IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

INTELLECTUAL VENTURES I LLC, et al.,	)	
Plaintiffs,	)	
v.	)	Civ. No. 11-792-SLR
CANON INC., et al.,	)	
Defendants.	)	

MEMORANDUM ORDER

At Wilmington this 10th day of April, 2014, having heard argument on, and having reviewed the papers submitted in connection with, the parties' proposed claim construction;

IT IS ORDERED that the disputed claim language of United States Patent Nos. 5,754,348 ("the '348 patent"), 6,121,960 ("the '960 patent"), 6,221,686 ("the '686 patent"), 6,023,081 ("the '081 patent"), 6,979,587 ("the '587 patent"), and 7,365,298 ("the '298 patent") shall be construed consistent with the tenets of claim construction set forth by the United States Court of Appeals for the Federal Circuit in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005), as follows:

1. The '348 Patent

a. "Selecting for magnification a selected region of an original image in the graphical user interface:"[1] "Choosing which part of the image on the screen to magnify." By plain English syntax, the phrase "in the graphical user interface" modifies

[1]Claim 1.

"original image" (i.e., the image seen on the screen of the device), it does not modify "selecting" and, therefore, does not support defendants Canon Inc. and Canon U.S.A., Inc.'s (collectively "Canon") attempt to import a "user selection" limitation.

Although the specification explains that a selected region will have a position determined by a "user-controlled pointing device," the claim language is not directed to **how** the selected region is identified (by a user through the interface versus a microprocesser), but is instead directed to **what** is selected, that is, a region of an original image in the graphical user interface. The same phrase "in the graphical user interface" is seen again in the next limitation for the same purpose: "superimposing on the original image a floating plane region in the graphical user interface containing a magnified image of the selected region," i.e., the magnified region of the selected region is found in the graphical user interface. Indeed, the claim is directed to "a method of digital image magnification **in a graphical user interface;**" to read the phrase differently for the first limitation would be against the tenets of claim construction.

b. "Floating Plane:"[2] "A window over a digital image that contains a magnified image of a region of the digital image." This construction is consistent with the specification. ('348 patent, col. 1:59-66) Although the parties agree that this limitation reads on a preferred embodiment wherein the floating plane region moves as the selected region is moved, so long as the claim is construed broadly enough to encompass the preferred embodiment, the Federal Circuit has rejected the contention

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[2]Claim 1.

that the claim should be limited to such. *See Phillips*, 415 F.3d at 1323.

2. The '960 Patent

a. "Logical operators to provide different blending/merging effects:"[3] "Logic functions that determine the pixels that originate from the key image and pixels that originate from the main image." This is consistent with the specification and the language of the claims. (*See* '960 patent, cols. 4:32-5:37; 12:24-28) The court rejects Canon's attempt to import limitations into the claim from the embodiment described in the specification.

b. "Clear space around a blended area to highlight the area of blending:"[4] This claim is invalid under § 112 ¶¶ 1 and 2 as lacking written description[5] and is indefinite.[6] The clear space limitation is not found in the '960 patent, other than in claim 12 itself and, therefore, a person of ordinary skill would not understand the scope of the claim. The description in the specification, identified by plaintiffs

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[3]Claim 1.

[4]Claim 12.

[5]The written description must "clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (citation omitted) (internal quotation marks omitted); § 112 ¶ 1. "In other words, the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Id.* (citations omitted).

[6]"A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." *Personalized Media Comm., LLC v. Int'l Trade Com'n*, 161 F.3d 696, 705 (Fed. Cir. 1998). "Determining whether a claim is definite requires an analysis of whether one skilled in the art would understand the bounds of the claim when read in light of the specification . . . ." *Id.* (citing *Miles Lab., Inc. v. Shandon, Inc.*, 997 F.2d 870, 875 (Fed. Cir. 1993)).

Intellectual Ventures I, LLC and Intellectual Ventures II, LLC (collectively "IV"), which states that "a color difference can be imparted to the pixels of either the keyboard overlay or the underlying image, or both, to highlight the difference between the two," does not provide any indication as to the meaning of the "clear space" as recited in claim 12. (*See* '960 patent, col. 4:14-16)

c. "A computing device for providing a main image"[7] and "means for computing, the means for computing providing a main image:"[8]

i. Applicability of § 112, ¶ 6

A claim limitation that "contains the word 'means' and recites a function is presumed to be drafted in means-plus-function format under 35 U.S.C. § 112, ¶ 6." *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1366 (Fed. Cir. 2008). To avoid the application of § 112, ¶ 6 when a claim recites the term "means," it must "specif[y] the exact structure that performs the functions in question." *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259-60 (Fed. Cir. 2008).

