EXHIBIT 1

BIOGRAPHICAL SKETCH

Dr. GARY S. TJADEN

Education

Doctor of Philosophy, Computer Science	
The Johns Hopkins University	1973
Master of Science, Electrical Engineering	
Northwestern University	1969
Bachelor of Science, Electrical Engineering	
University of Utah	1966

Employment History

COCOMO ID, LLC	
Founder/President	1996-Present
Georgia Institute of Technology	
Principal Research Engineer	1993-2004
Polytechnic University	
Industry Professor of Computer Science	1992-1993
NYNEX Corp.	
President, NYNEX ALLINK Co.	1989-1992
Director, Information Systems & Services Lab.	1987-1989
Burroughs/Unisys Corp.	
V.P. & Gen. Mgr., Third Party Programs	1985-1987
V.P. Systems Architecture	1984-1985
Cox Cable Communications	
Senior V.P., Engineering & Technology	1979-1984
Sperry Corp.	
Director, Hardware Tech., Univac Division	1976-1979
Member Tech. Staff, Sperry Research Center	1975-1976
Bell Telephone Labs	
Member Tech. Staff, Advanced Tech. Lab.	1972-1975
Member Tech. Staff, Electronic Switching Systems Division	1966-1970

Experience Summary

Founder, President of COCOMO ID, LLC, a company that develops and markets technology for mobilized speech-audio publishing. Technology based on patents awarded to founder.

During eleven years at Georgia Institute of Technology responsible for directing the activities of a Georgia Tech interdisciplinary research center, called the Center for Enterprise Systems. The mission of the Center was to help commercial enterprises to use information technology to support business strategy. Retired from Georgia Tech November, 2004.

Background of some twenty-five years of experience in the computer and communications industries. Specific activities and responsibilities include:

- Founder and general manager of NYNEX subsidiary company which develops and markets turnkey real-time decision support systems to improve the management of large heterogeneous corporate networks and distributed systems.
- Established and managed applied research laboratory responsible for development and transfer of new technologies and product concepts in the area of data communications-based information systems and services.
- Led the development and commercial production of a distributed information system based on off-the-shelf components including UNIX workstations and servers, an expert system, a relational database management system, and an object-oriented graphical user interface.
- Responsible for Burroughs' corporate third party software strategy, general management of cross-industry application software Line Of Business, and use of third party technologies to satisfy product needs in all product areas.
- Responsible for technology strategy, R&D of interactive CATV information systems, cable system design, and for construction and technical operation standards and quality control for an operator of some 60 cable television systems serving more than 1.3 million subscribers.
- Responsible for management of all advanced hardware technology activities for major supplier of mainframe computer systems. Technologies included VLSI design and fabrication, disk and optical memories, and mainframe architectures.
- Member of a 3-person team that developed a new, patented architecture for designing mainframe central processors from off-the-shelf LSI chip sets at research arm of major supplier of mainframe computer systems. Technology commercialized as Univac 1160 mainframe computer.
- Member of advanced technology development group in the Electronic Switching Systems (computer-based telephone central office switches) for AT&T Bell Laboratories. Worked on advanced operating system for telephone switching systems, and new switched services such as centralized voice-mail and e-mail.
- Member of group developing telephone switching system peripheral components. Inventor of new technology for using LSI to detect on-hook/off-hook state changes on telephone lines.

Fields of Interest

Complex adaptive systems, business process engineering, impact of information technology on business strategy, management of information technology and information systems, distributed systems architecture and management; computer communication and networking; and distributed application software architectures.

Special Honors and Awards

Samuel N. Alexander award from Washington D.C. regional ACM chapter for outstanding student of Computer Science in 1971-72
Elected to Sigma Xi

Elected to Eta Kappa Nu
M.S. studies supported under Bell Labs Graduate Study Program
Graduated Cum Laude from U. of Utah under Honors Program
Distinguished Lecturer award from Stanford University Computer Forum

Professional Affiliations

Session Chair, IEEE International Workshop on Systems Management, April 1993
Member IEEE Computer Society 1972 - 1973
Vice Chairman of 1979 Computer Architecture Symposium
Member of Program Committee, 1978 Computer Architecture Symposium
Chairman of Panel Session on Implications of VLSI on Computer Design, 1979 ACM National Conference
Member of NSF Committee on the National Telecommunications Network, representing CATV industry, 1983
Two term Chairman of CATV trade Association Engineering Committee, 1982-84

Patents

1. "Supervisory Circuit for Telephone Lines," No. 3,622,709, assigned to Bell Labs
2. "Bus Coupler Protection Circuit," No. 3,654,517, assigned to Bell Labs
3. "Microprogrammable Computer Utilizing Concurrently Operating Processors," No. 4,199,811, assigned to Sperry Corp
4. "One's Complement Subtractive Arithmetic Unit Utilizing Two's Complement Arithmetic Circuits," No. 4,099,248, assigned to Sperry Corp
5. "Digital Computer with Overlapped Operation Utilizing Conditional Control to Minimize Time Losses," No. 4,210,960, assigned to Sperry Corp
6. "Table Driven Decision and Control Logic for Digital Computers," No. 4,237,532, assigned to Sperry Corp
7. "Personalized Audio Information Delivery System," No. 5,915,238.
8. "Personalized Audio Information Delivery System (continuance)," No. 6,122,617.

Trials or Depositions Within Last Five Years

Superguide Corp. and Gemstar Development Corp. vs. DirecTV, Thomson, and EchoStar, U.S. District Court for the Western District of North Carolina, Asheville Division. Opined on invalidity for defendants EchoStar and Thomson, and non-infringement for EchoStar.

Certain Set-Top Boxes and Components Thereof, U. S. International Trade Commission, Wash. D.C., Honorable Paul L. Luckern. Opined on invalidity for defendants Scientific Atlanta and Pioneer.

Gemstar Development Corporation MDL Patent Litigation. Opined on invalidity and non-infringement for defendant Scientific Atlanta. Deposed multiple times with respect to two groups of patents.

Finisar Corporation vs. DirecTV, U.S. District Court, Eastern District Of Texas, Beaumont Division. Opined on invalidity for defendant DirecTV.

Major Reports and Publications

1. "Measuring The Information Age Business" Technology Analysis and Strategic Management, Vol. 8, No. 3, 1996, pp. 233-246. Also published in The Information Revolution, edited by Porter, A. & Read, W., Ablex Publishing, 1998, Chapter 1.

2. "Structural Effectiveness Metrics for Business Processes," co-authored with S. Narasimhan and S. Mitra, INFORMS Conference on Information Systems and Technology, Washington, DC, May, 1996.

3. "Business Process Metrics of Effectiveness," co-authored with S. Narasimhan and S. Mitra, Third Eurpoean Academic Conference on Business Process Redesign, Cranfield University, UK, Feb. 1996.

4. "Network management under the umbrella," Networking Management 10, (9), August 1992, pp. 39-41

5. "OSF/DME as an Application Platform", Proceedings of Interop '91 Fall, San Francisco, Calif., 9-11 October, 1991

6. "The Allink Approach to Integrated Network Management," Network and Distributed Systems Management '91 Conference, Technology Transfer Institute, 18-20 September 1991, Washington D.C.

7. "Using Expert Systems for Real-Time Integrated Network Management," Communications Networks West, San Francisco, Calif., 15-18 July 1991

8. "Integrated Network Management for Real-Time Operations," IEEE Network 5, (2), March 1991, pp. 10-15, coauthor

9. "Automating Integrated Network Management," Network Management Solutions Conference, Anaheim, Calif., April 10-12, 1990

10. "Integrated Network Management for Real-Time Operations," Proceedings of NOMs '90, IEEE Coms. Society, San Diego, Calif., Feb. 11-14, 1990

11. "Switched Voice on a CATV System", Proceedings of GLOBECOM '83, November 1983

12. "The INDAX Two-Way CATV Network For Videotex Services," VideoTex – Key To The Information Revolution, (Northwood Hills, Middlesex, UK), June, 1982, pp 465-475, coauthor

13. "INDAX: An Operational Interactive Cable Television and Home Information System", Proceedings of COMPCON Spring '82, February 1982, pp 356-359, coauthor

14. "Some Considerations in the Design of Mainframe Processors with Microprocessor Technology," IEEE Computer 12, (8), August 1979, coauthor

15. "Impact of LSI Technology on Computer Architecture", Proceedings of 1979 Computer Architecture Symposium

16. "Hierarchical Properties of Concurrency," Proceedings of 1979 International Conference on Parallel Processing

