IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

U.S. PHILIPS CORPORATION,	)	
Plaintiff,	)	
v.	)	Civil Action No. 06-251-GMS
EASTMAN KODAK COMPANY,	)	
Defendant.	)	

PLAINTIFF U.S. PHILIPS CORPORATION'S RESPONSIVE *MARKMAN* BRIEF

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Plaintiff U.S. Philips Corporation ("Philips") submits this brief in response to the opening claim construction brief of defendant Eastman Kodak Company ("Kodak Br.") and in support of its proposed claim constructions of the claims of U.S. Patent No. 4,901,075 ("the '075 patent").[1]

I. INTRODUCTION

Philips addressed in its Opening *Markman* Brief ("Philips Opening Br.") most of the arguments Kodak raises in its opening brief. Philips focuses this brief primarily on arguments that have not already been addressed.

In essence, Kodak is asking this Court to rewrite the claims of the '075 patent. Indeed, Kodak expressly injects infringement issues into the claim construction process with contentions concerning the operation of the accused Kodak products and services, which all practice the JPEG standard. *See, e.g.*, Kodak Br. at 16, 18, 20, 21-22, 25, 27. The characteristics of accused products and services, however, are completely irrelevant to the claim construction issues before this Court, *see SRI Int'l v. Matsushita Elec.*, 775 F.2d 1107, 1118 (Fed. Cir. 1985), rendering Kodak's focus on the JPEG standard and on its accused products--instead of on the language of the claims--improper as a matter of law.

Furthermore, Kodak repeatedly tries to conjure up noninfringement arguments by offering constructions that add limitations that do not appear in the claims or even in the specification. *See, e.g.*, Kodak's construction of the "code word" limitations and "Huffman code word" limitations in Kodak Br. at 19-22 and 23-25. These proposals are not only incorrect for that reason, but also because Kodak is interpreting the claims in a manner that would not even cover the only specific embodiments disclosed in the '075 patent specification, e.g., the coding table shown in Figures 3-5 of the '075 patent.

Kodak also tries to construe claims in a way that is contrary to how they would be understood by a person skilled in the art in an attempt to invalidate the claims. *See, e.g.*, Kodak's construction of "coefficient" in Kodak Br. at 22-23. Again, Kodak's claim construction

[1] All references to "Ex. __" refer to Exhibits in the Joint Appendix, submitted concurrently.

proposals run afoul of basic claim construction principles since they fly in the face of the usage of these technical terms in the specification and by persons skilled in the art. Moreover, instead of offering a credible construction for language used in the preamble of the claims, Kodak argues that the claims are indefinite under 35 U.S.C. Section 112, second paragraph, *see* Kodak's construction of the "transmission at a reduced" bit rate or bandwidth limitations in Kodak Br. at 31-37, thereby violating this Court's Scheduling Order by essentially seeking summary judgment of invalidity.

II. KODAK SHOULD NOT BE ALLOWED TO CHALLENGE VALIDITY DURING THE MARKMAN HEARING

In its proposed constructions for the claim terms "for transmission at a reduced bit rate" (claim 3) and "for transmission at a reduced bandwidth" (claim 8), Kodak fails to offer a credible construction at all, and instead has unilaterally recast the Court's Markman proceeding as, in effect, a summary judgment proceeding on validity under the second paragraph of Section 112. Kodak Br. at 31-37. Philips submits that this "end run" around the established procedures and schedules for interpreting the claims and later determining their validity is improper and premature.

As this Court is aware, the '075 patent is statutorily presumed valid and a finding of invalidity requires proof by clear and convincing evidence. *See Intel Corp. v. Via Techs.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003). In order to establish invalidity of the '075 claims under 35 U.S.C. Section 112(2), therefore, the evidence must establish, clearly and convincingly, that a person skilled in the art would not "reasonably understand the claim when read in the context of the specification." *Marley Mouldings Ltd. v. Micron Indus.*, 417 F.3d 1356, 1359 (Fed. Cir. 2005).

This Markman proceeding, which is occurring before any expert discovery has been conducted on the patents and technologies at issue, is not the appropriate forum for considering whether clear and convincing evidence overrides the presumed validity of the '075 patent under 35 U.S.C. Section 112(2). Rather, as this Court's Scheduling Order dictates, summary judgment

proceedings on this issue could occur only if Kodak had filed a letter brief on October 8, 2007, seeking permission from this Court to file a summary judgment motion. Kodak failed to do so.

Philips acknowledges that validity under 35 U.S.C. Section 112(2) is determined as a matter of law. But even so, determining whether the claims are indefinite from the perspective of one skilled in the art is often an inquiry that involves consideration of some facts, such as expert testimony. *See, e.g.*, *Atmel Corp. v. Info. Storage Devices*, 198 F.3d 1374, 1382 (Fed. Cir. 1999). Indeed, the Federal Circuit has determined that invalidity under Section 112(2) can go to a jury. *BJ Servs. Co. v. Halliburton Energy Servs.*, 338 F.3d 1368, 1372 (Fed. Cir. 2003) ("[D]efiniteness . . . is amenable to resolution by the jury where the issues are factual in nature.")

At this stage of the case, Philips has not been afforded the opportunity to explore all fact and expert discovery that may bear on the issue of definiteness under 35 U.S.C. Section 112(2). Indeed, Kodak's invalidity argument, Kodak Br. at 31-37, relies on extrinsic evidence, a declaration of a technical expert, Dr. Ebrahimi, to establish indefiniteness. In response, Philips has submitted a declaration by its own technical expert, Dr. Girod, which completely refutes the extrinsic evidence offered by Kodak and Dr. Ebrahimi. *See* Ex. 17, Girod Decl. ¶¶ 29-30.

