EXHIBIT A

Approach

Row 44 proposes to augment its operations by utilizing satellite AMC-3 (at 67.0 WL), while operating with six EIRP–skew combination limits for each of three emission bandwidths.

Table 1 depicts the proposed authorizations involving skew angle, EIRP density / TX power, and emission bandwidth:

Table 1 - Proposed AMC-3 Authorization

EIRP Density and TX Power (1.024 MHz emission bandwidth)	EIRP Density and TX Power (2.048 MHz emission bandwidth)	EIRP Density and TX Power (4.096 MHz emission bandwidth)	Skew Limit
17.2 dBW/ 4 kHz (42.5 dBm TX power)	16.7 dBW/ 4 kHz (45.0 dBm TX power)	13.7 dBW/ 4 kHz (45.0 dBm TX power)	15 degrees
16.2 dBW/ 4 kHz (41.5 dBm TX power)	16.2 dBW/ 4 kHz (44.5 dBm TX power)	13.7 dBW/ 4 kHz (45.0 dBm TX power)	25 degrees
14.7 dBW/ 4 kHz (40.0 dBm TX power)	14.7 dBW/ 4 kHz (43.0 dBm TX power)	13.7 dBW/ 4 kHz (45.0 dBm TX power)	35 degrees
13.7 dBW/ 4 kHz (39.0 dBm TX power)	13.7 dBW/ 4 kHz (42.0 dBm TX power)	13.7 dBW/ 4 kHz (45.0 dBm TX power)	45 degrees
11.9 dBW/ 4 kHz (37.2 dBm TX power)	11.9 dBW/ 4 kHz (40.2 dBm TX power)	11.9 dBW/ 4 kHz (43.2 dBm TX power)	55 degrees
9.2 dBW/ 4 kHz (34.5 dBm TX power)	9.2 dBW/ 4 kHz (37.5 dBm TX power)	9.2 dBW/ 4 kHz (40.5 dBm TX power)	65 degrees

Introducing the EIRP limits and emission bandwidths in Table 1 will allow:

(1) Row 44 to transmit at higher EIRP densities within geographic areas limiting skew to 15 and 25 degrees, facilitating higher inroute data rates in some areas, and facilitating inroute data transmissions otherwise unachievable in others

(2) Row 44 to transmit at nominal EIRP densities (facilitating nominal data rates) within geographic areas where skew is limited to 35 degrees

(3) Row 44 to transmit at lower EIRP densities within geographic areas limiting skew to 45, 55, and 65 degrees, facilitating lower data-rate services where data communications would otherwise be unachievable

(4) Row 44 to transmit at a variety of combinations of EIRP and emission bandwidths, thereby optimizing bandwidth usage while still providing users optimal data transfer rates.

In all cases of skew limits of 15, 25, 35, 45, 55, or 65 degrees, Row 44 shall comply with the EIRP density limits established in Section 25.227.

This Exhibit also includes sample link budgets pertaining to each of the combinations of EIRP, emission bandwidth, and skew limit. These are located at the end of this Exhibit.

EIRP Density Plots

Horizontal Polarization; 1.024, 2.048, and 4.096 MHz Bandwidths

The EIRP spectral densities shown in Figures A-1 to A-12, for 14.25 GHz, all with horizontal polarization, indicate FCC co-polarization emission compliance according to FCC 25.227. Collectively, each set of plots correspond to operational scenarios of:

Figures A-1 and A-2; 15^0 Skew:

42.5 dBm transmit power in a 1.024 MHz bandwidth, 45.0 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-3 and A-4; 25^0 Skew:

41.5 dBm transmit power in a 1.024 MHz bandwidth, 44.5 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-5 and A-6; 35^0 Skew:

40.0 dBm transmit power in a 1.024 MHz bandwidth, 43.0 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-7 and A-8; 45^0 Skew:

39.0 dBm transmit power in a 1.024 MHz bandwidth, 42.0 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-9 and A-10; 55^0 Skew:

37.2 dBm transmit power in a 1.024 MHz bandwidth, 40.2 dBm transmit power in a 2.048 MHz bandwidth, and 43.2 dBm transmit power in a 4.096 MHz bandwidth

Figures A-11 and A-12; 65^0 Skew:

34.5 dBm transmit power in a 1.024 MHz bandwidth, 37.5 dBm transmit power in a 2.048 MHz bandwidth, and 40.5 dBm transmit power in a 4.096 MHz bandwidth

Figures A-1, A-3, A-5, A-7, A-9, and A-11 depict the EIRP spectral density in dBW/4kHz for a $\pm$10 degree azimuth axis along with the associated Section 25.227 compliance mask. Figures A-2, A-4, A-6, A-8, A-10, and A-12 depict the EIRP spectral density in dBW/4kHz for a $\pm$180 degree expanded azimuth axis along with the associated Section 25.227 compliance mask.

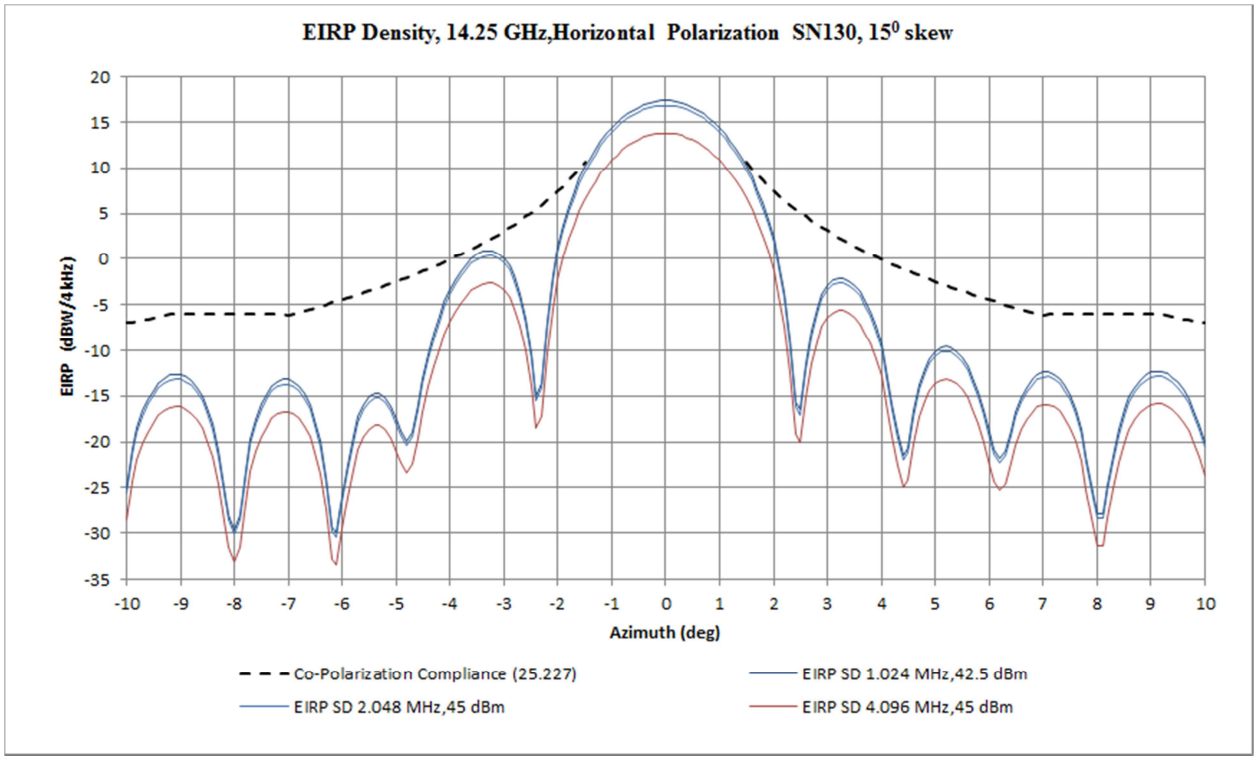

Figure A- 1 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (15 degrees skew)
(Horizontal Polarization; 25.227 Sidelobe Compliance)

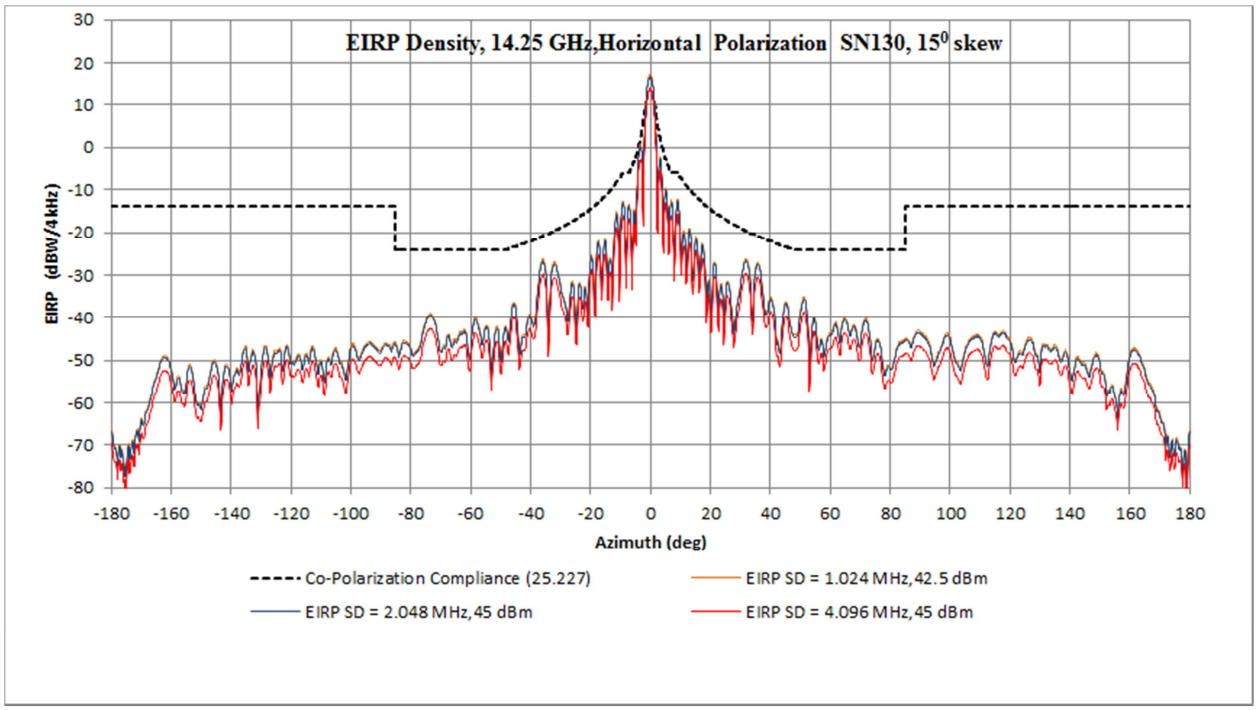

Figure A-2 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (15 degrees skew)
(Horizontal Polarization; 25.227 Expanded Azimuth)

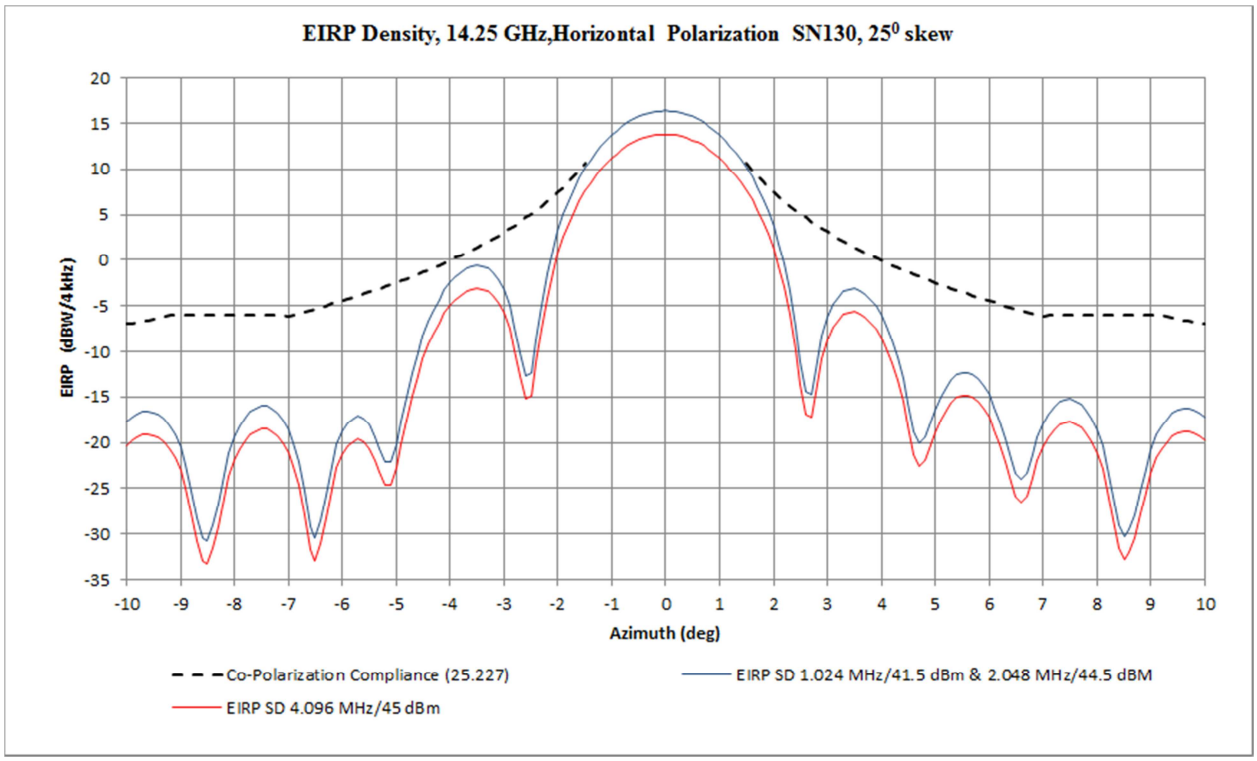

Figure A- 3 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (25 degrees skew)
(Horizontal Polarization; 25.227 Sidelobe Compliance)

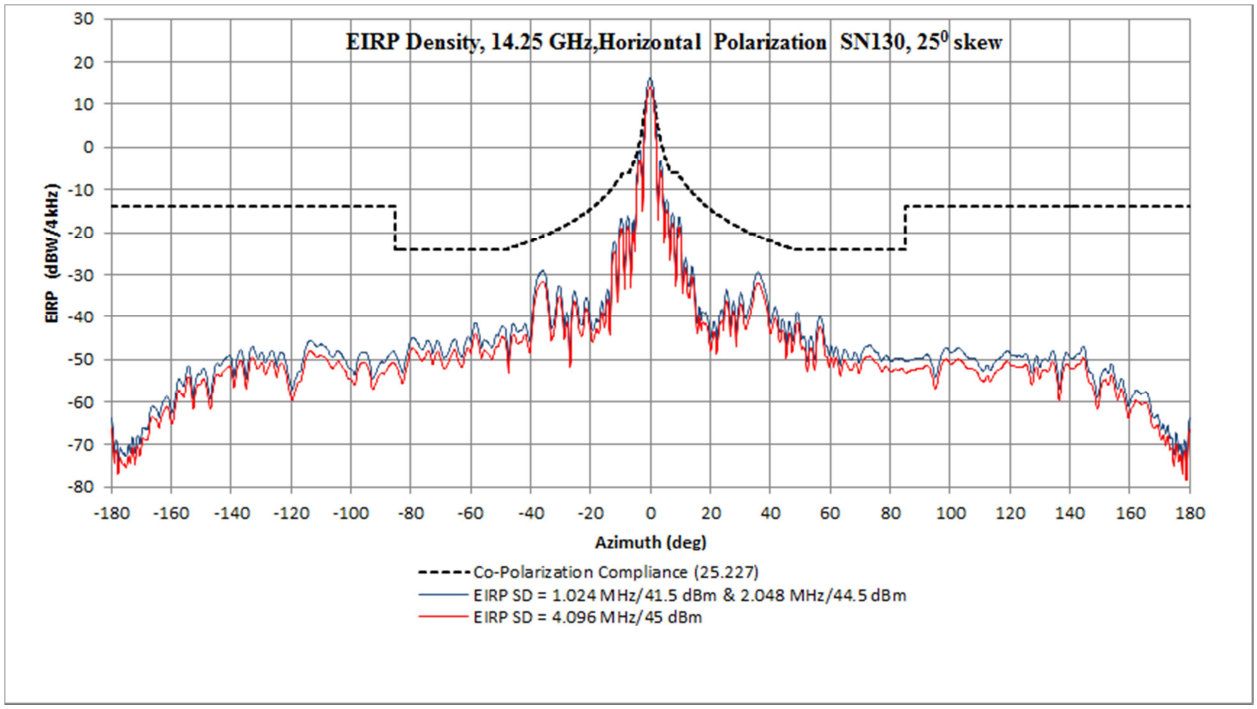

Figure A-4 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (25 degrees skew)
(Horizontal Polarization; 25.227 Expanded Azimuth)

