United States District Court,
D. Colorado.

BROADCAST INNOVATION, LLC,
Plaintiff.
v.
ECHOSTAR COMMUNICATIONS CORPORATION, Hughes Electronics Corporation, DIRECTV, Inc., Thomson Multimedia, Inc., and Pegasus Satellite Television, Inc,
Defendants.

No. CIV.A.01-WY-2201-AJ (BNB)

Jan. 6, 2003.

Owner of patents related to broadcasting data to television sets sued competitors for infringement. Construing claims, the District Court, Boland, United States Magistrate Judge, held that: (1) patents were not indefinite; (2) "carrier signal" was signal modulated to carry data; (3) "records" were not limited only to displayable records; (4) means-plus-function claim elements were limited to corresponding structures identified in specification and their equivalents; and (5) "multiple" scrambling methods had to be something more than merely variations of one scrambling technique's parameters.

Claims construed.

Requirement in patent for scrambling and unscrambling television signals, that subscriber's card be "interchangeable with other cards," meant that card, which unscrambled signal scrambled according to particular scrambling technique, had to be readily exchangeable with at least one other card that unscrambled signal scrambled according to matching scrambling technique.

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ORDER ON ISSUES OF CLAIM CONSTRUCTION

BOLAND**, United States Magistrate Judge.**

This is a patent infringement case brought by Broadcast Innovation, L.L.C. ("Broadcast"), asserting that the defendants infringe two separate U.S. patents-Patent No. 6,076,094 (the " '094 Patent") and Patent No. 4,993,066 (the " '066 Patent"). The patents claim inventions relating to broadcasting data to a television set using a carrier signal (the '094 Patent), and a method for television scrambling (the '066 Patent).

The plaintiff claims infringement of claims 8, 15, 22, and 29 of the '094 Patent, and infringement of claims 9, 10, and 11 of the '066 Patent. The issue now before me is construction of the disputed claims. I have received voluminous briefing from the parties, and I held a daylong *Markman* hearing on October 22, 2002.

I. The Law of Claim Construction

[1] "The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims." Embrex, Inc. v. Service Engineering Corp., 216 F.3d 1343, 1347 (Fed.Cir.2000)(internal quotations and citation omitted). Claim construction is a matter of law for the court. Markman v. Westview Instruments, Inc., 517 U.S. 370, 384, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). In construing claims, the analytical focus is on the language of the claims themselves because "it is that language that the patentee chose to use to 'particularly point out and distinctly claim the subject matter which the patentee regards as his invention.' " Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193, 1201-02 (Fed.Cir.2002) (quoting Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed.Cir.2001), and 35 U.S.C. s. 112). There is a "heavy presumption" that the claim terms carry the ordinary and customary meaning that would be attributed to them by one skilled in the relevant art. Texas Digital, 308 F.3d at 1202; Johnson Worldwide Associates, Inc. v. Zebco Corp., 175 F.3d 985, 989 (Fed.Cir.1999).

[2] [3] To illuminate the words of the claims, I may use intrinsic and extrinsic evidence. Intrinsic evidence consists of, in addition to the claim language itself, the specification and the prosecution history. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1365 (Fed.Cir.2002)(stating that "[c]laim interpretation begins with an examination of the intrinsic evidence, *i.e.,* the claims, the rest of the specification and, if in evidence, the prosecution history"). In addition, dictionaries, encyclopedias, and treatises are particularly useful resources to assist in determining the ordinary and customary meanings of claim terms. Texas Digital, 308 F.3d at 1202. As the Court of Appeals for the Federal Circuit recently stated:

Dictionaries are always available to the court to aid in the task of determining meanings that would have been attributed by those of skill in the relevant art to any disputed terms used by the inventor in the claims.

When a patent is granted, prosecution is concluded, the intrinsic record is fixed, and the public is placed on notice of its allowed claims. Dictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art. Such references are unbiased reflections of common understanding not influenced by expert testimony or events subsequent to the fixing of the intrinsic record by the grant of the patent, not colored by the motives of the parties, and not inspired by litigation.

* * * * * *

As resources and references to inform and aid courts and judges in the understanding of technology and terminology, it is entirely proper for both trial and appellate judges to consult these materials at any stage of a litigation, regardless of whether they have been offered by a party in evidence or not. Thus, categorizing them as "extrinsic evidence" or even a "special form of extrinsic evidence" is misplaced and does not inform the analysis.

Id. at 1202-03 (internal citations omitted).

[4] [5] [6] Extrinsic evidence may properly be consulted when, after considering the intrinsic evidence, there remains an ambiguity in the meaning of the claim language. Phillips Petroleum Co. v. Huntsman Polymers Corp., 157 F.3d 866, 870 (Fed.Cir.1998). In addition, I may consult extrinsic evidence to enhance my understanding of the technology involved in the patent. DeMarini Sports, Inc. v. Worth, Inc., 239 F.3d 1314, 1322-23 (Fed.Cir.2001). Extrinsic evidence includes expert testimony.

[7] [8] A patentee need not describe in the specification "every conceivable and possible future embodiment of his invention." CCS Fitness, 288 F.3d at 1366. In addition, it is improper to limit the scope of a claim to the preferred embodiment or specific examples disclosed in the specification. Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1303 (Fed.Cir.1997). However, a claim "may not be construed [by the patentee] one way in order to obtain allowance and in a different way against accused infringers." Spectrum Int'l v. Sterilite Corp., 164 F.3d 1372, 1379 (Fed.Cir.1998)(internal citations omitted).

[9] Where the preamble to a claim asserts an "improvement" on a known invention, the claim is in "Jepson" form. 37 C.F.R. s. 1.75(e) (1996). "When this form is employed, the claim preamble defines not only the context of the claimed invention, but also its scope." Rowe v. Dror, 112 F.3d 473, 479 (Fed.Cir.1997). In such patents, the language of the preamble defines in part the structural elements of the invention at issue. *Id*. It also admits that the preamble limitations already exist and are known or conventional in the prior art. *Id*.

[10] The defendants assert that the claims of the '066 Patent are written in a means-plus-function format. A means-plus-function limitation recites a "means for" performing a particular function but provides no instruction as to the structure or materials for executing that function. Means-plus-function claims are construed pursuant to 35 U.S.C. s. 112, para. 6:

An element in a claim for a combination [where the claim encompasses two or more elements combined to work together] may be expressed as a means or step for performing a specified function without the recital or structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Section 112, 35 U.S.C., "operates to restrict claim limitations drafted in such functional language to those structures, materials or acts disclosed in the specification (and their equivalents) that perform the claimed function." Personalized Media Communications, LLC v. ITC, 161 F.3d 696, 703 (Fed.Cir.1998).

[11] [12] Whether a claim is written in means-plus-function format is a question of law. Id. at 702. Use of the word "means" in a claim limitation creates a presumption that section 112, paragraph 6 has been invoked, but that presumption may be rebutted if the properly construed claim limitation itself recites sufficiently definite structure to perform the claimed function. Kemco Sales, Inc. v. Control Papers Co., Inc., 208 F.3d 1352, 1361 (Fed.Cir.2000).

If the claim embodies means-plus-function language, I must determine the structures identified in the specification that perform that function. "The applicant must describe in the patent specification some structure which performs the specified function.... [A] court must construe the functional claim language 'to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.' " Valmont Industries, Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042 (Fed.Cir.1993).

II. The '094 Patent

The '094 Patent discloses that its object is to "provide a system by which a database can be distributed from a central station with thematically linked data to one or more users at remote locations and where the user can automatically group the received data for interpretation according to the demands of the user in an efficient and fast manner compared with prior art systems...." '094 Patent, col. 1, lines 32-38. The data is broadcast using a carrier signal such as a television or commercial radio carrier signal. Id. at Abstract.

The '094 Patent builds on a system known as Teletext. Id. at col. 1, lines 17-18. According to the description of the background art:

The teletext system utilizes the vertical blanking interval (VBI) of a television transmission for the purpose of broadcasting predetermined blocks of text material. The blocks of text are organized as pages where each page provides one screen of text material. The text format for each page is fixed as are the total number of pages of text material. The pages are broadcast repeatedly consecutively. Noted defects of this kind of system include the rigidity of the text in its page format and also the significant delays that can be encountered whilst a user waits for a requested page to come around to its time for re-transmission.

Id. at lines 17-29.

The inventors describe the improvements of their invention over the known art as follows:

It should be appreciated that the present invention described with respect to the first embodiment has many advantages over previous distributed database systems such as Videotex and Teletext. Moreover, the particular concept of using a data record as the basic logic unit rather than a fully formatted page, as is the case with Teletext provides for more records to be transmitted more quickly. This is especially useful if the records are small such as in small advertisements.

Furthermore, the particular method of processing the received information and determining storage before displaying the same and the methodology of searching and displaying selected records instead of complete pages, overcomes the many limitations of Teletext. Accordingly in the present system, the majority of data which is transmitted are actual displayable records, whereas this is not the case in Teletext.

Id. at col. 9, lines 43-59.

Broadcast has asserted infringement of claims 8, 15, 22, and 29 of the '094 Patent. Claims 8 and 29 cover a method and apparatus for broadcasting data; claims 15 and 22 are directed to a method and apparatus for receiving data that has been broadcast. The claims at issue are set out below, with the disputed terms highlighted:

Claim 8:

8. In a method for **broadcasting data to a television set using a carrier signal such as a television or commercial radio carrier signal**, the improvement comprising:
constructing a data stream from the **records** of a transmission database; and

the database having individual first records, each first record comprising **one of a selection of formats**, at least one of the first records comprising executable program code or an object; **broadcasting the data stream within the carrier signal**.

Claim 15:

15. In a method for **receiving data for a television display using a carrier signal such as a television or**

commercial radio carrier signal, the improvement comprising:
receiving a carrier signal and from it decoding a data stream to a user's database, the user's database comprising individual **records** comprising **records recovered from the data stream**, the individual records comprising **one of a selection of formats** and at least one record comprising executable program code or an object broadcast from the first records;

determining the format an individual record using a control program;

running, **when required**, the executable program code; and

generating a display on the television **consistent with the format determined by the control program**.

