IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

IPPV ENTERPRISES, LLC, and MAAST, INC.,	)	
Plaintiffs,	)	
v.	)	Civil Action No. 99-577-RRM
ECHOSTAR COMMUNICATIONS CORP.; NAGRAVISION, S.A.; and NAGRASTAR, L.L.C.,	)	
Defendants	)	
and	)	
IRDETO BV,	)	
Non-Party.	)	

OPINION

James D. Heisman, Esquire, Connolly, Bove, Lodge & Hutz LLP, Wilmington, Delaware; Frederick G. Michaud, Jr., Esquire, David M. Schlitz, Esquire, S. Lloyd Smith, Esquire, and Mark R. Kresloff, Esquire, Burns, Doane, Swecker & Mathis, L.L.P., Alexandria, Virginia; counsel for plaintiffs.

Donald F. Parsons, Jr., Esquire and Rodger D. Smith, Esquire, Morris, Nichols, Arsht & Tunnell, Wilmington, Delaware; Philip L. Cohan, Esquire, Piper Marbury Rudnick & Wolfe LLP, Washington, DC; counsel for defendants.

Andrew W. Cohen, Esquire, Squire, Sanders & Dempsey L.L.P., Washington, DC; counsel for Non-Party Irdeto BV.

Wilmington, Delaware
July 28, 2000

McKELVIE, District Judge

This is a patent case. Plaintiff IPPV Enterprises, LLC is a Nevada limited liability corporation with its principal place of business in Reno, Nevada. IPPV owns U.S. Patent Nos. 4,163,254 (the '254 patent); 4,225,884 (the '884 patent); 4,528,589 (the '589 patent); and 4,484,217 (the '217 patent). Plaintiff MAAST, Inc. is a Delaware corporation with its principal place of business in Sparks, Nevada. MAAST owns U.S. Patent No. 4,600,942 (the '942 patent). Defendant Echostar Communications Corp. is a Nevada corporation with its principal place of business in Littleton, Colorado. Defendant Nagravision, S.A. is a Swiss corporation with its principal place of business in Cheseaux, Switzerland. Defendant NagraStar is a Colorado corporation with its principal place of business in Englewood, Colorado.

On August 26, 1999, IPPV and MAAST (collectively, "IPPV") filed the complaint in this case, alleging that defendants (collectively, "Echostar") have infringed, or have induced infringement of, one or more claims of the '254 patent, the '884 patent, the '589 patent, the '217 patent, and the '942 patent.

On December 28, 1999, Echostar answered the complaint, denying infringement, and asserting the affirmative defenses that plaintiffs have failed to state a claim upon which relief can be granted; that the patents in suit are invalid for failing to satisfy 35 U.S.C. §§ 102, 103, and 112; that plaintiffs are equitably estopped from asserting their claims; that the patents in suit are invalid because the Patent and Trademark Office ("PTO") failed to duly investigate relevant prior art; and that

plaintiffs failed to mark their patented articles. Echostar seeks a judgment declaring the patents invalid and unenforceable and an award of costs and fees.

On March 16, 2000, the court held a teleconference during which IPPV sought an order compelling production of a third-party document held by Echostar pursuant to a confidentiality agreement. The document purportedly discloses a secret encryption algorithm owned by Irdeto BV and licensed to Echostar. On April 4, 2000, Irdeto moved for a protective order to prevent production of the document disclosing the encryption algorithm. On May 4, 2000, the court held a teleconference in which the parties acknowledged that the relevance of the Irdeto document depends on the scope of claim 21 of the '942 patent, and in particular, whether the '942 patent may be construed to cover encryption of digital television signals.

On June 13, 2000, the court held a trial in accordance with Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996), to construe claim 21 of the '942 patent.

This is the court's construction of claim 21 of the '942 patent.

I. FACTUAL AND PROCEDURAL BACKGROUND

The court draws the following facts from the file history of the '942 patent and the affidavits submitted by the parties.

A. The Patented Technology

The technology at issue in this case relates to pay-per-view television broadcasting. Broadcasters of such programming employ various methods to encrypt and decrypt their television signals so that only paying subscribers may view the transmitted programs. By 1984, the year of the claimed invention, broadcasters determined that they could encrypt the signals by modulating the video programming signal by a sine wave signal such that the different phases of the programming signal could not be recognized by a normal television receiver. Broadcasters found, however, that this encryption system could be defeated by means that were readily available to average consumers.