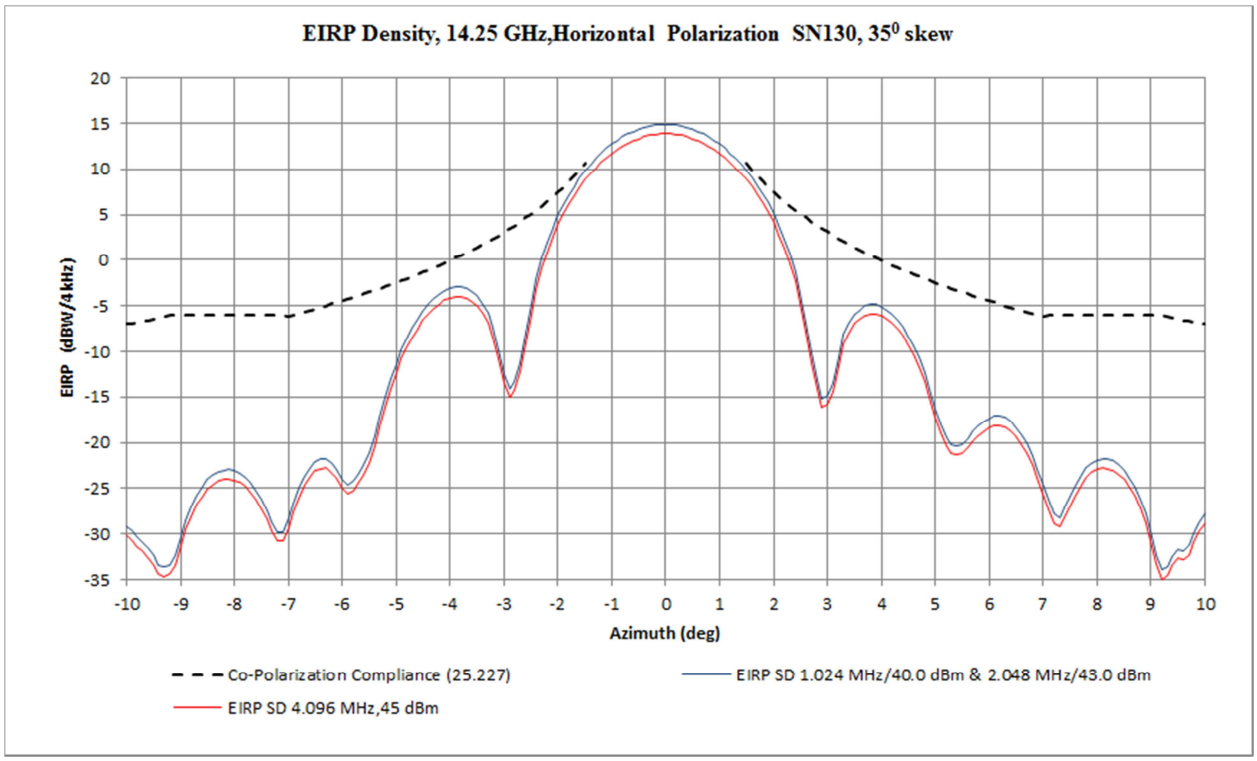

Figure A- 5 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (35 degrees skew)
(Horizontal Polarization; 25.227 Sidelobe Compliance)

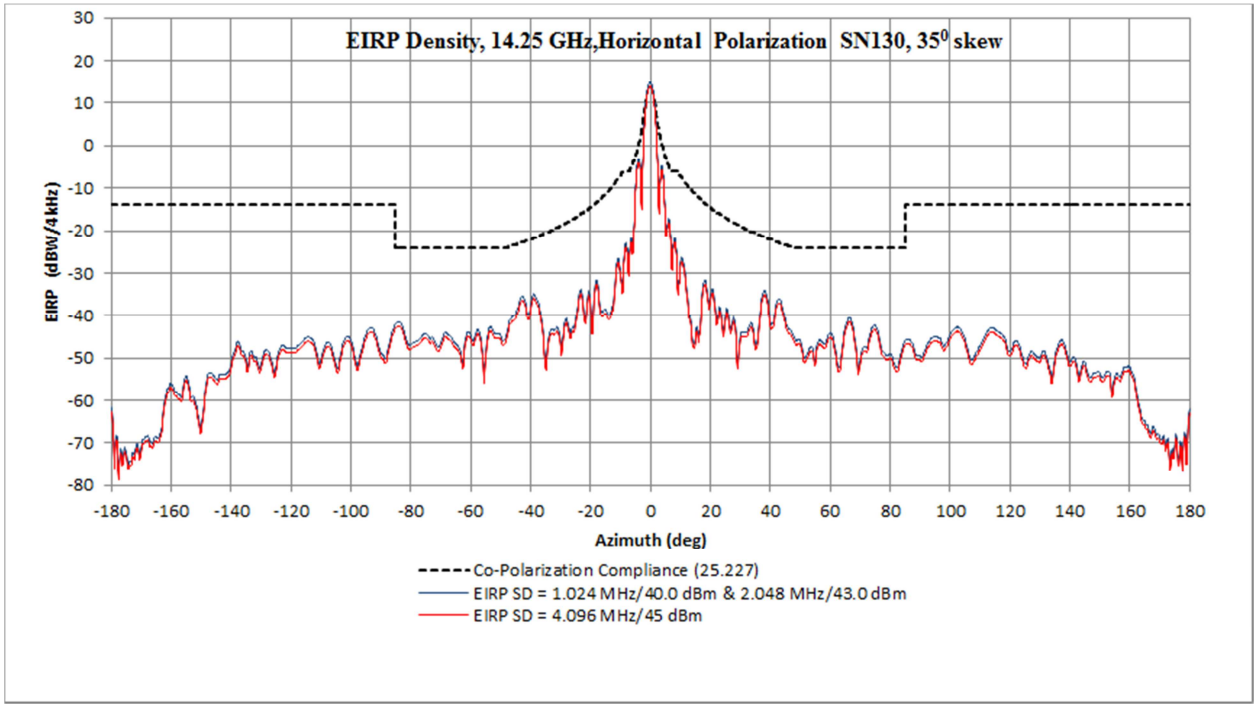

Figure A-6 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (35 degrees skew)
(Horizontal Polarization; 25.227 Expanded Azimuth)

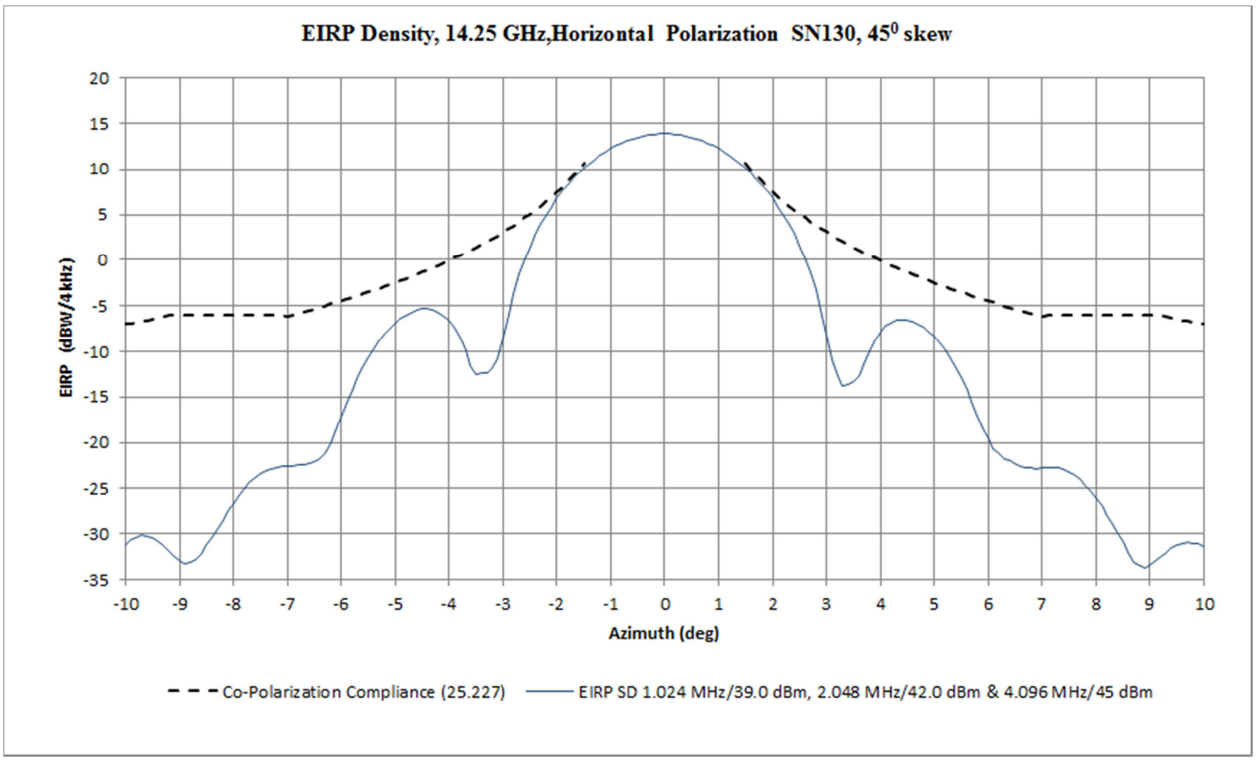

Figure A- 7 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (45 degrees skew)
(Horizontal Polarization; 25.227 Sidelobe Compliance)

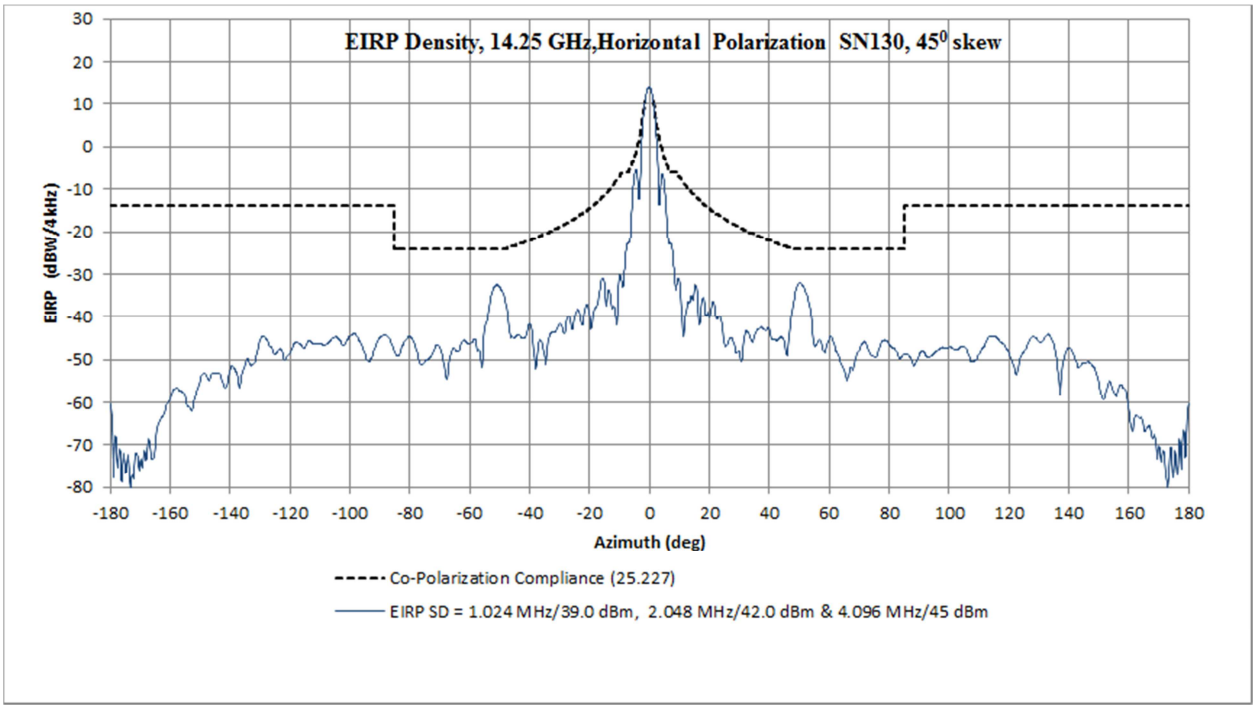

Figure A-8 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (45 degrees skew)
(Horizontal Polarization; 25.227 Expanded Azimuth)

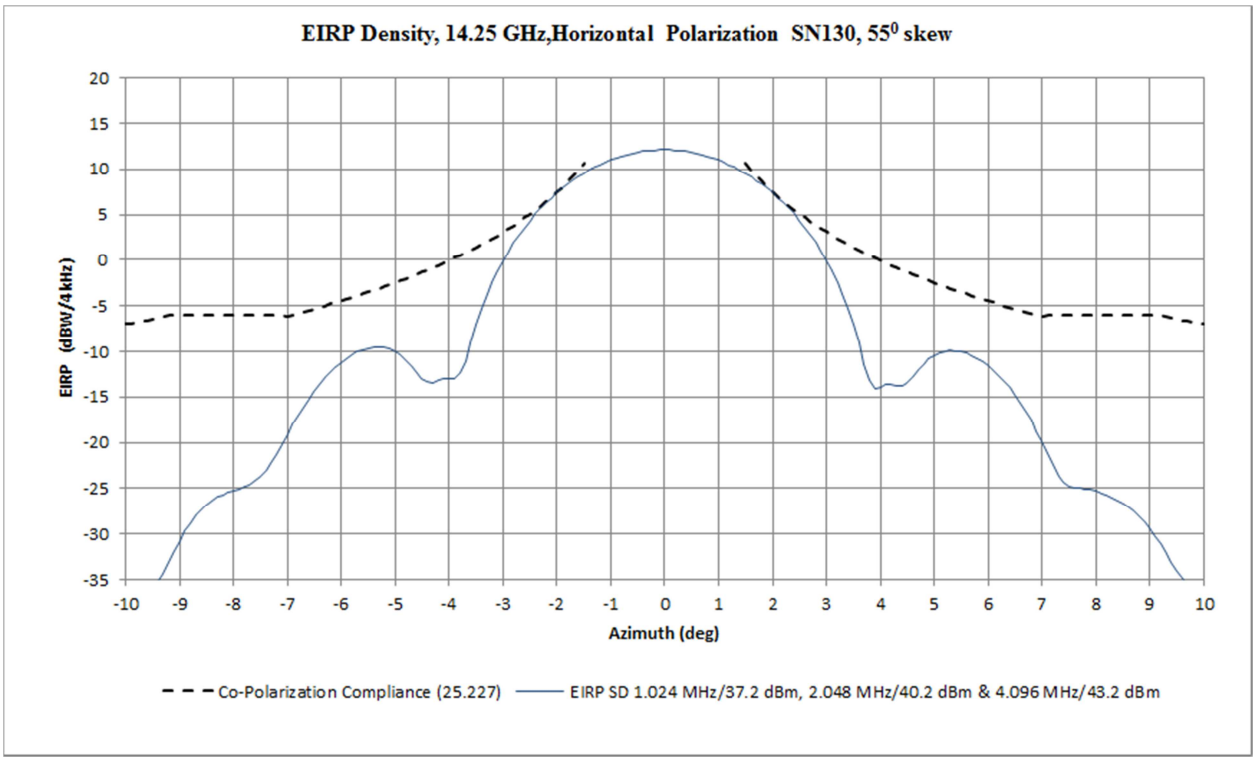

Figure A- 9 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (55 degrees skew)
(Horizontal Polarization; 25.227 Sidelobe Compliance)

