UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

OPENTV, INC.

Petitioner

v.

CISCO SYSTEMS, INC., CISCO TECHNOLOGY INC., SCIENTIFIC-ATLANTA, LLC, SCIENTIFIC-ATLANTA, INC. AND NDS AMERICAS INC.

Patent Owner

CASE: Unassigned

Patent No. 6,744,892 B2

DECLARATION OF ALAN YOUNG IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 6,744,892 B2

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I. INTRODUCTION AND SUMMARY OF OPINIONS

1. My name is Alan Young, and I am currently an independent consultant on various technology areas including information technology, content or media delivery and distribution systems and solutions.
2. I have been engaged by OpenTV, Inc. to investigate and opine on validity issues of U.S. Patent No. 6,744,892 B2 ("892 Patent").
3. I understand that, according to the first page of the 892 Patent , the 892 Patent is owned by Scientific-Atlanta, Inc. ("Patent Owner" or "SA").
4. In this declaration, I will discuss the technology related to the 892 Patent, including an overview of that technology as it was known at the time of the earliest priority date of the claimed subject matter in the 892 Patent – August 1, 1997.
5. This declaration is based on information currently available to me. To the extent that additional information becomes available, I reserve the right to continue my investigation and study, which may include a review of documents and information that may be produced, as well as testimony from depositions that may not yet be taken.
6. In forming my opinions, I have relied on the 892 Patent, the Exhibits to the Petition for *Inter Partes* Review of the 892 Patent, and my own experience and expertise of the relevant technologies and systems that were already in use prior

to, and within the timeframe of the earliest priority date of the claimed subject matter in the 892 Patent – August 1, 1997.

II. OVERVIEW OF 892 PATENT

7. The 892 Patent claims cover the idea of using a conditional access system to limit access to programs or services based on the geographical location of the receiver. The conditional access systems, methods and receivers claimed and described in the 892 Patent are essentially the same as conditional access systems, methods and receivers in use or described in published documents many years prior to the earliest priority date of the claimed subject matter in the 892 Patent – August 1, 1997. In fact, Mr. Anthony Wasilewski, one of the inventors of the 892 Patent, published an article on the same conditional access systems, methods and receivers claimed in the 892 Patent in 1992, several years before the filing of the 892 Patent.

8. Such conditional access systems (as will be described in more detail below) were routinely used by Pay TV operators to broadcast encrypted video and audio content (i.e. television programs) to ALL receivers BUT only enable (under the control of the Pay TV operator) those receivers that met criteria, determined by the Pay TV operator, to decrypt some or all of the content. The criteria were entirely arbitrary but were typically based on payment and/or geographical location however they could have been literally anything the pay

TV operator decided because the mechanism for operation from a technical perspective was the same – a particular key (known as a control word in the art since at least 1991) at a particular time needed to be present in the receiver in order for decryption to be possible.

9. The conditional access systems and features claimed in the 892 Patent are the same as practically all conditional access systems that operated well before August 1, 1997 priority date of the 892 Patent. The fundamental needs of a conditional access system include apparatus in the receiver that includes a secure microprocessor and secure non-volatile memory. The above secure hardware enables another fundamental requirement of a conditional access system to be met: the need to securely transfer data (including keys and other arbitrary data such as the geographical location indicator of the set top box) from the Pay TV operator to the receiver. This last requirement is important as it is necessary that the receiver's ability to decrypt content is under the control of the Pay TV operator, so all information (e.g., geographical location of the receiver and geographical region) used by the receiver to decrypt content (i.e. selectively display) MUST be delivered by the pay TV operator and ONLY the pay TV operator. Failure of this requirement would render the conditional access system useless. The 892 Patent's claims, in this respect, claim something that was REQUIRED for any conditional access system to operate.

10. The 892 Patent, therefore in my opinion, describes nothing novel. In fact everything claimed in the 892 Patent is contained in each of at least two prior art references (see below) and any gaps are trivial and obvious to anyone with basic skills in logic and mathematics – i.e. determining that a "Spotlight" is the inverse of a "Blackout" or understanding that an (x,y) coordinate plus a radius can define a square as well as a circle.

III. QUALIFICATIONS AND EXPERIENCE

A. Education and Work Experience

11. I received my Master's Degree (M.Eng) in Electronic Systems Engineering from the University of York in the United Kingdom in 1988. I am a Chartered Engineer (C.Eng) registered with the UK Engineering Council and a Fellow of the Institution of Engineering and Technology (FIET), which signifies the highest professional standing in my field.

12. I am the inventor of U.S. Patent No. 5,923,642 issued July 1999 and entitled "Method of supporting multiple digital modulation formats on cable plant from a single satellite transponder" and co-inventor of U.S. Patent No. 6,850,991 issued February 2005 and entitled "Systems and methods for distributing information to a diverse plurality of devices."

13. I have a diverse background in satellite communications, television broadcasting, media and financial services dating back to the late 1980s. My

work has largely been focused on the electronic distribution of media and other products and services i.e. financial services. In particular, I have considerable experience in the field of conditional access and security of media and financial services including subscriber television programs and services.

British Telecom:

14. Between 1988 and 1991, whilst at British Telecom, I was involved in the implementation, operation and configuration of several television services being uplinked to various satellites for distribution around the world from British Telecom's satellite uplink facility in London. These television services were often encrypted and made use of various conditional access systems in use at the time, namely Videocrypt, Eurocrypt and Scientific Atlanta's B-MAC system. Accordingly I became very familiar with how these conditional access systems functioned and were implemented. In addition, during the same time frame between 1988 to 1991, Scientific Atlanta's B-MAC system was used to provide video feeds of horse races to betting shops all over the U.K. and because of the strict rules regarding all the betting shops in one geographical region (i.e. town, or city) receiving the service at the same time following installation, new installations in a geographical region were put into a "parking" group until all installations in that geographical region were completed and then the entire group was activated simultaneously. This was essentially equivalent

to creating a blackout group where receivers in the parking group were blacked out and receivers not in the parking group were able to receive the signal.

15. At British Telecom, I also implemented the signaling for MTV Europe's local avail system for television programs and services, which allowed affiliates (i.e. cable TV systems and other receive locations) to switch in local advertising at predetermined points in the schedule.

MTV Networks:

16. Between 1991 and 1998, whilst at MTV Networks, amongst other things I worked on several conditional access and blackout switching related projects including: Negotiating an agreement for MTV Europe's service to be encrypted using the Videocrypt conditional access system so that it could become part of BSkyB's direct to home ("DTH") satellite package and then executed the technical aspects of actually implementing the system which included installing Videocrypt scrambling units, connected to the BSkyB's subscriber management and authorization system, to MTV Europe's outgoing video feed.

17. Whilst at MTV Networks, I represented MTV's open standards policy at the Digital Video Broadcasting ("DVB") standards group defining the requirements and need for a common scrambling algorithm ("CSA") which was subsequently agreed to and implemented ("DVB-CSA") despite strong protests from the

conditional access manufacturers and the pay TV operators, many of which were co-owned at the time.

18. Whilst at MTV Networks, I used my knowledge of the Videocrypt conditional access system to solve a problem for MTV's sister channel, VH1 when it launched in Germany in 1995. VH1 Germany was required to be transmitted via satellite without encryption since none of the decoders in Germany at the time had conditional access capability. This posed a rights issue because VH1 UK was encrypted using Videocrypt and so households in the UK could receive VH1 Germany for free. The problem was solved by sending Videocrypt signals (similar in nature to EMMs and ECMs as further described herein) with the VH1 Germany transmissions indicating the signal was encrypted (even though it was in fact not encrypted). In Germany the Videocrypt signaling was ignored but in the UK, the Videocrypt decoders received the signaling and sent the signal to the descrambler, whereupon the descrambler actually operated as a scrambler and encrypted the signal thereby denying UK users access to the signal.

19. Whilst at MTV Networks, in 1994, I authored an RFP ("Request for Proposal") which included a requirement to be able to create virtual channels from a combination of the services in the digital multiplex and then negotiated a

contract for the supply of a digital compression delivery system that included one of the first digital conditional access systems in Europe with Philips.

20. Between mid 1995 and early 1996, I negotiated an agreement between my employer, MTV Networks, and Irdeto, a well-known conditional access system supplier, for the supply of a conditional access system which had specific capabilities. In particular, the agreement was for the supply of a conditional access system including smartcards which were identical technically (other than each smartcard had a unique key associated with it) to smartcards supplied to a competitor (which competitor was co-owned by the company that controlled Irdeto). This agreement enabled the same card to be authorized for both competitors services, either competitors services or any combination of the two at the sole discretion of the competitors thereby enabling both to compete on the basis of their respective programming and specifically for MTV Networks' affiliate Gulf DTH, whom I was representing, prevented Irdeto from being influenced to give its affiliate, Multichoice, any advantage, commercial or otherwise through the use of the conditional access system.

21. Whilst at MTV Networks, I implemented a cable headend decoder sharing scheme in Latin America which allowed a common spare decoder to be authorized to receive either Nickelodeon (an MTV Network's television channel) or the non-affiliated Cartoon Network (a Turner television channel).

This reduced the cost of operations for the cable operators, as they needed less spare equipment to operate.

22. In 1992 and 1993, I implemented a local avail system for MTV Europe's affiliates in Europe which enabled local adverts to be inserted into the received signal under the control of a signaling system which was tied to MTV Europe's master control system. This ensured that the video switching could take place during periods of black on the screen so that the end viewer did not see the switch.

SES Americom:

23. Between 2005 and 2011 whilst at SES Americom, amongst other things, I was responsible for the development, implementation and operation of the IP PRIME IPTV system, which at its peak delivered more than 300 channels for standard and high definition programming to telephone operators in the United States. A number of the programmers that were carried on the IP PRIME platform were required to blackout certain programming in certain regions at certain times either because of a regulatory requirement or a programming rights holder requirement. These programmers had implemented sophisticated blackout switching systems and required IP PRIME to replicate the functionality but under the programmers' control. As such my team implemented a system, which interfaced with the programmers' blackout

management systems, read all the data and converted it into a format that could be used on IP PRIME and then executed the blackout commands. This included not just blackouts but also switching in substituted programming and providing audit logs showing that the blackout switching had actually occurred as required.

B. Compensation

24. I am being compensated at the rate of $310 per hour for the services I am providing in connection with OpenTV's petition for *inter partes* review of the 892 Patent. The compensation is not contingent upon my performance, the outcome of the *inter partes* review or any other proceeding, or any issues involved in or related to the *inter partes* review.

C. Documents and Other Materials Relied Upon

25. The documents that I rely on for the opinions expressed in this declaration are the 892 Patent, U.S. Patent No. 6,252,964 B1related to 892 Patent and the prior art references and information discussed in this declaration, and any other references specifically identified in this declaration, in their entirety, even if only portions of these documents or files are discussed here in an exemplary fashion.

IV. STATEMENT OF LEGAL PRINCIPLES

A. Claim Construction Principles

26. OpenTV's counsel has advised that, when construing claim terms, a claim subject to inter partes review receives the "broadest reasonable construction in light of the specification of the patent in which it appears." OpenTV's counsel has further informed me that the broadest reasonable construction is the broadest reasonable interpretation of the claim language, and that any term which lacks a definition in the specification is also given a broad interpretation.

B. Anticipation Principles

27. OpenTV's counsel has advised that in order for a patent claim to be valid, what is claimed must be novel. They have further advised that if each and every element of a claim is disclosed in a single prior art reference, then the claimed invention is anticipated, and the invention is not patentable. In order for the invention to be anticipated, each element of the claimed invention must be described or embodied, either expressly or inherently, in the single prior art reference. In order for a reference to inherently disclose a claim limitation, that limitation must necessarily be present in the reference. OpenTV's counsel has also advised that a prior art reference must be enabling in order to anticipate.

C. Obviousness Principles

28. OpenTV's counsel has advised that obviousness under 35 U.S.C. § 103 as a basis for invalidity is as follows. Where a prior art reference discloses less than

all limitations of a given patent claim, that patent claim is invalid if the differences between the claimed subject matter and the prior art reference are such that the claimed subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the relevant art. Obviousness can be based on a single prior art reference or a combination of references that either expressly or inherently, discloses all limitations of the claimed invention.

