

Amendment¹

Spectrum Five herein clarifies information provided in a previously filed amendment² to clarify previously supplied technical information relating to its submission of space path interference data for its application at the nominal 119° W.L. orbital location in accordance with the Commission's new licensing rules and policies.³

In the December 2011 Amendment, Spectrum Five explained that, consistent with Section 25.264(a) of the Commission's rules,⁴ predicted transmitting antenna off-axis antenna gain information was provided at the three measurement frequencies of 17.305 GHz, 17.5 GHz, and 17.695 GHz in the 17.3-17.8 GHz frequency band for the CONUS beam and 53 spot beams.⁵ The December 2011 Amendment included approximately 9000 pages of technical data required by Section 25.264(a) covering the beam patterns for the CONUS beam and the 53 spot beams. As pointed out by the Commission in its April 30, 2012 letter, some of the labels on the plot cover sheets were not clear, and a small number of the plots had been inserted in the wrong order during the collation process of the massive data package. As part of the instant Amendment, the plots have all been correctly ordered and all beam cover sheets now show the same maximum allowed off-axis EIRP of 15.4 dBW. A new set of cover sheets for the beams are provided. The cover sheets have been revised since the last submission since the maximum off-axis antenna gain and the corresponding EIRP have been listed for each beam, making the data review easier to follow.

In the December 2011 Amendment, the plots were submitted to demonstrate compliance with Section 25.264(a), and all of the plots showed the radiated EIRP in the axis direction directions specified in the Commission's rules. The plots were submitted in this format to allow

¹ This amendment is provided in response to a letter from the FCC's International Bureau to Spectrum Five LLC. *See* Letter from Robert G. Nelson, Chief, Satellite Division, International Bureau, to Todd M. Stansbury, IBFS File No. SAT-AMD-20111223-00247 (Apr. 30, 2012).

² On December 23, 2011, Spectrum Five filed an amendment to shift the requested orbital location from 118.8° W.L. to 119.25° W.L. to provide a minimum 0.2° separation with DBS space stations and provide predicted transmitting off-axis antenna gain data for its proposed 17/24 GHz satellite. *See* File No. SAT-AMD-20111223-00247 (filed Dec. 23, 2011) ("December 2011 Amendment"). Spectrum Five later submitted an amendment providing clarification to the organization of the data contained within that amendment. *See* File No. SAT-AMD-20120314-00043 (filed Mar. 14, 2012). The instant Amendment provides further clarification and additional information in response to the Commission's letter dated April 30, 2012.

³ *Establishment of Policies and Service Rules for the Broadcasting-Satellite Service at the 17.3-17.7 GHz Frequency Band and at the 17.7-17.8 GHz Frequency Band Internationally, and at the 24.75-25.25 GHz Frequency Band for Fixed Satellite Services Providing Feeder Links to the Broadcasting-Satellite Service and for the Satellite Services Operating Bi-directionally in the 17.3-17.8 GHz Frequency Band*, 26 FCC Rcd 8927 (2011) ("17/24 GHz BSS Second R&O").

⁴ 47 C.F.R. § 25.264(a).

⁵ *See* December 2011 Amendment.

for simplicity in the data review, since for the satellite orbital parameters applicable to these calculations there is a fixed (constant) 15.4 dBW maximum EIRP requirement for any radiation in the specified off-axis direction range. This limit arises from the power flux density requirement for the off-axis directions of $-117\text{dBW}/\text{m}^2/100\text{KHz}$. If the maximum antenna gain had been plotted, there would have been a different specification limits for each of the 53 spot beams and the CONUS beam, resulting in 54 different specification levels to be used in the data review analysis. Since there is a precisely defined correspondence between EIRP and antenna gain once the radiated EIRP has been determined, Spectrum Five thought this to be the preferred demonstration method for this complicated data set.

The previously submitted Schedule S contains the maximum EIRP and antenna gain for each of the spot beams and the CONUS beams. From these values the power into the antenna can be calculated by subtracting the maximum antenna gain from the EIRP to yield the antenna gain for each of the beams. It should be emphasized that these plots are identical to the EIRP plots, with the appropriate scale factor adjustment described above. The attached data summary described in the next paragraph contains the maximum off-axis antenna gain and the maximum EIRP calculated by this process. For clarity, the previously supplied "CF" values have been removed from the cover sheets, as these values were not directly related to the determination of maximum antenna gain as described above.

