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January 9, 2007

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BY HAND DELIVERY

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JAN - 9 2007

Federal Communications Commission

Office of the Secretary

Ms. Marlene H. Dortch Secretary Federal Communications Commission 445 Twelfth Street, S.W. Washington, D.C. 20554

Attn: International Bureau

Re: PanAmSat Licensee Corp.

Erratum; File No. SAT-RPL-20061219-00155

Dear Ms. Dortch:

Enclosed please find an Erratum to PanAmSat Licensee Corp.'s Application for Authority to Launch and Operate a Replacement Satellite at 91° W.L., which was filed on December 19, 2006.

Please direct any questions regarding this Erratum to Jose Albuquerque at 202-944-6897.

Sincerely,

/s/ <u>Jennifer D.</u> Hindin

Jennifer D. Hindin Counsel to PanAmSat Licensee Corp.

FILED/ACCEPTED

JAN - 9 2007

Before the Federal Communications Commission Washington, DC 20554

Federal Communications Commission
Office of the Secretary

In the Matter of

PanAmSat Licensee Corp.

Application for Authority to Launch and Operate a Replacement Satellite at 91° W.L.

File No. SAT-RPL-20061219-00155

ERRATUM

On December 19, 2006, PanAmSat Licensee Corp. ("PanAmSat") filed the above captioned application seeking authority to launch and operate a replacement C/Ku-band satellite, to be known as Galaxy 17, at the 91° W.L. orbital location. PanAmSat hereby submits this Erratum correcting certain information in the Technical Exhibit to that application. Specifically, PanAmSat has discovered an error in the calculation of the saturated flux density ("SFD") range for the C-band and Ku-band receive beams. This error, in turn, resulted in a change in the transponder gain of the C-band and Ku-band channels. Accordingly, in this Erratum, PanAmSat provides the appropriate corrections to the Technical Exhibit section of above referenced application. Consequential corrections are also made in the associated Schedule S.

A. Technical Exhibit Corrections:

1) Section 2.7.2: In the fifth line of the third paragraph on page 10, the value of "-91.2 dBW/m²" should be changed to "-114.2 dBW/m²".

- 2) Section 2.7.2: In the seventh line of the third paragraph on page 10, the value of "-89.1 dBW/m²" should be changed to "-119.1 dBW/m²".
- 3) <u>Certification Statement</u>: On page 27, the date should be changed from "December XX, 2006" to "December 19, 2006"
- 4) Exhibit 2: On page 31, in the rows titled "Conus (Horizontal Polarization)" and "Conus (Vertical Polarization)", associated with the C-band Uplink SFD Range @Maximum G/T, the range "-91.2 to -44.2 dBW/m²" should be changed to "-114.2 to -67.2 dBW/m²".
- 5) Exhibit 2: On page 31, in the rows titled "Conus (Horizontal Polarization)" and "Conus (Vertical Polarization)", associated with the Ku-band Uplink SFD Range @Maximum G/T, the range "-89.1 to -42.1 dBW/m²" should be changed to "-119.1 to -72.1 dBW/m²".
- 6) Exhibit 2: On page 31, in the rows titled "Conus (H-Pol. Up) /Conus (V-Pol. Dn.)" and "Conus (V-Pol. Up) /Conus (H-Pol. Dn.)", associated with the C-band uplink to C-Band downlink transponder gain, the range "111.5 to 64.5 dBi" should be changed to "134.5 to 87.5 dB".
- 7) Exhibit 2: On page 31, in the rows titled "Conus (H-Pol. Up) /Conus (V-Pol. Dn.)" and "Conus (V-Pol. Up) /Conus (H-Pol. Dn.)", associated with the Ku-band uplink to Ku-Band downlink transponder gain, the range "118.1 to 71.1 dB" should be changed to "148.1 to 101.1 dB".
- 8) Exhibit 5B: On page 39, under the table column titled "Maximum Transponder Gain (dB)", the value of "111.5 dB" should be changed to "134.5 dB".

- 9) Exhibit 5B: On page 40, under the table column titled "Maximum Transponder Gain (dB)", the value of "118.1 dB" should be changed to "148.1 dB".
- Exhibit 6A: On page 41, the portion of the title that reads "SFD RANGE AT PEAK G/T: -91.2 TO -44.2 dBW/m2" should be changed to read "SFD RANGE AT PEAK G/T: -114.2 TO -67.2 dBW/m2".
- Exhibit 6C: On page 43, the portion of the title that reads "SFD RANGE AT PEAK G/T: -89.1 TO -42.1 dBW/m2" should be changed to read "SFD RANGE AT PEAK G/T: -119.1 TO -72.1 dBW/m2".
- Exhibit 7: On page 54 in the row titled "Minimum SFD [G/T: Peak; Attn: 0 dB] (dBW/m²)" the value of "-91.2" should be changed to "-114.2" and the value of "-89.1" should be changed to "-119.1".
- B. Schedule S Corrections:
 - 1) Section S7: In the first row associated with the CUP Beam ID, the value in column p should be changed from "-91.2" to "-114.2".
 - 2) Section S7: In the third row associated with the KUP Beam ID, the value in column p should be changed from "-89.1" to "-119.1".
 - 3) <u>Section S10:</u> For those rows associated with transponder IDs of 1C through 24C, the value under column b should be changed from "111.5" to "134.5".
 - 4) Section S10: For those rows associated with transponder IDs of 1K through 24K, the value under column b should be changed from "118.1" to "148.1".

Conformed copies of the Technical Exhibit (Word file) and Schedule S (mdb file) as modified by this Erratum are attached for the sake of clarity and convenience. A revised version of the Inputs to the Schedule S (Word file) is also being submitted for

convenience. Please direct any questions regarding this Erratum to Jose Albuquerque at 202-944-6897.

Respectfully submitted,

/s/ Susan H. Crandall

Susan H. Crandall Assistant General Counsel Intelsat Corporation

Jennifer D. Hindin WILEY REIN & FIELDING LLP 1776 K Street, N.W. Washington, DC 20006

January 9, 2007

Certification Statement

I hereby certify that I am a technically qualified person and am familiar with Part 25 of the Commission's Rules and Regulations. The contents of this engineering statement were prepared by me or under my direct supervision and to the best of my knowledge are complete and accurate.

January 5, 2007

Jose Albuquerque
Intelsat
Senior Director, Spectrum Engineering

Erratum

PanAmSat Licensee Corp. ("PanAmSat"), herein, provides corrections to its pending application to construct, launch and operate Galaxy 17 from 91° WL. Specifically, with respect to the Technical Exhibit section of the application, PanAmSat provides corrections to 1) the saturated flux density ("SFD") of the C-band and Ku-band receive beams and 2) the transponder gain range of the C-band and Ku-band channels. Appropriate corrections to the associated Schedule S are also made.

On December 19, 2006 filed an application with the Commission requesting authority to construct, launch and operate Galaxy 17 from 91° WL (see FCC File No.: SAT-RPL-20061219-00155). Subsequent to that filing, PanAmSat noted an error in the calculation of the SFD range for the C-band and Ku-band receive beams. This error in turn resulted in a change in the transponder gain of the C-band and Ku-band channels. Accordingly, with this Erratum, PanAmSat provides the appropriate corrections to the Technical Exhibit section of the SAT-RPL-20061219-00155 filing. Appropriate corrections are also made in the associated Schedule S. The corrections to the Technical Exhibit section are as follows:

- 1) Section 2.7.2: In the fifth line of the third paragraph on page 10, the value of -91.2 dBW/m² should be changed to -114.2 dBW/m².
- 2) Section 2.7.2: In the seventh line of the third paragraph on page 10, the value of -89.1 dBW/m² should be changed to -119.1 dBW/m².
- 3) Exhibit 2: On page 31, in the row titled "Conus (Horizontal Polarization)" associated with the C-band Uplink SFD Range @Maximum G/T, the range 91.2 to -44.2 dBW/m² should be changed to -114.2 to -67.2 dBW/m².
- 4) Exhibit 2: On page 31, in the row titled "Conus (Vertical Polarization)" associated with the C-band Uplink SFD Range @Maximum G/T, the range 91.2 to -44.2 dBW/m² should be changed to -114.2 to -67.2 dBW/m².
- 5) Exhibit 2: On page 31, in the row titled "Conus (Horizontal Polarization)" associated with the Ku-band Uplink SFD Range @Maximum G/T, the range -89.1 to -42.1 dBW/m² should be changed to -119.1 to -72.1 dBW/m².
- 6) Exhibit 2: On page 31, in the row titled "Conus (Vertical Polarization)" associated with the Ku-band Uplink SFD Range @Maximum G/T, the range -89.1 to -42.1 dBW/m² should be changed to -119.1 to -72.1 dBW/m².
- 7) Exhibit 2: On page 31, in the row titled "Conus (H-Pol. Up) /Conus (V-Pol. Dn.)" associated with the C-band uplink to C-Band downlink transponder gain, the range "111.5 to 64.5 dBi" should be changed to "134.5 to 87.5 dB".

- 8) Exhibit 2: On page 31, in the row titled "Conus (V-Pol. Up) /Conus (H-Pol. Dn.)" associated with the C-band uplink to C-Band downlink transponder gain, the range "111.5 to 64.5 dBi" should be changed to "134.5 to 87.5 dB".
- 9) Exhibit 2: On page 31, in the row titled "Conus (H-Pol. Up) /Conus (V-Pol. Dn.)" associated with the Ku-band uplink to Ku-Band downlink transponder gain, the range 118.1 to 71.1 dB should be changed to 148.1 to 101.1 dB.
- 10) Exhibit 2: On page 31, in the row titled "Conus (V-Pol. Up) /Conus (H-Pol. Dn.)" associated with the Ku-band uplink to Ku-Band downlink transponder gain, the range 118.1 to 71.1 dB should be changed to 148.1 to 101.1 dB.
- 11) Exhibit 5B: On page 39, under the table column titled "Maximum Transponder Gain (dB)", the value of 111.5 dB should be changed to 134.5 dB.
- 12) Exhibit 5B: On page 40, under the table column titled "Maximum Transponder Gain (dB)", the value of 118.1 dB should be changed to 148.1 dB.
- 13) Exhibit 6A: On page 41, the portion of the title that reads "SFD RANGE AT PEAK G/T: -91.2 TO -44.2 dBW/m2" should be changed to read "SFD RANGE AT PEAK G/T: -114.2 TO -67.2 dBW/m2".
- 14) Exhibit 6C: On page 43, the portion of the title that reads "SFD RANGE AT PEAK G/T: -89.1 TO -42.1 dBW/m2" should be changed to read "SFD RANGE AT PEAK G/T: -119.1 TO -72.1 dBW/m2".
- 15) Exhibit 7: On page 54 in the row titled "Minimum SFD [G/T: Peak; Attn: 0 dB] (dBW/m²)" the value of -91.2 should be changed to -114.2.
- 16) Exhibit 7: On page 54 in the row titled "Minimum SFD [G/T: Peak; Attn: 0 dB] (dBW/m²)" the value of -89.1 should be changed to -119.1.

The corrections to the Schedule S are as follows:

- 1) Section S7: The first row associated with the CUP Beam ID, the the value in column p should be changed from -91.2 to -114.2.
- 2) Section S7: The third row associated with the KUP Beam ID, the the value in column p should be changed from -89.1 to -119.1.
- 3) Section S10: For those rows associated with transponder IDs of 1C through 24C, the value under column b should be changed from 111.5 to 134.5.
- 4) Section S10: For those rows associated with transponder IDs of 1K through 24K, the value under column b should be changed from 118.1 to 148.1.

The attached Exhibit 1 contains the corrected Galaxy 17 Technical Exhibit in its entirety. The attached Exhibit 2 contains the corrected Galaxy 17 Schedule S inputs in its entirety.

Certification Statement

I hereby certify that I am a technically qualified person and am familiar with Part 25 of the Commission's Rules and Regulations. The contents of this engineering statement were prepared by me or under my direct supervision and to the best of my knowledge are complete and accurate.

/s/ Jose Albuquerque January 5, 2007

Jose Albuquerque Date
Intelsat
Senior Director, Spectrum
Engineering

EXHIBIT 1

Technical Exhibit

1) Introduction

PanAmSat Licensee Corp. ("PanAmSat") seeks authority in this application to operate a new satellite, designated as Galaxy 17, from the 91° WL orbital location. The characteristics of the Galaxy 17 spacecraft as well as its compliance with the various provisions of Part 25 of the Commission's rules are provided in the remainder of this Technica Exhibit.

PanAmSat currently operates Galaxy 11 from 91° WL. This spacecraft utilizes the frequency bands of 5925 - 6425 MHz, 3700 - 4200 MHz, 13750 - 14500 MHz, 10950 - 11200 MHz and 11700 - 12200 MHz and provides coverage of the continental United States¹. Galaxy 11 will be shifted to the nominal orbital location 74° WL to replace SBS-6 that is approaching its end-of-life and Galaxy 17 will replace Galaxy 11 at 91° WL².

2) Spacecraft Overview

Galaxy 17 is an Alcatel Space SPACEBUS 3000B3 spacecraft that operates on the C-band frequencies of 5925 – 6425 MHz and 3700 – 4200 MHz; and Ku-band frequencies of 14000 – 14500 MHz and 11700 – 12200 MHz. It utilizes 24 C-band and 24 Ku-band transponders. At C-band, the spacecraft is capable of providing service to the continental United States ("CONUS") and Hawaii, as well as portions of Mexico and Canada. At Ku-band, the spacecraft provides service to the continental United States, Hawaii, Puerto Rico and portions of Canada.

Galaxy 17 is a 3-axis stabilized type spacecraft, with a rectangular cube main body that supports the antennas and electronics for the various subsystems. It also utilizes two, four-panel deployable solar array wings as well as a bi-propellant propulsion system. The on-orbit configuration of the Galaxy 17 spacecraft is provided in Exhibit 1. A summary of the basic spacecraft characteristics is provided in Exhibit 2.

2.1) Structure

¹ Galaxy 11 also can provide coverage of South America in the 14000 – 14250 MHz and 10950 – 11200 MHz bands.

² Horizons 2 was to be launched in 2007 to replace SBS-6 at the nominal orbital location 74° WL. However, due to launch delays, Horizons 2 is not expected to be in orbit until late 2008.

The structural design of Galaxy 17 provides mechanical support for all subsystems. The structure externally supports the communication antennas, command and telemetry antennas, solar arrays, and thrusters. It also provides a stable platform for preserving the alignment of critical elements of the spacecraft.

The basic structure of the spacecraft is comprised of a central tube with a number of webs and panels attached to the tube. In its final on station configuration, the spacecraft has a rectangular-cube shape, with two deployable solar array wings, two deployable antenna reflectors (and its associated feeds), command and telemetry antennas, Earth and sun sensors, stationkeeping thrusters and an Apogee Boost Motor ("ABM") – all protruding from the main (cube) structure.

The structure is divided into two modules: the service module and the communication module. The service module supports equipment used with the Unified Propulsion Subsystem ("UPS"), the Electrical Power Supply ("EPS") subsystem, Attitude and Orbit Control Subsystem ("AOCS") and the Telemetry, Command and Ranging subsystem ("TC&R"). The communication module contains a network of heat pipes and supports equipment associated with the communication payload, e.g. amplifiers, Electrical Power Conditioning ("EPC") units and output multiplexers ("OMUXes").

The basic structural components of the service module are 1) a central tube, 2) the internal deck, 3) the east and west service module web panels, 4) the east and west service module panels, 5) the north and south service module panels, 6) vertical and horizontal service module stiffners, and 7) the anti-Earth panels.

The central tube houses the spacecraft's two propellant tanks and supports the ABM. It provides the mechanical connection to the spacecraft launch vehicle and provides global structural stiffness. The central tube also indirectly supports loads from equipment mounted onto various panels, webs and brackets that are attached to it.

The internal deck is located near the aft section of the spacecraft. It serves to equalize the shear forces acting on the communication and service module north/south web panels. Additionally, the internal deck guarantees the rigidity of the satellite. The internal deck supports a number of units associated with the service module such as the Remote Data Units ("RDUs"), Central Data Management Units ("CDMUs") and House Keeping Units ("HKUs").

The east and west service module web panels carry the Helium tanks and provide mounting surfaces for a number of units associated with the UPS.

The east and west service module panels are located on the east and west aft section of the spacecraft. They provide mounting surfaces for a number of units and support brackets, e.g. sun sensor mounting bracket, antenna deployment and pointing mechanism's ("ADPM") mounting bracket, etc.

The north and south service module panels carry the high (heat) dissipative and heavy units associated with the service module, e.g. batteries, power conditioning unit ("PCU"), etc.

Two pairs of vertical and horizontal service module stiffners are attached to the north and south service module panels and the internal deck, with each vertical and horizontal stiffner forming a horizontal "T" shape. The stiffners provide further rigidity to the north and south service module panels and additional support for the internal deck.

The anti-Earth panels consist of a north and a south panel that close out the aft section of the spacecraft.

The communication panel is composed of 1) the Earth panel, 2) the north and south communication module panels, 3) north and south communication module web panels, 4) the east and west communication module panels and 5) the east and west main plate and support structure.

The Earth panel serves to equalize the shear forces acting on the communication module north/south web panels. The Earth panel also provides mounting surface for a number of units and bracketes associated with the communication module, e.g. C and Ku-band input multiplexer ("IMUXs"), test couplers, polarization switch, etc.

The north and south communication module panels provide mounting surfaces for the high (heat) dissipative units associated with the communication module, e.g. Traveling Wave Tube Amplifiers ("TWTAs"), C and Ku-band Output Multiplexers ("OMUXs"). They also support the Earth panel and partially support the mass of the solar arrays.

The north and south communication module web panels provide rigidity to the north and south communication panels. A dedicated web panel is attached to the inside face of the associated north and south communication panel.

The east and west communication module panels are four panels – two located on the east side of the spacecraft and two located on the west side of the spacecraft – that sit atop of the east and west service module panels. The two panels on each side – east or west side – of the spacecraft are connected via a connecting/stiffner beam. The east and west communication module panels can be installed and removed very easily and allow easy access to the repeater equipment.

Two main plates are located near the nadir side of the spacecraft on the east and west sides of the spacecraft. Each plate is mounted atop a dedicated mounting bracket which is in turn attached to the main Earth panel. The east and west main plates support the feeds for the corresponding east and west deployable antennas.

In addition to the service and communication modules, there are a number of secondary structures attached to the primary structure. These are primarily brackets that provide support for external units such as reflectors and their associated feeds, sensors, solar arrays and thrusters.

Galaxy 17 utilizes two deployable reflector antennas located on the east and west sides of the spacecraft. Each reflector is attached to the main body of the spacecraft through the use of ADPMs. The feeds for the deployable antennas are mounted on the east or west main plates, as appropriate.

Galaxy 17 also employs a communication antenna mounted on the nadir side of the spacecraft. The antenna and its associated feeds and subreflector are mounted on a dedicated antenna support structure which is in turn mounted on the Earth panel.

The spacecraft employs four omni-directional antennas for telemetry, command and ranging. The antennas are grouped into pairs, with each pair mounted atop a dedicated bracket. One pair of antennas is located on the nadir (Earth facing) section of the spacecraft near the southwest corner of the Earth panel. The other pair of antennas is located in the aft section of the spacecraft, on the northeast aft edge of the east service module panel.

The spacecraft utilizes two deployable solar wings, which are extended when the spacecraft reaches its on-station orbital location. One solar wing is located on the north side of the spacecraft and the other is located on the south side of the

spacecraft. The solar wings provide the mounting surfaces for the solar cells. Each solar wing is connected to the main spacecraft structure through a dedicated Bearing and Power Transfer Assembly ("BAPTA") which is attached to the north and south communication module panels, as appropriate.

The Earth sensors are mounted atop a dedicated mounting bracket located on the northeast section of the Earth panel.

Four pairs of sun sensors are distributed on the nadir and aft section of the spacecraft. Each pair of sun sensors is mounted on top of a dedicated mounting bracket. On the nadir side of the spacecraft, a pair of sensors is mounted on a bracket located near the northwest corner of the spacecraft, with another pair of sensors mounted on a bracket located near the southeast corner of the spacecraft. On the aft side of the spacecraft, a pair of sun sensors is mounted on a bracket located on approximately the south aft edge of the east service module panel, with another pair of sensors mounted on a bracket located on approximately south aft edge of the west service module web panel.

The main station-keeping thrusters are mounted directly onto the north and south, service and communication module panels, the east and west service module panels, and the anti-Earth panel. The main ABM is attached to a series of supporting struts that in turn are attached to the central tube.

The Galaxy 17 mass budget is provided in Exhibit 3.

2.2) Thermal Subsystem

Thermal control is accomplished through the use of Optical Surface Radiators ("OSRs"), heat pipes, Multilayer Insulation ("MLI") blankets, electrical heaters and heat shields. The outer surface of the north and south (service and communication module) panels are covered with OSRs to maximize the heat rejection to space while minimizing the absorbed solar energy. The heat generated by high power units, e.g. TWTAs, OMUXs, etc. is spread over the north and south (communication module) panels by means of heat pipes that are embedded in the panels. Multilayer Insulation ("MLI") blankets cover all external areas, except radiative areas. Heaters are used to limit the lower temperature extremes of the electronics as well as the propulsion thrusters and propellant lines. Sensitive areas such as thrusters are protected thermally by means of heat shields.

2.3) Power Subsystem

The Electrical Power Subsystem ("EPS") generates, stores, conditions and protects the satellite's electrical power. It provides the energy required to operate the satellite during all modes of operation. The EPS consists of the solar arrays, batteries, associated power electronics, and power harnesses that integrate and regulate the systems.

Galaxy 17 utilizes two deployable solar array wings, with one wing located on the north side of the spacecraft and the other located on the south side of the spacecraft. Each solar wing is composed of four equal-sized main panels. Each panel supports an array of photovoltaic solar cells. During launch, the solar array wings are in the stowed position. However, once on station, the solar wings are deployed, with each wing extending out on the north and south sides of the spacecraft. The solar array is designed to provide power to the spacecraft for at least 15 years.

Power from the solar arrays is transferred to the spacecraft through the use of two BAPTAs – one for each solar wing. The BAPTA also controls the rotation of the solar wing.

During eclipse periods, the primary source of power to the spacecraft is through batteries. Galaxy 17 utilizes two 27-cell nickel-hydrogen batteries housed in four battery packs. The battery packs which are mounted on the north and south service module panels near the aft corners of the main spacecraft structure.

The Galaxy 17 EPS has been designed so that no single failure in the subsystem will cause a spacecraft failure. The EPS will provide sufficient power to the spacecraft throughout its design life to support all active communication channels as well as all necessary housekeeping loads. The beginning of life ("BOL") and end of life ("EOL") power budgets for Galaxy 17 are provided in Exhibit 4.

2.4) Attitude Control Subsystem

The Attitude and Orbit Control System ("AOCS") maintains the spacecraft attitude during the transfer orbit, initial acquisition period, and on-station geostationary operations. Additionally, the AOCS is responsible for re-acquisition of the spacecraft in case of emergency and its placement into a safe configuration.

The AOCS is composed of primary and redundant sun and Earth sensors, two three-axis gyros, four momentum wheels, bipropellant thrusters, and associated

electronics. Control of the spacecraft attitude and orientation is accomplished through the use of momentum wheels and by pulsed or continuous firing of selected thrusters by the AOCS.

2.5) Propulsion Subsystem

The propulsion subsystem provides impulse for the spacecraft maneuvering during all phases of the mission beginning with launch vehicle separation through the operational lifetime of the satellite. The major components of the propulsion subsystem are as follows: 1) a 400N ABM, 2) fourteen 10N thrusters, 3) three high pressure Helium tanks, 4) two spherical propellant tanks and 5) systems of valves, filters, regulators and transducers.

The spacecraft employs a bipropellant system, whereby it utilizes a combination of Nitrogen Tetroxide and Monomethylhydrazine as propellants. The system utilizes Helium gas as pressurant to pressurize the propellant tanks.

Each main line is equipped with a filter in order to protect sensitive down-stream components from contamination. The propellant filters act as long term protection against particles which could otherwise enter the thruster valves.

High accuracy pressure transducers are used throughout the system to measure the pressure of the propellant and Helium tanks as well as other critical points within the subsystem. Such measurements are used for general monitoring of the propulsion system as well as to gauge the level of the remaining propellant remaining within the system throughout the life of the spacecraft.

Temperature tansducers are incorporated throughout the propulsion subsystem. They are part of the thermal control subsystem of the spacecraft. Temperature transducers enable operators to determine the health of the ABM and the 10N thusters, and to determine if there are any functional disturbances within the systems, e.g. leakages.

Following separation from the launch vehicle, pyrotechnic valves are opened to allow the Helium pressurant to flow through a filter and a series of redundant (pressure) regulators into the propellant tanks. The propellant tank valves are then opened to prime the system and provide pressurized propellant to all thrusters. Prior to activating any thrusters, two of the 10N thrusters are openned for at least 2 minutes in order to vent any gas that may be trapped between the propellant tanks and the thrusters.

Following the subsystem priming, appropriate 10-N thrusters are fired to control the spin of the spacecraft. The 400-N ABM is then fired as necessary during the transfer orbit operation to inject the spacecraft into a geosynchronous orbit.

Upon completion of the transfer orbit, the ABM is isolated from the rest of the propulsion system by activating a number of normally open pyrotechnic valves. Additionally, the Helium supply is isolated from the propellant tanks by activating a number of normally open pyrotechnic valves. The system is then configured for on-station maneuvers whereby the 10-N thrusters are operated for the balance of the mission and the system operates in a blow-down mode. During on-station operations, momentum wheels are used in conjunction with the 10-N thrusters to maintain correct positioning and pointing of the spacecraft.

The architecture of the propulsion system is based on a low risk approach which has been flight proven. The system utilizes space qualified components and incorporates full redundancy for all critical components.

2.6) Data Management Subsystem

The spacecraft data management functions are handled by the Data Management Subsystem ("DMS"). The main functions of the DMS are 1) to decode and route command messages to their final destination, 2) to collect and format satellite telemetry data and deliver them to the TC&R subsystem for transmission to Earth, 3) thermal regulation of the spacecraft, 4) spacecraft failure detection, identification and recovery, 5) battery management, 6) provide on board time functions and 7) monitor the health of various spacecraft units.

The DMS is comprised of the Data Handling System ("DHS"), the On-Board Data Handling ("OBDH") bus and the on-board software. The primary components of the DHS are the Central Data Management Unit ("CDMU"), the Remote Data Units ("RDU") and the Telemetry Decryption Unit ("TDU"). The CDMU performs housekeeping data acquisition, handles telemetry and command data and has a number of embedded applications that pertain to various functions such as thermal regulation, battery management, BAPTA management, etc. RDUs monitor the OBDH bus, decode and execute commands routed on the OBDH bus, encode telemetry signals from the interfaced units, and transmit the encoded telemetry data onto the OBDH bus. The OBDH data bus connects the CDMU to the RDUs and the Platform Distribution Unit ("PFDU"), which distributes power to the platform units and heaters, provides battery management The TDU decrypts spacecraft functions and activates pyrotechnic devices. commands.

2.7) Communication Subsystem

2.7.1) Overview

Galaxy 17 provides 24 active communication channels at C-band frequencies and 24 active channels at Ku-band frequencies. The bandwidth of each C-band and Ku-band channel is 36 MHz. The Galaxy 17 frequency and polarization plans are provided in Exhibits 5A and 5B. At C-band, the Galaxy 17 receive and transmit beams provide coverage of the continental United States, Hawaii and portions of Mexico and Canada. At Ku-band, the Galaxy 17 receive and transmit beams provide coverage of continental United States, Hawaii, Puerto Rico and portions of Canada.

At both C and Ku-band frequencies, Galaxy 17 employs full frequency reuse through the use of orthogonal polarization within the same beam. The C and Ku-band beams utilize linear (horizontal and vertical) polarization, whereby the polarization of the uplink is opposite that of the downlink. The electric field component of the linear horizontally polarized signal is parallel to the equatorial plane and the electric field component of the linear vertically polarized signal is orthogonal to the equatorial plane. Accordingly, Galaxy 17 is compliant with the provisions of sections 25.210(a)(1) and (2) and 25.210(f) of the Commission's Rules.

The polarization sense of the C-band and Ku-band channels may be switched upon ground command. Accordingly, Galaxy 17 is compliant with the provisions of section 25.210(a)(3) of the Commission's Rules.

2.7.2) Antennas and Beam Coverage

Galaxy 17 utilizes a deployable transmit/receive C-band antenna located on the west side of the spacecraft and a deployable transmit Ku-band antenna located on the east side of the spacecraft. Each antenna is an offset fed shaped reflector illuminated by a corrugated feed horn with two orthomode transducers. The C-band and Ku-band reflectors are circularly shaped with an aperture of 2.2 meters. The C-band antenna provides the coverage of continental United States, Hawaii and portions of Mexico and Canada. The Ku-band antenna provides coverage of United States, Hawaii, Puerto Rico and portions of Canada. The position of the C-band and Ku-band reflectors may be mechanically adjusted through the use of the ADPM.

Galaxy 17 also employs a Ku-band receive antenna assembly mounted on the Earth panel. The assembly consists of a Gregorian type shaped main reflector, an ellipsoidal sub-reflector illuminated by a feed which includes an orthogonal transducer. The Gregorian main reflector is 1.4 meter wide elliptically shaped reflector. The Ku-band receive beam provides coverage of continental United States, Hawaii, Puerto Rico and Portions of Canada.

The coverage beams of the Galaxy 17 antennas are shown in Exhibits 6A through 6D, in the format prescribed in section 25.114(d)(3) of the Commission's Rules. The peak Equivalent Isotropically Radiated Power ("EIRP") of the horizontally and vertically polarized C-band transmit beams is 43.3 dBW. The EIRP of the horizontally and vertically polarized Ku-band CONUS beam is 51.3 dBW.

The peak G/T of the horizontally and vertically polarized C-band receive beams is 5.2 dB/K. The peak G/T of the horizontally and vertically polarized Ku-band CONUS receive beams is 7.1 dB/K. The minimum saturation flux density ("SFD") corresponding to the peak G/T point of the C-band horizontally and vertically polarized receive beams is -114.2 dBW/m². The minimum saturation flux density ("SFD") corresponding to the peak G/T point of the Ku-band horizontally and vertically polarized receive beams is -119.1 dBW/m²

The SFD at any G/T contour may be determined using the following formula:

$$SFD_D = SFD_P + [(G/T)_P - (G/T)_D] + A$$

where

SFD_D: SFD at desired G/T level (dBW/m²)

SFD_P: Minimum SFD at peak G/T (dBW/m²)

 $(G/T)_D$: Desired G/T level (dB/K)

 $(G/T)_P$: Peak G/T (dB/K)

A = Transponder attenuator setting (dB), ranging from 0 to 47 dB for C-band and for Ku-band transponders.

Exhibit 7 provides a detailed calculation of the EIRP, G/T and SFD of the Galaxy 17 uplink and downlink beams.

Galaxy 17 does not fully comply with the antenna cross-polarization criteria of section 25.210(i) of the Commission's Rules. Specifically, the ratio of the on-axis

co-polar gain to cross-polar gain (i.e. the cross-polarization isolation) is less than 30 dB over very limited portions of the primary coverage area of the C-band receive and transmit beams and the Ku-band transmit beam. Accordingly, PanAmSat requests a waiver of section 25.210(i) of the Commission's rules with regard to these beams.

The cross-polarization contours of the Galaxy 17 C and Ku-band communication beams are provided in Exhibits 6J through 6M. In each exhibit, the contour value listed with each contour represents the absolute level of cross-polarization isolation.

The Galaxy 17 C-band receive antenna provides a cross-polarization isolation of 30 dB or greater over its primary coverage area with the exception of Hawaii where the cross-polarization isolation is greater than 27 dB (See Exhibit 6J). The Galaxy 17 C-band transmit antenna provides a cross-polarization isolation of 30 dB or greater over its primary coverage area with the exception of Hawaii and Puerto Rico where the cross-polarization isolation is equal to greater than 28 dB and 25 dB, respectively (See Exhibit 6K). The Galaxy 17 Ku-band transmit antenna provides a cross-polarization of 30 dB or greater over its primary coverage area with the exception of sections of the states of Louisana, Mississippi and Florida where the cross-polarization is equal to or greater than 29 dB (See Exhibit 6M). The Galaxy 17 Ku-band receive antenna provides a cross-polarization isolation of 30 dB or greater over its primary coverage area and is fully compliant with the provisions of section 25.210(i) of the Commission's Rules (see Exhibit 6L).

The level of cross-polarization isolation achieved for the C-band uplink and downlink beams and the Ku-band downlink beam was the best that the satellite manufacturer could achieve without causing excessive degradation in the copolarized gain of the beam and/or in the size of its coverage area. As a result, a slight reduction in the cross-polarization isolation with respect to the 30 dB requirement, and only in a very limited portion of the coverage area, was considered to be the best approach for making efficient use of the orbit/spectrum resources by Galaxy 17.

Moreover, as the Commission has previously recognized, "failure to meet the cross-polarization isolation requirements will not adversely impact any other operator, and the only party to suffer an increase in interference" is the applicant

itself.³ In the case of Galaxy 17 C-band and Ku-band transmit beams, deviation from the 30 dB requirement causes very little impact, if any, on the operations of adjacent satellites. In the case of the Galaxy 17 C-band receive beam, deviation from the 30 dB requirement has no impact on potential interference to adjacent satellites. Rather, the reduction in Galaxy 17's cross-polarization isolation in limited portions of its coverage area will slightly increase the interference to Galaxy 17 carriers from its own oppositely polarized carriers as well as from emissions (of other operators) generated by adjacent satellites. By controlling the power level of Galaxy 17's carriers, however, PanAmSat can compensate for this factor, thereby meeting its transmission objectives and the requirements of its customers.

The Commission previously has granted waivers of the requirement in section 25.210(i) based on the same factors that support the waiver PanAmSat is requesting in this application.⁴ Accordingly, Commission precedent supports a grant of PanAmSat's waiver request.

2.7.3) Transponder description

2.7.3.1) <u>C-Band</u>

Signals in the 5925 - 6425 MHz frequency band are received by the appropriate (horizontally polarized or vertically polarized) receive antenna. The output of the receive antenna is routed to a set of 500 MHz wide receivers via a test coupler and a band-pass filter.

The receivers are arranged in a 4:2 redundancy ring. Each uplink can access one of three receivers by ground command. The receivers establish the system noise figure and downconvert the received signal to the transmit frequency band. Each receiver operates over the entire 5925-6425 MHz band in linear mode and is designed to have high sensitivity (i.e. good noise performance) and low cross-talk coefficients (i.e. good linearity characteristics). Given that the receiver downconverts the received signal to the necessary frequency required for

³ See ¶5 of the Terms and Conditions of the Authorization granted to SES on August 18, 2004 in SAT-LOA-20030219-00013.

⁴ See waivers granted to: Intelsat North America LLC on June 17, 2005 in SAT-MOD-20050203-00019; SES Americom, Inc, on July 13, 2004; New Skies Satellites, N.V. on May 24, 2002, in 17 FCC Rcd 10369; Star One S.A. on August 24, 2004, in 19 FCC Rcd 16334; DIRECTV Enterprises, LLC on October 4, 2005, in SAT-A/O-20050504-00093 and SAT-STA-20050518-00105.

transmission, the frequency stability of the transmitted signal is controlled entirely by the receiver itself. The Galaxy 17 C-band receiver is able to maintain over the life of the spacecraft the frequency of the transmitted (downcoverted) signal to within 0.002% of the desired value. Accordingly, Galaxy 17 is compliant with the provisions of section 25.202(e) of the Commission's Rules.

The output of the receivers is then distributed to a bank of Input Mulitplexers. The IMUXs are filters that provide frequency band separation for each channel. The rejection characteristics of the IMUX are provided in Exhibit 8A.

The output of each IMUX is connected to a dedicated Linearized Channel Amplifier ("LCAMP") and its associated TWTA through a bank of redundancy switches. The redundancy switching permits the output of the IMUX to be routed to a redundant LCAMP/TWTA pair should the primary units fail or malfunction.

The gain of each channel (and its associated transponder saturation flux density) may be independently adjusted by changing the attenuation of its designated LCAMP by ground command. Consequently, the output of each LCAMP may be varied by ground command over a range of 47 dB in 1 dB increments. Accordingly, the C-band channels of Galaxy 17 are compliant with the provisions of section 25.210(c) of the Commssion's Rules.

Each TWTA produces 47 Watts of output power. All LCAMP/TWTA pairs are configured within a 30-for-24 redundancy ring.

The output of each TWTA amplifier is routed through a bank of switches to a one of two OMUXs, which also accommodates the telemetry input. The switching network allows the output of a redundant LCAMP/TWTA pair to be forwarded to the appropriate OMUX should the primary pair of units fail or malfunction. The rejection characteristics of the OMUX are provided in Exhibit 8A. The output of each OMUX is connected to the transmit antenna (feed) via a test coupler.

2.7.3.2) Ku-Band

Signals in the 14000 - 14500 MHz frequency band are received by the appropriate (horizontally polarized or vertically polarized) receive antenna. The output of the receive antenna is routed to a set of 500 MHz wide receiver via a test coupler and a band-pass filter.

The receivers are arranged in a 4:2 redundancy ring. Each uplink can access one of three receivers by ground command. The receivers establish the system noise figure and downconvert the received signal to the transmit frequency band. Each receiver operates over the entire 14000 - 14500 MHz band in linear mode and is designed to have high sensitivity (i.e. good noise performance) and low cross-talk coefficients (i.e. good linearity characteristics). Given that the receiver downconverts the received signal to the necessary frequency required for transmission, the frequency stability of the transmitted signal is controlled entirely by the receiver itself. The Galaxy 17 Ku-band receiver is able to maintain over the life of the spacecraft the frequency of the transmitted (downcoverted) signal to within 0.002% of the desired value. Accordingly, Galaxy 17 is compliant with the provisions of section 25.202(e) of the Commission's Rules.

The output of the receivers is distributed to a bank of IMUXs. The IMUXs are filters that provide frequency band separation for each channel. The rejection characteristics of the IMUX are provided in Exhibit 8B.

The output of each IMUX is connected to a dedicated LCAMP and its associated TWTA through a bank of redundancy switches. The redundancy switching permits the output of the IMUX to be routed to a redundant LCAMP/TWTA pair should the primary units fail or malfunction.

The LCAMP has two modes of operation: Fixed Gain Mode ("FGM") and Automatic Level Control ("ALC") Mode. In the Fixed Gain Mode, the gain of each channel (and its associated transponder saturation flux density) may be independently adjusted by changing the attenuation of its designated LCAMP by ground command. Consequently, in the Fixed Gain Mode, the output of each LCAMP may be varied by ground command over a range of 47 dB in 1 dB increments. Accordingly, the Ku-band channels of Galaxy 17 are compliant with the provisions of section 25.210(c) of the Commssion's Rules. In the ALC mode, the output power of the LCAMP can be set by ground command and the LCAMP provides dynamic gain control over an input range of 47 dB to maintain the output power constant at the commanded level.

The Ku-band payload utilizes 12 TWTAs that produce 107 Watts of output power and 12 TWTAs that produce 111.5 Watts of power. All LCAMP/TWTA pairs are configured within a 32-for-24 redundancy ring.

The output of each TWTA amplifier is routed through a bank of switches to a one of two OMUXs, which also accommodates the Uplink Power Control ("ULPC")

beacons. The switching network allows the output of a redundant LCAMP/TWTA pair to be forwarded to the appropriate OMUX should the primary pair of units fail or malfunction. The rejection characteristics of the OMUX are provided in Exhibit 8B. The output of each OMUX is fed into a receive reject filter and connected to the transmit antenna (feed), via a test coupler.

2.8) Telemetry, Command and Ranging Subsystem

The telemetry, command and ranging ("TC&R") subsystem provides the following functions:

- 1) Acquisition, processing and transmission of spacecraft telemetry data.
- 2) Reception and retransmission of ground station generated ranging signals.
- 3) Reception, processing and distribution of telecommands.

The TC&R subsystem consists primarily of the following elements: 1) Four omni antennas; 2) C-band communication antenna; 3) Two telemetry transmitters; 4) Two command receivers; 5) Data handling hardware/software; 6) C-band OMUXes; 7) Two sets of C-band LCAMP/TWTAs and 8) Microwave components including filters, switches, couplers, isolators, power splitters, cables and waveguide

2.8.1) Antennas

When on-station, command and telemetry signals are received and transmitted through Galaxy 17's main C-band communication antennas. The coverage patterns of the command and telemetry beams under these circumstances are provided in Exhibits 6F and 6H, respectively.

During emergencies and transfer orbit operations, command and telemetry signals are received and transmitted through the omni-directional antennas. The omni antennas are grouped in pairs, with one pair located near the southwest corner of the Earth panel and the other pair located on the northeast aft edge of the east service module panel. Representative graphs of the antenna gain for the command and telemetry omni antennas are provided in Exhibits 6G and 6I, respectively.

During extreme on-station emergencies and during transfer orbit operations, it is assumed that the spacecraft is not properly oriented and communication with the spacecraft cannot be established through the main communication antennas. The

graphs in Exhibits 6G and 6I show the variation in the gain of the antenna at 0° roll angle, referenced to the (horizontal) plane on the center axis of the antenna aperture, with the azimuth (or pitch angle) varying from -180° and +180° -- generally referred to as the "azimuth cut". Given that the omni antennas are horn antennas having symmetrical gain performance about the center axis of the antenna aperture, the gain variation shown in Exhibits 6G and 6I are also representative of the case where the pitch angle of the antenna is 0°, referenced to the (vertical) plane located at the center axis of the antenna aperture, with the elevation (or roll angle) varying from -180° and +180° -- generally referred to as the "elevation cut".

During emergency conditions, when the spacecraft's main communication antenna is not pointing towards Earth, the omni antennas would be used since its field of view is greater than +/- 20° and the Earth disk is only +/- 8.4°. From Exhibits 6G and 6I, it is evident that the coverage of the omni antennas is relatively flat over the entire Earth and that the variation in gain will be typically less than 1.0 dB within +/-20° of the peak gain point. The peak gain of the omni antenna is 8.0 dBi for command and 7.8 dBi for telemetry.

The omni antenna diagrams (Exhibits 6G and 6I) were not prepared in accordance with the parameters specified in Section 25.114(d)(3) of the Commission's Rules due to the fact that the satellite manufacturer does not provide the patterns in the required form as the pointing of the omni antennas with respect to the Earth will vary during an emergency situation. In this respect, it is our understanding that, given the specificity of the situation, Exhibits 6G and 6I, together with the descriptive characterization given in the two previous paragraphs, fulfill the requirements of Section 25.114(d)(3). However, in case the Commission has a different understanding in this respect, a waiver of the requirements of Section 25.114(d)(3) of the FCC Rules with respect to the presentation of the omnidirectional antenna pattern is respectfully requested

2.8.2) Command

The Galaxy 17 command subsystem performance summary is provided in Exhibit 9. Detailed calculation of the G/T and SFD for each command beam is provided in Exhibit 10.

During on-station operations, commands are transmitted to the spacecraft through the transmission of sequences of command tones onto a linearly polarized, FM signal at the frequencies of 5925.5 MHz and 6424.5 MHz. The command signal is received by the spacecraft through the main C-band communication (receive)

antenna. The command signals are then routed to communication receivers. Within the communication receiver, the command signal is extracted and routed to two command receivers via a directional coupler. The command receivers amplify and demodulate the signal, and recover the baseband command signal and ranging tones. The output of the command receivers are forwarded to the data handling subsystem, where the commands are demodulated, decrypted, decoded and sent to the appropriate spacecraft unit.

During transfer orbit or emergency operations, the operation of the command subsystem is similar to that for on-station operations, except that the transmitted command signals are received by the omni antennas and directed to the command receivers via a set of directional couplers. Exhibits 5A and 5B provide the frequency and polarization plan for the Galaxy 17 command channels.

2.8.3) Telemetry

The Galaxy 17 telemetry subsystem performance summary is provided in Exhibit 9. Detailed calculation of the EIRP for each telemetry beam is provided in Exhibit 10.

During on-station operations, telemetry is transmitted by the spacecraft on two independent, linearly polarized PM signals on the frequencies of 4197.125 MHz and 4198.875 MHz. Baseband telemetry data is transmitted from the spacecraft's data handling subsystem to two telemetry transmitters. Within each telemetry transmitter, the baseband signal is phase modulated onto one of the two main carrier frequencies of 4197.125 MHz and 4198.875 MHz, depending on the frequency assigned to the specific transmitter. The output of the telemetry transmitters is then routed to C-band OMUX of the communication subsystem where it is frequency multiplexed with the main C-band communication channels. From the OMUX, the telemetry signal is routed to the main C-band communication (transmit) antenna for transmission to Earth. The telemetry transmitter is able to maintain over the life of the spacecraft the frequency of the transmitted signal to within 0.002% of the desired value; hence it is compliant with the provisions of section 25.202(e) of the Commission's Rules.

During transfer orbit or emergency operations, the output of each telemetry transmitter is routed to one of two C-band LCAMP/TWTA pairs within the C-band communication payload for additional amplification and transmitted to Earth through the omni antennas. Exhibits 5A and 5B provide the frequency and polarization plan for the Galaxy 17 telemetry channels.

2.8.4) Ranging

During all phases of the mission, the slant range of the spacecraft can be determined to a relatively high level of accuracy through the use of a multiple tone ranging system. Through ground command, the telemetry transmitters and command receivers are configured for operation in the ranging mode.

The ranging tones selected are modulated onto the command carrier and transmitted to the spacecraft. Once received by the spacecraft through the appropriate receiving antenna, the signal is routed directly to the spacecraft's telemetry transmitter. From the telemetry transmitter, the ranging signal is transmitted to Earth through the appropriate spacecraft transmitting antenna. On the ground, the ranging tones are demodulated and their phase compared with that of the transmitted signal to determine the range of the satellite.

Because the ranging subsystem uses the command and telemetry subsystems, the descriptions of the operation of these two latter systems during on-station, transfer orbit and emergency conditions are applicable to the ranging subsystem as well. The performance summary of the Galaxy 17 command, telemetry and ranging subsystems is provided in Exhibit 9.

2.9) Uplink Power Control Subsystem

Galaxy 17 provides two Ku-band beacons which can be used for uplink power control ("ULPC") by customers transmitting at Ku-band frequencies to the spacecraft. One ULPC beacon transmits a vertically polarized signal at 11701 MHz. The second ULPC beacon transmits a horizontally polarized signal at 12195 MHz.

The performance characteristics of the ULPC beacon are provided in Exhibit 2. Detailed calculation of the EIRP for each ULPC beam is provided in Exhibit 7. The coverage of the Galaxy 17 ULPC beam is shown in Exhibit 6E.

The ULPC subsystem utilizes a pair of transmitters – one primary and the other redundant – to generate each ULPC beacon. Accordingly, the ULPC system utilizes four transmitters – two primary and two redundant. For each beacon signal, the output of the selected (primary or redundant) transmitter is routed to one of the two Ku-band OMUXs within the communication subsystem and then directed to the appropriately polarized Ku-band antenna for transmission to Earth.

