



The '069 patent relates to a wireless local area network wherein a plurality of wireless transceivers communicate with a plurality of wireless hub transceivers. The '069 patent provides a solution to transmitting data at a high rate and with high reliability using radio frequency signals within an indoor environment. The patent teaches a combination of three key techniques: parallel sub-channels (ensemble modulation) wherein the period of a sub-channel symbol is longer than a predetermined time delay of the non-direct transmission paths, data reliability enhancement with Forward Error Correction, and data reliability enhancement with bit interleaving.

### **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)). In claim construction, courts examine the patent’s intrinsic evidence to define the patented invention’s scope. *See id.*; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Comm’ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). This intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term’s context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can also aid in determining the

claim's meaning because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314–15.

“[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) (en banc)). “[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)); *see also Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor's lexicography governs. *Id.* Also, the specification may 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. But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics*,

*Inc., v. Lifescan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) (“As in the case of the specification, a patent applicant may define a term in prosecuting a patent.”).

Although extrinsic evidence can be 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). 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 is entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is “less reliable than the patent and its prosecution history in determining how to read claim terms.” *Id.*

The patent-in-suit also contains a means-plus-function limitation that requires construction. Where a claim limitation is expressed in means-plus-function language and does not recite definite structure in support of its function, the limitation is subject to 35 U.S.C. § 112 ¶ 6. *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). In relevant part, 35 U.S.C. § 112 ¶ 6 “mandates that such a claim limitation ‘be construed to cover the corresponding structure . . . described in the specification and equivalents thereof.’” *Id.* (quoting 35 U.S.C. § 112 ¶ 6). Accordingly, when faced with means-plus-function limitations, courts “must turn to the written description of the patent to find the structure that corresponds to the means recited in the [limitations].” *Id.*

Construing a means-plus-function limitation involves multiple inquiries. “The first step in construing [a means-plus-function] limitation 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). Once a court has determined the limitation’s function, “[t]he next step is to determine the corresponding structure described 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.” *Braun*, 124 F.3d at 1424.

Defendants’ also contend that some claims at issue are invalid for indefiniteness. A claim is invalid under 35 U.S.C. § 112 ¶ 2 if it fails to particularly point out and distinctly claim the subject matter that the applicant regards as the invention. The party seeking to invalidate a claim under 35 U.S.C. § 112 ¶ 2 as indefinite must show by clear and convincing evidence that one skilled in the art would not understand the scope of the claim when read in light of the specification. *Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc.*, 336 F.3d 1308, 1319 (Fed. Cir. 2003).

## CLAIM TERMS

### **frame**

CSIRO proposes “a set of data used by the modulator for the composition of one ensemble symbol to be transmitted.” Defendants propose “a group of blocks of encoded data operated on by the interleaving means and input to the modulation means.”

CSIRO opens its argument by explaining that “[f]rame’ is a term often used in communication technology to denote a particular set of data.” Docket No. 229 at 5. Relying on a description of the preferred embodiment, CSIRO further explains that a frame exists between frame assembly unit 46 and modulator means 47 of Figure 7 in the ‘069 patent. *See* ‘069 Patent

col. 6:40–47 (describing the components and operation of Figure 7). Thus, CSIRO argues, a frame is necessarily “used by the modulator”; CSIRO’s proposed construction also imports the function of the modulator: “for the composition of one ensemble symbol to be transmitted.”

Defendants contend that “frame” is not well-defined in the field of data communications, but “generally may refer to symbols or blocks of data that are grouped with a particular structure or function.” Docket No. 250 at 3. As a result, Defendants argue that frame must be defined based on the context of the data-processing operation in which it is being used. While Defendants essentially agree with CSIRO that a frame is a group or set of data, they further define the data as “encoded” based on the fact that data is encoded during processing. *See* ‘069 Patent col. 6:40–41 (“[The] QPSK Encoder 44 . . . carries out differential encoding on a frame-by-frame basis . . .”). Defendants’ inclusion of “operated on by the interleaving means and input to the modulation means” is also based on Figure 7 and its description. *See id.* col. 6:38–51 (describing the frame-oriented processing that occurs between the interleaver and modulator in Figure 7).

