EXHIBIT 43

DG Consents Sub, Inc.
Modification Application
FCC Form 312
July 2012

Description of Modification of License Application

With this application, DG Consents Sub, Inc. ("DigitalGlobe") requests modification of its Earth Exploration Satellite Service ("EESS") system to add a new non-geostationary satellite orbit remote-sensing satellite. The new satellite, WorldView-3, will increase the number of satellites in DigitalGlobe's constellation of satellites, licensed under Call Sign S2129, to four.[1]

In support of its request for a modification of its license under Call Sign S2129, DigitalGlobe offers the information and demonstrations provided below.

I. Information Required Under Section 25.114 of the Commission's Rules

DigitalGlobe provides the following information in accordance with Section 25.114 of the Commission's rules.[2] DigitalGlobe provides this information only to the extent that it has changed from the information currently on file for Call Sign S2129, and hereby certifies that the remaining information has not changed.[3]

A. General Description of Overall Facilities, Operations and Services

As with DigitalGlobe's existing satellites, WorldView-3 will transmit high-resolution satellite images and telemetry using the 8025-8400 MHz band allocated to the EESS. DigitalGlobe's ground segment will send commands to WorldView-3 using the 2025-2110 MHz band. All radio frequency communications between WorldView-3 and the U.S. will be via the two existing Remote Ground Terminals ("RGT") in Fairbanks and Prudhoe Bay, Alaska, and two new U.S. RGTs located in Green River, Wyoming and Clewiston, Florida. The new RGTs, which have been authorized by the Commission, are planned to start WorldView-1 and WorldView-2 operations by the end of 2012.

DigitalGlobe has not finalized the orbit altitude for WorldView-3, but is certain that the altitude will be between 496 kilometers and 830 kilometers, inclusive. Thus, for purposes of

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[1] The existing satellites are QuickBird, WorldView-1 and WorldView-2. QuickBird was authorized in 1997 and launched in 2001. *See Earth Watch Incorporated*, 12 FCC Rcd 21637 (1997). The authorization has been modified several times since 1997, including to add WorldView-1 and WorldView-2 to the EESS network. The most recent modification, to increase the orbital altitude of QuickBird, was granted on January 18, 2012. *See* File No. SAT-MOD-20101122-00243.

[2] 47 C.F.R. § 25.114.

[3] *See* 47 C.F.R. § 25.117(d)(1).

demonstrating compliance with regulatory and technical provisions such as power flux-density limits, link budgets and predicted antenna gain contours, DigitalGlobe includes data and showings for both 496 kilometers and 830 kilometers. Although the altitude of WorldView-3 can thus be anywhere in the 496-830 kilometer range, DigitalGlobe also includes data for a representative or nominal altitude of 617 kilometers, which represents the current benchmark under review with DigitalGlobe's customer base.

DigitalGlobe anticipates launching WorldView-3 in June 2014, and has already commenced construction of the spacecraft.[4] On June 16, 2011, DigitalGlobe received a license from the National Oceanic and Atmospheric Administration ("NOAA") to operate WorldView-3 as part of the DigitalGlobe EESS system.[5]

B. Schedule S

The technical characteristics of the proposed WorldView-3 satellite are detailed in the Schedule S portion of the FCC Form 312 of this Application, a copy of which is included as Attachment B hereto. DigitalGlobe completed the Schedule S to the best of its ability and the limitations of the Commission's software. However, certain data fields in Microsoft Access Database file would not accept DigitalGlobe's data, which, in turn, caused errors in the database. To rectify this, DigitalGlobe was forced to input generic information into the electronic database file in order to maintain the integrity of the system. For example, tabs S6 (Service Area Characteristics) and S13 (Typical Emissions) are tailored to geostationary communication satellites and are not readily applicable to DigitalGlobe's low earth orbit remote sensing satellite. Generic data (e.g., zeroes) was therefore entered. Further, footnotes and comments are necessary to provide a complete and unambiguous data suite in some areas, such as tab S4 (Orbital Information). Because the electronic database does not provide a mechanism for submitting supplementary information, footnotes and comments have been included in Attachment B hereto. Any discrepancies between the data in the electronic version of Schedule S and the version included in the print out in Attachment B should be resolved in favor of the print version in Attachment B.

C. Link Budgets and Power Flux Density Calculation

The proposed satellite's link budgets and power flux density ("PFD") limits at the surface of the Earth are included as Attachment C hereto. The PFDs at the Earth's surface produced by WorldView-3 data and telemetry transmissions satisfy the PFD limits in Table 21-4 of the ITU Radio Regulations.[6] Tables C-1 and C-2 in Attachment C to this Exhibit 43 show that the PFDs at the Earth's surface produced by the WorldView-3 satellite's data and telemetry transmissions satisfy the PFD limits in Article 21 of the ITU Radio Regulations, under assumed free-space

[4] DigitalGlobe's notification of commencement of space station construction is included as Attachment A to this Exhibit 43.

[5] *See* Amendment dated June 16, 2011 to DigitalGlobe, Inc. License from National Oceanic and Atmospheric Administration to operate a private commercial space-based remote sensing system (issued September 29, 2003).

[6] Section 25.208 of the Commission's Rules does not contain PFD limits at the Earth's surface produced by emissions from NGSO EESS space stations operating in the 8025-8400 MHz band.

propagation conditions, for all angles of arrival. DigitalGlobe notes that the WorldView-3 wideband (image data) and narrowband (telemetry) transmitters include internal power control, allowing the maximum output power to be attenuated by 0 to -5.5 dB in 0.5 dB increments. This enables both robust link margins and full compliance with PFD limits over the entire 496 to 830 kilometer altitude range. Figure 1 below (see Section I.I., *infra*) best demonstrates this capability. The flat part of the curves represent the regions of positive power control authority, i.e., power levels are set as needed to meet PFD limits, making PFD independent of altitude. The regions to the left and right of this are where the power output is "pegged" at its minimum and maximum level, respectively, and PFD therefore varies with altitude.

No. 22.5 of the ITU Radio Regulations specifies that in the frequency band 8025-8400 MHz, which the EESS using non-geostationary satellites shares with the fixed-satellite service (Earth-to-space) or the meteorological-satellite service (Earth-to-space), the maximum PFD produced at the geostationary satellite orbit ("GSO") by any EESS space station shall not exceed -174 dB(W/m^2) in any 4 kHz band. The calculation below shows that the PFD produced by the transmissions from the proposed WorldView-3 satellite does not exceed the limit in No. 22.5, even in the worst possible hypothetical case.

The PFD at the GSO produced by the WorldView-3 transmissions are:

Wideband PFD [dB(W/m^2/4 kHz)] = EIRP - 20log(D) - 10log(BW) - 94.97
Narrowband PFD[dB(W/m^2/4 kHz)] = EIRP - 20log(D) - 91.4

Where:

- EIRP is the Maximum EIRP of the transmission, in dBW;
- D is distance between the WorldView-3 satellite and GSO, in km;
- BW is the symbol bandwidth of the transmission, in MHz.

The minimum possible distance between the WorldView-3 satellite and the GSO is 34,956 kilometers for the highest possible satellite orbit of 830 kilometers. Under a hypothetical assumption that the WorldView-3 satellite antennas are radiating at their peak EIRP toward the GSO, the wideband data downlink transmission with the peak EIRP = 34.55 dBW (peak antenna gain, 0 dB power control, maximum transmitter output power over temperature at BOL, 2 transmitters operating) and BW = 200 MHz produces a PFD at the GSO of -174 dB(W/m^2) in any 4 kHz band. Under the same hypothetical assumptions, the narrowband telemetry transmission from the WorldView-3 satellite has a peak EIRP = 8.0 dBW and produces a PFD at the GSO of -174 dB(W/m^2) in any 4 kHz band by setting the internal transmitter power control to -2 dB. This setting still provides positive link margin to ground stations for all normal operations.

D. Space Station Antenna Patterns

The satellite wideband downlink, narrowband downlink and command uplink antenna patterns are included as Attachment D hereto.

E. Predicted Antenna Gain Contours

Attachment E hereto shows the predicted antenna gain contours required by Section 25.114(d)(3) of the Commission's rules at the following DigitalGlobe earth station sites: Prudhoe Bay, Alaska; Fairbanks, Alaska; Green River, Wyoming; and Clewiston, Florida. *See* 47 C.F.R. § 25.114(d)(3). The gain contours are plotted for WorldView-3's nominal altitude of 617 kilometers, and at the highest (830 kilometers) and lowest (496 kilometers) points of its anticipated altitude range. The Attachment E showing depicts the contours from a 90° elevation angle.

F. Interference Analysis

1. Interference between EESS systems operating in the band 8025-8400 MHz

Interference between WorldView-3 and those of other systems is very unlikely because EESS systems operating in the 8025-8400 MHz band normally transmit only in short periods of time while visible from the dedicated receiving earth stations. For the interference to happen, satellites belonging to different systems would have to travel through the antenna beam of the receiving earth station and transmit at the same time. In such a very unlikely event, the interference can be still be avoided by coordinating the satellite transmissions so that they do not occur simultaneously.

2. Interference with the Fixed Service and the FSS in the band 8025-8400 MHz

Attachment C demonstrates that the WorldView-3 transmissions will meet the limits specified by the ITU for protection of the Fixed Service in the 8025-8400 MHz band. Likewise, Section I.C. above demonstrates that WorldView-3 transmissions will meet ITU-specified limits for the geostationary FSS satellites using this band for their uplinks.

G. Public Interest Considerations

The grant of this Modification Application will serve the public interest by permitting DigitalGlobe to launch and operate a new multi-payload, high-resolution imagery satellite system with superior spectral characteristics. The improved characteristics of WorldView-3 will enable DigitalGlobe to expand its ability to provide its Government and non-Government users with enhanced data to meet national defense, meteorology, mapping, land use, natural disaster monitoring and other critical customer demands.

H. Orbital Debris Mitigation

DigitalGlobe confirms that WorldView-3 will not undergo any planned release of debris during its normal operations. In addition, all separation and deployment mechanisms, and any other potential source of debris will be retained by the spacecraft or launch vehicle. DigitalGlobe also has assessed the probability of the spacecraft becoming a source of debris by collision with small debris or meteoroids of less than one centimeter in diameter that could cause loss of control and prevent post-mission disposal. DigitalGlobe has taken steps to limit the effects of such collisions through redundancy, shielding, separation of components, and physical characteristics.

DigitalGlobe has assessed and limited the probability of accidental explosions during and after completion of mission operations. The assessment was based on possible failure modes that could result in explosions, and operational procedures were adopted to limit the probability that they occur. As part of the satellite manufacturing process, DigitalGlobe has taken steps to ensure that debris generation will not result from the conversion of energy sources on board the satellite into energy that fragments the satellite. All sources of stored energy onboard the spacecraft will have been depleted when no longer required for mission operations or post-mission disposal.

DigitalGlobe has assessed and limited the probability of the spacecraft becoming a source of debris by collisions with large debris or other operational spacecraft. DigitalGlobe does not intend to place WorldView-3 in an orbit that is identical to or very similar to an orbit used by other space stations, and, in any event, will work closely with the WorldView-3 launch provider to ensure that the satellite is deployed in such a way as to minimize the potential for collision with any other spacecraft. This specifically includes minimizing the potential for collision with manned spacecraft. To DigitalGlobe's understanding, only the International Space Station and China's Tiangong-1 Space Station module are presently or imminently inhabited orbiting objects.[7] The operational altitude of the International Space Station is approximately 400 kilometers,[8] and the altitude of the Tiangong-1 space module is now approximately 382 kilometers.[9] Both facilities are significantly below the minimum possible operational orbit altitude of 496 kilometers for WorldView-3. Although there is expected to continue to be at least 96 kilometers of orbital separation between WorldView-3 and either the International Space Station or Tiangong-1, and most likely significantly greater separation if WorldView-3 is operated at its nominal altitude of 617 km, DigitalGlobe will be proactive to ensure that risks to inhabitable orbiting objects from WorldView-3 are mitigated. This will include coordinating with NASA to assure protection of the International Space Station on an ongoing basis, and with the China National Space Agency with respect to Tiangong-1 and successor vehicles. DigitalGlobe will provide both agencies with all information they need to assess risks and ensure safe flight profiles, and with contact information for DigitalGlobe personnel on a 24 hours per day/7 days per week basis. With these measures, collisions will be able to be avoided even if there is at some future point less separation in orbits than is anticipated at a minimum today.[10]

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[7] The Tiangong-1 spacecraft is an experimental space module that is destined to be part of a larger space complex over the next decade. It will be intermittently inhabited, with planned manned space missions to occur beginning this year.

[8] http://www.nasa.gov/mission_pages/station/expeditions/expedition26/iss_altitude.html (last visited July 10, 2012).

[9] http://www.china.org.cn/china/2011-11/19/content_23957633.htm (last visited July 10, 2012).

[10] DigitalGlobe will take identical proactive measures with respect to any other inhabitable orbiting objects that may be introduced during the time when WorldView-3 is in orbit. In particular, DigitalGlobe notes that testing of inhabitable space objects by Bigelow Aerospace LLC may occur during the license term.

As noted above, DigitalGlobe has requested and received favorable action from NOAA on its plan for the post-mission disposal of WorldView-3. The Commission has previously determined that "[t]o the extent that a remote sensing satellite applicant has submitted its post-mission disposal plans to NOAA for review and approval, [it] will not require submission of such information" as part of its examination of the debris mitigation disclosures of remote sensing satellites.[11] Accordingly, no submission regarding DigitalGlobe's post-mission disposal plans is required or included with this application.

As a final measure, DigitalGlobe provides in Table 1 below the Commission with the information called for in Section 25.114(d)(14)(iii) of the Commission's Rules, and "discloses the accuracy – if any – with which the orbital parameters of [its] non-geostationary satellite orbit space stations will be maintained, including apogee, perigee, inclination, and the right ascension of the ascending node(s)."[12] While WorldView-3 is still in operational condition and propellant is still available, the orbit will be maintained to within the Table 1 accuracies.

Table 1: Anticipated Ranges of Accuracy to Which WorldView-3 Orbital Parameters Will Be Maintained

Orbital Parameters	Maintenance Accuracy
Inclination Angle	±0.2°
Apogee	±2 km
Perigee	±2 km
Right Ascension of the Ascending Node	±5°

To the extent that Section 25.114(d)(14)(iii) also calls for indication of the anticipated evolution over time of the satellite's orbit, DigitalGlobe notes that after orbit maintenance is no longer possible, WorldView-3's apogee and perigee altitudes will gradually decay over time due to atmospheric drag until the satellite reenters the atmosphere. During this period the inclination and right ascension of the ascending node will also drift outside of the Table 1 maintenance limits due to gravitational perturbations. Table 2 below shows predicted worst-case (shortest) propellant life and reentry times for the lowest, nominal and highest WorldView-3 operational altitudes.

Table 2: Predicted Propellant Life and Time to Reentry

Altitude	Propellant Life	Time to Reentry
496 km	18.5 years	1.4 years
617 km	35 years	11 years
830 km	50 years	60 years

[11] *See Mitigation of Orbital Debris*, 19 FCC Rcd 11567, 11610 (2004). The Commission's decision addressed 15 U.S.C. § 5622(b)(4), which contained a licensing requirement identical to that in 51 U.S.C. § 60122(b)(4) to notify NOAA of the post-mission disposal of spacecraft. Section 60122 of Title 51 replaced Section 5622 of Title 15 effective December 18, 2010. *See* Pub.L. 111-314, 124 Stat. 3328 (2010).

[12] 47 C.F.R. § 25.114(d)(14)(iii).

Notes:

1. Propellant Life is calculated assuming 3-sigma launch dispersions are removed and all remaining propellant is used to maintain the orbit.

2. Time to Reentry is calculated from the point when all propulsive orbit maintenance ceases, which may occur prior to the propellant life limit.

I. Extent of Communications with WorldView-3 During Descent to the Atmosphere

DigitalGlobe intends to utilize WorldView-3 for imaging services from the point at which the satellite is placed into its operational orbit until imaging services are no longer possible. After terminating services, DigitalGlobe will prepare the satellite for eventual reentry and end all communications with it. If WorldView-3 is operating near the low end of its altitude range, it is possible that during this decommissioning phase its altitude will drop below 496 km. In this case imaging services will cease, but command and telemetry communications may continue. As depicted in Figure 1 below, the narrowband downlink remains at or below applicable PFD limits down to an altitude of 450 kilometers with the satellite in the worst-case nadir-pointed orientation. As shown in Figure 2 below, compliance with PFD limits applicable to telemetry operations can be maintained through spacecraft off-pointing from an altitude of 450 kilometers down to reentry. Final reentry prep will occur no lower than 200 to 300 kilometers, as this is where the satellite will lose positive pointing control. During decommissioning period DigitalGlobe may also use the wideband downlink as a secondary means of transmitting telemetry. Any such use of the wideband transmitters will cease when the PFD limits are reached; per Figure 1, this occurs at an altitude of 300 kilometers if both transmitters are used, and 220 kilometers if only one is used.

