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Paper 17
Date Entered: April 5, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
Petitioner,

v.

BRADIUM TECHNOLOGIES LLC,
Patent Owner.

Case IPR2016-01897
Patent 9,253,239 B2

Before BRYAN F. MOORE, BRIAN J. McNAMARA, and
MINN CHUNG, *Administrative Patent Judges.*

McNAMARA, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

BACKGROUND

Microsoft Corporation ("Petitioner") filed a petition, Paper 2 ("Pet."), to institute an *inter partes* review of claims 1–25 (the "challenged claims") of U.S. Patent No. 9,253,239 B2 ("the '239 Patent"). 35 U.S.C. § 311. Bradium Technologies LLC ("Patent Owner") timely filed a Preliminary Response, Paper 9 ("Prelim. Resp."), contending that the Petition should be denied as to all challenged claims. We have jurisdiction under 37 C.F.R. § 42.4(a) and 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition "shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Having considered the arguments and the associated evidence presented in the Petition and the Preliminary Response, for the reasons described below, we institute *inter partes* review of claims 1–19 and 21–25.

REAL PARTIES IN INTEREST

The Petitioner identifies itself as the only real party-in-interest. Pet. 1.

PENDING LITIGATION

The Petition states that the '239 Patent and three other patents in the same family, U.S. Patent Nos. 7,139,794 B2 ('794 patent), 7,908,343 B2 ('343 patent), and 8,924,506 B2 ('506 patent), are being asserted against Petitioner in an on-going patent infringement lawsuit brought by Patent Owner in *Bradium Techs.* v. *Microsoft*, 1:15-cv-00031-RGA, filed January 9, 2015. Pet. 1–2. Petitioner states that Patent Owner asserted the '239 Patent for the first time in the aforementioned litigation by filing an amended complaint on March 11, 2016, and served the Petitioner with the amended complaint on March 14, 2016. *Id.* at 2. Petitioner also identifies the following petitions for *inter partes* review of the related patents:

• '794 patent: IPR2015-01432, instituted Dec. 23, 2015, final written decision finding claims 1 and 2 not unpatentable entered on Dec. 21, 2016, Notice of Appeal filed Feb. 21, 2017;[1]

• '343 patent:

IPR2015-01434, institution denied Dec. 23, 2015

IPR2016-00448, instituted July 25, 2016

• '506 patent:

IPR2015-01435, institution denied Dec. 23, 2015

IPR2016-00449, instituted July 27, 2016.

Id.

THE '239 PATENT (EXHIBIT 1001)

In the '239 Patent, large scale images are retrieved over network communication channels for display on client devices by selecting an update image parcel relative to an operator controlled image viewpoint to display on the client device. Ex. 1001, Abstract; 3:47–51. A request for an update image parcel is associated with a request queue for subsequent issuance over a communication channel. *Id*. at 3:51–54. The update image parcel is received in one or more data packets on the communications channel and is displayed as a discrete portion of the predetermined image. *Id*. at 3:54–60. The update image parcel optimally has a fixed pixel array size and may be

[1] The Petition was filed on September 30, 2016. We have included subsequent history information not available when the Petition was filed.

constrained to a resolution equal to or less than the display device resolution. *Id.*

The system described in the '239 Patent has a network image server and a client system where a user can input navigational commands to adjust a 3D viewing frustum for the image displayed on the client system. Ex. 1001, 5:26–55. Retrieval of large-scale or high-resolution images is achieved by selecting, requesting, and receiving update image parcels relative to an operator or user controlled image viewpoint. *Id.* at 3:48–51. When the viewing frustum is changed by user navigation commands, a control block in the client device determines the priority of the image parcels to be requested from the server "to support the progressive rendering of the displayed image," and the image parcel requests are placed in a request queue to be issued in priority order. *Id.* at 7:45–62.

On the server side, high-resolution source image data is pre-processed by the image server to create a series of derivative images of progressively lower resolution. *Id.* at 6:3–8. Figure 2 of the '239 patent is reproduced below.

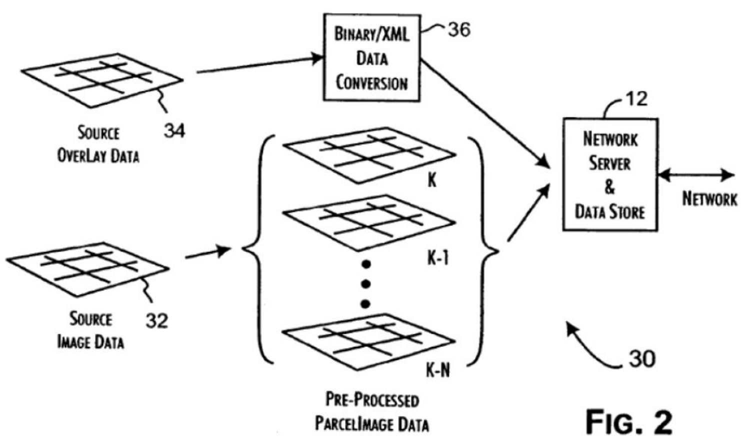

Figure 2 of the '239 Patent

Figure 2 of the ’239 Patent depicts preparation of pre-processed image parcels at the network image server. *See id.* at 4:57–60; 6:10. As illustrated in Figure 2, source image data 32 is pre-processed to obtain a series $K_{1\text{-}N}$ of derivative images of progressively lower image resolution. *Id.* at 6:6–8. Initially, the source image data—i.e., the series image K_0—is subdivided into a regular array of image parcels of a fixed byte size, e.g., 8K bytes. *Id.* at 6:8–13. In an embodiment, the resolution of a particular image in the series is related to the predecessor image by a factor of four while, at the same time, the array subdivision is also related by a factor of four, such that each image parcel of the series images has the same fixed byte size, e.g., 8K bytes. *Id.* at 6:14–18. In another embodiment, the image parcels are compressed by a fixed ratio—for example, the 8K byte parcels are compressed by a 4-to-1 compression ratio such that each image parcel has a fixed 2K byte size. *Id.* at 6:19–24. The image parcels are stored in a file of defined configuration, such that any parcel can be located by specification of a $K_{D,X,Y}$ value, representing the image set resolution index D and the corresponding image array coordinate. *Id*. at 6:24–28. The TCP/IP protocol is used to deliver image parcels, e.g., 2K-byte compressed image parcels, to the clients. *Id.* at 8:10–11, 17–19. For preferred embodiments, where network bandwidth is limited, entire image parcels preferably are delivered in corresponding data packets. *Id.* at 8:11–14. This allows each image parcel to fit into a single network data packet, which improves data delivery and avoids the transmission latency and processing overhead of managing image parcel data broken up over multiple network data packets. *Id.* at 8:14–17.