V. LEVEL OF ORDINARY SKILL IN THE ART

29. Upon advice from OpenTV's counsel it is my understanding that the claims and specification of a patent must be read and construed through the eyes of a person having ordinary skill in the art at the time of the priority date of the claims. OpenTV's counsel has also advised me that to determine the appropriate level of a person having ordinary skill in the art, the following factors may be considered: a.) the types of problems encountered by those working in the field and prior art solutions thereto; b.) the sophistication of the technology in question, and the rapidity with which innovations occur in the field; c.) the educational level of active workers in the field; and d.) the educational level of the inventor.

30. The relevant technologies to the 892 Patent are cable or satellite systems that provide programming or other information to receivers and in particular those

technologies standardized by the Digital Video Broadcasting group such as the Packet based transport stream, conditional access scrambling algorithms and conditional access interfaces, as well as the overall conditional access systems that allow selective decoding or viewing of the programming or information that is received by the receivers.

31. The technical problems encountered in these types of systems, and specifically regarding conditional access based on geographic location, require straight-forward engineering solutions, such as to provide location information to the set top box ahead of broadcast programming, and to transmit geographic viewing restrictions for certain broadcasts programs transmitted to the set top boxes.

32. Based on the above, it is my opinion that a person having ordinary skill in the art related to the technologies in the 892 Patent would have had a bachelor's degree in electrical engineering, computer science, or a related field, and a few years of working experience in the area of installing and supporting pay TV television content distribution and/or broadcasting. This description is approximate and several years' experience designing and/or developing and/or operating blackout switching management systems could make up for less experience installing and supporting and a lower level of education.

VI. TECHNOLOGY BACKGROUND OF CLAIMED SUBJECT MATTER OF 892 PATENT

33. Limiting the ability of a viewer to access certain television programs based on their geographical location was in use in the United States long before the 892 Patent. It is known in the art as a "blackout" because originally the viewer would literally see a black screen on their TV for the duration of the blackout. In most cases blacking out programming to viewers based on geographical locations is required by sports rights holders, usually the sports leagues themselves, in an attempt to fill up stadiums with attendees who live near the stadiums. They would, for example, require all viewers living within a certain radius of a stadium be blacked out from receiving television broadcast of a sports event if the stadium wasn't sold out before the game started.

34. How the blackouts based on geographical locations were implemented depended on how the programming was delivered and who the contracting party with the sports rights holder was. For example local over the air broadcasters such as affiliates of CBS could simply pull the programming. However as cable television distribution grew with the advent of national cable television programmers such as ESPN, blacking out the whole nation because of one locale was not acceptable and local cable operators could not be trusted to black out the programming on the national cable television programmers' behalf. As a result, cable TV programmers such as ESPN developed the ability

to blackout certain decoders based on their location. This was certainly being done as a matter of course by the early 1990s and quite possibly a lot earlier.

35. Whilst the exact details differed between programmers, the following procedure was implemented in some of the TV systems: 1) The address (or other location indicators such as zip code) and maybe also the service area of cable headend facility that received the programming via satellite was known to the programmer; 2) The serial number or some other uniquely addressable identifier of the receiver at that headend was matched with location of the receiver from 1) above; 3) All receivers that were in a location that was deemed to be inside a blackout requirement zone were grouped; 4) Prior to the event a signal was sent over the satellite addressed only to those decoders which were targeted for blackout signaling that they were in a blackout group; 5) At the actual time of the blackout, the programmer signaled to all receivers in the blackout group that they should stop decoding the signal (and either display black or some other graphic to signify that a blackout was in progress to prevent calls to the cable operator); 6) At the end of the blackout another signal was sent to the blacked out decoders to re-commence program decoding.

36. Whilst blacking out the programming was all that was technically required, it was undesirable from a programming point of view. Therefore as technology improved and particularly in the early 1990s when digital television distribution

started, the ability to not only blackout the programming but also substitute in other programming seamlessly for the viewer was developed and put into everyday use. There were numerous methods of doing this including retuning the receiver to another channel, signaling via a data channel to a video switch, etc. With the introduction of digital compression in the early 1990s multiple digital channels were multiplexed together into a single signal and so it became possible to select a different video signal from the multiplex and use that instead during a blackout. This is obviously desirable for all parties concerned and is now in common use.

37. In general, the idea of, and systems and methods for, geographically limiting service using a conditional access system has been around since the 1980s. A fundamental use of conditional access systems is that access to a signal, e.g. television program, is conditional upon meeting certain criteria. The most obvious one is payment for the service but as satellite broadcasting became widespread and the footprint of the satellite crossed international borders, as was the case commonly, for example, in Europe, another criteria for access was the location of the receiver. BSkyB, or British Sky Broadcasting for example would not authorize a decoder that didn't have a registered address in the United Kingdom, or Ireland, which were their territories from a program rights

perspective. At a high level, the 892 Patent discloses nothing that BSkyB weren't doing at launch on the new Astra 1A satellite on February 5th, 1989.

38. One key issue with the methodology used above, and also with the methodology described in the 892 Patent, was and is that there was no mechanism for the conditional access ("CA") system to be aware of the actual location of the receiver. So if a receiver was assigned a particular location by the control system (because of the address of the subscriber for instance), there would have been nothing to prevent the subscriber moving the receiver to another location. This commonly occurred in the case of satellite broadcasters. In the case of a cable operator there is more control as there is a physical connection to the receiver – the cable plant – but there was still no independent mechanism (i.e. location awareness such as is now commonly available in smartphones) for the receiver to be aware of its location.

VII. IDENTIFICATION OF THE PRIOR ART AND SUMMARY OF OPINIONS

39. I understand that the earliest potential priority date for the claims in the 892 Patent is the filing date of provisional application number 60/054,575, which was August 1st, 1997. As explained below, it is my opinion that the following prior art references disclose all technical features in the claims of the 892 Patent by either anticipating or rendering obvious the claims of the 892 Patent.

Therefore, all 38 claims of the 892 Patent contain nothing novel and inventive and thus are unpatentable.

- "Requirements and Method for High-Level Multiplexing of MPEG and Other Digital Service Bitstreams with Universal Transport Layer", Anthony J. Wasilewski. International Organization for Standardization, ISO/IEC JTC1/SC2/WG11 MPEG 92/754, (Nov. 1992) (Ex. 1002, "Wasilewski '92"). [NOTE: In the list of Other Publications in the 892 Patent this document is incorrectly referenced as ISO/IEC JTC1/SC20/WG11.]
- U.S. Patent No. 5,506,904, filed December 3rd, 1993, and issued on April 9th, 1996 (Ex. 1003, "Sheldrick").
- U.S. Patent No. 5,432,542, filed August 1st, 1992, and issued on July 11th, 1995 (Ex. 1004, "Thibadeau").

A. Summary of Invalidity Opinions under 35 U.S.C. §§ 102 and 103

40. Claims 1-38 of the 892 Patent are anticipated and/or are obvious over many references of prior art that describe providing restricted viewing access to broadcast programs based on geographic location of the receiver or set top box. In particular, each of Wasilewski '92 and Sheldrick anticipate independent claims 1, 12, 20 and 26, as well as many of the dependent claims, as are described in further detail in the following sections.

41. Thibadeau is another prior art reference that describes limiting a receiver's access to programming and messages based on geographic location of the receiver. As will be described in detail below, Thibadeau is being used in combination with either Wasilewski '92 or Sheldrick to support obviousness rejections of some dependent claims that require a square-shaped geographic region or certain minimum and maximum coordinate values associated with the square-shaped region.

VIII. PROPOSED CLAIM CONSTRUCTION

42. In conducting my analysis of the claims of the 892 Patent, I have applied the proposed claim constructions I set out below that is consistent with the Patent Office's "broadest reasonable construction" standard described above, and offer them only for the purpose of this inter partes review petition. The proposed claim constructions do not necessary reflect the appropriate claim constructions to be used in litigation and other proceedings where a different claim construction standard applies.

A. "Service Instance"

43. The proposed claim construction for this term is "a program or a service." The Abstract of the 892 Patent defines a service instance as a television program that is received by a receiver in a cable television system: "The cable television system includes a headend from which service "instances", or programs, are

broadcast and a plurality of set top units for receiving the instances and selectively decrypting the instances for display to system subscribers."

B. "Entitlement Information"

44. The proposed claim construction for this term is "information that is used to assess a receiver's authorization for accessing a program or a service."

45. The basis in the 992 Patent for the proposed construction includes, e.g., 10:19-23; 24:48-57; 29:55-67 and 37:6-14. The 892 Patent further describes that: "[i]n interpreting EMMs, DHCTSE 627 acquires and stores keys and entitlement information; in interpreting ECMs, DHCTSE 627 uses the entitlement information to determine whether DHCT 333 receiving the ECM has an entitlement for the instance of the service which the ECM accompanies" (16:13-18).

C. "Geographic Reception Information"

46. The proposed claim construction for this term is "information received at a receiver related to the receiver's authorization for accessing a program or a service within a geographic location or area."

47. The 892 Patent recites this term in claims only and does not explicitly recite this term in the description or drawings. Regarding messages received at the receiver including blackout/spotlight information related to geographic reception information, the 892 Patent provides the following description (38:37-

49): "*Where further restrictions apply to an entitlement, DHCTSE 627 searches for that information as well in entitlement agent information 1333. For example, if blackout/spotlight field 2223 of the ECM indicates that a blackout applies to the service, DHCTSE 627 uses blackout/spotlight information 2236 to determine whether the location specified by x coordinate 1521 and y coordinate 1523 is within the square specified by blackout/spotlight information 2236; if so, DHCTSE 627 does not decrypt control word 2235. When a spotlight applies, the procedure is of course the opposite: DHCTSE 627 decrypts the control word only if x coordinate field 1521 and y coordinate field 1523 specify a location within the square.*"

D. "Geographic location indicator"

48. The proposed claim construction for this term is "information conveying location of a receiver."

49. The 892 Patent recites this term in claims only and does not describe it in the description or drawings. In relation to determining a receiver's location using an X-Y coordinate system, the 892 Patent describes: "X coordinate 1521 and Y coordinate 1523 define a location of DHCT 333 in a coordinate system established by the entitlement agent. The coordinate system may be geographic and may, for example, be used to determine whether the DHCT 333 is in an area which is to be blacked out in a broadcast" (38:37-49).

E. "Entitlement Agent"

50. The proposed claim construction for this term is "any one, or a combination of, a program or service provider, an entity or function that is located outside of the receiver and acts on behalf of a program or service provider, or an entity or function that is located outside of the receiver that has the right to provide the receiver access authorization to one or more programs or services."

51. On the "a program or service provider" aspect of the above proposed construction, in the original examination of the related 964 Patent, which claims priority to the same provisional Application No. 60/054,575 as the 892 Patent and includes the identical 29 figures and detailed description as the 892 Patent, Patent Owner represented to the Office that "Entitlement agents provide different instances of service to the conditional access system, and specific instances of service for each entitlement agent are provided to customers of the conditional access systems" (Ex. 1005, p. 17, 2nd full paragraph). Patent Owner also stated that "As a matter of law, Applicants are allowed to be their own lexicographer, and in the specification at page 3, lines 4-11, instances of services include programs provided by program sources (Entitlement Agents)" (Ex. 1005, p. 53, 2nd paragraph) and further declared that "entitlement agents, as claimed by the Applicants, include entities that provide the claimed instances of service provided to the service distribution organization, and consequently,

the secure chip of Arnold cannot be the Applicants claimed entitlement agent" (Ex. 1005, p. 54, 1st paragraph).

52. The 892 Patent also relates an "entitlement agent" (EA) to an entity or function that resides outside of a receiver and gives or authorizes access rights or entitlements to a program or a service through remote message, and in some instances, on behalf of a program or service provider. See, e.g., 8:23-26 and Figs. 20 and 24 illustrating an EA as part of the conditional access system and Figs. 3, 4, 20 and 24 showing an EA outside a receiver or DHCT. "In the case of an RSA digital signature, the private key which is used to make the signature belongs to *the entitlement agent within service distribution organization 103 responsible for authorizing the associated service*" (emphasis added; 7:6-10). "In the case of pay-per-view events, the customer orders the event from the entitlement agent, and *the agent responds by sending an EMM that contains the necessary entitlement information*" (emphasis added; 31:1-4).