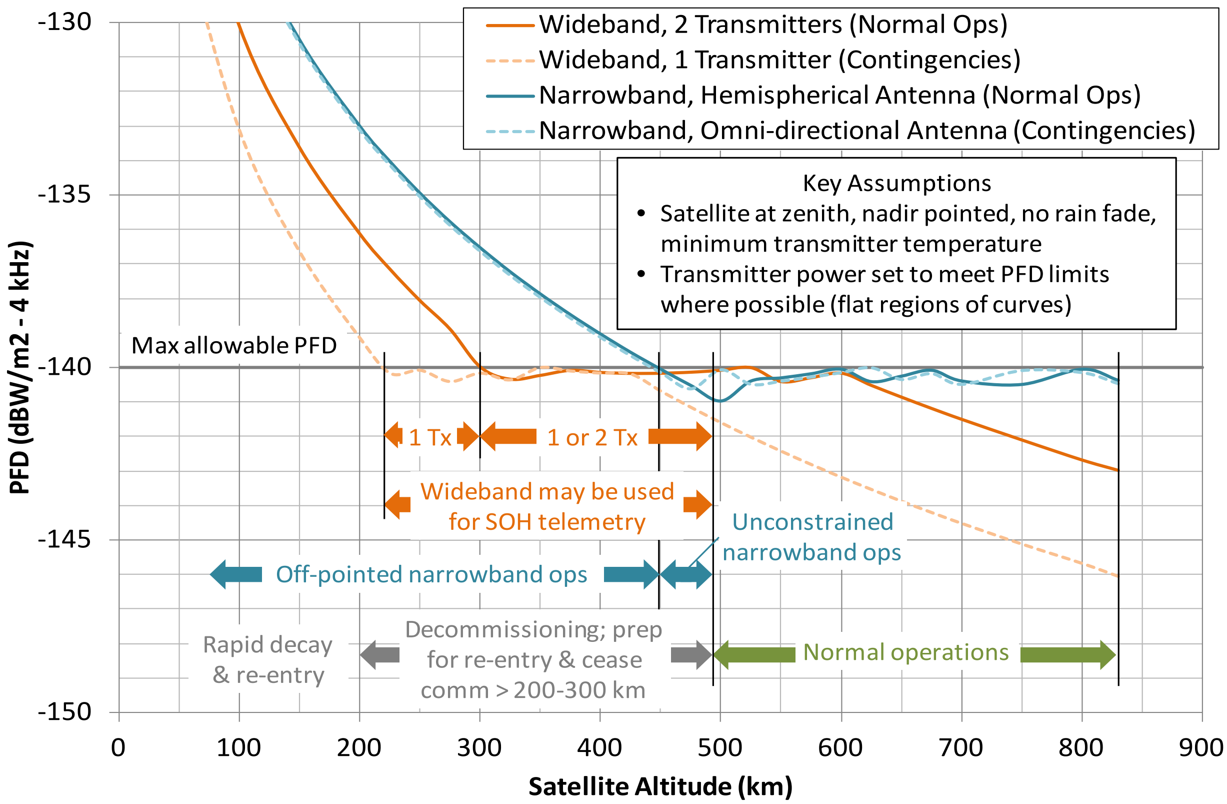

Figure 1. PFD at Earth's Surface versus Altitude

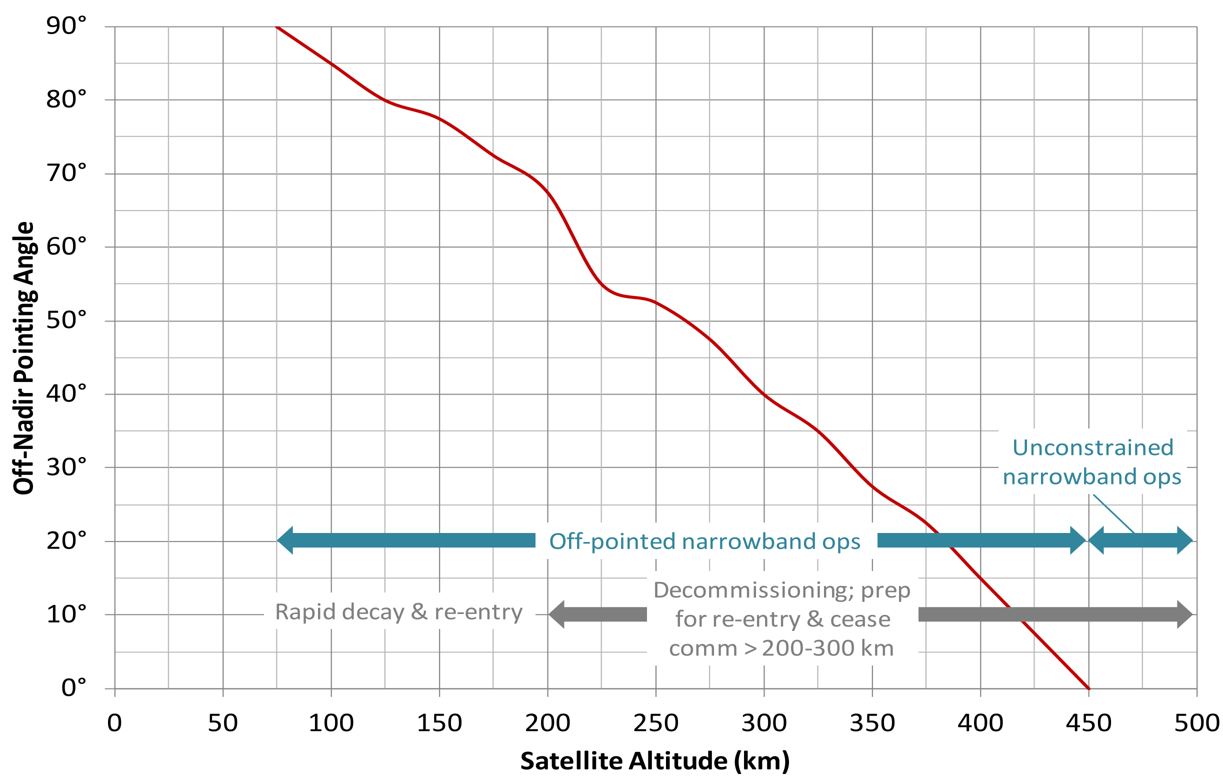

Figure 2. Minimum Off-Nadir Pointing For Narrowband to Meet PFD Below 450 km

II. Additional/General Considerations

A. Waiver Request of Modified Processing Round Rules

DigitalGlobe requests that this application be processed pursuant to the first-come, first-served procedure adopted for "GSO-like satellite systems" under Section 25.158 of the Commission's rules.[13] To the extent necessary to allow for such processing, DigitalGlobe also requests waiver of Sections 25.156 and 25.157 of the Commission's rules, which stipulate the processing of "NGSO-like satellite systems" under a modified processing round framework.[14] DigitalGlobe requested similar waivers when it first modified its EESS system to add new spacecraft.[15] The Commission granted that request, concluding that authorizing an EESS licensee to operate in a particular frequency does not preclude other EESS licensees from operating in that band or cause harmful interference to other EESS systems currently operating in the band.[16] The waiver requested here presents similar circumstances, and warrants similar GSO-like treatment.

B. Waiver Request of Default Service Rules

DigitalGlobe requests a waiver of the default service rules under Section 25.217(b) of the Commission's rules.[17] Although the Commission has not adopted band-specific rules for EESS NGSO operations in the 8025-8400 MHz band, the Commission has previously granted a waiver of the default service rules contained in Section 25.217(b) to NGSO EESS system licensees – including in the case of DigitalGlobe's existing EESS system – based on the fact that EESS operators in the 8025-8400 MHz band are required to comply with technical requirements in Part 2 of the Commission's rules and applicable ITU regulations.[18] In these cases, the Commission concluded that because the cited requirements had been sufficient to prevent harmful interference in the 8025-8400 MHz band, there was no need to impose additional technical requirements on operations in that band, and therefore granted the waiver requests. For these same reasons, the Commission should here grant DigitalGlobe a waiver of the default service rules contained in Section 25.217(b).

C. Implementation Milestones

As noted above, DigitalGlobe has indicated under Section 25.113(f) of the Commission's rules that it has, at its own risk, initiated construction of WorldView-3 in the system proposed in

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[13] 47 C.F.R. § 25.158.

[14] 47 C.F.R. §§ 25.156 & 25.157.

[15] *See DigitalGlobe, Inc.*, 20 FCC Rcd 15696 (2005).

[16] *See id.* at 15699.

[17] 47 C.F.R. § 25.217.

[18] *See DigitalGlobe*, 20 FCC Rcd at 15701-02 (2005); *see also Space Imaging, LLC*, 20 FCC Rcd 11694, 11968 (2005).

the instant application. DigitalGlobe intends to supply the Commission with information sufficient to demonstrate that it has satisfied the first three implementation milestones under Section 25.164(b) for NGSO systems in a separate submission at a later date.[19] DigitalGlobe understands that in the absence of a favorable Commission determination of milestone compliance issued with the grant of this application or within 30 days thereafter, the full amount of the bond specified in Section 25.165(a)(1) will be required.

D. ITU Advance Publication Materials and Cost Recovery

DigitalGlobe will prepare the International Telecommunication Union ("ITU") Advance Publication Information submission for WorldView-3, and will provide this information to the Commission under separate cover. DigitalGlobe will separately provide the Commission with a letter acknowledging that it is responsible for any and all cost recovery fees associated with filings for the proposed system under ITU Council Decision 482 (modified 2008), as it may be modified or succeeded in the future.

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In sum, DigitalGlobe respectfully requests that the Commission grant the modification application as detailed herein.

[19] 47 C.F.R. § 25.164(b).

ATTACHMENT A

NOTIFICATION OF COMMENCEMENT OF SPACE STATION CONSTRUCTION

DigitalGlobe, Inc., parent company of applicant DG Consents Sub, Inc. ("DigitalGlobe"), pursuant to Section 25.113(f) of the Commission's Rules, 47 C.F.R. § 25.113(f), hereby notifies the Commission that it has commenced construction, at its own risk, of the WorldView-3 satellite DigitalGlobe proposes to add to its non-geostationary orbit remote sensing system in the Earth Exploration Satellite Service, as detailed in the modification application to which this statement is attached.

ATTACHMENT B

FCC FORM 312, SCHEDULE S

FCC 312
Schedule S

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
(Technical and Operational Description)

Page 1: General, Frequency Bands, and GSO Orbit

S1. GENERAL INFORMATION Complete for all satellite applications.

a. Space Station or Satellite Network Name: USASAT 30A - WorldView-3	e. Estimated Date of Placement into Service: 9/9/2014	i. Will the space station(s) operate on a Common Carrier basis? ☐ YES ☒ NO
b. Construction Commencement Date: 9/1/2010	f. Estimated Lifetime of Satellite(s): 7.25 Years	j. Number of transponders offered on a Common Carrier basis: 0
c. Construction Completion Date: 4/13/2014	g. Total Number of Transponders: 0	k. Total Common Carrier Transponder Bandwidth: 0 MHz
d. Estimated Launch Date: 6/1/2014	h. Total Transponder Bandwidth (No. Transponders x Bandwidth): 0 MHz	l. Orbit Type: Mark all boxes that apply. ☐ GSO ☒ NGSO

S2. OPERATING FREQUENCY BANDS Identify the frequency range and transmit/receive mode for all frequency bands inwhich this station will operate. Also indicate the nature of service(s) for each frequency band.

Frequency Band Limits					
Lower Frequency (_Hz)		Upper Frequency (_Hz)			
a. Numeric	b. Unit (K/M/G)	c. Numeric	d. Unit (K/M/G)	e. T/R Mode	f. Nature of Service(s): List all that apply to this band
8025	M	8400	M	T	Earth exploration satellite service
2085.0295	M	2086.3455	M	R	Earth exploration satellite service

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

a. Nominal Orbital Longitude (Degrees E/W):

Longitudinal Tolerance or E/W Station-Keeping:

c. Toward West: ______ Degrees

d. Toward East: ______ Degrees

e. Inclination Excursion or N/S Station-Keeping Tolerance: ______ Degrees

Range of orbital arc in which adequate service can be provided (Optional): Degrees E/W

f. Westernmost: ______ ___

g. Easternmost: ______ ___

h. Reason for service arc selection (Optional):

b. Reason for orbital location selection:

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S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System: 4
S4b. Total Number of Orbital Planes in Network or System: 4
S4c. Celestial Reference Body (Earth, Sun, Moon, etc.): Earth
S4d. Orbit Epoch Date: 6/1/2014 12:00:00

For each Orbital Plane Provide:

(e) Orbital Plane No.	(f) No. of Satellites in Plane	(g) Inclination Angle (degrees)	(h) Orbital Period (Seconds)	(i) Apogee (km)	(j) Perigee (km)	(k) * Right Ascension of the Ascending Node (Deg.)	(l) Argument of Perigee (Degrees)	Active Service Arc Range (Degrees) (m) Begin Angle	(n) End Angle	(o) Other
WV-3 min 1:30PM	1	97.36	5671	521	506	272.176	90			
WV-3 nom 1:30PM	1	97.83	5823	643	628	272.176	90			
WV-3 max 1:30PM	1	98.70	6089	854	840	272.176	90			
WV-3 min 10:30AM	1	97.36	5671	521	506	227.176	90			
WV-3 nom 10:30AM	1	97.83	5823	643	628	227.176	90			
WV-3 max 10:30AM	1	98.70	6089	854	840	227.176	90			

Note: The final orbit selection for WorldView-3 has not yet been made. The altitude will be between the min and max values shown; and the LMST will be either 10:30 AM or 1:30 PM. The "nominal" rows represent the current reference baseline orbit but is subject to change.

S5. INITIAL SATELLITE PHASE ANGLE For each satellite in each orbital plane, provide the initial phase angle.

(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)	(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)	(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)	(a) Orbital Plane No.	(b) Satellite Number	(c) Initial Phase Angle (Degrees)
WV-3 min 1:30PM	1	0									
WV-3 nom 1:30PM	1	0									
WV-3 max 1:30PM	1	0									
WV-3 min 10:30AM	1	0									
WV-3 nom 10:30AM	1	0									
WV-3 max 10:30AM	1	0									

*Right ascension of ascending node values are valid for an assumed epoch time of 2014/6/1 12:00:00 UTC. The value 227.176 corresponds to a 10:30 AM local mean solar time (LMST) of the descending node; and 272.176 corresponds to a 1:30 PM LMST.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

S6. SERVICE AREA CHARACTERISTICS For each service area provide:

(a) Service Area ID	(b) Type of Associated Station (Earth or Space)	(c) Service Area Diagram File Name (GXT File)	(d) Service Area Description. Provide list of geographic areas (state postal codes or ITU 3-ltr codes), satellites or Figure No. of Service Area Diagram.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

S7. SPACE STATION ANTENNA BEAM CHARACTERISTICS For each antenna beam provide:

(a) Beam ID	(b) T/R Mode	Isotropic Antenna Gain		(e) Pointing Error (Degrees)	(f) Rotational Error (Degrees)	(g) Min. Cross-Polar Isolation (dB)	(h) Polarization Switchable? (Y/N)	(i) Polarization Alignment Rel. Equatorial Plane (Degrees)	(j) Service Area ID	Transmit			Receive			Input Attenuator (dB)	
		(c) Peak (dBi)	(d) Edge (dBi)							(k) Input Losses (dB)	(l) Effective Output Power (W)	(m) Max. EIRP (dBW)	(n) System Noice Temperature (K)	(o) G/T at Max.Gain Pt. (dB/K)	(p) Min. Saturation Flux Density (dBW/m2)	(q) Max. Value	(r) Step Size
WB-L	T	27.6	26.6	1	0**	24	Y			6.2	2.4	31.4					
WB-R	T	27.6	26.6	1	0**	24	Y			6.2	2.4	31.4					
NB	T	7	-10	0*	0*		N			5.8	2.3	10.6					
CMD	R	4	-10	0*	0*		N						580	-23.6	0***		

* Antenna is spacecraft body-mounted, and not pointed at earth station

**Beam is circularly symmetric ***Command receiver is not a transponder

S8. ANTENNA BEAM DIAGRAMS For each beam pattern provide the reference to the graphic image and numerical data:
Also provide the power flux density levels in each beam that result from the emission with the highest power flux density.

(a) Beam ID	(b) T/R Mode	(c) Co- or Cross-Polar Mode ("C" or "X")	(d) GSO Ref. Orbital Longitude (Deg. E/W)	(e) NGSO Antenna Gain Contour Description (Figure / Table / Exhibit)	(f) GSO Antenna Gain Contour Data (GXT File)	Max. Power Flux Density (dBW/m2 per Reference Bandwidth*)					
						At Angle of Arrival above horizontal (for emission with highest PFD)					(l) Reference Bandwidth* (4kHz or 1MHz)
						(g) 5 Deg	(h) 10 Deg	(i) 15 Deg	(j) 20 Deg	(k) 25 Deg	

*Use a Reference Bandwidth of 4 kHz or 1 MHz as appropriate to the FCC Rules that apply to the subject frequency band (§ 25.208).

S9. SPACE STATION CHANNELS For each frequency channel provide:

(a) Channel No.	(b) Assigned Bandwidth (kHz)	(c) T/R Mode	(d) Center Frequency (MHz)	(e) Polarization (H,V,L,R)	(f) TT&C or Comm Channel (T or C)
WB-L	375000	T	8185.0 *	L	C
WB-R	375000	T	8185.0 *	R	C
NB-I	2695	T	8380.0	L	T
NB-Q	5800	T	8380.0	L	T
CMD	1316	R	2085.6875	R	T

* The center frequency in this case is not the arithmetic mean between the lower frequency (8025 MHz) and the upper frequency (8400 MHz). DigitalGlobe employs a filtering process that ensures that only spectrum between 8025 and 8400 MHz is used and that emissions are within acceptable levels.

S10. SPACE STATION TRANSPONDERS** For each transponder provide:

(a) Transponder ID	(b) Transponder Gain* (dB)	Receive Band		Transmit Band	
		(c) Channel No.	(d) Beam ID	(e) Channel No.	(f) Beam ID

*Transponder gain between output of receiving antenna and input of transmitting antenna.
**Also complete this table for half-links such as TT&C and on-board processing. In such cases, provide the receive or transmit information, as appropriate.