Claim 22:

22. In a communications device such as a personal computer or television or set top box adapted to receive **a data stream broadcast over a carrier signal**, such as a television or radio carrier signal, the improvement comprising:
a receiver for receiving broadcast database records;

a **decoder** and processor for extracting individual data records from the data stream to a user's database, the user's database comprising individual use records comprising at least some **records recovered from the broadcast database records**:

the user records recovered from the broadcast database records comprising **one of a selection of formats** and at least one record comprising executable program code or an object broadcast from the first records;

a control program for determining the format a user record;

A processor for running, **when required**, the executable program code; and

a display generator for creating a display **consistent with the format determined by the control program**.

And, claim 29:

29. In a device for broadcasting a carrier signal such as a television or commercial radio **carrier signal** to a user, the improvement comprising:
a computer having a transmission database;

the database having individual first records, each first record comprising **one of a selection of formats**, at least one of the first records comprising executable program code or an object;

an encoder for creating a packet based data stream constructed at least in part from the first records;

an inserter for inserting the data stream into another signal and a transmitter for broadcasting the data stream.

A. The Indefiniteness Argument

[13] Initially, the defendants argue that each of the four claims of the '094 Patent is invalid as indefinite because each claim contains an exemplary phrase in its preamble. Specifically, each claim concerns a method for broadcasting or receiving data using "a carrier signal **such as a television or commercial radio carrier signal**...." According to the defendants, "[s]uch an exemplary phrase makes a claim indefinite, and

hence invalid." Defendants' Joint Opening Claim Construction Brief for the '094 Patent, at p. 13. I do not agree.

Recently, in Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc., 289 F.3d 801 (Fed.Cir.2002), the Court of Appeals for the Federal Circuit reviewed a claim construction of the phrase "located at predesignated sites such as consumer stores." The court did not invalidate the claim by rote, as the defendants argue I must, but stated instead:

The district court correctly found that the term "such as" means "of a kind or character about to be indicated, suggested, or exemplified; for instance." Despite correctly characterizing "such as" as exemplary language, the district court erroneously equated "point of sale" with "consumer store." "Such as" introduces an example of a broader genus rather than limiting the genus to the exemplary species.

Id. at 811.

Here, as in *Catalina Marketing,* the term "such as" means "of a kind or character about to be indicated, suggested, or exemplified; for instance." The use of the phrase does not render the claims so indefinite as to be invalid; to the contrary, the phrase "a carrier signal such as a television or commercial radio carrier signal," as used in the '094 Patent, is readily understood to mean a carrier signal of the kind or character used in connection with the broadcast of television or commercial radio signals.

B. The '094 Patent **Claims Are Jepson Claims**

It is undisputed that the claims of the '094 Patent are Jepson claims. Record of Proceedings of October 22, 2002 (the "Record"), at p. 27 (where Mr. Suder, counsel for Broadcast, states "[A]nd a quick word, Your Honor, about the language used in the preamble. The first part of this is known as the preamble. And when you use the word 'improvement,'the cases say it's a Jepson claim. We don't dispute that."); and Joint Reply Brief of Defendants ... for the '094 Patent, at p.2.

C. The Disputed Claim Terms

The parties have identified six groups of disputed claim terms in the '094 Patent, as follows:

1. "broadcasting [or receiving] data ... using a carrier signal such as a television or commercial radio carrier signal"

[14] The dispute is over the meaning of the term "carrier signal." The plaintiff contends that the term means a signal modulated to carry data. Joint Claim Construction Brief, Exh. A. The defendants, by contrast, argue that "carrier signal" should be limited to an analog baseband TV signal or main or secondary channel of an AM or FM radio signal. Id.

The distinction is explained in the affidavit of Dr. Stephen Castell, offered by the defendants. According to Dr. Castell:

12. As [a] television frame is recorded, it must be converted to a mode that can be transmitted. Television uses a signal to carry the picture. Generally speaking, in the broad field of electronics, a signal is a measurable quantity such as a voltage. In traditional television technology, an analog signal is modified by increasing or decreasing voltage over time. These variations correspond to how light or dark part of the picture is, for example.... Circuitry in the television interprets the variations to reproduce the picture on the screen.

* * * * * *

17. The "baseband" television signal is the television video signal, including the scan lines, the blanking intervals, and the sync pulses, in an "unmodulated" form that is used to drive the electron beam(s) in a television. If the images did not need to be broadcast over long distances (such as through the atmosphere), the television camera could send an unmodulated, baseband signal to a television set. But, since television is broadcast over long distances, the baseband television signal is sent over on a radio frequency (RF) wave.

18. An RF wave is an electromagnetic wave that cycles a certain number of times per second that is characteristic of the radio spectrum. The more times per second the wave cycles, the higher the frequency....

19. To use the RF wave, the television signal must modulate it. This is done by modifying the RF wave using the television signal....

20. However, an RF wave modulated with a video signal cannot be directly used to drive the electron beam in a television. It must first be demodulated back to the baseband video signal.

Declaration of Dr. Stephen Castell In Support of Defendants ... Joint Opening Claim Construction Brief for the '094 Patent (the "Castell Declaration"), at para.para. 12, 17-20.

The parties conceded at the *Markman* hearing that there are two carrier signals-(1) the low frequency baseband television signal, and (2) the higher frequency RF wave that broadcasts the television signal through the atmosphere to distant locations. *See* Record, p. 24, lines 5-23; p. 73, lines 7-23; p. 110, line 14-p. 111, line 12. The issue for construction is which "carrier signal" is referred to in the claims at issue.

I agree with the plaintiff that the term "carrier signal such as a television or commercial radio signal" means a signal modulated to carry data. I reject the defendants' position that the low frequency baseband signal is the carrier signal as that term is used in the claims of the '094 Patent.

My conclusion is based on the plain language of the claims themselves. In particular, claim 8 states that it concerns "a method for broadcasting data to a television set using a carrier signal such as a television or commercial radio carrier signal." '094 Patent, col.22, lines 21-23. Broadcast means the "[t]ransmission of a radio or television program or signal," *The American Heritage Dictionary of the English Language,* 167 (1971), and a transmission is "[t]he sending of *modulated* carrier waves from a transmitter." Id. at 1364 (emphasis added). Combining the two terms, to broadcast is to send radio or television signals by a modulated carrier wave. Thus, it is the modulated radio frequency wave that is broadcast, not the low frequency baseband television signal. In addition, the claim deals with broadcasting "to a television set." According to Dr. Castell, the baseband television signal is "made to modulate the appropriate RF frequency for transmission"; it is not broadcast to a television set. Castell Declaration, at para. 23(4). It is the RF wave that is transmitted to a television set and demodulated to reproduce the baseband television signal. Id. at para.para. 23(4)-23(6). Also, the claim states that the broadcast is accomplished "using a carrier signal such as a television ... *carrier signal*." '094 Patent, col. 22, lines 22-23 (emphasis added). Significantly, the claim does not say that the broadcast is accomplished using a "baseband television signal" or even a "television signal," as it would to express the construction advanced by the defendants. To the contrary, the broadcast is accomplished using a television or commercial radio *carrier signal*. The carrier signal utilized to broadcast a television signal is a modulated radio frequency wave.

My conclusion also finds support in the specification. For example, the specification provides that a "data stream is *inserted into the vertical blanking interval (VBI) of the television broadcast signal* transmitted from the central station and is subsequently broadcast over the ether to be received by the receiver stations...." '094 Patent, col. 4, lines 18-22 (emphasis added). Significantly, the data is inserted into the "television broadcast signal," or baseband television signal, and not the carrier signal. By contrast, the

claims specify that they concern a method for broadcasting using a carrier signal such as a television carrier signal. Thus, when the inventors meant to describe the baseband television signal, into which the data is inserted, they used the term "television broadcast signal," but when they meant to describe the modulated RF signal used to broadcast the data through the atmosphere, they used the term "carrier signal such as a television or commercial radio carrier signal."

Nor is the term "carrier signal" limited to a radio frequency signal. To the contrary, the specification provides that "the TV broadcast signal can be delivered by any one of a number of known methods including VHF/UHF transmission[,] microwave transmission, satellite transmission, fibre optic transmission." '094 Patent, col. 15, lines 50-54.

I construe the term "carrier signal such as a television or commercial radio signal" to mean a signal modulated to carry data.

I construe the term "broadcasting data ... using a carrier signal such as a television or commercial radio carrier signal" to mean transmitting data by means of a signal modulated to carry data.

I construe the term "data stream broadcast over a carrier signal" to mean a data stream broadcast by means of a signal modulated to carry data.

I construe the term "receiving data ... using a carrier signal such as a television or commercial radio carrier signal" to mean receiving data broadcast by means of a signal modulated to carry data.

I construe the term "broadcasting the data stream within the carrier signal" to mean broadcasting a data stream by means of a signal modulated to carry data. FN1

FN1. The defendants do not dispute the statement contained in the plaintiff's opening brief that although the claims contain differing language- *i.e.,* " *using* a carrier signal"; " *over* a carrier signal"; and " *within* a carrier signal"-"the parties dispute over these phrases is solely a reflection of their differences regarding the definition of 'carrier signal.' " Broadcast's Opening Claim Construction Brief, at p. 18. Therefore, I accept the parties' concession that there is no significance in the varying formulations of the expression.

2. "to a television set"

[15] The plaintiff contends that the term "to a television set" as used in claim 8 of the '094 Patent means to a television set or a receiver for a television set. Joint Claim Construction Brief, Exh. A. The defendants, by contrast, argue that the term means that the broadcast must be directly to a television set and not to any component residing outside of a television set. Id.

Although the plaintiff argues that its construction comports with the ordinary meaning of the phrase "to a television set," Broadcast's Opening Claim Construction Brief at pp. 18-19, where does the additional language of "or a receiver for a television set" have its origin? According to the plaintiff, the specification describes an embodiment in which receiving and decoding are accomplished by a set top box or receiver connected to the television, and not by the television set alone, pointing to the following:

In conceptual terms, the database receiver at a receiver station generally comprises decoder means, receiver processing means, memory means, input means and means for communicating selected database data.

'094 Patent, col. 4, lines 43-46.