By 1984, broadcasters also had developed technology for inverting lines or fields of the video signal on some basis that could be reproduced at a subscriber's home. While this technique satisfactorily prevented unauthorized viewing of the signals, viewers found that the reconstituted signal was frequently distorted.

A third method used by broadcasters was to encode the video signal by delaying parts of the signal relative to other parts in a determinable manner such that the signal could be reconstituted by a paying subscriber. This method was disclosed in U.S. Patent No. 4,405,942, issued to Robert Block on September 20, 1983. Block disclosed that an analog television signal can be converted into digital samples, which are then scrambled, and subsequently reconverted into analog form for broadcasting.

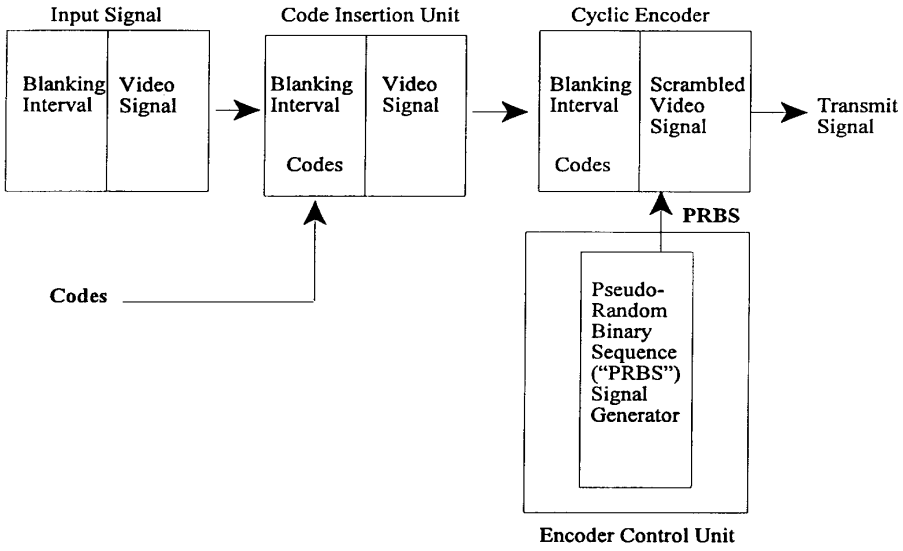
Broadcasters found, however, that the hardware necessary to carry out the analog-to-digital conversion of the signal was relatively expensive. Broadcasters found, moreover, that the Block method could only encrypt the video component of a programming signal, and that other components of the signal, such as the synchronization portion, could not be encrypted.

Robert W. Field, Clarence D. Perr, and Ronald R. Gerlach were employed by Telease, Inc. in 1984. The challenge they faced was to develop a secure, cost-effective method of encryption that yields an undistorted picture. The inventors sought to improve upon the Block method by developing technology to scramble the video signal while it still is in analog format, to forego the expenses associated with digitizing the signal for encryption and reconverting it to analog form for transmission. The inventors also sought to ensure a high degree of security for the encrypted television signal to prevent unauthorized viewing.

1. The patent application

On November 27, 1984, the inventors submitted a patent application to the PTO. In the application, the inventors explained that television signals are comprised of several components, including a "blanking interval," which stores synchronization information, and a "video interval," which stores the picture. The diagram below is a simplified version of Figure 3A of the patent, which provides a schematic of the preferred embodiment of the claimed encryption mechanism. An input signal, which

comprises a blanking interval and a video interval, is sent to a "code insertion unit," in which several codes are embedded in the signal's blanking interval. The composite video signal then passes to a "cyclic encoder," wherein the video signal is scrambled by means of a pseudo-random binary sequence generated by the "encoder control unit." The encoded output signal is then transmitted.



The patent application discloses a similar mechanism for use by a subscriber, in which the encoded signal is received, the codes are read, and a pseudo-random binary sequence is generated based on the codes received. The pseudo-random binary sequence decrypts the video signal.

In the section of the application entitled "Background of the Invention," the inventors recited a number of objectives of the disclosed technology, including: (1) to

provide a novel method for encoding and decoding the television signal "while the signal is still in an analog format;" (2) "to provide a novel system for controlling the encoding and decoding of a television signal with a pseudo-random control signal that is not transmitted with the television signal;" and (3) "to provide a highly secure system for controlling the encoding and decoding of a television signal with a code that is generated independently at both the transmitting and receiving ends of a television system in accordance with a control word that is transmitted in an encrypted form with the television signal."