17. "Non-Custom Design for NMOS VLSI," 1979 Custom Integrated Circuits Conference, U. of Rochester

18. "Mainframe Implementation With Off-the-shelf LSI Modules," IEEE Computer 11, (7), July 1978, pp. 42-48, coauthor

19. "Can Mainframe Performance Be Achieved With Microprocessor Systems?," Infotech International, 1977

20. "Applying LSI Technology to Mainframe Computers," 1977 MIDCON Conference, November 1977

21. "MIMD Multimicroprocessors as Mainframe Replacements," Workshop on Microprocessors, Northwestern University, May 1976

22. "Analysis of New Telecommunication Services Via System Attributes," Proceedings of International Communications Conference, San Francisco, June 1975, coauthor

23. "Representation of Concurrency with Ordering Matrices," IEEE Trans. On Computers", C-22, (8), August 1973, coauthor

24. "Representation and Detection of Concurrency Using Ordering Matrices," Ph.D. Dissertation, The Johns Hopkins University, September 1972

25. "Detection and Parallel Execution of Independent Instructions," IEEE Trans. On Comp., C-19, (10), October 1970, pp. 889-895, coauthor

EXHIBIT 2

References Reviewed

1) Complaint
2) Answer and Counterclaims
3) U.S. Patent No. 5,988,078
4) Prosecution History for U.S. Patent Application No. 07/848,338
5) Prosecution History for U.S. Patent Application No. 08/287,343
6) Prosecution History for U.S. Patent Application No. 08/947,950
7) Plaintiffs' Responses and Objections to Defendant's First Set of Interrogatories (Nos. 1-19)
8) Plaintiffs' July 14, 2006 Supplemental Responses and Objections to Defendant's First Set of Interrogatories
9) Plaintiffs' Responses and Objections to Defendant's Second Set of Interrogatories (Nos. 20-24)
10) Plaintiffs' December 4, 2006 Supplemental Responses to Defendant's Interrogatory Nos. 1, 4, 10-14, and 17-19
11) TMS' Responses to TV Guide's First Set of Interrogatories
12) TMS' Reponses to TV Guide's Second Set of Interrogatories
13) TMS' Responses to TV Guide's Third Set of Interrogatories
14) TMS' Responses to Plaintiffs' Fourth Set of Interrogatories
15) TMS' First Supplemental Response to Plaintiffs' Interrogatories
16) TMS' Second Supplement Response to Plaintiffs' Interrogatories
17) Deposition Transcript of Michael Levine
18) Deposition Transcript of Allen M. Krass
19) Deposition Transcript of Barry Berkov.
20) Deposition Transcript of Mark Kaplinsky.

Prior Art

21) Brad Schepp and Debra Schepp, The Complete Guide to CompuServe, Osborne McGraw-Hill, 1990, TMS 0058354 ("Schepp").
22) CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982").
23) Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner").
24) Online Today, January 1985. TMS 0054628-0054629 ("Today 1985").

25) CompuServe Information Service Today, October 1981, TMS 0001084-0001090.

26) CompuServe Information Service for DOS Computers, Version 2, TMS 0054461-0054528.

27) C. Bowen & D. Peyton, How To Get The Most Out Of CompuServe, 1993, TMS 0054646-0054651.

28) Online Today, TMS 0054623-0054627.

29) CompuServe Crew Scheduling Services, TMS 0054611-0054616.

30) CompuServe Flight Planning and Aviation Weather, TMS 0054601-0054610.

31) CompuServe Almanac, TMS 0054794-0054802.

32) CompuServe's Application Software, TMS 0054697-0054756.

33) CompuServe Magazine, October 1992, TMS 0054597-0054598.

34) CompuServe Information Service Today, April 1982, TMS 0001070-0001075.

35) CompuServe Information Service Today, July 1981, TMS 0001091-0001098.

36) Teletext And Videotex In The United States: Market Potential, Technology, Public Policy Issues, by John Tydeman, et al., McGraw-Hill Publications Company, 1982, TMS 0062508 ("Tydeman").

37) U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young, TMS 0001291-1319 ("Young").

38) U.S. Patent No. 4,787,063, issued Nov. 22, 1988 to Francis Muguet, TMS 0000233-46 ("Muguet").

39) Personal Entertainment Guide User's Guide, Version 1.0, Copyright 1991 by Lookahead Communications Inc., TMS 0001105-0001186 ("PEG").

40) Letter from Lawrence Shulman, TV Data, to Mark Kaplinsky, LookAhead Communications, Feb. 4, 1991, TMS 0001274-0001290.

41) J. L. Viescas, THE OFFICIAL GUIDE TO THE PRODIGY SERVICE, Microsoft Press, 1991, TMS 0062509 ("Prodigy").

42) U.S. Patent No. 4,429,385, issued Jan. 31, 1984 to Richard Cichelli, TMS 0000098-118 ("Cichelli").

43) U.S. Patent No. 5,347,632, issued Sep. 13, 1994 to Robert Filepp, et al, TMS 0054529-96.

44) "Guest Editorial, Interactive Picture Information Systems," IEEE Journal On Selected Areas In Communications, Vol. SAC-1, No. s, Feb. 1983, pp. 237-243, TMS 0068071-78.

45) Gifford, D. K., et al., "The Application of Digital Broadcast Communication to Large Scale Information Systems," IEEE Journal On Selected Areas In Communications, Vol. SAC-3, May, 1985, pp. 457-467, TMS 0068079-89.

46) G. Herman, et al., "The Datacycle Architecture for Very High Throughput Database Systems," Communications of the ACM, 1987, ACM 0-89791=236-5/87/0005/0097, TMS 0068064-70.

47) Donald Knuth, The Art of Computer Programming, Volume 3 / Sorting and Searching, Addison-Wesley Publishing Company, 1973, TMS 0068062 ("Knuth").

48) VIEWDATA AND VIDEOTEXT, 1980-81: A Worldwide Report, published by Knowledge Industry Publications, Inc., White Plains, New York, 1980, TMS 0068093-718 ("Viewdata '80").

49) Jan Gecsei, The Architecture of Videotex Systems, Prentice-Hall, 1983, TMS 0068090 ("Gecsei").

50) Efrem Sigel, The Future of Videotext, Knowledge Industry Publications, 1983, TMS 0068063 ("Sigel").

51) Richard H. Veith, Television's Teletext, Elsevier Science Publishing, 1983, TMS 0068091 ("Veith").

52) Paul Hurly, et al., The Videotex and Teletext Handbook, Harper & Row, 1985, TMS 0068092 ("Hurly").

EXHIBIT 3

ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

***CompuServe system is described in The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 1	Assumed Constructions	Prior Art Teaching
Preamble. In a television distribution arrangement wherein a plurality of geographically dispersed television viewing locations receive television programming from a source of such programming,	**"Television viewing location"** means the specific room within a building where a television set is positioned and watched by a user.	CompuServe teaches all elements of this claim, so anticipates Claim 1. "CompuServe is North America's most successful personal information service for computer users. … CompuServe boasts more than 600,000 subscribers, and for years has added between 6,000 and 7,000 subscribers per month. It's no wonder CompuServe is successful; it offers more than 1,400 databases and services, all accessible by the average computer user." (Schepp;xxvii:1-2). "CompuServe is an online information utility and a videotext system. An online information utility is an easy-to-use electronic information service. A videotext system is an interactive service that delivers information one page at a time. CompuServe is both of these. It provides information delivered through friendly, menu-driven screens." (Schepp;4:2). **CompuServe is an information service intended and used to deliver information to users in their homes.**
1. a method of receiving information specific to the type of programming available to a particular one of the viewing locations, the method comprising the steps of:	**"Available to a particular one of the viewing locations"** means deliverable from a programming source to a specific "television viewing location", as defined above.	CompuServe teaches this claim element. "It's no wonder CompuServe is successful; it offers more than 1,400 databases and services, all accessible by the average computer user." (Schepp;xxvii:2). "This is CompuServe's subject index. It lists every subject found on the system, along with its GO word. The system will continue to show you every subject listing until you reach the end of the more than 560 topics available or until you tell it to stop." (Schepp;62:1). See also (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items: **"Cable TV listings**….Go SFE-51; **Columbus area**: … **Television listings** ..