Where the claim language does not recite the term "means," there is a presumption that the limitation does not invoke § 112, ¶ 6. *Personalized Media Commc'ns, LLC v. ITC*, 161 F.3d 696, 702 (Fed. Cir. 1998). This presumption can be overcome if the challenger demonstrates that "the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *CCS Fitness v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed.

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[7]Claim 1.

[8]Claim 26.

Cir. 2002) (internal citations omitted). To determine whether a claim term that lacks the word "means" is subject to § 112, ¶ 6, the court must consider the words of the claims themselves, the written description, the prosecution history, and any relevant intrinsic evidence. *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1356 (Fed. Cir. 2011) (citing *Personalized Media*, 161 F.3d at 704 (The presumption that a claim lacking the term "means" recites sufficiently definite structure can be rebutted "if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrant[s].")).

In *Inventio*, the Federal Circuit considered the terms "modernizing device" and "computing unit." 649 F.3d at 1357-60. The Court held that § 112, ¶ 6 was not applicable because the claimed "modernizing device" connoted sufficiently definite structure. *Id.* at 1359. "[T]he claims recite[d] a 'modernizing device,' delineate[d] the components that the modernizing device is connected to, describe[d] how the modernizing device interacts with those components, and describe[d] the processing that the modernizing device performs. The written descriptions additionally show[ed] that the modernizing device convey[ed] structure to skilled artisans." *Id.* With respect to the "computing unit," the Court again found that the limitation connoted sufficiently definite structure based upon a reading of the claims[9] and the written description."[10] *Id.*

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[9] The claims recite that the computing unit is connected to the modernizing device and generates a destination signal for transmission to the modernizing device. . . . The claims elaborate that the computing unit is connected to the floor terminals of the elevator system, and evaluates incoming call reports, destination floors, and identification codes to generate the destination signal for processing by the modernizing device.

Inventio AG v. ThyssenKrupp Elevator Americas Corp., 649 F.3d 1350, 1359 (Fed. Cir.

at 1359-60.

The claims in dispute recite "a computing device for providing a main image" (claim 1) and a "means for computing, the means for computing providing a main image" (claim 26). Dependent claim 2 substitutes the word "produced" for "providing." Contrary to IV's argument that "providing an image" simply involves moving data from one place to another and does not require any application programming (D.I. 144 at 25-26), the court concludes that providing a main image requires something more than that which a general purpose computer with no special programming can do. This conclusion finds support in the specification, which indicates that:

> The background image is that output by an application executed by a computing device, for example a graphics, spreadsheet, word-processing, etc. application for use in private, commercial, military, public-service fields or other fields. However, either the background image or the superimposed image can be of other types; for example the background image, or both images, can be provided by a processor or storage device associated with the system,

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2011).

[10] As the claim term implies, the written descriptions refer to the computing unit as a computer, where one of its functions is to store and execute a computer program product. . . . stating that the "computing unit" is a commercially available personal computer or workstation" and that the "computing unit" includes "at least one processor and at least one data memory"; . . . "it is entirely possible to perform the computer program product on any computer, for example on the computing unit of the system or on a remote server." The written descriptions also explain the steps that the computer program product performs, . . . , as well as the interaction between the computing unit and modernizing device, . . . , and the computing unit and the floor terminals.

Id. at 1359-60.

instead of by an application program per se.

('960 patent, col. 3:12-21) The specification states that, "FIG. 3 should also be interpreted to cover the situation where the main image is an output image or images of an application or applications being executed by a processor or other element of the computing device." (*Id.* at col. 8:25-28) The written description provides no further structure to skilled artisans in order to perform the specified function.

