

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION**

MAXELL LTD.,	§	
	§	
Plaintiff,	§	
	§	CIVIL ACTION NO. 5:16-CV-00178-RWS
v.	§	LEAD CASE
	§	
HUAWEI DEVICE USA INC, HUAWEI	§	
DEVICE CO., LTD.,	§	
	§	
Defendants.	§	

MAXELL LTD.,	§	
	§	
Plaintiff,	§	
	§	CIVIL ACTION NO. 5:16-CV-00179-RWS
v.	§	
	§	
ZTE CORPORATION, ZTE USA INC.,	§	
	§	
Defendants.	§	

**CLAIM CONSTRUCTION
MEMORANDUM AND ORDER**

On November 29, 2017, the Court held an oral hearing to determine the proper construction of the disputed claim terms of the patents-in-suit. Having considered the parties claim-construction briefing and based on the intrinsic and extrinsic evidence, the Court construes the disputed terms in this Memorandum and Order as detailed below. *See Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831 (2015).

BACKGROUND

On November 18, 2016, Plaintiff Maxell, Ltd. (“Maxell”) filed suit against Defendants Huawei Device USA Inc., Huawei Device Co., Ltd. (collectively “Huawei”) and ZTE USA Inc. (“ZTE”). Plaintiff Maxell, Ltd. (“Maxell”) has asserted fifteen patents in this consolidated action:¹

- U.S. Patent No. 5,396,443 (“’443 Patent”), which is asserted against both Huawei and ZTE USA;
- U.S. Patent Nos. 7,509,139 (“’139 Patent”); 6,754,440 (“’440 Patent”); 6,928,292 (“’292 Patent”); 7,203,517 (“’517 Patent”); 7,671,901 (“’901 Patent”); 6,856,760 (“’760 Patent”); and 7,116,438 (“’438 Patent”), which are asserted against Huawei; and
- U.S. Patent Nos. 6,748,317 (“’317 Patent”); 8,339,493 (“’493 Patent”); 8,736,729 (“’729 Patent”); 6,408,193 (“’193 Patent”); 6,329,794 (“’794 Patent”); 6,816,491 (“’491 Patent”); and 8,098,695 (“’695 Patent”), which are asserted against ZTE USA.

On November 29, 2017, the Court held a *Markman* hearing on the disputed claim terms of the patents-in-suit. Docket Nos. 118, 138. At the hearing, Maxell and Huawei agreed to the construction of the sole disputed terms in the ’901 Patent and ’438 Patent. Docket No. 138 (H’rg Tr.) at 101:8–10.

APPLICABLE LAW

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’ ” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). The Court examines a patent’s intrinsic evidence to

¹ The Court consolidated the case against Huawei (Case No. 5:16-cv-178) with the case against ZTE (Case No. 5:16-cv-179) for pretrial purposes.

define the patented invention's scope. *Id.* at 1313–14; *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). Intrinsic evidence includes the claims, the rest of the specification and the prosecution history. *Phillips*, 415 F.3d at 1312–13; *Bell Atl. Network Servs.*, 262 F.3d at 1267. The Court gives claim terms their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

Claim language guides the Court's construction of claim terms. *Phillips*, 415 F.3d at 1314. “[T]he context in which a term is used in the asserted claim can be highly instructive.” *Id.* Other claims, asserted and unasserted, can provide additional instruction because “terms are normally used consistently throughout the patent.” *Id.* Differences among claims, such as additional limitations in dependent claims, can provide further guidance. *Id.*

“[C]laims ‘must be read in view of the specification, of which they are a part.’ ” *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995)). “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’ ” *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). In the specification, a patentee may define his own terms, give a claim term a different meaning that it would otherwise possess, or disclaim or disavow some claim scope. *Phillips*, 415 F.3d at 1316. Although the Court generally presumes terms possess their ordinary meaning, this presumption can be overcome by statements of clear disclaimer. See *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343–44 (Fed. Cir. 2001). This presumption does not arise when the patentee acts as his own

lexicographer. *See Irdeto Access, Inc. v. EchoStar Satellite Corp.*, 383 F.3d 1295, 1301 (Fed. Cir. 2004).

The specification may also resolve ambiguous claim terms “where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.” *Teleflex, Inc.*, 299 F.3d at 1325. For example, “[a] claim interpretation that excludes a preferred embodiment from the scope of the claim ‘is rarely, if ever, correct.’ ” *Globetrotter Software, Inc. v. Elam Computer Group Inc.*, 362 F.3d 1367, 1381 (Fed. Cir. 2004) (quoting *Vitronics Corp.*, 90 F.3d at 1583). But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed language in the claims, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988); *see also Phillips*, 415 F.3d at 1323.

“A district court’s construction of a patent claim, like a district court’s interpretation of a written instrument, often requires the judge only to examine and to construe the document’s words without requiring the judge to resolve any underlying factual disputes.” *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 840–41 (2015). For certain terms, however, the Court may “need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Id.* at 841. “In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factfindings about that extrinsic evidence.” *Id.*

Although extrinsic evidence is useful, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317

(quoting *C.R. Bard, Inc.*, 388 F.3d at 862) (internal quotation marks omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are not useful. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.*

A. Departing from the Ordinary Meaning of a Claim Term

There are "only two exceptions to [the] general rule" that claim terms are construed according to their plain and ordinary meaning: "(1) when a patentee sets out a definition and acts as his own lexicographer, or (2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution." *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal."). The standards for finding lexicography or disavowal are "exacting." *GE Lighting Solutions*, 750 F.3d at 1309.

To act as his own lexicographer, the patentee must "clearly set forth a definition of the disputed claim term," and "clearly express an intent to define the term." *Id.* (quoting *Thorner*, 669 F.3d at 1365); *see also Renishaw*, 158 F.3d at 1249. The patentee's lexicography must appear "with reasonable clarity, deliberateness, and precision." *Renishaw*, 158 F.3d at 1249.

To disavow or disclaim the full scope of a claim term, the patentee's statements in the specification or prosecution history must amount to a "clear and unmistakable" surrender. *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009); *see also Thorner*, 669 F.3d at 1366 ("The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."). "Where an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

B. Functional Claiming and 35 U.S.C. § 112, ¶ 6 (pre-AIA) / § 112(f) (AIA)

A patent claim may be expressed using functional language. *See* 35 U.S.C. § 112, ¶ 6; *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir. 2015) (en banc in relevant portion). Section 112, Paragraph 6, provides that a structure may be claimed as a "means . . . for performing a specified function" and that an act may be claimed as a "step for performing a specified function." *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002).

But § 112, ¶ 6 does not apply to all functional claim language. There is a rebuttable presumption that § 112, ¶ 6 applies when the claim language includes "means" or "step for" terms, and that it does not apply in the absence of those terms. *Masco Corp.*, 303 F.3d at 1326; *Williamson*, 792 F.3d at 1348. The presumption stands or falls according to whether one of ordinary skill in the art would understand the claim with the functional language, in the context of the entire specification, to denote sufficiently definite structure or acts for performing the function. *See Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed.

Cir. 2015) (§ 112, ¶ 6 does not apply when “the claim language, read in light of the specification, recites sufficiently definite structure” (internal quotation marks omitted) (citing *Williamson*, 792 F.3d at 1349; *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1099 (Fed. Cir. 2014))); *Williamson*, 792 F.3d at 1349 (“Section 112, ¶ 6 does not apply when “the words of the claim are understood by persons of ordinary skill in the art to have sufficiently definite meaning as the name for structure”); *Personalized Media Communications, L.L.C. v. Int’l Trade Commission*, 161 F.3d 696, 704 (Fed. Cir. 1998) (“ ‘[W]here a claim recites a function, but then goes on to elaborate sufficient structure, material, or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format’ even if the claim uses the term ‘means’ ”)

When it applies, § 112, ¶ 6 limits the scope of the functional term “to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Williamson*, 792 F.3d at 1347. Construing a means-plus-function limitation involves multiple steps. “The first step . . . is a determination of the function of the means-plus-function limitation.” *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). “[T]he next step is to determine the corresponding structure disclosed in the specification and equivalents thereof.” *Id.* A “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Id.* The focus of the “corresponding structure” inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is “clearly linked or associated with the [recited] function.” *Id.* The corresponding structure “must include all structure that actually performs the recited function.” *Default Proof Credit Card Sys. v. Home Depot U.S.A.*,

Inc., 412 F.3d 1291, 1298 (Fed. Cir. 2005). However, § 112 does not permit “incorporation of structure from the written description beyond that necessary to perform the claimed function.” *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

For § 112, ¶ 6 limitations implemented by a programmed general purpose computer or microprocessor, the corresponding structure described in the patent specification must include an algorithm for performing the function. *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The corresponding structure is not a general purpose computer but rather the special purpose computer programmed to perform the disclosed algorithm. *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

C. Definiteness Under 35 U.S.C. § 112, ¶ 2 (pre-AIA) / § 112(b) (AIA)

Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112, ¶ 2. “A claim is invalid for indefiniteness if its language, when read in light of the specification and the prosecution history, ‘fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.’ ” *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015) (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014)). Whether a claim is indefinite is determined from the perspective of one of ordinary skill in the art as of the time the application for the patent was filed. *Nautilus*, 134 S. Ct. at 2130. As it is a challenge to the validity of a patent, the failure of any claim in suit to comply with § 112 must be shown by clear and convincing evidence. *Id.* at 2130 n.10. “[I]ndefiniteness is a question of law and in effect part of claim construction.” *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012).

When a term of degree is used in a claim, “the court must determine whether the patent provides some standard for measuring that degree.” *Biosig Instruments, Inc. v. Nautilus, Inc.*,

783 F.3d at 1378 (internal quotation marks omitted). Likewise, when a subjective term is used in a claim, “the court must determine whether the patent’s specification supplies some standard for measuring the scope of the [limitation].” *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005); *accord Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (citing *Datamize*, 417 F.3d at 1351).

In the context of a claim governed by 35 U.S.C. § 112, ¶ 6, the claim is invalid as indefinite if the claim fails to disclose adequate corresponding structure to perform the claimed functions. *Williamson*, 792 F.3d at 1351–52. The disclosure is inadequate when one of ordinary skill in the art “would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim.” *Id.* at 1352.

AGREED TERMS

Before the *Markman* hearing, the parties agreed to construction the following terms:

Term	Agreed Construction
“at least approaches” (’443 Patent claim 1)	Plain and ordinary meaning
“simultaneously” (’292 Patent claims 1 and 2)	Plain and ordinary meaning
“A mobile communication terminal device having a first physical interface for making a communication to the outside, a second physical interface different in scheme from said first physical interface, and a selection switching determination unit . . . , said mobile communication terminal device comprising” / “A mobile communication terminal device having a first physical interface for making a communication to the outside, a second physical interface different in scheme from said first physical interface, and a selection switching determination unit . . . , said mobile communication terminal device comprising”	The preambles of claims 1 and 9 of the ’517 patent are limiting.

(’517 Patent claims 1 and 9)	
“A connection control method for selecting one base station, to which a terminal is to connect, from a plurality of base stations in a wireless communication system” / “A wireless terminal for selecting a connection destination base station from a plurality of base stations in a wireless communication system”	The preambles of claims 1 and 11 of the ’139 patent are limiting.
(’139 Patent claims 1 and 11)	
Preambles	The preambles of claims 1 and 2 are limiting.
(’491 Patent claims 1 and 2)	
“voice signal code”	Plain and ordinary meaning
(’193 Patent claims 1 and 7)	
“an input portion to which video signals are inputted”	Plain and ordinary meaning
(’901 Patent claim 1)	
“black side”	Plain and ordinary meaning
(’901 Patent claim 2)	
“video signal[s]”	Plain and ordinary meaning
(’901 Patent claims 1 and 2)	
“obtaining an index of communication quality between the terminal and the base stations”	“obtaining an indication of communication quality between the terminal and the base stations”
(’139 Patent claims 1 and 11)	
“using said input”	Plain and ordinary meaning
(’438 Patent claim 1)	
“an authentication process for allowance to use said display apparatus”	“a process that authorizes the user to use the display apparatus”
(’438 Patent claim 1)	
“a predetermined constant period of time”	Plain and ordinary meaning
(’443 Patent claim 1)	
“means for selecting an object displayed on said display apparatus”	Function: selecting an object displayed on said display apparatus
(’438 Patent claim 3)	Structure: Input/output unit 103 and associated software that allows for the claimed selection function. <i>See, e.g.</i> , 8:57–9:13, 7:52–8:6, Fig. 2 (106).
“operate to the end”	Plain and ordinary meaning
(’794 Patent claims 8 and 14)	

<p>“a receiving means for receiving a plurality of compressed and encoded audio data sequences which are multiplexed”</p> <p>(’491 Patent claim 9)</p>	<p>Function: receiving a plurality of compressed and encoded audio data sequences which are multiplexed</p> <p>Structure: An antenna and equivalents</p>
<p>Preambles</p> <p>(’491 Patent claims 7–9)</p>	<p>The preambles of claims 7–9 are not limiting.</p>
<p>“packetizing audio data sequences which are compressed and encoded and by multiplexing a plurality of those sequences”</p> <p>(’491 Patent claims 1 and 2)</p>	<p>“digitized audio data in packet form for transmission is compressed and encoded and by combining a plurality of the data”</p>
<p>“a demultiplexer for extracting the one audio data sequence which is designated by the user from said group of packets depending upon a property or attribute information which each packet has, and further for extracting a method of compression and encoding which is applied for compressing the audio data sequence from a header information which said each audio data sequence has”</p> <p>(’491 Patent claims 1, 2, and 9)</p>	<p>Plain and ordinary meaning</p>
<p>“a first memory”</p> <p>(’491 Patent claims 1, 2, and 7)</p>	<p>Plain and ordinary meaning</p>
<p>“a digital signal processor for decoding the compressed audio data sequences in accordance with said decoding program codes, sequentially”</p> <p>(’491 Patent claims 1, 2, and 9)</p>	<p>Plain and ordinary meaning</p>
<p>“a second memory which said digital signal processor and said video decoder use as work area for the decoding processing thereof”</p> <p>(’491 Patent claim 2)</p>	<p>Plain and ordinary meaning</p>
<p>“from an outside”</p> <p>(’491 Patent claim 7)</p>	<p>Plain and ordinary meaning</p>
<p>“an input device for inputting a destination”</p> <p>(’317 Patent claim 1)</p>	<p>Plain and ordinary meaning</p>
<p>“a device for getting a location information of another portable terminal from said another terminal via connected network”</p> <p>(’317 Patent claim 10)</p>	<p>Plain and ordinary meaning</p>

<p>“a device for retrieving a route from said present place to said destination”</p> <p>(’317 Patent claim 15)</p>	Plain and ordinary meaning
<p>“an image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in a grid pattern, in an N number of vertically arranged pixel lines”</p> <p>(’493 Patent claim 5)</p>	Plain and ordinary meaning
<p>“a display unit with a display screen, that displays an image corresponding to the image signals”</p> <p>(’493 Patent claim 5)</p>	Plain and ordinary meaning
<p>“an image-instability detector”</p> <p>(’493 Patent claim 6)</p>	Plain and ordinary meaning
<p>“an image-instability of the electric camera”</p> <p>(’493 Patent claim 6)</p>	Plain and ordinary meaning
<p>“an encoder/decoder apparatus”</p> <p>(’193 Patent claims 1 and 7)</p>	Plain and ordinary meaning
<p>“open-loop power control”</p> <p>(’193 Patent claims 1 and 7)</p>	Plain and ordinary meaning
<p>“closed-loop power control”</p> <p>(’193 Patent claims 1 and 7)</p>	Plain and ordinary meaning
<p>“bias condition”</p> <p>(’193 Patent claims 1 and 7)</p>	“the bias voltage and/or current setting of the amplifier”
<p>“a function defining a relation between bias data and gain data stored in said memory”</p> <p>(’193 Patent claim 7)</p>	“a relationship between bias data and gain data such that each gain data value has a corresponding bias data value”
<p>“capacity detector for detecting a remaining capacity of said battery”</p> <p>(’794 Patent claim 1)</p>	Plain and ordinary meaning
<p>“controller for controlling operation of said function devices based on said remaining capacity”</p> <p>(’794 Patent claim 1)</p>	Plain and ordinary meaning
<p>“a capacity detector detecting a remaining battery capacity of said battery”</p> <p>(’794 Patent claim 9)</p>	Plain and ordinary meaning
Preambles	Preambles are limiting

('695 Patent, all asserted claims)	
<p>“packetized audio data sequences which are compressed and encoded and by multiplexing a plurality of those sequences”</p> <p>('695 Patent claims 1 and 4)</p>	<p>“digitized audio data in packet form is compressed and encoded and by combining a plurality of the data”</p>
<p>“a demultiplexer for extracting the one audio data sequence which is designated by the user from said group of packets depending upon a property or attribute information of each packet, and further for extracting a method of compression and encoding which is applied for compressing the audio data sequence from a header information of each audio data sequence”</p> <p>('695 Patent claims 1 and 4)</p>	<p>Plain and ordinary meaning</p>
<p>“a memory”</p> <p>('695 Patent claims 1 and 4)</p>	<p>Plain and ordinary meaning</p>
<p>“begins decoding processing”</p> <p>('695 Patent claims 1 and 4)</p>	<p>Plain and ordinary meaning</p>
<p>“a state display means including a display means and for displaying on said display means that said apparatus is in one of a standby state and an active state in response to said power saving state and said non-power saving state, respectively”</p> <p>('443 Patent claim 2)</p>	<p>Function: displaying on said display means that said apparatus is in one of a standby state and an active state in response to said power saving state and said non- power saving state, respectively</p> <p>Structure: State display unit 103 including a display device such as a liquid crystal display (LCD), a flat display panel, a light emitting diode (LED) panel, an electroluminescence (EL) panel, a plasma display panel, a cathode ray tube (CRT), and equivalents, together with a processor (e.g. CPU 501) programmed to display state information on the display device in accordance with the procedures set forth e.g. in the specification at 4:6– 9; 4:49–55; 5:30–37; 7:7–60; 8:64– 68; Figs. 2–4 and 11–13 as well as equivalents thereof</p>
<p>“displaying means for displaying at least one of the moving pictures, the still pictures, and the first and second pictures; wherein the displaying means displays a plurality of reproduced ones of the first pictures, and wherein the displaying means displays ones</p>	<p>Function: displaying at least one of the moving pictures, the still pictures, and the first and second pictures</p> <p>Structure: display medium 130, such as a liquid crystal panel. <i>See, e.g.</i>, Figure 6 (130); 13:45–47; 13:49–51; 13:54–57;</p>

of the moving pictures corresponding to any selected first pictures” (’440 Patent claim 7)	13:62–63.
“displaying means for displaying at least one of said first still picture, said second still picture and said first picture, wherein said displaying means displays a plurality of reproduced pictures from the reproducing means, and wherein said displaying means displays said first still picture corresponding to a selected picture” (’760 Patent claim 13)	Function: displaying at least one of said first still picture, said second still picture and said first picture such that the displaying means displays a plurality of reproduced pictures from the reproducing means, and wherein said displaying means displays said first still picture corresponding to a selected picture Structure: display medium 130, such as a liquid crystal panel. See, e.g., Figure 6 (130); 13:43–46; 13:47–49; 13:52–55; 13:60–61.
“a relation of said direction and a direction from said present place to said destination” (’317 Patent claims 1 and 10)	Plain and ordinary meaning
“a signal processing unit configured to form image signals” (’729 Patent claim 1)	Plain and ordinary meaning
“characterizing quantities of the communication quality for each of the groups” (’139 Patent claims 1 and 11)	“group scores derived from the indication of communication quality for each base station in a group”

Docket No. 115-2 at B-1–B-14.

At the oral hearing the parties also agreed to the constructions of the following terms:

“GPS receiver means for receiving GPS-oriented signals and generating received GPS signals” (’292 Patent claim 1)	Function: receiving GPS oriented signals and generating received GPS signals Structure: GPS receiver 200 of a mobile handset, the GPS receiver 200 performing block 600 in Figure 2, as disclosed at 3:24–32, 2:53–57, or equivalents thereof
“cellular receiver means for receiving cellular-oriented signals and generating received cellular signals” (’292 Patent claim 1)	Function: receiving cellular-oriented signals and generating received cellular signals Structure: cellular receiver 300 of a mobile handset, the cellular receiver performing block 603 in Figure 2, as disclosed at 2:66–3:4, 4:4–9, or equivalents thereof

<p>“GPS position calculation means for calculating the mobile handset’s position from the received GPS signals and outputting a GPS-based position result”</p> <p>(’292 Patent claim 1)</p>	<p>Function: calculating the mobile handset’s position from the received GPS signals and outputting a GPS-based position result</p> <p>Structure: position calculation unit for GPS 201 of a mobile handset, the position calculation unit for GPS 201 performing block 601 in Figure 2 and utilizing synchronization acquisition and reception timing measurements for position determination, as disclosed at 2:54–57, 2:57–60, 3:24–32, 3:33–43, or equivalents thereof</p>
<p>“when any change occurs in the video signal inputted to the input portion” / “when the change of the video signal does not occur and when the illumination detected by the illumination sensor is above a predetermined value”</p> <p>(’901 Patent claim 1)</p>	<p>“in response to any change occurring in the video signal inputted to the input portion”</p> <p>“in response to the change of the video signal not occurring and the illumination detected by the illumination sensor being above a predetermined value”</p>
<p>“an input entered by the user”</p> <p>(’438 Patent claim 1)</p>	<p>Plain and ordinary meaning</p>
<p>“a cellular telephone adapted to be used in a CDMA system, comprising”</p> <p>(’193 Patent, all asserted claims)</p>	<p>The preambles are limiting</p>

H’rg Tr. at 6:7–10, 111:19–112:6.

DISPUTED TERMS

A. The ’139 Patent

The ’139 Patent relates generally to wireless communication systems, more specifically to methods for selecting, from multiple base stations within a wireless system, one base station for communication with a terminal. The Abstract of the ’139 Patent recites:

When one base station to which a terminal is to connect is determined from a plurality of base stations in a wireless communication system, the best base station is selected according to the communication quality or the content of communication services. In the wireless communication system, the plurality of base stations are classified into a plurality of groups. Indexes of communication quality between the base stations and the terminal are obtained and, for each

group, the characterizing quantities of the indexes of communication quality are calculated. The base station group with which the terminal is to communicate is specified based on the characterizing quantities. One of the base stations in the specified group is determined as a communication destination base station.

'139 Patent Abstract. More particularly, the '139 Patent describes a wireless communication system in which a plurality of base stations are classified into a plurality of groups, and a method for selecting one of the plurality of base stations to connect to a terminal based on calculated characterized quantities of communication quality for each group. As shown in Figure 1, the method described in the '139 Patent obtains an index of communication quality (e.g., a received power, bit rate or signal-to-noise ratio) for each base station (step 102), calculates a group score (e.g., a total power or average power) for each group of base stations (step 103), specifies one of the groups based on the group score (step 104), and selects one of base stations in the specified group to establish a connection (step 105). In one example, the group with the largest total power is specified and a base station within that group is selected to connect to a wireless terminal. *See*, '139 Patent 2:37–64, 4:45–5:12, Figure 1.

