Title: METHOD AND SYSTEM FOR CONNECTING MULTIPLE DSL MODEMS TO A TELEPHONE LINE

Abstract: A system and method for allowing multiple digital subscriber line modems to access a telephone line. The embodiments employ additional signaling protocols to enable equipped modems to distinguish between initiating and responding signals from initiating customer premise modems and telephone company central office devices. The additional signaling can take many forms that can be detected and used to distinguished signals. Preferably, the signal is a stealth signal as to not interfere with existing communication devices. A variety of applications and embodiments are disclosed to enable a solution allowing multiple modems to access a telephone line.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7  H04M11/06

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)

IPC 7  H04L  H04M

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
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<tr>
<td>X</td>
<td>US 5 557 612 A (BINGHAM JOHN A C) 17 September 1996 (1996-09-17) column 1, line 41 -column 3, line 62 column 5, line 20 -column 9, line 65 column 12, line 1 -column 14, line 40</td>
<td>1,2,7</td>
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents:

 Ceramic document defining the general state of the art which is not considered to be of particular relevance

 Earlier document but published on or after the international filing date

 Later document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

 Document referring to an oral disclosure, use, exhibition or other means

 Document published prior to the international filing date but later than the priority date claimed

 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

 X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

 Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

T document member of the same patent family

Date of the actual completion of the international search

29 March 2001

Date of mailing of the international search report

06.07.01

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk

Tel (+31-70) 340-2040, Tx. 31 651 epo nl,

Fax (+31-70) 340-3016

Authorized officer

Kalabic, F

Form PCT/ISA/210 (second sheet) July 1992
INTERNATIONAL SEARCH REPORT

Box I  Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
   because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II  Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☑ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
   1-7

Remark on Protest
☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA210 (continuation of first sheet (1)) (July 1998)
1. Claims: 1-7
   Modulating an additional signal superimposed on a responding signal

2. Claims: 8-10
   Transmitting an out-of-band signal to distinguish the responding signal from an initiating signal

3. Claims: 11-14
   Transmitting an additional signal superimposed on a further responding signal
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