In contrast to the disputed terms in *Inventio*, where the Federal Circuit agreed that "the claims recite[d] structural detail about the modernizing device and how it is connected to other components of the patented system," *see Inventio* at 1357-58, the present claims and written description fail to provide sufficient detail regarding the "computing device" and "means for computing" limitations, including their interaction with any other components of the claimed system. (*See* '960 patent, col. 12:2-29;14:31-56) These limitations, therefore, are subject to analysis under § 112, ¶ 6.

ii. Indefiniteness

Using the same analysis as presented above, the specification does not provide enough structure under § 112, ¶ 6. Generally, "in a means-plus-function claim 'in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.'" *Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008) (quoting *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999)). The specification can express the algorithm "in any understandable terms including as a

mathematical formula, in prose, or as a flow chart, or in any other manner that provides sufficient structure." *Finisar Corp. v. DirecTV Grp.*, Inc., 523 F.3d 1323, 1340 (Fed. Cir. 2008) (internal citation omitted). The description of the algorithm must do more than describe the function to be performed, it must describe how the function is to be performed. *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382-83 (Fed. Cir. 2009) (finding "[t]he specification contains no description of the structure or the process that the access control manager uses to perform the "assigning" function."). It is insufficient to aver that a disclosure has enough structure for a person of ordinary skill to devise some method or write some software to perform the desired function. *Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1319 (Fed. Cir. 2013) (citing *Blackboard*, 574 F.3d at 1385).

The function recited by the claim (providing an image) is a more complex function than "the functions of 'processing,' 'receiving,' and 'storing,'" which could be performed by a general computer without special programming. *In re Katz*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (finding that "the functions of 'processing,' 'receiving,' and 'storing' are coextensive with the structure disclosed, i.e., a general purpose processor," and do not require disclosure of an algorithm). The specification does not support the notion that the function of "providing a main image" is a mere "retrieval" function of the computing device and one that could be performed by a general purpose computer without more. The fact that dependent claim 2 recites "the main image produced by the computing device" weighs against this argument as well. (*See* '960 patent, col. 12:32-33) The specification does not disclose an algorithm or explain how the main image is

provided. Moreover, the specification states that the background image is "output by an application executed by a computing device" or "by a processor or storage device associated with the system" without explaining how the background image is produced. Similarly the figure 6 flow chart merely illustrates "the generalized processing that occurs to allow a virtual keyboard to be overlayed upon a normal display" and makes no mention of the particular function of providing a main image. (*See id.* at col. 8:32-35) Based on the above analysis, claims 1 and 26 are indefinite and, therefore, invalid under 35 U.S.C. § 112.

d. "Means for displaying a composite image . . . further wherein individual pixels of the means for displaying can be dedicated simultaneously to both the main image and the representation of at least one input zone:"[11] The corresponding function is: "Displaying a composite image visible to a user of the screen peripheral system and accepting input to the means for computing." The corresponding structure is: "Touch screen or equivalents thereof." (*See* '960 patent, cols. 3:32-47; 7:27-29; 9:29-65; Fig. 6)

3. The '686 Patent

a. "Layer:"[12] "A coating of material deposited or formed across a surface." The court finds a construction of this limitation would be helpful to the jury and resolve the dispute between the parties. The court rejects Canon's proposed construction, "single thickness," as unhelpful as the parties also disagree on the

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[11]Claim 26.

[12]Claim 15 of the '686 patent; claim 3 of the '081 patent.

meaning of "single." The patent discloses that "formation techniques [for silicide] are well known to those skilled in the art." (*See* '686 patent, col. 4:45-46) Webster's dictionary defines "layer" as "[a] single thickness, coating, or stratum spread out or covering a surface." (D.I. 151, ex. Y at 623)

b. "Enhancement layer having a doping concentration that is less than the first doping concentration:"[13] "A coating formed on the substrate having a doping concentration less than that of the substrate." This is consistent with the language of the claim, which requires that the enhancement layer have a doping concentration that is less than the first doping concentration – that attributed to the substrate. (*See* '686 patent, col. 6:21-26) The specification also describes "a heavily doped P-type substrate 11 having a lightly doped P-type enhancement layer 12 formed thereon." (*Id.* at col. 2:67-3:2)

c. "Image sensor:"[14] "CMOS image sensor." Claims 14 and 16 of the '686 patent and claim 3 of the '081[15] patent recite only the term "image sensor" (and not "CMOS"). (*See* '686 patent, col. 6:17-20; 6:27-28; '081 patent, col. 6:6-15) In describing the scope of the invention, patentees again only use the term "image sensor."[16] The specification notes, however, that it "is related to an application entitled

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[13]Claim 15.

[14]Claims 14 and 16 of the '686 patent and claim 3 of the '081 patent.