ILLUSTRATIVE CLAIM

Claim 1, reproduced below, is illustrative:

1. A method of retrieving images over a network communication channel for display on a user computing device, the method comprising steps of:

issuing a first request from the user computing device to one or more servers, over one or more network communication channels, the first request being for a first update data parcel corresponding to a first derivative image of a predetermined image, the predetermined image corresponding to source image data, the first update data parcel uniquely forming a first discrete portion of the predetermined image, wherein the first update data parcel is selected based on a first user-controlled image viewpoint on the user computing device relative to the predetermined image;

receiving the first update data parcel at the user computing device from the one or more servers over the one or more network communication channels, the step of receiving the first update data parcel being performed after the step of issuing the first request;

displaying the first discrete portion on the user computing device using the first update data parcel, the step of displaying the first discrete portion being performed after the step of receiving the first update data parcel;

issuing a second request from the user computing device to the one or more servers, over the one or more network communication channels, the second request being for a second update data parcel corresponding to a second derivative image of the predetermined image, the second update data parcel uniquely forming a second discrete portion of the predetermined image, wherein the second update data parcel is selected based on a second user-controlled image viewpoint on the user computing device relative to the predetermined image, the second user-controlled image viewpoint being different from the first user-controlled image viewpoint;

receiving the second update data parcel at the user computing device from the one or more servers over the one or more network communication channels, the step of receiving the second update data parcel being performed after the step of issuing the second request;

displaying the second discrete portion on the user computing device using the second update data parcel, the step of displaying the second discrete portion being performed after the step of receiving the second update data parcel;

wherein:

a series of K1-N derivative images of progressively lower image resolution comprises the first derivative image and the second derivative image, the series of K1-N of derivative images resulting from processing the source image data, series image K0 being subdivided into a regular array wherein each resulting image parcel of the array has a predetermined pixel resolution and a predetermined color or bit per pixel depth, resolution of the series K1-N of derivative images being related to resolution of the source image data or predecessor image in the series by a factor of two, and the array subdivision being related by a factor of two.

ART CITED IN PETITIONER'S CHALLENGES

Petitioner cites the following references in its challenges to patentability:

Reference	Designation	Exhibit No.
PCT Publication No. WO 99/41675 to Cecil V. Hornbacker, III, publ. Aug. 19, 1999	Hornbacker	Ex. 1003
Reddy *et al*., "TerraVision II: Visualizing Massive Terrain Databases in VRML," IEEE Computer Graphics and Applications March/April 1999, pp. 30–38	Reddy	Ex. 1004
U.S. Patent No. 6,728,960 B1 issued Apr. 27, 2004	Loomans	Ex. 1014

CHALLENGES ASSERTED IN PETITION

Claims	Statutory Basis	Challenge
1–20, 23–25	35 U.S.C. § 103(a)	Obvious over Reddy and Hornbacker
21, 22	35 U.S.C. § 103(a)	Obvious over Reddy, Hornbacker, and Loomans

CLAIM CONSTRUCTION

We interpret claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs. LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). In applying a broadest reasonable construction, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Data Parcel

Petitioner proposes that we construe the term "data parcel" as "data that corresponds to an element of a source image array." Pet. 12. Petitioner's proposed construction is the same construction we applied in *Microsoft Corp. v. Bradium Tech. LLC*, Case IPR2016-00448 and *Microsoft Corp. v. Bradium Tech. LLC*, Case IPR2015-01434. Patent Owner does not dispute this construction. Prelim. Resp. 6. *See Microsoft Corporation v. Bradium Tech. LLC*, Case IPR2014-01434, slip op (PTAB Dec. 23, 2015) (Paper 15, Decision Denying Institution). In this proceeding, we apply Petitioner's proposed construction.

Image Parcel

Patent Owner proposes that in this proceeding we adopt the same construction for "image parcel" as we adopted in *Microsoft Corp. v. Bradium Tech. LLC*, Case IPR2015-01432, i.e., "an element of an image array, with the image parcel being specified by the X and Y position in the image array coordinates and an image set resolution index." Prelim. Resp. 7. *See Microsoft Corporation v. Bradium Tech. LLC*, Case IPR2015-01432, slip op. at 7 (PTAB Dec. 21, 2016) (Paper 51, Final Written Decision). Petitioner does not propose a specific construction for this term. In this proceeding, we apply Patent Owner's proposed construction.

Mobile Device

Patent Owner proposes that we construe "mobile device" to mean "a portable small client such as a mobile phone, smart phone, or personal digital assistant (PDA) that is constrained to limited bandwidth." Prelim. Resp. 8. Petitioner does not propose a specific construction. Patent Owner argues that the Specification distinguishes between "mobile device" and "user computer device" based on their attributes, i.e., small clients are constrained to limited processing capabilities and working with limited bandwidth networks. *Id.* at 9–12; *see* Ex. 1001, 2:40–55, 3:10–19. The word "mobile" in the term "mobile device" suggests a device that is portable. The '239 Patent states "A mobile computing device such as a mobile phone, smart phone, tablet and or personal digital assistant (PDA) is a characteristic small client. Embedded, low-cost kiosk, automobile navigation systems and Internet enabled I connected TV are other typical examples." Ex. 1001, 2:53–58. The Specification of the '239 Patent further discusses the features of small clients. *Id.* at 2:49–53. In view of these disclosures, we are not persuaded that the term "mobile device" requires further construction for purposes of this proceeding.