[16] The defendants argue that the doctrine of claim differentiation precludes the plaintiff's proposed construction. The doctrine of claim differentiation provides that when a limitation is included in several claims but stated in terms apparently different in scope, "there is presumed to be a difference in meaning and scope...." Tandon Corp. v. U.S. Int'l Trade Comm., 831 F.2d 1017, 1023 (Fed.Cir.1987).

In support of their claim differentiation argument, the defendants point out that while claim 8 limits a broadcast "to a television set," claim 22 concerns the receipt of broadcast data by "a communications device such as a personal computer or television or set top box adapted to receive a data stream...." Similarly, claim 29 concerns the broadcast of a carrier signal to "a user."

When the inventors meant to be expansive in describing various receptors of a broadcast, they used expansive language, including receipt by "a personal computer or television or set top box," '094 Patent, col. 23, lines 17-19, and receipt by a "user." Id. at col. 24, lines 14-15.

The plaintiff argued for the first time at the *Markman* hearing that the use of different language can be explained by the fact that claim 8 concerns broadcasting information, not receiving it, and therefore less thorough language was used. Claim 22, the plaintiff argues by distinction, concerns receiving broadcast information, and there the more expansive language of receipt "by a personal computer or television or set top box" is used. Record, pp. 35-37. The difference in language can be explained by the different purposes of the claims. But as the defendants countered at the *Markman* hearing, the inventors used the most expansive language of all-broadcast "to a user"-in claim 29, a claim dealing with broadcasting, like claim 8, and not with receiving a broadcast. Record, pp. 77-78.

The plaintiff has presented no evidence to rebut the presumption that the use of different and far more restrictive language in claim 8, concerning broadcasting "to a television set," was not intentional. Modine Manufacturing Co. v. U.S. Intern. Trade Commission, 75 F.3d 1545, 1551 (Fed.Cir.1996). Applying the doctrine of claim differentiation, I agree with the defendants, and I construe the term "to a television set" as used in claim 8 to mean directly to a television set and not to any component residing outside of a television set. I reject the plaintiff's position that "to a television set" includes also to a receiver for a television set.

3. "constructing a data stream"

[17] Claim 8 of the '094 Patent provides in relevant part:

In a method for broadcasting data to a television set using a carrier signal such as a television or commercial radio carrier signal, the improvement comprising:

constructing a data stream from the records of a transmission database....

'094 Patent, col. 22, lines 21-25 (emphasis added).

The plaintiff claims that the term "constructing a data stream" as used in claim 8 means creating a series of information. Joint Claim Construction Brief, Exh. A. The defendants, by contrast, argue that "constructing a data stream" means extracting records from the transmission database and forming a single, serial signal. Id.

The briefing on this issue is not particularly informative. The issue, as explained at the *Markman* hearing, is as follows:

Well, the difference is, Your Honor, you can do what is described, taught, enabled in the 094 patent, which is you can take some data, you can take every little piece of that data, you can send it in a serial way, you can load it up on the television signal, and it will go out in that-in that sort of-it's a simple, more-you know,

less sophisticated technology. That's all this patent talks about.

There are other technologies where you do create many multiple streams. You don't set it up that sort of single serial sort of way. You have-you take your data, and maybe you put it into 10, 15, 20 different streams, and it all goes out there, and with the advent of huge computer power and enormous advances in technology, you can then reconstruct all that-you take all that data stream ... and then it can be put back together at the other end.... So that's the difference. And that type of technology is not described.

Record, at pp. 82-83.

The defendants argue that "[a]lthough patent claims are not necessarily limited to the preferred embodiment described in the specification, 'claims may be no broader than the supporting disclosure, and therefore ... a narrow disclosure will limit claim breadth.' " Joint Reply Brief of Defendants ... Regarding Claim Construction for the '094 Patent, at p. 16 (quoting Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1480 (Fed.Cir.1998)). The defendants argue further that because the '094 Patent does not "disclose or enable a multi-stream system, the scope of the purported invention is properly limited to a single, serial transmission."

As discussed earlier, there is a "heavy presumption" that the claim terms carry the ordinary and customary meaning that would be attributed to them by one skilled in the relevant art. Texas Digital, 308 F.3d at 1202; Johnson Worldwide, 175 F.3d at 989. Here, that ordinary and customary meaning is that a "data stream" is "a sequence of data elements." *The Dictionary of Computing,* 127 (4th ed.1996).

The defendants' restrictive construction is an attempt improperly to limit the scope of the claim to the preferred embodiment or specific examples disclosed in the specification. Ekchian, 104 F.3d at 1303. Although the invention may be described at times in the specification as transmitting a "sequential data stream," (col. 4, lines 39-40), or "processing ... the serial data stream," (col. 5, lines 43-44), the specification does not always or necessarily limit the data stream to a single, serial data stream. For example, the specification discloses at col. 4, lines 13-26, a data stream that is not necessarily sequential or serial, but could be multiple:

The datacast network utilizes television signals to convey digital information for the text display at the receiver stations. In this respect, the central station generates a stream of data which is encoded into datacast packets as defined by the World Standard Teletext specification and know [sic] as Packet 31 data. This data stream is inserted into the vertical blanking interval (VBI) of the television broadcast signal transmitted from the central station and is subsequently broadcast over the ether to be received by the receiver stations at which are located display screens, such as television receiver sets or video monitors on which selected groups of received information can be displayed, and remote user interface devices, such as keypad controllers or the like.

Remembering that a patentee need not describe in the specification "every conceivable and possible future embodiment of his invention," CCS Fitness, 288 F.3d at 1366, I adopt the construction of the term "constructing a data stream" urged by the plaintiff, and I construe the term to mean creating a series of information elements.

4. "records"

[18] The plaintiff contends that the term "records" as used in the '094 Patent means entries in a database. Joint Claim Construction Brief, Exh. A. The defendants argue that as used in the patent, "records" are complete units of related data intended for display on a television screen. Id. The issue is whether all "records" must be "displayable records." I agree with the plaintiff that "records" are distinct from

"displayable records" and that the term "records" as used in the claims are not required to be displayable.

The term "records" appears in each of the four claims at issue. Looking to claim 8 as an example, it provides in relevant part that the improvement of the patent involves "constructing a data stream from the records of a transmission database ... [with] at least one of the first records comprising executable program code or an object." This last provision, "at least one of the first records comprising executable program code," appears in each of the four claims in suit.

The specification makes clear that data may be of at least two types-displayable data intended for display, and executable code which is not intended for display-stating:

Broadly *the data may be of a displayable nature intended for display* and which is termed displayable data in this specification. *Alternatively the data may be in the nature of executable code* which can, for example, be directly executable by the data manipulator/CPU 123 or can be executable by the data manipulator/CPU after passing through an interpreter (which itself can form part of the control programme) or can comprise look up table data adapted for modification of the behavior of executablecode already resident in executable data store 126.

'094 Patent, col. 13, lines 29-38 (emphasis added).

Because the specification provides that executable code is not necessarily displayable, and because the language of each of the four claims at issue expressly provides that at least one record is to be comprised of executable code (which is not necessarily displayable), it is axiomatic that the claims do not require that every record be a displayable record. To construe the claims otherwise would do violence to their unambiguous language.

One of ordinary skill in the art would understand a record to be "an item in a database." *The Illustrated Computer Dictionary,* 245 (3d ed.1986). I adopt this construction of the term.

The defendants contend that records must be displayable records, arguing first that such a construction is consistent with the core context of the '094 Patent which employs records to replace the teletext page as a variable sized display unit. The defendants point to the following language of the specification:

It should be appreciated that the present invention described with respect to the first embodiment has many advantages over previous distributed database systems such as Videotex and Teletext. *Moreover, the particular concept of using a data record as the basic logic unit rather than a fully formatted page,* as is the case with Teletext[,] provides for more records to be transmitted more quickly. This is especially useful if the records are small such as in small advertisements.

Furthermore, the particular method of processing the received information and determining storage before displaying the same and the *methodology of searching and displaying selected records instead of complete pages,* overcomes many limitations of Teletext. Accordingly, in the present system, the majority of data which is transmitted are actual displayable records, whereas this is not the case in Teletext. Moreover, in Teletext, the pages for eventual display are pre-formatted at the central station and therefore are transmitted as complete pages with display information, formatting characters and display colours. Thus, normally a large amount of empty space must be transmitted in every page that is transmitted making the Teletext method of broadcasting extremely inefficient.

'094 Patent, col. 9, lines 43-65 (emphasis added).

There is nothing inherently inconsistent in using a data record rather than a fully formatted page as the basic

logic and display unit, on the one hand, and having both displayable and non-displayable records within the data stream, on the other hand. The specification recognizes this through the use of the distinct terms "records" and "displayable records."

The defendants argue, however, that the specification consistently equates the terms "records" and "displayable records," and that the terms therefore must be construed to have the same meaning, citing Pickholtz v. Rainbow Technologies, Inc., 284 F.3d 1365 (Fed.Cir.2002). In *Pickholtz,* the Court of Appeals for the Federal Circuit held:

We agree ... that the proper construction of the term "computer" follows without ambiguity from the intrinsic evidence.... [T]he '353 patent uses the terms "computer" and "computer system" as synonyms. Although we would typically be inclined to give meaning to the word "system," rather than regard it as surplusage [citing Elekta Instrument S.A. v. O.U.R. Scientific Int'l, Inc., 214 F.3d 1302, 1307 (Fed.Cir.2000)], the patentin this case provides no indication that the two terms mean different things. Instead, the patent uses the term "computer system" in the specification and the term "computer" in the claims; nothing in the patent itself explicates their relationship or indicates any difference in meaning.

Here, however, in contradistinction to the facts in *Pickholtz,* the terms "records" and "displayable records" both appear in the specification. According to the defendants, the term "records" appears 43 times in the specification, 26 times as "displayable records" and 17 times simply as "records."

I do not agree that the terms "records" and "displayable records" are used as synonyms. For example, the specification uses the term "records" more broadly to include displayable and non-displayable records, as follows:

The central station 11 for the purposes of datacasting generally comprises a data store in the form of a computer file server 17 which is adapted to accumulate and store data in the form of digital records to form the database.

'094 Patent, col. 4, lines 26-29.

