UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SONY CORPORATION
Petitioner

v.

YISSUM RESEARCH DEVELOPMENT COMPANY OF THE
HEBREW UNIVERSITY OF JERUSALEM
Patent Owner

Case No. IPR2013-00219 (SCM)[1]

Patent No. 7,477,284
Issue Date: Jan. 13, 2009
Title: SYSTEM AND METHOD FOR CAPTURING AND VIEWING
STEREOSCOPIC PANORAMIC IMAGES

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PETITIONER'S RESPONSE TO PATENT OWNER'S

MOTION FOR OBSERVATION REGARDING CROSS-EXAMINATION

OF PETITIONER'S REPLY WITNESS DR. TREVOR DARRELL

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[1] The IPR2013-00327 proceeding has been joined with this proceeding.

Pursuant to the Board's Scheduling Order, *see* Paper No. 17, Petitioner Sony Corporation responds to Patent Owner's Motion for Observation, Paper No. 43 ("Observations").

III. Response to Kawakita Observations

1. Response to Paragraph 1: Regarding YRD-2007 (Lion Statue Anaglyph)

Prof. Darrell did not testify that he was unable to fuse parts of YRD-2007 solely because of "printing artifacts and other normal reproduction issues." Observations at ¶ 1. He merely said that he had "*less* problem fusing the example on the web than . . . this particular printing because of the printing artifacts and other reproduction issues." YRD-2014 at 17:9-16 (emphasis added). He further testified that he viewed YRD-2007 both at his prior deposition and on the Internet, and he would be unable to fuse elements of YRD-2007 "for any viewing of this image in any display." YRD-2014 (Darrell Tr.) at 14:24 – 15:10. Although he testified that his "perception of stereo has never been a strong one," his observations are entitled to greater weight than Prof. Essa's, who testified that was unable to stereoscopically view YRD-2007 at all. Sony-1043 at 106:3 – 107:7. Moreover, Prof. Darrell's conclusion that an image is stereoscopic "even if stereo fusion is not possible as to all objects" is supported by the well-known principle that disparity depends on object distance as well as the baseline, and, therefore, "a stereoscopic image pair can provide a perception of depth for objects that are within a given range of distances from the image recording

position, but not for objects that are closer or farther away." Sony-1044 at ¶ 21 (see

also ¶ ¶ 10, 13).

   **2. Response to Paragraph 2: Regarding YRD-2013, Kawakita Translation
   Produced to Patent Owner in I.T.C. Investigation.**

The questioning on YRD-2013 was irrelevant because Patent Owner waived any

objection or argument about the accuracy of the Kawakita translation (Sony-1004)

submitted with the Petition (and Patent Owner still has not contended that Sony-1004

is inaccurate).[2] Nevertheless, YRD-2013 is consistent with Sony-1004 in all relevant

aspects. In particular YRD-2013 is consistent with Sony-1004 in stating that

adjustment of the pair of panoramic images for viewing is only required in two

exceptional circumstances ("when positioned at relatively close distances, or when the

distance from the camera to the subject changes greatly"). Moreover, although YRD-

2013 does not use the term "faithful" stereoscopic viewing, it uses other equivalent

terms. Specifically, YRD-2013 characterizes the adjustment as being necessary for

"normal stereo vision" and so that "the sense of depth could be properly reproduced.

YRD-2013 at pp. 6, 8. Prof. Darrell testified that the terms "normal" and "proper"

express the same concept as "faithful." YRD-2014 at 139:19 – 140:3; 140:22 –

141:11; 142:5-21.

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[2] Petitioner more fully discusses the lack of relevancy of YRD-2013 in its Motion to

Exclude Evidence, Paper No. 44.

IV. Asahi Observations

3. Response to Paragraph 3: Regarding "99 percent overlap."

Patent Owner's argument that Asahi teaches extracting a single forward, middle, rearward line from "frames" (more properly, field images) that overlap by 60% is not based on any testimony of Prof. Darrell, or even of Prof. Essa. And, the argument is incorrect. Asahi describes selecting *entire* field images that overlap by 60% in order to determine "exterior orientation elements," which is part of the orientation calculation process of step S2 of Asahi's method. Sony-1010 at [0029-0030]. Patent Owner conflates that process with the "continuous mosaic creation process" of step S3. Sony-1010 at [0034-0035]. In creating the mosaic images, "the leading line, the middle line, and the final line of *each field*" (not just fields that overlap 60%) is used, respectively, to create the forward view image, nadir view image and rearward view image. Sony-1010 at [0035]. Asahi explains that video is captured at 30 frames per second and each frame consists of an odd and even field. Sony-1010 at [0034]. Prof. Darrell testified that the "frame rate would be high enough so that you didn't miss parts of the scene as you extracted those lines." YRD-2014 at 108:9-16.

4. Response to Paragraph 4: Regarding YRD-2012 Asahi Translation produced to Patent Owner in I.T.C. Investigation.

The questioning on YRD-2012 is irrelevant because Patent Owner waived any objection or argument about the accuracy of the Asahi translation (Sony-1010) submitted with the Petition (and Patent Owner still has not contended that Sony-1010

is inaccurate).[3] Moreover, YRD-2012 actually refutes Patent Owner's principal argument that Asahi describes creation of the mosaic images only for calculating height. The sentence in YRD-2012 that Patent Owner cites states that "a 3D image can be *shown to the viewer*." YRD-2012 at [0035] (emphasis added). Prof. Darrell testified that this sentence expresses the same concept as the sentence in Sony-1010 that states that "stereoscopic viewing is possible." YRD-2014 at 125:8-15.

5. Response to Paragraph 5: Regarding YRD-2012.

The questioning on YRD-2012 is irrelevant because Patent Owner waived any objection or argument about the accuracy of the Asahi translation (Sony-1010) submitted with the Petition (and Patent Owner still has not contended that Sony-1010 is inaccurate).[4] Moreover, Prof. Darrell testified that the term "3D image" could "mean a lot of different things," including a stereoscopic display of an image." YRD-2014 at 126:12-18. Prof. Darrell further testified that he believed that in the sentence Patent Owner cites, the 3D image is a "stereoscopic 3D image" and that his opinion was not changed based on the different wording from Sony-1010. YRD-2014 at 128:16 – 129:2.

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[3] *See supra* fn. 2.

[4] *See supra* fn. 2.

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