United States District Court,
E.D. Virginia, Norfolk Division.

BEAM LASER SYSTEMS, INC,
Plaintiff.
v.
COX COMMUNICATIONS, INC., CableRep, Inc., CoxCom, Inc., and SeaChange International, Inc,
Defendants.

No. 2:00CV195

June 1, 2001.

In action concerning infringement of patents relating to equipment used for automated insertion of commercial spots into cable network programming, the District Court, Rebecca Beach Smith, J., held that advertising insertion equipment manufactured by intervenor did not infringe patent claims literally or under doctrine of equivalents.

Motions for summary judgment of non-infringement granted.

4,814,883, 5,200,825. Not Infringed.

Raymond Henry Joseph Powell, Jr., Steven Eugene Adkins, Adduci, Mastriani & Schaumberg, LLP, Washington, DC, Louis S. Mastriani, Maureen F. Browne, Adduci, Mastriani & Schaumberg, L.L.P., Washington, DC, Megan Elizabeth Jones, Adduci, Mastriani & Schaumberg, LLP, Washington, DC, Robert A. Westerlund, Westerlund & Powell PC, Alexandria, VA, for Beam Laser Systems, Inc., Frank L. Beam.

Walter Dekalb Kelley, Jr., Troutman Sanders Mays & Valentine, LLP, Norfolk, VA, Frank Alwin Edgar, Jr., Willcox & Savage, P.C., Norfolk, VA, Steven M. Bauer, Eva M. Marceau, Testa, Hurwitz & Thibeault, LLP, Boston, MA, John J. Cotter, Kurt William Lockwood, Testa, Hurwitz & Thibeault, Boston, MA, Christina Nicole Smith, Indranil Mukerji, Amy Marie McCallen, Testa, Hurwitz & Thibeault, Boston, MA, for SeaChange International, Inc.

Walter Dekalb Kelley, Jr., Troutman Sanders Mays & Valentine, LLP, Norfolk, VA, Lars Calvin Golumbic, Dow, Lohnes & Albertson, Washington, DC, Frank Alwin Edgar, Jr., Willcox & Savage, P.C., Norfolk, VA, Stephen Edward Noona, Kaufman & Canoles, PC, Norfolk, VA, David E. Mills, Dow, Lohnes & Albertson, PLLC, Washington, DC, Robert Noah Feldman, John J. Cotter, Kurt William Lockwood, Testa, Hurwitz & Thibeault, Boston, MA, Christina Nicole Smith, Indranil Mukerji, Amy Marie McCallen, Testa, Hurwitz & Thibeault, Boston, MA, for Cox Communications, Inc.

Walter Dekalb Kelley, Jr., Troutman Sanders Mays & Valentine, LLP, Norfolk, VA, Frank Alwin Edgar, Jr., Willcox & Savage, P.C., Norfolk, VA, Robert Noah Feldman, John J. Cotter, Kurt William Lockwood, Testa, Hurwitz & Thibeault, Boston, MA, Christina Nicole Smith, Indranil Mukerji, Amy Marie McCallen, Testa, Hurwitz & Thibeault, Boston, MA, for Louis Stinson, Jr., CableRep, Inc., CoxCom, Inc.

OPINION

REBECCA BEACH SMITH**, District Judge.**

This matter came before the court on March 13, 2001, for a hearing on the proper construction of certain patent claims, *see* Markman v. Westview Instruments, Inc., 52 F.3d 967 (Fed.Cir.1995) (in banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), and for a hearing on a plethora of pending motions. Still pending before the court FN1 are the claim construction and the following four summary judgment motions: (1) SeaChange International, Inc. ("SeaChange"), an intervenor in this action, and Cox Communications, Inc. ("CCI"), CoxCom, Inc., and CableRep, Inc. (collectively, "the Cox Companies" or the "Cox Defendants") filed a Motion for Summary Judgment of Inequitable Conduct Barring Enforcement of U.S.Patent No. 4,814,883 and U.S.Patent No. 5,200,825; (2) SeaChange filed a Motion for Summary Judgment of Non-Infringement for Lacking a "Local Video Signal" (the "Non-Infringement Motion"); (3) SeaChange and the Cox Companies (collectively, "Defendants") filed a Motion for Summary Judgment of Non-Infringement of U.S.Patent No. 4,814,883 and U.S.Patent No. 5,200,825 With Respect to the Cox Companies' Hampton Roads-Type Facilities (the "Hampton Roads Motion"); and (4) Defendants filed a Motion for Summary Judgment of Invalidity of U.S.Patent No. 5,200,825.

FN1. The court ruled on several motions in an order dated April 20, 2001.

The court construes the disputed claim terms below. Additionally, for the reasons given below, SeaChange's Non-Infringement Motion and Defendants' Hampton Roads Motion are both **GRANTED.** The other two motions for summary judgment are not addressed herein and remain pending before the court for decision.

I. Background and Procedural History

A. Technical Background

A cable company purchases programmed channel signals from several individual program sources (network program providers) FN2 for distribution to its customers, who, in turn, pay fees to the cable company. The original program signals (the "network feeds") are communicated to a "headend" operated by the cable company via satellite or fiber-optic cables; the cable company then distributes the programmed channel signals to its individual customers via coaxial cable (hence the term "cable company"). The companies that create the original programmed channel signal (the "cable programmers"), CNN, for example, generate revenue both in the sale to the cable companies of broadcast rights to their channels and in the sale of air time for advertisements.

FN2. Examples of individual program sources are CNN, HBO, and MTV.

In the middle 1980's, cable programmers, as an incentive for carriage on local cable systems, offered to make time slots available to the operator of the local cable system for local advertising ("local avails"). Thus, time was set aside during the hourly run of the programmed show or segment during which local cable systems were permitted to pre-empt the advertisements on the channel in favor of local commercial

inserts. Advertisements inserted by the local cable company are called "spots." Cable operators use these local avails as a revenue source in addition to subscriber fees.

Typically, the local avails are one-minute or two-minute time periods and are found in the time block extending from twenty minutes until thirty-six minutes past the hour and in the time block from fifty past the hour until six minutes past the succeeding hour. Originally, the cable companies employed the same technique for inserting local spots as did broadcast television networks: The cable company aired local advertising by switching the network feed to a local video tape drive when the network feed signaled the start of the local avail. The switch to the local advertising video was typically signaled with a "cue tone" on the network feed which activated a video switch that had an input for the network feed and two inputs for tape drives. Two tape drives were employed for reliability (a missed play of local advertising was costly) and to allow a new tape to be inserted without risking missing a local avail. A cue tone was issued both shortly before the local avail and immediately at the leading time edge of the local avail.

Cable operators developed a promising local advertising business, but also faced some technical and business problems. Operators were inserting local advertising into a number of cable network feeds-not just one, as was the case with television stations-and needed multiple tape drives and a video switch for each programmed channel. Advertising could be sold to air on one channel or across all advertising channels, requiring that advertising tapes be created for each tape machine associated with an advertising cable channel. Cable systems did not cover as much area as the broadcast signal. Thus, an advertiser might have to place ads on five or ten cable systems to reach the same size audience that a single broadcast station could reach. The inventions claimed in the patents at issue attempt to deal with the problems described above.

B. The Patents at Issue

At issue are U.S.Patent No. 4,814,883 ("the '883 Patent"), entitled "Multiple Input/Output Video Switch for Commercial Insertion System," and U.S.Patent No. 5,200,825 ("the '825 Patent"), entitled "Commercial Insertion System Remotely Controlling Multiple Video Switches," (collectively, "the Beam patents"). An application for the '883 Patent was filed on January 4, 1988, and the patent issued on March 21, 1989. The technology was invented by Michael C. Perine and Eric J. Softley, but the patent was assigned to Beam Laser. An application for the '825 Patent was filed on July 1, 1992, and the patent issued on April 6, 1993. This technology was invented by Perine, but the patent was assigned to Beam Laser.

The inventors of the '883 Patent acknowledged a prior art device that could automatically insert one commercial into a single programming channel. This prior art device required a separate, independent switching device for each programming channel, and was thus incapable of exploiting the overlapping nature of the local avails by inserting the same commercial into several channels. *See* '883 Patent, col. 1, ll.45-55.

The invention claimed by the '883 Patent was designed to "overcome [ ] this disadvantage by utilizing a multiple input, multiple output video switch system, that has a video switch for each channel, and that is controlled by a remote control center sending command signals and commercial insert video signals to the switch over a telecommunications network...." Id. col. 2, ll.3-8. Generating the commercial inserts at a central location allowed for only one "copy" of the commercial inserts to be used, with simultaneous broadcast of a commercial spot to all programmed channels. Moreover, the commercials could be fed to the switches in a continuous stream, which each switch could access as its programmed channel signaled a local avail. *See* id. col. 2, ll.24-57.

With the commercial inserts being sent to all channels as a continuous stream, a potential problem occurred when the local avail on a programmed channel began in the middle of one of the commercial spots in the stream. To overcome this problem, the '883 Patent provides for a third signal, the "local video signal," in addition to the programmed channel signal and commercial insert video signal. The local video signal is inserted into the local avail when needed to fill the gap between the time when the local avail starts and the time at which the next commercial spot in the stream begins. *See* id. col. 4, l.41 to col. 5, l.37. Additionally, the inventors anticipated that some commercial spots would consist of cross-promotion advertisements, and that it might be the case that a spot would advertise a channel that certain viewers could not obtain. In that case, the local video signal would be broadcast to those subscribers instead of the commercial insert video signal. *See* id. col. 2, ll.45-51.

The '825 Patent represents an improvement over the '883 Patent, in that the local video signal, or gap filler, was replaced by local commercials that are stored in digital format at the headend. *See* '825 Patent, col. 2, ll.38-60. The video switch system of the '825 Patent provides greater flexibility than that of the '883 Patent, in that commercial spots can be selected for insertion either from the continuous stream of commercial signals sent from the remote control center or from those commercials that are stored in digital format at the headend. *See* id. col. 6, ll.22-33; id. col. 8, l.63 to col. 9, l.3.

The parties dispute several terms in Claims 1 and 7 of the '883 Patent and in Claim 1 of the '825 Patent. The asserted claims of each patent, with the disputed terms highlighted, follow:

The '883 Patent

1. A multiple input video switch system for selecting one video composite signal from a group of a ***programmed channel signal,*** a ***commercial insert video signal*** and a local video signal, said programmed channel signal and said commercial insert signal respectively sent via first and ***second telecommunications networks,*** and the switch system being ***remotely controlled*** by ***first, second and third channel switch commands*** sent via said second telecommunications network, the switch system comprising:
means for generating said local video signal; and,

video switch means for receiving at three respective video inputs, said programmed channel signal from said first telecommunications network, said commercial insert signal from said second telecommunications network and said local video signal and for respectively applying the same at a video output based upon ***receipt*** of said first, second and third switch commands, from said second telecommunications network, ***at a control input*** of the video switch means.

