

Search history

Search PN=(WO2017023621) (Results 1)
1:

Search [SP]: flexible capacity satellite constellation embodiments provide in-flight configuration of satellite pathways to flexibly service terra-link and cross-link traffic in a constellation of non-processed satellites, for example, to facilitate flexible forward-channel and return-channel capacity in a satellite communications system. for example, each satellite in the constellation can include one or more dynamically configurable pathway, and switching and/or beamforming can be used to configure each pathway to be a forward-channel pathway or a return-channel pathway in each of a number of timeslots according to a pathway configuration schedule. at least some of the pathways can be further selectively configured, in each timeslot, to carry "terra-link" traffic to and/or from terrestrial terminals and "cross-link" traffic to and/or from one or more other satellites of the constellation. (Results 9)

Search [SP]: 1. a satellite system for use in a multi-satellite constellation for providing a communications network, the satellite comprising: an antenna system comprising a plurality of spot beams, including first and second terra-link beams and a cross-link beam a bent-pipe pathway associated with the plurality of spot beams a memory coupled with the pathway and having a pathway configuration schedule stored thereon and a pathway configuration system to sequentially configure the pathway in each of a plurality of timeslots to form a signal path between a selected pair of the spot beams according to the pathway configuration schedule, such that the pathway is configured in a first timeslot to establish connectivity between the first and second terra-link beams, and the pathway is configured in a second timeslot to establish connectivity between the first terra-link beam and the cross-link beam. 2. the system of claim 1, wherein the pathway is one of a plurality of pathways, each assigned to a respective subset of the plurality of spot beams, and each sequentially configurable in each timeslot to form a signal path between a selected pair of the respective subset of spot beams according to the pathway configuration schedule. 3. the system of claim 1, wherein the satellite is a low earth orbit satellite. 4. the system of claim 1, wherein the satellite is a medium earth orbit satellite. 5-15. (canceled) 16. the system of claim 1, wherein the pathway configuration system sequentially configures the pathway in each of the plurality of timeslots to form a physical circuit that couples the selected pair of spot beams according to the pathway configuration schedule. 17. the system of claim 1, wherein: the pathway has a receive side coupled with a receiver and the pathway has a transmit side coupled with a transmitter. 18. the system of claim 1, wherein the antenna system comprises a plurality of fixed feed horns that service the terra-link beams and the cross-link beam. 19. the system of claim 1, wherein the pathway configuration system comprises a receive switch to selectively couple a receive side of the pathway to one of a plurality of receive feeds of the antenna system in each of the plurality of timeslots, according to the pathway configuration schedule, to establish connectivity between the receive feed and a transmit feed coupled with a transmit side of the pathway, thereby sequentially configuring the pathway in each of the plurality of timeslots to form the signal path between the selected pair of spot beams according to the pathway configuration schedule. 20. the system of claim 1, wherein the pathway configuration system comprises a transmit switch to selectively couple a transmit side of the pathway to one of a plurality of transmit feeds of the antenna system in each of the plurality of timeslots, according to the pathway configuration schedule, to establish connectivity between the transmit feed and a receive feed coupled with a receive side of the pathway, thereby sequentially configuring the pathway in each of the plurality of timeslots to form the signal path between the selected pair of spot beams according to the pathway configuration schedule. 21. the system of claim 1, wherein the pathway configuration system comprises: a receive switch to selectively couple a receive side of the pathway to one of a plurality of receive feeds of the antenna system in each of the plurality of timeslots according to the pathway configuration schedule and a transmit switch to selectively couple a transmit side of the pathway to one of a plurality of transmit feeds of the antenna system in each of the plurality of timeslots according to the pathway configuration schedule, thereby establishing connectivity in each timeslot between a receive spot beam and a transmit spot beam according to the pathway configuration schedule via the receive feed, the pathway, and the transmit feed. 22. the system of claim 1, wherein the antenna system comprises a phased-array antenna that services the terra-link beams and the cross-link beam. 23. the system of claim 22, wherein the pathway configuration system comprises a receive beamforming network coupled between the phased array antenna and a receive side of the pathway, the receive beamforming network operable to adjust beam weightings to form a signal coupling, in each of the plurality of timeslots, between a receive beam and the receive side of the pathway, thereby sequentially configuring the pathway in each of the plurality of timeslots to form the signal path between the selected pair of spot beams according to the pathway configuration schedule, one of the selected pair of spot beams being the receive beam. 24. the system of claim 22, wherein the pathway configuration system comprises a transmit beamforming network coupled between the phased array antenna and a transmit side of the pathway, the transmit beamforming network operable to adjust beam weightings to form a signal coupling, in each of the plurality of timeslots, between a transmit beam and the transmit side of the pathway, thereby sequentially configuring the pathway in each of the plurality of timeslots to form the signal path between the selected pair of spot beams according to the pathway configuration schedule, one of the selected pair of spot beams being the transmit beam. 25. the system of claim 22, wherein the pathway configuration system comprises: a receive beamforming network coupled between the phased array antenna and a receive side of the pathway, the receive beamforming network operable to adjust beam weightings to form a signal coupling, in each of the plurality of timeslots, between a receive beam and the receive side of the pathway and a transmit beamforming network coupled between the phased array antenna and a transmit side of the pathway, the transmit beamforming network operable to adjust beam weightings to form a signal coupling, in each of the plurality of timeslots, between a transmit beam and the transmit side of the pathway, thereby sequentially configuring the pathway in each of the plurality of timeslots to form the signal path between the selected pair of spot beams according to the pathway configuration schedule, the selected pair of spot beams comprising the receive beam and the transmit beam. 26. the system of claim 25, wherein: the receive beamforming network is coupled between a first reflector of the phased array antenna and the receive side of the pathway and the transmit beamforming network is coupled between a second reflector of the phased array antenna and the transmit side of the pathway. 27. the system of claim 1, wherein the antenna system comprises a plurality of fixed feed horns that service the terra-link beams, and a phased-array antenna that services the cross-link beam. 28. the system of claim 1, wherein the pathway configuration schedule accounts for time-varying interconnectivity between the satellites of the constellation. 29. the system of claim 1, wherein the pathway configuration schedule sequentially configures the pathway according to frames, each frame comprising the plurality of timeslots, a first fraction of the timeslots in each frame supporting forward traffic, and a second fraction of the timeslots in each frame supporting return traffic, the first and second fractions selected according to a computed desired ratio between forward and return capacity. 30. the system of claim 29, wherein some of the first and second fractions of the timeslots in each frame support terra-link traffic, and others of the first and second fractions of the timeslots in each frame support cross-link traffic. 31. the system of claim 1, wherein: one of the terra-link beams is to communicate uplink traffic in an uplink band and an uplink polarization and the other of the terra-link beams is to communicate downlink traffic in a downlink band and a downlink polarization, wherein the uplink band is different from the downlink band and/or the uplink polarization is different from the downlink polarization. 32. the system of claim 31, wherein: the cross-link beam is to communicate cross-link traffic in a cross-link band that is different from at least one of the uplink band or the downlink band. 33. a method for scheduled connectivity switching in a satellite of a multi-satellite constellation, the method comprising: first configuring a pathway of the satellite to form a bent-pipe signal path that establishes connectivity between a first terra-link beam and a second terra-link beam in a first timeslot according to a pathway configuration schedule stored in memory of the satellite, the satellite having an antenna comprising a plurality of spot beams including the first and second terra-link beams and a cross-link beam and second configuring the pathway to form a bent-pipe signal path that establishes connectivity between the first terra-link beam and the cross-link beam in a second timeslot according to the pathway configuration schedule. 34. the method of claim 33, further comprising: receiving the pathway configuration schedule by the satellite from one of the terrestrial terminals while t (Results 0)

Search [SP]: field[0001] embodiments relate generally to satellite communications systems, and, more particularly, to providing flexible capacity in a bent-pipe satellite constellation. background[0002] in satellite constellations, a number of satellites work together to provide coverage to a larger region than any of the satellites could cover on its own. for example, low earth orbit (leo) satellites can typically orbit the earth at altitudes of around 100 miles with orbital periods of around 100 minutes, while geosynchronous satellites typically orbit the earth at altitudes of approximately 26,200 miles with an orbital period of approximately 24 hours (one sidereal day) to substantially match the earth's rotation. accordingly, leo satellites can often operate with relatively higher link budget (e.g., due to the relative proximity of the satellite to the terrestrial terminals) and with a relatively low latency (e.g., around 1-4 milliseconds for a leo satellite, as opposed to around 125 milliseconds for a geosynchronous satellite). however, the relative proximity of a leo satellite to the earth can also reduce its coverage area. accordingly, a constellation of leo satellites can be used to manifest a collectively increased coverage area, thereby allowing the satellites to service a larger region while exploiting the increased link budget and decreased latency provided by the lower orbit. a leo constellation can result in the system capacity being thinly spread over the entire surface of the earth, with much of that capacity only available over the ocean where there may be relatively little demand. [0003] for a group of leo satellites to provide useful and economic communications services, a number of challenges are presented. for example, if communications beyond the range of a single satellite is desired, this can involve cross-links between multiple satellites of the constellation. cross-links use additional power and mass on the spacecraft, and can thus be inefficient. moreover, coordination of cross-links to ensure connectivity as the satellites move adds complexity. in order to maintain such cross-link, leo satellite constellations are typically deployed with "processed" satellites, such that each satellite in the constellation includes its own, on-board processing for handling communications with terrestrial terminals and coordination with other

satellites in the constellation. the processing involves de-modulating data communicated to the satellite on an uplink to allow the destination for the data to be determined. then, the data is re-modulated and routed to the appropriate destination. this processing can add appreciable complexity, weight, and expense to the satellites. brief summary [0004] among other things, systems and methods are described for providing in-flight configuration of satellite pathways to flexibly service terra-link and cross-link traffic in a constellation of non-processed satellites, for example, to facilitate flexible distribution of capacity in a satellite communications system. embodiments operate in context of constellations of non-geosynchronous (e.g., low earth orbit (leo), medium earth orbit (meo), etc.), non-processed (e.g., bent-pipe) satellites, each having at least one, dynamically configurable pathway (e.g., transponder) for selectively carrying forward-channel or return-channel traffic. for example, each satellite in the constellation can include multiple pathways, and switching and/or beamforming can be used to configure each pathway to be a forward-channel pathway or a return-channel pathway in each of a number of timeslots according to a pathway configuration schedule. at least one (e.g., all) of the satellites in the constellation can have an antenna system that can communicate with one or more terrestrial terminals (as "terra-link" communications) and with one or more other satellites of the constellation (as "cross-link" communications) and at least one of the pathways of the satellite can be dynamically configured, in each timeslot, to communicate via a terra-link or a cross-link. for example, in each timeslot, each pathway of each satellite of the constellation can be selectively configured (according to a schedule) to carry forward-channel terra-link traffic, return-channel terra-link traffic, forward-channel cross-link traffic, or return-channel cross-link traffic. in some implementations, some satellites of the constellation can be configured (pre-flight and/or in-flight) to carry only terra-link traffic, only cross-link traffic, etc. brief description of the drawings [0005] the present disclosure is described in conjunction with the appended figures: [0006] fig. 1 shows an illustrative satellite communications environment, according to various embodiments [0007] fig. 2 shows an illustrative pathway configuration environment that uses switching for in-flight configuration of pathways, according to various embodiments [0008] figs. 3a and 3b show examples of forward pathways, in accordance with various embodiments [0009] figs. 3c and 3d show examples of return pathways, in accordance with various embodiments [0010] fig. 4 shows an illustrative pathway configuration environment that uses beam forming for in-flight configuration of pathways, according to various embodiments [0011] fig. 5 shows an illustrative satellite architecture for implementing various beamforming embodiments [0012] figs. 6a-6c show an illustrative satellite communications environment in a first communications scenario at each of three subsequent times, respectively [0013] figs. 7a-7c show an illustrative satellite communications environment in a second communications scenario at multiple subsequent times, respectively, where each time includes multiple timeslots [0014] figs. 8a-8d show an illustrative satellite communications environment in a third communications scenario at multiple subsequent times, respectively [0015] fig. 9 shows an illustrative portion of a satellite communications system including a terrestrial terminal in communication with at least one satellite of a constellation, according to various embodiments [0016] fig. 10 shows another illustrative portion of a satellite communications system including multiple gateway terminals in communication with a backhaul network and a number of satellites, according to various embodiments [0017] fig. 11 shows a flow diagram of an illustrative method for in-flight configuration of satellite pathways in a constellation, according to various embodiments. [0018] in the appended figures, similar components and/or features can have the same reference label. further, various components of the same type can be distinguished by following the reference label by a second label that distinguishes among the similar components. if only the first reference label is used in the specification, the description is applicable to any one of the similar components having the same first reference label irrespective of the second reference label. detailed description [0019] in the following description, numerous specific details are set forth to provide a thorough understanding of the present invention. however, one having ordinary skill in the art should recognize that the invention can be practiced without these specific details. in some instances, circuits, structures, and techniques have not been shown in detail to avoid obscuring the present invention. [0020] fig. 1 shows a simplified diagram of a satellite communications system 100, according to various embodiments. the satellite communications system 100 includes a constellation of satellites 105, each following an orbital path 110 around the earth. each satellite 105 can be any suitable type of communications satellite, including, for example, a low earth orbit (leo) satellite, a medium earth orbit (meo) satellite, etc. for example, in an illustrative constellation of leo satellites, each satellite 105 can orbit the earth along its orbital path 110 every ninety minutes. [0021] the satellites 105 can provide communications services by communicating with terrestrial terminals 150. the terrestrial terminals 150 can include gateway terminals and user terminals, though other types of terrestrial terminals 150 are also contemplated. for example, while terrestrial terminals 150 are generally shown and described with reference to terminals "on the ground," some implementations of terrestrial terminals 150 can include terminals that are above or below the earth's surface (e.g., user terminals that partially underground, partially or fully airborne, etc., though still relatively near the earth surface as compared to the altitude of the satellites 105). the terrestrial terminals 150 can include communications hardware and functionality (e.g., one or more antennas, etc.) suitable for satellite communications, and communications hardware and functionality for communicating with other associated devices, networks, etc. for example, the terrestrial terminals 150 can communicate according to one or more protocols or formats, such as those defined by dvt (e.g. dvt-s, dvt-s2, dvt-rs) standards, wimax standards, lte standards, docsis standards, and/or other standards in their native or adapted (modified) forms. [0022] user terminals can include any suitable type of terminals associated with an end consumer of satellite communications services. for example, a user terminal can include an antenna for communicating with satellites 105 of the constellation (e.g., any of the satellites 105 presently illuminating the user terminal, as described below (Results 0)