S11. DIGITAL MODULATION PARAMETERS For each digital emission provide:

(a) Digital Mod. ID	(b) Emission Designator	(c) Assigned Bandwidth (kHz)	(d) No. of Phases	(e) Uncoded Data Rate (kbps)	(f) FEC Error Correction Coding Rate	(g) CDMA Processing Gain (dB)	(h) Total C/N Performance Objective (dB)	(i) Single Entry C/I Objective (dB)
WB-L	375MG7D	375000	8	522600	0.871	0	24.7	26
WB-R	375MG7D	375000	8	522600	0.871	0	24.7	26
NB-I	2M70G7D	2695	2	32.768	0.5	0	11.2	32.5
NB-Q	5M80G7D	5800	2	524.8	0.5	0	11.2	32.5
CMD	1M32G1D	1316	2	64.0	1	-	18.8	-(receive)

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

S12. ANALOG MODULATION PARAMETERS For each analog emission provide:

(a) Analog Mod. ID	(b) Emission Designator	(c) Assigned Bandwidth (kHz)	(d) Signal Type* (see below)	(e) Channels per Carrier	Multi-channel Telephony				(j) Video Standard NTSC, PAL, etc.	(k) Video Noise Weight-ing (dB)	(l) Video & SCPC/FM Modulation Index	(m) SCPC/FM Compander, Preemphasis, & Noise Weight-ing (dB)	(n) Total C/N Performance Objective (dB)	(o) Single Entry C/I Objective (dB)
					(f) Ave. Companded Talker Level (dBm0)	(g) Bottom Baseband Freq. (MHz)	(h) Top Baseband Freq. (MHz)	(i) RMS Modulation Index						

*Indicate whether signal is (a) FDM/FM, (b) CSSB/AM, (c) SCPC/FM, or (d) TV/FM.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

S13. TYPICAL EMISSIONS For each planned type of emission provide:

Associated Transponder ID Range		Modulation ID		(e) Carriers per Transponder	(f) Carrier Spacing (kHz)	(g) Noise Budget Reference (Table No.)	(h) Energy Dispersal Bandwidth* (kHz)	Receive Band (Assoc.Transmit Stn)			Transmit Band (This Space Station)				
(a) Start	(b) End	(c) Digital (Table S11)	(d) Analog (Table S12)					(i)Assoc.Stn Max.Antenna Gain (dBi)	Assoc. Station Transmit Power (dBW)		EIRP (dBW)		Max. Power Flux Density		(p) Assoc. Stn Rec. G/T (dB/K)
									(j) Min.	(k) Max.	(l) Min.	(m) Max.	(n)dBW/m2	(o)Ref. BW** (4kHz or 1MHz)	

* For those emissions using energy dispersal, provide the bandwidth of the energy dispersal. Otherwise, leave blank.
**Use a Reference Bandwidth of 4 kHz or 1 MHz as appropriate to the FCC Rules that apply to the subject frequency band (§ 25.208).

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE SPACE STATION AUTHORIZATIONS
FCC Form 312 - Schedule S: (Technical and Operational Description)

S14. Is the space station(s) controlled and monitored remotely? If YES, provide the location and telephone number of the TT&C control point(s). [X] **YES** [ ] **NO**

Remote Control (TT&C) Location(s):

S14a. Street Address			
DigitalGlobe MCC: 1601 Dry Creek Drive, Suite 260			
S14b. City: Longmont	S14c. County: Boulder	S14d. State / Country: CO	S14e. Zip Code: 80503
S14f. Telephone Number: 303-684-4000	S14g. Call Sign of Control Station (if appropriate): None; remote controls E040264 and E950499		

S14a. Street Address			
S14b. City	S14c. County	S14d. State / Country	S14e. Zip Code
S14f. Telephone Number	S14g. Call Sign of Control Station (if appropriate)		

S14a. Street Address			
S14b. City	S14c. County	S14d. State / Country	S14e. Zip Code
S14f. Telephone Number	S14g. Call Sign of Control Station (if appropriate)		

S14a. Street Address			
S14b. City	S14c. County	S14d. State / Country	S14e. Zip Code
S14f. Telephone Number	S14g. Call Sign of Control Station (if appropriate)		

S14a. Street Address			
S14b. City	S14c. County	S14d. State / Country	S14e. Zip Code
S14f. Telephone Number	S14g. Call Sign of Control Station (if appropriate)		

S14a. Street Address			
S14b. City	S14c. County	S14d. State / Country	S14e. Zip Code
S14f. Telephone Number	S14g. Call Sign of Control Station (if appropriate)		

S15. SPACECRAFT PHYSICAL CHARACTERISTICS

	Spacecraft Dimensions (meters)	Probability of Survival to End of Life (0.0 - 1.0)
S15a. Mass of spacecraft without fuel (kg) 2403.4		
S15b. Mass of fuel & disposables at launch (kg) 386.5		
S15c. Mass of spacecraft and fuel at launch (kg) 2789.9	S15f. Length (m) 7.118	S15i. Payload 0.932
S15d. Mass of fuel, in orbit, at beginning of life (kg) 386.5	S15g. Width (m) 3.542	S15j. Bus 0.8355
S15e. Deployed Area of Solar Array (square meters) 13.1	S15h. Height (m) 5.709	S15k. Total 0.778

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS

Spacecraft Subsystem	Electrical Power (Watts) At Beginning of Life		Electrical Power (Watts) At End of Life	
	At Equinox	At Solstice	At Equinox	At Solstice
Payload (Watts)	(a) 480	(f) 480	(k) 480	(p) 480
Bus (Watts)	(b) 2640	(g) 2640	(l) 2640	(q) 2640
Total (Watts)	(c) 3120	(h) 3120	(m) 3120	(r) 3120
Solar Array (Watts)	(d) 3142	(i) 3142	(n) 3142	(s) 3142
Depth of Battery Discharge (%)	(e) 32 %	(j) 32 %	(o) 32 %	(t) 32 %

S17. CERTIFICATIONS

a. Are the power flux density limits of § 25.208 met?	☐ **YES**	☐ **NO**	☒ **N/A**
b. Are the appropriate service area coverage requirements of § 25.143(b)(ii) and (iii), or § 25.145(c)(1) and (2) met?	☐ **YES**	☐ **NO**	☒ **N/A**
c. Are the frequency tolerances of § 25.202(e) and the out-of-band emission limits of § 25.202(f)(1), (2), and (3) met?	☒ **YES**	☐ **NO**	☐ **N/A**

In addition to the information required in this Form, the space station applicant is required to provide all the information specified in Section 25.114 of the Commission's rules, 47 C.F.R. § 25.114.

ATTACHMENT C

LINK BUDGETS AND SUMMARY POWER FLUX DENSITY GRAPHS

WV3

600 Mbps DATA RATE DOWNLINK ANALYSIS   Fairbanks,AK

Fo = 8.185 GHz   D8PSK Modulation   496 km Altitude

DOWNLINK PARAMETERS:

Frequency	8.185	GHz
Orbit height in km	496	km
Local elevation above hor.	5	degrees
Data rate	600	Mbps
Bandwidth (baseband)	145.5	MHz
Spacecraft ant. EIRP at max scan	59.0	dBm
Slant range	2067.48	km
Ground ant. G/T	32.9	dB/K
BER	5.00E-04	
Required Eb/No (without coding)	12.7	dB
Hardware imp. BER loss	-2.5	dB

LINK CALCULATION:

TOTAL POWER TO GROUND:

Satellite EIRP	60.5	dBm
Path loss	-177.0	dB
Total loss (rain, polarization, etc.)	-1.9	dB

RECEIVER SENSITIVITY:

Required Eb/No	12.7	dB
Available Eb/No	19.2	dB
DOWNLINK MARGIN	**6.5**	**dB**

ANTENNA SIZES:

Spacecraft Antenna Segment

Spacecraft dish diameter	16.0	inches
Approx. HPBW	8.4	degrees
Gain of spacecraft antenna	26.6	dBic
Loss between HPA out and ant. output	-6.2	dB
Transmitter Po	10.0	watts
EIRP of satellite system	60.5	dBm

Ground Antenna Segment

Ground antenna G/T	32.9	dB/K
System noise temperature	120.1	K (referenced at aperture)
Directivity gain ground antenna	54.1	dBic
Ground dish diameter	7.3	meters
Approx. HPBW	0.4	degrees

WV3

600 Mbps DATA RATE DOWNLINK ANALYSIS Fairbanks,AK

Fo = 8.185 GHz	**D8PSK Modulation**	**617**	**km Altitude**

DOWNLINK PARAMETERS:

Frequency	8.185	GHz
Orbit height in km	617	km
Local elevation above hor.	5	degrees
Data rate	600	Mbps
Bandwidth (baseband)	145.5	MHz
Spacecraft ant. EIRP at max scan	60.5	dBm
Slant range	2369.89	km
Ground ant. G/T	32.9	dB/K
BER	5.00E-04	
Required Eb/No (without coding)	12.7	dB
Hardware imp. BER loss	-2.5	dB

LINK CALCULATION:

TOTAL POWER TO GROUND:

Satellite EIRP	60.5	dBm
Path loss	-178.2	dB
Total loss (rain, polarization, etc.)	-1.9	dB

RECEIVER SENSITIVITY:

Required Eb/No	12.7	dB
Available Eb/No	19.4	dB
DOWNLINK MARGIN	**6.7**	**dB**

ANTENNA SIZES:

Spacecraft Antenna Segment

Spacecraft dish diameter	16.0	inches
Approx. HPBW	8.4	degrees
Gain of spacecraft antenna	26.6	dBic
Loss between HPA out and ant. output	-6.2	dB
Transmitter Po	10.0	watts
EIRP of satellite system	60.5	dBm

Ground Antenna Segment

Ground antenna G/T	32.9	dB/K
System noise temperature	120.1	K (referenced at aperture)
Directivity gain ground antenna	54.1	dBic
Ground dish diameter	7.3	meters
Approx. HPBW	0.4	degrees

WV3

600 Mbps DATA RATE DOWNLINK ANALYSIS   Fairbanks,AK

Fo = 8.185 GHz	**D8PSK Modulation**	**830**	**km Altitude**

DOWNLINK PARAMETERS:

Frequency	8.185	GHz
Orbit height in km	830	km
Local elevation above hor.	5	degrees
Data rate	600	Mbps
Bandwidth (baseband)	145.5	MHz
Spacecraft ant. EIRP at max scan	60.5	dBm
Slant range	2847.85	km
Ground ant. G/T	32.9	dB/K
BER	5.00E-04	
Required Eb/No (without coding)	12.7	dB
Hardware imp. BER loss	-2.5	dB

LINK CALCULATION:

TOTAL POWER TO GROUND:

Satellite EIRP	60.5	dBm
Path loss	-179.8	dB
Total loss (rain, polarization, etc.)	-1.9	dB

RECEIVER SENSITIVITY:

Required Eb/No	12.7	dB
Available Eb/No	18.3	dB
DOWNLINK MARGIN	**5.7**	**dB**

ANTENNA SIZES:

Spacecraft Antenna Segment

Spacecraft dish diameter	16.0	inches
Approx. HPBW	8.4	degrees
Gain of spacecraft antenna	26.6	dBic
Loss between HPA out and ant. output	-6.2	dB
Transmitter Po	10.0	watts
EIRP of satellite system	60.5	dBm

Ground Antenna Segment

Ground antenna G/T	32.9	dB/K
System noise temperature	120.1	K (referenced at aperture)
Directivity gain ground antenna	54.1	dBic
Ground dish diameter	7.3	meters
Approx. HPBW	0.4	degrees

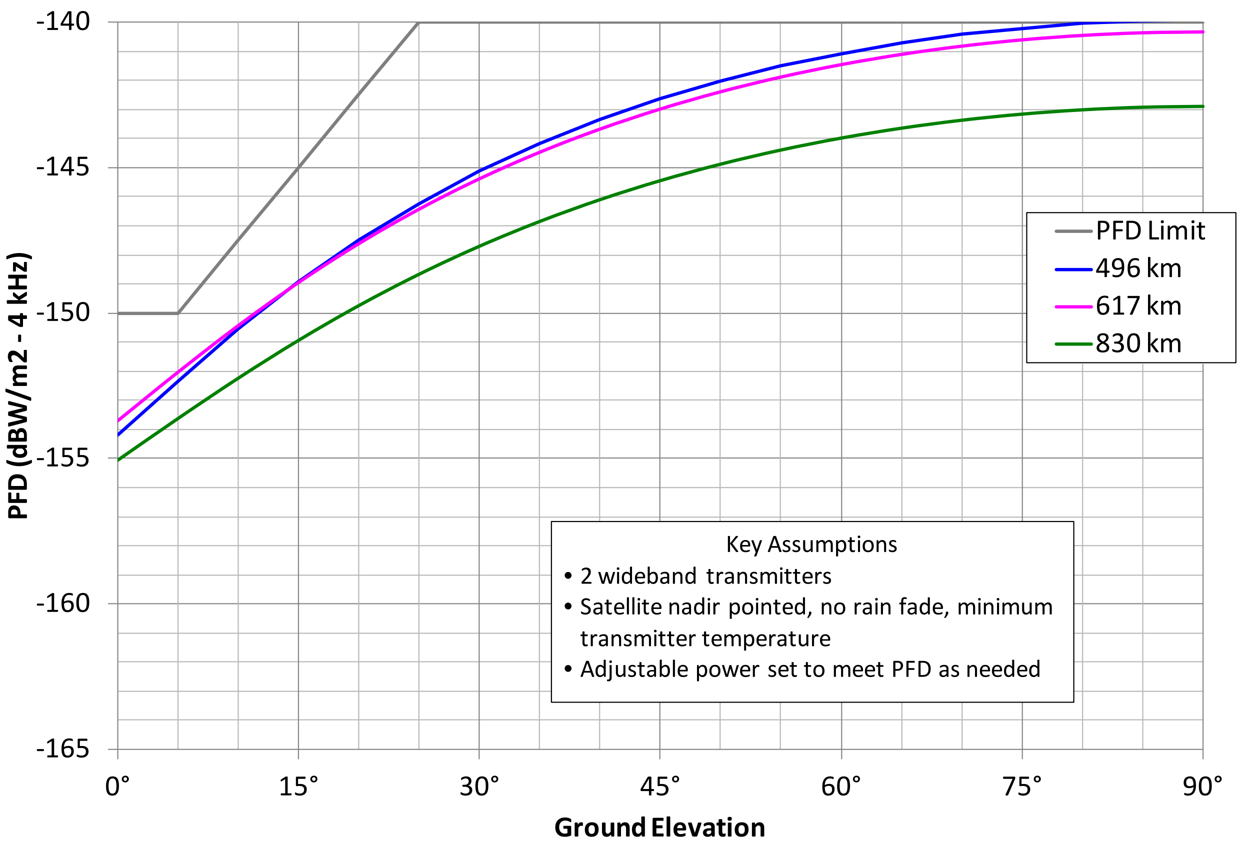


Table C-1. Maximum Wideband PFD versus Ground Elevation Angle

WV3

TELEMETRY DOWNLINK R/T, PBK /NADIR

FREQUENCY	8.38	GHz	WAVELENGTH	0.04	METERS
POWER	8.5	WATTS	5 DEG SLANT RANGE	2067.48	KM
ALTITUDE	496.0	KM			

REAL TIME DATA UQPSK I CHANNEL	DATA RATE	32.768	KBPS
PLAYBACK DATA UQPSK Q CHANNEL	DATA RATE	524.8	KBPS

MARGIN

R/T	31.5	dB
PBK	25.4	dB

ANTENNA: NADIR

PARAMETER	UNITS	VALUE
TOTAL TRANSMIT POWER	dBm	39.3
PASSIVE LOSS	dB	-7.3
S/C ANTENNA GAIN > +/-108 DEG	dBic	6.0
FREE SPACE DISPERSION LOSS	dB	-177.2
ATMOSPHERIC LOSS	dB	-1.7
GROUND STATION G/T	dB/K	33.7
TOTAL RECEIVED POWER/T	dBm/K	-107.2
BOLTZMANN CONSTANT	dBm/Hz-K	-198.6
TOTAL RECEIVED POWER/KT	dB-Hz	91.4
DATA CHANNEL I (real time)		
DATA/TOTAL POWER	dB	-7.0
DATA POWER/KT	dB-Hz	84.4
INFORMATION RATE 32 KBPS	dB-Hz	45.2
AVAILABLE S/N	dB	39.2
REQUIRED Eb/No 1.00E-6 BER	dB	13.0
CODING GAIN	dB	5.3
AVAILABLE SIGNAL MARGIN	dB	31.5
DATA CHANNEL Q (playback)		
DATA/TOTAL POWER	dB	-1.0
DATA POWER/KT	dB-Hz	90.4
INFORMATION RATE 512.8 KBPS	dB-Hz	57.2
AVAILABLE S/N	dB	33.2
REQUIRED Eb/No 1.00E-6 BER	dB	13.0
CODING GAIN	dB	5.3
AVAILABLE SIGNAL MARGIN	dB	25.4

