

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

ERICSSON INC., et. al.,

Plaintiffs,

v.

D-LINK CORPORATION, et. al.,

Defendants.

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**Civil Action No. 6:10-CV-473
(LED/KFG)**

**MEMORANDUM OPINION AND ORDER CONSTRUING CLAIM TERMS OF
UNITED STATES PATENT NOS.
6,772,215, 6,330,435, 5,987,019, 6,466,568, and 5,790,516**

This claim construction opinion construes the disputed claim terms in U.S. Patent Nos. 6,772,215, 6,330,435, 5,987,019, 6,466, 568, and 5,790,516 as asserted in the above captioned case. A *Markman* hearing was held on June 27, 2012, to construe the disputed terms of the various patents. For the reasons stated herein, the Court adopts the constructions set forth below.

CLAIM CONSTRUCTION PRINCIPLES

“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)(quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 111, 115 (Fed. Cir. 2004)). The Court examines a patent’s intrinsic evidence to define the patented invention’s scope. *Id.* at 1313-1314; *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*, 145 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 Sci Med 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.

The prosecution history is another tool to supply the proper context for claim construction because a patentee may define a term during the prosecution of 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 the patent.”). The well-established doctrine of prosecution disclaimer “preclud[es] patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution.” *Omega Eng’g Inc. v. Raytek Corp.*, 334 F.3d 1314 (Fed. Cir. 2003). The prosecution history must show that the patentee clearly and unambiguously disclaimed or disavowed the proposed interpretation during prosecution to obtain claim allowance. *Middleton Inc. v. 3M Co.*, 164 F.3d 1372, 1378-79 (Fed. Cir. 1988)(quotations omitted). “As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public’s reliance on definitive statements made during prosecution.” *Omega Eng’g, Inc.*, 334 F.3d at 1324.

Although, “less significant than the intrinsic record in determining the legally operative meaning of claim language, “the Court may rely on extrinsic evidence to “shed useful light on the relevant art.” *Phillips*, 415 F.3d at 1317 (quotation omitted). Technical dictionaries and treatises

may help the Court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but such sources may also provide overly broad definitions or may not be indicative of how terms are used in the patent. *Id.* at 1318. Similarly, expert testimony may aid the Court in determining the particular meaning of a term in the pertinent field, but “conclusory, unsupported assertions by experts as to the definition of a claim term 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.*

Determining the claimed function and the corresponding structure of means-plus-function clauses are matters of claim construction. *WMS Gaming Inc., v. Int’l Game Tech.*, 184 F.3d 1339, 1347 (Fed. Cir. 1999). Claim construction of a means-plus-function limitation involves two steps. *See Medical Instrumentation and Diagnostics v. Elekta*, 344 F.3d 1205, 1210 (Fed. Cir. 2003). The court must first identify the particular claimed function, and then look to the specification and identify the corresponding structure for that function. *Id.* “Under this second step, ‘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.* (citations omitted). “While corresponding structure need not include all things necessary to enable the claimed invention to work, it must include all structure that actually performs the recited function.” *Default Proof Credit Card System, Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005).

OVERVIEW OF THE ‘215 PATENT

The ‘215 patent is entitled “Method for Minimizing Feedback Responses in ARQ Protocols” and the invention relates in general to the telecommunications field and, in particular, to a method for minimizing feedback responses in Automatic Repeat Request (ARQ) protocols. Data sent by a

transmitter (such as a wireless router) to a receiver (such as a computer) is broken into data packets (also called “Protocol Data Units” or “PDUs”) which have sequence numbers. ‘215 patent at 1:29-30. The receiver assembles the data packets back into the proper order using the sequence numbers. In a perfect world, the receiver would receive all the data packets in the proper order. However, frequently data packets get lost or corrupted during the transmission from the transmitter to the receiver and never make it to the receiver’s buffer. Certain algorithms are used to recover from the transmission of erroneous data and the loss of data on the transmission links between the nodes. ‘215 patent at 1:21-23. An algorithm commonly used to recover from the transmission of erroneous data is referred to as an Automatic Repeat Request (ARQ) protocol. ‘215 patent at 1:23-25. The basic function of the ARQ protocol is to allow the receiver to request that the transmitter re-transmit those PDUs that were lost or contained errors during transmission. ‘215 patent at 1:34-37. The PDUs that are sent from the receiver back to the transmitter include control data needed for error control/recovery and are called “status PDUs” (S-PDUs).