ANALYSIS OF PETITIONER'S PRIOR ART CHALLENGES

Introduction

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Petitioner articulates its analysis of Reddy and Hornbacker for each of challenged claims 1–20 and 23–25. Pet. 13–58. Patent Owner explicitly disputes Petitioner's analysis of claims 20, 23 and 24, but does not provide an explicit analysis of the remaining claims, other than disputing the choice and the proposed combination of the prior art references. Prelim. Resp. 25–29, 34–38. Petitioner cites Reddy, Hornbacker and Loomans as rendering claims 21–22 obvious. Pet. 58–65. Patent Owner contends that Petitioner has not established Loomans is applicable prior art. Prelim. Resp. 23–25. Patent Owner also explicitly contends that the combination of Reddy, Hornbacker, and Loomans does not render claim 22 obvious. *Id.* at 29–34.

Patent Owner also argues that a person of ordinary skill would not have been motivated to combine the asserted references. *Id.* at 34–48.

Claims 1–20 and 23–25 As Obvious Over Reddy and Hornbacker

Petitioner states that Reddy discloses processing large sets of source image data to create a multiresolution image pyramid that can be viewed in three dimensions using an online web browser. Pet. 8 (citing Ex. 1004, Figs. 1–4 and associated text). Petitioner acknowledges that Reddy does not specify how requests for image tiles would identify locations and zoom levels of image tiles and cites Hornbacker as disclosing specific methods to implement the teachings of Reddy to identify specific needed tiles. *Id.* at 14. According to Petitioner, a person of ordinary skill would have been motivated to combine the teachings of Reddy and Hornbacker. Petitioner states that Reddy describes browsing techniques for requesting tiles based on user viewpoint and suggests that tiles may be located by HTTP requests directed to particular URLs. *Id.* at 20 (citing Ex. 1004, ¶¶ 21, 26, 52[2]). Noting that Reddy does not explain exactly how tiles are located, Petitioner contends that Hornbacker details techniques, such as the structure of an HTTP request for identifying a particular tile at a desired location and resolution, that a person of ordinary skill would recognize assist in requesting tiles in a 3D browser, as taught by Reddy. *Id.* at 20–21 (citing Ex. 1003, 5:16–6:19, 8:30–9:19, 11:19–28, Ex. 1005, Michalson Decl. ¶¶ 120–26).

[2] Petitioner has inserted paragraph designators in Reddy. We adopt Petitioner's paragraph designators in Reddy for consistency of notation in this proceeding.

As to the preamble of claim 1, i.e., a method of retrieving images over a network communication channel for display on a user communication device, Petitioner notes that Reddy discloses a system for retrieving terrain data sets including satellite and aerial imagery over the Internet with a standard Web browser on and displaying the images segmented into regions of different resolution on PC or laptop machine. Pet. 24.

Petitioner identifies as element 1A the limitation that recites a user computer issuing a first request to a server for an update data parcel corresponding to a first derivative image uniquely forming a first discrete portion of a predetermined image corresponding to source image data. *Id*. at 25. Petitioner cites Reddy's description of processing a predetermined image, such as satellite data, into a multi-resolution pyramid of derivative images using a series of K_1, K_2, . . . K_n progressively lower resolution derivative images and dividing the derivative images into tiles as disclosing this feature. *Id.* at 24–27. Reddy discloses that users can browse terrain data using a VRML plug-in for browsers, such as Netscape communicator or Microsoft Internet Explorer. Ex. 1004 ¶ 31. Petitioner states that Reddy describes retrieving image tiles ("geotiles") based on the user's selected view using a web browser and universal resource locators (URLs). Pet. 27–28.

Petitioner also cites Hornbacker as teaching that image data is represented by discrete derivation images at different resolutions and that tiles may be located via specialized URL requests that identify a tile by characteristics such as resolution and location. *Id.* at 28 (citing Ex. 1003, Abstract, 3:10–27, 5:16–25, 6:13–19, 7:26-8:6, 8:30–9:28, 10:24-28, 12:24–13:10 and 18:20–23). Thus, Petitioner argues that the problem addressed by

Reddy includes how to identify tiles desired to render a particular geographic view and that a person of ordinary skill would have looked to Hornbacker's disclosure of identifying image tiles using URLs based on tile coordinates and other viewing characteristics as an efficient way to specify needed tiles in Reddy. *Id*. at 29.

Petitioner identifies as element 1B the limitation that recites selecting the first update parcel based on a first user controlled image viewpoint on the user computing device relative to the predetermined image. *Id.* For this limitation, Petitioner cites Reddy's disclosure of a 2-D pan and zoom display or a 3-D simulated viewpoint chosen by the operator in which tiles of appropriate resolution are selected based on a user's proximity to the tile of a predetermined image. *Id*. at 29–30.

Petitioner identifies as limitation 1C the recitation of the user computing device receiving the first update data parcel from one or more servers over the communication channels after issuing the first request. *Id.* at 31. Petitioner cites as element 1D the recitation of displaying the first discrete portion on the user computing device on the first update data parcel after receiving the first update data parcel. *Id.* Petitioner cites Ex. 1005, Declaration of Dr. William R. Michalson ("Michalson Decl.") ¶¶ 147–148) and argues that a person of ordinary skill would recognize that in Reddy the image tiles (update data parcels) are received from a server following a request and before they are displayed. *Id.*

Petitioner identifies as element 1E the limitation that recites the user computer issuing over the network communication channels a second request for a second update parcel corresponding to a second derivative image of the predetermined image. Pet. 32. This limitation also recites that the second update data parcel uniquely forms a second discrete portion of the predetermined image and is selected based on a second user controlled image viewpoint of the user computing device relative to the predetermined image, that is different from the first user-controlled image viewpoint. *Id.* As Petitioner points out, this limitation differs from those elements identified as 1A and 1B only in that it recites a second request concerning a viewpoint different from that in the first request. *Id*. With respect to limitation 1E, Petitioner cites Reddy's description of zooming or flying over an image, with requests for imagery of appropriate location and zoom levels and more detailed tiles when a user approaches a region, as disclosing the claimed requests for retrieval of updated data parcels. *Id.* (citing Ex. 1004 ¶¶ 3, 36–38).