WV3

TELEMETRY DOWNLINK R/T, PBK /NADIR

FREQUENCY	8.38	GHz	WAVELENGTH	0.04	METERS
POWER	8.5	WATTS	5 DEG SLANT RANGE	2369.89	KM
ALTITUDE	617.0	KM			

REAL TIME DATA UQPSK I CHANNEL	DATA RATE	32.768	KBPS
PLAYBACK DATA UQPSK Q CHANNEL	DATA RATE	524.8	KBPS

MARGIN

R/T	10.3	dB
PBK	4.2	dB

ANTENNA: NADIR

PARAMETER	UNITS	VALUE
TOTAL TRANSMIT POWER	dBm	39.3
PASSIVE LOSS	dB	-8.3
S/C ANTENNA GAIN > +/-108 DEG	dBic	-13.0
FREE SPACE DISPERSION LOSS	dB	-178.4
ATMOSPHERIC LOSS	dB	-1.7
GROUND STATION G/T	dB/K	33.7
TOTAL RECEIVED POWER/T	dBm/K	-128.4
BOLTZMANN CONSTANT	dBm/Hz-K	-198.6
TOTAL RECEIVED POWER/KT	dB-Hz	70.2
DATA CHANNEL I (real time)		
DATA/TOTAL POWER	dB	-7.0
DATA POWER/KT	dB-Hz	63.2
INFORMATION RATE 32 KBPS	dB-Hz	45.2
AVAILABLE S/N	dB	18.0
REQUIRED Eb/No 1.00E-6 BER	dB	13.0
CODING GAIN	dB	5.3
AVAILABLE SIGNAL MARGIN	dB	10.3
DATA CHANNEL Q (playback)		
DATA/TOTAL POWER	dB	-1.0
DATA POWER/KT	dB-Hz	69.2
INFORMATION RATE 512.8 KBPS	dB-Hz	57.2
AVAILABLE S/N	dB	12.0
REQUIRED Eb/No 1.00E-6 BER	dB	13.0
CODING GAIN	dB	5.3
AVAILABLE SIGNAL MARGIN	dB	4.2

WV3

TELEMETRY DOWNLINK R/T, PBK /NADIR

FREQUENCY	8.38	GHz	WAVELENGTH	0.04	METERS
POWER	8.5	WATTS	5 DEG SLANT RANGE	2847.85	KM
ALTITUDE	830.0	KM			
REAL TIME DATA UQPSK I CHANNEL			DATA RATE	32.768	KBPS
PLAYBACK DATA UQPSK Q CHANNEL			DATA RATE	524.8	KBPS

MARGIN		
R/T	11.2	dB
PBK	5.1	dB

ANTENNA: NADIR

PARAMETER	UNITS	VALUE
TOTAL TRANSMIT POWER	dBm	39.3
PASSIVE LOSS	dB	-5.8
S/C ANTENNA GAIN > +/-108 DEG	dBic	-13.0
FREE SPACE DISPERSION LOSS	dB	-180.0
ATMOSPHERIC LOSS	dB	-1.7
GROUND STATION G/T	dB/K	33.7
TOTAL RECEIVED POWER/T	dBm/K	-127.5
BOLTZMANN CONSTANT	dBm/Hz-K	-198.6
TOTAL RECEIVED POWER/KT	dB-Hz	71.1
DATA CHANNEL I (real time)		
DATA/TOTAL POWER	dB	-7.0
DATA POWER/KT	dB-Hz	64.1
INFORMATION RATE 32 KBPS	dB-Hz	45.2
AVAILABLE S/N	dB	18.9
REQUIRED Eb/No 1.00E-6 BER	dB	13.0
CODING GAIN	dB	5.3
AVAILABLE SIGNAL MARGIN	dB	11.2
DATA CHANNEL Q (playback)		
DATA/TOTAL POWER	dB	-1.0
DATA POWER/KT	dB-Hz	70.1
INFORMATION RATE 512.8 KBPS	dB-Hz	57.2
AVAILABLE S/N	dB	12.9
REQUIRED Eb/No 1.00E-6 BER	dB	13.0
CODING GAIN	dB	5.3
AVAILABLE SIGNAL MARGIN	dB	5.1

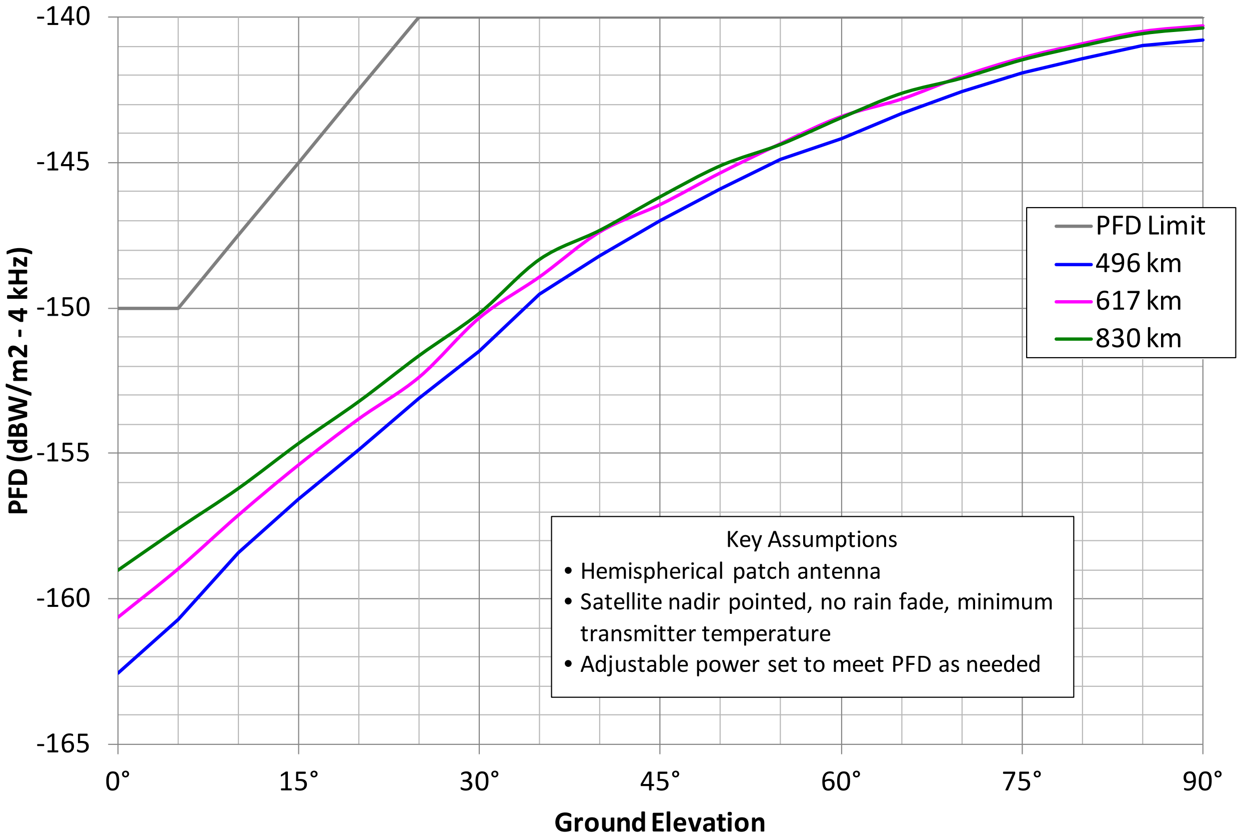


Table C-2. Maximum Narrowband PFD versus Ground Elevation Angle

WV3
COMMAND
UPLINK

OMNI ANTENNA NOMINAL

DigitalGlobe

FREQUENCY	2.0856875	GHz			
UPLINK	53.0	dBW EIRP	WAVELENGTH	0.14	METERS
ALTITUDE	496.0	KM	3 DEG SLANT RANGE	2251.6	KM
			DATA RATE	64	**KBPS**
CMD MOD INDEX	1.57		MARGIN	7.0	dB

ANTENNA: OMNI NOMINAL +/- 75 DEG

PARAMETER	UNIT	VALUE
UPLINK EIRP	dBW	53.0
FREE SPACE DISPERSION LOSS	dB	-165.9
POINTING LOSS	dB	-0.2
ATMOSPHERIC LOSS 19 mm/hr	dB	-1.6
S/C ANTENNA GAIN < +/- 75 DEG	dBi	-15.0
POLARIZATION LOSS	dB	-1.0
S/C LINE LOSS	dB	-2.3
TOTAL S/C RECEIVED POWER	dBm	-103.0
CARRIER PERFORMANCE		
NET RECEIVED POWER	dBm	-103.0
MIN CARRIER ACQUIS POWER	dBm	-110.0
MARGIN CARRIER ACQUISITION	dB	7.0
COMMAND CHANNEL PERFORMANCE (MI=1.57)		
NET RECEIVED POWER	dBm	-103.0
MINIMUMCMD CHANNEL POWER	dBm	-110.0
COMMAND DESIGN MARGIN	dB	7.0

WV3
COMMAND
UPLINK

OMNI ANTENNA NOMINAL

DigitalGlobe

FREQUENCY	2.0856875	GHz				
UPLINK	53.0	dBW EIRP	WAVELENGTH		0.14	METERS
ALTITUDE	617.0	KM	3 DEG SLANT RANGE		2558.0	KM
				DATA RATE	64	**KBPS**
CMD MOD INDEX	1.57			MARGIN	5.9	dB

ANTENNA: OMNI NOMINAL +/- 75 DEG

PARAMETER	UNIT	VALUE
UPLINK EIRP	dBW	53.0
FREE SPACE DISPERSION LOSS	dB	-167.0
POINTING LOSS	dB	-0.2
ATMOSPHERIC LOSS 19 mm/hr	dB	-1.6
S/C ANTENNA GAIN < +/- 75 DEG	dBi	-15.0
POLARIZATION LOSS	dB	-1.0
S/C LINE LOSS	dB	-2.3
TOTAL S/C RECEIVED POWER	dBm	-104.1
CARRIER PERFORMANCE		
NET RECEIVED POWER	dBm	-104.1
MIN CARRIER ACQUIS POWER	dBm	-110.0
MARGIN CARRIER ACQUISITION	dB	5.9
COMMAND CHANNEL PERFORMANCE (MI=1.57)		
NET RECEIVED POWER	dBm	-104.1
MINIMUMCMD CHANNEL POWER	dBm	-110.0
COMMAND DESIGN MARGIN	dB	5.9

WV3
COMMAND
UPLINK

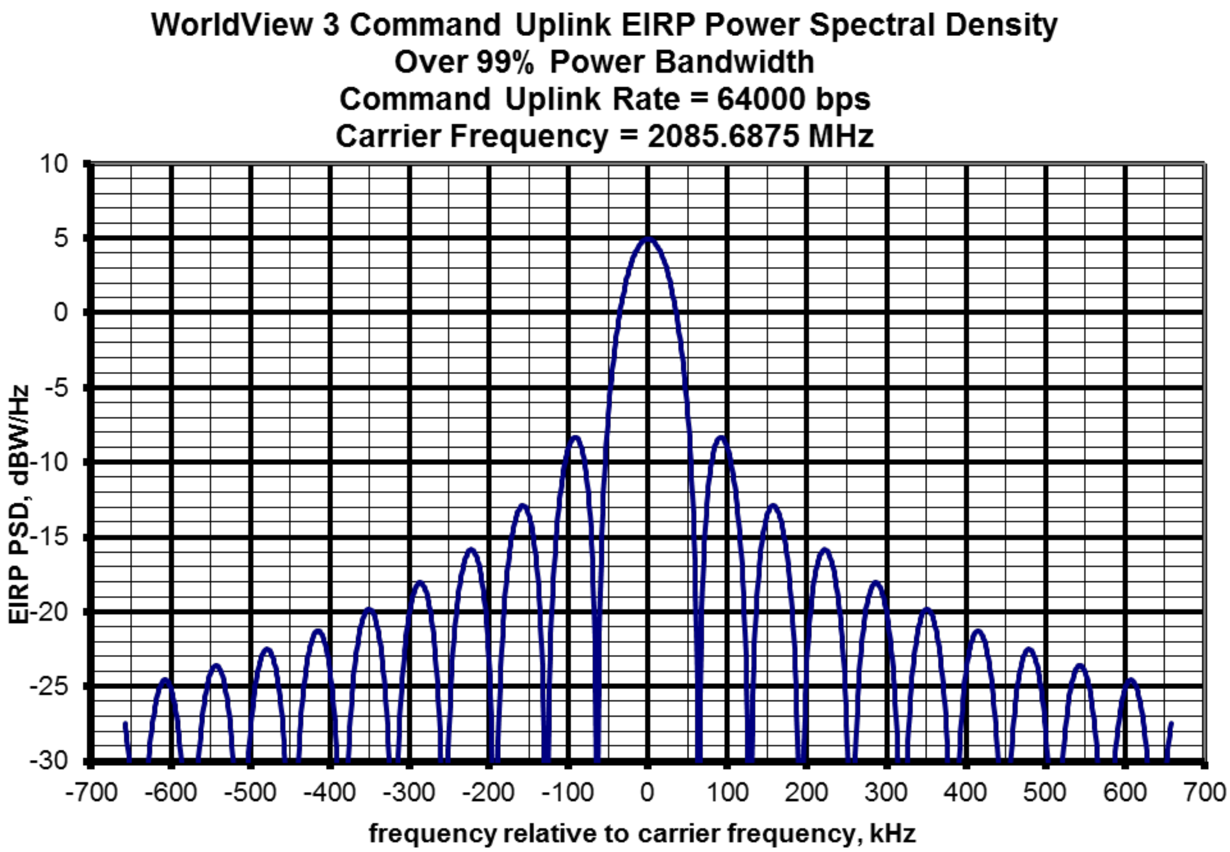
OMNI ANTENNA NOMINAL

DigitalGlobe

FREQUENCY	2.0856875	GHz				
UPLINK	53.0	dBW EIRP	WAVELENGTH		0.14	METERS
ALTITUDE	830.0	KM	3 DEG SLANT RANGE		3040.8	KM
				DATA RATE	64	**KBPS**
CMD MOD INDEX	1.57			MARGIN	4.4	dB

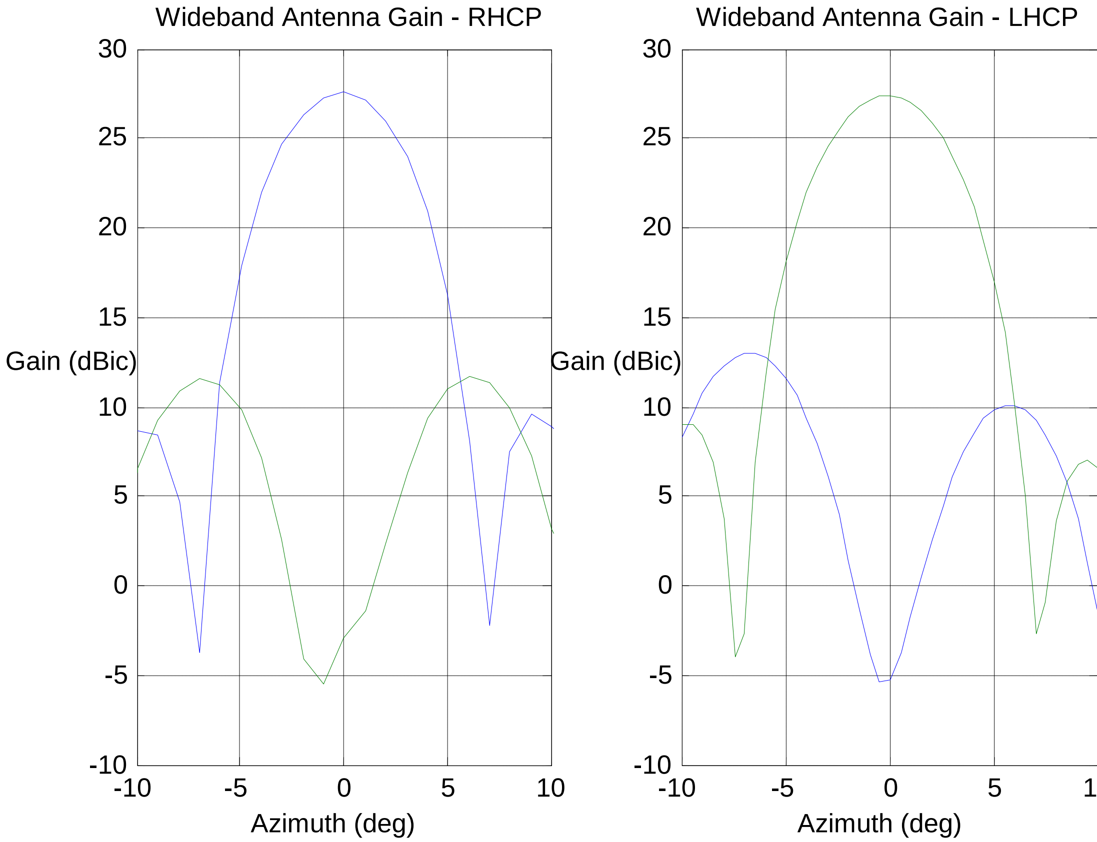
ANTENNA: OMNI NOMINAL +/- 75 DEG

PARAMETER	UNIT	VALUE
UPLINK EIRP	dBW	53.0
FREE SPACE DISPERSION LOSS	dB	-168.5
POINTING LOSS	dB	-0.2
ATMOSPHERIC LOSS 19 mm/hr	dB	-1.6
S/C ANTENNA GAIN < +/- 75 DEG	dBi	-15.0
POLARIZATION LOSS	dB	-1.0
S/C LINE LOSS	dB	-2.3
TOTAL S/C RECEIVED POWER	dBm	-105.6
CARRIER PERFORMANCE		
NET RECEIVED POWER	dBm	-105.6
MIN CARRIER ACQUIS POWER	dBm	-110.0
MARGIN CARRIER ACQUISITION	dB	4.4
COMMAND CHANNEL PERFORMANCE (MI=1.57)		
NET RECEIVED POWER	dBm	-105.6
MINIMUMCMD CHANNEL POWER	dBm	-110.0
COMMAND DESIGN MARGIN	dB	4.4