Two main methods are currently used for coding the sequence numbers of the lost or corrupted data within the S-PDUs sent from the transmitter back to the receiver. One method is to use a list of sequence numbers to be re-transmitted. The second method is to use a bitmap to represent the sequence numbers to be re-transmitted. ‘215 patent at 2:48-52. However, a significant problem with the existing ARQ protocols is that they are static in construction and, in certain situations, this may lead to a waste of bandwidth, because a great deal of information is transmitted unnecessarily in the S-PDUs. ‘215 patent at 3:46-50.

Therefore, the inventors of the ‘215 patent recognized that a significant need existed for a method that can be used to minimize the size of S-PDUs in an ARQ protocol and for a method that

can be used to maximize the number of sequence numbers in an S-PDU with limited size, if it is not possible to fit all potential sequence numbers into a single S-PDU. ‘215 patent at 4:33-38. The inventors summarized the invention as “a method for minimizing feedback responses in an ARQ protocol ... whereby different mechanisms can be used to indicate erroneous D-PDUs and construct S-PDUs. In particular, these different mechanisms can be combined in a single S-PDU. The S-PDUs are constructed so as to optimize system performance in accordance with certain criteria. One such criterion used is to minimize the size of the S-PDUs. A second such criterion used is to maximize the number of [sequence numbers] in an S-PDU of limited size.” ‘215 patent at 4:44-53.

DISCUSSION

I. Disputed terms of the ‘215 patent.

The disputed terms and their proposed constructions are set forth below.

- a. “responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field” (claims 1, 15 and 25)**

Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
responsive to the receiving step, generating a message field including a field that identifies the message type of the feedback response message from a number of different message types	responsive to the receiving step, generating a message field including a field identifying the type of feedback response that is selected from multiple available feedback responses in order to minimize the size of number of feedback responses

Plaintiffs acknowledge that the proposed constructions are nearly identical, but argue that Defendants’ proposed construction contains superfluous language and should be rejected. Plaintiffs’ first objection to Defendants’ proposed construction is that it requires the type of feedback response to be actively “selected from multiple available feedback responses”, which, they argue, would import an entirely additional step (the step of selecting) into the claim, violating the canons of claim

construction.

Plaintiffs also object to Defendants' requirement that the unclaimed "selecting" further accomplish the goal of "minimiz[ing] the size or number of feedback responses." Plaintiffs argue that while minimizing the size of number of feedback responses may be the benefit of the invention, not every benefit flowing from an invention is a claim limitation, citing *i4i, Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 843 (Fed. Cir. 2010), *aff'd* __U.S.__, 131 S. Ct. 2238, 180 L. Ed. 2d 131. They contend Defendants' construction adds only two, and not all, of the advantages set forth in the patent. According to Plaintiffs, Defendants do not point to any lexicography, disclaimer, or disavowal that allow the limitations to be included in the claims and, further, the patentee apparently chose to put "minimization of feedback responses" in the preamble where it is not a limitation.¹ They further argue that the claims define the invention, and that those claims do not include Defendants' proposed extraneous limitations.

Defendants respond that their construction captures the actual inventive concept claimed to overcome the prior art problems identified in the specification. They further argue that the solution to the problem (the static use of a particular type of response) not addressed by the prior art is to "select" a feedback response to optimize system performance. '215 patent at 9:12-14. They contend that "selecting" or "minimizing" is already part of the claim as part of the element requiring the construction of a feedback response "in response to" incoming data units. Defendants argue that this is not merely some benefit of the invention, it *is* the invention and the claims should be construed

¹ Plaintiffs contend that Defendants have never before claimed in their briefing that the preamble is a limitation and are essentially trying to back-door it in as a limitation now. *See Transcript of Claim Construction Hearing* (doc. #255), p. 16.

to capture the scope of the actual invention,² citing *Retractable Techs., Inc. v. Becton, Dickinson and Co.*, 653 F.3d 1296 (Fed Cir. 2011) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005)(en banc)).

