UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

The CALIFORNIA INSTITUTE OF TECHNOLOGY, Plaintiff, v. HUGHES COMMUNICATIONS INC., HUGHES NETWORK SYSTEMS LLC, DISH NETWORK CORPORATION, DISH NETWORK L.L.C., and DISHNET SATELLITE BROADBAND L.L.C., Defendants.	Case No. 2:13-cv-07245-MRP-JEM **CLAIM CONSTRUCTION ORDER**

I. Introduction

Plaintiff California Institute of Technology ("Caltech") has asserted U.S. Patent No. 7,116,710 ("the '710 patent"), U.S. Patent No. 7,421,032 ("the '032 patent"), U.S. Patent No. 7,916,781 ("the '781 patent"), and U.S. Patent No. 8,284,833 ("the '833 patent,") against Defendants Hughes Communications, Inc., Hughes Network Systems, LLC, DISH Network Corporation, DISH Network L.L.C., and dishNET Satellite Broadband L.L.C. (collectively, "Hughes"). Hughes has asserted several

defenses, including the invalidity and non-infringement of the aforementioned patents. In this Order, the Court construes certain claim terms in dispute.

II. Technical Background

The asserted claims in the patents are method and apparatus claims relating to error correction.[1] In modern electronic systems, data are stored in the form of bits having the value "1" or "0." In the process of transmitting data, a random or irregular fluctuation (noise) can occur in the signal and corrupt the data. For example, a transmitter may send a bit with the value "1," but noise may corrupt it and cause the receiver to read the value as "0." People using technology have a low tolerance for these kinds of errors. For example, we assume that when we e-mail a file, the recipient will receive it uncorrupted.

To mitigate the problem of corruption, electronic systems use error correction. In general terms, error correction depends on redundancy. Redundancy refers to "extra" bits that are transmitted along with the original information bits. These extra bits are not necessary, in that the original information exists without them, but they serve an important purpose. The extra bits allow the receiver to ensure that the original information bits were not corrupted in transmission. The form of error correction in Caltech's patents is an irregular repeat and accumulate (IRA) code. An IRA code can operate as follows: The code can introduce redundancy by repeating different original bits a different number of times. These information bits may then be randomly permuted and combined to form intermediate bits, which are accumulated to form parity bits. These parity bits reflect the values of a number of original information bits. These parity bits are transmitted along with the original information bits. The receiver can ensure that bits were not corrupted by summing the original information bits and parity bits. Assuming the sum of the bits is supposed to be odd, but the result is instead even, the receiver knows that an

[1] All four patents share a common specification and claim priority to the same patent application U.S. Serial Application No. 09/861,102.

error occurred and can perhaps correct the error by using other information it has received. IRA codes may utilize randomness to ensure a burst of noise does not affect a contiguous group of bits contributing to a parity bit. This is important, because the receiver uses these bits' values to ensure the accuracy of other bits. If too many errors occur in the group of bits, the receiver may be unable to perform this task.

The benefit of an IRA code is that not all bits are repeated the same number of times. The greater repetition of some bits provides more redundancy for error correction. Although greater repetition of every bit would allow for better error correction, it would also force the transmitter to send more bits, thereby increasing data transfer time.[2] Greater redundancy may also result in increased coding complexity due to the creation of more parity bits. Coding complexity refers to the number of calculations performed in an error correction scheme: the more calculations, the greater the coding complexity. Complex schemes need more processing power. Therefore, a less complex coding scheme is more efficient and preferable. IRA codes attempt to balance two goals: data accuracy and efficiency.

III. Legal Standards

A. Claim Construction

"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." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004). The purpose of claim construction is to determine the meaning and scope of the patent claims alleged to be infringed. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008). Claim construction is a question of law. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372

[2] Extra bits are reflected in the coding rate. Coding rate is calculated through the following equation: coding rate = (original information bits) / (original information bits + extra bits). The closer the coding rate is to 1, the more efficient it is.

(1996); *see generally Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 744 F.3d 1272 (Fed. Cir. 2014).

"The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history."[3] *Thorner v. Sony Computer Entm't LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc)).

"[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms." *Phillips*, 415 F.3d at 1314. Claims "must be construed in light of the appropriate context in which the claim term is used." *Aventis Pharm. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013). "[T]he usage of a term in one claim can often illuminate the meaning of the same term in other claims." *Phillips*, 415 F.3d at 1314. Similarly, "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim" under the doctrine of claim differentiation. *Id.* at 1315.

The specification is "highly relevant" in claim construction and is the "single best guide" for construing ambiguous claim terms. *Phillips*, 415 F.3d at 1315. But the Court must be wary of "improperly importing a limitation from the specification into the claims." *Retractable Techs., Inc. v. Becton*, 653 F.3d 1296, 1305 (Fed. Cir. 2011). A patent's prosecution history is also relevant in claim construction, but it "often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Phillips*, 415 F.3d at 1317.

The Court may consider extrinsic evidence in claim construction. *Id.* at 1317. Dictionaries, especially technical dictionaries, may aid the Court "in determining the meaning of particular terminology to those of skill in the art." *Id.* at 1318.

[3] The Court uses "plain meaning" as shorthand for "ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history."

While extrinsic evidence can shed light on claim meaning, it is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Id.* (internal quotation marks omitted). "Extrinsic evidence . . . may be useful in claim construction, but it should be considered in the context of the intrinsic evidence." *Biagro W. Sales, Inc. v. Grow More, Inc.*, 423 F.3d 1296, 1302 (Fed. Cir. 2005).

The Court will not give a term its plain meaning under two circumstances. First, a patentee can depart from the plain and ordinary meaning by acting as its own lexicographer. To be its own lexicographer, the patentee "must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning." *Thorner*, 669 F.3d at 1365 (internal quotation marks omitted). "It is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must clearly express an intent to redefine the term." *Id.* (internal quotation marks omitted). An "'implied' redefinition must be so clear that it equates to an explicit one." *Id.* at 1368. Second, a patentee can depart from the plain and ordinary meaning by clearly "disavow[ing] the full scope of a claim term either in the specification or during prosecution." *Id.* at 1365. "The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002).

B. Section 112(b) (Indefiniteness)

The Patent Act provides that "[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention." 35 U.S.C. § 112(b). Recently, in *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014), the Supreme Court interpreted Section 112(b) "to require that a patent's

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