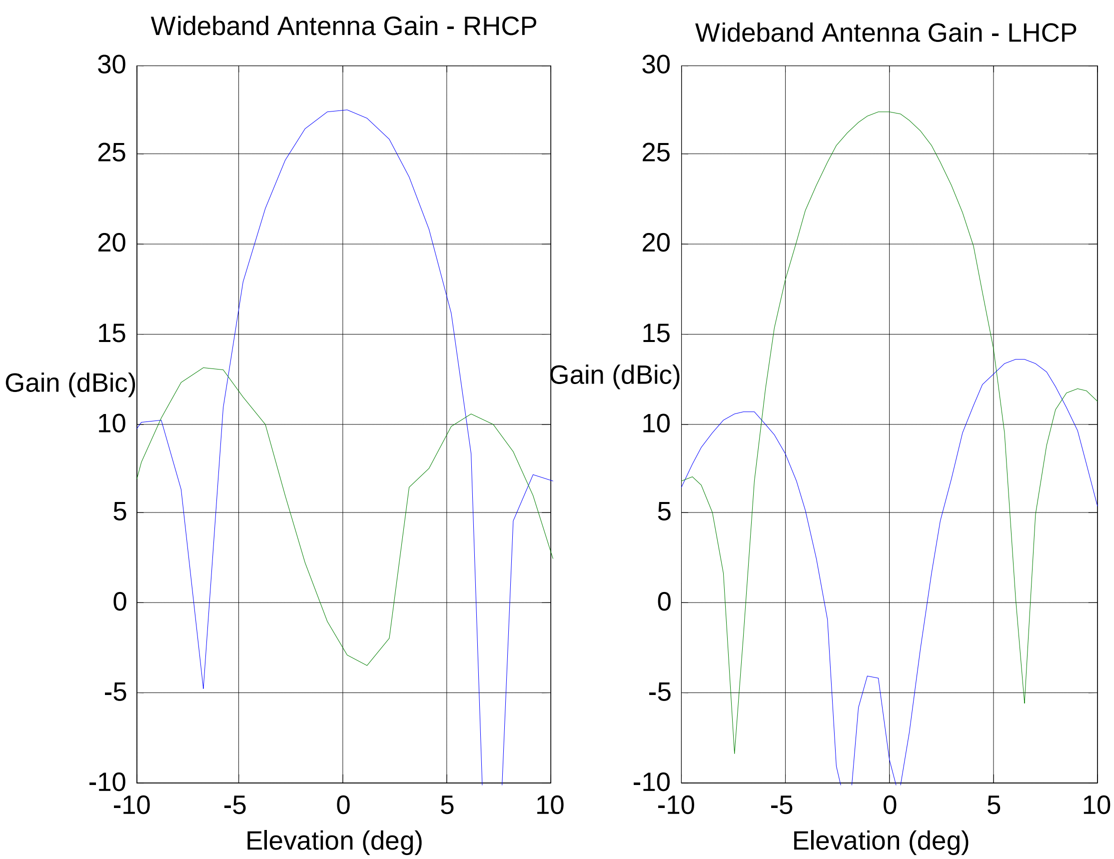

WorldView 3 Command Uplink EIRP Power Spectral Density
Over 99% Power Bandwidth
Command Uplink Rate = 64000 bps
Carrier Frequency = 2085.6875 MHz
EIRP PSD, dBW/Hz
10
5
0
-5
-10
-15
-20
-25
-30
-700
-600
-500
-400
-300
-200
-100
0
100
200
300
400
500
600
700
frequency relative to carrier frequency, kHz

ATTACHMENT D

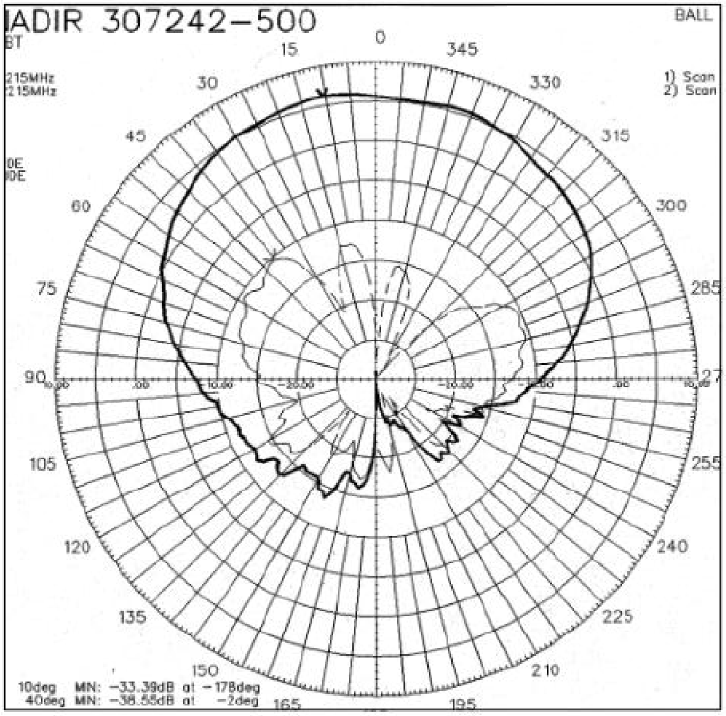
SPACE STATION ANTENNA PATTERNS



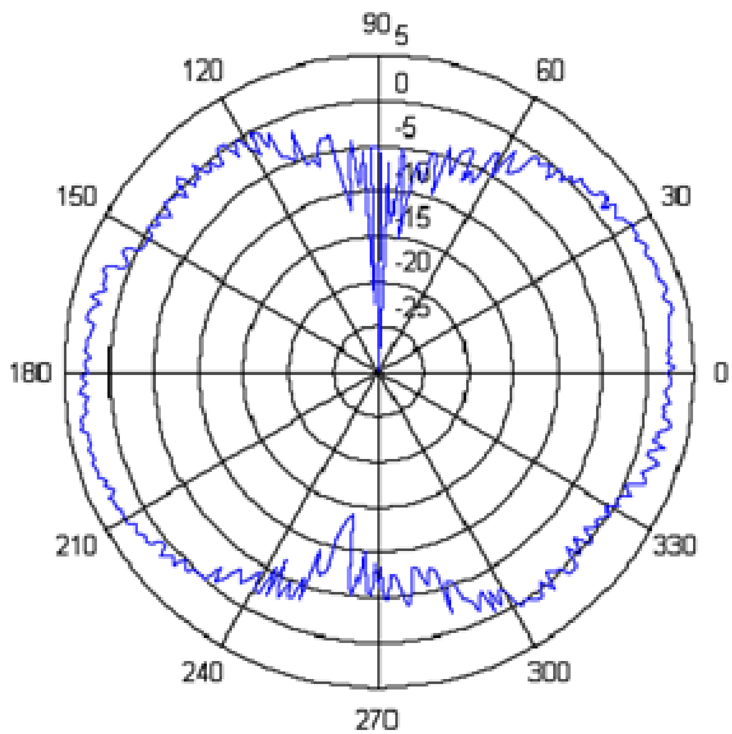
WorldView-3 Wideband Antenna Pattern, Azimuth Cut, dBic



WorldView-3 Wideband Antenna Pattern, Elevation Cut, dBic



WorldView-3 Narrowband Antenna Pattern, dBic

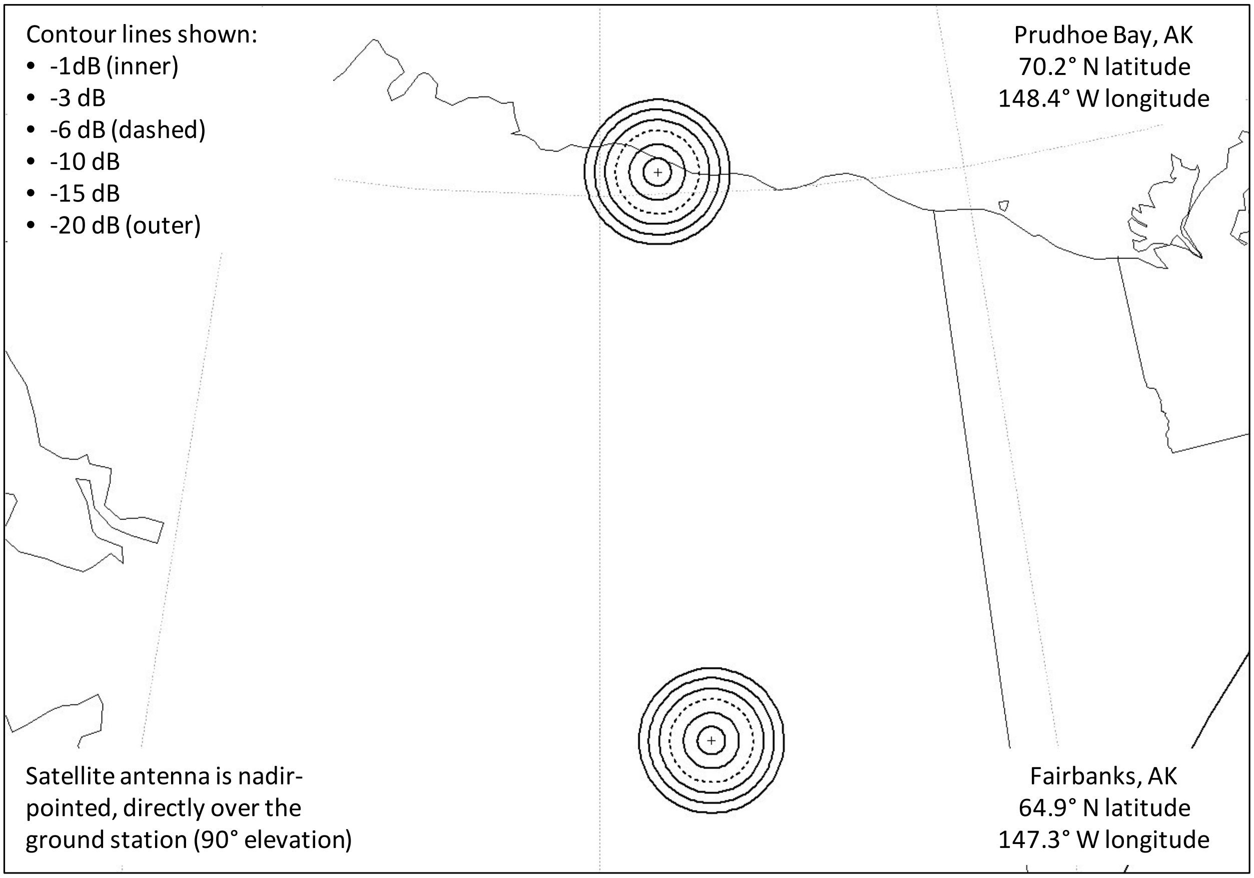


WorldView-3 Command Uplink Antenna Pattern, dBic

ATTACHMENT E

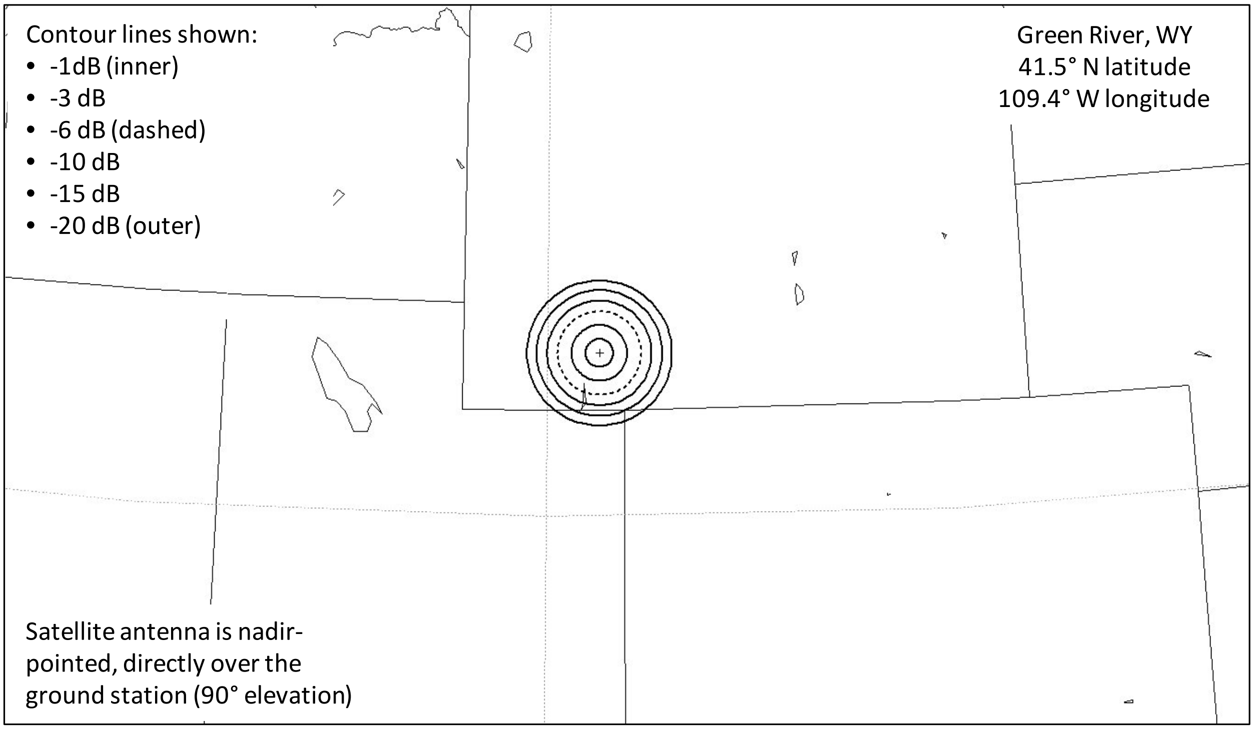
PREDICTED ANTENNA GAIN CONTOURS

Wideband Downlink Contours: 830 km Altitude (1 of 2)

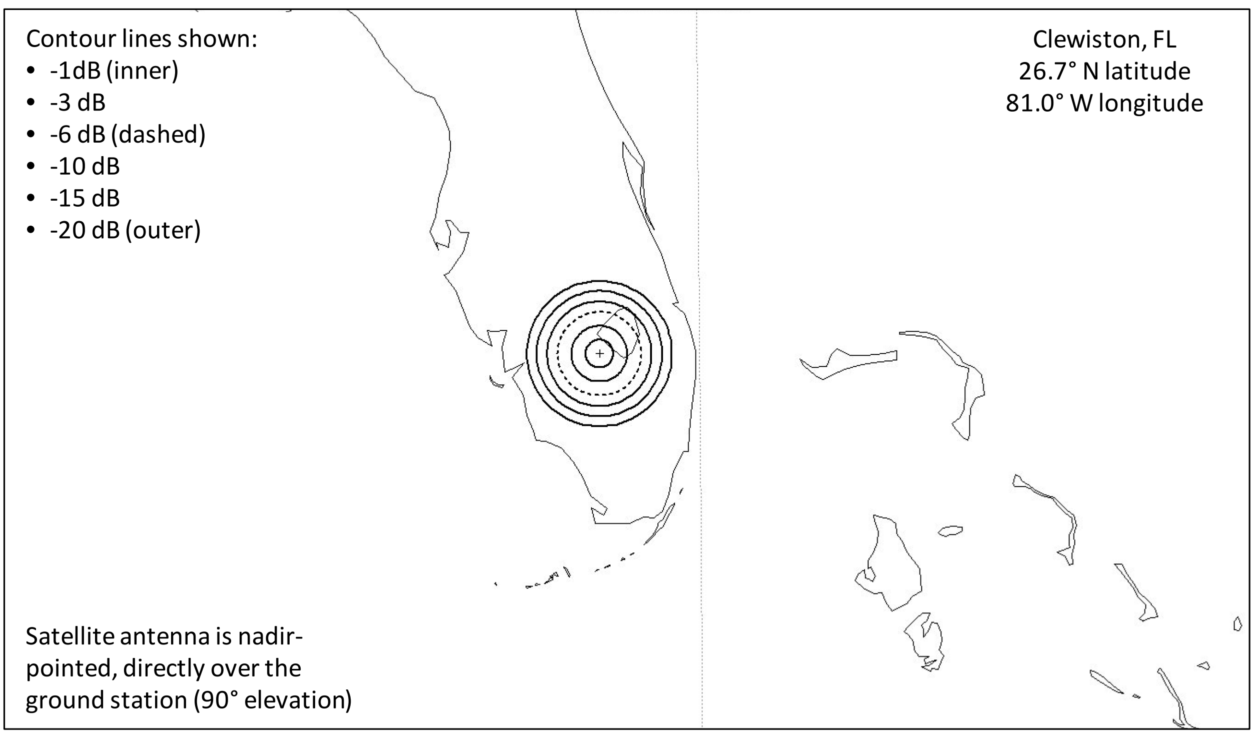


Prudhoe Bay and Fairbanks, AK

Wideband Downlink Contours: 830 km Altitude (2 of 2)