To provide for a facilitated review of all of these factors, Spectrum Five provides below a summary for each of the 53 spot beams and the CONUS beams. The summary contains, for each of the many plots associated with each beam, the maximum EIRP and antenna gain in the off-axis directions specified, and a comparison to the limit established by the space path rules. As seen in the tables, the predicted EIRP levels and antenna gains meet the requirements for compliance with the space path interference rules for the parameters of the current application.

The remaining technical information in Spectrum Five's pending petition is unchanged and is incorporated by reference.⁶

⁶ *In the Matter of Spectrum Five LLC Petition for Declaratory Ruling to Serve the U.S. Market from the 118.8° W.L. Orbital Location in the 17/24 Broadcasting Satellite Service Band*, Petition for Declaratory Ruling, File Nos. SAT-LOI-20081113-00216, SAT-AMD-20091026-00113 (filed Nov. 13, 2008) ("Petition"). On December 23, 2011, Spectrum Five filed an amendment to shift the requested orbital location from 118.8° W.L. to 119.25° W.L. to provide a minimum 0.2° separation with DBS space stations and provide predicted transmitting off-axis antenna gain data for its proposed 17/24 GHz satellite. *See* File No. SAT-AMD-20111223-00247 (filed Dec. 23, 2011) ("December 2011 Amendment"); Spectrum Five filed an amendment to provide orbital eccentricity data. *See* File No. SAT-AMD-20120308-00038 (filed Mar. 8, 2012).

Data Analysis Summary: CONUS Beam

CONUS Beam Maximum Allowable EIRP / Antenna Gain to Meet -117dBW/m²/100KHz

	CONUS BEAM
Satellite Location ^o WL	119.25
Nearest DBS Satellite Location ^o WL	119.05
Miniumum Spacing (w/Station Keeping @+-0.05)	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0
Channel Bandwidth, MHz	25.8
Effective Bandwidth, dB-100 kHz	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9
R, Radial Distance to GEO, km	42,164.0
Min. Angle of Separation between Satellites, deg	0.10
Range between Satellites, km	73.6
Spreading factor, dB/ m ²	-108.3
Atmospheric loss, dB	0
Maximum EIRP Allowed at Miniumum Separation, dBW	15.4
Satellite EIRP, dBW ²	61.1
Boresight Antenna Gain, dB ³	36.4
Tx Power into Antenna, dBW	24.8
Max Antenna Gain to Meet Space Path Spec, dB	-9.3
Max Off-Axis EIRP from Plots	5.4
Max Antenna Gain from Plots, dB	-19.4
PFD / Ant Gain Margin, dB	10.1

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)

Data Analysis Summary: Spot Beams 1-8

Spot Beams : Maximum Allowable EIRP / Off-Axis¹ Antenna Gain to Meet -117dBW/m²/100KHz

Spot Beams	Spot Beam #							
	1	2	3	4	5	6	7	8
Satellite Location ° WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location ° WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Minimum Spacing (w/Station Keeping @+/-0.05)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0
Channel Bandwidth, MHz	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Effective Bandwidth, dB-100 kHz	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9
R, Radial Distance to GEO, km	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0
Min. Angle of Separation between Satellites, deg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Range between Satellites, km	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
Spreading factor, dB/ m ²	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0	0	0	0
Maximum EIRP Allowed at Minimum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW ²	55.2	55.2	55.2	55.2	55.2	55.3	58.3	58.4
Boresight Antenna Gain, dB ³	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7
Tx Power into Antenna, dBW	7.5	7.5	7.5	7.5	7.5	7.6	10.6	10.7
Max Antenna Gain to Meet Space Path Spec, dB	7.9	7.9	7.9	7.9	7.9	7.9	4.8	4.8
Max Off-Axis EIRP from Plots	-0.4	-1.5	-5.3	-4.0	-2.1	0.8	3.5	7.2
Max Antenna Gain from Plots, dB	-7.9	-9.0	-12.8	-11.5	-9.6	-6.7	-7.1	-3.5
PFD / Ant Gain Margin, dB	15.8	16.9	20.7	19.5	17.6	14.6	11.9	8.3

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)

Data Analysis Summary: Spot Beams 9-16

Spot Beams : Maximum Allowable EIRP / Off-Axis¹ Antenna Gain to Meet -117dBW/m²/100KHz