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Search 9 and uplink and downlink (Results 147)
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Search 11 and stac=(cross*) (Results 27)
12:

1) Family number: 52599243 (US2013148570A)

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Title: BENT PIPE BEAM SWITCHING FOR VIRTUAL UTILITY GATEWAYS

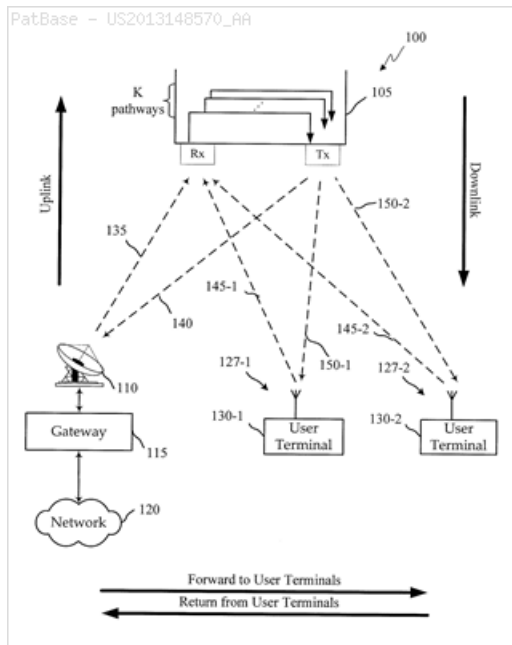
Abstract: A method for communicating includes utilizing a satellite comprising receivers, transmitters, transmit switches, and a gateway switch structure. Prior to a time T, each of at least P receivers are used to receive one of at least P signals from P gateway terminals. During one frame, the gateway switch structure is used to switch the at least P signals to the plurality of transmit switches. Each of the at least P signals are switched into fixed location beams. After time T and before a time T2, each of at least Q receivers are used to receive a different one of at least Q signals from Q gateway terminals. During one frame, the gateway switch structure is used to switch the at least Q signals to the plurality of transmit switches. Each of the at least Q signals are switched into fixed location beams. Q and P are non-zero positive integers and Q<P.

Classifications:

International (IPC 8-9): H04B7/185 H04B7/204 H04J3/08
H04L12/933 H04L12/947 H04W16/28 H04W24/02 H04W48/06
H04W72/04 H04W72/12 H04W84/06 H04W88/04 (Advanced/Invention)
CPC: H04W88/04 H04B7/18515 H04B7/2041 H04W24/02 H04L49/252
H04W88/16 H04B7/18584 H04L49/10 H04B7/18519

European: H04B7/185D8

US: 370/316 370/325 370/326

**Family:**

Publication number	Publication date	Application number	Application date
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BOLTE PATENTANWALTE RECHTSANWALTE PARTNERSCHAFT MBB; LLOYD ROBIN; MILLER JAMES
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2) Family number: 47097981 (US2010259312A)

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Title: ACTIVE POWER SPLITTER

Abstract: A circuit topology in accordance with a system, method and device for an active power splitter with an input and at least two outputs which allows the use of negative feedback and thus improving stability and linearity without substantially increasing the noise figure of the system is provided.

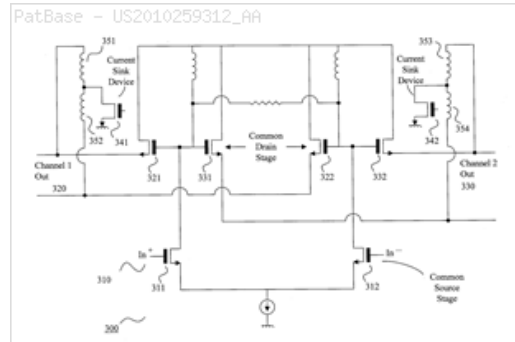
Classifications:

International (IPC 8-9): G01S7/02 G06G7/12 H01F7/08 H01P1/12
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H03F3/68 H04W36/00 (Advanced/Non-invention);
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H03F3/189 (Core/Non-invention)

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Probable Assignee: VIASAT INC

Assignee(s): (std): BUER KENNETH V ; CORMAN DAVID W ; CROCKETT DON ; CROCKETT DONALD E ; LLORENS DEL RIO DANIEL ; KITCHEN JENNIFER ; HANCHARIK DAVID ; MENON GAURAV ; JAIN NITIN ; LAIDIG DAVID ; DEL RIO DANIEL LLORENS ; VIASAT INC ; SAUNDERS DAVID R ; RUNYON DONALD LAWSON ; TIEZZI FERDINANDO ; VACARRO STEFANO ; ZIENKEWICZ ROB ; TOR JOSH ; WACHTER FRIEDHELM ; VOSS JOHN DANIEL

Assignee(s): VIASAT INC CARLSBAD ; UNION BANK NA ; UNION BANK NA AGENT FOR SECURED PARTIES AS ; MUGF UNION BANK NA AGENT AS

Inventor(s): (std): CORMAN DAVID W ; SAUNDERS DAVID R ; ZIENKEWICZ ROB ; MENON GAURAV ; JAIN NITIN ; LLORENS DEL RIO DANIEL ; CROCKETT DONALD E ; TIEZZI FERDINANDO ; VACARRO STEFANO ; RUNYON DONALD LAWSON ; BUER KENNETH V ; HANCHARIK DAVID ; KITCHEN JENNIFER ; LAIDIG DAVID ; TOR JOSH ; WACHTER FRIEDHELM ; VOSS JOHN D ; ROB ZIENKEWICZ ; DAVID W CORMAN ; DAVID R SAUNDERS ; RUNYON DONALD L ; CORMAN DAVID ; SAUNDERS DAVID ; DEL RIO DANIEL LLORENS ; CROCKETT DON ; VOSS JOHN DANIEL

Inventor(s): CORMAN DAVID W GILBERT ; SAUNDERS DAVID R SCOTTSDALE ; ZIENKEWICZ ROB CHANDLER

Agent(s): FB RICE ; FB RICE PTY LTD ; K AND H BONAPAT ; CURLEY DONNACHA JOHN ; MOORE BARRY ; SNELL AND WILMER LLP USM VIASAT ; SNELL AND WILMER LLP ; SNELL AND WILMER ; VIASAT INC ; PLATT JOHN H ; PLATT JOHN

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

3) Family number: 42855663 (US2009023384A)

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Title: CAPACITY MAXIMIZATION FOR A UNICAST SPOT BEAM SATELLITE SYSTEM

Abstract: Methods, systems, and apparatuses are presented for improved satellite communications. The satellite system may comprises at least one gateway, a satellite in orbit configured to communicate with the at least one gateway and provide a plurality of spot beams, and a plurality of subscriber terminals. The spot beams may include a first spot beam to illuminate a first region and a second spot beam to illuminate a second region adjacent to and overlapping with the first region. The first spot beam as sent to at least one subscriber terminal may be affected by (1) interference from other signal sources including the second spot beam at a signal-to-interference ratio C/I and (2) noise at a signal-to-noise ratio C/N. Reception of signals from the first spot beam by the at least one of the first plurality of subscriber terminals may be interference-dominated such that C/I is less than C/N.

Classifications:

International (IPC 8-9): H04B7/185 H04J15/00 H04W88/02

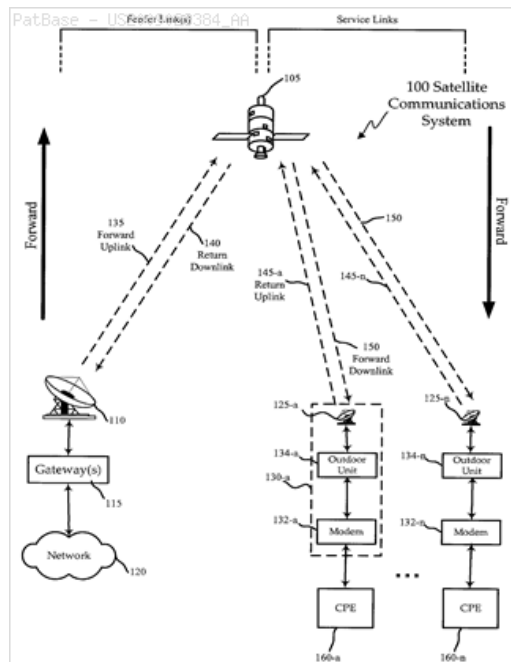
H04W88/04 (Advanced/Invention);

H04B7/185 (Core/Invention)

CPC: H04B7/18513 H04B7/2041

European: H04B7/185D2 H04B7/204B

US: 370/316 370/317 370/333 455/12.1 455/12.100P 455/13.2 455/135 455/427



Family:

Publication number	Publication date	Application number	Application date
US2009023384 AA	20090122	US20080176629	20080721
US2011306293 AA	20111215	US20110218278	20110825
US2013017778 AA	20130117	US20120591126	20120821
US2014045421 AA	20140213	US20130054623	20131015
US8010043 BB	20110830	US20080176629	20080721
US8285202 BB	20121009	US20110218278	20110825
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WO09015093 A1	20090129	WO2008US70658	20080721

Priority:

US20070951178P 20070720 US20080176629 20080721 US20110218278 20110825
US20120591126 20120821 US20130054623 20131015

Probable Assignee: VIASAT INC

Assignee(s): (std): MILLER MARK J ; VIASAT INC

Assignee(s): UNION BANK NA ; UNION BANK NA AGENT FOR SECURED PARTIES AS

Inventor(s): (std): MILLER MARK J

Agent(s): TOWNSEND AND TOWNSEND AND CREW LLP VIASAT INC CLIENT 017018; KILPATRICK TOWNSEND AND STOCKTON LLP; CHANG KO FANG ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

4) Family number: 30826112 (US2004185775A)

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Title: SYSTEMS AND METHODS FOR DIGITAL PROCESSING OF SATELLITE COMMUNICATIONS DATA

Abstract: A digital payload for processing a sub-band spectrum received on an uplink beam at a communications satellite includes a digital channelizer, a digital switch matrix and a digital combiner. The digital channelizer divides the sub-band spectrum into a plurality of frequency slices that can be routed by the digital switch matrix to any of a number of receiving ports. A digital combiner receives the frequency slices and re-assembles them to form one or more output sub-bands for transmission on an output beam of the communications satellite. The digital payload may also include an embeddable digital regeneration module configured to demodulate some or all of the sub-band spectrum to extract a digital bitstream therefrom. The digital bitstream may be processed to implement code-based multiplexing, switching, access control, and other features.