Thus, it is apparent that "displayable records" are a subset of "records." This distinction is further supported by the fact that the specification provides that "the majority," but not all, "of the data which is transmitted are actually displayable records." Id., at col. 9, lines 56-59. *See* Johnson Worldwide, 175 F.3d at 989 ("General descriptive terms will ordinarily be given their full meaning; modifiers will not be added to broad terms standing alone").

I construe the term "records" to mean an item in a database.

Also disputed are the construction of the terms "records recovered from the data stream" and "records recovered from the broadcast database records." The specification provides:

In accordance with one broad aspect of the present invention, there is provided a distributed system comprising:

a central station for accumulating and distributing data on a database; and

a plurality of receiver stations for receiving said data....

* * * * * *

a said receiver station comprises: decoder means to receive and decode transmitted data so as to reconstitute said data therefrom....

'094 Patent, col. 1, line 49-col. 2, line 1.

The specification makes clear that "records recovered from" means records received from a transmission. Those records are decoded so as to reconstitute their data. Reconstitute means to restore to a former condition. *Webster's Ninth New Collegiate Dictionary,* 984 (1984).

I construe the terms "records recovered from the data stream" and "records recovered from the broadcast database records" to mean records received from the transmission and decoded so as to restore the transmitted data to its former condition.

5. "one of a selection of formats"

[19] The plaintiff contends that the term "one of a selection of formats" means one of a plurality of types of data. The defendants assert that the term means that each record includes an indicator determining a single way of multiple available ways to display the record on the television screen.

The term is found in each of the four claims at issue, as follows:

Claim 8:	"the database having individual first records, each first record comprising one of a selection of formats, at least one of the first records comprising executable program code or an object...."
Claim 15:	"the users database comprising individual records comprising records recovered from the data stream, the individual records comprising one of a selection of formats and at least one record comprising executable program code or an object broadcast from the first records...."
Claim 22:	"the user records recovered from the broadcast database records comprising one of a selection of formats and at least one record comprising executable program code or an object broadcast from the first records...."
Claim 29:	"a database having individual first records, each first record comprising one of a selection of formats, at least one of the first records comprising executable program code or an object...."

The dispute is linked to the definition of "record" and whether a record must be displayable. In the present setting, the issue is whether a selection of formats is limited to how data is arranged on a display screen or whether it includes also how data is arranged in a record, data file, or storage device. I already have construed "records" to include both displayable records and records which are not displayed.

The defendants advanced the definition of "format" contained in the *McGraw-Hill Dictionary of Scientific and Technical Terms* (5th ed.1994). Defendants Joint Opening Claim Construction Brief for the '094 Patent, at p. 28. The plaintiff endorsed that definition at the *Markman* hearing. Record, at p.43. The McGraw-Hill Dictionary defines "format" as "[t]he specific arrangement of data on a printed page, display screen, or such, or in a record, data file, or storage device." *Id*. at 792.

I adopt the ordinary meaning of the term "format" advanced by all of the parties and construe the term to mean the specific arrangement of data on a printed page or display screen or in a record, data file, or storage device.

Selection also has an ordinary meaning. "Select" means "[t]o choose from among several...." *The American Heritage Dictionary of the English Language*, at 1177.

Combining the ordinary meanings of the two words, I construe the term "one of a selection of formats" to mean one of several arrangements of data on a printed page or display screen or in a record, data file, or storage device.

I reject the defendants' argument that each record must include "an indicator" determining the format. *See* Defendants Joint Opening Claim Construction Brief for the '094 Patent, at p. 29. Any such construction would improperly import into the claims a limitation from an embodiment of the patent. Texas Digital, 308 F.3d at 1204("Consulting the written description and prosecution history as a threshold step in the claim construction process, before an effort is made to discern the ordinary and customary meanings attributed to the words themselves, invites a violation of our precedent counseling against importing limitations into the claims"). There simply is nothing in the language of the claims that requires each record to have "an indicator."

The two related terms identified by the defendants-"consistent with the format determined by the control program" and "when required"-have ordinary meanings and do not require construction.

6. "inserter" and "decoder"

[20] [21] The plaintiff contends that an "inserter" as used in claim 29 of the patent is an inserter for placing information into or on a signal and that a "decoder" as used in claim 22 needs no construction. Joint Claim Construction Brief, Exh. A. The defendants argue that an "inserter" should be construed to be a device for embedding data into the VBI lines of a video signal and that a "decoder" is a device for extracting data packets from the television VBI or commercial radio sideband. *Id.*

The parties agree that "inserter" is a term of art in the data broadcasting industry. Broadcast's Opening Claim Construction Brief, at p. 22 ("The claimed 'inserter' is a common device in the industry"); and Defendants Joint Opening Claim ConstructionBrief for the '094 Patent, at pp. 33-34 ("The term[ ] 'inserter' ... [is a term] of art in the data broadcasting industry"). They disagree, however, on whether it is limited to " 'a device for embedding data into the VBI lines of a video signal,' " as the defendants contend, id., or whether it is broader and encompasses a device that can "be used to deliver a data stream over any one of a number of known transmissions methods," including VHF/UHF, microwave, satellite, and fibre optics, as the plaintiff contends. Broadcast's Opening Claim Construction Brief, at p. 22.

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.... The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Thus, the 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.

The specification here describes the inserter as follows:

The datacast network utilizes television signals to convey digital information for text display at the receiver stations. In this respect, the central station 11 generates a stream of data which is encoded into datacast packets as defined by the World Standard Teletext specification and know [sic] as Packet 31 data. *This data stream is inserted into the vertical blanking interval (VBI) of the television broadcast signal transmitted*

from the central station 11 and is subsequently broadcast over the ether to be received by the receiver stations 13 at which are located display screens 15, such as television receiver sets or video monitors....

* * * * * *

The file server 17 is connected to a processing means in the form of a data broadcast inserter. The inserter 19 is adapted to extract digital records in the form of database data from the file server 17 and generate a sequential data stream from this database data for distribution. *Importantly, the inserter is adapted to insert this data stream into the VBI of the broadcast television signal*. This combined signal is passed on to a transmission means 21 which includes appropriate modulation and transmission circuitry for encoding and transmitting the sequential data stream via an antenna in accordance with conventional broadcast practice.

'094 Patent, col. 4, lines 13-22 and 30-42 (emphasis added).

The specification uses the term "inserter" to describe a device that inserts data into the vertical blanking interval of a television video signal. No other function is assigned to the inserter, and no other definition is provided by the patentee.

The plaintiff argues incorrectly that "[t]he '094 patent also discloses embodiments where the data is inserted into a digital data stream for transmission over conventional methods, such as VHF/UHF transmission, microwave transmission or satellite transmission," citing the specification at col.15, lines 49-54. To the contrary, the specification indicates that the inserter acts on the video signal before the combined video signal with embedded data is modulated for transmission. The inserter embeds data into the VBI after the television signal is created but before it reaches any transmission means to deliver the signal, such as VHF/UHF, microwave, or satellite transmission.

Similarly, the specification uses the term "decoder" to describe a device that extracts the data from the vertical blanking interval:

The decoder means is particularly designed, to decode the transmitted data so as to reconstitute the database from the transmitted data.

'094 Patent, col. 4, lines 50-52. This is further, but consistently, described in the specification at col. 5, lines 33-54.

I construe the term "inserter" to mean a device for embedding data into the vertical blanking interval of a television video signal.

I construe the term "decoder" to mean a device for extracting data embedded into the vertical blanking interval of a television video signal or commercial radio sideband.

III. The '066 Patent

The '066 Patent discloses a "method and device for inexpensively and efficiently controlling the distribution of pay-per-access information services" using "varying scrambling methods and user exchangeable cards. " '066 Patent, Abstract. In the background section, the patent recites that "[c]urrently ... unscrambling [of a transmission] occurs in an expensive digitally controlled decoder such as the M/A-Com Video Cipher II or the familiar cable black box." '066 Patent, col. 1, lines 16-19. The invention claimed in the '066 Patent is intended to "reduce the cost while increasing the security of secured signal reception." Id. at col. 1, lines 31-33.

The plaintiff describes the invention as follows:

The specification of the '066 patent describes a system for scrambling signals whereby the unscrambling is accomplished through a removable card, also known as a "smart card." Prior art scrambling technology was not sufficiently effective to prevent pirates from developing their own equipment to unscramble the television signals. One method of increasing security was to change the technique of scrambling the signals. However, prior to the invention disclosed in the '066 patent, the broadcaster would have to provide a new receiver to each viewer every time the scrambling technique was changed. The invention of the '066 patent solves this problem by disclosing a smart card including unscrambling circuitry that is inserted into a receiving device and is used to unscramble the television signal. The smart card may be replaced with another card to unscramble the television signal in accordance with another scrambling technique.

Broadcast's Opening Claim Construction Brief, at p. 24.

Broadcast asserts that the defendants infringe claims 9, 10, and 11 of the '066 Patent. Claim 9 of the patent depends from claim 8. Those claims state: FN2

FN2. The disputed terms are set out in bold.

8. An improved signal transfer device for a signal, the device comprising a **scrambling means for introducing some kind of objectionable interference or distortion into the signal selectively according to a particular one of a multiple of differing scrambling techniques, a transmitter means, said transmitter means transmitting the signal from said scrambling means**, a receiver, said receiver receiving the signal from said transmitting means, **an unscrambling means for removing the objectionable interference or distortion from the signal by acting on the signal from said receiver**, and said unscrambling means being substantially replaceable with differing unscrambling circuits **as appropriate to unscramble the particular one of a multiple of differing scrambling techniques** selected from said scrambling means so as to be compatible with said scrambling means to remove the objectionable interference or distortion from the signal form the receiver.
9. The improved device of claim 8 characterized in that said unscrambling means is substantially entirely on a user replaceable card.

Claims 10 and 11 of the '066 Patent, also in dispute, depend from claim 1. Those claims recite:

1. In a device incorporating a scrambling transmitter and a receiver incorporating an unscrambling circuit having **key elements** for secured passage of a signal, the improvement of means to incorporate **more than one scrambling technique** into the scrambling transmitter and **means for the selective interchange of the key elements of the unscrambling circuit** so as to allow **selective reception of the signals incorporating the differing scrambling techniques**.

