position on whether claims 1-10 are obvious in view of the Ker application; (15) affirms the ALJ's findings that the domestic industry ("DI") chips practice claims 1-3 and 6-9, and finds that the technical prong is met; (16) modifies the ALJ's findings for the technical prong for claim 10 to be consistent with the application of the "wherein" clause, and finds that the technical prong is met; and (17) vacates the ALJ's analysis concerning the economic prong, and finds that the economic prong has not been met for reasons other than those supplied by the ALJ. The Commission adopts the ALJ's findings that are consistent with the Commission's opinion as set forth below.

## **II. BACKGROUND**

### **A. Procedural History**

The Commission instituted this investigation on October 23, 2012, based on a complaint filed by Realtek Semiconductor Corporation ("Realtek" or "Complainant"). 77 Fed. Reg. 64826-27 (Oct. 23, 2012). The complaint alleged violations of Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("Section 337"), in the sale for importation, importation, or sale after

importation into the United States of certain integrated circuit chips and products containing the same by reason of infringement of certain claims of the '928 patent and U.S. Patent No. 6,963,226 ("the '226 patent"). The Commission's Notice of Investigation named LSI Corporation ("LSI") and Seagate Technology ("Seagate") (collectively "Respondents") as respondents. OUII is not a party in this investigation.

On February 25, 2013, the Commission reviewed and reversed an initial determination granting Realtek's motion to terminate the '226 patent from the investigation.<sup>1</sup> The Commission reversed the ID because Realtek did not include in its motion "a statement that there are no agreements, written or oral, express or implied between the parties concerning the subject matter of the investigation, or if there are any agreements concerning the subject matter of the investigation," as required by the Commission's rules. Realtek renewed its motion for termination of the allegations relating to the '226 patent. The ALJ issued an ID granting the motion and on March 26, 2013, the Commission determined not to review the ID.<sup>2</sup>

An evidentiary hearing was held January 13 through 16, 2014. On March 21, 2014, the presiding ALJ issued her final ID, finding no violation of Section 337. The final ID included the ALJ's recommended determination on remedy and bonding. On April 4, 2013, Realtek filed a petition for review and on April 7, 2013, Respondents filed a contingent petition for review.

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<sup>1</sup> Notice of Commission Determination To Review And Reverse an Initial Determination Granting Realtek Semiconductor Corporation's Motion For Termination of the Allegations Relating To U.S. Patent No. 6,963,226 (Feb. 25, 2013).

<sup>2</sup> Notice of Commission Determination Not to Review an Initial Determination Granting Realtek Semiconductor Corporation's Renewed Motion for Termination of the Allegations Relating to U.S. Patent No. 6,963,226 (March 26, 2013).

Realtek petitioned for review of the ALJ's conclusion that the "lower electric-conduction layer" was limited to a single planar layer; the construction of "spaced apart;" the ALJ's conclusion that any noise (*e.g.*, electromagnetic signals) reduction would satisfy claim 10; the ALJ's findings of anticipation by MS410B and MS410B2 and the Ker Application/Ker Patent; that the [ ] meet the "lower electric-conduction layer;" that the [ ] do not infringe claim 10; that Realtek failed to establish a domestic industry; and that the ALJ erroneously recommended a reporting requirement. Respondents contingently petitioned for review of the ALJ's findings that claims 4-5 are not anticipated by MS410B, or M410B2, in combination with the Ker application/Ker Patent; the ALJ's economic prong domestic industry finding; and the ALJ's findings of infringement. The parties timely replied to each other's petitions for review.

Public interest statements were filed by the parties on April 23, 2014. No additional public interest statements were filed.

On May 22, 2014, the Commission determined to review the ID in part. The Commission sought briefing on seventeen questions and on remedy, public interest, and bonding. On June 5, 2014, the parties filed their initial briefs on review and on June 16, 2014, the parties filed their responsive briefs.

#### **B. Overview of the '928 Patent**

The '928 patent issued on September 7, 2004 and is entitled "Integrated Circuit Device Having Pads Structure Formed Thereon and Method for Forming the Same." Ying-Hsi Lin is named as the sole inventor. The Abstract of the '928 patent states:

The invention is to provide a structure of IC pad and its forming method.  
The structure is arranged in an insulation layer and is comprised of a lower



electric-conduction layer, a compound layer structure and a pad layer. The lower electric-conduction layer is arranged at an appropriate position in the insulation layer and is connected to an electric potential. The compound layer structure is arranged on the insulation layer and is composed of at least one electric-conduction layer and at least one electric-conduction connecting layer, both are inter-overlapped to each other. The pad layer is arranged on the compound layer structure.

JX-1 at Abstract. The patent describes a bond pad of an integrated circuit (“IC”) that has “high frequency and low noise to lower down the equivalent electric capacitance and enhance bonding adherence.” *Id.* at 2:20-24. The patent seeks to achieve this goal by positioning an electric-conduction layer between the substrate and the compound structure connected to the bond pad.

Asserted independent claim 1 recites:

An integrated circuit (IC) device having a pad structure formed thereon, the IC device comprising:

- a) a substrate;
- b) an insulation layer formed on the substrate;
- c) a lower electric-conduction layer formed in the insulation layer;
- d) a compound layer structure formed in the insulation layer;
- e) a first pad layer formed on the insulation layer and coupled to the compound layer structure, wherein the first pad layer and the compound layer structure are spaced apart from the lower electric-conduction layer; and
- f) a second pad layer formed on the insulation layer and coupled to the lower electric-conduction layer.

JX-1 at 5:6-21.

Asserted dependent claims 2-10 recite:

Claim 2: The IC device according to claim 1, wherein the compound layer structure comprises a first electric-conduction layer and a first connecting layer to couple the first electric-conduction layer to the first pad layer.

Claim 3: The IC device according to claim 2, wherein the first connecting layer comprises a plurality of via plugs.

Claim 4: The IC device according to claim 2, wherein the first electric-conduction layer is shaped like a webbed railing.

Claim 5: The IC device according to claim 2, wherein the area of the first electric-conduction layer is smaller than that of the first pad layer.

Claim 6: The IC device according to claim 1, wherein the first pad layer is shaped like a polygon.

Claim 7: The IC device according to claim 1, further comprising a passivation layer formed on the insulation layer to cover a part of the outer rim of at least one of the first and second pad layers.

Claim 8: The IC device according to claim 1, further comprising at least one second connecting layer for coupling the second pad layer to the lower electric-conduction layer.

Claim 9: The IC device according to claim 8, further comprising at least one second electric-conduction layer coupled between the second pad layer and the lower electric-conduction layer with the second connecting layer.

Claim 10: The IC device according to claim 1, wherein a noise from the substrate is kept away from the first pad layer by the lower electric-conduction layer.

JX-1 at 5:22-48.

### **C. Products At Issue**

The accused products at issue include LSI's [ ] and Seagate products containing the [ ]. ID at 4. The accused LSI [ ]. *Id.* The accused LSI [ ] and Seagate products are:

[

]  
*Id.* at 4-5.

To show the existence of articles protected by the '928 patent, for purposes of demonstrating the existence of a domestic industry, 19 U.S.C. § 1337(c), Realtek relies upon certain of its [ ] chips [

]

(collectively, “the DI Chips”). ID at 180-81.

### III. LEGAL STANDARDS

#### A. Claim Construction

“To ascertain the scope and meaning of the asserted claims, we look to the words of the claims themselves, the specification, the prosecution history, and, if necessary, any relevant extrinsic evidence.” *01 Communique Lab., Inc. v. LogMeIn, Inc.*, 687 F.3d 1292 (Fed. Cir. 2012) (quoting *Chicago Bd. Options Exch., Inc. v. Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1366 (Fed. Cir. 2012); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315-17 (Fed. Cir. 2005) (*en banc*). The language used in a claim bears a heavy presumption that it has the ordinary and customary meaning that would be attributed to the words used by persons skilled in the relevant art. *See Phillips*, 415 F.3d at 1312-13. The specification is always highly relevant to the claim construction analysis. *Id.* at 1315 (citations omitted). “Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Id.*

A court must “take care not to import limitations into the claims from the specification.” *Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1288 (Fed. Cir. 2009). “When the specification describes a single embodiment to enable the invention, this court will not limit broader claim language to that single application ‘unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’” *Id.* (citations omitted). “By the same token, the claims cannot ‘enlarge what is patented beyond what the inventor has described as the invention.’ Thus, this court may reach a narrower construction, limited to the embodiment(s) disclosed in the specification, when the claims themselves, the specification, or the prosecution history clearly indicate that the invention encompasses no more than that confined structure or method.” *Id.* (citations omitted).

“[T]he distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice ... [h]owever, the line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court’s focus remains on understanding how a person of ordinary skill in the art would understand the claim terms.” *Phillips*, 415 F.3d at 1323 (citations omitted). In attempting to discern whether a “patentee is setting out specific examples of the invention . . . or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive . . . [t]he manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent.” *Id.*

## **B. Infringement**

A determination of patent infringement encompasses a two-step analysis. *Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001) (“*Scimed*”). First, the court determines the scope and meaning of the patent claims asserted, and then the properly construed claims are compared to the allegedly infringing device. *Id.* “Literal infringement of a claim exists when each of the claim limitations reads on, or in other words is found in, the accused device.” *Allen Eng. Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1345 (Fed. Cir. 2002). Under the doctrine of equivalents, “a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.” *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997). Direct infringement includes the making, using, selling, offering for sale and importing

into the United States an infringing product, without authority. 35 U.S.C. § 271(a). To prove direct infringement, the plaintiff must establish by a preponderance of the evidence that one or more claims of the patent read on the accused device either literally or under the doctrine of equivalents. *Scimed*, 261 F.3d at 1336.