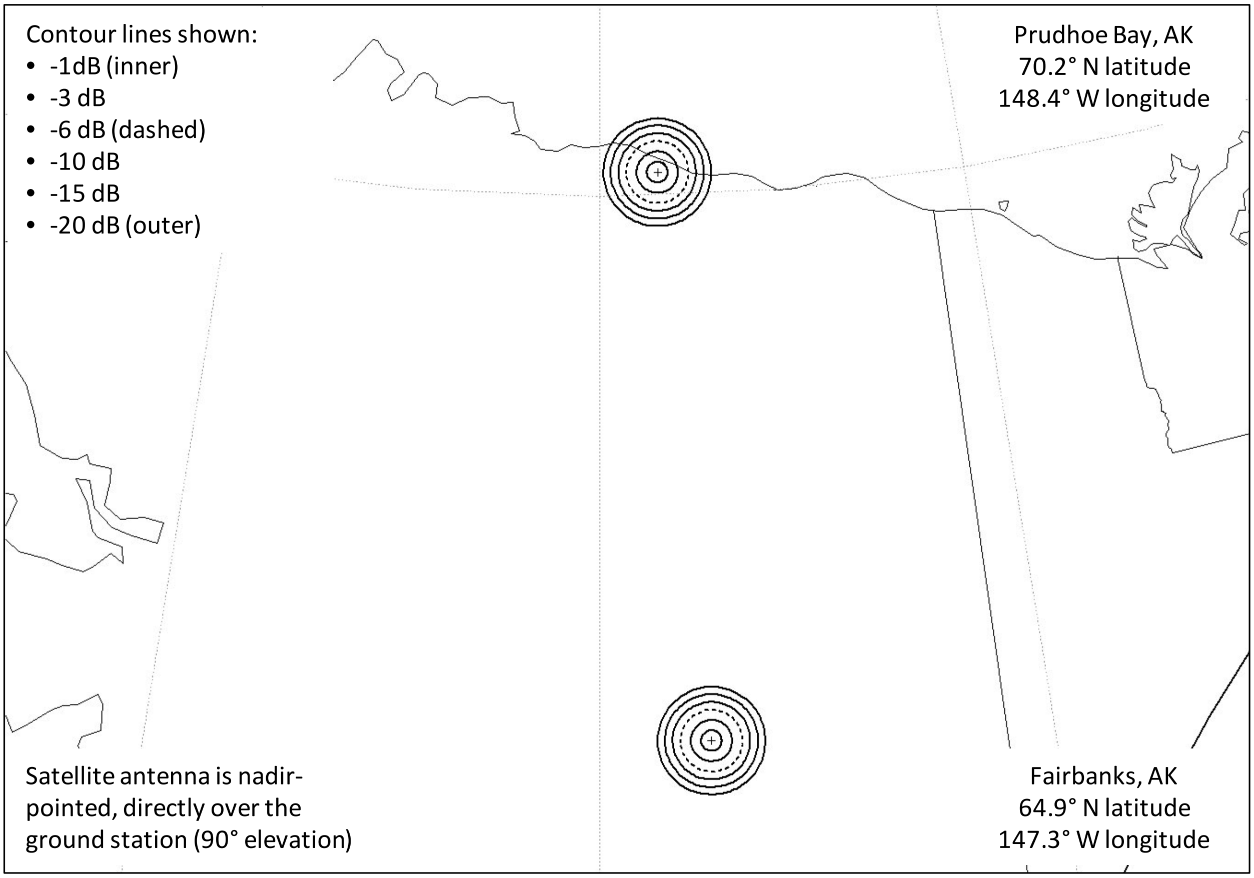


Green River, WY



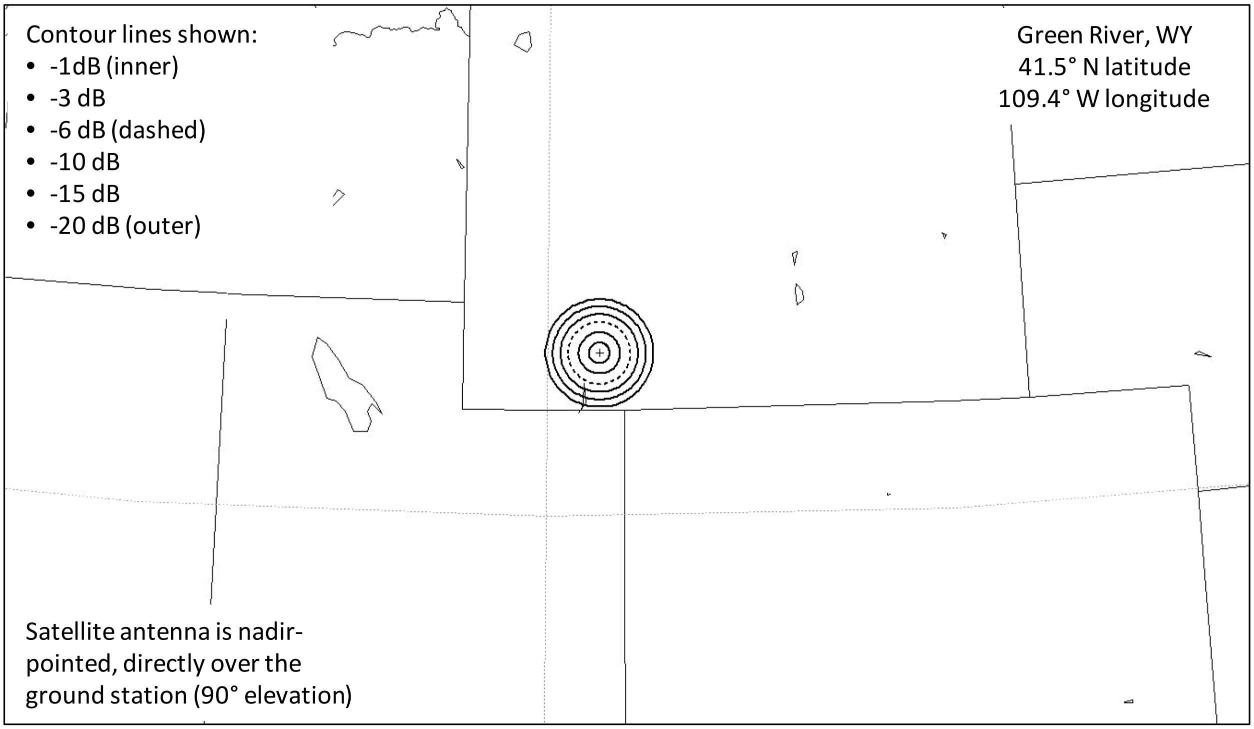
Clewiston, FL

Wideband Downlink Contours: 617 km Altitude (1 of 2)

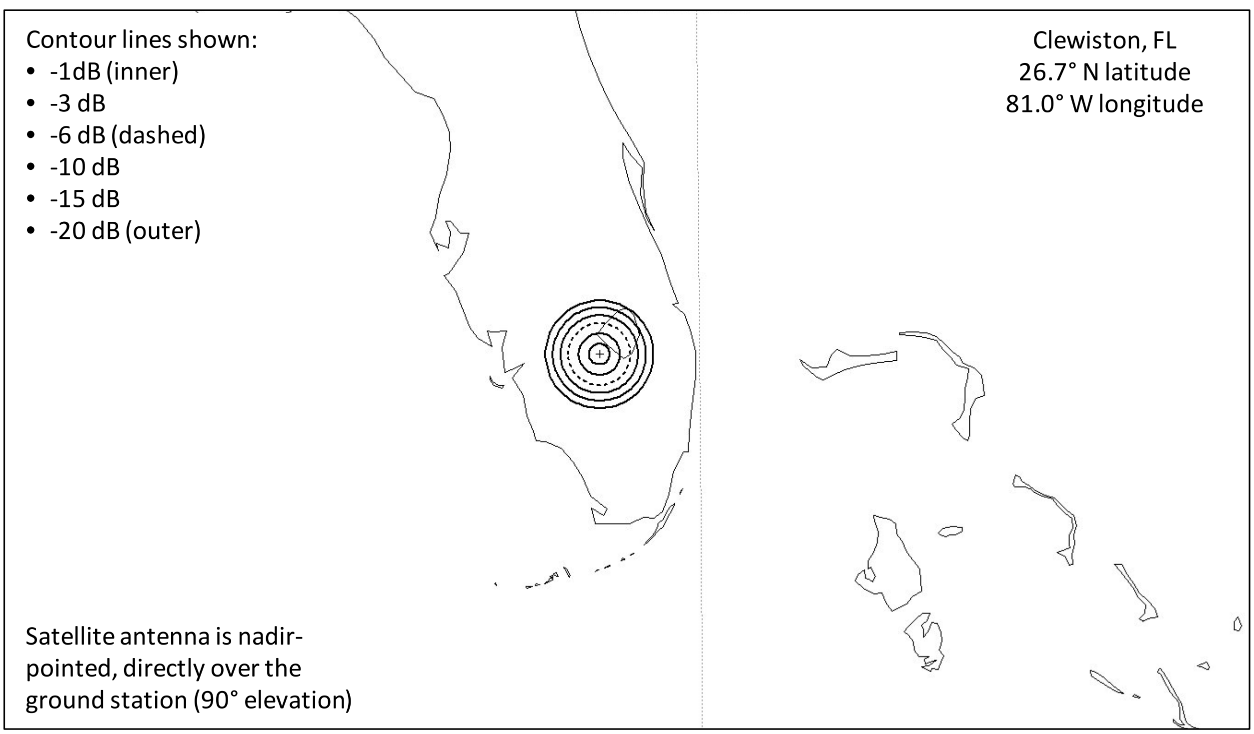


Prudhoe Bay and Fairbanks, AK

Wideband Downlink Contours: 617 km Altitude (2 of 2)

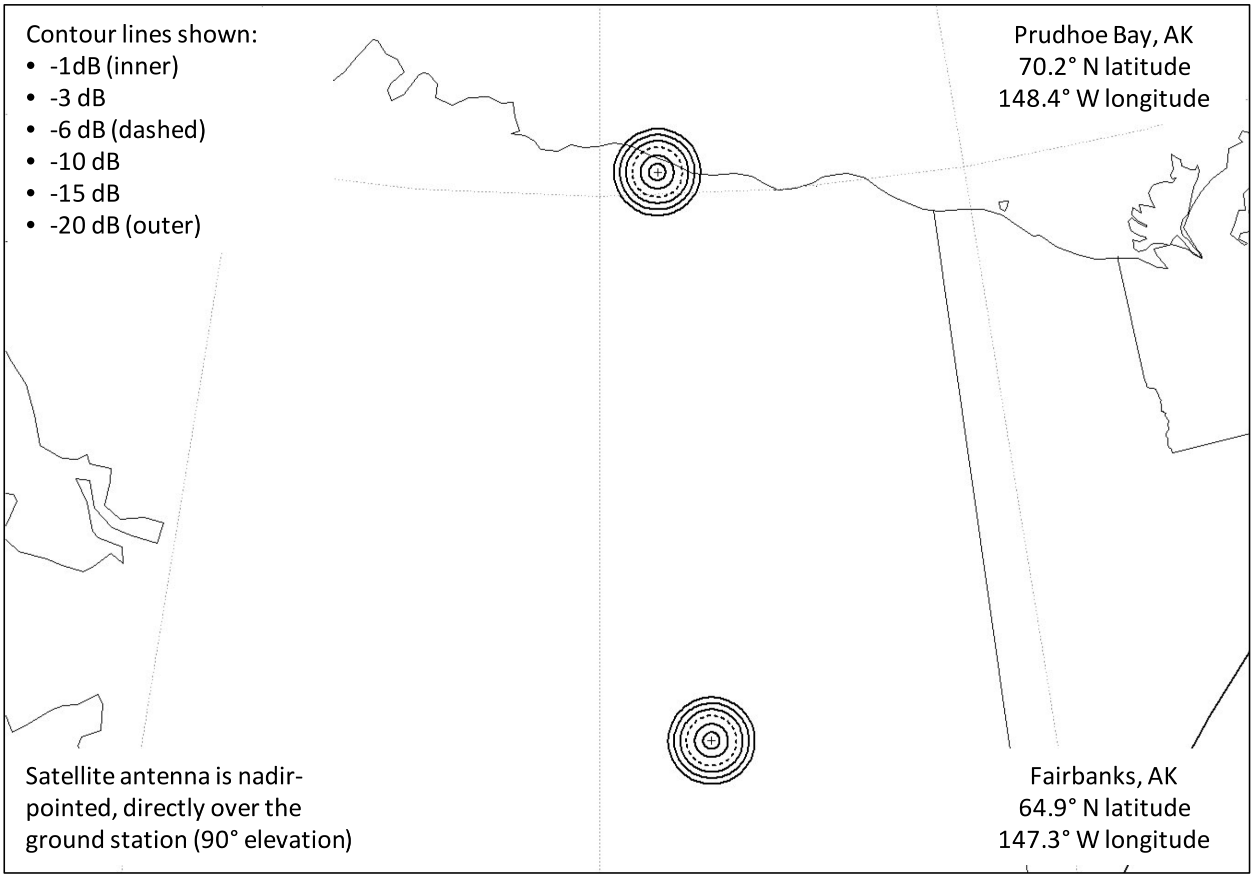


Green River, WY



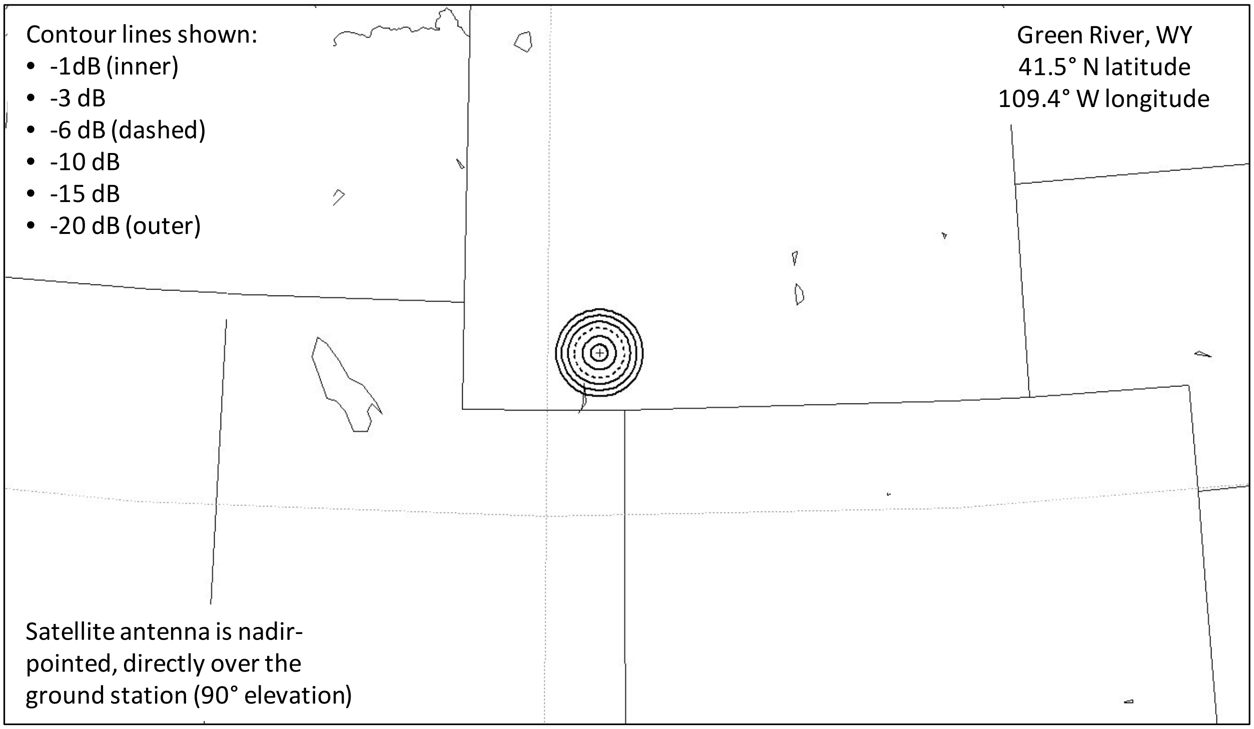
Clewiston, FL

Wideband Downlink Contours: 496 km Altitude (1 of 2)