[15]The '081 patent shares the same specification as the '686 patent. For ease, the court will refer to the specification of the '686 patent in its analysis.

[16]*See* '686 patent, col. 1:16-18 ("[t]his invention relates, in general, to semiconductor devices, and more particularly to a semiconductor image sensor"); col. 4:62-63 ("[b]y now it should be appreciated that there has been provided a novel image

CMOS IMAGE SENSOR." ('686 patent, col. 1:9-10)

The specification explains some of the deficiencies in CMOS imaging technology, often resulting in image sensors with reduced sensitivity (*see* '686 patent, col. 1:19-21, 1:49-50) and discusses forming "CMOS devices" on substrate 11. (*Id.* at 2:25-28) More specifically, "[t]raditional CMOS image sensor implementations often form a silicide layer over the image sensing element thereby further reducing sensitivity," and "it is desirable to have an image sensor . . . that does not use a silicide overlying the light sensing area thereby further increasing efficiency." (*Id.* at col. 1:48-57)

Canon's expert, Dr. Theuwissen, conceded that the specification is directed to CMOS image sensors, as opposed to CCD (D.I. 166, ex. I at 61:24-62:9, 62:19-63:7, 63:23-64:2), because the patent says that "this application is related to the application entitled CMOS image sensor." (*See* '686 patent, col. 1:9-10) He further agreed that all of the figures and examples in the two patents are CMOS image sensors (D.I. 166, ex. I at 56:18-24, 59:16-22, 62:14-17), and that the word CCD was not used in the specification. (*Id.* at 61:24-62:9, 62:19-63:7, 63:23-64:2) The court's construction, therefore, is consistent with the disclosure of the specification which focuses on improvements in CMOS technology and the understanding of one of ordinary skill in the art.

4. The '081 Patent

a. "A silicide layer on a portion of the image sensor wherein an area

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sensor and method therefor.").

overlying the pinned photodiode is devoid of the silicide layer:"[17] "A coating of silicide over a portion of the image sensor but not covering at least part of the photodiode." This is consistent with the specification, which explains that the image sensor "does not use a silicide overlying the light sensing [photodiode] area." ('081 patent, cols. 1:50-51, 5:4-6 ("the light sensing element is devoid of an overlying silicide material")) The court concludes both from the patent and the design process documents that a person of ordinary skill in the art would understand that when titanium metal is deposited on a silicon layer, the resulting silicide layer can be of varying thicknesses depending on the amount of material deposited and reaction conditions. For example, the '081 patent explains that "[t]ypically, titanium is blanket deposited across sensor 10 and then annealed to form titanium silicide with any exposed underlying silicon material. (*Id.* at 4:31-34)

5. The '587 Patent

a. "A field stop layer being formed beneath the field area and being wider than the field area in a direction towards the active area:"[18] "A heavily doped layer formed beneath the field area and being wider than the field area in a direction towards the active area." This is consistent with the language of the claim and the specification, which indicates that, "[a] field stop layer 25 having a greater area than the field oxide layer 26 as being extended towards the active area with a first predetermined distance is formed beneath the field oxide layer 26." ('587 patent, col.

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[17]Claim 3.

[18]Claim 1.

5:35-38) Additionally this construction is depicted in the figures of the patent. (*See, e.g., id.* at fig. 4E)

The claim, however, is limited by the prosecution history. *See Phillips*, 415 F.3d at 1317 ("The purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed during prosecution." (citation omitted)). During prosecution of the '587 patent, the Patent Office rejected claim 1 as unpatentable over the admitted prior art in view of United States Patent No. 6,528,342 ("Miyagawa"), finding the two layers in Miyagawa to be the same as the applicant's claimed extended field stop layer. (D.I. 161, ex. 9 at IVCANON1470-71) The "defect shielding layer" is described in Miyagawa as performing the same function as the '587 patent's extended field stop layer – shielding the photodiode from defects in the field area. (*See* D.I. 183, ex. 95 at 6:18-22, 10:29-48) In response, the applicant argued that the two layers of Miyagawa, one of which was formed after the field area, were different from the applicant's claimed "field stop layer:"

> [T]he defect shielding layer [64] [of Miyagawa] is not a field stop layer, but an additional impurity region formed in the photodiode as shown in Figs. 5A-5B. **Also, the defect shield layer [64] is formed after forming the P+-type layer 48, the locos region 50 [i.e., the "field area"] and the end-type layer region of the photodiode.**

