

## Amendment<sup>1</sup>

Spectrum Five LLC (“Spectrum Five”) herein provides requested clarifications and modifications to a previously filed amendment<sup>2</sup> to conform the pending petition for declaratory ruling seeking U.S. market access for a Netherlands-licensed 17/24 GHz satellite at the nominal 119° W.L. orbital location to the Commission’s new licensing rules and policies.<sup>3</sup>

The additions and changes to the prior amendment include the following:

- (i) the cover sheets in the attachments for each beam have been clearly labeled to show that they represent the maximum EIRP across the specified off-axis angular range;
- (ii) the cover sheets in the attachments for each beam have been clearly labeled to show that the maximum antenna gain over the specified off-axis angular range can be determined by subtracting the power into the antenna (from Table I of this document) from the EIRP plotted;
- (iii) new EIRP plots for spot beams 19 and 22 for the +X-axis have been inserted into the spot beam data, as there was a compilation error in the previous amendment which mistakenly showed the +X-axis plots for beams 18 and 21 instead; and
- (iv) the data summaries shown in this document of the beams have been augmented to show the maximum value of antenna gain for each of the beams in comparison with the allowed limit based on the rules, and specific plot file for which this maximum occurs.

The remaining information in Spectrum Five’s pending petition is unchanged and is incorporated by reference.<sup>4</sup>

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<sup>1</sup> This amendment is provided in response to discussions with the FCC’s International Bureau technical staff regarding clarifications and modifications to Spectrum Five’s previously filed amendment, File No. SAT-AMD-20120525-00090 (filed May 25, 2012) (“May 2012 Amendment”).

<sup>2</sup> On May 25, 2012, Spectrum Five filed an amendment to provide clarifications and reformatting to its December 2011 space path interference amendment. *See* File No. SAT-AMD-20111223-00247 (filed Dec. 23, 2011) (“December 2011 Amendment”).

<sup>3</sup> *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”).

<sup>4</sup> *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”). *See also* May 2012 Amendment and December 2011 Amendment. In addition, Spectrum Five filed an amendment to provide orbital eccentricity data. *See* File No. SAT-AMD-20120308-00038 (filed Mar. 8, 2012).

**Table I: Data Analysis Summary: CONUS Beam**

**CONUS Beam Maximum Allowable EIRP / Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

CONUS BEAM	
Satellite Location <sup>o</sup> WL	119.25
Nearest DBS Satellite Location <sup>o</sup> WL	119.05
Miniumum Spacing (w/Station Keeping @+/-0.05)	0.10
Max PFD Flux Density, -117 dBW/m <sup>2</sup> /100 kHz	-117.0
Channel Bandwidth, MHz	25.8
Effective Bandwidth, dB-100 kHz	24.1
PFD Flux Density Allowed per Channel, dBW/m <sup>2</sup>	-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 <sup>2</sup>	-108.3
Atmospheric loss, dB	0
Maximum EIRP Allowed at Miniumum Separation, dBW	15.4
Satellite EIRP, dBW <sup>2</sup>	61.1
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> , dBW	4.60
Max Antenna Gain from Plots, dB	-20.2
PFD / Ant Gain Margin, dB	10.8

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

File Name:	CONUS
Slide #	17
Axis	+X
Frequency (GHz)	17.305
Polarization	RHCP
φ (deg)	50

**Table I (cont.) Data Analysis Summary: Spot Beams 1-8**

**Spot Beams : Maximum Allowable EIRP / Off-Axis<sup>1</sup> Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

Spot Beams	Spot Beam 1	Spot Beam 2	Spot Beam 3	Spot Beam 4	Spot Beam 5	Spot Beam 6	Spot Beam 7	Spot Beam 8
Satellite Location <sup>o</sup> WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location <sup>o</sup> WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Miniumum 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 <sup>2</sup> /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 <sup>2</sup>	-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 <sup>2</sup>	-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 Miniumum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW <sup>2</sup>	55.2	55.2	55.2	55.2	55.2	55.3	58.3	58.4
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> , dBW	-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:

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

Spot Beams	Spot Beam 1	Spot Beam 2	Spot Beam 3	Spot Beam 4	Spot Beam 5	Spot Beam 6	Spot Beam 7	Spot Beam 8
Axis	-X	-X	-X	+X	-X	-X	+X	+X
Frequency (GHz)	17.305	17.5	17.305	17.305	17.305	17.5	17.695	17.695
Polarization	LHCP	RHCP	LHCP	LHCP	LHCP	LHCP	RHCP	LHCP
φ (deg)	-10	-10	0	-10	-10	-10	0	0