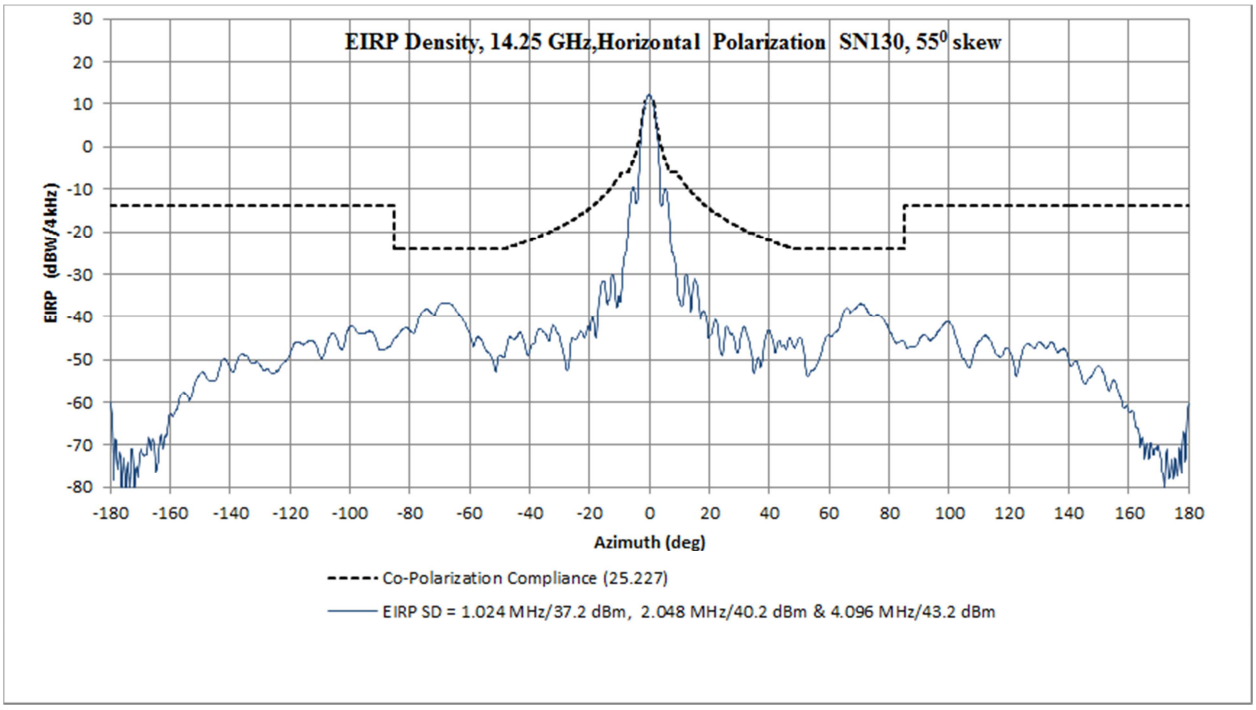

Figure A-10 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (55 degrees skew)
(Horizontal Polarization; 25.227 Expanded Azimuth)

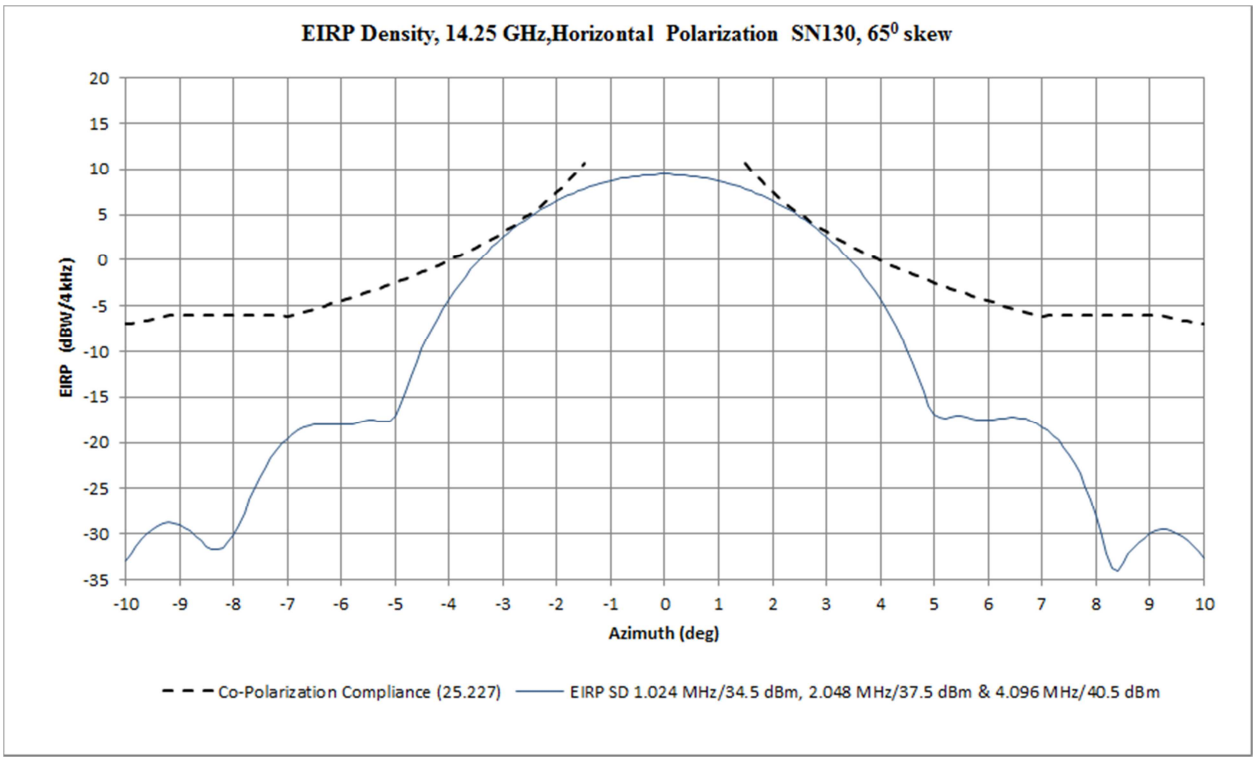

Figure A- 11 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (65 degrees skew)
(Horizontal Polarization; 25.227 Sidelobe Compliance)

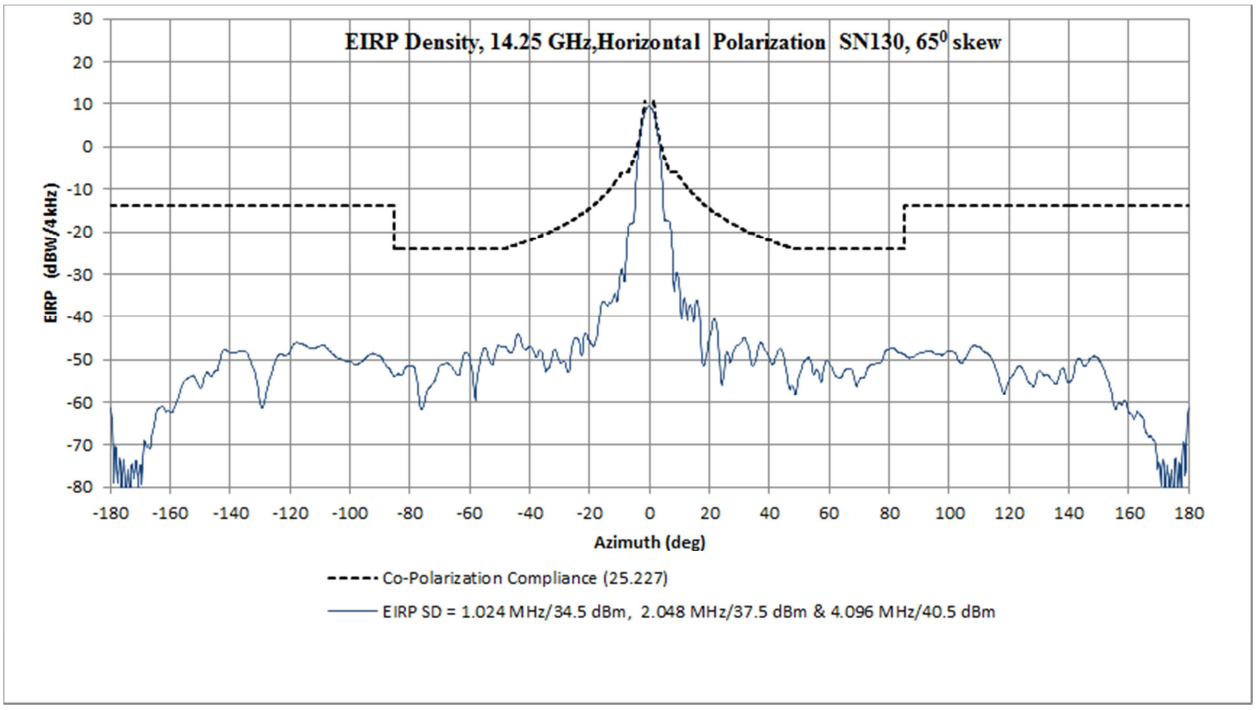

Figure A-12 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (65 degrees skew)
(Horizontal Polarization; 25.227 Expanded Azimuth)

Vertical Polarization; 1.024, 2.048, and 4.096 MHz Bandwidths

The EIRP spectral densities shown in Figures A-13 to A-24, for 14.25 GHz, all with vertical polarization, indicate FCC co-polarization emission compliance according to FCC 25.227. Collectively, each plot addresses configurations of:

Figures A-13 and A-14; 15^0 Skew:

42.5 dBm transmit power in a 1.024 MHz bandwidth, 45.0 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-15 and A-16; 25^0 Skew:

41.5 dBm transmit power in a 1.024 MHz bandwidth, 44.5 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-17 and A-18; 35^0 Skew:

40.0 dBm transmit power in a 1.024 MHz bandwidth, 43.0 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-19 and A-20; 45^0 Skew:

39.0 dBm transmit power in a 1.024 MHz bandwidth, 42.0 dBm transmit power in a 2.048 MHz bandwidth, and 45.0 dBm transmit power in a 4.096 MHz bandwidth

Figures A-21 and A-22; 55^0 Skew:

37.2 dBm transmit power in a 1.024 MHz bandwidth, 40.2 dBm transmit power in a 2.048 MHz bandwidth, and 43.2 dBm transmit power in a 4.096 MHz bandwidth

Figures A-23 and A-24; 65^0 Skew:

34.5 dBm transmit power in a 1.024 MHz bandwidth, 37.5 dBm transmit power in a 2.048 MHz bandwidth, and 40.5 dBm transmit power in a 4.096 MHz bandwidth

Figures A-13, A-15, A-17, A-19, A-21, and A-23 depict the EIRP spectral density in dBW/4kHz for a $\pm$10 degree azimuth axis along with the associated Section 25.227 compliance mask. Figures A-14, A-16, A-18, A-20, A-22, and A-24 depict the EIRP spectral density in dBW/4kHz for a $\pm$180 degree expanded azimuth axis along with the associated Section 25.227 compliance mask.

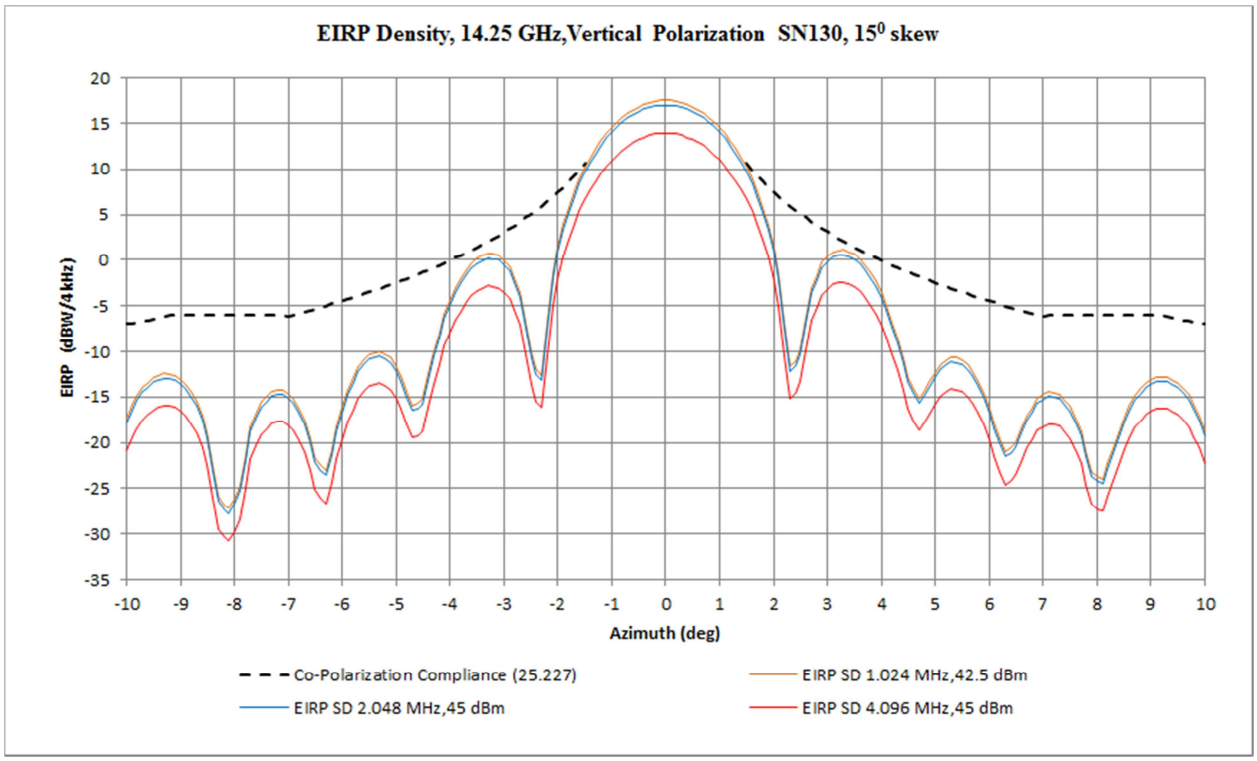

Figure A- 13 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (15 degrees skew)
(Vertical Polarization; 25.227 Sidelobe Compliance)