The application then recites a detailed description of the invention, in which it provides a series of diagrams including: illustrations of the components of color television signals "of the type employed in the United States;" illustrations of scrambled and unscrambled analog signals; schematics of the claimed encoding mechanism; and circuit diagrams of the encoder control units. The detailed description of the invention exclusively discusses the encryption of analog television signals.

The original patent application contained 35 claims, with independent claim 1 and dependent claims 10 and 11 reciting the use of "analog delay elements."

2. First Office Action

On November 15, 1983, the examiner rejected claim 13 under 35 U.S.C. § 102 in light of the Block patent and in light of U.S. Patent No. 4,070,693 issued to Harold Shutterly et al. on January 24, 1978. The examiner stated that "Block et al teaches the

delay of the video signal in analog form," and that "[c]laim 13 does not require analog delay so that the teachings of Shutterly are also applicable as they relate to digital delays."

3. Amendment

On March 15, 1984, the applicant filed a proposed amendment with the PTO. The applicant proposed deleting the word "analog" from claims 1, 11, and 12. The applicant distinguished the claimed invention from the Block patent as follows:

> It is respectfully submitted, however, that the distinctions between the rejected claims and the Block patent do not lie merely in the differences between analog and digital types of delays, as might be implied from the rejection. Rather, the rejected claims are directed to a different type of encoding technique than that which is disclosed in the Block patent.

The applicant stated, moreover, that "[w]hile the present invention is specifically described in connection with its implementation in an analog form to obtain the advantages noted in the introductory paragraph of the specification, this aspect of the invention is not the sole distinguishing feature over the system disclosed in the Block patent." The applicant then described how the use of a pseudo-random binary sequence to encrypt the television signal is superior to the encryption method disclosed in Block.

The applicant also proposed adding eleven new claims. Claim 38, which subsequently issued as claim 21 of the '942 patent, recites a method of "generating a television program signal" and "encrypting said television program signal in accordance with said pseudo-random signal."

4. Final Office Action

On April 27, 1984, the examiner issued a final action letter rejecting or canceling all pending claims. The examiner rejected claims 1, 23, and 36 under 35 U.S.C. § 102 as being anticipated by Block, which he found discloses an encryption method employing analog and digital delay devices. The examiner further stated that the remaining claims were unpatentable under 35 U.S.C. § 103 in light of Block and U.S. Patent 4,333,107, issued to Kenyon McGuire on June 1, 1982, which discloses the use of a pseudo-random number generator to scramble television signals.

5. Amendment

On August 27, 1984, the applicant filed a proposed amendment, which maintained the language of the claims with only typographical changes. The applicant distinguished the claimed invention from the prior art on the basis of the improved security purportedly achieved through the use of the pseudo-random binary sequence.

6. Office Action

On September 14, 1984, the examiner determined that claims 1-12, 23-27, 36, and 37 were allowable, but that claims 13, 14, 16, 17, 19, 21, 22, 28-35, and 38-46 were rejected.

7. Preliminary Amendment

On November 27, 1984, the applicant canceled a number of claims of the pending application, and renumbered claim 38 as claim 21. The applicant argued that

the encryption method disclosed in the pending application was distinct from that disclosed in Block.

8. Office Action

On June 4, 1985, the examiner rejected claim 21 as invalid under 35 U.S.C. § 103 in light of Block and U.S. Patent No. 4,388,643, issued to Yehuda Aminetzah on June 14, 1983. The examiner found that the method of scrambling disclosed in Block and Aminetzah renders the claimed invention obvious.

9. Amendment

On December 4, 1985, the applicant filed an amendment in which he argued that the coding technique disclosed in the application is distinct from that used by Block and Aminetzah by nature of the pseudo-random binary sequence employed.

10. Notice of Allowance

On January 10, 1986, the examiner allowed the pending claims, without comment.