Consequently, the issue of indefiniteness under 35 U.S.C. Section 112(2) is not properly before this Court. *See* Ex. 18, *Telcordia Tech. v. Alcatel*, Civil Action No. 04-874 GMS, Order of April 21, 2006 ("the court does not permit summary judgment arguments, including indefiniteness arguments, during the claim construction phase of the litigation").

III. CLAIM CONSTRUCTION ARGUMENTS

Philips addresses the claim terms and phrases in the same order in which it addressed these issues in its opening brief, Philips Opening Br. at 12-40, for consistency and convenience of the Court.

A. "coefficient," "zero coefficient," and "non-zero coefficient"

Term / Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"coefficient"	All	"a multiplication factor that results from transform coding"	A whole number
"zero coefficient"	All	"a coefficient whose value is zero or approximately zero"	A whole number whose value is zero
"non-zero coefficient"	All	"a coefficient whose possible magnitudes proceed through the natural numbers without the zero"	A whole number whose value is not zero

Kodak ignores the plain technical meanings of the "coefficient" terms, as well as the explanations of those terms that appear in the specification and prosecution history. Kodak Br. at 22-23. In particular, Kodak tries to define the term "coefficient" as simply a "whole number," thereby removing the key characteristic of a coefficient, namely that it is a multiplication factor (such as the number 4 in the expression $4y$). Philips Opening Br. at 13-14.

Kodak ignores this plain meaning of the term "coefficient," and instead improperly tries to argue that ***any*** whole number is a coefficient. This flies in the face of basic mathematics. Not all whole numbers are coefficients. A number is only a coefficient if it is used as a multiplication factor in a mathematical operation, like the transform coefficients described and claimed in the '075 patent. Thus, Kodak's attempt to apply the label "coefficient" to any "whole number" is incorrect.

Moreover, Kodak's definition is incorrect in improperly limiting "coefficients" to "whole" numbers. Coefficients can have fractional values. Both the '075 patent specification and the cited Chen & Pratt article make clear that unquantized coefficients are not necessarily whole numbers. Philips Opening Br. at 14-15. For example, the specification indicates, by definition, that the term "zero coefficient" includes coefficients which, prior to quantization, are not exactly equal to zero. Philips Opening Br. at 15-16.

Extrinsic evidence provides further support for the Philips construction. During his deposition, the named inventor, Dr. Vogel, indicated that the values of the transforms would be whole numbers (such as zero) only after quantization. Ex. 19, Vogel Deposition, pages 37-40:

Q: "What is your understanding of the term 'zero coefficient'?"

A: "I understand it to mean a transformation coefficient which is equal to zero after quantization."

. . .

A: "I understand non-zero coefficient to be the coefficient as the output which, after quantization, is not equal to zero."

Finally, Kodak's proposed construction of "non-zero coefficient," under which the claims cover a binary system (one in which every signal must either have a value of "1" or "0"), is contradicted by the very portions of the patent specification and prosecution history that Kodak heavily relies on in its brief. In contrast, the Philips construction is consistent with the claim language, patent specification, and prosecution history because the invention is clearly directed only to a "non-zero coefficient" that can take on multiple values. Philips Opening Br. at 16-17.

In its argument concerning the meaning of the "coefficient" limitations, Kodak admits that "the specification states that the value of the non-zero coefficients proceeds through the natural numbers." Kodak Br. at 22.

> Each field of the table [of Figure 1] represents an event characterized by the zero run length L and by the value B of the subsequent (quantized) coefficient. The values B ***proceed through the natural numbers without the zero***....

'075 patent, col. 2:55-56 (emphasis added). Thus, the definition of the non-zero "coefficient" provided by the specification requires that a non-zero coefficient have possible magnitudes (represented by B) that proceed through the natural numbers.

Similarly, later in its argument concerning the "coefficient" limitations, Kodak further admits, "In arguing patentability over a piece of prior art, the applicant argued that, 'In the instant invention, the coefficients are not limited to either ones or zeros, i.e., they are not merely binary.

They can have any one of the values zero, one, two, three and up to, for example, 256 if eight bits are used to code them." Kodak Br. at 23; *see* Ex. 9 at PHLPSKD_00003141 (Application No. 07/096,177, Amendment, June 12, 1989, at 5). Thus, the prosecution history relied on by Kodak mandates a definition of "non-zero coefficient" that excludes the binary systems that would fall within Kodak's proposal.

In contrast, Philips has proposed a definition that includes coefficients whose magnitudes proceed through the natural numbers (numbers other than zero). In other words, the Philips construction is consistent with the specification and prosecution history because the definition of "non-zero coefficient" must encompass coefficients whose magnitudes take on more than one value (*i.e.*, not just "1").

B. "signal" and "video signal"

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"signal"	All	"a sequence or array of values that represents information"	A sequence of values comprised of sequential and interdependent image frames that when rapidly displayed are capable of depicting movement
"video signal"	3	"a sequence or array of values that represents visual information (e.g., an image)"	A sequence of values comprised of sequential and interdependent image frames that when rapidly displayed are capable of depicting movement

In its claim construction proposals and arguments concerning the terms "signal" and "video signal," Kodak makes a number of fundamental errors. Kodak Br. at 11-16. First, there is no basis for limiting the definition of the term "signal," which appears in all of the claims, so that it means exactly the same thing as a "video signal," which contains an additional term and appears only in the preamble of claim 3. Second, the reference to a "video signal" in one portion of the preamble of claim 3 is clearly a statement of intended use, as opposed to a claim limitation.