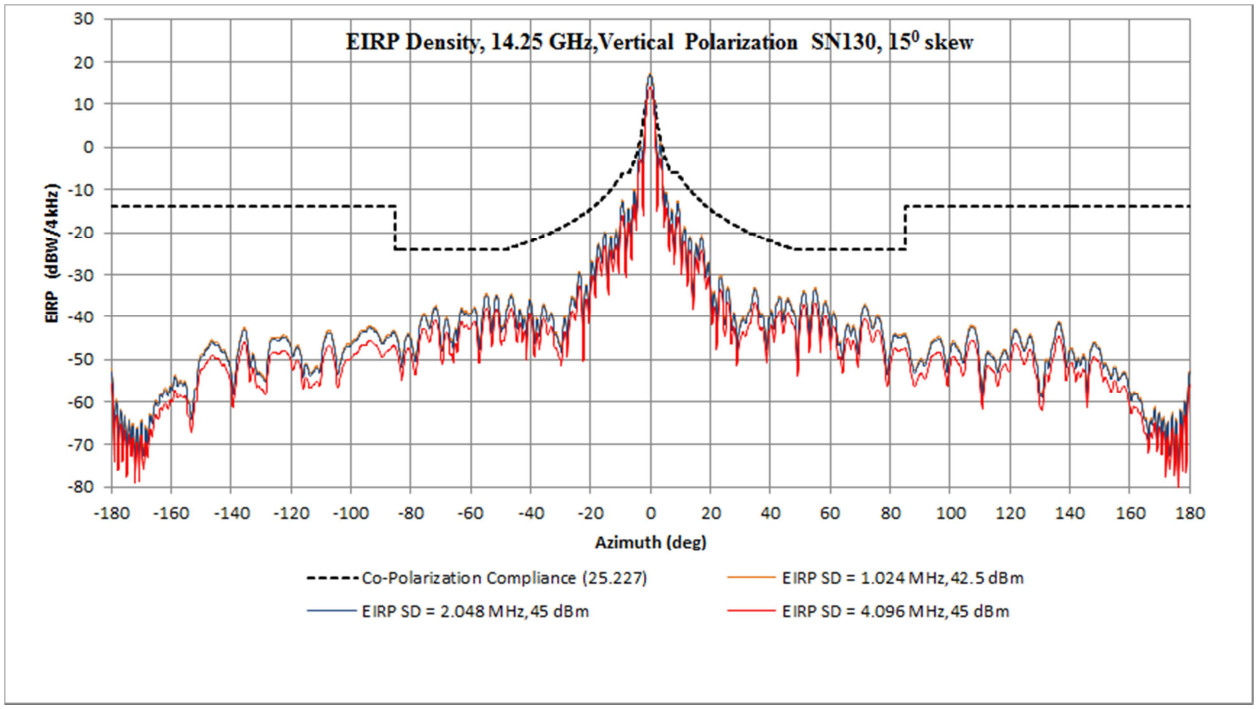

Figure A-14 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (15 degrees skew)
(Vertical Polarization; 25.227 Expanded Azimuth)

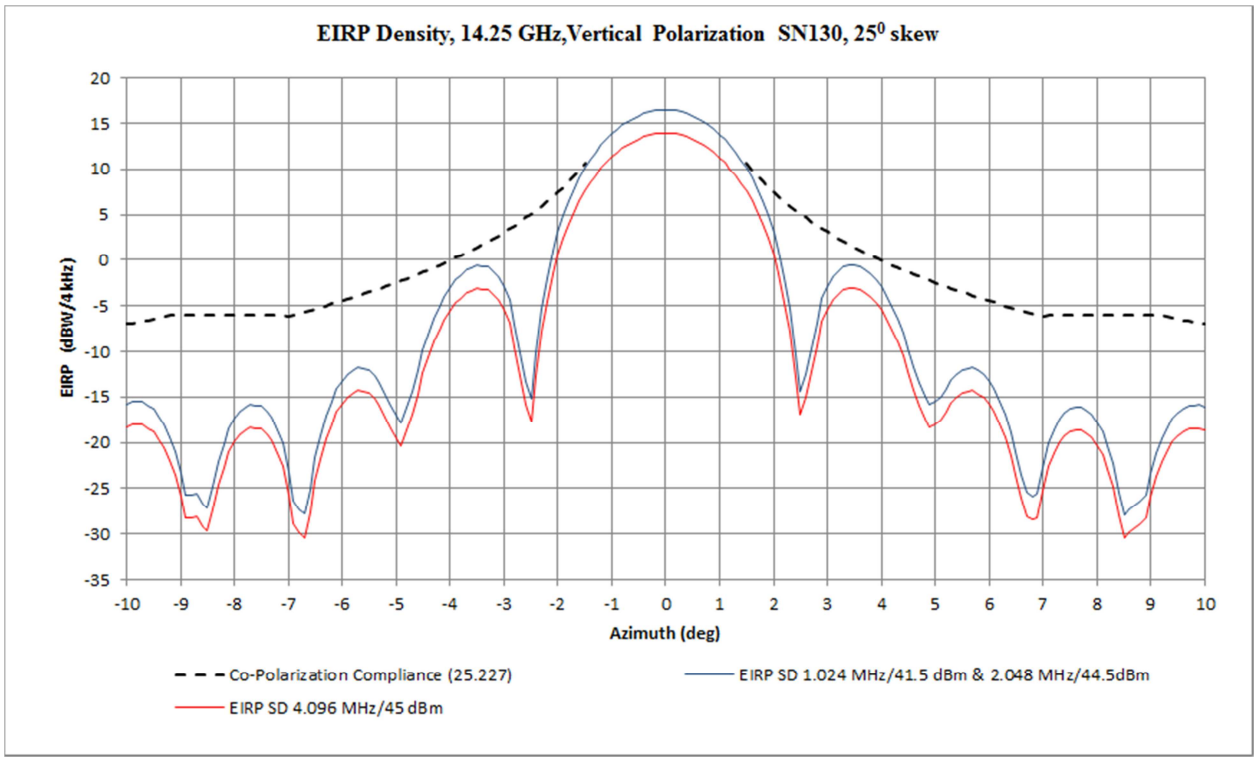

Figure A- 15 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (25 degrees skew)
(Vertical Polarization; 25.227 Sidelobe Compliance)

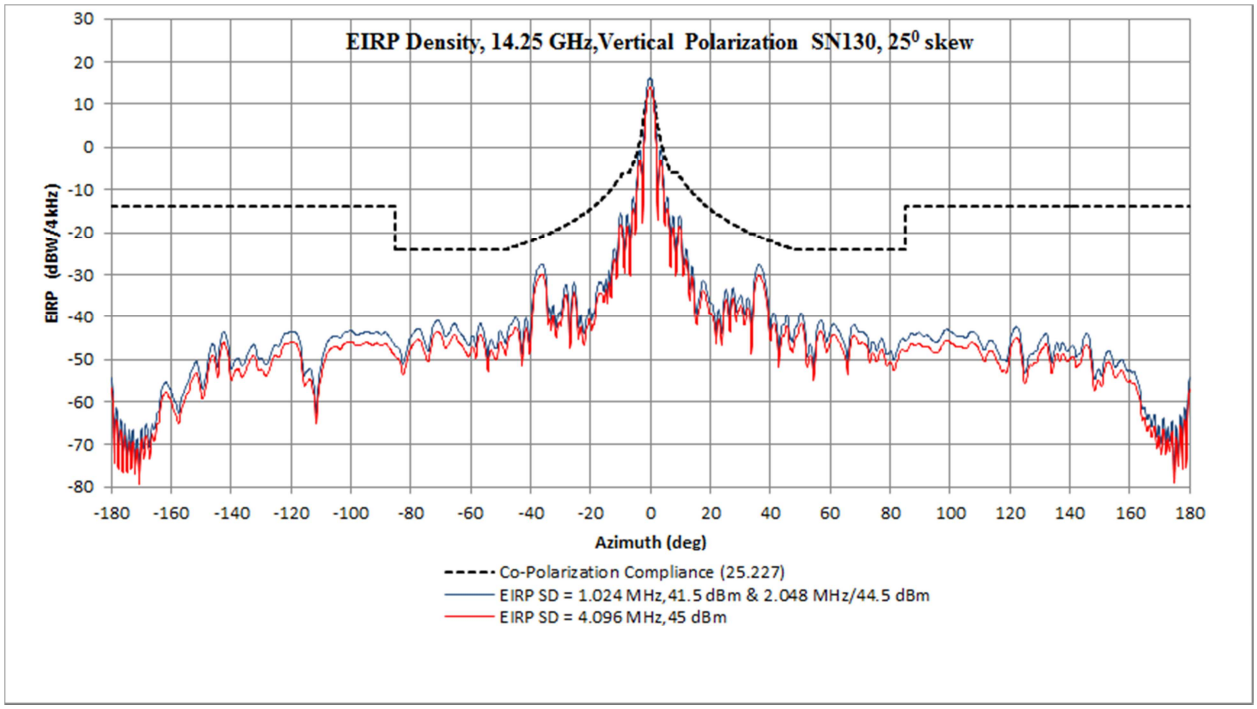

Figure A-16 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (25 degrees skew)
(Vertical Polarization; 25.227 Expanded Azimuth)

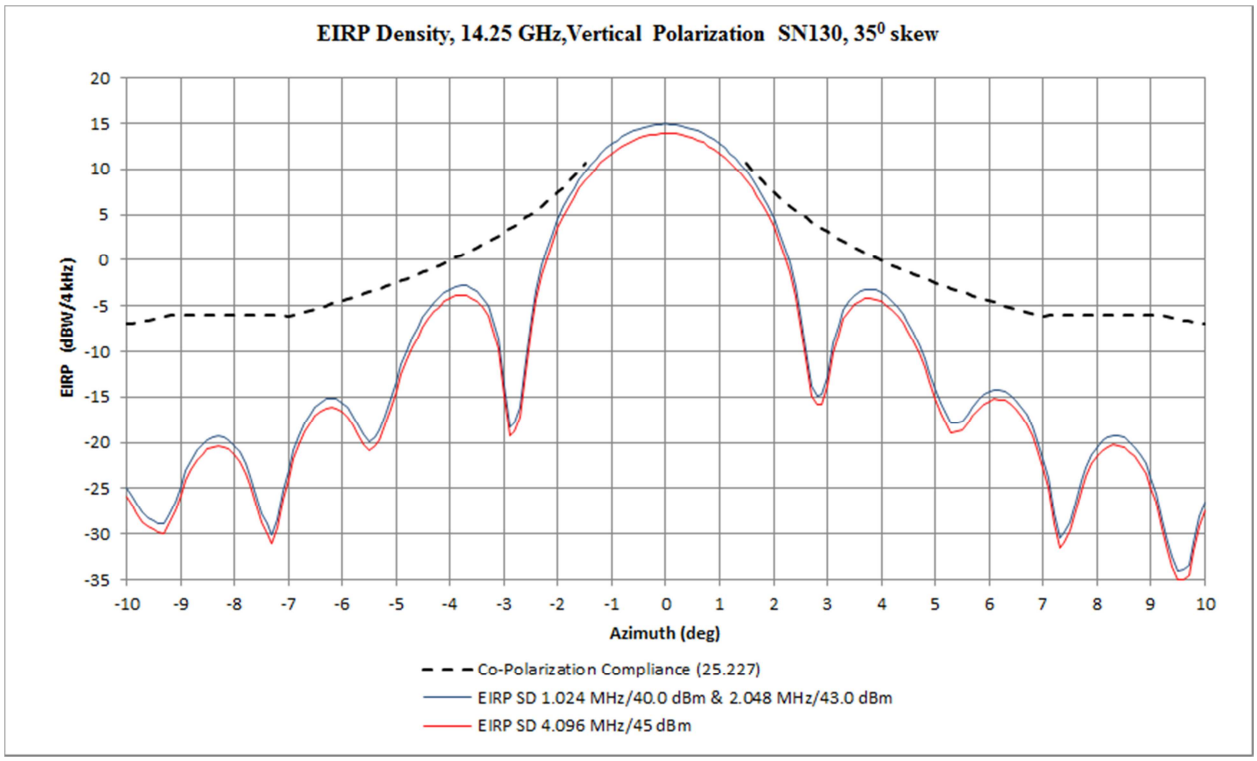

Figure A- 17 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (35 degrees skew)
(Vertical Polarization; 25.227 Sidelobe Compliance)

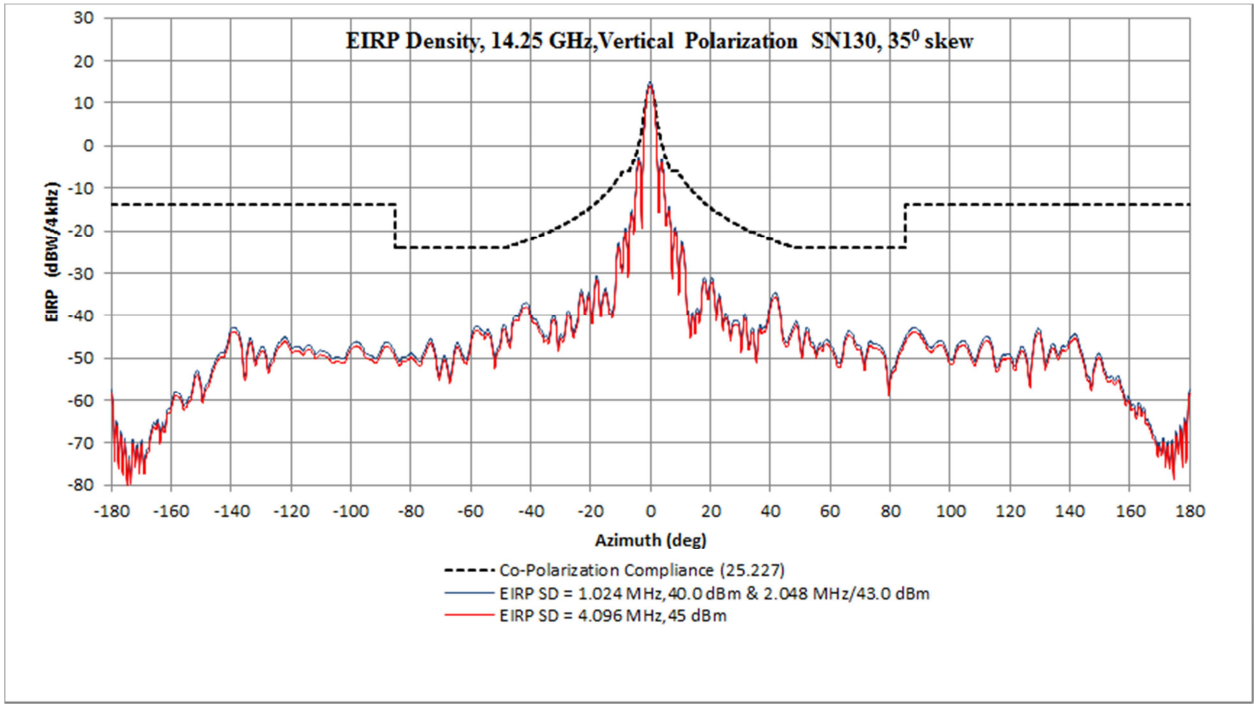

Figure A-18 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (35 degrees skew)
(Vertical Polarization; 25.227 Expanded Azimuth)

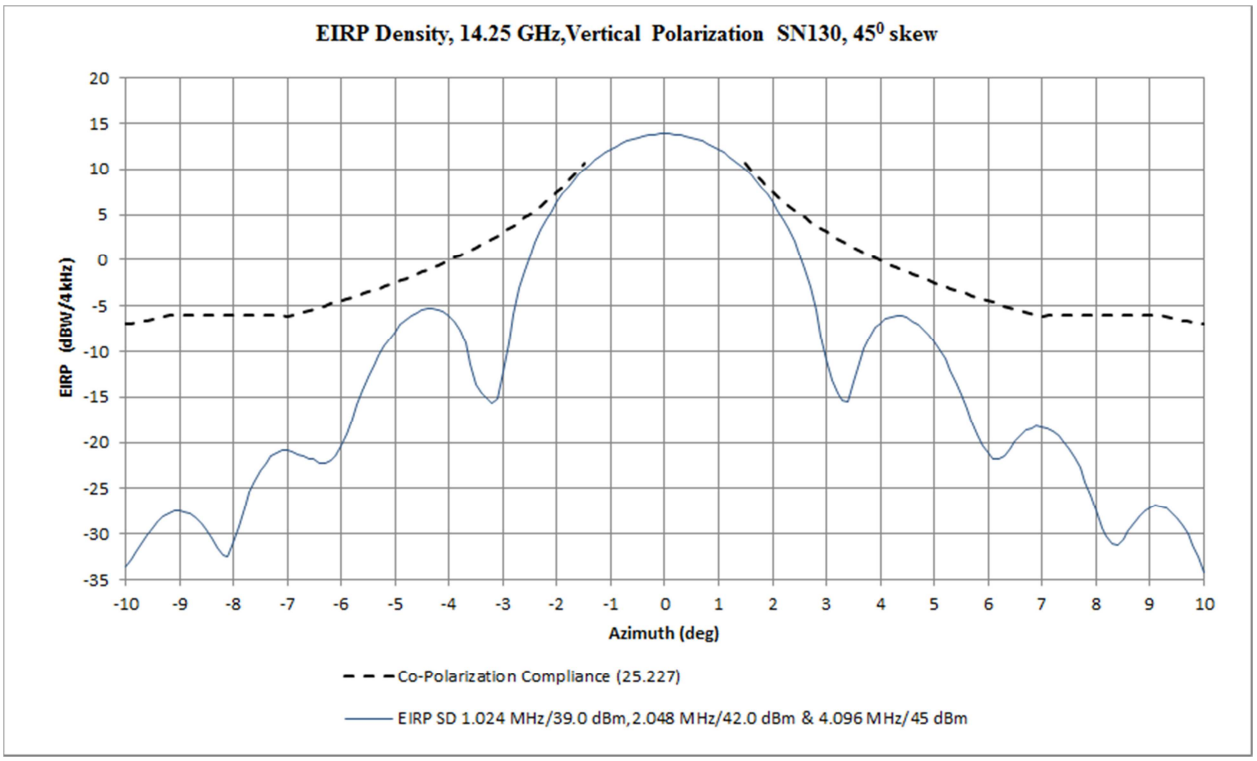

Figure A- 19 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (45 degrees skew)
(Vertical Polarization; 25.227 Sidelobe Compliance)