Classifications:

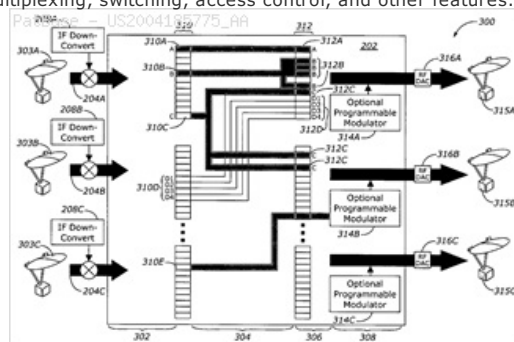
International (IPC 8-9): H04B17/02 H04B17/40 H04B7/185 H04H20/74 H04J1/00 H04W72/00 (Advanced/Invention); H04J1/00 (Core/Invention)

International (IPC 1-7): H04B7/185 H04J1/00 H04L

CPC: H04B7/18584 H04B7/18515 H04B7/18526 H04B7/18582 H04B17/40

European: H04B7/185D4 H04B7/185S6

US: 1/1 370/246 370/312 370/317 455/12.1 455/12.100P 455/13.1 455/13.100S 455/3.02 455/452.1 455/452.100P 455/517 455/550.1 455/561



Family:

Publication number	Publication date	Application number	Application date
CA2514959 AA	20050729	CA20042514959	20040128
CA2514959 C	20120501	CA20042514959	20040128
CN100566219 C	20091202	CN200480008563	20040128
CN1768495 A	20060503	CN200480008563	20040128
DE602004039526 D1	20121129	DE200460039526T	20040128
EP1590906 A2	20051102	EP20040706088	20040128
EP1590906 A4	20091202	EP20040706088	20040128
EP1590906 B1	20121003	EP20040706088	20040128
ES2396609 T3	20130222	ES20040706088T	20040128
JP2006516867 T2	20060706	JP20060503156T	20040128
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US2004185775 AA	20040923	US20040767000	20040128
US2009247179 AA	20091001	US20090400357	20090309
US2014226555 AA	20140814	US20140255456	20140417
US7542716 BB	20090602	US20040767000	20040128
US8064920 BB	20111122	US20090400357	20090309
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WO04073229 A2	20040826	WO2004US02553	20040128
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Priority:

US20030443517P 20030128 US20030443664P 20030129 EP20040706088 20040128
WO2004US02553 20040128 US20040767000 20040128 US20090400357 20090309
US20110251539 20111003 US20140255456 20140417

Probable Assignee: BOEING CO

Assignee(s): (std): BELL DOUGLAS T ; BOEING CO ; CLEBOWICZ BRIAN A

Assignee(s): THE BOEING COMPANY ; BOEING CO CHICAGO

Inventor(s): (std): CLEBOWICZ BRIAN A ; BELL DOUGLAS T ; CLEBOWICZ BRIAN ; BELL DOUGLAS ; BELL DOUGLAS T CLEBOWICZ BRIAN

Inventor(s): BELL DOUGLAS T TORRANCE ; CLEBOWICZ BRIAN A MANHATTAN BEACH

Agent(s): SIM AND MCBURNEY; WITTE WELLER AND PARTNER PATENTANWALTE MBB; LINDNER MICHAEL; DE ELZABURU ALBERTO; HOPE BALDAUFF HARTMAN LLC; HOPE BALDAUDD HARTMAN LLC; WOMBLE CARLYLE SANDRIDGE AND RICE LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Title: Non-uniform multi-beam satellite communications system and method

Abstract: A satellite broadcast system and method, particularly useful for television signals, allows for local as well as nationwide broadcast service by allocating greater satellite resources to the more important local service areas. This is accomplished by broadcasting a non-uniform pattern of local service beams and designing the system to establish different service area priorities through factors such as the individual beam powers, sizes, roll-off characteristics and peak-to-edge power differentials. Frequency reuse is enhanced by permitting a certain degree of cross-beam interference, with lower levels of interference established for the more important service areas.

Classifications:

International (IPC 8-9): H01Q1/28 H04B7/185

H04B7/204 (Advanced/Invention);

H04B7/185 (Core/Invention)

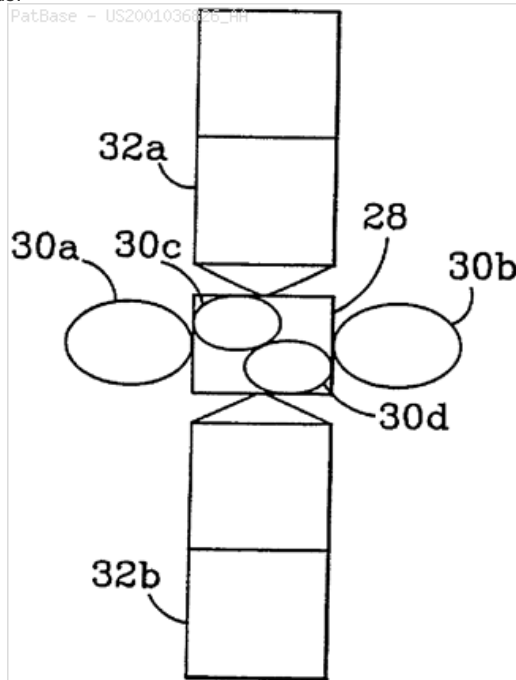
International (IPC 1-7): H01Q1/28 H01Q13/0 H01Q19/6 H04B7/185

H04B7/204 H04Q7/20

CPC: H04B7/18523 H04B7/2041

European: H04B7/185H H04B7/204B

US: 342/352 342/354 343/753 343/772 343/775 343/776 343/777
343/779 343/781P 343/781R 455/12.1 455/13.1 455/13.3 455/13.4
455/427 455/429



Family:

Publication number	Publication date	Application number	Application date
CA2251320 AA	19990417	CA19982251320	19981019
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Priority:

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Probable Assignee: NEWS AMERICA INC

Assignee(s): (std): NORIN JOHN L ; BOEING CO ; HUGHES ELECTRONICS CORP ; NEWS AMERICA INC

Assignee(s): BOC GROUP PLC CHERTSEY ROAD WINDLESHAM SURREY GU20 ; HUGHES ELECTRONICS CORP BLDG 001 M S A109 200 ; HUGHES ELECTRONICS CORP BLDG 001 MS A109 200 N ; HUGHES ELECTRONICS CORP PO BOX 956 200 N ; RAO SUDHAKAR ; PONTUAL ROMULO ; REGULINSKI PAUL

Inventor(s): (std): REGULINSKI PAUL ; RAO SUDHAKAR ; PONTUAL ROMULO ; NORIN JOHN L

Agent(s): SIM AND MCBURNEY; BREDEMA; NOVAGRAAF TECHNOLOGIES

Designated states: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

Title: SPREAD SPECTRUM COMMUNICATION SYSTEM USING A QUASI-GEOSTATIONARY SATELLITE

Abstract: The invention refers to a satellite communications system with a mobile user terminal. In order to provide a satellite communications system which enables communication with a mobile user terminal via conventional communication satellites on any area of interest on earth, a quasi-geostationary satellite is operated in an inclined orbit and sends a spread downlink signal s' (t) to said area of interest on earth to be received and despread by a mobile user terminal.

Classifications:

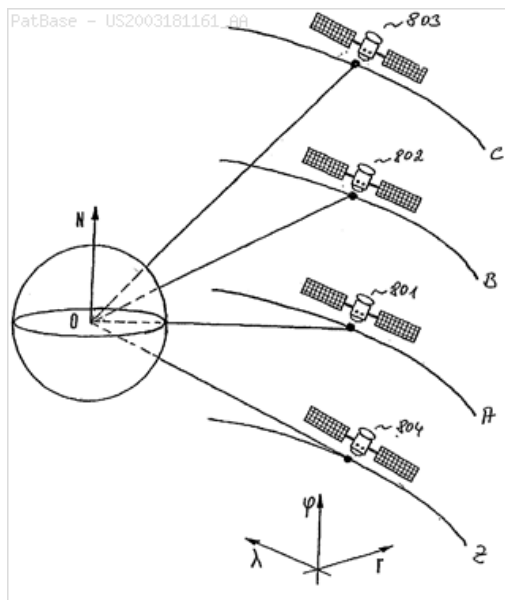
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H04B7/195 H04B7/216 H04Q7/34 (Advanced/Invention);

H04B7/185 (Advanced/Non-invention);

G01S5/14 H04B7/185 H04B7/19 H04B7/195 H04B7/204

H04Q7/34 (Core/Invention);
H04B7/185 (Core/Non-invention);
H04B (Subclass/Invention)
International (IPC 1-7): G01S5/14 H04B7/185 H04B7/19 H04B7/195
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CPC: H04B7/18569 H04B7/19 H04B7/216
European: H04B7/19 H04B7/216 T04B7/185M18
US: 455/12.1 455/13.2 455/427



Family:

Publication number	Publication date	Application number	Application date
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Priority:

WO2000EP09520 20000928 EP20010983508 20010927 WO2001EP11206 20010927

Probable Assignee: SES ASTRA SA

Assignee(s): (std): BETHSCHEIDER GERHARD ; CEC ASTRA S A ; EUROP DES SATELLITES SA SOC ; SOC EUROP DES SATELLITES SA ; SES SATELLITES S A ; HARLES GUY ; SES ASTRA S A ; SES ASTRA SA

Assignee(s): EUROPEENNE DES SATELLITES SOC SA ; SOCIETE EUROPEENNE DES SATELLITES S A ; SOCIETE EUROPEENNE DES SATELLITES S A ; EUROPEENNE DES SATELLITES SA SOC ; CEC ASTRA SA

Inventor(s): (std): HARLES GUY ; BETHSCHEIDER GERHARD ; BERHSCHIEDER GERHARD

Inventor(s): GUY HARLES ; GERHARD BETHSCHEIDER ; GERHARD BERHSCHIEDER

Agent(s): SPRUSON AND FERGUSON; CULLENS PATENT AND TRADE MARK ATTORNEYS; CULLENS PTY LTD; BERESKIN AND PARR LLP SENCRL SRL; LUNG TIN INT PATENT AND TRADEMARK AGENT LTD; WOLF GREENFIELD AND SACKS PC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Title: SPACE-BASED NETWORK ARCHITECTURES FOR SATELLITE RADIOTELEPHONE SYSTEMS

Abstract: A space-based network for a satellite radiotelephone system includes at least one receive-only satellite and at least one transmit satellite. The transmit satellite can be a transmit-only satellite or a transmit and receive satellite. The receive-only satellite(s) are configured to receive wireless communications from a radiotelephone at a location over a satellite frequency band. The transmit satellite(s) are configured to transmit wireless communications to the radiotelephone at the location over the satellite frequency band. By providing at least one receive-only satellite and at least one transmit satellite, space-based networks can offer a significant link margin, without the need to undesirably burden the radiotelephones themselves to achieve this link margin.

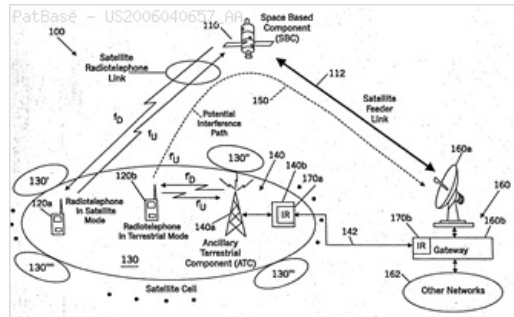
Classifications:

International (IPC 8-9): H04B7/185 H04B7/216 (Advanced/Invention); H04Q7/36 (Advanced/Non-invention)

CPC: H04B7/18513 H04B7/18534 H04B7/18539 H04B7/18563 H04B7/216

European: H04B7/185D2 H04B7/185M12 H04B7/185M4B H04B7/185M6 H04B7/216 T04B7/185D2

US: 370/316 455/12.1 455/12.100S 455/427 455/427P



Family:

Publication number	Publication date	Application number	Application date
US2006040657 AA	20060223	US20050241519	20050930
US7437123 BB	20081014	US20050241519	20050930

Priority:

US20010322240P 20010914 US20020074097 20020212 US20020392771P 20020701
US20020225623 20020822 US20050241519 20050930

Probable Assignee: ATC TECHNOLOGIES LLC

Assignee(s): (std): ATC TECH LLC

Assignee(s): ATC TECHNOLOGIES LLC ; BANK OF NEW YORK ; CREDIT SUISSE CAYMAN ISLANDS BRANCH AG ; JEFFERIES FINANCE LLC ; LIGHTSQUARED FINANCE CO ; MOBILE SATELLITE VENTURES LP ; LIGHTSQUARED LP ; WILMINGTON TRUST FSB COLLATERAL TRUSTEE AS

Inventor(s): (std): AGNEW CARSON E ; KARABINIS PETER D

Inventor(s): KARABINIS PETER ; AGNEW CARSON

Agent(s): MYERS BIGEL SIBLEY AND SAJOVEC ; MYERS BIGEL SIBLEY AND SAJOVEC PA

8) Family number: 28856088 (US2003142014A)

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Title: DUAL-BAND MULTIPLE BEAM ANTENNA SYSTEM FOR COMMUNICATION SATELLITES

Abstract: A dual-band multiple beam antenna system for a communications satellite sharing a set of reflector antennas for the transmit and receive frequencies. One set of reflectors is common to both the downlink and uplink frequencies. The feed horns are diplexed and exhibit frequency-dependent radiation patterns that separate the phase centers over the downlink and uplink frequency bands to obtain dual-band performance. The focal point of the reflector is in close proximity to the phase center corresponding to the downlink frequency band. The phase center for the uplink frequency band is spaced a predetermined distance from the phase center of the downlink frequency band. According to the present invention, the uplink frequencies are defocused and the downlink frequencies are focused thereby creating identical radiation patterns at both frequency bands and over the coverage region of the communications satellite.