10. The improved device of claim 1, characterized in that the **key elements** of the unscrambling circuit are on a card and include the **majority** of the unscrambling circuit, and said card being interchangeable with other cards.

11. The improved device of claim 1, characterized in that the **key elements** of the unscrambling circuit are on a card and include the **essential portion** of the unscrambling circuit, and said card being interchangeable with other cards.

A. Means-Plus-Function Elements In Claim 9

The defendants argue that, as a result of the use of the word means in each of the "scrambling means," "unscrambling means," and "transmitter means" elements, they are written in a means-plus-function format, and they must be construed according to 35 U.S.C. s. 112, para. 6. Means-plus-function formatting applies to claim limitations that portray a function to be executed, but provide no instruction as to the structure or material for executing that function.

The plaintiff argues that section 112 is inapplicable to claim 9, citing Cole v. Kimberly-Clark Corp., 102 F.3d 524 (Fed.Cir.1996). In *Cole,* the court was confronted with determining whether the term "perforation means ... for tearing" was in means-plus-function format. The Federal Circuit held that it was not, reasoning:

Merely because a named element of a patent claim is followed by the word "means," however, does not automatically make that element a "means-plus-function" element under 35 U.S.C. s. 112, para. 6.... We decide on an element-by-element basis, based upon the patent and its prosecution history, whether s. 112, para. 6 applies.

* * * * * *

The drafter of claim 1 in the '239 patent was clearly enamored of the word "means": six of seven elements in that claim include the word "means" which occurs in the claim fourteen times. We find, however, no reason to construe any of the claim language in claim 1 as reciting means-plus-function elements within the meaning of s. 112, para. 6. For example, the "perforation means ... for tearing" element of Cole's claim fails to satisfy the statute because it describes the structure supporting the tearing function (i.e., perforations).

Id. at pp. 530-31.

The plaintiff also relies on Greenberg v. Ethicon Endo-Surgery, Inc., 91 F.3d 1580 (Fed.Cir.1996), where the court held that the element "detent mechanism" was not in means-plus-function format, stating:

Many devices take their names from the functions they perform. The examples are innumerable, such as "filter," "brake," "clamp," "screwdriver," or "lock." Indeed, several of the devices at issue in this case have names that describe their functions, such as "graspers," "cutters," and "suture applicators."

"Detent" (or its equivalent, "detent mechanism") is just such a term. Dictionary definitions make clear that the noun "detent" denotes a type of device with a generally understood meaning in the mechanical arts, even though the definitions are expressed in functional terms.... It is true that the term "detent" does not call to mind a single well-defined structure, but the same could be said of other commonplace structural terms such as "clamp" and "container." What is important is not simply that a "detent" or "detent mechanism" is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art.

Id. at p. 1583.

Here, as in *Cole,* the drafter of claim 8 clearly was enamored of the word "means." It appears in the claim nine times, and is included with each of the following elements: (1) "scrambling means"; (2) "transmitter means"; (3) "transmitting means"; and (4) "unscrambling means."

I agree with the defendants, however, that each of the elements "scrambling means," "unscrambling means," and "transmitter means" is written in the means-plus-function format and must be construed subject to s. 112, para. 6. "Use of the term 'means' in a claim limitation creates a presumption that section 112, paragraph 6 has been invoked, but that presumption may be rebutted if the properly construed claim limitation itself recites sufficiently definite structure to perform the claimed function." Kemco Sales, Inc. v. Control Papers

Co., Inc., 208 F.3d 1352, 1361 (Fed.Cir.2000).

Unlike *Cole,* there is no sufficiently definite structure described in the claim to perform the "scrambling means," "unscrambling means," or "transmitter means," *i.e.,* there is no structure equivalent to the "perforations" specified in the *Cole* claim. Nor do the terms "scrambling means," "unscrambling means," or "transmitter means" convey their functions in the way "filter," "brake," "clamp," "screwdriver," or "lock" do. *See* Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1536 (Fed.Cir.1991)(finding that "means for joining" did not supply a sufficiently definite structure to overcome the presumption created by s. 112, para. 6).

1. "a scrambling means for introducing some kind of objectionable interference or distortion into the signal selectively according to one of a multiple of differing scrambling techniques"

[23] The first function identified in claim 9 is "a scrambling means." The specification provides:

In the invention of this application a master programmable scrambling circuit 31 is utilized. The master programmable scrambling circuit 31 includes a number of differing coding techniques, both active and passive.

'066 Patent, col. 2, lines 37-40. In addition, the specification states that "while a single scrambling circuit 31 is disclosed, such system could include a series of interchangeable individual units-each with a single coding system." Id. at lines 60-62.

The structures identified in the specification for performing the "scrambling means" function are a master programmable scrambling circuit including a single scrambling circuit or a series of interchangeable individual scrambling circuits-each with a single coding system-using a number of different coding techniques, and a programming keyboard.

2. "a transmitter means, said transmitter means transmitting the signal from said scrambling means"

[24] The second function identified in claim 9 is "a transmitter means." I already have found that this element is expressed in means-plus-function format and is subject to s. 112, para. 6. The function of the "transmitter means" in claim 9 is transmitting the signal from the scrambling means to the receiver.

The structure identified in the specification for performing the "transmitting means" function is a "standard purchase item[ ]." '066 Patent, col. 1, lines 63-64.

3. "an unscrambling means for removing the objectionable interference or distortion from the signal by acting on the signal from said receiver"

[25] The third function identified in claim 9 is an "unscrambling means," expressed in means-plus-function format and subject to s. 112, para. 6. The function of the "unscrambling means" in claim 9 is to remove the objectionable interference or distortion from the signal by acting on the signal from said receiver.

The structures disclosed in the specification for performing this function are the decoding box 200 which includes an input connector 205 and an output connector 206, and user exchangeable cards 150 containing electronic circuits 151 with accompanying electronic contacts 152. '066 Patent, col. 3, lines 11-61, and Figs. 1-4.

B. Disputed Terms In Claim 9

1. "signal transfer device"

[26] The plaintiff asserts that "signal transfer device" does not require construction. The defendants, by contrast, argue that the term means a device that incorporates both a transmission circuit and a reception circuit and transfers signals there between. Joint Claim Construction Brief, Exh. B.

I agree with the defendants, based on the ordinary and customary meaning of the claim language. Claim 8 expressly claims a "signal transfer device" comprising (1) a scrambling means; (2) a transmitter transmitting the signal; (3) a receiver receiving the signal from the transmitter; and (4) an unscrambler for removing the interference or distortion from the signal. '066 Patent, col. 6, lines 30-40.

I construe the term "signal transfer device" to mean a device that incorporates both a transmission circuit and a reception circuit and involves the transfer of signals between the two.

2. "scrambling"

[27] The plaintiff argues that "scrambling" means a modification of a signal. Joint Claim Construction Brief, Exh. B. The defendants argue that it means modifying an analog signal so as to render it unusable. Id. The dispute is over whether "scrambling" applies only to analog signals, as the defendants contend, or applies to both analog and digital signals, as the plaintiff contends.

Again, claims are to be construed in light of the specification. Vitronics, 90 F.3d at 1582. With respect to whether "scrambling" applies only to analog signals, or also to digital signals, the specification discloses the following:

Currently, this *unscrambling* occurs in an expensive digitally controlled decoder such as the M/A-Com Video Cipher II or the familiar cable black box.

'066 Patent, col. 1, lines 16-19 (emphasis added).

The Declaration of Henry H. Jenkins FN3 and its attachments establish that the Video Cipher II technology disclosed in the '066 Patent involved "scrambling" of both analog and digital signals. In particular, a January 1986 article in the *Satellite Orbit,* published prior to the filing of the '066 Patent, states:

FN3. Mr. Jenkins is the inventor named in the '066 Patent.

The VC I system is a Cadillac scrambling system that *digitally encrypts* the audio and video signals. CBS currently is using VC I *to scramble* its feed on Telstar 302, transponder 19. HBO found that the VC I system, however, was too expensive and asked M/A-Com to design a *scrambling system* that was more affordable. In making the new system, M/A-Com decided to use analog scrambling of video signal (a more traditional method), while *digitally encrypting the audio signal*. This new system was dubbed Video-cipher II.

Declaration of Henry H. Jenkins (the "Jenkins Decl."), Exhibits to Broadcast's Consolidated Brief In Opposition to Defendants' Opening Brief on Claim Construction, at Exh. A (emphasis added). Another pre-filing article attached to the Jenkins Declaration explains:

The *scrambled satellite signals* in question are currently *descrambled* by M/A-Com Video Cipher II and Oak Orion equipment. Although industry insiders expressed little surprise that the VC II video-which is analog encrypted-was cracked, they doubted that the audio- -*which is digitally encrypted*-would fall victim to such "low cost" alternatives as Anderson and others propose.

Id. at Exh. B (emphasis added).

One skilled in the art would understand the term "scrambling" to apply to both analog and digital signals. I

reject the defendants' position that it applies only to an analog signal. I construe the term "scrambling" to mean modifying a signal so as to render it unusable until unscrambled.

3. "unscrambling"

[28] The plaintiff argues that "unscrambling" means returning a modified signal to its previous unmodified state. Joint Claim Construction Brief, Exh. B. The defendants argue that it means restoring a scrambled signal to its original unscrambled condition. Id. If I had construed "scrambling" to be limited to an analog signal as the defendants urged, a distinction would exist between the competing proposals. In view of my construction of "scrambling" to include both analog and digital signals, however, the parties agree that "unscrambling" is simply the reversal of the scrambling process. I construe "unscrambling" to mean restoring a modified signal to its unmodified condition.

4. "introducing"

Defendant EchoStar asks that I construe "introducing"to mean adding to or superimposing upon, arguing:

The disclosure of the '066 patent is limited to methods for scrambling analog signals, and includes only those methods for " *introducing* some kind of objectionable interference or distortion into the signal...." All of the methods disclosed ... do something that adds to or superimposes upon an analog baseband signal.

Defendant EchoStar ... Opening Claim Construction Brief for the '066 Patent, at p. 18.