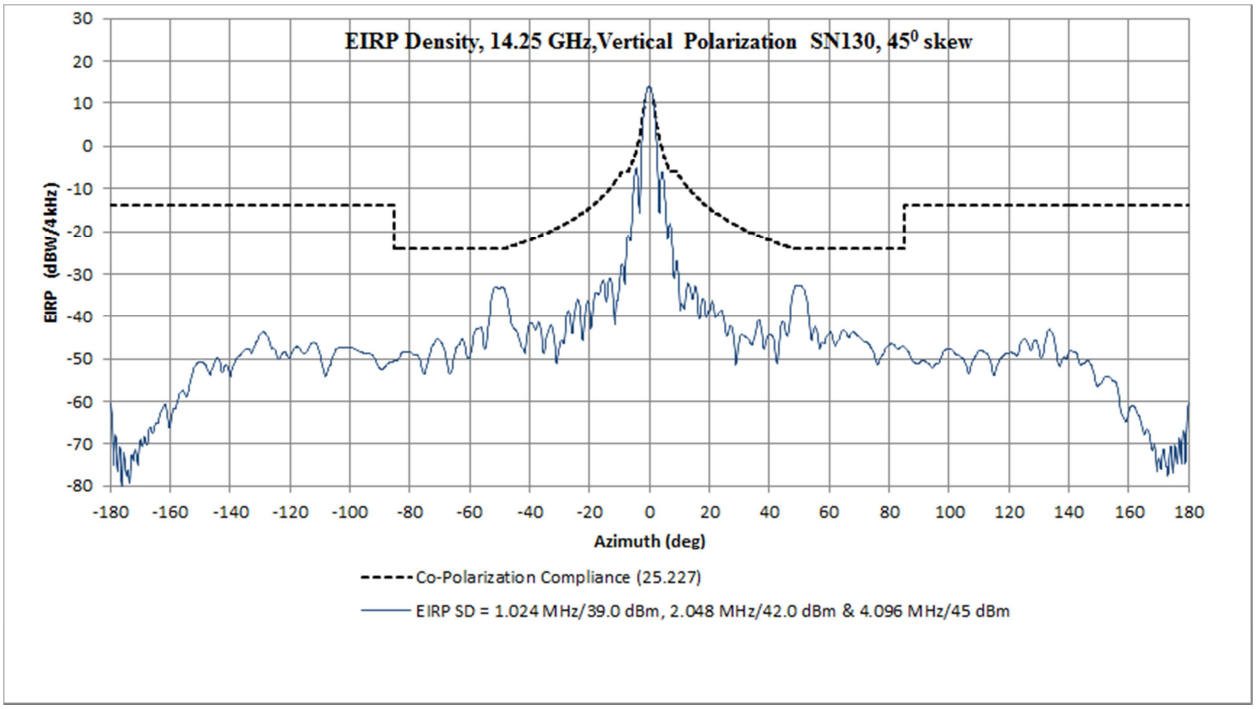

Figure A-20 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (45 degrees skew)
(Vertical Polarization; 25.227 Expanded Azimuth)

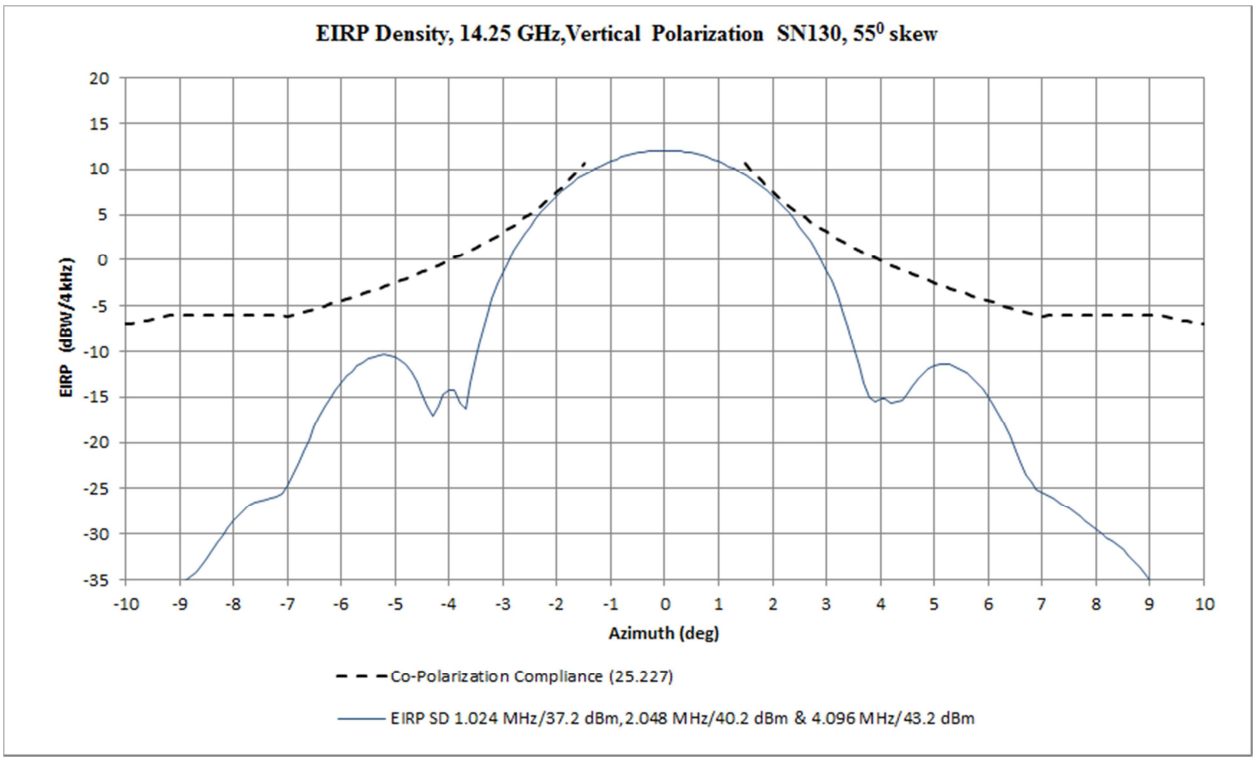

Figure A- 21 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (55 degrees skew)
(Vertical Polarization; 25.227 Sidelobe Compliance)

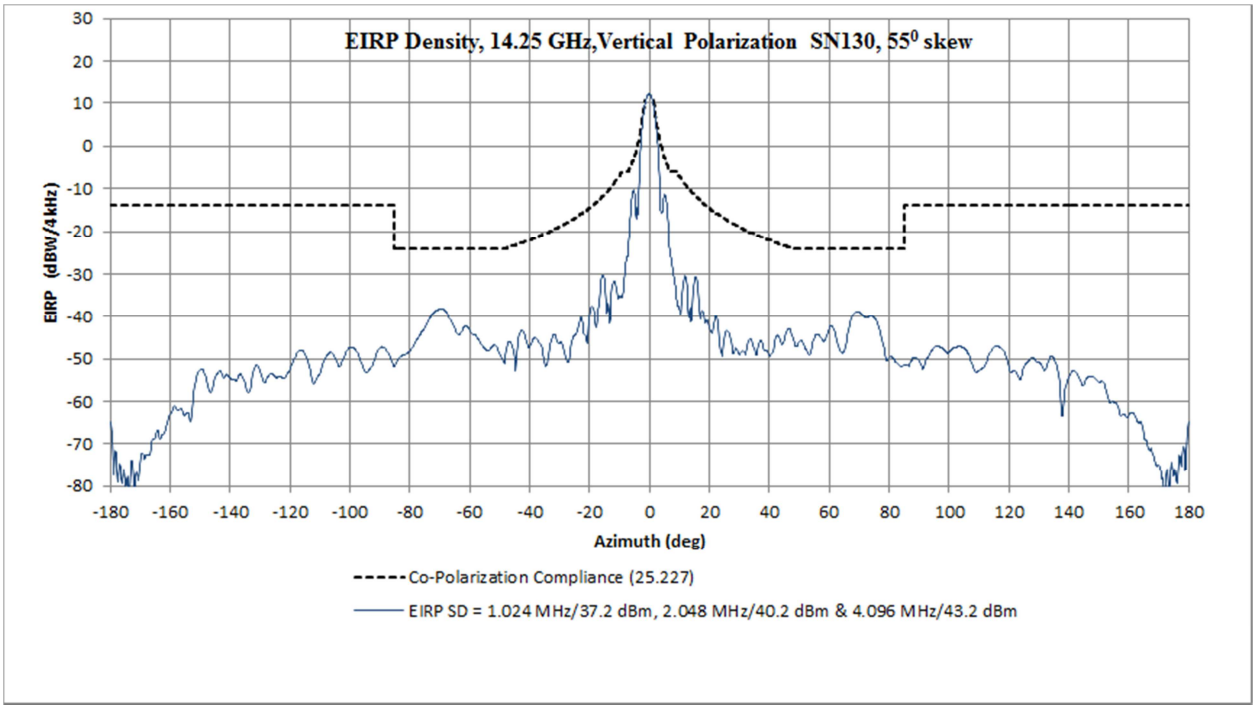

Figure A-22 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (55 degrees skew)
(Vertical Polarization; 25.227 Expanded Azimuth)

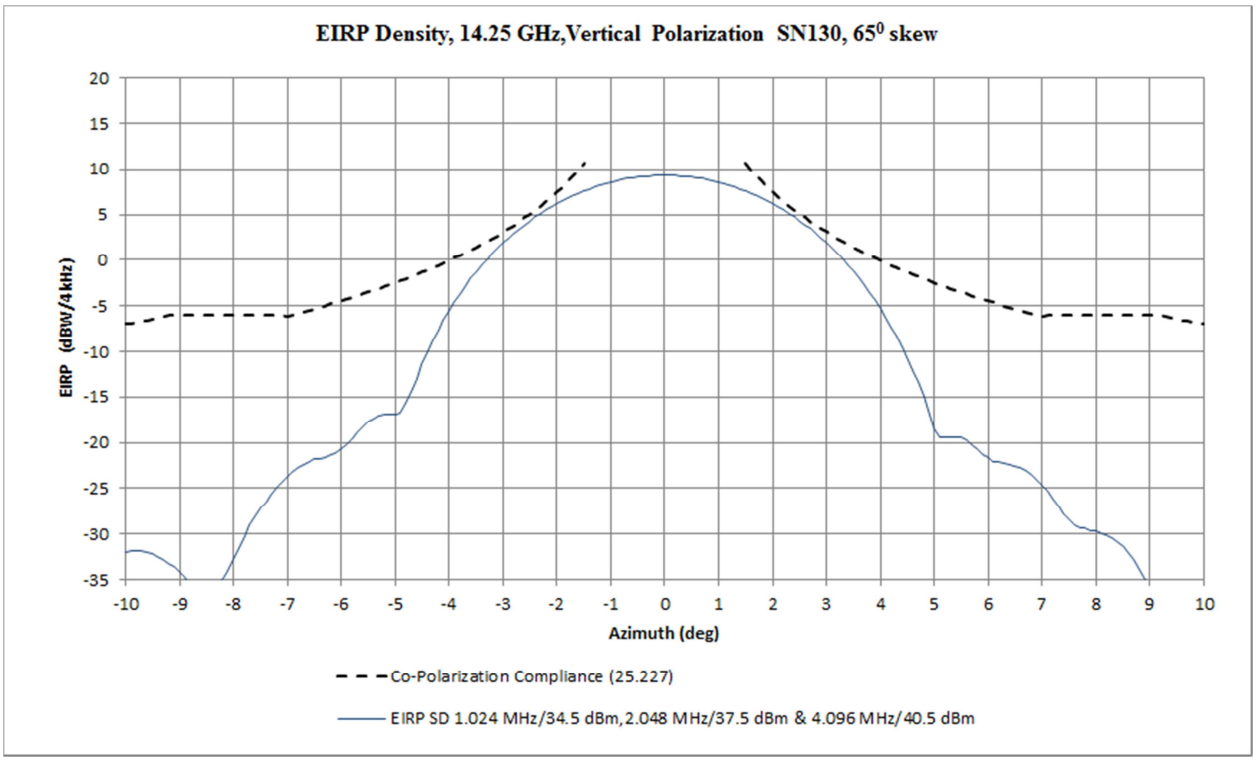

Figure A- 23 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (65 degrees skew)
(Vertical Polarization; 25.227 Sidelobe Compliance)

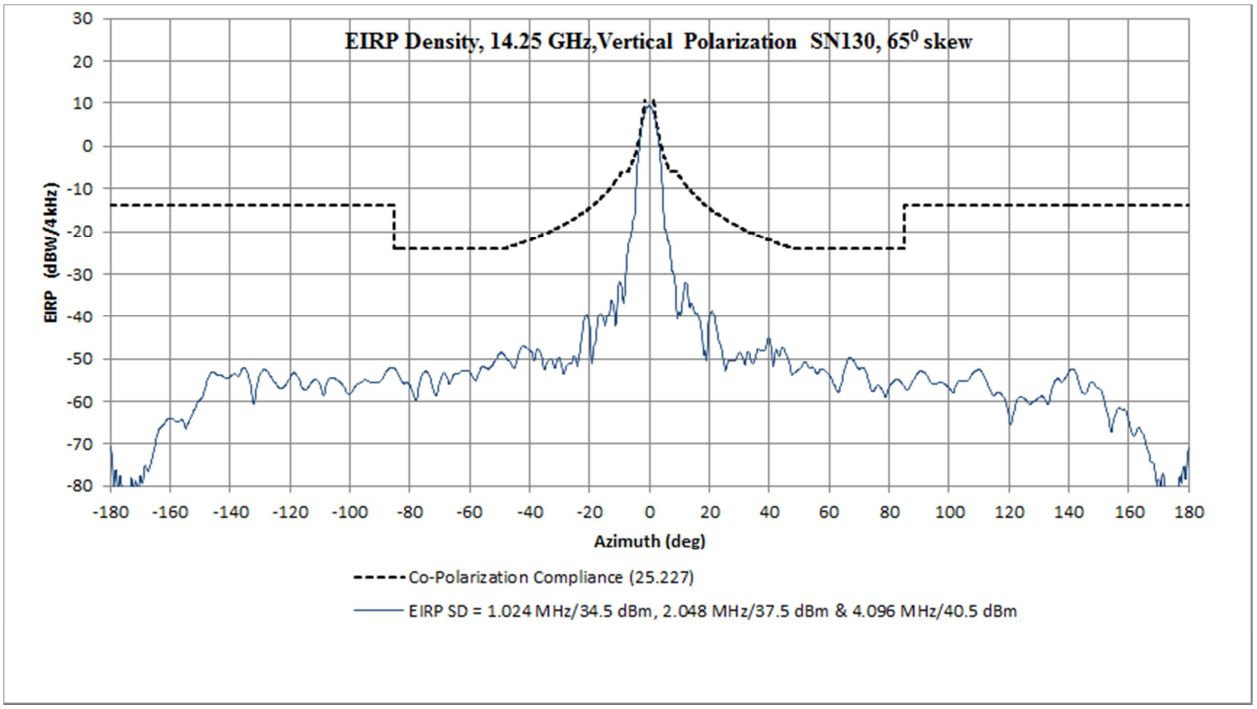

Figure A-24 EIRP Spectral Density in dBW/4 kHz for 14.25 GHz (65 degrees skew)
(Vertical Polarization; 25.227 Expanded Azimuth)

Geographic Representation

Figures A-25 and A-26 illustrate the proposed geographic relationships between skew and EIRP density for AMC-3. The boundaries apply, such that for any location between them, the skew is less than or equal to that at each of the boundaries. The authorized EIRP density for the given skew value is applicable to any geographic location within those boundaries.