2. “a storage unit in which group information generated by classifying the plurality of base stations into groups” ('139 Patent claim 11)²

Maxell’s Proposed Construction	Huawei’s Proposed Construction
“Not indefinite; plain and ordinary meaning”	“Indefinite because the claim term does not inform those skilled in the art about the claim’s scope with reasonable certainty”

Huawei contends that the claim language contains “an obvious grammatical error that renders the term indefinite because one of skill in the art would be unable to determine with reasonable certainty which of (at least) two possible corrections to make.” Docket No. 100 at 9. Huawei advances two possible corrections: adding to the end of the claim (1) the phrase “is

² The term numbers used herein are consistent with the term numbers provided in the parties Joint Claim Construction chart and used in the oral hearing. Docket No. 115-1.

stored” or (2) the phrase “is stored in RAM.” *Id.* Adding “is stored” to the end of the claim would “mean that the storage unit could be, for example, RAM (Random Access Memory; memory that can be rewritten) or ROM (Read Only Memory; memory that cannot be rewritten).” *Id.* (citing Docket No. 100-1 (Akl. Decl.) at ¶¶ 173–75, 186–188. Alternatively, according to Huawei, adding “is stored in RAM” is another reasonable correction, as it would “correct the claim to cover the preferred, indeed the only disclosed, embodiment.” *Id.* (citing Akl. Decl. at ¶ 187–90).

In response, Maxell agrees that the claim language contains a “clear typographical error” and requests that the Court correct the error in this claim by adding “is stored” at the end of the claim term. H’rg Tr. at 9:3–11; Docket No. 106 at 11. Maxell notes that it has sought this correction at the USPTO via a Certificate of Correction. *Id.* Maxell identifies two reasons that it believes defeat Huawei’s argument that two corrections are possible.

First, according to Maxell, adding “is stored” would encompass the embodiment in the specification that discloses RAM and Huawei or Dr. Akl have not provided any evidence that the claim should be limited to the RAM embodiment. *Id.* (citing Docket No. 106-7 (Vojcic Decl.) at ¶ 34).

Second, Maxell contends that “claim 11 is an apparatus claim and [the] applicant indicated its intent to broadly encompass different types of memory by using ‘storage unit.’ ” *Id.* (citing ’139 Patent 11:6). Maxell contends that if the applicant wanted to limit the claim to RAM, it would have recited a RAM storage unit instead of broadly reciting “storage unit.” *Id.* (citing Vojcic Decl. at ¶ 36). Maxell argues that “[t]he correction is being made to the functional recitation of the claim, and a person of ordinary skill in the art would not consider adding ‘in RAM’ to the functional part of the claim because it is clear that the structure is already defined

by ‘storage unit,’ and the latter part of the claim term is simply describing information that *is stored* in the already claimed storage unit.” *Id.* at 11–12 (citing Vojcic Decl. at ¶ 36) (emphasis original).

The definiteness standard of 35 U.S.C. § 112, ¶ 2 requires that:

[A] patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty. The definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable.

Nautilus, 134 S. Ct. at 2129–30. The parties both agree that as drafted the claim contains an error. The Federal Circuit has held that a district court can “act to correct an error in a patent by interpretation of a patent where no certification of correction has been issued . . . only if (1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.” *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1354 (Fed. Cir. 2003). If the claim language might mean several different things and no informed and confident choice is available among the contending definitions, the claim is indefinite. *See Interval Licensing LLC v. AOL Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (citing *Nautilus, Inc.*, 134 S.Ct. at 2130, n.8 (2014)).

The Court construes “a storage unit in which group information generated by classifying the plurality of base stations into groups” to mean “a storage unit in which group information generated by classifying the plurality of base stations into groups is stored.” The correction of “is stored” is not subject to reasonable debate based on the claim language and the specification. In effect, Huawei seeks to limit “a storage unit” to “a RAM storage unit” but has pointed to no lexicography, disclaimer or disavowal in the intrinsic record indicating that the term “storage unit” should be so limited. Even Huawei’s own expert states that one skilled in the art would

recognize that “storage unit” is a term that is not limited to RAM but inclusive of multiple types of memory. *See* Akl Decl. at ¶¶ 173–79. And Maxell’s expert agrees. *See* Vojcic Decl. at ¶ 32 (“One of ordinary skill in the art would understand that the function of the “storage unit” is to store and therefore this correction would be the only logical correction to make.”). Given that one skilled in the art would recognize that the “a storage unit” for storing “group information generated by classifying the plurality of base stations into groups” would not be limited to RAM, the Court finds it unreasonable to read in a limitation at the end of the claim term that would be in opposition of the broad usage of “a storage unit.” Maxell’s proposed correction of “is stored” is not subject to reasonable debate based on the claim language and specification and the prosecution history does not suggest a different interpretation of the claims.

Accordingly, the Court finds that the claim is not indefinite and construes “a storage unit in which group information generated by classifying the plurality of base stations into groups” to mean “a storage unit in which group information generated by classifying the plurality of base stations into groups is stored.”

B. The ’292 Patent

The ’292 Patent relates generally to techniques for determining the position of a device, more specifically to a method for determining a position of a mobile handset using both GPS and cellular signals. The Abstract of the ’292 Patent recites:

To extend the areas where a mobile handset can determine its position using radio waves, the present invention provides a mobile handset that is equipped with both position calculation means using radio waves from GPS satellites and position calculation means using RF carriers from cellular base stations. Positioning results obtained from both of these position calculation means are combined and weighted with GPS positioning reliability and cellular positioning reliability, respectively. A weighted mean of these results is then output as a final position calculation result.

'292 Patent Abstract. More particularly, the '292 Patent describes a mobile handset that receives transmissions from GPS satellites, determines a position of the mobile handset using GPS signals and calculates the reliability of the GPS position. '292 Patent 3:24–4:3, Figure 1. The mobile handset also receives transmissions from cellular base stations, determines the position of the mobile handset using the cellular signals, and calculates the reliability of the cellular position. '292 Patent 4:4–34, Figure 1. The mobile handset then combines the GPS position, the cellular position, the GPS reliability calculation and the cellular reliability calculation to determine an accurate position of the mobile handset in diverse ambient conditions and environments. '292 Patent 4:43–56, Figure 1.

3. “combining” / “combined” ('292 Patent claims 1 and 2)

Maxell’s Proposed Construction	Huawei’s Proposed Construction
“a determination based on one or more inputs”	“merging” / “merged”

Maxell contends that its proposed construction “accounts for the embodiments where the ‘GPS-based position calculation result 202’ or the ‘cellular based position calculation result 302’ will have ‘no effect on further processing’ because they assigned a reliability value of 0.” Docket No. 95 at 24–25 (citing '292 Patent 3:64–4:3, 4:36–42). Maxell contends that its proposed construction for combining “is consistent with the embodiments disclosed in the specification—*i.e.*, ‘a determination based on one or more inputs’ because, in the scenario where the reliability value of one of the positions is 0, the combining means will make a determination based on one input.” *Id.* at 25 (citing '292 Patent 3:64–4:3, 4:36–42; Docket No. 95-1 at ¶ 5). Maxell contends that Huawei’s proposed construction excludes this disclosed embodiment. *Id.*

According to Huawei, the '292 Patent explains that the GPS and cellular positioning results are “weighted with the reliability 205 and the reliability 305, respectively” and then input

to “combination unit 410” which “calculates a weighted mean.” Docket No. 100 at 17 (citing ’292 Patent 4:49–56, Abstract, 2:13–18, 3:12–17, 4:43–49, 5:7–12, Figures 2 (606) and 3). Thus, Huawei contends, the data are merged.

Huawei argues that merging “is not merely a preferred embodiment; it is the only embodiment.” *Id.* Huawei contends that the inventors “believes that the ‘accuracy of the position determination may be enhanced’ by ‘using **both** GPS and cellular signals’ ‘compared to . . . using either . . . alone.’ ” *Id.* (citing ’292 Patent 4:1–3) (emphasis original). According to Huawei, when one estimate is unreliable, its reliability value is preferably set to zero and the estimate has no net effect in the merge. *Id.* at 17–18. Huawei further asserts that, even though the estimate has no net effect on the merge, it still “enters the combiner to be merged. Combining unit 400 does not make any decisions based on the inputs; it simply merges them.” *Id.* at 18.

Huawei contends that its construction is also consistent with the extrinsic evidence and constructions of “combine” from other patents. *Id.* at 18 n. 11, 12.

Huawei particularly objects to Maxell’s proposed construction as expanding “combining” into “selecting.” *Id.* According to Huawei, Maxell’s construction would allow for an output based on merely one input—so “if the GPS and cellular positions are equally reliable, a device can just use one and throw the other away.” *Id.* at 18–19. But, Huawei contends, “that is *selecting*, not combining.” *Id.* at 19 (emphasis original). Moreover, Huawei argues, the present invention uses both GPS and cellular signals, an enhancement compared to using only one of the two, and allowing a device to select between the two would “eviscerate[e] the patent’s fundamental feature.” *Id.* (citing *On Demand Machine Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1344 (Fed. Cir. 2006)). As an example, Huawei proposes that Maxell’s construction

would allow for ignoring cellular results completely in a situation where GPS results had 75% reliability and cellular results had 50% reliability, which would be direct opposition to the claimed “combining.” *See* H’rg Tr. at 25:1–27:21, 29:6–30:14.

The specification is clear that both cellular and GPS data are calculated. Further, a reliability factor is output from each of the cellular and GPS calculation units even when it is determined that a position calculation is impossible for the particular unit. ’292 Patent 3:64–4:3, 4:36–42. The specification describes and shows the position being output to the combiner in all cases. *Id.* at Figures 1–3, 3:33–59, 3:64–4:3, 4:10–35, 4:36–42. Maxell’s construction would encompass a system that merely selected one or the other of GPS and cellular—for example switching between the two. Construing “combining” / “combined” to mean a determination based on one or more inputs would allow for selection and, thus, ignore the language of the claim and the clear corresponding scope of the specification. *Id.* at 4:49–56, Abstract, 2:13–18, 3:12–17, 4:43–49, 5:7–12, Figures 2–3.

Maxell contends that Huawei’s construction excludes the “value of 0” embodiment in which one of the GPS position or cellular position will have “no effect on further processing.” In that embodiment, however, the data from both the GPS and cellular units is still provided to the combiner. The specification and the claims do not state that in such a situation the data is not combined; instead, the specification explains that the reliability weighting is adjusted to achieve the “no effect.” That one value may have a corresponding reliability set at zero to have no effect does not mean that the data from the two units is not provided to the combining unit for combining. As described, both values are still output to the combiner.

Thus, as noted in the specification, the “mobile handset of the present invention preferably combines the positioning results obtained by both of [the GPS and cellular]

positioning means [with] the reliability of the positioning. . . [so that] the mobile handset can accurately determine its position in diverse ambient conditions and environments.” ‘292 Patent 2:13–18. The specification describes a mathematical function (shown in Figure 3) for combining the four inputs supplied to the combining unit 400/410. Although combining all four inputs is preferable, the specification notes that the GPS position results (or the cellular position results) supplied to the combining unit may not be accurate. ‘292 Patent 3:64–4:3, 4:36–42. When this occurs, the reliability value corresponding to the inaccurate GPS or cellular position is set to 0, so that when the GPS/cellular position and reliability values are combined in the mathematical function, the inaccurate GPS or cellular position has no effect on the position calculation result. ‘292 Patent 4:43–56.

Maxell’s construction would enable the combining unit to determine a position calculation result based on only one, two, three or four of the inputs being supplied to the combining unit. For example, Maxell’s construction could enable the combining unit to determine the position of the mobile device based on GPS position alone without ever receiving the other values. This is in direct contrast to the scope of the invention and the claims themselves. ‘292 Patent 2:13–18.

At the oral hearing, it became clear that Maxell intended to include providing only one factor to the combining unit in the ordinary meaning of “combining.” The Court does not agree that such a meaning falls within the ordinary meaning of “combining” or within the meaning of “combining” as used in the specification. In light of Maxell’s unsupported view of “combining” and to clearly address that dispute between the parties, the Court makes clear the usage of all of the factors (though a factor could be set to “0” to provide “no effect” for certain factors) as described in the specification by construing the term to require “merging.” *See O2 Micro Int’l*

Ltd. v. Beyond Innovation Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008) (requiring claim construction disputes to be resolved).

Accordingly, the Court construes “combining” / “combined” to mean “merging” / “merged.”

4. “GPS/cellular positioning results combining means for combining the GPS-based position result and the cellular-based position result with the GPS positioning reliability and the cellular positioning reliability” (’292 Patent claim 1)

Maxell’s Proposed Construction	Huawei’s Proposed Construction
<p>Function: combining the GPS-based position result and the cellular-based position result with the GPS positioning reliability and the cellular positioning reliability</p> <p>Structure: GPS/cellular positioning results combining unit 400 and/or components within a mobile handset that perform processing functions, such as, a CPU programmed to execute processing in accordance with the algorithm set forth in the specification, a processor that combines GPS/cellular position as described in Fig. 2 (block 605) and corresponding recitations in the specification as provided herein, or equivalents thereof. <i>See e.g.</i>, (4:42–56), (Fig. 3 at 400), (3:12–17), (5:3–7).</p>	<p>Function: combining the GPS based position result and the cellular-based position result with the GPS positioning reliability and the cellular positioning reliability</p> <p>Structure: GPS / Cellular Positioning Results Combining Unit 400 performing the weighted mean disclosed in Figure 3 and at col. 4:49–56, block 606 in Fig. 2</p>

The parties agree that this term is a means-plus-function term and generally agree on the function but disagree as to the structure of the means term.

Maxell argues that, while the structure includes block 400 in Figure 3 includes part of the structure that corresponds to the GPS/cellular positioning results combining means, it is “not the only disclosed structure or processing step.” Docket No. 95 at 23 (emphasis original). Maxell contends that the ’292 Patent provides other examples of processing steps that are to be performed by the claimed combining means in addition to performing the weighted mean

disclosed in Figure 3. *Id.* Specifically, Maxell points to the example when the reliability value is 0:

In some cases, the GPS reliability calculation unit 204 may determine that positioning by GPS is impossible. (For example, if the number of GPS satellites used is found to be two or less). In that event, the GPS reliability calculation unit 204 preferably outputs a value of 0 as the reliability 205 so that the GPS based position calculation result 202 has no effect on further processing.

Id. at 23–24 (citing ’292 Patent 3:64–4:3). Maxell also cites to its expert to contend that, in the case where reliability of the cellular or GPS based position is zero, the combining means will not necessarily need to perform a weighted mean because the other non-zero position will be selected. *Id.* at 24 (citing Docket 95-1 (Braasch Decl.) ¶¶ 50–51). Maxell contends that Huawei dismisses the embodiments where the “GPS/cellular positioning results combining means” will ignore the “GPS-based position calculation result 202” or the cellular based position calculation result 302 because they were unreliable. *Id.* (citing ’292 Patent at 3:64–4:3, 4:36–42).

Maxell also contends that the ’292 Patent can be performed by “a single mobile handset,” thus a processor that can perform the claimed function is necessarily included. *Id.* at 24 (citing Braasch Decl. at ¶¶ 50–51 (contending that it is known in the art that a mobile handset may include a processor)). At the oral hearing, Maxell conceded that the term “processor” was not found in the specification. H’rg Tr. at 36:16–21.

Huawei contends that the only structure clearly linked to the function of the combining means is the weighted average disclosed in Figure 3, described at 4:49–56, and identified as block 606 in Figure 2. Docket No. 100 at 23 (citing Akl Decl. at ¶ 156). Huawei contends that the additional disclosure that Maxell points to is not structure and is not clearly linked to the combining function. *Id.* (stating that lines 36–41 of 4:36–56 is not structure for the combiner;

4:42–56 is subsumed by Figure 3; 3:64–4:3 (same); 3:12–17 (inputs and outputs, not structure); 5:3–7 (same)); and citing Akl Decl. at ¶¶ 157–68).

Because the specification describes the use of a mobile handset, Maxell would have the structure of every means term merely being a processor of a mobile handset. A “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Medtronic Inc.*, 248 F.3d at 1311. The focus of the “corresponding structure” inquiry is not merely whether a structure is capable of performing the recited function but, rather, whether the corresponding structure is “clearly linked or associated with the [recited] function.” *Id.* The specification does not clearly link a generic processor of a mobile handset to the claimed function. In fact, the specification does not recite the processor of a mobile handset. The specification does, however, clearly describe the GPS / Cellular Positioning Results Combining Unit 400 as performing the claimed function. ’292 Patent 4:43–56, Figures 1 and 3.

Maxell contends that Huawei ignores the example wherein the reliability 205 value or the reliability 305 value are 0. As discussed above for the “combining” term, the specification does not describe the weighted mean approach as not being used in such situations. Rather, it is noted that the reliability outputs are set to zero so that the GPS or cellular position has no result, as can be seen from the disclosure. The weighted mean approach is still described as being used, though one of the weightings may be 0. *See* ’292 Patent 3:64–4:3, 4:36–42, 4:49–56, block 606 in Figure 2, block 410 in Figure 3.

It is noted that “FIG. 3 represents an *exemplary embodiment* of the GPS/cellular positioning results combining unit 400.” ’292 Patent 4:49–50 (emphasis added). However, the corresponding structure of a means-plus-function term is limited to the structure disclosed in the

specification. *See Medtronic, Inc.*, 248 F.3d at 1311. The structure adopted below is the corresponding disclosed structure.

The Court construes “GPS/cellular positioning results combining means for combining the GPS-based position result and the cellular-based position result with the GPS positioning reliability and the cellular positioning reliability” to mean:

Function: combining the GPS based position result and the cellular-based position result with the GPS positioning reliability and the cellular positioning reliability

Structure: GPS / Cellular Positioning Results Combining Unit 400 of a mobile handset performing the weighted mean algorithm disclosed in Figure 3 block 400, Figure 2 block 606, and at cols. 3:12–17, 3:64–4:3, 4:36–56, or equivalents thereof.

8. “cellular position calculation means for calculating the mobile handset’s position from the received cellular signals and outputting a cellular-based position result” (’292 Patent claim 1)

Maxell’s Proposed Construction	Huawei’s Proposed Construction
<p>Function: calculating the mobile handset's position from the received cellular signals and outputting a cellular-based position result</p> <p>Structure: A position calculation unit 301 and/or components within a mobile handset that perform processing functions, such as, a CPU programmed to execute processing in accordance with the algorithm set forth in the specification, or a processor that performs cellular position calculation processes as described in Fig. 2 (block 604) and corresponding recitations in the specification as provided herein, or equivalents thereof. <i>See e.g.</i>, (1:23–27), (3:10–11; block 604 in Fig. 2), (4:4–16), (2:66–3:6), (5:3–7).</p>	<p>Function: (1) calculating the mobile handset’s position from the received cellular signals and (2) outputting a cellular based position result.</p> <p>Structure: position calculation unit for cellular 301, which is insufficient structure because the specification does not disclose the necessary algorithm or flowchart, which renders the term indefinite</p>

The parties agree that this term is a means-plus-function term and agree on the function corresponding to the term. The parties dispute, however, whether the specification recites

sufficient structure and/or algorithms for calculating the mobile handset's position from the received cellular signals to render the means term definite.

As with the other terms, Maxell objects to construing the position calculation unit for cellular 301 as the only structure. Docket No. 95 at 21. Maxell points to the '292 Patent specification:

In much the same way, a cellular receiver 300 executes the receive operations required for position determination which preferably include: receiving the cellular signals of high/medium frequencies out of the signals received by the antenna 100; baseband signal modulation; synchronization acquisition; and reception timing calculation.

Id. (citing '292 Patent 4:4–16; *see also* '292 Patent 2:66–3:6 (describing receiver operations); '292 Patent 1:23–23 (disclosing calculating a position using cellular signals based on “propagation delay time of RF carriers.”)). Maxell further argues that the disclosure of the '292 Patent makes clear that the claimed cellular position calculation means makes a “position determination” based on execution of receive operations, including “baseband signal modulation; synchronization acquisition; and reception timing calculation” as part of the reception. *Id.* at 21–22. Maxell points to the statement in the specification that “the handset calculates its current location using the propagation delay time of the RF carriers.” *Id.* at 22 (citing '292 Patent 1:26–28). According to Maxell, one of ordinary skill in the art would understand that a processor would be a basic component of the disclosed “mobile handset” that will be required to “execute[] the receive operations” of baseband signal modulation, synchronization acquisition, and reception timing calculation and, as disclosed by the '292 Patent, these operations are “required for position determination.” *Id.* (citing Braasch Decl. at ¶¶ 46–48, '292 Patent 3:24–32). As with other terms, Maxell argues that the '292 Patent also makes clear that the disclosed invention

can be performed by “a single mobile handset,” which will necessarily include a processor for executing the disclosed operations. *Id.*

Huawei contends that “[a]ll that the patent shows is inputs (‘GPS signals’), an output (‘positioning result L_{cell} ’), a black box (‘Position calculation unit for cellular 301’), and a non-structural, purely functional block (‘Calculate positioning result L_{cell} ’). Docket No. 100 at 22 (citing ’292 Patent Figures 1–2, 3:4–11, 4:10–15; Akl Decl. at ¶¶ 131–35). Huawei contends that the patent does not describe either hardware or an algorithm that connects the inputs to the output. *Id.* According to Huawei, the ’292 Patent “offers ‘no instruction for using a particular piece of hardware, employing a specific source code, or following a particular algorithm’ for the function.” *Id.* (quoting *ePlus*, 700 F.3d at 519–20). Huawei contends that Maxell identifies only a desired output, a black box, and unrelated- or non-structure. *Id.* (citing Docket No. 95 at 21).

Huawei contends that, although Maxell references an algorithm in the specification, Maxell does not *identify* an algorithm. According to Huawei, even though cellular positioning techniques were known before the filing date of the ’292 Patent, “ ‘position calculation unit for cellular 301’ is not a term of art, and the mere invocation of this phrase, even in light of the other disclosure that Maxell cites, does not connote structure to a skilled person: these techniques were (and still are) usually implemented as particular algorithms in hardware or a general-purpose processor.” *Id.* (citing Akl Decl. at ¶¶ 132–37). Huawei contends that merely because one *could* devise a way to calculate cellular-based positions does not save this claim because the inventors were required to identify the structure they wanted to claim and did not do so. *Id.*

In its reply, Maxell contends that Huawei contradicts its positions in Huawei’s briefing on a motion to dismiss under section 101. Maxell contends that in its 101 briefing, Huawei stated that the ’292 Patent utilizes “off-the-shelf generic GPS and cellular hardware” that “can be

implemented in generic hardware” and that “the ’292 Patent employs conventional GPS and cellular components for their routine functions . . . [such that] obtaining position estimates and the reliability of these estimates was background technology.” Docket No. 106 at 3–4 (citing Docket No. 26 at 1, 12 and Docket No. 31 at 3).

Maxell also responds that the ’292 Patent discloses specific algorithms for “calculating the mobile handset’s position from the received cellular signal.” *Id.* at 5 (citing ’292 Patent 4:4–16, 2:66–3:6, 1:24–29, Braasch Decl. at ¶¶ 46–48).

As with the “GPS position calculation means” term discussed above, Maxell contends that one skilled in the art would understand that the mobile handset would include a processor (such as a CPU) that performs cellular position calculation processes as described in Figure 2 (block 604). Maxell also contends that the specification discloses specific algorithms for “calculating the mobile handset’s position from the received cellular signal” in ’292 Patent 4:4–16, 2:66–3:6, 1:24–29. As explained above, the ’292 Patent specification fails to recite a processor, much less clearly link or associate a processor with the claimed function of “calculating the mobile handset’s position from the received cellular signals and outputting a cellular-based position result.”