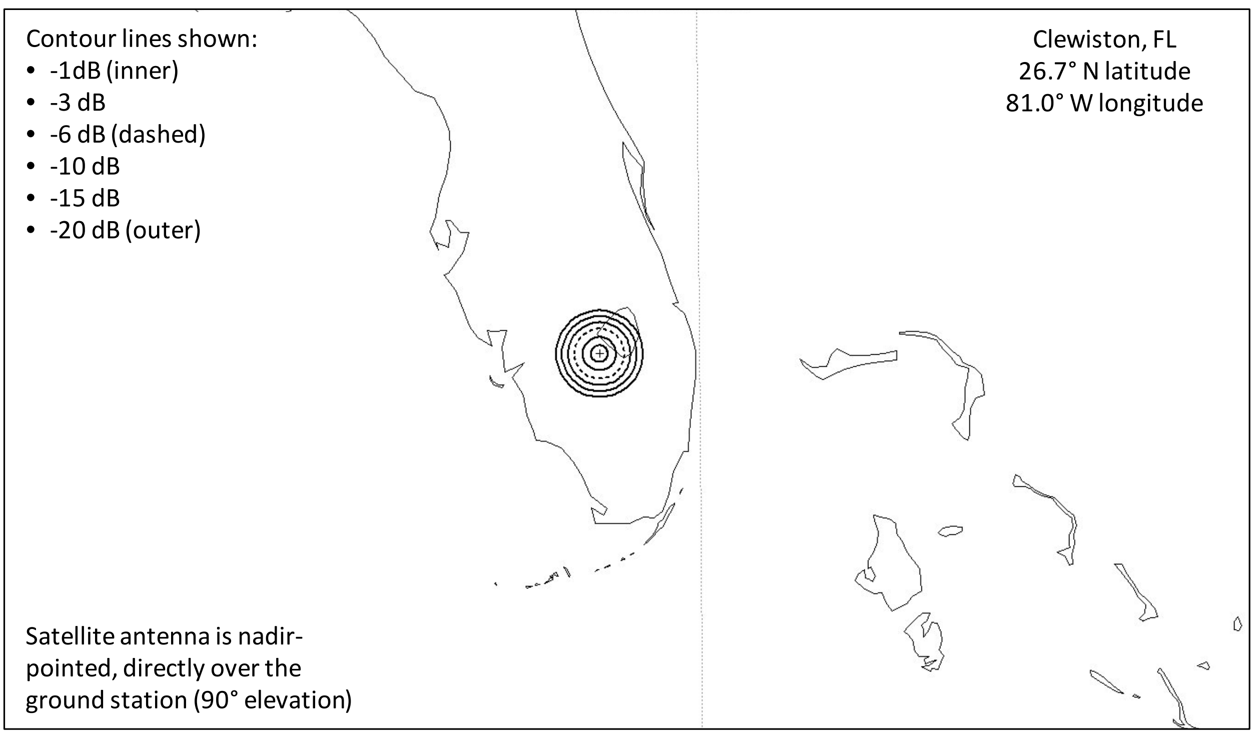


Prudhoe Bay and Fairbanks, AK

<u>**Wideband Downlink Contours: 496 km Altitude (2 of 2)**</u>

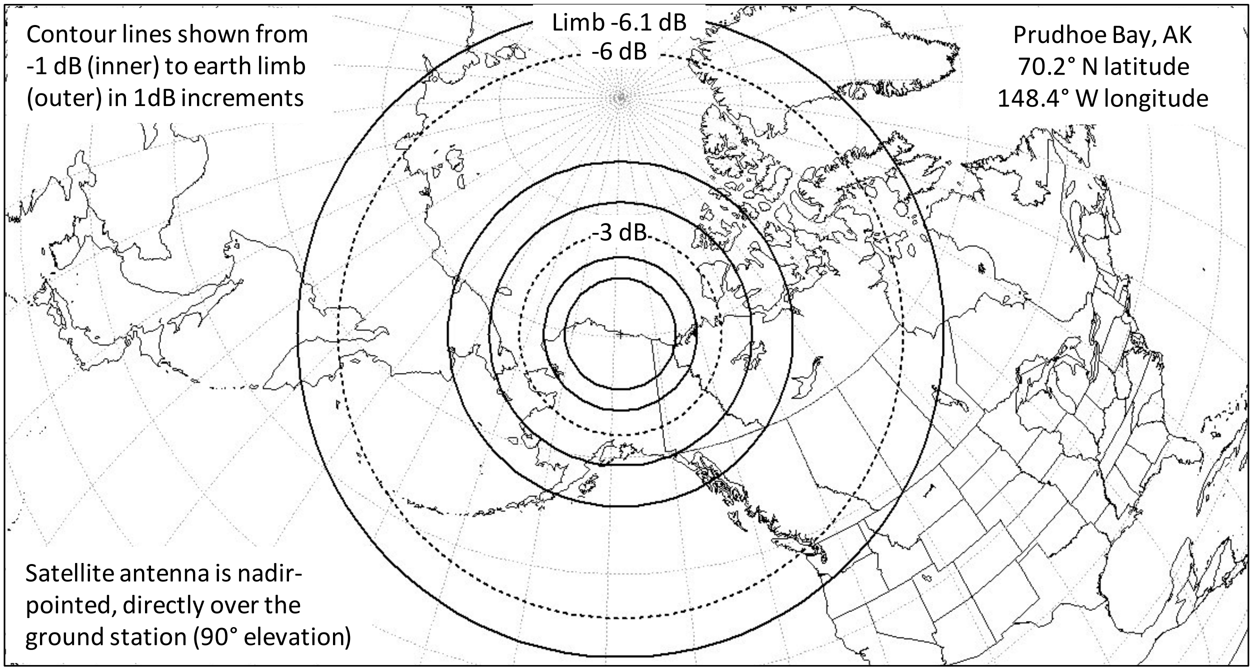


Green River, WY

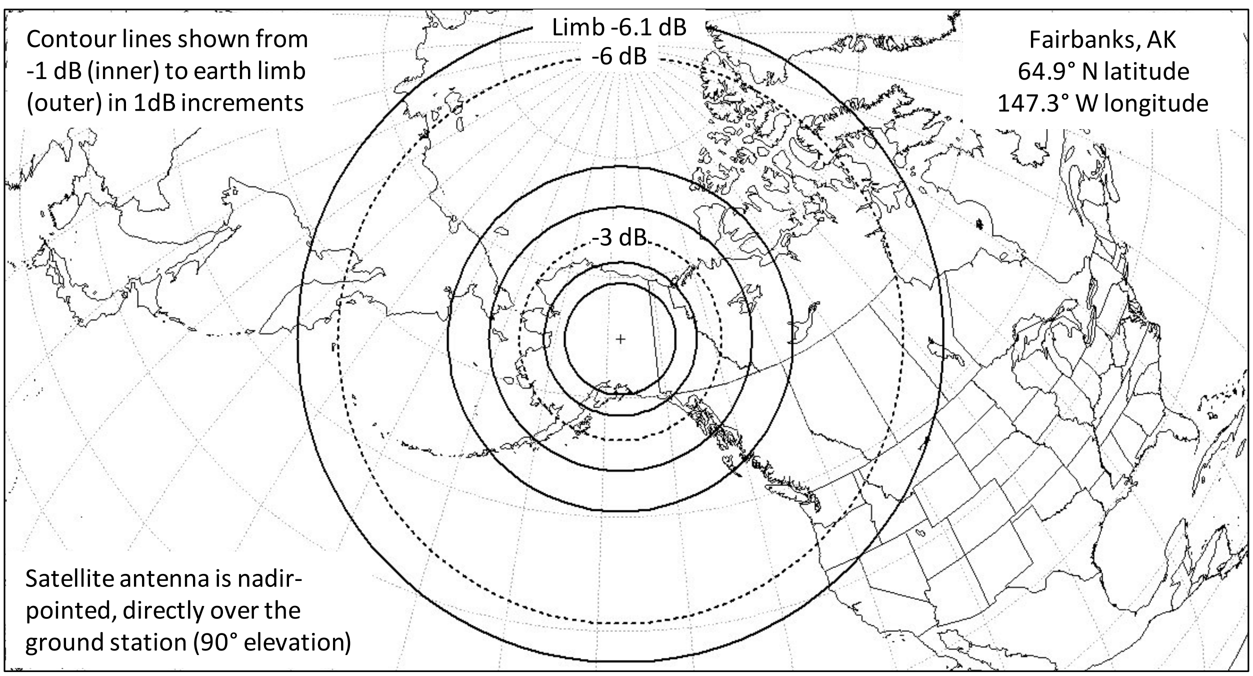


Clewiston, FL

Narrowband Downlink Contours: 830 km Altitude (1 of 2)

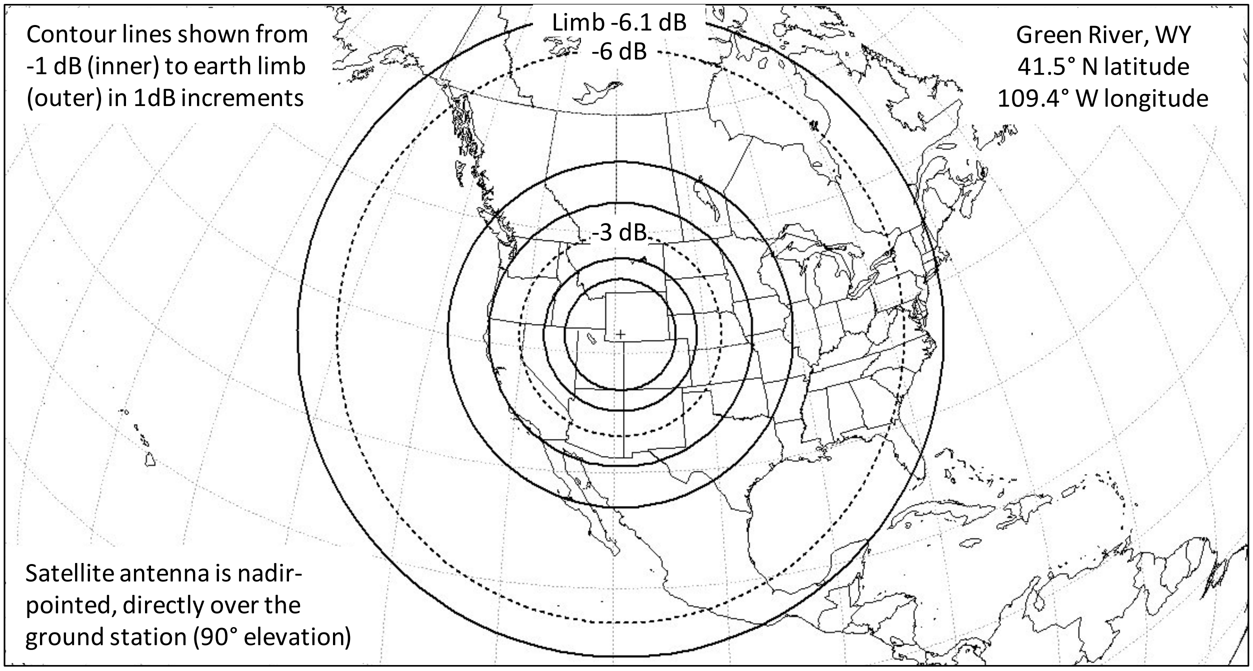


Prudhoe Bay, AK

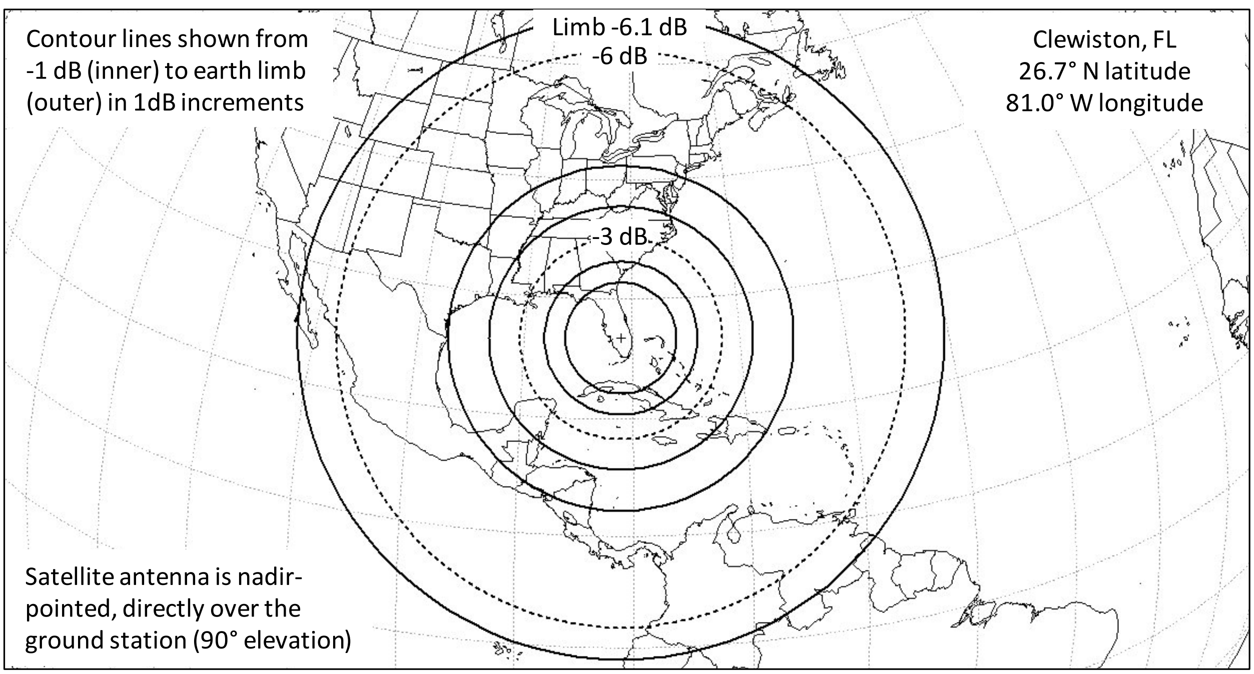


Fairbanks, AK

Narrowband Downlink Contours: 830 km Altitude (2 of 2)

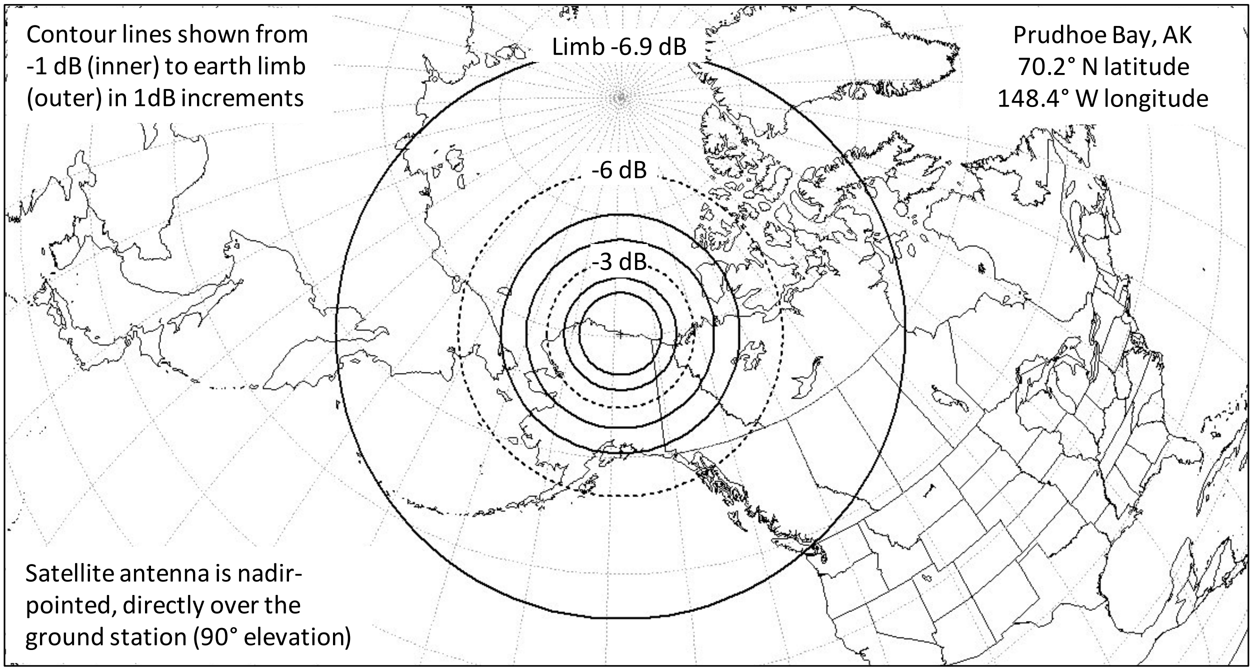


Green River, WY

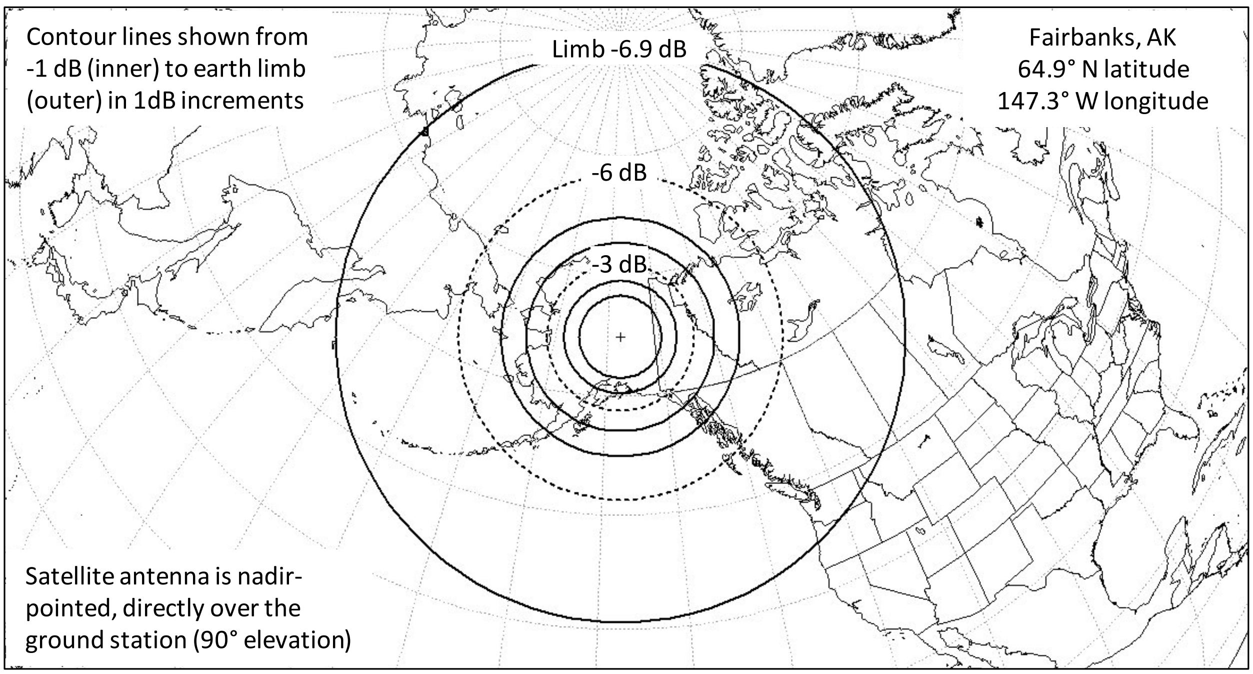


Clewiston, FL

Narrowband Downlink Contours: 617 km Altitude (1 of 2)