This Court notes that there is currently a split among the judges on the Federal Circuit regarding the appropriate role of the specification in construing the claims of a patent. See *Retractable Technologies, Inc. v. Becton, Dickinson and Company*, 659 F.3d 1369 (Fed. Cir. 2011)(denial of re-hearing en banc). As stated above, Defendants urge that the claims should be construed in order to capture the actual scope of the invention. Judge Lourie is of the view that the claims are limited by the “invention” described in the specification. *Retractable*, 653 F.3d at 1305 (“In reviewing the intrinsic record to construe the claims, we strive to capture the scope of the actual invention, rather than strictly limit the scope of the claim to disclosed embodiments or allow claim language to become divorced from what the specification conveys is the invention.”). However, Judge Moore along with Chief Judge Rader take the view that the claims define the metes and bounds of the patented invention and, although the specification may shed light on the plain and ordinary meaning of a claim term, it cannot be used to narrow the claim term unless the inventor acted as his own lexicographer or intentionally disclaimed or disavowed claim scope. *Retractable*, 659 F.3d at 1360-71.

This Court is inclined toward Judge Moore’s and Chief Judge Radar’s view in *Retractable*. Defendants’ proposed construction seems to fall on the side of reading limitations into the claims

² Ericsson disagrees that the advantage of minimizing the feedback response is the crux of the invention. It contends that the invention is “the creation of a choice in the receiver of multiple different formats of messages to use and then also the creation of a type identifier field which allows the receiver to identify to the transmitter which it is choosing.” Transcript, p. 13.

rather than reading the claims in light of the specification. In addition, this Court agrees with Plaintiffs that Defendants' construction adds only two, and not all, of the advantages set forth in the patent. "[T]he fact that a patent asserts that an invention achieves several objectives does not require that each of the claims be construed as limited to structures that are capable of achieving all of the objectives." *Phillips*, 415 F.3d at 1327 (internal quotations omitted).

Therefore, this Court finds that the term "responsive to the receiving step, constructing a message field for a second data unit, said message field including a type identifier field" means **"responsive to the receiving step, generating a message field including a field that identifies the message type of the feedback response message from a number of different message types."**

- b. "means for receiving said plurality of first data units, and constructing one to several message fields for a second data unit, said one to several message fields including a type identifier field and at least one of a sequence number field, a length field, a content field, a plurality of erroneous sequence number fields, and a plurality of erroneous sequence number length fields, each of said plurality of erroneous sequence number fields associated with a respective one of said plurality of erroneous sequence number length fields" (claim 45)**

Plaintiffs' Proposed Construction	Defendants' Proposed Construction
<p>Recited Function: receiving said plurality of first data units, and constructing one to several message fields for a second data unit, said one to several message fields including a type identifier field and at least one of a sequence number field, a length field, a content field, a plurality of erroneous sequence number fields, and a plurality of erroneous sequence number length fields, each of said plurality of erroneous sequence number fields associated with a respective one of said plurality of erroneous sequence number length fields</p> <p>Corresponding Structure: the receiver of a peer entity, see '215:2:29-30, whereby different mechanisms can be used to indicate erroneous data units so as to optimize performance, see '215::5:53-56, and the mechanisms refer to any of the methods described for constructing a bitmap feedback response message disclosed at '215::3:17-28 and '215::6:8-48, any of the methods for constructing a compressed bitmap feedback response message disclosed at '215::6:49-54, any of the methods for constructing a list feedback response message disclosed at '215::2:63-3:16 and '215::7:28-51, and/or the method for constructing a feedback response message combining the list and bitmap methods, and any equivalents thereof.</p>	<p>Recited Function: receiving the plurality of first data units and generating a message field including a field identifying the type of feedback response that is selected from multiple available feedback responses in order to minimize the size or number of feedback responses and at least one of a sequence number field, a length field, a content field, a plurality of erroneous sequence number fields, and a plurality of erroneous sequence number length fields, each of said plurality of erroneous sequence number fields associated with a respective one of said plurality of erroneous sequence number length fields</p> <p>Corresponding Structure: (a) Fig. 4, Fig. 5, Fig. 6, Table 1, 3:6-13, 36-42, 4:1-54, 5:50-6:49, 6:55-64, 7:28-51</p> <p>(b) Invalid under Section 112, paragraphs 2,6.</p>