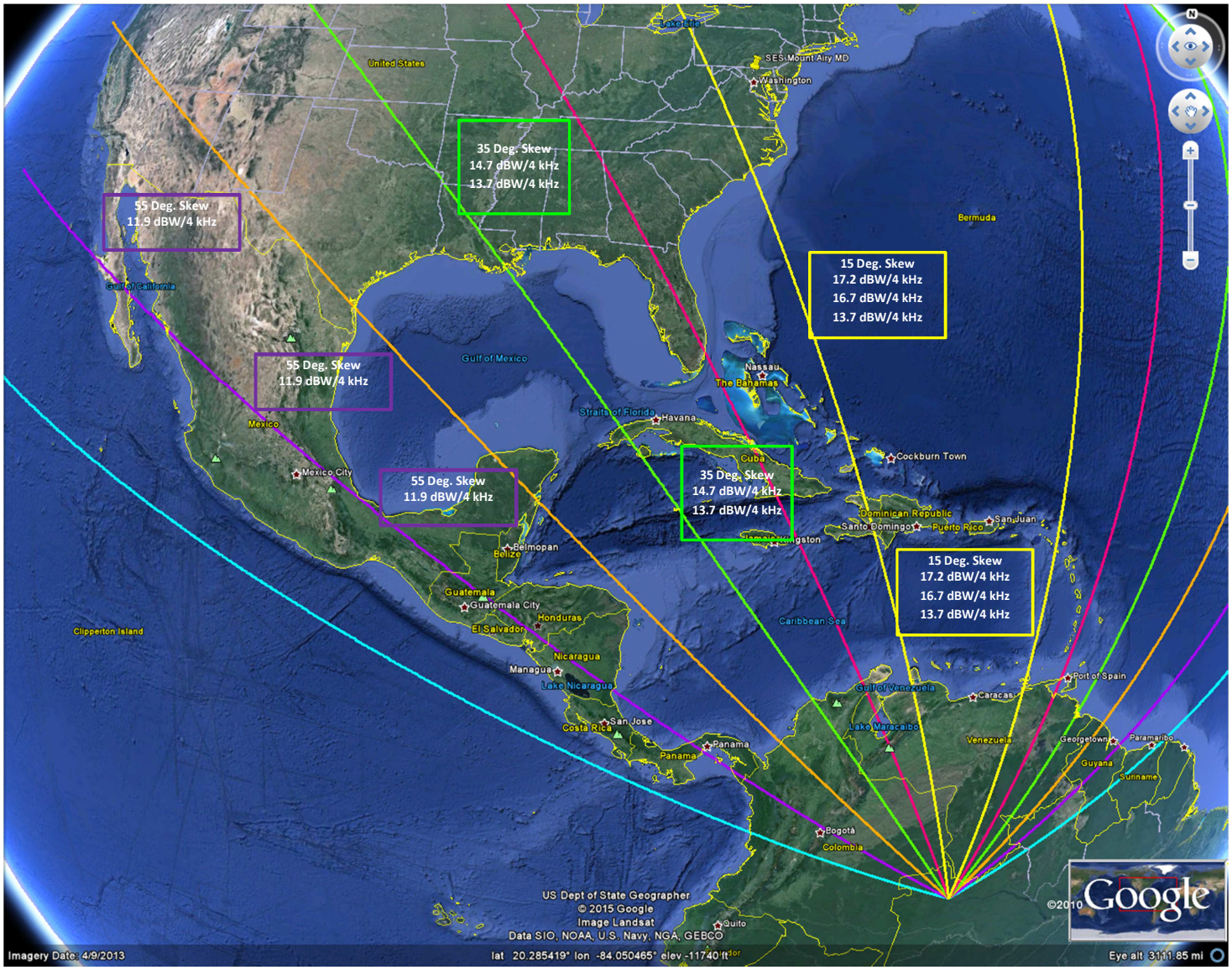

Figure A-25 Geographic skew boundaries and EIRP density levels for AMC-3 at 67.0 West. EIRP density limits are applicable anywhere between the associated left and right skew boundary contours. (Yellow: 15 degree boundaries; Green: 35 degree boundaries; Purple: 55 degree boundaries. Labels are located in the vicinity of areas of satellite coverage.)

Note that multiple-stated density values apply to instances where the HPT's output is limited from providing that necessary to result in equal densities for all emission bandwidths.

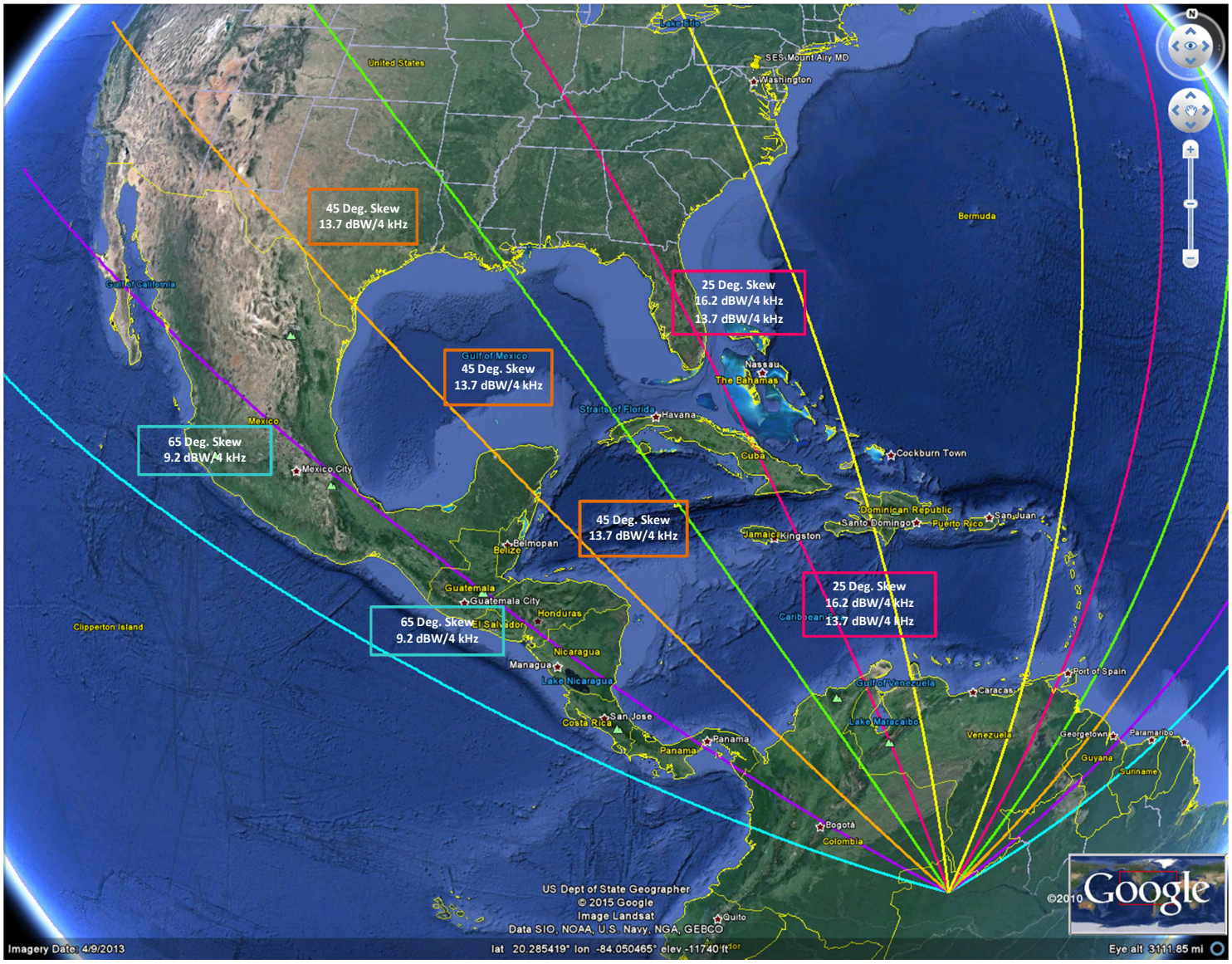

Figure A-26 Geographic skew boundaries and EIRP density levels for AMC-3 at 67.0 West. EIRP density limits are applicable anywhere between the associated left and right skew boundary contours. (Red: 25 degree boundaries; Orange: 45 degree boundaries; Light Blue: 65 degree boundaries. Labels are located in the vicinity of areas of satellite coverage.)

Note that multiple-stated density values apply to instances where the HPT's output is limited from providing that necessary to result in equal densities for all emission bandwidths.

AMC-3 Link Budgets

Applicable to a skew angle of 15 degrees

Applicable transmit powers and emission bandwidths:

42.5 dBm in 1.024 MHz (17.2 dBW/4 kHz)

45.0 dBm in 2.048 MHz (16.7 dBW/4 kHz)

45.0 dBm in 4.096 MHz (13.7 dBW/4 kHz)

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	0.512
Spread BW (MHz):	1.024
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/4
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	4.2
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	1.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	47.7
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**47.70**
Downlink EIRP Inroute (dBW):	**17.09**
Remote:	AIRBORNE
Latitude (deg North):	22.179
Longitude (deg East):	-72.247
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	42.5
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-12.58**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 15 degrees

Inroute signal: QPSK Rate 1/2 rate **0.512 Msps** in bandwidth **1.024 MHz**

Outroute signal: QPSK Rate 3/4 rate **30 Msps** in bandwidth **30 MHz**

		Lat	Long
Remote:	AIRBORNE	22.179	-72.247
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	40.30	39.30	39.30
Uplink Path Loss (dB)	206.76	206.76	206.76
Spreading Loss (dB)	-162.21	-162.21	-162.21
Flux Density at Satellite (dBW/m^2)	-121.91	-122.91	-122.91
Uplink C/T (dB)	-165.46	-166.46	-166.46
C/No (dB)	63.14	62.14	62.14
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**6.05**	**5.05**	**4.52**
Satellite downlink EIRP (dBW)	18.09	17.09	17.09
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-150.58	-153.58	-153.58
C/No (dB)	78.02	75.02	75.02
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.92**	**17.92**	**15.05**
Cumulative C/N (dB)	5.91	4.83	4.15
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.81**	**2.73**	**2.05**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 15 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	47.70	47.70	47.70
Downlink Path Loss (dB)	205.26	205.26	205.26
Downlink C/T (dB)	-145.86	-146.86	-146.86
C/No (dB)	7.97	6.97	6.97
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.97**	**6.97**	**4.92**
Cumulative C/N (dB)	7.94	6.93	4.73
Necessary C/N (dB)	4.2	4.2	4.2
Cumulative Outroute Link Margin (dB)	**3.74**	**2.73**	**0.53**

Inroute Signal: QPSK Rate 1/2
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Baseband BW (MHz): 1.024
Spread BW (MHz): 2.048
Required C/N (dB): 2.1

Outroute Signal: QPSK Rate 3/4
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Bandwidth (MHz): 30
Required C/N (dB): 4.2

Satellite: AMC_3
Longitude (deg East): -67
G/T towards Remote (dB/K): 1.00
G/T towards NOC (dB/K): 3.20
G/T Degradation (dB): 0
Saturation Flux Density (dBW/m^2): -90.5
Saturated EIRP towards NOC (dBW): 48.5
Saturated EIRP towards remote (dBW): 47.7
Attenuation Setting (dB): 0
Downlink EIRP Outroute (dBW): **47.70**
Downlink EIRP Inroute (dBW): **19.59**

Remote: AIRBORNE
Latitude (deg North): 22.179
Longitude (deg East): -72.247
TX Antenna Gain (dBi): 28.80
TX Power (dBm): 45
TX Backoff (dB): 1
Power into flange (dBW/4 kHz): **-13.09**
RX G/T (dB/K): 11.70
Antenna Mispoint (dB): 0.5
Rain Attenuation (dB): 0
Atmospheric Attenuation (dB): 0.5

Inroute Uplink Interference
Adjacent Channel Uplink (dB): -30.0
Adjacent Satellite Uplink (dB): -17.0
Cross-Pol Uplink (dB): -20.0
Intermod Uplink (dB): -20.0
Cumulative Interf. Uplink (dB): **-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 15 degrees

Inroute signal: QPSK Rate 1/2 rate **1.024 Msps** in bandwidth **2.048 MHz**
Outroute signal: QPSK Rate 3/4 rate **30 Msps** in bandwidth **30 MHz**

		Lat	Long
Remote:	AIRBORNE	22.179	-72.247
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	42.80	41.80	41.80
Uplink Path Loss (dB)	206.76	206.76	206.76
Spreading Loss (dB)	-162.21	-162.21	-162.21
Flux Density at Satellite (dBW/m^2)	-119.41	-120.41	-120.41
Uplink C/T (dB)	-162.96	-163.96	-163.96
C/No (dB)	65.64	64.64	64.64
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.54**	**4.54**	**4.06**
Satellite downlink EIRP (dBW)	20.59	19.59	19.59
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-148.08	-151.08	-151.08
C/No (dB)	80.52	77.52	77.52
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.41**	**17.41**	**14.78**
Cumulative C/N (dB)	5.40	4.32	3.71
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.30**	**2.22**	**1.61**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 15 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	47.70	47.70	47.70
Downlink Path Loss (dB)	205.26	205.26	205.26
Downlink C/T (dB)	-145.86	-146.86	-146.86
C/No (dB)	7.97	6.97	6.97
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.97**	**6.97**	**4.92**
Cumulative C/N (dB)	7.94	6.93	4.73
Necessary C/N (dB)	4.2	4.2	4.2
Cumulative Outroute Link Margin (dB)	**3.74**	**2.73**	**0.53**

Inroute Signal: QPSK Rate 1/2
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Baseband BW (MHz): 1.024
Spread BW (MHz): 4.096
Required C/N (dB): 2.1

Outroute Signal: QPSK Rate 3/4
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Bandwidth (MHz): 30
Required C/N (dB): 4.2

Satellite: AMC_3
Longitude (deg East): -67
G/T towards Remote (dB/K): 1.00
G/T towards NOC (dB/K): 3.20
G/T Degradation (dB): 0
Saturation Flux Density (dBW/m^2): -90.5
Saturated EIRP towards NOC (dBW): 48.5
Saturated EIRP towards remote (dBW): 47.7
Attenuation Setting (dB): 0
Downlink EIRP Outroute (dBW): **47.70**
Downlink EIRP Inroute (dBW): **19.59**

Remote: AIRBORNE
Latitude (deg North): 22.179
Longitude (deg East): -72.247
TX Antenna Gain (dBi): 28.80
TX Power (dBm): 45
TX Backoff (dB): 1
Power into flange (dBW/4 kHz): **-16.10**
RX G/T (dB/K): 11.70
Antenna Mispoint (dB): 0.5
Rain Attenuation (dB): 0
Atmospheric Attenuation (dB): 0.5