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ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

***CompuServe system is described in The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 1	Assumed Constructions	Prior Art Teaching
		Go CDP-1; **Hampton Roads, Virginia area**: … **Television schedule** ..Go VPL-60; **New York City area**: … **Television**…..Go NYT-12 ;**San Francisco area**: … **Television**….Go SFC-7; **Satellite TV signals** ..Go PSP-1; **Television reviews**: … Columbus Dispatch … New York Times … S.F. Chronicle … VPL … Washington Post"
2. providing a computerized unit at the particular viewing location, the unit including an operator input and a modem;	**"Operator input"** means a keyboard or other device for manually entering data into a computer. **"Modem"** means a data signal conversion device that converts digital signals to analog signals (and vice versa) and enables a computerized unit to exchange data with another computerized unit over a standard dial-up telephone line.	CompuServe teaches this claim element. "MS-DOS machines require the following hardware: • An **IBM or IBM-compatible PC** • A color or monochrome monitor (no graphics necessary) • A hard disk and one floppy drive • MS-DOS 2.0 or higher • **A serial port/Hayes-compatible modem**. (Schepp;38:3-39:2). **An IBM or IBM-compatible PC necessarily includes a keyboard or similar "operator input" device. A skilled artisan would have known that a "PC" could have been located anywhere in the user's home accessible to a telephone line, including the room(s) in which the user watches television.**
3. establishing a connection to a wide-area network through the modem;	**"Modem"** means a data signal conversion device that converts digital signals to analog signals (and vice versa) and enables a computerized unit to exchange data with another computerized unit over a standard dial-up telephone line.	CompuServe teaches this claim element. "Your computer needs three items to communicate with other computers. It needs a modem to **transmit and receive data over standard telephone wires**. It needs communications software to give your computer instructions for operating the modem. Finally, it needs access to a telephone line." (Schepp;20:4). "CompuServe's success is rooted in its telecommunications

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Claim 1	Assumed Constructions	Prior Art Teaching
		network. As of this writing, **the network has 1,800 communication nodes that service about 400 U.S. cities.**" (Schepp;4:5).
4. transmitting, from the computerized unit, information to a service provider through the wide-area network regarding the geographical location of the particular viewing location; and	**"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	CompuServe teaches this claim element. "All CompuServe services have GO words, which are direct routes to their main menus. Using a GO word instead of menus to get to a service is like taking an express train rather than the local. To jump from one service to another, just enter the GO word to get directly to that service's main menu. To go directly to a specific page within that service, enter the screen's page number." (Schepp;26:3). See (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items and their GO words for accessing them directly: "Cable TV listings….Go SFE-51; Columbus area: … Television listings .. Go CDP-1; Hampton Roads, Virginia area: … Television schedule ..Go VPL-60; New York City area: … Television…..Go NYT-12 ;San Francisco area: … Television….**Go SFC-7**; Satellite TV signals ..Go PSP-1; Television reviews: … Columbus Dispatch … New York Times … S.F. Chronicle … VPL … Washington Post …" **From the above "Subject Index" the user would know to type at the keyboard the selection, for example, "Go SFC-7" to view the television listings in the San Francisco area. The acronym "SFC", indicating the San Francisco Chronicle newspaper, is geographic information. The number "7" is the number of the CompuServe page within the San Francisco area database that contains television listings.** "The easiest and fastest way to get a quick forecast for your area is to select the Weather option from CIM's Services pull-down menu. When you do, the dialog box shown in Figure 4-11

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Claim 1	Assumed Constructions	Prior Art Teaching
		appears. As you can see, the default shows you a local weather forecast for the node from which you are calling. You can also **choose a report by city and state** or by National Weather Service reporting station. The report you will receive includes the current day's forecasted temperature, winds, precipitation probability, sun or clouds, and the forecast for tonight and tomorrow. (Schepp;101:2 and 101:Figure 4-11). "Option 5 from NewsGrid's main menu lets you search the database by keyword. Stories from the last seven days are available for searching. NewsGrid editors assign five to ten keywords for each story. Keywords are most often: • Proper names • **Country names** • **Regions of the world** • … NewsGrid also offers automatic truncation, or wildcard searching, that will search for keywords beginning with the string or word you specify." (Schepp;87:10-88:7). Many IQuest databases enable you to search by field quite easily. A database record (the complete hit) is divided into distinct searchable parts called fields, enabling searchers to pull out only the information they need. Examples of fields include company name, SIC code, **geographic area**, and a person's name. The ability to search by field effortlessly, through IQuest and its spinoffs, is a great boon." (Schepp;219:7). "The directory first asks you **the area code** you will be calling from, since some listings will not be valid in your area." (Schepp;253:2).

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ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

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Claim 1	Assumed Constructions	Prior Art Teaching
5. receiving, from the service provider, information specific to the type of programming available to the particular viewing location.	**"Receiving"** means transferring data to a computerized unit such that a user can perform database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.) **[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in**	CompuServe teaches this claim element. See (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items and their GO words for accessing them directly: "**Cable TV listings**....Go SFE-51; Columbus area: ... **Television listings** .. Go CDP-1; Hampton Roads, Virginia area: ... **Television schedule** ..Go VPL-60; New York City area: ... **Television**.....Go NYT-12 ;San Francisco area: ... **Television**....Go SFC-7; **Satellite TV signals** ..Go PSP-1; **Television reviews**: ... Columbus Dispatch ... New York Times ... S.F. Chronicle ... VPL ... Washington Post ..." "The HMI protocol is specifically designed to enhance communications between a PC and the CompuServe host mainframe computers. When using CIM, instead of your PC receiving information character by character, as it does with ASCII communications, it gets information from CompuServe in 'packets' or bursts. **A packet is the information you need to complete what you asked for. It could include a menu or a complete article. Once your computer receives this packet, it stores the information so you can bring it up again much faster** than if you had to retrieve it anew from CompuServe. Therefore, CIM both eliminates the need for you to use ASCII commands and enables you to store more information locally." (Schepp;30:2). **A skilled artisan would have known that, since information transmitted to a service provider can include geographical information, then necessarily this information can be used as criteria to select specific portions of the database for downloading that match that criteria.**

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ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

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Claim 1	Assumed Constructions	Prior Art Teaching
	order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for example, '078 at Abstract), the application residing within the "computerized unit" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 1 is invalid because it is not enabled.]	

Claim 2	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		CompuServe anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 2.
1. wherein the information transmitted to the service provider includes the Zip Code associated with the particular viewing location.		CompuServe teaches this claim element. "The database is searchable by **zip code** or area code." (Schepp;424:4). "Both the database and the techniques have been developed and refined to the point that, for a fee, you can now get an instant report on any **ZIP code** or U.S. county." (Glossbrenner;TMS 0054634:2). "SuperSite information comes from CACI, a management

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Claim 2	Assumed Constructions	Prior Art Teaching
		consulting firm specializing in demographic analysis. Information is provided for every **ZIP code** and county in the United States … . All SuperSite reports are preformatted and are of presentation quality. You simply specify the areas you want to look at and the reports you need. The information is displayed immediately for you to review or print on hard copy." (Today 1985;TMS 0054629:2-5). **CompuServe teaches that its information databases can be searched on any arbitrary attribute at the designers choice, including, specifically, Zip Code.**

Claim 3	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		CompuServe anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 3.
1. wherein the information received from the service provider includes a schedule of the television programming available to the particular viewing location.	**"Schedule of the television programming"** means a list, not necessarily ordered in any way, containing at least one item of television programming. (See '078 at 2:1-6 in contrast with '078 at 4:66-5:4) **[Expert Witness Note: I am unable to determine from the patent description how the "information received" in this claim differs from that required by claim element 1.5. The patent description in no way explicitly or implicitly defines the term "schedule". I therefore conclude that Claim 3 is invalid due to indefiniteness.]**	CompuServe teaches this claim element. See (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items and their GO words for accessing them directly: **"Cable TV listings**….Go SFE-51; Columbus area: … **Television listings** .. Go CDP-1; Hampton Roads, Virginia area: … **Television schedule** ..Go VPL-60; New York City area: … **Television**…..Go NYT-12 ;San Francisco area: … **Television**….Go SFC-7; Satellite TV signals ..Go PSP-1; **Television reviews**: … Columbus Dispatch … New York Times … S.F. Chronicle … VPL … Washington Post …"

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ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

***CompuServe system is described in The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 4	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		CompuServe anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 4.
1. wherein the computerized unit is interfaced to a display, and		CompuServe teaches this claim element. "MS-DOS machines require the following hardware: • An IBM or IBM-compatible PC • **A color or monochrome monitor** (no graphics necessary)" (Schepp;38:3-5).
2. wherein the method further includes the step of displaying the information specific to the type of programming available to the particular viewing location.		CompuServe teaches this claim element. "CompuServe is an online information utility and a videotext system. An online information utility is an easy-to-use electronic information service. A videotext system is an interactive service that **delivers information one page at a time**. CompuServe is both of these. It provides **information delivered through friendly, menu-driven screens**." (Schepp;4:2). "CompuServe is **delivered to your PC's screen in 'pages.'** Each page has its own identifying number or word. The pages are organized under menus." (Schepp;25:3)

Claim 5	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		CompuServe anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 5.