The ’292 Patent specification discloses “position calculation unit for cellular 301 calculates the position of the mobile handset using the cellular signals.” ’292 Patent 4:11–13. Huawei contends that the ’292 Patent specification fails to recite *specific algorithms* for “calculating the mobile handset’s position from the received cellular signal” in 4:4–16 and 2:66–3:6. However, the specification does disclose in the passage at 1:24–29 that cellular position can be calculated, i.e., by “using the propagation delay time of the RF carriers.” The specification describes this technique in a manner such that it is clear that this basic cellular-position technique

for determining location has deficiencies. These deficiencies, however, are addressed by using both GPS and RF carrier cellular information, as disclosed in the '292 Patent. '292 Patent 1:48–2:19. At the oral hearing, Maxell agreed to the construction adopted below. H'rg Tr. at 44:14–17, 46:18–23.

Accordingly, the Court construes “cellular position calculation means for calculating the mobile handset’s position from the received cellular signals and outputting a cellular-based position result” to mean:

Function: calculating the mobile handset’s position from the received cellular signals and outputting a cellular based position result

Structure: position calculation unit for cellular 301 of a mobile handset, the position calculation unit for cellular 301 performing block 604 in Figure 2 and utilizing propagation delay of RF carriers for position determination, as disclosed at 1:23–27, 4:4–16, 2:66–3:6, or equivalents thereof.

9. “GPS reliability calculation means for calculating GPS positioning reliability based on the GPS-based position result” ('292 Patent claim 1)

Maxell’s Proposed Construction	Huawei’s Proposed Construction
<p>Function: calculating GPS positioning reliability based on the GPS-based position result</p> <p>Structure: A GPS reliability calculation unit 204 and/or components within a mobile handset that perform processing functions, such as, a CPU programmed to execute processing in accordance with the algorithm set forth in the specification, a processor that performs GPS reliability calculation processes described in Fig. 2 (block 602) and corresponding recitations in the specification as provided herein, or equivalents thereof. <i>See e.g.</i>, (2:60–65; block 602 in Fig. 2), (3:38–4:3), (5:3–7).</p>	<p>Function: calculating GPS positioning reliability based on the GPS-based position result</p> <p>Structure: GPS reliability calculation unit 204, which is insufficient structure because the specification does not disclose the necessary algorithm or flowchart, which renders the term indefinite</p>

The parties agree that this term is a means-plus-function term and agree on the function corresponding to the term. The parties dispute whether the specification recites sufficient structure and/or algorithms for calculating GPS positioning reliability based on the GPS-based position result to render the means term definite.

As with other terms, Maxell objects to identifying one block from the figures. Maxell contends that the specification of the '292 Patent discloses exemplary techniques for determining the reliability of the GPS-based position result:

The GPS reliability calculation unit 204 calculates the reliability in a manner in which, for example, the number of GPS satellites used when the position calculation unit for GPS 201 calculated the handset position is used as the reliability 205. Alternatively, the quality of the signals received from the GPS satellites used when the position calculation unit for GPS 201 calculated the handset position might be used. . . .

By way of illustration, if the received signal quality (for example, the signal-to-noise ratio (SNR) in decibels) is used, the lowest SNR among the SNRs of the signals received from the GPS satellites may be used as the reliability 205. . . .

Docket No. 95 at 18 (citing '292 Patent 3:44–4:3). Maxell contends that “[t]hese sections of the '292 Patent explain that the GPS reliability calculation unit 204 can perform several alternative processing steps to calculate the reliability of the GPS position,” including “making a determination on whether the result is reliable based on the number of GPS satellites that have provided the signal.” *Id.*

As an example, Maxell contends that if the GPS-based position was calculated based on signals received from four GPS satellites, the reliability of the result will be high because signals from multiple sources provided the same result. *Id.* at 19. As an alternative example, Maxell provides that the reliability of the GPS position can be calculated using the quality of the signals that have been received from the GPS satellites and/or the signal-to-noise ratio of the various

signals. *Id.* Maxell contends that if the position was calculated based on a signal that was very noisy, the reliability of the result would be low. *Id.* Maxell again repeats that because the '292 Patent also makes clear that the disclosed invention can be performed by “a single mobile handset,” which will necessarily include a processor, one of ordinary skill in the art will recognize that these processing steps will be executed by a processor. *Id.* Maxell contends that Huawei’s proposal ignores these processing steps provided in the '292 Patent for performing the recited function. *Id.*

Huawei contends that the '292 patent does not disclose sufficient structures for the two reliability means terms. Huawei contends that the fundamental feature of this patent is to merge GPS- and cellular-position estimates depending on the reliability for each position estimate. Docket No. 100 at 19 (citing '292 Patent 3:12–17). Huawei contends that, “[t]o do this, the ‘mobile handset calculates the reliability (W_{gps})’ for the GPS position using ‘the number of GPS satellites . . . and the received signal quality’ of the GPS signals. *Id.* (citing '292 Patent 2:60–65, 3:44–4:3). According to Huawei, the disclosure is nearly identical for calculating “the reliability (W_{cell})” for the cellular-based estimate, essentially replacing “satellite” with “base station.” *Id.* (citing '292 Patent 4:22–34). Huawei further contends that the patent also includes black boxes marked “GPS Reliability Calculation Unit 205” and “Cellular Reliability Calculation Unit 304” in Figure 1 and purely functional steps in Figure 2 (e.g., “Calculate the reliability (W_{gps}) for L_{gps} ” 602). *Id.* at 19–20. Huawei contends that, for the reliability functions, the patent insufficiently just lists (1) desired outputs— W_{gps} and W_{cell} ; (2) potential inputs—the number of satellites (GPS), base stations (cellular), and received signal qualities; and (3) figures with purely functional, or black boxes. *Id.* at 20 (citing *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1317 (Fed. Cir. 2012); *ePlus*, 700 F.3d at 519–20; Akl Dec. ¶¶ 102–10) .

According to Huawei, the '292 Patent “does not provide structure that converts these inputs into the desired outputs,” by failing to offer, for example, “an algorithm for converting the ‘number of satellites,’ the ‘number of base stations,’ or the ‘received signal quality’ into reliability values for position estimates.” *Id.* Huawei contends that drawing boxes for “GPS reliability calculation unit” and “Cellular reliability calculation unit,” listing potential inputs to these boxes, and labeling the outputs of these boxes, does not denote structure and that the number of satellites and base stations are neither reliability values in themselves nor structure. *Id.*

As to Maxell’s claim that a person of ordinary skill can calculate “high” or “low” reliability values based on the disclosed inputs (e.g., number of GPS satellites), Huawei contends that there is no support in the specification, and “high”/“low” does not fit the preferred embodiment. *Id.* at 21. (citing Akl Decl. at ¶¶ 112–13). According to Huawei, the “inventors were required to, but did not, disclose structures (e.g., algorithms) to convert data—like the number of satellites, number of base stations, or signal quality—into reliability values.” *Id.* (citing *ePlus*, 700 F.3d at 518).

In its reply, Maxell contends that the '292 Patent explicitly discloses specific algorithms to be followed by a processor to determine the reliability of the GPS-based position based on the number of GPS satellites that provide a signal and/or based on the Signal-to-Noise Ratio (“SNR”) of the received signals. Docket No. 106 at 4 (citing '292, 3:44–4:3, Braasch Decl. at ¶ 42). Maxell also contends that the '292 Patent explicitly discloses specific algorithms for determining the reliability of the cellular-based positions or for converting “number of satellites,” “number of base stations,” or “received signal quality” into reliability values. *Id.* (citing '292 Patent 3:6–11, Braasch Decl. at ¶ 49). Maxell contends that these specific algorithms

include using the number of GPS satellites or cellular base stations *as* the GPS/cellular reliability value, and using the signal-to-noise ratio in decibels for signals received from the GPS satellites or cellular base stations *as* the GPS/cellular reliability value. *Id.* (citing '292 Patent 3:49–53, 3:60–63, 4:27–34).

As to the use of a processor, the rationale provided above for other terms is equally applicable here for not including “processor” within the recited structure.

Huawei contends that merely a black box is disclosed because an algorithm for converting the “number of satellites” or the “received signal quality” into reliability values for position estimates is not provided. Huawei further contends that the number of satellites and base stations are not “reliability values.” Huawei is correct that, in general, a detailed and specific exact algorithm for calculating the reliability of the GPS/cellular positions is not disclosed in the '292 Patent. However, an algorithm and technique for operation of the disclosed structure is described that provides context to the structure. The '292 Patent states that:

The mobile handset also calculates the reliability (W_{gps}) for L_{gps} 602 using the number of GPS satellites used in calculating L_{gps} and the received signal quality (such as a signal-to-noise ratio in decibels) for the signals from each GPS satellite.

'292 Patent 2:60–65, and

GPS reliability calculation unit 204 calculates the reliability of the GPS-based position calculation result 205 based on the information about the reliability input from the position calculation unit for GPS 201. . . .

'292 Patent 3:44–47. Further, the '292 Patent describes the “information about the reliability” as, “for example, the number of GPS satellites. . . and the received signal quality of the signals from the GPS satellites.” '292 Patent 3:38–42. In illustrative examples, the '292 Patent also suggests that the “number of satellites,” or the “received signal quality” “is used as the reliability 205” or “might be used.” '292 Patent 3:50–59. Therefore, as disclosed, GPS reliability

calculation unit 204 utilizes an algorithm in which reliability of the GPS positions involves using the information regarding the number of GPS satellites or the received signal quality to calculate the GPS positioning reliability.

Thus, the Court construes “GPS reliability calculation means for calculating GPS positioning reliability based on the GPS-based position result” to mean:

Function: calculating GPS positioning reliability based on the GPS-based position result

Structure: GPS reliability calculation unit 204 of a mobile handset, the GPS reliability calculation unit 204 performing block 602 in Figure 2 and utilizing the number of satellites or the received signal quality to calculate GPS positioning reliability, as disclosed at 2:60–65, 3:38–4:3, or equivalents thereof.

10. “cellular reliability calculation means for calculating cellular positioning reliability based on the cellular-based position result” (’292 Patent claim 1)

Maxell’s Proposed Construction	Huawei’s Proposed Construction
<p>Function: calculating cellular positioning reliability based on the cellular-based position result</p> <p>Structure: A cellular reliability calculation unit 304 and/or components within a mobile handset that perform processing functions, such as, a CPU programmed to execute processing in accordance with the algorithm set forth in the specification, a processor that performs cellular reliability calculation processes as described in Fig. 2 (block 605) and corresponding recitations in the specification as provided herein, or equivalents thereof. <i>See e.g.</i>, (3:10–11; block 605 in Fig. 2), (4:15–42), (3:6–11), (5:3–7).</p>	<p>Function: calculating cellular positioning reliability based on the cellular-based position result</p> <p>Structure: cellular reliability calculation unit 304, which is insufficient structure because the specification does not disclose the necessary algorithm or flowchart, which renders the term indefinite</p>

The parties dispute whether the specification recites sufficient structure and/or algorithms for calculating cellular positioning reliability based on the cellular-based position result to render the means term definite.

The parties present the same arguments for this term as presented for the “GPS reliability calculation means” term. Maxell further states that the ’292 Patent explains that cellular positioning reliability is calculated in the same way, i.e., “using the number of cellular base stations used in calculating L_{cell} and the received signal quality for the signals from each cellular base station.” Docket No. 95 at 22–23 (quoting ’292 Patent 3:6–11).

The same analysis applied to the “GPS reliability calculation means” applies to the “cellular reliability calculation means.” It is noted that with regard to the cellular calculations, the specification similarly states:

The mobile handset also calculates the reliability (W_{cell}) for L_{cell} 605 using the number of cellular base stations used in calculating L_{cell} and the received signal quality for the signals from each cellular base station.

’292 Patent 3:6–10, and

The cellular reliability calculation unit 304 calculates the reliability of the cellular-based position calculation result 305 based on the information about the reliability input from the position calculation unit for cellular 301, and the unit 304 outputs the reliability 305 to the GPS/cellular positioning results combining unit 400.

’292 Patent 4:22–27. Further, the ’292 Patent describes the “information about the reliability” as, “for example, the number of cellular base stations . . . and the received signal quality of the signals from the cellular base stations.” ’292 Patent 4:18–20. In illustrative examples, the ’292 Patent also suggests that the “number of base stations,” or the “received signal quality” “may be used as reliability 305.” ’292 Patent 4:31–35. Therefore, as disclosed, cellular reliability calculation unit 304 uses an algorithm in which reliability of the cellular positions involves using

the information regarding the number of cellular base stations or the received signal quality to calculate the cellular positioning reliability.

The Court construes “cellular reliability calculation means for calculating cellular positioning reliability based on the cellular-based position result” to mean:

Function: calculating cellular positioning reliability based on the cellular-based position result

Structure: cellular reliability calculation unit 304 of a mobile handset, the cellular reliability calculation unit 304 performing block 605 in Figure 2 and utilizing the number of base stations or the received signal quality to calculate cellular positioning reliability, as disclosed at 3:6–10, 4:15–42, or equivalents thereof.

C. The '440 Patent and '760 Patent

The '440 Patent and '760 Patent share a substantially similar specification, both patents being continuations of a common parent, U.S. Patent No. 6,424,795. The '440 Patent relates to a method for reproducing recorded moving and still pictures and the '760 Patent relates to a machine-readable recording medium having moving and still pictures recorded thereon. The Abstract of the '440 Patent recites:

A video reproducing method and apparatus includes reproducing at least still pictures encoded by a first encoding method and first pictures that have pixels smaller than the still pictures from a recording medium. The recording medium has the still pictures, the first pictures, moving pictures encoded by a second encoding method, and second pictures corresponding to the moving pictures that have pixels smaller than the moving pictures recorded thereon. A plurality of the reproduced first pictures are outputted and the still pictures corresponding to selected first pictures are outputted.

'440 Patent Abstract. The Abstract of the '760 Patent recites:

A recording medium which records thereon moving pictures encoded by a first encoding method, first pictures corresponding to the moving pictures and which have pixels smaller than the moving pictures, still pictures encoded by a second

encoding method, and second pictures corresponding to the still pictures and which have pixels smaller than the still pictures.

'760 Patent Abstract. More particularly, the '440 Patent and the '760 Patent describe a recording medium and video reproducing apparatus/method, which reproduces from the recording medium moving pictures and still pictures encoded by a first encoding method (e.g., an MPEG encoding standard) and still pictures encoded by a second encoding method (e.g., a JPEG encoding standard). To facilitate easier searching of both types of pictures, thumbnail pictures (i.e., compressed data having a smaller number of pixels) corresponding to the moving pictures and the still pictures encoded by the first and second encoding methods are recorded, and a plurality of the thumbnail pictures are output or displayed. In the '440 Patent, a moving picture corresponding to a selected one of the thumbnail images is output or displayed. *See* '440 Patent 10:41–11:14, 11:31–12:50, Figures 4 and 5.

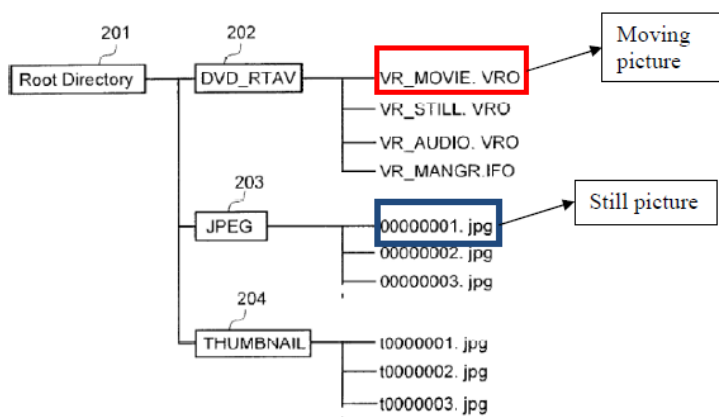
11. “still pictures encoded by a second encoding method, and second pictures corresponding to the still pictures and having a smaller number of pixels than the still pictures are recorded” ('440 Patent claims 1, 3, 5, and 7)

Maxell's Proposed Construction	Huawei's Proposed Construction
Plain and ordinary meaning	“still pictures encoded by the first encoding method and by a second encoding method, and second pictures corresponding to the still pictures and having a smaller number of pixels than the still pictures are recorded”

Maxell contends that the fact that this term does not require any construction is apparent from Huawei's proposed construction, which parrots the claim language with the exception that Huawei adds the underlined phrase: “still pictures encoded by the first encoding method and by a second encoding method. . . .” Docket No. 95 at 9. Maxell contends that the claim language makes clear that: “moving pictures [are] encoded by a first encoding method” and “still pictures encoded by a second encoding method.” *Id.* Maxell contends that Huawei imports a limitation

by imposing the claimed first encoding method for moving pictures on the claimed second encoding method for still pictures. *Id.* at 10.

According to Maxell, Huawei's proposed construction improperly excludes a preferred embodiment disclosed in the '440 Patent. *Id.* at 10–11. Maxell points to Figure 2 and Figure 4 as showing that a moving picture is recorded with a “.VRO” extension (e.g., first encoding method) and still pictures are recorded with a “.jpg” extension (e.g., second encoding method). *Id.* at 11.



Id. (citing '440 Patent Figure 4 (emphasis added), 10:49–51 (“Numeral 203 is a directory for recording JPEG data files for storing compressed still pictures”)). Maxell contends that Huawei's construction would exclude this embodiment because it would require the still picture to be encoded in both the first (“.VRO”) and second (“.jpg”) encoding methods. *Id.* While Maxell acknowledges that what Huawei's construction requires is described in the specification in other embodiments, it contends that it is not a requirement, or even a part of, other embodiments. *Id.* Maxell argues that the specification discloses embodiments in which the reproducing apparatus includes the capability to reproduce one but not both still picture encoding formats. *Id.* (citing '440 Patent 12:61–63 (“if no fine still picture signal is output . . . the fine still picture expanding circuit can also be omitted”)). Maxell further states that the specification does not limit still

pictures to a specific format, pointing to the passage: “Although both fine still pictures and thumb nail pictures

are recorded in a JPEG data file respectively in this embodiment, both fine still and thumb nail pictures may be recorded in any file format and in any different file formats.” H’rg Tr. at 72:2–8 (citing ’440 Patent 11:15–18). Maxell contends that there is no requirement for the reproducing apparatus to be able to handle pictures that have been recorded under the moving picture format. Docket No. 95 at 11.

In response, Huawei states that the parties agree that the “first encoding method” is a moving picture encoding method (e.g., MPEG) and that the “second encoding method” is a still picture encoding method (e.g., JPEG). Docket No. 100 at 11. Huawei contends that the dispute is whether the claims require a still picture to also be encoded by the first encoding method (i.e., a moving picture encoding method). *Id.* at 11–12.

According to Huawei, “[t]hey do because ‘the very character of the invention’ requires a still picture to be encoded using a moving picture encoding method (as a single-frame moving picture) so that a device that only reproduces moving pictures can now reproduce a still picture.” *Id.* at 12 (citing *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1370 (Fed. Cir. 2003)). Huawei contends that the ’440 Patent describes the “present invention” as encoding a still picture using both the first and the second encoding methods. *Id.* at 13 (citing ’440 Patent 2:50–59, 2:59–3:20, 4:52–60). Huawei also argues that encoding a still picture using a moving picture encoding method is implicated in every embodiment. *Id.* (citing ’440 Patent 7:3–8 (first embodiment), 9:36–42 (second embodiment), 12:38–41 (third embodiment), 13:58–62 (fourth embodiment)).

Huawei also points to the prosecution of U.S. Patent No. 7,295,767, which shares the specification with the '440 Patent, in which the inventors overcame an obviousness rejection by arguing that “[o]ne characteristic point of the present invention” is that still pictures are “still pictures encoded by **the first** encoding method **by which moving pictures are encoded.**” *Id.* (citing Docket No. 100-19 at 12 (emphasis original)). Huawei also identifies another statement in the prosecution history as relevant:

According to the present invention, you can get an excellent merit like following. For example, applicant's invention is advantageous in a moving-picture-only player which implements the first encoding method by which moving pictures are encoded (for example, MPEG), but which does not implement the second encoding method by which still pictures are encoded (for example, JPEG). In fact, there are many DVD players like this. Traditionally, you cannot play still pictures on this player. But, according to applicant's disclosed and claimed Invention, there is recorded the still pictures encoded by the first encoding method by which moving pictures are encoded, so you can play still pictures on such a moving-picture-only player as above.

Id. According to Huawei, the applicants “reinforced this by arguing that their “invention [of] having moving/first-encoding-method (e.g., MPEG), and still/first-encoding-method (e.g., MPEG) recording was [the] key in being able to reproduce still pictures within a device having **MPEG-only** capabilities.” *Id.* at 13 (citing Docket No. 100-19 at 13) (emphasis original). Huawei contends that above-cited prosecution history of a patent having the same specification as the '440 Patent underscores that encoding a still picture using the first encoding method (i.e., the moving picture method) is the key feature of the invention. *Id.* at 13–14. Huawei further notes that the patent emphasizes the benefit of being able to omit reproduction circuitry for still pictures encoded with JPEG. *Id.* at 14 (citing '440 Patent 12:61–63).

At the oral hearing, Huawei further pointed to the file history of the '440 Patent where the applicant distinguished the Anderson reference. Specifically, Huawei contends that the applicants distinguished claims 1–8 as:

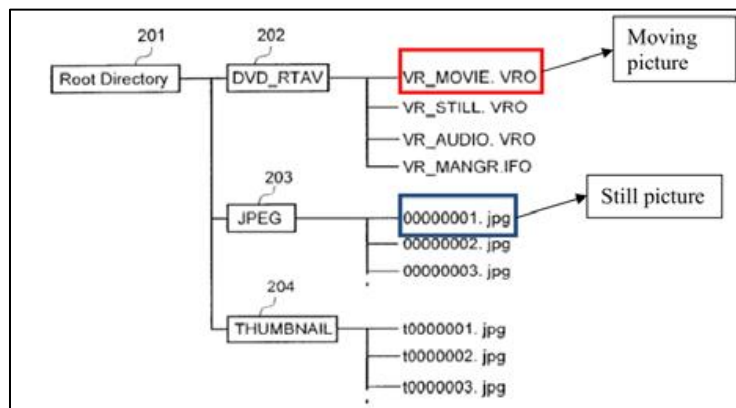
Furthermore, Anderson solely teaches recording still images, and two kinds of pictures, such as screennails and thumbnails. Applicant respectfully compares clarified Claims 1-8, and Anderson, as follows.

Claims 1-8	Anderson (see Fig. 5)
First still picture (MPEG)	X (no disclosure)
Second still picture (JPEG)	Compressed image data
First picture	X (no disclosure)
Second picture	Thumbnail and Scrennail

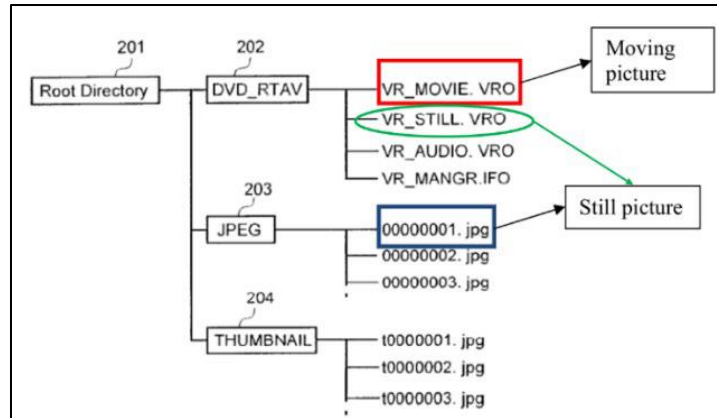
It is clear that Anderson doesn't disclose Applicant's "outputting a moving picture corresponding to any selected first picture." Therefore, clarified Claims 1-8 are clearly different from Anderson.

Docket No. 119-3 at 9. Huawei contends that the reference to "First still picture (MPEG)" limits the claimed first still picture to a picture encoded by a moving picturing format, the first encoding method. *See* H'rg Tr. at 73:2–74:16 .