'883 Patent, col. 12, ll.41-61.
7. A multiple input video switching system for receiving a plurality of programmed channel video composite signals, each programmed channel video signal corresponding to a respective channel of a plurality of channels and for selecting, on a per channel basis, said ***programmed channel video signal,*** a sequential stream of ***commercial insert video signals*** and a local video signal, said plurality of programmed channel video signals and said sequential stream of commercial insert signals respectively sent via first and ***second telecommunications networks,*** and the switching system being ***remotely controlled*** on a per channel basis, by respective ***first, second and third switch commands,*** corresponding to a respective programmed channel video signal, the commercial insert stream and said local video signal, and being sent via said second telecommunications network, the switching system comprising:

means for generating said local video signal; and,

a plurality of ***video switch means,*** a respective video switch means corresponding to one each of said plurality of channels, each video switch means receiving at ***three respective video inputs,*** the corresponding programmed channel video signal, said stream of commercial insert video signals, from said second telecommunications network, and said local video signal and having means for respectively applying the same at a video output based upon ***receipt*** of said respective first, second and third switch commands ***at a control input*** of said video switch means.

Id. col. 13, ll.31-60.

The '825 Patent

1. A video switch system for receiving a plurality of programmed channel video composite signals, each programmed channel video signal corresponding to a respective channel of a plurality of channels, and for selecting, on a per channel basis, said ***programmed channel video signal*** as a first video signal, a ***commercial insert video signal*** as a second video signal and a ***locally generated video signal,*** said plurality of programmed channel video signals being sent independently of said commercial insert signals over a first telecommunications network, the commercial insert signal being sent over a ***second telecommunications network,*** the switch system being ***remotely controlled*** on a per channel basis, by respective ***first, second and third switch commands,*** corresponding to a respective programmed channel video signal, the commercial insert signal and said local video signal, said first, second and third switch command signals being sent with ***insert locator data*** via said second telecommunications network, the switching system comprising:
means for storing a plurality of digitally formatted video signals ***at various predetermined locations;***

means for obtaining from said means for storing, and outputting a third video signal as said local video signal, said third video signal corresponding to one of said plurality of digitally formatted video signals that is obtained from said means for storing using said insert locator data, said insert locator data corresponding to select ones of said predetermined storage locations; and

a plurality of video switches, a respective video switch corresponding to each one of said plurality of channels, each video switch receiving at three respective video inputs, the corresponding programmed channel video signal, said commercial insert video signal, and said third video signal, each video switch having means for respectively applying the same at a video output thereof based upon ***receipt*** of said respective first, second and third switch commands ***at a control input*** of the respective video switches.

'825 Patent, col. 10, l.59 to col. 11, l.31.

C. The Accused Equipment

The SPOT product, which is manufactured by SeaChange and used by the Cox Companies for ad insertion, is the advertising insertion equipment that has been accused of infringing the Beam patents. The SPOT product uses what is known as a "store and forward" method, which Defendants describe as follows. A cable company, such as the Cox Companies, has a central office and multiple headends located within a given geographic zone. A Master Control Center serves as the original source of advertisements that are to be inserted using the ad insertion equipment at the headends. An advertiser or ad agency provides a commercial advertisement on analog video tape to the Master Control Center. SeaChange equipment located at the Master Control Center-known as an "encoder"-is used to digitize the advertisement, creating a digital video file that is stored in a Master Video Library at the Master Control Center.

Each headend has a Video Inserter and a Video Switch Module. Digital video files containing the digitized spot commercials are transferred to the Video Inserter located at the headend, where they are stored in an Inserter Video Library. A playback schedule is also transmitted from the Master Control Center to the headend, and is stored on the Video Inserter. The schedule determines when during the local avails the stored advertisements are to be played.

The Video Switch Module has one switch for each programming channel. Each switch receives a programmed channel signal, and switches to, or "inserts," the local commercial signal at scheduled times. When a cue tone signals an upcoming local avail, a digital video file is retrieved from the Inserter Video Library, according to the schedule information, and is converted back into analog form by a "decoder," and then the analog signal is sent to an input of the Video Switch Module, from which it is sent, as the output of the switch, to the subscribers. A succession of digital video files is retrieved, decoded, and sent to the switch, for the duration of the avail. When the avail ends, the switch is switched back to the program feed.

Each video switch in the Video Switch Module contains three inputs: one for the program feed, one for the analog commercial signal, and a third for an auxiliary input (the "AUX port"). In 1996, SeaChange modified its software so that the switch could be automatically programmed for insertion of video signals through the AUX port.

D. Procedural History

On March 17, 2000, Beam Laser and Frank L. Beam, Beam Laser's president and sole shareholder,FN3 filed this action against CCI, alleging that CCI was infringing the Beam patents. Plaintiffs sought to enjoin CCI from infringing the patents and to recover monetary damages for previous infringements.

FN3. By order filed October 23, 2000, Frank L. Beam was dismissed from the action for lack of standing.

On May 19, 2000, SeaChange filed a motion with this court to intervene in the action brought here by Plaintiffs, and to transfer venue to the District of Massachusetts. On June 16, 2000, Plaintiffs amended their complaint to add CoxCom and CableRep-subsidiaries of CCI-as defendants. SeaChange's motion to intervene was granted on June 22, 2000. On June 23, 2000, SeaChange filed a complaint against Plaintiffs in this action, seeking declaratory judgments of non-infringement, invalidity, and unenforceability of the Beam patents, as well as tortious interference with advantageous relations based on Plaintiffs' filing of this action. On July 10, 2000, SeaChange filed a notice of voluntary dismissal of its action in the District of Massachusetts. This court denied Defendants' motion to transfer venue on October 23, 2000.

Beam Laser moved for leave to file an amended answer on December 1, 2000. This motion was granted, and Beam Laser added a claim of infringement against SeaChange.

SeaChange filed its Non-Infringement Motion on February 2, 2001, and Defendants filed their Hampton Roads Motion on that same date. The remaining motions are not relevant here.

II. Analysis

A. Claim Construction

[1] When construing disputed claims in a patent, the court must begin with the intrinsic evidence. *See* Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). Intrinsic evidence consists of the claims, the specification and, if in evidence, the prosecution history. *See id.*

[2] The court must look first to the words of the claims themselves in order to determine the scope of the patented invention. *See id.* "A technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of the invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning." Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed.Cir.1996).

[3] The second step, after consulting the language of the claims, is to review the specification to "determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning." Vitronics, 90 F.3d at 1582. "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.*

[4] [5] [6] The court must not use the specification to read an extraneous limitation into the claim, however. "It is entirely proper to use the specification to interpret what the patentee meant by a word or phrase in the claim. But this is not to be confused with adding an extraneous limitation appearing in the specification, which is improper." E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed.Cir.1988) (citation omitted). The Federal Circuit has defined an "extraneous limitation" to be "a limitation read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim." *Id.* Thus, the court explained, "[w]here a specification does not *require* a limitation, that limitation should not be read from the specification into the claims." *Id.* (internal quotation marks omitted). Moreover, the Federal Circuit has emphasized that

the ordinary and accustomed meaning of a disputed claim term is presumed to be the correct one, subject to the following. First, a different meaning clearly and deliberately set forth in the intrinsic materials-the written description or the prosecution history-will control. Second, if the ordinary and accustomed meaning of a disputed term would deprive the claim of clarity, then further reference must be made to the intrinsic-or in some cases, extrinsic-evidence to ascertain the proper meaning. In either case, a party wishing to alter the meaning of a clear claim term must overcome the presumption that the ordinary and accustomed meaning is the proper one, demonstrating why such an alteration is required.

K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1362-63 (Fed.Cir.1999) (citations omitted). Additionally, a preferred embodiment does not necessarily constitute a limitation on the claim. *See* Lampi Corp. v. American Power Prods., Inc., 228 F.3d 1365, 1378 (Fed.Cir.2000). Finally, the court may consider the prosecution history, if it is in evidence. The prosecution history consists of the record of all proceedings before the Patent and Trademark Office and is often "of critical significance" in determining the meaning of claims. Vitronics, 90 F.3d at 1582.

[7] [8] Although the court may always rely on extrinsic evidence as an aid to understanding a claim, only if the intrinsic evidence fails to resolve ambiguities in a disputed claim term may the court rely on extrinsic evidence to construe the claim. *See* id. at 1583. Extrinsic evidence consists of all evidence external to the patent and its prosecution history, and includes expert testimony, inventor testimony, dictionaries, and technical treatises and articles. *See* id. at 1584. Extrinsic evidence may not be used "to vary or contradict the

claim language. Nor may it contradict the import of other parts of the specification. Indeed, where the patent documents are unambiguous, expert testimony regarding the meaning of a claim is entitled to no weight." *Id*. (citation omitted).

[9] Special considerations apply when construing a "means-plus-function" limitation in a claim. A "means-plus-function" limitation recites a function to be performed, rather than defining a structure, and such a limitation is governed by 35 U.S.C. s. 112, para. 6, which provides as follows:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of 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.

When construing such a claim limitation, the first step for the court is to identify the function of the claimed element. *See* Odetics, Inc. v. Storage Tech. Corp., 185 F.3d 1259, 1266-67 (Fed.Cir.1999); Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1308 (Fed.Cir.1998). Next, the court must consult the written description in the specification to identify the structure corresponding to that function. *See* Chiuminatta Concrete Concepts, 145 F.3d at 1308.

[10] In construing a means-plus-function claim, the court must focus on the overall structure.

The individual components, if any, of an overall structure that corresponds to the claimed function are not claim limitations. Rather, the claim limitation is the overall structure corresponding to the claimed function. This is why structures with different numbers of parts may still be equivalent under s. 112, para. 6, thereby meeting the claim limitation. The appropriate degree of specificity is provided by the statute itself; the relevant structure is that which "corresponds" to the claimed function. Further deconstruction or parsing is incorrect.

Odetics, 185 F.3d at 1268. The disclosed structure consists of that described in the specification, including any alternative structures that are identified. *See* Ishida Co. v. Taylor, 221 F.3d 1310, 1316 (Fed.Cir.2000).