Each ULPC transmitter is able to maintain over the life of the spacecraft the frequency of the transmitted signal to within 0.002% of the desired value; hence, it is compliant with the provisions of section 25.202(e) of the Commission's Rules.

2.10) Satellite Station-Keeping

The spacecraft will be maintained within 0.05° of its nominal longitudinal position in the east-west direction as well as in the north-south direction. Accordingly, it is in compliance with the provisions of section 25.210(j) of the Commission's Rules.

The attitude of the spacecraft will be maintained with an accuracy consistent with the achievement of the specified communications performance, after taking into account all error sources (i.e. attitude perturbations, thermal distortions, misalignments, orbital tolerances and thruster perturbations).

2.11) Satellite Useful Lifetime

The design lifetime of the satellite in orbit is 15 years. This has been determined by a conservative evaluation of the effect of the synchronous orbit environment on the solar array, the amount of fuel aboard the spacecraft, the effect of the charge-discharge cycling on the life of the battery, and the wearout of the amplifiers and other active units. The mass allocation of propellant for spacecraft stationkeeping is optimized to achieve at least 15 years of operation. To enhance the probability of survival, equipment/unit redundancy is incorporated into the spacecraft design where possible. Materials and processes have been selected so that aging or wearing effects will not adversely affect spacecraft performance over the estimated life.

2.12) Spacecraft Reliability

Galaxy 17 is designed for an operational and mission life of 15 years. Life and reliability are maximized by incorporating flight proven or flight qualified units and designs to the greatest extent possible. All subsystems and units have a minimum design life of 15 years. Redundancy concepts are applied to all critical components. All avoidable single-point failure modes have been eliminated.

The projected reliability of the combined C-band and Ku-band payload is 93.8%. The projected reliability of the bus system is 80.2%. The overall reliability of the Galaxy 17 spacecraft is projected to be 75.2%. The subsystem reliability

assessments were based upon the use of failure rates and modeling assumptions from previous spacecraft programs as well as those specific to Galaxy 17.

3.0) Power Flux Density ("PFD")

The power flux density limits for space stations are specified in section 25.208 of the Commission's Rules. With respect to the 11700 – 12200 MHz band, section 25.208 of the Rules does not specify any PFD limits for geo-stationary FSS satellites. However, section 25.208 does specify PFD limits for the 3700 – 4200 MHz band.

In the 3700 – 4200 MHz band, the maximum PFD level at the Earth's surface produced by Galaxy 17 was calculated for a 30.133 MHz digital carrier, a 36 MHz analog TV/FM carrier as well as the Galaxy 17 telemetry carriers. The results are provided in Exhibit 11 and show that the downlink power flux density levels of the Galaxy 17 carriers do not exceed limits specified in section 25.208 of the Commission's Rules.

4.0) Emission Limitations

The receiver and transmitter channel filter response characteristics are determined primarily by the performance of the Input Multiplexer Filter and the Output Multiplexer Filter, respectively. The amplitude response characteristics of the Galaxy 17 C-band and Ku-band IMUXs are provided in Exhibits 8A and 8B, respectively, as required under section 25.114(c)(4)(vii) of the Commission's Rules. The amplitude response characteristics of the C-band and Ku-band OMUXs are provided in Exhibits 8A and 8B, respectively, as required under section 25.114(c)(4)(vii). The total amplitude response characteristics of the Galaxy 17 C-band and Ku-band channels are also provided in Exhibits 8A and 8B.

PanAmSat shall comply with the provisions of 25.202(f) of the Commission's rules with regard to Galaxy 17 emissions.

5.0) Service Area

At C-band frequencies, the primary service area of Galaxy 17 is the continental United States, Hawaii and portions of Canada and Mexico. At Ku-band, the primary service area of Galaxy 17 is the continental United States, Hawaii, Puerto Rico and portions of Canada.

6.0) Orbital Location

PanAmSat requests that it be assigned the 91° WL orbital location for Galaxy 17. From 91° WL, Galaxy 17 will replace the Galaxy 11 spacecraft which currently operates from this orbital location. The 91° WL location satisfies Galaxy 17 requirements for optimizing coverage, elevation angles and service availability and ensures that maximum operational, economic and public interest benefits will be derived. Moreover, the 91° WL orbital location ensures the continuity of the services being currently provided by Galaxy 11.

7.0) Orbital Arc Limitations

At C-band, Galaxy 17 is intended to provide video, audio and data services to satellite users in the continental United States, Hawaii and portions of Mexico and Canada. At Ku-band, Galaxy 17 is intended to provide similar services to users in the continental United States, Hawaii, Puerto Rico and portions of Canada. The 91° WL position affords reasonable Earth station angles to the region. The attractiveness of Galaxy 17 to this market would be severely diminished if service to this area is not possible, especially with respect to its ability to ensure the continuity of the services being currently provided by Galaxy 11.

8.0) Services and Emission Designators

Galaxy 17 is to be a general purpose communications satellite and has been designed to support various services offered within PanAmSat's satellite system. Depending upon the needs of the users, the transponders on Galaxy 17 can accommodate television, radio, voice or data communications. Typical types of communication services to be offered include:

- a) Frequency modulated television (TV/FM)
- b) Compressed digital video
- c) High speed digital data
- d) Digital single channel per carrier ("SCPC") data channels

Emission designators and allocated bandwidths for representative communication carriers, telemetry and command signals are provided in Exhibit 12.

9.0) Galaxy 17 Carrier Link Analysis

The operational co-frequency satellites nearest to the 91° WL orbital slot are Brasilsat B4, located 92° WL, Intelsat Americas 6, located at 93° WL, and Intelsat Americas 8, located at 89° WL.

Brasilsat B4 is operated by Star One and utilizes only C-band frequencies to provide service to Brazil and the surrounding area. Intelsat Americas 6 and Intelsat Americas 8 are operated by Intelsat and utilize both C and Ku-band frequencies to provide coverage of the U.S. The FCC license covering the operation of Intelsat Americas 6 is SAT-LOA-19950215-00017. The FCC filing for Intelsat Americas 8 specifies the use of C, Ku and Ka-band frequencies to provide coverage of the U.S. and South America. The FCC license covering the operation of Intelsat Americas 8 is SAT-MOD-19991102-00106.

At C-band and Ku-band frequencies, link analysis for Galaxy 17 was conducted for a number of representative carriers. For the analysis, it was assumed that the nearest satellites to Galaxy 17 were Intelsat Americas 6 (93° WL) and Intelsat Americas 8 (89° WL). At C-band, the impact to and from the operation of Brasilsat-B2 was not considered given that there is sufficient beam isolation between Galaxy 17 and Brasilsat B4.

Other assumptions made for the link budget analysis were as follows:

- a) In the plane of the geostationary satellite orbit, all transmitting and receiving Earth stations have off-axis co-polar gains that are compliant with the limits specified in section 25.209(a)(1) of the FCC Regulations.
- b) All transmitting and receiving Earth stations have a cross-polarization isolation value of at least 30 dB within their main beam lobe.
- c) At C-band frequencies, degradation due to rain was not considered, given that rain (attenuation) effects are insignificant at C-band.
- d) At Ku-band frequencies, rain attenuation predictions were derived using Recommendation ITU-R P.618-7.
- e) At Ku-band frequencies, increase in noise temperature of the receiving Earth station due to rain is taken into account.
- f) For the cases where the transponder operates in a multi-carrier mode, the effects due to intermodulation interference are taken into account.

The results of the analyses are shown in Exhibits 13A and 13B and demonstrate that operation of the Galaxy 17 satellite from 91° WL would permit the intended services to achieve their respective performance objectives while maintaining sufficient link margin.

10.0) Adjacent Satellite Link Analysis

Link analyses were also performed for Intelsat Americas 6 (93° WL) and Intelsat Americas 8 (89° WL) based on the proposed operation of Galaxy 17 from 91° WL. For Intelsat Americas 6, link calculations were performed for the carriers listed in the FCC license application SAT-LOA-19950215-00017. For Intelsat Americas 8, link calculations were performed for the carriers listed in the FCC license application SAT-MOD-19991102-00106. The assumptions made for the Galaxy 17 link analysis (as stated above) were also applied for the link studies of Intelsat Americas 6 and Intelsat Americas 8. In these studies, the adjacent satellite interference analysis is based on the emission levels for Galaxy 17 at 91° W.L. on one side and, on the other side is based on the emission levels that were considered in SAT-LOA-19950215-00017 (for Intelsat Americas 6) and in SAT-MOD-19991102-00106 (for Intelsat Americas 8).

The C-band link analysis only considered the impact of Galaxy 17 digital carriers. Specifically, at C-band it was assumed that the maximum Galaxy 17 uplink power density was -50.9 dBW/Hz and the maximum Galaxy 17 downlink EIRP density was -31.5 dBW/Hz. Similarly, the Ku-band analysis only considered the impact of Galaxy 17 digital carriers. At Ku-band, it was assumed that the maximum Galaxy 17 uplink power density was -50.3 dBW/Hz and the maximum Galaxy 17 downlink EIRP density was -23.5 dBW/Hz.

With regard to the C-band and Ku-band link analysis for Intelsat Americas 8 only the impact of the Galaxy 17 digital carriers on the Intelsat Americas 8 carriers associated with the NAFTA beams were considered. The impact on the Intelsat Americas 8 carriers associated with the South America beam was not considered given that there is sufficient beam isolation between Galaxy 17 and Intelsat Americas 8.

The impact of the Galaxy 17 TV/FM carrier, as listed in Exhibits 13A and 13B, on the transmissions of Intelsat Americas 6 and Intelsat Americas 8 was not considered for two primary reasons. First, in some cases the Galaxy 17 TV/FM carriers would be located at the center of the adjacent satellite's channel guard bands pursuant to section 25.211(a) of the FCC Rules. Hence, most of the energy of the TV/FM carrier would fall within the guard bands of the adjacent satellite transponders. The second reason was the fact that TV/FM carriers are known to be high-density carriers with most of the energy contained within the near vicinity of the carrier center frequency. Operation of sensitive narrow-band carriers is typically precluded within these high power density areas of the TV/FM carrier.

Accordingly, placement and operation of TV/FM carriers are normally achieved through coordination discussions with the adjacent satellite operator, rather than through C/I calculations – since the results of such calculations would show that narrow-band carriers typically could not operate on a co-frequency basis with TV/FM carriers. In this particular situation, coordination would be internal to the Intelsat system.

The results of the C-band and Ku-band link analysis for Intelsat Americas 6 operating at 93° WL are listed in Exhibits 14A and Exhibit 14B, respectively. The results of the C-band and Ku-band link analysis for Intelsat Americas 8 operating from 89° WL are listed in Exhibit 15A and 15B, respectively.

The results of the C-band and Ku-band analysis for Intelsat Americas 6 and Inteslat Americas 8 show that there will be some limited impact on the transmissions of these two spacecraft. However, coordination of Galaxy 11 transmissions with the Intelsat Americas 6 and Intelsat Americas 8 satellites will be conducted within the Intelsat system, as required.

11.0) Schedule S Submission

PanAmSat is providing with its application a Schedule S for the operations of Galaxy 17 from 91° WL. It is noted that the antenna gain pattern for the Galaxy 17 command and telemetry omni antennas were included in column "e" (instead of column "f") of section S8 of the Schedule S, since they are not in GXT format (see section 2.7.1).

The cross-polarization contours of the C-band and Ku-band communication beams are provided in column "f" of the Schedule S. The contour value listed with each contour represents the absolute level of cross-polarization isolation.

In column "g" of section S13 of the Schedule S, a link budget file has been included for the first link (i.e. the first of row of data) contained in that section. This link budget file is applicable to all of the links listed in section S13 and should have been included with each row of data in that section of the Schedule S. However, given that the link budget file is rather large and its inclusion with each link (or data row) would lead to the Schedule S file having an unmanageable size, all other links (or rows of data) contain a small ASCII file that references the link budget file that is attached to the first link (i.e. the link budget file attached to the first row of data).

12.0) Orbital Debris Mitigation Plan

Intelsat is proactive in ensuring safe operation and disposal of this and all spacecraft under its control. The four elements of debris mitigation are addressed below:

12.1) Spacecraft Hardware Design

The spacecraft is designed such that no debris will be released during normal operations. Intelsat has assessed the probability of collision with meteoroids and other small debris (<1 cm diameter) and has taken the following steps to limit the effects of such collisions: (1) critical spacecraft components are located inside the protective body of the spacecraft and properly shielded; and (2) all spacecraft subsystems have redundant components to ensure no single-point failures. The spacecraft does not use any subsystems for end-of-life disposal that are not used for normal operations.

12.2) Minimizing Accidental Explosions

Intelsat has assessed the probability of accidental explosions during and after completion of mission operations. The spacecraft is designed in a manner to minimize the potential for such explosions. Propellant tanks and thrusters are isolated using redundant valves and electrical power systems are shielded in accordance with standard industry practices. At the completion of the mission, and upon disposal of the spacecraft, Intelsat will ensure the removal of all stored energy on the spacecraft by depleting all propellant tanks, venting all pressurized systems, isolating the batteries from the spacecraft bus, and turning off all active units.

12.3) Safe Flight Profiles

Intelsat has assessed and limited the probability of the space station becoming a source of debris as a result of collisions with large debris or other operational space stations. Except as stated below, Galaxy 17 will not be located at the same orbital location as another satellite or at an orbital location that has an overlapping stationkeeping volume with another satellite.

The proposed orbital location for Galaxy 17 is 91° W.L. Except for Galaxy 11 that will move away from 91° W.L. after its traffic is transferred to Galaxy 17, Intelsat is not aware of any other FCC licensed system, or any other system applied for and under consideration by the FCC, having an overlapping stationkeeping volume

with Galaxy 17. Intelsat is also not aware of any system with an overlapping stationkeeping volume with Galaxy 17 that is the subject of an ITU filing and that is either in orbit or progressing towards launch.

12.4) Post Mission Disposal

At the end of the mission, Intelsat will dispose of the spacecraft by moving it to a minimum altitude of 300 kilometers above the geostationary arc. This exceeds the minimum altitude established by the IADC formula. Intelsat has reserved 9.5 kilograms of fuel for this purpose. The reserved fuel figure was determined by the spacecraft manufacturer and provided for in the propellant budget. To calculate this figure, the manufacturer used the "rocket equation", *i.e.*, it plugged in the expected mass of the satellite at the end of life and the required delta-velocity to achieve the desired orbit. Intelsat has assessed the fuel gauging uncertainty and has provided an adequate margin of fuel reserve to address the assessed uncertainty in remaining propellant.

In calculating the disposal orbit, Intelsat has used simplifying assumptions as permitted under the Commission's Orbital Debris Report and Order. For reference, the effective area to mass ratios (Cr*A/M) of the Galaxy 17 spacecraft is 0.04 m²/kg, resulting in a minimum perigee disposal altitude under the IADC formula of at most 280.4 kilometers above the geostationary arc, which is lower than the 300 kilometer above geostationary disposal altitude specified by Intelsat in this filing. Accordingly, the Galaxy 17 planned disposal orbit complies with the FCC's rules.

Certification Statement

I hereby certify that I am a technically qualified person and am familiar with Part 25 of the Commission's Rules and Regulations. The contents of this Technica Exhibit were prepared by me or under my direct supervision and to the best of my knowledge are complete and accurate.

/s/ Jose Albuquerque December 18, 2006

Jose Albuquerque Date

Intelsat
Senior Director,
Spectrum Engineering

EXHIBIT 1: SPACECRAFT CONFIGURATION

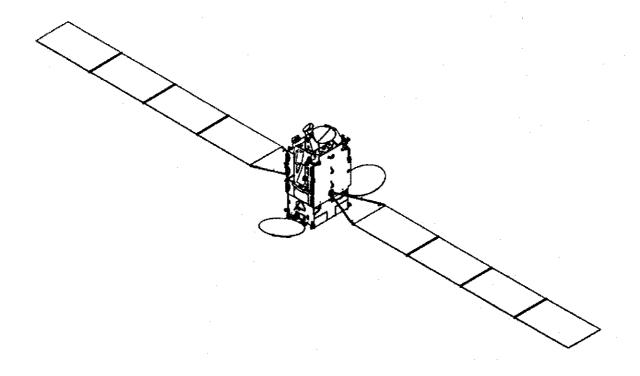


EXHIBIT 2: SUMMARY OF SPACECRAFT CHARACTERISTICS

GENERAL	
Spacecraft Name	Galaxy 17
Orbital Location	91° WL
Spacecraft Manufacturer	Alcatel Alenia Space
Spacecraft Model	SPACEBUS 3000B3
Spacecraft Type	3-axis stabilized
Spacecraft Launch Date	April-July 2007
Spacecraft Dimensions	
Length	5.3 meters
Width	3.3 meters
Depth	2.3 meters
Spacecraft Mass	
Mass w/o fuel	1777 kg
Mass w/ fuel (at launch)	4100 kg
Spacecraft Expected Lifetime	>15 years
Eclipse Capability	100%
Station-keeping	
North-South	±0.05°
East-West	±0.05°
Antenna Pointing Accuracy	
(Assumed station-keeping accuracy of ±0.05°	·
in north-south and east-west directions)	
North-South	0.12°
East-West	0.12°
Rotational	0.28°
Spacecraft Reliability	75.2%
Payload Reliability	93.8%
Bus Reliability	80.2%
Propulsion Type	Bi-propellant
Maximum Solar Array Power	
Beginning of Life	10738 Watts
End of Life	8891 Watts
Deployed Area of Solar Array	66 meters ²

COMMUNICATION	
Frequency Bands	
C-band Uplink	5925 – 6425 MHz
C-band Downlink	3700 – 4200 MHz
Ku-band Uplink	14000 – 14500 MHz
Ku-band Downlink	11700 – 12200 MHz
Polarization	
C-band Uplink	Linear Horizontal / Linear Vertical
C-band Downlink	Linear Horizontal / Linear Vertical
Ku-band Uplink	Linear Horizontal / Linear Vertical
Ku-band Downlink	Linear Horizontal / Linear Vertical
Coverage Area	
C-band Uplink	Conus, Hawaii, Portions of Canada and Mexico
C-band Downlink	Conus, Hawaii, Portions of Canada and Mexico
Ku-band Uplink	Conus, Hawaii, Puerto Rico, Portion of Canada
Ku-band Downlink	Conus, Hawaii, Puerto Rico, Portion of Canada
Beam Cross-Polarization Isolation	
C-band Uplink	> 27 dB
C-band Downlink	> 25 dB
Ku-band Uplink	> 30 dB
Ku-band Downlink	> 29 dB
Number of Channels	
C-band	24
Ku-band	24
Communication Channel Bandwidth	
C-Band	36 MHz
Ku-band	36 MHz

COMMUNICATION COMMUNICATION	
Maximum Downlink EIRP	
C-band Beam	
Conus (Horizontal Polarization)	43.3 dBW
Conus (Vertical Polarization)	43.3 dBW
Ku-band	
Conus (Horizontal Polarization)	51.3 dBW
Conus (Vertical Polarization)	51.3 dBW_
Maximum Uplink G/T	
C-band	
Conus (Horizontal Polarization)	5.2 dB/K
Conus (Vertical Polarization)	5.2 dB/K
Ku-band	
Conus (Horizontal Polarization)	7.1 dB/K
Conus (Vertical Polarization)	7.1 dB/K
Uplink SFD Range @ Maximum G/T	
C-band	
Conus (Horizontal Polarization)	-114.2 to -67.2 dBW/m ²
Conus (Vertical Polarization)	-114.2 to -67.2 dBW/m ²
Ku-band	
Conus (Horizontal Polarization)	-119.1 to -72.1 dBW/m ²
Conus (Vertical Polarization)	-119.1 to -72.1 dBW/m ²
Transponder Attenuator Range	:
C-band	47 dB in 1 dB increments
Ku-band	47 dB in 1 dB increments
Transponder Gain	
C-band Uplink to C-band Downlink	
Conus (H-Pol. Up) / Conus (V-Pol. Dn.)	134.5 to 87.5 dB
Conus (V-Pol. Up) / Conus (H-Pol. Dn.)	134.5 to 87.5 dB
Ku-band Uplink to Ku-band Downlink	
Conus (H-Pol. Up) / Conus (V-Pol. Dn.)	148.1 to 101.1 dB
Conus (V-Pol. Up) / Conus (H-Pol. Dn.)	148.1 to 101.1 dB

COMMUNICATION	
Unit Redundancy	
C-band Receiver	4 for 2
C-band Amplifier	30 for 24
Ku-band Receiver	4 for 2
Ku-band Amplifier	32 for 24
Maximum Power of Last Amplifier Stage	
C-band	47 Watts
Ku-band	111.5 and 107 Watts
Transmit Frequency Stability	
C-band	< 0.002%
Ku-band	< 0.002%

TELEMETRY, COMMAND & R	ANGINO
Command Frequency	
Transfer Orbit / Emergency	5925.5 / 6424.5 MHz
On-Station	5925.5 / 6424.5 MHz
Command Polarization	
Transfer Orbit	Left Hand Circular / Right Hand Circular
On-Station	Horizontal / Vertical
Command Carrier Modulation	FM
Command Carrier Bandwidth	
Occupied Bandwidth	860 kHz
Allocated Bandwidth	1000 kHz
Command Antennas	
Transfer Orbit	Omni Antenna
On-Station	Reflector
Command Threshold at Beam Peak	
Transfer Orbit / Emergency	-105.3 dBW/m ²
On-Station	-122.5 dBW/m ²
Command G/T at Beam Peak	
Transfer Orbit / Emergency	-25.9 dB/K
On-Station	-8.9 dB/K
Telemetry Frequency	
Transfer Orbit / Emergency	4197.125 / 4198.875 MHz
On-Station	4197.125 / 4198.875 MHz
Telemetry Polarization	
Transfer Orbit / Emergency	Left Hand Circular / Right Hand Circular
On-Station	Horizontal / Horizontal
Telemetry Modulation	PM
Telemetry Carrier Occupied Bandwidth	
Occupied Bandwidth	72 kHz
Allocated Bandwidth	500 kHz
Telemetry Antenna	
Transfer Orbit / Emergency	Omni Antenna
On-Station	Reflector
Telemetry Frequency Stability	< 0.002%

TELEMETRY, COMMAND &	RANGING
Telemetry EIRP at Beam Peak	
Transfer Orbit / Emergency	17.2 dBW
On-Station	17.8 dBW
Ranging Accuracy	< 30 meters

ULPC VAR TRANSPORT	
Frequency	11701/ 12195 MHz
Polarization	Vertical / Horizontal
Coverage Area	Conus, Hawaii, Puerto Rico, Portion of Canada
Beam Cross-Polarization Isolation	> 29 dB
Number of channels	2
Channel Bandwidth	< 25 kHz
Maximum Downlink EIRP	
Horizontal Polarization	25.4 dBW
Vertical Polarization	25.4 dBW
Frequency Stability	< 0.002%

EXHIBIT 3: SPACECRAFT MASS BUDGET

Mass of Spacecraft without Fuel (kg)	1777
Mass of Fuel and Disposables (kg)	2323
Launch Mass (kg)	4100
Mass of Fuel, in orbit, at Beginning of Life (kg)	707

EXHIBIT 4: SPACECRAFT POWER BUDGET

	BEGINNIN		END OF LIFE	F LIFE
	AUTUMN	1	AUTUMN	SUMMER
	EQUINOX	EQUINOX SOLSTICE	EQUINOX	SOLSTICE
PAYLOAD (WATTS)	6187		6187	6187
3US (WATTS)	1713	921	1713	
FOTAL POWER (WATTS)	7900	7108	0062	
SOLAR ARRAY POWER (WATTS)	10738	6096	8891	8043
DEPTH OF BATTERY DISCHARGE (%)	49	N/A	61	N/A

EXHIBIT 5A: FREQUENCY PLAN

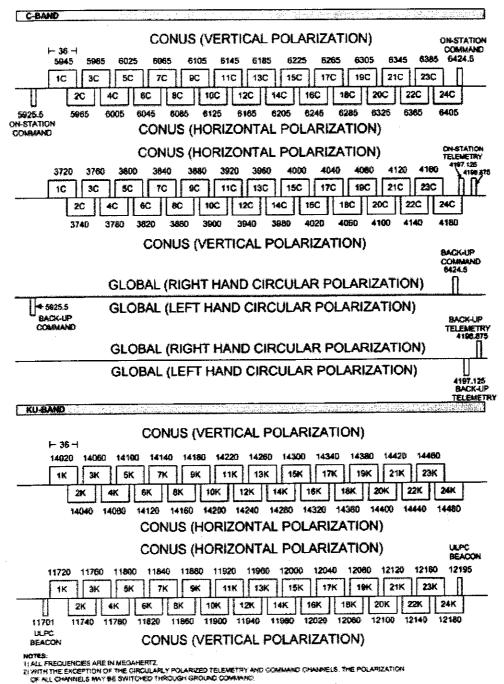


EXHIBIT 5B: FREQUENCY ASSIGNMENTS

	٠.																																	
Maximum Transponder	Gain (dB)	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5	134.5		N/A	N/A	N/A	N/A	A/N	N/A	N/A	N/A
Channel	Bandwidth (MHz)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	96	36	36			-	-	-	0.500	0.500	0.500	0.500
Downlink Center	Frequency (MHz)	3720	3760	3800	3840	3880	3920	3960	4000	4040	4080	4120	4160	3740	3780	3820	3860	3900	3940	3980	4020	4060	4100	4140	4180		_		-		4197.125	4198.875	4197.125	4198.875
	Downlink Polarization	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL.	HORIZONTAL	VERTICAL		_		•	-	HORIZONTAL	HORIZONTAL	LEFT HAND CIRCULAR	RIGHT HAND CIRCULAR																		
Downlink	Beam	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS		-	-	ţ		CONUS	CONUS	GLOBAL	GLOBAL
Downlink	Transponder Designation	21	30	3C	2 <i>L</i>	26	110	13C	15C	17C	361	21C	23C	, 2C	4C	9	% %	100	12C	14C	16C	18C	20C	22C	24C		-	1	•		TELEMETRY 1	TELEMETRY 2	TELEMETRY 3	TELEMETRY 4
Uplink	Frequency	5945	5985	6025	6065	6105	6145	6185	6225	6265	6305	6345	6385	5965	6005	6045	6085	6125	6165	6205	6245	6285	6325	6365	6405		5925.5	6424.5	5925.5	6424.5	1		1	,
	Uplink	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	HORIZONTAL		HORIZONTAL	VERTICAL	LEFT HAND CIRCULAR	RIGHT HAND CIRCULAR		•		•											
	Uplink Beam	CONLIS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS	CONTIS	CONTIS	CONUS	CONUS	CONUS	CONUS	CONUS	CONUS		CONUS	CONUS	GLOBAL	GLOBAL	<u> </u>			,
Juilel I	Transponder	Designation 10) 2 2 3 2	SC	70	26	110	13C	150	170	190	21C	23C	2C	4C	ور))	الح	120	14C	160	180	2000	22C	24C		COMMAND !	COMMAND 2	COMMAND 3	COMMAND 4		,	·	

Note: With the exception of the circularly polarized telemetry and command channels, the polarization of all C-band channels may be switched through ground command.

EXHIBIT 5B: FREQUENCY ASSIGNMENTS (continued)

																_						_							
Maximum	Transponder	Gain	(dB)	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	148.1	N/A	N/A
	Channel	Bandwidth	(MHz)	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	0.025	0.025
Downlink	Center	Frequency	(MHz)	11720	11760	11800	11840	11880	11920	11960	12000	12040	12080	12120	12160	11740	11780	11820	11860	11900	11940	11980	12020	12060	12100	12140	12180	11701	12195
		Downlink	Polarization	HORIZONTAL	VERTICAL	VERTICAL	HORIZONTAL																						
		Downlink Beam	Name	CONUS	CONUS	CONUS																							
	Downlink	Transponder	Designation	IK	3К	SK	7K	36	IIK	13K	15K	17K	19K	21K	23K	2K	4K	9K	8K	10K	12K	14K	16K	18K	20K	22K	24K	ULPCI	UPLC 2
Uplink	Center	Frequency	(MHz)	14020	14060	14100	14140	14180	14220	14260	14300	14340	14380	14420	14460	14040	14080	14120	14160.	14200	14240	14280	14320	14360	14400	14440	14480		
		Uplink	Polarization	VERTICAL	HORIZONTAL																								
		Uplink Beam	Name	CONUS	i.																								
	Uplink	Transponder	Designation	×	3K	SK	7.K	ЭК	IIK	13K	15K	17K	19K	21K	23K	2K	4K	6K	8K	10K	12K	14K	16K	18K	20K	22K	24K		

Note: The polarization of all Ku-band channels and the ULPC channels may be switched through ground command.

EXHIBIT 6A: C-BAND RECEIVE BEAM (Schedule S Beam ID: CUP)

GALAXY 17: C-BAND RECEIVE BEAM PEAK ANTENNA GAIN: 31.7 dBi PEAK G/T: 5.2 dB/K

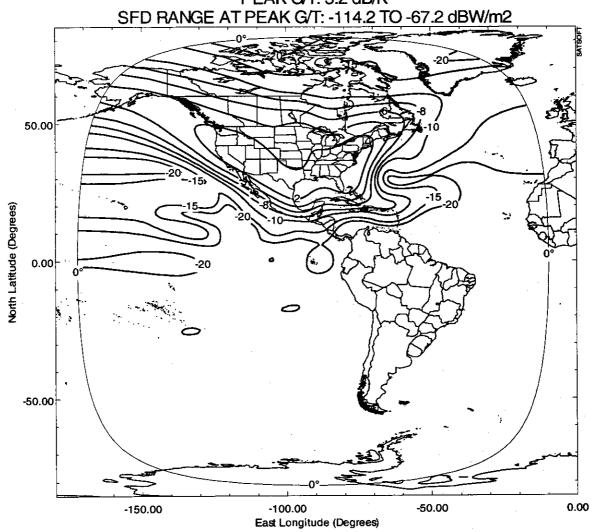


EXHIBIT 6B: C-BAND TRANSMIT BEAM (Schedule S Beam ID: CDN)

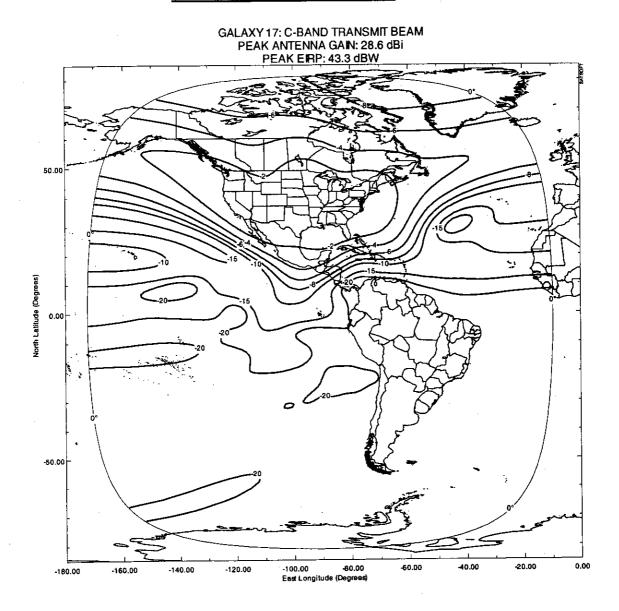


EXHIBIT 6C: Ku-BAND RECEIVE BEAM (Schedule S Beam ID: KUP)

GALAXY 17: KU-BAND RECEIVE BEAM PEAK ANTENNA GAIN: 33.7 dBi PEAK G/T: 7.1 dB/K

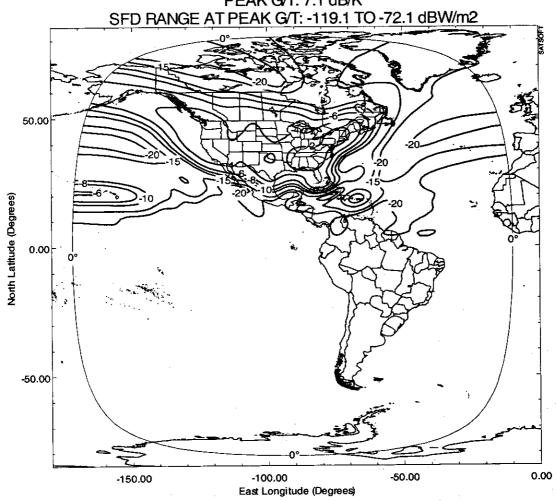


EXHIBIT 6D: Ku-BAND TRANSMIT BEAM (Schedule S Beam ID: KDN)



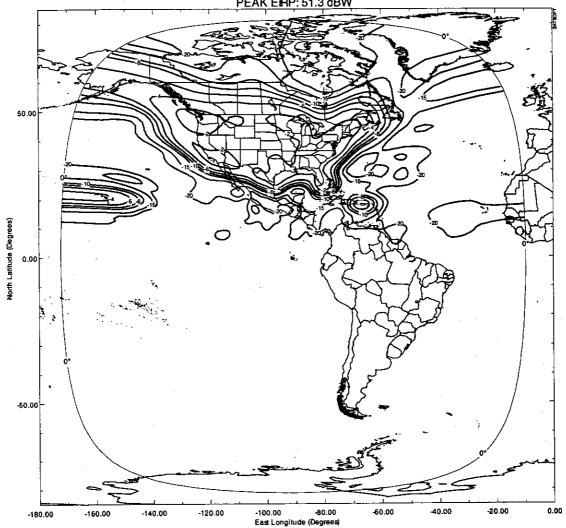


EXHIBIT 6E: Ku-BAND ULPC BEAM (Schedule S Beam ID: UPC)

GALAXY 17 : Ku-BAND ULPC BEAM PEAK ANTENNA GAIN: 33.1 dBi PEAK EIRP: 25.4 dBW

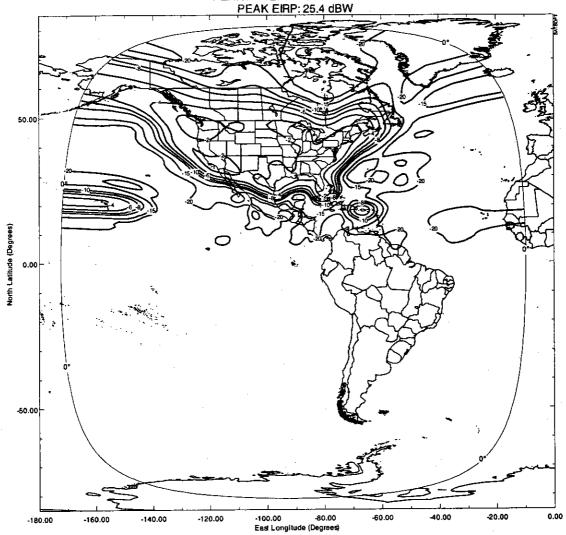


EXHIBIT 6F: C-BAND COMMAND BEAM (ON-STATION) (Schedule S Beam ID: CMD)

GALAXY 17: C-BAND COMMAND RECEIVE BEAM

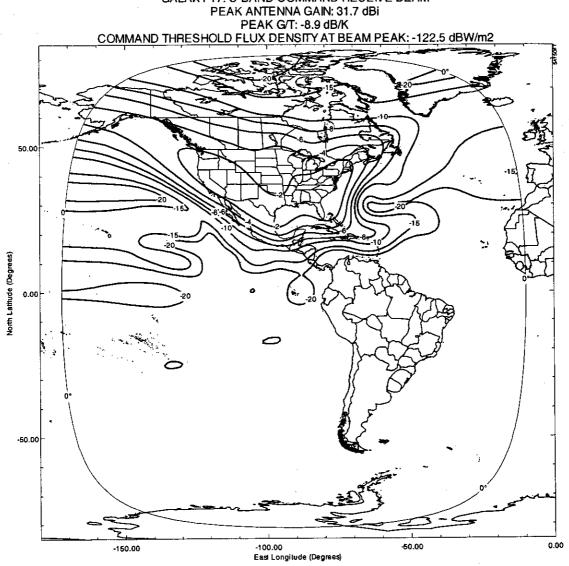
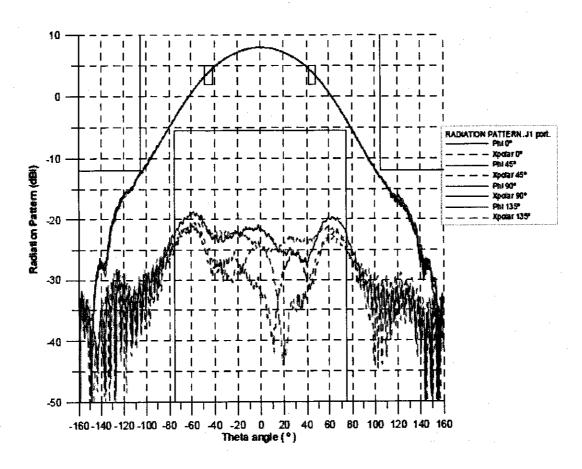


EXHIBIT 6G: C-BAND COMMAND BEAM (BACK-UP and TRANSFER ORBIT) (Schedule S Beam ID: OCMD)



Peak Antenna Gain: 8.0 dBi

Peak G/T: -25.9 dB/K

Command Threshold at Peak G/T: -105.3 dBW/m²

Beam Polarization: Left Hand Circular / Right Hand Circular

EXHIBIT 6H: C-BAND TELEMETRY BEAM (ON-STATION) (Schedule S Beam ID: TLM)

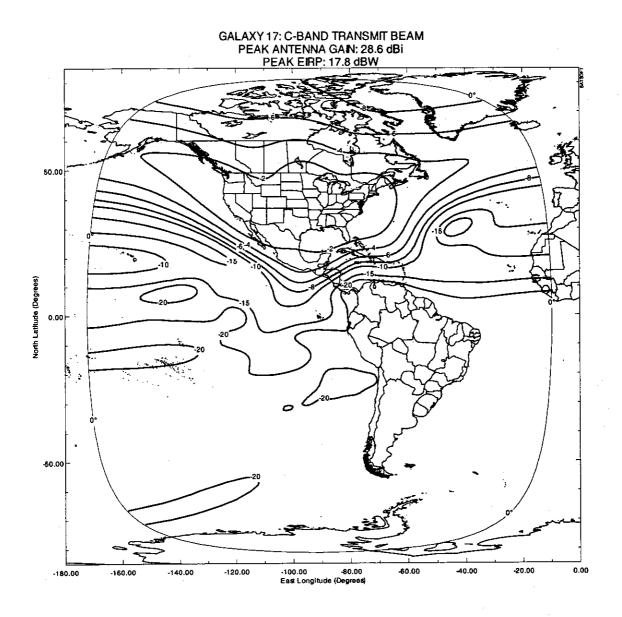
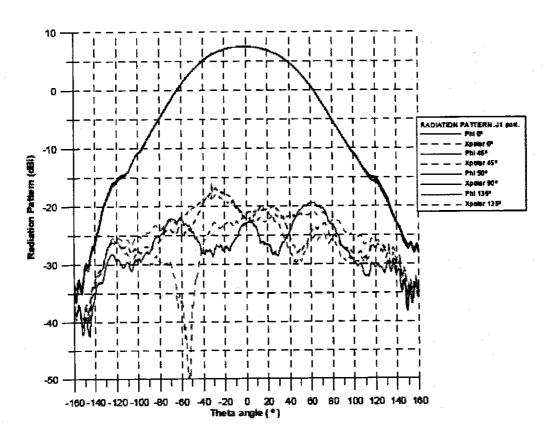


EXHIBIT 6I: C-BAND TELEMETRY BEAM (BACK-UP and TRANSFER ORBIT) (Schedule S Beam ID: OTLM)



Peak Antenna Gain: 7.8 dBi

Peak EIRP: 17.2 dBW

Beam Polarization: Left Hand Circular / Right Hand Circular

EXHIBIT 6J: C-BAND RECEIVE BEAM CROSS-POLARIZATION PATTERN (Schedule S Beam ID: CUP)

GALAXY 17: C-BAND RECEIVE BEAM CROSS-POLARIZATION CONTOURS

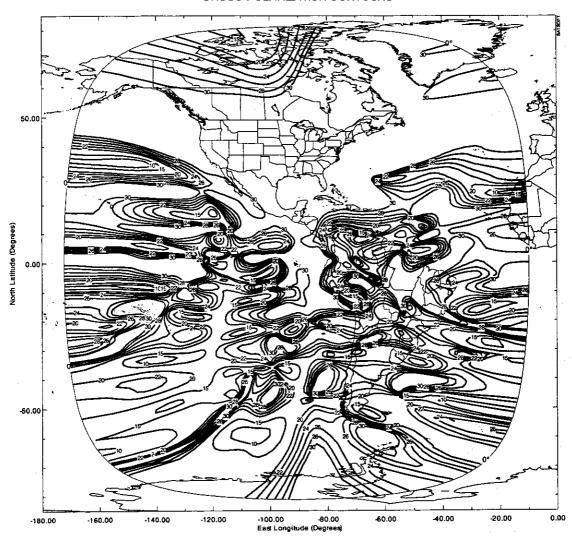


EXHIBIT 6K: C-BAND TRANSMIT BEAM CROSS-POLARIZATION PATTERN (Schedule S Beam ID: CDN)

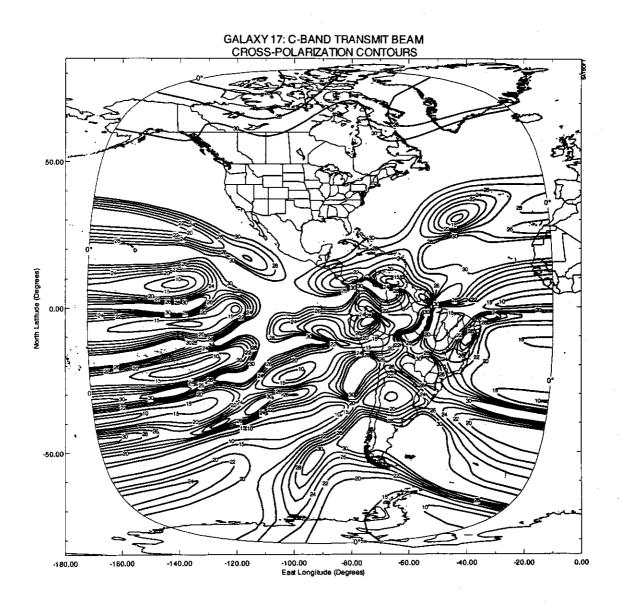


EXHIBIT 6L: Ku-BAND RECEIVE BEAM CROSS-POLARIZATION PATTERN (Schedule S Beam ID: KUP)

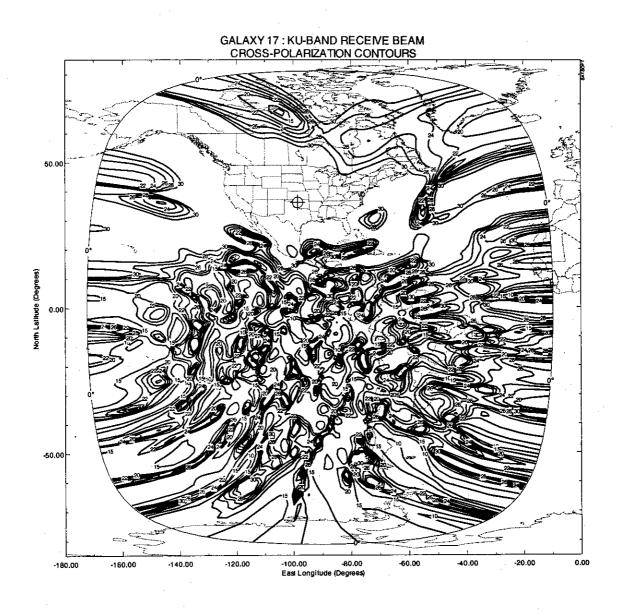


EXHIBIT 6M: Ku-BAND TRANSMIT BEAM CROSS-POLARIZATION PATTERN (Schedule S Beam ID: KDN)

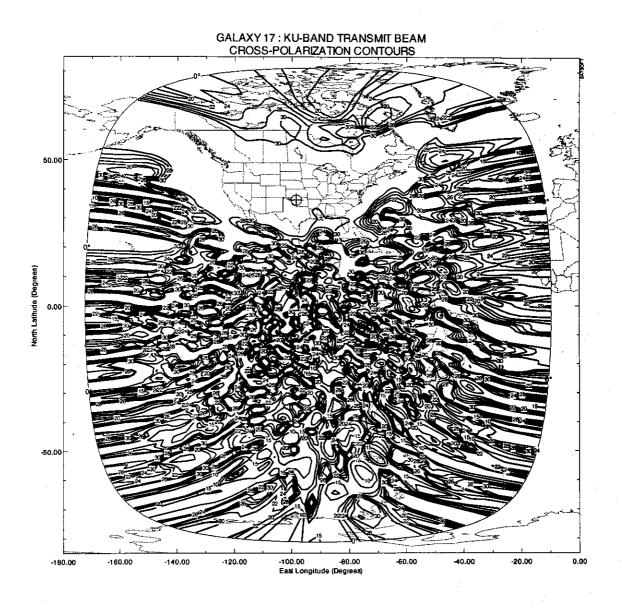


EXHIBIT 7: COMMUNICATION SUBSYSTEM EIRP AND G/T BUDGETS

Beam Name	Conus	Conus	Conus	ULPC
Frequency Band (MHz)	3700 - 4200	11700 – 12200	11700 – 12200	12195 / 11701
Polarization	H/V	H/V	H/V	H/V
Maximum Power At The Output of Last Stage Amplifier (dBW)	16.7	20.5	20.3	-4
Loss From Last Stage Amplifier To Transmit Antenna Interface (dB)	-2.0	-2.3	-2.1	-3.7
Peak Gain of Satellite Transmit Antenna (dBi)	28.6	33.1	33.1	33.1
Maximum Downlink EIRP (dBW)	43.3	51.3	51.3	25.4
Beam Name	Conus	Conus		
Frequency Band (MHz)	5925 – 6425	14000 - 14500		·
Polarization	H/V	H/V		
Antenna Noise Temperature (K)	190	215		
Receiver Noise Temperature (K)	257	238		
Total System Noise Temperature (K)	447	453		
Total System Noise Temperature (dBK)	26.5	26.6		
Peak Gain of Satellite Receive Antenna (dBi)	31.7	33.7		.==
Peak G/T (dB/K)	5,2	7.1	· · · · · · · · · · · · · · · · · · ·	
Minimum SFD [G/T: Peak, Attn: 0 dB] (dBW/m²)	-114.2	-119.1		

EXHIBIT 8A: C-BAND CHANNEL FREQUENCY RESPONSE CHARACTERISTICS

	Attenuation Relative To Peak Level (dB)					
Frequency Offset Relative to Channel Center						
Frequency (MHz)	IMUX	OMUX	Total			
±8	0.2	0.15	0.35			
±12	0.1	0.15	0.25			
±14	0.15	0.3	0.45			
±16	0.35	0.5	85			
±18	0.4	1.2	1.6			
±22	11	7.4	18.4			
±25	29	19.9	48.9			
±30	41	22.0	63			

EXHIBIT 8B: Ku-BAND CHANNLE FREQUENCY RESPONSE CHARACTERISTIC

	Attenuation Relative To Peak Level (
Frequency Offset Relative						
to Channel Center						
Frequency						
(MHz)	IMUX	OMUX	Total			
±8	0.15	0.2	0.35			
±12	0.21	0.25	0.46			
-±14	0.26	0.4	0.66			
±16	0.46	0.8	1.26			
±18	1.00	2.1	3.1			
±22	15.6	6	21.6			
±25	29	16	45			
±30	42	20	62			

EXHIBIT 9: TC&R SUBSYSTEM CHARACTERISTICS

	Spacecraft Antenna			
	Reflector	Omni		
Command Frequency (MHz) / Polarization (see note)				
Transfer Orbit / Emergency	n/a	5925.5 (LHCP) 6424.5 (RHCP)		
On-Station	5925.5 (H) 6424.5 (V)	n/a		
Command Modulation	FM	FM		
Bandwidth of Command Carrier (kHz)				
Occupied Bandwidth	860	860		
Allocated Bandwidth	1000	1000		
Command Threshold (dBW/m²)				
Beam Peak	-122.5	-105.3		
Edge of Coverage	-112.5	-103.3		
Command G/T (dB/K)				
Beam Peak	-8.9	-25.9		
Edge of Coverage	-18.9	-27.9		
Telemetry Frequency (MHz) / Polarization (see note)	<u> </u>	· .		
Transfer Orbit / Emergency	n/a	4197.125 (LHCP) 4198.875 (RHCP)		
On-Station	4197.125 (H) 4198.875 (H)	n/a		
Telemetry Modulation	PM	PM		
Bandwidth of Telemetry Carrier (kHz)				
Occupied	72	72		
Allocated	500	500		
Telemetry EIRP				
Beam Peak	17.8	17.2		
Edge of Coverage	7.8	15.2		
On-Station Ranging Accuracy (meters)	< 30	< 30		

Note:

H: Linear Horizontal Polarization V: Linear Vertical Polarization

LHCP: Left Hand Circular Polarization RHCP: Right Hand Circular Polarization

EXHIBIT 10: TC&R SUBSYSTEM EIRP and G/T BUDGETS

Antenna Type	Omni	Reflector
Frequency Band (MHz)	4197.125 / 4198.7	4197.125 / 4198.7
Polarization (see note)	LHCP / RHCP	V/V
Maximum Power At The Output of Last Stage Amplifier (dBW)	16.7	-4.0
Loss From Last Stage Amplifier To Transmit Antenna Interface (dB)	-7.3	-6.8
Peak Gain of Satellite Transmit Antenna (dBi)	7.8	28.6
Maximum Downlink EJRP (dBW)	17.2	17.8
Antenna Type	Omni	Reflector
Frequency Band (MH2)	5925.4 / 6424.5	5925.4 / 6424.5
Polarization (see Note)	LHCP / RHCP	H/V
Antenna Noise Temperature (K)	100	190
Receiver Noise Temperature (K)	2331	11206
Total System Noise Temperature (K)	2431	11396
Total System Noise Temperature (dBK)	33.9	40.6
Peak Gain of Satellite Receive Antenna (dBi)	8.0	31.7
Peak G/T (dB/K)	-25.9	-8.9
SFD Threshold at Peak G/T (dBW/m²)	-105.3	-122.5

Note:

H: Linear Horizontal Polarization V: Linear Vertical Polarization

LHCP: Left Hand Circular Polarization RHCP: Right Hand Circular Polarization

EXHIBIT 11: POWER FLUX DENSITY CALCULATIONS

Analog TV Carrier

Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	41.3*	41.3*	43.3	43.3	43.3	43.3	43.3
Spreading loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum PFD (dBW/m²/4kHz)	-152.1	-152.0	-149.9	-149.7	-149.6	-149.5	-148.8
(36 MHz Analog TV 4 MHz EDS)							
PFD Limit (dBW/m²/4kHz)	-152	-152	-149.5	-147	-144.5	-142	-142
Margin (dB)	0.1	0	0.4	2.7	5.1	7.5	6.8

^{*}This is the maximum allowable EIRP level at the specified elevation angle. For a beam peak of 43.3 dBW, the actual EIRP level of the beam at this particular elevation angle is equal to or lower than the value listed in the table.