53. Fig. 3 illustrates a key "SP Kr" as the private key of the entitlement agent (8:23-26) where "SP" stands for a "Service Provider which provides the video, audio, interactive games and the like" per Patent Owner's definition in an earlier U.S. Patent No. 5,870,474 from which the 892 Patent claims a CIP relationship in its chain of priority claims (the 474 Patent in Ex. 1008, 1:46-47).

IX. INVALIDITY OF THE 892 PATENT CLAIMS

A. Anticipation Based on Sheldrick and/or Obviousness Based on Sheldrick in View of Thibadeau

54. Sheldrick describes a standard cable or satellite broadcast pay TV system which has a conditional access system and the use of that conditional access system to restrict or provide access to programming content on the basis of the receiver's Geographical Location Indicator. The capabilities and the architecture described are for all intents and purposes the same as the claims of the 892 Patent.

55. Sheldrick describes a broadcast system, such as a cable and satellite system for providing programming to subscribers using receivers (i.e. cable or satellite set top boxes or converters).

56. Sheldrick describes encrypting data to be transmitted to receivers and using a secure microprocessor and memory in the receiver to decrypt, store and process such data.

57. Sheldrick describes using this capability to securely transmit to a particular receiver, its Geographic Location Indicator (i.e. its latitude and longitude) and store it in secure memory.

58. Sheldrick describes transmitting data to receivers defining geographic regions (i.e. Geographic Reception Information) in the form of a point (latitude and longitude) plus a radius.

59. Sheldrick describes how each receiver uses its own location (i.e. Geographic Location Indicator) stored as part of the secure memory. To determine whether it is inside or outside any of the regions defined by the data transmitted to the receiver (i.e. Geographic Reception Information).

60. Sheldrick describes transmitting data to receivers defining whether the geographic regions are blackout or spotlight regions and whether or not they are active (i.e. should the receiver authorize (decrypt) or not content on the basis of whether or not it is inside the region).

61. Sheldrick describes how if the receiver's location (i.e. Geographic Location Indicator) is inside an active blackout region it will not be authorized and if it is inside an active spotlight region it will be authorized. See figure 8 below.

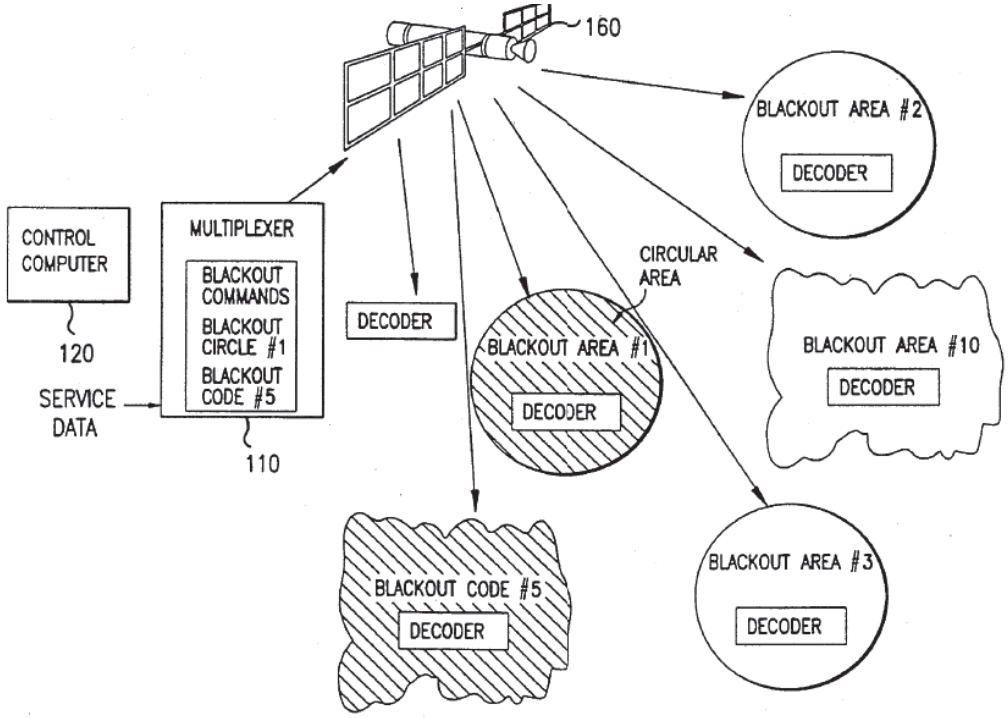

FIG.8

62. Sheldrick describes authorizing a receiver despite it being inside a blackout region if it is also within a spotlight region that overlaps the blackout region. See figure 9.

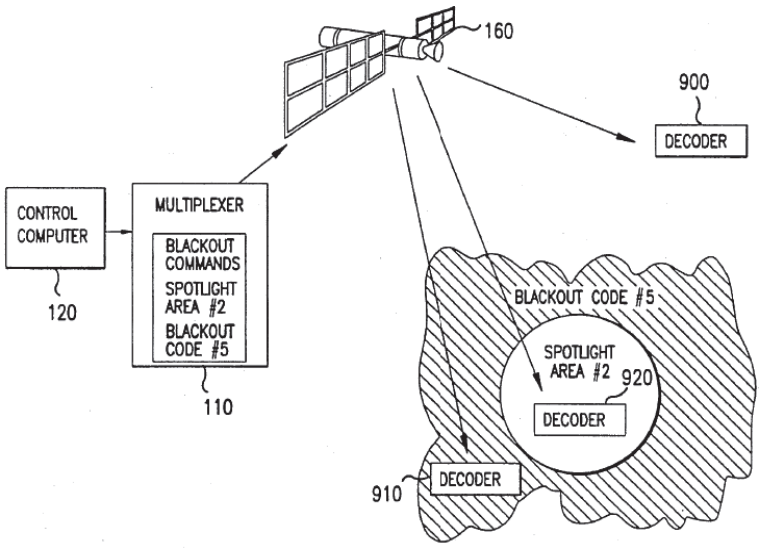

FIG.9

63. Sheldrick describes a broadcast system, such as a cable or satellite system, for providing programming to receivers (such as cable and/or satellite set top boxes). The broadcast system of Sheldrick includes blackout/spotlight information that is used to allow only a subset of converters to decode broadcast programs based on their geographic information.

64. Thibadeau describes a system for enabling a receiver to select information or content based on geographical information transmitted to the receiver (i.e. Geographical Reception Information) with the information or content. The user of the receiver makes a selection regarding the geographical region of interest

and the receiver compares this with the geographical information being received from the transmitter to determine whether the information or content should be selected. Thibadeau is, therefore, within the same specific technical field as, and relates to the claimed subject matter of, the 892 Patent.

65. Thibadeau teaches that the Geographic Reception Information can define a square region as well as a circular region (and indeed a region defined by any arbitrarily complex polygon). In particular, Thibadeau describes using a point defined by an X coordinate and a Y coordinate plus a radius to define either a circular or square region, which itself is trivially obvious as well. See figure 1 below.

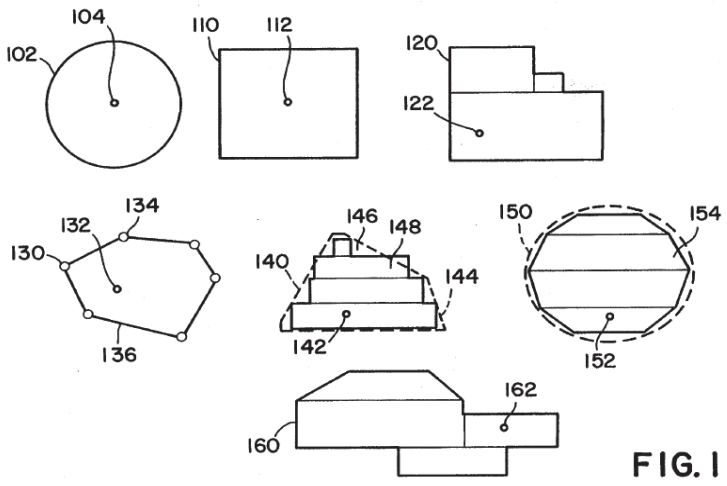

FIG. 1

66. Thibadeau also teaches that sub portions of defined regions can be defined using minimum and maximum X coordinates and/or minimum and maximum Y coordinates. Again, this is also trivially obvious. See figure 2 below.

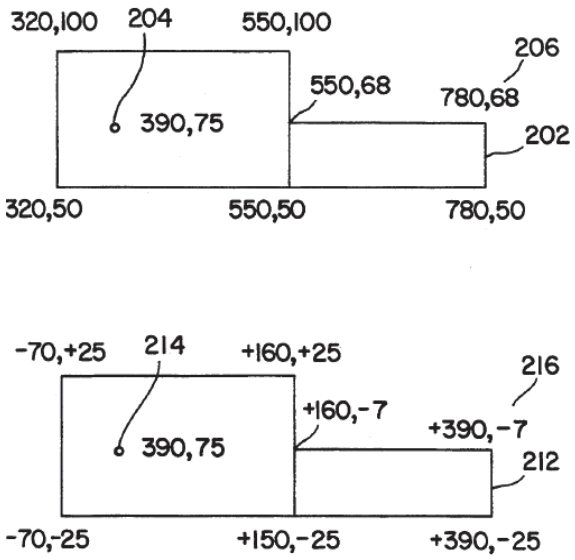

FIG. 2

67. The 892 Patent has four independent claims 1, 12, 20 and 26. These claims are all anticipated by Sheldrick as described in below paragraphs, and the Table that follows.

68. Claim 1 of the 892 Patent describes a receiver using Geographic Reception Information as a criteria for determining whether or not to authorize the display of content (Service Instance). It is completely anticipated by Sheldrick as Sheldrick describes each and every one of the claim's preamble and its limitations in its description.

69. Claim 12 of the 892 Patent describes a conditional access system for selectively displaying Service Instances to a plurality of set top terminals (i.e. receivers) located at multiple geographic locations. Many of the limitations of claim 12 are similar to those in claim 1. Claim 12 also introduces the

Entitlement Agent as providing one or more Service Instances which may be encrypted. This claim is completely anticipated by Sheldrick as Sheldrick describes each and every one of the claim's preamble and its limitations in its description.

70. Claim 20 describes a method for a service provider (i.e. an Entitlement Agent) to be able to selectively display a Service Instance based on the receiver's location (Geographic Location Indicator). The method of this claim and all its limitations are completely anticipated by Sheldrick as essentially the exact same method and steps are described in Sheldrick's description.

71. Claim 26 is essentially a re-wording of Claim 20 above with different terms to describe essentially the same thing i.e. a two dimensional grid instead of a geographic region and entitlement indicator instead of 'is the Geographic Location Indictor inside the defined region'. The claim and its two limitations are therefore completely anticipated by Sheldrick.

72. The dependent claims 2-11, 13-19, 21-25 and 27-38 are mostly trivially obvious extensions of their respective parent claims and duplicatively so in many cases. For example, Claim 2: "..wherein in response to determining that the receiver is not entitled to the received encrypted service instance, the service is not decrypted for display". Not only is this obvious but it is also necessary for the proper functioning of the claimed system! It is in my opinion that there is a

strong argument that claims 3, 4, 5, 6, 7, 10, 11, 13, 14, 15, 16, 19, 28, 29, 33, 34, 35, 36, 37 and 38 can all be described in the same manner. The remaining dependent claims (i.e. claims 8, 9, 17, 18, 21, 22, 23, 24, 25, 27, 30, 31 and 32) add limitations to their parents. These claims are all either anticipated by Sheldrick alone, or rendered obvious using the combination of Sheldrick and Thibadeau, as more particularly described in the table below.

