

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 August 2008 (21.08.2008)

PCT

(10) International Publication Number
WO 2008/100341 A3

(51) International Patent Classification:
H04B 7/185 (2006.01)

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(21) International Application Number:
PCT/US2007/079541

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(22) International Filing Date:
26 September 2007 (26.09.2007)

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/827,999 3 October 2006 (03.10.2006) US

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(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW).

[Continued on next page]

(54) Title: UPSTREAM RESOURCE ALLOCATION FOR SATELLITE COMMUNICATIONS

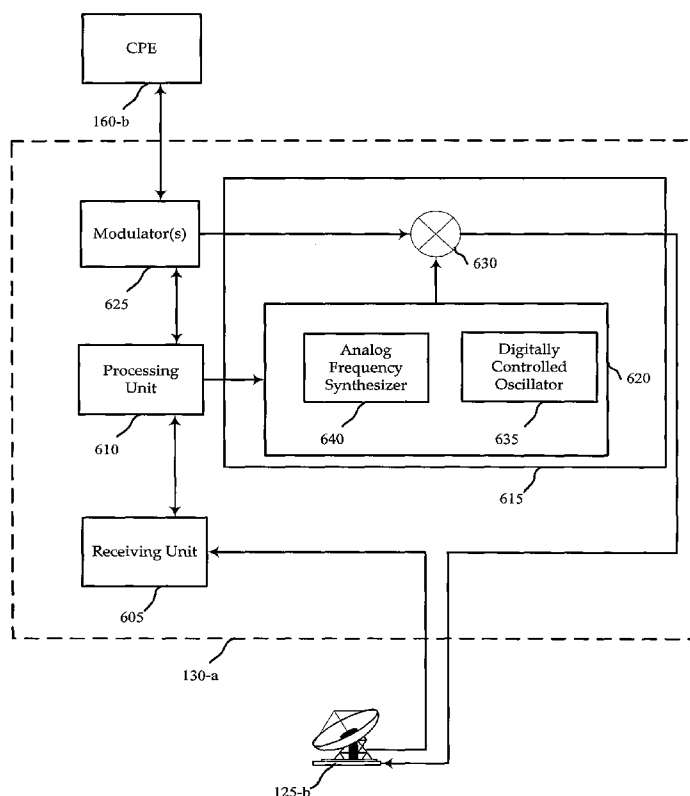


FIG. 6

(57) Abstract: Systems, methods, and devices are described for scheduling and mapping upstream communications in a satellite communications system. The disclosure includes various channelization and frequency hopping techniques. A gateway is described to perform novel allocation of time slots on upstream frequency channels to allow frequency hopping. A subscriber terminal may perform frequency hopping according to the allocation, and the range may be limited to the transition range of a digitally controlled oscillator unit at the subscriber terminal. A gateway is described to allocate time slots on different upstream frequency channels in a prioritized manner. Subscriber terminals may receive the allocation, and then control the assignment of their upstream traffic to the time slots.



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments*

Published:

— *with international search report*

(88) Date of publication of the international search report:

22 May 2009

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/079541

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04B7/185

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)
H04B

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)

EPO-Internal, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/20538 A (STANFORD TELECOMM INC [US]) 4 July 1996 (1996-07-04) page 12, paragraph 2 - paragraph 3 page 21, line 1 - line 23 figures 1,6,9,10	1-9
A		10-25
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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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

E earlier document but published on or after the international filing date

L 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)

O document referring to an oral disclosure, use, exhibition or other means

P 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.

* & * document member of the same patent family

Date of the actual completion of the international search

13 March 2009

Date of mailing of the international search report

20/03/2009

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/079541

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00/05904 A (TACHYON INC [US]; CARNEAL BRUCE L [US]; BECKER DONALD [US]; MOERDER KA) 3 February 2000 (2000-02-03) page 4, line 27 - line 30 page 9, line 2 - line 15 page 11, line 19 - line 24 -----	10-25
Y	GB 2 320 162 A (INT MOBILE SATELLITE ORG [GB] INTERNAT MOBILE SATELLITE ORGA [GB]; INM) 10 June 1998 (1998-06-10) figure 1 page 7, line 9 - line 11 page 15, line 2 - line 15 page 16, line 10 - line 15 page 19, line 6 - page 20, line 5 page 26, line 3 - line 13 page 27, line 6 - line 14 -----	26-50
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Y	WO 97/25787 A (ORION ATLANTIC L P [US]; NORTEL DASA NETWORK SYSTEMS GM [DE]) 17 July 1997 (1997-07-17) page 1, line 6 - line 13 page 9, line 22 - line 34 page 16, line 8 - line 16 claims 9,10 -----	26-50
Y	WO 2006/071155 A (ERICSSON TELEFON AB L M [SE]; WILLARS PER [SE]) 6 July 2006 (2006-07-06) page 23, line 20 - page 24, line 31 -----	26-50

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/079541

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers 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.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-25

Providing frequency hopping.

2. claims: 26-50

allocation of resources based on prioritized traffic

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/079541

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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