## **C. Validity**

### **1. Anticipation**

Pursuant to 35 U.S.C. § 102, a patent claim is anticipated when a single piece of art discloses each and every limitation of the claimed invention. *See Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003); *CR. Bard v. M3 Sys.*, 157 F.3d 1340, 1349 (Fed. Cir. 2000). Because the hallmark of anticipation is prior invention, the prior art reference, in order to anticipate under § 102, must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements “arranged as in the claim.” *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983). Federal Circuit precedent informs that the “arranged as in the claim” requirement applies to all claims and refers to the need for an anticipatory reference to show all of the limitations of the claims arranged or combined in the same way as recited in the claims, not merely in a particular order. *Net MoneyIn, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

The disclosure by an invalidating reference need not be express, but may anticipate by inherency where such inherency would be appreciated by one of ordinary skill in the art. *EMI Group North America, Inc. v. Cypress Semiconductor Corp.*, 268 F.3d 1342, 1350 (Fed. Cir. 2001). In order to support a finding of inherency, the prior art must necessarily include the inherent limitation. *Schering*, 339 F.3d at 1377.

Depending on the circumstances, a claimed invention may be anticipated by many types of prior art, including publications, earlier-sold products, and patents. *See* 35 U.S.C. § 102. Anticipation, like all forms of patent invalidity, must be established by clear and convincing evidence. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995). Whether a patent claim is anticipated is a question of fact. *See Smith Kline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1343 (Fed. Cir. 2005).

## **2. Obviousness**

Under 35 U.S.C. § 103(a), a patent is valid unless “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). The ultimate question of obviousness is a question of law, but “it is well understood that there are factual issues underlying the ultimate obviousness decision.” *Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1479 (Fed. Cir. 1997).

Once claims have been properly construed, “[t]he second step in an obviousness inquiry is to determine whether the claimed invention would have been obvious as a legal matter, based on underlying factual inquiries including: (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art; and (4) secondary considerations of non-obviousness.” *Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1354 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966)). The Federal Circuit has historically required that, in order to prove obviousness, the patent challenger must demonstrate, by clear and convincing evidence, that there is a “teaching,

suggestion, or motivation to combine.” The Supreme Court, however, rejected this “rigid approach” in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007):

The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.

#### **D. Domestic Industry**

A complainant must establish that an industry “relating to the articles protected by the patent . . . exists or is in the process of being established” in the United States. 19 U.S.C. § 1337(a)(2). Under Commission precedent, the domestic industry requirement of Section 337 consists of an “economic prong” and a “technical prong.” *See, e.g., Alloc, Inc. v. ITC*, 342 F.3d 1361, 1375 (Fed. Cir. 2003).

The “economic prong” of the domestic industry requirement is satisfied when it is determined that the economic activities and investments set forth in subsections (A), (B), and/or (C) of subsection 337(a)(3) have taken place or are taking place. *Certain Variable Speed Wind Turbines & Components Thereof*, Inv. No. 337-TA-376, USITC Pub. No. 3003, Comm’n Op. at 21 (Nov. 1996). With respect to the “economic prong,” 19 U.S.C. § 1337(a)(2) and (3) provide, in full:

(2) Subparagraphs (B), (C), (D), and (E) of paragraph (1) apply only if an industry in the United States, relating to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established.



(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 domestic industry requirement. *Wind Turbines & Components Thereof*, Inv. No. 337-TA-376, Comm'n Op. at 15. With respect to subparagraph (a)(3)(C), the statute requires that the substantial investment in engineering, research and development, or licensing must exploit the asserted IP right. *See infra* note 13 and accompanying text.

To meet the technical prong, the complainant must establish that it practices at least one claim of the asserted patent. *See Certain Microsphere Adhesives, Process for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op., 1996 WL 1056095, at \*7-8 (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*, 342 F.3d at 1375.

Recently, the Federal Circuit opined on the showing necessary to demonstrate the existence of a domestic industry under section 337(a)(3)(C). *InterDigital Commc'ns, LLC v. ITC*, 707 F.3d 1295 (Fed. Cir. 2013); *Microsoft Corp. v. ITC*, 731 F.3d 1354 (Fed. Cir. 2013). The Commission has since provided its application of those decisions in *Certain Computers & Computer Peripheral Devices, and Components Thereof, and Products Containing Same*

(“*Peripheral Devices*”), Inv. No. 337-TA-841, Comm’n Op. 27-40 (Jan. 9, 2014). In short, the Commission held as follows: A complainant relying upon a domestic industry founded upon section 337(a)(3)(C) must demonstrate the existence of articles that practice the asserted patent. *Id.* at 40; *see also id.* at 32. Then, “the substantial investment, once protected articles have been shown, is in exploitation of the intellectual-property rights, ‘including engineering, research and development, or licensing.’” *Id.* at 40 (quoting 19 U.S.C. § 1337(a)(3)(C)).

#### **IV. CLAIM CONSTRUCTION**

##### **A. The ‘928 Patent**

##### **1. Construction of the Claim Terms**

##### **a) “Spaced Apart” of Asserted Claim 1**

The Commission adopts the ALJ’s construction of “spaced apart” found in claim 1 to be its plain and ordinary meaning. *ID* at 17. The ALJ found that this construction is supported by the intrinsic record and that Realtek’s construction “improperly imports limitations from the specification and is unsupported by the intrinsic record.” *Id.*

In addition to the discussion and analysis provided by the ALJ, the Commission finds that additional intrinsic evidence supports the plain and ordinary meaning construction of the term “spaced apart.”

As the ALJ noted, the term “spaced apart” is not in the specification. The specification teaches that the lower electric-conduction layer is formed at an “appropriate position” in the insulation layer, but provides no other explicit guidance as to the meaning of the claim term “spaced apart.”

Realtek's position, before the Commission, is generally based on the premise that one of ordinary skill in the art would know that ICs include alternating metal and insulation layers, and in light of this knowledge, would know that the term would require a metal layer between the compound layer structure and the lower electric-conduction layer. Comp. Pet. at 6-20. Although the generalization that ICs include alternating metal and insulation layers may be true in many circumstances, the record does not reflect that it is true of all ICs. The specification of '928 patent discusses the prior art in the Background of the Invention, including U.S. Patent No. 5,248,903 ("the '903 patent"). JX-1 at 1:56-65. The '903 patent uses the same term, "spaced apart," to claim metal layers in an IC that are physically separated without an intervening metal layer. See RX-4 ('903 patent) at 5:37-40, FIG. 2A; Tr. at 319:16-320:1. Realtek's expert, Dr. Walker, even admitted that the "upper bond pad element" in FIG. 2A of the '903 patent is spaced apart from the "lower bond pad element" even though those layers are separated by only a single insulation layer and do not have an intervening metal layer between them. Tr. at 319:20-23, 318:18-319:1, 319:24-320:3, 320:20-321:3. The Commission finds that this additional intrinsic evidence supports the ALJ's determination. ID at 17-26.

**b) "Lower Electric-conduction Layer" of Asserted Claims 1-2, and 8-10**

The parties' dispute does not center on the actual construction of the term "lower electric-conduction layer," but rather whether it is limited to a *single* planar layer as the ALJ stated in the ID. ID at 36-37; Comp. Pet. 5-6; Resp. Reply to Pet. at 6-7. The ALJ construed the term "lower electric-conduction layer" to mean a "planar region of conductive material extending between the first pad layer and the substrate, the planar region being lower than the first pad layer and the compound layer structure." ID at 32. In discussing the basis for her construction, the ALJ found

that the claim language supports a finding that the “lower electric-conduction layer” is *a single*, planar layer. *Id.* at 36. Although the ALJ made this finding, it was not part of her claim construction. *Id.* at 32.

Respondents argue that (1) one of ordinary skill in the art would understand that the “lower electric-conduction layer” is a single layer structure; and (2) the claim language precludes the “lower electric-conduction layer” from being comprised of multiple layers. Resp. Rev. Br. at 2-4. Realtek argues that the use of the term “a” or “an” in an open ended claim that uses the transitional phrase “comprising” generally means one or more unless there is clear intent by the patentee to limit the term to a singular. Comp. Pet. at 5. Respondents can point to no evidence of such intent.

While Realtek correctly states this principle of claim construction, the question is not whether the term covers multiple lower electric-conduction layers, but rather whether two layers can comprise a single lower electric conduction layer. We find that there is no disclosure in the specification that requires the lower electric-conduction layer to be comprised of only a single layer. Dr. Gwozdz, Respondents’ expert, testified that the ’928 patent does not disavow a lower electric-conduction layer that is made up of more than a single layer. Comp. Reply Rev. Br. at 3; CX-341 at 24:19-23.

Respondents can only point to the language of claim 1 that recites a separate limitation of a “compound layer structure” formed in the insulation layer to support their position. We are not persuaded by this argument. In claiming the “compound layer structure,” the patentee required that the “compound layer structure” must be comprised of multiple layers, but with respect to the

“lower electric-conduction layer,” the language of the claim does not require multiple layers nor does it limit the term to a single layer.

The Commission adopts the ALJ’s construction, but reverses the ALJ’s finding that the “lower electric-conduction layer” must be comprised of a single planar layer. Because there is nothing in the specification that limits the “lower electric-conduction layer” to a single layer or requires it to be composed of multiple layers, the Commission finds that the “lower electric-conduction layer” can be comprised of either a single planar layer or a multi-layer structure. The ALJ’s findings that are consistent with these determinations are adopted.

c) **“Wherein a Noise From the Substrate is Kept Away From the First Pad Layer by the Lower Electric-conduction Layer” of Asserted Claim 10**

The ALJ construed the term “wherein a noise from the substrate is kept away from the first pad layer by the lower electric-conduction layer” found in claim 10 to have its plain and ordinary meaning, ID at 38, and found that some amount of noise reduction would meet the claim limitation. *See e.g.*, ID at 40-42, 76, 132. The Commission adopts the plain and ordinary meaning of the limitation but finds that one of ordinary skill in the art would understand the term to require a “significant or substantial” reduction in noise to achieve the goals of the patent. The Commission affirms the ALJ’s finding that the claim limitation is not indefinite. ID at 38-39.