Plaintiffs' contend that their proposed function for this term is the function explicitly recited in the claim and that they have identified corresponding structure that "actually performs" the recited function. Plaintiffs argue that Defendants' proposed recited function for this term is a different function and therefore is legally defective. Plaintiffs note that the substantive dispute regarding this

term is related to a previous argument as to whether minimization or optimization is a required part of the function. Plaintiffs argue that the structure set forth at 3:6-13 and 3:36-42 deal with the calculation of the size of the S-PDU and has nothing to do with the actual construction of the message. Likewise, they contend that Table 1 has nothing to do with constructing the feedback response message.

Defendants agree that this debate is an extension of the initial debate, that is, what does this claim capture? Defendants again contend that the essence of the invention is that there be a minimization or optimization of the size or the number of the S-PDUs. Defendants argue that the claimed invention cannot be something that merely constructs a S-PDU to send back to the transmitter without the determination of which type of S-PDU (list, bitmap, etc.) would be optimal. According to defendants, this is all over the prior art.

The Court finds that Plaintiffs have proposed the correct function for this means-plus-function term. Although Defendants argue that the Court is not restricted to the actual language used in the claim to define the function, the Federal Circuit has made it clear that “[t]he statute does not permit limitation of a means plus function claim by adopting a function different from that explicitly recited in the claim.” *Micro Chemical, Inc. v. Great Plains Chemical Co., Inc.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999). In addition, Plaintiffs have correctly identified the “corresponding structure” disclosed in the specification.

In a related argument, Defendants contend that claim 45 is invalid because Ericsson’s proposals for corresponding structure do not include portions of the specification necessary to support their interpretation of the claimed function. *See Motion for Summary Judgment* [Clerk’s doc. # 224, p. 16]. In other words, they assert that Plaintiffs’ proposed structure is incomplete because it omits

portions of the specification relating to the claimed optimization. Therefore, they contend that Plaintiffs' proposed structure is incomplete, and as such does not disclose an algorithm to support its construction of the "means for receiving . . .and constructing" element. During the hearing, Defendants "absolutely concede[d]" that there is adequate structure disclosed in the specification and that this issue is a claim construction issue and not a summary judgment indefiniteness issue. *See Transcript*, pp. 61-62.

This Court agrees with Plaintiffs and finds that there is no "optimization" claimed in the recited function, and it would be error to import any function other than what is explicitly recited in the claim. *See Micro Chem.*, 194 F.3d at 1258.

This Court finds that the recited function is: **"receiving said plurality of first data units, and constructing one to several message fields for a second data unit, said one to several message fields including a type identifier field and at least one of a sequence number field, a length field, a content field, a plurality of erroneous sequence number fields, and a plurality of erroneous sequence number length fields, each of said plurality of erroneous sequence number fields associated with a respective one of said plurality of erroneous sequence number length fields."**

The corresponding structure is: **the receiver of a peer entity, see '215::2:29-30, whereby different mechanisms can be used to indicate erroneous data units so as to optimize performance, see '215::5:53-56, and the mechanisms refer to any of the methods described for constructing a bitmap feedback response message disclosed at '215::3:17-28 and '215::6:8-48, any of the methods for constructing a compressed bitmap feedback response message disclosed at '215::6:49-54, any of the methods for constructing a list feedback response message disclosed at '215::2:63-3:16 and '215::7:28-51, and/or the method for constructing a feedback response**

message combining the list and bitmap methods, and equivalents thereof.”