**Table I (cont.) Data Analysis Summary: Spot Beams 9-16**

**Spot Beams : Maximum Allowable EIRP / Off-Axis<sup>1</sup> Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

Spot Beams	Spot Beam 9	Spot Beam 10	Spot Beam 11	Spot Beam 12	Spot Beam 13	Spot Beam 14	Spot Beam 15	Spot Beam 16
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 <sup>2</sup> /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 <sup>2</sup>	-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 <sup>2</sup>	-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 <sup>2</sup>	55.1	55.1	55.1	55.1	55.1	55.2	58.2	58.3
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> dBW	-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	-10.3	-7.4	-4.5	-3.7	-1.9
PFD / Ant Gain Margin, dB	17.5	20.1	20.2	18.3	15.4	12.5	8.6	6.7

Notes:

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

Spot Beams	Spot Beam 9	Spot Beam 10	Spot Beam 11	Spot Beam 12	Spot Beam 13	Spot Beam 14	Spot Beam 15	Spot Beam 16
Axis	-X	-X	-X	-X	-X	-X	-X	-X
Frequency (GHz)	17.305	17.305	17.305	17.305	17.5	17.305	17.305	17.695
Polarization	RHCP	LHCP	RHCP	LHCP	LHCP	LHCP	RHCP	LHCP
φ (deg)	-20	-10	-10	-10	-10	0	0	0

**Table I (cont.) Data Analysis Summary: Spot Beams 17-24**

**Spot Beams : Maximum Allowable EIRP / Off-Axis<sup>1</sup> Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

Spot Beams	Spot Beam 17	Spot Beam 18	Spot Beam 19	Spot Beam 20	Spot Beams 21	Spot Beam 22	Spot Beam 23	Spot Beam 24
Satellite Location <sup>o</sup> WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location <sup>o</sup> WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Miniumum 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 <sup>2</sup> /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 <sup>2</sup>	-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 <sup>2</sup>	-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 Miniumum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW <sup>2</sup>	58.4	58.5	55.0	55.0	55.0	55.0	55.0	55.1
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> , dBW	9.9	11.4	-0.7	-3.1	-6.2	-4.8	-1.9	1.3
Max Antenna Gain from Plots, dB	-0.8	0.6	-8.0	-10.4	-13.5	-12.1	-9.3	-6.1
PFD / Ant Gain Margin, dB	5.5	4.1	16.1	18.5	21.6	20.2	17.4	14.1

Notes:

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

Spot Beams	Spot Beam 17	Spot Beam 18	Spot Beam 19	Spot Beam 20	Spot Beams 21	Spot Beam 22	Spot Beam 23	Spot Beam 24
Axis	+X	+X	+X	-X	+X	+X	+X	+X
Frequency (GHz)	17.305	17.305	17.305	17.305	17.305	17.5	17.305	17.305
Polarization	LHCP	RHCP	LHCP	LHCP	RHCP	LHCP	LHCP	LHCP
φ (deg)	0	-10	0	-10	-10	-10	0	-10

**Table I (cont.) Data Analysis Summary: Spot Beams 25-32**

**Spot Beams : Maximum Allowable EIRP / Off-Axis<sup>1</sup> Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

Spot Beams	Spot Beam 25	Spot Beam 26	Spot Beam 27	Spot Beam 28	Spot Beam 29	Spot Beam 30	Spot Beam 31	Spot Beam 32
Satellite Location <sup>o</sup> WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location <sup>o</sup> WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Miniumum 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 <sup>2</sup> /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 <sup>2</sup>	-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 <sup>2</sup>	-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 Miniumum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW <sup>2</sup>	58.1	58.2	58.2	58.3	58.4	54.9	54.9	54.9
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> , dBW	5.6	7.8	10.5	11.1	9.6	-1.4	-4.6	-5.2
Max Antenna Gain from Plots, dB	-4.8	-2.7	0.0	0.5	-1.1	-8.6	-11.8	-12.4
PFD / Ant Gain Margin, dB	9.8	7.7	4.9	4.3	5.9	16.8	20.0	20.7

Notes:

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

Spot Beams	Spot Beam 25	Spot Beam 26	Spot Beam 27	Spot Beam 28	Spot Beam 29	Spot Beam 30	Spot Beam 31	Spot Beam 32
Axis	+X	+X	+X	+X	-X	-X	+X	+X
Frequency (GHz)	17.5	17.5	17.695	17.5	17.305	17.305	17.305	17.305
Polarization	LHCP	RHCP	LHCP	LHCP	RHCP	RHCP	RHCP	RHCP
φ (deg)	0	0	0	0	-10	-10	-20	-20

**Table I (cont.) Data Analysis Summary: Spot Beams 33-40**

**Spot Beams : Maximum Allowable EIRP / Off-Axis<sup>1</sup> Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

Spot Beams	Spot Beam 33	Spot Beam 34	Spot Beams 35	Spot Beam 36	Spot Beams 37	Spot Beam 38	Spot Beam 39	Spot Beam 40
Satellite Location <sup>o</sup> WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location <sup>o</sup> WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Miniumum 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 <sup>2</sup> /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 <sup>2</sup>	-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 <sup>2</sup>	-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 Miniumum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW <sup>2</sup>	54.9	55.0	55.0	61.1	61.1	61.2	58.3	54.9
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> , dBW	-4.4	0.0	2.3	6.5	9.3	12.2	13.4	-4.1
Max Antenna Gain from Plots, dB	-11.6	-7.2	-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:

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

Spot Beams	Spot Beam 33	Spot Beam 34	Spot Beams 35	Spot Beam 36	Spot Beams 37	Spot Beam 38	Spot Beam 39	Spot Beam 40
Axis	+X	+X	+X	+X	+X	+X	+X	+X
Frequency (GHz)	17.305	17.5	17.5	17.305	17.305	17.5	17.305	17.5
Polarization	LHCP	RHCP	LHCP	RHCP	LHCP	RHCP	LHCP	LHCP
φ (deg)	0	10	0	10	0	0	10	0

**Table I (cont.) Data Analysis Summary: Spot Beams 41-48**

**Spot Beams : Maximum Allowable EIRP / Off-Axis<sup>1</sup> Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

Spot Beams	Spot Beam 41	Spot Beam 42	Spot Beam 43	Spot Beam 44	Spot Beam 45	Spot Beam 46	Spot Beam 47	Spot Beam 48
Satellite Location <sup>o</sup> WL	119.25	119.25	119.25	119.25	119.25	119.25	119.25	119.25
Nearest DBS Satellite Location <sup>o</sup> WL	119.05	119.05	119.05	119.05	119.05	119.05	119.05	119.05
Miniumum 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 <sup>2</sup> /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 <sup>2</sup>	-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 <sup>2</sup>	-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 Miniumum Separation, dBW	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW <sup>2</sup>	54.9	54.9	55.0	61.0	61.1	61.1	60.9	61.1
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> , dBW	-2.2	2.2	6.0	9.4	10.6	14.1	6.5	13.4
Max Antenna Gain from Plots, dB	-9.3	-5.0	-1.3	-3.9	-2.7	0.6	-6.7	0.01
PFD / Ant Gain Margin, dB	17.6	13.3	9.4	6.1	4.8	1.4	9.0	2.0

Notes:

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

Spot Beams	Spot Beam 41	Spot Beam 42	Spot Beam 43	Spot Beam 44	Spot Beam 45	Spot Beam 46	Spot Beam 47	Spot Beam 48
Axis	+X	+X	+X	+X	+X	+X	+X	+X
Frequency (GHz)	17.5	17.305	17.305	17.305	17.305	17.305	17.5	17.305
Polarization	LHCP	RHCP	LHCP	RHCP	RHCP	LHCP	RHCP	LHCP
φ (deg)	-10	10	10	0	10	10	0	10



**Table I (cont.) Data Analysis Summary: Spot Beams 49-53**

**Spot Beams : Maximum Allowable EIRP / Off-Axis<sup>1</sup> Antenna Gain to Meet -117dBW/m<sup>2</sup>/100KHz**

<b>Spot Beams</b>	Spot Beam 49	Spot Beam 50	Spot Beam 51	Spot Beam 52	Spot Beam 53
Satellite Location° WL	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
Miniumum Spacing (w/Station Keeping @+/-0.05)	0.10	0.10	0.10	0.10	0.10
Max PFD Flux Density, -117 dBW/m <sup>2</sup> /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 <sup>2</sup>	-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 <sup>2</sup>	-108.3	-108.3	-108.3	-108.3	-108.3
Atmospheric loss, dB	0	0	0	0	0
Maximum EIRP Allowed at Miniumum Separation, dBW	15.4	15.4	15.4	15.4	15.4
Satellite EIRP, dBW <sup>2</sup>	55.6	55.1	61.3	61.4	55.4
Boresight Antenna Gain, dB <sup>3</sup>	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 <sup>4</sup> , dBW	-6.1	-2.3	8.1	9.7	-6.8
Max Antenna Gain from Plots, dB	-14.0	-9.7	-5.5	-4.0	-14.5
PFD / Ant Gain Margin, dB	21.6	17.7	7.4	5.7	22.2

Notes:

<sup>1</sup> As defined in FCC Section 25.264(a)

<sup>2</sup> from S2777 Schedule S7, column (m)

<sup>3</sup> from S2777 Schedule S7, column (c)

<sup>4</sup> Reference to Plot File

<b>Spot Beams</b>	Spot Beam 49	Spot Beam 50	Spot Beam 51	Spot Beam 52	Spot Beam 53
Axis	+X	+X	+X	+X	+X
Frequency (GHz)	17.305	17.305	17.305	17.305	17.5
Polarization	LHCP	LHCP	RHCP	RHCP	RHCP
φ (deg)	-10	-10	10	0	-10