I have rejected the construction that limits scrambling to analog signals. Although the particular techniques for scrambling described in the specification may be unique to scrambling analog signals, I will not improperly limit the term to an embodiment disclosed in the specification. Texas Digital, 308 F.3d at 1204 (instructing that a court should construe a claim limitation according to its ordinary and accustomed meaning and should not import a characteristic of a disclosed or preferred embodiment into the term); CCS Fitness, 288 F.3d at 1367 ("[A] patentee need not 'describe in the specification every conceivable and possible future embodiment of his invention' ").

"Introducing" has an ordinary meaning and does not require construction.

5. "objectionable interference or distortion"

[29] The plaintiff argues that " 'objectionable interference or distortion' means the modification to a signal during scrambling.' " Joint Claim Construction Brief, Exh. B. The defendants argue that the term means the modification to the analog signal that results in the signal being scrambled. I have rejected the construction that limits scrambling to analog signals.

I construe the term "objectionable interference or distortion" to mean the modification made to a signal during scrambling.

[30] The DIRECTV defendants argue that the term "objectionable" is indefinite under 35 U.S.C. s. 112, para. 2. Defendant DIRECTV ... Principal Opening Brief On Claim Construction, at pp. 60-61. According to these defendants:

There is no standard set forth in the specification, nor test in the art, to allow one skilled in the art to determine what *amount* of interference or distortion is "objectionable."

Id. at 60.

"The definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Union Pacific Resources Co. v. Chesapeake Energy Corp., 236 F.3d 684, 692 (Fed.Cir.2001).

The specification of this patent provides that the "signal scrambling circuit modifies the signal in accord with predesigned parameters *so as to render the signal unusable* upon reception by a receiver not containing a corresponding decoding circuit." '066 Patent, co. 2, lines 9-12 (emphasis added). Consequently, one skilled in the art reading the claim in the light of the entire specification would understand that interference is "objectionable," as that term is used in claim 9, if it is of an amount sufficient to "render the signal unusable" to anyone without a decoding circuit. The term "objectionable" is not indefinite.

6. "signal"

[31] The plaintiff asserts that "signal" does not require construction. Defendant EchoStar argues that "signal" means a television baseband video and/or audio signal. Joint Claim Construction Brief, Exh. B. The DIRECTV defendants argue that "signal" means an information service signal (*e.g.,* a television program signal) that is directed to a user output (*e.g.,* a television screen). Id.

I have construed "scrambling" to apply to both analog and digital signals. Consistent with that, I construe the term "signal" to include both analog and digital signals. I reject EchoStar's attempt to limit the term to an analog baseband video and/or audio signal.

The DIRECTV defendants seek to narrow the term to an information service signal that is directed to a user output. This requested construction improperly imports to the claim limitations from disclosed embodiments in the specification. For example, although the specification describes an embodiment of the invention where the end user is a consumer of a television broadcast (*e.g.,* "the user having previously purchased the card at a local card distribution outlet," '066 Patent, col. 4, lines 25-34), the specification does not necessarily preclude use of the invention where, for example, a scrambled satellite signal is received, unscrambled, and retransmitted by cable to more than one end user. In this example, the signal is not "directed to a user output (*e.g.,* a television screen)" as the DIRECTV defendants propose.

I reject the limited constructions of the term "signal" advanced by the defendants. I adopt the ordinary and customary meaning of the term and construe "signal" to mean an impulse by which messages or information can be transmitted. *Webster's Ninth New Collegiate Dictionary,* 1096 (1984).

7. "selectively according to a particular one of a multiple of differing scrambling techniques"

[32] The plaintiff argues that this term means by using one of the different ways of modifying a signal. Joint Claim Construction Brief, Exh. B. EchoStar argues that it means there exist multiple, distinct predesigned scrambling techniques, which are simultaneously available for selection. Id. The DIRECTV defendants argue that it means there exist multiple distinct, pre-programmed scrambling techniques that are available and from which one can be quickly selected for use at any given time. Id. A principal issue as between the plaintiff, on the one hand, and the defendants, on the other hand, is whether "differing scrambling techniques" means a single scrambling technique having a variable parameter, as the plaintiff's construction would allow, or whether it requires separate and distinct scrambling methods which are something more than merely a variation of one technique's parameters.

I am persuaded by the defendants that the prosecution history requires that "differing scrambling techniques" means something more than a single scrambling technique where the technique's parameters are varied. In particular, during the prosecution of the patent the applicant distinguished "a single scrambling technique having a variable parameter," stating:

In marked contrast, the invention of this present application uses one of a wide variety of totally distinct scrambling techniques.

* * * * * *

This present invention is thus totally distinct from the teachings of the cited art wherein the parameters of a single scrambling technique are selectively altered to produce differing characteristics for the same scrambling technique.

Declaration of Jose L. Patino In Support of Defendant EchoStar ... Opening Claim Construction Brief for U.S. Patent 4,993.066 (the "Patino Decl."), at Exh. E., p. 265. *See* Spectrum Int'l, 164 F.3d at 1378 ("[S]tatements made by a patent applicant during prosecution to distinguish a claimed invention over prior art may serve to narrow the scope of a claim").

This construction finds further support in the specification, where the patentee defined "[t]ypical coding techniques" to include the distinct techniques of "signal emphasis/deemphasis, voltage spikes, sync removal, or frequency shifts." '066 patent, col. 2, lines 45-47.

I construe the words "differing scrambling techniques" to mean distinct scramblingmethods which are something more than merely varying one scrambling technique's parameters.

Within this term, the plaintiff contends that the words "a particular one" need no construction. The defendants contend that those words should be construed to mean one and only one. In my view, there is no meaningful distinction between the positions of the parties. One is in the singular and means one, whether it is "a particular one" or "one and only one."

The parties also disagree about whether the word "multiple" means more than one, as the plaintiff contends, or more than two, as the defendants contend. "Multiple" normally means "[h]aving, pertaining to, or consisting of more than one individual, element, part, or other component...." *The American Heritage Dictionary of the English Language,* at p. 861. In support of their contention that "multiple" as used in claim 9 means more than two, the defendants invoke the doctrine of claim differentiation and point to the fact that claims 10 and 11, depending from claim 1, concern "more than one scrambling technique...." '066 Patent, col. 5, lines 20-21. The defendants argue that "when read in light of claims 10 and 11 (and their use of 'more than one' to mean 'two or more'), the doctrine of claim differentiation indicates that 'multiple' must have a different meaning than 'more than one.' " Defendant EchoStar ... Opening Claim Construction Brief for the '066 Patent, at p. 20.

It is apparent that syntax, and not an intention to differentiate, led to the use of the differing phrases in claims 10 and 11, on the one hand, and claim 9, on the other hand. The claim language involved in claims 10 and 11 involves "the improvement of means to incorporate more than one scrambling technique...." '066 Patent, col. 5, lines 19-21. The claim language in claim 9, by contrast, involves introducing interference into a signal "according to a particular one of a multiple of differing scrambling techniques...." Id. at col. 6, lines 30-34. It is apparent that the claim drafter used the word "multiple" in claim 9 to avoid the awkward alternative of "one of more than one of differing scrambling techniques...." *See* Karlin Technology Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 972 (Fed.Cir.1999)("[T]he canon of claim differentiation is not a rigid rule"); 5A Donald S. Chism, *Chism on Patents* s. 18.03[6][a] (1999 and July 2001 Cum.Supp.)(stating that Federal Circuit decisions "confirm that claim differentiation is not a rigid rule," citing cases).

I construe the word "multiple" in its ordinary and customary manner to mean more than one.

Defendant EchoStar requests a construction of the term to require that the scrambling techniques be simultaneously available. There is no such requirement in the claim or the specification. To the contrary, the specification states that the scrambling technique "can be quickly selected and implemented at will," '066 Patent, col. 2, lines 41-42, not that the differing techniques be simultaneously available. I reject EchoStar's construction requiring that differing scrambling techniques be simultaneously available. In addition, although an embodiment of the invention disclosed in the specification "can be quickly selected and implemented at will," id., that is not a limitation of the claim.

I construe the term "selectively according to a particular one of a multiple of techniques" to mean by selecting a particular one of more than one distinct scrambling methods, where a scrambling method is something more than merely varying one scrambling technique's parameters.

8. "receiver"

[33] The next disputed claim term is "receiver." The plaintiff contends that the term does not require construction. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues that "receiver" means the electronics of an integral television set that receive the signal from the transmitter means. Id. The DIRECTV defendants argue that "receiver" is a device that receives the scrambled analog signal from the transmitter means. Id.

One embodiment of the receiver is "the electronics of and the user output 140 the video screen of an integral television set," but the specification does not limit the term to this one embodiment. I therefore reject EchoStar's proposed construction, which would improperly limit the claim to a single embodiment imported from the specification. Texas Digital, 308 F.3d at 1204; CCS Fitness, 288 F.3d at 1367.

I have construed scrambling to apply to both analog and digital signals. I therefore reject the DIRECTV defendants' proposed construction that would limit the receiver to a device that receives scrambled analog signals.

I construe the term "receiver" to have its ordinary and accustomed meaning as an apparatus for receiving television broadcasts. *Webster's Ninth New Collegiate Dictionary,* at p. 982.

This construction is supported by the specification, which states that "[a]s with the transmission circuit 10 certain items, namely *the receiver* 110, the override switch 130 and the user output 140, are *standard purchase items*. " '066 Patent, col. 3, lines 1-3 (emphasis added).

9. "acting on the signal from said receiver"

[34] The next disputed claim term is "acting on the signal from said receiver." The plaintiff asserts the term means modifying the signal from said receiver. Joint Claim Construction Brief, Exh. B. The defendants argue the term means processing the scrambled signal received from the receiver and restoring the scrambled signal to its unscrambled condition.

According to defendant EchoStar:

The difference between the parties' proposed constructions is minor. Both recognize that the unscrambling process-or "acting upon" a scrambled signal-occurs on a scrambled signal *after* it has been received from the receiver.

Defendant EchoStar Opening Claim Construction Brief for the '066 Patent, at p. 23.