Petitioner identifies as limitation 1F the recitation of the user computing device receiving the second update data parcel from one or more servers over the communication channels after issuing the second request. *Id.* at 33. Petitioner cites as element 1G the recitation of displaying the second discrete portion on the user computing device on the second update data parcel after reeving the second update data parcel. *Id.* Petitioner notes that these limitations are disclosed by Reddy as discussed above with respect to limitations 1C and 1D. *Id.*

Petitioner identifies as limitation 1H the recitation of a series of $K_{1\text{-}N}$ derivative images of progressively lower resolution that comprise the first and second derivative images resulting from the processing of the source image data. *Id.* Petitioner cites Reddy's disclosure, discussed above, of processing an image as a multi-resolution pyramid of images by repeated down-sampling of image data to lower resolutions at each level, as supporting this limitation. *Id.* at 33–34 (citing Ex. 1004 ¶¶ 14–24, 41–46, Figs. 1–3). Petitioner cites Hornbacker as disclosing that view tiles are generated at a server by an image tiling routine that divides an image into a grid of smaller images that are computed further for distinct resolutions. *Id.*

Petitioner identifies as element 1I the series image K_0 being subdivided into a regular array and cites the disclosure in Reddy that each tile at a given level maps onto four tiles at the next higher level and the original image K_0 is subdivided in a regular array of 8x8 tiles, with the next two levels being divided into regular arrays of 4x4 and 2x2 tiles. *Id*. at 35. We agree with Petitioner that the disclosure in Reddy is substantially identical to that of the ’239 Patent’s disclosure of dividing source image data into derivative images of progressively lower image resolution. *See id.*

Petitioner identifies as element 1J the recitation that each resulting image parcel has a predetermined pixel resolution and a predetermined bit per pixel depth. *Id.* As Petitioner notes, similar to the ’239 Patent, Reddy discloses that the 64 tiles making up the 1024x1024 original image K_0 are each 128x128 pixels and that that within each pyramid “all tiles have the same pixel dimensions.” *Id*. (citing Ex. 1004 ¶¶ 15–16). Petitioner further cites Reddy’s disclosure of using known imagery formats, e.g. Portable Bitmap (PBM), to support its contention that a person of ordinary skill would recognize such formats as having a fixed color or bit pixel depth. *Id.* at 35–36. According to Petitioner, a person of ordinary skill would also know that the size of data representing an uncompressed tile is the product of the bit depth multiplied by the pixel dimensions. *Id.* at 36. Petitioner further cites Hornbacker as explicitly disclosing the use of tiles having a predetermined resolution and color or bit per pixel depth and that tiles preferably are fixed at 128x128 pixels image files. *Id.* at 36–37. Petitioner notes that fixed sized tiling provides a more efficient mechanism for caching, identifying and locating tiles. *Id.*

Petitioner cites as element 1K the recitation that resolution of the series $K_{1\text{-}N}$ of derivative images is related to resolution of the source image data or predecessor image in the series by a factor of two, and the array subdivision is related by a factor of two. *Id.* at 40. Petitioner cites Reddy's disclosure of progressive down sampling an image to produce layers at ¼ the resolution of the previous layer (i.e., ½ width x ½ height=1/4 resolution), noting that because all tiles have the same 128 x 128 pixel dimensions each progressively lower resolution layer image includes ¼ the number of tiles from the previous layer. *Id.* (citing Ex. 1004 ¶¶ 14–15). Based on the current evidence, we are persuaded by Petitioner's argument that this is the same factor of four relationship between images as that described in the preferred embodiment of the '239 Patent. Petitioner cites a similar disclosure in Hornbacker. *Id*. at 41 (citing Ex. 1003, 6:13–7:25, 8:7–15, 14:2–16).

Patent Owner does not dispute explicitly Petitioner's assertions concerning the disclosures in Reddy and Hornbacker. Based on the current record, we are persuaded that Petitioner has demonstrated the elements of claim 1 are disclosed in the asserted combination of Reddy and Hornbacker.

Claim 2 depends from claim 1 and additionally recites determining the first user controlled image viewpoint based at least in part on a first navigational input of the user computing device. Petitioner persuasively cites Reddy's teaching of using map and viewpoint displays, allowing a user to click on the map as a navigational input to move the viewpoint to that location. *Id.* at 42 (citing Ex. 1004 ¶¶ 3, 37). Claim 2 also recites preparing the first request by processing a control block of the user computer device based at least in part on the first user controlled image viewpoint. Claim 4 recites a similar limitation for the second user controlled image viewpoint. Petitioner notes that the ’239 Patent does not define precisely a “processing control block,” but describes an architecture preferably implemented by a software plug-in or application executed by the client. *Id.* at 43 (citing Ex. 1001, 7:8–11, Fig. 3), 45. Based on the current state of the evidence, we find persuasive Petitioner’s argument that Reddy’s disclosure of a geographic browser to request particular tiles based on navigational inputs renders this limitation obvious for purposes of institution.

Claim 3 depends from claim 2 and recites that the step of preparing the first request is performed based at least in part on altitude and attitude of the first viewpoint relative to the predetermined image. Petitioner persuasively cites Reddy’s exemplary scenario of a user zooming in from space, flying over mountains and approaching a target requiring an altitude and attitude image viewpoint. *Id.* at 43–45.

Claim 5 depends from claim 4 and recites preparing the first request based at least in part on 3 dimensional altitude and attitude of the first viewpoint relative to the predetermined image. Petitioner applies the same analysis to this claim as it applied to claim 3. *Id.* at 46. We further note that Reddy TerraVision includes 3D flythroughs. Ex. 1004 ¶ 38. As to claim 6, which depends from claim 5 and recites that the predetermined image is an image of a geographic area, we agree with Petitioner that Reddy discloses maps, aerial, and satellite imagery and digital elevation models of a region. Pet. 46.

Claim 7 depends from claim 5 and recites the first and second navigational inputs comprise first and second lateral x position data, lateral y position data, z height position data and rotational position data. Claim 8 depends from claim 5 and recites that the first and second navigational inputs comprise three dimensional coordinate data and rotational position data. As Petitioner notes and explains persuasively in more detail relative to claim limitation 1B, a person of ordinary skill would have recognized that displaying a perspective view from a viewpoint would require at least x, y, and z positional data, i.e., three dimensional coordinate position data, as well as direction of view, i.e., rotational data. *Id.* at 47–48 (citing Ex. 1005, Michalson Decl. ¶¶ 186–189; Ex. 1004 ¶ 37).