Digital Carrier

Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.3	43.3	43.3	43.3	43.3	43.3	43.3
Spreading loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum PFD (dBW/m²/4kHz) (30.133 MHz Digital Carrier)	-158.9	-158.7	-158.6	-158.5	-158.4	-158.3	-157.5
PFD Limit (dBW/m²/4kHz)	-152	-152	-149.5	-147	-144.5	-142	-142
Margin (dB)	6.9	6.7	9.1	11.5	13.9	16.3	15.5

TT&C (Reflector)

Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	17.8	17.8	17.8	17.8	17.8	17.8	17.8
Spreading loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum PFD (dBW/m²/4kHz) (72 kHz Digital Carrier)	-158.1	-158.0	-157.9	-157.8	-157.7	-157.6	-156.8
PFD Limit (dBW/m²/4kHz)	-152	-152	-149.5	-147	-144.5	-142	-142
Margin (dB)	6.1	6.0	8.4	10.8	13.2	15.6	14.8

TT&C (Omni Antenna)

Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	17.2	17.2	17.2	17.2	17.2	17.2	17.2
Spreading loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum PFD (dBW/m²/4kHz)	-158.7	-158.6	-158.5	-158.4	-158.3	-158.2	-157.4
(72 kHz Digital Carrier)	1						
PFD Limit (dBW/m²/4kHz)	-152	-152	-149.5	-147	-144.5	-142	-142
Margin (dB)	6.7	6.6	9.0	11.4	13.8	16.2	15.4

EXHIBIT 12: EMISSION DESIGNATORS

Signal Type	Emission Designator	Allocated Bandwidth (RHZ)
Analog TV/FM Carrier	36M0F3F	36000
36863 kbps Carrier	30M1G7W	36000
6000 kbps carrier	4M15G7W	6875
1544 kbps (T1) Carrier	1M21G7W	1550
64 kbps Carrier	75K4G7W	100
512 kbps Carrier	1M23G7W	1450
128 kbps Carrier	307KG7W	400
Spacecraft Command	860KF3D	1000
Spacecraft Telemetry	72K0G1D	500

EXHIBIT 13A: Galaxy 17 C-Band Link Budgets

AUBUS CONTRACTOR CONTRACTOR		·	<u> </u>	·	
Uplink Beam Name	Conus	Comis	Coms	Conus	Conus
Uplink Frequency (MHz) Uplink Beam Polarization	6175 Horizontal	6175 Horizontal	6175 Horizontal	6175 Horizontal	6175 Horizontal
Uplink Relative Contour Level (dB)	-5	-5	5	-5	-5
Uplink Contour G/T (dB/K)	0.2	0.2	0.2	0.2	0.2
Unlink SFD (dBW/m²) DOWNLINK BEAM DEORMATIES	-86.2	-86.2	-86.2	-86.2	-86.2
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	3950	3950	3950	3950	3950
Downlink Beam Polarization Downlink Relative Contour Level (dB)	Vertical -3	Ventical -3	Vertical 3	Vertical -3	Vertical -3
Downlink Contour E1RP (dBW)	40.3	40.3	40.3	40.3	40.3
ENDERGE SESSIONE DE LE COMPANIONE DE LE	89 WI	89 WL	00.337	89 WL	00 334
Satellite 1 Orbital Location Unlink Power Density (dBW/Hz)	-44	-44	.89 WL -44	-44	89 WL.
Unlink Polarization Advantage (dB)	0	0	0	. 0	0
Downlink EIRP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-31.5 0	-31.5 0	-31.5 0	-31.5 0	-31.5 0
SALDIEZ GENERAZ VIETE BIETEN GENERAL BETTEN		V		<u> </u>	
Satellite 2 Orbital Location	93 WL	93 WL	93 WI.	93 WL	93 WL
Unlink Power Density (dBW/Hz) Unlink Polarization Advantage (dB)	-44 0	-44 0	-44 0	-44 0	-44 0
Downlink EIRP Density (dBW/Hz)	-32.5	-32.5	-32.5	-32.5	-32.5
Downlink Polarization Advantage (dB)	_0	0	0	0	0
CARRIER INFORMATION	36M0F3F	30M1G7W	4M15G7W	1M21G7W	75K4G7W
Information Rate (kbps)	n/a	36863	6000	1544	64
Carrier Modulation Peak to Peak Bandwidth of EDS (MHz)	TV/FM 4	OPSK P/a	OPSK n/o	OPSK 7/0	OPSK n/o
Peak to Peak Bandwidth of EDS (MHZ) Code Rate	n/a	n/a 3/4-RS	n/a 3/4-RS	n/a 3/4-RS	n/a 1/2-RS
Occupied Bandwidth (kHz)	36000	30133	4154.0	1212.8	75.4
Allocated Bandwidth (kHz) Minimum C/N, (dB)	36000 10	36000 6.1	6875 6.7	1550 5.7	3.0
ENDERNG MARKETSKARON			U.7.	3.7	3.0
Earth Station Diameter (meters)	8.1	8.1	8.1	8.1	8.1
Earth Station Gain (dBi) Earth Station Elevation Angle	52.8 20	52.8 20	52.8 20	52.8 20	52.8 20
ENGWARDINKE PARCHIKA KARION					
Earth Station Diameter (meters)	4.5	3.0	3.5	3.5	3.0 39.7
Earth Station Gain (dBi) Earth Station G/T (dB/K)	43.9 23.6	39.7 19.2	41.1 21	41.1 21	39.7 19.2
Earth Station Elevation Angle	20	20_	20	20	20
ZIPOKNOPORYORMANIO	76.7	76.7	64.1	57.6	45.9
Uplink Earth Station FIRP (dBW) Uplink Path Loss, Clear Sky (dB)	-200.2	-200.2	-200.2	-200.2	-200.2
Satellite G/T (dB/K)	0.2	0.2	0.2	0.2	0.2
Boltzman Constant (dBW/K-H2) Carrier Noise Bandwidth (dB-H2)	228.6 -75.6	228.6 -74.8	228.6 -66.2	228.6 -60.8	228.6 -48.8
Uplink C/N (dB)	29.7	30.5	26.5	25.3	25.8
SOOWNENKEER EORMANICE STATE	40.3	40.3	29.2	22.7	11.0
Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB)	-0.5	0.5	-0.5	-0.5	-0.5
Downlink Path Loss, Clear Sky (dB)	-196.3	-196.3	-196.3	-196.3	-196.3
Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	23.6 228.6	19.2 228.6	21 228.6	21.0 228.6	19.2 228.6
Carrier Noise Bandwidth (dB-Hz)	75.6	-74.8	-66.2	-60.8	-48.8
Downlink C/N (dB)	20.1	16.5	15.7	14.6	13.2
C/N Uplink (dB)	29.7	30.5	26.5	25.3	25.8
C/N Downlink (dB)	20.1	16.5	15.7	14.6	13.2
C/I Intermodulation (dB)	n/a	n/a	18.9	17.8	18.2
C/I Uplink Co-Channel (dB)* C/I Downlink Co-Channel (dB)*	25.0 25.0	25.0 25.0	24.5 24.5	24.5 24.5	24.8 24.8
C/I Uplink Adiacent Satellite 1 (dB)	22.1	22.9	18.9	17.7	18.2
C/I Downlink Adjacent Satellite 1 (dB)	19.8 22.1	16.9 22.9	15.6 18.9	14.4 17.7	13.7 18.2
C/I Uplink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	18.3	9.2	11.8	10.7	6.0
	L				
C/(N+1) Composite (dB) Required System Margin (dB)	12.6	7.4 -1.0	7.7 -1.0	6.7 -1.0	4.0 -1.0
Net C/(N+1) Composite (dB)	11.6	6.4	6.7	5.7	3.0
Minimum Required C/N (dB)	-10.0	-6.1 0.3	-6.7 0.0	-5.7 0.0	-3.0 0.0
Excess Link Margin (dB) Number of Carriers	1.6	0.3 1	5.2	23.2	360
Sention of the Report Laboratory					
Uplink Power Density (dBW/Hz) Density At Beem Peek	-42.1 -22.7_	-50.9 -31.5	-54.9 -34.0	-56.1 -35.2	-55.6 -34.7
Downlink EIRP Density At Beam Peak	-44.4	ı •.711	1 -24.U		

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 13B: Galaxy 17 Ku-Band Link Budgets

mensica and price and before					Ι	_
Unlink Beam Name	Coms	Conus	Conus	Conus	Conus	Conus
Unlink Frequency (MHz)	14250	14250	14250	14250	14250	14250
Unlink Beam Polarization Unlink Relative Contour Level (dB)	Vertical -6	Vertical -6	Vertical -6	Vertical 	Vertical6	Vertical -6
Unlink Contour G/T (dB/K)	11	1 1.1	ii	1.1	1.1	1.1
Uplink SFD (dBW/m²)	-83.1	-83.1	-83.1	-83.1	-83.1	-83.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MH2)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal .	Horizontal	Horizontal	<u> Horizontal</u>
Downlink Relative Contour Level (dB) Downlink Contour EIRP (dBW)	47.3	47.3	47.3	<u>-4</u> 47.3	47.3	47.3
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
Andrew Carlegue de la Calaba de Calaba	00.111	00.117	00.178			
Satellite 1 Orbital Location Uplink Power Density (dBW/Hz)	89 WL -45	89 WL -45	89 WL -45	89 WL -45	89 WL -45	89 WL -45
Uplink Polarization Advantage (dB)	0	0	0	0	0	0
Downlink EIRP Density (dBW/Hz)	-23	-23	-23	-23	-23	-23
Downlink Polarization Advantage (dB)	0	0	<u> </u>	0	0	0
Satellite 2 Orbital Location	93 WL	93 WL	93 WL	93 WI.	93 W1.	93 WL
Uplink Power Density (dBW/Hz)	-45	-45	-45	-45	-45	-45
Uplink Polarization Advantage (dB)	-24.9	-24.9	0 -24.9	24.0	0	24.0
Downlink EIRP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-24.9 0	-24.9 0	-24.9 0	-24.9 0	-24.9 0	-24.9 0
TEARRIBERS NEWS AND LOSS FOR A LO						
Carrier ID	36M0F3F	36M0F3F	36M0F3F	30M1G7W	30M1G7W	30M1G7W
Carrier Modulation Peak to Peak Bandwidth of EDS (MHz)	TV/FM 4	TV/FM 4	TV/FM	OPSK n/a	OPSK II/a	OPSK.
Information Rate (kbps)	n/a	n/a	n/a	36863	36863	36863
Code Rate	n/a	n/a	n/a	3/4 - RS	3/4 - RS	3/4 - RS
Occupied Bandwidth (kHz)	36000 36000	36000 36000	36000 36000	30133 36000	30133 36000	30133 36000
Allocated Bandwidth (kHz) Minimum C/N, Clear Sky (dB)	10	10	10	6.1	6.1	6.1
Minimum C/N, Rain (dB)	10	10	10	6.1	6.1	6.1
HIZH NIKESARTH STRAUDNE LESERIESE	- (1	4.1				6.1
Earth Station Diameter (meters) Earth Station Gain (dBi)	6.1 56.9	6.1 56.9	6.1 56.9	6.1 56.9	6.1 56.9	56.9
Earth Station Elevation Angle	20	20	20	20	20	20
NOWSHIELS CARD HESPATEUR CONTRACTOR		<u></u>				
Farth Station Diameter (meters)	2.4 47.5	2.4 47.5	2.4 47.5	1.2 41 3	1.2	1.2
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K)	47.5 25	47.5 25	47.5 22.4	41.3 18.8	41.3 18.8	41.3 16.6
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	47.5 25 20	47.5 25 20	47.5 22.4 20	41.3 18.8 20	41.3 18.8 20	41.3 16.6 20
Earth Station Gain (dBi) Earth Station G/T (dB/K)	47.5 25	47.5 25	47.5 22.4	41.3 18.8	41.3 18.8	41.3 16.6
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	47.5 25 20 Clear Sky	47.5 25 20 Uplink Fade	47.5 22.4 20 Downlink Fade	41.3 18.8 20 Clear Skv	41.3 18.8 20 Uplink Fade	41.3 16.6 20 Downlink Fade
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle ISIN ASSESSED ANGRA Unlink Farth Station FIRP (dBW)	47.5 25 20 Clear Skv	47.5 25 20 Uplink Fade 79.8	47.5 22.4 20 Downlink Fade	41.3 18.8 20 Clear Skv	41.3 18.8 20 Uplink Fade	41.3 16.6 20 Downlink Fade
Earth Station Gain (dBi) Earth Station GPT (dB/K) Earth Station Elevation Angle ISIN SEARCH STATION ELEVATION ANGLE Uplink Earth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB)	47.5 25 20 Clear Skv 79.8 -207.5	47.5 25 20 Uplink Fade 79.8 -207.5	22.4 20 Downlink Fade 79.8 -207.5	41.3 18.8 20 Clear Skv	41.3 18.8 20 Uplink Fade 79.8 -207.5	41.3 16.6 20 Downlink Fade 79.8 -207.5
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle ISIN ASSESSED ANGRA Unlink Farth Station FIRP (dBW)	47.5 25 20 Clear Skv	47.5 25 20 Uplink Fade 79.8 -207.5 -5.0	79.8 -207.5 -0.0 -207.5	41.3 18.8 20 Clear Skv	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Uplink Parth Station Elevation Elevation Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz)	47.5 25 20 Clear Skv 79.8 -207.5 0.0 1.1	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation ElRP (dBW) Uplink Earth Station ElRP (dBW) Uplink Path Loss, Clear Skv (dB) Uplink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	47.5 25 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -75.6	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6	22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8	41.3 18.8 20 Unlink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle ESING ASSESSES Unlink Parth Station ETRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB)	47.5 25 20 Clear Skv 79.8 -207.5 0.0 1.1	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1	47.5 22.4 20 Downlink Fade -207.5 0.0 1.1 228.6 -75.6 26.5	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station EIRP (dBW) Uplink Parth Station EIRP (dBW) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP oer Carrier (dBW)	47.5 25 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5	47.5 22.4 20 Downlink Fade 	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink EIRP oer Carrier (dBW) Antenna Pointing Error (dB)	79.8 207.5 207.5 20.6 207.5 207.5 207.5 228.6 26.5 47.3 -0.5	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 45.6 -0.5	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5	41.3 18.8 20 Unlink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station EIRP (dBW) Uplink Parth Station EIRP (dBW) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP oer Carrier (dBW)	47.5 25 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 45.6 -0.5 -205.9 0.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2
Earth Station Gain (dBK) Earth Station GT (dBK) Earth Station GT (dBK) Earth Station Elevation Angle ISNS ASSESSES Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GT (dB/K)	47.5 25 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 25.0	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 45.6 -0.5 -205.9 0.0 25.0	47.5 22.4 20 Downlink Fade -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8	41.3 18.8 20 Unlink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle ESING ASSESSES Unlink Earth Station ETRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ETRP oer Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Earth Station GCT (dB/K) Boltzman Constant (dBW/K-Hz)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 -45.6 -0.5 -205.9 0.0 228.6	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.8 22.8	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6	41.3 18.8 20 Unlink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Eirik Alacaya Unlink Farth Station ETRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ETRP oer Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	47.5 25 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 25.0	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 45.6 -0.5 -205.9 0.0 25.0	47.5 22.4 20 Downlink Fade -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8	41.3 18.8 20 Unlink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle ESING ASSESSED MANGE Uplink Farth Station EIRP (dBW) Uplink Path Loss. Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Station GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	47.5 25 20 Clear Sky 79.8 -207.5 -0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6 -75.6	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 -45.6 -0.5 -205.9 0.0 25.0 228.6 -75.6 17.2	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 228.6 -75.6 12.9	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 1.1 28.6 -74.8 13.4	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Eirik Alacaya Unlink Farth Station ETRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CCN (dB) Downlink ETRP oer Carrier (dBW) Antenna Pointing Error (dB) Downlink Rain Attenuation (dB) Earth Station GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) Earth Station GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) EMBROSE ERROR (dB) EMBROS	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 -205.9 0.0 228.6 -75.6 17.2	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 22.4 22.4 22.6 -75.6	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 -28.6 -74.8 8.9
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Elink Alicate Uplink Earth Station EIRP (dBW) Uplink Path Loss. Clear Skv (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP oer Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Path Loss. Clear Skv (dB) Bownlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Liplink (dB) C/N Downlink (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 -45.6 -0.5 -205.9 0.0 25.0 228.6 -75.6 17.2	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 228.6 -75.6 12.9	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 1.1 28.6 -74.8 13.4	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9
Earth Station Gain (dBi) Earth Station GCT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Eine Station Elevation Angle Unlink Parth Station ETRP (dBW) Unlink Path Loss. Clear Sky (dB) Urblink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ETRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) GMP08182-881 CN Unlink (dB) CN Unlink (dB) CN Intermedulation (dB) CT Unlink CO-Channel (dB)*	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9 26.5 18.9 26.5	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 -21.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 21.5 17.2 20.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 22.8 -75.6 12.9 26.5 12.9 26.5	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2 13.4 27.2	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 1/2 27.2 8.9 1/2 25.0
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Eink Assay (2) Uplink Earth Station EIRP (dBW) Uplink Path Loss. Clear Skv (dB) Uplink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink EIRP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CN Uplink (dB) CN Uplink (dB) CA Intermodulation (dB) CA Intermodulation (dB) CA Intermodulation (dB) CA Uplink Co-Channel (dB)* CA Uplink Co-Channel (dB)* CA Uplink Co-Channel (dB)*	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 45.6 -0.5 -205.9 0.0 228.6 -75.6 17.2 17.2 n/a 20.0 23.3	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 228.6 -75.6 12.9 12.9 12.9 12.0 25.0 25.0	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -0.5 -0.5 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 p/a 19.6 23.0	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 y/a 25.0 25.0
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle ISING ASSECTED IDINK EARTH Station EIRP (dBW) Uplink Path Loss. Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite GIT (dB/K) Bottzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink EIRP oer Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink CN (dB) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CA Uplink (AB) CN Downlink (dB) CA Uplink (CB) CA Uplink Co-Channel (dB)* CA Uplink Adiacent Satellite 1 (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9 26.5 18.9 26.5	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 -21.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 21.5 17.2 20.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 22.8 -75.6 12.9 26.5 12.9 26.5	41.3 18.8 20 Clear Skv 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2 13.4 27.2	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 1/2 25.0 25.0 26.0 16.8
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Eink Add Station Elevation Angle Eink Add Station Elevation Angle Eink Add Station EIRP (dBW) Uplink Path Loss. Clear Skv (dB) Uplink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) EARTH Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CN Uplink (dB) CA Uplink (dB) CA Uplink Co-Channel (dB)* CA Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 1 (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9 18.9 18.9 18.9 26.5 25.0 25.0 25.0 25.0 25.0 25.0 25.0 25	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 17.2 17.8 20.0 23.3 20.3 19.8 20.3	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 6 -75.6 12.9 26.5 12.9 26.5 12.9 26.5 25.0 25.0 25.0 25.0 25.0 25.0	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 v/a v/a 13.4 v/a 25.0 25.0 26.0 26.0	41.3 18.8 20 Uplink Fade 79.8 -207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 n/a 19.6 23.0 20.6 14.7 20.6	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -24 16.6 228.6 -74.8 8.9 27.2 8.9 p/s p/s 25.0 25.0 26.0 26.0
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Eink Addition Elevation Angle Unlink Parth Station ETRP (dBW) Unlink Path Loss. Clear Sky (dB) Urblink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ETRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) CM Possible Station GIT (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 25.0 228.6 -75.6 18.9 26.5 18.9 25.0 25.0 25.0 25.0 228.6 228.6 25.0 228.6 25.0 228.6 25.0 25.0 25.0 25.0 25.0 25.0 25.0 25.0	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 -0.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 21.5 17.2 21.5 17.2 21.5 17.2 21.5 17.2 21.5 17.2 21.5 17.2 21.5	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 22.8 -75.6 12.9 26.5 12.9 25.0 25.0 25.0 25.0 25.2 21.5	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2 13.4 27.2 13.4 27.2 13.4 27.2 13.4	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9 11.4 21.9 11.4 21.9 11.4 21.9 11.4 21.9 11.4 21.9	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 1/2 25.0 25.0 26.0 16.8
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Bain Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Cownlink CN (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 20.5 20.5 20.9 0.0 228.6 -75.6 18.9 26.5 18.9 26.5 26.5 27.5 20.9 20.0 228.6 228.6 25.0 228.6 25.0 228.6 25.0 228.6 25.0 28.6 28.6 29.8 20.5 20.5 20.5 20.5 20.5 20.5 20.5 20.5	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 -21.5 -205.9 0.0 25.0 228.6 -75.6 17.2 21.5 17.2 21.5 17.2 21.5 17.2 19.8 20.0 23.3 19.8 20.3	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 228.6 -75.6 12.9 26.5 12.9 26.5 12.9 26.5 12.9 26.5 27.5 20.5 20.5 20.5 20.5 20.5 20.5 20.5 20	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2 13.4 w/a 25.0 25.0 26.0 16.8 26.0	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9 21.9 21.0 20.6 21.0 20.6 20.6 20.6 20.6 20.6 20.6 20.6 20	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 27.2 8.9 27.2 8.9 27.2 8.9 27.2 8.9 25.0 26.0 16.8 26.0 15.2
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Eink Add Station Elevation Angle Eink Add Station Elevation Angle Eink Add Station EIRP (dBW) Uplink Path Loss. Clear Skv (dB) Uplink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) EARTH Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CN Uplink (dB) CA Uplink (dB) CA Uplink Co-Channel (dB)* CA Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 1 (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 18.9 26.5 18.9 18.9 18.9 18.9 25.0 25.0 25.0 25.0 25.0 25.0 25.0 25.	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 45.6 -0.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 n/a 20.0 23.3 20.3 19.8 20.3 20.3 19.8 20.3	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 228.6 -75.6 12.9 26.5 12.9 26.5 12.9 25.0 25.0 25.0 25.2 21.5 25.2 21.8	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2 13.4 13.4 13.4 13.4 14.5 25.0 25.0 26.0 16.8 26.0 15.2	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 p/a 19.6 23.0 20.6 14.7 20.6 13.2	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 p/a 25.0 25.0 26.0 16.8 26.0 15.2
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle ISING ASSESSED RANGE Unlink Earth Station E1RP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink E1RP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Carrier Noise Bandwidth (dB-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink GN (dB) C/N Downlink (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB) Required System Marpin (dB) Net C/(N+1) Comnosite (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9 26.5 18.9 26.5 27.5 20.0 228.6 228.6 228.6 228.6 23.0 228.6 228.6 23.0 248.6 25.0 25.0 25.0 25.0 26.5 27.5 28.6 28.9 28.9 28.0 28.0 28.0 28.0 28.0 28.0 28.0 28.0	47.5 25 20 Uplink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 -21.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 21.5 17.2 19.8 20.0 23.3 20.3 19.8 20.3 19.8 20.3 11.0 11.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 228.6 -75.6 12.9 26.5 12.9 26.5 12.9 26.5 12.9 21.5 25.0 25.0 25.0 21.5 21.8	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 21.2 13.4 13.4 22.5 0.0 16.8 26.0 26.0	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9 11.4 19.6 23.0 20.6 14.7 20.6 13.2 7.1 -1.0 6.1	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 27.0 11.1 10.1 10.1 10.1 10.1 10.1 10.1
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Eink Addition Fire (dBW) Uplink Parth Station ETRP (dBW) Uplink Path Loss. Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink ETRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CA Uplink (dB) CN Downlink Co-Channel (dB)* CA Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 2 (dB) CA Downlink Adiacent Satellite 2 (dB) CA Downlink Adiacent Satellite 2 (dB) CA Downlink Adiacent Satellite 2 (dB) CA Uplink Adiacent Satellite 2 (dB) CA Downlink Adiacent Satellite 2 (dB) CA Downlink Adiacent Satellite 2 (dB) CA Uplink Adiacent Satellite 2 (dB) Minimum Remoired CA (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 25.0 228.6 -75.6 18.9 1/2 25.0 25.0 25.0 25.0 25.0 25.0 25.0 25.	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 -205.9 0.0 228.6 -75.6 17.2 17.2 18.2 19.8 20.0 23.3 20.3 19.8 20.3 20.2 11.0 -1.0 -10.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 22.4 22.4 22.4 22.5 25.0 25.0 25.0 25.0 25.0 25.0 25.0	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 13.4 27.2 13.4 w/a 25.0 25.0 26.0 16.8 26.0 15.2 9.6 -1.0 8.6 -6.1	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9 11.4 19.6 23.0 20.6 14.7 20.6 13.2 7.1 -1.0 6.1	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 n/a 25.0 25.0 26.0 16.8 26.0 15.2
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Eink Addition Unlink Farth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink (dB) CAL Unlink (dB) CAL Unlink (dB) CAL Unlink (dB) CAL Unlink Co-Channel (dB)* CAL Unlink Co-Channel (dB)* CAL Unlink Adiacent Satellite 1 (dB) CAL Unlink Adiacent Satellite 1 (dB) CAL Unlink Adiacent Satellite 2 (dB) CAL Downlink Adiacent Satellite 2 (dB) CENNEL CALL COMMONIAL COMMONIAL COMMONIAL CALL CALL CALL CALL CALL CALL CALL C	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9 26.5 18.9 26.5 27.5 20.0 228.6 228.6 228.6 228.6 23.0 228.6 228.6 23.0 248.6 25.0 25.0 25.0 25.0 26.5 27.5 28.6 28.9 28.9 28.0 28.0 28.0 28.0 28.0 28.0 28.0 28.0	47.5 25 20 Uplink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 -21.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 21.5 17.2 19.8 20.0 23.3 20.3 19.8 20.3 19.8 20.3 11.0 11.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 228.6 -75.6 12.9 26.5 12.9 26.5 12.9 26.5 12.9 21.5 25.0 25.0 25.0 21.5 21.8	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 21.2 13.4 13.4 22.5 0.0 16.8 26.0 26.0	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9 11.4 19.6 23.0 20.6 14.7 20.6 13.2 7.1 -1.0 6.1	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 27.2 8.9 27.2 10.6 10.6 10.8 10.6 10.8 10.6 10.8 10.6 10.8 10.6 10.8 10.8 10.8 10.8 10.8 10.8 10.8 10.8
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Eink Addition Fire (dB-K) Uplink Parth Station ETRP (dBW) Uplink Path Loss. Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink ETRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CA Uplink (dB) CN Uplink (dB) CN Uplink (dB) CN Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 1 (dB) CA Uplink Adiacent Satellite 2 (dB) CM Downlink Adiacent Satellite 2 (dB) CM Downlink Adiacent Satellite 2 (dB) CM (N+1) Comnosite (dB) Repuired System Marpin (dB) Excess Link Marpin (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 228.6 -75.6 18.9 26.5 18.9 25.0 25.0 25.0 25.0 25.0 25.0 25.0 25.0	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 -21.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 21.5 17.2 21.5 17.2 21.5 17.2 11.0 -1.0 0.0 -10.0 0.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 22.8 -75.6 12.9 26.5 12.9 26.5 12.9 26.5 12.9 26.5 12.9 27.5 28.0 28.0 28.0 28.0 28.0 28.0 28.0 28.0	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2 13.4 25.0 26.0 16.8 26.0 15.2	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.0 20.6 13.2	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 25.0 25.0 26.0 16.8 26.0 15.2 7.1 -1.0 -6.1 -6.1
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station E1RP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GIT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink E1RP oer Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink (dB) CA Unlink (dB) CA Unlink (dB) CA Unlink Adiacent Satellite 1 (dB) CA Downlink Adiacent Satellite 1 (dB) CA Downlink Adiacent Satellite 2 (dB)	47.5 25 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 0.0 25.0 228.6 -75.6 18.9 1/2 25.0 25.0 25.0 25.0 25.0 25.0 25.0 25.	47.5 25 20 Unlink Fade 79.8 -207.5 -5.0 1.1 228.6 -75.6 21.5 -205.9 0.0 228.6 -75.6 17.2 21.5 17.2 17.2 19.8 20.0 23.3 20.3 20.3 19.8 20.3 20.2 11.0 10.0 0.0	47.5 22.4 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -75.6 26.5 47.3 -0.5 -205.9 -3.4 22.4 22.4 22.4 22.4 22.4 22.5 25.0 25.0 25.0 25.0 25.0 25.0 25.0	41.3 18.8 20 Clear Sky 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 27.2 13.4 13.4 13.4 27.2 13.4 13.4 13.4 27.2 13.4 13.4 13.4 14.5 25.0 25.0 26.0 15.2 9.6 -1.0 8.6 -6.1 2.5	41.3 18.8 20 Uplink Fade 79.8 207.5 -5.4 1.1 228.6 -74.8 21.9 45.3 -0.5 -205.9 0.0 18.8 228.6 -74.8 11.4 21.9 11.4 21.9 11.4 19.6 23.0 20.6 14.7 20.6 13.2 7.1 -1.0 6.1	41.3 16.6 20 Downlink Fade 79.8 -207.5 0.0 1.1 228.6 -74.8 27.2 47.3 -0.5 -205.9 -2.4 16.6 228.6 -74.8 8.9 27.2 8.9 1/2 25.0 25.0 26.0 16.8 26.0 15.2

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 13B: Galaxy 17 Ku-Band Link Budgets (continued)

Colorado Anthonomio Colorado Martino Martino de Grabo Martino		,	······			
THE DENOTE DESCRIPTION AND ADDRESS OF THE				~		
Unlink Beam Name	Conus	Conus	Conus	Conus	Comis	Conus
Unlink Frequency (MHz)	14250	14250	14250	14250	14250 Vertical	14250 Vertical
Unlink Beam Polarization	Vertical -6	Vertical -6	Vertical -6	Vertical -6	-6	venicat
Unlink Relative Contour Level (dB)	11	1.1	1.1	1.1	11	1.1
Uplink Contour G/T (dB/K) Uplink SFD (dBW/m²)	-83.1	-83.1	-83.1	-83.1	-83.1	-83.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNBINKSBAMENEDRMATIGE	72.0	 		12.1		
Downlink Beam Name	Conus	Conus	Conus	Conus _	Comis	Conus
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-4	-4	-4	4	-4	-4
Downlink Contour EIRP (dBW)	47.3	47.3	47.3	47.3	47.3	47.3
Rain Rate (mm/br)	42.0	42.0	42.0	42.0	42.0	42.0
Manages frames	89 WL	00 11/1	89 WL	89 WL	89 WL	89 WL
Satellite 1 Orbital Location	-45	89 WL -45	-45	-45	-45	-45
Unlink Power Density (dBW/Hz)	0	0	0	-45	0	0
Unlink Polarization Advantage (dB) Downlink EIRP Density (dBW/Hz)	-23	-23	-23	-23	-23	-23
Downlink Polarization Advantage (dB)	0	0	0 1	0	0	0
2/1) 1/(0.3/213/1/1/210 at 11/2/21/213/2006/2/210 at 11/2/21/21/21/21/21/21/21/21/21/21/21/21						
Satellite 2 Orbital Location	93 WL	93 WL	93 WL	93 WL	93 WL _	93 WL
Uplink Power Density (dBW/Hz)	-45	-45	-45	-45	-45	-45
Unlink Polarization Advantage (dB)	0	0	0	0	0	0
Downlink EIRP Density (dBW/Hz)	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9
Downlink Polarization Advantage (dB)	0	0	0	0	0	0
CARRIERANEORMANION	4M15G7W	4M15G7W	4M15G7W	IM21G7W	1M21G7W	1M21G7W
Carrier ID Carrier Modulation	OPSK _	OPSK	OPSK OPSK	OPSK	OPSK	OPSK
Peak to Peak Bandwidth of EDS (MHz)	n/a	n/a	n/a	n/a	n/a	n/a
Information Rate (kbps)	6000	6000	6000	1544	1544	1544
Code Rate	3/4 - RS	3/4 - RS	3/4 - RS	3/4 - RS	3/4 - RS	3/4 - RS
Occupied Bandwidth (kHz)	4154	4154	4154	1212.8	1212.8	1212.8
Allocated Bandwidth (kHz)	6875	6875	6875	_1550	1550	1550
Minimum C/N, Clear Sky (dB)	6.7	6.3	6.3	5.7	_5.5	5.5
Minimum C/N, Rain (dB)	6.7	6.3	6.3	5.7	5.5	5,5
THE REST OF THE PROPERTY OF TH		<u> </u>	(1	6.1	6.1	6.1
Earth Station Diameter (meters)	6.1	6.1 56.9	6.1 56.9	56.9	56.9	56.9
Earth Station Gain (dBi)	56.9 20	20	20	20	20	20
Earth Station Elevation Angle	20		- 		<u></u>	
Farth Station Diameter (meters)	1.8	1.8	1.8	1.8	1.8	1.8
Earth Station Diameter (meters)	1.8 44.8	1.8 44.8	1.8 44.8	1.8 44.8	44.8	44.8
Earth Station Diameter (meters) Earth Station Gain (dBi)	1.8 44.8 22.3	44.8 22.3	44.8 19.8	44.8 22.3	44.8 22.3	44.8 19.7
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GIT (dB/K). Earth Station Elevation Angle	44.8 22.3 20	44.8 22.3 20	44.8 19.8 20	44.8 22.3 20	44.8 22.3 20	44.8 19.7 20
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K)	44.8 22.3	44.8 22.3	44.8 19.8	44.8 22.3	44.8 22.3	44.8 19.7
Earth Station Diameter (meters) Earth Station Grin (dBi) Earth Station G/T (dB/K). Earth Station Elevation Angle	44.8 22.3 20	44.8 22.3 20	44.8 19.8 20	44.8 22.3 20	44.8 22.3 20	44.8 19.7 20
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GIT (dB/K). Farth Station Elevation Angle	44.8 22.3 20 Clear Sky	44.8 22.3 20 Uplink Fade	44.8 19.8 20 Downlink Fade	44.8 22.3 20 Clear Sky	44.8 22.3 20 Uplink Fade	44.8 19.7 20 Downlink Fade
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Entre Station Elevation Angle Entre Station Elevation	44.8 22.3 20 Clear Skv	44.8 22.3 20 Uplink Fade	44.8 19.8 20 Downlink Fade	44.8 22.3 20 Clear Sky	44.8 22.3 20 Unlink Fade	44.8 19.7 20 Downlink Fade
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K) Farth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation ElRP (dBW) Unlink Earth Station FlRP (dBW) Unlink Path Loss, Clear Sky (dB)	44.8 22.3 20 Clear Skv 66.8 -207.5	44.8 22.3 20 Unlink Fade 66.8 -207.5	44.8 19.8 20 Downlink Fade	44.8 22.3 20 Clear Sky	44.8 22.3 20 Uplink Fade	44.8 19.7 20 Downlink Fade
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GIT (dB/K). Earth Station Elevation Angle (this (AI)) 1922 DEBINING AND (AI) Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB)	44.8 22.3 20 Clear Skv 66.8 -207.5 0.0	44.8 22.3 20 Uplink Fade	44.8 19.8 20 Downlink Fade 66.8 -207.5	44.8 22.3 20 Clear Sky 60.6 -207.5	44.8 22.3 20 Unlink Fade 50.6 -207.5	44.8 19.7 20 Downlink Fade 60.6 -207.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Farth Station GRT (dB/K). Farth Station Elevation Angle REAL STATE OF THE STATE OF T	44.8 22.3 20 Clear Skv 66.8 -207.5	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8	44.8 19.8 20 Downlink Fade 66.8 -207.5	44.8 22.3 20 Clear Sky 60.6 -207.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Farth Station GIT (dB/K) Farth Station Elevation Angle BREAD BR	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GAT (dB/K). Earth Station Elevation Angle Enth Station Elevation Angle Enth Station Elevation Elevation Angle Unlink Earth Station Elevation Elevation Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K). Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz)	44.8 22.3 20 Clear Skv 66.8 -207.5 0.0 1.1 228.6	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GAT (dB/K). Earth Station Elevation Angle Earth Station Elevation Angle Elevation Elevation Elevation Angle Elevation Elevation Elevation Elevation Unlink Earth Station Elevation Elevation Unlink Earth Station Elevation Unlink Earth Station Elevation Unlink Earth Station Elevation Unlink Earth Station Elevation El	44.8 22.3 20 Clear Skv 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GAT (dB/K) Earth Station Elevation Angle Elink Earth Station Elevation Angle Unlink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GAT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ElRP ner Carrier (dBW)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Farth Station GG (dB/K). Farth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink ElRP (dB/K) Earth Station ElRP (dB/K) Earth Station ElRP (dB/K) Earth Station ElRP (dB/K) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation ElRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK EDR (DI MANUE) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Exh Loss, Clear Sky (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GAT (dB/K). Earth Station Elevation Angle Earth Station Elevation Angle Elevation Elevation Elevation Angle Elevation Elevation Elevation Unlink Earth Station Elevation Unlink Earth Station Elevation Unlink Rain Attenutation (dB) Satellite GT (dB/K). Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink Elevation Downlink Elevat	44.8 22.3 20 Clear Skv 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 -0.5 -205.9 -3.1	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dB/K). Farth Station GI (dB/K). Farth Station Elevation Angle 18 (18 (18 (18 (18 (18 (18 (18 (18 (18 (44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -0.0 0.0 22.3	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Flevation Angle Entry Station Flevation Angle Entry Station Flevation Angle Entry Station Flevation ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Satellite GG (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	44.8 22.3 20 Clear Skv 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Farth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink ElRP oer Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GG (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Rain Attenuation (dB) Earth Station GG (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6	44.8 19.8 20. Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Farth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink ElRP oer Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GG (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Rain Attenuation (dB) Earth Station GG (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 -20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 222.3 228.6 -60.8 11.5	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Elevation Angle Bible CALL Bible CAL	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gir (dB/K). Farth Station Flevation Angle Interest of the Station Flevation Angle Interest of the Station Flevation Flevation Unlink Parth Loss. Clear Skv (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) IOWNIDE FROM ANGLE Downlink Flevation Flevation (dB) Antenna Pointing Error (dBW) Antenna Pointing Error (dBW) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) GAMPON ESTERMANCE C/N Uplink (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 -0.5 -0.5 -205.9 -3.1 19.8 228.6 -66.2 -24.9 -4.9	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 -1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Path Loss. Clear Skv (dB) Unlink Path Elevation (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Control Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Intermodulation (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 20.0	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 -66.2 -66.2 -9.4 -9.4	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 19.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Flevation Angle Enth Station Flevation Angle Enth Station Flevation Angle Enth Station Flevation ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GG (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CN Unlink (dB) CN Downlink (dB) CN Downlink (dB) CN Downlink (dB) CN Unlink (dB) CN Unlink (dB) C/I Unlink (dB) C/I Unlink (dB) C/I Unlink (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 20.0 12.4 17.4 22.4	44.8 19.8 20. Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 -22.8 36.8 -0.5 -205.9 -3.1 19.8 -28.6 -66.2 9.4 -66.2 9.4	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 18.3 25.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 19.2 11.5 19.2 11.5 19.2 11.5 22.7	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0 8.5 -60.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Flevation Angle Interpretation Flevation Angle Interpretation Flevation Elevation Angle Interpretation Flevation Flevation Unlink Parth Loss. Clear Skv (dB) Uplink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) IOWNIDE FROM ANGLE Downlink Flevation Flevation Downlink Flevation Flevation Antenna Pointing Error (dBW) Antenna Pointing Error (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) GAMPON CONTROL (dB) GAMPON CONTROL (dB) C/I Uplink (dB) C/I Uplink (dB) C/I Uplink CO-Channel (dB)*	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 19.2 25.2 25.2	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 -20.0 12.4 17.4 22.4 22.4	44.8 19.8 20 Downlink Fade: 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 -24 -25.2	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 18.3 25.5 25.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 11.5 15.8 22.7 22.8	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0 3.2 19.7 228.6 -60.8 22.5 -205.9 -3.2 19.7 -228.6 -60.8 -25.5 -25.5 -25.5 -25.5 -25.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GGI (dB/K). Earth Station GGI (dB/K). Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Path Loss. Clear Skv (dB) Unlink Comstant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Constant (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 -22.8 22.8 -25.2 -25.2 -25.2 -25.2 -25.2 -21.6	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 -1.1 -228.6 -66.2 -20.0 -34.1 -0.5 -205.9 -0.0 -22.3 -228.6 -66.2 -12.4 -17.4 -22.4 -17.4 -22.5 -18.8	44.8 19.8 20. Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 19.2 22.8 -66.2 -205.9 -3.1	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 18.3 25.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 19.2 11.5 19.2 11.5 19.2 11.5 22.7	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0 8.5 -60.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	44.8 22.3 20 Clear Sky 66.8 207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 22.8 15.0 21.6 17.9	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 -20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 20.0 12.4 22.4 22.5 18.8 15.3	44.8 19.8 20 Downlink Fade: 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 -24 -25.2	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 14.2 18.3 25.5 20.8	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 -1.1 228.6 -60.8 -90.5 -0.5 -205.9 -0.0 22.3 -228.6 -60.8 -11.5 -11.5 -15.8 -22.7 -22.8 -18.0	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0 8.5 18.3 25.5 20.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIP (dB/K). Earth Station Flevation Angle Interest of the Station Flevation Angle Interest of the Station Flevation Flevation Unlink Parth Loss, Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K). Boltzman Constant (dRW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) IOWNIDE FROM ANGE Downlink Flevation (dB) Antenna Pointing Error (dB) Downlink Parth Loss, Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink CO-Channel (dB)* C/I Downlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 -22.8 22.8 -25.2 -25.2 -25.2 -25.2 -25.2 -21.6	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 -1.1 -228.6 -66.2 -20.0 -34.1 -0.5 -205.9 -0.0 -22.3 -228.6 -66.2 -12.4 -17.4 -22.4 -17.4 -22.5 -18.8	44.8 19.8 20. Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 22.0 14.2 18.3 25.5 25.5 20.8	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 19.2 11.5 19.2 11.5 15.8 22.7 22.8 18.0 14.4	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0 8.5 -18.3 25.5 25.5 20.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 22.8 17.0 21.6 17.9 21.6	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 12.4 20.0 12.4 21.4 22.4 22.5 18.8 15.3 18.8 15.1	44.8 19.8 20. Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 	44.8. 22.3 20 Clear Sky 60.6207.5 0.0 1.1 228.660.8 22.0 30.60.5 -205.9 0.0 22.3 228.660.8 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2 22.0 14.2	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 11.5 11.5 11.5 11.5 11.5 12.1 11.5 12.1 13.8 14.4 18.0 14.4	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0 8.5 -19.7 228.6 -60.8 8.5 -20.8 17.1 20.8 16.9
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIP (dB/K). Farth Station Flevation Angle Interest of the Station Flevation Angle Interest of the Station Flevation Flevation Unlink Parth Loss. Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite GIP (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CIN (dB) Downlink CIN (dB) Downlink Flevation Flevation Downlink Flevation Downlink Flevation Downlink Flevation Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CAI Uplink (dB) C/I Uplink (dB) C/I Uplink Co-Channel (dB)* C/I Uplink Co-Channel (dB)* C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 19.2 25.2 25.2 21.6 17.9 21.6 17.7	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 -1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 20.0 12.4 17.4 22.4 22.5 18.8 15.3 18.8	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 25.2 21.6 17.9 21.6	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 14.2 18.3 25.5 25.5 20.8 17.1 20.8 16.9	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 -1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 11.5 15.8 22.7 22.8 18.0 14.4 18.0 14.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 18.3 25.5 25.5 20.8 17.1 20.8 16.9
Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBrK). Earth Station Elevation Angle British Station Elevation Angle British Station Elevation Elevation Unlink Earth Station Elevation Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N-I) Comnosite (dB) C/(N-I) Comnosite (dB) Required System Marsin (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 19.2 25.2 21.6 17.7 9.9	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 17.4 22.4 22.5 18.8 15.3 18.8 15.1	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 25.2 25.2 21.6 17.7 7.3	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 14.2 18.3 25.5 20.8 17.1 20.8 16.9	44.8 22.3 20 Uplink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 19.2 11.5 15.8 22.7 22.8 18.0 14.4 18.0 14.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 22.0 8.5 18.3 25.5 20.8 17.1 20.8 16.9
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GI (dB/K). Farth Station Elevation Angle Interest Station Elevation Angle Interest Station Elevation Elevation Unlink Earth Station Elevation Elevation Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (CN (dB) C/I Unlink (CN (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/N-I) Comnosite (dB) Required System Margin (dB) Required System Margin (dB) Net C/(N+I) Comnosite (dB)	44.8 22.3 20 Clear Sky 66.8 207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 19.2 25.2 25.2 25.2 25.2 21.6 17.9 21.6 17.7	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 12.4 20.1 17.4 22.4 22.5 18.8 15.3 18.8 15.1 7.3 -1.0 6.3	44.8 19.8 20. Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 25.2 25.2 25.2 21.6 17.9 21.6 17.7	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 22.0 14.2 18.3 25.5 25.5 25.5 26.5 17.1 20.8 16.9	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 11.5 11.5 11.5 11.5 11.5 12.7 11.5 12.8 18.0 14.4 18.0 14.2	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 -20.9 8.5 -10.7 228.6 -60.8 8.5 -60.8
Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIV (dB/K). Farth Station Flevation Angle Research Station Flevation Angle Research Station Flevation English Unlink Farth Station Flevation (dBW) Unlink Parth Loss. Clear Skv (dB) Unlink Rain Attenutation (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink C/N (dB) Downlink Farth Loss. Clear Skv (dB) Downlink Flevation (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink Flevation (dB) Earth Station G/T (dB/K) Roltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB)	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 22.8 17.9 21.6 17.7 9.9 -1.0 8.9	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 20.0 12.4 17.4 22.4 22.5 18.8 15.3 18.8 15.1	44.8 19.8 20 Downlink Fade 66.8 207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 21.6 17.7 7.3 -1.0 6.3 -6.3	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 18.3 25.5 25.5 20.8 17.1 20.8 16.9	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 -1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 -15.8 22.7 22.8 18.0 14.4 18.0 14.2 -6.4 -1.10 5.4 -5.5	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 18.3 25.5 25.5 20.8 16.9 6.4 -1.0 5.4 -5.5
Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIV (dB/K). Earth Station Flevation Angle INVESTIGATION OF THE PERFORMANCE Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/V (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) POWNIJNK PRONMANCE Downlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) CATTON ON THE STATE OF THE ST	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 19.2 25.2 25.2 21.6 17.9 21.6 17.7	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 -1.1 228.6 -66.2 -20.0 34.1 -0.5 -205.9 -0.0 22.3 -228.6 -66.2 -12.4 -20.0 -12.4 -17.4 -22.4 -22.5 -18.8 -15.3 -18.8 -15.1 -7.3 -1.0 -6.3 -0.0	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 25.2 21.6 17.9 21.6 17.7 7.3 -1.0 6.3 0.0	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 18.3 14.2 22.0 14.2 18.3 16.9 9.1 -1.0 8.1 -1.0 8.1 -5.7 -2.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 11.5 15.8 18.0 14.4 18.0 14.2 -6.4 -1.0 5.4 -5.5 0.0	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 18.3 25.5 25.5 20.8 17.1 20.8 16.9 6.4 -1.0 5.4 -1.0 5.4
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GGin (dB/K). Earth Station Elevation Angle Bit (CR) (DB/K). Earth Station Elevation Angle Bit (CR) (DB/K). Earth Station Elevation Angle Bit (CR) (DB/K). Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Path Loss. Clear Skv (dB) Unlink C/N (dB) Earth Station ElRP (dB/K). Endizman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/I Unlink (CN (dB) C/I Unlink (CR) (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB) Minimum Renuired C/N (dB) Excess Link Marsin (dB) Number of Carriers	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 22.8 17.9 21.6 17.7 9.9 -1.0 8.9	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 1.1 228.6 -66.2 20.0 34.1 -0.5 -205.9 0.0 22.3 228.6 -66.2 12.4 20.0 12.4 17.4 22.4 22.5 18.8 15.3 18.8 15.1	44.8 19.8 20 Downlink Fade 66.8 207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 21.6 17.7 7.3 -1.0 6.3 -6.3	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 18.3 25.5 25.5 20.8 17.1 20.8 16.9	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 -1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 -15.8 22.7 22.8 18.0 14.4 18.0 14.2 -6.4 -1.10 5.4 -5.5	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 18.3 25.5 25.5 20.8 16.9 6.4 -1.0 5.4 -5.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GG (dB/K). Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Elevation Unlink Earth Station Elevation Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Edwallink C/N (dB) Edwallink C/N (dB) Downlink Elevation Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/N-H) Comnosite (dB) Required System Marsin (dB) Net C/(N+1) Comnosite (dB) Net C/(N+1) Comnosite (dB) Number of Carriers	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 22.8 15.0 21.6 17.7 9.9 -1.0 8.9 -6.7 2.2 5.5	44.8 22.3 20 Uplink Fade 66.8 -207.5 -2.8 -1.1 -228.6 -66.2 -20.0 34.1 -0.5 -205.9 -0.0 -22.3 -228.6 -66.2 -12.4 -17.4 -22.4 -22.5 -18.8 -15.3 -1.0 -6.3 -6.3 -6.3 -6.3	44.8 19.8 20 Downlink Fade 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 25.2 21.6 17.9 21.6 17.7 7.3 -1.0 6.3 0.0	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 18.3 14.2 22.0 14.2 18.3 16.9 9.1 -1.0 8.1 -1.0 8.1 -5.7 -2.5	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 11.5 15.8 22.7 22.8 18.0 14.4 18.0 14.2 -6.4 -1.0 5.4 -5.5 0.0	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 18.3 25.5 25.5 20.8 17.1 20.8 16.9 6.4 -1.0 5.4 -5.5 0.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GGin (dB/K). Earth Station Elevation Angle Bit (CR) (DB/K). Earth Station Elevation Angle Bit (CR) (DB/K). Earth Station Elevation Angle Bit (CR) (DB/K). Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Path Loss. Clear Skv (dB) Unlink C/N (dB) Earth Station ElRP (dB/K). Endizman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K). Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/I Unlink (CN (dB) C/I Unlink (CR) (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB) Minimum Renuired C/N (dB) Excess Link Marsin (dB) Number of Carriers	44.8 22.3 20 Clear Sky 66.8 -207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 0.0 22.3 228.6 -66.2 15.0 22.8 15.0 19.2 25.2 25.2 21.6 17.9 21.6 17.7	44.8 22.3 20 Unlink Fade 66.8 -207.5 -2.8 -1.1 228.6 -66.2 -20.0 34.1 -0.5 -205.9 -0.0 22.3 -228.6 -66.2 -12.4 -20.0 -12.4 -17.4 -22.4 -22.5 -18.8 -15.3 -18.8 -15.1 -7.3 -1.0 -6.3 -0.0	44.8 19.8 20. Downlink Fade 66.8 207.5 0.0 1.1 228.6 -66.2 22.8 36.8 -0.5 -205.9 -3.1 19.8 228.6 -66.2 9.4 22.8 9.4 19.2 25.2 21.6 17.9 21.6 17.7 7.3 -1.0 6.3 -6.3 0.0	44.8. 22.3 20 Clear Sky 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 0.0 22.3 228.6 -60.8 14.2 22.0 14.2 22.0 14.2 22.0 14.2 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2	44.8 22.3 20 Unlink Fade 60.6 -207.5 -2.8 1.1 228.6 -60.8 19.2 27.9 -0.5 -205.9 0.0 22.3 228.6 -60.8 11.5 15.8 22.7 22.8 18.0 14.4 18.0 14.2 -6.4 -1.0 5.4 -5.5 0.0 20.9	44.8 19.7 20 Downlink Fade 60.6 -207.5 0.0 1.1 228.6 -60.8 22.0 30.6 -0.5 -205.9 -3.2 19.7 228.6 -60.8 8.5 -22.0 8.5 -20.8 8.5 -22.0 8.5 -20.8 8.5 -22.0 8.5 -20.8 8.