Inroute Uplink Interference
Adjacent Channel Uplink (dB): -30.0
Adjacent Satellite Uplink (dB): -17.0
Cross-Pol Uplink (dB): -20.0
Intermod Uplink (dB): -20.0
Cumulative Interf. Uplink (dB): **-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 15 degrees

Inroute signal: QPSK Rate 1/2 rate **1.024 Msps** in bandwidth **4.096 MHz**
Outroute signal: QPSK Rate 3/4 rate **30 Msps** in bandwidth **30 MHz**

		Lat	Long
Remote:	AIRBORNE	22.179	-72.247
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	42.80	41.80	41.80
Uplink Path Loss (dB)	206.76	206.76	206.76
Spreading Loss (dB)	-162.21	-162.21	-162.21
Flux Density at Satellite (dBW/m^2)	-119.41	-120.41	-120.41
Uplink C/T (dB)	-162.96	-163.96	-163.96
C/No (dB)	65.64	64.64	64.64
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.54**	**4.54**	**4.06**
Satellite downlink EIRP (dBW)	20.59	19.59	19.59
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-148.08	-151.08	-151.08
C/No (dB)	80.52	77.52	77.52
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.41**	**17.41**	**14.78**
Cumulative C/N (dB)	5.40	4.32	3.71
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.30**	**2.22**	**1.61**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 15 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	47.70	47.70	47.70
Downlink Path Loss (dB)	205.26	205.26	205.26
Downlink C/T (dB)	-145.86	-146.86	-146.86
C/No (dB)	7.97	6.97	6.97
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.97**	**6.97**	**4.92**
Cumulative C/N (dB)	7.94	6.93	4.73
Necessary C/N (dB)	4.2	4.2	4.2
Cumulative Outroute Link Margin (dB)	**3.74**	**2.73**	**0.53**

AMC-3 Link Budgets

Applicable to a skew angle of 25 degrees

Applicable transmit powers and emission bandwidths:

41.5 dBm in 1.024 MHz (16.2 dBW/4 kHz)

44.5 dBm in 2.048 MHz (16.2 dBW/4 kHz)

45.0 dBm in 4.096 MHz (13.7 dBW/4 kHz)

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 25 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**1.024**	**Msps**	in bandwidth	**1.024**	**MHz**	
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**	

		Lat	**Long**
Remote:	Nassau	25.044	-77.466
NOC:	Perris CA	33.76	-117.32

Inroute Signal: QPSK Rate 1/2
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Baseband BW (MHz): 1.024
Spread BW (MHz): 1.024
Required C/N (dB): 2.1

Outroute Signal: QPSK Rate 3/5
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Bandwidth (MHz): 30
Required C/N (dB): 2.4

Satellite: AMC_3
Longitude (deg East): -67
G/T towards Remote (dB/K): 5.00
G/T towards NOC (dB/K): 3.20
G/T Degradation (dB): 0
Saturation Flux Density (dBW/m^2): -90.5
Saturated EIRP towards NOC (dBW): 48.5
Saturated EIRP towards remote (dBW): 50
Attenuation Setting (dB): 0
Downlink EIRP Outroute (dBW): **50.00**
Downlink EIRP Inroute (dBW): **20.04**

Remote: Nassau
Latitude (deg North): 25.044
Longitude (deg East): -77.466
TX Antenna Gain (dBi): 28.80
TX Power (dBm): 41.5
TX Backoff (dB): 1
Power into flange (dBW/4 kHz): **-13.58**
RX G/T (dB/K): 11.70
Antenna Mispoint (dB): 0.5
Rain Attenuation (dB): 0
Atmospheric Attenuation (dB): 0.5

Inroute Uplink Interference
Adjacent Channel Uplink (dB): -30.0
Adjacent Satellite Uplink (dB): -17.0
Cross-Pol Uplink (dB): -20.0
Intermod Uplink (dB): -20.0
Cumulative Interf. Uplink (dB): **-13.88**

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	39.30	38.30	38.30
Uplink Path Loss (dB)	206.81	206.81	206.81
Spreading Loss (dB)	-162.26	-162.26	-162.26
Flux Density at Satellite (dBW/m^2)	-122.96	-123.96	-123.96
Uplink C/T (dB)	-162.51	-163.51	-163.51
C/No (dB)	66.09	65.09	65.09
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.99**	**4.99**	**4.46**
Satellite downlink EIRP (dBW)	21.04	20.04	20.04
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-147.64	-150.64	-150.64
C/No (dB)	80.96	77.96	77.96
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.86**	**17.86**	**15.01**
Cumulative C/N (dB)	5.85	4.77	4.09
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.75**	**2.67**	**1.99**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 25 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	50.00	50.00	50.00
Downlink Path Loss (dB)	205.32	205.32	205.32
Downlink C/T (dB)	-143.62	-144.62	-144.62
C/No (dB)	10.21	9.21	9.21
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**10.21**	**9.21**	**6.18**
Cumulative C/N (dB)	10.16	9.15	5.92
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**7.76**	**6.75**	**3.52**

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	2.048
Spread BW (MHz):	2.048
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	5.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	50
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**50.00**
Downlink EIRP Inroute (dBW):	**23.04**
Remote:	Nassau
Latitude (deg North):	25.044
Longitude (deg East):	-77.466
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	44.5
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-13.59**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 25 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**2.048**	**Msps**	in bandwidth	**2.048**	**MHz**	
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**	

		Lat	Long
Remote:	Nassau	25.044	-77.466
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	42.30	41.30	41.30
Uplink Path Loss (dB)	206.81	206.81	206.81
Spreading Loss (dB)	-162.26	-162.26	-162.26
Flux Density at Satellite (dBW/m^2)	-119.96	-120.96	-120.96
Uplink C/T (dB)	-159.51	-160.51	-160.51
C/No (dB)	69.09	68.09	68.09
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.98**	**4.98**	**4.45**
Satellite downlink EIRP (dBW)	24.04	23.04	23.04
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-144.64	-147.64	-147.64
C/No (dB)	83.96	80.96	80.96
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.85**	**17.85**	**15.01**
Cumulative C/N (dB)	5.84	4.76	4.08
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.74**	**2.66**	**1.98**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 25 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	50.00	50.00	50.00
Downlink Path Loss (dB)	205.32	205.32	205.32
Downlink C/T (dB)	-143.62	-144.62	-144.62
C/No (dB)	10.21	9.21	9.21
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**10.21**	**9.21**	**6.18**
Cumulative C/N (dB)	10.16	9.15	5.92
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**7.76**	**6.75**	**3.52**

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	2.048
Spread BW (MHz):	4.096
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	5.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	50
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**50.00**
Downlink EIRP Inroute (dBW):	**23.54**
Remote:	Nassau
Latitude (deg North):	25.044
Longitude (deg East):	-77.466
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	45
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-16.10**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 25 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**2.048**	**Msps**	in bandwidth	**4.096**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	**Long**
Remote:	Nassau	25.044	-77.466
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	42.80	41.80	41.80
Uplink Path Loss (dB)	206.81	206.81	206.81
Spreading Loss (dB)	-162.26	-162.26	-162.26
Flux Density at Satellite (dBW/m^2)	-119.46	-120.46	-120.46
Uplink C/T (dB)	-159.01	-160.01	-160.01
C/No (dB)	69.59	68.59	68.59
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**6.48**	**5.48**	**4.89**
Satellite downlink EIRP (dBW)	24.54	23.54	23.54
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-144.14	-147.14	-147.14
C/No (dB)	84.46	81.46	81.46
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**21.35**	**18.35**	**15.26**
Cumulative C/N (dB)	6.34	5.26	4.51
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**4.24**	**3.16**	**2.41**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 25 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	50.00	50.00	50.00
Downlink Path Loss (dB)	205.32	205.32	205.32
Downlink C/T (dB)	-143.62	-144.62	-144.62
C/No (dB)	10.21	9.21	9.21
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**10.21**	**9.21**	**6.18**
Cumulative C/N (dB)	10.16	9.15	5.92
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**7.76**	**6.75**	**3.52**

AMC-3 Link Budgets

Applicable to a skew angle of 35 degrees

Applicable transmit powers and emission bandwidths:

40.0 dBm in 1.024 MHz (14.7 dBW/4 kHz)

43.0 dBm in 2.048 MHz (14.7 dBW/4 kHz)

45.0 dBm in 4.096 MHz (13.7 dBW/4 kHz)

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	0.512
Spread BW (MHz):	1.024
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	3.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**16.61**
Remote:	Montego Bay
Latitude (deg North):	18.498
Longitude (deg East):	-77.918
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	40
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-15.08**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 35 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**0.512**	**Msps**	in bandwidth	**1.024**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Montego Bay	18.498	-77.918
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	37.80	36.80	36.80
Uplink Path Loss (dB)	206.74	206.74	206.74
Spreading Loss (dB)	-162.19	-162.19	-162.19
Flux Density at Satellite (dBW/m^2)	-124.39	-125.39	-125.39
Uplink C/T (dB)	-165.94	-166.94	-166.94
C/No (dB)	62.66	61.66	61.66
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.57**	**4.57**	**4.09**
Satellite downlink EIRP (dBW)	17.61	16.61	16.61
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-151.07	-154.07	-154.07
C/No (dB)	77.53	74.53	74.53
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.44**	**17.44**	**14.79**
Cumulative C/N (dB)	5.43	4.35	3.73
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.33**	**2.25**	**1.63**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 35 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.25	205.25	205.25
Downlink C/T (dB)	-145.55	-146.55	-146.55
C/No (dB)	8.28	7.28	7.28
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**8.28**	**7.28**	**5.11**
Cumulative C/N (dB)	8.25	7.24	4.91
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.85**	**4.84**	**2.51**

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	1.024
Spread BW (MHz):	2.048
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	3.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**19.61**
Remote:	Montego Bay
Latitude (deg North):	18.498
Longitude (deg East):	-77.918
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	43
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-15.09**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 35 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**1.024**	**Msps**	in bandwidth	**2.048**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Montego Bay	18.498	-77.918
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	40.80	39.80	39.80
Uplink Path Loss (dB)	206.74	206.74	206.74
Spreading Loss (dB)	-162.19	-162.19	-162.19
Flux Density at Satellite (dBW/m^2)	-121.39	-122.39	-122.39
Uplink C/T (dB)	-162.94	-163.94	-163.94
C/No (dB)	65.66	64.66	64.66
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.56**	**4.56**	**4.08**
Satellite downlink EIRP (dBW)	20.61	19.61	19.61
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-148.07	-151.07	-151.07
C/No (dB)	80.53	77.53	77.53
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.43**	**17.43**	**14.78**
Cumulative C/N (dB)	5.42	4.34	3.72
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.32**	**2.24**	**1.62**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 35 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.25	205.25	205.25
Downlink C/T (dB)	-145.55	-146.55	-146.55
C/No (dB)	8.28	7.28	7.28
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**8.28**	**7.28**	**5.11**
Cumulative C/N (dB)	8.25	7.24	4.91
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.85**	**4.84**	**2.51**

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	2.048
Spread BW (MHz):	4.096
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	3.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**21.61**
Remote:	Montego Bay
Latitude (deg North):	18.498
Longitude (deg East):	-77.918
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	45
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-16.10**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 35 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**2.048**	**Msps**	in bandwidth	**4.096**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Montego Bay	18.498	-77.918
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	42.80	41.80	41.80
Uplink Path Loss (dB)	206.74	206.74	206.74
Spreading Loss (dB)	-162.19	-162.19	-162.19
Flux Density at Satellite (dBW/m^2)	-119.39	-120.39	-120.39
Uplink C/T (dB)	-160.94	-161.94	-161.94
C/No (dB)	67.66	66.66	66.66
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**4.55**	**3.55**	**3.16**
Satellite downlink EIRP (dBW)	22.61	21.61	21.61
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-146.07	-149.07	-149.07
C/No (dB)	82.53	79.53	79.53
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**19.42**	**16.42**	**14.21**
Cumulative C/N (dB)	4.41	3.33	2.83
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**2.31**	**1.23**	**0.73**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 35 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.25	205.25	205.25
Downlink C/T (dB)	-145.55	-146.55	-146.55
C/No (dB)	8.28	7.28	7.28
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**8.28**	**7.28**	**5.11**
Cumulative C/N (dB)	8.25	7.24	4.91
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.85**	**4.84**	**2.51**

AMC-3 Link Budgets

Applicable to a skew angle of 45 degrees

Applicable transmit powers and emission bandwidths:

39.0 dBm in 1.024 MHz (13.7 dBW/4 kHz)

42.0 dBm in 2.048 MHz (13.7 dBW/4 kHz)

45.0 dBm in 4.096 MHz (13.7 dBW/4 kHz)

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	0.512
Spread BW (MHz):	1.024
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	4.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**16.52**
Remote:	Cancun
Latitude (deg North):	21.038
Longitude (deg East):	-86.874
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	39
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-16.08**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 45 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**0.512**	**Msps**	in bandwidth	**1.024**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Cancun	21.038	-86.874
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	36.80	35.80	35.80
Uplink Path Loss (dB)	206.84	206.84	206.84
Spreading Loss (dB)	-162.28	-162.28	-162.28
Flux Density at Satellite (dBW/m^2)	-125.48	-126.48	-126.48
Uplink C/T (dB)	-166.04	-167.04	-167.04
C/No (dB)	62.57	61.57	61.57
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.47**	**4.47**	**4.00**
Satellite downlink EIRP (dBW)	17.52	16.52	16.52
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-151.16	-154.16	-154.16
C/No (dB)	77.44	74.44	74.44
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.35**	**17.35**	**14.74**
Cumulative C/N (dB)	5.33	4.25	3.65
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.23**	**2.15**	**1.55**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 45 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.34	205.34	205.34
Downlink C/T (dB)	-145.64	-146.64	-146.64
C/No (dB)	8.19	7.19	7.19
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**8.19**	**7.19**	**5.06**
Cumulative C/N (dB)	8.16	7.15	4.86
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.76**	**4.75**	**2.46**

Inroute Signal: QPSK Rate 1/2
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Baseband BW (MHz): 1.024
Spread BW (MHz): 2.048
Required C/N (dB): 2.1

Outroute Signal: QPSK Rate 3/5
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Bandwidth (MHz): 30
Required C/N (dB): 2.4

Satellite: AMC_3
Longitude (deg East): -67
G/T towards Remote (dB/K): 4.00
G/T towards NOC (dB/K): 3.20
G/T Degradation (dB): 0
Saturation Flux Density (dBW/m^2): -90.5
Saturated EIRP towards NOC (dBW): 48.5
Saturated EIRP towards remote (dBW): 48
Attenuation Setting (dB): 0
Downlink EIRP Outroute (dBW): **48.00**
Downlink EIRP Inroute (dBW): **19.52**

Remote: Cancun
Latitude (deg North): 21.038
Longitude (deg East): -86.874
TX Antenna Gain (dBi): 28.80
TX Power (dBm): 42
TX Backoff (dB): 1
Power into flange (dBW/4 kHz): **-16.09**
RX G/T (dB/K): 11.70
Antenna Mispoint (dB): 0.5
Rain Attenuation (dB): 0
Atmospheric Attenuation (dB): 0.5

Inroute Uplink Interference
Adjacent Channel Uplink (dB): -30.0
Adjacent Satellite Uplink (dB): -17.0
Cross-Pol Uplink (dB): -20.0
Intermod Uplink (dB): -20.0
Cumulative Interf. Uplink (dB): **-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 45 degrees

Inroute signal: QPSK Rate 1/2 rate **1.024 Msps** in bandwidth **2.048 MHz**
Outroute signal: QPSK Rate 3/5 rate **30 Msps** in bandwidth **30 MHz**