TABLE 1 (based on Sheldrick and Thibadeau)

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
1. A receiver located at a geographic location for receiving and selectively displaying a service instance, the receiver comprising:	All of the key terms used i.e. receiver, geographical location and selectively displaying a service instance are either specifically, or inherently, used in the same context, in Sheldrick. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Receiver Figure 1: Receiver 150; Figure 8-9: "Decoder" Geographical location Col 2., lines 48-63. Col. 3, lines 46-48. Selectively displaying

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	Display Col. 6, lines 61-63. *Blackout and Spotlight* Col. 2, lines 46-52. Col. 3, lines 61-64. Col 4, lines 29-31. *See*, also: Figures 7-8 and corresponding text (emphasis on "regions" vs. "circular area"; col., 11, lines 38-48; col. 12, line 33 - col. 13, line 32; col, 16;
a port for receiving an encrypted service instance and entitlement information associated therewith,	This is fundamental in Sheldrick and indeed any MPEG-2 Transport Stream based system. A port is merely an input and in the case of Sheldrick it is the input to the demultiplexer which receives both the encrypted content (service instance) and the entitlement information associated with the content (because ALL data whether it be content or entitlement data flows into the demuliplexer). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Port

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	Col. 7, lines 22-28, and Figure 1. Col. 6, lines 47-49. Encrypted Service Instance Col. 6, lines 34-36. Claim 18. Entitlement Information *Authorization Codes (Blackout/Spot light code)* Col. 3, lines 46-48. Col. 3 line 65 - col. 4 line 20. *See* also, Fig. 5 (and corresponding text).
wherein at least a portion of the entitlement information includes geographic reception information;	This is part of the functionality described in Sheldrick where the use of the terms: blackout codes, spotlight codes etc. are referring to geographical reception information and it is clear that this is sent as part of the authorization stream (entitlement information). Col. 3 line 65 - col. 4 line 20. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 4, lines 28-36. Col. 12, line 42 - col. 13, line 4.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	Col. 13, lines 5-20. Col. 18, lines 1-18. **NOTE**: Regional vs. circular authorization). *See*, also col. 10, lines 24-33.
a first microprocessor for activating display of the service instance;	Sheldrick specifically describes a Display Control Processor (DCP) which, amongst other things, is responsible for managing the authorization process (i.e. activation of display) for selected channels (the service instance). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 6, line 59 - col 7, line 11, and Figure 1. *See*, also Col. 2, lines 55-61.
a secure element coupled to the first microprocessor, the secure element comprising:	Sheldrick specifically describes a digital compression in-board security element (DISE), which is coupled to the DCP -Sheldrick states that "the DCP supplies the encrypted control information to the DISE", i.e. DISE is coupled to the DCP. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 6, line 59 - col 7, line 11, and Figure 1.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
a memory for storing a geographic location indicator indicative of the geographic location of the receiver;	Sheldrick specifically states that the DISE has memory (both read only memory – ROM and random access memory – RAM). Sheldrick also states that the decoder latitude and longitude, which is clearly "an indicator indicative of the geographical location", is stored in the DISE (Sheldrick 16:37-44). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Memory Col. 7, lines 12-15. Geographic location indicator … of the receiver Col. 16, lines 14-27. Col. 4, lines 28-32. Col. 12, lines 33-48.
and a second microprocessor	The DISE is described as a secure microprocessor in Sheldrick and is therefore a second microprocessor. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 7, lines 12-15.
for processing the geographic reception information and for using the processed	Sheldrick describes how the DISE decrypts [i.e. processes] the control

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
geographic reception information with the geographic location indicator to determine whether the receiver is entitled to the service instance;	information [which includes the geographical information – because the DISE has to decrypt all encrypted data]. Sheldrick then goes on to describe (in several places) how the DISE compares the incoming data with geographical information stored in the DISE to determine if the receiver is authorized. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 7 , lines 4-11. Col. 16, lines 29-37. Col. 12, lines 33-48.
and wherein the first microprocessor activates display of the service instance when the secure element determines that the receiver is entitled to the service instance.	Sheldrick clearly describes how the DCP supplies decryption data (for activating the display of the service instance) for the selected channel (service instance) if the DISE determines that the receiver is authorized (entitled) to receive the service. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 7, lines 4-11. Col. 6, lines 61-63. Col. 16, lines 29-37.
2. The receiver of claim 1, wherein in	This functionality is described in

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
response to determining that the receiver is not entitled to the received encrypted service instance, the service instance is not decrypted for display.	Sheldrick. The DISE only supplies data needed for decryption to the DCP if it determines that the receiver is authorized (entitled). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 12, lines 33-36. Col. 16 lines 30-36.
3. The receiver of claim 1, wherein the memory of the secure element is accessible only to the second microprocessor.	Sheldrick describes the DISE (the secure element) as a secure microprocessor (the second microprocessor) including on-board memory. The fact that such memory would be accessible only to the secure microprocessor is inherent. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 7, lines 12-15.
4. The receiver of claim 1, wherein the geographic reception information comprises a blackout/spotlight field indicative of how the geographic	Sheldrick specifically describes the use of blackout and spotlight codes (fields), which specify a circular region for the receiver to use.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
reception information is to be used by the receiver.	For example, the following sections of Sheldrick describe all of the above terms and functionalities: Figures 2 and 5-7 and corresponding text. Col. 4, lines 28-36. Col. 12, line 42 - col. 13, line 4.
5. The receiver of claim 4, wherein the blackout/spotlight field indicates whether the service instance is geographically limited, and, if so,	Sheldrick describes the use of blackout and spotlight codes (fields) to indicate a region for blackout or spotlight (i.e. a geographical limitation). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Figures 2 and 5-7 and corresponding text. Col. 12, line 42 - col. 13, line 4.
whether the service instance is limited to within a particular geographic region or to without the particular geographic region.	Sheldrick specifically describes using the spotlight codes (fields) to determine whether the service is limited to a particular region or the blackout codes (fields) to determine whether the service is limited to outside a particular region.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	For example, the following sections of Sheldrick describe all of the above terms and functionalities: Figures 2 and 5-7 and corresponding text. Col. 12, line 42 - col. 13, line 4.
6. The receiver of claim 1, wherein: the geographic reception information is indicative of a geographic region;	Sheldrick describes the use of blackout codes in the information received by the receiver (the geographical reception information). The blackout codes indicate a geographical region. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 18, lines 11-33. See, also col. 13, lines 19-32.
and the receiver further includes a decryptor for decrypting the service instance when the geographic location indicator is within the geographic region indicated by the geographic reception information.	This is inherent in Sheldrick. The DISE in the receiver decrypts the service instance only when the DISE determines that the receiver is entitled (e.g. when the receiver is within the geographic region indicated by the geographic reception information).

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 7, lines 4-11. Col. 12, line 42 - col. 13, line 4. Col. 18, lines 11-33, and Figure 8. Col. 13, lines 19-32.
7. The receiver of claim 1, wherein: the geographic reception information is indicative of a geographic region;	Sheldrick describes the use of blackout and spotlight codes transmitted from the encoder to the decoder i.e. part of the information received and which codes are used to indicate a geographical region. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Figures 2 and 5-7 and corresponding text. Col. 3 line 65 - col. 4 line 20. Col. 4, lines 28-36.
and the receiver further includes a decryptor for decrypting the service instance when the geographic location indicator is not within the geographic	Sheldrick describes only authorizing those receivers that are outside an indicated blackout region to decrypt a channel. This functionality was and is

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
region indicated by the geographic reception information.	inherent to any blackout system. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 7, lines 4-11. Col. 18, lines 34-48, and Figure 9.
8. The receiver of claim 1, wherein the geographic location indicator includes x and y coordinates of a coordinate system.	Sheldrick describes the use of latitude (the x coordinate) and longitude (the y coordinate) to indicate the geographic location. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 12, line 42 - col. 13, line 4.
9. The receiver of claim 8, wherein the geographic reception information comprises an x centroid, a y centroid, and a radius value,	Sheldrick describes the use of circular blackout/spotlight codes to specify, a center latitude, a center longitude and a radius. For example, the following sections of Sheldrick describe all of the above terms and functionalities:

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	Col. 4, lines 28-36. Col. 12, line 42 - col. 13, line 4.
and wherein the x centroid, the y centroid, and the radius define a square geographic region within the coordinate system.	Thibadeau describes the use of a point (i.e. an x, y coordinate) and a radius to define not only a circular region but also rectangles (i.e. squares). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Combination of Sheldrick and Thibadeau (US 5,432,542)] (Thibadeau, col. 7, lines 29-44) (Thibadeau, col. 8, lines 20-40; Figure 1)
10. The receiver of claim 9, further comprising: a decryptor for decrypting the service instance when the geographic location indicator is within the square geographic region.	Sheldrick describes the capability to spotlight a region (i.e. authorize decoders that are within a particular region) and in combination with Thibadeau it is inherent that that region could be a square. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 7 , lines 4-11.
11. The receiver of claim 9, further comprising: a decryptor for decrypting	This is the same as for claim 10 above except that it applies to

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
the service instance when the geographic location indicator is not within the square geographic region.	authorizing decoders (receivers) that are outside a blackout region. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col 18, lines 34-48, and Figure 9
12. A conditional access system for selectively providing service instances to viewers,	See claim 1, preamble.
the conditional access system comprising: a plurality of set top terminals located at geographic locations for selectively providing for display of the service instances,	Sheldrick describes a conditional access system for use with a direct broadcast satellite system, which by definition would have a plurality of receivers, which can be selectively authorized for the display of service instances. See claim 1.
each of the set top terminals comprising: a port for receiving an encrypted service instance and entitlement information associated therewith,	See claim 1.
wherein at least a portion of the entitlement information includes a geographic reception information;	See claim 1.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
a first microprocessor for activating display of the service instance;	See claim 1.
a secure element coupled to the first microprocessor, the secure element comprising: a memory for storing a geographic location indicator indicative of a location of a given terminal;	See claim 1.
and a second microprocessor for processing at least a portion of the entitlement information and for using the processed entitlement information with the geographic location indicator to determine whether the given terminal is entitled to the service instance;	See claim 1.
wherein the first microprocessor activates display of the service instance when the secure element determines that the given terminal is entitled to the service instance;	See claim 1.
and an entitlement agent coupled to the plurality of receivers for providing the encrypted service instance and the entitlement information.	The entitlement agent in this context is clearly a service provider since it is *providing* both the encrypted service and the entitlement information to the receivers. Sheldrick describes the same thing see for example 5:65 – 6:4 and Figure 1 in terms of providing video and audio services from a plurality of programmers providing such services and elsewhere in Sheldrick it is clear that these services are encrypted.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	Further, the following sections of Sheldrick describe all of the above terms and functionalities: Entitlement Agent: Col. 1, line 65 - col. 6, line 4, and Figure 1. Encrypted Service Instance Col. 10, lines 19-36. Entitlement Information Col. 3, lines 46-48. Col. 3 line 65 - col. 4 line 20. *See* also, Fig. 5 (and corresponding text).
13. The conditional access system of claim 12, wherein in response to determining that the terminal is not entitled to the received encrypted service instance, the service instance is not decrypted for display.	See claim 2.
14. The conditional access system of claim 12, wherein the geographic reception information comprises a blackout/spotlight field indicative of how the geographic reception	See claim 4.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
information is to be used by the terminal.	
15. The conditional access system of claim 14, wherein the blackout/spotlight field indicates whether the service instance is geographically limited and, if so,	See claim 5.
whether the service instance is limited to within a particular geographic region or to without the particular geographic region.	See claim 5.
16. The conditional access system of claim 12, wherein the memory of the secure element is accessible only to the microprocessor of the secure element.	See claim 3.
17. The conditional access system of claim 12, wherein the entitlement information includes the geographic reception information in the form of an x centroid, a y centroid, and a radius value for defining an entitlement region.	Sheldrick describes the use of circular blackout/spotlight codes to specify, a center latitude, a center longitude and a radius. These codes define an entitlement region (i.e. an area where either the decoders are authorized because they are in the region or because they are outside the region). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Entitlement region *Blackout and Spotlight regions*