Finally, as is evident from the intrinsic evidence, the term "video signal" in the claim 3 preamble encompasses both still images and moving images as possible sources. Philips Opening Br. at 19-21. As a result, Kodak is forced to rely on extrinsic evidence, the declaration of its expert, Dr. Ebrahimi, to change the meaning the intrinsic evidence in the guise of interpreting that evidence. Kodak Br. at 13-15. In response, Philips has submitted the declaration of Dr. Girod, which refutes the extrinsic evidence offered by Kodak and properly interprets the specification and cited art as indicating that both still images and moving images are encompassed by the claim language. *See* Ex. 17, Girod Decl. ¶¶ 15-28.

1. No basis exists for limiting the term "signal" to a "video" signal or to moving pictures

Kodak has provided no basis for limiting the broad term "signal," which appears in all of the claims, to a "video signal," however that term from the preamble of claim 3 is construed. The only argument that Kodak musters in support of its narrow construction of "signal, " which is identical to its construction for "video signal," is that claim differentiation principles do not necessarily ***require*** that a different construction be used. Kodak Br. at 15-16.

Kodak's argument misses the fundamental point that, when an inventor deliberately uses different language in different claims, there is a presumption that the definition of that language and the scope of those claims should be different. *See, e.g.*, *Ethicon Endo-Surgery v. United States Surgical Corp.*, 93 F.3d 1572, 1579 (Fed. Cir. 1996) ("pusher bar" means something different than "pusher assembly"). That is especially true when, as here, the term "signal" is used throughout the claims but an additional term, "video," is used in only one place to further describe the particular type of signal that is being transformed. *See* also *Innova/Pure Water v. Safari Water Filtration Sys.*, 381 F.3d 1111, 1119 (Fed. Cir. 2004) ("operatively connected" means something different than "connected").

In the '075 patent, the term "signal" is unambiguously used in a different way from the term "video signal." The clearest example of that difference is in the language of the preamble of claim 3 itself.

Claim 3 recites a "method of coding a ***signal*** comprising a sequence of coefficients ***which results after*** a blockwise transform of pixels of a ***video signal***...." '075 patent, col. 7:41-43 (emphasis added). As used in this clause, the "signal" that is coded is a distinct signal from the "video signal." In particular, the "signal" being coded in claim 3 comprises coefficients that result from a transform of a "video signal." Thus, whatever constitutes a "video signal" in claim 3, the "signal" referred to elsewhere in claim 3 is separate and distinct from that video signal. The "signal" being referred to here is not a video signal or a moving picture, but is instead a sequence or array of coefficients. Girod Decl. ¶ 12.

In the specification, the term "signal" is used to refer to many signals that are not "video signals." Girod Decl. ¶¶ 7-13. For example, the specification describes an "intermediate signal" that results from transform coding the original image:

> The intermediate signal referred to results from the transform coding of blocks of picture elements (pixels). The signal values of the intermediate signal thus represent the transform coefficients.

'075 patent, col. 2:23-27. In this passage, the intermediate "signal" is not the image itself, but instead refers to the transform coefficients derived from that image. Girod Decl. ¶¶ 9-11 & 13. *See also* '075 patent, cols. 1:7-10, 2:23-27, 5:22-26.

Thus, the specification uses the term "signal" in its broadest sense, consistent with the plain meaning of the term, which is a sequence or array of values that represent information. Girod Decl. ¶¶ 7-13; Ex. 10, B. Girod, R. Rabenstein & A. Stenger, Signals and Systems (Wiley, 2001), at 3.

2. The term "video signal" in the claim 3 preamble is a statement of intended use, not a limitation

The term "video signal" appears only in the preamble of claim 3. If the term "video signal" were construed to relate only to moving pictures, as incorrectly argued by Kodak, the reference to a "video signal" in that preamble would be no more than a statement of an intended

use or environment for the invention recited in claim 3. As a result, that language would not limit the claim. *See* Philips Opening Br. at 21-23.

Terms in the preamble are not limitations when they do no more than state an intended use or intended environment for a claimed invention. *Bristol-Myers Squibb Co. v. Ben Venue Laboratories*, 246 F. 3d 1368, 1372 (Fed. Cir. (where the steps of a claimed method are performed the same way, regardless of whether or not the preamble language is included, the preamble language is no more than "intended use" language and not a claim limitation); *In re Omeprazole Patent Litig.*, 258 F. Supp. 2d 221, 229 (S.D.N.Y. 2001) (expression of intended results "does not constitute a material claim limitation where … the expression does not result in a manipulative difference in the steps of the claimed practice"). Here, the phrase "of a video signal," if construed to relate only to moving pictures, would not "result in a manipulative difference in the steps of the claimed practice." The claimed steps are performed in precisely the same way whether the transform is applied to one frame in a moving picture or to a still picture.