Claim 9 depends from claim 1 and recites that the first derivative image includes the second derivative image having a higher level of detail than the first derivative image. Similarly claim 10 depends from claim 1 and recites that the second derivative image includes the first derivative image having a lower level of detail than the first derivative image. Both claims 9 and 10 recite that the first request is issued before the second request. As Petitioner persuasively notes, Reddy discloses that when a user approaches a terrain region more detail is progressively loaded and displayed in a coarse-to-fine fashion. Pet. 48–50 (citing Ex. 1004 ¶¶ 12–17, Fig. 1).

Claim 11 depends from claim 1 and recites that the first derivative image does not include the second derivative image and the second derivative image does not include the first derivative image. Citing the declaration of Dr. Michalson, Petitioner persuasively argues that it would have been obvious to a person of ordinary skill that Reddy would request different derivative images for the original source, such as different tiles at the same zoom level, as the user moves through an image. *Id.* at 50–51 (citing Ex. 1005, Michalson Decl. ¶ 193).

Claims 12–19 recite various features comprising an overlay or overlay data, i.e., the first update parcel comprising overlay data for the first derivative image (claim 12), the overlay data comprising text annotation of streets or landmarks (claims 13 and 19), the overlay data comprising graphic data representing a three dimensional object (claim 14), the overlay data comprising graphics data describing at least one object in three dimensions (claim 15), the overlay data comprising one or more graphical icons (claim 16), a second overlay for a second derivative image (claim 17), the first and second overlay data in a resolution independent format (claim 18). As to these claims, Petitioner persuasively cites Reddy's disclosure of the use of overlay data. Pet. 51–53.

Claim 20 depends from claim 1 and recites the further step of determining priority of the first and second request. Petitioner cites Reddy's disclosure of a progressive coarse-to-fine algorithm to load and display new data and an algorithm that attempts to predict future movement by extrapolating the flight path and prefetching tiles as evidence of requests prioritized for tiles that are needed sooner. *Id.* at 54 (citing Ex. 1004 ¶¶ 21, 44, 46; Ex. 1005 Michalson Decl. ¶¶ 190, 205–206). Patent Owner contends that Reddy does not suggest determining the priority of requests and notes that Petitioner does not assert that Hornbacker teaches or suggests priority. Prelim. Resp. 25. The '239 Patent discloses a priority request queue and states that when a network thread becomes available, the pending requests in the queue are examined and the request with the highest priority is selected. Ex. 1001, 9:4–11. As a result, requests can be issued out of order depending upon an independently assigned request priority. *Id.* at 11–13. According to Patent Owner, Dr. Michalson's analysis assumes the missing priority element because not all tiles are received simultaneously, but there is no particular prioritization of requests disclosed in Reddy. Prelim. Resp. 27. Patent Owner characterizes paragraph 21 of Reddy as disclosing only that four higher resolution child tiles are loaded once a user crosses a proximity threshold for a particular tile, but that there is no priority assignment. *Id.* at 26. Patent Owner further argues that paragraph 44 of Reddy cited by Petitioner does not disclose determining request priority. We note that this portion of Reddy discloses only that if some high resolution tiles have not arrived, TerraVision uses the highest resolution data available to it, e.g., from a lower resolution terrain representation stored in memory. Ex. 1004 ¶ 44. Patent Owner further contends that the extrapolation of the user's flight path described in paragraph 46 of Reddy discloses nothing about the order of tile retrieval and that Reddy does not describe how to decide what resolution level of what location to download in what order. Prelim. Resp. 26–27 (citing Ex. 2003, Declaration of Dr. Peggy Agouris ("Agouris Decl.") ¶¶ 67–68). We agree with Patent Owner that paragraph 46 of Reddy discloses only prefetching tiles to be immediately available for rendering based on extrapolating a current flight path. Ex. 1004 ¶ 46. Other than such pre-fetching, there is no disclosure in Reddy that supports Petitioner's assertion of determining the priority of the first and second request. Therefore, we are not persuaded by Petitioner's arguments that the references disclose the priority feature recited in claim 20.

Claim 23 depends from claim 1 and recites that the user computing device is a mobile device. Petitioner argues that because Reddy discloses its system may be implemented on a browser on a laptop machine, Reddy is consistent with the disclosure in the ’239 Patent that the claimed invention can be implemented on “portable devices, such as PDAs, tablets, and webphones.” Pet. 55 (citing Ex. 1004 ¶ 48; Ex. 1001, 4:4–13). Petitioner further cites Hornbacker’s disclosure that its system can be implemented on a palm top computer that a person of ordinary skill would recognize as synonymous with a personal digital assistant (PDA). Petitioner further argues that Reddy and Hornbacker teach similar techniques using multi-resolution pyramids to download large sets of imagery over a limited bandwidth system and that a person of ordinary skill familiar with Reddy would also look to Hornbacker’s teaching of using graphical web browsers on client systems to request and retrieve image tiles and that the tiled format of Hornbacker is useful in a low bandwidth environment. *Id.* at 55–56.

Patent Owner contends that Reddy discloses TerraVison II and a lesser-function browser, with only the lesser-function browser working on a laptop, and contends that a person of ordinary skill would understand that TerraVision’s customized software is designed in the context of a graphics workstation connected to high speed ATM networks with high speed disk servers. Prelim. Resp. 34. According to Patent Owner, a person of ordinary skill would understand that the PC referenced in Reddy is a high end computer that requires a fast network to achieve real-time performance and is neither portable nor small. *Id.* at 35–36. Patent Owner also notes that a standard VRML browser on a laptop machine is distinct from the TerraVision II browser and does not include a progressive coarse-to-fine algorithm, a functionality that Petitioner cites. *Id.* at 36 (citing Ex. 2001, 4–

5 ("Digital Earth") as evidence of the difference and the enhanced capabilities TerraVision provides).

Digital Earth states a VRML browser will display a 3-D scene and that certain objects can be defined as hyperlinks so that when the user clicks over them, an action is performed, such as loading a new VRML scene or displaying an HTML page. Ex. 2001, 4. Digital Earth also states that TerraVison offers performance advantages over a standard VRML browser, for example, culling is performed using a fast quad-tree search of the multi-resolution hierarchy. *Id.* However, Digital Earth notes that it is feasible that some of the features discussed "could be implemented for a standard VRML browser through the use of various Java scripts embedded in the scene, or running externally to the browser." *Id.* According to Digital Earth,

> it is clear that VRML introduces an attractive scalability feature to our proposal. If the resources are available, then a user can use TerraVision running on a fast graphics workstation to quickly and intuitively navigate around the digital earth. Alternatively, these same data can be accessed from a laptop machine with a standard VRML browser.