I have construed "unscrambling" to mean restoring a modified signal to its unmodified condition. The claim makes clear that that is the process accomplished when the unscrambling means acts on the signal. '066 Patent, col. 6, lines 38-40. Both parties agree that the signal is acted on by the unscrambling means after it is received from the receiver. Joint Claim Construction Brief, Exh. B.

I construe the term "acting on the signal from said receiver" according to the plain language of the claim to mean restoring a modified signal received from the receiver to its unmodified condition.

10. "substantially replaceable" and "differing unscrambling circuits"

[35] The terms "substantially replaceable" and "differing unscrambling circuits" appear in claim 8 in the following context:

[S]aid unscrambling means being substantially replaceable with differing unscrambling circuits as appropriate to unscramble the particular one of a multiple of differing scrambling techniques selected for said scrambling means....

'066 Patent, col. 6, lines 40-46.

The plaintiff asserts that the terms "substantially replaceable" and "differing unscrambling circuits" do not require construction. Defendant EchoStar argues that "substantially replaceable" is indefinite under 35 U.S.C. s. 112, para. 2 because it provides that some unidentified amount of circuitry or degree of functionality of the unscrambling means is replaceable. The DIRECTV defendants argue that "substantially replaceable" means a substantial part of the unscrambling means is located on a user exchangeable unscrambling card. All defendants argue that "differing unscrambling circuits" means the set of separate and distinct circuits, each of which unscrambles signals that are scrambled according to a single, matching scrambling technique.

The invention concerns a manner to inexpensively control access to a scrambled signal.'066 Patent, Abstract. It begins with a master programmable scrambling circuit which includes a number of differing coding techniques. Id. at col. 2, lines 5, 37-47. However, as the patent notes:

To include the wide variety of coding capabilities in the master scrambling circuit would be expensive. However, since only one master scrambling circuit is necessary per system this cost is acceptable.

Id. at col. 2, lines 55-59. In addition, the specification notes that "[i]n contrast with normal scrambling the number of differing techniques is more important to the invention than the sophistication of any particular one technique." Id. at col. 2, lines 50-53.

The invention is made inexpensive and secure through the use of, for example, user exchangeable plastic cards, about the size of credit cards, where "each plastic card contains an electronic circuit with accompanying electronic contacts." Id. at col. 3, lines 12-17. The specification explains:

When any particular unscrambling card is inserted into the slot in the decoding box, a series of spring loaded conductive fingers make electrical connection with the series of electronic contacts on such unscrambling card. This connection has the effect of including the electronic circuit on the card into the reception circuit.... By merely removing one card and replacing it with another, the entire decoding characteristic of the reception circuit can be completely changed in an instant.

* * * * * *

Due to the incorporation of at least some of the decoding circuitry into the card, no amount of tinkering with a decoding box would enable a user to override the scrambling. The possession of a decoding box therefor does not advantage anyone-the decoding boxes by themselves are sufficiently worthless for unscrambling a signal that such boxes could even be given away without significant risk.

Id. at col. 3, lines 36-61, and col. 4, lines 34-42.

As noted earlier, "[t]he definiteness inquiry focuses on whether those skilled in the art would understand the scope of the claim when the claim is read in light of the rest of the specification." Union Pacific Resources, 236 F.3d at 692. As the Federal Circuit explained in Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826(Fed.Cir.1984), a case involving whether the term "substantially equal to" was so indefinite as to render the patent invalid:

Definiteness problems often arise when words of degree are used in a claim. That some claim language may not be precise, however, does not automatically render a claim invalid. When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification.

The thrust of EchoStar's indefiniteness argument is:

There is no way to know whether "substantially replaceable" refers to a percentage of the amount of circuitry in the unscrambling means that is subject to replacement, or instead to either the amount or significance of the functionality being replaced. Further still, there is no guidance on what *percentage* of circuitry or degree of functionality-which ever one it is-must be subject to replacement to be within the invention.

Defendant EchoStar Opening Claim Construction Brief for the '066 Patent, at p. 24.

EchoStar's protestations notwithstanding, it is apparent that one of ordinary skill in the art would understand the term "substantially replaceable" as used in claim 8 to apply to either the amount of circuitry or its functionality, whichever technique is used to alter one user card from the others. The term merely means that when one user card is activated, that card's circuitry replaces the circuitry of any other user card for use in the unscrambling means. Only by inserting the presently activated user card into the decoding box is the unscrambling means able to unscramble the signal. The active user card may, but need not, vary from another user card in the percentage of the circuitry on the card or merely by the functionality of the circuitry on the active user card.

Consistent with this construction of the term, I reject the DIRECTV defendants' construction that a substantial part of the unscrambling means, *e.g.,* a substantial part of the circuitry, must be located on the user exchangeable unscrambling card.

I agree that the term "differing unscrambling circuits" requires that each user card have distinct circuitry.

I construe the terms "substantially replaceable" and "differing unscrambling circuits" to mean that the distinct circuitry of the active user card must take the place of the circuitry of any other user card for use in the unscrambling means.

11. "as appropriate to *unscramble* the particular *one of a multiple of differing scrambling techniques* selected for said *scrambling means*"

The plaintiff asserts that this term means such that the signal can be unscrambled in a way that corresponds to the way it was scrambled. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues it means an exchangeable unscrambling circuit is selected that matches a single one of the multiple scrambling techniques. Id. The DIRECTV defendants argue it means that the user must select a user exchangeable unscrambling card that unscrambles according to the single matching one of the multiple scrambling techniques. Id.

I already have construed the terms "unscrambling," *see* Part III.B.3; "one of a multiple of differing scrambling techniques," *see* Part III.B.7; "scrambling," *see* Part III.B.3; and "scrambling means," *see* Part III.B.2. No further construction is necessary.

12. "compatible with said scrambling means"

[36] The plaintiff argues that no construction of the term "compatible with said scrambling techniques" is necessary. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues the term means for each scrambling technique selected, there is a single, corresponding unscrambling technique. The DIRECTV defendants argue it means for each scrambling technique, there is a particular corresponding user exchangeable card that unscrambles according to that scrambling technique.

The term appears in the following context:

[S]aid unscrambling means being substantially replaceable with differing unscrambling circuits ... compatible with said scrambling means to remove the objectionable interference or distortion....

'066 Patent, col. 6, lines 40-47.

I agree with the defendants, and I construe the claim term "compatible with said scrambling means" to require that for each scrambling technique there is a single corresponding unscrambling technique.

This construction finds support in the specification, which provides that each user card incorporates an "electronic circuit for decoding *one particular scrambled signal*." '066 Patent, col. 3, lines 24-26 (emphasis added). The construction finds further support in the specification, as follows:

[T]he master scrambling circuit 31 would be set for a particular type of coding at this same time the user would insert an unscrambling card 150 incorporating a complementary decoding circuit into the decoding box....

Id. at col. 4, lines 26-29.

I reject the DIRECTV defendants' construction requiring that the single corresponding unscrambling technique be contained in or on the exchangeable unscrambling card. The specification makes clear that in certain embodiments it is the user card and the decoding box acting together which accomplish the task of unscrambling. '066 Patent, col. 4, lines 14-24 (describing that in the very complex systems "the decoding box and card would each contain various parts of sophisticated electronic circuits, all of which would be utilized in a certain arrangement to provide decoding").

13. "said unscrambling means is substantially entirely on a user replaceable card"

[37] The plaintiff contends this term needs no construction. Defendant EchoStar argues that the term is indefinite under 35 U.S.C. s. 112, para. 2 because it provides that some undefined amount of circuitry or degree of functionality of the unscrambling means is located on a card replaceable by the user. The

DIRECTV defendants argue that the term means the entire unscrambling means is located on the user exchangeable unscrambling card.

As discussed in Part III.B.12 above, the specification makes clear that in certain embodiments it is the user card and the decoding box acting together which accomplish the task of unscrambling. '066 Patent, col. 4, lines 14-24. Consequently, I reject the construction proposed by the DIRECTV defendants.

Nor do I find that the term "substantially entirely" is indefinite to one skilled in the art when read in the context of the rest of the specification. The specification makes clear that in some embodiments the entire circuitry for the unscrambling circuit would be on the user card, '066 Patent, col. 3, lines 62-68, while in other embodiments the decoding box and the user card would each contain various parts of electronic circuits which would act together to provide the unscrambling. Id. at col. 4, lines 14-19. And as I previously have explained, the unscrambling means works in such a way that when one user card is activated, that card's circuitry replaces the circuitry of any other user card for use in the unscrambling means. In this context, I agree with the plaintiff that the term "substantially entirely" is not indefinite and needs no further construction.

C. Means-Plus-Function Elements In Claims 10 and 11

[38] Claim 1, from which claims 10 and 11 depend, states:

In a device incorporating a scrambling transmitter and a receiver incorporating an unscrambling circuit having key elements for secured passage of a signal, the improvement of [1] **means to incorporate more than one scrambling technique into the scrambling transmitter** and [2] **means for the selective interchange of the key elements of the unscrambling circuit** so as to allow selective reception of the signals incorporating the differing scrambling techniques.

The defendants argue that each of these elements is in a means-plus-function format and that they must be construed according to 35 U.S.C. s. 112, para. 6. *See* Kemco Sales, 208 F.3d at 1361("Use of the term 'means' in a claim limitation creates a presumption that section 112, paragraph 6 has been invoked"). The plaintiff argues that s. 112, para. 6 is inapplicable because the claims recite sufficient structure to perform the function described.

I agree with the defendants that the elements are written in means-plus-function format, and I also agree that they do not supply sufficiently definite structure to overcome the presumption created by s. 112, para. 6.

1. "means to incorporate more than one scrambling technique into the scrambling transmitter"

The first function identified in claims 10 and 11 is a "means to incorporate more than one scrambling technique into the scrambling transmitter." The function of this element is to incorporate more than one scrambling technique into the scrambling transmitter.

The structures disclosed in the specification for performing this function are a master programmable scrambling circuit including a single scrambling circuit or a series of interchangeable scrambling circuits-each with a single coding system-using a number of different coding techniques, and a programming keyboard. '066 Patent, col. 2, lines 37-62.

2. "means for the selective interchange of the key elements of the unscrambling circuit"

The second function identified in claims 10 and 11 is "means for the selective interchange of the key elements of the unscrambling circuit." The function of this element is to selectively interchange the key elements of the unscrambling circuit.