11. Issuance

On July 15, 1986, the PTO issued the '942 patent to Field, Perr, and Gerlach. The inventors assigned the patent to Telease, Inc., which subsequently assigned the patent to MAAST. Claim 21 of the patent reads as follows:

> 21. A method for enabling only authorized television receivers to display a television program in an intelligible manner, comprising the steps of:

generating a television program signal;
generating a pseudo-random signal at an encoding station;
encrypting said television program signal in accordance with said pseudo-random signal;
producing a control signal indicative of a parameter in the generation of said pseudo-random signal at a predetermined time;
transmitting the encrypted television program signal to a receiver station;
transmitting said control signal with said program signal;
providing a decode control key to the receiver station;
utilizing said decode control key and said transmitted control signal to generate a pseudo-random signal at said receiver station;
decoding the encrypted television program signal in accordance with the pseudo-random signal generated at said receiver station; and
applying the decoded program signal to a receiver for display.

B. The Accused Device

Echostar operates a direct broadcast satellite ("DBS") subscriber television service called the DISH Network. The video signals that Echostar transmits are in digital format. To ensure the secure transmission and delivery of DISH Network program signals, the signals are encrypted prior to satellite transmission and are subsequently decrypted at the subscriber location.

The Common Scrambling Algorithm ("CSA") is an encryption algorithm developed in the mid-1990s by Irdeto and three other European companies: Canal+ SA, Centre Commun d'Etudes de Telediffusion et Telecommunications, and News Datacom Ltd. In 1995, these companies named the European Telecommunications Standards Institute ("ETSI"), located in Sophia Antipolis, France, as the CSA custodian. ETSI is a recognized European standardization body, and is responsible for

licensing and distributing the CSA. On December 11, 1995, Echostar entered into an agreement with the ETSI to license the CSA.

C. The Discovery Dispute

IPPV seeks discovery of the CSA. IPPV asserts that it must have access to the CSA for determining whether Echostar encrypts and decrypts its television signals in violation of the '942 patent. Echostar has stated its willingness to produce the CSA.

Irdeto objects to the production of the CSA on the grounds that the CSA is a secret algorithm whose disclosure could compromise the growth and development of digital video broadcasting. Irdeto argues, moreover, that the CSA is irrelevant to IPPV's allegations of infringement under the '942 patent. Irdeto argues that the CSA algorithm relates to encryption of digital video signals, while the '942 patent concerns the encryption of analog signals.

IPPV argues that claim 21 of the '942 patent relates to the encryption and transmission of television program signals, without restriction as to whether the signals are in analog or digital format.

On June 13, 2000, the court held a Markman trial for the purpose of determining whether the scope of claim 21 of the '942 patent is limited to the encryption and transmission of analog television signals. During oral argument, the parties clarified that as of 1984, television broadcasting was done solely in analog format.

II. DISCUSSION

A. Basic Principles of Claim Construction

Claim construction is a matter for the court. Markman, 517 U.S. at 387. The court will base the jury instructions in this case on the construction of the claims adopted herein. It is the province of the jury to determine whether the claims, as construed by the court, are valid and infringed. Id.

Claims are construed from the vantage point of a person of ordinary skill in the art at the time of the invention. Markman v. Westview Instruments, Inc., 52 F.3d 967, 986 (Fed. Cir. 1995). To define the scope of the invention, the court first looks to the words of the claims themselves. See Vitronics Corp. v. Conceptronics, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). These words are to be given their ordinary meaning unless inconsistent with the specification and prosecution history. See Desper Products, Inc. v. Qsound Labs, Inc., 157 F.3d 1325, 1336 (Fed. Cir. 1998); Renishaw PLC v. Marposs Societa' Per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

The court must then review the specification, of which the claims are a part. See Vitronics, 90 F.3d at 1582; Markman, 52 F.3d at 979. Claims should be interpreted consistently with the specification, which provides content for the proper construction of the claims because it explains the nature of the patentee's invention. See Renishaw, 158 F.3d at 1250. As the Federal Circuit explained in Renishaw,

> Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction. A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent.

Id. (citation omitted)

The prosecution history should also be considered. The public has a right to rely on statements made by the patent applicant or his attorney during prosecution that define the scope of the claims. See Ekchian v. Home Depot, Inc., 104 F.3d 1299, 1304 (Fed. Cir. 1997).

The Federal Circuit has repeatedly cautioned against limiting the scope of a claim to the preferred embodiment or specific examples disclosed in the specification. See, e.g., Ekchian, 104 F.3d at 1303; Intervet America, Inc. v. Kee-Vet Laboratories, Inc., 887 F.2d 1050, 1053 (Fed. Cir. 1989) ("[L]imitations appearing in the specification will not be read into claims, and . . . interpreting what is meant by a word in a claim 'is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.'") (citation omitted).