Here, Beam Laser has argued for a broad construction of the disputed terms, relying, for the most part, solely on the plain language of each term, in isolation. Beam Laser claims to define the terms solely on the basis of their "ordinary and accustomed meaning[s]," K-2 Corp., 191 F.3d at 1362, consistently with "what one of ordinary skill in the art at the time of the invention would have understood the term[s] to mean," FN4 Markman, 52 F.3d at 986.

FN4. Beam Laser's expert witness states that one of ordinary skill in the pertinent art is "a degreed electrical engineer with four years of experience in telecommunications cable television systems." *Pl. Beam Laser Sys., Inc.'s Br. on Claim Construction* Ex. C, at 6. Defendants' expert witness states that such a person is "an individual with a bachelor's degree, approximately three years of experience in computer hardware and/or software design, and approximately two years of experience with cable television advertising systems." *SeaChange and the Cox Companies' Markman Br. on the Interpretation of Disputed Claim Language* Ex. F, at 3.

Defendants argue that the disputed terms cannot be understood without looking to the context of the patent

as a whole. They argue that the court must look to the specifications to see what was actually inventedand interpret the claims in the light of the actual invention. *See, e.g.,* Toro Co. v. White Consol. Indus., Inc., 199 F.3d 1295, 1299 (Fed.Cir.1999) ("Determining the limits of a patent claim requires understanding its terms in the context in which they were used by the inventor, considered by the examiner, and understood in the field of the invention."). Beam Laser responds that Defendants are attempting to import into the asserted claims-which pertain to the switching system-limitations from the specifications or that belong only in the claims pertaining to the remote control center.

Beam Laser is correct that the court should not read limitations from one claim into another. However, the switching system cannot be entirely divorced from the remote control center. The preamble to a claim is subject to the same canons of claim interpretation as the actual claims themselves. *See* Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed.Cir.1995). In the case of the Beam patents, the preambles to the claims describing the switching system inevitably link the switching system to the remote control center. Thus, while the asserted claims pertain only to the switch system and not to the remote control center, the preamble to each asserted claim implicates the context of the invention.

It was clearly the purpose of the invention to provide automation and to remove the need for a tape drive associated to each programmed channel at the headend. Contrary to Beam Laser's arguments, generation of the (one) stream of commercial insert signals at the remote control center, for broadcast to all switches, was not merely the preferred embodiment of the invention-it was the invention. And because the invention consisted of automation from one central and remote location, the commands controlling the switches are necessarily generated at that remote control center. Similarly, in the '825 Patent, the predetermined locations and corresponding insert locator data are generated at the remote control center. Thus, while Beam Laser is correct that certain limitations belong only to the claims describing the remote control center, FN5 the facts that certain functions are performed at the remote control center, and that there must be a mechanism in place for transmitting information from the remote control center to the switching system, give rise to limitations that are properly read into the asserted claims.

FN5. For example, the manner in which the commercial insert video signals are generated, and the manner by which the storage locations for the digitally formatted locally generated video signals are determined, are properly the subject of non-asserted claims.

1. programmed channel (video) signal

[11] The plain and ordinary meaning of the term "programmed channel signal" includes any video signal carried by a programmed channel. A "programmed channel" would be understood by a person of ordinary skill in the art to be a cable channel or network such as CNN and MTV. Additionally, it is an inherent limitation of the claim that the programmed channel signal must include time slots for local advertising insertion; otherwise, there would be no need for switching between the programmed channel signal and the commercial insert signal. Because programmed channel signals typically include cue tones to signal upcoming local avails, a person of ordinary skill in the art would so understand the term "programmed channel signal" to include this limitation.

Defendants argue that the programmed channel must be "received and monitored at a remote Control Center." *SeaChange and the Cox Companies' Markman Br. on the Interpretation of Disputed Claim*

Language, at 12 (emphasis deleted). This limitation does not properly belong in the definition of programmed channel signal.

2. commercial insert video signal(s)

[12] A "commercial insert video signal" is an analog video signal, FN6 distinct from the programmed channel signal and local video signal, that contains commercial content that is to be inserted into a local time avail in the programmed channel signal. In the multi-channel setting, one commercial insert signal is transmitted from a remote control center to each video switch.

FN6. An "analog" signal is ready for broadcast, in contrast to a digital signal, which is stored for later playback.

Beam Laser argues that the commercial insert signal can be either analog or digital. The claims language does not expressly state whether the commercial insert signal is analog or digital. Defendants argue that because the commercial insert signal is generated at a remote site and there is no means specified in the patent for storing the commercial insert signal at the headend, the commercial insert signal must be analog. Moreover, Defendants assert that the specification in the '825 Patent makes explicit that the commercial insert signal is analog. *See, e.g.,* '825 Patent, col.4, ll.15-16, 34-40 (referring to "analog commercial inserts").

Beam Laser responds by citing a specific reference in the '883 Patent specification to the source of the commercial insert video signals, in which it is stated that this video source "may be a multiple video laser disc, a video tape, or a digital video still frame, all operating in combination with an audio source." 883 Patent, col.6, ll.41-44. Even if these sources were not readily recognized as digital sources at the time the patent issued, Beam Laser argues, the use of digital technology would have been readily apparent to a person of ordinary skill in the art without undue experimentation, and therefore, digital signals would fall within the scope of enablement of the patent.FN7 *See* National Recovery Techs., Inc. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1195-96 (Fed.Cir.1999). The portion of the specification to which Beam Laser makes reference is in the description of the preferred embodiment. There, it is explained that the source of the commercial insert signal, which is located in the remote control center, generates the stream of commercial insert signals, which are then applied to a satellite up link interface, so that the signals can be transmitted to the switch system at the headend. Even if the generating source of the signal is digital, the signal must be converted to an analog signal before it can be input to the switch. The term "commercial insert video signal," occurring as it does in the claim governing the switch system, thus refers to a ready-for-broadcast signal, *i.e.,* an analog signal.

FN7. Beam Laser argues that a digital form of commercial insert video signal is an "inherent disclosure" of the patent. The Federal Circuit has explained that the scope of enablement of a patent includes the "explicit disclosure"-that which is disclosed in the specification-together with the "inherent disclosure"-"the scope of what would be known to one of ordinary skill in the art without undue experimentation." National Recovery Techs., Inc. v. Magnetic Separation Sys., Inc., 166 F.3d 1190, 1196 (Fed.Cir.1999).

Defendants argue that the term should be construed to include the additional limitation that the commercial insert signal is one advertisement belonging to a series of discrete commercial segments. It is clear that

"commercial insert signal" refers to a single commercial. There is language both in the patent claims and in the specifications supporting this conclusion. Thus, for example, the '883 Patent distinguishes prior art as follows:

After sensing the [cue tone], this device inserts a local commercial generally by operating a video switch that selects a locally generated commercial insert video signal from one input of the video switch as opposed to selecting the programmed channel video at the other input. However, this prior art device is only capable of inserting one commercial insert in a single channel.

'883 Patent, col.1, ll.48-55. Clearly, "commercial insert video signal" is used here to refer to one commercial. In another reference, the patent refers to "a spot commercial or a commercial insert," in a way that makes clear the terms are used as synonyms. Id. col.10, ll.43-44.

Defendants nevertheless argue that the commercial insert signal must consist of a discrete commercial from a stream of commercials, because the patents consistently refer to it in this way. Thus, Defendants cite several instances in both patents where the commercial insert video signal is characterized as a "sequential stream" or a "continuous stream." *E.g.,* id. col.3, l.45; '825 Patent, col.6, 1.31.

Claim 1 of the '883 Patent addresses a single switch, while Claim 7 of the '883 Patent (and also Claim 14, which is not an asserted claim) addresses a plurality of switches. The specification of the '883 Patent describes the operation of the multiple switch system, which is the case in which a stream of commercial inserts is necessary. *See supra* s. I.B (explaining the purpose of the invention). In the claims pertaining to the multiple switch system, the claim language expressly mentions that the commercial insert is one from a stream of inserts. *See, e.g.,* '883 Patent, col.13, ll.36-37 (Claim 7); id. col.14, ll.61-63 (Claim 14).FN8 Thus, this additional limitation should not be read into the term, because it has clearly been added by the inventors when intended. The implication is that this limitation was not intended in Claim 1 of the '883 Patent. FN9

FN8. Defendants assert that Claim 14 of the '883 Patent "equates" the terms "commercial insert video signal," "sequential stream of commercial insert video signals," and "stream of commercial insert video signals." *SeaChange and Cox's Supplemental Markman Br.,* at 11-12. This assertion apparently rests on the fact that all three terms have been used in the claim. The court agrees that "sequential stream of commercial insert video signals" and "stream of commercial insert video signals" are used as equivalents, but does not find this significant. The court is inclined to believe that the one use of "commercial insert signal," in at least seven references to the commercial signal, reflects a careless lack of precision rather than an indication that "commercial insert signal" carries in it the notion that commercials are always part of a stream.

FN9. Contrary to Beam Laser's argument, the court does not find the doctrine of claim differentiation to be applicable here. The Federal Circuit has stated that "[T]he concept of claim differentiation ... states that claims should be *presumed* to cover different inventions. This means that an interpretation of a claim should be avoided if it would make the claim read like another one." Laitram Corp. v. Rexnord, Inc., 939 F.2d 1533, 1538 (Fed.Cir.1991) (internal quotation marks omitted) (alterations and emphasis in original). Regardless of the construction the court gives to "commercial insert signal," Claims 1 and 7 will be distinct.

Beam Laser argues that long-form commercials ("infomercials," which typically last about thirty minutes), and alternate signals that are broadcast after the national broadcaster has gone off the air, could qualify as

commercial insert video signals. However, this ignores the use of "insert" in the disputed term. The use of "insert" must be given effect, and it is clear from the specification that "insert" refers to the insertion of the commercial insert video signal into a local time avail. Therefore, the court concludes that a commercial insert video signal is a commercial spot that is inserted into a local time avail.

3. second telecommunications network(s)

[13] The term "second telecommunications network" would be understood by a person of ordinary skill in the art to be a telecommunications network over which the switch system at the local cable headend receives from a remote control center the commercial insert video signal and the switch commands, and, in the '825 Patent, the insert locator data. Additionally, it would be understood that the second telecommunications network is distinct from the "first telecommunications network," over which is sent the programmed channel signal. Finally, the second telecommunications network must be connected to the switch at a video input and at an Input/Output ("I/O") port, since its function is to allow the commercial insert signal and the channel switch commands to be sent from the remote control center to the switch. *See infra* s. II.A.4 (construing "first, second and third (channel) switch commands").