Spot Beams	9	10	11	12	13	14	15	16
Satellite Location ^o WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location ^o WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Minimum Spacing (w/Station Keeping @+--0.05)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0
Channel Bandwidth, MHz	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Effective Bandwidth, dB-100 kHz	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9
R, Radial Distance to GEO, km	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0
Min. Angle of Separation between Satellites, deg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Range between Satellites, km	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
Spreading factor, dB/ m ²	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0	0	0	0
Maximum EIRP Allowed at Minimum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW ²	55.1	55.1	55.1	55.1	55.1	55.2	58.2	58.3
Boresight Antenna Gain, dB ³	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7
Tx Power into Antenna, dBW	7.4	7.4	7.4	7.4	7.4	7.5	10.5	10.6
Max Antenna Gain to Meet Space Path Spec, dB	8.1	8.1	8.0	8.0	8.0	8.0	4.9	4.8
Max Off-Axis EIRP from Plots	-2.1	-4.6	-4.8	2.8	0.0	2.9	6.8	8.7
Max Antenna Gain from Plots, dB	-9.5	-12.0	-12.2	-4.6	-7.4	-4.5	-3.7	-1.9
PFD / Ant Gain Margin, dB	17.5	20.1	20.2	12.6	15.4	12.5	8.6	6.7

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)

Data Analysis Summary: Spot Beams 17-24

Spot Beams : Maximum Allowable EIRP / Off-Axis¹ Antenna Gain to Meet -117dBW/m²/100KHz

Spot Beams	17	18	19	20	21	22	23	24
Satellite Location ° WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location ° WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Minimum Spacing (w/Station Keeping @+-0.05)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0
Channel Bandwidth, MHz	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Effective Bandwidth, dB-100 kHz	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9
R, Radial Distance to GEO, km	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0
Min. Angle of Separation between Satellites, deg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Range between Satellites, km	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
Spreading factor, dB/ m ²	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0	0	0	0
Maximum EIRP Allowed at Minimum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW ²	58.4	58.5	55.0	55.0	55.0	55.0	55.0	55.1
Boresight Antenna Gain, dB ³	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7
Tx Power into Antenna, dBW	10.7	10.8	7.3	7.3	7.3	7.3	7.3	7.4
Max Antenna Gain to Meet Space Path Spec, dB	4.8	4.6	8.1	8.1	8.1	8.1	8.1	8.1
Max Off-Axis EIRP from Plots	1.6	11.4	-0.7	-3.1	-6.2	-4.8	-1.9	1.3
Max Antenna Gain from Plots, dB	-9.1	0.6	-8.0	-10.4	-13.5	-12.1	-9.3	-6.1
PFD / Ant Gain Margin, dB	13.9	4.1	16.1	18.5	21.6	20.2	17.4	14.1

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)

Data Analysis Summary: Spot Beams 25-32

Spot Beams : Maximum Allowable EIRP / Off-Axis¹ Antenna Gain to Meet -117dBW/m²/100KHz

Spot Beams	25	26	27	28	29	30	31	32
Satellite Location ° WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location ° WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Minimum Spacing (w/Station Keeping @+/-0.05)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0
Channel Bandwidth, MHz	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Effective Bandwidth, dB-100 kHz	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9
R, Radial Distance to GEO, km	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0
Min. Angle of Separation between Satellites, deg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Range between Satellites, km	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
Spreading factor, dB/ m ²	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0	0	0	0
Maximum EIRP Allowed at Minimum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW ²	58.1	58.2	58.2	58.3	58.4	54.9	54.9	54.9
Boresight Antenna Gain, dB ³	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7
Tx Power into Antenna, dBW	10.4	10.5	10.5	10.6	10.7	7.2	7.2	7.2
Max Antenna Gain to Meet Space Path Spec, dB	5.0	5.0	4.9	4.8	4.7	8.2	8.2	8.2
Max Off-Axis EIRP from Plots	5.6	7.8	10.5	11.1	9.6	3.3	-4.6	-5.2
Max Antenna Gain from Plots, dB	-4.8	-2.7	0.0	0.5	-1.1	-3.9	-11.8	-12.4
PFD / Ant Gain Margin, dB	9.8	7.7	4.9	4.3	5.9	12.1	20.0	20.7

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)

Data Analysis Summary: Spot Beams 33-40

Spot Beams : Maximum Allowable EIRP / Off-Axis¹ Antenna Gain to Meet -117dBW/m²/100KHz