Kodak's arguments to the contrary concerning the preamble are flawed because they incorrectly describe the structure used in the claims and fail to focus on the language at issue--the "video signal." Kodak Br. at 11-12. According to Kodak, the preamble recites "essential structure" or "defines the subject matter of the claimed invention." But Kodak is not referring to the "video signal" portion of the preamble, which is merely an intended source of pixels that are transformed. Instead, Kodak focuses on other terms in the claim 3 preamble that do appear in the body of the claim, such as the "coefficients" and the "signal" that is being coded. Moreover, Kodak incorrectly indicates that the "video signal" referred to in the claim 3 preamble provides an antecedent basis for the "signal" referred to in the body of claim 3. In fact, as explained in the preceding section, the claim 3 preamble recites a "method of coding a ***signal*** comprising a sequence of coefficients ***which results after*** a blockwise transform of pixels of a ***video signal***…." '075 patent, col. 7:41-43 (emphasis added). Thus, as used in this clause, the "signal" that is coded and is referred to in the body of claim 3 is a distinct signal from the "video signal," which is merely an intended source of the pixels.

3. The term "video signal" encompasses signals related to both still images and moving images

The term "video signal" in claim 3 encompasses both still images and moving images as possible sources. Philips Opening Br. at 19-21. Kodak improperly tries to inject a "moving picture" requirement into the claims through its proposed construction of "video signal" (as well as "signal"). Kodak Br. at 12-16. But the '075 patent ***never*** mentions "moving" pictures. Instead, the '075 patent describes and claims a method of coding pictures that can be applied to still images as well as to single frames of moving pictures.

While Kodak gives lip service to the intrinsic evidence in its brief, almost its entire argument is based on extrinsic evidence created for the purpose of this litigation--the unsupported affidavit of Dr. Ebrahimi. Kodak Br. at 13-15. Kodak relies on Dr. Ebrahimi to argue that the intrinsic evidence only describes coding of moving pictures. But extrinsic evidence, such as expert testimony, cannot be used to vary the meaning of claim terms that is clear from the intrinsic evidence. *Network Commerce, Inc. v. Microsoft Corp.*, 422 F.3d 1353, 1361 (Fed. Cir. 2005) ("[E]xpert testimony at odds with the intrinsic evidence must be disregarded.").

Here, the intrinsic and extrinsic evidence indicate that the coding method of the '075 patent applies to pictures, whether they are still pictures or single frames of moving pictures. Philips in its opening brief and in this response has properly interpreted the specification and a number of cited prior art references as indicating that both still images and moving images are encompassed by the claim term "video signal." And to the extent the Court wants to consider non-contemporaneous extrinsic evidence, Philips has submitted the declaration of Dr. Girod to refute the expert testimony offered by Kodak. *See* Ex. 17, Girod Decl. ¶¶ 15-28. Additionally, during his recent deposition, the named inventor of the '075 patented invention, Dr. Vogel, confirmed that references to "video" signals or coding apply to both still and moving images. *See* Ex. 19, Vogel Deposition, pages 35-36:

Q: "Does 'video' coding include the coding of still images?"

A: "My answer is yes."

That the '075 patent describes "picture coding" generally, rather than a coding method limited to moving pictures, is demonstrated in the Summary of the Invention:

> It is an object of the invention to provide a coding method for a signal of the kind mentioned in the opening paragraph and comprising in a special case, an intermediate signal ***resulting from a picture coding operation***, leading to a bit rate reduction which is larger than that hitherto known.

'075 patent, col. 1:60-65. There is no mention anywhere in the '075 patent of any of the concepts that Kodak is now trying to inject into its definition of "video signal," such as sequential and interdependent moving images, or the depiction of movement.

The only allusion to "moving" pictures that Kodak identifies is at one place (the Summary) in the Chen & Pratt article, to which the '075 patent refers. Kodak Br. at 13. But consideration of the entire Chen & Pratt article, instead of a snippet taken out of context, ***compels*** the conclusion that a "video signal" encompasses still images as well as frames of moving pictures. As explained below and at Philips Opening Br at 19-20, the article unambiguously describes coding of still images. The portion of the Summary cited by Kodak merely states that this same coding methodology can ***also*** be used to code single frames of moving pictures (*i.e.*, intraframe coding). Indeed, the Summary supports the conclusion that the term "video signal" should be construed broadly to encompass both still images as well as single frames of moving pictures, as Philips has proposed, since the coding methodology of Chen & Pratt applies to both types of visual information.

Chen & Pratt indisputably describes a method for coding a single picture. This is readily apparent from the Abstract itself, which describes the article as providing a method of "coding color images." Ex. 6, Chen & Pratt, at 225. Virtually every aspect of the description of coding methodology refers to "images." Indeed, the ***only*** examples of images that are coded in the Chen & Pratt article are ***indisputably still images, not moving pictures.*** In particular, Chen & Pratt identifies two test images to which its coding method was applied, Figures 8(a) and 9(a):

> The original ***test images shown in Figs. 8(a) and 9(a)*** are of size 512 X 512 pixels with each red, green, and blue tristimulus value uniformly quantized to 8 bits/pixel.

Ex. 6, Chen & Pratt at 229 (emphasis added).

Not only are these test images in Chen & Pratt still pictures rather than moving pictures, but they are actually well-known still images in the image compression community that are used to benchmark various compression methods. Girod Decl. ¶¶ 18-19. Indeed, the test image of Figure 8(a), known as "Lena," has a well-known anecdotal history in the art of image compression, and a person of ordinary skill in the art would have readily recognized it as a still image. *Id.*[2] Thus, since Chen & Pratt indisputably describes the coding of still images, the reference to Chen & Pratt in the '075 patent cannot limit the meaning of "video signal" to only signals representing moving pictures.