Huawei also objects to Maxell's characterization of Figures 2 and 4, arguing that Maxell incorrectly asserts that Huawei's construction excludes Figure 4. Docket No. 100 at 14. Specifically, Huawei compares Maxell's annotation of Figure 4 with Huawei's own annotation of Figure 4.



Maxell's annotation of Figure 4 (Docket No. 95 at 11).



Huawei's annotation of Figure 4 (Docket No. 100 at 14).

Huawei contends that “Figure 4 discloses recording a still picture as both (1) a JPEG still picture (.jpg file: blue box) and (2) an MPEG still picture (a .VRO file: green oval): ‘In the still picture photographing mode, MPEG I-picture still pictures are recorded in the VR_STILL.VRO file . . . as well as a fine still picture data file containing JPEG-compressed data is recorded with a file name of 00000001.jpg under the JPEG directory 203 . . .’ ” *Id.* (quoting ’440 Patent 11:2–8). Huawei states that Maxell ignores that the purpose of the invention is to record a still picture as a single-frame moving picture so that a device that only has a moving picture encoding method can reproduce both a moving and a still picture. *Id.* at 14–15. Huawei contends that by ignoring this feature of the invention, Maxell seeks to reduce the ’440 Patent claims to the prior art apparatus disclosed in the “Background Art” section, merely embellished with a thumbnail. *Id.* at 15.

In its reply, Maxell contends that Huawei’s proposal improperly limits the claims to the proposed solution of a problem in the prior art and that “statements about the difficulties and failures in the prior art, without more, do not act to disclaim claim scope.” Docket No. 106 at 2 (citing *Spine Sols., Inc. v. Medtronic Sofamor Danek USA, Inc.*, 620 F.3d 1305, 1315 (Fed. Cir. 2010)). According to Maxell, other problems with the prior art were also disclosed, and the

specification did not limit the disclosed techniques to just addressing one problem. H'rg Tr. at 70:12–71:3 (citing '440 Patent 2:5–11, 2:12–17).

As to the file history of U.S. Patent No. 7,295,767, Maxell notes that this related patent explicitly claims “still pictures encoded by the first encoding method by which moving pictures are encoded.” Docket No. 106 at 2 (citing Docket No. 106-1 at 15:12–13). Maxell further notes that four other patents that share the same specification as the '440 Patent also include claims that explicitly require encoding still pictures with the “first encoding method” and encoding additional still pictures with “the second encoding method.” *Id.* (citing claim 20 of U.S. Patent No. 7,457,529 (Docket No. 106-2); claim 1 of U.S. Patent No 7,995,897 (Docket No. 106-3); claim 1 of U.S. Patent No 6,424,795 (Docket No. 106-4); and claim 1 of U.S. Patent No 8,417,088 (Docket No. 106-5)). Maxell contends that this shows that when the applicant intended to claim multiple types of encoded still pictures, it included such recitations in the claim, but it did not do so in the '440 Patent. *Id.*

On its face, the claim language is clear: The language of the claim clearly reflects that still pictures are encoded by the second encoding method. Huawei seeks not to interpret any word or phrase in the claim, but, rather, seeks to add a whole limitation missing from the claim language. As noted by Maxell, the specification does disclose an embodiment that includes still pictures encoded by the second encoding method (pointing to Figures 2 and 4). Though Huawei may be correct that this embodiment also teaches still pictures produced by the first encoding method (moving picture encoding method), Huawei has not identified intrinsic evidence mandating this additional limitation to be added to the clear claim language. Huawei has not pointed to clear language in the intrinsic record of lexicography, disavowal or disclaimer

mandating that the still pictures must also be ones produced by the first encoding method. *See GE Lighting Solutions*, 750 F.3d at 1309; *Cordis Corp.*, 561 F.3d at 1329.

Huawei does point to the embodiments of the specification. However, even if a limitation is in all embodiments, that is not necessarily enough to read a limitation into the claim from the specification. *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246, 1254 (Fed. Cir. 2011) (“[E]ven where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words of expressions of manifest exclusion or restriction.”). As noted by Maxell, the specification does support an interpretation that still pictures are encoded by a second encoding method (the JPEG encoding format). ’440 Patent Figure 4. That the figure also shows pictures encoded by a first encoding method (the moving picture encoding format) does not mandate, however, that the claimed still pictures must be encoded by two different encoding formats. As noted by Maxell, for example, the specification does describe embodiments in which one may omit “converting the format of the fine still picture signals to the same signal format as that of the single frame moving picture signals” and “no fine still picture signal is output.” *Id.* at 12:51–64. Thus, the specification indicates that using two different encoding formats for generating still pictures is not a requirement.

The Court is not persuaded that prosecution history of the related U.S. 7,295,767 mandates a different result. The prosecution history speaks to a claim in which the claim language at issue included “still pictures encoded by the first encoding method by which moving pictures are encoded.” Docket No. 100-19 at 2. Further, the fact that the claim language of that patent explicitly includes such language further emphasizes that the term “still pictures” itself does not mandate still pictures are encoded by the moving picture encoding method. *See*

Phillips, 415 F.3d at 1314 (“To take a simple example, the claim in this case refers to ‘steel baffles,’ which strongly implies that the term ‘baffles’ does not inherently mean objects made of steel.”).

Finally, the ’440 Patent file history is—at most—ambiguous and does not make an affirmative statement regarding the “still pictures encoded by a first encoding method.” The ’440 Patent claims do recite “moving pictures encoded by a first encoding method and *first pictures* having a smaller number of pixels than the moving pictures” (emphasis added). Separately, the ’440 Patent claims recite that what is recorded is “the moving pictures, the first pictures, as well as still pictures encoded by a second encoding method, and second pictures corresponding to the still pictures and having a smaller number of pixels than the still pictures.”

The chart cited by Huawei from the ’440 Patent file history does not represent to the ’440 Patent claims in multiple respects. For example, the claims do not recite “first still picture” and “second still picture,” as identified in the chart but instead call out first pictures, second pictures and still pictures which have the corresponding second pictures. In relation to the claim language, the chart does not indicate that the “still pictures encoded by a second encoding method” and which have “second pictures corresponding to the still pictures” are still pictures encoded by both MPEG and JPEG standards. Further, the chart purports to relate to claims 1–8, yet it is only claims 2, 4, 6, and 8 which incorporate MPEG for the first encoding method and JPEG for the second encoding method. Finally, it is noted that the use of the chart was explicitly presented during prosecution to argue that Anderson “doesn’t disclose applicant’s ‘outputting a moving picture corresponding to any selected first picture.’ ” Docket No. 119-3 at 10. It is clear that the applicant distinguished Anderson based on the last limitation of the claim, which calls out “outputting a moving picture corresponding to any selected first picture,” not based on an

alleged statement that the claimed “still pictures” were encoded by both the first and second encoding methods. Ultimately, the prosecution history does not reflect a disavowal of clear claim language as Huawei argues. *See Phillips*, 415 F.3d at 1318 (“because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes”); *see also Athletic Alternatives, Inc.*, 73 F.3d at 1580 (ambiguous prosecution history may be “unhelpful as an interpretive resource”).

The Court construes the term “still pictures encoded by a second encoding method, and second pictures corresponding to the still pictures and having a smaller number of pixels than the still pictures are recorded” to have its plain and ordinary meaning.

12. “first encoding method” (’760 Patent claims 1, 3, 4, 6, 7, 9, 10, 12, 13, and 15)

Maxell’s Proposed Construction	Huawei’s Proposed Construction
Plain and ordinary meaning	“moving picture encoding method”

The parties dispute whether the “first encoding method” is limited to moving picture encoding methods.

The term first appears in the claims in the phrase “a first still picture recorded thereon by a first encoding methods.” Maxell contends that it is clear that the first encoding method is one of potentially several encoding methods that may be used for encoding still pictures, including JPEG, MPEG, or others, without any preferential order. Docket No. 95 at 32 (citing ’760 Patent 8:5–7, 8:9–11). Maxell further states that the patent discloses that still pictures “may be recorded in any file format and in any different file formats.” *Id.* (citing ’760 Patent 11:14–15). Maxell contends that there is no ambiguity in the claim that would limit the first encoding method to be a moving picture encoding method. *Id.*

Huawei contends that, consistent with the specification, a still picture should be encoded in a moving picture encoding method *and* a still picture encoding method. Docket No. 100 at 15. According to Huawei, Maxell incorrectly argues that a still picture could be encoded in two types of still picture encoding methods, without a moving picture encoding method. *Id.* Huawei repeats the arguments presented above with regard to the “still pictures encoded by. . .” term to assert that encoding a still picture using both a still picture encoding method *and* a moving picture encoding method is “one of the primary inventive contributions of the patent.” *Id.* (emphasis original). Huawei contends that the ’760 Patent consistently refers to the “first encoding method” as a moving picture encoding method that is used to encode a moving picture *and* a still picture (as a single-frame moving picture):

[T]he present invention used for a video recording apparatus that can record both moving and still pictures on a recording medium includes steps for recording moving pictures encoded with the use of the first encoding method when in recording moving pictures; and for recording still pictures encoded with the use of the second encoding method and other still pictures encoded by the first encoding method from single frame signals . . .

Id. at 16 (citing ’760 Patent 2:50–57; 2:58–3:19 (referring to the “first encoding method” as a moving picture encoding method that is used to encode a still picture as a single-frame moving picture), 4:5–12 (same), 4:51–59 (same), 4:60–67 (same), 5:4–13 (same), 5:14–20 (same), 5:24–30 (same)).

According to Huawei, the prosecution history of the ’760 Patent family confirms its understanding. *Id.* Huawei contends that to overcome a rejection, the applicant distinguished the Anderson reference by providing the following table, and arguing that Anderson did not disclose the claimed “first still picture” in MPEG:

Furthermore, Anderson solely teaches recording still images, and two kinds of pictures, such as scrennails and thumbnails. Applicant respectfully compares clarified Claims 1 and 2, and Anderson, as follows.

Claims 1 and 2	Anderson (see Fig. 5)
First still picture (MPEG)	X (no disclosure)
Second still picture (JPEG)	Compressed image data
A picture	Thumbnail
X (no disclosure)	Scrennail

It is clear that Anderson doesn't disclose Applicant's "first still picture".

Id. (citing Docket No. 100-23 at 12). Huawei contends that if the applicant had not limited the "first still picture" to a moving picture encoding method (e.g. MPEG), Anderson would have clearly disclosed this limitation because it discloses two still pictures: (1) a compressed image data in one encoding method, and (2) a scrennail in another encoding method. *Id.* at 16, n.8. Huawei contends that Anderson's scrennail would thus have been a "first still picture" and the applicant had already admitted that Anderson's compressed image data met the claimed "second still picture." *Id.*

Huawei contends that Maxell now seeks to broaden the "first encoding method" to include still picture encoding methods, and Maxell's construction would expand the scope of the claims far beyond anything described in the specification. *Id.* at 17 (citing *Kinetic Concepts, Inc. v. Blue Sky Med. Grp., Inc.*, 554 F.3d 1010, 1019 (Fed. Cir. 2009) (construing "wound" to mean "skin wound"))).

In its reply, Maxell argues that the prosecution history Huawei cites supports Huawei's position, as the applicant "clarified Claims 1 and 2 don't have a 'moving image' capability." Docket No. 106 at 12 (citing Docket No. 100-23 at 12). Maxell also notes that the chart from the file history references claims 1 and 2, and that dependent claim 2 is the claim that explicitly recites "MPEG standard." *Id.* According to Maxell, Huawei's proposed constructions would

“render dependent claims 2, 5, 8, 11, and 14 superfluous because the dependent claims already recite MPEG.” *Id.* at 12 n.16.

As drafted, the claims merely characterize the two encoding methods as a first encoding method and a second encoding method. Huawei’s proposal would limit the two different methods to one being a moving picture method and one being a still picture method, but the claim language as explicitly drafted is not so limited. Similarly to as noted above with the prior term, Huawei has not identified language of lexicography, disavowal, or disclaimer. *See GE Lighting Solutions*, 750 F.3d at 1309; *Cordis Corp.*, 561 F.3d at 1329.

As to the file history, as Maxell points out, the file history emphasizes the more generalized meaning of “first” and “second.” The applicant explicitly stated that “Anderson doesn’t disclose Applicant’s first still picture” in reference to a chart which shows Anderson as having “no disclosure” of a first still picture. Docket No. 100-23 at 12. At most, it is this aspect which the applicant emphasized as a distinction from Anderson with relation to claim 1, not MPEG. Moreover, in the section of the file history immediately before to the chart comparing the claims to Anderson, the applicant stated that claims 1 and 2 “don’t have a ‘moving image’ capability.” *Id.* at 11. Further, similar to the prior “still pictures” term, the table in question also references claim 2, which explicitly references MPEG. *Phillips*, 415 F.3d at 1317. The prosecution history “often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Phillips*, 415 F.3d at 1317. Such is the case here, with statements that do not overcome the claim’s clear reference to merely “first” and “second” encoding methods.

Accordingly, the Court construes the term “first encoding method” to have its plain and ordinary meaning.

D. The '517 Patent

The '517 Patent relates generally to wireless communications, more specifically to a mobile device capable of automatically selecting a physical interface for communication based on (1) communication availability of the physical interface, (2) device moving speed and (3) position of the mobile device. '517 Patent 1:58–2:6. The Abstract of the '517 Patent recites:

A mobile communication terminal device which includes a plurality of different communication interfaces that are automatically switched for making a communication. The stable connection is ensured whether the terminal device remains at rest or is moving by monitoring positional information on the terminal device for a moving situation thereof to control a selection from a plurality of physical interfaces. This selection control involves selecting a connection to a narrow range communication such as wireless LAN which is inexpensive and stable when the terminal device remains at rest, and selecting a connection for a communication through a portable telephone which provides a connection over a wider range when the terminal device is moving. Also, a connection for a communication is automatically selected from the positional information, thereby permitting an automatic selection of a connection intended by the user.

'517 Patent Abstract. More particularly, the '517 Patent describes a mobile device (100) having a plurality of physical interfaces (e.g., 120, 130 and/or 140) for communicating with external networks. '517 Patent Figures 1, 2, and 5. The mobile device monitors communications between the physical interfaces and the external networks to determine communication availability, detects the position (e.g., a GPS position) of the mobile device, and determines if the mobile device is at rest or moving. The mobile device then determines a physical interface to use for communication based on (1) communication availability of the physical interface, (2) device moving speed, and (3) position of the mobile device. *See*, '517 Patent 3:5–61, 7:1–8, Figures 1, 2 and 5.

13. “selection switching determination unit for selecting one from said first and second physical interfaces to switch to a selected physical interface”

“wherein said selection switching determination unit makes a selection switching based on the communication availability determined by said communication

determination unit, the moving speed determined by said movement determination unit, and the position detected by said position detection unit”

**“wherein said selection switching determination unit waits a longer time until switching of said physical interface when said movement determination unit determines the movement speed being faster”
(’517 Patent claim 1)**

Maxell’s Proposed Construction³	Huawei’s Proposed Construction
<p>Function: selecting one from said first and second physical interfaces to switch to a selected physical interface, wherein said selection switching determination unit makes a selection switching based on the communication availability determined by said communication determination unit, the moving speed determined by said movement determination unit, and the position detected by said position detection unit and wherein said selection switching determination unit waits a longer time until switching of said physical interface when said movement determination unit determines the moving speed being faster</p> <p>Structure: Physical interface selection unit 104, switching determination unit 108, and/or components within one or more of a mobile communication terminal device, a notebook type personal computer, a portable telephone, a PDA (Personal Digital Assistance), a car navigation that perform processing functions, such as, a processor programmed to execute processing in accordance with the algorithm set forth in the specification in, for example, Figs. 4, 6, 9, and 10 and corresponding recitations in the specification as provided herein, or equivalents thereof. See e.g., (3:33–39), (5:25–50), (5:65–6:44), (7:32–67), (8:52–9:5), (9:28–10:9), and (3:5–10).</p>	<p>Function: selecting one from said first and second physical interfaces to switch to a selected physical interface, wherein said selection switching determination unit makes a selection switching based on the communication availability determined by said communication determination unit, the moving speed determined by said movement determination unit, and the position detected by said position detection unit and wherein said selection switching determination unit waits a longer time until switching of said physical interface when said movement determination unit determines the moving speed being faster</p> <p>Structure: Switching determination unit 108 and the algorithms in Figs. 4, 6, and 9, which is insufficient structure because the specification does not disclose the necessary algorithm or flowchart, which renders the term indefinite</p>

The parties agree that this term is a means-plus-function term but dispute whether a sufficient algorithm is disclosed for the means-plus-function term.

³ Maxell changed its proposed construction post-briefing, acknowledging that the term was a means-plus-function term. Docket No. 115-1 at A-6.

Huawei contends that the '517 Patent fails to disclose structure corresponding to the claimed function of the “selection switching determination unit,” because the patent describes a “switching determination unit 108” but does not identify physical structure for this unit. Docket No. 100 at 27. Huawei contends that it is merely a black box described by the function it performs, which is insufficient. *Id.* (citing '517 Patent 3:33–39, 3:50–61, 4:41–50 and Docket No. 100-2 (Wells Decl.) ¶ 43, *Noah Systems*, 675 F.3d at 1317 and *ePlus*, 700 F.3d at 519–20).

According to Huawei, the specification fails to disclose an algorithm to perform the claimed functions, instead only providing flow charts that partially describe how the switching determination unit 108 selects a physical interface, but do not address the key function: waiting a longer time until switching. *Id.* (citing '517 Patent Figure 4, 6, & 9). Huawei states that Figures 4 and 9 do not consider moving speed at all in determining how long to wait before switching even though claim 1 requires “wait[ing] a longer time until switching” interfaces when the device is moving “faster.” *Id.* (citing Wells Decl. at ¶ 45). Huawei contends that, instead, the figures focus on whether the device is in a rest-state or a moving-state to determine which interface to use. *Id.* (citing Wells Decl. at ¶ 45). Huawei contends that, based on the claim language, the patent must disclose structure that (1) considers moving speed when making the switching decision and (2) varies the wait time based on the moving speed, but that Figures 4 and 9 insufficiently only consider whether the device is moving or not, and even then not for the purpose of adjusting a wait time. *Id.* (citing Wells Decl. at ¶ 45).

According to Huawei, Figure 6 does consider whether the moving speed is “high” or “low” (step S407-1) but does not vary the wait time before switching. *Id.* at 27–28 (citing Wells Decl. at ¶ 46). Huawei contends that Figure 6 and its disclosure do not depict or explain how to vary the wait time wait based on moving speed. *Id.* at 28 (citing Wells Decl. at ¶ 46).

Huawei argues that the patent's sole passage about waiting a period of time before switching relates to switching away from the current physical interface when it becomes unavailable. *Id.* (citing '517 Patent 6:62–7:9). Huawei contends that the related flow charts only explain how a device selects a network address when first selecting a physical interface and that the disclosure about waiting a period of time before switching only turns on whether the device is moving or not without (1) considering the moving speed or (2) or requiring waiting a longer time depending on the moving speed. *Id.* (citing '517 Patent 6:62–7:9, Figure 6 (S401)).

In its reply, Maxell contends that there is sufficient structure disclosed in the '517 Patent for this term. Docket No. 106 at 7. Maxell argues that the '517 Patent explicitly discloses that the claimed invention can be implemented in a “notebook type personal computer, a portable telephone, a PDA, [and/or] a car navigation device.” *Id.* (citing '517 Patent 3:5–10). Maxell also contends that the '517 Patent indicates that a “terminal data control processing unit 103, which may be based on a CPU, a microcomputer IC or the like, is responsible for the processing associated.” *Id.* (citing '517 Patent 3:23–31). According to Maxell, “by repeatedly referring to the processing unit 103, the '517 Patent makes clear that all of the operations, including switching interfaces, in this terminal are being implemented under the control of unit 103, *i.e.*, CPU or microcomputer.” *Id.* (citing '517 Patent 3:3–60, 5:25–46, 8:1–9, 8:53–67, Docket No. 106-6 (Caloyannides Decl. B) ¶¶ 27–28). Maxell contends that a person of ordinary skill in the art would understand that one or more processors will be used to implement the structure of the claimed “selection switching determination unit.” *Id.* (citing Caloyannides Decl. B ¶¶ 25–28).

As to algorithms, Maxell contends that when considered as a whole, the '517 Patent provides sufficient descriptions of one or more algorithms. *Id.* (citing '517 Patent Figures 4, 6, 9, & 10; Caloyannides Decl. B at ¶ 29). Maxell contends that Huawei's sole argument is

predicated on the fact that the '517 Patent does not disclose “the key function: waiting a longer time until switching.” *Id.* (citing Docket No. 100 at 27). Maxell contends this concept is disclosed:

On the other hand, when the mobile communication device 100 is relatively instable in communication when it is moving, the physical interface switching wait time may be set to be long. In this way, it is possible to prevent useless switching from one physical interface to another and to switch to an appropriate physical interface.

Id. (citing '517 Patent 6:62–7:8). Maxell contends that this section of the '517 Patent explicitly discloses that when a particular physical interface becomes unavailable, the terminal device 100 should wait for a period of time to see if the physical interface becomes available. *Id.* (citing Caloyannides Decl. B at ¶ 31). Maxell contends that this passage also explains that this time period of waiting depends on the movement of the device, such that if the device is moving, the physical interface should wait longer. *Id.* at 8.

Maxell also argues that the '517 Patent explains with respect to Figure 4 that, if the mobile device is moving at a slow speed (e.g., at rest) and using the portable telephone interface it will switch to LAN, but if the device is moving at a higher speed than at rest and if it is on the portable telephone interface, it will wait a longer time to switch, i.e., stay on the portable telephone interface instead of switching to LAN. *Id.* (citing '517 Patent 6:32–68). Maxell contends this is because of different “Rest-State” and “Moving-State” priorities identified in Figure 4(b). *Id.* Maxell contends similar examples are also provided with respect to Figures 8, 9, and 10. *Id.* at 8 n. 9 (citing '517 Patent 8:58–9:18, 9:54–10:9).

Maxell contends that the specification provides for a structure that includes a central processing unit programmed to execute the algorithms disclosed in the specification. Even accepting Maxell's structure, the Court finds that algorithms for all the claimed function are not

disclosed. Thus, sufficient structure to satisfy the requirements of 35 U.S.C. §112 ¶ 6 is not disclosed. *See WMS Gaming Inc.*, 184 F.3d at 1349; *Aristocrat Techs.*, 521 F.3d at 1333.

Specifically, the claim language includes: “said selection switching determination unit waits a longer time until switching of said physical interface *when said movement determination unit determines the movement speed being faster.*” ’517 Patent claim 1 (emphasis added). As noted by Huawei, such language does not just require identification of movement or rest, but rather some level of the relative speed: “the movement being faster.” As noted by Huawei, the disclosures related to the “switching determination unit” generally provide for only a determination based on rest versus movement. *See* ’517 Patent Figure 4 (block S407), Figure 6 (block S407), Figure 9 (block S910), 5:3–14; 6:28–35, 6:45–52, 6:53–62, 9:5–18, 9:54–10:9. At the oral hearing, Maxell acknowledged that the language “determines the movement speed being faster” does not relate to rest versus movement, but rather high speed versus low speed movement. H’rg Tr. at 96:2–14.