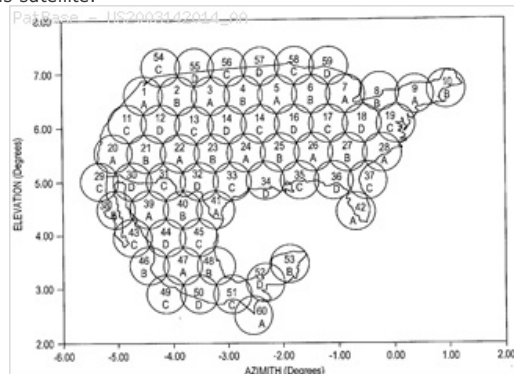
Classifications:

International (IPC 8-9): H01Q1/28 H01Q13/02 H01Q15/16 H01Q19/13 H01Q25/04 H01Q5/00 H01Q5/55 H04B7/185 (Advanced/Invention); H01Q1/27 H01Q13/00 H01Q15/14 H01Q19/10 H01Q25/00 H01Q5/00 H04B7/185 (Core/Invention)

International (IPC 1-7): H01Q1/28 H01Q13/02 H01Q15/16 H01Q19/13 H01Q25/04 H01Q5/00 H04B7/185

CPC: H01Q5/55 H01Q13/0208 H01Q1/28H H01Q19/13 H01Q25/04 H01Q5/00B H01Q5/00P2

US: 342/354 342/354P 455/13.3 455/13.300 455/13.300S 455/428 455/428S 455/429 455/429P 455/429S



Family:

Publication number	Publication date	Application number	Application date
DE60304380 D1	20060518	DE20036004380T	20030111
DE60304380 D1	20060518	DE20036004380	20030111
DE60304380 T2	20070503	DE20036004380T	20030111
EP1335451 A1	20030813	EP20030000464	20030111
EP1335451 B1	20060405	EP20030000464	20030111
US2003142014 AA	20030731	US20020060822	20020130
US2006063528 AA	20060323	US20050259913	20051027
US7110716 BB	20060919	US20020060822	20020130
US7242904 BB	20070710	US20050259913	20051027

Priority:

US20020060822 20020130 US20050259913 20051027

Probable Assignee: BOEING CO

Assignee(s): (std): BHATTACHARYYA ARUN ; BOEING CO ; BRESSLER DAVID ; RAO SUDHAKAR K

Assignee(s): THE BOEING COMPANY ; THE BOEING CO CHICAGO ; THE BOEING CO

Inventor(s): (std): BHATTACHARYYA ARUN ; BHATTACHARYYA ARUN K ; BRESSLER DAVID ; RAO SUDHAKAR K

Inventor(s): RAO SUDHAKAR

Agent(s): ARTZ AND ARTZ PC; OSTRAGER CHONG FLAHERTY AND BROITMAN PC

Designated states: DE FR GB

9) Family number: 34588677 (US2010226307A)

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Title: ROUTING OF DOWNLINK CHANNELS IN A COMMUNICATIONS SATELLITE

Abstract: For selectively routing downlink frequency channels to downlink beams of a communications satellite, the inherent routing functionality of a normal bandwidth multiport amplifier (MPA) is exploited in conjunction with the grouped channel filter characteristics of an output multiplexer (OMUX). In this arrangement the guard bands inherent in the OMUX mitigate the poor inter-port isolation inherent in the MPA so that two low performance elements in combination can be used to achieve an improved performance at system level.

Classifications:

International (IPC 8-9): H04B1/38 H04B7/00 H04B7/185 H04J3/04 H04L27/148 H04W4/00 (Advanced/Invention);

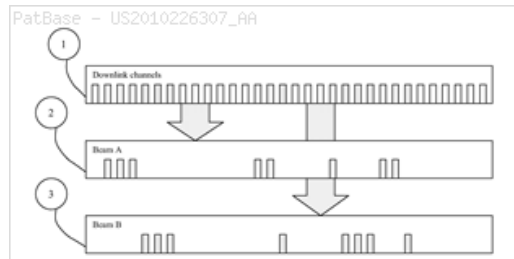
H04B7/185 (Core/Invention)

International (IPC 1-7): H04B7/185

CPC: H04B7/18515

European: H04B7/185D4

US: 370/310.2 370/316 370/316P 370/328 370/534 375/219 455/12.1 455/427



Family:

Publication number	Publication date	Application number	Application date
CN101669302 A	20100310	CN200880012453	20080409
CN101669302 B	20130807	CN200880012453	20080409
DE602008032040 D1	20140618	DE200860032040T	20080409
EP2137837 A1	20091230	EP20080719092	20080409
EP2137837 B1	20140507	EP20080719092	20080409
GB200707173 A0	20070523	GB20070007173	20070416
IN06418DN2009 A	20100611	IN2009DN06418	20091008
US2010226307 AA	20100909	US20080303620	20080409
US8248977 BB	20120821	US20080303620	20080409
WO08125876 A1	20081023	WO2008GB50247	20080409

Priority:

EP20070270020 20070416 GB20070007173 20070416 EP20080719092 20080409
WO2008GB50247 20080409

Probable Assignee: ASTRIUM LTD

Assignee(s): (std): ASTRIUM LTD ; HARVERSON MICHAEL

Assignee(s): ASTRIUM LIMITED ; ASTRIUM LTD STEVENAGE

Inventor(s): (std): MICHAEL HARVERSON ; HARVERSON MICHAEL

Inventor(s): HARVERSON MICHAEL POTTON

Agent(s): VENNER SHIPLEY LLP; JOHANSSON ANNA OLIVIA; HEWETT JONATHAN MICHAEL RICHARD; PEARL COHEN ZEDEK LATZER LLP; BAE SYSTEMS PLC GROUP IP DEPT

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

10) Family number: 32565179 (US2006012538A)

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Title: SATELLITE GROUND STATION ANTENNA WITH WIDE FIELD OF VIEW AND NULLING PATTERN

Abstract: The present invention is applicable to satellite ground station antennas having a wide field of view in comparison to the satellites with which the antenna connects. One embodiment includes a parabolic reflector having a size that corresponds to a beam with an angular half-width larger than the spacing between neighboring interfering satellites. It also has a feed coupled to the parabolic reflector configured to have a high sensitivity for a target satellite within the angular half-width of the reflector beam and a low sensitivity for neighboring interfering satellites within the angular half-width of the reflector beam. Another embodiment includes projecting a first radiation pattern, such as a digital communications link, between a ground station antenna and a target satellite and projecting a second radiation pattern to a target interferer.

Classifications:

International (IPC 8-9): H01Q13/00 H01Q19/12 H04B1/06 H04B7/00

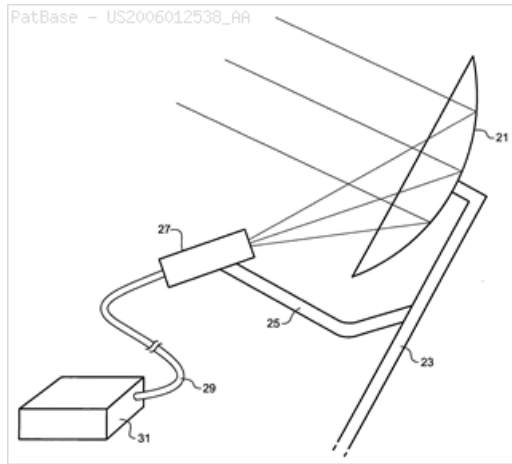
H04B7/185 (Advanced/Invention);

H01Q19/10 (Core/Invention)

CPC: H01Q19/17 H04B7/10 H01Q19/132

European: H01Q19/13B H01Q19/17 H04B7/10

US: 343/754 343/757 343/776 343/779 343/785 343/786 343/840 343/840P 455/12.1 455/273 455/273P 455/276.1 455/276.100S 455/278.1 455/278.100S



Family:

Publication number	Publication date	Application number	Application date
EP1771922 A2	20070411	EP20050802451	20050713
MX2007000442 A1	20070802	MX20070000442	20050713
US2006012538 AA	20060119	US20040890678	20040713
US2006128336 AA	20060615	US20060332381	20060112
US2006187137 AA	20060824	US20060332664	20060112
US7511677 BB	20090331	US20040890678	20040713
US7522115 BB	20090421	US20060332664	20060112
US7526249 BB	20090428	US20060332381	20060112
WO06019896 A2	20060223	WO2005US24966	20050713
WO06019896 A3	20061221	WO2005US24966	20050713
WO07082074 A2	20070719	WO2007US00910	20070111
WO07082074 A3	20071213	WO2007US00910	20070111
WO07084389 A2	20070726	WO2007US00867	20070111
WO07084389 A3	20081106	WO2007US00867	20070111

Priority:

US20040890678 20040713 WO2005US24966 20050713 US20060332381 20060112
US20060332664 20060112

Probable Assignee: MEDIAUR TECHNOLOGIES INC

Assignee(s): (std): MEDIAUR TECHNOLOGIES INC ; PETING MARK ; WALTMAN STEVE ; WALTMAN STEVEN B

Inventor(s): (std): WALTMAN STEVEN B ; WALTMAN STEVE ; PETING MARK

Inventor(s): WALTMAN STEVEN ; STEVEN B WALTMAN

Agent(s): BLAKELY SOKOLOFF TAYLOR AND ZAFMAN; BLAKELY SOKOLOFF TAYLOR AND ZAFMAN LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

11) Family number: 46559606 (US2012034915A)

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Title: TELECOMMUNICATION NETWORK

Abstract: A network for establishing RF links between a main ground station connected to a NOC center and ground terminals via a multispot satellite, the network being composed of a coverage area composed of a plurality of cells in which terminals are located, each cell being associated with at least one link spot beam with the satellite to which a frequency band is allocated, the center including a determination module to determine the transmission parameters characteristic of the position of terminals in the coverage area, the parameters covering the entire coverage area and a transmitter to transmit all parameters to each of the terminals. Each of the terminals includes a storage device to store at least part of all the parameters, a positioning device to determine its geographic position in the coverage area and a processor to determine, from the parameters and its geographic position, the transmission parameters to be utilized.

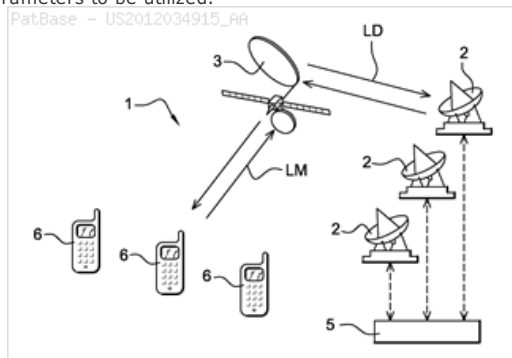
Classifications:

International (IPC 8-9): H04B7/185 H04W4/02 (Advanced/Invention); H04B7/185 (Core/Invention)

CPC: H04W16/28 H04W52/241 H04W52/243 H04B7/18513

European: H04B7/185D2

US: 1/1 455/430 455/430P



Family:

Publication number	Publication date	Application number	Application date
DE602010007317 D1	20130725	DE201060007317T	20100205

DK2396910 T3	20130722	DK20100703059T	20100205
EP2396910 A1	20111221	EP20100703059	20100205
EP2396910 B1	20130529	EP20100703059	20100205
ES2422172 T3	20130909	ES20100703059T	20100205
FR2942090 A1	20100813	FR20090050854	20090211
FR2942090 B1	20110304	FR20090050854	20090211
PT2396910 T	20130729	PT20100703059T	20100205
RU2011137000 A	20130320	RU20110137000	20100205
RU2539325 C2	20150120	RU20110137000	20100205
US2012034915 AA	20120209	US20100201012	20100205
US9118383 BB	20150825	US20100201012	20100205
WO10092011 A1	20100819	WO2010EP51451	20100205

Priority:

FR20090050854 20090211 EP20100703059 20100205 WO2010EP51451 20100205

Probable Assignee: EUTELSAT S A

Assignee(s): (std): ARCDIACONO ANTONIO ; EUTELSAT ; EUTELSAT S A ; EUTELSAT SA ; FINOCCHIARO DANIELE VITO

Inventor(s): (std): ARCDIACONO ANTONIO ; FINOCCHIARO DANIELE VITO

Inventor(s): ANTONIO ARCDIACONO ; DANIELE VITO FINOCCHIARO

Agent(s): CABINET CAMUS LEBKIRI; LEBKIRI ALEXANDRE; DE ELZABURU ALBERTO; PILLSBURY WINTHROP SHAW PITTMAN LLP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

12) Family number: 50538537 (US2012026937A)

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Title: ACCESSING LP TRANSPONDERS WITH CP TERMINALS VIA WAVEFRONT MULTIPLEXING TECHNIQUES

Abstract: The invention is about a method and apparatus for grouping multiple satellite transponders with both (LP) polarization formats in different frequencies through Wave-Front (WF) Multiplexing (muxing) techniques for ground terminals with incompatible (CP) polarization formats. As a result of this invention, linear polarized (LP) transponders can be accessed and efficiently utilized by circularly polarized (CP) ground terminals and vice versa. This invention consists of conventional ground terminals, a unique organization of space assets, and a unique polarization alignment processor. The applications of wavefront multiplexing techniques to satellite communications offer many potential advantages, including improved flexibility and utility efficiency of existing space assets. Our proposed "Polarization Utility Waveforms" is an entirely new concept in VSAT and Earth Station Antenna diversity. The implementation enables antennas to switch between different polarization formats at the press of a button, and provides tele-port operators with greater flexibility in how they manage their assets.