OVERVIEW OF THE ‘435 PATENT

The ‘435 patent builds on what happens after an ACK message is sent to the transmitter from the receiver. As shown in the ‘215 patent, a receiver may request that the transmitter resend data packets that it (the receiver) didn’t receive with an ACK message. The transmitter may continue to retransmit those data packets but it may be that the receiver still may not receive the data packets due to a continued corruption of the signal. The receiver may still wait on the data packets even though the data may be obsolete. The transmitter continues to store these data packets in the buffer because the receiver still has not acknowledged receipt of them. This causes the buffers of both the transmitter and the receiver to become full and the result is that the buffers cannot receive the next group of data packets. This causes unacceptable delay in real time applications such as streaming video and television.

The ‘435 patent attempts to address this problem by using a “discard notification message.” The transmitter will hold a specified number of packets in its buffer until it receives and acknowledgment that the receiver got them. The receiver holds an incomplete set of packets in its buffer until the complete set is received. ACK messages are sent from the receiver to the transmitter and the transmitter keeps re-sending the data packets until a timer expires. The transmitter then sends a discard message to the receiver which tells the receiver that the transmitter deleted the old packets so they will not be resent. The receiver gets this message and then determines which packets have been discarded by the transmitter. It then removes these data packets from the list of those expected to be received from the transmitter. This allows the transmitter and receiver to transmit and receive other data packets without having to wait on the transmission of obsolete data packets.

II. Disputed terms of the ‘435 patent.

a. “data packet discard notification message from the transmitter to the receiver indicating data packets the transmitter has discarded.” (claim 1)

Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
a control message in an Automatic Repeat Request Protocol that indicates data packets that the transmitter has discarded	message containing the identity of unacknowledged data packets the transmitter has discarded

One dispute between the parties focuses on whether the discard message must actually contain the explicit identity of the discarded packets. Plaintiffs assert that it does not. Initially, Plaintiffs point out that Claim 1 requires that the receiver will compute “which data packets have been discarded by the transmitter based on the data packet discard notification message.” In addition, Plaintiffs argue that dependent Claim 6 specifically requires that the data packet discard notification message include a sequence number field for each data packet to be discarded by the receiver. Plaintiffs further note that dependent Claim 3 requires that the discard message include a sequence number to indicate the first data packet to be discarded and a length field to indicate a number of data packets immediately preceding the first data packet, that are to be discarded by the receiver. According to Plaintiffs, the use of a length field in this context shows that the message itself does not explicitly indicate each packet to be discarded. Rather, the message need contain only enough information for the receiver to derive, in its computing step, which packets should be discarded. Defendants initially responded that “identify” carries the same meaning as “indicate”. However, during the hearing, Defendants responded that they had no objection to the term “indicating”.

“Indicating” and “identifying” are not used interchangeably in the ‘435 patent. Forms of “indicating” are used 29 times, always in the same context as the claim language. Forms of “identify”

were used 13 times, mostly in the context of sequence numbers “identifying” discarded cells. The plain language of Claim 1 and Claim 13 show that “identifying” and “indicating” are used differently in this patent. This Court agrees with Plaintiffs on this particular point. “Indicates” should be used instead of “containing the identity.”

The second dispute focuses on whether the Defendant’s addition of the word “unacknowledged” in their construction is proper. Plaintiffs note that, in the present invention, the discard message is triggered by both an NACK (a negative acknowledgment from the receiver to the transmitter) and in a situation where there is no acknowledgment from the receiver to the transmitter (unacknowledged). ‘435 patent at 1:14-22. The so-called NACK embodiment is illustrated at 4:53-67. Plaintiffs also argue that Defendant’s addition of the word “unacknowledged” in their construction reads out the preferred embodiment disclosed at 4:53-67.