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	Col. 3, lines 61-64.
18. The conditional access system of claim 17, further comprising additional entitlement agents for sending additional entitlement information that can be different for each entitlement agent and different for each service instance.	This is described in Sheldrick as a DBS system where multiple service providers (entitlement agents) provide programs (services instances). A conditional access system fundamentally provides the capability to configure different entitlement information for service providers and programs. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 4, lines 54-67. See claim 1.
19. The conditional access system of claim 17, wherein a given receiver is entitled to an instance of service when the geographic indicator of the given receiver is within the entitlement region.	Sheldrick describes a spotlight location command for defining a circular region whereupon if the receiver is inside this region it is authorized to receive the service. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 12, line 42 - col. 13, line 4. Claim 17.
20. A method for providing selective viewing of a service instance in a conditional access system comprising a receiver for selectively activating	See claims 1 and 12 preamble.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
display of the service instance and an entitlement agent coupled to the receiver for selectively entitling the receiver to display the service instance based on a geographic location of the receiver,	
the method comprising, in the receiver, the steps of: receiving an encrypted service instance and entitlement information from the entitlement agent;	See claim 1 and also it is inherent in Sheldrick that a service provider (entitlement agent) is sending an encrypted service instance and entitlement information, which is then received in the receiver. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 3, lines 46-48. Col. 6, lines 34-36 (emphasis added). Claim 18. *See* also, Fig. 5-6 (and corresponding text);
decoding geographic reception information from the entitlement information;	See claim 1 where in Sheldrick the blackout/spoltlight codes represent geographical reception information sent as part of the entitlement information. Sheldrick also decodes the geographic reception information to enable it to compare the geographic location data stored in the receiver with the geographic reception information. For example, the following sections

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	of Sheldrick describe all of the above terms and functionalities: Col. 7, lines 22-28. Col. 6, lines 34-36. Col. 7, lines 4-11 See, also: Col. 6, lines 47-49; See claim 1.
determining from the decoded geographic reception information a geographic region;	Sheldrick is clear in describing how the geographic reception information determines a geographic region in terms of a center latitude, center longitude and radius. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 3 line 65 - col. 4 line 20. Col. 4, lines 28-36. Col. 12, line 42 - col. 13, line 4.
determining from the geographic region and a geographic location indicator whether the receiver is entitled to display the service instance;	Again Sheldrick is clear that a comparison takes place in the receiver regarding whether or not the receiver is in a particular geographic region by comparing its own location stored in the receiver with the geographic region being signaled in the geographic reception information. For example, the following sections of Sheldrick describe all of the above

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	terms and functionalities: Col. 13, lines 5-20. Col. 18, lines 1-18. **NOTE**: Regional vs. circular authorization). *See*, also col. 10, lines 24-33.
and decrypting, when the receiver is entitled to display the service instance, the encrypted service instance.	Sheldrick describes the process of the DISE supplying decryption information for decrypting the data corresponding to the selected channel (service instance) which is then subsequently executed, only if the DISE determines the receiver is authorized to decrypt the selected channel. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 6, line 59 - col 7, line 11. See claim 1. *See*, also Col. 2, lines 55-61.
21. The method of claim 20, wherein: the geographic reception information represents an entitled geographic region;	See, claim 6.
and the determining step comprises the step of determining that the receiver is entitled when the geographic location indicator is within the represented	See, claim 6.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
entitled geographic region.	
22. The method of claim 20, wherein: the geographic reception information represents an unentitled geographic region;	Sheldrick describes a blackout location command, which defines a circular region and any decoders within that region will not be authorized to decrypt regardless of any previous state so it therefore defines an unentitled region. For example, the following sections of Sheldrick describe all of the above terms and functionalities:
and the determining step comprises the step of determining that the receiver is entitled when the geographic location indicator is not within the represented unentitled geographic region.	Sheldrick describes how the DISE determines whether a decoder is authorized to receive a channel by comparing the decoder's stored location information with the region defined by the blackout code. If it is within it will not be authorized regardless of its previous state and if it is not within the blackout region then it will remain authorized. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 6, line 59 - col 7, line 11, and Figure 1.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
23. The method of claim 20, further comprising, in the receiver, the step of: processing the geographic reception information to recover therefrom an x centroid, a y centroid, and a radius, all of which define the geographic region.	See, claims 9-10.
24. The method of claim 23, wherein when the geographic location information intersects the geographic region then the receiver is entitled to the instance of service.	This is clearly shown in Sheldrick figure 9 along with the corresponding text description. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 18, lines 34-48.
25. The method of claim 23, wherein when the geographic location information does not intersect the geographic region then the receiver is not entitled to the instance of service.	See, claim 2.
26. A method for providing selective viewing of a service instance in a conditional access system comprising a receiver for selectively activating display of the service instance and an entitlement agent for selectively entitling the receiver to display the service instance,	See, claims 1, 20, 12 (preambles)

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
the method comprising the steps of: representing a two dimensional grid, wherein the two dimensional grid represents entitlements granted by the entitlement agent for an instance of service;	Sheldrick describes the representation of a two dimensional grid with center latitude, center longitude and a radius which represents a region where the service provider (entitlement agent) wishes services (instance of service) to remain authorized (entitlements granted). For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 4, lines 28-36. Col. 12, line 42 - col. 13, line 4. See, claim 1.
and determining whether the receiver is entitled to the instance of service by using the two dimensional grid and a receiver entitlement indicator, the receiver entitlement indicator associated with a point in the two dimensional grid.	Sheldrick describes how the receiver determines if a service should be decrypted by determining, when a blackout for a channel is activated, whether the receiver is in the blackout/spotlight region (two dimensional grid) indicated. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 6, line 59 - col 7, line 11. Col. 18, lines 1-18.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
27. The method of claim 26, wherein the determining step further includes: determining a subportion of the represented two dimensional grid, the subportion being a blackout/spotlight field.	See figure 9 of Sheldrick where a spotlight area is defined as a subportion of a blackout area. It would have been obvious to practically anyone that the reverse situation is also possible. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 3 line 65 - col. 4 line 20. Col. 16, lines 14-27. Figure 8.
28. The method of claim 27, wherein the receiver is entitled to the instance of service when the receiver entitlement indicator is within the spotlight field or without the blackout field.	See claim 5. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 12, line 42 - col. 13, line 4.
29. The method of claim 27, wherein the receiver is not entitled to the instance of service when the receiver entitlement indicator is without the spotlight field or within the blackout field.	This is the reverse of claim 28 above and is how the system would operate – a service is either authorized or not. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 12, line 42 - col. 13, line 4.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
30. The method of claim 26, further including the step: prior to the determining step, receiving at the receiver a message having at least one subportion indicator.	See Figs 4-7 of Sheldrick and corresponding text in the description.
31. The method of claim 30, wherein the at least one subportion indicator includes an x centroid, a y centroid, defining a given point in the two dimensional grid, and an area indicator for defining a blackout/spotlight area around the given point.	See claim 9 as well as figures 7-8 of Sheldrick. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col 4, lines 29-31. *See*, also: Figures 7-8 and
32. The method of claim 31, wherein the blackout/spotlight area defines a subportion of the represented two dimensional grid having a subportion x min, a subportion x max, a subportion y min, and a subportion y max.	Thibadeau's Abstract describes regions being described by their boundaries. For a square or rectangular grid this is obviously equivalent to x min and x max together with y min and y max.
33. The method of claim 32, wherein the receiver is entitled to the instance of service when the receiver entitlement indicator is within the spotlight area or without the blackout area.	See claim 28.
34. The method of claim 32, wherein the receiver is not entitled to the instance of service when the receiver entitlement indicator is without the spotlight area or within the blackout	See claim 29.

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
area.	
35. The conditional access system of claim 17, wherein a given receiver is entitled to an instance of service when the geographic location indicator of the given receiver is without the entitlement region.	See claim 5 – case of receiver being outside the blackout region. For example, the following sections of Sheldrick describe all of the above terms and functionalities: Col. 6, line 59 - col 7, line 11, and Figure 1. Claim 17
36. The conditional access system of claim 12, wherein a given receiver is entitled to an instance of service when the geographic indicator of the given receiver is within the entitlement region.	Sheldrick describes spotlight location commands defining a circular spotlight region and receivers that are inside the region so defined are authorized (entitled). Col. 12, line 42 - col. 13, line 4. Claim 17.
37. The conditional access system of claim 12, wherein a given receiver is entitled to an instance of service when the geographic indicator of the given receiver is without the entitlement region.	Sheldrick describes blackout location commands defining a circular blackout region and receivers that are inside the region so defined are de-authorized (not entitled) whereas receivers outside (without) are authorized (entitled). For example, the following sections of Sheldrick describe all of the above

Claim	Sections of Prior Art Reference Based on Sheldrick (US 5,506,904) [and Thibadeau (US 5,432,542) where indicated]
	terms and functionalities: Claim 17.
38. The method of claim 20, wherein the geographic location indicator is stored in a memory at the receiver.	See claim 1.

B. Anticipation Based on Wasilewski '92 and/or Obviousness Based on Wasilewski '92, in view of Sheldrick or Thibadeau

73. Wasilewski '92 was a contribution to the MPEG-2 System Development working group and describes a digital broadcast system capable of multiplexing multiple programs (Service Instances) for delivery to decoders. It describes a conditional access system and the use of that conditional access system to provide blackouts based on a Geographic Location Indicator stored in each decoder. Therefore, Wasilewski '92 is within the same specific technical field, and relates to the claimed subject matter, of the 892 Patent. Further, the related capabilities and the architecture described in Wasilewski '92 are for all intents and purposes the same as the claims of the 892 Patent.

74. Wasilewski '92 describes a process for creating multiple encrypted service instances (programs) from multiple providers (entitlement agent) each with their own independent control of one or more service instances – "*..may have*

originated from dozens or more service providers. Each provider would like to have total end-to-end security and conditional access control of its service bitstreams…" Section 3.19. An overview of this process is shown in Figure 2.

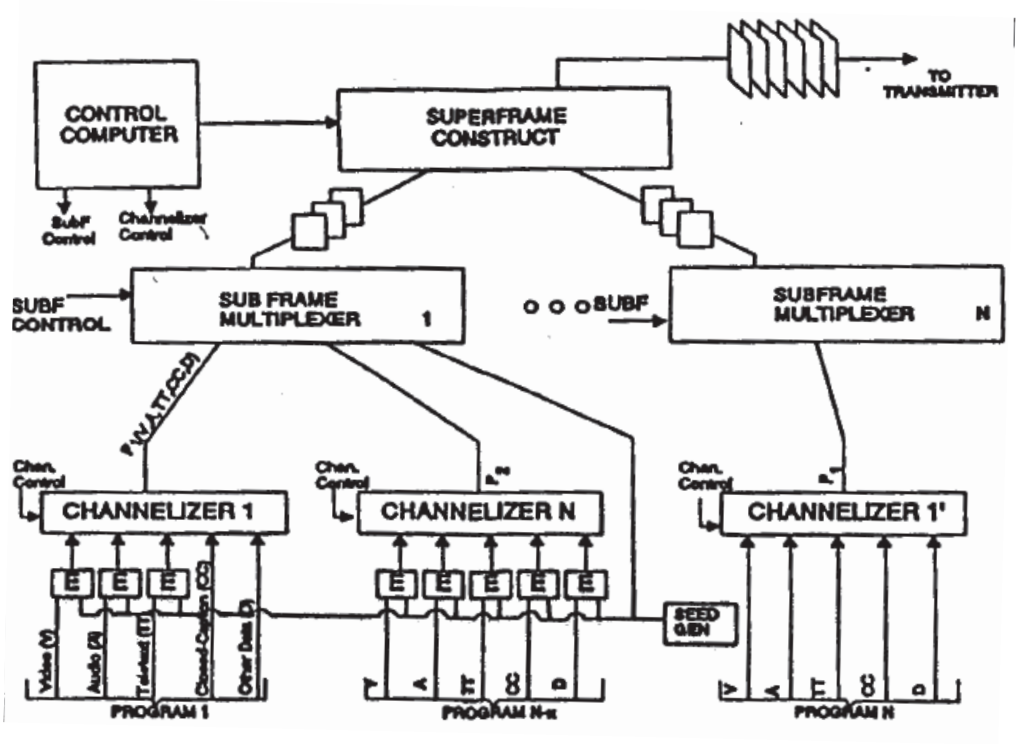

Figure 2 – Construction of Superframed Multiplex

75. Section 6.7 of Wasilewski '92 describes sending a Geographic Location Indicator (i.e. x and y coordinates) to each individual decoder using Addressable Data Packets (ADPs). Wasilewski '92 further describes sending Geographical Reception Information (i.e. x and y coordinates plus a radius to define a blackout region) to decoders as part of the Entitlement Information using ADPs. The architecture of the process for sending ADPs to individual decoders is shown in Figure 11 below.