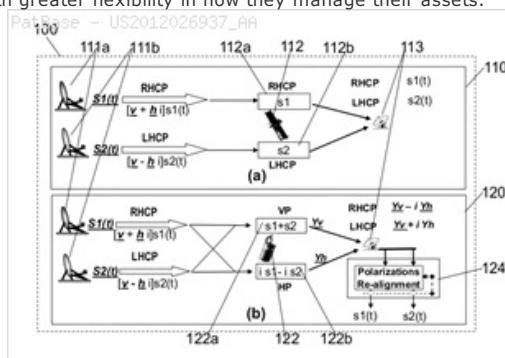
Classifications:

International (IPC 8-9): H01Q15/24 H01Q21/24 H01Q3/24 H01Q9/04 H03F1/02 H03F1/32 H03F3/21 H03F3/24 H03F3/68 H03F3/72 H03M1/12 H04B1/10 H04B7/06 H04B7/10 H04B7/185 H04H20/74 H04J14/02 H04J14/06 H04L27/26 H04L5/00 H04L5/02 H04W16/14 H04W24/02 H04W4/00 H04W72/04 H04W84/06 (Advanced/Invention); H04B10/118 (Advanced/Non-invention)

CPC: H01Q9/0407 H03M1/122 H04J14/0227 H04B7/185 H04W16/14 H04L27/26 H04J14/06 H04B7/10 H04W72/0446 H01Q21/245 H03F1/0277 H03F1/3247 H03F1/3258 H03F3/211 H03F3/24 H03F3/68 H03F3/72 H03F2201/3212 H03F2203/21106 H03F2203/21109 H03F2203/21136 H03F2203/21145 H03F2203/21175 H03F2203/7215 H03F2203/7224 H03F2203/7236 H04B7/18515 H01Q15/242 H04J14/0223 H04B10/118 H04B7/1853 H04B7/0617 H04L5/026 H04L5/005 H04W24/02 H01Q3/24

European: H01Q21/24B H01Q9/04B

US: 1/1 330/124R 330/295 341/131 341/141 341/155 342/361 343/757 370/316 370/316P 370/318 375/316 375/349 398/43 398/47 398/65 398/65P 455/101 455/102 455/105 455/108 455/12.1 455/12.100P 455/3.02



Family:

Publication number	Publication date	Application number	Application date
US2012026937 AA	20120202	US20110172620	20110629
US2012028572 AA	20120202	US20100847997	20100730
US2012183295 AA	20120719	US20110231681	20110913
US2012319772 AA	20121220	US20110180826	20110712
US2012319885 AA	20121220	US20120525315	20120617
US2013302034 AA	20131114	US20130938266	20130710
US2014022984 AA	20140123	US20130038813	20130927
US2014104105 AA	20140417	US20130106844	20131215
US2015003830 AA	20150101	US20140484294	20140912
US2015249462 AA	20150903	US20140580248	20141223
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US2016164191 AA	20160609	US20160008589	20160128
US2017063389 AA	20170302	US20160350103	20161113
US2017141838 AA	20170518	US20170420114	20170131
US2017373746 AA	20171228	US20170701443	20170911
US2018226982 AA	20180809	US20180943666	20180402
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US8570103 BB	20131029	US20110180826	20110712
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US8862050 BB	20141014	US20110231681	20110913
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US9065591 BB	20150623	US20140484294	20140912
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US9762309 BB	20170912	US20130038813	20130927
US9935647 BB	20180403	US20160350103	20161113
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Priority:

US20100847997 20100730	US20110497852P 20110616	US20110172620 20110629
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US20180943666 20180402		

Probable Assignee: SPATIAL DIGITAL SYSTEMS INC

Assignee(s): (std): LU FRANK ; SPATIAL DIGITAL SYSTEMS ; SUN YULAN ; SPATIAL DIGITAL SYSTEMS INC ; CHANG DONALD C D

Assignee(s): CHANG DONALD CD

Inventor(s): (std): SUN YULAN ; LU FRANK ; CHANG DONALD C D

Inventor(s): CHANG DONALD CD

Agent(s): HOANG PHUONG QUAN

13) Family number: 32558920 (US2007248148A)

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Title: NON-CONTIGUOUS VARIABLE LENGTH ORTHOGONAL CODES

Abstract: Systems for transmitting information symbols utilize ternary codes or pivot codes in conjunction with spread spectrum encoding. The systems comprise at least a first symbol source for supplying an information signal comprising at least a first stream of I,Q bit pairs, means for using either a ternary code or at least one pivot code for spreading the at least first stream of I,Q bit pairs and thereby respectively forming first chips and second chips, and a radio signal modulator for transmitting the first chips and second chips over a radio interface

Classifications:

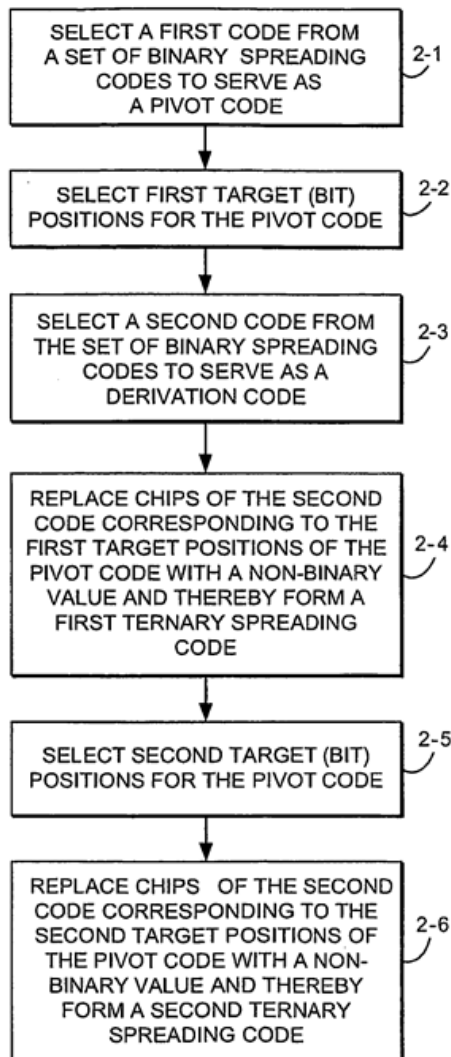
International (IPC 8-9): H03C1/52 H04B1/00 H04B7/216 H04J11/00 H04J13/00 H04J13/10 H04J13/12 H04J13/18 (Advanced/Invention); H04B1/69 H04J13/00 (Advanced/Non-invention); H04B1/00 H04B7/204 H04J11/00 H04J13/00 (Core/Invention); H04B1/69 (Core/Non-invention)

CPC: H04J13/0044 H04J13/0048 H04J13/105 H04J13/12 H04J13/18

European: H04J13/10A1 H04J13/12 H04J13/18 T04J13/00B7A T04J13/00B7B

US: 370/209 370/342 370/342P 375/130 375/135 375/140 375/145 375/145P 375/146 375/219 375/301 375/E1.005 375/E10.05S

PatBase - US2007248148_AA



Family:

Publication number	Publication date	Application number	Application date
DE602005041623 D1	20131219	DE200560041623T	20050706
EP1763933 A2	20070321	EP20050757103	20050706
EP1763933 A4	20120919	EP20050757103	20050706
EP1763933 B1	20180314	EP20050757103	20050706
EP1763934 A2	20070321	EP20050757933	20050706
EP1763934 A4	20120919	EP20050757933	20050706
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EP1763934 B8	20131204	EP20050757933	20050706
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US2007248148 AA	20071025	US20050631790	20050706
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Priority:

US20040585097P 20040706 EP20050757933 20050706 US20050631789 20050706
US20050631790 20050706 WO2005SE01130 20050706 WO2005SE01129 20050706

Probable Assignee: TELEFONAKTIEBOLAGET LM ERICSSON PUBL

Assignee(s): (std): DENT PAUL ; DENT PAUL W ; DENT PAUL WILKINSON ; ERICSSON TELEFON AB L M ; ERICSSON TELEFON L M AB ; TELEFONAKTIEBOLAGET LM ERICSSON PUBL

Assignee(s): TELEFONAKTIEBOLAGET LM ERICSSON PBL ; TELEFONAKTIEBOLAGET LM ERICSSON (PUBL) ; TELEFONAKTIEBOLAGET LM ERICSSON PUBL ERICSSON TELEFON AB L M ; TELEFONAKTIEBOLAGET L M ERICSSON PUBL ; TELEFONAKTIEBOLAGET LM ERICSSON

Inventor(s): (std): DENT PAUL W ; DENT PAUL WILKINSON ; DENT PAUL

Inventor(s): DENT PAUL PITTSBORO

Agent(s): MARKS AND CLERK LUXEMBOURG LLP; BRANN AB; HOFFMANN EITL; DE ELZABURU ALBERTO; NIXON AND VANDERHUYE PC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW

14) Family number: 674065 (US3711855A)

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Title: SATELLITE ON-BOARD SWITCHING UTILIZING SPACE-DIVISION AND SPOT BEAM ANTENNAS

Abstract: An on-board processing system is disclosed for a communications satellite which employs spot beam antennas. Since each spot beam antenna in general, sees only one ground station, this allows the same frequencies to be used by all stations. Using this space-division technique, the on-board processing involves the switching from origin grouping of incoming communications signals to destination grouping of outgoing communications transmissions. This switching is accomplished by means of a distribution frame. The distribution frame includes storage registers which logically control the partitioning of the voice-channel segments and the switching times. The contents of all of the storage registers can be changed by command.

Classifications:

International (ipc 8-9): H04B7/185 H04B7/204 (Advanced/Invention); H04B7/185 H04B7/204 (Core/Invention)

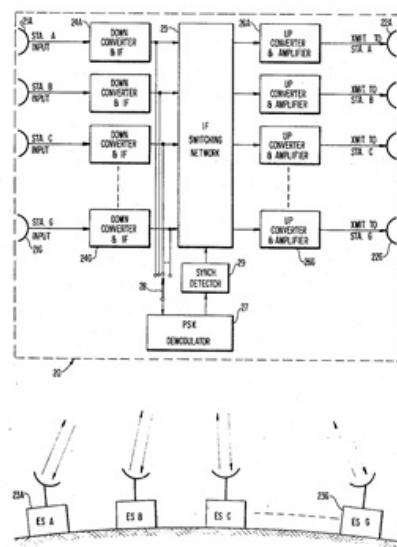
International (ipc 1-7): H01Q1/28 H01Q3/24 H04B1/59 H04B7/00 H04B7/185 H04B7/20 H04J3/00 H04J3/06 H04M7/16 H04Q3/50

CPC: H04B7/185 H04B7/2046

European: H04B7/185 H04B7/204T

US: 342/353 342/367

PatBase - US3711855_R

**Family:**

Publication number	Publication date	Application number	Application date
DE2050173 A1	19710422	DE19702050173	19701013
DE2050173 C2	19820616	DE19702050173	19701013
FR2064358 A1	19710723	FR19700037306	19701015
FR2064358 B1	19730112	FR19700037306	19701015

GB1329866 A	19730912	GB19700048868	19701014
JP51049166 B4	19761224	JP19700089407	19701013
US3711855 A	19730116	US19690866554	19691015

Priority:

US19690866554 19691015 FR19700037306 19701015

Probable Assignee: COMMUNICATIONS SATELLITE CORP

Assignee(s): (std): CENTRE NAT ETD SPATIALES ; COMMUNICATIONS SATELLITE CORP ; POST OFFICE

Assignee(s): COMMUNICATIONS SATELLITE CORP US ; COMMUNICATIONS SATELLITE CORP WASHINGTON D C US ; CTRE NAT ETU SPATIALES ; INT TELECOMMUNICATIONS SATELLITE ORGANIZATION

Inventor(s): (std): SHIMASAKI NOBUHIKO ; SHIMASAKI N ; SCHMIDT WILLIAM G ; SCHMIDT W

Inventor(s): SCHMIDT W US ; SHIMASAKI N US ; SHIMASAKI NOBUHIKO ROCKVILLE MD ; SHIMASAKI NOBUHIKO ROCKVILLE MD US

15) Family number: 15160477 (US4825172A)

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Title: EQUAL POWER AMPLIFIER SYSTEM FOR ACTIVE PHASE ARRAY ANTENNA AND METHOD OF ARRANGING SAME

Abstract: An equal power amplifier system (100) for amplifying a plurality of signals for transmission by an active phase array antenna (20), and a compact plural level beam-forming network (98) for forming a plurality of such signals, for example on excitation patterns for frequency scanned virtual beams, are disclosed. The amplifier system uses at most only a few sizes of power amplifiers (130, 134) to amplify efficiently numerous signals having significantly different amplitudes. This is accomplished by distributing the task of amplifying signal pairs (A_i , B_i) composed of one large amplitude signal and one small amplitude signal to an equal power amplifying apparatus (130; 230), which includes two hybrid couplers (236, 238) and two equally sized power amplifiers (232, 234). The first hybrid coupler (236) divides the two signals (A_i , B_i) for input into the two power amplifiers. The second hybrid coupler (238) receives the intermediate amplified signals from the power amplifiers and through constructive and destructive interference produces amplified output signals (A_{iss} , B_{iss}) corresponding to the input signals. Also disclosed is a method for properly selecting pairs of signals from an amplitude distribution (200; 202) for application of such equal power amplifying apparatuses of the amplifier system in order to operate the power amplifiers therein at or near peak efficiency. The beam-forming network (98) is arranged on two levels to simplify interconnection of the selected pairs of outputs of its line summers (176) for input into the equal power amplifier system. The amplifier system and beam-forming network may be used together, for example, in the transmit antenna system of a geosynchronous satellite (10) or mobile earth station.