Nothing in the claims themselves supports the additional limitation advanced by Defendants that the second telecommunications network connects a source that is located "at a significant distance" from the headend to the switch system.FN10 *SeaChange and the Cox Companies' Markman Br. on the Interpretation of Disputed Claim Language,* at 16. Defendants also argue that the commercial insert signal and the switch commands must be continuously received FN11 over the second telecommunications network. This limitation does not properly belong in the definition of second telecommunications network.

FN10. Defendants rely on the preferred embodiments, which describe the second telecommunications network as being a satellite or fiber optic cable link, to argue that there is a significant distance between the remote control center and the switch system. The court will not import this limitation from the specifications into the claims. *See infra* note 12.

FN11. The court understands "continuous receipt" to mean that the switch commands and commercial insert signal are sent from the remote control center to the switching system when the cue tones are detected (the detector being located at the remote control center), as opposed to being sent and stored at the headend well in advance of the local avail.

4. remotely controlled (...) by (...) first, second and third (channel) switch commands

[14] The switching system is controlled by switch commands that are generated at the remote control center, which is at a location that is remote, or separate, from the switch system.FN12 A "command" is an instruction to a computer; in the context of these claims, the instruction tells the computer in the switch system which of three video signals to select and apply as the output signal of the switch.FN13 Consistent with the specifications in both the '883 and '825 Patents, the "first, second, and third switch commands" would be understood to be three distinct commands. Thus, the first switch command is an instruction that directs the video switch to select the programmed channel video signal as the output from the video switch; the second switch command directs the video switch to select the commercial insert video signal as its output; and the third switch command directs the switch to select the local video signal (locally generated video signal) as its output.

FN12. Defendants state that " '[r]emote' is described throughout the patents as being at a distance requiring a satellite or fiber optic cable transmission, as opposed to switch commands generated locally at the head-ends, which would be referred to as being 'local.' " *SeaChange and the Cox Companies' Markman Br. on the Interpretation of Disputed Claim Language,* at 18. Although the switch commands are generated externally to the switching system, there is no specified minimum distance between the source of the commands that effectuate the control and the switch system. Nothing in the patent documents indicates that a certain distance is necessary for the patented invention to function. The fact that the inventors may have assumed that a significant distance might exist between the remote control center and the headend in an implementation of the invention is not grounds for importing such a limitation into the claim. Thus, while the court agrees that the commands are not generated at the headend, the court does not agree that the commands are generated at a significant distance from the headend.

FN13. Defendants offer the following dictionary definition of "command": "An expression that can be input to a computer system to initiate an action or affect the execution of a computer program." *IEEE Standard Computer Dictionary* 44 (Institute of Electrical and Electronics Engineers ed., 1990).

The switch commands are sent to the switching system via the second telecommunications network from the remote control center. As described in the specifications, the remote control center has a monitoring device that detects cue tones in the programmed channel signal. The remote control center generates the switch commands in response to those cue tones, and then sends the switch commands to the switching system. *See* '883 Patent, col.6, ll.15-38; '825 Patent, col.4, ll.16-23. Thus, the commands are sent to the switch in real time; *i.e.,* the switch commands, which determine which video signal will be output by the switch, are sent to the switching system as the cue tones signal an upcoming local avail.FN14

FN14. For example, the specification of the '883 Patent explains that the computer at the switch is fast enough to process the commands in response to the cue tones so that the commercial insert signal or local video signal can be inserted at the appropriate time. *See* '883 Patent, col.6, ll.45-54; id. col.7, ll.12-21.

Beam Laser objects to the inclusion of these additional limitations in the asserted claims. While acknowledging that "real time" remote control is disclosed in the preferred embodiments of both patents, Beam Laser argues that this does not imply that "real time" control is a limitation in the asserted claims. Furthermore, Beam Laser argues that whether the control is in real time or not is a matter pertaining to the operation of the control center, which is the subject of a separate claim, and not the switching system, which is the subject of the asserted claims. All that is required of the switching system, according to Beam Laser, is that the system be capable of being remotely controlled.

The claim language itself indicates that the commands are generated at a location other than the switch system: All asserted claims state that the switch commands are sent to the switch system via the second telecommunications system, and the commands are received at a control input of each switch. Thus, it is not necessary to resort to the specifications to understand that the commands are generated outside the switching system, *i.e.,* the commands are not generated at the headend. In any case, nothing in the specifications suggests that the commands are generated at the switching system.

The court must look outside the claims covering the switching system to understand how the remote control, which is an express limitation in the asserted claims, is effected, because the asserted claims are incomplete in this regard. In particular, the timing of the control cannot be determined from the asserted claims alone. The court must not lose sight of the purpose of the invention: the automated insertion of commercial spots into a programmed channel signal. A person of ordinary skill in the pertinent art would understand that the insertion of commercials into the program channel signal is controlled by cue tones. Thus, although not an explicit limitation in the asserted claims, it is clear that the switch commands must be tied in some way to the cue tones that signal the time avails. Only by looking to the specifications can the timing of the control be determined. The court is not importing limitations from the specifications into the claims; rather, the court is looking to the specifications to understand a limitation implicit in the asserted claims.

5. means for generating said local video signal ('883 Patent ***only)***

[15] The construction of this "means-plus-function" term is governed by 35 U.S.C. s. 112, para. 6. The court must first identify the function that is contemplated by the means-plus-function limitation. Then, the court must look to the written specification to determine the structure corresponding to this function. *See, e.g.,* Chiuminatta, 145 F.3d at 1307-08.

The function, clearly, is to generate a "local video signal." As a threshold step, then, the court must determine the meaning of "local video signal." Beam Laser argues that the local video signal is any video signal other than the programmed channel signal or the commercial insert signal. However, that is not a plain and ordinary interpretation of the term, as it does not account for the use of the term "local." FN15 Unlike "programmed channel signal" or "commercial insert signal," which do have meanings to a person of ordinary skill in the art, "local video signal" is a term that requires definition, and since none is provided in the claims, it is necessary to look to the written specification for the meaning of this term. *See* Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248-49 (Fed.Cir.1998). Thus, in this case, the court must look to the written specification both for the meaning of "local video signal" and for the structure corresponding to the generation of that signal. As explained below, the court concludes that the local video signal is an alternate signal, distinct from the programmed channel signal or commercial insert signal, that is used as the output of the video switch either when there is a gap between the start of a local avail on a channel and the start of a spot in the stream of commercial insert signals, or when the commercial insert signal contains an advertisement for a non-available channel. The first case imposes the requirement that the local video signal be such that it can fill an indeterminate length of time. The court also concludes that the means for generating the local video signal consists of a computer and video board equivalent to an IBM AT computer equipped with an AT & T Targa 16 video board.

FN15. A more natural term to describe a signal that is different from the programmed channel signal or the commercial insert signal is a "third video signal," for example. The use of "local" suggests something more.

The only description provided in the specification of a "local video signal" and the means for its generation is that described in the preferred embodiment. The specification provides that the local video source "is, in one embodiment, an IBM personal computer model AT with an AT & T Targa 16 video board. In the preferred embodiment, [the local video source] generates *a local video signal that is a fixed frame video display of the logo for the local cable company*." '883 Patent, col. 9, ll.30-34 (emphasis added). This same fixed frame display is used as the local video signal for all channels. *See, e.g.,* id. col. 7, ll.32-37.

Based on references to the local video signal throughout the specification, it can be inferred that the purpose of the local video signal is to serve as "filler," used either when the beginning of a local avail on a programmed channel does not coincide with the beginning of a spot commercial in the stream of commercial inserts, or when a cross-promotion commercial that is not available to the viewers of a particular cable system is the subject of a spot commercial. *See supra* s. I.B (describing the invention).

Defendants argue that the local video signal must be a single frame signal, because no other example is shown in the specification. Defendants also rely on the purpose of the invention in support of their assertion that the term "local video signal" is limited to a single frame signal. Defendants reason that, because the duration of the gap to be filled is indeterminate, it only makes sense for the local video signal to be a single still frame.

Beam Laser responds that, although the preferred embodiment specifies a fixed frame (or single frame) video signal, the specified video source-a computer with video board-is capable of generating either a fixed frame or a motion video signal, and thus, the local video signal should not be limited to just a fixed frame signal. This argument reverses the steps of the means-plus-function analysis, however. Beam Laser is arguing that the structure, in its broadest form, should direct the court's construction of the function. However, the law is clear that the court must identify the function first, then look for the corresponding structure. The function is to generate the local video signal. Beam Laser never offers a definition for "local video signal," other than to say, as broadly as possible, that it is a signal different from all the other signals that have been defined. Having divorced "local video signal" from any purpose, Beam Laser then argues that the local video signal comprises any signal that it chooses to identify. No principles of claim construction allow such a broad "definition" of a claim term.

Beam Laser also argues that the system in its preferred embodiment-a video switching system designed to accommodate a plurality of programming channels-subsumes a video switching system for a single programming channel. In the case of a single programming channel, filler is unnecessary, and there is no need to limit the local video signal to a still frame. Therefore, Beam Laser argues, the local video signal could be a motion video signal.FN16 The court agrees that Claim 1 of the '883 Patent is directed to a video switch for a single channel. That does not mean, however, as Beam Laser argues, that the goal of the patent was not to address a problem inherent in a multi-channel system. Thus, although a single channel system is subsumed by a multi-channel system, the local video signal is nevertheless a gap filler, because that is how it is defined in the specification. Moreover, the term "local video signal" is used in both Claims 1 and 7 of the '883 Patent, and it must have the same meaning in both contexts. *See* Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1579 (Fed.Cir.1995).

FN16. Beam Laser asserts that "a person of ordinary skill in the art would understand that although the 'preferred embodiment' of the '883 video switching system is a video switching system for a plurality of channels, the '883 patent necessarily subsumes a video switching system for a single channel," *Pl. Beam Laser Sys., Inc.'s Br. on Claim Construction,* at 23, and a single channel switch does not need a gap-filler. A person of ordinary skill in the art would also understand, however, that a video switching system for a single channel would have no need for a local video signal at all. Beam Laser acknowledges that a video switching system for a single channel would not need a "filler," and argues on that basis that the local video signal is more than filler. However, as explained in the text, this argument reverses the steps of the claim construction analysis. "Local video signal" must be defined first, before the court can ascertain the claimed structure for performing the generation of the local video signal.