Ex. 2001, 4–5. In view of these statements in Digital Earth, for purposes of institution, we find Petitioner's arguments persuasive.

Claim 24 depends from claim 1 and recites that the one or more servers comprises at least two servers. Petitioner contends that a person of ordinary skill would recognize that Reddy would be suited to retrieving geographic information from one or more servers because multiple sources of data are used to composite different information sources in the military and disaster relief scenarios mentioned in Reddy, or because a large terrain database is stored in a distributed manner over multiple servers. Pet. 56–57 (citing Ex. 1005, Michalson Decl. ¶¶ 211–212). Patent Owner correctly notes that Petitioner has not cited any explicit teaching in Reddy or Hornbacker of this claim element. Prelim. Resp. 28. Patent Owner contends that Petitioner's expert, Dr. Michalson, does not explain why it would have been obvious that TerraVision is stored in a distributed manner over multiple servers beyond stating that it is a simple matter of load balancing. *Id.* at 29. However, we recognize that a person of ordinary skill is also a person of ordinary creativity. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420–421 (2007). For purposes of this Decision, we are persuaded by Petitioner's and Dr. Michalson's explanation that a person of ordinary skill in the art would have considered using multiple servers to interactively retrieve data from a large terrain database. However, we recognize that Petitioner has not identified specific disclosure that supports its assertion that such an approach would be appropriate with TerraVision or how such an approach would be implemented. We also recognize that claim 24 does not recite details of how one or more servers would be incorporated into the claimed invention.

Claim 25 depends from claim 1 and recites that each image parcel is of a fixed byte size. Petitioner points out that Reddy teaches an uncompressed tile, for example 128x128 pixels (16,384 pixels) with a b-bit RGB color (one byte for each of three colors would occupy 49 Kbytes (8 bits.byte) and discloses the data parcel size for each tile is the same, citing examples where 10 tiles occupy 429 K bytes. Pet. 57. Petitioner further cites Hornbacker's disclosure of the use of GIF compression with a fixed size (for monochrome tiles before compression) of 2KB and notes that a person of ordinary skill would have recognized the same principles apply to grayscale and color images, such that the use of constant pixel resolution and constant bit depth results in constant size on disk for a data parcel.

Motivation to Combine Reddy and Hornbacker

Petitioner argues a person of ordinary skill in the art would have been motivated to combine the references because Reddy and Hornbacker address common technical issues in visualizing large amounts of data obtained over a network using a client device with much smaller memory than the data base that stores the imagery data, i.e., Hornbacker's disclosure of using HTTP requests based on position and level of detail are readily applicable to online mapping references like Reddy. *Id.* at 21–22. As additional support for its position that a person of ordinary skill would be motivated to combine the teachings in Reddy and Hornbacker, Petitioner cites the similarity of the navigation methods taught in the two references. *Id.* at 22. According to Petitioner, Hornbacker discloses a client browser that enables the user to change view by clicking on an area of the image to send a specific request to the server to deliver a different area of a drawing or change image resolution in a manner that is similar to the "flyover" techniques disclosed by Reddy. *Id.* Petitioner emphasizes that both Hornbacker and Reddy utilize a client web browser to request specific image tiles from the server based on client inputs. *Id.*

Patent Owner contends that a person of ordinary skill would not have been motivated to combine the teachings of Reddy and Hornbacker because the document source materials addressed by Hornbacker impose technical constraints that are different from those imposed by the GIS data addressed by Reddy, and because Hornbacker and Reddy take different and incompatible technical approaches. Prelim. Resp. 17, 41–42. Patent Owner contends that Reddy uses specialized client-based image viewing software in which tiles are pre-computed and shared among all the clients, in contrast to Hornbacker, which operates through HTTP requests from a web browser specifically to avoid client workstation image view software. *Id.* Patent Owner contends that Hornbacker's server responds to each user request by creating tiles on demand—a computationally intensive process that a person of ordinary skill would not employ in the context of a real-time flyover application. *Id.* at 18 (citing Ex. 2003, Declaration of Dr. Peggy Agouris ("Agouris Decl.") ¶ 53). According to Patent Owner, Hornbacker does not describe client-side processing beyond noting that the workstation will connect with the server through a web browser. *Id.* at 44. We note, however, that Hornbacker discloses "to implement progressive display, algorithms at the client are provided to accept an alternate data format that would allow the whole document viewing area screen to take advantage of the progressive display while still taking advantage of the benefits of tiling and caching at the client." Ex. 1003, 12:30–13:3. Hornbacker further states "[b]y using client software to enhance the client viewer, additional enhancements to performance can be made by using alternate tile image formats and image compression algorithms." *Id.* at 13:4–6.

Patent Owner further contends that a person of ordinary skill would not have looked to Reddy to achieve the invention claimed in the '239 Patent because the prior art, such as MapQuest and MapOnUs, taught it was sub-optimal for an internet server to precompute and serve many smaller images at lower and original resolution. *Id.* at 38. Patent Owner argues that the need to serve a brand new image for each pan/zoom request resulted in visual discontinuities, that bandwidth limitations resulted in responses significantly slower than real time, that smaller images required a small, fixed size viewing window, and that using multiple smaller images sending a lower resolution and then a new higher resolution image was inefficient because it was redundant. *Id.* at 38–39. According to Patent Owner, well known progressive transmission was understood to be more time efficient and Hornbacker recommends that a progressive transmission algorithm be used to increase performance. *Id.* at 40.

Patent Owner further contends that Petitioner has used the ’239 Patent itself as a roadmap to combine parts of TerraVision II described by Reddy with the non-VRML system of Hornbacker to create an image viewing client that operates on limited bandwidth communication devices. *Id*. at 41.