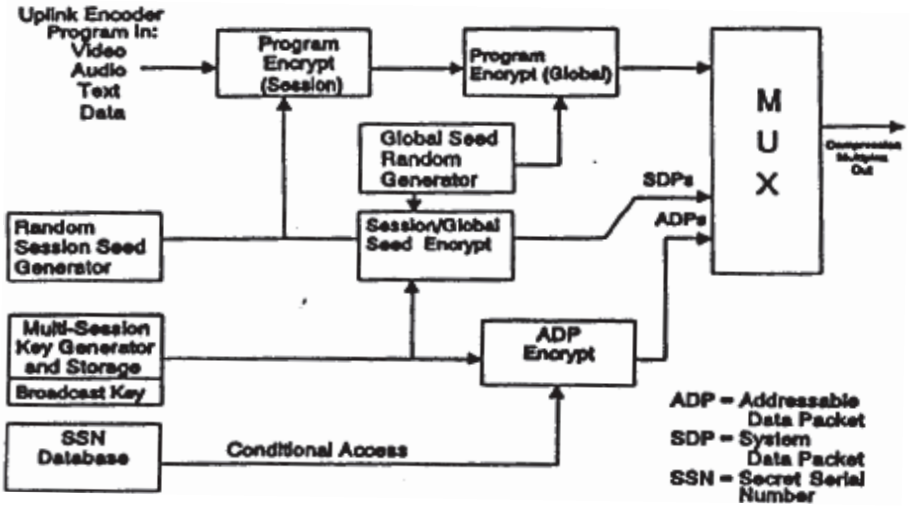

Figure 11 – System Encryption Architecture

76. Section 6.7 of Wasilewski '92' describes the decoder comparing a decoder's Geographic Location Indicator with the Geographic Reception Information to determine whether or not a particular encrypted service instance should be decrypted (so it can be selectively displayed).

77. The four independent claims 1, 12, 20 and 26 are all anticipated by Wasilewski '92 as described in below paragraphs, and the Table that follows.

78. Claim 1 describes a receiver using Geographic Reception Information as criteria for determining whether or not to authorize the display of a Service Instance. It is completely anticipated by Wasilewski '92 as Wasilewski '92 describes each and every one of the claim's preamble and its limitations.

79. Claim 12 describes a conditional access system for selectively displaying Service Instances to a plurality of set top terminals (i.e. receivers) located at multiple geographic locations. It introduces the "Entitlement Agent" as

providing one or more Service Instances which may be encrypted. This claim is also completely anticipated by Wasilewski ‘92 as Wasilewski ‘92 describes each and every one of the claim’s preamble and its limitations.

80. Claim 20 describes a method for a service provider (i.e. an Entitlement Agent) to be able to selectively display a Service Instance based on the receiver’s location (Geographic Location Indicator). The method of this claim and all its limitations are completely anticipated by Wasilewski ‘92 as essentially the exact same method and steps are described in some detail in Wasilewski ‘92.

81. Claim 26 is essentially a re-wording of Claim 20 above with different terms to describe essentially the same thing i.e. a two dimensional grid instead of a geographic region and entitlement indicator instead of ‘is the geographic location indictor inside the defined region’. The claim and its two limitations are therefore completely anticipated by Wasilewski ‘92.

82. The dependent claims 2-11, 13-19, 21-25 and 27-38 are mostly trivially obvious extensions of their respective parent claims and duplicatively so in many cases. For example, Claim 10: “..further comprising: a decryptor for decrypting the service instance when the geographic location indicator is within the square geographic region”. Not only is this obvious (you need a decryptor to decrypt and you and you want it to decrypt only when a specific condition is met) but it is also necessary for the proper functioning of the claimed system! It

is in my opinion that there is a strong argument that claims 2, 3, 4, 5, 6, 7, 11, 13, 14, 15, 16, 19, 28, 29, 33, 34, 35, 36, 37 and 38 can all be described in the same manner. The remaining independent claims 8, 9, 17, 18, 21, 22, 23, 24, 25, 27, 30, 31 and 32 add limitations to their parents. These claims are all either anticipated by Wasilewski '92 alone, or rendered obvious using the combination of Wasilewski '92, Sheldrick and/or Thibadeau, as more particularly described in the table below.

TABLE 2 (based on Wasilewski '92, Sheldrick and Thibadeau)

Claim	Sections of Prior Art Reference
1. A receiver located at a geographic location for receiving and selectively displaying a service instance, the receiver comprising:	Wasilewski '92 clearly describes a receiver designed for conditionally receiving (selectively displaying) programs (service instances). For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (S*ee* Wasilewski '92, p. 18, section 6.1; Figure 13 - Standard Decoder Model) (S*ee* Wasilewski '92, p. 1, section 2; Figure 1 - Digital Video Compression System Architecture) (S*ee* Wasilewski '92, p. 4, section 3.1) (*See* Wasilewski '92, p. 10, section 4; Figure 2, Program 1-N)

Claim	Sections of Prior Art Reference
a port for receiving an encrypted service instance and entitlement information associated therewith,	A port is an input (or an output) and since Wasilewski '92 describes a transport stream in which all packets whether entitlement information or program content or whatever are transmitted or received it follows that Wasilewski '92 is describing this element exactly. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (S*ee* Wasilewski '92, p. 18, section 6.1; Figure 13, Input to DEMOD) (*See* Wasilewski '92, p. 10, section 4; Figure 2) (*See* Wasilewski '92, Abstract) (*See* Wasilewski '92, p. 9, section 3.19) (*See* Wasilewski '92, p. 19-20, section 6.7) (*See* Wasilewski '92 p. 15, section 5.5)
wherein at least a portion of the entitlement information includes geographic reception information;	Wasilewski '92 describes addressable data packets (ADP) as decoder specific conditional access data streams (entitlement information) and it goes on to describe assigning blackout codes and coordinates to decoders using ADPs. Therefore Wasilewski '92 is describing this element. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 20, section 6.7)
a first microprocessor for activating display of the service instance;	Wasilewski '92 describes the use of a video processor, which is connected to a television. For example, the following sections of Wasilewski '92 describe all of the above terms and

Claim	Sections of Prior Art Reference
	functionalities: Video Processor (*see* Wasilewski '92, Figure 13 - Standard Decoder Model), where decryptors (D) (see, also Wasilewski '92, p. 18, section 6.1) are connected to the video processor, and the output of the video processor is connected to a television.)
a secure element coupled to the first microprocessor,	Wasilewski '92 describes a secure microprocessor with protected non-volatile memory, which clearly must be coupled to the video processor. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 16, section 5.9.2) See, also Wasilewski '92, Figure 12, showing "CATV Decoder" including: a secure microprocessor, a unique SSN, a session key and a security program.
the secure element comprising: a memory for storing a geographic location indicator indicative of the geographic location of the receiver;	Wasilewski '92 describes using secure non-volatile memory to store its geographical location. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92 p. 20, section 6.7)
and a second microprocessor	Wasilewski '92 describes a secure processor in addition to the video processor. [For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (See Wasilewski '92, p. 16, section 5.9.2) See, also Wasilewski '92, Figure 12, showing "CATV Decoder" including a secure microprocessor.

Claim	Sections of Prior Art Reference
for processing the geographic reception information and for using the processed geographic reception information with the geographic location indicator to determine whether the receiver is entitled to the service instance;	Wasilewski '92 describes how the decoder compares the blackout code being received with the location stored in the decoder to determine whether or not to authorize the service. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 19-20, section 6.7)
and wherein the first microprocessor activates display of the service instance when the secure element determines that the receiver is entitled to the service instance.	Wasilewski '92 describes how the video processor will only output video for display if the secure processor determines the decoder is authorized to receive the service. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (See Wasilewski '92, p. 10, section 4.1) (see Wasilewski '92, p. 20, section 6.7) For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: Video Processor (*see* Wasilewski '92, Figure 13 - Standard Decoder Model), where decryptors (D) (see, also Wasilewski '92, p. 18, section 6.1) are connected to the video processor, and the output of the video processor is connected to a television.) (S*ee* Wasilewski '92, p. 18, section 6.1; Figure 13 - Standard Decoder Model)

Claim	Sections of Prior Art Reference
2. The receiver of claim 1, wherein in response to determining that the receiver is not entitled to the received encrypted service instance, the service instance is not decrypted for display.	Wasilewski '92 describes this in section 6.7. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 20, section 6.7)
3. The receiver of claim 1, wherein the memory of the secure element is accessible only to the second microprocessor.	Wasilewski '92 describes protected NVM within the die of a secure microprocessor i.e. only accessible to the second microprocessor. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 16, section 5.9.2)
4. The receiver of claim 1, wherein the geographic reception information comprises a blackout/spotlight field indicative of how the geographic reception information is to be used by the receiver.	Wasilewski '92 describes using ADPs to deliver blackout codes and coordinates to each decoder. The inverse of blackout, i.e. spotlight, is an obvious extension. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 15, section 5.5) (*See* Wasilewski '92 p. 20, section 6.7) (*See* Wasilewski '92 p. 20, section 6.7)
5. The receiver of claim 4, wherein the	See claim 4.

Claim	Sections of Prior Art Reference
blackout/spotlight field indicates whether the service instance is geographically limited, and, if so,	
whether the service instance is limited to within a particular geographic region or to without the particular geographic region.	Wasilewski '92 describes blackouts (i.e. limiting to without a region) and as described above spotlighting (i.e. limiting to within a region) is the obvious inverse of this. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 20, section 6.7) (Sheldrick, col 13, ll. 20-27).
6. The receiver of claim 1, wherein: the geographic reception information is indicative of a geographic region;	Wasilewski '92 describes sending blackout codes (geographical reception information) and coordinates defining a region. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 19-20, section 6.7) (Sheldrick, col 2 line 66 - col. 3 line 2).
and the receiver further includes a decryptor for decrypting the service instance when the geographic location indicator is within the geographic region	Wasilewski '92 describes the inverse of this (i.e. blackouts) in section 6 but as already stated it is a trivial and obvious extension to derive this i.e. spotlighting. For example, the following sections of Wasilewski '92 describe all of the above terms and

Claim	Sections of Prior Art Reference
indicated by the geographic reception information.	functionalities: (*See* Wasilewski '92, p. 19-20, section 6.7) (*See* Wasilewski '92, p. 18, section 6.1; *see also* Figure 13, where decryptors (D) are connected to the video processor, and the output of the video processor is connected to a television.)
7. The receiver of claim 1, wherein: the geographic reception information is indicative of a geographic region;	See claim 6.
and the receiver further includes a decryptor for decrypting the service instance when the geographic location indicator is not within the geographic region indicated by the geographic reception information.	Wasilewski '92 describes this in section 6 – it is authorizing all decoders except those in the blacked out region. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*see* Wasilewski '92, p. 19-20, section 6.7) (*See* Wasilewski '92, p. 18, section 6.1; *see also* Figure 13, where decryptors (D) are connected to the video processor, and the output of the video processor is connected to a television.)
8. The receiver of claim 1, wherein the geographic location indicator includes x and y coordinates of a coordinate system.	Wasilewski '92 describes the use of geographic x,y coordinates for this purpose in section 6.7 For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities:. (*See* Wasilewski '92, p. 20, section 6.7)
9. The receiver of claim 8, wherein the geographic	Wasilewski '92 describes the use of geographic x,y coordinates to define a centroid and a radius value in

Claim	Sections of Prior Art Reference
reception information comprises an x centroid, a y centroid, and a radius value,	section 6.7. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 20, section 6.7)
and wherein the x centroid, the y centroid, and the radius define a square geographic region within the coordinate system.	Wasilewski '92 describes the use of an x,y centroid and radius and Thibadeau describes the somewhat obvious extension that an x,y centroid and a radius could also be used to define a square region. For example, the following sections of Thibadeau describe all of the above terms and functionalities: (Thibadeau, col. 7, lines 29-44) (emphasis added) (Thibadeau, col. 8, lines 20-40; Figure 1)
10. The receiver of claim 9, further comprising: a decryptor for decrypting the service instance when the geographic location indicator is within the square geographic region.	This is the same as claim 6 except that the region is a square. See claim 9. (claim 9 -- square region) For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 18, section 6.1; *see also* Figure 13 elements D)
11. The receiver of claim 9, further comprising: a decryptor for decrypting the service instance when the geographic location indicator is not within the square geographic region.	This is same as claim 7 except that the region is a square. See claim 9.
12. A conditional access system for selectively providing service instances to viewers, the	See claim 1.