[16] Finally, Beam Laser argues that a motion video signal is an "inherent disclosure" of the patent. The scope of a patent claim is contained within "that which is disclosed in the specification plus the scope of what would be known to one of ordinary skill in the art without undue experimentation." National Recovery Techs., 166 F.3d at 1196. Beam Laser argues that a person of ordinary skill in the pertinent art would recognize, without undue experimentation, that the means for generating a local video signal could be used to generate either a fixed frame or a motion video signal.

While the court finds that the local video signal must be a "filler," the court agrees with Beam Laser that the form of the "filler" is not necessarily limited to a fixed frame signal. The patent clearly states that an IBM personal computer is "one embodiment," and a single frame signal as the output of the computer and video board is only the preferred embodiment, which does not necessarily impose a limitation. *See* Lampi, 228 F.3d at 1378. Thus, alternatives such as mood scenes or electronic programming information-anything that could be used to fill an indeterminate amount of time-could also be used as the local video signal.FN17

FN17. In arguing that the local video signal may be more than simply filler, Beam Laser asserts that [t]he operator of the system ("programmer") can, as a matter of programmer's choice, elect to insert a local video signal rather than a commercial insert signal in any given channel whenever the programmer so desires. For example, the programmer may have only a certain amount of suitable or desired inventory of commercial spots for a particular channel, and may therefore elect to air a local advertisement or other local video signal during certain local avails or portions thereof.

Pl. Beam Laser Sys., Inc.'s Br. on Claim Construction, at 24-25. There is no support in the specification for a definition of local video signal that includes a local advertisement to be inserted at the programmer's choice.

6. video switch means for receiving at three respective video inputs ('883 Patent ***only)***

This is another means-plus-function term, governed by 35 U.S.C. s. 112, para. 6. FN18 The function identified in this claim term is the selection, from three video signals that are received at three video inputs, of one video signal to be applied at a video output. This selection and output occurs in response to switch commands that are received by the switch at a control input via the second telecommunications line.

FN18. Beam Laser asserts that this is not a means-plus-function limitation because sufficient structure is recited in the claim. *See* York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1574 (Fed.Cir.1996) (stating that the "mere incantation of the word 'means' in a clause reciting predominantly structure cannot evoke section 112, para. 6"). Beam Laser claims that a person of ordinary skill in the art would understand that the term "video switch," in the context of the claim as a whole, includes a computer (with both hardware and software components), and a video switching component controlled by the computer. In any case, Beam Laser argues, even if this is a means-plus-function claim, the structure identified in the specification includes a computer (having both hardware and software components) and a video switching component controlled by the computer.

The corresponding structure described in the specification consists of a computer, a physical switch, and a software program that controls the switch in response to the switch commands. The switch contains a control input where the switch commands are received and three video inputs where the three video signals

are received. Additionally, the switch contains a video output where the selected video signal is output. It is clear from the claims and specification that the "three respective video inputs" are: first, connected to a programming channel, second, connected to a video bus supplying the commercial video signal, and third, connected to a bus supplying a still frame video signal called the local video signal. These are clearly three separate inputs.

Defendants argue that the video switch must actually receive the three video inputs, not just have the capability of doing so. This distinction is considered (and rejected) in the context of addressing the Non-Infringement Motion. *See infra* note 32.

7. receipt ... at a control input

The ordinary meaning of the term "control input" is an I/O port of a computer, where the instruction initiating the control of that computer is input. Thus, the computer located within the switching system receives the first, second and third switch commands at an I/O input. *See supra* s. II.A.4 (describing remote control by switch commands).

8. locally generated video signal ('825 Patent ***only)***

[17] The plain and ordinary meaning of "locally generated video signal" is a video signal that is generated at the headend, *i.e.,* locally to the switching system. To fully understand the nature of this signal, it is necessary to look to the specification. According to the specification, the "locally generated video signal ... corresponds to one of a plurality of digitally formatted video signals stored locally at or near the switch. " '825 Patent, col. 2, ll.40-42. In contrast to the "local video signal" of the '883 Patent, the "locally generated video signal" is not restricted to gap filler. Rather, the preferred embodiment of the '825 Patent discloses an insertion system in which some of the commercials from the stream comprising the commercial insert video signal can be replaced by commercials from an alternate stream compiled from digitally formatted signals that are stored at the headend. A gap filler, such as a still frame video, is also disclosed. *See* id. col. 6, l.22 to col. 7, l.64.

Additionally, the "locally generated video signal," also referred to in the patent as "local video signal" or "third video signal," is the subject of two means-plus-function elements, and its meaning must be consistent with the meaning of these elements. First, the claim recites a "means for storing" the "digitally formatted" local video signals. Id. col. 11, l.11. Second, the claim recites a "means for obtaining from said means for storing, and outputting" the local video signals. Id. col. 11, ll.13-14.

The specification describes the structure corresponding to the functions of storing, and obtaining from storage, the local video signals: A computer located at the headend contains a microprocessor that "obtains digitally formatted video signals from the memory, and applies those signals to the third video inputs ... via digital video interface ("DVI") boards." Id. col. 4, ll.59-66. The computer includes both digital commercial insert ("DCI") memory and a mass storage digital video source. *See* id. col. 4, l.66 to col. 5, l.14. The DCI memory can be used to store "significant amounts of digitally formatted video signals such that these digitally formatted signals can be quickly manipulated and loaded into various DVI boards." Id. col. 4, l.68 to col. 5, l.3. The mass storage source is slower, and may consist of RAM, a hard disk, a digital network, a CD-ROM, or a digital tape player. *See* id. col. 5, ll.8-13, 15-23 (Table 1).

Defendants assert that the local video signal is used as an alternative output to the commercial insert signal during a local avail and that the same advertisement must be inserted into all local time avails offered

concurrently on all programmed channels. It is clear from the claim that the local video signal is provided as an alternative to the commercial insert signal, either of which can be selected for insertion into a local avail. However, the claim does not state the additional limitation that the same advertisement from the local video signal must be inserted on all channels. Indeed, an illustration is provided in the preferred embodiment in which different digital segments are concurrently shown on different channels. In fact, the specification expressly provides that

the video switch system of the present invention provides greater flexibility than the video switch system disclosed in the ['883 Patent].... In the present system, multiple DCI sequences can be played through one or more of the video switches and, hence, channels broadcast by the cable system. In contrast, all the switches in the second input state must play the same ACI [commercial insert signal] segment.

Id. col. 8, l.64 to col. 9, l.3. Thus, while the same commercial insert signal is sent to all switches, different locally generated video signals can be inserted by different switches.

9. means for storing ... at various predetermined locations ('825 Patent ***only)***

[18] This means-plus-function claim was partially construed above. *See supra* s. II.A.8. The function is storage of the digitally formatted video signals at predetermined locations. The corresponding structure is described in the specification as memory, in a computer that is part of the switching system, that consists of both DCI memory and mass storage. *See* '825 Patent, col. 4, l.66 to col. 5, l.14; *supra* s. II.A.8. Although it is not stated explicitly in the specification, the "predetermined locations" must be predetermined by the remote control center, because the remote control center generates the insert locator data, which is sent to the switch in order to instruct the switch where to obtain the stored digital files.

10. insert locator data ('825 Patent ***only)***

[19] As provided in Claim 1 of the '825 Patent, the "insert locator data" identifies the "predetermined storage locations" at which the digitally formatted local video signals have been stored. '825 Patent, col. 11, ll.12-20. Claim 1 of the '825 Patent also provides that the insert locator data is sent to the switching system, with the switch commands, over the second telecommunications network. *See* id. col. 11, ll.7-10. Because the insert locator data is sent with the switch commands via the second telecommunications network, the insert locator data must originate from the same remote source-the remote control center-as the switch commands and the commercial insert signal.

B. Summary Judgment Motions

[20] Summary judgment is appropriate when there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. *See* Fed.R.Civ.P. 56(c); Sextant Avionique, S.A. v. Analog Devices, Inc., 172 F.3d 817, 824 (Fed.Cir.1999).

Summary judgment is as appropriate in a patent case as in any other. Where no genuine issue of material fact remains and the movant is entitled to judgment as a matter of law, the court should utilize the salutary procedure of [Rule 56] to avoid unnecessary expense to the parties and wasteful utilization of the jury process and judicial resources.

Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd., 731 F.2d 831, 835 (Fed.Cir.1984); *see* Nike Inc. v. Wolverine World Wide, Inc., 43 F.3d 644, 646 (Fed.Cir.1994). "A good faith dispute about the

meaning and scope of asserted claims does not, in and of itself, create a genuine dispute to preclude summary judgment in patent cases." Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc., 92 F.Supp.2d 483, 489 (E.D.Va.2000).

[21] Once the disputed claims have been construed, the issue of whether the accused device infringes an asserted claim is a question of fact. *See* General Am. Transp. Corp. v. Cryo-Trans, Inc., 93 F.3d 766, 769 (Fed.Cir.1996). A finding of literal infringement requires that the asserted claim read onto an accused device exactly. *See, e.g.,* Johnston v. IVAC Corp., 885 F.2d 1574, 1580 (Fed.Cir.1989); Mannesmann Demag Corp. v. Engineered Metal Prods. Co., 793 F.2d 1279, 1282 (Fed.Cir.1986).

[22] [23] [24] "To find non-infringement, a district court must hold that the alleged infringer does not infringe any of the claims at issue either literally or under the doctrine of equivalents." Watts v. XL Sys., Inc., 232 F.3d 877, 884 (Fed.Cir.2000). Under the doctrine of equivalents, infringement may be found "where the elements of the accused device are substantially equivalent to the corresponding elements of the asserted claim." K-2 Corp., 191 F.3d at 1366. Thus, "[e]ven if an accused product differs enough from an asserted claim to preclude literal infringement, that product may infringe under the doctrine of equivalents if there is equivalence between those elements of the accused product and the claimed limitations of the patented invention that are not literally infringed." Zelinski v. Brunswick Corp., 185 F.3d 1311, 1316 (Fed.Cir.1999). One test used to determine if an accused device infringes under the doctrine of equivalents is "whether the element performs substantially the same function in substantially the same way to obtain substantially the same result as the claim limitation." Id. at 1316-17.

[25] With regard to a means-plus-function limitation, the Federal Circuit has stated:

Literal infringement of a s. 112, para. 6 limitation requires that the relevant structure in the accused device perform the identical function recited in the claim and be identical or equivalent to the corresponding structure in the specification. Functional identity and either structural identity or equivalence are *both* necessary.