Spot Beams	33	34	35	36	37	38	39	40
Satellite Location ° WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location ° WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Minimum Spacing (w/Station Keeping @+/-0.05)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0
Channel Bandwidth, MHz	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Effective Bandwidth, dB-100 kHz	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9
R, Radial Distance to GEO, km	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0
Min. Angle of Separation between Satellites, deg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Range between Satellites, km	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
Spreading factor, dB/ m ²	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0	0	0	0
Maximum EIRP Allowed at Minimum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW ²	54.9	55.0	55.0	61.1	61.1	61.2	58.3	54.9
Boresight Antenna Gain, dB ³	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7
Tx Power into Antenna, dBW	7.2	7.3	7.3	13.4	13.4	13.5	10.6	7.2
Max Antenna Gain to Meet Space Path Spec, dB	8.2	8.2	8.1	2.1	2.0	2.0	4.9	8.3
Max Off-Axis EIRP from Plots	-4.4	0.0	2.3	6.5	9.3	12.2	13.4	-4.1
Max Antenna Gain from Plots, dB	-11.6	-7.3	-5.0	-6.9	-4.1	-1.3	2.9	-11.2
PFD / Ant Gain Margin, dB	19.8	15.4	13.2	9.0	6.1	3.2	2.0	19.5

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)

Data Analysis Summary: Spot Beams 41-48

Spot Beams : Maximum Allowable EIRP / Off-Axis¹ Antenna Gain to Meet -117dBW/m²/100KHz

Spot Beams	41	42	43	44	45	46	47	48
Satellite Location ° WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location ° WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Minimum Spacing (w/Station Keeping @+/-0.05)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0	-117.0
Channel Bandwidth, MHz	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Effective Bandwidth, dB-100 kHz	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9	-92.9
R, Radial Distance to GEO, km	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0
Min. Angle of Separation between Satellites, deg	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Range between Satellites, km	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
Spreading factor, dB/ m ²	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0	0	0	0
Maximum EIRP Allowed at Minimum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW ²	54.9	54.9	55.0	61.0	61.1	61.1	60.9	61.1
Boresight Antenna Gain, dB ³	47.7	47.7	47.7	47.7	47.7	47.7	47.7	47.7
Tx Power into Antenna, dBW	7.2	7.2	7.3	13.3	13.4	13.4	13.2	13.4
Max Antenna Gain to Meet Space Path Spec, dB	8.2	8.2	8.2	2.1	2.1	2.0	2.2	2.0
Max Off-Axis EIRP from Plots	11.4	2.2	6.0	9.4	10.6	14.1	6.5	0.3
Max Antenna Gain from Plots, dB	4.2	-5.0	-1.3	-3.9	-2.7	0.6	-6.7	-13.1
PFD / Ant Gain Margin, dB	4.1	13.3	9.4	6.1	4.8	1.4	8.9	15.1

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)

Data Analysis Summary: Spot Beams 49-53

Spot Beams : Maximum Allowable EIRP / Off-Axis¹ Antenna Gain to Meet -117dBW/m²/100KHz

Spot Beams	49	50	51	52	53
Satellite Location ^o WL	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location ^o WL	119.05	119.05	119.05	119.05	119.05
Minimum Spacing (w/Station Keeping @+-0.05)	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m ² /100 kHz	-117.0	-117.0	-117.0	-117.0	-117.0
Channel Bandwidth, MHz	25.8	25.8	25.8	25.8	25.8
Effective Bandwidth, dB-100 kHz	24.1	24.1	24.1	24.1	24.1
PFD Flux Density Allowed per Channel, dBW/m ²	-92.9	-92.9	-92.9	-92.9	-92.9
R, Radial Distance to GEO, km	42,164.0	42,164.0	42,164.0	42,164.0	42,164.0
Min. Angle of Separation between Satellites, deg	0.10	0.10	0.10	0.10	0.10
Range between Satellites, km	73.6	73.6	73.6	73.6	73.6
Spreading factor, dB/ m ²	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0
Maximum EIRP Allowed at Minimum Separation, dBW	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW ²	55.6	55.1	61.3	61.4	55.4
Boresight Antenna Gain, dB ³	47.7	47.7	47.7	47.7	47.7
Tx Power into Antenna, dBW	7.9	7.4	13.6	13.7	7.7
Max Antenna Gain to Meet Space Path Spec, dB	7.5	8.1	1.9	1.7	7.7
Max Off-Axis EIRP from Plots	-6.1	-2.3	8.1	9.7	6.8
Max Antenna Gain from Plots, dB	-14.0	-9.7	-5.5	-4.0	-1.0
PFD / Ant Gain Margin, dB	21.6	17.7	7.4	5.7	8.7

Notes:

- (1) As defined in FCC Section 25.264(a)
- (2) from S2777 Schedule S7, column (m)
- (3) from S2777 Schedule S7, column (c)