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 13B: Galaxy 17 Ku-Band Link Budgets (continued)

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Uplink Beam Name	Conus	Conus	Conus	Conus	Conus	Coms
Uplink Frequency (MHz)	14250	14250	14250	14250	14250	14250
Uplink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Uplink Relative Contour Level (dB)	<u>-6</u>	-6 1.1	-6 11	<u>-6</u> 1 1	- 6	
Uplink Contour G/T (dB/K) Uplink SFD (dBW/m²)	-83.1	-83.1	-83.1	-83.1	-83.1	-83.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ITOMENETERS PAR ENTER MATTER PARTIES				_		
Downlink Beam Name	Conus 11950	Corus 11950	Conus _11950	Conus 11950	Comus 11950	Conus 11950
Downlink Frequency (MHz) Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-4	-4	-4	-4	-4	-4
Downlink Contour EIRP (dBW)	47.3	47.3	47.3	47.3	47.3	47.3
Rain Rate (mm/hr) Add (Carlos Valles)	42.0	42.0	42.0	42.0	42.0	42.0
Satellite 1 Orbital Location	89 WL	89 WI	89 WL	89 WL	89 WL	89 WL
Unlink Power Density (dBW/Hz)	-45	-45	-45	-45	-45	-45
Uplink Polarization Advantage (dB)	<u> </u>	0	0	0 -23	0	0
Downlink EIRP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-23 0	- <u>-23</u>	-23 0	-23	23 0	- <u>-23</u>
7.03.76.376.376.36.66.66.4					, ,	
Satellite 2 Orbital Location	93 WL	93 WL	93 WL	93 WL	93 WL	93 WL
Uplink Power Density (dBW/Hz)	-45	-45	-45	-45	-45 0	-45 0
Unlink Polarization Advantage (dB) Downlink EIRP Density (dBW/Hz)	-24.9	-24.9	0 -24.9	-24.9	-24.9	-24.9
Downlink Polarization Advantage (dB)	-24. 9	0	0	0	0	0
GATERI PERBENGUAN PUNCHUNKAN DELEMBER PER						051/ 1 ===-
Carrier ID	1M23G7W	1M23G7W	1M23G7W BPSK	75K4G7W OPSK	75K4G7W OPSK	75K4G7W OPSK
Carrier Modulation Peak to Peak Bandwidth of EDS (MHz)	BPSK n/a	BPSK n/a	n/a	n/a	D/A	n/a
Information Rate (khps)	512	512	512	64	64	64
Code Rate	1/2	1/2	1/2	1/2 - RS	1/2 - RS	1/2 - RS
Occupied Bandwidth (kHz)	1229 1450	1229 1450	1229 1450	75.4 100	75.4 100	75.4 100
Allocated Bandwidth (kHz) Minimum C/N, Clear Sky (dB)	3.4	2.7	2.7	3.0	2.8	2.8
Minimum C/N, Rain (dB)	3.4	2.7	2.7	3.0	2.8	2.8
THE RESIDENCE AND A STREET OF THE STREET OF					6.1	4.1
Earth Station Diameter (meters) Earth Station Gain (dBi)	6.1 56.9	56.9	6.1 56.9	56.9	6.1 56.9	56.9
Earth Station Elevation Angle	20	20	20	20	20	20
Menanda Karasa Karasa						
Earth Station Diameter (meters)	1.2	1.2	1.2	1.2	1.2	1.2
Earth Station Gain (dBi)	41.3 18.8	41.3 18.8	41.3	41.3 18.8	41.3 18.8	41.3 16.3
Earth Station G/T (dB/K)	41.3 18.8 20	18.8 20	. 16.3 . 20	18.8 20	18.8 20	16.3 20
	18.8	18.8	.16.3	18.8	18.8	16,3
Earth Station G/T (dB/K) Farth Station Elevation Angle (SINK-PAI) 5-72-7	18.8 20	18.8 20	. 16.3 . 20	18.8 20	18.8 20	16.3 20
Earth Station G/T (dB/K) Farth Station Elevation Angle SINGRAD (SAR) Uplink CAPROC RMANICAL Uplink Farth Station FIRP (dBW)	18.8 20	18.8 20 Unlink Fade	16.3 20 Downlink Fade	18.8 20 Clear Sky	18.8 20 Uplink Fade 48.7	16.3 20 Downlink Fade
Earth Station G/T (dB/K) Farth Station Flevation Angle INK-BAD 18 22 P Unlink Earth Station EIRP (dBW) Unlink Farth Loss, Clear Sky (dB)	18.8 20 Clear Skv 60.7 -207.5	18.8 20 Unlink Fade 60.7 -207.5	16.3 20 Downlink Fade 60.7 -207.5	18.8 20 Clear Skv 48.7 -207.5	18.8 20 Uplink Fade 48.7 -207.5	16.3 20 Downlink Fade 48.7 -207.5
Earth Station G/T (dB/K) Farth Station Elevation Angle Fink (AD) FACE Uplink Farth Station FIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenuation (dB)	18.8 20 Clear Skv 60.7 -207.5 0.0	18.8 20 Unlink Fade 60.7 -207.5 -2.9	16.3 20 Downlink Fade 60.7 -207.5 0.0	18.8 20 Clear Sky 48.7 -207.5 0.0	18.8 20 Uplink Fade 48.7	16,3 20 Downlink Fade 48.7 -207.5 0.0
Earth Station G/T (dB/K) Farth Station Elevation Angle (ENEXA): 222 Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K)	18.8 20 Clear Skv 60.7 -207.5	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6	18.8 20 Uplink Fade 48.7 -207.5 -2.9 1.1 228.6	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6
Earth Station G/T (dB/K) Farth Station Elevation Angle First Station Elevation Angle First Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8	16,3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8
Earth Station G/T (dB/K) Farth Station Elevation Angle ENGLAD SEPTIME TO THE POST OF THE P	18.8 20 Clear Skv 60.7 -207.5 0.0 1.1 228.6	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6	18.8 20 Uplink Fade 48.7 -207.5 -2.9 1.1 228.6	16,3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6
Earth Station G/T (dB/K) Farth Station Flevation Angle INCERTOR STATE ST	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8	16,3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8
Earth Station G/T (dB/K) Farth Station Elevation Angle Fink RAD STATE Uplink Earth Station FIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) DGWNINN FIRP oer Carrier (dBW) Antenna Pointing Error (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5	16,3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5
Earth Station G/T (dB/K) Earth Station Flevation Angle INCERT Station Flevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOwnlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9	18.8 20 Unlink Fade 48.7 207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9
Earth Station G/T (dB/K) Farth Station Flevation Angle INCERAL STATE STA	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0°	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0
Earth Station G/T (dB/K) Earth Station Elevation Angle ENKERAL) ENGENERAL Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9	18.8 20 Unlink Fade 48.7 207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9	16,3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6
Earth Station G/T (dB/K) Earth Station Flevation Angle INCERT Station Flevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 -22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8
Earth Station G/T (dB/K) Earth Station Elevation Angle ENKERAL) ENGEROPHIAN Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink CN (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Fath Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0' 18.8 228.6	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 1.8.8 22.8	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6	16,3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6
Earth Station G/T (dB/K) Earth Station Elevation Angle ENKERAD (SERVANIES) Unlink Earth Station E1RP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink E1RP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Fath Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0 18.8 228.6 -60.9 10.7	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5
Earth Station G/T (dB/K) Farth Station Flevation Angle INKEAN FARTH STATION FLEVATION AND FREE INKEAN FROM THE PARTH STATION FLEVATION FROM THE PARTH STATION FLEVATION (BB) Unlink Faith Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWnlink Flevation From The Proceedings of the Proceedings	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7	18.8 20 Unlink Fade 60.7 207.5 2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 48.8 8.0	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 48.8 5.5
Earth Station G/T (dB/K) Earth Station Elevation Angle ENKERAD (STATE OF MAN) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) GOMPOSITE (SW) C/N Unlink (dB) C/N Downlink (dB) C/N Intermodulation (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 -28.6 -60.9 5.4 -60.9	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 -0.0 18.8 228.6 -48.8 19.3 15.6 -10.5	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 -22.2 18.7 -0.5 -205.9 -3.0 16.3 -28.6 -48.8 5.5 -22.2 -3.0 -3.0 -3.0 -4.0 -4.0 -4.0 -5.0
Earth Station G/T (dB/K) Earth Station Flevation Angle INERAL STATE CRIMANIE Uplink Earth Station EIRP (dBW) Uplink Earth Station EIRP (dBW) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Uplink Co-Channel (dB) C/I Uplink Co-Channel (dB)*	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 -22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 22.0 5.4 22.0	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5
Earth Station G/T (dB/K) Earth Station Elevation Angle ENKERAD (SAFE) Unlink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) GOMPOSITE C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7 10.7 11.4 22.0 10.7 18.4 25.8 20.8	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 -228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 -228.6 -60.9 7.9 -19.1 -7.9 -15.7 -23.0 23.0 17.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 18.4 25.8 25.8 20.8	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 20.9	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3 8.0 15.6 22.6 22.6 18.1	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 -22.2 5.5 18.5 25.5 25.5 25.5 20.9
Earth Station G/T (dB/K) Earth Station Flevation Angle INERAL STATE CRMANS Uplink Earth Station EIRP (dBW) Uplink Earth Station EIRP (dBW) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Uplink C/B C/I Uplink C/B C/I Downlink Co-Channel (dB)* C/I Uplink Co-Channel (dB)* C/I Uplink Adiacent Satellite I (dB) C/I Uplink Adiacent Satellite I (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 -22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7 22.0 10.7	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 -15.7 23.0 23.0 17.9 11.2	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3 8.0 15.6 22.6 22.6 22.6 22.6 18.1	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 22.2 5.5 18.5 25.5 25.5 20.9 14.2
Earth Station G/T (dB/K) Farth Station Flevation Angle INCERAL STATE STA	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 205.9 0.0° 18.8 228.6 -60.9 10.7 22.0 10.7 18.4 25.8 25.8 20.8 14.1 20.8	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 15.7 23.0 23.0 17.9 11.2	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 22.0 5.4 18.4 25.8 25.8 20.8	18.8 20 Clear Sky 48.7 207.5 0.0 1.1 228.6 48.8 22.2 18.7 -0.5 205.9 0.0 18.8 228.6 44.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2 20.9	18.8 20 Unlink Fade 48.7 -207.5 -2.9 -1.1 228.6 -48.8 -19.3 -15.8 -0.5 -205.9 -0.0 -18.8 -228.6 -48.8 -8.0 -19.3 -8.0 -15.6 -22.6 -22.6 -22.6 -18.1 -11.3 -18.1	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 22.2 5.5 18.5 22.2 5.5 18.5 22.2 5.5 18.5 20.9 14.2 20.9
Earth Station G/T (dB/K) Earth Station Flevation Angle INERAL STATE CRMANS Uplink Earth Station EIRP (dBW) Uplink Earth Station EIRP (dBW) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Uplink C/B C/I Uplink C/B C/I Downlink Co-Channel (dB)* C/I Uplink Co-Channel (dB)* C/I Uplink Adiacent Satellite I (dB) C/I Uplink Adiacent Satellite I (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 -22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7 22.0 10.7	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 -15.7 23.0 23.0 17.9 11.2	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3 8.0 15.6 22.6 22.6 22.6 22.6 18.1	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 22.2 5.5 18.5 25.5 25.5 20.9 14.2
Earth Station G/T (dB/K) Earth Station Flevation Angle INERAL STATE STA	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 -22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7 22.0 10.7 18.4 25.8 25.8 20.8 14.1 20.8 12.5	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 15.7 23.0 23.0 17.9 23.0 17.9 9.7	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 22.0 5.4 18.4 25.8 25.8 25.8 20.8 14.1 20.8 12.5	18.8 20 Clear Sky 48.7 207.5 0.0 1.1 228.6 48.8 22.2 18.7 -0.5 205.9 0.0 18.8 228.6 44.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2 20.9	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3 8.0 15.6 -22.6 18.1 11.3 18.1 9.8	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 22.2 5.5 18.5 5.5 25.5 20.9 14.2 20.9 12.7
Earth Station G/T (dB/K) Earth Station Elevation Angle INERAL STATE STA	18.8 20 Clear Sky 60.7 207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7 22.0 10.7 18.4 25.8 20.8 14.1 20.8 12.5	18.8 20 Unlink Fade 60.7 207.5 2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 15.7 23.0 23.0 17.9 11.2 17.9 9.7 -1.0	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 18.4 -25.8 20.8 14.1 20.8 12.5	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2 20.9 12.7	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3 8.0 15.6 22.6 18.1 11.3 9.8 3.8 -1.0	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 48.8 5.5 228.5 18.5 25.5 18.5 25.5 20.9 14.2 20.9 12.7
Earth Station G/T (dB/K) Earth Station Elevation Angle INKEATO STATE Unlink Earth Station ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dB/W/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Ownlink Adiacent Satellite 2 (dB) C/I Composite (dB) Required System Margin (dB) Net C/(N+1) Composite (dB)	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 -22.0 30.7 -0.5 -205.9 0.0° 18.8 -228.6 -60.9 10.7 -18.4 -25.8 -25.8 -25.8 -20.8 14.1 -20.8 -12.5 -1.0 -5.5	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 -1.1 7.9 15.7 23.0 23.0 23.0 17.9 11.2 17.9 9.7 -1.0 2.7	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 -22.0 -30.5	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 25.5 25.5 26.5 20.9 14.2 20.9 12.7	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 15.6 -22.6 22.6 18.1 11.3 18.1 9.8 3.8 -1.0 2.8	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 22.2 5.5 18.5 5.5 25.5 20.9 14.2 20.9 12.7
Earth Station G/T (dB/K) Earth Station Flevation Angle INERAL STATE STA	18.8 20 Clear Sky 60.7 207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7 22.0 10.7 18.4 25.8 20.8 14.1 20.8 12.5	18.8 20 Unlink Fade 60.7 207.5 2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 15.7 23.0 23.0 17.9 11.2 17.9 9.7 -1.0	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 18.4 -25.8 20.8 14.1 20.8 12.5	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2 20.9 12.7	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3 8.0 15.6 -22.6 18.1 11.3 18.1 9.8 3.8 -1.0 2.8 0.0 2.8 0.0	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 228.5 5.5 18.5 25.5 25.5 20.9 14.2 20.9 14.2 20.9 12.7 3.8 -1.0 2.8 0.0
Earth Station G/T (dB/K) Earth Station Elevation Angle INKEAN STATE Unlink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Con Downlink (dB) C/I Unlink (dB) C/I Unlink (dB) C/I Downlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 3 (dB) Net C/(N+I) Comnosite (dB) Net C/(N+I) Comnosite (dB) Number of Carriers	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 -22.0 30.7 -0.5 205.9 0.0 18.8 228.6 -60.9 10.7 22.0 10.7 18.4 25.8 25.8 26.8 20.8 14.1 20.8 12.5	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 15.7 23.0 23.0 17.9 17.9 17.9 17.9 17.9 17.9 17.9 17.9	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 22.0 5.4 18.4 25.8 25.8 25.8 20.8 14.1 20.8 12.5	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2 20.9 12.7 -1.0 5.7 -3.0	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 -15.8 -0.5 -205.9 0.0 18.8 8.0 19.3 8.0 15.6 -22.6 22.6 18.1 11.3 18.1 9.8 -3.8 -3.8 -3.8 -3.8 -3.8 -3.8 -3.8 -3	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 18.5 5.5 18.5 22.2 5.5 18.5 25.5 20.9 14.2 20.9 12.7 3.8 -1.0 2.8
Earth Station G/T (dB/K) Earth Station Flevation Angle INERAL STATE STA	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 205.9 0.0 18.8 228.6 -60.9 10.7 22.0 10.7 22.0 10.7 22.0 10.5 5.5 -3.4 2.1 20.4	18.8 20 Unlink Fade 60.7 -207.5 -2.9 1.1 228.6 -60.9 19.1 27.9 -0.5 -205.9 0.0 18.8 228.6 -60.9 7.9 19.1 7.9 15.7 23.0 23.0 17.9 17.9 17.9 9.7 -1.0 2.7 -2.7 0.0 20.4	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 22.0 5.4 18.4 25.8 25.8 20.8 14.1 20.8 12.5 3.7 -1.0 20.4	18.8 20 Clear Sky 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 -48.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2 20.9 12.7 -1.0 5.7 -3.0 2.7 322.8	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 8.0 19.3 8.0 15.6 -22.6 -24.8 11.3 18.1 9.8 3.8 -1.0 2.8 -2.8 0.0 322.8	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 22.2 5.5 18.5 25.5 20.9 14.2 20.9 12.7 3.8 -1.0 2.8 -2.8 0.0 322.8
Earth Station G/T (dB/K) Earth Station Elevation Angle INKEAN STATE Unlink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Con Downlink (dB) C/I Unlink (dB) C/I Unlink (dB) C/I Downlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 3 (dB) Net C/(N+I) Comnosite (dB) Net C/(N+I) Comnosite (dB) Number of Carriers	18.8 20 Clear Sky 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 0.0° 18.8 228.6 -60.9 10.7 22.0 10.7 18.4 25.8 20.8 14.1 20.8 12.5 -1.0 5.5 -1.0 5.5 -3.4 2.1	18.8 20 Unlink Fade 60.7 -207.5 -2.9 -1.1 -228.6 -60.9 -19.1 -27.9 -0.5 -205.9 -0.0 -18.8 -228.6 -60.9 -7.9 -19.1 -7.9 -1.5.7 -23.0 -23.0 -23.0 -17.9 -1.1 -1.9 -1.0 -2.7 -2.7 -0.0	16.3 20 Downlink Fade 60.7 -207.5 0.0 1.1 228.6 -60.9 22.0 30.7 -0.5 -205.9 -2.9 16.3 228.6 -60.9 5.4 18.4 25.8 25.8 20.8 14.1 20.8 12.5 3.7 -1.0 2.7 0.0	18.8 20 Clear Sky 48.7 207.5 0.0 1.1 228.6 48.8 22.2 18.7 -0.5 -205.9 0.0 18.8 228.6 48.8 10.9 22.2 10.9 18.5 25.5 25.5 20.9 14.2 20.9 12.7 6.7 -1.0 5.7 -3.0 2.7	18.8 20 Unlink Fade 48.7 -207.5 -2.9 1.1 228.6 -48.8 19.3 15.8 -0.5 -205.9 0.0 18.8 228.6 -48.8 8.0 19.3 8.0 15.6 -22.6 18.1 11.3 18.1 9.8 3.8 -1.0 2.8 0.0 2.8 0.0	16.3 20 Downlink Fade 48.7 -207.5 0.0 1.1 228.6 -48.8 22.2 18.7 -0.5 -205.9 -3.0 16.3 228.6 -48.8 5.5 228.5 5.5 18.5 25.5 25.5 20.9 14.2 20.9 14.2 20.9 12.7 3.8 -1.0 2.8 0.0

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 13B: Galaxy 17 Ku-Band Link Budgets (continued)

HOMENOGEN SKINGORYKYET			
Uplink Beam Name	Conus	Conus	Conus
Unlink Frequency (MHz)	14250	14250	14250
Uplink Beam Polarization	Vertical -6	Vertical	Vertical
Uplink Relative Contour Level (dB) Uplink Contour G/T (dB/K)	1.1	<u>-6</u> 1.1	-0
Uplink SFD (dBW/m²)	-83.1	-83.1	-83.1
Rain Rate (mm/br)	42.0	42.0	42.0
Menantarikan mandele etaka ke (etaka etaka e	Commo	Ċamus	Commo
Downlink Beam Name Downlink Frequency (MHz)	Conus 11950	Conus 11950	Conus 11950
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-4	-4	4
Downlink Contour EIRP (dBW)	47.3	47.3	47.3
Rain Rafe (mm/hr) ADI (ADNES) (1866 552)	42.0	42.0	42.0
Satellite 1 Orbital Location	89 WL	89 WL	89 WL
Uplink Power Density (dBW/Hz)	-45	-45	-45
Uplink Polarization Advantage (dB)	0	0	0
Downlink EIRP Density (dBW/H2) Downlink Polarization Advantage (dB)	-23 0	- <u>-23</u>	23 0
MAINE PRIVATE STREET		- U	
Satellite 2 Orbital Location	93 WL	93 WL.	93.WL
Unlink Power Density (dBW/Hz)	-45	-45	-45
Unlink Polarization Advantage (dB) Downlink EIRP Density (dBW/Hz)	-24.9	-24.9	0 -24.9
Downlink Polarization Advantage (dB)	0	0	-24.9
CARRIERANIORMATION			
Carrier ID	307KG7W	307KG7W BPSK	307KG7W
Carrier Modulation Peak to Peak Bandwidth of EDS (MHz)	BPSK n/a	BPSK n/a	BPSK n/a
Information Rate (kbps)	128	128	128
Code Rate	1/2	1/2	1/2
Occupied Bandwidth (kHz)	307 400	307 400	307 400
Allocated Bandwidth (kHz) Minimum C/N, Clear Sky (dB)	3.4	2.7	2.7
Minimum C/N. Rain (dB)	3.4	2.7	2.7
URLINKE ARTHISTATE OC.			
Earth Station Diameter (meters)	1.2 42.9	1.2 42.9	1.2 42.9
Earth Station Gain (dBi) Earth Station Elevation Angle	20	20	20
Latti diaton La faton Alex			
MODESTRANCE RANGE RESERVE TO THE SECOND SECO	. 20		20
OCHANISISCE ARTHUS TO THE CONTROL OF	6.1	6.1	6.1
DOWNIJNK FARIH ST. THE Earth Station Diameter (meters). Earth Station Gain (dBi)	6.1 55.5	6.1 55.5	6.1
COUNTINE EARTH Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K)	6.1 55.5 33.1	6.1	6.1
DOWNIANK EARTH (VIII) Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GAT (dB/K) Earth Station Elevation Angle	6.1 55.5	6.1 55.5 33.1	6.1 55.5 29.5 20
COUNTINE EARTH Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GT (dB/K) Farth Station Elevation Angle	6.1 55.5 33.1 20	6.1 55.5 33.1 20	6.1 55.5 29.5 20
COUNTRING FARSE SAVEL Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GT (dB/K) Farth Station Elevation Angle En (SEAT) (SEAT)	6.1 55.5 33.1 20 Clear Sky	6.1 55.5 33.1 20 Unlink Fade	6.1 55.5 29.5 20 Downlink Fade
COUNTINE FARTH Farth Station Diameter (meters) Farth Station Gain (dBi) Farth Station G/T (dB/K) Farth Station Elevation Angle INCOMPANY Unlink Farth Station EIRP (dBW)	6.1 55.5 33.1 20	6.1 55.5 33.1 20	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5
GOWNERS EARTH Earth Station Diameter (meters) Farth Station Gain (dBi) Farth Station G/T (dB/K) Farth Station Elevation Angle FIN (DECORMAN) Unlink Farth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenuation (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0	6.1 55.5 33.1 20 Unlink Fade	6.1 55.5 29.5 20 Downlink Fade 47.5 207.5 0.0
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station G/T (dB/K) Earth Station Elevation Angle En K-EAD/C-DAR EP IN K-PERFORMANO Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1	6.1 55.5 29.5 20 Downlink Fads 47.5 -207.5 0.0
Farth Station Diameter (meters). Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Ger (dB/K) Earth Station Elevation Angle Enserging Communication (dBi) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0	6.1 55.5 33.1 20 Unlink Fade	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0
COUNTINE EARTH Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GCT (dB/K) Farth Station Elevation Angle Enrice Edition Elevation Angle Enrice Edition Elevation Ele	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6
GOWNENK EARTH STATE Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GAIN (dBi) Earth Station Elevation Angle ENGEANT ELEVATION ELEVATION ANGLE ENGEANT ELEVATION ELEVATION ELEVATION ELEVATION ELEVATION ELEVATION ELEVATION ELEVATION (dB) Uplink Path Loss, Clear Sky (dB) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Girl (dB/K) Earth Station Elevation Angle Include Earth Station Elevation Angle Include Earth Station Elevation Angle Include Earth Station Elevation (dB) Include Earth Station Elevation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink Elevation (dBW) Downlink Elevation (dBW)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9
GOWNERS EARTH STATE Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GAIN (dBi) Earth Station Elevation Angle ENGEATH STATE (GAINE) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK STATE (GRE) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9
GOWNIEN CARTIE Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Ger (dB/K) Earth Station Elevation Angle ENGLADIANE EPINK PERGERMAN Unlink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) DOWNLINK FIR GRAN Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0°	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -0.5 -205.9 -7.0
GOWNERS FARTH (MEERS) Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gen (dBi) Earth Station Elevation Angle INTERPOLITION (DBI) INTERPOLITION (DBI) INTERP	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -0.5 -0.0 33.1	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gar (dB/K) Farth Station Elevation Angle ETS (GAR) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) IOWNEIN CONSTANT (BRANN) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	6.1 55.5 33.1 20 Clear Skv 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6	6.1 55.5 29.5 20 Downlink Fade 47.5 207.5 0.0 1.1 228.6 54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gart (dB/K) Earth Station Great (dB/K) Earth Station Elevation Angle ERNGE (DECORMAN) Unlink Earth Station Elevation Angle Unlink Earth Station Elevation (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CR (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -0.5 -0.0 33.1	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gart (dB/K) Earth Station Gert (dB/K) Earth Station Elevation Angle ETNICE (DECORMANCE (LINING PROPERTY (LINING PR	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 7.3
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Garin (dBi) Earth Station Grant (dBi) Earth Station Elevation Angle ETS (ADIAM STATE (MBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK BROOK (DB) DOWNLINK BROOK (DB) DOWNLINK BROOK (DB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) CON Uplink (dB) CON Uplink (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0° 33.1 228.6 -54.9 17.5 -10.5	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 -228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 7.3
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle Indiameter (dBi) Indiameter (dB	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 7.3
GOWNIENK EART Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Environment of the Environment of	6.1 55.5 33.1 20 Clear Skv 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9 17.9 14.9	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7	6.1 55.5 29.5 20 Downlink Fade 47.5 207.5 0.0 1.1 228.6 54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 7.3 14.9 7.3
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Geration Angle Instruction Gain Elevation Angle Instruction Elevation Angle Instruction Elevation Elevation (dB) Earth Station Elevation (dB) Instruction (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Instruction Gain (dBW/K-Hz) Downlink Elevation (dB) Downlink Elevation (dB) Downlink Elevation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Unlink Co-Channel (dB)*	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0° 33.1 228.6 -54.9 17.9 17.9 11.2 18.2 18.2	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7	6.1 55.5 29.5 20. Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 -7.3 14.9 7.3 11.2 18.2 18.2
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle INCEAD (GRAND) INCEAD (G	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0° 33.1 228.6 -54.9 17.9 17.9 11.2 18.2 18.2	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7 15.7	6.1 55.5 29.5 20 Downlink Fade 47.5 207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 14.9
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Garin (dBi) Earth Station Garin (dBi) Earth Station Garin (dBi) Earth Station Elevation Angle ETNICE (DECORMANCE) Unlink Earth Station Elevation (dBi) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dBi) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dBi) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dBi) Downlink Path Loss, Clear Sky (dBi) Downlink Path Loss, Clear Sky (dBi) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dBi) C/N Downlink (dBi) C/N Downlink (dBi) C/N Intermodulation (dBi) C/I Unlink Co-Channel (dBi) C/I Unlink Adiacent Satellite I (dBi) C/I Downlink Adiacent Satellite I (dBi)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0° 33.1 228.6 -54.9 17.9 17.9 11.2 18.2 18.2	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7	6.1 55.5 29.5 20. Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 -7.3 14.9 7.3 11.2 18.2 18.2
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle INCEAD (GRAND) INCEAD (G	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9 17.9 14.9 17.9 11.2 18.2 18.2 18.2 18.2 19.9	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7 15.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 1.1 1.1 28.6 -7.0 -7.0 -7.0 -7.0 -7.0 -7.0 -7.3 11.2 18.2 18.2 18.2 19.9
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle ### Property of the Propert	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9 17.9 11.2 18.2 18.2 18.2 18.2 13.6 19.9 13.6	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7 15.7 15.7	6.1 55.5 29.5 20 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 1.1 1.1 28.6 1.1 1.1 1.1 28.6 1.1 1.1 28.6 1.1 1.1 28.6 1.1 1.1 29.5 20.5
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle INGERALIZATION PERFORMANCE Iplink Performance Iplink Earth Station EIRP (dBW) Iplink Earth Station EIRP (dBW) Iplink Earth Station EIRP (dBW) Iplink Earth Station (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Iplink CN (dB) Iplink CN (dB) Iplink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Convince (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CN Uplink (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 2 (dB) C/(N-D) C/(N-1) Composite (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -0.5 -0.0° 33.1 228.6 -54.9 14.9 17.5 -1.0 17.5 -1.0 17.5 -1.0	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -0.0 33.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7	6.1 55.5 29.5 20.5 20.5 20.7 20.6 47.5 207.5 0.0 1.1 228.6 54.9 14.9 17.5 -0.5 -0.5 -205.9 -7.0 29.5 228.6 54.9 1.1 1.1 2.2 1.1 2.2 1.1 2.2 1.1 2.2 1.1 2.2 1.1 2.2 2.3 2.3 2.3 2.3 2.3 2.3 2.3
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Elevation Angle Indicator (dBi) Ind	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9 17.9 11.2 18.2 18.2 18.2 18.2 13.6 19.9 13.6	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7 15.7 15.7 15.7 15.7 15.7 15.7 16.1 16.1 16.1 17.8 11.5 19.1	6.1 55.5 29.5 20. Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1
Farth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle ENGEAD (APPENDIA Dolink Earth Station ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Lownlink Co-Channel (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB) Net C/(N+1) Comnosite (dB) Minimum Required C/N (dB) Minimum Required C/N (dB) Minimum Required C/N (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -0.5 -205.9 0.0° 33.1 228.6 -54.9 17.9 14.9 17.9 17.9 18.2 18.2 18.2 18.2 18.2 18.2 13.6 21.2	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1, 228.6 -54.9 15.7 15.7 15.7 9.0 15.7 15.7 15.7 15.7 15.7 15.7 16.1 16.1 17.8 11.5 19.1	6.1 55.5 29.5 20.5 20.0 Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 7.3 14.9 7.3 11.2 18.2 18.2 18.2 18.2 13.6 21.2 27.5 -1.0 27.5 -1.0 27.5 -1.0 27.5 -1.0
GOWNIENS FARIES Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle INGERALIZED (BI) IPENS FERGERMANG IPENS FERGERMANG IDIINK Earth Station EIRP (dBW) IIDIINK Earth Station EIRP (dBW) IIDIINK Earth Station (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) IIDIINK C/N (dB) Downlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Uplink (dB) C/I Uplink Adiacent Satellite I (dB) C/I Uplink Adiacent Satellite I (dB) C/I Upwnlink Adiacent Satellite I (dB) C/I Downlink Adiacent Satellite I (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9 14.9 17.9 11.2 18.2 18.2 13.6 19.9 13.6 21.2	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7 15.7 -15.7 9.0 16.1 16.1 11.5 17.8 17.8 19.1	6.1 55.5 29.5 20.5 20.5 20.7 0.0 1.1 228.6 54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 54.9 7.3 11.2 18.2 18.2 13.6 19.9 13.6 21.2
GOWNIENS FARTH Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle INGARDIAN (BE) IPLINE PERFORMANCE Unlink Earth Station Eller (dBW) Unlink Earth Station Eller (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK BROWN (BD) DOWNLINK BROWN (BD) Downlink FIRP ner Carrier (dRW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/(N+1) Composite (dB) Minimum Required C/N (dB) Excess Link Marein (dB) Number of Carriers	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -0.5 -205.9 0.0° 33.1 228.6 -54.9 17.9 14.9 17.9 17.9 18.2 18.2 18.2 18.2 18.2 18.2 13.6 21.2	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1, 228.6 -54.9 15.7 15.7 15.7 9.0 15.7 15.7 15.7 15.7 15.7 15.7 16.1 16.1 17.8 11.5 19.1	6.1 55.5 29.5 20. Downlink Fade 47.5 -207.5 0.0 1.1 228.6 -54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 -54.9 7.3 14.9 7.3 11.2 18.2 18.2 18.2 18.2 13.6 21.2
GOWNIENS FARIES Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle INGERALIZED (BI) IPENS FERGERMANG IPENS FERGERMANG IDIINK Earth Station EIRP (dBW) IIDIINK Earth Station EIRP (dBW) IIDIINK Earth Station (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) IIDIINK C/N (dB) Downlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Uplink (dB) C/I Uplink Adiacent Satellite I (dB) C/I Uplink Adiacent Satellite I (dB) C/I Upwnlink Adiacent Satellite I (dB) C/I Downlink Adiacent Satellite I (dB)	6.1 55.5 33.1 20 Clear Sky 47.5 -207.5 0.0 1,1 228.6 -54.9 14.9 17.5 -0.5 -205.9 0.0 33.1 228.6 -54.9 17.9 14.9 17.9 11.2 18.2 18.2 13.6 19.9 13.6 21.2	6.1 55.5 33.1 20 Unlink Fade 47.5 -207.5 -2.2 1.1 228.6 -54.9 12.7 15.3 -0.5 -205.9 0.0 33.1 228.6 -54.9 15.7 15.7 -15.7 9.0 16.1 16.1 11.5 17.8 17.8 19.1	6.1 55.5 29.5 20.5 20.5 20.7 0.0 1.1 228.6 54.9 14.9 17.5 -0.5 -205.9 -7.0 29.5 228.6 54.9 14.9 7.3 11.2 18.2 18.2 13.6 19.9 13.6 21.2

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 14A: Intelsat Americas 6 C-Band Link Budgets

RUDBINGRANIENTORMEVEIGH					· ·
Unlink Beam Name	Conus	Conus	Conus	Coms	Conus
Unlink Frequency (MHz)	6175	6175	6175	6175	6175
Uplink Beam Polarization Uplink Relative Contour Level (dB)	Vertical -2.7	Vertical -2.7	Vertical -2.7	Vertical -2.7	Vertical -2.7
Unlink Contour G/T (dB/K)	1.0	1.0	1.0	1.0	1.0
Uplink SFD (dBW/m²)	-86.0	-92.0	-83.0	-83.0	-81
*DOWNINK BEAM INFORMATION	Conus			<u> </u>	<u> </u>
Downlink Beam Name Downlink Frequency (MHz)	3950	Conus - 3950	Conus 3950	Conus 3950	2950
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-3.3	-3.3	-3.3	-3.3	-3.3
Downlink Contour FIRP (dBW) ADDAC (ANY SAVERBURE)	37	37	37	37	37.0
Satellite 1 Orbital Location	95 WL				
Uplink Power Density (dBW/Hz)	-49.1	-49.1	-49.1	-49.1	-49.1
Uplink Polarization Advantage (dB) Downlink EIRP Density (dBW/Hz)	-38.2	-38.2	-38.2	-38.2	-38.2
Downlink Polarization Advantage (dB)	0	0	0	0	0
EACH AGENT CAVELLETTE? HERETEN					24.270
Satellite 2 Orbital Location Uplink Power Density (dBW/Hz)	91 WL -50.9				
Uplink Polarization Advantage (dB)	-50.9	-30.9	0	0	-50.5
Downlink EIRP Density (dBW/Hz)	-31.5	-31.5	-31.5	-31.5	-31.5
Downlink Polarization Advantage (dB)	0	0	0	0	0
CARRIER INCORMATION	36M0F8W	32M4F8W	30M9G7W	36M0G7W	30M0D7W
Information Rate (kbns)	n/a	n/a	45000	60000	90000
Carrier Modulation	TV/FM	TV/FM	OPSK	OPSK	OPSK
Peak to Peak Bandwidth of EDS (MHz) Code Rate	n/a	u/a	n/a R7/8	n/a R1/1	n/a
Occupied Bandwidth (kHz)	36000	32400	30900	36000	30000
Allocated Bandwidth (kHz)	36000	32400	30900	36000	30000
Minimum C/N. (dB)	8	- 8	17.4	18.0	21.0
Earth Station Diameter (meters)	11.0	4.5	15.5	13.0	30.0
Earth Station Gain (dBi)	54.9	46.2	58.0	56.2	62.8 20
Farth Station Elevation Angle DOWNLINK PARTH STATION	20	20	20	20	
Earth Station Diameter (meters)	7.0	4.5	15.5	13.0	18.3
Earth Station Gain (dBi)	47.0 26.3	43.9 23.3	54.5 36.6	53.2	56.3 38.0
Earth Station G/T (dB/K) Earth Station Elevation Angle	20	20	20	20	20
TIP INTO PORTIONALAND SEE SEE SEE					
Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB)	76.9 -200.2	70.9 -200.2	79.9 -200.2	79.9 -200.2	81.9 -200.2
Satellite G/T (dB/K)	1.0	1.0	1.0	1.0	1.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6 30.7	-75.6 24.7	-74.9 34.4	-75.6 -33.7	-74.8 36.5
Uplink C/N (dB)	30.7	29.7	34.4		
Downlink EIRP per Carrier (dBW)	37.0	37.0	37.0	37.0	37.0
Antenna Pointing Error (dB)	-0.5 -196.3	-0.5 -196.3	-0.5 -196.3	-0.5 -196.3	-0.5 -196.3
Downlink Path Loss, Clear Sky (dB) Earth Station G/T (dB/K)	26.3	23.3	36.6	33.0	38.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6 19.5	75.6 16.5	74.9 30.5	-75.6 	-74.8 32.0
Downlink C/N (dB)	. 12				
C/N Uplink (dB)	30.7	24.7	34.4	33.7	36.5
C/N Downlink (dB) C/I Intermodulation (dB)	19.5 n/a	16.5 n/a	30.5 n/a	26.2	32.0 n/a
C/I Unlink Co-Channel (dB)*	27.0	27.0	27.7	27.0	27.8
C/l Downlink Co-Channel (dB)*	27.0	27.0	27.7	27.0	27.8
C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB)	29.7 26.4	23.7	33.4 34.2	32.7 31.7	35.5 34.9
C/I Unlink Adjacent Satellite 2 (dB)	31.5	25.5	35.2	34.5	37.3
C/I Downlink Adiacent Satellite 2 (dB)	18.1	14.0	26.7	24.2	28.8
C/(N+1) Composite (dB)	14.5	10.9	21.0	19.2	22.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+1) Composite (dB)	13.5	9.9	20.0	18.2	21.0
Minimum Required C/N (dB) Excess Link Margin (dB)	-8.0 5.5	-8.0 1.9	-17.4 2.6	-18.0 0.2	-21.0 0.0
Number of Carriers	i i	ľ	L.L	ŢŢ.	1
a commendation layers	44.0	-41.3	-53.0	-51.9	-55.7
Uplink Power Density (dBW/H2) Downlink EIRP Density At Beam Peak	-44.0 -25.7	-41.3 -25.7	-34.6	-35.3	-34.5
TAXABLE PARTY OF TAXABLE AND TAXABLE VALUE OF TAXABLE PARTY.					