Respondents argue that Realtek waived its position that the “wherein” limitation of claim 10 should be construed to require a “significant or substantial” noise reduction by not raising the issue before the ALJ. *See e.g.*, Resp. Reply to Pet. at 7-9. Respondents contend that Realtek asserted for the first time in its petition for review that claim 10 requires a significant or substantial amount of noise reduction, and did not make this assertion in its pre-hearing or post-

hearing briefs. *Id.* at 8. Respondents explain that Realtek's new construction is based on testimony from Respondents' expert witness, Dr. Gwozdz, and the inventor. Respondents assert that this testimony was exchanged five months before pre-hearing briefs were due, and thus Realtek could have offered its new construction in its pre-hearing brief. Resp. Rev. Br. at 9.

Realtek explains that it did not advocate for this construction as a matter of claim construction before the ALJ, but instead presented it repeatedly and consistently when advancing its infringement positions. Comp. Rev. Br. at 14-16. In its pre-hearing brief, Realtek discussed the analysis its expert, Dr. Walker, conducted in determining that the "wherein" limitation was met by the accused products and the DI chips. Specifically, Dr. Walker determined that the shielding provided in the accused products and the DI chips results in significant noise reduction. *See e.g.*, CX-313C at QQ. 260, 215. In concluding its discussion for both the accused products and the DI product in its pre-hearing brief, Realtek repeatedly stated: "In this case, the shielding is improved by [ ] dB, which is a significant improvement." Comp. Pre-Hearing Br. at 60, 87-88, 121-122, 146, 171-172.

Realtek points to similar statements in its post-hearing brief. *See e.g.*, Comp. Post-Hearing Br. at 45-46. Realtek explains that Respondents' expert, Dr. Gwozdz, stated in his witness statement on infringement:

Even if claim 10 only requires that *noise be effectively kept away, or substantially kept away*, Dr. Walker does not show that the alleged lower electric-conduction layer of the [ ] substantially keeps noise from the substrate away from the bond pad. Contrary to Dr. Walker's conclusion, the alleged reduction in noise from the substrate in the [

], is negligible.

RX-0285C at Q. 97; *see also* RX-0285C at Q. 135. Based on these statements, Realtek contends that it did not waive its argument that the lower electric-conduction layer keeps a significant amount of noise from the substrate away from the first pad layer. Comp. Rev. Br. at 14-17. Because Realtek reiterated its position consistently throughout its pre-hearing brief and again in its post-hearing briefs, the Commission determines that the argument was not waived and that Respondents were on notice of the application of the construction.

With regard to the merits of Realtek's argument, the specification provides no direct guidance on the amount of noise reduction that the invention provides, but instead the goals of the patent inform one of ordinary skill in the art that the noise reduction must be significant or substantial. In applying the plain and ordinary meaning of this limitation, the ALJ found that some noise reduction would meet this claim term. *See e.g.*, ID at 76, 132. The evidence that Realtek relies on to require a "substantial or significant" amount of noise reduction is testimony from the parties' experts and the inventor that one of ordinary skill in the art would have understood this limitation to require significant or substantial noise reduction. Comp. Rev. Br. at 20. Dr. Walker testified that one of ordinary skill in the art would understand the "wherein" limitation to require significant or substantial amount of noise reduction and Dr. Gwozdz testified that the claim requires that noise be kept away completely. Tr. at 428:1-429:15; CX-313C at Q. 78-80; RX-285C at QQ. 46, 97. In addition, Dr. Lin, the inventor, testified that the lower electric conduction layer in a device embodying the '928 patent provides shielding to reduce "a substantial amount of noise." CX-316C at Q. 41-43.

Claim 10 does not include any language specifying the amount of noise reduction that is required. Likewise, the specification is also silent with regard to the amount of noise reduction.

However, the goal of an IC with high frequency and low noise is emphasized throughout the specification. For example, the specification states: “the emphasis of the invention is to provide a pad structure adapted for an integrated circuit of high frequency and *low* noise” (JX-1 at 2:20-22); “a pad of . . . high frequency and low noise” (JX-1 at 1:9-13); “The low noise and low loss of high frequency signal are always the pursuing goals for communication IC” (JX-1 at 1:41-43); and “so this kind of designing method may be adapted to integrated circuit of high frequency and *fulfill the requirement of* high frequency and *low noise*” (JX-1 at 4:64-5:4).

The Commission finds that the expert testimony of both parties in combination with the stated goals of the patent leads to the conclusion that the claimed noise reduction as understood by skilled artisans must be “significant or substantial.”

## **V. INVALIDITY AND OTHER DEFENSES**

### **A. Anticipation**

#### **1. MS410B and MS410B2 Chips<sup>3</sup>**

##### **a) Claims 1-3 and 6-9**

The ALJ found that MS410B practices each element of claims 1-3 and 6-10 of the '928 patent.<sup>4</sup> ID at 70-77. The ALJ noted that Respondents' expert, Dr. Gwozdz, provided an analysis of how each limitation of independent claim 1 is met. *Id.* at 70-71. Respondents only challenged whether the limitation “the first pad layer and the compound layer structure are

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<sup>3</sup> The parties refer to MS410B and MS410B2 collectively as MS410B because they do not differ in any relevant way. *See e.g.*, Comp. Pet. at 22 n. 8. Accordingly, we also refer to MS410B and MS410B2 collectively as MS410B.

<sup>4</sup> Claim 10 will be addressed separately below.



spaced apart from the lower electric-conduction layer” was found in MS410B based on the construction of the term “spaced apart.” *Id.* at 71; *see also* Comp. Pet. at 32-35. The ALJ relied on the testimony of Dr. Gwozdz to find that this disputed limitation was met. *Id.* at 71-72. Specifically, Dr. Gwozdz testified “that the compound layer structure below the first pad layer is in fact physically separated from the lower electric-conduction layer.” *Id.* The ALJ explained Dr. Gwozdz’s testimony was that “these two structures are on separate layers—M3 and M4—and the figures demonstrate that there are no vias connecting these two structures.” *Id.* at 71-72. Accordingly, the ALJ found that there is clear and convincing evidence that all the claim elements required by claim 1 are present in the MS410B device. *Id.* at 72.

The ALJ also found that all of the limitations of claims 2-3 and 6-9 are found in MS410B. *Id.* at 72-74. Before the ALJ, Realtek argued that claims 2-3 and 6-9 are not anticipated only because claim 1 is not anticipated; Realtek did not dispute that the claim elements required by claims 2-3 and 6-9 are found in MS410B. *Id.* at 72. The ALJ nonetheless analyzed each of these claim elements. *Id.* at 72-74.

The Commission reviewed the ALJ’s finding that claims 1-3 and 6-10 are anticipated by MS410B and asked the parties to brief whether modifying the ALJ’s construction of “lower electric-conduction layer” to include multi-layer structures would have an impact on the ALJ’s invalidity findings. Notice of Review at 2 (Q. 2). The parties agreed that such modification would not change the ALJ’s analysis on invalidity. Comp. Rev. Br. at 24; Resp. Rev. Br. at 5. As noted above, the Commission adopts the ALJ’s construction of “spaced apart.” Accordingly, the Commission affirms the ALJ’s finding that claims 1-3, and 6-9 are anticipated by MS410B.

**b) Claim 10**

The ALJ found that claim 10 is met by MS410B based on the testimony of Dr. Gwozdz with respect to the disputed “wherein” clause limitation of claim 10. Specifically, the ALJ determined that “the first bond pad in the MS410B (and MS410B2) device is shielded from electromagnetic signals from the substrate by the power or ground lines running below it.” ID at 74 (citing RX-0246C at Q. 93)). As discussed above, the Commission has determined that one of ordinary skill in the art would interpret the plain and ordinary meaning of “wherein a noise from the substrate is kept away from the first pad layer by the lower electric-conduction layer” of claim 10 to require “substantial or significant” noise reduction. The Commission asked the parties to brief what impact a change in the ALJ’s construction would have on the ALJ’s invalidity findings. Notice of Review at 3 (Q. 8). Realtek asserted that Respondents have not met their burden of proving by clear and convincing evidence that the MS410B “substantially or significantly” keeps noise away from the first pad layer. *See* Comp. Rev. Br. at 39.

Respondents argued that if the accused [ ] infringe claim 10, then claim 10 must be invalid. Resp. Rev. Br. at 18, 20-21. Respondents contend that the two devices have substantially the same structure and the only difference is the number of metal layers. *Id.* at 18. In addition to arguing that the structures are the same, and therefore that claim 10 must be invalid, Respondents argue, without citation to evidence, that because the wrap under structure, which routes noise to the first pad, underlies less than 50% of the first pad area, more than 50% of the noise would be kept away and this is a significant amount of noise. In contrast, Dr. Walker testified that the “lower electric-conduction layer” of MS410B would provide some shielding but not much. Tr. at 438:6-439:2. Respondents cite to no evidence that MS410B

reduces noise substantially or significantly. Resp. Rev. Br. at 18-21; Resp. Reply Rev. Br. 8-13. Because Respondents have not offered proof that the MS410B chips provide significant and substantial noise reduction, the Commission finds that Respondents have not met their burden that MS410B anticipates claim 10 by clear and convincing evidence.

The parties also dispute whether Realtek waived its validity argument that MS410B routes noise to the first pad layer. Comp. Pet. at 28-32; Resp. Reply to Pet. at 10-11. Realtek did not argue in its pre-hearing brief that noise is routed to the first pad layer and therefore, MS410B does not anticipate claim 10. *See e.g.*, Comp. Pre-hearing Br. at 190-192. Because Realtek did not raise this position in its pre-hearing brief, Respondents argued that the argument was waived. Realtek argues that it developed this argument—that MS410B cannot invalidate the claims because it routes noise to the first pad layer—only after they cross examined Dr. Gwozdz at the hearing. Comp. Pet. at 30.