Speed is discussed with regard to the switching priorities. Specifically, Figure 6 section (b) and the passage at 7:45–67 discloses three states: “rest state priorities,” “high speed moving state priorities” and “low speed moving state priorities.” However, these relate to what interface is chosen based on the determination of the moving speed being faster or slower, not changing the waiting time until switching based on the high speed versus low speed. At the oral hearing, Maxell emphasized the passages at 5:3–14 and 9:5–18. *Id.* at 92:12–94:21. However, the first passage relates again to the different priorities given, specifically a higher priority given to a portable telephone during movement. ’517 Patent 4:64–5:14. The second passage also relates to determining which physical interface to select. *Id.* at 9:2–18. Neither passage references

changing the wait time “when said movement determination unit determines the movement speed being faster.”

As discussed in more detail below, with regard to the “wait” term, the “waits a longer time” concept is disclosed at ’517 Patent 6:62–7:8. This disclosure does not describe different wait times based on determining the moving speed being faster or slower. Rather, the wait time just changes based on resting versus movement.⁴ Again however, as the parties agree, the claimed function is not a rest versus movement determination. Rather, the claimed function relates to changing the wait time based on the determination of the movement speed being faster (low speed versus high speed). Maxell has not identified, and the specification provides no disclosure of, any algorithms for performing this claimed function. The lack of an algorithm corresponding to the claimed function renders the term indefinite. *See WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d at 1349.

Accordingly, the Court construes the “selection switching determination unit for . . .” term to mean:

Function: selecting one from said first and second physical interfaces to switch to a selected physical interface, wherein said selection switching determination unit makes a selection switching based on the communication availability determined by said communication determination unit, the moving speed determined by said movement determination unit, and the position detected by said position detection unit and wherein said selection switching determination unit waits a longer time until switching of said physical interface when said movement determination unit determines the moving speed being faster

Structure: insufficient corresponding structure is disclosed for the claimed function.

⁴ The Court notes that, even as to rest versus movement, the general concept is merely disclosed without further algorithm support.

14. “waits a longer time until switching” (’517 Patent claim 1)

Maxell’s Proposed Construction	Huawei’s Proposed Construction
Plain and ordinary meaning	sets a longer period of time to wait before determining whether to switch

The parties dispute whether the time period of the wait must be a period that is “set” and whether it must be set “before” the determination.

Maxell objects to Huawei’s construction as importing into the claim from the specification the scenario where the period of time is “set.” Docket No. 95 at 26. Maxell notes that ’517 Patent discloses that, when device 100 remains at rest, the switching wait time “may be set to short” and that when device 100 is moving, the switching wait time “may be set to be long.” *Id.* (citing ’517 Patent 6:66–7:8). According to Maxell, Huawei’s proposal improperly imports “set” into the claim language when the patent makes clear that a wait time “may be set,” which implies that a time period is not always necessarily set. *Id.* at 26–27. Maxell also relies on the “may be set” language to counter Huawei’s argument that the time is always set in advance. Docket No. 106 at 6. As to the reference to “fixed time” in the passage, Maxell contends that there is no indication in the ’517 Patent that “fixed time” means a time period that is always set in advance of switching and that a fixed time can simply mean a fixed period of time. *Id.* at 6 n. 8.

Huawei counters that the patent only offers a single passage about intentionally waiting to switch interfaces, which states that, when the current physical interface is unavailable, the device “waits for a fixed time” before deciding whether to switch interfaces to “prevent useless switching”:

If a physical interface in use becomes unavailable during a communication, the mobile communication terminal device 100 waits for a fixed time for the physical interface to recover. If the physical interface does not recover even after the fixed time, the connection is switched. Since the mobile communication terminal device

100 is relatively stable in communication when it remains at rest, a physical interface switching wait time **may be set to be short**. On the other hand, when the mobile communication device 100 is relatively instable in communication when it is moving, the physical interface switching wait time **may be set to be long**. In this way, it is possible to prevent useless switching from one physical interface to another and to switch to an appropriate physical interface.

Docket No. 100 at 24 (citing '517 Patent 6:62–7:8). Huawei contends that this “fundamental feature of the alleged invention” is reflected in its proposed construction. *Id.* According to Huawei, the claim is not about incidental delays in switching due to the inherent time it takes to analyze wireless signals received by a moving device, as those delays occur whether or not the switching mechanism accounts for moving speed. *Id.* at 24–25. Instead, Huawei contends, this incidental instability is the alleged problem in the prior art that the patent wants to solve. *Id.* at 25. Huawei contends that the invention attempts to solve the problem by expressly using the device’s moving speed as a factor in the interface selection, by waiting longer intentionally before attempting to switch interfaces when the device is moving faster. *Id.* (citing '517 Patent 1:58–64).

In response to Maxell’s contention that construction is unnecessary, Huawei counters that Maxell’s infringement contentions reveal a fundamental dispute over claim scope. *Id.* Huawei contends that Maxell alleges infringement of claim 1 by devices that ignore moving speed in their switching decisions, but that may coincidentally take longer to establish a connection because of inherent instability in the connection or temporary reductions in signal strength that occur when moving. *Id.* (citing Docket No. 100-24 at 59). Huawei contends that if devices ever (incidentally) take longer to switch, it is due to inherent aspects of wireless communication in a moving device, which the '517 Patent sought to ameliorate by expressly using moving speed in the switching decision. *Id.* Huawei contends that unlike a passive word like “takes” (i.e., “takes

a longer time”), “wait” implies an intentional delay. *Id.* Huawei further states that the specification likewise speaks of “setting” the delay. *Id.* (citing ’517 Patent 6:66–7:5).

As to use of “may” in the cited specification passages, Huawei contends that this ignores the text immediately before Maxell’s cite noting that the device “waits for a fixed time for the physical interface to recover” and only switches “[i]f the physical interface does not recover even after the fixed time.” *Id.* at 26 (citing ’517 Patent 6:62–7:8). Huawei contends that “may” only means that the fixed time can be set to different intervals; it does not mean that waiting a longer time is optional. Huawei contends that some “fixed time” is defined (i.e., “set”) as the wait time before deciding whether to switch. *Id.*

Huawei has not pointed to any language of lexicography, disclaimer or disavowal in the specification that requires the waiting time to be predetermined in advance. Further, even the passage at 6:62–7:8 merely states that wait times may be set, without requiring setting the time prior to the determination. Accordingly, the claim does not require that the period of time is “set” “before” the determination.

Huawei’s primary argument is that Maxell’s construction is intended to cover incidental waiting that may occur when moving, such incidental waiting that may be irrespective of the determination of the movement determination unit. The surrounding claim language, however, is instructive. The “waits a long time” is not just any wait but rather as claimed: “said selection switching determination unit waits a longer time until switching of said physical interface ***when said movement determination unit determines*** the moving speed being faster.” ’517 Patent claim 1 (emphasis added). The interaction of the different portions of this phrase requires the longer wait to be based on the determination. Thus, the claim itself requires the longer time to be based on the determination of the movement determination unit. This corresponds also to the

specification passage cited by the parties in which the waiting time is dependent upon movement or non-movement. Some incidental change unrelated to the determination is not claimed nor described in the specification.

At the oral hearing, the Court proposed a construction with a note that stated that the phrase “when said movement determination unit determines” requires the longer wait to be based on the determination. Maxell agreed to such an interpretation. H’rg Tr. at 83:23–84:6. Such an interpretation conforms to the plain and ordinary meaning of the term in context of the surrounding claim limitations.

The Court construes the term “waits a longer time until switching” to have its plain and ordinary meaning.

E. The ’443 Patent

The ’443 Patent relates generally to power management, more specifically to techniques for conserving battery power by providing for a power saving state. The Abstract of the ’443 Patent recites:

An information processing apparatus can save an electric power when it is not in use and can be made active immediately after an operation medium such as a pen and a finger or the user approaches or comes in contact with the apparatus, the arrangement being such that a housing portion of the apparatus includes therein a sensor for detecting the approach or contact of a user operation medium or user and a state display unit for informing the user that the apparatus is in the active state or in the standby state, a power saving control unit controls a controlled object concerning a power consumption in response to the approach, contact or separation of the operation medium or user, and a timer included in the electric power saving control unit determines whether or not the operation medium or user is separate from the apparatus.

’443 Patent Abstract. More particularly, the ’443 Patent describes an information processing apparatus having detecting means (e.g., a sensor) for detecting the approach or contact of an operation medium (e.g., a pen, or a user’s finger, voice, etc.), and control means (e.g., a power saving control unit) for controlling power consumption of the information processing apparatus

in response to the detected approach or contact, or the lack thereof for a predetermined time period. In the '443 Patent, the information processing apparatus is set in a non-power saving state if the user approaches or comes in contact with the information processing apparatus. On the other hand, the information processing apparatus is set in a power saving state, if the user has been away from the apparatus (or has not touched the apparatus) for a predetermined time or more. *See*, '443 Patent 2:1–24, 3:58–4:35, Figure 1.

17. “a detecting means for detecting whether a user associated medium at least approaches at least part of a housing of said apparatus” ('443 Patent claim 1)

Maxell’s Proposed Construction	Defendants’ Proposed Construction
<p>Function: detecting whether a user-associated medium at least approaches at least part of a housing of said apparatus</p> <p>Structure: A sensor, a touch-sensitive surface, or a tablet configured to detect proximity and/or contact using one or more of an electromagnetic induction system, a capacitance system, a capacitive coupling system, a pressure-sensitive resistance system, a transmission pen type ultrasonic system, a surface acoustic wave type ultrasonic system, an optical system, an image sensor, a camera, a microphone, or a temperature sensor, as well as equivalents thereof</p>	<p>This term is written as a means-plus-function</p> <p>Function: for detecting whether a user-associated medium at least approaches at least a part of a housing of said apparatus</p> <p>Structure: Electromagnetic induction systems, electrostatic coupling system, and Optical system, listed in Table 1; “microphone” (18:8); “temperature sensor” (19:12); “cameras” (Figs. 14 and 15)</p>

The parties dispute the corresponding structure for the means term, specifically whether approach detection techniques are required.

Maxell contends that the '443 Patent associates a sensor with the function of “detecting” and lists several examples of structures for the sensor, including “an image sensor, a microphone or a temperature sensor etc.” Docket No. 95 at 7 (citing '443 Patent 4:2–6; 4:19–23 (describing the role of the sensor in the overall power-saving scheme)). Maxell also contends that the patent

discloses that a touch-sensitive surface can be provided on a tablet to detect the approach of a pen or finger. *Id.* (citing '443 Patent 11:42–46). Maxell further points to Table 1 of the '443 Patent as disclosing multiple kinds of tablets that can operate as sensors for detecting approach and/or contact, including a “capacitance system tablet” ('443 Patent 11:26–27), “pressure sensitive resistance system tablet” ('443 Patent at 11:27–28), “transmission pen type ultrasonic system tablet” ('443 Patent at 11:28–29), and several others. Docket No. 95 at 7–8.

Maxell contends that the patent also describes the capabilities of these sensors: (1) “the capacitive coupling system tablet can also detect the approach of the pen/finger input medium” ('443 Patent at 11:34–36) and (2) “the optical system tablet can detect both the contact and approach of the pen/finger input medium depending on the distance in the height direction from a touch-sensitive surface of an array of sensing and emitting devices . . .” ('443 Patent at 11:36–40). Docket No. 95 at 8.

Maxell contends that Defendants’ construction includes some of these examples while excluding others, specifically the “capacitance system tablet,” “pressure-sensitive resistance system tablet,” “transmission pen type ultrasonic system tablet,” and “surface acoustic wave type ultrasonic system tablet.” Maxell contends that these other examples are expressly recited in dependent claims 13–19. Maxell also contends that each of these structures also appears in Table 1 of the '443 Patent. Docket No. 95 at 8.

Defendants contend that the patent specification describes “approach detection type” (e.g., proximity) and “contact detection type” detection systems. Docket No. 100 at 4 (citing '443 Patent 9:13–15). Defendants also contend that Table 1 of the patent lists a variety of detector options and expressly describes each as approach type, contact type or both. *Id.* According to Defendants, as originally presented, claim 1 was written so as to capture both

approach type and contact type systems. *Id.* (citing Docket No. 100-27 at 49 (Original claim 1, lines 3–7) (“detecting means for detecting whether an operation medium operated by the user . . . approaches or comes in contact with . . . the apparatus”)). Defendants contend that the PTO rejected the claim as indefinite under Section 112(2) as reciting “non-equivalent alternatives.” *Id.* (citing Docket No. 100-28 (May 6, 1994 Office Action) at 2). Defendants contend that the PTO found that approach type and contact type systems were non-equivalent.

Defendants argue that the patentee narrowed claim 1 to delete reference to contact detection and required that the detecting means detect whether the user associated medium “at least approaches” the housing. *Id.* (citing Docket No. 100-29 at 2 (August 8, 1994 Amendment)). Defendants contend that any corresponding structure must at least be approach type, although it may also be contact type and that this is consistent with the plain meaning of “at least approaches,” which requires, at a minimum, approach type. *Id.* Defendants contend that the plain meaning of the original claim language “approaches or comes in contact with” could be satisfied by either approach type or contact type and that the corresponding structures included in Maxell’s construction but not included in Defendants’, are described in the patent as contact type only, and thus do not fall within the scope of the claim. *Id.*

Maxell counters that the claim was not amended to exclude “contact type” detecting systems as suggested by Defendants. According to Maxell, Defendants mischaracterized the patentee’s August 8, 1994 amendment and the amendment overcame the Examiner’s § 112 rejection based on the “such as” language previously found in the claims. Docket No. 106 at 1 (citing Docket No. 100-28 (May 6, 1994 Office Action) at 2 (“Throughout the claims the ‘such as’ phrases makes the claims indefinite.”)). Thus, Maxell contends, the patentee amended the claims to address this issue, not to narrow the scope of the claims to “approach type.”

The claim amendment in question is instructive:

1. (Amended) An information processing apparatus comprising:

a housing;

[a)] a detecting means for detecting whether [an operation medium operation by the user, such as a pen or finger or a medium accompanying with the user] a user-associated medium at least approaches [or comes in contact with a whole of or] at least a part of a housing of [the] said apparatus; and

Docket No. 100-29 at 2. Maxell contends that the “intent” of the amendment was only to remove the “such as” language objected to in the prior Office Action. The prosecution history “often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Phillips*, 415 F.3d at 1318. What is clear, however, is that the amendment, in addition to removing the “such as” language, also changed the claim language to remove “or comes in contact with a whole of or.” It is also clear that, as issued, the claim language requires the detecting means to detect whether “a user-associated medium at least approaches said apparatus.” As claimed, approach detection is required of the detecting means. The “at least” language allows for a detecting device that detects both approach and contact, but approach detection must be included.

The corresponding structure must, therefore, be structure that meets this explicitly claimed function of including approach detection. That the dependent claims include the addition of other detection techniques does not change that claim 1 requires “at least approach detection.” Maxell’s proposed inclusion of various detection schemes listed as “and/or” would allow the claimed structure to include only the contact based systems, which would be inconsistent with the claim language as explained above.

Maxell's argument that the dependent claims mandate Maxell's construction is flawed. First, as noted above, as drafted the claim uses "at least" and thus does not mandate only use of approach detection. Thus, using both approach detection and contact detection, for example, would be encompassed with the claim scope. To the extent the dependent claims add additional detection mechanisms, such claims are not in conflict with the independent claim which recites "at least approaches." Further, even if in conflict, the doctrine of claim differentiation, at most creates a rebuttable presumption and "cannot broaden claims beyond their correct scope." *See Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1368–69 (Fed. Cir. 2005). Here, the claim language resulting from the amendment is clear.

The Court construes "a detecting means for detecting whether a user associated medium at least approaches at least part of a housing of said apparatus" to mean:

Function: detecting whether a user associated medium at least approaches at least a part of a housing of said apparatus

Structure: Electromagnetic induction systems, electrostatic coupling system, and Optical system, listed in Table 1; "microphone" (18:8); "temperature sensor" (19:12); "cameras" (Figures 14 and 15), or equivalents thereof.

F. The '317 Patent

The '317 Patent relates generally to navigation systems, more specifically to portable terminals suitable for walking navigation. The Abstract of the '317 Patent recites:

A portable terminal has a function of walking navigation. The direction of a destination is displayed by an indicating arrow that always points in the direction of the destination. In the navigation processing, the user enters data to select a menu and/or set retrieving conditions on the setup screen. At first, the user gets the location information of the portable terminal, represented by a latitude/longitude or coordinates and an altitude, for example. Then, the user gets the direction information of the portable terminal, which is the direction of the tip of the portable terminal as determined by a compass, a gyro, or a clinometer. The

location information and the direction information are set as terminal information for the retrieving conditions. The system controls retrieving of the database and retrieves the information corresponding to the selected menu, such as route guidance.

'317 Patent Abstract. More particularly, the '317 Patent describes a portable terminal, which does not require a user to input their current location and which presents navigational information on a narrow screen of the portable terminal in a manner that is easily understood by the user/walker. '317 Patent 2:51–61. The portable terminal includes devices for obtaining a location and direction of the user's present place, so that the user does not have to input such information. '317 Patent 2:62–3:8. In addition, the portable terminal may compress the location and direction information, so as to display a direction of movement from the user's present place with simply an arrow. This enables the navigation information to be displayed on a small-sized screen of the portable terminal in a manner that is easily understood by the user/walker. '317 Patent 3:18–26.

20. “walking navigation” ('317 Patent claims 1, 10, 15, 16, 17, and 20)⁵

Maxell's Proposed Construction	ZTE's Proposed Construction
“information to navigate a user who is walking”	“display of information to assist a user in walking, not driving, in a system that is not usable in an object car that is running on a road”

The parties dispute whether the term excludes systems that are usable in a car.

Maxell argues that absent an explicit disavowal, negative limitations are generally disfavored. Docket No. 95 at 41 (citing *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1332–33 (Fed. Cir. 2003)). According to Maxell, ZTE's only intrinsic evidence is a single passage in the background section of the patent that discusses that some prior art car navigation system “cannot be used as a walker's navigation system as is” because it “is too large for a

⁵ The parties did not submit oral argument for this term.

walker to carry” and “because the navigation system premises that the system is used while the object car is running on a road.” *Id.* (citing ’317 Patent 1:34–37). Maxell contends that the same passage explains that the bulkiness issue can be resolved by using “a PDA with GPS and a handy GPS” as a location information system for walkers. *Id.* (citing ’317 Patent 1:37–39). Maxell also argues that nowhere in this passage from the background section to the described embodiments, does the patent exclude using a portable location information system such as “a PDA with GPS and a handy GPS” in a car. *Id.* Maxell contends that the term “walking navigation” is readily understood and has a common meaning. *Id.* at 42.

Maxell contends that its proposal embraces the term’s plain meaning and conforms to the passages in the specification related to providing information to a user that is walking: (1) describing “the function of walking navigation” in the context of a “Neighborhood Guidance Service” example (7:43–8:9), (2) describing “the function of walking navigation” in the context of a “Meeting by Appointment Guidance Service” example (8:10–57), and (3) describing “the function of walking navigation” in the context of a “Present Place Guidance Service” example (8:58–9:39). *Id.* Maxell contends that Figure 3 makes it plain that “walking navigation” means information that navigates a user that is walking by depicting directional arrows that aids a user in navigating to a particular location. Docket No. 95 at 42.

ZTE counters that in describing the deficiencies of the prior art and touting how the invention allegedly overcomes those deficiencies, a patent may disclaim coverage of the denigrated arrangement. Docket No. 100 at 35 (citing *Tronzo v. Bimet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998)). According to ZTE, the specification makes plain that “walking navigation” is mutually exclusive from driving navigation:

For example, a car navigation system to be mounted on a car is too large for a walker to carry around. In addition, because the navigation system premises that

the system is used while the object car is running on a road, it cannot be used as a walker's navigation system as is.

Id. (citing '317 Patent 1:31–38). As to Maxell's argument that the inclusion of the phrase "as is" negates the disclaimer in this case and that the passage was concerned with the fact that such systems were "bulky" or too large to car, ZTE points to the conclusion language "[i]n addition . . . it cannot be used as a walker's navigation system as is" and argues that there is no teaching in the '317 Patent of modifying or adjusting a car system to also be a walking navigation system. *Id.*

In its reply, Maxell contends that the '317 Patent describes the problems with "conventional" navigation systems of the time as being too large for a walker to carry. Docket No. 106 (citing '317 Patent 1:19–21, 34–35). Maxell contends that conventional 1990s navigation systems were described as unsuitable for use in walking navigation "as is," but this statement is not an express disclaimer of a system that could be used in cars and just identifies a problem in the prior art. *Id.* (citing '317 Patent 1:36–38; Braasch Decl. at ¶¶ 39-46).

The full claim limitation states "said display changes according to a change of said direction of said portable terminal orientation for walking navigation." Thus, as claimed, the system has to be able to provide navigation for walking. ZTE's limitation, however, would require that the terminal "is not usable" for car navigation. Thus, a terminal that may be used for walking under ZTE's construction would have to have no use in a car. The passage cited by the parties does not disclaim potential car use and—at most—disclaims systems that are too large to be portable for carrying by a walker. '317 Patent 1:31–38. ZTE has cited no disclaimer for support of the negative limitation to the extent which ZTE seeks.

The Court construes "walking navigation" to mean "information to navigate a user who is walking."

21. “said device connected to said server outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server” (’317 Patent claim 6)

Maxell’s Proposed Construction⁶	ZTE’s Proposed Construction
Plain and ordinary meaning	<p>Indefinite</p> <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server</p> <p>Structure: insufficient corresponding structure is disclosed</p>

The parties dispute whether or not structure is disclosed for the means-plus-function term.

ZTE contends that the functions at issue are clearly software steps (outputting, receiving data) and no corresponding algorithm or corresponding structure is disclosed. Docket No. 100 at 36 (citing Docket No. 100-6 (Andrews Decl.) ¶¶ 49–51).

Maxell contends that the functions of “outputting” and “receiving” do not require algorithms because such functions can be performed by a general purpose computer. Docket No. 106 at 14 (citing *In re Katz*, 639 F.3d at 1316). Specifically, Maxell contends that functions like “processing,” “receiving,” and “storing” “can be achieved by any general purpose computer without specialized programming” and, in such cases, “it [is] not necessary to disclose more structure than the general purpose processor that performs those functions.” *Id.* at 14–15 (quoting *In re Katz*, 639 F.3d at 1316, citing Braasch Decl. at ¶¶ 50–51). Maxell contends that

⁶ At the oral hearing, Maxell agreed to a means-plus-function interpretation of the term.

neither ZTE nor its expert conclude otherwise and concede that “the functions at issue” are “outputting, receiving data.” *Id.* (citing Docket No. 100 at 36). Maxell contends that the general purpose CPU described in the ’317 Patent 9:42–43 is sufficient for performing these functions. *Id.*

The term in question references the earlier recited claim element: “a device connected to the server.” The term in question is then recited: “said device connected to said server outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server.”

Maxell points to the CPU of Figure 10 as being the corresponding structure. The specification describes the CPU in the passage cited by Maxell: “[t]he portable terminal 61 is provided with a CPU 71, which is a control unit.” ’317 Patent 9:42–43. Figure 10 also includes a “device for data communication 76,” “device for getting location information 77,” and “device for getting direction information 78.” It is noted that claim 6 includes the limitations (1) “a device for getting location information,” (2) “a device for getting direction information” and (3) “a device connected to a server. . . wherein. . . said device connected to said server outputting. . . and receiving. . . .” The claim limitation in question includes “outputting said location information and said direction information.” As shown in the Figure 10, a CPU 71 is connected to the device for data communication 76, device for getting location information 77 and device for getting direction information 78. ’317 Patent Figure 10. The CPU 71 is the “control unit” of the portable terminal. *Id.* at 9:40–50. Maxell’s expert analyzes the meaning of this passage and figure. Braasch Decl. at ¶¶ 50–54. To the extent the evidence conflicts as to the understanding of one skilled in the art as to the control of the claimed outputting, the Court credits the testimony of Maxell’s expert as more persuasive. *See* Braasch Decl. at ¶¶ 50–54; *Teva Pharm. USA*, 135 S.