Classifications:

International (IPC 8-9): H01P5/12 H01Q21/22 H01Q3/22 H01Q3/30 H03F3/60 (Advanced/Invention);

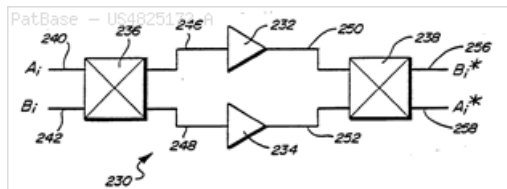
H01P5/12 H01Q21/22 H01Q3/22 H01Q3/30 H03F3/60 (Core/Invention)

International (IPC 1-7): H01P5/12 H01Q21/22 H01Q3/30 H03F3/60 H03F3/68

CPC: Y10S343/02 H01Q21/22 H01Q3/22 H03F3/602 H03F2200/198

European: H01Q21/22 H01Q3/22 H03F3/60C T03F200/198

US: 330/124.00R 330/124R 330/295 330/53 342/373 343/701 343/778 343/DIG.2



Family:

Publication number	Publication date	Application number	Application date
CA1319963 A1	19930706	CA19880560218	19880301
EP0307470 A1	19890322	EP19880904722	19880219
JP1503666 T2	19891207	JP19880504533T	19880219
JP2728282 B2	19980318	JP19880504533T	19880219
US4825172 A	19890425	US19870032126	19870330
WO8807786 A2	19881006	WO1988US00478	19880219
WO8807786 A3	19890126	WO1988US00478	19880219

Priority:

US19870032126 19870330 CA19880560218 19880301

Probable Assignee: HUGHES ELECTRONICS CORP

Assignee(s): (std): HUGHES AIRCRAFT CO

Assignee(s): HUGHES AIRCRAFT COMPANY ; HUGHES AIRCRAFT COMPAY ; HUGHES AIRCRAFT COMPAY LOS ANGELES CA A CORP ; HUGHES ELECTRONICS CORP ; HYUUZU EAKURAFUTO CO ; THOMPSON JAMES D ; HE HOLDINGS INC

Inventor(s): (std): THOMPSON JAMES D

Inventor(s): TONPUSON JEEMUSU DEI

Agent(s): SIM AND MCBURNEY

Designated states: DE FR GB IT JP

16) Family number: 11195897 (US4931802A)

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Title: MULTIPLE SPOT-BEAM SYSTEMS FOR SATELLITE COMMUNICATIONS

Abstract: On-board satellite switching is performed in three stages, an outer stage of switching on the up-link side for routing the received signals to either demodulators or frequency translators, a first inner stage of switching, preferably a baseband switch and processor, for routing and processing the outputs of the demodulators, a second inner stage of switching, e.g., a microwave switch matrix, for routing the outputs of the frequency translators, and an outer stage on the down-link side for assembling and routing the down-link spot beams. For a multiple hopping-beam system, the outer stages are microwave switch matrices, and for a hybrid scanning-hopping system the outer stages are beam forming matrices. A general purpose modified rearrangeable switch matrix is also disclosed.

Classifications:

International (IPC 8-9): H04B7/204 H04Q11/04 (Advanced/Invention); H04B7/204 H04Q11/04 (Core/Invention)

International (IPC 1-7): H04B1/00 H04B7/19

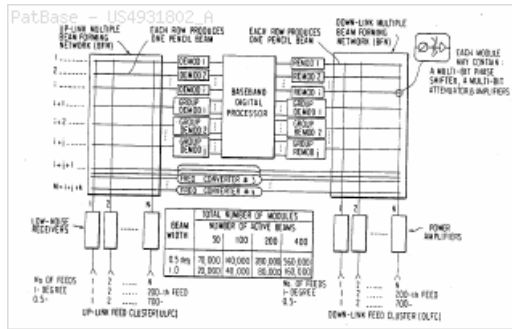
CPC: H04B7/2046 H04Q11/04 H04Q2213/1302 H04Q2213/1304 H04Q2213/13107 H04Q2213/13292 H04Q2213/13333

H04Q213/13396 H04B7/18515

European: H04B7/204T H04Q11/04 T04Q213/13020

T04Q213/13040 T04Q213/13107 T04Q213/13292 T04Q213/13333
T04Q213/13396

US: 340/2.21 340/825.79 340/825.8 340/825.89 342/356 342/373
370/323 370/57 370/97 455/12 455/13.3



Family:

Publication number	Publication date	Application number	Application date
US4931802 A	19900605	US19880167287	19880311
US5220320 A	19930615	US19920831731	19920210

Priority:

US19880167287 19880311 US19900484757 19900226 US19920831731 19920210

Probable Assignee: VIZADA INC

Assignee(s): (std): COMMUNICATIONS SATELLITE CORP ; COMSAT

Assignee(s): COMSAT CORP ; ING BANK NV ; TELENOR SATELLITE SERVICES INC ; VIZADA INC ; VIZADA FEDERAL SERVICES INC

Inventor(s): (std): ASSAL FRANCOIS T ; EVANS JOHN V ; GUPTA RAMESH K ; MAHLE CHRISTOPH E ; ZAGHLOUL AMIR I

17) Family number: 29111595 (US6628919B)

PatBase

Title: Low-cost multi-mission broadband communications payload

Abstract: A method and system for communicating using satellites in a constellation in LEO, MEO or GEO orbits is disclosed. The system comprises a receive system, a downlink system, and a data processing system. The receive system receives an uplink signal comprising at least one data packet from at least one user in an uplink cell. The ground programmable downlink system transmits the data packet to a specific downlink cell and adjusts a power used to transmit the data packet to the specific downlink cell. The ground programmable data processing system processes and routes the data packet to an input of the downlink system such that the downlink system transmits the data packet to the specified downlink cell. The method comprises receiving at the satellite an uplink signal comprising at least one data packet from at least one user in an uplink cell, processing the data packet on the satellite, routing the data packet to a transmit antenna on the satellite, adjusting a power level of a transmitter used to transmit the data packet from the satellite to a specific downlink cell, and transmitting the data packet to the specified downlink cell.

Classifications:

International (ipc 8-9): H04B7/185 (Advanced/Invention);

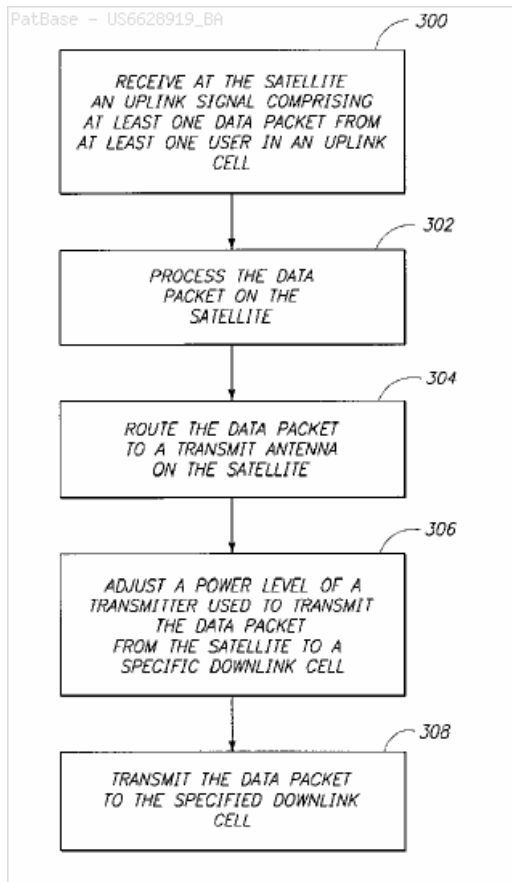
H04B7/185 (Core/Invention)

International (ipc 1-7): H04B7/185

CPC: H04B7/18521 H04B7/18597

European: H04B7/185F H04B7/185S34

US: 370/316 455/12.1 455/121 455/13.4 455/134 455/427 455/429



Family:

Publication number	Publication date	Application number	Application date
US6628919 BA	20030930	US20000636394	20000809

Priority:

US20000636394 20000809

Probable Assignee: HUGHES ELECTRONICS CORP

Assignee(s): (std): HUGHES ELECTRONICS CORP

Assignee(s): BOC GROUP PLC CHERTSEY ROAD WINDLESHAM SURREY GU20

Inventor(s): (std): BARNES SCOTT P ; CURELLO CHARLES ; FISHMAN BARRY ; ROSEN HAROLD A

18) Family number: 32660914 (US2006046648A)

© PatBase

Title: SYSTEM FOR CONCURRENT MOBILE TWO-WAY DATA COMMUNICATIONS AND TV RECEPTION

Abstract: A low profile mobile in-motion antenna and transmit/receive terminal system for two-way "VSAT" type satellite communication using FSS service, preferably in Ku band, supporting at the same time TV signal reception from the same satellite or a separate DBS satellite located at the same or nearby geo-stationary orbital position.

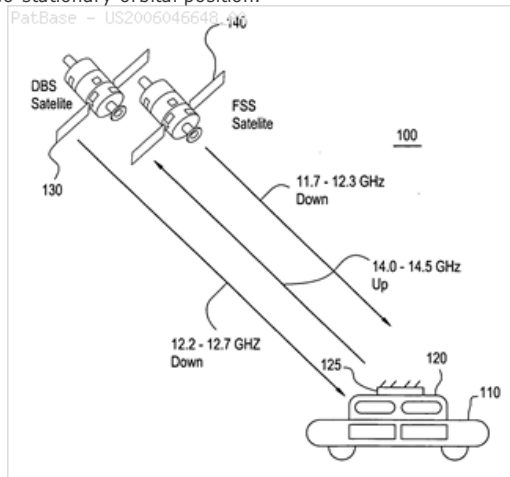
Classifications:

International (ipc 8-9): H01Q1/12 H01Q1/24 H01Q1/32 H01Q1/34 H01Q1/42 H01Q21/06 H01Q21/08 H01Q3/04 H01Q3/08 H01Q3/30 H04B1/00 H04B1/713 H04B17/00 H04B7/185 H04J3/00 H04J3/18 H04N7/16 H04N7/20 H04Q7/20 H04W4/00 (Advanced/Invention); H04B7/185 (Advanced/Non-invention); H01Q1/12 H01Q1/32 H04B1/00 H04B1/69 H04B17/00 H04B7/185 H04J3/00 H04J3/18 H04N7/16 H04N7/20 H04Q7/20 (Core/Invention); H04B7/185 (Core/Non-invention)

CPC: H01Q1/1235 H01Q1/3275 H04B7/18523 H01Q3/08 H01Q3/2605 H01Q3/30 H01Q21/061 H01Q21/065 H01Q1/125 H01Q3/26 H04B7/216 H01Q1/3233 H04B1/707 H04B1/7075 H04N7/20 H01Q21/08 G01R29/10 H04B17/20 H01Q3/04 H01Q21/245 H01Q21/28 H01Q1/42

European: G01R29/10 H01Q1/12C H01Q1/12E H01Q1/32A6 H01Q1/32L6 H01Q21/06B H01Q21/06B3 H01Q3/08 H01Q3/26 H01Q3/26C H01Q3/30 H04B1/707 H04B17/00B H04B7/185H H04B7/216 H04N7/20 T04B1/7075 T04B1/707A

US: 342/157 342/359 342/74 342/75 342/76 342/77 342/78 342/81 343/702 343/702S 343/711 343/711P 343/713 343/713P 343/766 343/878 343/879 343/879P 343/880 343/881 343/882 348/E7.093 348/E70.93S 370/316 375/133 375/138 375/E1.001 375/E1.002 375/E1.033 375/E10.02S 455/11.1 455/12.1 455/12.100 455/13.1 455/13.2 455/13.3 455/13.300S 455/3.01 455/3.02 455/3.03 455/3.04 455/427 455/427P 455/431 455/456.1 455/550.1 455/575.9 455/67.11 455/98 725/62 725/63 725/64 725/68 725/68P 725/69 725/72



Family:

Publication number	Publication date	Application number	Application date
EP1784996 A2	20070516	EP20050813740	20050810
EP1784996 A4	20090527	EP20050813740	20050810
EP1806808 A2	20070711	EP20060127356	20061229
EP1806808 A3	20071219	EP20060127356	20061229
EP1847048 A2	20071024	EP20060720311	20060207
EP1849209 A1	20071031	EP20060769758	20060217
US2006046648 AA	20060302	US20040925937	20040826
US2006176843 AA	20060810	US20050074754	20050309
US2006199543 AA	20060907	US20050071440	20050304
US2006273965 AA	20061207	US20060374049	20060314
US2006273967 AA	20061207	US20060324755	20060104
US2006284775 AA	20061221	US20050320805	20051230
US2007001914 AA	20070104	US20060355291	20060216
US2007053314 AA	20070308	US20060354246	20060215
US2008018545 AA	20080124	US20060647576	20061229
US2008189747 AA	20080807	US20080061712	20080403
US2009083804 AA	20090326	US20080325918	20081201
US2009262787 AA	20091022	US20090496664	20090702
US2010164817 AA	20100701	US20100722157	20100311
US2010183050 AA	20100722	US20100718976	20100307
US2010218224 AA	20100826	US20100718975	20100307
US2011215985 AA	20110908	US20110030866	20110218
US2011217976 AA	20110908	US20110048550	20110315
US2015311587 AA	20151029	US20140282209	20140520
US7379707 BB	20080527	US20040925937	20040826
US7705793 BB	20100427	US20050320805	20051230
US7711321 BB	20100504	US20080061712	20080403
US7911400 BB	20110322	US20060647576	20061229
US8761663 BB	20140624	US20110048550	20110315
WO06031336 A2	20060323	WO2005US28507	20050810
WO06031336 A3	20080912	WO2005US28507	20050810
WO06086276 A2	20060817	WO2006US04040	20060207
WO06086276 A3	20070503	WO2006US04040	20060207
WO06112931 A1	20061026	WO2006US05616	20060217

Priority:

WO2002BG00031	20021217	US20040752088	20040107	US20040498668	20040610
US20040925937	20040826	US20050650122P	20050207	US20050653520P	20050217
US20050071440	20050304	US20050074754	20050309	US20050183007	20050718
WO2005US28507	20050810	US20050320805	20051230	US20060324775	20060103
US20060324755	20060104	WO2006US04040	20060207	US20060354246	20060215
US20060355291	20060216	WO2006US05616	20060217	US20060374049	20060314

US20060647576	20061229	US20070547576	20071220	US20080061712	20080403
US20080325918	20081201	US20090496664	20090702	US20100718975	20100307
US20100718976	20100307	US20100722157	20100311	US20100314066P	20100315
US20110030866	20110218	US20110048550	20110315	US20140282209	20140520

Probable Assignee: GILAT SATELLITE NETWORKS LTD

Assignee(s): (std): BOYANOV VICTOR ; BRUESTLE KEVIN ARTHUR ; DIFONZO DANIEL F ; DIFONZO DANIEL FRANCIS ; GACHEV MARIO ; GACHEV MARIO G ; GAT YOEL ; PRANDJEV GUEORGUI A ; GACHEV MARIO GANCHEV ; PRANDJEV GUEORGUL ANGELOV ; MOSHE BERCOVICH ; KAPLAN ILAN ; RAYSAT ANTENNA SYSTEMS ; KAMENOPOLSKI STANIMIR DIMITROV ; GROSS DAVID ; RAYSAT INC ; RAYSAT CYPRUS LTD ; SPIRITUS DANNY ; ROBNET JAMES ; YIP ROBERT ; SHANI RAZ ; RAYSAT ANTENNA SYSTEMS L L C ; GILAT SATELLITE NETWORKS LTD

Assignee(s): GILAT NORTH AMERICA LLC ; SILICON VALLEY BANK ; RAYSAT ANTENNA SYSTEMS LLC A DELAWARE LIABILITY CO LTD ; SPACENET INC ; SPACENET INTEGRATED GOVERNMENT SOLUTIONS INC A DELAWARE CORP ; STARBAND COMMUNICATIONS INC A DELAWARE CORP ; WAVESTREAM A DELAWARE CORP ; SPACENET INTEGRATED GOVERNMENT SOLUTIONS ; STARBAND COMMUNICATIONS INC ; WAVESTREAM CORP ; RAYSAT ANTENNA SYSTEMS LLC ; RAYSAT ANTENNA SYSTEM LLC

Inventor(s): (std): DIFONZO DANIEL F ; GACHEV MARIO ; GAT YOEL ; GACHEV MARIO ; GROSS DAVID ; KAMENOPOLSKI STANIMIR ; KAPLAN ILAN ; MOSHE BERCOVICH ; ROBNET JAMES ; SHANI RAZ ; SPIRITUS DANNY ; YIP ROBERT ; ROBNETT JAMES ; PRANDJEV GUEORGUL ANGELOV ; PRANDJEV GUEORGUI A ; GACHEV MARIO GANCHEV ; GACHEV MARIO G ; DIFONZO DANIEL FRANCIS ; BRUESTLE KEVIN ARTHUR ; BOYANOV VICTOR ; BERCOVICH MOSHE ; KAMENOPOLSKI STANIMIR DIMITROV

Inventor(s): DIFONZO DANIEL ; PRANDJEV GUEORGUI ANGELOV ; PRANDJEV GUEORGUI

Agent(s): SUGHRUE MION PLLC ; BANNER AND WITCOFF ; BANNER AND WITCOFF LTD ; D KLIGLER IP SERVICES LTD

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

19) Family number: 29017595 (US2004113835A)

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Title: MEDIUM EARTH ORBIT SATELLITE SURVEILLANCE SYSTEM AND ANTENNA CONFIGURATION THEREFORE

Abstract: A radar surveillance system includes a plurality of satellites a plurality of medium earth orbit satellites to provide continuous, long dwell coverage of a region of interest. Each satellite has an antenna having a main reflector and a subreflector electromagnetically coupled to the main reflector. A phased array generates multiple electromagnetic beams positioned so the electromagnetic beams reflect from the subreflector onto said main reflector. The system may be used in determining slow moving targets using a combination of monopulse anomaly and target spectral width measurements. The system also performs synthetic aperture radar imagery and focussed area fast moving target detection using alternating slope linear frequency modulated pulses. The plurality of medium Earth orbit satellites include a self-contained communications system consisting of high bandwidth self-relay crosslinks, high bandwidth downlink, and direct broadcast downlinks for processed data.

Classifications:

International (IPC 8-9): G01S13/44 G01S13/52 G01S13/68

H01Q1/28 H01Q19/19 H01Q25/00 (Advanced/Invention);

G01S3/02 G01S7/00 (Advanced/Non-invention)

International (IPC 1-7): G01S13/52 H04B7/185

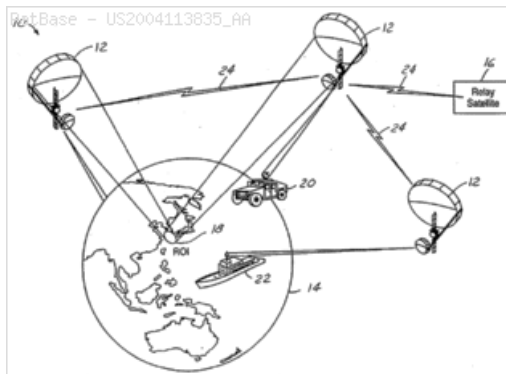
CPC: G01S3/023 G01S7/003 G01S13/449 G01S13/52 G01S13/68

H01Q1/288 H01Q19/19 H01Q19/192 H01Q25/00

European: G01S13/44L G01S13/52 G01S13/68 H01Q1/28F

H01Q19/19 H01Q19/19D H01Q25/00 S01S3/02A S01S7/00R

US: 342/160 342/160P 342/352 455/12.1



Family:

Publication number	Publication date	Application number	Application date
US2004113835 AA	20040617	US20030458866	20030611
US6611226 BA	20030826	US20020119961	20020410
US6859169 BB	20050222	US20030458866	20030611

Priority:

US20000553709 20000420

US20020119961 20020410

US20030458866 20030611

Probable Assignee: DIRECTV GROUP INC

Assignee(s): (std): DIRECTV GROUP INC ; HUGHES ELECTRONICS CORP

Assignee(s): JENSEN ERIC B ; JENSEN PAUL A ; JONES DAVID A ; KNIGHT JAMES M ; MCCORD HENRY L

Inventor(s): (std): JENSEN ERIC B ; JENSEN PAUL A ; JONES DAVID A ; KNIGHT JAMES M ; MCCORD HENRY L

Agent(s): GEORGANN S

20) Family number: 11939675 (US6002916A)

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Title: Space-based server network architecture

Abstract: A space-based server network architecture (1) which permits on demand transfer of mission and control data between client satellites (14) in an orbit about earth and an earth station (20, 22, 24, 26) irrespective of the location of the client satellite (14) relative to the earth station (20, 22, 24, 26). The architecture includes a plurality of server satellites (10)

located spaced apart in a earth orbit above the orbit of the client satellites (14). The server satellites (10) provide substantially total world-wide communications coverage to and connectivity with designated and authorized earth stations (20, 22, 24, 26) and the plurality of client satellites (14). Each server satellite (10) includes: a communications downlink (18, 18a, 18b) for providing intercommunication with designated and authorized earth stations within its field of view; communications crosslinks (12, 12a, 12b) for providing intercommunications with other server satellites within its field of view; and communications links (16, 16a, 16b) for providing intercommunication with a client satellite within its field of view. Client satellite control data originating from an earth station is passed directly to an accessible server satellite, which then passes the control data either directly to the intended client satellite if within its communications field of view, or forwards the control data to a server satellite having direct communications access to the intended client satellite. Mission data from a client satellite can at any time be transmitted to a designated earth station, irrespective of its location on earth, by transmitting first to a server satellite within its communication field of view, where the mission data is then either downlinked directly to the designated earth station if within its communications field of view, or transmitted to a server satellite having communications downlink access to the designated earth station.

Classifications:

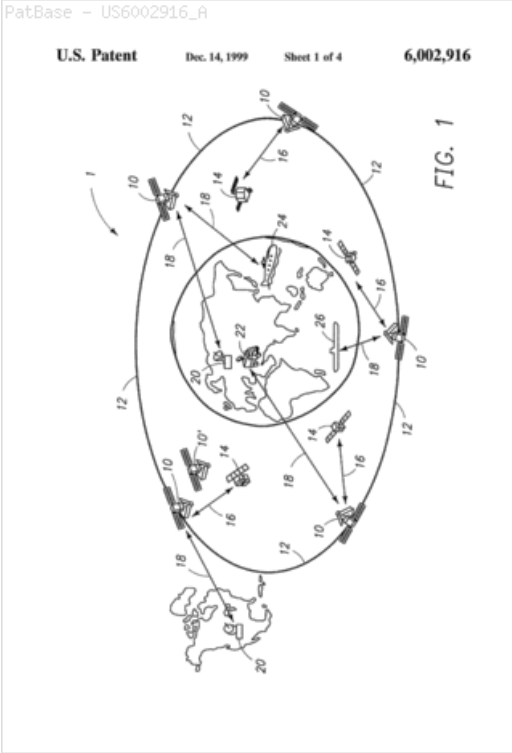
International (IPC 8-9): H04B7/185 H04Q7/20 (Advanced/Invention);
H04B7/185 H04Q7/20 (Core/Invention)

International (IPC 1-7): H04Q7/00

CPC: H04B7/18578

European: H04B7/185S

US: 455/12.1 455/121 455/13.1 455/13.2 455/131 455/132 455/427



Family:

Publication number	Publication date	Application number	Application date
US6002916 A	19991214	US19980027838	19980223
USRE39503 E	20070306	US20010987338	20011114

Priority:

US19980027838 19980223 US20010987338 20011114

Probable Assignee: LOCKHEED MARTIN CORP

Assignee(s): (std): LOCKHEED CORP

Assignee(s): LOCKHEED MARTIN CORP

Inventor(s): (std): LYNCH WILLIAM CHARLES ; LYNCH WILLIAM C

Agent(s): MCDERMOTT WILL AND EMERY LLP

21) Family number: 11853874 (US6272679B) © PatBase

Title: Dynamic interference optimization method for satellites transmitting multiple beams with common frequencies

Abstract: A dynamic method for optimizing interference levels between multiple downlink beams transmitted from a satellite with a common frequency spectrum causes the power level of at least one of the interfering beams to be adjusted so as to produce desired interference levels within the beams' respective ground target areas. The beam power adjustments are preferably accomplished by varying the drive levels of the high power amplifiers on board the satellite, at least one of which is initially operated at less than its maximum rated power level. Single or multiple beam powers can be adjusted, either up, down or some up and some down. Power level adjustments are normally made in response to actual beam power profiles not matching design standards, to changing service priorities among the different beam target areas, and to changing signal power requirements for the different beams.

Classifications:

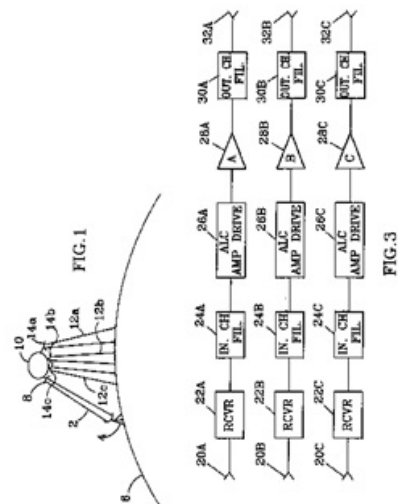
International (IPC 8-9): H04B15/00 H04B7/185
H04H20/74 (Advanced/Invention);
H04B7/185 (Core/Invention)

International (IPC 1-7): H04B15/00 H04B7/185 H04H1/00 H04Q7/36

CPC: H04B7/18513

European: H04B7/185D2

US: 455/13.4 455/134 455/522 725/62 725/63 725/67

**Family:**

Publication number	Publication date	Application number	Application date
CA2250650 AA	19990417	CA19982250650	19981019
CA2250650 C	20040330	CA19982250650	19981019
EP0911992 A2	19990428	EP19980402592	19981019
EP0911992 A3	20030514	EP19980402592	19981019
EP0911992 B1	20070718	EP19980402592	19981019
US6272679 BA	20010807	US19980160600	19980925

Priority:

US19970062003 19971017 US19970062003P 19971017 US19980160600 19980925
 CA19982250650 19981019

Probable Assignee: HUGHES ELECTRONICS CORP

Assignee(s): (std): HUGHES ELECTRONICS CORP

Assignee(s): NORIN JOHN L ; BOC GROUP PLC CHERTSEY ROAD WINDLESHAM SURREY GU20

Inventor(s): (std): NORIN JOHN L

Agent(s): SIM AND MCBURNEY

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

22) Family number: 7611078 (US4181886A)

© PatBase

Title: Distribution control unit providing simultaneous hybrid FDMA and SS-TDMA operation in a transitional satellite switched system

Abstract: An SS-TDMA satellite system providing uplink and downlink interconnections through an on-board microwave switching matrix controlled by an on-board distribution control unit responsive to ground command signals. The distribution control unit is configured to permit both point-to-point and point-to-multipoint interconnections of uplinks to downlinks through the switching matrix. Point-to-point interconnections under system static mode control may be effected simultaneously with point-to-point interconnections under system dynamic mode control.