The Commission finds that Realtek must have developed this theory prior to the hearing because Realtek introduced CDX-0053, which showed a cross-sectional view of MS410B that illustrated that some noise is routed to the first pad layer, during cross-examination of Dr. Gwozdz. Realtek did not disclose this demonstrative exhibit prior to the hearing and did not argue this position in its pre-hearing brief. In order for Realtek to have prepared the exhibit by trial, it is likely that it developed the new theory prior to cross examining Dr. Gwozdz, despite its contention otherwise. Accordingly, the Commission finds that Realtek's argument that MS410B routes noise to the first pad layer is waived.

## 2. Ker Application/Patent<sup>5</sup>

### a) Claims 1-3 and 6-9

The parties' dispute whether the Ker application inherently discloses a second pad layer that is connected to an external power source or potential and connected to the lower electric-conduction layer. In order to support a finding of inherency, the prior art must *necessarily* include the inherent limitation. *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003).

Claim 1 requires "a second pad layer formed on the insulation layer ***and coupled to the lower electric-conduction layer.***" The Commission affirmed the ALJ's construction of the "second pad layer" as "one or more coplanar surfaces that provide a bonding zone to an external power source or potential." Therefore, in order for the Ker application to anticipate claim 1 it would have to inherently disclose that one or more coplanar surfaces that provide a bonding zone to an external power source or potential are formed on the insulation layer and coupled to the lower electric-conduction layer.

The ALJ found that the Ker application discloses a first pad layer, but does not disclose a second pad layer. ID at 88. The Ker specification teaches that metal layers 53 and 54 *may* serve as power lines. RX-13 at ¶ 53. The ALJ relied on Dr. Gwozdz's testimony that a semiconductor device includes multiple bond pads ***and*** that power lines would be connected to the bond pads to find this limitation is met. ID at 89 (citing RX-246 at Q. 133).

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<sup>5</sup> The parties' experts agree that the Ker application and the Ker patent have essentially the same specification. *See e.g.*, Comp. Pet. at 36 n. 14. The ALJ noted that the parties refer to the Ker application and the Ker patent interchangeably, but the ALJ only made reference to the Ker application. ID at 87 n. 19. The Commission does the same.

We agree with the ALJ's determination that the Ker application must necessarily include a second bond pad, and Realtek does not dispute this fact. *Id.* at 88; Comp. Pet. at 40; RX-246 at Q. 133. However, although Dr. Gwozdz testified that a second bond pad layer is **necessarily** connected to the metal layers, the Ker application only teaches that the metal layers **may** serve as power lines. RX-13 at ¶ 53. The Commission finds that there is not clear and convincing evidence that there is an inherent second bond pad that is coupled to metal layers 53, 54 and that the second bond pad is connected to an external power source. For these reasons, the Commission reverses the ALJ's finding that claims 1-9 are anticipated by the Ker application.

**b) Claim 10**

The Commission asked the parties to brief what impact a proposed change in the ALJ's construction of the "wherein" clause limitation would have on the ALJ's invalidity findings with respect to claim 10. Respondents provided no response with respect to the Ker application. *See, e.g.,* Resp. Rev. Br. at 18-21. Realtek argues that Respondents have not met their burden of proving by clear and convincing evidence that the Ker application discloses "substantially or significantly" keeping noise away from the first pad layer. Comp. Rev. Br. at 30-31. Although Dr. Gwozdz testified that the power line would provide some noise shielding, the parties have not cited any evidence that establishes that the Ker application provides "significant or substantial" noise reduction. Due to the failure to establish this element by clear and convincing evidence, the Commission finds that claim 1 is not anticipated by the Ker application, and therefore the Commission finds that claim 10 is also not anticipated by the Ker application, in addition to the reasons discussed herein.

## **B. Obviousness**

### **1. MS410B and MS410B2 Chips and The Ker Application/Patent**

The Commission takes no position on whether claims 1-3 and 6-10 are obvious in view of the MS410B chip taken alone or whether claims 1-10 are obvious in view of the Ker application taken alone.

### **2. MS410B or MS410B2 in Combination with the Ker Application/Ker Patent**

The ALJ found that claims 4-5 were not obvious in view of MS410B in combination with the Ker application. ID at 96-97. In determining that MS410B and the Ker application could not be combined, the ALJ found that there is no showing that the problems that the Ker application sought to solve were problems for MS410B. *Id.* at 96.

When combining two references to find obviousness, the test is not whether both references seek to solve the same problem. Instead, the question is whether one of ordinary skill in the art facing the same problems as the inventor would combine MS410B and the Ker application. “One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 419- 20 (2007). “[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* at 420. Further, “[o]ne of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings.” *Cross Med. Prods. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1323 (Fed. Cir. 2005).

Respondents provided expert testimony that bond peel off and parasitic capacitance were known problems facing IC designers. RX-246C at Q. 111; *see also* RX-13 at ¶8. The Ker application explains the use of an electric-conduction layer shaped like a webbed railing and that the area of the electric-conduction layer is smaller than the first pad layer.<sup>6</sup> RX-246C at Q. 111; RX-13 at ¶¶11-13, 48. Dr. Gwozdz testified that one of ordinary skill in the art would combine the references because the Ker application accomplishes the objective of reducing parasitic capacitance by reducing the area of the metal layers under the bond pad. RX-246 at Q. 109-111. Accordingly, the Commission reverses the ALJ's findings and finds that Respondents have proven by clear and convincing evidence that claims 4 and 5 are obvious in view of the Ker application in combination with MS410B.<sup>7</sup>

## **VI. INFRINGEMENT OF THE '928 PATENT**

As discussed above, Realtek accuses the [ ] of infringing claims 1-3 and 6-10 of the '928 patent. Realtek argues that certain products incorporating the [ ], specifically the [ ] product lines (collectively, "Seagate products") infringe claims 1-3 and 6-10 of the '928 patent for the same reasons the [ ] infringe. Realtek also accuses the [ ]

[ ] of infringing claims 1-10 of the '928

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<sup>6</sup> There appears to be no dispute that the Ker application teaches the additional limitations of claims 4 and 5. *See* ID at 96, 86.

<sup>7</sup> The Commission notes that Realtek did not argue the existence of any secondary considerations of non-obviousness.

patent.

#### A. Claims 1-9

The ALJ found that the [ ] and Seagate products infringe claims 1-3 and 6-9, and the [ ] infringe claims 1-10 of the '928 patent. ID at 110-132. As discussed above, the Commission has modified the ALJ's findings regarding the "lower electric-conduction layer" such that it can be composed of multi-layer planar structures. The Commission affirms the ALJ's literal infringement findings for claims 1-9 and supplements the ALJ's reasoning with an additional basis for finding infringement of claim 1 by the [ ].

The ALJ found that the [ ] meets the claimed "lower electric-conduction layer." ID at 108-09. However, Realtek argued that the [ ] together act as the "lower electric-conduction layer." *See e.g.*, Comp. Rev. Br. at 42-45. [ ] that extend under the first pad layer. *See e.g.*, CX-313C at Q.138. [ ]

[ ] *Id.* Respondents do not challenge these facts, and instead challenge only whether the "lower electric-conduction layer" can include multi-layer structures. Resp. Rev. Br. at 5-6. The Commission finds that [ ] is a "planar region of conductive material extending between the first pad layer and the substrate, the planar region being lower than the first pad layer and the compound layer structure," and therefore, the [ ] infringe claim 1 for this additional reason.

The ALJ found that the [ ] do not meet the lower electric-conduction layer under the doctrine of equivalents. ID at 116 n. 25. Because the Commission finds that the



[ ] literally meet the “lower electric-conduction layer” limitation, the Commission vacates the ALJ’s findings under the doctrine of equivalents.

#### **B. Claim 10**

Realtek petitioned for review of the ALJ’s finding that the [ ] do not infringe claim 10. The ALJ determined that the “lower electric-conduction layer” must be comprised of a single planar layer and that Realtek did not present evidence that the [ ] alone kept noise from the substrate away from the first pad layer. ID at 131. However, as discussed above, the Commission finds that the “lower electric-conduction layer” can be a multi-layer structure and that the [ ] meet this claim limitation. Dr. Walker, Realtek’s expert, performed a quantitative analysis of the [ ] and determined that they keep a “significant” amount of noise from the substrate away from the first pad layer. CX-313C. at Q.164. Respondents did not challenge this evidence. Resp. Rev. Br. at 5-6, 18-21; Resp. Reply Rev. Br. at 3, 8-13. Accordingly, the Commission finds that the [ ] infringe claim 10.

In addition, although no party challenged the ALJ’s finding that claim 10 was infringed by the [ ] we note that the ALJ found that only some noise is kept away from the lower electric-conduction layer by the [ ] ID at 131-132. However, Dr. Walker testified that the [ ] results in significant noise reduction. CX-313C at Q. 214-15. Accordingly, the Commission affirms the finding of infringement based on this testimony. *See* ID at 131-132.

## VII. DOMESTIC INDUSTRY

### A. Economic Prong

#### 1. Procedural Background

To demonstrate the existence of a domestic industry, Realtek relied upon its domestic research and development investment pursuant to subparagraph (a)(3)(C) of section 337.<sup>8</sup> Comp. Post-Hearing Br. 97-129. In particular, Realtek alleged the existence of a domestic industry based on evidence of investments of its U.S. affiliate in [ ] research and development projects and evidence that certain Realtek chips practice claims 1-3 and 6-10 of the '928 patent. ID at 133. All of these patent claims (along with two others) were also asserted for infringement.

