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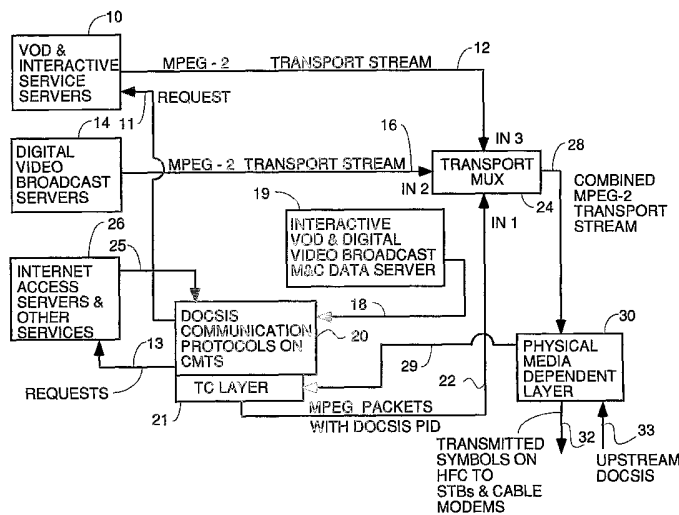
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(54) Title: THIN DOCSIS IN-BAND MANAGEMENT FOR INTERACTIVE HFC SERVICE DELIVERY



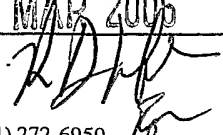
(57) Abstract: Circuitry and processes carried out thereby are disclosed for transmitting video-on-demand and interactive service data (10) and other service data (19) on an MPEG multiplex and sending management and control data including conditional access EMM key data in-band in said MPEG multiplex (24) in MPEG packets having the DOCSIS PID (20). Processes to send conditional access data by sending ECM messages containing control words encrypted with session keys in said MPEG multiplex and sending EMM messages containing session keys encrypted with private set top box users keys are disclosed. The EMM messages are sent in-band in MPEG packets having the DOCSIS PID to only the set top boxes that request them via the upstream DOCSIS (33) which have ordered encrypted service. A head end with routing/switching capability to route MPEG transport streams encapsulated in IP packets is also disclosed.

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INTERNATIONAL SEARCH REPORT

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<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : H04N 7/173 US CL : 725/111; 370/395.5,467,469,487 According to International Patent Classification (IPC) or to both national classification and IPC</p>																						
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) U.S. : 725/109-111; 370/395.5,467,469,487</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p>																						
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Data-Over-Cable Service Interface Specifications, Radio Frequency Interface Specification - SP-RFiv1.1-I07-010829, 29 August 2001 (29.08.2001), whole document, pg. 49-52, pg. 395-399.</td> <td>1-29</td> </tr> <tr> <td>A</td> <td>US 5,420,866 A (WASILEWSKI), 30 May 1995 (30.05.1995), whole document, col. 9-11, ll. 59-20, col. 14-15, ll. 5-40.</td> <td>1-29</td> </tr> <tr> <td>A,E</td> <td>US 6,970,564 B1 (KUBOTA et al.) 29 November 2005 (29.11.2005), whole document, fig. 1 and 11, col. 4-5, ll. 47-30, col. 6, ll. 31-62.</td> <td>1-29</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	A	Data-Over-Cable Service Interface Specifications, Radio Frequency Interface Specification - SP-RFiv1.1-I07-010829, 29 August 2001 (29.08.2001), whole document, pg. 49-52, pg. 395-399.	1-29	A	US 5,420,866 A (WASILEWSKI), 30 May 1995 (30.05.1995), whole document, col. 9-11, ll. 59-20, col. 14-15, ll. 5-40.	1-29	A,E	US 6,970,564 B1 (KUBOTA et al.) 29 November 2005 (29.11.2005), whole document, fig. 1 and 11, col. 4-5, ll. 47-30, col. 6, ll. 31-62.	1-29								
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<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201</p>		<p>Authorized officer Christopher Grant  Telephone No. (571) 272-6950</p>																				