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

ENDERLY CHONCERNS ON CRANTON			···· 1	 7	
Uplink Beam Name	Conus	Conus	Conus	Conus	Conus
Uplink Frequency (MHz)	6175	6175	6175	6175	6175
Uplink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical
Unlink Relative Contour Level (dB)	-2.7	-2.7	-2.7	-2.7	-2.7
Uplink Contour G/T (dB/K) Uplink SFD (dBW/m²)	1.0 -92.0	1.0 -89.0	1.0 -86.0	-86.0	1.0 -86.0
EDOWNERK GURAMENTERRANDEN EN	-722,07		-60-0	-00.0	-50.0
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	3950	3950	3950	3950	3950
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-3.3	-3.3	-3.3	-3.3	-3.3
Downlink Contour E1RP (dBW)	37	37	_37	37	37.0
Satellite 1 Orbital Location	95 WL	95 WL	95.WL	95.WL	95 WL
Uplink Power Density (dBW/Hz)	-49.1	49.1	-49.1	-49.1	-49.1
Unlink Polarization Advantage (dB)	0	0	. 0	0	0 .
Downlink EIRP Density (dBW/Hz)	-38.2	-38.2	-38.2	-38.2	-38.2
Downlink Polarization Advantage (dB)	0	0	0	0	0
BAYDIA WIRE EXAMERINE SECTION OF THE	01.112	01.33/7	01.310	01 317	01 377
Satellite 2 Orbital Location	91 WL	91 WL -50.9	91 WL -50.9	91 WL -50.9	91 WL -50.9
Unlink Power Density (dBW/Hz) Unlink Polarization Advantage (dB)	-50.9 0	-50.9	-50.9	30.9	-50.9 0
Downlink FIRP Density (dBW/Hz)	-31.5	-31.5	-31.5	-31.5	-31.5
Downlink Polarization Advantage (dB)	0	0	0	0	0
MONTH THE PROPERTY OF THE PROP					
Carrier ID	24M0G7W	1M98G7W	3M90G7W	1M24G7W	44K0G7W
Information Rate (khps)	20000	3300	6500	1544 ODEV	OPSK
Carrier Modulation	OPSK n/a	OPSK n/a	OPSK n/a	OPSK n/a	DPSK
Peak to Peak Bandwidth of EDS (MHz) Code Rate	R1/2	R1/1	R1/1	R3/4	R7/8
Occupied Bandwidth (kHz)	20000	1980	3900	1235	44
Allocated Bandwidth (kHz)	24000	1980	3900	1235	44
Minimum C/N. (dB)	8	9.0	9.0	8.7	9.4
Bunder Consistent Partols			7.0.	(1	6.1
Earth Station Diameter (meters)	9.2 53.0	5.0 57.9	51.1	6.1 49.0	49.7
Earth Station Gain (dBi) Earth Station Elevation Angle	20	20	20	20	20
STROUGHER RESTRACTION OF THE PERSON OF THE P			1		
Earth Station Diameter (meters)	7.0	4.5	4.5	6.1	6.1
Earth Station Gain (dBi)	48.1	43.9	43.9	46.2	46.2
Earth Station G/T (dB/K)	27.5	23.6	23.3	25.5 20	25.5 20
Farth Station Elevation Apple	20	20	20	20	
Uplink Earth Station EIRP (dBW)	70.9	61.1	65.0	57.8	44.0
Uplink Path Loss, Clear Sky (dB)	-200.2	-200.2	-200.2	-200.2	-200.2
Satellite G/T (dB/K)	1.0	1.0	1.0	1.0	1.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-73.0 <u>-</u> 27.3	-63.0 27.5	-65.9 28.5	-60.9 -26.3	-46.4 27.0
Uplink C/N (dB)	21.3	27.3	- 20		27.3
Downlink EIRP per Carrier (dBW)	37.0	25.7	26,6	19.3	5.6
Antenna Pointing Error (dB)	-0.5	-0.5	-0.5	-0.5	-0.5
Downlink Path Loss, Clear Sky (dB)	-196.3	-196.3	-196.3	-196.3	-196.3
Earth Station G/T (dB/K)	27.5	23.6	23.3	25.5	25.5 228.6
Boltzman Constant (dBW/K-H2)	228.6 -73.0	228.6 -63.0	228.6 -65.9	228.6 -60.9	-46.4
Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	23.3	18.1	15.7	15.7.	16.4
EMPERSTREE PHASE SHARE HAVE AND					
C/N Uplink (dB)	27.3	27.5	28.5	26.3	27.0
C/N Downlink (dB)	23.3	18.1	15.7	15.7	16.4
C/I Intermodulation (dB)	n/a	20.5	18.5	16.3 27.5	17.0 28.2
C/I Unlink Co-Channel (dB)*	28.8 28.8	31.8 31.8	29.8 29.8	27.5	28.2
C/I Downlink Co-Channel (dB)*	26.3	26.6	27.5	25.3	26.0
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB)	29.5	24.5	22.5	22.5	23.2
C/I Unlink Adiacent Satellite 2 (dB)	28.1	28.4	29.3	27.1	27.8
C/I Downlink Adjacent Satellite 2 (dB)	21.3	15.3	13.3	14.0	14.7
	 ,,,	 	10.0		10.4
C/(N+1) Composite (dB)	16.6	11.9 -1.0	10.0 -1.0	9.7	10.4 -1.0
Required System Margin (dB) Net C/(N+1) Composite (dB)	-1.0 15.6	10.9	9.0	8.7	9.4
Minimum Required C/N (dB)	-8.0	-9.0	-9.0	-8.7	-9.4
Excess Link Margin (dB)	7.6	1.9	0.0	0.0	0.0
LACES LIIK WALE IN COLUMN			4.8 _	25.7	613.7
Number of Carriers		6	4.0		
Number of Carriers Carrier Deastry 2003	551			I	
Number of Carriers	-55.1 -32.7	-59.8 -34.0	-520 -36.0	-52.1 -38.3	-52.1 -37.6

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 14B: Intelsat Americas 6 Ku-Band Link Budgets

Inlink Boom Nome						
Jolink Beam Name	Conus	Conus	Coms	Conus	Conus	Conus
Inlink Frequency (MHz)	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal	Horizontal
Julink Beam Polarization Julink Relative Contour Level (dB)	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Julink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Jolink SFD (dBW/m²)	-81.0	-81.0	-81.0	-84.0	-84.0	-84.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
TOWN INK BOOM INCORMATION SEEDS	<u></u>		C	Camara	C====	Conus
Downlink Beam Name	Conus 11950	Conus 11950	Conus 11950	Conus 11950	Conus 11950	11950
Downlink Frequency (MHz) Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Downlink Contour EIRP (dBW)	46.5	46.5	46.5	46.5	46.5	46.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
And Construction of the Co	95 WL	95 WL	95 WL	95 WL	95 WL	95 WL
Satellite 1 Orbital Location Julink Power Density (dBW/Hz)	-45.2	-45.2	-45.2	-45.2	-45.2	-45.2
Jolink Polarization Advantage (dB)	0.	0	0	0	0	0
Downlink EIRP Density (dBW/Hz)	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Downlink Polarization Advantage (dB)	0	0	0	0	.0	
ADDRACEDS/BESS/ACTION REPORT (17)		01.327	01.37/	01 327	91 WL	91 WL
Satellite 2 Orbital Location	91 WL	91 WL -50.3	91 WL -50.3	91 WL -50.3	-50.3	-50.3
Unlink Power Density (dBW/Hz) Unlink Polarization Advantage (dB)	-50.3 0	-30.3	0	0 _	0	0
Downlink E1RP Density (dBW/Hz)	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Downlink Polarization Advantage (dB)	0	0	0	0	0	0
SARRITERE (SIEGREMANTO) SI III DELLE EN ELLE		403 1 :	2014/2001	071 40	20141 (2011)	30M1G7W
Carrier ID	32M4F8W	32M4F8W TV/FM	32M4F8W. TV/FM	27M0F8W TV/FM	30M1G7W TV/FM	TV/FM
Carrier Modulation	TV/FM 4	4	4	4	4	4
Peak to Peak Bandwidth of EDS (MHz)	n/a	n/a	n/a	n/a _	n/a	п/a
Code Rate	n/a	_n/a	n/a	n/a	n/a	n/a
Occupied Bandwidth (kHz)	32400	32400	32400	27000	27000	27000
Allocated Bandwidth (kHz)	32400	32400	32400 8	27000 8.0	27000· 8.0	27000 8.0
Minimum C/N. Clear Sky (dB)	8 8	8	8	8.0	8.0	8.0
Minimum C/N, Rain (dB)				U.V		
Earth Station Diameter (meters)	8.1	8.1	8.1	2.4	2.4	2.4
Earth Station Gain (dBi)	59.8	59.8	59.8	49.2	49.2	49.2
Earth Station Elevation Angle	20		20		20	20
DOWNFILD ROLL ARTHUS TATTONE A 12 LA 12	5.5	5.5	5.5	8.1	8.1	8.1
Earth Station Diameter (meters) Earth Station Gain (dBi)	54.4	54.4	54.4	58.5	58.5	58.5
Earth Station G/T (dB/K)	31.2	31.2	27.8	35.4	35.4	32.0
Earth Station Elevation Angle	20	20	20	20	_ 20	20
Him Coando Burel Bree al Leile Coa	Clear Skv	Uplink Fade	Downlink Fade	Clear Skv	Unlink Fade	Downlink Fac
	<u> </u>	 				
UPADICE 230 PMANE Uplink Earth Station EIRP (dBW)	81.9	81.9	81.9	75.9	75.9	75.9
Uplink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5	-207.5	-207.5
Unlink Rain Attenutation (dB)	0.0	-13.6	0.0	0.0	9.5	0.0
Satellite G/T (dB/K)	0.0	0.0	0.0	00	0.0	0.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6		220 (
		75 1		228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	<u>-75.1</u>	-75.1 14.3	-75.1	-74.3	-74.3	
Unlink C/N (dB)	27.9 27.9	-75.1 14.3				228.6 -74.3 22.7
	27.9	14.3 38.4	-75.1 27.9 46.5	-74.3 22.7 41.9	-74.3 13.2	228.6 -74.3 22.7
Unlink CN (dB) DOWNGING PRESENTATION Downlink FIRP ner Carrier (dRW) Antenna Pointing Frror (dB)	27.9 46.5 -0.5	38.4 -0.5	-75.1 27.9 46.5 -0.5	-74.3 22.7 41.9 -0.5	-74.3 13.2 34.8 -0.5	228.6 -74.3 22.7 41.9 -0.5
Unlink C/N (dB) DOWNGINK PERCEORNIAN(C) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB)	27.9 46.5 -0.5 -205.9	38.4 -0.5 -205.9	-75.1 27.9 46.5 -0.5 -205.9	-74.3 22.7 41.9 -0.5 -205.9	-74.3 13.2 34.8 -0.5 -205.9	228.6 -74.3 22.7 41.9 -0.5 -205.9
Unlink C/N (dB) DOWNLINKEDERCORNIAN(CE) DOWNLINKEDERCORNIAN(CE) DOWNLINKEDERCORNIAN(CE) DOWNLINKEDERCORNIAN(CE) DOWNLINKEDERCORNIAN(CE) DOWNLINKEDERCORNIAN(CE) DOWNLINKEDERCORNIAN(CE)	27.9 46.5 -0.5 -205.9 0.0	38.4 -0.5 -205.9 0.0	-75.1 27.9 46.5 -0.5 -205.9 -12.2	-74.3 22.7 41.9 -0.5 -205.9 0.0	-74.3 13.2 34.8 -0.5 -205.9 -0.0	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2
Unlink C/N (dB) DOWNINK PER ORMAN(C) Downlink F1RP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink P4th Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Farth Station G/T (dB/K)	27.9 46.5 -0.5 -205.9 0.0 31.2	38.4 -0.5 -205.9	-75.1 27.9 46.5 -0.5 -205.9	-74.3 22.7 41.9 -0.5 -205.9	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6
Unlink C/N (dB) DOWNINK ERECTEMA (C) DOWNINK EIRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	27.9 46.5 -0.5 -205.9 0.0	38.4 -0.5 -205.9 -0.0 31.2 228.6 -75.1	-75.1 27.9 46.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3
Unlink C/N (dB) DOWNINK ERP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	27.9 46.5 -0.5 -0.5 0.0 31.2 228.6	38.4 -0.5 -205.9 0.0 31.2 228.6	-75.1 27.9 46.5 -0.5 -205.9 -12.2 27.8 228.6	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6
Unlink C/N (dB) DOWNINK PER ORMAN(DOWNINK PER ORMAN(DOWNINK PER ORMAN(Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) GOMEOSE	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6	-75.1 27.9 46.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3 25.1	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 -9.5
Unlink C/N (dB) DOWNINK ERP DET CARRIAGE DOWNINK EIRP DET CARRIET (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6	-75.1 27.9 46.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 335.4 228.6 -74.3 25.1	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3
Unlink C/N (dR) DOWNLINK PROUNTANCE Downlink FIRP ner Carrier (dRW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 27.9 24.7	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6	-75.1 27.9 46.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3 25.1	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 9.5
Uplink C/N (dB) DOWNLINK BE ORNIA (D) DOWNLINK BE ORNIA (D) DOWNLINK BE ORNIA (D) DOWNLINK BERP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Farth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Downlink (dB) C/N Intermodulation (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6	-75.1 27.9 46.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 9.5 22.7 9.5 n/a 27.0
Unlink C/N (dB) DOWNLINK BER PER CARRIAN (D) Downlink EIRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink CO-Channel (dB)*	27.9 46.5 -0.5 -205.9 -0.0 -205.9 -0.0 -228.6 -75.1 -24.7 -24.7 -27.9 -24.7 -29.2 -29.2 -29.2	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1	-75.1 27.9 46.5 -0.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2 w/a 29.2 29.2 29.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 -35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0	-74.3 13.2 34.8 -0.5 -205.9 -0.0 35.4 -228.6 -74.3 18.1 13.2 18.1 17.5 -20.0	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 -9.5 22.7 9.5 w/a 27.0
Unlink C/N (dB) DOWNLINK BER DER CATTIET (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite I (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 24.7 1/2 29.2 29.2 32.2	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6	-75.1 27.9 46.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 -9.2 27.9 9.2 1/2 27.9 9.2 1/2 27.9 9.2 1/2 27.9 29.2 1/2 29.2 29.2 29.2 29.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 n/a 17.5 20.0 17.5	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 9.5 22.7 9.5 n/a 27.0 27.0
Unlink C/N (dB) DOWNINK PROPER ORMAN (D) DOWNINK PROPER ORMAN (D) DOWNINK PROPER OR (DB) DOWNINK PAth Loss, Clear Sky (dB) DOWNINK Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite I (dB) C/I Downlink Adiacent Satellite I (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 27.9 24.7 n/a 29.2 29.2 31.4	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3	-75.1 27.9 46.5 -0.5 -0.5 -20.5 -21.2 27.8 228.6 -75.1 9.2 27.9 9.2 10/a 29.2 29.2 29.2 31.4	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0 31.0	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 n/a 17.5 20.0 17.5 23.9	228.6 -74.3 -22.7 -41.9 -0.5 -205.9 -12.2 -32.0 -228.6 -74.3 -9.5 -22.7 -9.5 -12.7 -9.5 -12.2 -1
Ullink C/N (dB) DOWNLINK PROUNTANCE DOWNLINK PROUNTANCE DOWNLINK PROUNTANCE DOWNLINK PROUNTANCE Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Ullink (dB) C/N Ullink (dB) C/I Ullink (dB) C/I Ullink Co-Channel (dB)* C/I Ullink Adiacent Satellite 1 (dB)	27.9 46.5 -0.5 -205.9 -0.0 -205.9 -0.0 -21.1 -228.6 -75.1 -24.7 -	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3	75.1 27.9 46.5 -0.5 -0.5 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2 w/a 29.2 29.2 32.2 31.4 37.3	-74.3 22.7 41.9 -0.5 -0.0 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0 27.0 31.0 32.1	-74.3 13.2 34.8 -0.5 205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 n/a 17.5 20.0 17.5 23.9 22.6	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 9.5 -74.3 9.5 -74.3 -74.3 -75.0 -
Unlink C/N (dB) DOWNINK PROPER ORMAN (D) DOWNINK PROPER ORMAN (D) DOWNINK PROPER OR (DB) DOWNINK PAth Loss, Clear Sky (dB) DOWNINK Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dB/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite I (dB) C/I Downlink Adiacent Satellite I (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 27.9 24.7 n/a 29.2 29.2 31.4	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3	-75.1 27.9 46.5 -0.5 -0.5 -20.5 -21.2 27.8 228.6 -75.1 9.2 27.9 9.2 10/a 29.2 29.2 29.2 31.4	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0 31.0	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 n/a 17.5 20.0 17.5 23.9	228.6 -74.3 -22.7 -41.9 -0.5 -205.9 -12.2 -32.0 -228.6 -74.3 -9.5 -22.7 -9.5 -12.2 -23.0 -23.0 -33.0 -34.3 -34.3 -35.0 -34.3 -35.0 -36.0 -
Ullink C/N (dB) DOWNLINK PROUNTANCE DOWNLINK PROUNTANCE DOWNLINK PROUNTANCE DOWNLINK PROUNTANCE Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Ullink (dB) C/N Ullink (dB) C/I Ullink (dB) C/I Ullink Co-Channel (dB)* C/I Ullink Adiacent Satellite 1 (dB)	27.9 46.5 -0.5 -205.9 -0.0 -205.9 -0.0 -21.1 -228.6 -75.1 -24.7 -	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3	75.1 27.9 46.5 -0.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/	74.3 22.7 41.9 -0.5 205.9 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0 27.0 31.0 32.1 28.4	-74.3 13.2 34.8 -0.5 205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 n/a 17.5 20.0 17.5 23.9 22.6 21.3	228.6 -74.3 -0.5 -205.9 -12.2 -32.0 -228.6 -74.3 -9.5 -22.7 -9.5 -12.2 -74.3 -9.5 -74.3
Unlink C/N (dB) DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG Antenna Pointing Error (dB) Downlink ElRP ner Carrier (dRW) Antenna Pointing Error (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Composite (dB) Required System Margin (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 24.7 1/a 29.2 32.2 31.4 37.3 28.6	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 23.1 18.6 23.3 23.7 20.5	75.1 77.9 46.5 -0.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2 p/a 29.2 29.2 32.2 31.4 37.3 28.6 -1.0	-74.3 22.7 41.9 -0.5 -205.9 0.0 -35.4 228.6 -74.3 25.1 22.7 25.1	-74.3 13.2 34.8 -0.5 -205.9 -0.0 35.4 -228.6 -74.3 18.1 -13.2 18.1 -17.5 -20.0 -17.5 -23.9 -22.6 -21.3 -9.0 -1.0	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 -9.5 22.7 9.5 n/a 27.0 27.0 31.0 32.1 28.4
Unlink C/N (dB) DOWNINK DER ORMAN DOWNINK DER ORMAN Downlink E1RP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 24.7 1/2 29.2 29.2 31.4 37.3 28.6 19.9 -1.0 18.9	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3 23.7 20.5	-75.1 27.9 46.5 -0.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 -9.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0 27.0 31.0 32.1 28.4 17.6 -1.0	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 n/a 17.5 20.0 17.5 23.9 22.6 21.3	228.6 -74.3 -22.7 -41.9 -0.5 -205.9 -12.2 -32.0 -228.6 -74.3 -9.5 -27.0
Unlink C/N (dB) DOWNINK PER ORMAN DOWNINK PER ORMAN Downlink EIRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dR) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) Minimum Required C/N (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 27.9 24.7 n/a 29.2 29.2 31.4 37.3 28.6 19.9 -1.0 18.9 -8.0	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3 23.7 20.5	-75.1 27.9 46.5 -0.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2 n/a 29.2 29.2 31.4 37.3 28.6 9.0 -1.0 8.0	-74.3 22.7 41.9 -0.5 -0.0 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0 27.0 27.0 31.0 32.1 28.4 17.6 -1.0 16.6 -8.0	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 17.5 20.0 17.5 23.9 22.6 21.3 9.0 -1.0 8.0 -8.0	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 9.5 22.7 9.5 n/a 27.0 27.0 27.0 31.0 32.1 28.4 9.0 -1.0 8.0 -8.0
Unlink C/N (4B) DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG Antenna Pointing Error (dB) Downlink EIRP ner Carrier (dRW) Antenna Pointing Error (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Go-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Unwink Adiacent Satellite 2 (dB) C/(N+I) Composite (dB) Required System Margin (dB) Minimum Required C/N (dB) Excess Link Margin (dB) Excess Link Margin (dB) Excess Link Margin (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 24.7 1/2 29.2 29.2 31.4 37.3 28.6 19.9 -1.0 18.9	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3 23.7 20.5	75.1 27.9 46.5 -0.5 -0.5 -12.2 27.8 228.6 -75.1 -9.2 27.9 9.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 -35.4 228.6 -74.3 25.1 22.7 25.1	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 n/a 17.5 20.0 17.5 23.9 22.6 21.3	228.6 -74.3 22.7 41.9 -0.5 -205.9 -12.2 32.0 228.6 -74.3 9.5 22.7 9.5 27.0 27.0 27.0 31.0 32.1 28.4
Unlink C/N (dB) DOWNLINK DER ORMAN DOWNLINK DER ORMAN DOWNLINK DER ORMAN DOWNLINK DER ORMAN Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Downlink (dB) C/I Untermodulation (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 3 (dB) Excess Link Marein (dB) Number of Carriers	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 27.9 24.7 n/a 29.2 29.2 31.4 37.3 28.6 19.9 -1.0 18.9 -8.0	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3 23.7 20.5	-75.1 27.9 46.5 -0.5 -0.5 -205.9 -12.2 27.8 228.6 -75.1 9.2 27.9 9.2 n/a 29.2 29.2 31.4 37.3 28.6 9.0 -1.0 8.0	-74.3 22.7 41.9 -0.5 -0.0 0.0 35.4 228.6 -74.3 25.1 22.7 25.1 n/a 27.0 27.0 27.0 27.0 31.0 32.1 28.4 17.6 -1.0 16.6 -8.0	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 17.5 20.0 17.5 23.9 22.6 21.3 9.0 -1.0 -8.0 -8.0 0.0	228.6 -74.3 -22.7 -1.2 -32.0 -1.2.2 -32.0 -228.6 -74.3 -9.5 -27.0
Unlink C/N (4B) DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG DOWNLINK DER ORNIANG Antenna Pointing Error (dB) Downlink EIRP ner Carrier (dRW) Antenna Pointing Error (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Go-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Unwink Adiacent Satellite 2 (dB) C/(N+I) Composite (dB) Required System Margin (dB) Minimum Required C/N (dB) Excess Link Margin (dB) Excess Link Margin (dB) Excess Link Margin (dB)	27.9 46.5 -0.5 -205.9 0.0 31.2 228.6 -75.1 24.7 27.9 24.7 n/a 29.2 29.2 31.4 37.3 28.6 19.9 -1.0 18.9 -8.0	14.3 38.4 -0.5 -205.9 0.0 31.2 228.6 -75.1 16.6 14.3 16.6 n/a 15.6 21.1 18.6 23.3 23.7 20.5	75.1 27.9 46.5 -0.5 -0.5 -12.2 27.8 228.6 -75.1 -9.2 27.9 9.2	-74.3 22.7 41.9 -0.5 -205.9 0.0 -35.4 228.6 -74.3 25.1 22.7 25.1	-74.3 13.2 34.8 -0.5 -205.9 0.0 35.4 228.6 -74.3 18.1 13.2 18.1 17.5 20.0 17.5 23.9 22.6 21.3 9.0 -1.0 8.0 -8.0 0.0	228.6 -74.3 -22.7 -11.9 -0.5 -205.9 -12.2 -32.0 -74.3 -9.5 -74.3 -9.5 -74.3 -9.5 -74.3 -9.5 -74.3 -9.5 -74.3 -9.5 -74.3 -9.5 -74.3 -

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

(PDINKSIPAYENEDRAMAYI)) Unlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Uplink Frequency (MHz) Uplink Beam Polarization	Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal
Uplink Relative Contour Level (dB)	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Unlink SFD (dBW/m²)	-84.0	-84.0	-84.0 42.0	-81.0 42.0	-81.0 42.0	-81.0 42.0
Rain Rate (mm/hr) DOMNIGIN (GBZAMZIM ZORMAYE (G) Section 1	42.0	42.0	42.0	42.0	42.0	42.0
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization	Vertical -1.6	Vertical -1.6	Vertical -1.6	Vertical -1.6	Vertical -1.6	Vertical -1.6
Downlink Relative Contour Level (dB) Downlink Contour EIRP (dBW)	46.5	46.5	46.5	46.5	46.5	46.5
Dain Data (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ATTACHATES AND REPORT OF THE SECOND S	06.3311	05 1171	05 11/1	95 WL	95 WL	95 WL
Satellite 1 Orbital Location Unlink Power Density (dBW/Hz)	95 WL -45.2	95 WL -45.2	95 WL -45.2	-45.2	-45.2	-45.2
Uplink Polarization Advantage (dB)	0	0	Ö	0	0	0
Downlink EIRP Density (dBW/Hz)	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Downlink Polarization Advantage (dB)	0	0	. 0	0	0	0
ADMOUNTENANT AND A STATE OF THE	91 WL	91 WL	91 WL.	91 WL	91 WL	91 WL
Satellite 2 Orbital Location Unlink Power Density (dBW/Hz)	-50.3	-50.3	-50.3	-50.3	-50.3	-50.3
Uplink Polarization Advantage (dB)	0	0	0	0		0
Downlink E1RP Density (dBW/Hz)	-23.5	-23.5	-23.5	<u>-23,5</u>	-23.5 0	-23.5 0
Downlink Polarization Advantage (dB)	- 0	· · · · · · · · · · · · · · · · · · ·	0	U	'	 "
Carrier ID	36M0G7.W	36M0G7W	36M0G7W	23M5G7W	_23M5G7W	23M5G7W
Carrier Modulation	OPSK	OPSK	OPSK	OPSK	OPSK	OPSK
Peak to Peak Bandwidth of EDS (MHz)	n/a 45000	n/a _45000	n/a 45000	n/a 27000	n/a 27000	27000
Information Rate (kbps) Code Rate	R3/4	R3/4	R3/4	R2/3	R2/3	R2/3
Occupied Bandwidth (kHz)	31600	31600	31600	19500	19500	19500
Allocated Bandwidth (kHz)	36000	36000	36000	27000	27000 8.4	27000 8.4
Minimum C/N. Clear Sky (dB) Minimum C/N. Rain (dB)	8.8	8.8 8.8	8.8 8.8	8.4	8.4	8.4
TOTAL YOU DESIGNATION OF THE PROPERTY OF THE P		U.N				
Earth Station Diameter (meters)	5.5	5.5	5.5	4.5	4.5	4.5
Earth Station Gain (dBi)	56.1	56.1 20	56.1 20	54.8 20	54.8 20	54.8 20
Farth Station Elevation Angle				20		
Earth Station Diameter (meters)	5.5	5.5	5.5	2.4	2.4	2.4
Earth Station Gain (dBi)	54.5	30.0	54.5	47.1 22.6	47.1 22.6	47.1 21.4
Earth Station G/T (dB/K) Farth Station Elevation Angle	30.0	20	27.3	20	20	20
	Clear Sky	Unlink Fade	Downlink Fade	Clear Sky	Uplink Fade	Downlink Fade
THE RECORD CONTRACTOR OF THE PROPERTY OF THE P	_					
Uplink Earth Station EIRP (dBW)	78.9	78.9	78.9	78.9	78.9	78.9
Unlink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5	-207.5	-207.5
Unlink Rain Attenutation (dB)	0.0	-11.1	0.0	0.0	-3.1	0.0
Satellite G/T (dB/K)	228.6	228.6	228.6	0.0 228.6	0.0 228.6	228.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	-75.0	-75.0	-75.0	-72.9	-72.9	-72.9
Holink C/N (dR)	25.0	14.0	25.0	27.1	24.0	27.1
TOWN CENTER RECORDS AND COME.	16.5	40.0	46.5	41.9	40.0	41.9
Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB)	-46.5 -0.5	40.9 -0.5	-0.5	-0.5	-0.5	-0.5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205,9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation (dB)	0.0	0.0	-10.8	0.0	0.0	-1.8 21.4
Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	30.0 228.6	30.0 228.6	27.3 228.6	22.6 228.6	22.6 228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.0	75.0	-75.0	-72.9	-72.9	-72.9
Downlink C/N (dR)	23.7	18.1	10.2	13.7	11.9	10.8
(COMPOSED FROM CONTROL	25.0	14.0	25.0	27.1	24.0	27.1
C/N Unlink (dB) C/N Downlink (dB)	25.0	18.1	10.2	13.7	11.9	10.8
C/I Intermodulation (dB)	n/a	n/a	n/a	n/a	п/а	
C/I Uplink Co-Channel (dB)*	28.8	17.7	28.8	27.0	23.9	27.0 27.0
C/I Downlink Co-Channel (dB)*	28.8	23.2 18.2	28.8 29.3	27.0 31.4	28.2	31.4
			31.5	21.4	19.6	21.4
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB)	31.5	25.9		36.5		36.5
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB) C/I Unlink Adjacent Satellite 2 (dB)	31.5 34.4	23.3	34.4		33.3	
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB)	31.5		34.4 28.7	17.7	15.8	17.7
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB) C/I Unlink Adjacent Satellite 2 (dB) C/I Downlink Adjacent Satellite 2 (dB)	31.5 34.4 28.7	23.3		17.7	15.8 9.4	9.4
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB) C/I Unlink Adjacent Satellite 2 (dB)	31.5 34.4 28.7 18.6	23.3 23.1 9.8 -1.0	28.7 9.8 -1.0	17.7 11.3 -1.0	15.8 9.4 -1.0	9.4 -1.0
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB) C/I Unlink Adjacent Satellite 2 (dB) C/I Unlink Adjacent Satellite 2 (dB) C/I Downlink Adjacent Satellite 2 (dB) C/(N+1) Composite (dB) Required System Margin (dB) Net C/(N+1) Composite (dB)	31.5 34.4 28.7 18.6 -1.0	23.3 23.1 9.8 -1.0 8.8	9.8 -1.0 8.8	17.7 11.3 -1.0 10.3	9.4 -1.0 8.4	9.4 -1.0 8.4
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB) C/I Unlink Adjacent Satellite 2 (dB) C/I Downlink Adjacent Satellite 2 (dB) C/N+1) Composite (dB) Required System Margin (dB) Net C/(N+1) Composite (dB) Minimum Required C/N (dB)	31.5 34.4 28.7 18.6 -1.0 17.6 -8.8	23.3 23.1 9.8 -1.0 8.8 -8.8	28.7 9.8 -1.0 8.8 -8.8	17.7 11.3 -1.0 10.3 -8.4	9.4 -1.0 8.4 -8.4	9.4 -1.0
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB) C/I Unlink Adjacent Satellite 2 (dB) C/I Unlink Adjacent Satellite 2 (dB) C/I Downlink Adjacent Satellite 2 (dB) C/(N+1) Composite (dB) Required System Margin (dB) Net C/(N+1) Composite (dB) Minimum Required C/N (dB) Excess Link Margin (dB) Number of Cartiers	31.5 34.4 28.7 18.6 -1.0	23.3 23.1 9.8 -1.0 8.8	9.8 -1.0 8.8	17.7 11.3 -1.0 10.3	9.4 -1.0 8.4	9.4 -1.0 8.4 -8.4
C/I Unlink Adjacent Satellite 1 (dB) C/I Downlink Adjacent Satellite 1 (dB) C/I Unlink Adjacent Satellite 2 (dB) C/I Downlink Adjacent Satellite 2 (dB) C/N+1) Composite (dB) Required System Margin (dB) Net C/(N+1) Composite (dB) Minimum Required C/N (dB)	31.5 34.4 28.7 18.6 -1.0 17.6 -8.8	23.3 23.1 9.8 -1.0 8.8 -8.8	28.7 9.8 -1.0 8.8 -8.8	17.7 11.3 -1.0 10.3 -8.4 1.9	9.4 -1.0 8.4 -8.4 0.0	9.4 -1.0 8.4 -8.4 0.0

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

Maria Nata Serias (Savato)	4	I	<u> </u>			
Unlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Unlink Frequency (MHz)	14250	14250	14250	14250	14250	14250
Unlink Beam Polarization	Horizontal -1.8	Horizontal	Horizontal	Horizontal	Horizontal -1.8	Horizontal
Uplink Relative Contour Level (dB) Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Unlink SFD (dBW/m²)	-80.0	-80.0	-80.0	-78.0	-78.0	-78.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOMNORKODOWONICORMATIONSISSISSI						
Downlink Beam Name	Comis	Coms	Conus 11950	Conus 11950	Conus 11950	Conus 11950
Downlink Frequency (MHz) Downlink Beam Polarization	11950 Vertical	11950 Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Downlink Contour EIRP (dBW)	46.5	46.5	46.5	46.5	46.5	46.5
Dain Pate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
AMIN GENERAL SAME REPORT OF THE SAME AND ASSOCIATION OF THE SAME ASSOCIATION OF TH	05 33/1	95 WL	95 WL	95 WL	95.WL	95 WL.
Satellite 1 Orbital Location Unlink Power Density (dBW/Hz)	95 WL	93 WL -45.2	-45.2	-45.2	-45.2	-45.2
Unlink Polarization Advantage (dB)	0	0	0	0	0	0
Downlink EIRP Density (dBW/Hz)	-25.7	25.7	-25.7	-25.7	-25.7	-25.7
Downlink Polarization Advantage (dB)	0	0	0	0	0	0
ADHAGENERSAMERI FOR SAMBILIS I LOS SESSE			A	01.110	0. 117	01.11//
Satellite 2 Orbital Location	91 WL	91 WI.	91.WL	91 WL	91 WL	91 WL -50.3
Unlink Power Density (dBW/Hz)	-50.3	-50.3 0	50.3 0	-50.3 0	-50.3	-30.3
Uplink Polarization Advantage (dB) Downlink E1RP Density (dBW/Hz)	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Downlink Polarization Advantage (dB)	0	0	0	0	0	0
CONTRIBUTE INTEGRATION TO SECURITION OF THE PARTY OF THE						
Carrier ID	1M24G7W	1M24G7W	1M24G7W	1M80G7W	1M80G7W	1M80G7W
Carrier Modulation	OPSK	OPSK	OPSK	OPSK	OPSK	OPSK n/s
Peak to Peak Bandwidth of EDS (MHz) Information Rate (kbps)	n/a 1544	n/a 1544	n/a 1544	n/a 3000	n/a 3000	n/a 3000
Code Rate	R3/4	R3/4	R3/4	R1/1	R1/1	R1/1
Occupied Bandwidth (kHz)	1029	1029	1029	1600	1600	1600
Allocated Bandwidth (kHz)	1235	1235	1235	1800	1800	1800
Minimum C/N, Clear Sky (dB)	8.4	8.4	8.4	9.0	9.0	9.0
Minimum C/N, Rain (dB)	.8.4	8.4	8.4	9.0	9.0	9.0
Farth Station Diameter (meters)	2.4	2.4	2.4	4.6	4.6	4.6
Earth Station Gain (dBi)	49.2	49.2	49.2	54.9	54.9	54.9
Earth Station Elevation Angle	20	20	20	20	20	20
THORNSON NEWSTRANDS TO A TOTAL CONTROL OF THE STATE OF TH						- (1
Earth Station Diameter (meters)	3.0	3.0 49.2	3.0 49.2	55.5	6.1 55.5	55.5
Earth Station Gain (dBi)	49.2	1 49.2				
P-AL CARAS - CFF (AD IV)	26.7					29.4
Earth Station G/T (dB/K)	26.7	26.7 20	24.4	33.1 20	33.1 20	29.4 20
Earth Station G/T (dB/K) Earth Station Elevation Angle ENK (EAU) 2007/2007	26.7 20 Clear Sky	26.7	24.4	33.1	33.1	
Earth Station Elevation Angle ISINKSFADE 889	20	26.7 20	24.4 20	33.1 20	33.1 20	20
Farth Station Elevation Angle IBINGRAD 2022 URBINGRAD 2022	20 Clear Sky	26.7 20 Unlink Fade	24.4 20 Downlink Fade	33.1 20 Clear Sky	33.1 20 Unlink Fade	20 Downlink Fade
Farth Station Flevation Angle IENNERAD BEST TO THE STATE OF THE STATE	20 Clear Sky	26.7 20 Unlink Fade	24.4 20 Downlink Fade	33.1 20 Clear Sky	33.1 20 Uplink Fade 78.9	20 Downlink Fade
Farth Station Flevation Angle ISTANDANDANDANDANDANDANDANDANDANDANDANDANDA	20 Clear Skv 61.1 -207.5	26.7 20 Unlink Fade	24.4 20 Downlink Fade	33.1 20 Clear Skv 64.9 -207.5	33.1 20 Unlink Fade	20 Downlink Fade
Farth Station Elevation Angle INTERACTION OF THE PROPERTY OF	20 Clear Sky	26.7 20 Uplink Fade 61.1 -207.5	24.4 20 Downlink Fade 61.1 -207.5	33.1 20 Clear Sky	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0	20 Downlink Fade 78.9 -207.5 0.0
Farth Station Flevation Angle ENERGY 20 20 20 20 20 20 20 20 20 20 20 20 20	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6	78.9 -207.5 0.0 0.0 228.6
Farth Station Elevation Angle (ENERAL) (IDLINK Earth Station EIRP (dBW) (Inlink Path Loss, Clear Sky (dB) (Inlink Rain Attenuation (dB) Satellite GCT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6 -60.1	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0	33.1 20 Unlink Fade -78.9 -207.5 -4.5 0.0 228.6 -62.0	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0
Farth Station Elevation Angle (ELEVATOR ANGLE) (HEAD INCLERED ELEVATOR (HEAD INCLERED ELEVATO	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6	78.9 -207.5 0.0 0.0 228.6
Farth Station Elevation Angle ISINGEAD FOR THE ISINGEAD F	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0	33.1 20 Unlink Fade -78.9 -207.5 -4.5 0.0 228.6 -62.0	78.9 -207.5 0.0 0.0 228.6
Farth Station Elevation Angle (ENERGY) (I)	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6 -60.1	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5
Farth Station Elevation Angle INGRAD FOR THE STATE OF TH	20 Clear Sky 61.1 -207.5 -0.0 0.0 228.6 -60.1 22.1 -0.5 -205.9	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5 -205.9	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9
Farth Station Elevation Angle ISINGEAD STATE INCIPATION OF THE PROPERTY OF THE	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 0.0	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 -25.4 -0.5 -205.9	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8
Farth Station Elevation Angle INTERACT Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWnlink EIRP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K)	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 0.0 26.7	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -29.8 -0.5 -205.9 -7.8 29.4
Farth Station Elevation Angle INSTANTANCE Unlink Earth Station EIRP (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) DOWNLENN ERRORMANCE Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 -0.5 -205.9 -0.0 -228.6 -7 -228.6	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 -0.5 -205.9 0.0 33.1 228.6	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -0.5 -205.9 -7.8 29.4 228.6
Farth Station Elevation Angle INTERACT IDdink Earth Station EIRP (dBW) IDdink Path Loss, Clear Skv (dB) IDdink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) IDdink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	20 Clear Skv 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 0.0 26.7	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -29.8 -0.5 -205.9 -7.8 29.4
Farth Station Elevation Angle INTERACT IDdink Earth Station EIRP (dBW) IDdink Path Loss, Clear Skv (dB) IDdink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) IDdink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1 -60.1	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7 228.6 -60.1	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1	33.1 20 Uplink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6
Farth Station Elevation Angle ENCRECATION OF THE PROCESS OF THE P	20 Clear Sky 61.1 -207.5 -0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 0.0 26.7 228.6 -60.1 16.8	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6
Farth Station Elevation Angle INTERIOR ANGE Uplink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss Clear Sky (dB) Downlink Path Loss (Clear Sky (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) CON Downlink (dB) C/N Uplink (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -16.8	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 22.1	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6	20 Downlink Fades 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6
Farth Station Elevation Angle INTERACT Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Rowled Statis C/N (dB) C/N Unlink (dB) C/N Downlink (dB) C/N Downlink (dB) C/N Intermodulation (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -60.1 -60.8 -60.1 -7.5 -7.0 -7.0 -7.0 -7.0 -7.0 -7.0 -7.0 -7.0	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 22.1	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 23.9	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 18.6 13.0	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 -29.4 228.6 -62.0 11.6 17.4
Farth Station Elevation Angle INSTEAD STATE OF THE PROPERTY O	20 Clear Sky 61.1 -207.5 -0.0 0.0 228.6 -60.1 22.1 -0.5 -205.9 0.0 26.7 228.6 -60.1 16.8 -22.1 16.8 -22.1	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 14.7 15.5 27.4	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 22.1	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6
Farth Station Elevation Angle INTERACT INTER	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -60.1 -16.8 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 14.7 15.5 27.4 27.5 24.2	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 17.5 29.6 29.6 26.4	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 28.2	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 18.6 13.0 25.2 25.3 23.7	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 -29.4 228.6 -62.0 11.6 17.4 29.7 29.7 28.2
Farth Station Elevation Angle INSTANTAL Unlink Parth Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP Der Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Carrier Noise Bandwidth (dB-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink C/N (dB) C/N Unlink C/N (dB) C/I Intermodulation (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	20 Clear Sky 61.1 -207.5 -0.0 0.0 228.6 -60.1 22.1 -0.5 -205.9 0.0 26.7 228.6 -60.1 16.8 -22.1 16.8 -22.1 29.6 29.6 29.6 26.4 22.0	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 22.1 11.8 17.5 29.6 29.6 29.6 26.4 22.0	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 23.9 23.1 17.4 29.7 29.7 28.2 27.8	33.1 20 Unlink Fade 78.9 -207.5 -4.5 -0.0 228.6 -62.0 19.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 19.4 18.6 13.0 25.2 25.3 23.7 23.4	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 -17.4 29.7 29.7 28.2 27.8
Farth Station Flevation Angle INSTRACT Inlink Earth Station FIRP (dBW) Inlink Path Loss. Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Inlink C/N (dB) Downlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -16.8 -22.1 -16.8 -22.1 -22.1 -23.6 -24.0 -24.0 -25.0	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2 19.8 29.3	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 22.1 11.8 17.5 29.6 29.6 26.4 22.0 31.5	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -0.0 33.1 228.6 -62.0 23.1 23.9 23.1 17.4 29.7 29.7 28.2 29.7 29.7 28.2 29.7	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 -25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 19.4 18.6 13.0 25.2 25.3 23.7 23.4 28.8	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 17.4 29.7 29.7 29.7 28.2 27.8 33.3
Farth Station Elevation Angle INSTANTAL Unlink Parth Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP Der Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Carrier Noise Bandwidth (dB-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink C/N (dB) C/N Unlink C/N (dB) C/I Intermodulation (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	20 Clear Sky 61.1 -207.5 -0.0 0.0 228.6 -60.1 22.1 -0.5 -205.9 0.0 26.7 228.6 -60.1 16.8 -22.1 16.8 -22.1 29.6 29.6 29.6 26.4 22.0	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 22.1 11.8 17.5 29.6 29.6 29.6 26.4 22.0	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 23.9 23.1 17.4 29.7 29.7 28.2 27.8	33.1 20 Unlink Fade 78.9 -207.5 -4.5 -0.0 228.6 -62.0 19.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 19.4 18.6 13.0 25.2 25.3 23.7 23.4	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 -17.4 29.7 29.7 28.2 27.8
Farth Station Elevation Angle INGRADIA Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -60.1 -60.8 22.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -6.8 -60.1 -60.1 -6.8 -60.1 -6.8 -60.1	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2 19.8 29.3	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 17.5 -29.6 29.6 29.6 29.6 22.0 31.5 18.5	33.1 20 Clear Skv 64.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 29.7 29.7 29.7 29.7 28.2 27.8 33.3 25.0	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 -25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 19.4 18.6 13.0 25.2 25.3 23.7 23.4 28.8	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 17.4 29.7 29.7 28.2 27.8 33.3
Farth Station Flevation Angle (INCRA) (Inlink Earth Station FIRP (dBW) Inlink Path Loss. Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP ner Carrier (dBW) Antenna Pointine Frror (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -16.8 -22.1 -16.8 -22.1 -22.1 -23.6 -24.0 -24.0 -25.0	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2 19.8 29.3	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 22.1 11.8 17.5 29.6 29.6 26.4 22.0 31.5	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 29.7 28.2 27.8 33.3 25.0	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 19.4 19.4 18.6 13.0 25.2 25.3 23.7 23.4 28.8 20.5	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 17.4 29.7 28.2 27.8 33.3 25.0 10.0 -1.0
Farth Station Elevation Angle INGRADIA Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -16.8 22.1 -16.8 -17.5 -29.6 -26.4 -22.0 -31.5 -18.5 -1.0 -10.5	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 25.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 15.5 27.4 27.5 24.2 19.8 29.3 16.4 -1.0 8.4	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 -24.4 228.6 -60.1 11.8 17.5 -29.6 29.6 26.4 22.0 31.5 18.5	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 28.2 27.8 33.3 25.0 14.4 -1.0 13.4	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 -13.0 25.2 25.3 23.7 23.4 28.8 20.5 10.0 9.0	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 17.4 29.7 29.7 29.7 29.7 28.2 27.8 33.3 25.0 10.0 -1.0
Farth Station Elevation Angle III INTERIOR ANGE IIII INTERIOR ANGE IIIII REARTH STATION EIRP (dBW) IIIIINK Path Loss, Clear Sky (dB) IIIIINK Path Loss, Clear Sky (dB) IIIIINK Path Loss, Clear Sky (dB) IIIIINK PATH ANGE IIIIIINK PATH ANGE IIIIIINK PATH ANGE IIIIIIINK PATH LOSS, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/I (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(K) Composite (dB) Reouired System Marein (dB)	20 Clear Sky 61.1 -207.5 -0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 0.0 26.7 228.6 -60.1 16.8 22.1 16.8 -22.1 16.8 -22.1 16.8 -22.1 16.8 -22.1 16.8 -23.1 16.8 -24.1 16.8 -25.1 16.8 -25.1 16.8 -26.7 -27.0 16.8 -28.6 -88.6 -88.	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2 19.8 29.3 16.4 -1.0 8.4 -8.4	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 17.5 29.6 29.6 26.4 29.6 20.1 11.8 22.1 11.8 17.5 29.6 29.6 20.1 20.0 31.5 18.5	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 28.2 27.8 33.3 25.0	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 -25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 13.0 25.2 25.3 23.7 23.4 28.8 20.5	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 -23.9 11.6 -17.4 29.7 29.7 28.2 27.8 33.3 25.0 -1.0 -1.0 9.0 -9.0
Farth Station Elevation Angle INTERIOR ANGE Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EJRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) Con Howlink GB) C/N Unlink (dB) C/N Downlink (dB) C/I Unlink Co-Channel (dB)* C/I Downlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I C/N+1) Composite (dB) Required System Margin (dB) Minimum Required C/N (dB) Excess Link Margin (dB)	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -16.8 -22.1 -16.8 -22.1 -16.8 -22.1 -16.8 -22.1 -16.8 -22.1 -10.8 -22.1 -23.6 -24.6 -25.6 -25.6 -26.	26.7 20 Unlink Fade 61.1 -207.5 -2.2 -0.0 228.6 -60.1 19.9 -0.5 -205.9 -0.0 26.7 228.6 -60.1 14.7 -15.5 -27.4 -27.5 -24.2 19.8 29.3 16.4 -1.0 -8.4 -0.0	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 11.8 17.5 29.6 29.6 26.4 22.0 31.5 18.5 9.4 -1.0 8.4 -8.4 -9.0	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 29.7 29.7 28.2 27.8 33.3 25.0 14.4 -1.0 13.4 -9.0	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 19.4 19.4 25.2 25.3 23.7 23.4 28.8 20.5	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 17.4 29.7 29.7 29.7 28.2 27.8 33.3 25.0 10.0 -1.0 9.0 0.0
Farth Station Elevation Angle INTERACT IDIIINK Earth Station EIRP (dBW) IIDIINK Path Loss. Clear Skv (dB) IIDIINK Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) IIDIINK C/N (dB) DOWNLINK EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) FON Downlink (CN (dB) C/N Downlink (GB) C/N Downlink (dB) C/I Unlink (GB-CA) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Composite (dB) C/I Composite (dB) Reoutred System Margin (dB) Net C/(N+1) Composite (dB) Minimum Renuired C/N (dB) Excess Link Margin (dB) Excess Link Margin (dB) Number of Carriers	20 Clear Sky 61.1 -207.5 -0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 0.0 26.7 228.6 -60.1 16.8 22.1 16.8 -22.1 16.8 -22.1 16.8 -22.1 16.8 -22.1 16.8 -23.1 16.8 -24.1 16.8 -25.1 16.8 -25.1 16.8 -26.7 -27.0 16.8 -28.6 -88.6 -88.	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2 19.8 29.3 16.4 -1.0 8.4 -8.4	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 17.5 29.6 29.6 26.4 29.6 20.1 11.8 22.1 11.8 17.5 29.6 29.6 20.1 20.0 31.5 18.5	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 28.2 27.8 33.3 25.0	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 -25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 13.0 25.2 25.3 23.7 23.4 28.8 20.5	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 -23.9 11.6 -23.9 11.6 -27.2 27.8 33.3 25.0 -1.0 9.0 -9.0
Farth Station Elevation Angle SINGRAPS Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Intermodulation (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/N Unlink Adiacent Satellite 2 (dB) C/N Unlink Adiacent Satellite 2 (dB) C/N-H) Composite (dB) Reonired System Marein (dB) Minimum Reonired C/N (dB) Excess Link Marein (dB) Number of Carriers	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -60.1 -60.1 -60.1 -1.5 -205.9 -60.1 -1.5 -60.1 -1.5 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0	26.7 20 Unlink Fade 61.1 -207.5 -2.2 0.0 228.6 -60.1 19.9 -0.5 -205.9 0.0 26.7 228.6 -60.1 14.7 19.9 14.7 15.5 27.4 27.5 24.2 19.8 29.3 16.4 -1.0 8.4 -8.4 0.0 24	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 11.8 17.5 29.6 29.6 26.4 22.0 31.5 18.5 9.4 -1.0 8.4 -8.4 -9.0	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 228.6 -62.0 23.1 17.4 29.7 29.7 29.7 29.7 28.2 27.8 33.3 25.0 14.4 -1.0 13.4 -9.0	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 19.4 228.6 -62.0 19.4 25.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 19.4 19.4 25.2 25.3 23.7 23.4 28.8 20.5	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 17.4 29.7 29.7 29.7 28.2 27.8 33.3 25.0 10.0 -1.0 9.0 0.0
Farth Station Elevation Angle INTERACT IDIIINK Earth Station EIRP (dBW) IIDIINK Path Loss. Clear Skv (dB) IIDIINK Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) IIDIINK C/N (dB) DOWNLINK EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) FON Downlink (CN (dB) C/N Downlink (GB) C/N Downlink (dB) C/I Unlink (GB-CA) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Composite (dB) C/I Composite (dB) Reoutred System Margin (dB) Net C/(N+1) Composite (dB) Minimum Renuired C/N (dB) Excess Link Margin (dB) Excess Link Margin (dB) Number of Carriers	20 Clear Sky 61.1 -207.5 -0.0 -0.0 -228.6 -60.1 -22.1 28.1 -0.5 -205.9 -0.0 -26.7 -228.6 -60.1 -16.8 -22.1 -16.8 -22.1 -16.8 -22.1 -16.8 -22.1 -16.8 -22.1 -10.8 -22.1 -23.6 -24.6 -25.6 -25.6 -26.	26.7 20 Unlink Fade 61.1 -207.5 -2.2 -0.0 228.6 -60.1 19.9 -0.5 -205.9 -0.0 26.7 228.6 -60.1 14.7 -15.5 -27.4 -27.5 -24.2 19.8 29.3 16.4 -1.0 -8.4 -0.0	24.4 20 Downlink Fade 61.1 -207.5 0.0 0.0 0.0 228.6 -60.1 22.1 28.1 -0.5 -205.9 -2.6 24.4 228.6 -60.1 11.8 11.8 17.5 29.6 29.6 26.4 22.0 31.5 18.5 9.4 -1.0 8.4 -8.4 0.00 24	33.1 20 Clear Sky 64.9 -207.5 0.0 0.0 0.0 228.6 -62.0 23.9 29.8 -0.5 -205.9 0.0 33.1 17.4 29.7 29.7 28.2 27.8 33.3 25.0 14.4 -1.0 4.4 16	33.1 20 Unlink Fade 78.9 -207.5 -4.5 0.0 228.6 -62.0 19.4 -0.5 -205.9 0.0 33.1 228.6 -62.0 18.6 13.0 25.2 25.3 23.7 23.4 28.8 20.5 10.0 -1.0 -9.0 0.0 16	20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -62.0 23.9 -9.8 -0.5 -205.9 -7.8 29.4 228.6 -62.0 11.6 -62.0 11.6 -7.8 23.9 11.6 -7.8 23.9 11.6 -7.8 23.9 11.6 -7.8 23.9 11.6 -7.8 23.9 11.6 -7.8 23.9 11.6 -7.8 23.9 11.6 -7.8 23.9 11.6 -7.8 29.7 29.7 29.7 29.7 29.7 29.7 29.7 29.7