Prior to the hearing in this investigation, the respondents moved for summary determination that the economic prong of the domestic industry requirement is not met. In Order No. 34 (Dec. 6, 2013), the ALJ denied the motion, with a lengthy discussion of the domestic industry requirement. Much of that discussion is repeated in the ID. Among other matters, Order No. 34 requested that the parties develop the record further in the following manner: “Moving forward, a factual record should be developed that addresses the relationship between the patented technology employed in the domestic industry products and the [ ] circuits developed by the engineers at Realcom, and the extent to which the domestic expenditures can be allocated to the domestic industry products.” Order No. 34 at 20. In addition, and citing the recent Federal Circuit decision in *Microsoft Corp. v. ITC*, 731 F.3d 1354, 1361-62 (Fed. Cir. 2013), Order No. 34 asked the parties “to address whether investments under subsection (C)

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<sup>8</sup> Realtek expressly has abandoned theories of domestic industry based upon subparagraphs (a)(3)(A) and (a)(3)(B). Comp. Rev. Br. 65.

must be directed to exploitation of the '928 patent, or to articles protected by the '928 patent.”

Order No. 34 at 20 n.9.

The facts most pertinent to Commission review are not disputed, and are set forth in the ID. The ID found in relevant part as follows. Realtek’s U.S. research and development operations are conducted through a subsidiary, Real Communications, Inc. (“Realcom”). ID at 135. Realcom’s California facility [

] *Id.* at 138. The pertinent research and development was conducted by [ ] engineers. *Id.*

The ID explained that Realtek identified “[ ] technologies created by the engineers at Realcom that are included in the DI [*i.e.*, domestic industry] chips.” ID at 139. Each of these [ ] technologies (or “[ ] IPs” as Realtek calls them) is an electronic structure. *Id.* The [ ] IPs are: [

] *Id.*

Realtek estimated that its engineers in the United States spent [ ] of their time on these [ ] technologies. ID at 140. These technologies, however, are also used in non-DI products. *Id.* at 140 n.29. Realtek attempted to allocate all of its expenses toward these technologies to the DI Chips. *Id.* at 140. The ALJ found that the development of these technologies had been substantially completed by 2008; since then “Realcom’s efforts concerning the [ ]” technologies “appear to be limited to consulting or fine-tuning activities that are not necessarily related to the DI Chips.” *Id.* Realtek contended that its domestic industry investment from 2011 to 2012 was [ ]. *Id.* at 141.

The dispute before the ALJ was substantially legal, rather than factual. Realtek argued that the “substantial investment” referred to in subparagraph (a)(3)(C) “refers to the articles protected by the patent” and that subparagraph (a)(3)(C) “does not require research and development to relate directly to the bond pad claimed in the ’928 patent.” ID at 148 (quoting Comp. Post-Hearing Br. 99-100). The respondents argued that under subparagraph (a)(3)(C), “unlike (A) and (B), domestic activities must relate directly to the patent in issue.” *Id.* at 161 (citing Resp. Post-Hearing Br. 100-01).

The ID interpreted the Federal Circuit’s decisions in *InterDigital* and *Microsoft* to “require rejection” of the respondents’ position. *Id.* Nonetheless, the ID found that “the more closely related the domestic activities are to the patented technology, the greater may be the weight of the activities in determining whether they constitute a domestic industry.” *Id.* at 162. The ID concluded that Realtek’s U.S.-based research and development investment was not substantial in view of the attenuated connection between that investment and the DI articles, and because most of Realtek’s operations are overseas. ID at 163-73. Thus, the ID found that Realtek failed to meet the economic prong of the domestic industry requirement. *Id.* at 178-79.

Realtek and the Respondents each petitioned for review. Realtek argued that the ID impermissibly discriminates against foreign-headquartered companies. Comp. Pet. 49-56; *see also id.* at 68-70. Realtek, however, generally supported the ID’s methodology, *i.e.*, looking to Realtek’s investment in the domestic industry articles, as opposed to investment in the patents.

Realtek argued that its U.S.-based investment in its domestic industry articles was substantial and that the ID erred in concluding otherwise.<sup>9</sup> Comp. Pet. 61-70.

The Respondents' petition for review argues that a "complainant seeking to establish a domestic industry under" subparagraph (a)(3)(C) "must prove a substantial domestic investment that is directed not only to articles protected by the patent at issue, but also to 'its' (*i.e.*, the patent's) exploitation." Resp. Pet. 11-12. The Respondents further stated that Realtek's "domestic-industry claim fails because the undisputed evidence demonstrated that none of Realtek's research-and-development activities in the United States were directed to the bond-pad technology claimed by the '928 Patent." *Id.* at 12.

The Commission determined to review the ID. The Commission's notice of review sought further briefing from the parties organized around the analysis adopted by the Commission in its opinions, including *Peripheral Devices*, which was not cited by the parties to the ALJ and was not discussed in the ID:

(13) Discuss whether and how Realtek's research and development investment in the United States is investment in the asserted patent's exploitation pursuant to 19 U.S.C. § 1337(a)(3)(C). *See Certain Computers and Computer Peripheral Devices, and Components Thereof, and Products Containing Same*, Inv. No. 337-TA-841, Comm'n Op. 27 (Jan. 9, 2014) ("The Commission has established that the 'its' in 'substantial investment in its exploitation' of subparagraph

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<sup>9</sup> Realtek also challenges certain discovery that the ALJ denied. Realtek Pet. 70-71. Realtek sought discovery from the Respondents about the scope of *their* domestic industry (specifically respondent LSI's domestic industry in *Certain Audiovisual Components and Products Containing the Same* Inv. No. 337-TA-837). Comp. Pet. 70-71. Realtek has not shown that the facts of that investigation or the licensing-based theory of domestic industry there are pertinent to this investigation. The ALJ acted within her authority to deny the discovery sought under Rule 210.27. *See generally* 19 C.F.R. § 210.27(b) (relevant discovery); *id.* § 210.27(d) (4) (limiting proposed discovery when the "burden or expense . . . outweighs its likely benefit").

(a)(3)(C) refers to ‘the patent, copyright, trademark, mask work, or design.’); *InterDigital Commc’ns, LLC v. ITC*, 707 F.3d 1295, 1297 (Fed. Cir. 2013) (“The parties agree that the word ‘its’ in the last clause of paragraph 337(a)(3) refers to the intellectual property at issue.”).

(14) Discuss whether and how Realtek’s domestic-industry research and development in the United States involves or relates to articles protected by the asserted patent pursuant to 19 U.S.C. § 1337(a)(3)(C). *See Microsoft Corp. v. ITC*, 731 F.3d 1354, 1362 (Fed. Cir. 2013) (explaining that a complainant must “provide evidence that its substantial domestic investment—*e.g.*, in research and development—relates to an actual article that practices the patent”).

Notice of Review at 3-4.<sup>10</sup>

## 2. Analysis

Because the ID misinterpreted the text and legislative history of subparagraph (a)(3)(C), as well as recent Federal Circuit caselaw, we vacate the ID’s analysis of the economic prong of domestic industry. In particular, the ID improperly conflated our cases addressing the articles-related focus of subparagraphs (a)(3)(A) and (B) with the showing required for subparagraph (a)(3)(C), which contains different statutory language. Nonetheless, the Commission reaches the same conclusion as the ID, that Realtek did not meet the economic prong of the domestic industry requirement. Our reasoning follows.

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<sup>10</sup> In addition, the notice sought clarification whether Realtek was relying upon subparagraphs (a)(3)(A) or (B). Notice of Review at 4 (Q. 16). As noted earlier, in response to the notice, Realtek abandoned theories of domestic industry based upon those subparagraphs. Comp. Rev. Br. 65.

**a) Subparagraph (a)(3)(C) Requires that the Domestic Industry  
Be “With Respect to the Articles Protected by the Patent”**

The Commission’s decisions concerning subparagraph (a)(3)(C) can be broken into two categories: those that regard “engineering, research and development” investment;<sup>11</sup> and those that regard “licensing” investment.

Prior to *Peripheral Devices*, our practice was “not to require a complainant to demonstrate for purposes of a licensing-based domestic industry the existence of protected articles practicing the asserted patents.” *Peripheral Devices*, Comm’n Op. 27-28. We recognized that although “there may have been protected articles actually practicing the asserted patents in our past investigations, such a showing was not mandatory.” *Id.* at 28.

The Federal Circuit decisions in *InterDigital* and *Microsoft* changed that analysis.<sup>12</sup> See *Peripheral Devices*, Comm’n Op. at 30-36. We found that *InterDigital* held “that there is an express articles requirement for subparagraph (C), in addition to (A) and (B).” *Peripheral Devices*, Comm’n Op. at 32 (citing *InterDigital*, 707 F.3d at 1299). *Microsoft* made this point expressly. *Microsoft Corp. v. ITC*, 731 F.3d 1354, 1362 (Fed. Cir. 2013) (stating that a complainant must “provide evidence that its substantial domestic investment—*e.g.*, in research and development—relates to an actual article that practices the patent”); see *Peripheral Devices*, Comm’n Op. at 35. Although this articles requirement applies to all investments under

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<sup>11</sup> In this opinion, we will refer to “engineering, [and] research and development” just as “research and development” for syntactic clarity.

<sup>12</sup> Both cases concern whether section 337 requires the existence of articles practicing the asserted patent, *i.e.*, the technical prong of the domestic industry requirement. See *infra* note 15 and accompanying text.

paragraph (a)(3), *id.* at 32, 35-36, *InterDigital* and *Microsoft* like the present investigation concern research and development investment under subparagraph (a)(3)(C)—*Microsoft* entirely, and *InterDigital* in part.