B. IPPV's Position

IPPV argues that there are two aspects to its invention, and that limiting the claims to an analog implementation would be inconsistent with the nature of the invention. IPPV acknowledges that one aspect of the invention is to reduce the costs

associated with converting an analog signal to a digital format, and then reconverting it to analog format for transmission. IPPV argues that a second aspect of the invention--the use of a pseudo-random binary sequence to encrypt the television signal to improve the security of the transmission--is directed to improved security of the transmission, and is independent of the nature of the signal being transmitted. IPPV asserts that the encryption technique taught by the '942 patent would apply to analog or digital signals, and that it would be inconsistent with the breadth of this disclosure to limit the claims to an analog implementation. IPPV asserts that the portions of the patent specification referring to the security aspects of the invention nowhere limit its application to the encryption of analog signals.

IPPV argues that the plain meaning of claim 21 does not limit the claim to an analog implementation, and that it would be improper to limit the claim by importing the term "analog" from the patent specification. See Johnson Worldwide Associates, Inc. v. Zebco Corp., 175 F.3d 985, 990 (Fed. Cir. 1999) (holding that claim terms may be narrowed by reference to the specification only when the patentee has set forth an explicit definition of a claim term in the specification, or when the claim terms chosen by the patentee are so ambiguous as to deprive the claim of clarity). IPPV argues that, although the preferred embodiment of the invention taught in the specification refers to the encryption of an analog signal, it would be improper to limit the claims to this preferred embodiment. See Ekchian v. Home Depot, Inc., 104 F.3d

1299, 1303 (Fed. Cir. 1997). IPPV contends that the method of encryption taught by the patent operates independently of the kinds of signals that are encrypted, and so claim 21 may cover encryption of digital signals even though the written description of the invention does not explicitly disclose a digital implementation of the invention. See IMS Technology, Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1434 (Fed. Cir. 2000) (refusing to exclude an implementation of a component of a device from the literal scope of a claim although the implementation is not specifically recited in the written description, when the particular implementation used was incidental to the purpose of the invention).

C. Echostar's Position

Echostar argues that the teachings of the patent are exclusively directed toward encryption of analog signals, and that the written description of the patent nowhere discloses the encryption of digital signals. Moreover, Echostar contends that IPPV should not be entitled to claim a method of encrypting digital signals because the patent applicants disclaimed the use of digital encryption in the patent specification. Echostar notes that the patent discloses that a disadvantage of the prior art was the cost needed to digitize analog signals for encryption, and that the patent teaches that it is preferable to encrypt the signals while still in analog form.

Echostar asserts that the court should construe claim 21 to preserve its validity. See Modine Manufacturing Co. v. International Trade Commission, 75 F.3d 1545,

1557 (Fed. Cir. 1996) ("When claims are amenable to more than one construction, they should when reasonably possible be interpreted so as to preserve their validity."). Echostar asserts that a broad construction of claim 21 encompassing digital encryption would render the claim invalid for lack of a written description. See Gentry Gallery, 134 F.3d at 1480. Echostar argues that because the written description only refers to encryption of analog signals, the claims should be limited to an analog implementation. See Wang Laboratories, Inc. v. America Online, Inc., 197 F.3d 1377, 1383 (Fed. Cir. 1999) ("The only embodiment described in the '669 patent specification is the character-based protocol, and the claims were correctly interpreted as limited thereto."); Gentry Gallery, Inc. v. Berkline Corp., 134 F.3d 1473, 1480 (Fed. Cir. 1998) ("[C]laims may be no broader than the supporting disclosure, and . . . a narrow disclosure will limit claim breadth.").

D. The Court's Findings

The issues raised by the parties include whether the patentee disclaimed coverage of a digital implementation of the invention; whether the court should construe the claim language relating to the "security" aspects of the invention in light of statements in the specification relating to the "cost-savings" aspects of the invention; and to what extent the court may base its claim construction on the scope of the disclosure in the specification. The court will address these issues in turn.

1. Did the patentee disclaim coverage of a digital implementation of the claimed invention?

The patent specification states that when a television signal is produced in an analog format, it is costly to digitize the signal for encryption, and to reconvert the signal to an analog form for transmission. The patent teaches that it is advantageous to perform the encryption when the signal is still in an analog form, to obviate the need to digitize it and reconvert it to analog form. Thus, it appears that the patent teaches away from digitizing television signals that are produced in analog format.