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ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

***CompuServe system is described in The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 5	Assumed Constructions	Prior Art Teaching
1. wherein the computerized unit further includes a memory for storing the information specific to the type of programming available to the particular viewing location.	**"Memory for storing the information"** means a device that can retain computerized information for retrieval later.	CompuServe teaches this claim element. "MS-DOS machines require the following hardware: • An IBM or IBM-compatible PC • A color or monochrome monitor (no graphics necessary) • **A hard disk and one floppy drive** (Schepp;38:3-6).

Claim 6	Assumed Constructions	Prior Art Teaching
Preamble. A method of receiving customized television programming schedule information, comprising the steps of:		CompuServe anticipates Claims 1 and 4, so anticipates Claim 6.
1. providing, at a television viewing location, a controller interfaced to a bidirectional modem and a display device;	**"Controller"** means an electronic device for manipulating information including at least memory for storing and executing computer programs and I/O ports for connecting to peripheral devices, such peripheral devices including modems and display devices.	See claim element 1.2.
2. establishing a connection to a wide-area network through the modem;		See claim element 1.3.
3. transmitting, from the television viewing location, information to a service provider through the wide-area network regarding the	**"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent,	See claim element 1.4.

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Claim 6	Assumed Constructions	Prior Art Teaching
geographical area of the viewing location;	country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	
4. receiving, from the service provider, television programming schedule information specific to the viewing location; and	**"Receiving"** means transferring data to a controller such that a user can perform database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.) **[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information**	See claim element 1.5.

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Claim 6	Assumed Constructions	Prior Art Teaching
	other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for example, '078 at Abstract), the application residing within the "controller" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 6 is invalid because it is not enabled.]	
5. viewing the information on the display device.		See claim element 4.2.

Claim 7	Assumed Constructions	Prior Art Teaching

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ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

***CompuServe system is described in The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 7	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 6,		CompuServe anticipates Claim 6 and teaches all elements of this claim, so anticipates Claim 7.
1. wherein the information transmitted to the service provider through the wide-area network regarding the geographical area of the viewing location is the Zip Code associated with the viewing location.		See claim element 2.1.

Claim 8	Assumed Constructions	Prior Art Teaching
Preamble. A system enabling a viewer of a television receiver to download information specific to the type of television programming available to the receiver, the system comprising:	**"Download"** means transferring data to a computerized unit such that a user can perform database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.)	CompuServe anticipates Claim 1 and teaches all elements of this claim not included in Claim 1, so anticipates Claim 8.
1. an electronic terminal unit including an operator input, a bidirectional modem, and a controller in communication with the operator input and the modem, the controller being programmed to perform the following functions:	**"Controller"** means a computer, exclusive of peripheral devices such as a keyboard and monitor, but inclusive of memory for storing and executing computer programs and inclusive of I/O ports for connecting to peripheral devices. **[Expert Witness Note: I note that this claim element does not include the requirement of claim element 1.2 that the "electronic terminal unit" be located at the television viewing location. However, the file history, at TG**	See claim element 1.2.

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ANALYSIS OF CompuServe* TEACHINGS AGAINST THE '078 PATENT

***CompuServe system is described in The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 8	Assumed Constructions	Prior Art Teaching
	002253 and TG 002282, clearly states that "All of applicant's claims include this limitation ... ."]	
2. a) establish a connection to a service provider through the modem,		See claim element 1.3.
3. b) receive information through the operator input pertaining to the geographic location of the television receiver,	**"Receive information through the operator input"** means signals produced by the operator input in response to user actions and transferred to the controller in the electronic terminal unit. **"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	CompuServe teaches this claim element. "All CompuServe services have GO words, which are direct routes to their main menus. Using a GO word instead of menus to get to a service is like taking an express train rather than the local. To jump from one service to another, just enter the GO word to get directly to that service's main menu. To go directly to a specific page within that service, enter the screen's page number." (Schepp;26:3). See (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items and their GO words for accessing them directly: "Cable TV listings....Go SFE-51; Columbus area: ... Television listings .. Go CDP-1; Hampton Roads, Virginia area: ... Television schedule ..Go VPL-60; New York City area: ... Television.....Go NYT-12 ;San Francisco area: ... Television....**Go SFC-7**; Satellite TV signals ..Go PSP-1; Television reviews: ... Columbus Dispatch ... New York Times ... S.F. Chronicle ... VPL ... Washington Post ..." **From the above "Subject Index" the user would know to type at the keyboard the selection, for example, "Go SFC-7" to view the television listings in the San Francisco area. The acronym "SFC", indicating the San Francisco Chronicle newspaper, is geographic information. The number "7" is the number of the CompuServe page within the San Francisco**

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*CompuServe system is described in The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).

Claim 8	Assumed Constructions	Prior Art Teaching
		area database that contains television listings.
4. c) transmit the information pertaining to the geographic location of the television receiver to the service provider, and		See claim element 1.4.
5. d) receive, from the service provider, the information specific to the type of television programming available to the receiver.	**[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically**	See claim element 1.5.

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Claim 8	Assumed Constructions	Prior Art Teaching
	available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for example, '078 at Abstract), the application residing within the "controller" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 8 is invalid because it is not enabled.]	

Claim 10	Assumed Constructions	Prior Art Teaching
Preamble. The system of claim 8,		CompuServe anticipates Claims 8 and 5, so anticipates Claim 10.
1. further including a memory in communication with the controller for storing and retrieving the information specific to the type of television programming available to the receiver.		See claim element 5.1.

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EXHIBIT 4

ANALYSIS OF Tydeman* TEACHINGS AGAINST THE '078 PATENT

***Teletext And Videotex In The United States: Market Potential, Technology, Public Policy Issues, by John Tydeman, et al., McGraw-Hill Publications Company, 1982. Citation format is (page no.:para. no.).**

Claim 1	Assumed Constructions	Prior Art Teaching
Preamble. In a television distribution arrangement wherein a plurality of geographically dispersed television viewing locations receive television programming from a source of such programming,	**"Television viewing location"** means the specific room within a building where a television set is positioned and watched by a user.	Tydeman teaches all elements of this claim, so anticipates Claim 1. "Following the International Telegraph and Telephone Consultative Committee (CCITT) we use the term *videotext* as the generic name to describe the provision of two-way information services and *teletext* for one-way services. In addition, we also use the term videotex to refer broadly to the class of systems that provide electronic information to the home. Tyler (1979a) has defined teletext/videotext as follows: 'Systems for the widespread dissemination of textual and graphic information by wholly electronic means, for display on low-cost terminals (**often suitably equipped television receivers**), under the selective control of the recipient, and using control procedures easily understood by untrained users.'" (2:1-2).
1. a method of receiving information specific to the type of programming available to a particular one of the viewing locations, the method comprising the steps of:	**"Available to a particular one of the viewing locations"** means deliverable from a programming source to a specific "television viewing location", as defined above.	Tydeman teaches this claim element. "The array of services for users is limited only by the ingenuity of those providing them. Teletext and videotex are not just information-retrieval services. They provide an electronic window to a multitude of services in the information society. In subsequent chapters we identify five broad classes of videotex services. information retrieval (e.g., news, weather, sports, advertising, directories, how-to guides) …" (2:10-3:2) **Tydeman teaches methods for receiving in user's homes any type of information including, implicitly, television programming information.**
2. providing a computerized unit at the particular viewing location, the unit including an operator input and a	**"Operator input"** means a keyboard or other device for manually entering data into a computer. **"Modem"** means a data signal conversion device that converts digital signals to analog signals (and	Tydeman teaches this claim element. "The database design is such that it permits the accessing and rapid retrieval of specific items of information and the billing of customers using the system. The transmission lines between the