This articles requirement sometimes requires the Commission to determine what the appropriate domestic industry articles are. In cases including *Certain Video Game Systems and Wireless Controllers and Components Thereof*, Inv. No. 337-TA-770 (“*Video Game Systems*”), Comm’n Op. at 66-70 (July 12, 2013) and *Certain Kinesiotherapy Devices and Components Thereof*, Inv. No. 337-TA-823 (“*Kinesiotherapy Devices*”), Comm’n Op. at 33-35 (July 12, 2013), as well as the cases cited in those opinions, the Commission has looked to the “realities of the marketplace” to decide what “article” is protected by the patent. For example, the Commission has looked at whether the article is an entire device or a component thereof, or a downstream product containing the patented component, depending on the facts presented in an investigation as to what articles are allegedly imported.

**b) “Investment in Its Exploitation” Refers to the Asserted Patent’s Exploitation**

The Commission has long recognized that the “its” in the phrase “investment in *its* exploitation” in subparagraph (C) refers to the asserted patent or other intellectual-property right being asserted.<sup>13</sup> That conclusion is supported by the clear text of the statute. Paragraph (a)(3)

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<sup>13</sup> *Certain Computers and Computer Peripheral Devices, and Components Thereof, and Products Containing Same*, Inv. No. 337-TA-841, Comm’n Op. 27 (Jan. 9, 2014); *see also, e.g., Certain Microcomputer Memory Controllers, Components Thereof and Products Containing Same*, Inv. No. 337-TA-331, Order No. 6, 1992 WL 811,299, at \*4 (Jan. 8, 1992), *not reviewed*, Notice, 57 Fed. Reg. 5710 (Feb. 12, 1992); *Certain Coaxial Cable Connectors and Components Thereof and Products Containing Same*, Inv. No. 337-TA-650, Comm’n Op. at 51-54 (Apr. 14,



discusses a domestic industry “with respect to the articles protected by the patent, copyright, trademark, mask work, or design.” 19 U.S.C. § 1337(a)(3). Thus, the reference to the asserted intellectual property right is singular (*i.e.*, “the patent”), and the reference to the articles protected by that right is plural (*i.e.*, “with respect to *the articles*”). Thus, “*its* exploitation” in subparagraph (a)(3)(C) must refer to the patent and not to the articles.

This conclusion is also strongly supported by the legislative history of the 1988 amendments to section 337 that added subparagraph (C). In particular, an earlier version of what became subparagraph (C) expressly cited the intellectual property right: “substantial investment in exploitation of the intellectual property right, including engineering, research and development, or licensing.” H.R. Rep. No. 100-576 at 634 (Apr. 20, 1988) (Conference Report for H.R. 3, “Omnibus Trade and Competitiveness Act of 1988”).<sup>14</sup> Recent Federal Circuit caselaw does not purport to upset this interpretation of section 337. *InterDigital Commc’ns, LLC v. ITC*, 707 F.3d 1295, 1297 (Fed. Cir. 2013) (“The parties agree that the word ‘its’ in the last clause of paragraph 337(a)(3) refers to the intellectual property at issue.”).<sup>15</sup>

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2010); *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Products Containing the Same*, Inv. No. 337-TA-694, Comm’n Op. 13 (Aug. 8, 2011).

<sup>14</sup> While a different bill was enacted in 1988, it adopted the legislative history cited in the text, *supra*. Pub. L. 100-418 § 2 (H.R. 4848) (Aug. 23, 1988) (“the legislative history of a . . . provision of the conference report to accompany H.R. 3 of the 100th Congress (H. Rept. 100-576) shall be treated (along with any other legislative history developed by reason of this Act) as being the legislative history of the [corresponding] provision of this Act”).

<sup>15</sup> The Federal Circuit decision in *Microsoft* is consonant with *InterDigital*. *Microsoft* interpreted the language “with respect to the articles protected by the patent,” 19 U.S.C. § 1337(a)(3). *See Microsoft*, 731 F.3d 1361-62. There was “no question about the substantiality of [complainant] Microsoft’s investment in its operating system or about the importance of that operating system

To meet this requirement of “its exploitation,” the Commission requires that the complainant establish a nexus between the asserted patent and the U.S. investment in its exploitation. See *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-694, Comm’n Op., at 7-13 (revised public version) (“*Navigation Devices*”) (collecting cases). *Navigation Devices* involved licensing, and accordingly, most of the decisions cited in *Navigation Devices* involved licensing. Neither the instant opinion nor any other Commission opinion post-*Navigation Devices* has changed the analysis concerning an adequate nexus for purposes of licensing.

The Commission itself (as opposed to the Commission’s ALJs) has opined infrequently on research and development investments, as opposed to licensing investments. Nonetheless, to the extent that there was any question, under subparagraph (C), the complainant must establish that there is a nexus between the claimed investment and the asserted patent, regardless of whether the domestic-industry showing is based on licensing, engineering, or research and development.<sup>16</sup>

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to mobile phones on which it runs.” *Id.* at 1361. In that case, Microsoft “simply failed to identify any phones with the required components performing as required.” *Id.* at 1362. Thus, *Microsoft* deals with whether the “articles protected by the patent” requirement was met, whereas here, the issue is whether the additional requirement of subparagraph (a)(3)(C) was met, *i.e.*, whether the claimed R&D investments exploit the asserted patent.

<sup>16</sup> See *Navigation Devices*, Comm’n Op. at 8-9 nn.4-5 (citing *Certain Plastic Encapsulated Integrated Circuits*, Inv. No. 337-TA-315, USITC Pub. 2574, Final Initial Determination at 87 (unreviewed in relevant part) (Nov. 1992) (“*Encapsulated Circuits*”)).

Generally, the nexus between the asserted patent and the claimed investments has not been contested in research and development cases.<sup>17</sup> To the extent that the patented technology arises from endeavors in the United States, such a nexus would ordinarily exist. But engineering and research and development investments—particularly engineering and development investments—need not end there. “Exploitation” is a generally broad term that encompasses activities such as efforts to improve, develop, or otherwise take advantage of the asserted patent.

By way of example, in *Certain Integrated Circuits, Processes for Making Same and Products Containing Same*, Inv. No. 337-TA-450 (“*Integrated Circuits*”), the cognizable investment encompassed “activities and investments which assist customers to design integrated circuits that will be made according to the ’345 patented method.” ID at 156 (May 6, 2002), *not reviewed*, Notice (June 21, 2002); *see id.* at 153-55. Similarly, in *Encapsulated Circuits*, Inv. No. 337-TA-315 (“*Encapsulated Circuits*”), the presiding ALJ emphasized the relationship between the research and development and the asserted patent:

The numerous research and development projects undertaken by TI during this time period in support of its exploitation of the ’027 patent are set forth in CX 424. Many of the projects are directly related to the ’027 patent in that they concerned an aspect of the molding process itself . . . . Many other projects are also directly related to the exploitation of the ’027 patent because they concerned an aspect of an integrated circuit which is closely related to the molding process . . . .

These research and development projects include projects totaling [redacted] relating to equipment for die mounting and wire bonding. . . .

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<sup>17</sup> Cases in which the nexus requirement was challenged include *Certain Hybrid Vehicles*, Inv. No. 337-TA-688, Order No. 5, 2010 WL 1138330 at \*8 (Feb. 26, 2010) and *Certain Probe Card Assemblies, Components Thereof, and Certain Tested DRAM and NAND Flash Memory Devices and Products Containing Same*, Inv. No. 337-TA-621, ID at 196 (July 20, 2009), *not reviewed*, Notice (Sept. 14, 2009). In both investigations, the complainant was unable to establish a nexus between the asserted patents and the domestic research and development investments.

The patent does not contain any discussion of the techniques of die mounting and wire bonding. . . . However, both of these operations are an integral part of the manufacturing of a semiconductor, and the location of the die and the delicate nature of the wire bonds are both mentioned in the '027 patent's specification. . . . It is difficult in situations such as that presented in this investigation to draw a bright line dividing those projects which exploit the patent at issue from those which do not. Some relate more directly to the patented process, and others seem somewhat indirectly or remotely related. Since there are many processes which could be used in die mounting or wire bonding from manual to highly automated techniques, evidence of research and development into these areas appears rather indirect to the exploitation of the '027 patent. Accordingly, the ALJ has not given the evidence of this [project] as much weight as that regarding other engineering and research projects which are more directly related to the patented claims in determining whether a domestic industry exists.

*Encapsulated Circuits*, Final ID at 85-86 (Oct. 15, 1991). Accordingly, the ID gave weight to research and development closely related to the asserted patents, and gave less weight to the expenses not closely related. We adopted this reasoning, *Encapsulated Circuits*, Comm'n Op. at 18 (Feb. 1992), and this precedent continues to guide our analysis of the nexus requirement. Indeed, the ALJ here recognized this principle, noting that "the more closely related the domestic activities are to the patented technology, the greater may be the weight of the activities in determining whether they constitute a domestic industry." ID at 162.

The difficulty arises when the complainant points to investment in an article without offering evidence of a nexus between that investment and the patented technology. Commission decisions recognize that the evidence presented in a particular investigation may readily support the inference that the nexus has been met. For example, this nexus may readily be inferred based on evidence that the claimed investment is in the domestic industry article, which itself is the physical embodiment of the asserted patent. In *Certain Cases for Portable Electronic Devices*, Inv. Nos. 337-TA-867 & -861, the complainant's patent dealt with the overall configuration and

structure of a protective cell phone case. *See* U.S. Patent No. 8,204,561 (issued June 19, 2012). Accordingly, the ALJ properly analyzed investment in the domestic-industry articles, which themselves embodied the patented invention. Order No. 15, 2013 WL 5702593 (Sept. 10, 2013), *not reviewed*, Notice (Nov. 5, 2013). Similarly, in *Certain Foam Footwear*, Inv. No. 337-TA-567, the domestic-industry Crocs sandals were the embodiment of the asserted utility and design patents, and attention there turned to investment in the patented articles. Order No. 34 at 7 (Nov. 7, 2006), *not reviewed*, Notice (Nov. 27, 2006). In these investigations, the evidence was sufficient to support the inference that the research and development efforts in these articles are inextricably linked to the asserted patents themselves.