The patent, however, does not discuss whether or not it is advantageous to apply the claimed encryption technique to a signal that is originally produced in digital form. As the parties acknowledged during oral argument, all television broadcasts as of 1984 were produced and transmitted in analog format. The inventors apparently did not contemplate whether the encryption technique would be useful with digital television programming. Thus, the court does not find, as is advocated by Echostar, that the patent disclaims applying the claimed encryption technique to digital signals.

2. Should the court construe the claim language relating to the "security" aspects of the invention in light of statements in the specification relating to the "cost-savings" aspects of the invention?

The patent specification lists a number of objectives of the claimed invention. One stated objective of the invention is to reduce the costs associated with converting an analog signal to digital form for encryption, and then reconverting it back to analog

form for transmission. A second objective listed in the specification is to provide a "highly secure system" by controlling the encoding and decoding of a television signal with a pseudo-random control signal.

The prosecution history indicates that the applicant viewed the encryption technique as an independent aspect of the invention, distinct from the kind of signal employed. The applicant stated in its first proposed amendment that:

> It is respectfully submitted, however, that the distinctions between the rejected claims and the Block patent do not lie merely in the differences between analog and digital types of delays, as might be implied from the rejection. Rather, the rejected claims are directed to a different type of encoding technique than that which is disclosed in the Block patent.

In the same submission to the examiner, moreover, the applicant stated that "[w]hile the present invention is specifically described in connection with its implementation in an analog form to obtain the advantages noted in the introductory paragraph of the specification, this aspect of the invention is not the sole distinguishing feature over the system disclosed in the Block patent." In its first response to the PTO, and throughout the remainder of the prosecution, the applicant emphasized that the encryption technique described in the application is superior to the other encryption technology disclosed in the art.

The court finds that the "security" aspects of the invention relating the method of encryption employed may be independent from the "cost-savings" aspects of the invention. As asserted by IPPV, the court finds that it would be improper to limit the

scope of the claims relating to the "security" aspects of the inventions by statements in the specification that address the "cost-savings" aspects of the invention.

3. To what extent may the court base its claim construction on the scope of the disclosure in the patent's specification?

Two competing principles of claim construction are at issue in this case. The first, advanced by IPPV, is that claim terms cannot be narrowed by reference to the written description or prosecution history unless the language of the claims invites reference to those sources. Johnson Worldwide, 175 F.3d at 989-90.

In Johnson Worldwide, the patentee claimed a steering device for boats comprising a directional indicator "coupled to" a trolling motor. The question was whether this claim language required that the directional device be "mechanically attached" to the motor, or whether the claim could be interpreted to read upon a directional indicator connected to the motor by wires. The patent specification describes that the preferred embodiment includes a directional indicator mechanically attached to the motor. The Federal Circuit stated that there is a "heavy presumption" against importing additional limitations into claim language. See id. at 989. The court stated that there are two situations in which a claim term should be accorded other than its ordinary and accustomed meaning. The first arises if the patentee has chosen to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term. Id. at 990. The second is where the term or terms chosen by the patentee so

deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used. Id. The court found that the claim language was sufficiently clear that there was no need to import additional limitations from the specification and the prosecution history.

In this case, the claims recite the phrases "generating a television program signal" and "encrypting said television program signal in accordance with said pseudo-random signal." This language is sufficiently unambiguous that the meaning of the claims terms might be ascertained without reference to the specification. In this respect, Johnson Worldwide teaches that the claim language should not be narrowed by importing the limitation "analog" from the specification.

The second principle of claim construction at issue in this case, advanced by Echostar, is that a patentee should not be entitled to claims that are broader than the scope of the patent's disclosure. See Wang, 197 F.3d at 1383. In Wang, Wang sued America Online and Netscape Communications for infringement of a 1984 patent directed to a system for providing users with textual and graphical information from computer-controlled databases via interactive two-way communications over a telephone network. The issue for claim construction and summary judgment was whether the claim term "frames of information" covered both character-based and bit-mapped-based protocols, or whether the term should have been limited to character-based protocols. The preferred embodiment of the invention was directed to character-

based protocol systems, although the specification acknowledged that bit-mapped protocols were part of the prior art. The Federal Circuit found that a person of ordinary skill in the art would understand the specification to refer only to character-based systems, and affirmed the trial court's construction that limited the claims to character-based systems.