Plaintiff argues that Defendants’ construction imports unnecessary limitations from the specification into the construction of “frame” and that these limitations are duplicative of language already in the claims. For instance, claim 75 explicitly indicates that the frame—at least the one at issue in claim 75—is operated on by the interleaving means. Defendants respond that CSIRO’s proposed construction locks the definition of frame to “a single snapshot in the chain of data-processing operations.” Docket No. 250 at 3. Both parties generally agree that a frame is a group or set of data; their arguments center on how that data is characterized and used. However, the specification and claims themselves provide the appropriate context for understanding how the frames are used. Accordingly, the Court construes “frame” as “a set of data.”

### **frame of interleaved data**

CSIRO proposes “a frame in which the data has been reordered,” while Defendants propose “output of the interleaving means.” Having already construed the term “frame,” the primary issue with this term is the meaning of “interleaved data.”

CSIRO contends that the ordinary meaning of interleave in the context of data communications is to reorder. CSIRO further contends that Defendants’ proposal ignores the construction of frame and reads it out. Finally, CSIRO argues that Defendants’ proposal improperly places the frame of interleaved data at a single point in the data-processing chain. CSIRO notes that later modules in the data-processing chain also operate on interleaved data. *See* ‘069 Patent col. 6:32–53 (describing frame-by-frame processing of the transmit path framing, FEC, and modulating section 32 of Figures 5 and 6 as detailed in Figure 7).

Defendants respond that CSIRO’s proposed construction, which equates interleaving with reordering, is too broad. Defendants argue that interleaving “connotes reordering data in a specific way” so that the interleaving may be reversed later by a receiver of the data. Docket No. 250 at 7. Defendants provide this “specific way” by attaching the interleaved data to the interleaving means, arguing that this gives proper context to the surrounding claim language. However, the surrounding claim language itself already indicates that the interleaving is performed by the interleaving means and also that it is provided to the modulating means. *See, e.g.,* ‘069 Patent claim 75.

One of skill in the art would understand interleaving in the context of data communications to mean reordering of data. There is no need to detail the specific method of reordering, as Defendants imply is necessary, because one of skill in the art would understand that a well-defined reordering is performed so that the receiver can properly interpret the interleaved data. Defendants’ proposed construction improperly attaches the frame of interleaved

data directly to the interleaving means. As the claim language indicates, the interleaving means performs the interleaving; however, this interleaved data is operated on at later stages in the data-processing chain. Defendants' construction could be read to preclude such a conclusion. Accordingly, the Court construes "frame of interleaved data" as "a frame in which the data has been reordered by the interleaving means."

**predetermined number of said blocks of said data within a frame, and wherein each frame of interleaved data is provided to said modulation means for transmission simultaneously across said plurality of sub-channels**

CSIRO proposes that no construction is necessary. Alternatively, if the Court finds construction necessary, CSIRO proposes "the interleaved data in each frame is transmitted simultaneously at the different frequencies of the multiple sub-channels." Defendants propose "a group of blocks of encoded data output from the means for interleaving where the blocks of encoded data are input at the same time to the modulation means."

CSIRO first notes that "blocks" has already been construed by the Court. *See* Docket No. 276. Additionally, the Court has construed "frame" and "frame of interleaved data" in this *Markman* opinion. CSIRO contends that this phrase does not need construction because it contains these three terms that have already been construed. Defendants respond that the lengthy and potentially confusing phrase warrants construction to assist the jury and avoid contention between experts at trial.

Defendants' construction is essentially a blend of the constructions they proposed for "frame" and "frame of interleaved data." The notable difference is that this proposed construction provides a temporal limit, "at the same time," on when the output of the interleaving means is input to the modulation means. However, the claim language does not support this temporal constraint. The term "simultaneously" in the phrase refers to the fact that data is transmitted across a plurality of sub-channels simultaneously. The Court has adopted different



constructions than those proposed by Defendants for both “frame” and “frame of interleaved data.” Applying these constructions to the instant phrase in addition to the earlier construction of “blocks,” the Court finds that this phrase does not require construction.

### **header**

CSIRO proposes “a portion of a transmission, prior to sending input data, comprising a plurality of carriers of known phase relationship.” Defendants propose “symbols (represented as I,Q pairs) transmitted for determining phase differences at the receiver.” The parties generally agree about the content of a header: information about phase relationships. However, they disagree about the form of this content. Defendants argue that the header data should be formatted as (I, Q) pairs.<sup>1</sup> CSIRO argues that this improperly imports a limitation from the specification.