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

(UBBINING SANGEONIA)			1			
Uplink Beam Name	Comis	Conus	Conus	Conus	Conus	Conus
Uplink Frequency (MHz)	14250	14250	14250	14250	14250	14250
Unlink Beam Polarization	Horizental	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal -1.8
Unlink Relative Contour Level (dB)	0.0	-1.8 0.0	-1.8 0.0	-1.8 0.0	0.0	0.0
Uplink Contour G/T (dB/K) Uplink SFD (dBW/m²)	-82.0	-82.0	-82.0	-89.0	-89.0	-89.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
MORENTANISM SEASTING ROBERT OF COLUMN						
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950 Vertical
Downlink Beam Polarization	Vertical -1.6	Vertical -1.6	Vertical 1	Vertical -1.6	Vertical -1.6	-1.6
Downlink Relative Contour Level (dB) Downlink Contour EIRP (dBW)	46.5	46.5	46.5	46.5	46.5	46.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
Managora para a a a a a a a a a a a a a a a a						
Satellite 1 Orbital Location	95 WL	95 WL	95 WL	95 WI. -45 2	95 WL -45.2	95 WL -45.2
Unlink Power Density (dBW/Hz)	-45.2 0	-45.2 0	-45.2 0	0	0	0
Unlink Polarization Advantage (dB) Downlink EIRP Density (dBW/Hz)	25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Downlink Polarization Advantage (dB)	0	Ö	0	0	0	0 .
MINIMERSON ENGINEERS						ļ. <u></u>
Satellite 2 Orbital Location	91 WL	91 WL	91 WI	91 WL	91 WL	91 WL
Unlink Power Density (dBW/Hz)	-50.3	-50.3	50.3	-50.3 0	-50.3 0	-50.3 0
Unlink Polarization Advantage (dB)	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Downlink FIRP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-23.3	-23.3 0	0	0	.0	0
TO AND THE POST OF		<u> </u>	l			
Carrier ID	3M90G7W	3M90G7W	3M90G7W	300KG9W	300KG9W	300KG9W
Carrier Modulation	OPSK	OPSK	OPSK	BPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	11/a 4500	n/a 4500	n/a 4500	n/a 125	n/a 125	n/a 125
Information Rate (kbps)	4500 R2/3	R2/3	R2/3	R1/2	R1/2	R1/2
Occupied Bandwidth (kHz)	3260	3260	3260	250	250	250
Allocated Bandwidth (kHz)	3900	3900	3900	300	300	300
Minimum C/N, Clear Sky (dB)	7.4	7.4	7.4	4.0	4.0	4.0
Minimum C/N. Rain (dB)	7.4	7.4.	7.4	4.0	4.0	4.0
Earth Station Diameter (meters)	3.8	3.8	3.8	1.2	1.2	1.2
Earth Station Gain (dBi)	53.0	53.0	53.0	42.5	42.5	42.5
Earth Station Elevation Angle	20	.20	20	20	20	20
DOMESTIC STRUCTURE STATEMENT OF THE STRUCTURE						
Earth Station Diameter (meters)	4.6	4.6	4.6	8.1	8.1	8.1
Earth Station Gain (dBi)	53.5	53.5	53.5	58.5	58.5	58.5
Earth Station Gain (dBi) Earth Station G/T (dB/K)						
Earth Station Gain (dBi)	53.5 31.0	53.5 31.0	53.5 27.4	58.5 _35.4	58.5 35.4	58.5 32.0
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	53.5 31.0 20	53.5 31.0 20	53.5 27.4 20	58.5 35.4 20	58.5 35.4 20	58.5 32.0 20
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle GNISEAD 2002	53.5 31.0 20 Clear Sky	53.5 31.0 20 Unlink Fade	53.5 27.4 20 Downlink Fade	58.5 35.4 20 Clear Sky	58.5 35.4 20 Uplink Fade	58.5 32.0 20 Downlink Fade
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle IGNED AND ANGLE IGNED ANGLE (GB/K) IDNING PART STATION ANGLE IDNING PART STATION EIRP (dBW)	53.5 31.0 20 Clear Sky	53.5 31.0 20 Unlink Fade	53.5 27.4 20 Downlink Fade	58.5 35.4 20	58.5 35.4 20	58.5 32.0 20
Farth Station Gain (dB/K) Farth Station G(T (dB/K) Farth Station Flevation Angle INNERANT Station Flevation Angle INNERANT Station FIRP (dBW) Unlink Farth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB)	53.5 31.0 20 Clear Sky	53.5 31.0 20 Unlink Fade	53.5 27.4 20 Downlink Fade	58.5 35.4 20 Clear Skv	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle INSERT Station Flevation Angle Instruction Edge (dB/K) Unlink Earth Station EIRP (dB/W) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K))	53.5 31.0 20 Clear Sky 63.9 -207.5	53.5 31.0 20 Unlink Fade 63.9 -207.5	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station E(T (dB/K) Earth Station Flevation Angle in Station E(T (dB/K)) Unlink Earth Station E(RP (dBW)) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K), Boltzman Constant (dBW/K-Hz)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6	58.5 35.4 20 Clear Skv 44.1 -207.5 0.0 0.0 228.6	.58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6
Farth Station Gain (dBi) Farth Station G(T (dB/K) Farth Station Flevation Angle INVERSALITY INVERSALIT	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1	53.5 27.4 20 Downlink Fade 	58.5 35.4 20 Clear Skv 44.1 -207.5 0.0 0.0 228.6 -54.0	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station E(Pevation Angle INICE (DORMANG) Unlink Earth Station E1RP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6	58.5 35.4 20 Clear Skv 44.1 -207.5 0.0 0.0 228.6	.58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6 -54.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Elra (dBW) Unlink Earth Station Elra (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Roltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1	53.5 27.4 20 Downlink Fade 	58.5 35.4 20 Clear Skv 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3	.58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station E(Pevation Angle Earth Station Flevation Angle Entrice Expression E(RP (dBW) Unlink Earth Station E(RP (dBW) Unlink Earth Station E(RP (dBW) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNIAN E(E) RO(K-M) DOWNIAN E(E) RO(K-M) Downlink E(RP per Carrier (dBW) Antenna Pointing Error (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Roltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK EIRP DET CARRIER (dBW) Antenna Pointing Error (dB) Downlink EIRP Der Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9	.58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9	58.5 32.0 20 Downlink Fade. 44.1 .207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLING EER CRAFT (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4	58.5 35.4 20 Clear Skv 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0	.58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station E(Partison Angle Links Application Angle Unlink Earth Station E1RP (dBW) Unlink Earth Station E1RP (dBW) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C(N (dB) Downlink E1RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G(T (dB/K)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9	.58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9	58.5 32.0 20 Downlink Fade 44.1 .207.5 0.0 0.0 228.6 -54.0 111.3 20.1 -0.5 -205.9
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C(N (dB) DOWNLING UN GORMANIC Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G(T (dB/K) Boltzman Constant (dBW/K-Hz)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4	58.5 35.4 20 Clear Skv 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0	.58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0	58.5 32.0 20 Downlink Fade. 44.1 .207.5 0.0 0.0 228.6 .54.0 11.3 20.1 .0.5 .205.9 -12.6 32.0 228.6 .54.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station E(Pevation Angle Earth Station Flevation Angle Earth Station E1RP (dBW) Unlink Earth Station E1RP (dBW) Unlink Path Loss, Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK E1RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Skv (dB) Downlink Path Loss, Clear Skv (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 228.6	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 228.6	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 228.6	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station E(Pevation Angle Earth Station Flevation Angle Earth Station E1RP (dBW) Unlink Earth Station E1RP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK PLOY (CARRIED ET (DB) DOWNLINK PLOY (CARRIED ET (DB) Downlink E1RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 228.6 -65.1 20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 228.6 -65.1 16.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 228.6 -65.1 10.0	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6 -54.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G(T (dB/K)) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C(N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C(N (dB) CCM Uplink C(N)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.6 2	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4	58.5 32.0 20 Downlink Fade. 44.1 .207.5 0.0 0.0 228.6 .54.0 11.3 20.1 .0.5 .205.9 .12.6 32.0 228.6 .54.0 7.8
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Inkerth Station Flevation Angle Inkerth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink PIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Bonnink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Downlink (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 -27.4 228.6 -65.1 10.0	58.5 35.4 20 Clear Skv 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6 -54.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Einkerapper (Garage) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK ELECTOR (dBW) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Convolink C/N (dB) C/N Downlink (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Intermodulation (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.6 2	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4	58.5 32.0 20 Downlink Fade 44.1 .207.5 0.0 0.0 228.6 .54.0 11.3 20.1 .0.5 .205.9 .12.6 32.0 228.6 .54.0 7.8
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Inkerth Station Flevation Angle Inkerth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink PIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Bonnink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CM Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)*	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9 19.9 20.9 17.3 29.4 29.4	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 228.6 -65.1 10.0 11.0	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 12.5 24.5 24.5	58.5 32.0 20 Downlink Fade 44.1 .207.5 0.0 .228.6 .54.0 11.3 20.1 0.5 205.9 12.6 32.0 .228.6 .54.0 7.8
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Eink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink CN (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) C/N Downlink (CB) C/N Downlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 228.6 -65.1 20.9 19.9 19.9 20.9 17.3 29.4 29.4 24.1	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 228.6 -65.1 16.4 15.3 16.4 13.1 24.8 25.0 19.6	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 228.6 -65.1 10.0 19.9 10.0 17.3 29.4 29.4	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 23.5 4 228.6 -54.0 11.3 11.3	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 8.0 20.4 12.5 24.5 24.5	58.5 32.0 20 Downlink Fade. 44.1 .207.5 0.0 0.0 228.6 .54.0 11.3 20.1 .0.5 .205.9 .12.6 .54.0 7.8 11.3 7.8 15.7 27.8
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C(N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C(N (dB) C(N Uplink Co-Channel (dB)* C(N Uplink Co-Channel (dB)* C(N Uplink Co-Channel (dB)* C(N Uplink Co-Channel (dB)* C(N Uplink Adiacent Satellite 1 (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 0.0 31.0 228.6 -65.1 20.9 19.9 20.9 17.3 29.4 29.4 24.1 25.8	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 27.4 228.6 -65.1 10.0 17.3 29.4 29.4 29.4 24.1 25.8	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 11.3 23.7 11.5 27.8 27.8 27.8 29.5	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 8.0 20.4 12.5 24.5 24.5 24.5 24.5	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6 -54.0 7.8 11.3 7.8 11.3 7.8 27.8 27.8 27.8 27.8 27.8
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Entire Company (dB) Unlink Parth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink Co-Channel (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9 19.9 228.6 -45.1 20.9 228.6 -45.1 20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 27.4 27.4 27.4 27.4 27.4 27.4 2	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 23.5 4 228.6 -54.0 11.3 11.3	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 8.0 20.4 12.5 24.5 24.5	58.5 32.0 20 Downlink Fade. 44.1 .207.5 0.0 0.0 228.6 .54.0 11.3 20.1 .0.5 .205.9 .12.6 .54.0 7.8 11.3 7.8 15.7 27.8
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C(N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C(N (dB) C(N Uplink Co-Channel (dB)* C(N Uplink Co-Channel (dB)* C(N Uplink Co-Channel (dB)* C(N Uplink Co-Channel (dB)* C(N Uplink Adiacent Satellite 1 (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 0.0 31.0 228.6 -65.1 20.9 19.9 20.9 17.3 29.4 29.4 24.1 25.8	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 27.4 228.6 -65.1 10.0 17.3 29.4 29.4 29.4 24.1 25.8	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8 27.8 29.5 20.7 26.9	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 8.0 20.4 -54.0 20.4 -54.0 20.4 -54.0 20.5 -205.9	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6 -54.0 7.8 11.3 7.8 15.7 27.8 27.8 27.8 27.8 27.8 27.8 27.8 27
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Parth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink EIRP Der Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Downlink Ca-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9 19.9 20.9 17.3 29.4 24.1 25.8 29.2 22.8	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7 18.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 27.4 27.4 27.4 27.4 27.4 27.4 2	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8 15.6 29.5 20.7 26.9	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 8.0 20.4 12.5 -24.5 12.3 12.3 12.3 12.3 12.3 13.6 17.4 23.6	58.5 32.0 20 Downlink Fade 44.1 .207.5 0.0 0.0 228.6 .54.0 11.3 20.1 .0.5 .205.9 .12.6 32.0 7.8 11.3 7.8 15.7 27.8 15.7 27.8 27.8 15.6 29.5 20.7 26.9
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink E1RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Boundink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Environment (dB) C/N Downlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Comnosite (dB) Required System Marein (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9 19.9 20.9 17.3 29.4 24.1 25.8 29.2 22.8 -25.8 -20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7 18.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 228.6 -65.1 10.0 17.3 29.4 29.4 24.1 25.8 29.2 22.8	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8 15.6 29.5 20.7 26.9	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 12.5 24.5 12.3 26.3 17.4 23.6	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6 -54.0 7.8 11.3 7.8 15.7 27.8 27.8 15.6 29.5 20.7 26.9
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Entire Comments of the Station Elevation Angle Unlink Parth Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dB/K)-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) Required System Marcin (dB) Net C/(N+1) Composite (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 228.6 -65.1 20.9 17.3 29.4 29.4 29.4 29.4 29.4 29.4 29.4 29.2 22.8 22.8 22.8 23.8 24.1 25.8 29.2 22.8 22.8 22.8 23.8 24.1 25.8 26.1 27.8 28.9 29.9 29.9 29.9 20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7 18.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 228.6 -65.1 10.0 17.3 29.4 29.4 29.4 29.4 29.4 29.4 29.4 29.4	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 23.7 11.3 23.7 11.3 23.7 15.7 27.8 27.8 27.8 27.8 15.6 29.5 20.7 26.9 8.3 -1.0 7.3	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 20.4 8.0 20.4 228.6 -54.0 20.4 5.0 20.4 5.0 20.4 5.0 20.4 5.0 20.4 5.0 20.4 6.0 20.4 6.0 20.4 7.0 20.4 8.0 20.4	58.5 32.0 20 Downlink Fade 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6 -54.0 7.8 11.3 7.8 15.7 27.8 27.8 27.8 27.8 27.8 27.8 27.8 27
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Parth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C(N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C(N (dB) Earth Station G(T (dB/K) Earth Station G(T (dB/K) Carrier Noise Bandwidth (dB-Hz) Downlink C(N (dB) CAI Unlink Co-Channel (dB)* CAI Unlink Co-Channel (dB)* CAI Unlink Adiacent Satellite 1 (dB) CAI Downlink Adiacent Satellite 2 (dB) Net C(N+1) Comnosite (dB) Menuired System Marein (dB) Minimum Required C(N (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9 17.3 29.4 24.1 25.8 29.2 22.8 12.8 -1.0 11.8 -7.4	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7 18.4 -1.0 7.4 -7.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 27.4 27.4 27.4 27.4 27.4 27.4 2	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8 15.6 29.5 20.7 26.9	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 12.5 24.5 12.3 26.3 17.4 23.6	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 -0.5 -205.9 -12.6 32.0 228.6 -54.0 7.8 -11.3 -7.8 -15.7 -7.8 -15.7 -7.8 -15.6 -29.5 -20.7 -26.9 -1.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle [INITIAL STATE S	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 228.6 -65.1 20.9 17.3 29.4 29.4 29.4 29.4 29.4 29.4 29.4 29.2 22.8 22.8 22.8 23.8 24.1 25.8 29.2 22.8 22.8 22.8 23.8 24.1 25.8 26.1 27.8 28.9 29.9 29.9 29.9 20.9	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7 18.4	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 228.6 -65.1 10.0 17.3 29.4 29.4 29.4 29.4 29.4 29.4 29.4 29.4	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8 15.6 29.5 20.7 26.9	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 8.0 20.4 12.5 24.5 12.3 26.3 17.4 23.6 5.0 -1.0 -4.0	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -205.9 -12.6 32.0 228.6 -54.0 7.8 11.3 7.8 15.7 27.8 27.8 15.6 29.5 -20.7 26.9
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle [INITIAL STATE S	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 -205.9 0.0 31.0 228.6 -65.1 20.9 19.9 20.9 17.3 29.4 24.1 25.8 29.2 22.8 12.8 -1.0 11.8 -7.4 4.4	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7 18.4 -1.0 7.4 -7.4 0.0 8	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 27.4 228.6 -65.1 10.0 17.3 29.4 29.4 24.1 25.8 29.2 22.8 8.4 -1.0 7.4 -7.4 0.0 8	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8 27.8 27.8 27.8 27.8 27.8 3.3 -1.0 -1.0 7.3 -4.0 3.3 150	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 8.0 20.4 12.5 24.5 12.3 26.3 17.4 23.6 50 -1.0 -1.0 0.0 150	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 -12.6 32.0 228.6 -54.0 7.8 11.3 7.8 15.7 27.8 27.8 27.8 27.8 27.8 27.8 27.8 27
Earth Station Gain (dB/K) Earth Station G(T (dB/K) Earth Station Flevation Angle in the station Flevation Angle in the station ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dRW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dR) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink Co-Channel (dB) C/N Unlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unwink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	53.5 31.0 20 Clear Sky 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 0.0 31.0 228.6 -65.1 20.9 19.9 20.9 17.3 29.4 24.1 25.8 29.2 22.8 -1.0 11.8 -7.4 4.4	53.5 31.0 20 Unlink Fade 63.9 -207.5 -4.6 0.0 228.6 -65.1 15.3 28.4 -0.5 -205.9 0.0 31.0 228.6 -65.1 16.4 13.1 24.8 25.0 19.6 21.4 24.7 18.4 8.4 -1.0 7.4 0.0	53.5 27.4 20 Downlink Fade 63.9 -207.5 0.0 0.0 228.6 -65.1 19.9 32.8 -0.5 -205.9 -7.4 27.4 27.4 27.4 27.4 27.4 27.4 27.4 2	58.5 35.4 20 Clear Sky 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 20.1 -0.5 -205.9 0.0 35.4 228.6 -54.0 23.7 11.3 23.7 15.7 27.8 27.8 27.8 15.6 29.5 20.7 26.9 8.3 -1.0 7.3 4.0 3.3	58.5 35.4 20 Unlink Fade 44.1 -207.5 -3.3 0.0 228.6 -54.0 8.0 16.8 -0.5 -205.9 0.0 35.4 228.6 -54.0 20.4 12.5 24.5 12.3 26.3 17.4 23.6 5.0 -1.0 4.0 0.0	58.5 32.0 20 Downlink Fade. 44.1 -207.5 0.0 0.0 228.6 -54.0 11.3 -0.5 -205.9 -12.6 32.0 228.6 -54.0 7.8 11.3 7.8 15.7 27.8 27.8 15.6 29.5 -20.7 26.9 -1.0 4.1 -4.0 0.1

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

PANESS SAME DESCRIPTION OF THE PAREST			1			
Uplink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Uplink Frequency (MHz)	14250	14250_	14250 Horizontal	Horizontal	14250 Horizontal	14250 Horizontal
Unlink Beam Polarization Unlink Relative Contour Level (dB)	Horizontal	Horizontal	-1.8	-1.8	-1.8	-1.8
Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Uplink SFD (dBW/m²)	-87.0	-87.0	-87.0	-85.0	-85.0	-85.0
Rain Rate (mm/br)	42.0	42.0	42.0	42.0	.42.0	42.0
DOWNINKS BAMBINGORA JAMBORA DOWNINKS BEAM Name	Conus	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	1.6	-1.6 46.5	-1.6 46.5	-1.6 46.5	-1.6 46.5	-1.6 46.5
Downlink Contour EIRP (dBW) Rain Rate (mm/hr)	46.5 42.0	42.0	42.0	42.0	42.0	42.0
VIII KAITAMAAN ANAAN	72.0					
Satellite 1 Orbital Location	95 WL	95 WL	95 WL	95 WL	95 WL	95 WL -45.2
Uplink Power Density (dBW/Hz)	45.2 0	-45.2 0	-45.2 0	-45.2 0	-45.2 0	43.2
Uplink Polarization Advantage (dB) Downlink E1RP Density (dBW/Hz)	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Downlink Polarization Advantage (dB)	0	0	0	0 -	0	0
ADDAGRANISA VITARIA ETA LA PERSONA ESTA ESTA ESTA ESTA ESTA ESTA ESTA EST		-	01.11/1	01.1111	01 377	91 WL
Satellite 2 Orbital Location	91 WL	91 WL	91 WL	91 WL -50.3	91 WL -50.3	-50.3
Unlink Power Density (dBW/Hz) Unlink Polarization Advantage (dB)	<u>-50.3</u> 0	0	0	0	0	O
Downlink E1RP Density (dBW/Hz)	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Downlink Polarization Advantage (dB)	0	0	_0	0	0	0
GREET SELECTION OF THE SECOND	115 KGID	115KG1D	115KGID	38K4G1D	38K4G1D	38K4GID
Carrier ID Carrier Modulation	BPSK	BPSK	BPSK	BPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	n/a	n/a	_n/a	n/a	n/a	n/a
Information Rate (kbps)	64	64 R2/3	64 R2/3	32 R1/I	32 R1/1	32 R1/I
Code Rate	R2/3 96	96	96	32	32	32
Occupied Bandwidth (kHz) Allocated Bandwidth (kHz)	115	115	115	38.4	38.4	38.4
Minimum C/N, Clear Sky (dB)	5.2	5.2	5.2	7.0	7.0	7.0
Minimum C/N Dain (dR)	5.2	5.2	5.2	7.0	7.0	7.0
IN RESISTANTING EXPERIMENTAL PROPERTY.	1.8	1.8	1.8	1.8	1.8	1.8
Earth Station Diameter (meters) Earth Station Gain (dBi)	46.2	46.2	46.2	46.2	46.2	46.2
Farth Station Flevation Angle	20	20	20	20	20	20
MONNELS CONTEST BARAGES						
				ı on	1 90	1 90
Earth Station Diameter (meters)	9.2 59.5	9.2 59.5	9.2 59.5	9.0 59.2		9.0 59.2
Earth Station Gain (dBi)	9.2 59.5 37.1	9.2 59.5 37.1	59.5 33.3	59.2 36.0	59.2 36.0	59.2 32.7
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	59.5 37.1 20	59.5 37.1 20	59.5 33.3 20	59.2 36.0 20	59.2 36.0 20	59.2 32.7 20
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	59.5 37.1	59.5 . 37.1	59.5 33.3	59.2 36.0	59.2 36.0	59.2 32.7 20
Earth Station Gain (dBi) Earth Station G/T (dB/K) Farth Station Elevation Angle	59.5 37.1 20	59.5 37.1 20	59.5 33.3 20 Downlink Fade	59.2 36.0 20 Clear Sky	59.2 36.0 20 Unlink Fade	59.2 32.7 20 Downlink Fade
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle ELEVATION ENGINEERS ELEVATION ENGINEERS Uplink Earth Station EIRP (dBW)	59.5 37.1 20 Clear Sky	59.5 37.1 20 Unlink Fade	59.5 33.3 20 Downlink Fade	59.2 36.0 20 Clear Skv	59.2 36.0 20 Unlink Fade	59.2 32.7 20 Downlink Fad
Earth Station Gain (dBi) Earth Station G/T (dB/K) Farth Station Elevation Angle HARGARE WAR WARE HORING EARTH Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5	59.5 37.1 20 Unlink Fade 41.9 -207.5	59.5 33.3 20 Downlink Fade 41.9 -207.5	59.2 36.0 20 Clear Skv 39.4 -207.5	.59.2 .36.0 .20 .Unlink Fade .39.4 207.5	59.2 32.7 20 Downlink Fade 39.4 -207.5
Earth Station Gain (dBi) Earth Station G(T (dB/K)) Farth Station Elevation Angle EARTH STATION ELEVATION ANGLE Uplink Earth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Path Attenutation (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0	59.2 36.0 20 Clear Skv	59.2 36.0 20 Unlink Fade	59.2 32.7 20 Downlink Fad
Earth Station Gain (dBi) Earth Station G/T (dB/K) Farth Station Elevation Angle Elevation Flevation Angle Elevation Flevation Elevation Angle Unlink Farth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6	.59.2 36.0 20 Unlink Fade .39.4 -207.5 -3.1 0.0 228.6	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle EARN STATION Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1
Earth Station Gain (dBi) Earth Station G(T (dB/K) Farth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6	.59.2 36.0 20 Unlink Fade .39.4 -207.5 -3.1 0.0 228.6	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6
Farth Station Gain (dBi) Farth Station G/T (dB/K) Farth Station E/T (dB/K) Farth Station Flevation Angle ILILIAN (BERTO) RMANUS Unlink Farth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle EARTH Station Elevation Angle ELEVATOR EARTH Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) DOWNED NEED ERROR (GBW) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E(T (dB/K) Earth Station Elevation Angle Illing Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/R (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB)	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9	.59.2 36.0 20 Unlink Fade 	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E/T (dB/K) Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Farth Station EIRP (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 0.0	.59.2 36.0 20 Unlink Fade 	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle EINEGADIC WAR Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K)	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 0.0 228.6	.59.2 36.0 20 Unlink Fade 	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 -10.4 32.7 228.6
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E(T (dB/K) Earth Station Elevation Angle III. (All Station Elevation Angle III. (All Station Elevation	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 0.0 36.0 228.6 -45.1	.59.2 36.0 20 Unlink Fade 	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 -10.4 32.7 228.6 -45.1
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E/T (dB/K) Earth Station Elevation Angle HWAPAD (SWAPE Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLENKEP ROWNLENG DOWNLENKEP ROWNLENG Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 0.0 228.6	.59.2 36.0 20 Unlink Fade 	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 -10.4 32.7 228.6
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Farth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINKED RESEARCH Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 0.0 36.0 228.6 -45.1	.59.2 36.0 20 Unlink Fade 	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 -10.4 32.7 228.6 -45.1 10.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Farth Station E/T (dB/K) Farth Station Flevation Angle Bis (FA) Unlink Farth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/R (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/R (dB) COM POSITERS	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 -228.6 -49.8 8.9	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 0.0 36.0 228.6 -45.1 24.5	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 -10.4 32.7 -228.6 -45.1 10.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station G/T (dB/K) Earth Station Elevation Angle EINE FADE (SEARCH MANCE) Unlink Farth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Cain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Downlink (dB) C/N Downlink (dB) C/N Downlink (dB)	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3	59.5 37.1 20 Unlink Fade. 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 49.8 8.9	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 -45.1 24.5	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 -0.5 -205.9 0.0 228.6 -45.1 12.3	59.2 32.7 20 Downlink Fad 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 -10.4 32.7 228.6 -45.1 10.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station G/T (dB/K) Earth Station Elevation Angle EARTH Station Elevation Angle Unlink Farth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Intermodulation (dB) C/I Unlink Co-Channel (dB)*	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 -45.1 24.5	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4	59.2 32.7 20 Downlink Fad 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 -10.4 32.7 228.6 -45.1 10.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station G/T (dB/K) Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Under Constant (dBW/K-Hz) Under Constant (dBW/K-Hz) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) C/N Unlink (dB) C/N Unlink (dB) C/L Unlink Co-Channel (dB)* C/L Unlink Co-Channel (dB)*	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3	59.5 37.1 20 Unlink Fade. 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 15.9 -27.7 17.5	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 -24.5 -24.5 -24.5 -24.5 -25.9 -26.9 -27.9 -28.6 -28.	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.3	59.2 32.7 20 Downlink Fad 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 15.5 10.8 15.9 28.0 19.7
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station G/T (dB/K) Earth Station Elevation Angle Element Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Uplink Co-Channel (dB)* C/I Uplink Co-Channel (dB)* C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 1 (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 17.5 28.9	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 9.7 21.9 12.2 24.3 24.3 14.0 25.5	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 15.6 27.7 27.7 27.7 17.5 28.9	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 15.9 28.0 28.0 28.0 28.0 28.0	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.8 24.9 24.9 16.6 27.1	59.2 32.7 20 Downlink Fad 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 -15.5 10.8 15.9 28.0 28.0 28.0 19.7 30.2
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E/T (dB/K) Earth Station Elevation Angle BING ANGLE Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Path Loss. Clear Skv (dB) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Constant (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Convolink Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 17.5 28.9 22.6	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 12.2 24.3 24.3 14.0 25.5 19.1	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 15.6 27.7 27.7 17.5 28.9 22.6	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 15.5 24.5 15.5 24.5 15.5 24.5 15.5 24.5 15.5 24.5 15.5 24.5 15.5 24.5 15.5 24.5 24.5 24.5 28.0	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.3 21.4 12.8 24.9 24.9 16.6 27.1	59.2 32.7 20 Downlink Fad 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 15.5 10.8 15.9 28.0 28.0 19.7 30.2 24.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E/T (dB/K) Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dR) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Downlink Co-Channel (dB)* C/I Unlink Adiacent Satellite I (dB) C/I Unlink Adiacent Satellite I (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 17.5 28.9	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 9.7 21.9 12.2 24.3 24.3 14.0 25.5	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 15.6 27.7 27.7 27.7 17.5 28.9	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 15.9 28.0 28.0 28.0 28.0 28.0	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.8 24.9 24.9 16.6 27.1	59.2 32.7 20 Downlink Fad 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 -15.5 10.8 15.9 28.0 28.0 19.7 30.2
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E(Pt (dB/K) Earth Station E(Pt (dB/K) Earth Station E(Pt (dB/K) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 17.5 28.9 22.6	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 12.2 24.3 14.0 25.5 19.1 22.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 15.6 27.7 27.7 17.5 28.9 22.6 26.3	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 15.9 28.0	.59.2 36.0 20 Unlink Fade 	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 -15.5 -10.8 15.5 -10.8 15.9 28.0 28.0 19.7 30.2 24.8 27.6
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E/T (dB/K) Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Ulolink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) C/N Downlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Composite (dB) Required System Margin (dB)	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 27.7 17.5 28.9 22.6 26.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 -0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 12.2 24.3 24.3 14.0 25.5 19.1 22.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 49.8 8.9 13.2 8.9 15.6 27.7 27.7 27.7 27.7 27.7 27.7 27.7 27	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 15.7 24.8 27.6 15.7	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.3 21.4 12.8 24.9 24.9 16.6 27.1 21.7 24.5	59.2 32.7 20 Downlink Fad 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 -10.4 32.7 -228.6 -45.1 10.8 -15.5 10.8 15.9 28.0 19.7 30.2 24.8 27.6
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station E/T (dB/K) Earth Station Elevation Angle Lining Earth Station EIRP (dBW) Linlink Earth Station EIRP (dBW) Linlink Path Loss, Clear Sky (dB) Uolink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Linlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Bownlink Path Loss, Clear Sky (dB) Downlink CAN (dB) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/N Linlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Linlink Adiacent Satellite 2 (dB) C/N Unlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB) Required System Margin (dB) Net C/(N+1) Comnosite (dB)	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 27.7 27.7 27.7 27.7 27.7 22.6 26.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 12.2 24.3 24.3 24.3 24.3 14.0 25.5 19.1 22.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 15.6 27.7 27.7 27.7 27.7 27.7 27.7 27.7 27	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 -24.5 15.5 24.5 24.5 24.5 15.9 28.0 28.0 28.0 28.0 28.0 28.0 28.0 28.0	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 45.1 21.4 12.8 24.9 24.9 24.9 24.9 24.9 24.9 24.9 24.9	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 -15.5 10.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle HELLS (SEER FORMANE) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/N Unlink Adiacent Satellite 2 (dB) C/(N+1) Composite (dB) Required System Margin (dB) Net C/(N+1) Composite (dB) Minimum Required C/N(dB)	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 17.5 28.9 22.6 26.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 12.2 24.3 14.0 25.5 19.7 21.9 12.2 24.3 14.0 25.5 19.7 21.9 10.0 22.8 23.0 24.8 24.8 25.9 26.0 27.0 27.0 28.0 28.0 28.0 29.0 20	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 49.8 8.9 13.2 8.9 15.6 27.7 27.7 27.7 27.7 27.7 27.7 27.7 27	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 15.7 24.8 27.6 15.7	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.3 21.4 12.8 24.9 24.9 16.6 27.1 21.7 24.5	59.2 32.7 20 Downlink Face 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 -10.4 32.7 -228.6 -45.1 10.8 -15.5 10.8 15.5 10.8 15.9 28.0 19.7 30.2 24.8 27.6
Earth Station Gain (dBi) Earth Station G(T (dB/K) Farth Station Elevation Angle III SATISTIAN EVALUATION AND ELEVATION ENGINEER ELEVATION AND ELEVATION ELEV	59.5 37.1 20 Clear Sky 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 27.7 27.7 27.7 27.7 27.7 22.6 26.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 12.2 24.3 24.3 24.3 24.3 14.0 25.5 19.1 22.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 15.6 27.7 27.7 17.5 28.9 22.6 26.3 -6.3 -1.0 5.3 -5.2	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 11.9 28.0 28.0 19.7 30.2 24.8 27.6	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.8 24.9 24.9 16.6 77.1 21.7 24.5 8.0 -1.0 -7.0	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -11.4 -0.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 -15.5 10.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Ithing Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/N Unlink Adiacent Satellite 2 (dB) C/N+1) Composite (dB) Required System Margin (dB) Number of Carriers The Composite (dB) Number of Carriers The Composite (dB) Number of Carriers	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 17.5 28.9 22.6 26.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 12.2 24.3 14.0 25.5 19.1 22.9 6.2 -1.0 5.2 -2.0 -3.0 -3.0 -3.0 -4.0 -3.0 -3.0 -3.0 -3.0 -3.0 -3.0 -3.0 -4.0 -3.0	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 15.6 27.7 27.7 17.5 28.9 22.6 26.3 -6.3 -1.0 5.3 -5.2 0.1	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 15.9 28.0 28.0 19.7 30.2 24.8 27.6 11.1 -1.0 10.1 -7.0 3.1	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.8 24.9 24.9 24.9 24.9 24.9 24.5 8.0 -1.0 -7.0 0.0 1125	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 -15.5 10.8 15.9 28.0 28.0 19.7 30.2 24.8 27.6 -8.1 -1.0 7.1 -7.0 0.1 1125
Earth Station Gain (dBi) Earth Station E(T (dB/K) Earth Station E(Pevation Angle BNS EXERGORMAND Uplink Earth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C(N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G(T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C(N (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Uplink (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) Nownline Controls (dB) Required System Margin (dB) Net C/I(N+1) Composite (dB) Minimum Required C/N (dB) Excess Link Margin (dB) Number of Carriers	59.5 37.1 20 Clear Skv 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 0.0 37.1 228.6 -49.9 25.3 13.2 25.3 15.6 27.7 27.7 17.5 28.9 22.6 26.3	59.5 37.1 20 Unlink Fade 41.9 -207.5 -3.4 0.0 228.6 -49.8 9.7 12.4 -0.5 -205.9 0.0 37.1 228.6 -49.8 21.9 9.7 21.9 12.2 24.3 24.3 14.0 25.5 19.1 22.9	59.5 33.3 20 Downlink Fade 41.9 -207.5 0.0 0.0 228.6 -49.8 13.2 15.9 -0.5 -205.9 -12.6 33.3 228.6 -49.8 8.9 13.2 8.9 13.2 8.9 15.6 27.7 27.7 17.5 28.9 22.6 26.3	59.2 36.0 20 Clear Skv 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 -205.9 0.0 36.0 228.6 -45.1 24.5 15.5 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 24.5 15.7 25.0 28.0 24.5 25.6 26.6 27.6 27.6 27.6 27.6 27.7 27.0 3.1	59.2 36.0 20 Unlink Fade 39.4 -207.5 -3.1 0.0 228.6 -45.1 12.3 8.3 -0.5 -205.9 0.0 36.0 228.6 -45.1 21.4 12.3 21.4 12.8 24.9 24.9 16.6 27.1 21.7 24.5 8.0 -1.0 7.0 0.0	59.2 32.7 20 Downlink Fade 39.4 -207.5 0.0 0.0 228.6 -45.1 15.5 11.4 -0.5 -205.9 -10.4 32.7 228.6 -45.1 10.8 15.5 10.8 15.9 28.0 28.0 19.7 30.2 24.8 27.6 8.1 -1.0 7.1 -7.0 0.1