Caterpillar Inc. v. Deere & Co., 224 F.3d 1374, 1379 (Fed.Cir.2000) (internal quotation marks and citation omitted). When determining whether a means-plus-function element is infringed under the doctrine of equivalents, the court must apply a "reduced version of the well-known tripartite test." *Id*. Under this test, "an accused device is equivalent when it performs the identical function in substantially the same way to achieve substantially the same result." *Id*.

1. SeaChange's Non-Infringement Motion

SeaChange has moved for summary judgment of non-infringement on the ground that its SPOT product does not contain an element of the asserted claims, and therefore does not infringe the Beam patents. Specifically, SeaChange argues that its equipment does not contain a "means for generating [a] local video signal," as required in Claims 1 and 7 of the '883 Patent, or a "means for obtaining from [the] means for storing, and outputting a third video signal as [the] local video signal," as required in Claim 1 of the '825 Patent. '833 Patent, col.12, l.51; id. col.13, l.48; '825 Patent, col.11, ll.13-15.

a. Literal Infringement

[26] Beam Laser has advanced several theories of infringement by way of the expert report prepared by Dr. Larry L. Campbell, Ph.D. *See Pl. Beam Laser Sys., Inc.'s Br. on Claim Construction* Ex. C [hereinafter

Campbell Expert Report]. The court has examined each of these infringement scenarios in detail, and, as explained below, concludes that none of the scenarios supports a claim of literal infringement, because Beam Laser has failed to show that the SPOT product has all of the capabilities in the asserted claims.

The '883 Patent

Beam Laser has asserted five infringement scenarios in relation to Claims 1 and 7 of the '883 Patent, involving various arrangements of SeaChange equipment.FN19 In the first infringement scenario corresponding to Claim 1 of the '883 Patent, *see Campbell Expert Report* s. 4.2, Dr. Campbell proposes that "miscellaneous video inputs from local sources," input at the AUX port of the SPOT video switch, serve as the local video signal. *Id*. s. 4.2.2, at 18. There is no allegation that this local video signal is generated by SeaChange equipment, and, in fact, Dr. Campbell acknowledges that "the local video signal is generated by other equipment that may be controlled by the Cox Defendants." *Id*. s. 4.2.8, at 24. Therefore, it cannot be said that SeaChange equipment provides the means for generating the local video signal in this infringement scenario.FN20 Because the SPOT product is missing an element of Claim 1, there can be no infringement under this scenario as a matter of law. *See, e.g.,* Johnston, 885 F.2d at 1580 ("Where a claim does not read on an accused device exactly, there can be no literal infringement."); Mannesmann, 793 F.2d at 1282 ("Literal infringement requires that the accused device embody every element of the patent claim."). For the same reason, there is no infringement of Claim 7 under the analogous scenario, *see Campbell Expert Report* s. 5.2.FN21

FN19. Dr. Campbell discusses five configurations that allegedly infringe Claim 1 of the '883 Patent. Dr. Campbell additionally has proposed alternates for several of these infringement scenarios, which the court also addresses. After discussing infringement scenarios corresponding to Claim 1, Dr. Campbell discusses analogous versions of some of these scenarios that correspond to Claim 7.

FN20. Dr. Campbell proposes an alternate to the first scenario that appears to be the same as the third scenario. The court does not separately address this alternate scenario.

FN21. When discussing the analogous scenario relevant to Claim 7, Dr. Campbell never alleges that SeaChange equipment constitutes the means for generating a local video signal, but rather states that "the Cox Defendants control, operate, or induce others to use equipment which generates the local video signal." *Campbell Expert Report* s. 5.2.6, at 40.

Dr. Campbell bases a second infringement scenario on the use of two SPOT Video Inserters connected to one SPOT Video Switch Module. *See id*. s. 4.3. In this scenario, the Inserter Video Library of the first Video Inserter is used to store spot commercials, while the Inserter Video Library of a second Video Inserter is used to store long-form commercials (infomercials). In this case, according to Dr. Campbell, the signal that is sent from the first Video Inserter to the Video Switch Module constitutes the commercial insert signal. Dr. Campbell alleges that the second Video Inserter is the means for generating the local video signal, and the long-form commercials serve as local video signals, which are input to the Video Switch Module through the AUX port. *See* id. at 25-26. However, a long-form commercial is not a local video signal in the sense that the term is used in the '883 Patent, because a thirty-minute infomercial is not a "gap filler." *See supra* s. II.A.5 (construing "local video signal"). Thus, even assuming that SeaChange could be

liable for direct infringement based on the Cox Companies' assembly of a video switch system composed of two Video Inserters connected to a Video Switch Module, the second Video Inserter used for storage of long-form commercials is not a means for generating a local video signal, as the court has construed that term, and thus, there is no infringement under this scenario as a matter of law. FN22

FN22. As an alternate version of this scenario, Dr. Campbell identifies the long-form commercials stored on the second Video Inserter with the commercial insert video signal, and the spot commercials temporarily stored on the first Video Inserter are identified with the local video signal. However, a long-form commercial cannot be a commercial insert video signal, because it is not "inserted" into a local avail. *See supra* s. II.A.2, at 25.

In the third infringement scenario, *see Campbell Expert Report* s. 4.4, Dr. Campbell proposes that the Video Inserter is the means for generating a local video signal, and the signal sent by the Video Inserter to the Video Switch Module serves as the local video signal.FN23 However, the signal produced by the Video Inserter cannot be a "local video signal," as that term is used in the 883 Patent, because the local video signal must consist of a still frame or other "filler." *See supra* s. II.A.5 (construing "local video signal"). A full set of spot commercials, which is what comprises the signal sent by the SPOT Video Inserter to the Video Switch Module, cannot be a gap filler. Therefore, the SPOT product does not have a means for generating a local video signal under this scenario, and there is no infringement as a matter of law. For the same reason, there is no infringement of Claim 7 under the analogous scenario, *see Campbell Expert Report* s. 5.3.

FN23. In this scenario, an input from an interconnect, *see infra* note 24 (defining "interconnect"), is proposed as the commercial insert video signal. The details of this configuration are more fully discussed in conjunction with the '825 Patent. *See* infra at 500-502.

The fourth and fifth infringement scenarios involve the combination of two insertion systems in a "Multiple Insertion System Interconnect." FN24 In these configurations,two insertion systems are located at the headend, where one system is maintained by the local cable company, and the other system is maintained by an interconnect. *See id*. s.s. 4.5, 4.6.FN25 In one such configuration, the local cable company's insertion system (the "upstream" system) receives the program feed and commercial insert material from the cable company's Master Video Library, while the interconnect's insertion system (the "downstream" system) receives the output from the upstream system as its program feed,FN26 and spot commercials from the interconnect as commercial material to be inserted. *See id*. s. 4.5. In a second two-system configuration, the interconnect maintains the upstream switch system, and the local cable company maintains the downstream system. The upstream system receives the program feed and the spot commercial inserts provided by the interconnect, and the downstream system receives the output from the upstream system as its program feed FN27 and commercial material from the local cable company's Master Video Library for insertion. *See id*. s. 4.6.

FN24. SeaChange defines an "interconnect" in its *Dictionary of Technical Terms* as follows:
An organization that sells air time and plays spots across multiple cable systems over a large region. Businesses that want to broadcast regional ads often buy air time from an interconnect. The interconnect, in turn, buys air time from many local cable companies in a region so it can air the spots it has sold.
There are two basic types of interconnect:

-> A *Multiple Insertion System Interconnect* maintains its own complete, separate insertion system. This insertion system is connected to the local cable company's insertion system in a way that allows both systems to insert.
-> A *Single Insertion System Interconnect* shares the local cable company's insertion equipment (inserters or insertion units) to deliver video.

Dictionary of Technical Terms 18 (SeaChange International Inc. ed., 1997).
FN25. Dr. Campbell discusses alternate versions of these arrangements, *see Campbell Expert Report* s.s. 4.5.8, 4.6.8, which suffer from the same deficiency as the third infringement scenario. Namely, the signal passed from the Video Inserter to the Video Switch Module cannot qualify as a "local video signal." *See* supra at 498.

FN26. The SPOT switch has three inputs: one intended for the program feed, one intended for the commercial insert feed, and the AUX port. "Program feed" is used in the text to indicate that the video signal in question is being fed into the input port of the downstream system that normally accepts the program feed. In the configuration at issue here, the output from the upstream system may consist of commercial insert material, depending on the switch configuration of the upstream system.

FN27. *See supra* note 26.

Dr. Campbell proposes that these two-system configurations may be viewed as single switching entities. In the first configuration, Dr. Campbell identifies the program feed that is input to the upstream (local cable company) switch with the "programmed channel signal" of the single switching entity; the commercial insert material input to the upstream switch is identified with the "commercial insert video signal" of the single switching entity; and the commercial insert material input to the interconnect's switching system is identified with the "local video signal." In the second configuration, Dr. Campbell identifies the program feed input to the upstream (interconnect) switch with the "programmed channel signal" of the single switching entity; the commercial insert material input to the downstream (local cable company) switching system is identified with the "commercial insert video signal" of the single switching entity; and the commercial insert material input to the interconnect's switch is identified with the "local video signal."

Dr. Campbell does not explain the sense in which the commercial insert signal input to the interconnect's switch constitutes a local video signal; moreover, it does not appear that the equipment maintained by the interconnect is necessarily SeaChange equipment, in which case SeaChange does not manufacture the generator of the local video signal, assuming that there is one in these configurations.FN28 However, even assumingthat in these two-system scenarios, SeaChange equipment provides a means for generating a local video signal, the court concludes that there is no infringement because these two-system configurations do not read onto Claim 1 of the '883 Patent. The claim clearly states that one of three signals is applied at " *a* video output," based on switch commands that are received at " *a* control input, " '883 Patent, col.12, ll.57-60 (emphasis added), and yet, these two-system configurations involve *two* video outputs and *two* control inputs. *See* North Am. Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571, 1575-76 (Fed.Cir.1993) (interpreting "a" to be singular when there was "no indication in the patent specification that the inventors ... intended it to have other than its normal singular meaning").