Defendants rely on representations made to the PTO during reexamination of the ‘069 patent and Figure 8 of the ‘069 patent to support their inclusion of a specific data format for the header. During reexamination, CSIRO provided block 65 of Figure 8 and col. 11:49–64 as support for the header recited in claims 89 and 141. The cited portion of the specification describes the operation of the synchronising calculator and detector 65, which detects and interprets the information in the header. Figure 8 shows (I, Q) pairs as the output of the Fast Fourier Transform device 63; the output of this device is also connected to the input of the synchronising calculator and detector 65. Thus, Defendants argue that a header must be comprised of (I, Q) pairs.

CSIRO responds that Defendants ignore other portions of the specification that do not limit headers to containing only (I, Q) pairs. Specifically, CSIRO identified block 45 of Figure 7

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<sup>1</sup> (I, Q) pairs, or I/Q data, are Cartesian coordinates that capture phase, amplitude, and frequency characteristics of a sine wave.

and col. 6:42–46 of the ‘069 patent to the PTO in support of claim 82 where “header” first appears. The output of the synchronising header generator 45 serves as input to the Frame Assembly and Zero Pad Insertion block 46; however, the output of the synchronising header generator 45 is not shown as (I, Q) pairs. Thus, CSIRO argues that the specification disclosed headers that may or may not be comprised of (I, Q) pairs.

Defendants’ proposal seeks to import limitations from the specification that are not warranted by the claim language, the specification, or the prosecution history. The specification discloses headers comprised of (I, Q) pairs and headers not comprised of (I, Q) pairs. Further, CSIRO identified both of these disclosures—Figures 7 and 8 of the ‘069 patent—as support for header during reexamination. Accordingly, the Court construes “header” as “a portion of a transmission, prior to sending input data, comprising a plurality of carriers of known phase relationship.”

**variable duration less than or equal to a time period over which a transmission characteristic is essentially stationary**

Independent claims 84, 94, and 96 and their dependent claims 85 and 95 (collectively “transmission characteristic claims”) include this phrase. CSIRO proposes that no construction is necessary. Alternatively, CSIRO proposes that “time period over which a transmission characteristic is essentially stationary” be construed as “a period of time during which a radio propagation characteristic associated with a typical indoor environment does not change substantially.” Defendants contend that the term is indefinite for being insolubly ambiguous and not amenable to construction. If the Court finds the term is amenable to construction, Defendants propose “the time period used to divide the transmitted data into packets depending upon channel characteristics does not exceed a period during which the channel is essentially stationary.”

Defendants argue that this phrase renders the transmission characteristic claims invalid because the specification fails to define an objective basis for determining what is meant by “transmission characteristic” and “essentially stationary.” Defendants contend that “[d]etermining what qualifies as a ‘transmission characteristic’ . . . depends solely on the subjective perception of the observer.” Docket No. 249 at 2. CSIRO responds that transmission characteristics are known to one of skill in the art. Dr. Percival, a named inventor of the ‘069 patent, explained that the specification discloses several transmission characteristics. Figure 1 discloses multi-path; Figure 2 discloses time delays; and Figure 3 discloses frequency response. *See* Docket No. 259 Attach. 2 at 4. The specification discloses representative transmission characteristics and one of skill in the art would understand the bounds of the claims as they relate to transmission characteristics.

Defendants also contend that the transmission characteristic claims are invalid based on the term “essentially stationary,” arguing that this term renders subjective a determination of whether the claim is infringed. Mr. Ostry, a named inventor of the ‘069 patent, explained during his deposition that the determination of what “essentially stationary” means would depend on the application in which the invention is used. *See* Docket No. 249 Attach. 5 at 5–8. Mr. Daniels, another named inventor, explained that a transmission characteristic is “essentially stationary” for a given application when the time period employed is short enough that the typical fluctuations in a transmission characteristic for a given environment or application do not introduce significant errors in the data received at the demodulation process. *See* Docket No. 259 Attach. 3 at 4. It is acceptable that different applications of the invention would require different time periods during which a transmission characteristic is deemed to be “essentially stationary” so long as one of skill in the art could make that determination for the given application. *See*

*Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986) (“As long as those of ordinary skill in the art realized that the dimensions could be easily obtained, § 112, 2d para. requires nothing more.”). Here, one of skill in the art, for a given environment and application of the invention, could readily discern the appropriate time period based on their tolerance for error at the receiving end of a transmission. Thus, the transmission characteristic claims are not indefinite and Defendants’ Motion for Summary Judgment of Invalidity Based on Indefiniteness for Certain Claims (Docket No. 249) is **DENIED**. Given that “transmission characteristic” and “essentially stationary” are appropriately defined by the specification as read by one of skill in the art, the Court finds that the phrase “variable duration less than or equal to a time period over which a transmission characteristic is essentially stationary” is understandable as written and requires no further construction.

#### **cyclic extension**

CSIRO proposed that this term does not require construction. Defendants originally proposed “an interval that is added to the output symbol of the modulation means to increase the period of the transmitted symbol.” However, the parties have since agreed that this term does not require construction. *See Markman* Hr’g Tr. vol. 1, 56, Oct. 4, 2011.

#### **synchronizing detection means that detects a header in received data**

CSIRO originally argued that this was not a means-plus-function element; however, it now agrees with Defendants that it is a means-plus-function element. CSIRO proposes that the function is “detecting a header in received data” and the structure is the synchronising calculator and detector 65 of Figure 8 of the ‘069 patent. Docket No. 260 at 9. Defendants agree that the function is “detecting a header in received data.” Defendants contend that the structure is the synchronising calculator and detector in Figure 6, the synchronising calculator and detector block 65 in Figure 8, and col. 6:62–67 and 11:49–64.

The parties have agreed that this term is a means-plus-function element and that its function is detecting a header in received data. The Court so holds. Defendants' cited passages of the specification clarify the function of the synchronizing detection means rather than its structure. Thus, the Court finds that the structure is the synchronising calculator and detector in Figure 6 and the synchronising calculator and detector block 65 in Figure 8.

### **wireless local area network**

CSIRO proposes that no construction is necessary for this term, or alternatively, that it should be construed as “a communications network that provides wireless connectivity via radio waves within a limited geographic area such as a home or office.” Defendants propose “a communications network that provides wireless connectivity via radio waves within a limited geographic area.” At the *Markman* hearing, CSIRO agreed to Defendants' proposed construction, which merely strikes “such as a home or office” from CSIRO's alternate proposed construction. *See Markman* Hr'g Tr. vol. 1, 63–64, Oct. 4, 2011. Accordingly, the Court construes “wireless local area network” as “a communications network that provides wireless connectivity via radio waves within a limited geographic area.”

### **CONCLUSION**

For the foregoing reasons, the Court interprets the claim language in this case in the manner set forth above. Further, Defendants' Motion for Summary Judgment of Invalidity Based on Indefiniteness for Certain Claims (Docket No. 249) is **DENIED**. For ease of reference, the Court's claim interpretations are set forth in a table in Appendix A.

So ORDERED and SIGNED this 20th day of January, 2012.

A handwritten signature in black ink, appearing to read 'Leonard Davis', written over a horizontal line.

**LEONARD DAVIS**  
**UNITED STATES DISTRICT JUDGE**

## APPENDIX A

Claim Term	Court's Construction
frame	a set of data
frame of interleaved data	a frame in which the data has been reordered by the interleaving means
predetermined number of said blocks of said data within a frame, and wherein each frame of interleaved data is provided to said modulation means for transmission simultaneously across said plurality of sub-channels	No construction required
header	a portion of a transmission, prior to sending input data, comprising a plurality of carriers of known phase relationship
variable duration less than or equal to a time period over which a transmission characteristic is essentially stationary	No construction required
cyclic extension	No construction required
synchronizing detection means that detects a header in received data	<p>This term is governed by 35 U.S.C. § 112(6).</p> <p>Function: detecting a header in received data</p> <p>Structure: synchronising calculator and detector in Figure 6 and the synchronising calculator and detector block 65 in Figure 8</p>
wireless local area network	a communications network that provides wireless connectivity via radio waves within a limited geographic area