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

Complete Company Control of the Cont			•			
Uplink Beam Name	Сопия	Comus	Conus	Conus	Conus	Conus
Uplink Frequency (MHz)	14250	14250	14250	14250	14250	14250
Uplink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Unlink Relative Contour Level (dB)	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Uplink Contour G/T (dB/K)	0.0	0.0 -82.0	0.0 82.0	0.0 -84.0	0.0 -84.0	-84.0
Unlink SFD (dBW/m²)	-82.0 42.0	-82.U 42.0	42.0	42.0	42.0	42.0
Rain Rate (mm/hr) DOWNIE NKORISAMUNICORMA (ON	42.0	- 42,0	72.	72.0	12.0	
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Venical	Vertical
Downlink Relative Contour Level (dB)	-1.6	-1.6	-1.6	-1.6 -46.5	-1.6 - 46.5	-1.6 46.5
Downlink Contour EIRP (dBW)	46.5 42.0	46.5 42.0	46.5 42.0	42.0	42.0	42.0
Rain Rate (mm/hr)	42.0	- 42.0	42.0	<u> 72.</u> 0		
Satellite 1 Orbital Location	95 W.L	95 WL	95 WL	95 WL	95 WL	95 WL
Uplink Power Density (dBW/Hz)	-45.2	-45.2	-45.2	-45.2	-45.2	-45.2
Uplink Polarization Advantage (dB)	0	0	0	0	0	25.7
Downlink EIRP Density (dBW/Hz)	-25.7	-25.7	-25.7	-25.7 0	<u>-25.7</u> 0	-23./
Downlink Polarization Advantage (dB)	0 .	0	Q	<u>v</u>		<u> </u>
Satellite 2 Orbital Location	91 WL	91 W1.	91 WL	91 WL	91 WL	91 WL
Uplink Power Density (dBW/Hz)	-50.3	-50.3	-50.3	-50.3	-50.3	-50.3
Uplink Polarization Advantage (dB)	. 0	0	0	0	0	0
Downlink E1RP Density (dBW/Hz)	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Downlink Polarization Advantage (dB)	0	0	0	0	0	0
CARRIERONICORMENCIONADORMAN	1M23G7W	1M23G7W	IM23G7W	25K0F3W	25K0F3W	25K0F3W
Carrier ID	BPSK	BPSK	BPSK	FM.	FM	FM
Carrier Modulation Peak to Peak Bandwidth of EDS (MHz)	DF3K	n/a	n/a	4	4	4
Information Rate (khos)	128	128	128	n/a	n/a	n/a
Code Rate	R1/2	R1/2	R1/2	n/a	1/a	n/a
Occupied Bandwidth (kHz)	1024	1024	1024	25	25 25	25
Allocated Bandwidth (kHz)	1230 -2.4	1230 2.4	1230 -2.4	6.5	6.5	6.5
Minimum C/N, Clear Sky (dB) Minimum C/N, Rain (dB)	-2.4	-2.4	2.4	6.5	6.5	6.5
RESIDENCE CONTRACTOR STATES	4.3					
Earth Station Diameter (meters)	9.2	9.2	9.2	2.4	2.4	2.4
Earth Station Gain (dBi)	60.2	60.2	60.2	49.2	49.2	49.2
Earth Station Elevation Angle	20	20	20		20	20
DOWNINKER WORLDS	1.7	12	12	8.1	81	8.1
Earth Station Diameter (meters)	1.2 41.3	1.2	1.2 41.3	. 8.1 . 58.5	8.1 58.5	8.1 58.5
Farth Station Diameter (meters) Farth Station Gain (dBi)			41.3 16.0	58.5 35.4	58.5 35.4	58.5 32.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Flevation Angle	41.3 18.8 20	41.3 18.8 20	41.3 16.0 20	58.5 35.4 20	58.5 35.4 20	58.5 32.0 20
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K)	41.3 18.8	41.3 18.8	41.3 16.0	58.5 35.4	58.5 35.4	58.5 32.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	41.3 18.8 20	41.3 18.8 20	41.3 16.0 20	58.5 35.4 20	58.5 35.4 20	58.5 32.0 20
Earth Station Diameter (meters) Farth Station Gain (dBi) Farth Station G/T (dB/K) Farth Station Elevation Angle	41.3 18.8 20	41.3 18.8 20	41.3 16.0 20	58.5 35.4 20 Clear Skv	58.5 35.4 20 Unlink Fade	58.5 32.0 20 Downlink Fade
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	41.3 18.8 20 Clear Skv	41.3 18.8 20 Uolink Fade 56.6 -207.5	41.3 16.0 20 Downlink Fade	58.5 35.4 20 Clear Skv 40.0 -207.5	58.5 35.4 20 Unlink Fade 40.0 -207.5	58.5 32.0 20 Downlink Fade 40.0 -207.5
Earth Station Diameter (meters) Earth Station Gain (dBl) Earth Station GIT (dB/K) Earth Station Elevation Angle ENNEADER (GB) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5	41.3 18.8 20 Uplink Fade 56.6 -207.5	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0	58.5 35.4 20 Clear Skv 40.0 -207.5 0.0	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0
Farth Station Diameter (meters) Farth Station Gain (dBi) Farth Station GI' (dB/K) Farth Station Flevation Angle STATE O'PERSONNANCE Uplink Farth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite GI' (dB/K)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0	41.3 18.8 20 Uplink Fade 56.6 -207.5 -3.9 0.0	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Farth Station G/T (dB/K) Farth Station Flevation Angle HEARTH STATE OF THE STA	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0	41.3 18.8 20 Uolink Fade 56.6 -207.5 -3.9 0.0	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6	58.5 35.4 20 Clear Skv 40.0 -207.5 0.0 0.0 228.6	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Flevation Angle Station Elevation Angle Station Elevation Angle Station Elevation EIRP (dBW) Uplink Earth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0	41.3 18.8 20 Uplink Fade 56.6 -207.5 -3.9 0.0	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6	\$8.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle Earth Station Elevation Angle Elevation Elevation Elevation Unlink Earth Station Elevation Elevation Uplink Earth Station ElRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1	58.5 35.4 20 Clear Skv 40.0 -207.5 0.0 0.0 228.6 -44.0	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GI' (dB/K) Farth Station Flevation Angle ENERGY (GR) Indink Earth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite GI' (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNIN RESERVED	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6	41.3 18.8 20 Uolink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6	58.5 35.4 20 Clear Skv 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 44.0 17.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GI' (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Et P (dBW) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Earth Loss, Clear Sky (dB) Unlink Earth Station EIRP (dBW) Earth Loss, Clear Sky (dB) Earth Station Elevation	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 0.0 17.6 228.6 -60.1 17.6	58.5 35.4 20 Clear Skv 40.0 -207.5 0.0 0.0 0.228.6 -44.0 17.1	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1
Earth Station Diameter (meters) Farth Station Gain (dBi) Farth Station GI' (dB/K) Farth Station Flevation Angle Station Flevation Angle Station Flevation EIRP (dBW) Unlink Farth Station EIRP (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK C/N (dB)	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9	41.3 18.8 20 Uplink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9	58.5 35.4 20 Clear Skv 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4	\$8.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gr (dBrK) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Elevation Elevation Uplink Earth Station ElRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -0.5 -0.0	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 0.0 17.6 228.6 -60.1 17.6	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9	58.5 35.4 20 Unlink Fade 40.0 -207.5 4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 12.0
Earth Station Diameter (meters) Farth Station Gain (dBi) Farth Station GIV (dB/K) Farth Station Elevation Angle Station Elevation Angle Station Elevation Elevation Elevation Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Statellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK E-REOLEMAN Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6	41.3 18.8 20 Uplink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 -3.8 16.0 228.6	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6	58.5 35.4 20 Uplink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6
Earth Station Diameter (meters) Farth Station Gain (dBi) Farth Station GIV (dB/K) Farth Station Flevation Angle Station Flevation Angle Station Flevation EIRP (dBW) Unlink Farth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -0.5 -3.8 16.0 228.6 -60.1	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIV (dBiK) Earth Station Elevation Angle ENNEADE (dBiK) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Earth Station EIRP (dBiK) Earth Station EIRP (dBiK) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/F (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB)	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6	41.3 18.8 20 Uplink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 -3.8 16.0 228.6	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6	58.5 35.4 20 Uplink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIV (dBi/K) Earth Station Elevation Angle INVEATE (dBi/K) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenutation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4	41.3 18.8 20 Uplink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIV (dBi/K) Earth Station Elevation Angle SNKEADE GAINE LIDIOR Earth Station EIRP (dBW) LIDIOR Earth Station EIRP (dBW) LIDIOR Earth Loss, Clear Sky (dB) LIDIOR Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) LIDIOR C/N (dB) DOWNLIN ELER EOR (ABN) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) EGM EGG (GB/K)	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -0.5 -3.8 16.0 228.6 -60.1	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GIV (dBi/K) Earth Station Elevation Angle INVEATE (dBi/K) Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenutation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4	41.3 18.8 20 Uplink Fade 56.6 -207.5 -207.5 -208.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 -13.6	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Con Unlink C/N (dB) C/N Unlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink CO-Channel (dB)*	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 17.6 6.4	41.3 18.8 20 Uplink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 13.6 2.5	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8	58.5 32.0 20 Downlink Fade. 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GI' (dB/K) Earth Station Elevation Angle ENNEATH STATE ELEVATION Angle ENNEATH STATE ELEVATION ELEVATION Uplink Earth Station ELEP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink ELRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink ELRP per Carrier (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) GMP CN H 18 EL (SPERTER) GMP CN Downlink (dB) C/I Uplink (dB) C/I Uplink Co-Channel (dB)*	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 15.0 27.1	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 23.1 23.2	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -7.0	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8	58.5 32.0 20 Downlink Fade: 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Flevation Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Earth Station Ether (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FlRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) EMPERITATION (CM (dB) C/N Downlink (CM) C/N Downlink C/N (dB) C/I Intermodulation (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite I (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 -64 15.0 27.1 27.1 21.9	41.3 18.8 20 Uplink Fade 56.6 -207.5 -207.5 -20.0 228.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 -11.1 2.5 -11.1 2.1 2.1 2.1	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 -228.6 -60.1 -0.2 -17.6 -0.2 -15.0 -27.1 -21.9	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 24.7	58.5 32.0 20 Downlink Fade. 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Earth Station G/T (dBW) Downlink EIRP per Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite I (dB) C/I Downlink Adiacent Satellite I (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 15.0 27.1	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 23.1 23.2	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -7.0	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 11.8 24.7 24.7 16.6 25.6 21.7	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GIV (dB/K) Earth Station Elevation Angle ENNEARE GRADAN Uplink Earth Station EIRP (dBW) Uplink Earth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Uplink CO-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 1 (dB)	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 15.0 27.1 27.1 21.9 12.4	41.3 18.8 20 Uplink Fade 56.6 -207.5 3.9 0.0 228.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 2.3.1 2.3.2 17.9 8.5	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0.2 17.6 -0.2 17.6 -0.2 15.0 27.1 27.1 21.9 12.4	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 24.5 17.1 24.5 17.1 24.5 16.6 29.4 29.4 29.4 21.4	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 11.8 24.7 24.7 24.7 16.6 25.6	58.5 32.0 20 Downlink Fade. 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle INNEADE (GB) InneaDE (GB	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 -6.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 15.0 27.1 27.1 27.1 21.9 12.4 27.0 6.8	41.3 18.8 20 Uplink Fade 56.6 -207.5 -207.5 -3.9 0.0 228.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 13.6 2.5 11.1 23.1 23.2 17.9 8.5 23.0 2.8	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 29.4 29.4 21.4 30.4 26.5 27.8	58.5 35.4 20 Uplink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 12.4 19.8 11.8 24.7 24.7 24.7 24.7 24.7 24.7 24.7 24.7	58.5 32.0 20 Downlink Fade. 40.0 -207.5 0.0 0.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 44.0 9.1 17.1 9.1 6.6 29.4 29.4 29.4 29.4 21.4 30.4 26.5 27.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station GI' (dB/K) Earth Station Elevation Angle ENERGY (GRANA) Indink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GI' (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CIN (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenutation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink Rain Attenution (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) G/M E(NH LEB) G/N Downlink (dB) C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 17.6 6.4 15.0 27.1 27.1 21.9 12.4 27.0 6.8	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 23.1 23.1 23.2 17.9 8.5 23.0 2.8	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0.2 17.6 -0.2 17.6 -0.2 15.0 27.1 27.1 21.9 12.4 27.0 6.8	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 355.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 21.4 20.5 29.4 29.4 21.4 21.7 21.7 21.7 21.7 21.7 21.7 21.7 21.7	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 24.7 24.7 24.7 24.7 24.7 26.7 26.7 26.7 27.7 26.7 27.7 26.7 27.7 26.7 27.7 27	58.5 32.0 20 Downlink Fade. 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1 17.1 9.1 16.6 29.4 29.4 21.4 20.5 27.8
Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GI'n (dB/K) Earth Station Flevation Angle ENNEADE Fernal Unlink Earth Station ElRP (dBW) Unlink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink C/N (dB) Earth Station ElRP (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Downlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+I) Comnosite (dB) Required System Margin (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 41.5.0 27.1 21.9 12.4 27.0 6.8	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 23.1 23.2 17.9 8.5 23.0 2.8	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 -25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0.2 17.6 -0.2 15.0 27.1 21.9 12.4 27.0 6.8	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 335.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 21.4 30.4 26.5 27.8	58.5 35.4 20 Uplink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 24.7 24.7 24.7 24.7 24.7 26.6 21.7 23.0	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1 17.1 9.1 16.6 29.4 29.4 29.4 21.4 30.4 26.5 27.8
Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Etg. (dBW) Unlink Earth Station Etg. (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Earth Station Etg. (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink Etg. (dBW/K-Hz) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) EMPERITATION (CM) EARTH STATION (CM) EARTH	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 -60.1 6.4 15.0 27.1 27.1 27.1 27.1 27.1 27.0 6.8	41.3 18.8 20 Uplink Fade 56.6 -207.5 -207.5 -3.9 0.0 228.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 13.6 2.5 11.1 23.1 23.2 17.9 8.5 23.0 2.8	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 29.4 29.4 20.4 20.5 20.7 20.7 20.8 20.7 20.8	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 24.7 24.7 24.7 24.7 24.7 26.7 26.7 26.7 27.7 26.7 27.7 26.7 27.7 26.7 27.7 27	58.5 32.0 20 Downlink Fade. 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1 17.1 9.1 16.6 29.4 29.4 21.4 20.5 27.8
Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station GI' (dB/K) Earth Station Elevation Angle ENCEATE Station Elevation Angle ENCEATE Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GI' (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CIN (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointine Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Earth Station GI' (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) Earth Station GI' (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) CM Unlink CO-Channel (dB)* CM Downlink (dB) CM Unlink Adiacent Satellite 1 (dB) CM Downlink Adiacent Satellite 1 (dB) CM Unlink Adiacent Satellite 2 (dB) CM Downlink Adiacent Satellite 2 (dB) CM Downlink Adiacent Satellite 2 (dB) CM-H) Comnosite (dB) Required System Margin (dB) Net C/(N+1) Comnosite (dB) Mnimmun Required C/N (dB)	41.3 18.8 20 Clear Skv 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 41.5.0 27.1 21.9 12.4 27.0 6.8	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 23.1 23.2 17.9 8.5 23.0 2.8	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 -25.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0.2 17.6 -0.2 15.0 27.1 21.9 12.4 27.0 6.8	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 335.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 21.4 30.4 26.5 27.8	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 24.7 24.7 24.7 24.7 24.7 24.7 24.7 24.7	58.5 32.0 20 Downlink Fade. 40.0 -207.5 0.0 0.0 228.6 44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 44.0 9.1 17.1 9.1 16.6 29.4 29.4 29.4 29.4 21.4 30.4 26.5 27.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Enth Station Elevation Elevation Unlink Earth Station ElRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB) Downlink ElRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink CN (dB) GM BOST TERM STATE (MBW/K-Hz) CT/N Unlink CN (dB) CT/L Unlink CO-Channel (dB)* CT/L Unlink Adiacent Satellite 1 (dB) CT/L Downlink Adiacent Satellite 1 (dB) CT/L Downlink Adiacent Satellite 2 (dB) CM-EQUIN Comnosite (dB) Required System Margin (dB) Minimum Required CT/N (dB) Excess Link Margin (dB) Number of Carriers	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 15.0 27.1 21.9 12.4 27.0 6.8 2.5 -1.0 6.8	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 23.1 23.2 17.9 8.5 23.0 2.8 -1.4 -1.0 -2.4	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0.2 17.6 -0.2 17.6 -0.2 17.6 -0.2 17.6 -0.2 17.0 6.8	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 21.4 30.4 26.5 27.8	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 19.8 11.8 11.8 24.7 24.7 16.6 25.6 21.7 23.0	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1 17.1 9.1 16.6 29.4 29.4 29.4 21.4 30.4 26.5 27.8
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Enth Station Elevation Et P (dBW) Uplink Earth Station Et RP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) Downlink Et RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/I Uplink C/N (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) Net C/N+I) Composite (dB) Required System Marein (dB) Minimum Required C/N (dB) Excess Link Margin (dB) Number of Carriers	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -205.9 0.0 18.8 228.6 -60.1 6.4 15.0 27.1 27.1 21.9 12.4 27.0 6.8 2.5 -1.0 1.5 2.4 3.9 43	41.3 18.8 20 Uplink Fade 56.6 -207.5 3.9 0.0 228.6 -60.1 13.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 13.6 2.5 11.1 23.1 23.2 17.9 8.5 23.0 2.8 -1.4 -1.0 -2.4 2.4 0.0 43	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 -0.2 17.6 -	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 29.4 30.4 26.5 27.8 12.3 -1.0 11.3 -6.5 4.8	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 24.7 24.7 24.7 24.7 24.7 25.6 25.6 21.7 23.0	58.5 32.0 20 Downlink Fade 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1 17.1 9.1 16.6 29.4 29.4 29.4 21.4 30.4 26.5 -1.0 6.5 -1.0 6.5 -1.0 6.5 -1.0 6.5 -1.0
Earth Station Diameter (meters) Earth Station Gain (dBi) Earth Station Gain (dBi) Earth Station Flevation Angle Earth Station Flevation Angle Enth Station Flevation Angle Enth Station Flevation Angle Enth Station Flevation Etg. (dBW) Unlink Earth Station Etg. (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Bownlink Etg. (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) EMBERITATION ETG. (dB/K) EMBERITATION ETG. (dB/K) C/N Unlink C/N (dB) C/I Unlink Co-Channel (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+I) Comnosite (dB) Required System Marein (dB) Minimum Required C/N (dB) Excess Link Marein (dB) Number of Carriers	41.3 18.8 20 Clear Sky 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 25.5 -0.5 -205.9 0.0 18.8 228.6 -60.1 6.4 17.6 6.4 17.6 6.4 17.6 6.4 15.0 27.1 21.9 12.4 27.0 6.8	41.3 18.8 20 Unlink Fade 56.6 -207.5 -3.9 0.0 228.6 -60.1 13.6 21.6 -0.5 -205.9 0.0 18.8 228.6 -60.1 2.5 11.1 23.1 23.2 17.9 8.5 23.0 2.8	41.3 16.0 20 Downlink Fade 56.6 -207.5 0.0 0.0 228.6 -60.1 17.6 -0.5 -0.5 -0.5 -205.9 -3.8 16.0 228.6 -60.1 -0.2 17.6 -0.2 17.6 -0.2 15.0 27.1 27.1 21.9 12.4 27.0 6.8	58.5 35.4 20 Clear Sky 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 0.0 35.4 228.6 -44.0 24.5 17.1 24.5 16.6 29.4 29.4 21.4 30.4 26.5 27.8	58.5 35.4 20 Unlink Fade 40.0 -207.5 -4.8 0.0 228.6 -44.0 12.4 6.2 -0.5 -205.9 0.0 35.4 228.6 -44.0 19.8 11.8 11.8 24.7 24.7 16.6 25.6 21.7 23.0	58.5 32.0 20 Downlink Fade: 40.0 -207.5 0.0 0.0 228.6 -44.0 17.1 10.9 -0.5 -205.9 -12.0 32.0 228.6 -44.0 9.1 17.1 9.1 16.6 29.4 29.4 21.4 20.5 27.8

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

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Unlink Beam Name	Conus	Conus	Conus	Corus	Conus	Conus
Uplink Frequency (MH2) Uplink Beam Polarization	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250	14250 Horizontal
Uplink Relative Contour Level (dB)	-1.8	-1.8	-1.8	1.8	Horizontal	-1.8
Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Uplink SFD (dBW/m²)	-90.0	-90.0	-90.0	-84.0	-84.0	-84.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINKENFAMDINEORMACHONISSI CO.	Conus	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Downlink Contour FIRP (dBW) Rain Rate (mm/hr)	46.5 42.0	46.5 42.0	46.5 42.0	46.5 42.0	46.5	46.5
Marka day una verille er i en	42.0	42.0	1 42.0	42.0	42.0	42.0
Satellite 1 Orbital Location	95 WL	95 WL	95 WL	95 WL	95 WL	95 WL
Unlink Power Density (dBW/Hz)	-45.2	-45.2	-45.2	-45.2	-45.2	-45.2
Unlink Polarization Advantage (dB)	0 05.7	0	0	0		0
Downlink FIRP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-25.7 0	-25.7 0	·25.7	25.7 0	-25.7 0	-25.7 0
AO) L CENTRA VIOLENTA CAMBRAS CONTRACTOR		, , , , , , , , , , , , , , , , , , ,	· · · · · · · · · · · · · · · · · · ·		 	I - V
Satellite 2 Orbital Location	91 WL	91 WL	91 WL	91 WL	91 WL	91 WL
Unlink Power Density (dBW/Hz)	-50.3	-50.3	-50.3	50.3	-50.3	-50.3
Unlink Polarization Advantage (dB)	-23.5	0	0	0	0	0
Downlink EIRP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-23.5	-23.5 0	-23.5 0	-23.5 0	-23.5	-23. <u>5</u>
(GARRIERE NEORMANTON)			<u> </u>		1	· ·
Carrier ID	27M0F8W	27M0F8W	27M0F8W	27M0G7W	27M0G7W	27M0G7W
Carrier Modulation	TV/FM	TV/FM	TV/FM	OPSK	OPSK	OPSK
Peak to Peak Randwidth of EDS (MHz) Information Rate (kbps)	25919	25919	25919	n/a 45000	1 n/a 45000	n/a 45000
Code Rate	25919 n/a	25919 n/a	25919 n/a	45000 R1/1	45000 R1/1	45000 R1/1
Occupied Bandwidth (kHz)	27000	27000	27000	22500	22500	22500
Allocated Bandwidth (kHz)	27000	27000	27000	27000	27000	27000
Minimum C/N, Clear Sky (dB) Minimum C/N, Rain (dB)	8.0 8.0	8.0 8.0	8.0 8.0	9.0 9.0	9.0	9.0
TUBUNA MARKARANTAN	8.0	8.0	8.0	9.0	9.0	9.0
Earth Station Diameter (meters)	6.1	6.1	6.1	5.5	5.5	5.5
Earth Station Gain (dBi)	57.1	57.1	57.1	56.1	56.1	56.1
Earth Station Elevation Angle		20	. 20	20	20	20
Earth Station Diameter (meters)	. 2.4	2.4	2.4	1.8	1.8	1.8
	47.1	47.1	47.1			
Earth Station Gain (dBj) Earth Station G/T (dB/K)	47.1 22.6			44.8 20.1	44.8 20.1	44.8 18.7
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	47.1 22.6 20	47.1 22.6 20	47.1 20.5 20	20.1 20	20.1 20	44.8 18.7 20
Earth Station Gain (dBj) Earth Station G/T (dB/K)	47.1 22.6	47.1 22.6	47.1 20.5		44.8 20.1	44.8 18.7
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle	47.1 22.6 20	47.1 22.6 20	47.1 20.5 20	20.1 20	20.1 20	44.8 18.7 20
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation El	47.1 22.6 20 Clear Sky	47.1 22.6 20 Unlink Fade	47.1 20.5 20 Downlink Fade	44.8 20.1 20 Clear Skv	44.8 20.1 20 Uplink Fade	44.8 18.7 20
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Entry Call (dB/K) Unlink Earth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5	47.1 22.6 20 Unlink Fade 73.4 -207.5	47.1 20.5 20 Downlink Fade	.44.8 20.1 20 Clear Sky 78.9 -207.5	44.8 20.1 20 Unlink Fade 78.9 -207.5	44.8 18.7 20 Downlink Fade 78.9 -207.5
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle ENGLADE CONTROL Uplink Earth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB)	47.1 22.6 20 Clear Skv 73.4 -207.5 0.0	47.1 22.6 20 Unlink Fade 73.4 -207.5	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0	20.1 20 Clear Skv 78.9 -207.5 0.0	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle EBISTN COBICCO RMANCE Uplink Parth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB) Satellite G/T (dB/K)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0	20.1 20 Clear Sky 78.9 -207.5 0.0	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle ENGLADE CONTROL Uplink Earth Station EIRP (dBW) Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB)	47.1 22.6 20 Clear Skv 73.4 -207.5 0.0	47.1 22.6 20 Unlink Fade 73.4 -207.5	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0	20.1 20 Clear Skv 78.9 -207.5 0.0	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0
Earth Station Gain (dBi) Earth Station G(T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6	47,1 22,6 20 Unlink Fade 73,4 -207,5 -7,1 0,0 228,6	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6	20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6	78.9 -20.1 -20 	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2	20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Boltzmink Elevation (dB) Downlink Elevation (dBW/K-Hz)	47.1 22.6 20 Clear Skv 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2	20.1 20 Clear Skv 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5	78.9 -207.5 -6.1 -0.0 -228.6 -73.5 -20.4	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink CN (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2	20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Editor Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNLINK ER CORNEN(E) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 -4.7	78.9 -207.5 0.0 0.0 0.0 228.6 -73.5 26.5 46.5 -205.9 0.0	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -205.9 -2.5
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) ### Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6	47.1 22.6 20 Uplink Fade 73.4 -207.5 -7.1 -0.0 228.6 -74.3 13.1 -0.5 -205.9 -0.0 22.6	47.1 20.5 20 Downlink Fade 1 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 47 20.5	78.9 -207.5 0.0 0.0 -228.6 -73.5 -26.5 -46.5 -205.9 0.0 20.1	78.9 -207.5 -6.1 -0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 -0.0 20.1	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Parth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 4.7 20.5 228.6	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 0.0 20.1 228.6	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 -46.5 -0.5 -205.9 -2.5 18.7 228.6
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station FIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) ### Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6	47,1 22,6 20 Unlink Fade 73,4 -207,5 -7,1 0,0 228,6 -74,3 13,1 45,3 -0.5 -205,9 0,0 22,6 228,6 -74,3	47.1 20.5 20 Downlink Fade 1 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 47 20.5	78.9 -207.5 0.0 0.0 -228.6 -73.5 -26.5 -46.5 -205.9 0.0 20.1	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Parth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -205.9 0.0 22.6 228.6 -74.3 16.9	47,1 22,6 20 Unlink Fade 73,4 -207,5 -7,1 0,0 228,6 -74,3 13,1 45,3 -0,5 -205,9 0,0 22,6 228,6 -74,3 15,8	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 4.7 20.5 228.6 -74.3 10.2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 -26.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Skv (dB) Unlink Path Loss. Clear Skv (dB) Unlink Path Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dR) Can Loss Elevation (dB) C/N (lpl) Loss Elevation (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Elevation Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/R (dB/K) Earth Station G/T (dB/K)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -0.5 -205.9 -4.7 20.5 -228.6 -74.3 10.2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 0.0 228.6 -73.5 15.2	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -205.9 -2.5 18.7 228.6 -73.5 11.3
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink C/N (dB) Control of the Control o	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 0.0 228.6 -74.3 20.2 46.5 -205.9 0.0 22.6 228.6 -74.3 16.9 0.0	47,1 22,6 20 Unlink Fade 73,4 -207,5 -7,1 0,0 228,6 -74,3 13,1 45,3 -0,5 -205,9 0,0 22,6 228,6 -74,3 15,8	47.1 20.5 20 Downlink Fade 73.4 -207.5 -0.0 0.0 228.6 -74.3 -20.2 -46.5 -20.5 -20.5 -20.5 -20.5 -20.5 -228.6 -74.3 -10.2 -10.2 -10.2 -10.2 -10.2 -10.8	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 -26.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 -0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 -0.0 20.1 228.6 -73.5 13.3 20.4	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 n/a
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Intermodulation (dB) C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)*	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -0.5 -205.9 -4.7 20.5 -228.6 -74.3 10.2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 0.0 228.6 -73.5 15.2	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 v/a 13.3 v/a 20.9 25.1	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink C/N (dB) Connected to the Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Downlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 228.6 -74.3 16.9 n/a 27.5 27.0 24.5	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 -0.0 228.6 -74.3 -13.1 -45.3 -0.5 -205.9 -0.0 -228.6 -74.3 -15.8 -15.8 -17.4 -17.4 -17.4	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 27.5 27.0 24.5	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 15.2 17.3 27.0 27.0 30.8	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 n/a 20.9 25.1 24.6	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 n/a 27.0 27.0 30.8
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Parth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 27.5 27.0 24.5 24.5 24.6	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8 13.1 15.8 13.1 15.8 20.4 25.8 17.4 23.5	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -20.5 -2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 26.5 15.2 26.5 15.2 27.0 27.0 20.8 23.0	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 20.9 25.1 24.6 21.1	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 26.5 11.3 27.0 27.0 27.0 30.8 23.0
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Earth Station EIRP (dBW) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP ner Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -0.5 -205.9 0.0 22.6 -74.3 16.9 20.2 16.9 n/a 27.5 27.0 24.5 24.6 29.6	47,1 22,6 20 Unlink Fade 73,4 -207,5 -7,1 0,0 228,6 -74,3 13,1 45,3 -0.5 -205,9 0,0 22,6 -74,3 15,8 15,8 17,4 20,4 25,8 17,4 23,5 22,5	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 10.2 27.5 27.5 27.0 24.5 24.6 29.6	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -0.5 -0.5 -0.5 -15.2 26.5 15.2 15.2 16.2 27.0 27.0 30.8 23.0 35.9	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 3.3 13.3 13.3 14.5 20.4 13.3 20.9 25.1 24.6 21.1 29.7	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 26.5 11.3 27.0 27.0 27.0 30.8 23.0 35.9
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Parth Station EIRP (dBW) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 27.5 27.0 24.5 24.5 24.6	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8 13.1 15.8 13.1 15.8 20.4 25.8 17.4 23.5	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -20.5 -2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 26.5 15.2 26.5 15.2 27.0 27.0 20.8 23.0	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 20.9 25.1 24.6 21.1	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -20.5 -20.5 -20.5 -3.5 11.3 26.5 11.3 26.5 11.3 27.0 27.0 27.0 30.8 23.0
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Flevation Angle Earth Station Flevation Angle Earth Station Flevation Angle Unlink Farth Station FIRP (dBW) Unlink Path Loss. Clear Skv (dB) Earth Station Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Skv (dB) Downlink Path Loss. Clear Skv (dB) Earth Station GT (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dR) Control Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink GB) C/N Unlink GB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 16.9 17.5 27.0 24.6 29.6 20.9	47,1 22,6 20 Unlink Fade 73,4 -207,5 -7,1 0,0 228,6 -74,3 13,1 45,3 -0,5 -205,9 0,0 22,6 228,6 -74,3 15,8 13,1 15,8 17,4 20,4 25,8 17,4 23,5 22,5 19,7	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 10.2 10.2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -0.5 -0.5 -0.5 -15.2 26.5 15.2 15.2 16.2 27.0 27.0 30.8 23.0 35.9	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 3.3 13.3 13.3 14.5 20.4 13.3 20.9 25.1 24.6 21.1 29.7	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 26.5 11.3 n/a 27.0 27.0 27.0 30.8 23.0 35.9
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Path Loss. Clear Sky (dB) Bownlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB) Required System Margin (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 18.9 27.5 27.0 24.5 24.6 224.6 20.9	47,1 22,6 20 Unlink Fade 73,4 -207,5 -7,1 0,0 228,6 -74,3 13,1 45,3 -0.5 -205,9 0,0 22,6 228,6 -74,3 15,8 11,1 15,8 12,8 14,0 15,8 15,8 15,8 17,4 20,4 25,8 17,4 23,5 22,5 19,7	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 10.2 20.5 21.0 24.5 22.5 27.0 24.5 24.6 29.6 20.9	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 15.2 16.5 15.2 17.0 27.0 30.8 23.0 30.8 23.0 35.9 18.7	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 n/a 20.9 25.1 24.6 21.1 29.7 16.8	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 p/a 27.0 27.0 30.8 23.0 35.9 18.7
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Lolink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink C/N (dB) C/N Unlink (dB) C/N Lownlink (dB) C/N Downlink (dB) C/N Lownlink (dB) C/N Lownlink (dB) C/N Lownlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/N Downlink Adiacent Satellite 2 (dB) C/N-Downlink Adiacent Satellite 2 (dB) C/N-Downlink Adiacent Satellite 2 (dB) C/N-Downlink Adiacent Satellite 2 (dB) Net C/(N+1) Comnosite (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 18.9 27.5 27.0 24.5 27.5 27.0 24.5 29.6 29.6 29.6 20.9	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8 13.1 15.8 15.8 15.8 15.8 15.8 15.8 15.8 15	47.1 20.5 20 Downlink Fade 73.4 207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 10.2 20.4 27.5 27.0 24.5 24.6 29.6 20.9	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 -46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 26.5 15.2 27.0 27.0 27.0 27.0 27.0 27.0 27.0 27	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 n/a 20.9 25.1 24.6 21.1 29.7 16.8	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 26.5 11.3 27.0 27.0 27.0 27.0 27.0 27.0 27.0 27.
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenuation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) C/N Unlink (dB) C/N Downlink C/N (dB) C/N Unlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/(N+1) Comnosite (dB) Required System Margin (dB) Minimum Required C/N (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -20.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 21.6 22.6 22.6 22.6 22.6 22.6 22.6 22.6	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8 13.1 15.8 13.1 15.8 17.4 25.8 17.4 23.5 22.5 19.7	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 -26.5 46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 27.0 27.0 30.8 27.0 27.0 30.8 23.0 35.9 18.7	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 20.9 25.1 24.6 21.1 29.7 16.8	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 26.5 11.3 27.0 27.0 30.8 23.0 35.9 18.7
Earth Station Gain (dBi) Earth Station GIT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Unlink Earth Station EIRP (dBW) Unlink Path Loss. Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) BOWNINK BASE (GR) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss. Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) Required System Margin (dB) Net C/N+1) Composite (dB) Minimum Required C/N (dB) Excess Link Margin (dB)	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 18.9 27.5 27.0 24.5 27.5 27.0 24.5 29.6 29.6 29.6 20.9	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8 13.1 15.8 15.8 15.8 15.8 15.8 15.8 15.8 15	47.1 20.5 20 Downlink Fade 73.4 207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 10.2 20.4 27.5 27.0 24.5 24.6 29.6 20.9	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 -46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 26.5 15.2 27.0 27.0 27.0 27.0 27.0 27.0 27.0 27	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 n/a 20.9 25.1 24.6 21.1 29.7 16.8	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 26.5 11.3 27.0 27.0 27.0 27.0 27.0 27.0 27.0 27.
Earth Station Gain (dBi) Earth Station GT (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Unlink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) EARTH Station G/T (dB/K) EARTH Station G/T (dB/K) EARTH Station G/T (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/(N+1) Composite (dB) Menomem Required C/N (dB) Excess Link Margin (dB) Number of Carriers	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -20.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 21.6 22.6 22.6 22.6 22.6 22.6 22.6 22.6	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8 13.1 15.8 13.1 15.8 17.4 25.8 17.4 23.5 22.5 19.7	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 -26.5 46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 27.0 27.0 30.8 27.0 27.0 30.8 23.0 35.9 18.7	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 20.9 25.1 24.6 21.1 29.7 16.8	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 228.6 -73.5 11.3 26.5 11.3 27.0 27.0 30.8 23.0 35.9 18.7
Earth Station Gain (dBi) Earth Station G/T (dB/K) Earth Station Elevation Angle Earth Station Elevation Angle Earth Station Elevation Angle Unlink Path Loss, Clear Sky (dB) Unlink Path Loss, Clear Sky (dB) Lolink Rain Attenutation (dB) Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink ElRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink C/N (dB) C/N Unlink (dB) C/N Downlink (AB) C/N Downlink (dB) C/N Downlink (dB) C/I Unlink (dB) C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) Net C/N-1) Comnosite (dB) Minimum Required C/N (dB) Excess Link Margin (dB) Number of Carriers	47.1 22.6 20 Clear Sky 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -20.5 -205.9 0.0 22.6 228.6 -74.3 16.9 20.2 16.9 21.6 22.6 22.6 22.6 22.6 22.6 22.6 22.6	47.1 22.6 20 Unlink Fade 73.4 -207.5 -7.1 0.0 228.6 -74.3 13.1 45.3 -0.5 -205.9 0.0 22.6 228.6 -74.3 15.8 13.1 15.8 13.1 15.8 17.4 25.8 17.4 23.5 22.5 19.7	47.1 20.5 20 Downlink Fade 73.4 -207.5 0.0 0.0 228.6 -74.3 20.2 46.5 -0.5 -205.9 -4.7 20.5 228.6 -74.3 10.2 20.2 10.2 10.2 10.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 10.2 20.2 2	44.8 20.1 20 Clear Sky 78.9 -207.5 0.0 0.0 228.6 -73.5 -26.5 46.5 -0.5 -205.9 0.0 20.1 228.6 -73.5 15.2 26.5 15.2 27.0 27.0 30.8 27.0 27.0 30.8 23.0 35.9 18.7	44.8 20.1 20 Unlink Fade 78.9 -207.5 -6.1 0.0 228.6 -73.5 20.4 44.6 -0.5 -205.9 0.0 20.1 228.6 -73.5 13.3 20.4 13.3 20.9 25.1 24.6 21.1 29.7 16.8	44.8 18.7 20 Downlink Fade 78.9 -207.5 0.0 0.0 228.6 -73.5 26.5 46.5 -0.5 -205.9 -2.5 18.7 11.3 26.5 11.3 27.0 27.0 30.8 23.0 35.9 18.7

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

DIGS NIKERSANT NIKERAKTUK Unlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Uplink Frequency (MHz) Uplink Beam Polarization	Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal	14250 Horizontal
Uplink Relative Contour Level (dB)	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Uplink SFD (dBW/m²)	-90.0	-90.0	-90.0 42.0	-82.0 42.0	-82.0 42.0	-82.0
Rain Rate (mm/hr) DOWNISINESSAMENTORMATIONS	42.0	42.0	42.0	42.0	42.0	42.0
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization Downlink Relative Contour Level (dB)	Vertical -1.6	Vertical -1.6	Vertical -1.6	Vertical -1.6	Vertical -1.6	Vertical -1.6
Downlink Contour EIRP (dBW)	46.5	46.5	46.5	46.5	46.5	46.5
Rain Rate (mm/br)	42.0	42.0	42.0	42.0	42.0	42.0
MANAGE WAVE AND RESERVED TO SERVED TO SERVED THE	95 WL	95 WL	95 WL	95 WL	95 WL	95 WL
Satellite 1 Orbital Location Uplink Power Density (dBW/Hz)	-45.2	-45.2	-45.2	-45.2	-45.2	-45.2
Uplink Polarization Advantage (dB)	0	0	0	0	0	0
Downlink EIRP Density (dBW/Hz)	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Downlink Polarization Advantage (dB)	0	Ω	0	0	ļ <u>0</u>	0
ADIA CENT SATES TO STATE STATES TO SATES TO SATE	91 W.L.	91 WL	91 WL	91 WL	91 WL	91 WL
Uplink Power Density (dBW/Hz)	-50.3	-50.3	-50.3	-50.3	-50.3	-50.3
Uplink Polarization Advantage (dB)	0	0	0	0 :	0 -22.5	23.5
Downlink F1RP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-23.5	-23.5 0	-23.5 0	-23.5 0	-23.5 0	-23.5 0
CAURIDICAL PROPERTY OF THE STATE OF THE STAT						
Carrier ID	24M0G7W	24M0G7W	24M0G7W	600KG7W	600KG7W	600KG7W
Carrier Modulation Pack to Pook Bondwidth of EDS (MHz)	OPSK n/a	OPSK n/a	OPSK IJ/a	BPSK n/a	BPSK n/a	BPSK n/a
Peak to Peak Bandwidth of EDS (MHz) Information Rate (kbps)	20000	n/a 20000	20000	250	17a 250	250
Code Rate	R1/2	R1/2	R1/2	R1/2	R1/2	R1/2
Occupied Bandwidth (kHz)	20000	20000	20000	500	500	500
Allocated Bandwidth (kHz) Minimum C/N, Clear Sky (dB)	24000 8.0	24000 8.0	24000 8.0	600 4.0	600 4.0	600 4.0
Minimum C/N. Rain (dB)	8.0	8.0	8.0	4.0	4.0	4.0
PRINCES AND PROPERTY OF THE PR	ļ					
Earth Station Diameter (meters) Earth Station Gain (dBi)	57.1	6.1 57.1	6.1 57.1	6.1 57.1	6.1 57.1	57.1
Earth Station Cant (191) Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINKERARE HESTATERS SEEDED						
Earth Station Diameter (meters)	1.8 44.8	1.8 44.8	1.8 44.8	1.8 44.8	1.8 44.8	1.8 44.8
Earth Station Gain (dBi) Earth Station G/T (dB/K)	20.1	20.1	18.3	22.3	22.3	19.6
Earth Station Elevation Angle	20	20	20	20	20	20
	Clear Skv	Unlink Fade	Downlink Fade	Clear Sky	Unlink Fade	Downlink Fade
Maniaca antara antar			1		 	
Uplink Earth Station EIRP (dBW)	72.9	72.9	72.9	56.4	56.4	56.4
Unlink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5	-207.5	-207.5
Unlink Rain Attenutation (dB) Satellite G/T (dB/K)	0.0	-6.2 0.0	0.0	0.0	-3.1 0.0	0.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-73.0	-73.0	-73.0	-57.0	-57.0	-57.0
Unlink C/N (dB)	21.0	14.8	21.0	20.5	17.4	20.5
DOWNIENCE DER CASTISTE Downlink EIRP per Carrier (dBW)	46.5	44.6	46.5	25.3	22.3	25.3
Antenna Pointing Error (dB)	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9 0.0	-205.9
Downlink Rain Attenuation (dB) Earth Station G/T (dB/K)	0.0 20.1	0.0 20.1	-3.7 18.3	0.0 22.3	22.3	-3.4 19.6
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-73.0	-73.0	-73.0	-57.0	-57.0	-57.0
Downlink C/N (dB). 66)/(120)/	15.7	13.8	10.3	12.8	9.7	6.7
C/N Uplink (dB)	21.0	14.8	21.0	20.5	17.4	20.5
C/N Downlink (dB)	15.7	13.8	10.3	12.8	9.7	6.7
C/I Intermodulation (dB)	n/a	n/a	n/a	14.9 27.0	11.9 23.9	14.9 27.0
C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)*	27.5 27.5	21.3 25.6	27.5 27.5	27.0	23.9	27.0
C/I Uplink Adjacent Satellite 1 (dB)	25.3	19.1	25.3	24.8	21.7	24.8
C/I Downlink Adjacent Satellite 1 (dB)	23.5	21.6	23.5	18.4	15.3	18.4
C/I Uplink Adjacent Satellite 2 (dB) C/I Downlink Adjacent Satellite 2 (dB)	30.4 19.2	24.2 17.3	30.4 19.2	29.9 14.1	26.8 11.0	29.9 14.1
CALDOWNING ANIACER SALERRE Z 10D1	19.2	17,3	1/.2			17.1
C/(N+1) Composite (dB)	12.3	9.0	9.0	. 8.1	5.0	5.0
	-1.0	-1.0 8.0	-1.0	-1.0 7.1	-1.0 4.0	-1.0
Required System Margin (dB)		. 80	8.0	7.1		4.0
Net C/(N+1) Composite (dB)	-11.3 -8.0		-80	-40	1 -4.0	4.0
Rennired System Margin (dB) Net C/(N+1) Composite (dB) Minimum Required C/N (dB) Excess Link Margin (dB)	-8.0 -3.3	-8.0 0.0	-8.0 0.0	-4.0 3.1	4.0 0.0	-4.0 0.0
Net C/(N+1) Composite (dB) Minimum Required C/N (dB). Excess Link Margin (dB) Number of Carriers	-8.0	-8.0				
Net C/(N+1) Composite (dB) Minimum Required C/N (dB) Excess Link Margin (dB)	-8.0 3.3	-8.0 0.0		3.1	0.0	0.0

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 15A: Intelsat Americas 8 C-Band Link Budgets

energy of the control	1	1		· · · · · · · · · · · · · · · · · · ·
Unlink Beam Name	Nafta	Nafta	Nafta	Nafta
Unlink Frequency (MHz)	6250	6250 Horizontal	6250	6250
Unlink Beam Polarization Unlink Relative Contour Level (dB)	Horizontal -5	+5	Horizontal -5	Horizontal -5
Unlink Contour G/T (dB/K)	-3.0	-3.0	-3.0	-3.0
Unlink SFD (dBW/m²)	-88.7	-88.7	-83.7	-83.7
DOWNLINK BEAM INFORMATION Downlink Beam Name	Nafta	Nafta	Nafta	Nafta
Downlink Frequency (MHz)	4025	4025	4025	4025
Downlink Beam Polarization	Vertical	Vertical	<u>Vertical</u>	Vertical
Downlink Relative Contour Level (dB) Downlink Contour EIRP (dBW)	-4.2 37	-2.8 38.4	-2.0 39.2	-2.0 39.2
BANDIAY GENERA VIRUMO ESPERIENCE DE CO				
Satellite 1 Orbital Location	87 WL	87 WL	. 87 WL	87 WL
Uplink Power Density (dBW/Hz) Uplink Polarization Advantage (dB)	-49.1 0	-49.1 0	-49.1 0	-49.1 0
Downlink EIRP Density (dBW/Hz)	-38.3	-38.3	-38.3.	38.3
Downlink Polarization Advantage (dB)	00	0	0	0
Satellite 2 Orbital Location	91 WL	91 WL	91 WL	91 WL
Uplink Power Density (dBW/Hz)	-50.9	-50.9	-50.9	50.9
Uplink Polarization Advantage (dB)	0	0	0	0
Downlink FIRP Density (dBW/Hz)	-31.5	-31.5	31.5	-31.5
Downlink Polarization Advantage (dB)	0	- 0	0	0
Carrier 1D	36M0F8F	27M0G7W	2M19G7W	57K5G7W
Information Rate (khns)	n/a	40000	3000	128
Carrier Modulation Peak to Peak Bandwidth of EDS (MHz)	TV/FM 4	OPSK n/a	OPSK n/a	OPSK n/a
Code Rate	n/a	R3/4	R2/3	R3/4
Occupied Bandwidth (kHz)	36000	27000	2188	57.5
Allocated Bandwidth (kHz) Minimum C/N, (dB)	36000	32000 7.8	2400 -7.9	<u>57.5</u> 7.7
BURNING CONTRACTOR OF THE STATE	14	1.0	-1.9_	*I.I
Earth Station Diameter (meters)	7.0	7.0	3.8	3.8
Earth Station Gain (dBi)	51.4	51.4 20	46.1	46.1
Earth Station Elevation Angle	20	20	20	20
Earth Station Diameter (meters)	8.1	4.5	3.8	3.8
Earth Station Gain (dBi)	49.3	43.4	42.0	42.0
Earth Station G/T (dB/K) Earth Station Elevation Angle	28.6 20	23.0	21.6 20	21.6
UPINKSPERFORMANGE				_
Uplink Earth Station EIRP (dBW)	74.2	74.2	63.4	47.4
Unlink Path Loss, Clear Sky (dB) Satellite G/T (dB/K)	-200.2 -3.0	-200.2 -3.0	-200.2 -3.0	-200.2 3.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.3	-63.4	-47.6
Unlink C/N (dB)	23.9	25.2	25.3	25.1
Downlink EIRP per Carrier (dBW)	37.0	38.4	.24.9	8.9
Antenna Pointing Error (dB)	-0.5	-0.5	-0.5	-0.5
Downlink Path Loss, Clear Sky (dB) Earth Station G/T (dB/K)	-196.3 28.6	-196.3 23.0	-196.3 21.6	-196.3 21.6
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.3	-63.4	-47.6
Downlink C/N (dB)	21.6	18.7	14.7	14.5
C/N Uplink (dB)	23.9	25.2	25.3	25.1
C/N Downlink (dB)	21.6	18.7	14.7	14.5
C/I Intermodulation (dB)	n/a	n/a	18.6	18.4
C/I Uplink Co-Channel (dB)* C/I Downlink Co-Channel (dB)*	27.0 27.0	27.5 27.5	28.0 28.0	28.2 28.2
C/I Uplink Adjacent Satellite 1 (dB)	24.7	26.0	26.1	25.9
C/I Downlink Adiacent Satellite 1 (dB)	28.4	25.9	21.7	21.5
C/I Unlink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	26.5 20.2	27.8 16.7	27.9 11.9	27.7 11.7
SALESWHILL AMARTIN SARRIER Z (UII)	20.2	10.7	11.9	
C/(N+1) Composite (dB)	15.0	13.2	8.9	8.7
Required System Marein (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+1) Composite (dB) Minimum Required C/N (dB)	14.0	12.2 -7.8	7.9 -7.9	-7.7 -7.7
Excess Link Marein (dB)	0.0	4.4	0.0	0.0
Number of Carriers	1	1.	12	480.2
College Prosity Levy Sc Uplink Power Density (dBW/Hz)	-43.2	-51.5	-46.1	-46.3
Downlink EIRP Density At Beam Peak	24.8	-33.1	-36.5	-36.7

^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 15B: Intelsat Americas 8 Ku-Band Link Budgets