Section 112, ¶ 1 of the Patent Code requires that a patent specification "shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same . . . ." 35 U.S.C. § 112. The purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification. Reiffin v. Microsoft Corp., 2000 WL 714425 (Fed. Cir. June 5, 2000). Whether the language of a claim is supported by the written description of the patent is a question of fact. See Gentry Gallery, 134 F.3d at 1479. Accordingly, a determination of whether claims comply with the written description requirement is generally made in the context of a summary judgment motion or by a jury.

The Federal Circuit has indicated that in certain situations, a narrow written description may constitute a basis for adopting a narrow construction of otherwise-broad claim language. The Federal Circuit has held that the literal meaning of a claim

is fixed upon its issuance. Al-Site Corp. v. VSI International, Inc., 174 F.3d 1308, 1320 (Fed. Cir. 1999). Variants of a claimed invention that are based on after-developed technology could not have been disclosed in a patent. Chiuminatta Concrete Concepts v. Cardinal Industries, Inc., 145 F.3d 1303, 1310 (Fed. Cir. 1998). When a claim is written sufficiently broadly to cover after-developed technologies, the claims may be construed to limit their scope to those technologies disclosed in the written description of a patent. See Wang, 197 F.3d at 1383 ("The only embodiment described in the '699 patent specification is the character-based protocol, and the claims were correctly interpreted as limited thereto.").

The doctrine of equivalents extends beyond the literal scope of claims, and permits a patentee to exclude others from practicing later-developed technologies that are equivalent to a claimed device. See Overhead Door Corporation v. Chamberlain Group, Inc., 194 F.3d 1261, 1271 (Fed. Cir. 1999) ("'[A]ny subsequent change in the state of the art, such as later developed technology' would have been eligible for coverage under the doctrine of equivalents, thus defining at least one type of expanded claim coverage under the doctrine.") (citation omitted); Chiuminatta, 145 F.3d at 1310 ("The doctrine of equivalents is necessary because one cannot predict the future."). Later-developed technologies may infringe a patent only under the doctrine of equivalents. Al-Site, 174 F.3d at 1320. ("An 'after arising equivalent' infringes, if at all, under the doctrine of equivalents."). The Federal Circuit has clarified that,

although later-developed technologies may infringe a patent under the doctrine of equivalents, such technologies cannot constitute an "equivalent" as would fall within the literal scope of a patent under § 112, ¶ 6. See Al-Site, 174 F.3d at 1320. Accordingly, later developed technologies may not fall within the literal scope of the patent at issue, but may infringe the patent only under the doctrine of equivalents.

The specification of the '942 patent exclusively discusses the encryption of analog signals, without mentioning encryption of digital signals. The apparent reason for the patent's focus on analog signals is that television broadcasting in the early 1980s was conducted solely in an analog format. Both parties acknowledged during oral argument that digital television signals were not developed until after the date of invention. Because the literal scope of the '942 patent was fixed at the date of issuance, the claims must be construed to refer to the kinds of television signals that were being encrypted at that time. See Al-Site, 174 F.3d at 1320. Accordingly, the scope of claim 21 should be limited to refer to the encryption of analog television program signals.

IPPV urges that the claims should not be limited to an analog implementation, because the claims are written in method form. IPPV argues that the scope of method claims should not be limited to the structures discussed in the specification. See Sandisk Corp. v. Lexar Media, Inc., 91 F. Supp.2d 1327, 1333 (N.D. Cal. 2000).

It is true that method claims are not necessarily limited to the structures recited in the specification. See, e.g., IMS, 206 F.3d at 1432-33. The court finds no support for the proposition, however, that drafting a claim in method format can extend the literal scope of the claim to embodiments that are developed subsequent to the issuance of the patent.

The court will construe the phrase "television program signal" of claim 21 of the '942 patent to mean "analog television program signal."

III. CONCLUSION

For the reasons discussed above, the court finds that the phrase "television program signal" of claim 21 of the '942 patent means "analog television program signal."

The parties requested the court to construe claim 21 in order to determine whether the court should compel production by Echostar of the Common Scrambling Algorithm. Based upon the construction of claim 21 articulated herein, it does not appear that Echostar's use of the CSA would infringe the literal scope of claim 21. It is possible that use of the CSA would infringe claim 21 under the doctrine of equivalents. Because the parties have not yet submitted briefing on the issue of equivalency, the court will defer a ruling on whether to compel production of the CSA. The parties

should schedule a conference call with the court to resolve Irdeto's motion for a protective order.