Finally, Kodak incorrectly argues, based exclusively on the declaration of its expert, Dr. Ebrahimi, that the claims of the '075 patent are limited to the coding of moving pictures because, in the preferred embodiment disclosed in the patent specification, the coding table that is used allows quantized coefficients to have a maximum value of 136. Kodak Br. at 14-15. Contrary to Dr. Ebrahimi's unfounded speculation, the range of quantized coefficients described in the '075 patent is entirely appropriate for still image compression.[3] In fact, the JPEG standard, which applies to still image compression and which Dr. Ebrahimi relies on, actually suggests using ***an even smaller range of quantized coefficients*** than that described in the '075 patent. Thus, the range of coefficients described in the '075 patent is appropriate for still image compression.

At the outset, Kodak incorrectly suggests that still images necessarily require higher quality than video images. Kodak Br. at 14-15. It does not take many examples to illustrate the fallacy of that suggestion. The touchstone of how much an image can be compressed is not whether the image is a still image or part of a sequence of moving images. Instead, it is an

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[2] The history behind this famous test image is also provided at http://en.wikipedia.org/wiki/Lenna.

[3] Dr. Girod explains in detail why Dr. Ebrahimi's analysis, on which Kodak relies heavily for this argument, is wrong, unsupported, and internally inconsistent with itself. Girod Decl. ¶¶ 21-27.

application-specific inquiry into how much compression is needed versus how much degradation in image quality can be tolerated, *i.e.*, the more an image is compressed, generally speaking, the more the image quality will suffer. Girod Decl. ¶¶ 24-26. Thus, the amount of compression that is possible in the '075 patent does not tell one skilled in the art anything about whether the image being compressed is a still image, on the one hand, or one frame in a sequence of moving images, on the other. *Id.*

The range of quantized coefficients described in the '075 patent specification and drawings is entirely consistent with still image compression. Philips explained in its opening brief how the Discrete Cosine Transform ("DCT") equation is used to transform a block of pixels into a block of transform coefficients. Philips Opening Br. at 3-5. In one example, the '075 patent describes performing such a transform with a block of 64 pixels. *See, e.g.,* '075 patent, col. 5:29-31. Dr. Girod explains in his declaration that the DCT equation applied to a block of that size will result in ***unquantized*** coefficients that are real (*i.e.,* non-integer) numbers falling within the range of -1024 to +1024. Girod Decl. at ¶ 22. When these coefficients are ***quantized***, they are reduced in value, depending on the quantization step size. *Id.*

For image compression, a quantization step size of 8 is a fairly fine (*i.e.* high quality) quantization. *Id.* With a quantization step size of 8, the quantized coefficients would have integer values falling between -128 and +128 (since 1024 / 8 = 128). *Id.* This is within the range of quantized coefficients described by the preferred embodiment of the '075 patent, which describes that "coefficients having values of more than 136 do not occur." '075 patent, col. 4:52-54. Thus, the number of coefficient values described in the '075 patent is consistent with still image coding.[4]

[4] The Chen & Pratt article, which indisputably describes coding images as described above, is also consistent with the range of quantized coefficients described in the '075 patent. In Chen & Pratt, the size of the pixel blocks of the encoded still image that are each transformed with the DCT equation is 16 pixels X 16 pixels. Ex. 6, Chen & Pratt, at 226. Chen & Pratt explains that this leads to non-zero coefficients that can range in magnitude from 1 to 255. *Id.* at 228 ("For a transform block size of 16 X 16 pixels, the [number of entries in the amplitude Huffman code table] is 255.") and Table 1; Girod Decl. ¶ 23 n.6. In other words, the quantized coefficients range from -255 to +255. This is consistent with the preferred embodiment of the '075 patent, which uses a block size of 8 X 8 pixels, and consequently has a range of coefficients that is half the size of that described in Chen & Pratt. Girod Decl. ¶ 23 n.6.

Dr. Girod prepared a demonstration to illustrate the appropriateness of using coefficients whose magnitudes do not exceed 136 for still image compression. He provides in his declaration two images, one image having no compression at all (*i.e.*, just the raw, uncompressed image), and a second image compressed with a quantization step size of 8, yielding quantized coefficients ranging between -127 and +127. Girod Decl. ¶ 24. These are reproduced below.



Lena image, uncompressed



Lena image, compressed with quantized coefficient within +/- 128

As can be seen from these images, the compressed image using 128 quantized coefficients (right) is virtually indistinguishable from the uncompressed image (left) to the human eye. *Id.* This demonstration illustrates the appropriateness of using quantized coefficients within the range of -127 to +127 for image compression.

Moreover, the JPEG standard, which Kodak's expert relies on as supposed evidence in support of its argument, actually suggests a range of quantized coefficients ***even smaller than that used in the preferred embodiment of the '075 patent***. Ex. 16, JPEG Standard at 143. Thus, while the JPEG standard, like the preferred embodiment of the '075 patent, would yield ***unquantized*** coefficients ranging between -1024 and +1024, the quantization values suggested in

the JPEG standard would yield ***quantized*** coefficients between -102 and +102, and even smaller ranges. Girod Decl ¶ 23.

Thus, still images coded in accordance with the JPEG standard would have even smaller quantized coefficients than those described in the preferred embodiment of the '075 patent (which allows for quantized coefficients between -136 and +136). Accordingly, there is no merit to Kodak's argument that the reference to a quantized coefficient magnitude of 136 indicates that the images being coded are moving pictures rather than still pictures.