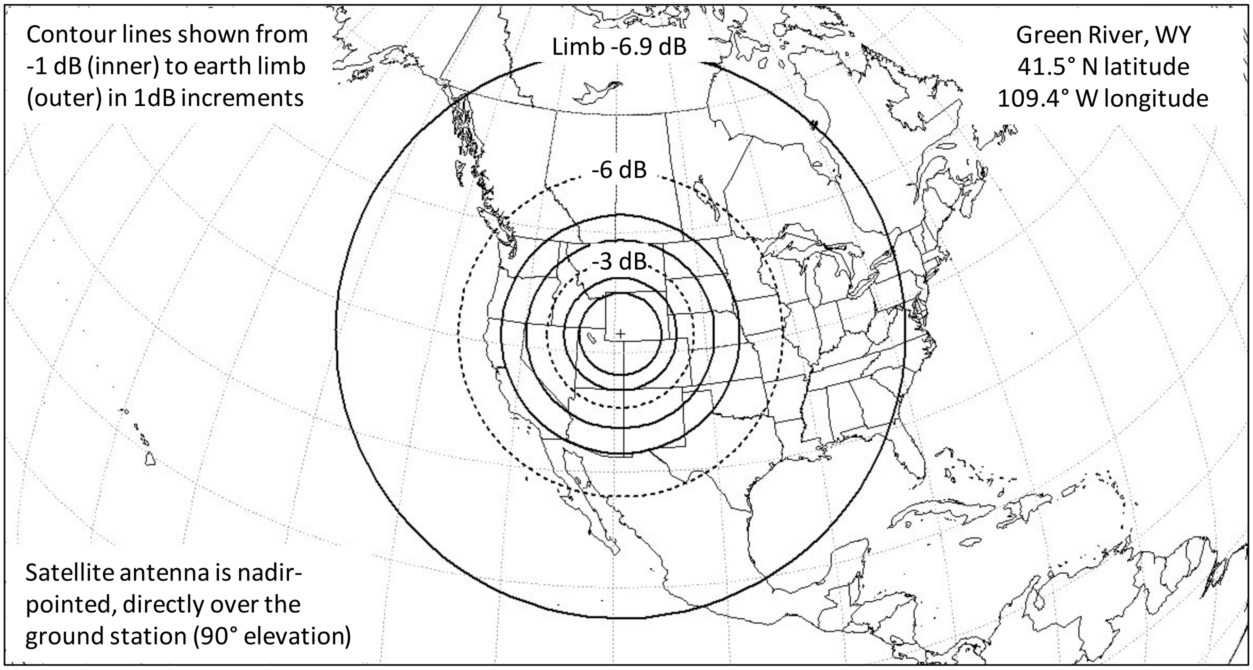


Prudhoe Bay, AK

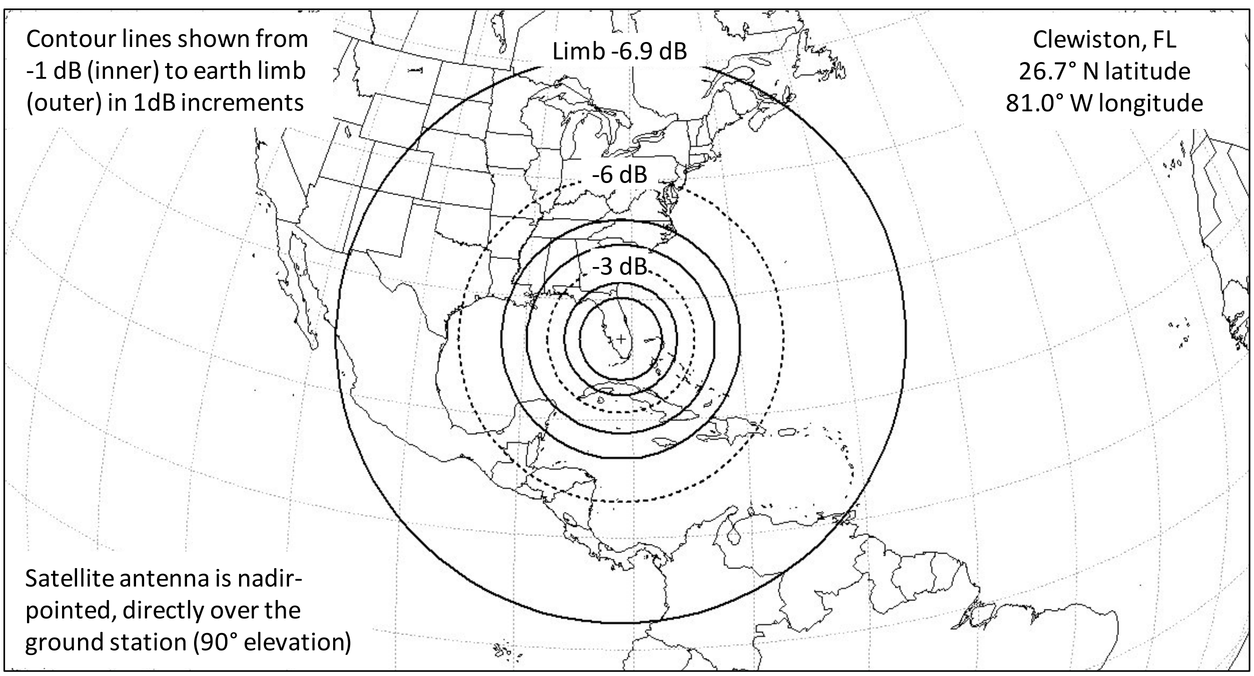


Fairbanks, AK

Narrowband Downlink Contours: 617 km Altitude (2 of 2)

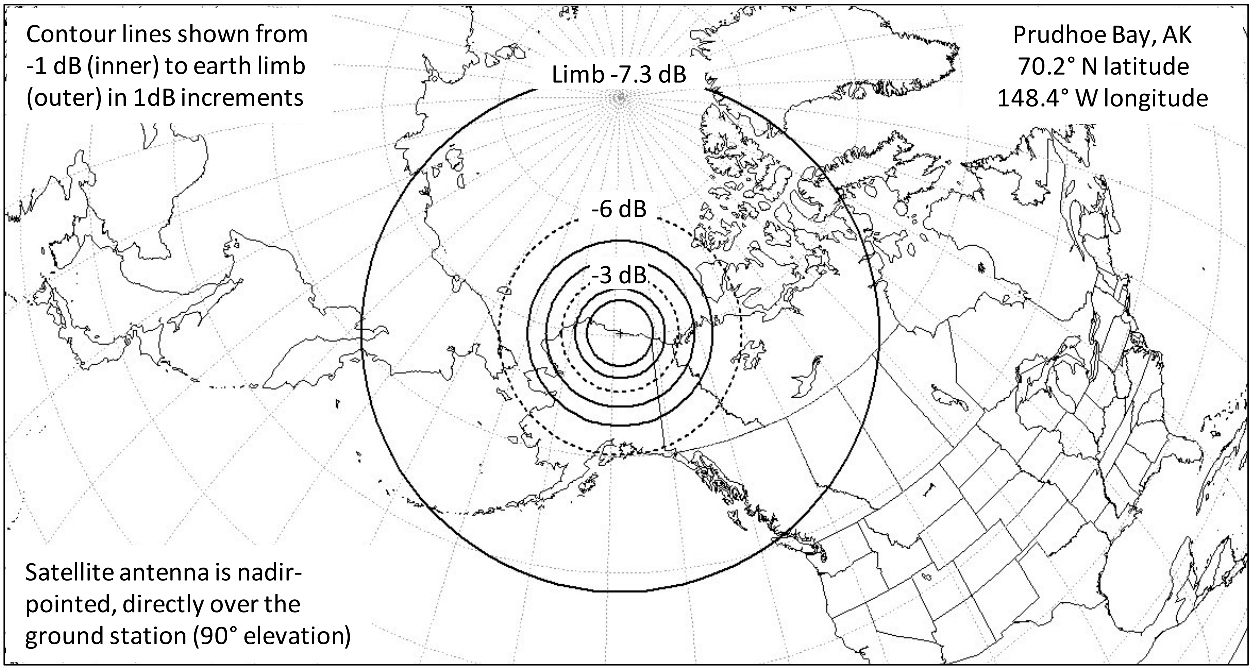


Green River, WY

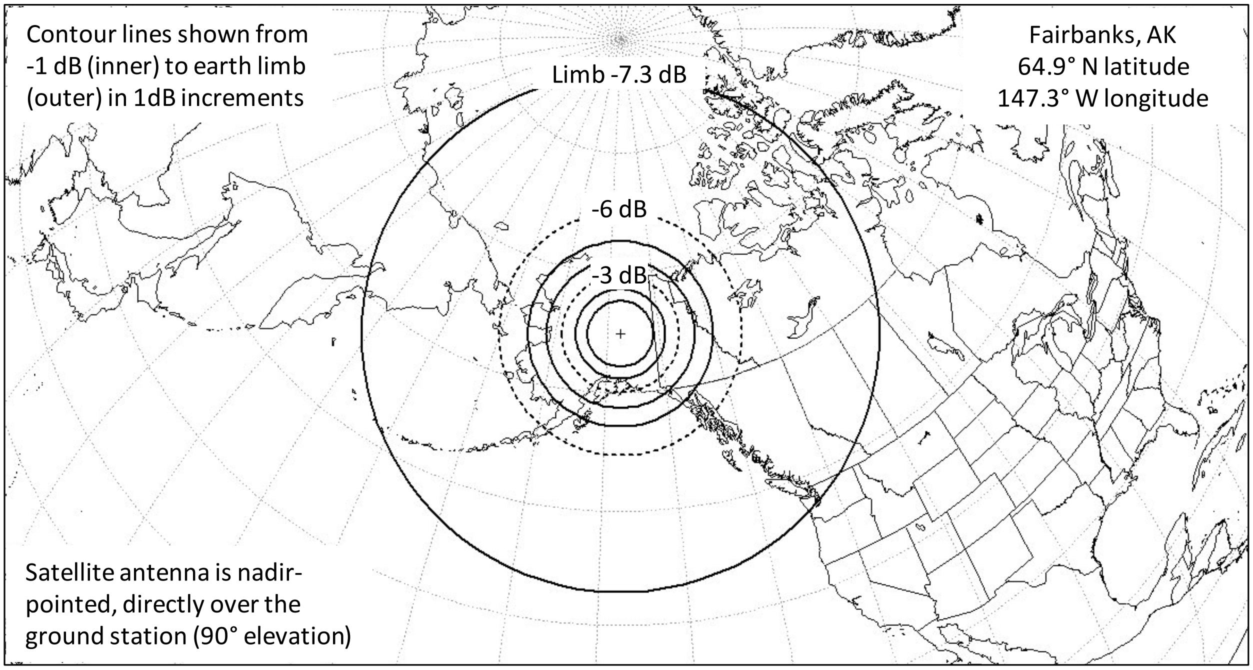


Clewiston, FL

Narrowband Downlink Contours: 496 km Altitude (1 of 2)

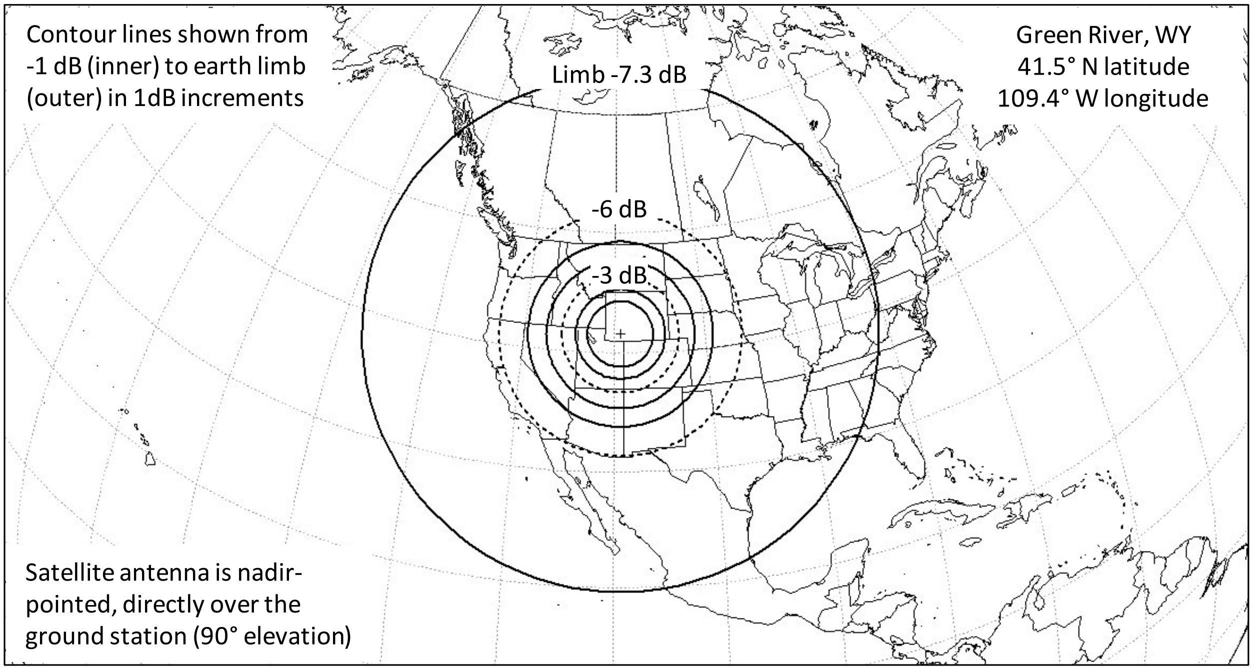


Prudhoe Bay, AK

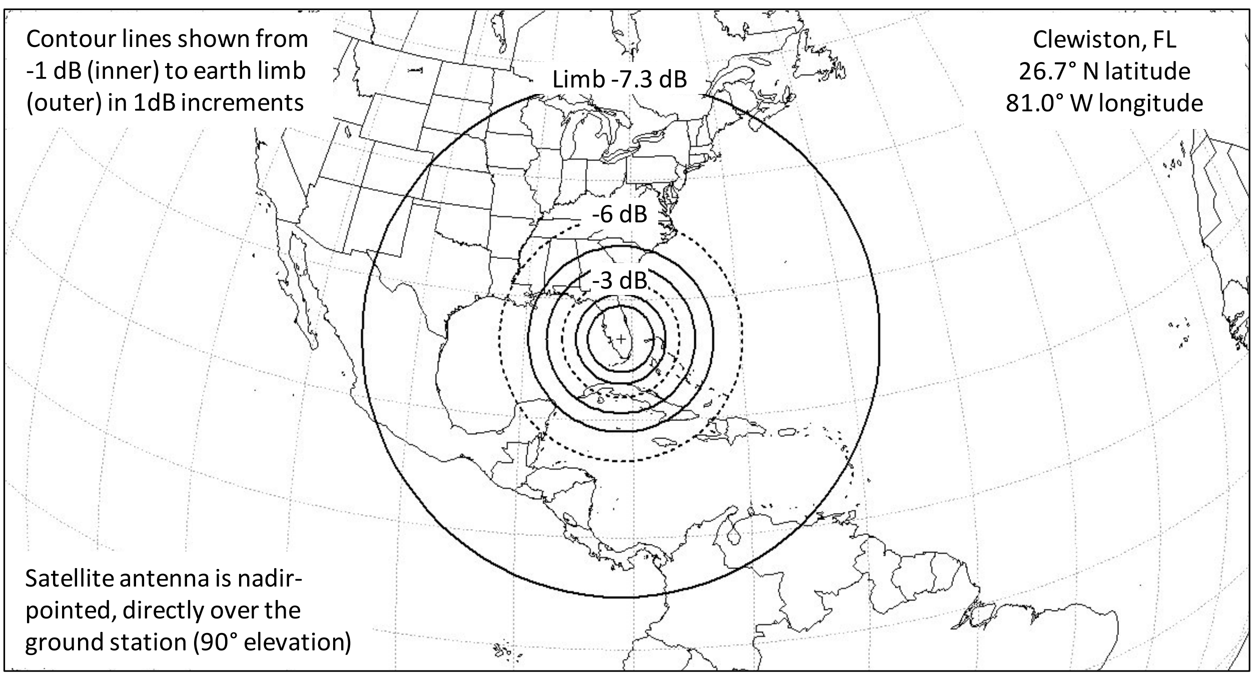


Fairbanks, AK

Narrowband Downlink Contours: 496 km Altitude (2 of 2)



Green River, WY



Clewiston, FL

TECHNICAL CERTIFICATE

I, Steve Linn, hereby certify, under penalty of perjury, that I am the technically qualified person responsible for the preparation of the engineering information contained in the technical portions of the foregoing amendment and the related attachments, that I am familiar with Part 25 of the Commission's Rules, and that the technical information is complete and accurate to the best of my knowledge and belief.

/s/ *Steve Linn*
Steve Linn
Vice President, Space Systems
DigitalGlobe, Inc.

Dated: July 10, 2012