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Claim 1	Assumed Constructions	Prior Art Teaching
modem;	vice versa) and enables a computerized unit to exchange data with another computerized unit over a standard dial-up telephone line.	user and the computer include **the public telephone network (using appropriate modems** to convert analog telephone signals into digital form for display) or a cable TV system with two-way capabilities. "Again a modified TV receiver with a decoder translates the data and builds up the video image (Figure 1.2). As with teletext, the decoder may be plugged into the antenna socket or directly wired into the RGB beam circuits. Pages for transmission are selected by the user on a **numeric keypad or an alphanumeric keyboard**." (5:3-4 and 5:Figure 1.2). "At present the only commercial systems in operation in the United States provide teletext and videotex services directed at special groups such as captioning for the deaf, Dow Jones financial information, and **home-based personal computer services (The Source, CompuServe)**." (7:1). "Teletext/videotext decoders **include a processor, memory**, and generally a character/pattern generator." (28:1).
3. establishing a connection to a wide-area network through the modem;	**"Modem"** means a data signal conversion device that converts digital signals to analog signals (and vice versa) and enables a computerized unit to exchange data with another computerized unit over a standard dial-up telephone line.	Tydeman teaches this claim element. "As the system has *full two-way capability*, the user may also send a message to the computer, the database, or another terminal. In telephone systems, the transmission of data to the user is usually at a higher speed than the transmission from the user to the system **(e.g., the British Prestel system uses 1,200 bits per second from computer to user and 75 bits per second from user to computer)**." (5:4-6:1).
4. transmitting, from the computerized unit, information to a service provider through the wide-area network regarding the geographical location of	**"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street	Tydeman teaches this claim element. "The usual procedure, once a telephone connection has been made for videotex, is to specify a user identification number (to log-on) and then to sequentially negotiate increasingly specific tables of contents (Figure 3.13). …

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Claim 1	Assumed Constructions	Prior Art Teaching
the particular viewing location; and	address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	In all cases the option exists to go straight to a particular page by entering the page number, for example 4163289. In the case of the French electronic directory a particular name may typed in or a joint **keyword-tree search may be undertaken using geographic locations**, names, or businesses." (32:3-4 and 33:Figure 3.13). "DATABASE STRUCTURE, SEARCH PROCEDURES, AND STORAGE There are three main types of database structure for teletext and videotext systems (Date, 1981): • Hierarchical structures • Relational structures • Network structures" (92:4-5). "In relational database structures, data are stored in a set of interrelated tables. These tables are typically two-dimensional, in which the rows are the data records and the columns are the data fields. The records are related through fields having matching data. Table 6.1 illustrates two relational files that could possibly be part of a database used to provide a transaction service such as teleshopping or telebanking".(93:3). See also (94:Table 6.1) showing the relational data fields of "Address", "City", and "Zip". **A skilled artisan would have known that, in light of the above two citations it can be inferred from Tydeman that the relational data fields of "Address", "City", and "Zip" may be part of a database used to provide many types of information, and thus transmitted by the "computerized unit" to an information service provider.**
5. receiving, from the service provider,	**"Receiving"** means transferring data to a computerized unit such that a user can perform	Tydeman teaches this claim element. "*Information retrieval.* In this category, the user gains access to

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Claim 1	Assumed Constructions	Prior Art Teaching
information specific to the type of programming available to the particular viewing location.	database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.) **[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for**	information in a computer's database. The information may include general news bulletins, financial quotes, **entertainment listings**, basic directory services, the provision of **subtitles for TV programs**, or special interest services such as encyclopedia information that does not change rapidly. Information can be delivered in either a one-way teletext or a two-way videotext system." (56:6). "TABLE 5.2 MOST POPULAR TOPICS ON PRESTEL, 1978-79 …What's On …"(61:Table 5.2). **I note that one skilled in the art would have known that "What's On" implicitly refers to entertainment programming information, including television programming.** **A skilled artisan would have known that, since information transmitted to a service provider can include geographical information, then necessarily this information can be used as criteria to select specific portions of the database for downloading that match that criteria.**

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Claim 1	Assumed Constructions	Prior Art Teaching
	example, '078 at Abstract), the application residing within the "computerized unit" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 1 is invalid because it is not enabled.]	

Claim 2	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Tydeman anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 2.
1. wherein the information transmitted to the service provider includes the Zip Code associated with the particular viewing location.		Tydeman teaches this claim element. "In relational database structures, data are stored in a set of interrelated tables. These tables are typically two-dimensional, in which the rows are the data records and the columns are the data fields. The records are related through fields having matching data. Table 6.1 illustrates two relational files that could possibly be part of a database used to provide a transaction service such as teleshopping or telebanking".(93:3). See also (94:Table 6.1) showing the relational data fields of "Address", "City", and "Zip". **A skilled artisan would have known that, in light of the above two citations it can be inferred from Tydeman that the relational data fields of "Address", "City", and "Zip" may be part of a database used**

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Claim 2	Assumed Constructions	Prior Art Teaching
		to provide other types of information, such as television program information, and thus used, either individually or in combination, to select such information from the database for download to the user's computerized unit.

Claim 3	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Tydeman anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 3.
1. wherein the information received from the service provider includes a schedule of the television programming available to the particular viewing location.	**"Schedule of the television programming"** means a list, not necessarily ordered in any way, containing at least one item of television programming. (See '078 at 2:1-6 in contrast with '078 at 4:66-5:4) **[Expert Witness Note: I am unable to determine from the patent description how the "information received" in this claim differs from that required by claim element 1.5. The patent description in no way explicitly or implicitly defines the term "schedule". I therefore conclude that Claim 3 is invalid due to indefiniteness.]**	Tydeman teaches this claim element. "*Information retrieval*. In this category, the user gains access to information in a computer's database. The information may include general news bulletins, financial quotes, **entertainment listings**, basic directory services, the provision of **subtitles for TV programs**, or special interest services such as encyclopedia information that does not change rapidly. Information can be delivered in either a one-way teletext or a two-way videotext system." (56:6). "TABLE 5.2 MOST POPULAR TOPICS ON PRESTEL, 1978-79 …What's On …"(61:Table 5.2). **I note that one skilled in the art would have known that "What's On" implicitly refers to television programming information.**

Claim 4	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Tydeman anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 4.

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ANALYSIS OF Tydeman* TEACHINGS AGAINST THE '078 PATENT

***Teletext And Videotex In The United States: Market Potential, Technology, Public Policy Issues, by John Tydeman, et al., McGraw-Hill Publications Company, 1982. Citation format is (page no.:para. no.).**

Claim 4	Assumed Constructions	Prior Art Teaching
1. wherein the computerized unit is interfaced to a display, and		Tydeman teaches this claim element. Tyler (1979a) has defined teletex/videotext as follows: 'Systems for the widespread dissemination of textual and graphic information by wholly electronic means, for display on low-cost terminals (**often suitably equipped television receivers**), under the selective control of the recipient, and using control procedures easily understood by untrained users.'" (2:1-2). "Teletex/videotext business and home-based user terminals typically include three main components (Figure 3.7): 1. An input device, for selecting 'pages' of information 2. A decoder, for translating and assembling the digital teletext/videotext signal into a video display 3. A display device for presenting the information to the user" (27:1-2).
2. wherein the method further includes the step of displaying the information specific to the type of programming available to the particular viewing location.		Tydeman teaches this claim element. Tyler (1979a) has defined teletex/videotext as follows: 'Systems for the widespread dissemination of textual and graphic information by wholly electronic means, for display on low-cost terminals (**often suitably equipped television receivers**), under the selective control of the recipient, and using control procedures easily understood by untrained users.'" (2:1-2). "Teletex/videotext business and home-based user terminals typically include three main components (Figure 3.7): 1. An input device, for selecting 'pages' of information 2. A decoder, for translating and assembling the digital teletext/videotext signal into a video display 3. A display device for presenting the information to the user" (27:1-2).

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ANALYSIS OF Tydeman* TEACHINGS AGAINST THE '078 PATENT

***Teletext And Videotex In The United States: Market Potential, Technology, Public Policy Issues, by John Tydeman, et al., McGraw-Hill Publications Company, 1982. Citation format is (page no.:para. no.).**

Claim 5	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Tydeman anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 5.
1. wherein the computerized unit further includes a memory for storing the information specific to the type of programming available to the particular viewing location.	**"Memory for storing the information"** means a device that can retain computerized information for retrieval later.	Tydeman teaches this claim element. "In addition to the semiconductor memory associated with a terminal's processing capability, storage capacity may be desirable or necessary for some teletext/videotext application. … These devices are: • floppy disc • hard disc . . . (139:2-140-2).

Claim 6	Assumed Constructions	Prior Art Teaching
Preamble. A method of receiving customized television programming schedule information, comprising the steps of:		Tydeman anticipates Claims 1 and 4, so anticipates Claim 6.
1. providing, at a television viewing location, a controller interfaced to a bidirectional modem and a display device;	**"Controller"** means an electronic device for manipulating information including at least memory for storing and executing computer programs and I/O ports for connecting to peripheral devices, such peripheral devices including modems and display devices.	See claim element 1.2.
2. establishing a connection to a wide-area network through the modem;		See claim element 1.3.