Kodak also argues that the limitation of coefficient magnitudes in the '075 patent to 136 reflects the fact that in moving picture coding, only the ***differences*** between a pixel in one frame and in a subsequent frame are coded, rather than the pixels themselves. Kodak Br. at 14. There is ***no description whatsoever*** in the '075 patent that suggests that what is being coded in the '075 patent are differences in pixel values between adjacent frames of a moving picture. Indeed, Kodak's suggestion that the interframe differences between pixels are coded, rather than the pixels themselves, is directly at odds with the specification. '075 patent, col. 2:23-25. Thus, the coding described in the '075 patent is performed on the pixels themselves, not the interframe differences between pixels. Girod Decl ¶ 27.

Kodak's flawed argument that only pixel differences would be coded in moving pictures, rather than the pixels themselves, would actually lead to a ***larger*** range of quantized coefficients. If the differences between pixels were coded, rather than the pixels themselves, there would be twice as many input values to be coded. *Id.*. Thus, the fact that there is a limited range of quantized coefficient values in the '075 patent does not suggest that the system encodes only the pixel differences, rather than the pixels themselves. *Id.*.

Finally, even if there were any merit to Kodak's arguments that the '075 patent specification somehow refers to moving pictures, it would be inappropriate to read such a limitation from the preferred embodiment into the claims. *Verizon Servs. Corp. v. Vonage Holdings Corp.*, No. 2007-1240, -1251, -1274, __ F.3d __, 2007 U.S. App. LEXIS 22737, at *14-15 (Fed. Cir. Sept. 26, 2007) ("The mere fact that the specification's examples of translation

may involve a change in protocol from a higher to a lower level protocol does not establish that such a limitation should be imported into the claims.") (*citing Phillips*, 415 F.3d at 1323).

C. "code word" and "assigning a code word to represent..."

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"code word"	All	"a sequence of bits assigned to represent a particular event or events in accordance with a predefined set of rules"	A unique representation for an event in a single code table
"assigning a code word to represent said non-zero coefficient and said run length"[5]	3	Plain meaning for terms not otherwise construed, i.e., "assigning a sequence of bits to represent the non-zero coefficient and the run length of the event in accordance with a predefined set of rules"	Selecting a unique entry in the single code table for the event. From this code word, the original run length of zero coefficients and the magnitude of the non-zero coefficient can be determined, without any additional information.

Kodak's construction of the "code word" terms seeks to import limitations into the claims from the preferred embodiment. In particular, Kodak argues that the term "code word" requires that the code words be found in a "single code table" and that each representation or entry in that table be "unique." Kodak Br. at 19-22. But the words "single" and "unique" do not appear in the claim language, and the importation of limitations that supposedly are found in the preferred embodiment into the claims is impermissible. *Phillips v. AWH*, 415 F.3d 1303, 1361 (Fed. Cir. 2005).

Moreover, Kodak's description of the nature of the preferred embodiment, which is relied on by Kodak as the basis for its construction, is inaccurate. According to Kodak, "all of the 87 code words that appear in Figures 3-5 are unique for each event, and each event is represented by

[5] The arguments in this section apply equally to the limitation of claim 8, which is worded nearly identically to that of claim 3, and recites: "assigning a code word to represent said run length and said non-zero coefficient."

a combination of the 'B' and 'L' values in Figures 3-5." Kodak Br. at 19. But Kodak's description is plainly wrong. In fact, Kodak defines the "code word" terms in such a way that the claims would not even cover the preferred embodiment shown in Figures 3-5.

In particular, the code table shown in Figures 3-5 of the '075 patent contains numerous "code words" that are not "unique" to a particular event. For example, the Huffman codeword of item 60 represents a group of events having a run length of zero (*i.e.*, no "0s"), followed by a non-zero coefficient with a magnitude of 9 or above. This single code word ("00001111") is used to represent 256 events. Thus, Kodak has failed to address most of the arguments set forth in the Philips Opening Br. at 23-28.

The '075 specification teaches that a precise event is uniquely identified ***only*** by the combination of the Huffman code word ***in addition to*** the additional bits that specify the precise magnitude and run length:

> A clearly defined state is encoded by the ***Huffman codeword and the additional information***. Since the number of bits of such combinations is also dependent on the statistic properties of the signal, such combinations should also be present at the receiver and the decoder in order that the state which is based on these combinations can unambiguously be recognized at the receiver end.

'075 patent, col. 3:45-52 (emphasis added). Thus, the same code word is used to represent many different events in the '075 patent specification.

Kodak's construction of the "code word" limitations is further contradicted by other language in the claims. For example, claim 7 requires that the Huffman codeword is the same for two events whose only difference is the sign of the non-zero coefficient. Kodak's proposed claim construction is also inconsistent with the language of claim 9, which recites:

> 9. The method of claim 8, comprising the additional steps of:
>
> determining for each event, whether the run length of said run of zero coefficients exceeds a predetermined length and if so ***assigning the same code word to represent each said run length and respective non-zero coefficient***.

'075 patent, col. 8:19-25.[6] This language unambiguously requires that a ***single code word*** be assigned to represent ***multiple events***.

Kodak's remaining argument in support of its claim construction is based on reference to a single passage in the prosecution history that Kodak asserts requires a "unique" code word for each event. Kodak Br. at 21. In particular, the applicant distinguished a prior art reference that did not code the run length together with the non-zero coefficient, and instead coded the run length separately from the non-zero coefficient:

> According to the teachings of Fukuoka there would be assigned a code word to the run of six zeros and a further codeword to the non-zero coefficient. However, in accordance with the instant invention, there is assigned only one codeword to the entire event. This codeword depends on the number of zero coefficients (in this case six) and the value of the non-zero coefficient. Different codewords are assigned to events having the same number of zero coefficients but different values of the non-zero coefficient.