In response to an articles-based showing by a complainant, the Respondents here have asserted that the nexus requirement mandates a patent-by-patent allocation of investment. *See* ID at 159. The Commission recently rejected a patent-by-patent allocation requirement in the licensing context under subparagraph (C). *Certain Semiconductor Chips and Products Containing Same*, Inv. No. 337-TA-753 (“*Semiconductor Chips*”), Comm’n Op. at 49 (July 31, 2012) (finding that “Rambus was not required to provide a precise allocation of its licensing investments on a patent-by-patent basis in this investigation in order to make a sufficient evidentiary showing,” but holding that firmwide licensing expenditures were insufficient given that Rambus licensed a number of patent portfolios not at issue); *id.* (“We are not seeking exact amounts or quantities of investments.”).

Similarly, no patent-by-patent allocation is required for research and development investment under subparagraph (C). First, requiring such an allocation is an unduly narrow interpretation of “exploitation” and risks freezing cognizable investment at the point at which the

patented technology is reduced to practice.<sup>18</sup> Second, most firms have little reason to keep research and development records on a patent-by-patent basis, as opposed to a project-by-project basis (to the extent that project-by-project records are kept). Further, numerous Commission cases have rejected requiring such allocations. *See, e.g., Certain Electronic Imaging Devices*, Inv. No. 337-TA-850, Final ID, 2013 WL 5956227, at \*105 (Sept. 30, 2013), *aff'd*, Comm'n Op. 95 (Apr. 21, 2014); *Certain Silicon Microphone Packages and Products Containing Same*, Inv. No. 337-TA-888, Order No. 47 at 9-13 (May 8, 2014), *not reviewed*, Notice (June 9, 2014); *Certain Unified Communications Systems, Products Used with Such Systems, & Components Thereof*, Inv. No. 337-TA-598, Order No. 9, 2007 WL 3071633 at \*4 (Sept. 5, 2007), *not reviewed*, Notice (Oct. 23, 2007); *Encapsulated Circuits*, Inv. No. 337-TA-315, ID at 85-86 (Oct. 15, 1991), *aff'd*, Comm'n Op. 18 (Feb. 1992).

Our decisions cited above recognize that a complainant can establish the existence of a domestic industry by showing evidence of its research and development investment in an article that practices a patent, where such evidence supports the inference that the investment exploits the patented invention. 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.

That said, analogous to the ID's discussion, *see* ID at 172-73, there may be circumstances in which the domestic investment is so unrelated to the asserted patent that no nexus can be

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<sup>18</sup> Beyond the plain language of the statute, the legislative history of the 1988 amendments to section 337 evidences Congress's intention that subparagraph (a)(3)(C) not be read so narrowly. *See, e.g.,* H.R. Rep. No. 100-40, at 157-58 (1987); S. Rep. No. 100-71, at 129 (1987).

imputed. Respondents may properly challenge the evidence concerning R&D investments presented by a complainant, as they have here, to show that complainant's evidence is insufficient to support an inference of a nexus between the claimed investments and the asserted patent.

As an example of our practice, in *Microlithographic Machines and Components Thereof*, Inv. No. 337-TA-468 ("*Microlithographic Machines*"), the presiding ALJ found:

Whereas it is true that in *Compression Devices, supra*, the Commission determined that in making the "nexus" analysis, "[t]o include activities which are in the same field of technology but which do not have the requisite nexus to the patent would be contrary to the statute," [respondent] ASML provides no basis whatsoever to show that the R&D projects that [complainant] NCRA allocated to the S204, S205 and S305 [domestic industry articles] have no such nexus to the patents at issue.

Final ID, 2003 WL 1831981, at \*203-204, 213 (Jan. 29, 2003), *not reviewed*, Notice (Mar. 17, 2003); *see Certain Dynamic Sequential Gradient Compression Devices and Component Parts Thereof*, Inv. No. 337-TA-335, ID at 63 (May 15, 1992), *not reviewed in relevant part*, Notice (June 15, 1992). In *Microlithographic Machines*, the ALJ evaluated and rejected the arguments offered by respondents that the complainant's showing of the nexus was inadequate.

In the cases cited by complainant, Comp. Rev. Br. at 55-56, respondents did not provide an adequate basis to contest the evidence offered by complainants to support the claim that the R&D investments in the articles protected by the patent were an exploitation of the patented technology. Requiring an extensive inquiry as to the adequacy of the nexus when it is not challenged on the merits by respondents would unduly consume the time and resources of the parties and the Commission given the Commission's experience that in most factual situations a patent is exploited in research and development efforts concerning products that practice the

patent. Accordingly, as discussed above, in many cases the nexus between the asserted patent and the domestic investment can be inferred from the complainant's showing of domestic investment in articles that practice the patent.

**c) The Requirement of a Nexus Between the Domestic Investment and the Asserted Patent Was Not Met Here**

In the present investigation, Order No. 34 directed that the parties develop the record to explain the “relationship between the patented technology employed in the domestic industry products” and Realtek’s U.S. research and development investments. Order No. 34 at 20. The facts are substantially undisputed.

Complainant Realtek relies upon independent claim 1 and dependent claims 2-3 and 6-10 of the '928 patent to show a domestic industry. As recited earlier, Realtek relied upon [ ] models of its integrated circuit chips for [ ] for domestic-industry purposes. ID at 180. Each of these chips practices each of the domestic industry patent claims. *See infra* at §VII.B.

The preamble of claim 1 of the '928 patent recites an “integrated circuit (IC) device having a pad structure formed thereon, the IC device comprising.” No one argued in this proceeding that the preamble is limiting.<sup>19</sup> Accordingly, all of the claim limitations in claim 1 relate to a three level structure of an integrated circuit, comprising a substrate (element (a)), an insulation layer (element (b)), and two pad layers formed on the insulation layer (elements (e)

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<sup>19</sup> In addition, we find no reason to view the preamble as limiting. *See, e.g., Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (“[A] preamble is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.”) (quotation omitted).



and (f)). The insulation layer has within it a conduction layer and a compound layer structure (elements (c) and (d), respectively). Dependent claims 2-3, 6-7, and 10 provide added detail as to various of these layers.

None of the claim limitations concern structures related to the bond pad claimed in all of the domestic-industry patent claims.<sup>20</sup> By contrast, all of Realtek's U.S. investments concern [ ] structures in certain [ ] chips that also utilize the patented bond pad. The Respondents properly observed, and we find, that the evidence of record did not disclose any relationship between the [ ] projects in the United States and the '928 patent. Nor did complainants provide any demonstration in their briefs before the ALJ and the Commission in support of such a relationship, in response to the Respondents' arguments.

Notably, it is undisputed that there has never been any domestic investment in the patented bond-pad technology of the '928 patent. Similarly, it is undisputed that there has never been any domestic investment into connecting the patented bond pad with other structures. For example, there is no evidence of Realtek's domestic research and development modeling the patented bond pads or similar such efforts. Nor did complainants offer any explanation of how the evidence supported an inference that the investments in some way constituted efforts to improve, develop, or otherwise take advantage of the patented technology. Instead, the [ ] IPs (or [ ] technologies) that represent Realtek's U.S. investment happen to be used in the

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<sup>20</sup> Had the domestic-industry claims here included an additional limitation concerning structures connected to the bond pad, our outcome may have been different. *See, e.g., Encapsulated Circuits*, Inv. No. 337-TA-315, ID at 85-86 & Comm'n Op. at 18. An additional limitation enlarging the scope of the claims to cover something more than merely bond pads could enable us to consider exploitation at least as to that additional limitation.

domestic industry [ ] chips that are otherwise developed abroad. But the [ ] technologies appear to be extensively used as well in products that lack the patented bond pad, thus negating a possible inference that the R&D was in exploitation of the patented invention as embodied in the DI chips. *See* Resp. Rev. Br. 31. In fact, Realtek's U.S. employees generally lacked knowledge about the specific products in which their technologies would be incorporated. *See id.*

At the hearing, Realtek's expert Dr. Gregory Leonard acknowledged the lack of a connection between the '928 patent and the domestic investments:

Judge Lord: . . . Your testimony does not include, as I understand it, an allocation as between . . . work that was done on the DI products and work that was done on the '928 patent. Is that correct?

The Witness: Work on the '928? Yeah, I don't think so. I think what I was focused on was the amount of R&D effort that was going into the DI products specifically. I understand [the] DI products all practice the '928 patent, but I don't think any of the work that Realcom did related to the—specifically to the '928 patent, although there's a connection, as I understand it, between the . . . [ ] technologies, on the one hand, and the bond pad, on the other hand, because they're both having to do with speeding up the operation of the chips.

So they do work together, but I believe that for the most part, the Realcom employees [*i.e.*, Realtek's U.S. employees] were working on just those [ ] technologies.

Tr. 528-29.

Dr. Chia-Liang (Brian) Lin, Vice President of Realtek's Research and Design Center and the named inventor of the '928 patent, testified similarly at his deposition, the pertinent portion of which was admitted into evidence here. The testimony reads as follows: "Q. Did your group in the United States ever work on anything related to the bond pad technology that is actually the subject of this investigation? . . . A. No." RX-277C.0027. The evidence indicates that there is

no connection between the U.S. R&D investment and the '928 patent here other than the fact some "articles protected by the patent" happen to include the [ ] technologies. This is consistent with Dr. Lin's direct witness statement, where he testified that what the bond pads and the [ ] technologies have in common is a goal of faster communications.<sup>21</sup> CX-316C QQ 151, 158, 170.