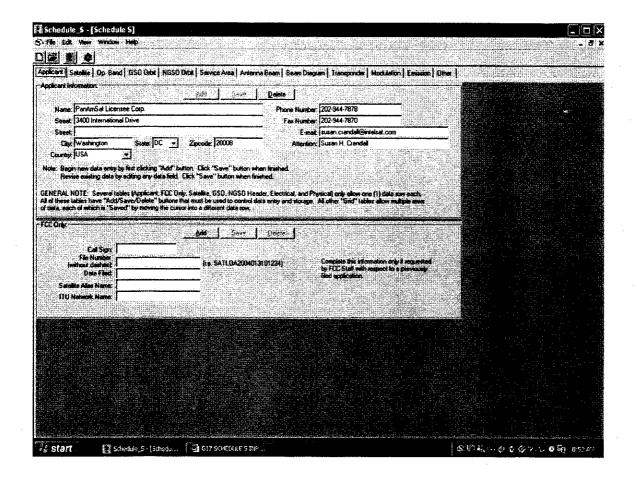
	Nafta	Nafta	Nafta	Nafta	Nafta	Nafta
Unlink Frequency (MHz) Unlink Beam Polarization	14250 Vertical	14250 Vertical	14250 Vertical	14250 Vertical	14250 Vertical	14250 Vertical
Jolink Relative Contour Level (dB)	-4	-4	-4	-4	-4	VEIIICAI
Inlink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Uplink SFD (dBW/m²) Rain Rate (mm/hr)	-85.0 42.0	-85.0 42.0	-85.0 42.0	-93.0 42.0	-93.0 42.0	-93.0 42.0
LOMANHAR BEAMBINE DRIVING NEEDS	42.0	42.0	72.0	42.0	42.0	42.0
Downlink Beam Name	Nafta	Nafta	Nafta	Nafta	Nafta	Nafta
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization Downlink Relative Contour Level (dB)	Horizontal -1.6	Horizontal -1.6	Horizontal	Horizontal 1.6	Horizontal -1.6	Horizontal -1.6
Downlink Contour EIRP (dBW)	50.0	50.0	50.0	49.6	49.6	49.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADIACENT SAVECE TEST SAVES	87 WL	87 WL	87 WL	87 W.L.	87 WL	87 WL
Uplink Power Density (dBW/Hz)	-47.1	47.1	47.1	-47.I	47.1	-47.1
Unlink Polarization Advantage (dB)	0	0	0	.0	Ö	0
Downlink EIRP Density (dBW/Hz) Downlink Polarization Advantage (dB)	-29.8 0	-29.8 0	-29.8	-29.8	-29.8	-29.8
ADEACHASEAN DE SELECTION AND ACTUAL DE COMPANION DE COMPA		 	 · 0 	0	°	0
Satellite 2 Orbital Location	91 WL	91 WL	91 WL	91 WL	91 WL	91 WL
Uplink Power Density (dBW/H2)	-50.3	-50.3	-50.3	-50.3	-50.3	-50.3
Uplink Polarization Advantage (dB) Downlink E1RP Density (dBW/Hz)	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Downlink Polarization Advantage (dB)	-23.3	-23.3	23.3	-23.5 0	-23.3	0
CANTRIBREINCORMANTON						
Carrier ID	36M0F3F TV/FM	36M0F3F	36M0F3F	29M0G7W	29M0G7W	29M0G7W
Carrier Modulation Peak to Peak Bandwidth of EDS (MHz)	1V/FM 4	TV/FM	TV/FM	OPSK n/a	OPSK n/a	OPSK n/a
information Rate (kbns)	n/a	n/a	n/a	40000	40000	40000
Code Rate	n/a	n/a	n/a	R2/3	R2/3	R2/3
Occupied Bandwidth (kHz) Allocated Bandwidth (kHz)	36000 36000	36000 36000	36000 36000	29000 36000	29000 36000	29000 36000
Minimum C/N. Clear Sky (dB)	14	14	14	6.9	6.9	6.9
Minimum C/N. Rain (dB)	14	14	14	6.9	6.9	6.9
DESTRICTION OF THE STATE OF THE	4.5	4.5	1.5		4.5	1.5
Earth Station Diameter (meters) Earth Station Gain (dBi)	4.5 54.7	4.5 54.7	4.5	4.5 54.5	4.5 54.5	4.5 54.5
Earth Station Elevation Angle	20	20	20	20	20	20
NOWNERSKEWARTHESTEATHONGS		<u> </u>				
Earth Station Diameter (meters) Earth Station Gain (dBi)	4.5 52.9	4.5 52.9	<u>4.5</u> 52.9	1.8 44.9	1.8 44.9	1.8 44.9
Earth Station G/T (dB/K)	31.3	.31.3	27.5	22.4	22.4	19.1
Earth Station Elevation Angle	20	20	20	20	20	20
METATATIKA PERENCE ANALAS A	Clear Skv	Uplink Fade	Downlink Fade	Clear Sky	Uplink Fade	Downlink Fa
apalagaranakanakan apalaga	****					<u> </u>
Unlink Earth Station EIRP (dBW)	77.9	77.9	77.9	69.9	69.9	69.9.
Uplink Path Loss, Clear Sky (dB) Uplink Rain Attenutation (dB)	-207.5 0.0	-207.5 -4.3	-207.5 0.0	-207.5	207.5	-207.5
Satellite G/T (dB/K)	0.0		L., V.V I	0.0	5.2	0.0
		1 00	0.0	0.0	l nn	
Boltzman Constant (dBW/K-Hz)	228.6	0.0 228.6	0.0 228.6	0.0 228.6	228.6	0.0 228.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	228.6 -75.6	228.6 -75.6	228.6 -75.6	228.6 -74.6	228.6 -74.6	0.0 228.6 -74.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uolink C/N (dB)	228.6	228.6	228.6	228.6	228.6	0.0 228.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNIES NOZER CORMANCE	228.6 -75.6 23.5	228.6 -75.6 19.2	228.6 -75.6 23.5	228.6 -74.6 16.4	228.6 -74.6 11.2	0.0 228.6 -74.6 16.4
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) BOWNITH (GB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB)	228.6 -75.6 23.5 50.0 -0.5	228.6 -75.6 19.2 48.7 -0.5	228.6 -75.6 23.5 50.0 -0.5	228.6 -74.6 16.4 49.6 -0.5	228.6 -74.6 11.2 47.7 -0.5	0.0 228.6 -74.6 16.4 49.6 -0.5
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9	228.6 -75.6 19.2 48.7 -0.5 -205.9	228.6 -75.6 23.5 50.0 -0.5 -205.9	228.6 -74.6 16.4 49.6 -0.5 -205.9	228.6 -74.6 11.2 -47.7 -0.5 -205.9	0.0 228.6 -74.6 16.4 49.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWNIANS 2000 (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB)	228.6 -75.6 23.5 -0.5 -0.5 -205.9 0.0	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0	228.6 -75.6 -23.5 -50.0 -0.5 -205.9 -6.8	228.6 -74.6 16.4 -0.5 -0.5 -205.9	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0	0.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink SEER SORMAN Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K)	228.6 -75.6 23.5 50.0 -0.5 -205.9	228.6 -75.6 19.2 48.7 -0.5 -205.9	228.6 -75.6 23.5 50.0 -0.5 -205.9	228.6 -74.6 16.4 49.6 -0.5 -205.9	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4	0.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Uplink C/N (dB) DOWNLANG ER CORMANC Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/F (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 -228.6 -75.6	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6	0.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7 19.1 228.6 -74.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) BOWNIA NSZER BORMAN Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6	0.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7 19.1 228.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) DOWnlink Star SORMAN Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 27.9	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7	9.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7 19.1 228.6 -74.6 9.5
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Jolink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Uplink (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 27.9	228.6 -75.6 19.2 48.7 -0.5 205.9 0.0 31.3 228.6 -75.6 26.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7	9.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7 19.1 228.6 -74.6 9.5
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Jolink C/N (dB) Cownlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Cownlink Path Loss, Clear Sky (dB) Cownlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Cownlink C/N (dB) EC/N Uplink (dB) C/N Uplink (dB) C/N Uplink (dB) C/N Untermodulation (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 -27.9 23.5 27.9 n/a	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6 26.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 n/a	228.6 -74.6 -16.4 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5 -16.4 -19.5 -18.6	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 n/s	0.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7 19.1 228.6 -74.6 9.5 16.4 9.5 n/a
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Liplink C/N (dB) Downlink FIRP, per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) EMP ESSITE SINCE PROPROSE C/N Uplink (dB) C/N Uplink Co-Channel (dB)*	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 -228.6 -75.6 27.9 23.5 27.9	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 n/a 22.7	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 17.2	228.6 -74.6 16.4 49.6 -0.5 -205.9 0.0 22.4 -228.6 -74.6 19.5 16.4 19.5 n/a 27.0	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 n/a 21.8	0.0 228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -6.7 -19.1 228.6 -74.6 9.5 -16.4 9.5
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dR-Hz) Jolink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Carth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Intermodulation (dB) C/I Intermodulation (dB) C/I Uplink Co-Channel (dB)* C/I Uplink Co-Channel (dB)* C/I Uplink Adjacent Satellite I (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 27.9 23.5 27.9 n/a 27.0 27.4	228.6 -75.6 19.2 48.7 -0.5 205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 n/a 22.7 25.7 23.1	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 n/a	228.6 -74.6 -16.4 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 12.7 n/s 21.8 25.1	0.0 228.6 -74.6 16.4 -0.5 -205.9 -6.7 19.1 228.6 -74.6 9.5 -16.4 9.5 -17.0 -17.0 -17.0 -17.0 -17.0 -17.0 -17.0 -17.0 -17.0
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Linlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink Co-Channel (dB)* C/N Uplink Adjacent Satellite 1 (dB) C/N Uplink Adjacent Satellite 1 (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 27.9 23.5 27.9 27.0 27.0 27.4 36.1	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 n/a 22.7 25.7 23.1	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 23.5 17.2 27.0 27.0 27.4 36.1	228.6 -74.6 16.4 49.6 -0.5 -205.9 0.0 22.4 -228.6 -74.6 19.5 16.4 19.5 17.0 27.0 27.0 20.4 29.1	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 n/a 21.8 25.1 15.2 27.2	0.0 228.6 -74.6 16.4 -9.5 -205.9 -6.7 19.1 228.6 -74.6 9.5 -16.4 9.5 -27.0 27.0 27.0 20.4
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink E1RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/F (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) G/N Uplink (dB) C/N Uplink (dB) C/I Uplink (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 2 (dB)	228.6 -75.6 23.5 -0.5 -0.5 -0.5 -0.7 31.3 -75.6 -75.6 -75.6 -77.6 -77.9 -77.9 -77.0 -77.0 -77.4 -77.0 -77.4 -77.0 -77.4 -77.6	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6 26.6 19.2 25.7 25.7 23.1 34.8 26.3	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 17.2 17.2 17.2 17.2 17.3 27.0 27.0 27.4 36.1 30.6	228.6 -74.6 16.4 49.6 -0.5 -205.9 0.0 22.4 228.6 -74.6 19.5 16.4 19.5 n/a 27.0 27.0 20.4 29.1 23.6	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 -74.6 17.7 11.2 17.7 n/s 21.8 25.1 15.2 27.2 18.4	0.0 228.6 -74.6 -74.6 -16.4 -0.5 -205.9 -5.7 -19.1 -74.6 -9.5 -74.6 -9.5 -74.6 -72.0 -74.6
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink E1RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/F (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) G/N Uplink (dB) C/N Uplink (dB) C/I Uplink (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 2 (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 27.9 23.5 27.9 27.0 27.0 27.4 36.1	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 n/a 22.7 25.7 23.1	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 23.5 17.2 27.0 27.0 27.4 36.1	228.6 -74.6 16.4 49.6 -0.5 -205.9 0.0 22.4 -228.6 -74.6 19.5 16.4 19.5 17.0 27.0 27.0 20.4 29.1	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 n/a 21.8 22.1 23.8 24.8 25.1 15.2 27.2 18.4 18.8	0.0 228.6 -74.6 16.4 -9.5 -205.9 -6.7 19.1 228.6 -74.6 9.5 -16.4 9.5 -27.0 27.0 27.0 20.4
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink FIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) EARTH STATE CONSTANT (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Unlink Co-Channel (dB)* C/I Downlink Co-Channel (dB)* C/I Downlink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I Uplink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 27.9 23.5 27.9 0/a 27.0 27.0 27.0 27.4 36.1 30.6 28.9	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 n/a 22.7 25.7 23.1 34.8 26.3 27.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 -228.6 -75.6 17.2 23.5 17.2 23.5 17.2 27.0 27.0 27.0 27.0 27.0 27.0 27.0 2	228.6 -74.6 -16.4 49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5 -16.4 -19.5 -17.0	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 11.2 12.8 25.1 15.2 27.2 18.4 18.8	0.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7 19.1 228.6 -74.6 9.5 16.4 9.5 27.0 27.0 20.4 29.1 23.6 20.7
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/F (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unwalink Adiacent Satellite 2 (dB) C/I Unwalink Adiacent Satellite 2 (dB) C/I Unwalink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I C/N+1) Composite (dB) Required System Marein (dB)	228.6 -75.6 23.5 -50.0 -0.5 -205.9 -0.0 31.3 -228.6 -75.6 -27.9 -23.5 -27.9 -10 -27.0 -27.0 -27.0 -27.4 -36.1 -30.6 -28.9 -18.4 -1.0	228.6 -75.6 19.2 48.7 -0.5 205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 n/a 22.7 25.7 23.1 34.8 26.3 27.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 -1/2 -1/2 -1/2 -1/2 -1/2 -1/2 -1/2 -1/	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5 -16.4 -19.5 -17.0 -27.0 -27.0 -20.4 -29.1 -23.6 -20.7	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 n/a 21.8 25.1 15.2 27.2 18.4 18.8	0.0 228.6 -74.6 16.4 49.6 -0.5 -205.9 -6.7 19.1 228.6 -74.6 9.5 9.5 9.5 27.0 27.0 20.4 29.1 23.6 20.7
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/T (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Uplink (dB) C/N Uplink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Co-Channel (dB)* C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 2 (dB) C/I Uplink Adiacent Satellite 2 (dB) C/I Uplink Adiacent Satellite 2 (dB) C/N+1) Composite (dB) Required System Margin (dB)	228.6 -75.6 23.5 50.0 -0.5 -205.9 0.0 31.3 228.6 -75.6 27.9 23.5 27.9 23.5 27.0 27.0 27.0 27.4 36.1 30.6 28.9	228.6 -75.6 19.2 48.7 -0.5 -205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 19.2 22.7 25.7 25.7 25.7 27.6 27.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 n/a 21.8 25.1 15.2 27.2 18.4 18.8	0.0 228.6 -74.6 -16.4 -0.5 -205.9 -6.7 -19.1 -228.6 -74.6 -74.6 -9.5 -16.4 -21.0 -20.4 -20.1 -20.7 -7.9 -1.0 -6.9
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink E1RP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/F (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) SCOLESTER STATE (dB) C/N Uplink (dB) C/N Downlink (dB) C/I Uplink (dB-Hz) C/I Uplink Adiacent Satellite 1 (dB) C/I Uplink Adiacent Satellite 2 (dB)	228.6 -75.6 23.5 -50.0 -0.5 -205.9 -0.0 31.3 -228.6 -75.6 -27.9 -23.5 -27.9 -10 -27.0 -27.0 -27.0 -27.4 -36.1 -30.6 -28.9 -18.4 -1.0	228.6 -75.6 19.2 48.7 -0.5 205.9 0.0 31.3 228.6 -75.6 26.6 19.2 26.6 n/a 22.7 25.7 23.1 34.8 26.3 27.6	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 228.6 -75.6 17.2 23.5 17.2 -1/2 -1/2 -1/2 -1/2 -1/2 -1/2 -1/2 -1/	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5 -16.4 -19.5 -17.0 -27.0 -27.0 -20.4 -29.1 -23.6 -20.7	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 n/a 21.8 25.1 15.2 27.2 18.4 18.8	0.0 228.6 -74.6 16.4 -0.5 -205.9 -6.7 19.1 228.6 -74.6 9.5 -16.4 9.5 -22.0 20.4 20.1 20.4 20.7
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Unlink C/N (dB) Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB) Downlink Path Loss, Clear Sky (dB) Downlink Path Loss, Clear Sky (dB) Downlink Rain Attenuation (dB) Earth Station G/F (dB/K) Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz) Downlink C/N (dB) C/N Unlink (dB) C/N Unlink (dB) C/I Unlink (dB) C/I Unlink Co-Channel (dB)* C/I Unlink Adiacent Satellite 1 (dB) C/I Unlink Adiacent Satellite 2 (dB) C/I Unwalink Adiacent Satellite 2 (dB) C/I Unwalink Adiacent Satellite 2 (dB) C/I Unwalink Adiacent Satellite 2 (dB) C/I Downlink Adiacent Satellite 2 (dB) C/I C/N+1) Composite (dB) Required System Marein (dB)	228.6 -75.6 23.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.7 -0.0 -0.1 -0.1 -0.2 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5	228.6 -75.6 -19.2 -205.9 -0.0 -31.3 -228.6 -75.6 -26.6 -19.2 -26.6 -19.2 -25.7 -23.1 -34.8 -26.3 -27.6 -1.0 -14.0 -14.0	228.6 -75.6 23.5 50.0 -0.5 -205.9 -6.8 27.5 17.2 23.5 17.2 23.5 17.2 27.0 27	228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -0.0 -22.4 -228.6 -74.6 -19.5 -16.4 -19.5 -27.0 -27.0 -20.4 -29.1 -23.6 -20.7 -1.0 -1.0 -1.1 -1.0 -6.9	228.6 -74.6 11.2 47.7 -0.5 -205.9 0.0 22.4 228.6 -74.6 17.7 11.2 17.7 11.2 11.2 11.7 11.8 21.8 25.1 15.2 27.2 18.4 18.8 7.9 -1.0 6.9 -6.9	0.0 228.6 -74.6 -16.4 -49.6 -0.5 -205.9 -6.7 -19.1 228.6 -74.6 9.5 -16.4 -9.5 -27.0 27.0 27.0 27.0 20.4 29.1 23.6 20.7 -7.9 -1.0 6.9 -6.9

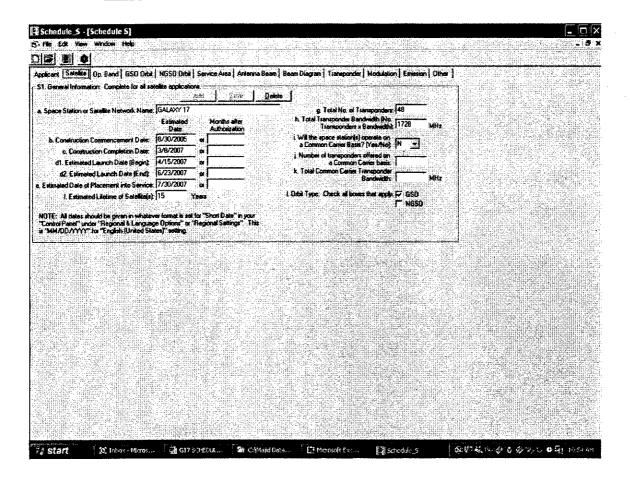
^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

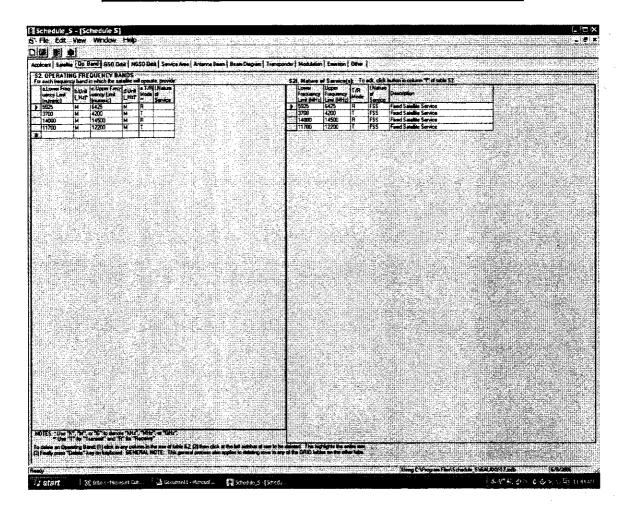
CONTRACTOR OF THE CONTRACTOR O	ă	T***			<u> </u>	
Uplink Beam Name	Nafta	Nafta	Nafta	Nafta	Nafta	Nafta
Uplink Frequency (MHz) Uplink Beam Polarization	14250 Vertical	14250 Vertical	14250 Vertical	14250 Vertical	14250 Vertical	Vertical
Uplink Relative Contour Level (dB)	-4	-4	-4	<u> </u>	Venical	-4
Uolink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Unlink SFD (dBW/m²)	-86.0	-86.0	-86.0	-89.0	-89.0	-89.0
Rain Rate (mm/hr) DOWNIGNK BEANGISCORVAVI(0):	42.0	42.0	42.0	42.0	42.0	42.0
Downlink Beam Name	Nafta	Nafta	Nafta	Nafta	Nafta	Nafta
Downlink Frequency (MHz)	11950	11950	11950	11950	11950	11950
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB) Downlink Contour EIRP (dBW)	-1.6 50.0	-1.6 50.0	-1.6 50.0	-1.6 48.0	-1.6	-1.6
Rain Rate (mm/hr)	42.0	42.0	42.0	48.0	48.0 42.0	48.0 42.0
AND ACCUMENTAL AND THE RESIDENCE OF THE					72.0	32.0
Satellite 1 Orbital Location	87 WL	87 WL	87 WL	87 WL	87 WL	87 WL
Unlink Power Density (dBW/Hz) Unlink Polarization Advantage (dB)	-47.1 0	-47.1 0	-47.1 - 0	-47.1 0	-47.1	-47.1
Downlink FIRP Density (dBW/Hz)	-29.8	-29.8	-29.8	-29.8	-29.8	-29.8
Downlink Polarization Advantage (dB)	0	0	0	0	0	0
ADIA CERTS AT HEAD TEXASISE MEDICAL						
Satellite 2 Orbital Location	91 WL	91 WL	91 WL	91 WL	91 WL	91 WL
Uplink Power Density (dBW/Hz) Uplink Polarization Advantage (dB)	-50.3 0	-50.3 0	-50.3	-50.3 0	-50.3 0	50.3
Downlink EIRP Density (dBW/Hz)	-23.5	-23.5	-23.5	-23.5	23.5	-23.5
Downlink Polarization Advantage (dB)	0	. 0	0	0	0	0
CARRIERANEORMATION MARIEMAN	214250771	2840557711	23.406.65337	1001/000011	100MG COST	100110000
Carrier ID Carrier Modulation	3M25G7W OPSK	3M25G7W OPSK	3M25G7W OPSK	128K0G7W OPSK	128K0G7W OPSK	128K0G7W OPSK
Peak to Peak Bandwidth of EDS (MHz)	n/a	11/2	D/a	n/a	n/a	n/a
Information Rate (kbps)	3000	3000	3000	128	128	128
Code Rate	R1/2	R1/2	R1/2	R1/2	R1/2	R1/2
Occupied Bandwidth (kHz) Allocated Bandwidth (kHz)	3250 3250	3250 3250	3250 3250	128 170	128	128
Minimum C/N. Clear Sky (dB)	5.2	5.2	5.2	5.5	5.5	5.5
Minimum C/N. Rain (dB)	5.2	5.2	5.2	5.5	5.5	5.5
UPUNKSARTUSTATIONES CONSCIONA	4.5	4.5	45-			
Earth Station Diameter (meters) Earth Station Gain (dBi)	54.5	4.5 54.5	4.5 54.5	1.2 43.2	43.2	43.2
Earth Station Elevation Angle	20	20	20	20	20	20
DOMANIAN REPAREHENTANTON RELEASEMENT.						
Earth Station Diameter (meters)	1.8	1.8	1.8 44.9	6.0	6.0	60
Earth Station Gain (dBi) Earth Station G/T (dB/K)	44.9 22.4	44.9 22.4	19.2	55.4. 32.6	55.4. 32.6	55.4. 29.0
Earth Station Elevation Angle	20	20	20	20	20	20
HILL READ REPARE THE THE PARTY OF THE	Clear Sky	Unlink Fade	Downlink Fade	Clear Skv	Uplink Fade	Downlink Fade
(0.5 E.D. & 2 & 32 E) (6 V) (V) (1)	 	· · · · · · · · · · · · · · · · · · ·	 			 -
Unlink Earth Station EIRP (dBW)	61.8	61.8	61.8	44.9	44.9	44.9
Unlink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5	-207.5	-207.5
Unlink Rain Attenutation (dB)	0.0	-4.8	0.0	0.0	-4.8	0.0
Satellite G/T (dB/K) Boltzman Constant (dBW/K-Hz)	228.6	0.0 228.6	0.0 228.6	228.6	228.6	0.0 228.6
Carrier Noise Bandwidth (dB-Hz)	-65.1	-65.1	-65.1	51.1	-51.I	-51.1
Uplink C/N (dB)	17.8	13.0	17.8	14.9	10.2	14.9
DOWNIGH CIRP TO CONTINUE (ARW)	37.4	20.2	27.4	01.5	1/2	
Downlink EIRP per Carrier (dBW) Antenna Pointing Error (dB)	37.4 -0.5	32.7 -0.5	37.4 -0.5	21.5 -0.5	-0.5	21.5 -0.5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation (dB)	0.0	0.0	-6.1	0.0	0.0	-13.5
Earth Station G/T (dB/K)	22.4	22.4	19.2	32.6	32.6	29.0
Boltzman Constant (dBW/K-Hz) Carrier Noise Bandwidth (dB-Hz)	228.6 -65.1	228.6 -65.1	228.6 -65.1	228.6 -51.1	228.6 -51.1	228.6 -51.1
Downlink C/N (dB)	16.8	12.2	7.5	25.2	20.4	8.2
CONTROL OF A LANGUAGE PROPERTY OF A LANGUAGE PARTY OF A LANGUAGE P						
C/N Uplink (dB) C/N Downlink (dB)	17.8 16.8	13.0 12.2	17.8 7.5	14.9 25.2	10.2 20.4	14.9
C/I Intermodulation (dB)	18.1	14.2	18.i	18.3	13.5	8.2 18.3
C/t Unlink Co-Channel (dB)*	28.3	23.5	28.3	27.2	22.5	27.2
C/I Downlink Co-Channel (dB)*	28.3	23.7	28.3	27.2	22.5	27.2
C/I Unlink Adiacent Satellite 1 (dB) C/I Downlink Adiacent Satellite 1 (dB)	21.8 26.4	17.0 21.7	21.8 26.4	18.9 34.5	14.1 29.8	18.9 34.5
C/I Unlink Adjacent Satellite 2 (dB)	25.0	20.2	25.0	22.1	17.3	.22.1
C/I Downlink Adiacent Satellite 2 (dB)	18.0	13.3	18.0	27.6	22.8	27.6
C/AL D.C.	16.5					<u> </u>
C/(N+1) Composite (dB)	10.8	6.2 -1.0	6.2	- 11.3 -1.0	6.5 -1.0	6.5
Required System Margin (dB) Net C/(N+1) Composite (dB)	9.8	5.2	5.2	10.3	-1.0 5.5	-1.0 5.5
			-5.2	-5.5	-5.5	-5.5
Minimum Required C/N (dB)	-5.2	-5.2				
Minimum Required C/N (dB) Excess Link Marein (dB)	4.6	0.0	0.0	4.8	0.0	0.0
Minimum Required C/N (dB) Excess Link Marein (dB) Number of Carriers						0.0 200
Minimum Required C/N (dB) Excess Link Margin (dB) Number of Carriers Garriers(Bessit) (dBW/Hz)	4.6	0.0	0.0	4.8	0.0	

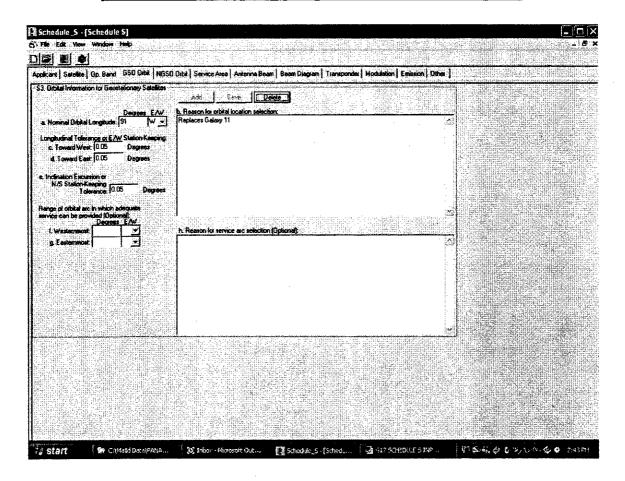
^{*}The C/I level is adjusted depending on the signal level and transponder mode of operation

EXHIBIT 2

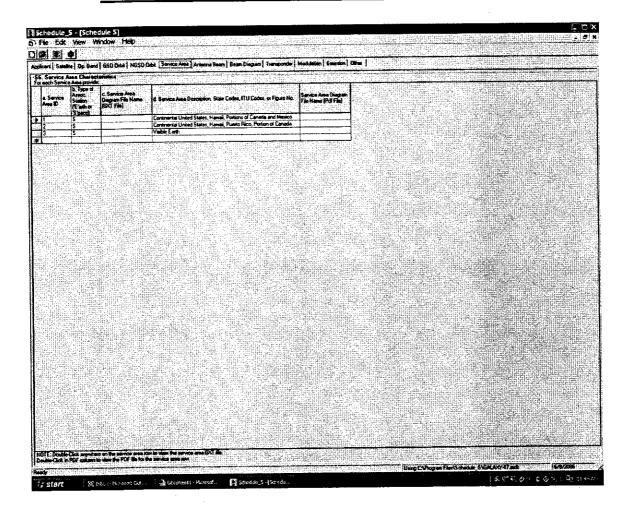








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S4a Total Number of Satellies of Noticeak or Sympos 54b: Total Number of Debial Planes in Materials or Symbol for each Otikie Plane Provide:	S4c Cobaind Release to Bidly (Earlh, Sur, Moon, alls.)	
za sandikani asa Silan, i (j. 1771). Za		
55. MITIAL SATELLITE PHASE ANGLE For each colding	n acch orbital phose, provide the initial phase augle.	
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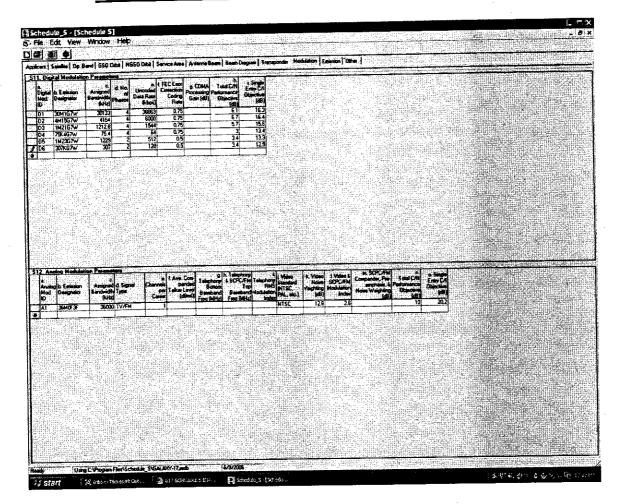
7	Secretary Section	e Stati	on An	lenne	Boam	Characte	12:12:22:25:14:13			an Been Diege						12 (PG . 8)	ii i	
	a Beam ND	b.	c. Peak Gain	d Edge Gain	a. Point	l Rotational Estor (Deg)	g Min Cross Polar Isolation (dB)	h. Poler- ization Switch- able? [Y/N]	i Polerization Alignment Ret Equatoral Plane (Deg)	Service Area (D	Xmi Input Lotses (d6)	Xni Effective Bulgul Power IVI		Plec System Naise Temp K	0. G/T#a MassGain Pt. (dB/K)	p. Min Saturation Flow Density (dBW/m2)	h Allervalta Mar Valus (dB)	
-	CUP	R	31.7	26.7	0.12	0.28	27	Y		1	11.11.7.7.			447	5.2	-114.2	47	1
	CDN	Ť		25.6	0.12	0.28	25	Y		1	2	29.5	43.3	450	1.	7107	1	 ,
	KUP	Я	33.7	27.7	0.12	0.28	30 29	Y	ļ	2	23	66.1	51.3	453	7.1	-119.1	47	
	KDN LIPC	1		29.1 29.1	0.12	0.28	29	Ÿ	ļ	2	3.7	0.17	25.4		<u> </u>		 	† · -
	CMD	R	31.7	21.7	0.12	0.28	27	Y		1	 •			11396	48.9	122.5		
	TLM	Ť		186		0.28	25	Y		1	6.6	0.08	17.8					
-	OCMD		8	6	0.12	0.28		N		3			1.55	2431	-25.9	-105.3	<u> </u>	1 1
	DTLM	I	7.8	5.8	0.12	0.28		N		3	7.3	6.7	17.2		 		<u> </u>	1 -
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	EAM DIA	GRAMS	HESO One S		lebe					
Basen Mod	C Co o	4 GSO Ref. Dabbai	sach beam that s s. NGSO Antenna Gan Contour Descrition (Figure/Table/ Eshibit)	L 659 Arterne Sen Dentour Date (SXT formal)	g Hax PFD @ 5 day (dBW/n2 parel Sendendth)	h Man PFD	li.MarFFD	j MacPFD @ 20 deg* IdBW/an2 per let Pandweth)	k, Max PFD @ 25 dag* (dDW/m2 per ski Bandwidh)	l PFD Rut Sundvicil (46Hz cz 180Hz)
CUP R CON T	Ç	91 91		CUP.get CDN.get KUP.get	-152	-149.9	149.7	149.6	149.5	4kHz
KUP R KDN T UPC T	Č	-91 -91		UPC.gd						
CMD A	c C	-91 -91	GCMD.PDF	CMD.gel TUM.get	-158	-157.9	-157.0	-157.7	-157.6	4kHz
JICME A JILM I CUP R CON I KUP B	X X X	.91 .91 .91	OTUM POF	CUPX get CDNX get KUPX get	-158.6	-1995	-1584	-158.3	158.2	4kHz
KON T UPC T	×	-91 -91		ICDNIX.gut UPCX gut						

pie	anı 5#	de Op B	and I	GSO DHAI NGSO	Depail :	Service /	na Boam Boam Diagram		200	224.025	in no and days				February St. 1.
9.	Space S	tation Cha	nnels				.	10	Space	Station	Transponde				
	e. Channel ID	Bandwidth	€ T/A Mode	d. Center Frequency (MHz)	e. Polar- izabon	1114C or Comm			e Tjane ponder ID	b. Tsans ponder Gain (dB)	c Receive Channel (D	d Receive Beam ID	e. Transmit Charinel ID	i Turoni Boan ii	
4	Tallactic	200	Pi	5945	٧	C			1C	134.5	UC1	CUP	DC1	CDN .	
4	UC1 UC3		A	5985	v	Č			2C	134.5	UC2	CUP	DC2	CDN	
١	UC5		R	6025	v	Č			3C	134.5	UCO	CUP	DC3	CDN .	
H	UC7		Ĥ.	6065	V	С			4C	134.5	UC4	CUP	DC4	CDN	
1	UC9		R	6105	V	C			5C	134.5	UC5	CUP	DC5	CDN	
	UC11	36000	R	6145	٧	C			8	134.5	UCG	CUP	006	CON	
	ÚC13	36000	R	6185	٧	C	a Ballonia (Sec.)	1	7C	134.5	UC7	CUP CUP	DC7	CDN	
	UC15		R	6225	V	С			BC	134.5	UC8	CUP	DC9	CON	
	UC17		R_	6265	٧	C			9C 10C	134.5 134.5	UC10	CUP	DC1B	CON	
	UC19		R_	6305	V	Č		Н	11C	134.5	UC11	CUP	DCII	CON	
4	UC21	36000	Ŗ	6345	V	C	i delinication e	:23.	12C	134.5	UC12	CUP	DC12	CON	
Ц	UC23	36000	R	6385 5965	H	C			13C	134.5	UC13	CUP	DC13	CON	
-	UC2		A	5965 6005	Н	Ċ			14C	134.5	UC14	CUP	DC14	CDN	
4	UCA	36000 36000	Ř B	6045	H	č		2011	15C	134.5	UC15	CUP	DC15	CDN	
	UC8	36000	B	6085	н	č	erionalnikalika 📅	í e	16C	134.5	UC16	CUP	DC16	CON	
	UC10	36000	R	6125	H	č		53.4	170	134.5	UC17	CUP	DC17	CDN	
11	UC12	36000	Ä	6165	H	Č			18C	134.5	UC18	CUP	DC18	CON	
Ť	UC14		R	6205	Н	Ĉ			19C	134.5	UC19	CUP	DC19	CON	Offin Groupe
	UC16	36000	R_	6245	Н	C	a Dugagaraka L	ę.	20C	134.5	UC20	CUP	DC20	CDN	
	UC18	36000	R	6295	Н	C	in Sulling L		21C	134.5	UC21	CUP	DC21	CDN	10 m
ii.	UC20	36000	Ř	6325	Н	C			22C	134.5	UC22 UC23	CUP	DC22 DC23	CON	
II.	UC22	36000	P.	6365	Н	C			23C 24C	134.5 134.5	UC24	CUP	DC24	CON	
	UC24	36000	Ā	6405	H	C			1K	148.1	UK1	KUP	DK1	KON	
	DC1	36000	1	3720 3760	H	C	Alfariya (B	411	2K	148.1	UK2	KUP	DK2	KDN	
111	DC3 DC5	36000	+-	3600	H	č	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		<u> \$</u>	148.1	UK3	KUP	DK3	KDN	1
	DC7	36000	 	3840	H-	č	Anto Company	*	4K	148.1	UK4	KUP	DK4	KDN	re de la company
***	DC3	36000	† †	3890	H	ç		Š.	5K	148.1	UK5	KUP	DK5	KDN	
-	DC11	36000	1	3920	Н	C	ale serve de la		6K	148,1	UKS	KUP	DK6	KON	and the second second
Ì	DC13	36000	I	3960	Н	C			7K	148.1	UK7	KUP	DK7	KDN	
1	DC15	36000	1	4000	Н	Ĉ		91.7	6K	148.1	UKB	KUP	DKB	KDN	
Ť.	DC17	36000	Ţ	4040	Н	С	u sa spoudini i L	5.	9K	148.1	UK9	KUP	DK9	KDN KDN	
i i	DC19	36000	T	4080	Н	Ç		i i	10K	148.1	UKID	KUP	DK10 DK11	KDN	
	DC21	36000	1	4120	H	C			11K	148.1	UK11 UK12	KUP	DK11	KDN	-
0.5	DC23	36000	T	4160 3740	H	C		3	12K	149.1	UK12	KUP	DK12		n On-Access Scan is e

11		Y	arris:	81 - W.BB B 48-0	487 194	1.000 1.00	nun ing ing Selection of the adaptic state of		taka a ta	Sec. 2. 17	\$100000000000	# 674, HE COM + 389	ari un album		OURSESSEE STREET
		ielle Co B	and i	GSO O 60 I NGSO	Debi	Service /	Antenne Beam Beam Diagram	7,	anspon	der Modu	dation Emis	eon Diner		l legisti	
-				1 1000		وكام المائد	The state of the state of the state of	, i i	en interen	خاب تحق تا روز	Transpond			2200	Carrier and the State of
59.	Space 5	tation Cha	nnele					ų.	apacı						
	a. Channel 10	b Azagned Bandwith SkHz)	c T/R Mode	d Center Frequency (NHz)	it. Polar- ization	TTLC or Comm		1	isens- ponder D	b Trans- ponder Gain (dB)	c Receive Channel ID	d Receive Beam ID	e, Transmit Channel ID	I. Transmit Boson ID	
-	DC23	36000	T	4160	H	C	a de la compansión de la c		13C	134.5	UC13	CUP	DC13	CDN	
÷	DC23	36000	†	3740	V	č		1	14C	134.5	UC14	CUP	DC14	CON	
-	DC4	36000	1	3780	Ÿ	č			15C	134.5	UC15	CUP	DC15	CON	
÷	DC6	36000	Ť	3820	V	С	用時間的關係等數構與 直直		16C	134.5	UC16	CUP	DC16	CON	
	DC8	36000	Ť	3860	V	Ċ			17C	134.5	UC17	CUP	DC17	CON	
	DC10	36000	Ť	3900	٧	С	etaliara o balana e 🖂		18C	134.5	UC18	αP	DC18	CON	
	DC12	36000	T	3940	٧	Ç			19C	134.5	UC19	CUP	DC19	CON	
	DC14	36000	T	3960	V	С			20C	134.5	UC20	CUP	DC20	CON CON	
iv	DC16	36000	1	4020	٧	С	aakias Cubuhanii ili.	4	21 C	134,5	UC21	CUP	DC21	CON	
4	DC18	36000	T	4060	V	Ĉ			22C	134.5	UC22	CUP	DC22 DC23	CON	
٠,	DC20	36000	T	4100	٧	Č			23C	134.5	UC23	CUP	DC24	CDN	
٠, ١	DC22	36000	Ţ	4140	٧	C			24C	134.5	UC24 UK1	KUP	DK1	KDN	
	DC24	36000	T	4180	V	Ċ	ar-etselikaisatala . 🕮		1K	148.1	UK2	KUP	DK2	KDN	
Ι	CMD1	1000	R	5925.5	Н	I			2K 3K	148.1	UK3	KUP	DK3	KDN	
	CMD2		Ř	6424.5	V	ĭ			38K. 4K.	148.1	UK4	KUP	DK4	KDN	
	CMD3	1000	A	5925.5	<u> </u>	Ţ			<u>\$</u> }	148.1	UK5	KUP	DK5	KDN	
10	CMD4	1000	A	6424.5	В	Ţ	enderenia baixa 🖶		6K	148.1	UKS	KUP	DK6	KDN	
11	TLM1	500	ļΙ	4197.125	Н	Ţ			7K	148.1	UK7	KUP	DK7	KDN	
70	TLM2	500	ĻŢ.	4198.875	H	1			8K	149.1	UKB	KUP	DKB	KDN	
	TLM3	500	ļ <u>!</u> —	4197.125	R	T	se a de la company de la c		9K	148.1	UK9	KUP	DKS	KDN	
	TLM4	500	├-	4198.875	\ \	Ċ	and the same of the	٦	10K	148.1	UK10	KUP	DK10	KDN	anii mina Erik
	UPC1	25 25	↓	11701 121 9 5	H	C C	:	+	11K	148.1	UKII	KUP	DK11	KDN	
	UPC2	36000	H -	14020	₩-	č	i de ciente de la la	4	12K	1481	UK12	KUP	DK12	KDN	
_	UK1	36000	B	14060	v		u chicarantusu - in	- 1	13K	148.1	UK13	KUP	DK13	KDN	
4	UK3 UK5	36000	B	14100	 `	Č		1	14K	149.1	UK14	KUP	DK14	KDN	
-	UK7	36000	HR-	14140	İv	tč			15K	149.1	UK15	KUP	DK15	KDN	
4	UK9	36000	₩	14180	i v	Ť			16K	148.1	UK16	KUP	DK16	KDN	
-	UK11	36000	B	14220	Ť.	Ċ	Salabay da kasabata 📶		17K	148.1	UK17	KUP	DK17	KDN	
÷	UK13	36000	B	14260	Ý	C			18K	148.1	UK19	KUP	DK1B	KDN	
	1UK15	36000	B	14300	v	C		1	19K	148.1	UK19	KUP	DK19	KDN	
	UK17		R	14340	V	C			20K	148.1	UK20	KUP	DK20	KDN	
;	UK19	36000	R	14390	Ý	C		100	21K	149.1	UK21	KUP	DK21	KDN	
•	UK21	36000	† ii	14420	V	C			22K	148.1	UK22	KUP	DK22	KDN	
717	UK23	36000	i A	14460	V	C		1	23K	148.1	UK23	KUP	DK23	KDN	
i	UK2	36000	R	14040	н	C	acomony and a	25	24K	148.1	UK24	KUP	DK24	KDN	ato in the co
_	liika	36000	<u> </u>	14090	ÌЦ	ļ (-3							ا ف المارك

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****		itation Cha	مينان الاست مدين بسيطا					خندند تتنس		Transponde			n siei i	
•	a. Channel	b. Assigned Bandwidth	e PV1	d. Center Frequency (MHz)	e Polar- izabon	I IAC	.	à Trans ponde	b. Trans- ponder Gen (dB)	c. Receive Channel ID	d Receive Beam ID	e Toppend Charpel ID	Turent Bean D	
'n	ID .	100000	Mode		L. Carretta	Comm		1D 13C	134.5	UC13	CÚP	DC13	CDN	
÷	UK2	36000	R	14040	H	Č		14C	134.5	UC14	CUP	DC14	CDN	
	UK1_	36000	R	14080	H	C		15C	134.5	UC15	CUP	DC15	CON	
<u> </u>	UK6		Я	14120	H	L C		116C	134.5	UC16	CUP	DC16	CON	
_	UKB	36000	Ē.	14160 14200	H	Č	radonius Piesikis ir lai	17C	134.5	UC17	CUP	DC17	CDN	
	UK10	36000	R	14240	Н	č		18C	134.5	UC18	CUP	DC18	CON	
_	UK12	36000	R	14280	В	Ĉ		113C	134.5	UC19	CUP	DC19	CON	
÷	UK14	36000 36000	R R	14320	† }	Č		20C	134.5	UC20	CUP	DC20	CDN	
÷	UK16	36000	R	14360	H H	č		21C	134.5	UC21	CUP	DC21	CDN	
3	UK18 UK20	36000	R	14400	H	č	Baroly Barangalar	22C	134.5	UC22	CUP	DC22	CDN	2299-75-9-1-1
-	UK22	36000	A	14440	H	Č		23C	134.5	UC23	CUP	DC23	CDN	
11.	UK24	36000	Ä	14480	H	C		24C	134.5	UC24	CUP	DC24	CON	
1	DK1	36000	Ť	11720	н	Ċ		1K	148.1	UK1	KUP	DK1	KON	MINITED TO STATE
	DK3	36000	† `	11760	H	C		2K	148.1	UK2	KUP	DK2	KDN	
	DK5	36000	1	11800	H	C		3K	148.1	UK3	KUP	DK3		
	DK7	36000	ī	11840	Н	C		4K	148.1	UK4	KUP	DK4	KDN	
4	DKS	36000	T	11890	Ħ	C		5K	148.1	UK5	KUP	DK5	KON	
1	DK11	36000	T	11920	Н	C	L	6K	148.1	UKB	KUP	DK7	KDN	
•	DK13	36000	1	11960	Н	Ĉ		7K	148.1	UK7	KUP	DK8	KON	
a in	DK15	36000	T	12000	Н	C	7 40 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	BK	148.1	UK9	KUP	DKS	KDN	
7	DK17	36000	17	12040	H	Ĉ	i con esta esta con la come esta e 🖵	9K	148.1		KUP	DK10	KDN	
3	DK19	36000	1	12080	H	C	li de la	10K	148.1	UK10 UK11	KUP	DK10	KDN	
ī	DK21	36000	1	12120	Н	C		11K	148.1	UK11 UK12	KUP	DK12	KDN	rest Pt
ी	DK23	36000	1	12160	Н	C	energyeryndakal (j	12K 13K	148.1	UK12	KUP	DK13	KON	
Ž	DK2	36000	T	11740	V	C	cua montacina a l a	114K	148.1	UK14	KUP	DK14	KDN	on hosen
	DK4	36000	T	11790	V	C		15K	148.1	UK15	KUP	DK15	KDN	
	DKB	36000	ļ <u>ī</u>	11820	V	C		16K	148.1	UK16	KUP	DK16	KDN	
	DK8	36000	↓ <u>Ī</u> —	11860	V	5	- Para da	117K	148.1	UK17	KUP	DK17	KDN	
	DK10	36000	Ţ	11900	+ v	C	oma e de la companya	18K	148.1	UKIB	KUP	DK18	KDN	
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1K	24K	D3		20		NOTE be		56.9	-23	3.7				3 4kHz	22.3
iĸ	24K	D4	1	322		NOTE.bd		56.9		-8.2				2 4kHz	18.8
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