Ex. 9 at PHLPSKD_0005142.

An examination of this argument and the prior art being distinguished shows that the Fukuoka reference was not being distinguished on the basis of the lack of a ***unique*** code word for each event. Instead, the reference being distinguished taught (if anything) that the run length should be encoded separately from the non-zero coefficient. The applicant distinguished the prior art on that basis, and not for any lack of a unique code word.

Thus, the prosecution history does not convey a deliberate attempt to disavow coding methods that use non-unique code words, especially since the preferred embodiment makes use of non-unique code words. Kodak's argument to the contrary is similar to an argument made and rejected by this Court in *PHT Corp. v. Invivodata, Inc.*, No. 04-60 GMS, 2005 U.S. Dist. LEXIS 9577, at *12-17 (D. Del. May 19, 2005). There the defendant argued that a passage in the prosecution history compelled a construction that excluded the preferred embodiment. *Id.* This

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[6] Claim 9 is not asserted in this case. Nonetheless, terms are presumed to be used consistently throughout the claims, whether asserted or not. *See, e.g., Phillips,* 415 F.3d at 1314 ("Other claims of the patent in question, ***both asserted and unasserted***, can also be valuable sources of enlightenment as to the meaning of a claim term.").

Court held that the prosecution statements did not "disclaim[] scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Id.* at *14 (quoting *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1204 (Fed. Cir. 2002)). Accordingly, the court refused to find that the prosecution history statement met the high evidentiary burden required to construe a claim to exclude the preferred embodiment. *Id.* at *16-17; *see also Amgen Inc. v. Hoechst Marion Roussel, Inc.* 314 F.3d 1313, 1349 (Fed. 2003) ("A claim interpretation that reads out a preferred embodiment 'is rarely, if ever, correct and would require highly persuasive evidentiary support.' ... We have done so only one time--in an instance where the patent applicant limited the full scope of the claim language to omit the preferred (and only disclosed) embodiment in order to overcome an examiner's rejection.") (citations omitted); *Ingenio, Filiale De Loto-Quebec, Inc. v. Gamelogic, Inc.*, 445 F. Supp. 2d 443, 452 (D. Del. 2006) (finding statements in prosecution history were not of the type as in the rare case where the construed claim excludes the preferred embodiment).

Here, the prosecution history does not unambiguously state that each code word must be unique for each separate event. Instead, the applicant merely noted that the code word assigned for an event is dependent on both the non-zero coefficient and the run length ("This codeword depends on the number of zero coefficients (in this case six) and the value of the non-zero coefficient."). Nothing in this history alters the meaning of "code word," which is made clear in the claims and specification.

D. "Huffman code word"

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"Huffman code word"	4	"a sequence of bits assigned to represent a particular event or events in accordance with a predefined set of rules with the following characteristics: a) the code words may be of different lengths; b) no code word is a prefix of another code word; and c) the predefined set of rules strives to minimize the average code word length by exploiting the distribution of event probabilities"	A variable-length code word that identifies each unique event, where the code word is shorter for more frequently occurring events and longer for less frequently occurring events, whereby no Huffman code word is the prefix of another Huffman code word.

Kodak's proposed definition for "Huffman code word," if taken literally, is inconsistent with the generally accepted definitions of Huffman codes as well as with the particular examples of Huffman codes in the coding table described in the patent specification. Kodak's proposed construction does not permit any Huffman code words to be of equal length, because it absolutely requires that the Huffman code word for a more frequently occurring event be shorter than the code word for any less frequently occurring event. Kodak Br. at 23-25.

Kodak's proposal is inconsistent with the patent specification, Philips Opening Br. at 28, as well as with the understanding of persons skilled in the art. For example, the entries labeled 12 - 19 in the table in Fig. 3 are all seven bits long, even though they represent events with different probabilities. *See* Ex. 1. Kodak's overly narrow construction would require that each of those seven code words be of different lengths.

As Dr. Girod explains, the original coding technique developed by Huffman is optimal in the sense that the average length of code words in a Huffman code is minimized. Girod Decl. ¶ 36. But there is no requirement that all Huffman code words be of different lengths. In fact, it is common for a Huffman code to have code words of equal length that represent events with different probabilities. *Id.* at ¶ 39.

Kodak also makes a factually incorrect (and legally irrelevant) noninfringement argument, contending that Huffman code words must "use the statistics of the signal being coded." Kodak Br. 25. In reality, a person of ordinary skill would understand that it is significantly more efficient to use a probability distribution based on representative set of images in order to construct a Huffman code. Girod Decl. ¶ 38. Thus, Kodak's argument concerning the construction of "Huffman code word" is inconsistent with how that term is actually used by those skilled in the art.

E. Limitations of dependent claim 7

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"Huffman codeword is independent of the sign of that non-zero coefficient"	7	Plain meaning for terms not otherwise construed, i.e., "the sequence of bits assigned to represent a particular event or events is independent of the sign of the non-zero coefficient"	The Huffman codeword is separate from the single bit that only provides whether he non-zero coefficient is positive or negative
"the sign is coded by a separate bit"	7	"the sign can be determined solely by examining a single bit"	A single bit that only provides whether the non-zero coefficient is positive or negative

Claim 7 of the '075 patent depends from claim 3, and specifically requires that the Huffman codeword is "independent of the sign of that non-zero coefficient" and that the "sign is coded by a separate bit." This language is in plain English that requires no construction. *See, e.g., British Telecomm,* 189 F. Supp. 2d at 119. *See* Philips Opening Br. at 29-30.