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Claim 6	Assumed Constructions	Prior Art Teaching
3. transmitting, from the television viewing location, information to a service provider through the wide-area network regarding the geographical area of the viewing location;	**"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	See claim element 1.4.
4. receiving, from the service provider, television programming schedule information specific to the viewing location; and	**"Receiving"** means transferring data to a controller such that a user can perform database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.) **[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the**	See claim element 1.5.

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Claim 6	Assumed Constructions	Prior Art Teaching
	particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for example, '078 at Abstract), the application residing within the "controller" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 6 is invalid because it is not enabled.]	
5. viewing the information on the display device.		See claim element 4.2.

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ANALYSIS OF Tydeman* TEACHINGS AGAINST THE '078 PATENT

***Teletext And Videotex In The United States: Market Potential, Technology, Public Policy Issues, by John Tydeman, et al., McGraw-Hill Publications Company, 1982. Citation format is (page no.:para. no.).**

Claim 7	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 6,		Tydeman anticipates Claim 6 and teaches all elements of this claim, so anticipates Claim 7.
1. wherein the information transmitted to the service provider through the wide-area network regarding the geographical area of the viewing location is the Zip Code associated with the viewing location.		See claim element 2.1.

Claim 8	Assumed Constructions	Prior Art Teaching
Preamble. A system enabling a viewer of a television receiver to download information specific to the type of television programming available to the receiver, the system comprising:	**"Download"** means transferring data to a computerized unit such that a user can perform database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.)	Tydeman anticipates Claim 1 and teaches all elements of this claim not included in Claim 1, so anticipates Claim 8.
1. an electronic terminal unit including an operator input, a bidirectional modem, and a controller in communication with the operator input and the modem, the controller being programmed to perform the following functions:	**"Controller"** means a computer, exclusive of peripheral devices such as a keyboard and monitor, but inclusive of memory for storing and executing computer programs and inclusive of I/O ports for connecting to peripheral devices. **[Expert Witness Note: I note that this claim element does not include the requirement of claim element 1.2 that the "electronic terminal unit" be located at the television viewing location. However, the file history, at TG**	See claim element 1.2.

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Claim 8	Assumed Constructions	Prior Art Teaching
	002253 and TG 002282, clearly states that "All of applicant's claims include this limitation ... ."]	
2. a) establish a connection to a service provider through the modem,		See claim element 1.3.
3. b) receive information through the operator input pertaining to the geographic location of the television receiver,	**"Receive information through the operator input"** means signals produced by the operator input in response to user actions and transferred to the controller in the electronic terminal unit. **"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	Tydeman teaches this claim element. "Teletex/videotext business and home-based user terminals typically include three main components (Figure 3.7): 1. **An input device, for selecting 'pages' of information** 2. A decoder, for translating and assembling the digital teletext/videotext signal into a video display 3. A display device for presenting the information to the user" (27:1-2).
4. c) transmit the information pertaining to the geographic location of the television receiver to the service provider, and		See claim element 1.4.
5. d) receive, from the service provider, the	**[Expert Witness Note: The information specific to the type of programming available to a**	See claim element 1.5.

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ANALYSIS OF Tydeman* TEACHINGS AGAINST THE '078 PATENT

*Teletext And Videotex In The United States: Market Potential, Technology, Public Policy Issues, by John Tydeman, et al., McGraw-Hill Publications Company, 1982. Citation format is (page no.:para. no.).

Claim 8	Assumed Constructions	Prior Art Teaching
information specific to the type of television programming available to the receiver.	**particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for example, '078 at Abstract), the application residing within the "controller" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source.**	

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Claim 8	Assumed Constructions	Prior Art Teaching
	This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 8 is invalid because it is not enabled.]	

Claim 10	Assumed Constructions	Prior Art Teaching
Preamble. The system of claim 8,		Tydeman anticipates Claims 8 and 5, so anticipates Claim 10.
1. further including a memory in communication with the controller for storing and retrieving the information specific to the type of television programming available to the receiver.		See claim element 5.1.

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EXHIBIT 5

ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

***U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young. Citation format is (col. no.:row no.). Secondary references used to show that a particular claim requirement is necessarily or implicitly present in the CompuServe system are: The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 1	Assumed Constructions	Prior Art Teaching
Preamble. In a television distribution arrangement wherein a plurality of geographically dispersed television viewing locations receive television programming from a source of such programming,	**"Television viewing location"** means the specific room within a building where a television set is positioned and watched by a user.	Young teaches all elements of this claim, so anticipates Claim 1. "As the number of television stations in a metropolitan area or on a cable network has increased, a larger number of programs of potential interest to a viewer is presented. With the use of dish antennas capable of receiving direct satellite signals, the multitude of programs available to the viewer is further increased." (Young;1:44-49).
1. a method of receiving information specific to the type of programming available to a particular one of the viewing locations, the method comprising the steps of:	**"Available to a particular one of the viewing locations"** means deliverable from a programming source to a specific "television viewing location", as defined above.	Young teaches this claim element. "Accordingly, it is an object of this invention to provide a system and process which allows a user to control a television set by selecting broadcast programs for viewing from schedule information with user-supplied selection criteria. It is another object of the invention to provide such a system and process which receives the schedule information as a broadcast." (Young;3:1-10).
2. providing a computerized unit at the particular viewing location, the unit including an operator input and a modem;	**"Operator input"** means a keyboard or other device for manually entering data into a computer. **"Modem"** means a data signal conversion device that converts digital signals to analog signals (and vice versa) and enables a computerized unit to exchange data with another computerized unit over a standard dial-up telephone line.	Young teaches this claim element. "For example, the schedule information could be accessible with a personal computer through an information utility, such as Compuserve or The Source, … " (Young;21:67-22:2). "MS-DOS machines require the following hardware: • An **IBM or IBM-compatible PC** • A color or monochrome monitor (no graphics necessary) • A hard disk and one floppy drive • MS-DOS 2.0 or higher • **A serial port/Hayes-compatible modem.** (Schepp;38:3-

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Claim 1	Assumed Constructions	Prior Art Teaching
		39:2). **An IBM or IBM-compatible PC necessarily includes a keyboard or similar "operator input" device. A skilled artisan would have known that a "PC" could have been located anywhere in the user's home accessible to a telephone line, including the room(s) in which the user watches television.**
3. establishing a connection to a wide-area network through the modem;	**"Modem"** means a data signal conversion device that converts digital signals to analog signals (and vice versa) and enables a computerized unit to exchange data with another computerized unit over a standard dial-up telephone line.	Young teaches this claim element. "For example, the schedule information could be accessible with a personal computer through an information utility, such as Compuserve or The Source, … " (Young;21:67-22:2). "Your computer needs three items to communicate with other computers. It needs a modem to **transmit and receive data over standard telephone wires**. It needs communications software to give your computer instructions for operating the modem. Finally, it needs access to a telephone line." (Schepp;20:4). "CompuServe's success is rooted in its telecommunications network. As of this writing, **the network has 1,800 communication nodes that service about 400 U.S. cities**." (Schepp;4:5).
4. transmitting, from the computerized unit, information to a service provider through the wide-area network regarding the geographical location of the particular viewing location; and	**"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is	Young teaches this claim element. "For example, the schedule information could be accessible with a personal computer through an information utility, such as Compuserve or The Source, and the user could either make the selection inputs to the utility's mainframe for running a selection program on the mainframe and then download the selected program information for his or her locality, … " (Young;21:67-22:6).

