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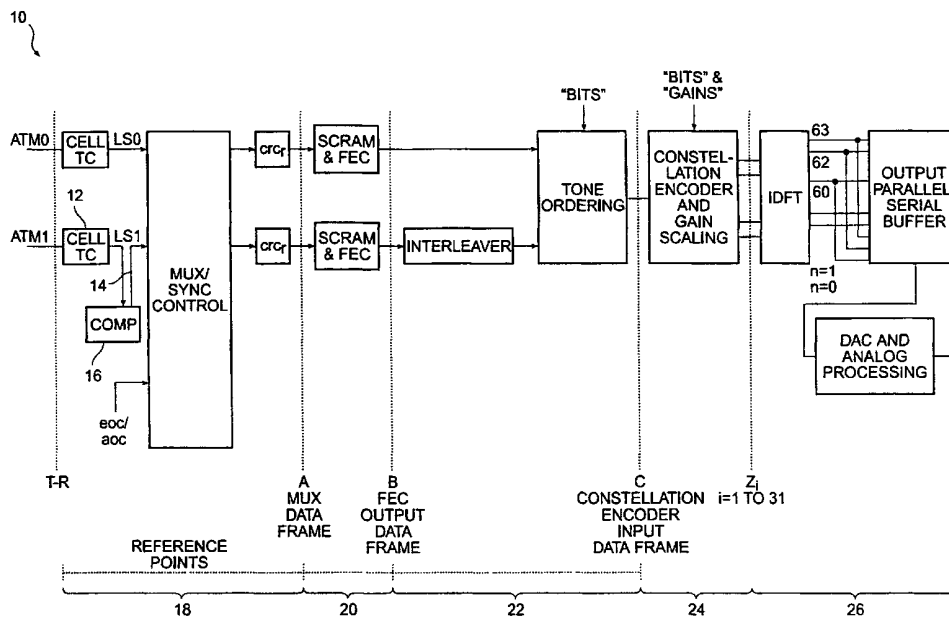
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(54) Title: SYSTEM AND METHOD FOR IMPROVING COMPRESSION ON A TELEPHONE LOOP



(57) Abstract: An ADSL termination unit (100), which at the transmission end includes a descrambler (106) and a compressor (108) between its scrambler (104) and interleaver (110). The present invention provides for the use of compression on the data in a channel to remove some of the inherent redundancy, in order to yield much better throughput, particularly in conjunction with certain powerful FEC schemes. In this manner the compression may be performed on unscrambled data that has a higher redundancy than scrambled data, thereby improving compression. At the reception end, the ADSL termination unit (120) includes a decompressor (124) and a scrambler (120) between its deinterleaver (122) and descrambler (128).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/19024

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04J 3/00, 3/02, 3/16, 3/24; H04Q 11/04

US CL : 370/259, 395, 396, 397, 398, 399, 401, 402, 403, 404, 465, 468

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 370/259, 395, 396, 397, 398, 399, 401, 402, 403, 404, 465, 468

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| Y | US 5,677,905 A (BIGHAM et al) 14 October 1997, col. 2 line 56 to col. 3 line 5, col. 4 lines 33-44, col. 8 lines 21-31, col. 11 lines 48-65, col. 36 lines 37-58 | 1-4, 10-17 |
| Y | US 5,742,765 A (WONG et al) 21 April 1998, col. 3 lines 3-19, col. 4 lines 33-46. | 1-4, 10-17 |
| A | US 5,650,994 A (DALEY) 22 July 1997, see entire document. | 1-17 |
| A | US 5,621,728 A (LIGHTFOOT et al) 15 April 1997, see entire document. | 1-17 |

Further documents are listed in the continuation of Box C. See patent family annex.

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| * Special categories of cited documents: | "T" | later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
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| "P" document published prior to the international filing date but later than the priority date claimed | | |

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INTERNATIONAL SEARCH REPORT

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B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

EAST SEARCH

search terms: asymmetric digital subscriber line, ATM transmission convergence circuit, ATM data, scrambler circuit, descrambler circuit, compression circuit, interleaver circuit, deinterleaver circuit, decompression circuit, ADSL link, maximum compression bandwidth, average compression bandwidth, control circuit, fullness buffer space, compression algorithms