Defendants respond that “unacknowledged” packets and “negatively acknowledged data packets” refer to the same thing, that is, packets that have not been successfully received. In other words, according to Defendants, “negatively acknowledged packets” are “unacknowledged packets.”

This Court agrees with Plaintiffs. At worst, Defendants’ construction does in fact exclude the preferred embodiment set forth at 4:53-67. “A claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.” *Globetrotter Software, Inc. v. Elan Computer Group, Inc.*, 362 F.3d 1367, 1381 (Fed. Cir. 2004). At best, inserting “unacknowledged” into the claim construction would be importing limitations into the claim which is improper.

Finally, Defendants argue that “control message” and “Automatic Repeat Request” are improper limitations to import into the claim. The Court notes that the claim calls for a “message”

and not a “control message.” The Court also notes that it agrees with Defendants that “in an Automatic Repeat Request protocol” is not necessary language to be included in the construction or helpful to the jury because of its existence in the preamble.

Therefore, this Court finds that the proper construction is: **“a message that indicates data packets that the transmitter has discarded.”**

OVERVIEW OF THE ‘019 AND ‘568 PATENTS

The ‘568 patent, which contains apparatus claims, is a division of the ‘019 patent, which contains method claims. Both patents contain the same specification and similar claim language. Both of these patents are entitled “Multi-Rate Radiocommunication Systems and Terminals” and describe ways to efficiently transmit a variety of different types of information. Different types of information often have different optimal transmission characteristics. For examples, users communicating by cellular telephone will desire rapid two-way communication and may not be concerned with minor transmission errors. On the other hand, a user downloading email will tolerate small delays but will expect better error control. To accommodate the different transmission characteristics, the ‘019 and the ‘568 patents teach that a wireless transmitter should send a service type identifier along with the user’s payload information. The service type identifier informs the receiver of the transmission characteristics for the type of payload information being sent.

III. Disputed terms of the ‘019 and ‘568 patents.

- a. **“separate from said first field” (claim 19 of the ‘019, claim 1 of the ‘568)**

Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
No construction necessary.	in a different portion of a radio channel from said first field

Plaintiffs contend that the limitation merely clarifies that the claim requires two distinct fields, i.e., the field with the payload information is not the same field as the service type identifier field. As such, Plaintiffs argue that there is no need to construe this straightforward limitation. Plaintiffs contend that Defendants seek to attempt to inject limitations from exemplary TDMA embodiments of the invention into the claim even though the claim itself is not limited to TDMA applications. According to Plaintiffs, none of the limitations of Claim 19 require that the two fields be in separate time slots or in separate portions of a radio channel.³

Defendants agree that there are necessarily two different fields. According to them, the dispute is what it additionally means for the first field to be separate from the second field. Defendants argue that the requirement that there be a “first” field and a “second” field show that the fields are distinct but there is an additional requirement that the second field be separate from the first field. Defendants contend that this is the crux of the “separate field”, by transmitting the service type identifier separately from the payload information, the receiver can be informed of how to decode different service types having varying transmission characteristics without knowing what those transmission characteristics are.

The claim in question clearly requires a first field and a second field that are transmitted on a radio channel. As Plaintiffs correctly note, there is no restriction or limitation that the two fields be distanced apart on the radio channel. As the Court noted, and as the Defendants agree, the key is that the two fields just have to be transmitted separately. Although Defendants do not deny that the fields can be adjacent to each other, this Court notes that Defendants’ proposed construction seems

³ Claim 1 of the ‘019 requires that the second field be in “at least another one of successive time slots.” Ericsson argues that Claim 19 is not drafted so narrowly.

to imply that the two fields must be distanced from one another along the radio channel. This Court rejects Defendants’ construction and determines that no construction is necessary.

b. “a service type identifier which identifies a type of payload information” (claim 19 of the ‘019, claim 1 of the ‘568)

Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
an identifier which identifies transmission characteristics of payload information	an identifier that identifies the type of information (e.g. video, voice, or data) conveyed in the payload.