Ct. at 841 (2015) (authorizing courts to make subsidiary factual findings about extrinsic evidence in claim construction).

A close reading of the specification, in context of Figure 10, clarifies that the corresponding structure for the claimed function includes the “CPU 71” and “a device for data communication 76.” The device for data communication 76 is then described in the specification as “a device for data communication 76 of an ordinary portable telephone and a PHS [Personal Handyphone System] terminal.” Maxell’s expert testimony conforms to this disclosure:

Moreover, the ’317 Patent discloses specific structure for a portable terminal to connect to a server and receive retrieved information from the server. For example, the patent discloses that the portable includes data communication 76 (Fig. 10, ’317 Patent at 9:47–49), and cellular antenna (’317 Patent at 5:66–67). In addition, the portable terminal includes a CPU (e.g. CPU 71, Fig. 10) for performing processing steps associated with communicating, receiving, and displaying information. ’317 Patent at 9:42–43. For example: [quoting a description of the flow chart of Figure 7].

Braasch Decl. at ¶ 54. In light of the specification as interpreted by one skilled in the art, the claimed function involves the use of the CPU 71 and the device for data communication 76 of a portable telephone and a Personal Handyphone System (PHS) terminal. See ’317 Patent 9:40–9:51.

ZTE invokes *WMS Gaming*, contending that no algorithm is disclosed. However, the Court finds that the general functions of “outputting” and “receiving” as recited in the claim are more akin to the “processing,” “receiving,” and “storing” terms described in *In re Katz*. See *In re Katz*, 639 F.3d at 1316 (finding that it was “not necessary to disclose more structure than a general purpose processor” for functions that “can be achieved by any general purpose computer without special programming” including processing, receiving, and storing).

At the oral hearing, Maxell substantially agreed with the construction proposed below by the Court. H’rg Tr. at 126:13–16.

The Court construes “said device connected to said server outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server” to mean:

Function: outputting said location information and said direction information and receiving retrieved information based on said outputted information at said server

Structure: CPU 71 and device for data communication 76 of a portable telephone and a Personal Handyphone System (PHS) terminal (Figure 10, 9:40–50), or equivalents thereof.

G. The '729 Patent

The '493 Patent and '729 Patent share a substantially similar specification.⁷ The '493 Patent and the '729 Patent relate to electric cameras, and more specifically, to an electric camera having an image sensing device having a sufficient number of pixels that is capable of taking highly detailed still images and moving video with reduced image quality without increasing circuitry. '493 Patent 3:8–13. The Abstract of the '493 Patent recites:

An electric camera includes an image sensing device with a light receiving surface having N vertically arranged pixels and an arbitrary number of pixels arranged horizontally, N being equal to or more than three times the number of effective scanning lines M of a display screen of a television system, a driver to drive the image sensing device to vertically mix or cull signal charges accumulated in individual pixels of K pixels to produce, during a vertical effective scanning period of the television system, a number of lines of output signals which corresponds to 1/K the number of vertically arranged pixels N of the image sensing device, K being an integer equal to or less than an integral part of a quotient of N divided by M, and a signal processing unit having a function of generating image signals by using the output signals of the image sensing device.

'493 Patent Abstract. More particularly, the '493 Patent and the '729 Patent describe an electric camera including an image sensing device (e.g., a CCD) having a number (e.g., 1200) of vertically arranged pixels and a number (e.g., 1600) of horizontally arranged pixels. '493 Patent

⁷ The '729 Patent is a continuation of the '493 Patent, which is a continuation of U.S. Patent No. 8,057,177, which is a divisional of U.S. Patent No. 6,765,616.

4:34–48. When taking still images, all of the effective pixels on the image sensing device are used to produce signals with as high a resolution as possible. ’493 Patent 7:31–39. When taking moving video, a number (e.g., $1200/240 = 5$) of the vertically arranged pixels are mixed or culled, so that the number of lines of output signals from the image sensing device match or conform to the number of effective scanning lines (e.g., 240) of a television monitor. ’493 Patent 4:64–5:6, 7:40–59, 9:30–36. The ’729 Patent further describes an image stabilizing operation, which reduces image instability in the moving video by shifting the effective pixel area of the image sensing device in a direction that cancels the image instability. ’729 Patent 7:11–28.

22. “an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern” (’729 Patent claim 1)⁸

Maxell’s Proposed Construction	ZTE’s Proposed Construction
Plain and ordinary meaning	<p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: “for image sensing”</p> <p>Structure: a solid state image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in a grid pattern and having an equal number of color sensitive filter elements arranged such that each color forms a vertical line.</p> <p><i>See</i> “a solid-state image sensing device with a light receiving sensor having an array of pixels arranged vertically and horizontally in a grid pattern, in an N number of vertically arranged pixel lines” (2:59)</p> <p><i>See also</i> FIGs 10, 13A, and 13B; [6:17–22]; [15:23–35]</p>

The parties dispute whether or not the term is a means-plus-function term.

⁸ The parties did not provide oral argument for this term.

Maxell argues against means-plus-function treatment for this term for three reasons. Docket No. 95 at 44. First, Maxell contends that the term “image sensing device” alone denotes a definite structure or class of structures, namely, image sensors. *Id.* Maxell states that a person of ordinary skill in the art would understand that, both from the claim language itself and from the descriptions of an “image sensing device” in the specification, this term refers to a definite class of structures that convert incident light into an electric signal. *Id.* (citing ’729 Patent 4:36–39, 10:14–18, and Docket No. 95-4 (Madisetti Decl.) at ¶¶ 35–37). According to Maxell, the claim itself also describes the structure for the “image sensing device” as having “an array of pixels arranged vertically and horizontally in a grid pattern,” further supporting that this term has sufficiently definite structure. *Id.*

Second, Maxell argues that the ’729 Patent’s specification describes in detail exemplary structures for the “image sensing device.” *Id.* at 45 (citing ’729 Patent 4:36–65, Figure 2). And third, Maxell contends that ZTE’s construction improperly narrows the scope of the claims, construing “an image sensing device” as a “solid state image sensing device” with numerous other limitations. *Id.*

ZTE counters that this term should be construed according to 35 U.S.C. § 112, ¶ 6 because the claim doesn’t contain sufficient structure to do the function of image sensing. Docket No. 100 at 37. ZTE contends that although this limitation does not include the word “means,” the limitation does not recite sufficiently definite structure for performing the claimed function, and thus should be construed as a means-plus-function limitation. *Id.* ZTE contrasts (with emphasis added) claim 1 of the ’493 Patent, which ZTE argues includes the requisite structure for image sensing (a light receiving sensor), with claim 1 of the ’729 Patent, which ZTE alleges does not include the requisite structure for image sensing:

'493 Patent	'729 Patent
an image sensing device with <i>a light receiving sensor</i> having an array of pixels arranged vertically and horizontally in a grid pattern	an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern;

at 37.

According to ZTE, here, a pixel is a data construct in an image (with data representing color intensities from multiple image filter-sensor elements), not an element on a sensor as Maxell asserts. *Id.* at 38. ZTE then argues that the corresponding structure for imaging sensing must include the color sensitive filters includes color filters arranged in vertical lines. *Id.* For support, ZTE cites to the passage: “On these grid-arrayed pixels three types of color filters that pass yellow (Ye), green (G) and cyan (Cy), respectively, are arranged in such a way that the combination of these three colors is repeated horizontally every three pixels and that the filters of the same colors are lined vertically in so-called vertical stripes.” *Id.* (citing ’729 Patent 4:41–46). ZTE also points to the passage

FIGS. 13A and 13B show arrangements of color filters in this embodiment. These color filters in both examples are arranged in vertical stripes and, regardless of the number of pixels to be vertically mixed or culled, the R, G, B primary color signals can be generated from one line of output signals.”

at 15:25–30.

In its reply, Maxell argues that ZTE “merely avers that the addition of the words *with a light receiving sensor* transforms an insufficiently structure limitation into one with sufficient structure” but, according to Docket No. Maxell, “a person of skill in the art would associate ‘image sensing device’ with a class of structures regardless of whether the words *with a light receiving sensor* are part of the claim.” Docket No. 106 at 15 (emphasis original). Maxell

argues that its expert testimony remains unrebutted and that ZTE also disregards the description of the image sensing device in the patent itself. citing '729 Patent 4:36–65, 12:50–13:15, Figure 2, Figure 10. Maxell contends that the term “image sensing device” describes in the claims how the device operates to achieve the inventions’ objectives. *Id.* And, according to Maxell, the '729 Patent’s specification describes the “image sensing device” and its operation in detail and the use of additional words (here, *image sensing*) in conjunction with the word *device* places an additional functional constraint on a structure otherwise adequately defined. at 15–16 (citing '729 Patent 4:36-65, Figure. 2, *Free Stream Media Corp. v. Alphonso Inc.*, 2017 WL 1165578, at *25 (E.D. Tex. Mar. 29, 2017) (emphasis original).

Though a term that does not use “means” is presumed not to be a means-plus-function term, *Williamson* does note that “device” maybe a nonce word “that is tantamount to using the word means.” *Williamson*, 792 F.3d at 1350. In this case, however, the full term in question includes “image sensing device.” “Image sensing device,” as opposed to just “device,” imparts a structural significance to the term. In *Williamson*, the word “module” included a prefix of “distributed learning control,” which the Federal Circuit determined did not impart structure:

Although the “distributed learning control module” is described in a certain level of detail in the written description, the written description fails to impart any structural significance to the term. At bottom, we find nothing in the specification or prosecution history that might lead us to construe that expression as the name of a sufficiently definite structure as to take the overall claim limitation out of the ambit of § 112, para. 6.

Id. at 1351. Here, the intrinsic record is the opposite. The specification is replete with references to “image sensor device” as used in the prior art discussion and in the description of the embodiments. These passages describe, at length, the working detail and structure of both prior art image sensing devices and the disclosed imaging sensing device. '729 Patent 1:25–2:2, 2:20–

55, 4:36–65, 10:14–18, 12:50–13:15, Figure 2, Figure 10. In context of the specification as a whole, this term is different than that in *Williamson*.

That ZTE acknowledges that a claim that merely adds a “light sensor” to the term “image sensing device” is sufficient structure further supports this result. ZTE has pointed to no evidence that the disclosure of the image sensor device of the ’729 Patent would not include a light sensor. In fact, the specification specifically states light “is focused on a light receiving surface of the image sensing device 3 where it is converted into an electric signal.” *Id.* at 4:37–39. The specification further states “FIG. 2 shows the structure of this image sensing device. . . [where reference number] 30 are ***pixels each formed of a photodiode***, which are arranged horizontally and vertically in a grid pattern.” *Id.* at 4:40–43 (emphasis added). In contrast to ZTE’s interpretation of a “pixel” (“a pixel is a data construct in an image”), the specification clearly states that the pixels are photodiodes, which are structures known to be light receiving sensors.

Further, the claim includes additional structural description of the image sensing device: “an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern.” The additional structural description of the image sensing device (“an array of pixels arranged vertically and horizontally in a grid pattern”) further removes the term from means-plus-function usage by showing sufficiently definite structure. *See Free Stream*, 2017 WL 1165578, at *25 (E.D. Tex. Mar. 29, 2017) (declining to construe “client device” as a means-plus-function term because “the claims themselves connote sufficiently definite structure by describing how the ‘client device’ operates within the claimed invention to achieve its objectives”)).

Finally, the extrinsic evidence provides a detailed analysis of the specification and how the disclosure reflects a class of structures that is known to one skilled in the art. Madisetti Decl. at ¶¶ 35–44. ZTE’s expert merely makes unsupported allegations that one skilled in the art would not identify structure in the specification, seemingly focusing on an argument that “structure for image sensing must include the color sensitive filters.” Docket No. 100-4 (Mansoorian Decl.) at ¶¶ 35–43. However, such testimony does not negate the intrinsic and extrinsic evidence that “image sensing device is a known class of structure.” The competing extrinsic evidence more strongly supports Maxell’s position that the term is understandable as structure.

Based upon these factors, the presumption that the term is not a means-plus-function term has not been rebutted.

The Court construes the term “an image sensing device having an array of pixels arranged vertically and horizontally in a grid pattern” to have its plain and ordinary meaning.

23. “an image stability detector” (’729 Patent claim 1)

Maxell’s Proposed Construction	ZTE’s Proposed Construction
“a device, such as a gyroscopic sensor or the like, capable of detecting an image instability of the electric camera”	<p>Indefinite</p> <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: “detecting an image-instability of the electric camera”</p> <p>Structure: insufficient corresponding structure disclosed</p>

The parties dispute whether the term is a means-plus-function term.

Maxell contends the claim should not be interpreted as means-plus-function because it does not use the word “means” and lacks a “for” clause with a stated function. Docket No. 95 at 46. Maxell also contends that the Federal Circuit and other post *Williamson* decisions have held that “‘detector’ is a sufficiently definite structural term to preclude the application of § 112, P 6.” *Id.* (citing *Personalized Media v. Int’l Trade Comm’n*, 161 F.3d at 705; *Raytheon Co. v. Cray, Inc.*, 2017 U.S. Dist. LEXIS 89342, at *69–70 (E.D. Tex. June 9, 2017); *NetFuel, Inc. v. F5 Networks, Inc.*, 2017 WL 2834538, at *19 (N.D. Ill. June 29, 2017) (concluding that “detector” is “more definite than ‘means’ or ‘mechanism’ ”)). Maxell further contends that the specification expressly describes “gyro sensors 16a, 16b, that detect vertical and horizontal image-unstabilities.” *Id.* (citing ’729 Patent 7:12–14). Maxell contends that “Gyro sensors” are exemplary specific, definite, and sufficient structures for detecting image instabilities.

ZTE responds that “image instability” by itself is a term that is not known in the art of image processing. Docket No. 100 at 39 (citing Mansoorian Decl. at ¶¶ 47–48). ZTE contends that images are data that is both fixed in time and in space and there is nothing in an image that could be “unstable” or “instable.” *Id.* (citing Mansoorian Decl. at ¶ 49).

ZTE contends that “image instability” is discussed in the specification: “16a and 16b gyro sensors to detect vertical image-unstability and lateral image-unstability, respectively, and 17 an image-unstability decision circuit to determine the image-instability from signals output from the gyro sensors.” *Id.* (citing ’729 Patent 4:32–4:35). ZTE contends that cameras detect motion of the imaging platform or camera, not instability or instability of a resultant image. *Id.* (citing Mansoorian Decl. at ¶¶ 47–49). ZTE also contends that the specification fails to teach any manner to relate vertical or horizontal motion of the camera to a purported “image instability.” *Id.* (citing Mansoorian Decl. at ¶ 50). ZTE further argues that it is quite unclear if

the patentee equated “instability” with “unstability” or what these terms would even mean with respect to image data. Even if one were to relate the purported “image instability” to motion artifact in a resultant image, ZTE contends that the disclosure of the asserted patents fails to teach how to relate motion of the camera to instability of the image. ZTE contends that since gyroscopic sensors measure rotational velocity, it is unclear how that measurement would be converted into pixel displacement. *Id.* (citing Mansoorian Decl. at ¶ 55).

In its reply, Maxell contends that ZTE’s response largely focuses on whether the patent sufficiently describes how the image instability is calculated and that this inquiry has no bearing on whether the “image instability detector” connotes a sufficiently definite structure or class of structures. Docket No. 106 at 16.

Maxell contends that Dr. Madisetti explained that the skilled artisan “would understand that ‘instability’ . . . would refer to the movement of the camera, as measured by a gyro sensor, accelerometer, or similar device.” *Id.* (citing Madisetti Decl. at ¶ 48 (describing instability “relating to vertical and horizontal shifts in effective pixel area . . . due to vertical and horizontal movement of the camera”)). Maxell also argues that “detector” describes a sufficiently definite class of structures, and “image instability” in this context would be readily understood by a person of ordinary skill in the art. *Id.*

ZTE’s expert provides a conclusory statement that the term does not connote structure to one skilled in the art, followed by three paragraphs acknowledging that image stabilization techniques and systems were known in the art, including systems that move an image sensor to compensate for unwanted movement. ZTE’s expert also states in conclusory fashion that, although the specification teaches using gyro sensors to detect vertical image-unstability and

lateral image-unstability, the specification fails to show how the unstability is detected and measured. Mansoorian Decl. at ¶¶ 46–50.

ZTE's evidence fails to meet ZTE's burden to overcome the presumption that the term is not a means-plus-function term. As noted by Maxell, the term "detector" has generally been found to reflect structure. *See Personalized Media*, 161 F.3d at 705; *Raytheon Co.*, 2017 U.S. Dist. LEXIS 89342 at *69–70. Further, the specification provides clear reference to specific structure to detect unstability by disclosing the use of gyro sensors to detect movement: "16a and 16b gyro sensors to detect vertical image-unstability and lateral image-unstability, respectively." '729 Patent 4:31–4:35. As ZTE's expert has agreed that camera stabilization techniques and systems are known and the specification provides discussion of detecting vertical image-unstability and lateral image-unstability with gyro sensors, it is clear that "image instability detector" provides a definite statement of structure. Further, as noted by Maxell's expert, the disclosure of unstability is extensive:

Next, the image stabilizing operation will be explained. Image-unstability information obtained by the gyro sensors 16a, 16b that detect vertical and horizontal image-unstabilities is entered into the image-unstability decision circuit 17, which checks the received information for the amount and direction of the image-unstability and converts them into the number of pixels in vertical and horizontal directions on the light receiving surface of the image sensing device. Based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-unstability. This can correct the image-unstability. The positional shifting of the extracted area is performed as follows. The shifting in the vertical direction can be made by changing the number of pixel rows transferred during the periods T3 and T4 in FIG. 3 and the shifting in the horizontal direction made by changing the interpolation start position in the horizontal interpolation circuit 9.

'729 Patent 7:11–28. In light of the disclosure in the specification and the accepted understanding of those in the art, the analysis of the specification by Maxell's expert (and the extrinsic evidence regarding the understanding of one skilled in the art regarding the use of gyro

sensors and “unstability” presented by Maxell’s expert) is more reliable compared to the mere conclusions of ZTE’s expert. *See* Madisetti Decl. at ¶¶ 47–49.

At the oral hearing, Maxell agreed to the Court’s construction presented below.

The Court construes “an image stability detector” to mean “a detector, such as a gyroscopic sensor or the like, capable of detecting an image instability of the electric camera.”

24. “an amount of image-instability of the camera” (’729 Patent claim 1)

Maxell’s Proposed Construction	ZTE’s Proposed Construction
“an amount of instability caused by vertical and/or horizontal movement of the electric camera”	Indefinite

ZTE contends that it is unclear what the “amount” corresponds to: pixels, quality of portions of the image impacted by motion or quality of the picture as a whole.

Maxell contends that, upon reading the specification of the ’729 Patent, a person of ordinary skill in the art would recognize that “an amount of image instability of the camera” refers to the amount of vertical or horizontal movement of the camera that causes corresponding instability or shifting in a generated image. Docket No. 95 at 47 (citing Madisetti Decl. at ¶¶ 46–47). According to Maxell, the patent describes that the amount of instability can be represented or measured in number of pixels and that the patent discloses that a decision circuit 17 “checks the received information for the amount and direction of the image-unstability and converts them into the number of pixels in vertical and horizontal directions” *Id.* (citing ’729 Patent 7:12–17). Maxell states that the patent also explains that “[b]ased on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-unstability.” *Id.* at 7:18–20

Maxell argues that the description of using a gyro sensor to measure image instability would inform a person of ordinary skill that “an amount of image instability” refers to an amount of shift caused by vertical and/or horizontal movement of the electric camera and representable by a number of pixels on the light receiving surface of the image sensor. *Id.* at 47–48 (citing Madisetti Decl. at ¶¶ 49).

In response, ZTE contends that its arguments for indefiniteness of the “image-instability detector” term apply to this term. Docket No. 100 at 40. ZTE further contends that the phrase “an amount of image-instability” is unclear because even assuming that the patentee used this phrase to mean “motion artifact” present in the resultant image, one of ordinary skill would be left guessing whether the claim meant the total number of pixels disturbed in the image, the quality degradation of the sections of the image impacted by motion artifact, or the overall appearance of the image as a whole. *Id.* ZTE contends that the specification is silent on the meaning of “image instability.” *Id.* ZTE contends that, as explained by Dr. Mansoorian, gyroscopes measure a rate of rotation (angular velocity or speed) around x, y, and z axis. *Id.* (citing Mansoorian Decl. at ¶ 54). ZTE argues that there is no relationship between the specification’s “vertical image-unstability and lateral image-unstability,” and the claimed image instability discussed in the specification. *Id.* (citing Mansoorian Decl. at ¶¶ 54–55). ZTE contends that one of ordinary skill is left wondering, for example, if a lateral speed of 1 inch per second measured by the lateral gyroscope is related to any number pixel offset in the motion artifact of the resultant image. *Id.* ZTE also contends that one would be left wondering how this decision circuit would convert angular velocity of a gyroscope into a number of pixel displacement. Docket No. 100 at 40.

ZTE argues that the “amount” must be limited to some particular amount of instability. However, the term as drafted only requires an image-instability detector, configured to detect “an amount of image-instability of the camera.” The explicit claim language is not limited to a particular pixel count, angularly velocity, lateral speed, etc. As discussed above, the patent describes:

Next, the image stabilizing operation will be explained. Image-unstability information obtained by the gyro sensors 16a, 16b that detect vertical and horizontal image-unstabilities is entered into the image-unstability decision circuit 17, which checks the received information for the amount and direction of the image-unstability and converts them into the number of pixels in vertical and horizontal directions on the light receiving surface of the image sensing device. Based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-unstability. This can correct the image-unstability. The positional shifting of the extracted area is performed as follows. The shifting in the vertical direction can be made by changing the number of pixel rows transferred during the periods T3 and T4 in FIG. 3 and the shifting in the horizontal direction made by changing the interpolation start position in the horizontal interpolation circuit 9.

’729 Patent 7:11–28. The ability to measure orientation is consistent with this passage cited above, where the information obtained by the gyro sensors is checked for the amount and direction of the image-unstability. The decision circuit 17 then converts the amount and direction detected by the gyro sensors into the number of pixels in the vertical and horizontal directions that the effective pixel area needs to be shifted to cancel the image instability. *See Id.* In context of the specification, the claimed instability of the camera clearly refers to the movement of the camera as sensed by the gyro sensors. Maxell’s construction comports with the specification as to what is meant by the amount of instability.

The Court construes “an amount of image-instability of the camera” to mean “an amount of instability caused by vertical and/or horizontal movement of the electric camera”

25. “to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability” (’729 Patent claim 1)⁹

Maxell’s Proposed Construction	ZTE’s Proposed Construction
“based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted, in order to correct the image-instability”	“Based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-instability”

The parties dispute whether the last portion of the term must be a shift “in a direction that cancels the image-instability.”

Maxell notes that it believes the plain and ordinary meaning is sufficient, but Maxell has agreed to “adopt ZTE’s construction so long as the unduly limiting language (‘in a direction that cancels the image-instability’) is removed.” Docket No. 95 at 48. According to Maxell, while the language ZTE adds appears in the specification alongside the other language that forms ZTE’s proposed construction, the extra language adds an unnecessary limitation to the claims, importing a particular embodiment. *Id.* Further, Maxell contends that the patent does not equate “correction of image-instability” to “cancellation of image-instability.” Maxell notes that an objective of the patent is to “reduce[] image quality degradation” but not necessarily cancel image quality degradation. (citing ’729 Patent 3:10–15).