Classifications:

International (IPC 8-9): H04B7/204 (Advanced/Invention);
 H04B7/204 (Core/Invention)

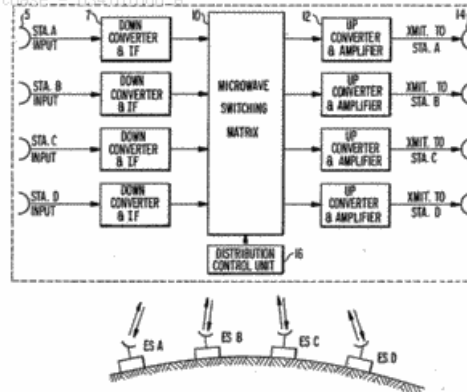
International (IPC 1-7): H04B7/185

CPC: H04B7/2046

European: H04B7/204T

US: 325/4 342/352 342/367

PatBase - US4181886-A

**Family:**

Publication number	Publication date	Application number	Application date
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Priority:

US19770826625 19770822

Probable Assignee: COMSAT CORP

Assignee(s): (std): COMMUNICATIONS SATELLITE CORP

Assignee(s): COMSAT CORP ; INT TELECOMMUNICATIONS SATELLITE ORGANIZATION

Inventor(s): (std): COOPERMAN RICHARD S

23) Family number: 7413983 (US4150335A)

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Title: Highly reliable distribution control unit with improved control capability

Abstract: An SS-TDMA satellite system providing uplink and downlink interconnections through an on-board microwave switching matrix controlled by an on-board distribution control unit responsive to ground command signals. The distribution control unit is configured to permit both point-to-point and point-to-multipoint interconnections of uplinks to downlinks through the switching matrix with the satellite system operating in the dynamic TDMA mode.

Classifications:

International (IPC 8-9): H04B7/204 (Advanced/Invention);

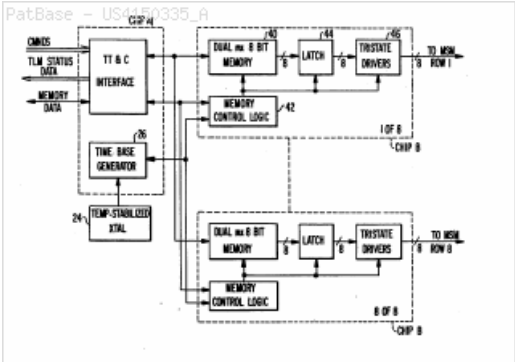
H04B7/204 (Core/Invention)

International (IPC 1-7): H04B1/40 H04B7/14

CPC: H04B7/2046

European: H04B7/204T

US: 325/4 342/353 370/323 370/325 370/330 375/211



Family:

Publication number	Publication date	Application number	Application date
US4150335 A	19790417	US19770826624	19770822

Priority:

US19770826624 19770822

Probable Assignee: COMSAT CORP

Assignee(s): (std): COMMUNICATIONS SATELLITE CORP

Assignee(s): COMSAT CORP

Inventor(s): (std): COOPERMAN RICHARD S

24) Family number: 15744126 (US6184838B)

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Title: Antenna configuration for low and medium earth orbit satellites

Abstract: An antenna configuration suitable for LEO/MEO satellites includes a plurality of lenses whereby each lens has a plurality of feed horns positioned with respect to the lens. The lens has a first surface and a second surface. The plurality of feed horns is disposed upon a curved surface. Each of the plurality of feed horns generates a beam that has a phase distribution. The phase distributions have a predetermined phase relationship with the first surface and preferably the second surface. This allows the lens to transmit and receive a signal with desired phase distribution across a cross-section of the beam. The beams from the plurality of lenses are inter-leaved on the ground to form a contiguous coverage with multiple overlapping spot-beams.

Classifications:

International (IPC 8-9): H01Q19/08 H01Q3/26 (Advanced/Invention);

H01Q19/00 H01Q3/26 (Core/Invention)

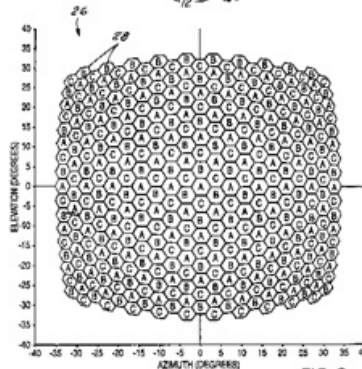
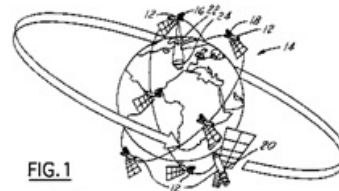
International (IPC 1-7): H01Q19/06 H01Q19/08 H01Q19/8

H04B7/204

CPC: H01Q3/2605 H01Q19/08

European: H01Q19/08 H01Q3/26C

US: 343/753 343/911R

**Family:**

Publication number	Publication date	Application number	Application date
DE69905540 D1	20030403	DE19996005540T	19991119
DE69905540 D1	20030403	DE19996005540	19991119
DE69905540 T2	20031218	DE19996005540T	19991119
EP1003241 A1	20000524	EP19990123001	19991119
EP1003241 B1	20030226	EP19990123001	19991119
ES2189338 T3	20030701	ES19990123001T	19991119
US6184838 BA	20010206	US19980196864	19981120
US6323815 BA	20011127	US20000590325	20000608

Priority:

US19980196864 19981120 US20000590325 20000608

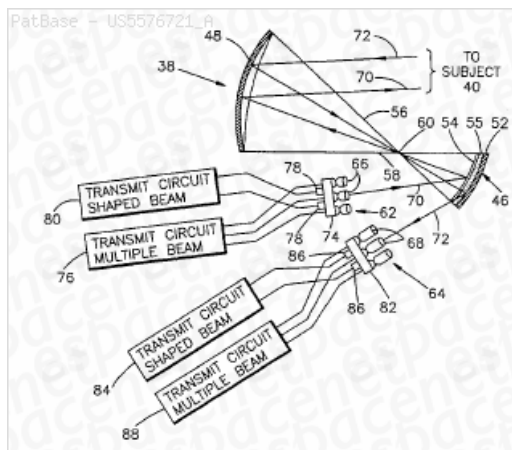
Probable Assignee: HUGHES ELECTRONICS CORP**Assignee(s):** (std): HUGHES ELECTRONICS CORP**Assignee(s):** HUGHES ELECTRONICS CORP EL SEGUNDO ; BOC GROUP PLC CHERTSEY ROAD WINDLESHAM SURREY GU20**Inventor(s):** (std): LAW PHILIP H ; RAO SUDHAKAR ; RAO SUDHAKAR K**Designated states:** DE ES FR GB IT**25) Family number: 12859184 (US5576721A)**

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Title: COMPOSITE MULTI-BEAM AND SHAPED BEAM ANTENNA SYSTEM

Abstract: A composite antenna for use in satellite communication provides both the functions of multiple beams and a shaped beam radiated from a single radiating aperture. The radiating aperture may employ a mirror or a lens. Transmitted radiation from an array of radiators is coupled via a subreflector to the main reflector or lens which constitutes the radiating aperture of the antenna system. During reception of radiant-energy signals, signals received by the main reflector or lens are coupled via a separate subreflector to a separate array of receiving radiators operated at a frequency band different from that of the transmit array. The two subreflectors are combined into a single subreflector assembly employing a metallic concave reflector covered by a layer or coating of frequency selective optical material which allows for propagation of radiation at one frequency to the metal reflector while reflecting radiation in the other frequency band from a surface of the coating. Separate beamformers are employed for receiving and transmitting radiant-energy signals, the beamformers combining signals of clusters of radiators to provide for multiple beams wherein each of a plurality of the beams is formed by a cluster of radiators. Additional connection is provided via diplexers to the beamformers to select radiators to be employed for generation of shaped beams for both reception and transmission. The reflecting surfaces have diameters much larger than the diameters of the radiators to provide for individual beams from each of the radiators.

Classifications:**International (IPC 8-9):** H01Q15/00 H01Q25/00 (Advanced/Invention); H01Q15/00 H01Q25/00 (Core/Invention)**International (IPC 1-7):** H01Q19/06**CPC:** H01Q25/007 H01Q15/0013**European:** H01Q15/00C H01Q25/00D7**US:** 343/753 343/781CA 343/781P 343/840 343/909



Family:

Publication number	Publication date	Application number	Application date
US5576721 A	19961119	US19940342653	19941121

Priority:

US19930041397 19930331 US19940342653 19941121

Probable Assignee: LORAL SPACE SYSTEMS INC

Assignee(s): (std): LORAL SPACE SYSTEMS INC

Assignee(s): ROYAL BANK OF CANADA COLLATERAL AGENT AS ; SPACE SYSTEMS LORAL INC ; BANK OF AMERICA NA ; BANK OF AMERICA NA COLLATERAL AGENT AS

Inventor(s): (std): HWANG YEONGMING ; JAKSTYS VITO J

26) Family number: 10976479 (US5768684A)

Title: Method and apparatus for bi-directional power control in a digital communication system

Abstract: In a method and apparatus for maintaining a minimum transmission power level between two communication stations, each station measures the other's received signal quality, and returns an indication of signal quality as part of a regular maintenance burst. Each station adjusts its own transmission power level based on the returned signal quality indication. The signal quality indication is based on the received ratio of bit energy to total noise power spectral density which is calculated from an estimated bit-error-rate.

Classifications:

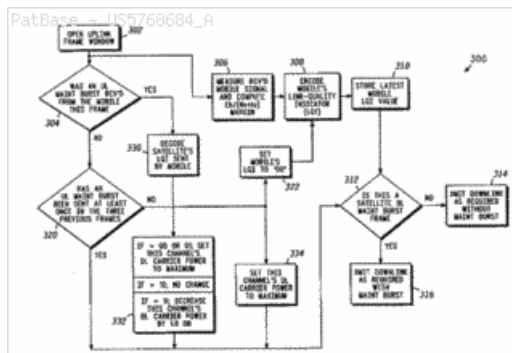
International (IPC 8-9): H04B7/005 H04B7/185 (Advanced/Invention);
H04B7/005 H04B7/185 (Core/Invention)

International (IPC 1-7): H04B7/185

CPC: H04B7/18543 H04W52/20

European: H04B7/185M6D H04

US: 370/318 455/12.1 455/13.4 455/42



Family:

Publication number	Publication date	Application number	Application date
US5768684 A	19980616	US19960702851	19960826

Priority:

US19940205432 19940304 US19960702851 19960826

Probable Assignee: CDC PROPRIETE INTELLECTUELLE

Assignee(s): (std): MOTOROLA INC

Assignee(s): TORSAL TECHNOLOGY GROUP LTD ; TORSAL TECHNOLOGY GROUP LTD LLC ; CDC PROPRIETARY INTELLIGENT

Inventor(s): (std): GRUBB JERROLD LEE ; ATTWOOD STANLEY WILLIAM ; ARENS JOHN WILLIAM

27) Family number: 50770633 (US8135338B)

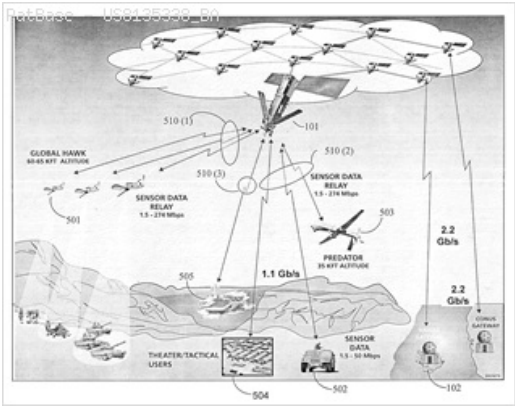
Title: SATELLITE SYSTEM WITH ENHANCED PAYLOAD CAPACITY

Abstract: High data rate communications services are provided via a satellite system. Data is received from a user at a data rate greater than 30 Mbps over a communications link between the user and a first satellite, where the first satellite is one of a number of satellites within the satellite system; the data is forwarded over a crosslink from the first satellite to at least a second satellite within the satellite system; and the data is forwarded from the second satellite by a feeder link to a gateway located on the earth, said gateway being communicatively coupled to a terrestrial data network. The data is received from the user terminal by an antenna on the first satellite adapted for operation at a frequency associated with the feeder link.

Classifications:

International (IPC 8-9): H04B7/185 (Advanced/Invention)

CPC: H04B7/18521 H04B7/18582
European: H04B7/185F H04B7/185S6
US: 455/13.1 455/13.2



Family:

Publication number	Publication date	Application number	Application date
US8135338 BA	20120313	US20080344064	20081224

Priority:

US20080344064 20081224

Probable Assignee: SPACE SYSTEMS LORAL LLC

Assignee(s): (std): BURR DOUGLAS ; GELON WALTER ; LORAL SPACE SYSTEMS INC ; NATIONS WILLIAM

Assignee(s): ROYAL BANK OF CANADA ; ROYAL BANK OF CANADA COLLATERAL AGENT AS ; SPACE SYSTEMS LORAL INC ; SPACE SYSTEMS LORAL LLC A DELAWARE LIABILITY CO LT ; SPACE SYSTEMS LORAL LLC ; SPACE SYSTEMS LORAL LLC A DELAWARE LIABILITY CO LTD

Inventor(s): (std): BURR DOUGLAS ; GELON WALTER ; NATIONS WILLIAM

Agent(s): WEAVER AUSTIN VILLENEUVE AND SAMPSON LLP