Plaintiffs contend that their proposal recognizes that the inventors anticipated many more types of payload information than the few examples discussed in the patent and the patentee, instead of attempting to predict all of the various types of information that may be used in future radio communications, flexibly accounted for future developments. They contend that the service type identifier must inform the receiver about the transmission characteristics of the payload it is receiving so that it may handle the transmission correctly rather than merely knowing if the payload is a video or audio.

Defendants argue that there is a distinct difference between the type of service and how it is sent and that Plaintiffs disavowed “transmission characteristics” to distinguish the ‘019 over the Raith reference, which disclosed channel coding. They contend that Plaintiffs’ attempt to inject the phrase “transmission characteristics” into the claim doesn’t broaden the claim, but is an attempt to rewrite it. They argue that the service type identifier merely identifies the type of data conveyed in the payload and not the transmission characteristics of that data.

The language of the claim is clear in that the service type identifier identifies the type of payload information, not the transmission characteristics of that information. The specification also

makes it clear that “the service type identifier informs the mobile or base station of the type of information (e.g., voice, video, or data) being conveyed in the payload. This information can be used by the receiving equipment to aid in processing the information conveyed in the payload, e.g., by knowing the channel coding rate.” ‘019 patent at 3:9-19. In another embodiment involving a multimedia connection where the transmission may rapidly between voice, data and video, “a change in the FOC can inform the mobile station of the type of information being transmitted, so that the mobile station will know how to process the information, e.g., how to decode the received bits.” ‘019 patent at 9:32-38.

In addition, claim 22, which is dependent on claim 19, claims an additional step of changing the type of information from a first type to a second type. Claim 23, which is dependent on Claim 22, claims the method of claim 22 “wherein said first type of information is one of video, voice and data and said second type of information is different one of video, voice and data.”

Further, it appears that Plaintiffs previously acknowledged that in some cases “it may not be possible to identify the type of payload information based upon an indication of channel coding since the type of channel coding identified may be employed for different types of information.” ‘568 file history, May 10, 2002 Amendment, page 6 (Ericsson’s Response to Examiner’s Second Raith Rejection).

Therefore, this Court finds that the proper construction for this term is “**an identifier that identifies the type of information conveyed in the payload. Examples of types of information include, but are not limited to, video, voice, data, and multimedia.**”

OVERVIEW OF THE ‘516 PATENT

When multiple devices transmit signals, those signals can interfere with each other. However, in frequency division multiplexing (FDM) the signals are assigned to different frequency bands and are transmitted on different frequencies. A special type of frequency division multiplexing is orthogonal frequency division multiplexing (OFDM). In the OFDM system there is a particular way of selecting the frequencies (called subcarriers) so that the frequencies do not interfere with each other. The subcarriers are spaced on a radio channel so that they do not overlap or interfere with other subcarriers so that multiple data symbols can be transmitted on a single channel simultaneously. Only a single subcarrier has a non-zero value at a given frequency. However, these signals can naturally become distorted due to frequency dispersion which causes the subcarriers to shift so that they have non-zero values at other frequencies which results in intersymbol interference (ISI). They overlap each other in an interfering manner and some transmitted information may be lost. To remedy this situation, the ‘516 patent teaches that a pulseshaping waveform can be used to modify the transmitted signal so that it approaches zero outside of its frequency.

IV. Disputed terms of the ‘516 patent.

a. “pulseshaping waveform” (claim 1)

Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
a waveform that lessens the effects of both time dispersion and intersymbol interference of an OFDM signal	a waveform that changes the shape of said first data signal

Plaintiffs contend that the defining feature of a pulsating waveform is that it lessens the effect of time dispersion and intersymbol interference and that all pulsating waveforms achieve these effects by increasing spectral decay. They argue that Defendants’ proposed construction would include any

waveform that changes the shape of a signal and that Defendants are broadening the construction to invalidate for prior art.