FN28. According to SeaChange's definition, which Dr. Campbell quoted in his expert report, the interconnect in a "Multiple Insertion System Interconnect"-the type involved in both the fourth and fifth scenarios-maintains its own separate insertion system. *See supra* note 24. Additionally, in his discussion of these scenarios, Dr. Campbell repeatedly refers to the "interconnect's video switch." For example, while discussing variations of the fourth scenario, Dr. Campbell states that, in this scenario, "the local video signal is generated by an interconnect's downstream video switch system," *Campbell Expert Report* s. 4.5.8, at 34. Similarly, while discussing variations of the fifth scenario, Dr. Campbell states that, in this scenario, "the local video signal is generated by an interconnect's upstream video switch system," *id*. s. 4.6.8, at 37. Dr. Campbell's phrasing suggests that the switch is operated by the interconnect, and not the Cox Companies, and there has been no citation to the record indicating that interconnects use SeaChange equipment.

In the first two-system configuration, for example, the upstream switching system selects one signal from the program feed and the commercial insert signal provided by the cable company's Master Control Center, to be applied as one video output signal (the "upstream output"); this upstream output is then sent, as an input, to the downstream system. The downstream switching system selects one signal from the upstream output signal and the commercial insert signal provided by the interconnect, to be applied as a second video output signal, which is the signal received by the cable subscribers. A first control input is required in the upstream system to effect the switching in that system between the program feed and the cable company's commercial inserts. A second control input is necessary in the downstream switching system to effect the switching there between the output signal received from the cable company's switch and the interconnect's commercial inserts.

Moreover, these configurations are not controlled by "first, second and third switch commands." In both configurations, the upstream system is controlled by first and second switch commands, which instruct the upstream switch to select one of two video inputs to be applied as the output, and the downstream system is controlled by first and second switch commands, which instruct the downstream switch to select one of two inputs to be applied as its output. The court therefore concludes that, as a matter of law, there is no infringement under these two-system scenarios.FN29

FN29. Dr. Campbell proposes an alternate version of the fourth arrangement, *see Campbell Expert Report* s. 4.5.8, and an alternate version of the fifth arrangement, *see id*. s. 4.6.8, that suffer from these same deficiencies.

The '825 Patent

Beam Laser has asserted two infringement scenarios in relation to Claim 1 of the '825 Patent. The first is a multi-channel analog of the third infringement scenario discussed above. *See Campbell Expert Report* s. 6.2; supra at 498. In the first scenario, Dr. Campbell asserts that the SPOT Video Inserter functions as the means for obtaining and outputting a local video signal; the spot commercials are the locally generated video signal; and the AUX port is the input port for the commercial insert video signal.

SeaChange acknowledged that "Dr. Campbell ... argues in his report that the signal input to the AUX port can satisfy the claimed 'commercial insert video signal,' and the signal input to the video inserter can satisfy the claimed 'local video signal.' " *SeaChange's Mem. in Supp. of Its Mot. for Summ.J. of Non-Infringement*

for Lacking a "Local Video Signal", at 10 n. 9. However, SeaChange dismissed this infringement theory as "irrelevant for purposes of this motion because [the theory] still requires the generation of a *third* video signal." Id. SeaChange argues that the SPOT product cannot infringe the Beam patents because it contains no structure capable of generating a third signal. Evidently, SeaChange incorrectly reads the claim to require the generation of three signals. In fact, the '825 Patent claims a structure for generating only one signal. The program signal and commercial insert signal are both generated elsewhere; only the locally generated video signal is generated by the switch means.FN30 The SPOT product generates one signal: that which is fed to the switch by the Video Inserter. Beam Laser argues that this signal is the "third," or locally generated, video signal claimed by the '825 Patent.

FN30. The source of the commercial insert signal is not the subject of the asserted claims. Thus, the means by which it is generated is not of concern here.

SeaChange responds that the signal output by the Video Inserter could not be the locally generated video signal, because if this signal is the locally generated video signal, then the SPOT product provides no commercial insert signal.FN31 However, the switch means at issue in Claim 1 of the '825 Patent does not *provide* a commercial insert signal; rather, it *receives* a commercial input signal.FN32 Beam Laser alleges that, when an interconnect's signal is fed into the AUX port, the SPOT product receives a commercial insert signal. Thus, Beam Laser argues, the SPOT product is capable of receiving a commercial insert signal, and SeaChange is liable for infringement, whether the AUX port is used in that way or not. See Intel Corp. v. United States Int'l Trade Comm'n, 946 F.2d 821, 832 (Fed.Cir.1991).

FN31. SeaChange also asserts that its SPOT product "requires *only two* physical inputs," suggesting that its product does not infringe the Beam patents because the Beam patents require three inputs. *SeaChange's Mem. in Supp. of Its Mot. for Summ.J. of Non-Infringement for Lacking a "Local Video Signal",* at 10. Indeed Defendants state that "the asserted claims expressly require *three* distinct video signals for the claimed video system to function." *SeaChange and the Cox Companies' Reply in Supp. of Their Mot. for Summ.J. of Non-Infringement of the Hampton Roads-Type Facilities,* at 14. The '825 Patent does not appear to require that three signals be actually input to the switch in order to function, however. If only the programmed channel signal and third video signal were available, then, presumably, only first and third switch commands would be sent to the switch, and the switch system claimed by the '825 Patent would function by switching between two signals.

FN32. SeaChange argued at the hearing that the patent requires that the switch actually be "receiving" the signal. Adoption of this literal interpretation would result in the absurdity that an accused device could not infringe as manufactured and sold, but only when actually in use. The court agrees with Beam Laser that the patent requires only that the switch be capable of receiving the three named video inputs.

SeaChange argues that there can be no commercial insert signal input at the AUX port, because a signal sent to the AUX port would not be sent over the same telecommunications network as the switch commands, as required in Claim 1. A second telecommunications network that is capable of transmitting to the switching system the commercial insert signal, the switch commands, and, in the '825 Patent, the insert locator data, is necessarily part of the claimed switching system. *See* Bell Communications, 55 F.3d at 621 (explaining that the preamble to a claim gives rise to a limitation when the phrase at issue is "deemed essential to point out

the invention defined by the claim" (internal quotation marks omitted)).

Contrary to Beam Laser's argument, when there is nothing connected to the AUX port, as is the case when the SPOT product is manufactured and sold, the SPOT product is *not capable* of infringing. The SPOT product, even if it has the capability of receiving a third signal at the AUX port, is not capable, without modification, of receiving a commercial insert signal via a second telecommunications network-which also carries the switch commands and insert locator data to the switch system-through the AUX port. As the Federal Circuit has stated, "a device does not infringe simply because it is possible to alter it in a way that would satisfy all the limitations of a patent claim." High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc., 49 F.3d 1551, 1555 (Fed.Cir.1995). "The question is not what [a device] might have been made to do, but what it was intended to do and did do.... [T]hat a device could have been made to do something else does not of itself establish infringement." *Id*. (internal quotation marks omitted) (alterations in original). Therefore, the SPOT product does not directly infringe Claim 1 of the '825 Patent under this scenario.

The second infringement scenario pertaining to Claim 1 of the '825 Patent is a multi-channel analog of the fifth scenario discussed above in conjunction with Claim 1 of the '883 Patent. *See Campbell Expert Report* s. 6.3; supra at 498-500. This scenario, based on the combination of two switching systems, suffers from the same deficiencies as the fifth scenario: namely, the two-system configuration does not read onto Claim 1 of the '825 Patent because the two-system configuration involves two control inputs and two video outputs, and is not controlled by first, second, and third switch commands. *See supra* text accompanying notes 28-29.

b. Doctrine of Equivalents

The '883 Patent

[27] As explained above, the SPOT product does not, as a matter of law, literally infringe Claims 1 or 7 of the '883 Patent under any of the configurations proposed by Dr. Campbell. In the first three (single switching system) scenarios, the court has determined that there is no "means for generating [a] local video signal," a necessary element in each claim. '883 Patent, col. 12, l.51 (Claim 1); id. col. 13, l.48 (Claim 7). Without this element, there can be no infringement under the doctrine of equivalents, because without any means to generate a local video signal, the SPOT product cannot, as a matter of law, perform the identical function as the invention, as required by the doctrine. *See* Caterpillar, 224 F.3d at 1379 (explaining that when analyzing a means-plus-function element, the test for infringement under the doctrine of equivalents requires that the accused device perform "the *identical function* in substantially the same way to achieve substantially the same result" (emphasis added)).

In the two-system configurations, the manner of remote control by switch commands is not substantially the same as that claimed in the '883 Patent. As explained above, the two-system configurations rely on two sets of first and second switch commands, input to the switching systems at two control inputs, rather than relying on one set of first, second, and third switch commands, input to the switching system at one control input, as claimed by the '883 Patent. *See supra* text accompanying notes 28-29. Therefore, there is no infringement under the doctrine of equivalents in these two-system scenarios.

The '825 Patent

As explained above, there is no literal infringement under the first infringement scenario, because the switch in the SPOT product, as manufactured and sold, does not have an input for a commercial insert signal that is

connected to a second telecommunications network. *See* supra at 500-502. As there is no equivalent structure that plays the role of this missing feature, there can be no infringement under the doctrine of equivalents. *See* General Am. Transp., 93 F.3d at 771.

There is no infringement under the doctrine of equivalents, as a matter of law, in the second infringement scenario (the two-system configuration), for the same reason as that given for analogous scenario associated with the '883 Patent: The switching function described by Dr. Campbell is not substantially the same as that claimed in the '825 Patent. *See* supra at 503.

c. Judicial Estoppel

[28] Beam Laser claims that SeaChange is judicially estopped from arguing that its SPOT product does not have a means for generating a local video signal or a means for obtaining and outputting a third video signal. Judicial estoppel is "preclusion against inconsistent position, [which] is designed to protect the integrity of the courts and the judicial process." United Va. Bank/Seaboard Nat'l v. B.F. Saul Real Estate Inv. Trust, 641 F.2d 185, 190 (4th Cir.1981) (internal quotation marks omitted) (alteration in original). The "essential function and justification" for the doctrine is "to prevent the use of intentional self-contradiction ... as a means of obtaining unfair advantage in a forum provided for suitors seeking justice." Allen v. Zurich Ins. Co., 667 F.2d 1162, 1167 (4th Cir.1982) (internal quotation marks omitted) (alteration in original). It is most appropriately invoked when the party asserting an earlier inconsistent position prevailed. *See id.*

According to Beam Laser, SeaChange argued that its SPOT product has a means for generating a local video signal when it argued in support of its motion to intervene in this action. The court disagrees with this characterization. SeaChange merely argued that *if* the Cox Companies were infringing the Beam patents, then-as Beam Laser is now in fact arguing-the Cox Companies were doing so with the SeaChange equipment. Indeed, SeaChange stated in its brief that "SeaChange does not suggest here it infringes the Beam claims, because SeaChange's system operates very differently than the system described in Beam' patents. SeaChange only intends in this analysis to show it supplies all the equipment accused of infringing." *SeaChange's Reply to Beam Laser's Opp'n to SeaChange's Mot. to Intervene and Transfer,* at 11 n. 4. Moreover, even if SeaChange had argued that its equipment contained the disputed means element, there is no evidence that SeaChange intentionally advanced a contradictory position to gain an advantage.FN33

FN33. The court agrees with SeaChange that if judicial estoppel should be invoked against anyone, it is Beam Laser. The court denied SeaChange's motion to transfer venue based on Beam Laser's representations to the court that SeaChange's equipment, which was manufactured in Massachusetts, did not infringe the patents; rather, Beam Laser argued, it was only the use, in Virginia, made by the Cox Companies of ad insertion equipment that constituted the infringement. Beam Laser now argues that the SeaChange equipment does infringe. The court will not preclude Beam Laser's argument, however, because-apparently in contrast to the attorneys in this case-the court prefers that a case be resolved on its merits.