The structures disclosed in the specification for performing this function are the decoding box 200 which includes an input connector 205 and an output connector 206, and user exchangeable cards 150 containing electronic circuits 151 with accompanying electronic contacts 152. '066 Patent, col. 3, lines 11-61, and Figs. 1-4.

D. Disputed Terms In Claims 10 and 11

1. "scrambling transmitter"

[39] The plaintiff contends that the term "scrambling transmitter" means a transmitter that includes a scrambling circuit. Joint Claim Construction Brief, Exh. B. The defendants assert it means a transmitter that scrambles and transmits an analog signal. Id. The sole disagreement appears to be whether "scrambling" is limited to analog signals only, a construction I already have rejected.

I construe the term "scrambling transmitter" to mean a transmitter that includes a scrambling circuit.

2. "receiver incorporating an unscrambling circuit"

I have construed "receiver" to mean an apparatus for receiving television broadcasts.Claims 10 and 11 contain the term "receiver incorporating an unscrambling circuit." I construe the term "receiver incorporating an unscrambling circuit" to mean an apparatus for receiving television broadcasts which includes a circuit that restores a modified signal to its unmodified condition.

3. "unscrambling circuit"

[40] The plaintiffs assert that the term "unscrambling circuit" requires no further construction. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues it means a circuit that restores a scrambled analog signal to its unscrambled condition. The DIRECTV defendants argue an "unscrambling circuit" is the entire electronic circuit that restores a scrambled analog signal to its unscrambled condition.

I have construed "scrambling" to apply to both analog and digital signals. I have construed "unscrambling" to mean restoring a modified signal to its unmodified condition.

The DIRECTV defendants argue that the term should be construed to include "the *entire* circuit that unscrambles the signal ... to clarify that the claim language itself dictates that the circuit include both 'key elements,' and perhaps other elements that do not satisfy the 'key elements' limitation." Defendant DIRECTV ... Principal Opening Brief On Claim Construction, at p. 57. I do not understand the plaintiff to disagree.

I construe the term "unscrambling circuit" to mean the entire circuit that restores a modified signal to its unmodified condition.

4. "key elements"

The term "key elements" appears in both claims 10 and 11, as follows: "The improved device of claim 1 characterized in that the **key elements** of the unscrambling circuit are on a card...." '066 Reexamination Certificate, col. 1, lines 30-31 and 35-36. The plaintiff contends that the claim term does not require construction. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues that the term is indefinite under 35 U.S.C. s. 112, para. 2 because it encompasses some undefined amount of circuitry or degree of functionality of the unscrambling circuit. *Id*. The DIRECTV defendants argue that "key elements" means the necessary circuitry for implementing one of a plurality of unscrambling techniques.

I dealt with this issue when I construed "substantially replaceable" and "differing unscrambling circuits" to mean that the distinct circuitry of the active user card must take the place of the circuitry of any other user card for use in the unscrambling means and that the active user card could, but need not, vary from other user cards in the percentage of circuitry on the card or the functionality of the circuitry on the active user card. No further construction of the term is necessary.

5. "incorporate"

The term "incorporate" is used in the following context: "means to **incorporate** more than one scrambling technique into the scrambling transmitter. " '066 Patent, col. 5, lines 20-21. The plaintiff contends the term needs no construction. The defendants, on the other hand, argue that "incorporate" as used in the claim means to put into so as to form an integral whole; integrate.

EchoStar argues:

EchoStar and Broadcast agree that the term "incorporate" is to be given its ordinary meaning. Consistent with its overall approach, Broadcast fails to provide any plain meaning for "incorporate."

Defendant EchoStar ... Opening Claim Construction brief for the '066 Patent, at p. 28. EchoStar then defines "incorporate" with one of the multiple definitions provided in the *Oxford English Dictionary,* of which I note there are seven, plus subparts. EchoStar's preferred definition is "to put into so as to form an integral whole; integrate." Another possibility, but one which EchoStar does not select, is "to embody."

I have not attempted to set forth the plain meaning of every word used in the '066 Patent.

I agree with the plaintiff that the term "incorporate" requires no further construction.

6. "more than one scrambling technique"

The plaintiff construes the term to mean more than one way of modifying a signal. The defendants assert the term means at least two separate and distinct scrambling procedures, but not merely a single scrambling procedure employing variable parameters.

I dealt with this issue when I construed the term "selectively according to a particular one of a multiple of differing scrambling techniques." Consistent with my comments there, I construe "more than one scrambling technique" to mean more than one distinct scrambling method, where a scrambling method is something more than merely varying the parameters of a single scrambling technique.

7. "selective reception of the signals incorporating the differing scrambling techniques"

[41] The plaintiff asserts that this term means reception of a signal modified in accordance with a scrambling technique. Joint Claim Construction Brief, Exh. B. Defendant EchoStar argues that "selective reception" means reception of a signal scrambled according to a particular one of the separate and distinct scrambling methods; and "the signals incorporating the differing scrambling techniques" means each signal transmitted by the scrambling transmitter has a modification that is unique to one of the separate and distinct scrambling techniques. Id. The DIRECTV defendants argue that the term means each of a plurality of information service signals is scrambled according to a different scrambling technique, and the user must select a matching unscrambling card in order to receive a particular information service signal. Id.

The issue appears to be that the defendants seek to restrict the term "scrambling techniques" to one of separate and distinct scrambling techniques. The plaintiff resists the attempted restriction, arguing that "the specification of the '066 patent discloses that a combination of scrambling techniques may be used to

scramble a signal." Broadcast's Opening Claim Construction Brief, at p. 33.

I agree with the plaintiff. The specification states:

A particular technique or combination of techniques can be quickly selected and implemented at will via a programming keyboard 32. The master scrambling circuit 31 therefor is able to put out a wide variety of scrambled signals.... In contrast with normal scrambling the number of differing techniques is more important to the invention than the sophistication of any particular on technique.

'066 Patent, col. 2, lines 40-54.

Although I have construed differing scrambling techniques to require something more than merely varying the parameters of a single scrambling technique, the specification clearly contemplates that a distinct *combination* of coding techniques such as, for example, combining some form of signal emphasis with a voltage spike, would be one scrambling technique;and, for example, combining signal emphasis with a frequency shift, would be a differing scrambling technique.

I construe the term "selective reception of the signals incorporating the differing scrambling techniques" to mean reception of a signal modified in accordance with a scrambling technique.

8. "the key elements of the unscrambling circuit are on a card"

I have discussed "key elements," *see* Part III.D.4, and construed "unscrambling circuit." *See* Part III.D.3. In view of that, I agree with the plaintiff that no further construction is necessary.

9. "include the majority of the unscrambling circuit" and "include the essential portion of the unscrambling circuit"

Claim 10 states that "the key elements of the unscrambling circuit are on a card and **include the majority of the unscrambling circuit**...." Claim 11 states that "the key elements of the unscrambling circuit are on a card and **include the essential portion of the unscrambling circuit**...." The plaintiff contends that "majority" in claim 10 needs no construction and that "essential portion" in claim 11 means important parts. The defendants argue that the terms are indefinite under 35 U.S.C. s. 112, para. 2.

The specification describes in detail the invention claimed, and I have summarized the relevant description in Part 3.B.10 above, where I construe "substantially replaceable" and "differing unscrambling circuits." The nub of the defendants' argument merely rehashes what has come before.

As for "majority," EchoStar argues:

This lack of clarity is compounded by no disclosure of whether the "majority" of the unscrambling circuit refers to a measure of the physical amount of circuitry (e.g., 51%), or to that portion of the unscrambling circuit that performs the majority or most important aspects of the unscrambling function.

Defendant EchoStar ... Opening Claim Construction Brief for the '066 Patent, at p. 31.

[42] One of ordinary skill in the art would understand the term "the majority of the unscrambling circuit," when read in light of the rest of the specification, to include either the amount of circuitry or the portion of the circuitry that performs the majority or most important part of the unscrambling function. The point is that only by inserting the presently activated user card, with its circuitry in combination with either the contacts of the decoding box or the contacts and the circuitry of the decoding box, is the unscrambling

means able to unscramble the signal.

"Majority" as used in claim 10 is not indefinite and requires no further construction.

[43] "Essential" has an ordinary meaning of "indispensable." *The American Heritage Dictionary of the English Language,* at p. 448. I construe the term "essential portion of the unscrambling circuit" to mean the indispensable portion of the entire circuit that restores a modified signal to its unmodified condition.

10. "interchangeable with other cards"

[44] The plaintiff contends that the term "interchangeable with other cards" requires no construction, but if construction is necessary it offers the synonym of "exchangeable with other cards." Defendant EchoStar argues that the term means that each card implements an unscrambling technique and can be physically exchanged with other cards that implement different unscrambling techniques. The DIRECTV defendants argue for a construction that the user exchangeable card that unscrambles a signal scrambled according to a particular scrambling technique can be readily exchanged with at least one other user exchangeable card that unscramble a signal scrambled according to a separate and distinct scrambling technique.

Defendant EchoStar points to the following portion of the specification in support of its construction of the term:

Since the scrambling circuit 31 can put out a wide variety of scrambled signals there is correspondingly a significant number of user exchangeable circuit cards 150, each card incorporating an electronic circuit 151 for decoding one particular scrambled signal.

'066 Patent, col. 3, lines 21-25. The specification also provides that "[t]he electronic circuit 151 provides the key for the unscrambling circuit 120, *carefully chosen to decode a particular type of signal* from the scrambling circuit 31." Id. at col. 3, lines 18-20 (emphasis added).

Thus, for a card to be exchanged it must be carefully chosen to incorporate a decoding circuit for the particular scrambled signal.

I construe the term "interchangeable with other cards" to mean that a user card that unscrambles a signal scrambled according to a particular scrambling technique can be readily exchanged with at least one other user card that unscrambles a signal scrambled according to a matching scrambling technique.

IV. Conclusion

Consistent with the Order for a Claim Construction Procedure and Schedule and Reference entered by the district judge in this case, the parties have ten days from the date of this order to file objections.

SO ORDERED.