With these facts in hand, there are three questions to be answered for a domestic industry based upon research and development under subparagraph (C). First, is the domestic industry "with respect to the articles protected by the patent," as required by the prefatory language of section 337(a)(3)?<sup>22</sup> Second, has it been shown that there is "investment in [the asserted patent's] exploitation, including engineering, [or] research and development," as required by section 337(a)(3)(C)?<sup>23</sup> Third, is that "investment in [the asserted patent's] exploitation," "substantial," as required by section 337(a)(3)(C)? We address these three questions in turn.

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<sup>21</sup> While the goal is common, there was no evidence of any interrelationship between the '928 patent's bond pads and the [ ] technologies researched in the United States in achieving that goal. A common goal of otherwise unrelated technologies is insufficient to establish a nexus, absent evidence that establishes that the R&D in some way exploits the patent.

<sup>22</sup> If a complainant cannot demonstrate the existence of articles protected by the patent, the complainant must instead show a domestic industry "is in the process of being established." 19 U.S.C. § 1337(a)(2).

<sup>23</sup> *Navigation Devices* spoke of three nexuses concerning investment for licensing under subparagraph (C): (i) nexus to the asserted patents; (ii) nexus to licensing; and (iii) nexus to the United States. *Navigation Devices*, Comm'n Op. at 8-14. That recitation remains accurate for all subparagraph (C) domestic industries, though in a research and development case, we are concerned with nexus to research and development rather than licensing ((ii), immediately above). In the present investigation, there is no dispute that Realtek's claimed investment occurred in the United States and is related to research and development. What remains from *Navigation Devices*, then, is the nexus to the asserted patents, as discussed in the text herein.

First: We agree with Realtek that the domestic industry it alleged is “with respect to” articles protected by the patent. 19 U.S.C. § 1337(a)(3). Recognizing the realities of the marketplace,<sup>24</sup> the articles in commerce here are chips that include the patented bond pad. Realtek’s research and development in the United States unquestionably relates to the domestic industry articles—certain [ ] chips. We reject the Respondents’ arguments to the contrary. In particular, the Respondents argue that Realtek’s domestic investment relates not only to the chips put forward as domestic industry articles here, but also to other chips. Resp. Rev. Br. 30-31. That fact does not diminish that Realtek’s investment is also with respect to the domestic-industry articles.

For subparagraphs (a)(3)(A) and (B), we would only examine whether Realtek’s “investment in plant and equipment” or “employment of labor or capital” relates to protected articles. This opinion does not change any analysis to be conducted under subparagraphs (a)(3)(A) or (B). As Realtek has expressly abandoned any arguments pertaining to these subparagraphs, we do not address them. For subparagraph (C), however, as discussed above, a domestic industry “with respect to” articles is necessary, but there is an additional requirement that the investment constitutes an exploitation of the asserted patent.

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Our *Navigation Devices* decision preceded the Federal Circuit’s decisions in *InterDigital* and *Microsoft*, as well as our decision in *Peripheral Devices*, interpreting those two decisions concerning “articles.” The effect of those two decisions has been recited in the text of this opinion, *supra*, as well as in *Peripheral Devices* itself.

<sup>24</sup> See *Video Game Systems*; Comm’n Op. at 66-70; *Certain Digital Set-Top Boxes and Components Thereof*, Inv. No. 337-TA-712, Order No. 33 at 13-16 (Jan. 11, 2011), *aff’d in part*, Notice, 76 Fed. Reg. 45616, 45616 (July 29, 2011); *Kinesiotherapy Devices*, Comm’n Op. at 22-23 (July 12, 2013).

Second: We agree with the Respondents that Realtek's evidence does not establish that its investment in the United States is an exploitation of the '928 patent. In its submissions to the Commission, Realtek does not dispute the facts recited earlier, but argues that its showing was sufficient. *See* Comp. Rev. Br. 52; Comp. Reply Rev. Br. 24. In particular, Realtek argues that "the 'substantial investment' referred to in subsection (C) pertains 'to the articles protected by the patent.'" Comp. Rev. Br. 55 (quoting 19 U.S.C. § 1337(a)(3)(C)). We have rejected Realtek's legal argument as inconsistent with the language of section 337.

Realtek argues, to the same effect, that research and development of features incorporated into articles that also practice the '928 patent should constitute an "exploitation" of the '928 patent. Comp. Rev. Br. 52-55. As a matter of statutory construction, an investment in the article is not automatically an investment in the asserted patent. Were it so, it would impermissibly read out of subparagraph (a)(3)(C) the "its."

Realtek cites past initial determinations with language that could be read to support its argument. *See* Comp. Rev. Br. 55-56. But in none of the cited cases did the Respondents sufficiently challenge the evidence to point out the disconnect between the investment in the asserted patent and the investment in other aspects of the protected article. We view such cases as standing for no more than the proposition that we have already identified: that evidence of investment in the patented article may be such as to support an inference that the investment also exploits the patent. To the extent language in any other Commission decision has suggested the contrary, the Commission's reasoning and support set forth herein governs.

As discussed earlier, in showing the nexus between the protected articles and the '928 patent, a qualitative discussion of the relationship between the patented bond pad and the

domestic investment can suffice; we are not seeking precise numerical allocation. However, in response to the Respondents' persuasive demonstration that Realtek's domestic investment is unrelated to the '928 patent, Realtek offered little in return to shoulder its burden to establish the nexus requirement. Realtek argues, for example, that when the "[ ] IPs are implemented into the DI Products, they work with the '928 patented technology to create a faster and more reliable [ ] chip." Comp. Rev. Br. 57; *see* CX-314C at QQ. 83, 91, 123 (Leonard Witness Statement); CX-315C at QQ. 24-27 (Leon Lin Witness Statement); CX-316C at QQ. 136-170 (Brian Lin Witness Statement). That is like saying that an automobile with an improved engine (developed in the United States) and patented tires (developed overseas) results in a "faster" car. But there has to be an explanation why engine-related investment should be credited to the patent for the tires. Here, there is no evidence of any research and development in the United States integrating the '928 patent technology into Realtek products. Similarly, there is no evidence of Realtek engineers in the United States possessing, modeling, or otherwise taking advantage of the '928 patented technology as part of their research and development endeavor. Rather, all or substantially all of the effort to connect the '928 bond pad to the U.S.-researched structures occurred overseas. ID at 139; CX-314C at Q. 53; CX-316C at Q. 140. What we are left with is that one goal of the '928 patent is faster communication,<sup>25</sup> and that Realtek's U.S. research is directed to achievement of the same goal in other unrelated manners. Accordingly, we find that Realtek did not demonstrate an investment in the United States of the '928 patent's exploitation.

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<sup>25</sup> The '928 patent also teaches other goals of the invention. *See, e.g.*, '928 patent col. 2 lines 17-20 ("[W]e know that the prior arts . . . are unable to propose an effective solution that aims for the high frequency, low noise and bonding adherence.").

Third: Had a nexus between the domestic industry articles and the '928 patent been shown, we next would have had to consider whether Realtek's domestic investment is "substantial" as required by section 337(a)(3)(C). Because we have found that there is no nexus, we need not reach whether Realtek's domestic investment would have been substantial. Accordingly, we also do not decide whether, as Realtek contends, certain passages of the ID impermissibly make it more difficult for Realtek, as a foreign firm, to obtain relief at the Commission. As discussed earlier, we have vacated the ID's analysis of the economic prong. Whether the complainant is foreign or domestic does not affect the availability of relief at the Commission provided that sufficient qualifying domestic industry investments are made and the other statutory requirements are established.<sup>26</sup>

For the foregoing reasons, we find that Realtek did not meet the economic prong of the domestic industry requirement in this investigation.

#### **B. Technical Prong**

The ALJ found that the DI chips practice claims 1-3 and 6-10 but that no domestic industry exists because the DI practice invalid claims. ID at 185-86. With respect to claim 1-3 and 6-9, the parties agree that modification of the construction of the "lower electric-conduction layer" will not have any impact on the ALJ's technical prong findings as to these claims. *See*

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<sup>26</sup> To the extent that the ID interpreted the legislative history of the 1988 amendments to section 337 to expand relief at the Commission only as to universities and small businesses, ID at 135, 164, the ID overstates the effect of the legislative history. Such entities are certainly among the class of patent holders that may have benefitted from expansion of domestic industry in the 1988 amendments, but the plain language of the statute is not so limiting.

*e.g.*, Comp. Rev. Br. at 49-50; Resp. Rev. Br. at 6. The Commission affirms the ALJ's findings that the DI chips practice claims 1-3 and 6-9, but finds that the technical prong is met.<sup>27</sup>

In light of the Commission's modification of the ALJ's interpretation of the wherein clause of claim 10, the Commission modifies the ALJ's findings that the DI chips practice claim 10. Dr. Walker testified that the lower electric-conduction layer reduces noise by [ ] and that is a significant improvement in noise reduction. *See e.g.*, CX-313C, QQ. 259-260. Respondents have not challenged this testimony. Accordingly, the Commission finds that the lower electric-conduction layer of the DI chips results in a significant reduction in noise and thereby, practice claim 10 and satisfy the technical prong requirement.

## VIII. CONCLUSION

For the forgoing reasons, the Commission finds that no violation of section 337 has occurred.

By order of the Commission.



Lisa R. Barton  
Secretary to the Commission

Issued: August 22, 2014

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<sup>27</sup> The Commission notes that the correct finding when the DI products practice only invalid claims is that there is no violation of section 337, not that there is no domestic industry. *See e.g.*, *Certain Audiovisual Components and Products Containing the Same*, Inv. 337-TA-837, Comm'n Op. at 33 (March 10, 2014).



**CERTAIN INTEGRATED CIRCUIT CHIPS AND PRODUCTS 337-TA-859  
CONTAINING THE SAME**

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been served upon the following parties as indicated, on **8/22/2014**.



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