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

***U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young. Citation format is (col. no.:row no.). Secondary references used to show that a particular claim requirement is necessarily or implicitly present in the CompuServe system are: The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 1	Assumed Constructions	Prior Art Teaching
	located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	"All CompuServe services have GO words, which are direct routes to their main menus. Using a GO word instead of menus to get to a service is like taking an express train rather than the local. To jump from one service to another, just enter the GO word to get directly to that service's main menu. To go directly to a specific page within that service, enter the screen's page number." (Schepp;26:3). See (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items and their GO words for accessing them directly: "Cable TV listings….Go SFE-51; Columbus area: … Television listings .. Go CDP-1; Hampton Roads, Virginia area: … Television schedule ..Go VPL-60; New York City area: … Television…..Go NYT-12 ;San Francisco area: … Television….**Go SFC-7**; Satellite TV signals ..Go PSP-1; Television reviews: … Columbus Dispatch … New York Times … S.F. Chronicle … VPL … Washington Post …" **From the above "Subject Index" the user would know to type at the keyboard the selection, for example, "Go SFC-7" to view the television listings in the San Francisco area. The acronym "SFC", indicating the San Francisco Chronicle newspaper, is geographic information. The number "7" is the number of the CompuServe page within the San Francisco area database that contains television listings.** "The easiest and fastest way to get a quick forecast for your area is to select the Weather option from CIM's Services pull-down menu. When you do, the dialog box shown in Figure 4-11 appears. As you can see, the default shows you a local weather forecast for the node from which you are calling. You can also **choose a report by city and state** or by National Weather Service reporting station. The report you will receive includes the

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Claim 1	Assumed Constructions	Prior Art Teaching
		current day's forecasted temperature, winds, precipitation probability, sun or clouds, and the forecast for tonight and tomorrow. (Schepp;101:2 and 101:Figure 4-11). "Option 5 from NewsGrid's main menu lets you search the database by keyword. Stories from the last seven days are available for searching. NewsGrid editors assign five to ten keywords for each story. Keywords are most often: • Proper names • **Country names** • **Regions of the world** • … NewsGrid also offers automatic truncation, or wildcard searching, that will search for keywords beginning with the string or word you specify." (Schepp;87:10-88:7). Many IQuest databases enable you to search by field quite easily. A database record (the complete hit) is divided into distinct searchable parts called fields, enabling searchers to pull out only the information they need. Examples of fields include company name, SIC code, **geographic area**, and a person's name. The ability to search by field effortlessly, through IQuest and its spinoffs, is a great boon." (Schepp;219:7). "The directory first asks you **the area code** you will be calling from, since some listings will not be valid in your area." (Schepp;253:2).
5. receiving, from the service provider, information specific to the	**"Receiving"** means transferring data to a computerized unit such that a user can perform database-type manipulations directly on the	Young teaches this claim element. "For example, the schedule information could be accessible with a personal computer through an information utility, such as

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

***U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young. Citation format is (col. no.:row no.). Secondary references used to show that a particular claim requirement is necessarily or implicitly present in the CompuServe system are: The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 1	Assumed Constructions	Prior Art Teaching
type of programming available to the particular viewing location.	transferred data without being connected to the original source of the data. (See File History at TG 000780.) **[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to**	Compuserve or The Source, and the user could either make the selection inputs to the utility's mainframe for running a selection program on the mainframe and then **download the selected program information for his or her locality**, … " (Young;21:67-22:6). "The HMI protocol is specifically designed to enhance communications between a PC and the CompuServe host mainframe computers. When using CIM, instead of your PC receiving information character by character, as it does with ASCII communications, it gets information from CompuServe in 'packets' or bursts. **A packet is the information you need to complete what you asked for. It could include a menu or a complete article. Once your computer receives this packet, it stores the information so you can bring it up again much faster** than if you had to retrieve it anew from CompuServe. Therefore, CIM both eliminates the need for you to use ASCII commands and enables you to store more information locally." (Schepp;30:2). **A skilled artisan would have known that, since information transmitted to a service provider can include geographical information, then necessarily this information can be used as criteria to select specific portions of the database for downloading that match that criteria.**

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

***U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young. Citation format is (col. no.:row no.). Secondary references used to show that a particular claim requirement is necessarily or implicitly present in the CompuServe system are: The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 1	Assumed Constructions	Prior Art Teaching
	record television programming (see, for example, '078 at Abstract), the application residing within the "computerized unit" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 1 is invalid because it is not enabled.]	

Claim 2	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Young anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 2.
1. wherein the information transmitted to the service provider includes the Zip Code associated with the particular viewing location.		Young teaches this claim element. "For example, the schedule information could be accessible with a personal computer through an information utility, such as Compuserve or The Source, … " (Young;21:67-22:2). "The database is searchable by **zip code** or area code." (Schepp;424:4). "Both the database and the techniques have been developed and refined to the point that, for a fee, you can now get an instant report on any **ZIP code** or U.S. county." (Glossbrenner;TMS

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Claim 2	Assumed Constructions	Prior Art Teaching
		0054634:2). "SuperSite information comes from CACI, a management consulting firm specializing in demographic analysis. Information is provided for every **ZIP code** and county in the United States … . All SuperSite reports are preformatted and are of presentation quality. You simply specify the areas you want to look at and the reports you need. The information is displayed immediately for you to review or print on hard copy." (Today 1985;TMS 0054629:2-5). **Young teaches that information databases can be searched on any arbitrary attribute at the designer's choice, necessarily including Zip Code as Young cites CompuServe as an example of a provider of television programming information to Young's methods and systems.**

Claim 3	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Young anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 3.
1. wherein the information received from the service provider includes a schedule of the television programming available to the particular viewing location.	**"Schedule of the television programming"** means a list, not necessarily ordered in any way, containing at least one item of television programming. (See '078 at 2:1-6 in contrast with '078 at 4:66-5:4) **[Expert Witness Note: I am unable to determine from the patent description how the "information received" in this claim differs from that required by claim element 1.5. The patent description in no way explicitly or**	Young teaches this claim element. "For example, the **schedule information** could be accessible with a personal computer through an information utility, such as Compuserve or The Source, and the user could either make the selection inputs to the utility's mainframe for running a selection program on the mainframe and then **download the selected program information**, … " (Young;21:67-22:5). See (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items and their GO words for

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***U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young. Citation format is (col. no.:row no.). Secondary references used to show that a particular claim requirement is necessarily or implicitly present in the CompuServe system are: The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 3	Assumed Constructions	Prior Art Teaching
	implicitly defines the term "schedule". I therefore conclude that Claim 3 is invalid due to indefiniteness.]	accessing them directly: **"Cable TV listings**....Go SFE-51; Columbus area: ... **Television listings** .. Go CDP-1; Hampton Roads, Virginia area: ... **Television schedule** ..Go VPL-60; New York City area: ... **Television**.....Go NYT-12 ;San Francisco area: ... **Television**....Go SFC-7; Satellite TV signals ..Go PSP-1; **Television reviews**: ... Columbus Dispatch ... New York Times ... S.F. Chronicle ... VPL ... Washington Post ..."

Claim 4	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Young anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 4.

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

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Claim 4	Assumed Constructions	Prior Art Teaching
1. wherein the computerized unit is interfaced to a display, and		Young teaches this claim element. "The tuner receives conventional TV broadcast signals from antenna **133** on line **135**. The CPU **110** supplies information signals from the **program schedule data** on line **108**, control program inputs on line **114** and user inputs on line **120** to a video **display generator 136** on line **138**. Output video display signals from the generator **136** are supplied to a video switcher **140** on line **142.** The video switcher also receives TV program signals from tuner **132** on line **144**, and a control signal for switching between the tuner **132** and the generator **136** on line **146** from the CPU **110**. The video switcher **140** supplies the signals from the tuner **132** or the generator **142** to the **TV receiver 126** on line **148** …" (Young;7:66-8:11). "MS-DOS machines require the following hardware: • An IBM or IBM-compatible PC **A color or monochrome monitor** (no graphics necessary)" (Schepp;38:3-5).

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

***U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young. Citation format is (col. no.:row no.). Secondary references used to show that a particular claim requirement is necessarily or implicitly present in the CompuServe system are: The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 4	Assumed Constructions	Prior Art Teaching
2. wherein the method further includes the step of displaying the information specific to the type of programming available to the particular viewing location.		Young teaches this claim element. "The tuner receives conventional TV broadcast signals from antenna **133** on line **135**. The CPU **110** supplies information signals from the **program schedule data** on line **108**, control program inputs on line **114** and user inputs on line **120** to a video **display generator 136** on line **138**. Output video display signals from the generator **136** are supplied to a video switcher **140** on line **142.** The video switcher also receives TV program signals from tuner **132** on line **144**, and a control signal for switching between the tuner **132** and the generator **136** on line **146** from the CPU **110**. The video switcher **140** supplies the signals from the tuner **132** or the generator **142** to the **TV receiver 126** on line **148** …" (Young;7:66-8:11). "CompuServe is an online information utility and a videotext system. An online information utility is an easy-to-use electronic information service. A videotext system is an interactive service that **delivers information one page at a time**. CompuServe is both of these. It provides **information delivered through friendly, menu-driven screens**." (Schepp;4:2). "CompuServe is **delivered to your PC's screen in 'pages.'** Each page has its own identifying number or word. The pages are organized under menus." (Schepp;25:3)

Claim 5	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 1,		Young anticipates Claim 1 and teaches all elements of this claim, so anticipates Claim 5.