The court has determined that the SeaChange SPOT product does not infringe the Beam patents either literally or under the doctrine of equivalents. Accordingly, the court grants this motion for summary judgment.

2. The Hampton Roads Motion

SeaChange and the Cox Companies have moved for summary judgment of non-infringement with respect to

the facilities operated by the Cox Companies at Hampton Roads, Virginia, on four grounds: (1) the configuration employed in the Hampton Roads facility does not receive a commercial insert video signal; (2) the equipment at the Hampton Roads facility is not remotely controlled; (3) the equipment at the Hampton Roads facility does not receive switch commands over a second telecommunications network; and (4) the equipment used at the Hampton Roads facilities neither generates a local video signal, as required by Claims 1 and 7 of the '883 Patent, nor stores and retrieves a local video signal, as required by Claim 1 of the '825 Patent.

a. Literal Infringement

(1), (4) no commercial insert or local video signal

Defendants' argument on these two grounds is predicated on an infringement scenario in which the commercial insert video is identified with the signal generated by the SPOT Video Inserter, together with the allegation that the Cox Companies have never used the AUX port at the Hampton Roads facilities. Defendants argue that the signal generated by the Video Inserter is not a commercial insert signal, and, since nothing is input at the AUX port, FN34 there is no means for generating a local video signal, and no means for storing and retrieving a locally generated video signal. However, Beam Laser has advanced theories of infringement in which the signal generated by the Video Inserter is identified with the local video signal, and a signal input at the AUX port of the SPOT product allegedly constitutes the commercial insert video signal.FN35

FN34. In support of this motion for summary judgment, Defendants have submitted the declaration of Guy McCormick, Vice President of Technical Operations for CableRep, in which he avers that the AUX port of the SeaChange SPOT product is not used in the configuration employed in Hampton Roads. Beam Laser objects to this declaration, asserting that it is inadmissible in support of summary judgment. Beam Laser argues that McCormick based his declaration on "personal knowledge, information, and belief," *McCormick Decl.* para. 1, but only facts within a witness's personal knowledge can be relied upon by the court when ruling on a motion for summary judgment. *See* Fed.R.Civ.P. 56(e). Because McCormick did not indicate which facts were within his personal knowledge, Beam Laser argues, none of the facts within the declaration can properly support the motion. However, McCormick did specifically state that he has "personal knowledge as to the identity and configuration of advertising insertion equipment located in our Hampton Roads, Virginia cable facilities." *McCormick Decl.* para. 2. Thus, McCormick's statement that the AUX port is not used at the Hampton Roads facilities is admissible.

FN35. Beam Laser also suggests that the digital files, when sent from the Master Control Center to the headend, are the commercial insert signal, and that when these files are converted by the Video Inserter into analog signals and sent to the switch, the analog signals serve as the local video signal. This is not a reasonable construction of the asserted claims. The switch must select between the commercial insert signal and the local video signal, as alternatives. It does not comport with the claims to suggest that one signal, in different forms at different stages, can serve as both the commercial insert signal and the local video signal. *See* '883 Patent, col. 2, ll.24-30 ("It is an object of the present invention to provide a video switching system that is remotely controlled to apply at each video switch either a programmed channel signal, a commercial insert video signal or a local video signal, the later two signals being inserted as a pre-emption of the programmed channel signal during a local avail time slot."); '825 Patent, col. 2, ll.37-42 ("It is an object of the present invention to provide a commercial insertion system which inserts ... either a sequential stream of commercial inserts or a locally generated video signal....").

In view of the fact that the Cox Companies do not use the AUX port in the Hampton Roads facilities, the only scenarios that could arguably give rise to infringement is that in which the Video Inserter constitutes the means for generating the local video signal ('883 Patent), or the means for obtaining and outputting the locally generated video signal ('825 Patent), and the signal sent from the Video Inserter to the Video Switch Module constitutes the local video signal ('883 Patent), or the locally generated video signal ('825 Patent). *See* supra at 498 (third scenario pertaining to the '883 Patent); supra at 500-502 (first scenario pertaining to the '825 Patent). In that case, Beam Laser argues that the SPOT product has the capability of infringing the Beam patents, and the fact that the Cox Companies do not actually use the AUX port does not prevent a finding of liability for infringement.FN36

FN36. In the first infringement scenario pertaining to the '883 Patent, the court determined that the SPOT product does not have the capability of infringing the patents because it is missing an element. *See* supra at 498. The facts regarding the configuration employed at the Hampton Roads facilities, which are not in dispute, do not support the second, fourth, or fifth infringement scenarios pertaining to the '883 Patent, or their variations, nor do the facts support the second scenario pertaining to the '825 Patent.

Beam Laser argues that the switch in the SPOT product has three inputs, and has the capability of receiving three signals at those inputs. The SeaChange SPOT product thus has the capability of infringing the Beam patents, according to Beam Laser, and therefore, the Cox Companies can be liable for infringement based on their use of the SPOT product, regardless of whether they use the equipment in the infringing manner, *i.e.*, regardless of whether they use all three inputs on the switch. See Intel, 946 F.2d at 832; Lemelson v. United States, 752 F.2d 1538, 1548 (Fed.Cir.1985) ("[I]nfringement can occur only when the claimed combination has been assembled and is used or is available for use."). Nevertheless, as explained above, the court has determined that the SPOT product does not infringe either Beam patent, as a matter of law, under such an infringement scenario. *See supra* at 498, 500-502. Beam Laser has thus failed to raise a genuine issue of fact regarding whether the Cox Companies' use of the SPOT product infringes the Beam patents on this ground.FN37

FN37. Although the title of the motion suggests that Defendants seek a ruling from the court that there was no infringement at any facilities resembling those at Hampton Roads, the motion has been supported properly with facts regarding only the actual facilities at Hampton Roads. *See supra* note 34. Accordingly, the motion is granted only with respect to the actual Hampton Roads facilities.

(2), (3) not remotely controlled by switch commands received over a second telecommunications network

The SPOT system is not remotely controlled by first, second and third switch commands that are sent to the switch system over the second telecommunications network, as those terms have been construed.*See supra* s.s. II.A.3, II.A.4. Remote control in the asserted claims is accomplished by a remote control center sending commands to the switching system via the second telecommunications network. In the SPOT product, commands are generated within the headend, based on schedule information that has been previously stored there after being downloaded from the Master Control Center, as opposed to being generated at a remote location. The schedule information does not constitute "commands."

Beam Laser characterizes the function of the SPOT product as follows. The computer at the headend "interpret[s] command words or switching instructions ... received via a telecommunications network, and *the computer [at the headend] then generate[s] local switch commands* that are applied to a video switch component in order to control the video switching actions thereof." *Beam Laser's Mem. in Opp'n to SeaChange's and the Cox Companies' Mot. for Summ.J. of Non-Infringement of U.S.*Patent 4,814,883 *and* U.S.Patent No 5,200,825 *With Respect to the Cox Companies' Hampton Roads-Type Facilities,* at 6 (emphasis added). Further, Beam Laser states that the Task Controller, a software component in the SPOT Video Inserter, "interprets prescribed fields ... in the scheduling information as switch commands," which are then applied to the Video Switch Module; the Video Switch Module, "as instructed by the [Task Controller]," then applies one of the three inputs as the output to the switch. Id. at 8. And finally, Beam Laser states that "the schedules are transmitted from the remote (master) control center and then executed locally by the [Task Controller] that runs on the Inserter to automatically control the switching actions" of the switch. Id. at 9. As these statements acknowledge, the SPOT product controls switching by first sending schedule information to the headend; then the Task Controller uses this information to generate switch commands. It is the Task Controller, located at the headend, that issues the switch commands, not a source at a remote location.

Despite Beam Laser's efforts to characterize the SPOT product as embodying a two-step command process, the downloading of scheduling information from the Master Control Center to the Video Inserter at the headend simply does not constitute the transmission of commands. The schedule contains information that is used to create instructions to the computer, but is not itself an instruction (or set of instructions). *See supra* s. II.A.4. Beam Laser has thus failed to raise a genuine issue of fact regarding whether the Cox Companies' use of the SPOT system infringes the Beam patents on this ground.FN38

FN38. Beam Laser argues that SeaChange is judicially estopped from arguing that the Hampton Roads facilities do not contain a means for generating a local video signal or a means for obtaining and outputting a third video signal. The argument is the same as that advanced in opposition to the Non-Infringement Motion, and is rejected for the same reason. *See supra* s. II.B.1.c. Beam Laser additionally raises a discovery complaint in conjunction with its judicial estoppel argument that the court does not address here.

b. Doctrine of Equivalents

The only infringement theories that encompass the configuration employed at the Hampton Roads facilities are the third scenario associated with the '883 Patent, and the first scenario associated with the '825 Patent. *See supra* note 36 and accompanying text. Neither of these infringement theories supports a finding of infringement under the doctrine of equivalents. *See supra* s. II.B.1.b.

The court has determined that the Cox Companies, through their use of the SeaChange SPOT product, are not infringing the Beam patents either literally or under the doctrine of equivalents. Accordingly, the court grants this motion for summary judgment to the extent that it relates to the Cox Companies' use of the SPOT product, as manufactured and sold, at its Hampton Roads facilities.

III. Conclusion

For the reasons set forth above, and pursuant to the claim construction herein, the court **GRANTS** SeaChange's Non-Infringement Motion, and the court **GRANTS** Defendants' Hampton Roads Motion.

The Clerk is **DIRECTED** to send a copy of this Opinion to counsel for all parties.

IT IS SO **ORDERED.**