Based on the evidence before us at this stage of the proceeding and, for purposes of institution, weighing testimony as to disputed material issues of fact in favor of Petitioner (37 C.F.R. § 42.108(c)), we are not persuaded by Patent Owner’s arguments that a person of ordinary skill would not have been motivated to combine the teachings of Reddy and Hornbacker. Reddy recognized that the size of terrain models rendered real-time interaction with then current VRML browsers impractical and addressed this problem by incorporating techniques to manage the level of detail based on selection criteria, such as distance from the viewpoint or projected screen size. Ex. 1004 ¶¶ 12–13. Using a tiled pyramid representation (i.e., a multiresolution hierarchy for a data set) for geometry and imagery, in which distant imagery is rendered at lower resolution than near imagery, Reddy sought to optimize the amount of data transferred over a network. *Id.* ¶¶ 15–17. According to Reddy “we need only fetch and display data for the region that the user is viewing, and only at a sufficient resolution for the viewer’s viewpoint.” *Id.*

¶ 17. To implement its multiresolution hierarchy, Reddy employs tree files that initially load a single geotile, but when the user approaches the tile, that tile is replaced by four higher resolution tree files, which in turn inline the geotiles for four quad tree children. *Id*. ¶ 19. Tree files need only be generated once. *Id.* Reddy discloses using a VRML inline node to include the geotile files in the level of detail hierarchy, noting that VRML 97 does not specify when the Universal Resource Locator (URL) of an inline node should be loaded and is a browser dependent feature. *Id.* ¶ 21. Recognizing that, except for small scenes with a small number of inline nodes, loading all inline scenes at once is unacceptable for Reddy's application, Reddy discloses the QuadLOD node to provide terrain specific level of detail capability. *Id.* When a user enters a certain volume around the tile, as determined by a proximity sensor, QuadLOD loads only a tile's four higher resolution children. *Id.* When the user approaches a region of terrain, more detail is progressively loaded and displayed in a coarse-to-fine fashion. *Id.* Reddy also discloses a tile caching mechanism so that tiles are not needlessly reloaded. *Id.* Thus, in contrast to Patent Owner's characterization of Reddy discussed above, Reddy, like Hornbacker, recognizes the usefulness of a progressive transmission algorithm to improve performance.

Patent Owner contends that in contrast to Hornbacker's file nomenclature, Reddy does not generate URLs, but instead manages the display screen and how to render tiles through proximity and viewpoint. Prelim. Resp. 45. Petitioner acknowledges this point and cites Hornbacker as disclosing a system for specifying and locating tiles that improves on the similar system of Reddy, i.e., as disclosing requesting individual tiles using a scheme that identifies a tile by scale and position (row and column) within the larger picture and incorporating that identifying information into the URL sent by the client to the server. Pet. 1, 23.

Petitioner notes that Reddy and Hornbacker both address common technical issues in visualizing large amounts of data obtained over a network using a client viewing device with smaller memory than the database that stores the imagery data. Pet. 21. Although Patent Owner emphasizes that Hornbacker manages images as digital documents (Prelim. Resp. 17; Ex. 1003, 12:10–16), Petitioner emphasizes the similarities in the navigation methods, with both Reddy and Hornbacker utilizing a client browser to request image tiles from the server based on client inputs. Pet. 22. In Hornbacker, the server pre-computes view tiles that may be required in the next view request and stores view tiles for frequently accessed images in a cache while placing infrequently accessed tiles in a garbage collector in case storage allocation is exceeded. Ex. 1003, 7:26–8:6, 11:9–18. In Reddy, a server generates tree files to access tiles. Ex. 1004 ¶ 21. Both Reddy and Hornbacker disclose accessing the server via a web browser resident on a client. Ex. 1003, 5:16–21; Ex. 1004 ¶¶ 21, 31. As discussed above, both Reddy and Hornbacker disclose a progressive display. Ex. 1003, 12:28–13:10; Ex. 1004 ¶ 21. Reddy identifies the next tiles to be accessed using a proximity detector, whereas Hornbacker requests an image view by specifying a scale and a region with a specially formatted URL. Ex. 1004 ¶ 21; Ex. 1003, 5:16–21, 8:30–10:2. In view of the above, we are persuaded that for purposes of institution, Petitioner has articulated a rational basis with reasoned underpinning for its assertion that one of ordinary skill would have been motivated to incorporate into Reddy Hornbacker's identification of tiles by URL.

Claims 21 and 22 as Obvious Over Reddy, Hornbacker, and Loomans

Claim 21 depends from claim 1 and recites issuing the first and second requests and receiving the first and second update parcels in first and second threads executed at least in part concurrently. Petitioner acknowledges that Reddy does not state explicitly that separate threads are used to retrieve separate data parcels, but contends that Reddy teaches most VRML browsers perform non-blocking network reads so that a user can interact with a scene while higher imagery downloads and that the browser is multi-threaded. Pet. 59 (citing Ex. 1014 ¶¶ 21, 41). Petitioner's expert, Dr. Michalson, states that on the filing date of the application that matured into the '239 Patent, multi-threading was known and supported in programming languages used in browsers, such as Java, and, in particular, was known in the context of three-dimensional image browsers, so that a person of ordinary skill would have looked to the use of multi-threading to address Reddy's problem of retrieving numerous tiles over a network without compromising interactivity. *Id.* at 58–59 (citing Ex. 1005, Michalson Decl. ¶¶ 221–222; Ex. 1016[3], 1:3–5, 3:4–14, 4:11–16, 6:13–22). Reddy states that "TerraVison II is a multi-threaded application written in ANSI-C. . . designed for the sole purpose of rendering large geographic databases in real time." Ex. 1004 ¶ 41.

Petitioner cites Loomans as teaching techniques for use in a web browser to utilize multiple threads to retrieve simultaneously different items

[3] European Patent Application EP 1 070 290 B1 filed Feb. 12, 1998; Int'l. Publ. No. WO 1999/041675 ("Austreng").

from a server. Pet. 60 (citing Ex. 1014, Abstract, 3:50–62, 4:48–57, 10:8–16; Ex. 1005, Michalson Decl. ¶ 224). Although Loomans discloses an e-commerce example, Petitioner argues Loomans' teachings as generally applicable to managing multiple threads in an asynchronous environment, such as a browser. *Id.* at 59–60. Petitioner notes that Loomans states multi-threaded browsing techniques are "well suited for any low bandwidth system in which user interactivity is a prime consideration." *Id.* at 60 (quoting Ex. 1014, 6:22–24).