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

***U.S. Patent No. 4,706,121, issued Nov. 10, 1987 to Patrick Young. Citation format is (col. no.:row no.). Secondary references used to show that a particular claim requirement is necessarily or implicitly present in the CompuServe system are: The Complete Guide to CompuServe, by Brad Schepp and Debra Schepp, Osborne McGraw-Hill, 1990 ("Schepp"); CompuServe Information Service Today, January 1982, TMS 0001076-0001083 ("Today 1982"); Alfred Glossbrenner's Master Guide to CompuServe, 1987, TMS 0054630-0054645 ("Glossbrenner") and Online Today, January 1985. TMS 0054628-0054629 ("Today 1985"). Citation format for Schepp is (page no.:para. no.). Citation format for others is (TMS no.:para. no.).**

Claim 5	Assumed Constructions	Prior Art Teaching
1. wherein the computerized unit further includes a memory for storing the information specific to the type of programming available to the particular viewing location.	**"Memory for storing the information"** means a device that can retain computerized information for retrieval later.	Young teaches this claim element. "The data demodulator **102** converts the schedule information signals to digital form and supplies the digital schedule data signals to system control unit **106** on line **108**, more particularly, to CPU **110** of the system control unit **106**. **A memory 111 is connected to the CPU 110 at 113**. A control program for the system control unit **106** and a user identification code are stored in a read only memory (ROM) **112**." (Young;7:42-50). "MS-DOS machines require the following hardware: • An IBM or IBM-compatible PC • A color or monochrome monitor (no graphics necessary) • **A hard disk and one floppy drive** (Schepp;38:3-6).

Claim 6	Assumed Constructions	Prior Art Teaching
Preamble. A method of receiving customized television programming schedule information, comprising the steps of:		Young anticipates Claims 1 and 4, so anticipates Claim 6.
1. providing, at a television viewing location, a controller interfaced to a bidirectional modem and a display device;	**"Controller"** means an electronic device for manipulating information including at least memory for storing and executing computer programs and I/O ports for connecting to peripheral devices, such peripheral devices including modems and display devices.	See claim element 1.2.
2. establishing a connection		See claim element 1.3.

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

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Claim 6	Assumed Constructions	Prior Art Teaching
to a wide-area network through the modem;		
3. transmitting, from the television viewing location, information to a service provider through the wide-area network regarding the geographical area of the viewing location;	**"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	See claim element 1.4.
4. receiving, from the service provider, television programming schedule information specific to the viewing location; and	**"Receiving"** means transferring data to a controller such that a user can perform database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.) **[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location (which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent**	See claim element 1.5.

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

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Claim 6	Assumed Constructions	Prior Art Teaching
	claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for example, '078 at Abstract), the application residing within the "controller" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such	

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Claim 6	Assumed Constructions	Prior Art Teaching
	functionality. Therefore I conclude that Claim 6 is invalid because it is not enabled.]	
5. viewing the information on the display device.		See claim element 4.2.

Claim 7	Assumed Constructions	Prior Art Teaching
Preamble. The method of claim 6,		Young anticipates Claim 6 and teaches all elements of this claim, so anticipates Claim 7.
1. wherein the information transmitted to the service provider through the wide-area network regarding the geographical area of the viewing location is the Zip Code associated with the viewing location.		See claim element 2.1.

Claim 8	Assumed Constructions	Prior Art Teaching
Preamble. A system enabling a viewer of a television receiver to download information specific to the type of television programming available to the receiver, the system comprising:	**"Download"** means transferring data to a computerized unit such that a user can perform database-type manipulations directly on the transferred data without being connected to the original source of the data. (See File History at TG 000780.)	Young anticipates Claim 1 and teaches all elements of this claim not included in Claim 1, so anticipates Claim 8.

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

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Claim 8	Assumed Constructions	Prior Art Teaching
1. an electronic terminal unit including an operator input, a bidirectional modem, and a controller in communication with the operator input and the modem, the controller being programmed to perform the following functions:	**"Controller"** means a computer, exclusive of peripheral devices such as a keyboard and monitor, but inclusive of memory for storing and executing computer programs and inclusive of I/O ports for connecting to peripheral devices. **[Expert Witness Note: I note that this claim element does not include the requirement of claim element 1.2 that the "electronic terminal unit" be located at the television viewing location. However, the file history, at TG 002253 and TG 002282, clearly states that "All of applicant's claims include this limitation ... ."]**	See claim element 1.2.
2. a) establish a connection to a service provider through the modem,		See claim element 1.3.
3. b) receive information through the operator input pertaining to the geographic location of the television receiver,	**"Receive information through the operator input"** means signals produced by the operator input in response to user actions and transferred to the controller in the electronic terminal unit. **"Information regarding the geographical location of a particular viewing location"** means any information, irrespective of how the information is encoded, that expressly indicates in geographic language (e.g., name of a continent, country, province, state, city, town, region, street address, zip code, area code, etc.) the approximate portion of the planet in which a particular "television viewing location", as defined above, is	Young teaches this claim element. "For example, the schedule information could be accessible with a personal computer through an information utility, such as Compuserve or The Source, and the user could either make the selection inputs to the utility's mainframe for running a selection program on the mainframe and then download the selected program information for his or her locality, ... " (Young;21:67-22:6). "All CompuServe services have GO words, which are direct routes to their main menus. Using a GO word instead of menus to get to a service is like taking an express train rather than the local. To jump from one service to another, just enter the GO

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

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Claim 8	Assumed Constructions	Prior Art Teaching
	located. [Note: the '078 patent at (3:50-54) distinguishes "ZIP code" as geographic ("location") information from programming source ("cable service provider") as, therefore, non-geographic information.]	word to get directly to that service's main menu. To go directly to a specific page within that service, enter the screen's page number." (Schepp;26:3). See (Today 1982;TMS 0001082-0001083) showing the following CompuServe "Subject Index" items and their GO words for accessing them directly: "Cable TV listings....Go SFE-51; Columbus area: ... Television listings .. Go CDP-1; Hampton Roads, Virginia area: ... Television schedule ..Go VPL-60; New York City area: ... Television.....Go NYT-12 ;San Francisco area: ... Television....**Go SFC-7**; Satellite TV signals ..Go PSP-1; Television reviews: ... Columbus Dispatch ... New York Times ... S.F. Chronicle ... VPL ... Washington Post ..." **From the above "Subject Index" the user would know to type at the keyboard the selection, for example, "Go SFC-7" to view the television listings in the San Francisco area. The acronym "SFC", indicating the San Francisco Chronicle newspaper, is geographic information. The number "7" is the number of the CompuServe page within the San Francisco area database that contains television listings.**
4. c) transmit the information pertaining to the geographic location of the television receiver to the service provider, and		See claim element 1.4.
5. d) receive, from the service provider, the information specific to the type of television programming available to	**[Expert Witness Note: The information specific to the type of programming available to a particular viewing location cannot be determined solely from the geographical information transmitted; whenever more than one programming source is offered in a location**	See claim element 1.5.

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ANALYSIS OF Young* TEACHINGS AGAINST THE '078 PATENT

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Claim 8	Assumed Constructions	Prior Art Teaching
the receiver.	**(which I understand to be the case for the vast majority of locations), the programming source must also be identified. Indeed, dependent claim 2 (and also claim 7) adds the limitation that the information transmitted must include Zip Code, and the patentee has admitted that Zip Code itself is often not specific enough to determine the programming available to the particular viewing location (see '078 at 3:50-54). And, at the time of the invention, a skilled artisan would have known that information other than just geographical information would be required to identify the programming available to the particular viewing location. However, because only geographic information is transmitted to the program schedule information source, the information received in return will at least sometimes contain information in addition to that specifically available to the viewing location. Therefore, in order for the claimed system to meet its objective of automatically controlling a VCR to record television programming (see, for example, '078 at Abstract), the application residing within the "controller" of this claim must necessarily include functionality to search the received information to extract only that programming information broadcast to the television receiver of the viewing location, or otherwise identify the programming source. This functionality is not taught in the patent**	

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Claim 8	Assumed Constructions	Prior Art Teaching
	description. Furthermore, it would not have been obvious to a skilled artisan, based upon the patent description, how to implement such functionality. Therefore I conclude that Claim 8 is invalid because it is not enabled.]	

Claim 10	Assumed Constructions	Prior Art Teaching
Preamble. The system of claim 8,		Young anticipates Claims 8 and 5, so anticipates Claim 10.
1. further including a memory in communication with the controller for storing and retrieving the information specific to the type of television programming available to the receiver.		See claim element 5.1.

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