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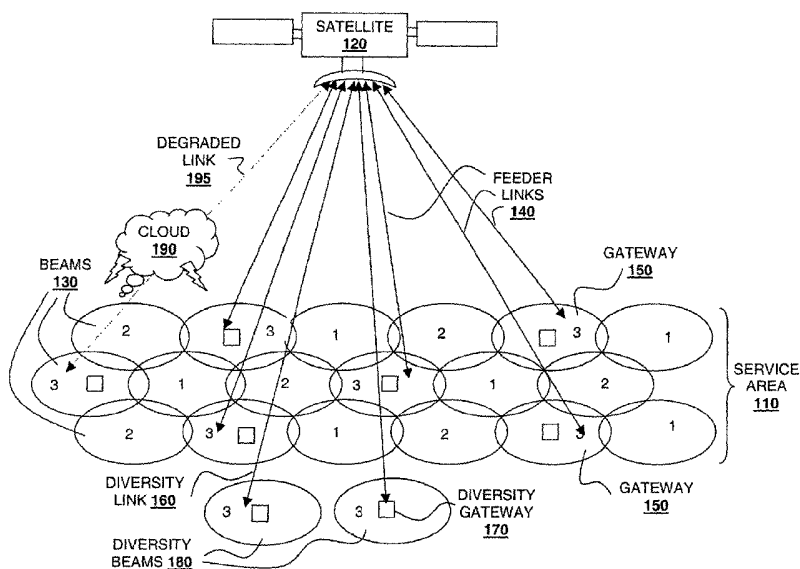
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: REDUCING SERVICE OUTAGES IN A MULTIBEAM SATELLITE SYSTEM



(57) Abstract: A satellite is linked to a number of gateways by a number of feeder links. When a degraded link is detected among the feeder links, communications are switched from the degraded link to a diversity link shared among the feeder links. In one embodiment, said diversity link is connected to a diversity gateway located outside a service area of the satellite. In another embodiment, the diversity link comprises channels distributed among the feeder links within the service area.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/19936

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 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)
IPC 7 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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 287 598 A (LANGSETH ROLLIN E ET AL) 1 September 1981 (1981-09-01) figures 3-5 abstract column 3, line 55 - column 4, line 18 column 8, line 65 - column 9, line 5	1,2, 6-12,14
Y	-----	15
X	PATENT ABSTRACTS OF JAPAN vol. 012, no. 452 (E-687), 28 November 1988 (1988-11-28) & JP 63 179629 A (NIPPON TELEGR & TELEPH CORP), 23 July 1988 (1988-07-23) abstract	1,2, 6-12,14
Y	----- US 4 041 397 A (BAUER PETER W ET AL) 9 August 1977 (1977-08-09) abstract -----	15
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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 :

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

9 October 2003

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INTERNATIONAL SEARCH REPORT

International Application No PCT/US 03/19936

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 910 792 A (NOHARA MITSUO ET AL) 20 March 1990 (1990-03-20) -----	
A	EP 0 837 569 A (GLOBALSTAR LP) 22 April 1998 (1998-04-22) -----	
A	GB 1 223 163 A (NTT) 24 February 1971 (1971-02-24) -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/19936

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:

see additional sheet

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.:

1-15, 20-29

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

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

1. claims: 1-15, 20-29

A method of providing uplink diversity in a satellite communications system.

2. claims: 16-19, 30, 31

Antennae and signal commutating apparatus for use in a satellite.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/19936

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