Claim	Sections of Prior Art Reference
conditional access system comprising:	
a plurality of set top terminals located at geographic locations for selectively providing for display of the service instances,	Wasilewski '92 clearly describes scenarios where there are a plurality of decoders (set top terminals) located at different geographical locations which have conditional access for selective display. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: The overall system security architecture, shown in Figure 12, provides for sturdy signal protection on an end-to-end basis whether the receive site is a CATV headend, DBS backyard Integrated Receiver Decoder IRD), *digital home terminal at a subscriber premise* or other network node. (*see* Wasilewski '92, p. 16, section 5.9; Figure 12) (*See* Wasilewski '92, p. 20, section 6.7)
each of the set top terminals comprising: a port for receiving an encrypted service instance and entitlement information associated therewith,	See claim 1.
wherein at least a portion of the entitlement information includes a geographic reception information;	See claim 1.
a first microprocessor for activating display of the service instance;	See claim 1.

Claim	Sections of Prior Art Reference
a secure element coupled to the first microprocessor,	See claim 1.
the secure element comprising: a memory for storing a geographic location indicator indicative of a location of a given terminal;	See claim 1.
and a second microprocessor for processing at least a portion of the entitlement information and for using the processed entitlement information with the geographic location indicator to determine whether the given terminal is entitled to the service instance;	See claim 1.
wherein the first microprocessor activates display of the service instance when the secure element determines that the given terminal is entitled to the service instance;	See claim 1.
and an entitlement agent coupled to the plurality of receivers for providing the encrypted service instance and the	Figure 2 of Wasilewski '92 shown below shows multiple programs being provided by an entity (entitlement agent). Wasilewski '92 goes on to describe encrypting each program and transmitting entitlement information along with the encrypted

Claim	Sections of Prior Art Reference
entitlement information.	programming. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: The entity that provides any one of Programs 1 through N (*see* Wasilewski '92 Figure 2)
	Or the entity on the left hand side of Figure 1 of Wasilewski '92, that provides and/or processes HDTV, Live Events, Stored programming and Movies to the uplink. (Wasilewski '92, pp. 16-17, section 5.9.6)
13. The conditional access system of claim 12, wherein in response to determining that the terminal is not entitled to the received encrypted service instance, the service instance is not decrypted for display.	See claim 2
14. The conditional access system of claim 12, wherein the geographic reception information comprises a blackout/spotlight field indicative of how the geographic reception information is to be used	See claim 4

Claim	Sections of Prior Art Reference
by the terminal.	
15. The conditional access system of claim 14, wherein the blackout/spotlight field indicates whether the service instance is geographically limited and, if so,	See claim 5
whether the service instance is limited to within a particular geographic region or to without the particular geographic region.	See claim 5
16. The conditional access system of claim 12, wherein the memory of the secure element is accessible only to the microprocessor of the secure element.	See claim 3
17. The conditional access system of claim 12, wherein the entitlement information includes the geographic reception information in the form of an x centroid, a y centroid, and a radius value for defining an entitlement region.	See claim 9. Wasilewski '92 describes how entitlement information includes geographic reception information.
18. The conditional access system of claim	Wasilewski '92 describes an entity (entitlement agent) that can provide any one of a plurality of

Claim	Sections of Prior Art Reference
17, further comprising additional entitlement agents for sending additional entitlement information that can be different for each entitlement agent	programs with their respective entitlements, which can be different, as well as multiple service providers (entitlement agents), each having total end-to-end security and conditional access control of its service bitstreams. Therefore, Wasilewski '92 describes having multiple entitlement agents each with different programs and entitlement information. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (See Claim 12 -- entitlement agent = the entity that provides any one of Programs 1 through N (*see* Wasilewski '92 Figure 2)) Program 1- N (*see* Wasilewski '92 Figure 2 -- Construction of Superframed Multiplex) HDTV, Live Events, Stored Programming, Movies (see Figure 1 -- Digital Video Compression System Architecture) (*See* Wasilewski '92, section 3.19, par. 1) (*See* Wasilewski '92, p. 10, section 4; Figure 2) (Wasilewski '92, pp. 16-17, section 5.9.6) (See Wasilewski '92, p. 4, section 3.1)
	(*See* Wasilewski '92, p. 10, section 4; Figure 2, Program 1-N)
and [for sending additional entitlement information that can be] different for each service instance.	[different entitlement information for each service instance = some programs may be blacked out and others may not] (Sheldrick, col 2, ll. 37-52).

Claim	Sections of Prior Art Reference
19. The conditional access system of claim 17, wherein a given receiver is entitled to an instance of service when the geographic indicator of the given receiver is within the entitlement region.	Sheldrick describes a spotlight location command for defining a circular region whereupon if the receiver is inside this region it is authorized to receive the service. For example, the following sections of Sheldrick describe all of the above terms and functionalities: (Sheldrick, col 2 line 66 - col. 3 line 2). (Sheldrick, col 13, ll. 20-27). (Sheldrick, col 18, ll. 34-48; see also Figures 8 and 9).
20. A method for providing selective viewing of a service instance in a conditional access system comprising a receiver for selectively activating display of the service instance and an entitlement agent coupled to the receiver for selectively entitling the receiver to display the service instance based on a geographic location of the receiver,	See claims 1 and 12.
the method comprising, in the receiver, the steps of: receiving an encrypted service instance and entitlement information from the	See claim 1 with the addition that a program provider is equivalent to an entitlement agent.

Claim	Sections of Prior Art Reference
entitlement agent;	
decoding geographic reception information from the entitlement information;	Wasilewski '92 describes using the blackout codes and coordinates (geographic reception information) which is sent in ADPs (entitlement information) and in order to use it, the decoder must clearly decode it first. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*see* Wasilewski '92, p. 20, section 6.7) (emphasis added) [ADPs carry entitlement information and must be decoded by receiver] (*see* Wasilewski '92 p. 15, section 5.5)
determining from the decoded geographic reception information a geographic region;	Wasilewski '92 describes how the blackout coordinates determine a geographic region in section 6.7. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*See* Wasilewski '92, p. 20, section 6.7)
determining from the geographic region and a geographic location indicator whether the receiver is entitled to display the service instance;	Wasilewski '92 describes in section 6.7 how the decoder compares the geographic region defined by coordinates to the decoders stored location to determine whether the receiver is authorized (entitled) to display the service. For example, the following sections of Wasilewski '92 describe all of the above terms and

Claim	Sections of Prior Art Reference
	functionalities: (*See* Wasilewski '92, p. 20, section 6.7)
and decrypting, when the receiver is entitled to display the service instance, the encrypted service instance.	Wasilewski '92 describes this in section 6.1. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: Decryptors (D) (*see* Wasilewski '92, Figure 13 - Standard Decoder Model) are connected to Video Processor, and the output of the video processor is connected to a television. (see, also Wasilewski '92, p. 18, section 6.1) (S*ee* Wasilewski '92, p. 18, section 6.1; Figure 13 - Standard Decoder Model)
21. The method of claim 20, wherein: the geographic reception information represents an entitled geographic region;	See claim 6.
and the determining step comprises the step of determining that the receiver is entitled when the geographic location indicator is within the represented entitled geographic region.	See claim 6.

Claim	Sections of Prior Art Reference
22. The method of claim 20, wherein: the geographic reception information represents an unentitled geographic region;	See claim 7.
and the determining step comprises the step of determining that the receiver is entitled when the geographic location indicator is not within the represented unentitled geographic region.	See claim 7.
23. The method of claim 20, further comprising, in the receiver, the step of: processing the geographic reception information to recover therefrom an x centroid, a y centroid, and a radius, all of which define the geographic region.	See first part of claim 9.
24. The method of claim 23, wherein when the geographic location information intersects the geographic region then the receiver is entitled to the instance of service.	This is clearly shown in Sheldrick figure 9 along with the corresponding text description. For example, the following sections of Sheldrick describe all of the above terms and functionalities: (Sheldrick, col 2 line 66 - col. 3 line 2). (Sheldrick, col 13, ll. 20-27).

Claim	Sections of Prior Art Reference
25. The method of claim 23, wherein when the geographic location information does not intersect the geographic region then the receiver is not entitled to the instance of service.	See claim 2. Further, Sheldrick also describes that when the receiver is not located within the geographic region of interest, the receiver will not be authorized. For example, the following sections of Sheldrick describe all of the above terms and functionalities: (Sheldrick, col 18, ll. 34-48; see also Figures 8 and 9).
26. A method for providing selective viewing of a service instance in a conditional access system comprising a receiver for selectively activating display of the service instance and an entitlement agent for selectively entitling the receiver to display the service instance,	See claims 1 and 12 for entitlement agent. [see claim 12 for entitlement and entitlement agent]
the method comprising the steps of: representing a two dimensional grid, wherein the two dimensional grid represents entitlements granted by the entitlement agent for an instance of service;	See claim 12 for entitlement agent and Wasilewski '92 describes representing a two dimensional grid represents a region of particular entitlements - i.e. blackout or not that have been granted by a program provider (entitlement agent). For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*see* Wasilewski '92, p. 20, section 6.7)
and determining whether the receiver is entitled to the instance of service by	Wasilewski '92 describes this in section 6.7 where the geographic centroid (x,y) and radius (r) represent the receiver entitlement indicator.

Claim	Sections of Prior Art Reference
using the two dimensional grid and a receiver entitlement indicator,	For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*see* Wasilewski '92, p. 20, section 6.7)
the receiver entitlement indicator associated with a point in the two dimensional grid.	This is described in Wasilewski '92 in section 6.7. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (see Wasilewski '92, p. 20, section 6.7)
27. The method of claim 26, wherein the determining step further includes: determining a subportion of the represented two dimensional grid, the subportion being a blackout/spotlight field.	See figure 9 of Sheldrick where a spotlight area is defined as a subportion of a blackout area. It would have been obvious to practically anyone that the reverse situation is also possible.
28. The method of claim 27, wherein the receiver is entitled to the instance of service when the receiver entitlement indicator is within the spotlight field or without the blackout field.	Sheldrick specifically describes using the spotlight codes (fields) to determine whether the service is limited to a particular region or the blackout codes (fields) to determine whether the service is limited to outside a particular region. For example, the following sections of Sheldrick describe all of the above terms and functionalities: (see claim 4 - spotlight/blackout field) (see claim 1 - blackout)

Claim	Sections of Prior Art Reference
	(see Sheldrick Figure 9, decoder 920 for "within the spotlight field" and decoder 900 for "without the blackout field.")
29. The method of claim 27, wherein the receiver is not entitled to the instance of service when the receiver entitlement indicator is without the spotlight field or within the blackout field.	Sheldrick specifically describes using the spotlight codes (fields) to determine whether the service is limited to a particular region or the blackout codes (fields) to determine whether the service is limited to outside a particular region. For example, the following sections of Sheldrick describe all of the above terms and functionalities: (see claim 4 - spotlight/blackout field) (see claim 1 - blackout) [Combination of Wasilewski '92 and Sheldrick] (Sheldrick, col 2 line 66 - col. 3 line 2). (see Sheldrick Figure 9, decoder 910 for "without the spotlight field" or "within the blackout field.")
30. The method of claim 26, further including the step: prior to the determining step, receiving at the receiver a message having at least one subportion indicator.	Wasilewski '92 describes using ADPs to deliver geographical information to each decoder which in this context is the subportion indicator. For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (*see* Wasilewski '92 p. 20, section 6.7) (*see* Wasilewski '92 p. 15, section 5.5)
31. The method of claim 30, wherein the at least one subportion indicator includes an x centroid, a	Blackout region definition in this manner is clearly described in section 6.7 of Wasilewski '92 and as already indicated it is trivial and obvious to add the inverse of blackouts – i.e. spotlights.