Kodak admits that the patent's coding method here "is reflected in the plain meaning of the claim terms." Kodak Br. at 26. But Kodak then proceeds to alter the plain meaning of the words by adding limitations to require that a separate bit used to code the sign "only provides" whether the non-zero coefficient is positive or negative. There is no such requirement stated in claim 7, nor is any such requirement stated or implied in the specification.

F. "run" and "run length"

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"run"	All	"a sequence (possibly of length zero) of successive identical particular values"	A sequence of equal value coefficients
"run length"	All	"the number (which can be zero) of identical particular values in a run"	The number of equal value coefficients in a sequence

Kodak essentially admits that Philips' construction of "run" and "run length" are correct. Kodak gives an example in which a run of length zero appears, Kodak Br. at 28, which is an important feature that is not mentioned in Kodak's proposal. The Philips construction makes inclusion of this zero possibility for a "run" (and thus "run length") explicit, and should therefore be adopted for the reasons explained in Philips Opening Br. at 30-32.

G. "for transmission at a reduced bit rate" / "for transmission at a reduced bandwidth"

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"for transmission at a reduced bit rate"	3	"for transmission with fewer bits per pixel"	Indefinite under 35 U.S.C. § 112; Otherwise, "for transmission with 12% fewer bits as compared to the Chen method"
"for transmission at a reduced bandwidth"	8	"for transmission with fewer bits per pixel"	Indefinite under 35 U.S.C. § 112; Otherwise, "for transmission with 12% less bandwidth as compared to the Chen method"

As discussed in Section II above, the issue of indefiniteness of the claims under 35 U.S.C. Section 112(2) is not properly before this Court. Philips also explained in its opening *Markman* brief why these preamble phrases are not limitations of claims 3 and 8. Kodak provides no justification for reading these statements of intended result as limitations.

Consequently, the only possible claim construction issue is whether to adopt the Philips proposal, as supported by Philips Opening Br. at 31-35, or the Kodak proposal, which expressly refers to a completely different coding method (the Chen method) and thereby confuses rather than construes this claim language. Nowhere does Kodak explain why and how its proposed language, "as compared to the Chen method," will aid the jury in understanding the claims. Kodak Br. at 36.

H. "event"

Term / Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"event"	All	"an occurrence of a run of zero coefficients and the non-zero coefficient which immediately precedes or follows that run, some occurrences being more likely than others"	A run of zero coefficients and the value of the non-zero coefficient which immediately precedes or follows that run

Kodak's proposed construction of "event" is incorrect because Kodak fails to take into account the entire portion of the specification of the '075 patent that defines an "event." Specifically, Kodak ignores the teaching, "It is to be noted that some events are more likely to occur than others." Ex. 1, '075 patent, col. 2:43-44. As explained in Philips Opening Brief at 35-37, this statistical property of events is an essential part of the invention that is set forth in the claims. Kodak's construction reads this property out of the claims, and thus should be rejected.

I. Plain phrases of claim 11 should be given their plain meanings

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"determining whether the run length of each event exceeds a predetermined run length"	11	Plain meaning for terms not otherwise construed, i.e., "determining whether the number (which can be zero) of identical particular values in the run occurring in each event exceeds a run length determined prior to coding"	Selecting an event and then determining whether the number of consecutive zero coefficients exceeds the predetermined run length

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"splitting said respective event into a plurality of sections"	11	Plain meaning for terms not otherwise construed, i.e., "splitting the respective occurrence of a run of zero coefficients and the non-zero coefficient which immediately precedes or follows that run, some occurrences being more likely than others, into two or more sections"	Dividing a single event into two or more sub-events.
"assigning a code word to each section"	11	Plain meaning for terms not otherwise construed, i.e., "assigning to each section a sequence of bits to represent a particular event or events in accordance with a predefined set of rules"	Selecting a unique entry in the single code table for each sub-event

Kodak is attempting to rewrite claim language that needs no further interpretation. *See* Philips Opening Br. at 37-39. Moreover, Kodak adds limitations that are not found in claim 11. Its most egregious error is the attempt to add a requirement that each code word be a "unique entry in the single code table," a requirement that is inconsistent with the specification of the '075 patent and unsupported by any intrinsic or extrinsic evidence. *See* Section III.C. above. Plain meanings should be used when construing these terms.

J. "transform" and "transforming" phrases

Term/Phrase	Claim(s)	Philips' Proposal	Kodak's Proposal
"transform"	3	"a mathematical operation which yields an alternative representation of a sequence or array of values"	A mathematical operation that converts a signal
"a blockwise transform of pixels"	3	"a mathematical operation that yields an alternative representation of a 2-dimensional array of pixels"	"a mathematical operation that converts a signal representing a block of pixels"

Kodak essentially argues for Philips' proposed construction of "transform." Kodak states that a transform "converts a video signal into another form," Kodak Br. at 29, which is no different from the Philips' proposed construction that a transform "yields an alternative representation" of a signal. Philips' proposed construction is preferable because it includes the feature that a "blockwise transform" relates to a "2-dimensional array," and should therefore be adopted.

IV. CONCLUSION

For the foregoing reasons, and those set forth in Philips' Opening *Markman* Brief, the Court should adopt Philips' constructions of the disputed claim terms that are set forth in the Joint Claim Construction and Prehearing Statement, and should reject Kodak's attempts to rewrite the claims of the '075 patent.

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