ZTE contends that the Court should adopt its construction because, while the specification is silent on exactly how to convert the output of the gyroscopes into a specific pixel count, it does state that in order to correct the purported image instability, the pixels must be shifted in a direction that cancels the image unstability. Docket No. 100 at 41 (citing ’729 Patent 7:11–21).

⁹ The parties did not provide oral argument for this term.

The claim language in question recites “correct the image-instability.” ZTE argues for a particular manner of such correction, “shifted in a direction that cancels the image-instability,” relying on the following language in the specification:

the position of an extracted area (effective pixel area) on the light receiving surface is shifted in a direction that cancels the image-unstability. This can correct the image-unstability.

’729 Patent 7:19–22. Though the particular shift technique cancels instability and “can correct the image-unstability,” ZTE has pointed only to an embodiment and has not pointed to any language of lexicography, disclaimer or disavowal mandating that the correction must cancel all instability. *See GE Lighting Solutions*, 750 F.3d at 1309; *Cordis Corp.*, 561 F.3d at 1329; *Arlington Indus.*, 632 F.3d at 1254 (“[E]ven where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words of expressions of manifest exclusion or restriction.”). Moreover, at least one passage of the specification references “reduced image quality degradation” as opposed to canceling degradation. ’729 Patent 3:10–15. ZTE has not established sufficient grounds in the intrinsic record to import the particular shift technique described in the specification.

The Court construes “to change a position of the second effective set of pixels according to the amount of image-instability detected by the image-instability detector, in order to correct the image-instability” to mean “based on the converted pixel numbers, the position of an extracted area (effective pixel area) on the light receiving surface is shifted, in order to correct the image-instability.”

26. “a display unit configured to display an image corresponding to the image signals formed by the signal processing unit” (’729 Patent claim 1)¹⁰

Maxell’s Proposed Construction	ZTE’s Proposed Construction
Plain and ordinary meaning	<p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: “for displaying an image corresponding to the image signals formed by the signal processing unit”</p> <p>Structure: “display screen of a television system” (3:22–23) or other screen compatible with NTSC or PAL format (1:35–36; 10:19–21)</p>

The parties dispute whether the term is a means-plus-function term and limited to a television or other screen compatible with NTSC or PAL.

Maxell contends that the mere use of the word “unit” in this term does not, without more, make “display unit” a means-plus-function term. Docket No. 95 at 49. Maxell also contends that the claim language denotes sufficiently definite structure by stating how the “display unit” operates: it displays an image based on corresponding image signals. *Id.* at 49 (citing *Free Stream*, 2017 WL 1165578, at *25).

Maxell also contends that the ’729 Patent provides examples of a “display” in the form of a “display screen” (Abstract) and a “television monitor” (1:33–34). Maxell contends that from the claim language and from the description in the specification, one skilled in the art would know that “display unit” refers to a definite class of structures, namely, devices that can display images. *Id.* (citing Madisetti Decl. at ¶¶ 52–54).

¹⁰ The parties did not provide oral argument for this term.

ZTE responds that the claim doesn't contain sufficient structure to do the function of displaying the image. Docket No. 100 at 41. ZTE contrasts claim 1 of the '493 Patent, which ZTE alleges includes the requisite structure for displaying the image, with claim 1 of the '729 Patent, which ZTE alleges does not include the requisite structure.

'493 Patent	'729 Patent
a display unit <u>with the display screen</u> , to display an image corresponding to the image signals;	"a display unit configured to display an image corresponding to the image signals formed by the signal processing unit."

Id. at 41–42.

ZTE contends that Maxell's reliance on *Free Stream* is unavailing because, in contrast to the device construed in *Free Stream*, here, the claim does not include reference to a display screen, structure required for a display unit to work. *Id.* at 42. ZTE contends that the specification discloses that the structure that performs the function of displaying an image must include a display screen of a television system or other screen compatible with NTSC or PAL formats. *Id.* at 42–43 (citing '729 Patent 1:32–44, 10:19–22).

In its reply, Maxell contends that ZTE alleges that the addition of "with a display screen" transforms a limitation into one with sufficient structure. Maxell contends that a person of ordinary skill in the art would associate "display unit" with a class of structures regardless of whether these additional words are part of the claim. Docket No. 106 at 17 (citing Madisetti Decl. at ¶¶ 51–54).

ZTE again argues that *Williamson* would require the claim term to include all the operable components of a display unit. However, as noted above, that is not the standard provided by *Williamson*. Again, the question is whether the term describes sufficiently definite structure to one of ordinary skill in the art to connote structure. ZTE has not shown that one

skilled in the art would not understand that the term connotes definite structure. ZTE's acknowledgement that "a display unit with the display screen" is known structure demonstrates as much. The specification clearly teaches that a display unit is a class of structures, providing examples such as "display screen" (Abstract) and a "television monitor" (1:33–34).

Finally, ZTE's expert testimony also indicates that such a term would be known to represent a class of devices that display images such as "anything from a television display, cell phone display, and computer monitor." Mansoorian Decl. at ¶ 57. Thus, the expert recognizes that the term is not unbounded but reflects known structures. In addition to the specification disclosure, the extrinsic evidence about the understanding of those skilled in the art further supports Maxell's position that the term is understandable as structure.

The Court construes the term "a display unit configured to display an image corresponding to the image signals formed by the signal processing unit" to have its plain and ordinary meaning.

H. The '193 Patent

The '193 Patent relates generally to cellular telephones, more specifically to a cellular telephone with improved means for controlling transmitter output power, while reducing current consumption to conserve battery life. '193 Patent 3:12–28. The Abstract of the '193 Patent recites:

A cellular telephone receives a first communication signal from a cell-site station and transmits a second communication signal to the cell-site station. The cellular telephone includes an antenna, a duplexer, a receiver, an encoder/decoder apparatus, an acoustic transducer, a transmitter and a controller. The receiver is connected to the antenna through the duplexer. The receiver converts the first communication signal into a voice signal code, and outputs a signal indicating an intensity of the first communication signal. The transmitter is connected to the encoder/decoder apparatus and to the antenna through the duplexer. The receiver converts the input voice code signal from the encoder/decoder apparatus into the second communication signal. The controller is connected to the receiver and the

transmitter. The controller controls amplitude of the transmitter corresponding to said intensity of the first communication signal. The transmitter includes a variable amplitude amplifier and a power amplifier means, and the controller includes a central processing unit and a memory. The controller controls a gain of the variable amplitude amplifier and a bias condition of the power amplifier means according to a function stored in the memory.

'193 Patent Abstract. More particularly, the '193 Patent describes a cellular telephone (Figure 1) having a transmitter (200), including a variable amplitude amplifier (230) and a power amplifier (250) for amplifying a transmit power to a desired level, and a controller (300) for controlling the transmit power by controlling the gain of the variable amplitude amplifier and the bias condition of the power amplifier. '193 Patent 5:16–6:54, Figures 1 and 2. Instead of supplying a fixed bias condition (e.g., B_n) to the power amplifier, the '193 Patent defines bias conditions for the power amplifier as a function of predetermined gain values for the variable amplitude amplifier, and stores corresponding sets of gain and bias values in memory (e.g., G_1B_1 , G_2B_2 , . . . G_nB_n). '193 Patent 6:6–43, Figure 4. By specifying different bias values for different gain values, the controller can select a bias condition that satisfies a particular transmit power, while reducing current consumption in the power amplifier. '193 Patent 6:43–54.

28. “variable amplitude amplifier” ('193 Patent claims 1 and 7)

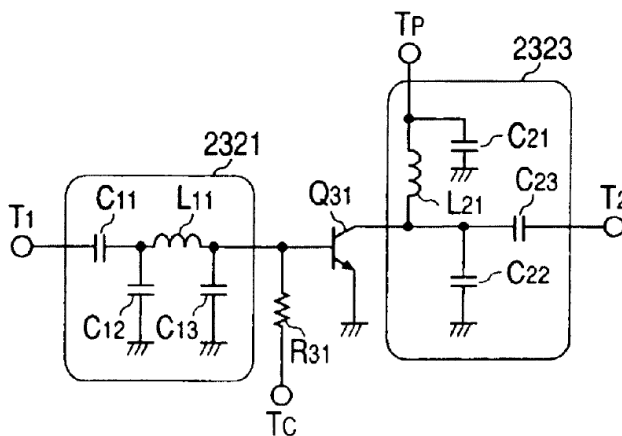
Maxell's Proposed Construction	ZTE's Proposed Construction
Plain and ordinary meaning	“device that includes a first-stage amplifier, two filters, an up-converter, and a second-stage amplifier”

ZTE contends that the claims should be limited to the amplifier design of Figure 1 allegedly because that is the embodiment that fits within the claim limitations.

Maxell contends that ZTE limits the term to the embodiment of amplifier 230 of Figure 1 and excludes the embodiment of Figure 3. Docket No. 95 at 52. Maxell contends that Figure 1 discloses an embodiment of a variable amplitude amplifier 230 that consists of two stages of

amplification formed by amplifiers 232 and 234. *Id.* (citing '193 Patent 5:19–21, 5:31–33, 5:40–45). According to Maxell, the embodiment of a variable amplitude amplifier disclosed in Figure 3 consists of a single stage of amplification formed by a single amplifying element, transistor Q31. *Id.* (citing '193 Patent 6:56–57 (“[i]n this embodiment, a transistor is employed as an amplifying element Q31”). Further, Maxell contends that the term “variable amplitude amplifier” would be readily understood by a person of ordinary skill in the art. *Id.* at 53 (citing Docket No. 95-3 (Caloyannides Decl. A) at ¶¶ 48–50).

ZTE contends that its construction should be adopted because the embodiment of Figure 1 is the only embodiment that fits within the scope of the claims. Docket No. 100 at 45. ZTE contends that it is unclear how the amplifier of Figure 3 works or even how it would be connected to the “control signal” required in the claims. *Id.* at 45 46 (citing Docket No. 100-7 (Ding Decl.) at ¶¶ 42).



ZTE’s argument focuses on Figure 3, above. According to ZTE, for the circuit in Figure 3, the specification describes T1 and T2 as the input and output terminals respectively and the power source voltage is connected to terminal Tp. *Id.* at 45 (citing '193 Patent 6:58–61, 7:10–12). ZTE contends that the specification states that “transistor Q31 controls the output power according to the control signal generated by the CPU 310. *Id.* at 45–46. The higher the voltage

of the control signal is, the more output power is obtained due to an increase of the collector current” but it is silent on how the control signal reaches the Q31 or how it would control the output power if it did reach transistor Q31. *Id.* at 46 (citing ’193 Patent 7:15–20, and Ding Decl. at ¶ 44). Specifically, ZTE contends that not only does the specification not disclose how the control signal reaches transistor Q31 it also fails to teach how that signal would vary the gain of the circuit. *Id.*

ZTE further contends that the term “Variable Amplitude Amplifier” has no accepted meaning in the field and would not be known to one of ordinary skill. *Id.* at 47 (citing Ding Decl. at ¶¶ 45–48).

There are “only two exceptions to [the] general rule” that claim terms are construed according to their plain and ordinary meaning: “(1) when a patentee sets out a definition and acts as his own lexicographer or (2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution.” *Golden Bridge Tech.*, 758 F.3d at 1365 (Fed. Cir. 2014) (quoting *Thorner*, 669 F.3d at 1365); *see also GE Lighting Solutions*, 750 F.3d at 1309 (“[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal.”). The standards for finding lexicography or disavowal are “exacting.” *GE Lighting Solutions*, 750 F.3d at 1309. To disavow or disclaim the full scope of a claim term, the patentee’s statements in the specification or prosecution history must amount to a “clear and unmistakable” surrender. *Cordis Corp.*, 561 F.3d at 1329; *see also Thorner*, 669 F.3d at 1366 (“The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.”).

ZTE has not pointed to any such clear lexicography, disclaimer or disavowal. “[E]ven where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words of expressions of manifest exclusion or restriction.” *Arlington Indus., Inc.*, 632 F.3d at 1254.

As to the meaning of the term, the parties and their experts dispute whether the term has meaning to one skilled in the art. It is noted that the background of the specification references a variable amplitude amplifier in the prior art CDMA standard. ’193 Patent 1:23–35, Figure 11. Further, the background of the specification references the use of a variable amplitude amplifier for controlling bias conditions of a FET according to transmission power, as described in a Japanese patent document. ’193 Patent 1:60–2:1. Further, Maxell’s expert points to two prior art patents which reference the term variable amplitude amplifier. Caloyannides Decl. A at ¶ 42. Further, Maxell’s expert identifies three of the cited patents on the face of the ’193 Patent as providing example figures of variable amplitude amplifiers. *Id.* at ¶ 48. ZTE’s expert’s primary challenge to these statements is an assertion that the two prior art patents identified in Caloyannides Decl. A at ¶ 42 do not disclose definite structure for the amplifiers. Ding Decl. at ¶¶ 46, 48. However, that assertion does not rebut the evidence that the term is known in the art. The competing extrinsic evidence of those skilled in the art better supports Maxell’s position that the term has meaning to those in the art. *See Teva Pharm. USA*, 135 S. Ct. at 841 (2015) (allowing courts to make subsidiary factual findings about the extrinsic evidence).

Moreover, the specification itself provides guidance as to the meaning. The specification provides for two descriptions of the variable amplifier 230. ZTE points to the description of Figure 1 found at 5:16–44. However, the specification provides another description of variable amplitude amplifier 230 in Figure 2 and Figure 3 at 6:1–6, 6:55–7:20. ZTE’s expert attempts to

discount the disclosure of Figure 3 by stating that the specification is silent on how the control signal reaches the transistor Q31 or how it would control the output power if it did reach transistor Q31. Ding Decl. at ¶ 44. However, the specification is clear: “[a] control terminal Tc is connected to the base of the transistor Q31 through a resistor R31.” ’193 Patent 7:5–7 (referencing Figure 3). Though ZTE argued at the oral hearing that it was unclear where the signal on Tc is provided from, the specification is clear. Figure 2 clearly illustrates that controller 300 provides an input to the variable amplitude amplifier 230. Further, the specification explains that the CPU 310 (within controller 300) “generates signals for controlling the variable amplitude amplifier 230” (5:53–54 (referencing Figure 1)), “the controller 300 controls a gain of the variable amplitude amplifier 230” (6:1–2 (referencing Figure 2)), “controller 300 controls the variable amplitude amplifier 230 (6:43–44 (referencing Figure 2)), and “the transistor Q31 controls the output power according to the control signal generated by the CPU 310” (7:16–18 (referencing Figure 3)).

The specification also more generally describes the operation of the variable amplitude amplifier 230 as amplifying the input signal for provision to an output. *Id.* at 5:31–40 (referencing Figure 1). This amplification is done by controlling the gain of the amplifier by the control signal from controller 300 as shown in Figure 2: “[t]he controller 300 controls a gain of the variable amplitude amplifier 230. . . .” *Id.* at 6:1–2, 3:17–22, Abstract. The controller 300 controls the variable amplitude amplifier 230 and the power amplifier means 250 based on the conditions stored in MEM 330. *Id.* at 6:43–46. “The transistor Q31 controls the output power according to the control signal generated by the CPU 310. *Id.* at 7:16–18 (referencing Figure 3). “The higher the voltage of the control signal is, the more output power is obtained due to an increase of the collector current.” *Id.* at 7:18–20 (referencing Figure 3).

In context of the specification, it clear that the variable amplitude amplifier is not limited to the structure of Figure 1. Moreover, in context of the overall description of the passages discussed above, the variable amplitude amplifier is an amplifier whose output amplitude may be varied and that provides a variable gain in response to a control signal.

At the oral hearing Maxell agreed to a construction similar to that adopted by the Court below. H'rg Tr. at 147:8–23.

The Court construes “variable amplitude amplifier” to mean “an amplifier whose output amplitude may be varied and that provides a variable gain in response to a control signal.”

I. The '794 Patent

The '794 Patent relates generally to power management, more specifically to methods for controlling power consumption in a battery operable information processing device. '794 Patent 1:6–11. The Abstract of the '794 Patent recites:

A power supply section includes a capacity detector capable of detecting the remaining capacity in a battery and a controller issuing power consumption reduction instructions to independently operable function devices based on usage priorities thereof. This allows power consumption operations to be performed such as stopping function devices with low priorities first based on the remaining battery capacity. As a result, power to function devices with higher priorities can be maintained. Based on the remaining battery capacity, the controller controls the operations of the function devices and uses a display to show information allowing the operator to identify operable and inoperable function devices as the battery capacity drops.

'794 Patent Abstract. More particularly, the '794 Patent allows priority levels to be set for individual function devices in the information processing device and prioritizes battery time or power consumption for function devices with higher priorities. '794 Patent 2:21–27, 3:57–4:12, Figures 8 and 9. The '794 Patent turns off power to individual function devices based on the priority levels set for the function devices and the remaining battery capacity. In this manner, a lower prioritized function device can be turned off when a first battery capacity is reached, while

a higher prioritized function device remains powered. This enables function devices with higher priority to be operated for a longer period of time. '794 Patent 5:17–27.

**29. “function devices(s)” ('794 Patent claim 1)
“component device” / “component devices for performing different functions in the device” ('794 Patent claim 9)**

Maxell’s Proposed Construction	ZTE’s Proposed Construction
“hardware, software, or a combination of the two that consumes power and implements one or more functions of the information processing device”	<p>Indefinite</p> <p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: “modem functions” (1:20); “audio communication function (function device A) and a videophone function (function device B)” (1:31–32); no function otherwise disclosed</p> <p>Structure: insufficient corresponding structure disclosed</p>

In the briefing, the parties disputed whether or not the terms are means-plus-function terms. At the oral hearing, Maxell agreed that both terms are means-plus-function terms having the same construction. *See* H’rg Tr. at 159:22–161:12.

Maxell contends that the inventors of the '794 Patent used their own terminology to refer to hardware/software components that perform specific functions in the information processing device: “function device” and “component device.” Docket No. 95 at 55. Maxell notes that the patent specifically refers to “an audio communication function” as “function device A” and to “a videophone function” as “function device B.” *Id.* (citing '794 Patent 1:31–32). Maxell argues that a person of ordinary skill in the art would recognize the structures that would perform these functions and would understand that these disclosures denote a sufficiently definite class of structures. Docket No. 106 at 20 (citing Docket No. 106-10 (Kiaei Decl.) at ¶¶ 46–49, 56).

According to Maxell, the '794 Patent describes “modem functions,” and exemplary “common” function devices such as a CPU and memory. Docket No. 95 at 55 (citing '794 Patent 1:19–20, 1:32–33, 6:14–15). Maxell contends that the modem, CPU, and memory are specific, definite exemplary structures that perform functions in the information processing device. *Id.* Maxell argues that each function device can perform a single function or a function device can perform multiple functions. *Id.* (citing '794 Patent 2:33–35). As to the CPU and memory, Maxell contends that ZTE overlooks that a “common function device” is simply a type of “function device.” Docket No. 106 at 20. Maxell further points to claim 8 as making clear that a “common function device” is a type of “function device.” *Id.* at 20 n. 24.

At the oral hearing when provided with a structure of “modem devices, audio communication devices and videophone devices,” Maxell indicated that it agrees to such structure if CPU and memory are added to the structure. H'rg Tr. at 159:23–160:13. Maxell contends that the CPU and memory are part of the “common function device” and should thus be included in the construction. *Id.*

Maxell also argues that ZTE provides a function, not from the claims, but from exemplary embodiments in the specification. Maxell contends that the function for an MPF claim should come from the claims, not from the specification. Docket No. 95 at 56 (citing *Wenger Mfg., Inc., v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001) (“Under § 112, ¶ 6, a court may not import functional limitations that are not recited in the claim. . .”) and *Mass Engineered Design, Inc. v. Ergotron, Inc.*, 559 F. Supp. 2d 740, 747–48 (E.D. Tex. 2008) (“Defendants insert limitations not cited in the claim, which is improper.”)).

ZTE contends that “function device” and “component device” have no recognizable meaning to a person of ordinary skill in the art, instead generically describing literally any device

that is capable of performing any function. Docket No. 100 at 48 (citing Docket No. 100-3 (Wolfe Decl.) at ¶¶ 41–42). ZTE also contends the specification does not provide any description of the terms, let alone a level of description that could impart any structural significance. *Id.* (citing Wolfe Decl. at ¶ 43).

ZTE contends that the specification citation for structure provided by Maxell is circular: “[t]he devices specific to the functions 1, 2 are provided through the function devices 1, 2. . . .” Docket No. 100 at 51 (citing ’794 Patent 6:15–18). According to ZTE, these portions of the specification describe the “function devices” only in terms of functionality and do not provide any disclosure that one of ordinary skill in the art would recognize as a structure for performing the claimed functions. *Id.* (citing *Williamson*, 792 F.3d at 1352 (“[I]f a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim, a means-plus-function clause is indefinite.”); *Bosch*, 769 F.3d at 1101 (finding means-plus-function “device” terms indefinite where the specification “offer[ed] no further guidance about their structures.”)). ZTE contends that the only actual structure Maxell identifies is CPU and memory and that these are structures of the “common function devices” of Figure 3, not the different “function devices” or “component devices.” *Id.* at 50 n. 16 (citing ’794 Patent 6:14–15, Figure 3).

In response to Maxell’s arguments for inclusion of a CPU in the structure, ZTE argued at the oral hearing that the *Aristocrat Techs* line of cases would require the inclusion of an algorithm in the structure. *See* H’rg Tr. at 162:22–163:20.

To address Maxell’s objections to the functions that ZTE identifies from the specification (i.e., “modem functions” (1:20); “audio communication function (function device A) and a videophone function (function device B)” (1:31–32)), ZTE provides an alternative function

directly from the claims: “performing different functions in the device” (for “component devices”) and “performing independent functions” (for “function device”). Docket No. 100 at 49, n. 15.

As noted above, the parties are now in agreement that the terms are means-plus-function terms. As to the function, the Court finds that the actual language of each claim is the appropriate language. *See Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332–35 (Fed. Cir. 2006).

As to corresponding structure, the specification describes that the function devices can (1) perform modem functions (1:20), audio communication function (function device A) (1:30–33) and videophone function (function device B). A “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Medtronic, Inc.*, 248 F.3d at 1311. The focus of the “corresponding structure” inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is “clearly linked or associated with the [recited] function.” *Id.* Based on the specification disclosure, the corresponding structure linked to the claimed function includes modem devices, audio communication devices and videophone devices. The Court also notes that the un rebutted testimony of one skilled in the art is that these classes of devices are well known in the art. Kiaei Decl. at ¶¶ 46–49.

Maxell seeks to include the structure of the common function devices in the construction, but only structure that the specification “clearly links” to the claimed function is appropriate. The functions in question are “performing independent functions” and “performing different functions.” In context of the specification, the devices that perform such differing and

independent functions are the Function Device 1 (110) and Function Device 2 (111) of Figures 1, 2, 3, 6, 10, and 11. '794 Patent Figures 1, 2, 3, 6, 8, 10, and 11, 1:30–45, 1:55–66, 3:42–43, 3:57–4:12, 4:18–22. The “common function device” of Figure 3 is described differently: “an information process device 301 includes a common function device 302 needed by both the function device 1 (110) and the function device 2 (111).” *Id.* at 6:9–11. Further, the specification explicitly states: “[e]xamples of a common function device 302 include CPU and memory. The devices specific to the functions 1, 2 are provided through the function devices 1, 2, and control of these are provided through the common CPU and memory.” *Id.* at 6:14–18. The functions of the common function device 302 are not independent of the Function Device 1 (110) and Function Device 2 (111), but rather tied to the functions of these devices (the common device is “needed by both” function devices and provides “control” of the function devices). In context of the specification as a whole, it is clear that the functions of the common function device are not the claimed functions.