Claim	Sections of Prior Art Reference
y centroid, defining a given point in the two dimensional grid, and an area indicator for defining a blackout/spotlight area around the given point.	For example, the following sections of Wasilewski '92 describe all of the above terms and functionalities: (see Wasilewski '92, p. 20, section 6.7)
32. The method of claim 31, wherein the blackout/spotlight area defines a subportion of the represented two dimensional grid having a subportion x min, a subportion x max, a subportion y min, and a subportion y max.	Thibadeau's Abstract describes regions being described by their boundaries. For a square or rectangular grid this is obviously equivalent to x min and x max together with y min and y max. For example, the following sections of Thibadeau describe all of the above terms and functionalities: (Thibadeau, Abstract) (Thibadeau, col. 9, lines 22-31) (Thibadeau, col. 11, lines 36-48)
33. The method of claim 32, wherein the receiver is entitled to the instance of service when the receiver entitlement indicator is within the spotlight area or without the blackout area.	See claim 28.
34. The method of claim 32, wherein the receiver is not entitled to the instance of service when the receiver entitlement indicator is without the spotlight area or within the blackout area.	See claim 28.

Claim	Sections of Prior Art Reference
35. The conditional access system of claim 17, wherein a given receiver is entitled to an instance of service when the geographic location indicator of the given receiver is without the entitlement region.	See claim 7 – no Blackout.
36. The conditional access system of claim 12, wherein a given receiver is entitled to an instance of service when the geographic indicator of the given receiver is within the entitlement region.	See claim 6 – Spotlight.
37. The conditional access system of claim 12, wherein a given receiver is entitled to an instance of service when the geographic indicator of the given receiver is without the entitlement region.	See claim 7 – no Blackout.
38. The method of claim 20, wherein the geographic location indicator is stored in a memory at the receiver.	See claim 1.

I declare under the penalty of perjury that the foregoing is true and correct. Executed on June 4, 2013 in Skillman, New Jersey.

ALAN YOUNG

ATTACHMENT A: CURRICULUM VITAE OF ALAN YOUNG

ALAN D. YOUNG

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Skillman, NJ 08558
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Chief Technology Officer

Extensive experience in developing and applying new technologies to existing business environments across the media, financial services and telecoms industries on every major continent. Expertise in leading multi-functional teams working with global customers and suppliers and a record of success in refocusing and restructuring organizations to achieve improvements in performance and efficiency in engineering, operations, information systems and sourcing. Proven ability to lead teams to successful outcomes in crisis situations. Recognized innovator with two issued patents and two others applied for.

P&Y ASSOCIATES, LLC **2011 -**

Co-Founder and Partner, Princeton, NJ

Founded a Business Operations and Technology consulting firm with a former colleague to work primarily with middle-market and early stage companies to effectively integrate people, process and technology in order to deliver shareholder value.

- Advised a major Indian IT company on strategy for development and sales of its energy management, media and telecoms products and services. Hosted an IPv6 webinar and co-authored whitepapers on connected homes of the future and IPv6.
- Worked as CIO/CTO for a cable startup. Developed technical architecture for an all IP DOCSIS 3.0 based system for video, voice and broadband. Presented technology solution to numerous VCs and PE firms during fund raising process.
- Advised a venture capital firm on the potential spin out of a technology developed by a major telecoms equipment supplier including technology due diligence and business plan development.
- Advised a cloud security service provider on strategy regarding seeking VC funding.
- Advised a small sports network on signal quality issues.

SES WORLDSKIES (formerly SES AMERICOM) **2005-2011**
Chief Technology Officer, Princeton, NJ
Reported to Chief Executive Officer. Responsible for overall technology strategy and development of new products and services. Provided management team with a regular scan of new technologies and their potential to impact the satellite business. Managed the product development process from concept to commercial launch. Provided expert technical support to the sales groups.

- Led design, development and deployment of the IP-PRIME MPEG-4 IPTV service, which provided a full package of television programming and related services to telephone operators. Selected vendors and partners and led the negotiation of complex master license agreements with Cisco, Nokia-Siemens, NDS and other technology vendors. Delivered the product on budget ($40M).
- Assumed management of IP-PRIME operations and customer contact center to cover a vacancy. Improved performance by implementing metrics and reviewing them regularly with the team so that corrective actions could be taken.
- Led teams that executed a TV-to-mobile phone trial in the Las Vegas market, including negotiating programmer agreements, technical integration and a partnership agreement with spectrum rights holder. Successfully completed consumer trial with 200-250 participants.
- Conducted a comprehensive survey of online video use within the mainstream media industry in the US and the potential impact on future satellite use. Recommended numerous strategic options to management team to keep satellite relevant.
- Led a team in evaluating 3D Television's potential for SES. Developed a comprehensive end-to-end 3DTV test environment for broadcasters and technology providers and executed a series of tests, which produced valuable insight into key issues with 3D.
- Led the team that successfully mitigated interference from a rogue satellite ("zombiesat") to services from four communication satellites operated by SES between May and December 2010. Developed mitigation plans, communicated with customers and regulators (FCC), cooperated with Intelsat (owner of the Galaxy-15 satellite – "zombiesat") and successfully executed plans. Without mitigation, programmers including MTV, Discovery, Showtime, NBCU, the Weather Channel, Hallmark and Scripps (FoodTV, HGTV) would have experienced days of catastrophic interference to tens of millions of US households.

CITIGROUP **1998-2005**

Head of Emerging Technologies and
The Strategic Vendor Partnership Program**,** New York, NY (2004–2005)
Reported to the Enterprise Technology Officer. Identified strategic vendors and ensured that emerging technologies were efficiently applied company wide. Communicated the significance of certain vendors and technologies to senior management and recommended which vendors and technologies should be prioritized across the business.

- Revised and re-focused Citigroup's process for evaluating and prioritizing new technologies by developing specific criteria to assess benefit and risk, which could then be weighted in a manner consistent with the company's business strategy.
- Devised Citigroup's Strategic Vendor Partnership Program, a process to evaluate strategic partners and then map prioritized new technologies to selected partners, to speed up their rollout at Citigroup. Process is currently patent pending (June 2007).

Head of Information Security Services, New York, NY **(**2003-2004)
Reported to Corporate Technology Officer. Managed Citigroup's company wide information security programs and provided internal consulting on information security matters. This included programs to assess and quantify security risk; catalog and approve risk acceptances and other instances where IS standards were not being met worldwide; develop and update information security policies and standards; manage the implementation of vulnerability and threat management programs; and manage the security incident response team (SIRT).

- Built trust with major regulators (OCC, Federal Reserve Bank and OTS) on information security matters by communicating openly and often.
- Identified numerous gaps in information security programs, including those relating to thousands of third party vendor connections to Citigroup's massive global network. Reported the issue to the highest levels of Citigroup's management, including the Board of Directors. Recommended a strategy to resolve the issues and led the team that successfully implemented the solution.

Head of Emerging Technology, New York, NY **(**2002-2003)
Reported to Corporate Technology Officer. Evaluated new technologies that had potential to positively or negatively impact Citigroup's business. Provided updates to business unit technology teams and built consensus on how best to share new technologies across the company.

- Supervised multiple cross-business working groups, which evaluated technologies and architectures, including SOA, single sign-on, authentication

and natural language speech recognition and recommended standardization and consolidation options to senior management. Citigroup avoided millions of dollars in expenditure due to consolidation of effort, re-use and less duplicative effort.

Chief Technology Officer (from 2000), e-Citi, New York, NY (1998-2002)
Reported to President and COO, e-Citi. Developed and implemented new e-Delivery technologies. Built and managed a small team of experts. Provided due diligence services to Citigroup's venture capital unit.

- Developed Citigroup's remote distribution architecture for wireless devices. Resulting architecture produced one issued patent (see patent number 6,850,991 below) and another application pending for payments from a mobile device (December 1999).
- Developed and implemented one of the first wireless alerts systems in the world for Citibank Poland, which delivered account balances to customers via text message on their mobile phones. The system produced a measurable drop in call center traffic and generated a new revenue stream. Implemented system in the US for Credit Card group; the resulting service was the differentiating factor in Gomez's decision to rank Citi Card's website as the number one online offering in 2002.
- Led Citigroup's investment in 724 Solutions (a mobile phone software company based in Toronto, Canada). Board member from August 1999 through January 2001 and member of Corporate Governance and Compensation Committees. 724 Solutions IPOed in January 2000, raising $156M and Citigroup eventually realized a total gain of over $50M as a result.

VIACOM/MTV NETWORKS **1991-1998**

Vice President Engineering, New York, NY (1995-1998)
Reported to Senior Vice President Engineering, Viacom. Responsible for all aspects of Viacom's satellite television distribution worldwide. Provided technical support on strategy and distribution matters to MTV's, Showtime's and Paramount's organizations. Negotiated favorable multi-million dollar contracts for leasing satellite and uplink capacity for Viacom's services.

- Negotiated contracts and supervised implementation of standardized MPEG-2 digital compression program delivery systems in the United States, Latin America, Europe, the Middle East and Asia.
- Devised a new configuration to allow one transponder to serve two cable transmission formats at the same time, thereby dramatically reducing the cost of

delivering programming to cable systems in the United States. Scheme was patented (see US patent number 5,923,642 below).
- Specified requirements and negotiated multiple transponder lease agreements for Viacom's services worldwide.
- Specified requirements and negotiated contracts for transmission and playout facilities for Viacom's international television networks.
- Devised and negotiated contract with a competitor to allow Showtime to share competitor's conditional access system in the Middle East, thereby enabling independent distribution of Showtime's television networks.

Technical Manager, MTV Europe, London, U.K. (1991-1995)
Reported to Director of Marketing and Distribution. Responsible for MTV Europe's satellite television distribution. Provided technical support on distribution matters to the affiliate sales organization.

- Specified, negotiated contract for, and implemented MTV Europe's first MPEG-2 digital compression program delivery system, enabling MTV Europe to be more competitive by regionalizing its television services (MTV U.K., MTV Germany etc.)
- Planned and implemented the technical aspects of MTV Europe's move to encryption in 1995, enabling the collection of subscription fees, thereby reducing dependence on advertising revenue.
- Represented Viacom's open standards policy at DVB (Digital Video Broadcasting) standards setting meetings and strongly advocated development of a common scrambling algorithm, which was eventually agreed to.

BRITISH TELECOM **1988-1991**
Technical Manager, London, U.K. (1988-1991)
Reported to London Teleport Satellite Earth Station Manager. Responsible for Direct Labor group at the London Teleport Satellite Earth Station, which installed and tested new equipment and services. Specified operational requirements for new television uplinks.

- Installed, tested and implemented television uplinks to ASTRA, INTELSAT and EUTELSAT satellites for major media companies including BSkyB, MTV, CNN and BBC to ensure compliance with contracts.
- Tested and implemented Europe's first practical D and D2-MAC television distribution systems for Scandinavian cable TV networks. Resolved problems caused by decoder deficiencies by adjusting uplink parameters to compensate, thereby eliminating the need to change out hundreds of decoders at cable headends across Scandinavia.

EDUCATION

M.Eng., Electronic Systems Engineering (Honors), University of York, York, UK

PROFESSIONAL AFFILIATIONS

Chartered Engineer Registration - **CEng** (#551526) - UK Engineering Council (2005)

Fellow - Institution of Engineering and Technology - **FIET** (2004)

Board of Directors, **724 Solutions Inc** (formerly SVNX: NASDAQ) (1999 – 2001)

PATENTS

U.S. Patent Number 5,923,642 – Issued July 1999 - 'Method of supporting multiple digital modulation formats on cable plant from a single satellite transponder'.

U.S. Patent Number 6,850,991 – Issued February 2005 – 'Systems and methods for distributing information to a diverse plurality of devices'.