(D.I. 161, ex. 9 at IVCANON1459 (emphasis added)) The examiner thereafter allowed Claim 1 to issue, stating:

> Specifically, the Examiner agrees with Applicant's argument that the region 64 of Miyagawa cannot correspond to a field stop layer, **as the region 64 is formed after the field oxide region 50 [i.e., the "field area"].**

(*Id.* at IVCANON1437 (emphasis added)) Therefore, the prosecution history excludes any interpretation that a field stop layer is the same as two layers formed one after the other.

b. "A channel area having a bottle-neck structure connecting to the photodiode area and the floating diffusion area:"[19] "A channel connecting the photodiode area and the floating diffusion area whose area is larger on the photodiode side and narrower on the floating diffusion side." This construction is supported by the specification, which explains that the "area between the PD [photodiode] and the FD [floating diffusion] becomes smaller. This effect is called the bottle-neck effect." ('587 patent, col. 2:45-48; *see also* col. 5:30-34; Fig. 5A)

6. The '298 Patent

a. "Multi-layer interlayer insulating films . . . stacked in at least two layers of oxide film having different density and the refractive index so that the density and the refractive index of the upper interlayer insulating film becomes lower than that of the lower interlayer insulating film as the multilayer interlayer insulating films proceed upward:"[20] "Two or more oxide films sequentially stacked on a photodiode, with the uppermost layer having the lowest density and refractive index, and the lowest layer having the highest density and refractive index." This is consistent with the specification which explains that, "multi-layer interlayer insulating films 104 and 108 insulating between layers of the top parts of the field insulating films

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[19]Claim 1

[20]Claim 1.

100 and photodiode 102 and being stacked in at least two layers so that the density is lower in upper parts than lower parts." ('298 patent, col. 3:16-19; *see also* col. 4:23-26; 4:43-63)

This relationship exists for all layers consistent with the embodiment described in figure 3. For example, a third interlayer insulating film 214 is formed "having a lower density than the second interlayer insulating film 206." (*Id.* at col. 5:35-37) A fourth interlayer insulating film 220 is then formed "having a lower density than the third interlayer insulating film 214." (*Id.* at col. 5:44-46) This is followed by the formation of a fifth interlayer insulating film 226 having a lower density than the fourth interlayer insulating film 220. (*Id.* at col. 5:53-54) "[S]ince the density of the interlayer insulating film in the upper position becomes lower than that of the interlayer insulating film in the lower position as the multi-layer interlayer insulating films proceed upward, the refraction angle of the incident light becomes smaller and smaller." (*Id.* at col. 6:12-16) This is consistent with the object of the present invention - to improve the light-collection efficiency of the photodiode "by making the multi-layer interlayer insulating films have a lower density as they proceed upward to decrease the refraction angle of the incident light penetrated through the microlenses and color filters." (*Id.* at col. 6:26-29) The court rejects Canon's attempt to require the layers to be contiguous, as inconsistent with the specification which discloses that the light shield layer 106 is formed on the lower interlayer insulating film 104. ('298 patent, col. 4:56-57)

b. "A light shield layer and an element protecting film sequentially

stacked on the multi-layer interlayer insulating film:"[21] "A light shield layer is stacked on a layer of the multi-layer interlayer insulating film and an element protecting film is stacked on a layer of the multi-layer interlayer insulating film." This is consistent with the language of the claims and the specification which explains that, "the lower interlayer insulating film 104 on which the light shield layer 106 is formed." ('298 patent, col. 4:56-57) Additionally, the patent describes the "element-protecting film 120 [as] formed on the interlayer insulating film 108 . . . ." (*Id.* at col. 3:24-25; *see also* col. 4:64-67)

c. "Wherein the density of the oxide films becomes higher in the order of PE-CVD<HDP-CVD<LP-CVD<thermal oxidations:"[22] "The density of the oxide film formed by a PE-CVD process is lower than the density of the film formed by an HDP-CVD process, which is lower in density than the film formed by a LP-CVD process, which is lower in density than the film formed by thermal oxidation." This is consistent with the specification. (*See* '298 patent, col. 3:40-54 (describing the manufacture of upper and lower interlayer insulating films and the corresponding lower and higher density, respectively))

United States District Judge

[21]Claim 1.

[22]Claim 2.