Defendants contend that Plaintiffs' proposed construction is not consistent with the well-known meaning of "pulseshaping" and merely lists the potential effects of pulseshaping. They argue that the dictionary definition of pulseshaping is "intentionally changing the shape of a pulse" and this is an ordinary meaning. They submit that lessening the effect of time dispersion and intersymbol interference may be an effect of using a pulseshaping waveform if the application of the technique achieves its goals, but is itself neither a requirement nor a result that will necessarily occur. They also note that Plaintiffs omit other potential effects of pulseshaping, such as the reduction of frequency dispersion and intercarrier interference. They argue that, according to a clear reading of the claim language, the pulseshaping waveform only needs to have a first amplitude greater than the second amplitude.

This Court notes that the parties' respective positions regarding the construction of this particular term are opposite those taken when arguing the first disputed term in the '215 patent. Again, this Court takes the view that the claims define the metes and bounds of the patented invention and, although the specification may shed light on the plain and ordinary meaning of a claim term, it cannot be used to narrow the claim term unless the inventor acted as his own lexicographer or intentionally disclaimed or disavowed claim scope. *Retractable*, 659 F.3d at 1360-71.

In the specification, the patentee did not define the term "pulseshaping waveform". Nor did he give the term a different meaning that it would otherwise possess, or disclaim or disavow some claim scope. Claim 1 was drafted as a broad claim and the USPO allowed it as such. The Court declines the opportunity to now narrow the claim by importing some of the potential effects of

pulseshaping into it. The patentee could have easily acted as his own lexicographer in defining “pulsating waveform” or could have limited the claim to waveforms applied to OFDM signals.

“Pulseshaping waveform” is construed to mean **“a waveform that changes the shape of said first data signal.”**

b. “performing an N’-point inverse fast fourier transform (IFFT)”; Claim 6

Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
performing an N’-point IFFT such that N’ refers to the number of IFFT points that are required as a result of the pulseshaping waveform used	performing an N’-point IFFT such that N’ refers to an adjusted number of subcarriers [IFFT points] depending on the pulseshaping waveform used

Plaintiffs complain that Defendants’ proposed construction refers to N’ as “subcarriers” when the claim uses N’ to refer to the “points” of an IFFT. They also note that Defendants’ construction refers to N’ as “adjusted . . . depending on the pulseshaping waveform used.” According to Plaintiffs, under this construction, determining whether an IFFT falls within the scope of this method step would require a comparison between the IFFT for a pulseshaping waveform actually used against some other pulseshaping waveform which is a comparison not required by the claims. Plaintiffs argue that N’ does not always have to be an adjustment and the insertion of that term reads out the situation where there is a mild pulse shaping that does not result in a decreased number of subcarriers.

Defendants concede that it does not matter whether you use “subcarriers” instead of “IFFT points” and that this dispute may no longer be an issue since they are mathematically identical. They frame the issue as to using the word “adjusted” versus “required.” Defendants argue that Plaintiffs’ construction reads into the claim a required bandwidth. They argue that the correct definition is found in the patent at col. 7:7-10 and col. 5:10-11.

Defendants are correct that the proper definition of N' is $N' = N/\alpha$ where alpha is a frequency adjustment factor that depends on the pulseshaping function $w(t)$ used. '516 patent, Col. 7:7-10; Col. 5:10-11. However, the language at col. 6:5-8 which states that using a particular pulseshaping function "may" require adjustment in the choice of subcarriers chosen in order to maintain orthogonality during data transmission, is a concern. This certainly implies that the inventor recognized that there may be situations where mild pulseshaping occurs but the number of subcarriers remain the same.

Therefore, this Court construes "performing an N'-point inverse fast fourier transform (IFFT)" to mean **"performing an N'-point IFFT such that N' refers to the number of IFFT points which depend on the pulseshaping waveform used."**

The above-cited terms of the patents at issue should, therefore, be construed in accordance with this order.

SIGNED this the 8th day of March, 2013.



KEITH F. GIBLIN
UNITED STATES MAGISTRATE JUDGE