Patent Owner contends that Petitioner has not established Loomans is prior art because Petitioner did not demonstrate that the disclosure it cites in Loomans, which was filed on November 17, 1999, was included in the November 18, 1998 provisional application from which Loomans claims priority. Prelim. Resp. 23. The '239 Patent issued from an application filed on November 19, 2014 and is a continuation of Appl. No. 13/027,929, now issued as U.S. Patent 8.924,506 ("the '506 patent"). The '506 patent is the subject of IPR2016-00449. Patent Owner states that in IPR2016-00449, Petitioner's expert admitted that the claims of the '239 Patent are entitled to a priority date of October 1999 because Dr. Michalson admitted that the '506 patent is entitled to the October 1999 date. *Id.* at 23–24. Patent Owner mischaracterizes Dr. Michalson's testimony. Dr. Michalson stated

> The discussion of the technology background includes an overview of that technology as it was known before October 1999, which I understand as *the earliest invention date of the 506 Patent claimed by the inventors* in their inventor declarations submitted to the USPTO during the original prosecution of the 506 Patent's grand-parent patent, U.S. Patent No. 7,644,131.

Microsoft Corp. v. Bradium Tech. LLC, Case IPR2016-00449, Ex. 1005 ¶ 3 (emphasis added). Thus, Dr. Michalson acknowledged Petitioner's claim to the October 1999 date and directed his testimony to technology known before that time, but Dr. Michalson did not admit that Patent Owner is entitled to the claimed October 1999.

Patent Owner also cites the declaration of inventor Issac Levanon and a number of additional applications in the priority chain that cite to other declarations submitted during prosecution of the various patents under 37 C.F.R. § 1.131 as evidence that Patent Owner is entitled to the October 1999 priority date. Prelim. Resp. 24 (citing Ex. 2002). In IPR2016-00449, Mr. Levanon was noticed for a deposition to take place on March 2, 2017. *Microsoft v. Bradium*, Case IPR2016-00449, Paper 32 (Feb. 14, 2017). It is not clear whether Patent Owner's claim to priority back to October 1999 issued was addressed at that time. Although dates of documents that support the claimed subject matter and the relevant disclosure in Loomans potentially will be an issue in this proceeding, at this stage, in the absence of cross-examination, all that can be determined is that the filing date of the '239 Patent is later than the filing date of Loomans. Therefore, we are not persuaded by Patent Owner's argument that Loomans is not citable for purposes of institution.

Patent Owner does not respond directly to the technical substance Petitioner contends is disclosed in Reddy, Hornbacker and Loomans concerning the subject matter recited in claim 21. Claim 22 depends from claim 1 and recites issuing third and fourth requests from the user computer over the network communication channels for third and fourth update data parcels in a manner similar to that of claim 1, in which the first, second, third, and fourth requests are part of first, second, third, and fourth threads executed at least in part concurrently. Petitioner cites the teaching in

Loomans of techniques for optimizing multiple threads, provides an example of two threads retrieving data for separate pages and claims that "at least" two threads are executed concurrently. Pet. 64. According to Petitioner, a person of ordinary skill would recognize that the concurrent multi-threading techniques taught be Loomans would be applicable to multiple threads.

Although Patent Owner argues that Hornbacker does not teach or suggest multiple threads to download and request update parcels, Petitioner does not rely on Hornbacker for this teaching. Prelim. Resp. 30. As to Reddy, Patent Owner argues that claim 22 recites four threads and that the '239 Patent explains the choice of four threads is based on an empirical determination of the ability to support relatively continuous delivery of image parcels based on available resources, but that Reddy does not explain why four threads would be optimal for TerraVision II. *Id.* at 31 (citing Ex. 1001, 8:41–56). Patent Owner is correct that Reddy does not specify four threads, but Reddy does disclose a multi-thread system without limitation as to the number of threads. Ex. 1004 ¶ 41. As to Loomans, Patent Owner argues that Loomans does not teach or suggest the use of its threading system to send and receive data parcels in parallel to display discrete portions on a user computer device. Prelim. Resp. 31. However, as discussed above, Petitioner cites Reddy as disclosing sending and receiving data parcels. Noting that the '239 Patent claims four threads used for update data retrieval, Patent Owner argues that Loomans does not disclose the use of "at least two threads" for issuing requests and receiving update data parcels, but instead Loomans discloses the use of multithreading to manage user interaction as well as data. *Id.* We note Dr. Michalson's testimony that multi-threaded browsers existed as early as 1995, that Austreng demonstrates it was known in 1998 that one thread may be displaying a Web page, while a second thread is downloading other images to display, and that Reddy discloses VRML performing non-blocking network reads permitting user interaction with a scene at the same time higher resolution imagery downloads. (Ex. 1005, Michalson Decl. ¶¶ 220–223 (citing Ex. 1004 ¶ 21; Ex. 1016, 6:17–22). In view of these disclosures and based on the current evidence, we are persuaded that Petitioner has demonstrated sufficiently that the features recited in claim 22 are taught or suggested by the combination of Reddy, Hornbacker, and Loomans, and has articulated a rational basis with reasoned underpinning that one of ordinary skill would have been motivated to combine these teachings.

SUMMARY

For the reasons discussed above, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it will succeed on the following challenges to patentability:

Claims 1–19 and 23–25 as obvious under 35 U.S.C. § 103(a) over the combination of Reddy and Hornbacker; and

Claims 21 and 22 as obvious under 35 U.S.C. § 103(a) over the combination of Reddy, Hornbacker, and Loomans.

We are not persuaded that Petitioner has demonstrated a reasonable likelihood it will prevail in its challenge to claim 20.

ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314(a) an *inter partes* review of the ’239 Patent is hereby instituted, commencing on the entry date of this

Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

FURTHER ORDERED that the trial is limited to the following grounds and no other grounds are authorized:

Claims 1–19 and 23–25 as obvious under 35 U.S.C. § 103(a) over the combination of Reddy and Hornbacker; and

Claims 21 and 22 as obvious under 35 U.S.C. § 103(a) over the combination of Reddy, Hornbacker, and Loomans;

FURTHER ORDERED that the trial will be conducted in accordance with the accompanying Scheduling Order. In the event that an initial conference call has been requested or scheduled, the parties are directed to the Office Trial Practice Guide, 77 Fed. Reg. 48756, 48765–66 (Aug. 14, 2012), for guidance in preparing for the initial conference call, and should come prepared to discuss any proposed changes to the scheduling order entered herewith and any motions the parties anticipate filing during the trial.

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