The claims themselves further provide clear indication that the recited “function devices” and “component devices” of the independent claims are different than the common device. Dependent claim 8 adds to claim 1: “further comprising a function device common to a plurality of independent functions” and dependent claim 14 adds to claim 9: “further comprising a component device common to a plurality of independent functions.” In conformance with the specification, these claims make clear that the “common” device is not one of the devices recited in the independent claims. *See Phillips*, 415 F.3d at 1314 (other claims can also aid in determining the claim’s meaning, because claim terms are typically used consistently throughout the patent and differences among the claim terms can also assist in understanding a term’s meaning).

In light of the claims and specification, Maxell has not shown the common function device “clearly links or associates” with the claimed independent and differing functions. *See Medtronic, Inc.*, 248 F.3d at 1311. As such structure is not linked to the claimed function, the inclusion of a CPU and memory is inappropriate. Further, ZTE’s arguments for inclusion of an algorithm based on the presence of a general purpose processor within Maxell’s asserted construction are, thus, not appropriate for the structure adopted below by the Court.

The Court construes “function devices equipped with independent functions” to mean:

Function: equipped with independent functions

Structure: modem devices, audio communication devices and videophone devices, or equivalents thereof.

The Court construes “component devices for performing different functions” to mean:

Function: performing different functions

Structure: modem devices, audio communication devices and videophone devices, or equivalents thereof.

J. The ’491 Patent and ’695 Patent

The ’491 Patent and ’695 Patent share a substantially similar specification. The ’695 Patent is a continuation of U.S. Patent No. 7,447,241, which is a continuation of the ’491 Patent. The ’491 Patent and the ’695 Patent relate to audio decoding, and more specifically, to an audio decoder in which a plurality of decoding program codes are stored in an external rather than internal, read only memory (ROM). The Abstract of the ’491 Patent recites:

A multiplexed audio data decoder apparatus is provided in which integration of an audio decoder is easy, and has a high flexibility when the number of the formats to be processed is increased or when the specification is changed. In an external ROM **60** there are accumulated a plurality of decoding program codes corresponding to respective plural methods for compressing and encoding. A controller means **50** transfers the decoding program code corresponding to the

method for compressing and encoding after changing thereof, from the external ROM 60 to an internal RAM 25. A DSP 22 starts decoding processing by using the decoding program code which is transmitted into the internal RAM 25.

'491 Patent Abstract. More specifically, the '491 Patent and the '695 Patent note that conventional digital signal processor (DSP) based audio decoders store decoding program codes within a built-in ROM, which consume considerable space and could not be easily changed to include new or additional encoding formats. '491 Patent 1:65–2:10. To improve flexibility, the '491 Patent and the '695 Patent store decoding program codes within an external ROM, which can be interchanged or updated with new decoding program codes. '491 Patent 2:11–51, 8:1–15, Figure 1. The '491 Patent and the '695 Patent also provide a controller (*e.g.*, a CPU) that detects a change in the encoding format and transfers appropriate decoding program codes stored within the external ROM to an internal RAM, so that the DSP can start the decoding process using the appropriate decoding program codes stored in the internal RAM. '491 Patent 2:38–45, 5:31–67, 6:66–7:54, Figures 1, 4, and 5. This enables the audio decoder apparatus described in the '491 Patent and the '695 Patent to have the flexibility to process audio signals of numerous formats without requiring a large built-in memory.

18. “controller means for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory” ('491 Patent claim 1) / “controller means for transferring said plural decoding program codes from said read-only memory to said second memory in advance, as well as for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory” ('491 Patent claim 2)¹¹

Maxell's Proposed Construction	ZTE's Proposed Construction
Function: detecting change in said method of	Function: claim 1: “for detecting change in

¹¹ The parties' final Joint Claim Chart did not list claim 2. At the oral hearing the parties agreed that the term in claim 2 was also at issue. *See* H'rg Tr. at 118:23–119:1. Maxell also agreed to a function that matches the explicit claim language. *See Id.* at 113–114.

<p>compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory</p> <p>Structure: At least one processor – such as a CPU –programmed to execute processing in accordance with the algorithm set forth in flowcharts of Fig. 4 (including steps S3, S5–S9), Fig. 9 (including steps S3–S14) and corresponding citations in the specification at 5:60–64, 6:30–7:54, 9:13–18, 9:28–44, and FIGS. 1, 4–6, and 9, as well as equivalents thereof</p>	<p>said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory”</p> <p>claim 2: “for transferring said plural decoding program codes from said read only memory to said second memory in advance, as well as for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read only memory to said first memory”</p> <p>Structure: claims 1 & 2: an external CPU (FIG 1) connected via a bus between a read only memory and the first memory, running the algorithm of Figs. 4 and 5. (6:30–7:54)</p>
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The parties dispute whether the CPU is “external” and “connected via a bus between a read only memory and the first memory.” The parties further dispute whether the algorithm of the processor includes all of Figures 4 and 5 or just particular steps of the flow charts of those figures.

Maxell objects to ZTE’s construction as limiting the CPU to being “external” and “connected via a bus between a read only memory and the first memory.” Docket No. 95 at 36. Maxell contends that ZTE is seeking to limit the scope of the claims to a preferred embodiment and that that ZTE’s construction sits in tension with the natural language of the claim itself. *Id.* at 37. Maxell contends that the claims are directed to a “multiplexed audio data decoder apparatus” that “comprises” the “controller means” but that ZTE would require that the “controller means,” which the claim language mandates to be included in the multiplexed audio

data decoder apparatus, be a CPU that is external to the multiplexed audio data decoder apparatus. *Id.* at 37.

Maxell contends that the external CPU disclosed in the specification is used in an embodiment in which an exemplary multiplexed audio data decoder apparatus incorporates a DSP that is placed inside an audio decoder 20 that constitutes a self-contained unit which is integrated into the multiplexed audio data decoder. *Id.* (citing '491 Patent 2:4–6 (“integrate the audio decoder including the DSP”); 2:11–13 (“a multiplexed audio data decoder apparatus and a receiver apparatus, in which integration of the audio decoder is easy”)). Maxell contends that, accordingly, the term *external* merely describes a location of the CPU (*e.g.*, CPU 50) with respect to such integrated audio decoder. Maxell contends that as shown in Figures 1, 6, and 10–13, the patent describes a CPU 50 that is external to an audio decoder (20) yet still part of a multiplexed audio data decoder apparatus. Docket No. 106 at 13 (citing '491 Patent Figure 1, 4:35–43 (“The multiplexed audio data decoder apparatus according to the present embodiment comprises. . . an audio decoder 20, [and] an external CPU 50. . .”)).

Maxell contends that the claimed “multiplexed audio data decoder apparatus” does not recite such an audio decoder and does not require the CPU to be external to any specific structure. Docket No. 95 at 38. Maxell further contends that the specification of the '491 Patent does not associate the location (external or otherwise) of the CPU 50 with the performance of the recited function. *Id.*

ZTE contends that even Maxell argues that the corresponding structure is shown in Figures 1, 4–6 and 9. ZTE contends that each of those embodiments uses an “external” CPU. ZTE contends that no embodiment of the patent ever uses an internal CPU for the controller

function. Docket No. 100 at 32–33 (citing Figure 1 (“external CPU 50”), Figure 6 (“external CPU 50”); Figure 10 (same); Figure 11 (same); Figure 12 (same); Figure 13 (same)).

ZTE responds that means-plus-function claims are necessarily limited by the corresponding structure in the specification. Docket No. 100 at 32–33. ZTE contends that there is no embodiment, preferred or otherwise, in the patent that does not use an external CPU. *Id.* at 33. ZTE notes that the specification expressly states that the “multiplexed audio decoder apparatus according to the present invention comprises . . . an external CPU 50.” *Id.* (citing ’491 Patent 4:35–39).

ZTE contends that the use of an external CPU for the controller is not unrelated to the recited function but is in fact a primary basis of the alleged invention. *Id.* (citing ’491 Patent 1:49–2:10 (described problems with prior art “built-in” ROM)).

ZTE further argues that Maxell’s construction ignores the fact that the CPU is connected via a bus between a read only memory [ROM] and the first memory. *Id.* According to ZTE, this is the only corresponding structure disclosed in the patent for performing the “transferring portion” of the “controller means” function. *Id.* (citing ’491 Patent Figure 1 (DB, external CPU 50, external ROM 60, Internal RAM 25)).

Additionally, ZTE argues that Maxell seeks to omit certain steps in the disclosed flow charts without providing any reasons for doing so. Docket No. 100 at 34.

Under 35 USC §112, ¶ 6, means-plus-function terms are limited the scope of the functional term “to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Williamson*, 792 F.3d at 1347. Construing a means-plus-function limitation involves multiple steps. “The first step . . . is a determination of the function of the means-plus-function limitation.” *Medtronic, Inc.*, 248 F.3d

at 1311. “[T]he next step is to determine the corresponding structure disclosed in the specification and equivalents thereof.” *Id.*

The specification discloses that “FIG. 1 is a block diagram of showing an outlook construction of a **multiplexed audio data decoder apparatus**, according to an embodiment of the present invention.” ’491 Patent 3:42–44 (emphasis added). This figure and the corresponding disclosure relating to the figure clearly establishes that the “apparatus” is comprised of multiple components, including some that are external to others. For example, the entire “apparatus” includes a digital signal processor 22 and internal RAM 25 (both within audio decoder 20) and a demultiplexer 10, a data bus (DB) and external CPU 50 and external ROM. *Id.* Figure 1, 4:34–43. Similar disclosures are made for Figures 6, 10, 11, 12 and 13. Maxell has not identified any embodiment in which the CPU is not external to at least some of the other components of the audio data decoder apparatus. Further, the patent describes problems that occur when all the components are “built-in: together. *Id.* at 1:26–2:10. The specification describes “multiplexed audio decoder apparatus according to the present invention comprises . . . an external CPU 50.” *Id.* 4:35–39. The specification refers to the “external CPU” more than 15 additional times and also as mentioned above in the figures.

Maxell argues that the claim is to the “apparatus” and the elements of the apparatus cannot be “external” to the apparatus itself. Maxell reiterates such contentions due to the unnatural reading of “external” asserted by ZTE (discussed below). As shown, the “apparatus” includes multiple components, some external to others, but the “apparatus” is the collection of these components: The CPU is not “external” to the apparatus but, instead, merely external to other components.

At the oral hearing, ZTE seemed to indicate that “external” meant external to the very apparatus that was claimed—specifically, external to the claimed multiplexed audio data decoder apparatus. H’rg Tr. at 119:17–122:23, 170:13–172:8. Such an interpretation would ignore the clear teaching of the specification discussed above. The specification gives the context that makes clear that “external” is not external to the multiplexed audio data decoder apparatus. In context of the specification and the elements recited in the claim, the CPU is external to the digital signal processor and the first memory.

At the oral hearing, Maxell agreed to a construction that makes clear that “external” is not with reference to the apparatus within which the CPU is a claimed element, but rather external to the digital signal processor. H’rg Tr. at 170:17–23.

As to the algorithm, Maxell seeks to pick and choose steps of the algorithms shown in Figures 4 and 9, including the step of determining if there is a format change or not (step S6) and the “transmit decoding process code” step S7 when change is detected in step S6. The specification states:

The FIG. 4 shows the program switching or changing process focusing mainly on the algorithm thereof, and the FIG. 5 shows it focusing mainly on the transfers of signals between the constructive blocks thereof. Further, in Figures 4 and 5, the same reference numerals indicate the steps in the process, being same to each other

’491 Patent 6:30–35. Further,

The FIG. 9 shows the program switching process according to the present embodiment, mainly focusing on the algorithm thereof. However, the same reference numerals indicate the same process steps shown in Figures 4 and 5.

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Id. at 9:28–31. The algorithm that corresponds to the claimed function includes the entire algorithms of Figures 4 and 9. Figure 5 shows these steps in relation to the various system components, however, the algorithm itself is described in Figures 4 and 9.

The Court construes “controller means for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory” (’491 Patent claim 1) / “controller means for transferring said plural decoding program codes from said read-only memory to said second memory in advance, as well as for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory” (’491 Patent claim 2) to mean:

Function Claim 1: for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory

Function Claim 2: for transferring said plural decoding program codes from said read-only memory to said second memory in advance, as well as for detecting change in said method of compression and encoding, and for transferring the decoding program code corresponding to the method of the compression and encoding after being changed, from said read-only memory to said first memory

Structure: a CPU that is within the audio decoder apparatus, the CPU being external to the digital signal processor and the first memory (Figures 1, 6, 10, 11, 12, or 13) and being connected via a bus between a read only memory and the first memory, running the algorithm set forth in the flowcharts of Figure 4 and Figure 9 and the corresponding citations in the specification at 6:30–7:54 and 9:28–44, or equivalents thereof.

19. “a demultiplexer for inputting one audio data sequence which is compressed and encoded, being selected from a plurality of audio data sequences which are multiplexed” (’491 Patent claims 7 and 8)¹²

Maxell’s Proposed Construction	ZTE’s Proposed Construction
Not a means-plus-function term; plain and ordinary meaning	Indefinite <u>Alternative if not indefinite:</u> a demultiplexer that outputs one data sequence, which is compressed and encoded, to the input of a frame sync. The demultiplexer itself does this inputting and also extracts the method of compression and encoding

The parties dispute whether the term is indefinite because the claim does not recite to what component the demultiplexer inputs the audio data sequence.

Maxell contends that ZTE has conceded that the plain meaning is understandable by agreeing to the plain and ordinary meaning of the term “a demultiplexer for extracting the one audio data sequence . . . ,” as recited by claims 1, 2, and 9. Docket No. 95 at 38. Maxell contends that a “demultiplexer” is a well-known term to those of skill in the art that refers to a particular component. *Id.* at 38–39 (citing Docket No. 95-2 (Maher Decl. A) at ¶¶ 25, 33–34).

Maxell contends that the claim need not specify a precise location for the demultiplexer’s output in order for a person of ordinary skill in the art to understand its scope. *Id.* at 39. Maxell contends that the claim specifies the operation of the demultiplexer (sending an audio data sequence to another input) and a person of ordinary skill in the art would understand the scope of this claim with reasonable certainty. Docket No. 106 at 13–14 (citing Docket 106-8 (Maher Decl. B) at ¶¶ 25, 28–32).

¹² The parties did not provide oral argument for this term.

Maxell contends that ZTE's alternative construction merely attempts to read into the claim exemplary embodiment without support for such incorporation. Docket No. 95 at 39. Maxell contends that ZTE has not pointed to anything in the intrinsic record that supports an interpretation of "demultiplexer" whereby the "demultiplexer itself. . . extracts the method of compression and encoding." *Id.*

ZTE responds that the claim does not identify into what this item is inputted. Docket No. 100 at 34. ZTE contends that, thus, the breadth and scope of the claim cannot be determined as the claim does not recite an operable device. *Id.* (citing *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014)). According to ZTE, the only possible language in the claim that could correspond to this input is the last clause which recites "a digital signal processor [DSP] for decoding said one audio data sequence," but this is inconsistent with the specification, as in all disclosed embodiments in the output of the demultiplexer is inputted to a frame sync, not the DSP. *Id.* (citing '491 Patent Figures 1, 6, 10–13). ZTE contends this creates ambiguity that renders the claim invalid under Section 112(2). *Id.*

ZTE contends that, alternatively, the limitation should be construed consistently with the specification such that the demultiplexer is inputting to the Frame Sync. ZTE also contends that, based on the additional requirement in the claim that the demultiplexer is also for "extracting a method of compression and encoding of said one audio data sequence" this must also be part of the claim construction. *Id.* (citing '491 Patent 12:59–63).

As claimed, the claim merely requires the demultiplexer to provide an input, and further requires that input is the "one audio data sequence." ZTE contends that the fact that the demultiplexer provides an input requires the claim to include *what* is receiving the input. The claim language itself does not make such a mandate and the claim language is understandable to

just require the demultiplexer to provide an input that is the “one audio data sequence.” The competing extrinsic evidence of those skilled in the art also better supports Maxell’s position that the term is understandable as drafted. *See Teva Pharm. USA*, 135 S. Ct. at 841 (2015) (allowing courts to make subsidiary factual findings about the extrinsic evidence).

The Court construes the term “a demultiplexer for inputting one audio data sequence which is compressed and encoded, being selected from a plurality of audio data sequences which are multiplexed” to have its plain and ordinary meaning.

30. “a controller for receiving a method of compression and encoding from said demultiplexer, for detecting whether said method of compression and encoding changes to another method of compression and encoding or not, and if said method of compression and encoding changes, for downloading the decoding program code corresponding to said another method of compression and encoding, to said memory from outside of said memory” (’695 Patent claims 1 and 4)

Maxell’s Proposed Construction	ZTE’s Proposed Construction
Not a means-plus-function term; plain and ordinary meaning	<p>This is a means-plus-function element to be construed in accordance with 35 U.S.C. § 112, ¶ 6.</p> <p>Function: “for receiving a method of compression and encoding from said demultiplexer, for detecting whether said method of compression and encoding changes to another method of compression and encoding or not, and if said method of compression and encoding changes, for downloading the decoding program code corresponding to said another method of compression and encoding to said memory from outside said memory”</p> <p>Structure: an external CPU (FIG 1) connected via a bus between a read only memory and the memory, running the algorithm of Figs. 4 and 5. (6:30–7:54)</p>

The parties’ dispute centers on whether “controller” connotes structure such that the term is not subject to means-plus-function interpretation.

Maxell contends that “controller” connotes sufficient structure to a person of ordinary skill in the art, noting that the IBM Dictionary of Computing defines “controller” as “[a] device that coordinates and controls the operation of one or more input/output devices, such as workstations, and synchronizes the operation of such devices with the operation of the system as a whole.” Docket No. 95 at 57–58 (quoting Docket No. 95-5 (IBM Dictionary of Computing) at 145). Maxell also notes that multiple district courts have held that “controller” connotes sufficient structure to avoid a means interpretation. (citing *Sound View Innovations, LLC v. Facebook, Inc.*, 2017 WL 222177, at *5 (D. Del. May 19, 2017) (“‘Controller’ may be a class of structures, rather than one specific structure, and may be defined with functional terms, but that does not make it means-plus-function.”); *Honeywell Int’l Inc. v. Universal Avionics Sys. Corp.*, 264 F. Supp. 2d 135 (D. Del. 2003) (“controller” is not an MPF term); *911EP v. Whelen Eng’g Co., Inc.*, 512 F. Supp. 2d 713, 727 (E.D. Tex. 2007) (“The claim language does not merely describe a controller, but adds further structure by describing the operation of the controller. . . . Accordingly, the description of the operation of a controller is sufficient to avoid section 112 P 6.”); *SynQor, Inc. v. Artesyn Techs., Inc.*, 2010 WL 2991037, at *23 (E.D. Tex. Jul. 26, 2010), *aff’d*, 709 F.3d 1365 (Fed. Cir. 2013) (finding that “control circuitry determining . . .” is not an MPF term)).

Maxell also objects to ZTE’s corresponding structure seeking to limit the scope of the claims to a preferred embodiment. Docket No. 95 at 58.

ZTE contends that the parties agreed that the nearly identical term in the ’491 Patent (“controller means”) was an MPF term governed by Section 112(6). Docket No. 100 at 52. As to the prior cases, ZTE contends that all but one of those cases, were decided prior to the Federal Circuit’s *en banc* decision in *Williamson*, which removed the heavy presumption against Section

112(6) application where “means” is not recited. *Id.* ZTE contends that the sole remaining case is *Sound View*, which ZTE submits was decided incorrectly. *Id.* ZTE contends that *Williamson* itself is a close analogue as the term in that case was “distributed learning control module.” *Williamson*, 792 F.3d at 1350.

As to the IBM dictionary, ZTE contends that the definition (“[a] device that coordinates and controls the operation of one or more input/output devices, such as workstations, and synchronizes the operation of such devices with the operation of the system as a whole”) is inconsistent with the recited requirements of the “controller” claim limitation at issue here. *Id.* at 52–53. ZTE states that here the controller must function to (1) detect whether the method of compression and encoding has changed, (2) download particular code from outside the memory to the memory. *Id.* at 53. ZTE contends that these claim limitation steps are not part of the “ordinary meaning” of controller as defined in the IBM dictionary. *Id.* Thus, ZTE contends that the claim itself recites insufficient structure to meet the claimed function and is thus subject to Section 112(6). *Id.*

ZTE contends that once application of Section 112(6) is established, the claim construction is almost identical to the “controller means” discussed above with respect to the ’491 Patent. *Id.* at 53.

In its reply, Maxell contends that as to *Sound View Innovations*, ZTE fails to explain why that case is supposedly “inapplicable” or why it was “wrongly decided.” Docket No. 106 at 20.

There is a rebuttable presumption that § 112, ¶ 6 applies when the claim language includes “means” or “step for” terms, and that it does not apply in the absence of those terms. *Masco Corp.*, 303 F.3d at 1326; *Williamson*, 792 F.3d at 1348. The presumption stands or falls according to whether one of ordinary skill in the art would understand the claim with the


functional language, in the context of the entire specification, to denote sufficiently definite structure or acts for performing the function. *See Media Rights Techs., Inc.*, 800 F.3d at 1372 (§ 112, ¶ 6 does not apply when “the claim language, read in light of the specification, recites sufficiently definite structure” (quotation marks omitted) (citing *Williamson*, 792 F.3d at 1349)); *Robert Bosch, LLC*, 769 F.3d at 1099; *Williamson*, 792 F.3d at 1349 (§ 112, ¶ 6 does not apply when “the words of the claim are understood by persons of ordinary skill in the art to have sufficiently definite meaning as the name for structure”); *Masco Corp.*, 303 F.3d at 1326 (§ 112, ¶ 6 does not apply when the claim includes an “act” corresponding to “how the function is performed”); *Personalized Media Communications, L.L.C.*, 161 F.3d at 704 (§ 112, ¶ 6 does not apply when the claim includes “sufficient structure, material, or acts within the claim itself to perform entirely the recited function . . . even if the claim uses the term means.” (internal quotation marks and citation omitted)).

The lack of the use of “means” creates a presumption that the term is not a means-plus-function term. ZTE has provided no evidence to support the notion that “controller” is merely a nonce word. ZTE also has not established that in context of the specification, the term does not connote structure. The specification refers to “controller 50” which elsewhere is referred to as “external CPU 50,” a clear reference to specific structure. ’695 Patent Abstract, 4:41, Figure 1. The patent also references “micro-controller” in the context of a class of structure. *Id.* at 1:38–42. In this context, the specification makes clear that “controller” connotes structure. In light of the teaching of the specification, “controller” connotes sufficiently definite structure to avoid a means-plus-function term. Additionally, as noted by Maxell, the extrinsic evidence indicates that “controller” has a structural meaning. The Court finds this external evidence also supports the Court’s conclusion that “controller” connotes a class of structures. Finally, the Court notes

that this finding is consistent with multiple courts that have found that “controller” connotes structure that does not fall with the means-plus-function analysis.

The Court finds that the term “a controller for receiving a method of compression and encoding from said demultiplexer, for detecting whether said method of compression and encoding changes to another method of compression and encoding or not, and if said method of compression and encoding changes, for downloading the decoding program code corresponding to said another method of compression and encoding, to said memory from outside of said memory” has its plain and ordinary meaning.

SIGNED this 31st day of January, 2018.


ROBERT W. SCHROEDER III
UNITED STATES DISTRICT JUDGE