		Lat	Long
Remote:	Cancun	21.038	-86.874
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	39.80	38.80	38.80
Uplink Path Loss (dB)	206.84	206.84	206.84
Spreading Loss (dB)	-162.28	-162.28	-162.28
Flux Density at Satellite (dBW/m^2)	-122.48	-123.48	-123.48
Uplink C/T (dB)	-163.04	-164.04	-164.04
C/No (dB)	65.57	64.57	64.57
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.46**	**4.46**	**3.99**
Satellite downlink EIRP (dBW)	20.52	19.52	19.52
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-148.16	-151.16	-151.16
C/No (dB)	80.44	77.44	77.44
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.34**	**17.34**	**14.73**
Cumulative C/N (dB)	5.32	4.24	3.64
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.22**	**2.14**	**1.54**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 45 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.34	205.34	205.34
Downlink C/T (dB)	-145.64	-146.64	-146.64
C/No (dB)	8.19	7.19	7.19
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**8.19**	**7.19**	**5.06**
Cumulative C/N (dB)	8.16	7.15	4.86
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.76**	**4.75**	**2.46**

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	2.048
Spread BW (MHz):	4.096
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	4.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**22.52**
Remote:	Cancun
Latitude (deg North):	21.038
Longitude (deg East):	-86.874
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	45
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-16.10**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 45 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**2.048**	**Msps**	in bandwidth	**4.096**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Cancun	21.038	-86.874
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	42.80	41.80	41.80
Uplink Path Loss (dB)	206.84	206.84	206.84
Spreading Loss (dB)	-162.28	-162.28	-162.28
Flux Density at Satellite (dBW/m^2)	-119.48	-120.48	-120.48
Uplink C/T (dB)	-160.04	-161.04	-161.04
C/No (dB)	68.57	67.57	67.57
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**5.45**	**4.45**	**3.98**
Satellite downlink EIRP (dBW)	23.52	22.52	22.52
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-145.16	-148.16	-148.16
C/No (dB)	83.44	80.44	80.44
Noise BW (dB-Hz)	63.11	63.11	63.11
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.33**	**17.33**	**14.73**
Cumulative C/N (dB)	5.31	4.23	3.63
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**3.21**	**2.13**	**1.53**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 45 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.34	205.34	205.34
Downlink C/T (dB)	-145.64	-146.64	-146.64
C/No (dB)	8.19	7.19	7.19
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**8.19**	**7.19**	**5.06**
Cumulative C/N (dB)	8.16	7.15	4.86
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.76**	**4.75**	**2.46**

AMC-3 Link Budgets

Applicable to a skew angle of 55 degrees

Applicable transmit powers and emission bandwidths:

37.2 dBm in 1.024 MHz (11.9 dBW/4 kHz)

40.2 dBm in 2.048 MHz (11.9 dBW/4 kHz)

43.2 dBm in 4.096 MHz (11.9 dBW/4 kHz)

Inroute Signal:	QPSK Rate 2/3
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	0.256
Spread BW (MHz):	1.024
Required C/N (dB):	4.2
Outroute Signal:	QPSK Rate 3/4
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	4.2
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	4.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**14.16**
Remote:	San Diego
Latitude (deg North):	32.73
Longitude (deg East):	-117.19
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	37.2
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-17.88**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 55 degrees

Inroute signal:	**QPSK Rate 2/3**	rate	**0.256**	**Msps**	in bandwidth	**1.024**	**MHz**
Outroute signal:	**QPSK Rate 3/4**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	San Diego	32.73	-117.19
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	35.00	34.00	34.00
Uplink Path Loss (dB)	207.39	207.39	207.39
Spreading Loss (dB)	-162.84	-162.84	-162.84
Flux Density at Satellite (dBW/m^2)	-127.84	-128.84	-128.84
Uplink C/T (dB)	-168.39	-169.39	-169.39
C/No (dB)	60.21	59.21	59.21
Noise BW (dB-Hz)	54.08	54.08	54.08
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**6.13**	**5.13**	**4.59**
Satellite downlink EIRP (dBW)	15.16	14.16	14.16
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-153.51	-156.51	-156.51
C/No (dB)	75.09	72.09	72.09
Noise BW (dB-Hz)	54.08	54.08	54.08
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**21.01**	**18.01**	**15.09**
Cumulative C/N (dB)	5.99	4.91	4.22
Necessary C/N (dB)	4.20	4.20	4.20
Cumulative Inroute Link Margin (dB)	**1.79**	**0.71**	**0.02**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 55 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.89	205.89	205.89
Downlink C/T (dB)	-146.19	-147.19	-147.19
C/No (dB)	7.64	6.64	6.64
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.64**	**6.64**	**4.71**
Cumulative C/N (dB)	7.61	6.60	4.53
Necessary C/N (dB)	4.2	4.2	4.2
Cumulative Outroute Link Margin (dB)	**3.41**	**2.40**	**0.33**

Inroute Signal:	QPSK Rate 2/3
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	0.512
Spread BW (MHz):	2.048
Required C/N (dB):	4.2
Outroute Signal:	QPSK Rate 3/4
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	4.2
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	4.00
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**17.16**
Remote:	San Diego
Latitude (deg North):	32.73
Longitude (deg East):	-117.19
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	40.2
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-17.89**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 55 degrees

Inroute signal: QPSK Rate 2/3 rate **0.512 Msps** in bandwidth **2.048 MHz**

Outroute signal: QPSK Rate 3/4 rate **30 Msps** in bandwidth **30 MHz**

		Lat	Long
Remote:	San Diego	32.73	-117.19
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	38.00	37.00	37.00
Uplink Path Loss (dB)	207.39	207.39	207.39
Spreading Loss (dB)	-162.84	-162.84	-162.84
Flux Density at Satellite (dBW/m^2)	-124.84	-125.84	-125.84
Uplink C/T (dB)	-165.39	-166.39	-166.39
C/No (dB)	63.21	62.21	62.21
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**6.12**	**5.12**	**4.58**
Satellite downlink EIRP (dBW)	18.16	17.16	17.16
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-150.51	-153.51	-153.51
C/No (dB)	78.09	75.09	75.09
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**21.00**	**18.00**	**15.08**
Cumulative C/N (dB)	5.98	4.90	4.21
Necessary C/N (dB)	4.20	4.20	4.20
Cumulative Inroute Link Margin (dB)	**1.78**	**0.70**	**0.01**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 55 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.89	205.89	205.89
Downlink C/T (dB)	-146.19	-147.19	-147.19
C/No (dB)	7.64	6.64	6.64
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.64**	**6.64**	**4.71**
Cumulative C/N (dB)	7.61	6.60	4.53
Necessary C/N (dB)	4.2	4.2	4.2
Cumulative Outroute Link Margin (dB)	**3.41**	**2.40**	**0.33**

Inroute Signal: QPSK Rate 2/3
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Baseband BW (MHz): 1.024
Spread BW (MHz): 4.096
Required C/N (dB): 4.2

Outroute Signal: QPSK Rate 3/4
Uplink Frequency (MHz): 14250
Downlink Frequency (MHz): 12000
Bandwidth (MHz): 30
Required C/N (dB): 4.2

Satellite: AMC_3
Longitude (deg East): -67
G/T towards Remote (dB/K): 4.00
G/T towards NOC (dB/K): 3.20
G/T Degradation (dB): 0
Saturation Flux Density (dBW/m^2): -90.5
Saturated EIRP towards NOC (dBW): 48.5
Saturated EIRP towards remote (dBW): 48
Attenuation Setting (dB): 0
Downlink EIRP Outroute (dBW): **48.00**
Downlink EIRP Inroute (dBW): **20.16**

Remote: San Diego
Latitude (deg North): 32.73
Longitude (deg East): -117.19
TX Antenna Gain (dBi): 28.80
TX Power (dBm): 43.2
TX Backoff (dB): 1
Power into flange (dBW/4 kHz): **-17.90**
RX G/T (dB/K): 11.70
Antenna Mispoint (dB): 0.5
Rain Attenuation (dB): 0
Atmospheric Attenuation (dB): 0.5

Inroute Uplink Interference
Adjacent Channel Uplink (dB): -30.0
Adjacent Satellite Uplink (dB): -17.0
Cross-Pol Uplink (dB): -20.0
Intermod Uplink (dB): -20.0
Cumulative Interf. Uplink (dB): **-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 55 degrees

Inroute signal: QPSK Rate 2/3 rate **1.024 Msps** in bandwidth **4.096 MHz**
Outroute signal: QPSK Rate 3/4 rate **30 Msps** in bandwidth **30 MHz**

		Lat	Long
Remote:	San Diego	32.73	-117.19
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	41.00	40.00	40.00
Uplink Path Loss (dB)	207.39	207.39	207.39
Spreading Loss (dB)	-162.84	-162.84	-162.84
Flux Density at Satellite (dBW/m^2)	-121.84	-122.84	-122.84
Uplink C/T (dB)	-162.39	-163.39	-163.39
C/No (dB)	66.21	65.21	65.21
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**6.11**	**5.11**	**4.57**
Satellite downlink EIRP (dBW)	21.16	20.16	20.16
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-147.51	-150.51	-150.51
C/No (dB)	81.09	78.09	78.09
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**20.99**	**17.99**	**15.08**
Cumulative C/N (dB)	5.97	4.89	4.20
Necessary C/N (dB)	4.20	4.20	4.20
Cumulative Inroute Link Margin (dB)	**1.77**	**0.69**	**0.00**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 55 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.89	205.89	205.89
Downlink C/T (dB)	-146.19	-147.19	-147.19
C/No (dB)	7.64	6.64	6.64
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.64**	**6.64**	**4.71**
Cumulative C/N (dB)	7.61	6.60	4.53
Necessary C/N (dB)	4.2	4.2	4.2
Cumulative Outroute Link Margin (dB)	**3.41**	**2.40**	**0.33**

AMC-3 Link Budgets

Applicable to a skew angle of 65 degrees

Applicable transmit powers and emission bandwidths:

34.5 dBm in 1.024 MHz (9.2 dBW/4 kHz)

37.5 dBm in 2.048 MHz (9.2 dBW/4 kHz)

40.5 dBm in 4.096 MHz (9.2 dBW/4 kHz)

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	0.256
Spread BW (MHz):	1.024
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	5.10
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**12.78**
Remote:	Cabo
Latitude (deg North):	23.155
Longitude (deg East):	-109.72
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	34.5
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-20.58**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 65 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**0.256**	**Msps**	in bandwidth	**1.024**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Cabo	23.155	-109.72
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	32.30	31.30	31.30
Uplink Path Loss (dB)	207.17	207.17	207.17
Spreading Loss (dB)	-162.62	-162.62	-162.62
Flux Density at Satellite (dBW/m^2)	-130.32	-131.32	-131.32
Uplink C/T (dB)	-169.77	-170.77	-170.77
C/No (dB)	58.83	57.83	57.83
Noise BW (dB-Hz)	54.08	54.08	54.08
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**4.75**	**3.75**	**3.34**
Satellite downlink EIRP (dBW)	13.78	12.78	12.78
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-154.90	-157.90	-157.90
C/No (dB)	73.70	70.70	70.70
Noise BW (dB-Hz)	54.08	54.08	54.08
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**19.62**	**16.62**	**14.33**
Cumulative C/N (dB)	4.61	3.53	3.01
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**2.51**	**1.43**	**0.91**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 65 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.68	205.68	205.68
Downlink C/T (dB)	-145.98	-146.98	-146.98
C/No (dB)	7.85	6.85	6.85
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.85**	**6.85**	**4.85**
Cumulative C/N (dB)	7.82	6.81	4.66
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.42**	**4.41**	**2.26**

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	0.512
Spread BW (MHz):	2.048
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	5.10
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**15.78**
Remote:	Cabo
Latitude (deg North):	23.155
Longitude (deg East):	-109.72
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	37.5
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-20.59**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 65 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**0.512**	**Msps**	in bandwidth	**2.048**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Cabo	23.155	-109.72
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	35.30	34.30	34.30
Uplink Path Loss (dB)	207.17	207.17	207.17
Spreading Loss (dB)	-162.62	-162.62	-162.62
Flux Density at Satellite (dBW/m^2)	-127.32	-128.32	-128.32
Uplink C/T (dB)	-166.77	-167.77	-167.77
C/No (dB)	61.83	60.83	60.83
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**4.74**	**3.74**	**3.33**
Satellite downlink EIRP (dBW)	16.78	15.78	15.78
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-151.90	-154.90	-154.90
C/No (dB)	76.70	73.70	73.70
Noise BW (dB-Hz)	57.09	57.09	57.09
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**19.61**	**16.61**	**14.32**
Cumulative C/N (dB)	4.60	3.52	3.00
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**2.50**	**1.42**	**0.90**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 65 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.68	205.68	205.68
Downlink C/T (dB)	-145.98	-146.98	-146.98
C/No (dB)	7.85	6.85	6.85
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.85**	**6.85**	**4.85**
Cumulative C/N (dB)	7.82	6.81	4.66
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.42**	**4.41**	**2.26**

Inroute Signal:	QPSK Rate 1/2
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Baseband BW (MHz):	1.024
Spread BW (MHz):	4.096
Required C/N (dB):	2.1
Outroute Signal:	QPSK Rate 3/5
Uplink Frequency (MHz):	14250
Downlink Frequency (MHz):	12000
Bandwidth (MHz):	30
Required C/N (dB):	2.4
Satellite:	AMC_3
Longitude (deg East):	-67
G/T towards Remote (dB/K):	5.10
G/T towards NOC (dB/K):	3.20
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m^2):	-90.5
Saturated EIRP towards NOC (dBW):	48.5
Saturated EIRP towards remote (dBW):	48
Attenuation Setting (dB):	0
Downlink EIRP Outroute (dBW):	**48.00**
Downlink EIRP Inroute (dBW):	**18.78**
Remote:	Cabo
Latitude (deg North):	23.155
Longitude (deg East):	-109.72
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	40.5
TX Backoff (dB):	1
Power into flange (dBW/4 kHz):	**-20.60**
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5
Inroute Uplink Interference	
Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-17.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-20.0
Cumulative Interf. Uplink (dB):	**-13.88**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 65 degrees

Inroute signal:	**QPSK Rate 1/2**	rate	**1.024**	**Msps**	in bandwidth	**4.096**	**MHz**
Outroute signal:	**QPSK Rate 3/5**	rate	**30**	**Msps**	in bandwidth	**30**	**MHz**

		Lat	Long
Remote:	Cabo	23.155	-109.72
NOC:	Perris CA	33.76	-117.32

Inroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	38.30	37.30	37.30
Uplink Path Loss (dB)	207.17	207.17	207.17
Spreading Loss (dB)	-162.62	-162.62	-162.62
Flux Density at Satellite (dBW/m^2)	-124.32	-125.32	-125.32
Uplink C/T (dB)	-163.77	-164.77	-164.77
C/No (dB)	64.83	63.83	63.83
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-13.88
Uplink C/N (dB)	**4.73**	**3.73**	**3.33**
Satellite downlink EIRP (dBW)	19.78	18.78	18.78
Downlink Path Loss (dB)	205.91	205.91	205.91
Downlink C/T (dB)	-148.90	-151.90	-151.90
C/No (dB)	79.70	76.70	76.70
Noise BW (dB-Hz)	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-18.19
Downlink C/N (dB)	**19.60**	**16.60**	**14.31**
Cumulative C/N (dB)	4.59	3.51	2.99
Necessary C/N (dB)	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	**2.49**	**1.41**	**0.89**

Link Budget for satellite AMC_3 at -67.0 degrees

Skew operational limit: 65 degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-10.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-20.0
Cumulative Interf. Downlink (dB):	**-9.17**

NOC:

	Perris CA
Latitude (deg North):	33.76
Longitude (deg East):	-117.32
Antennna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX power (dBm):	50
TX backoff (dB):	0
Power into flange (dBW/ 4 kHz):	**-18.75**
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	1
Atmospheric Attenuation (dB):	0.5

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-20.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	**-18.19**

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-20.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	**-18.86**

Outroute Path:	**Ideal Link**	**Mispoint/ Rain/ Atmospheric Losses**	**Intermod/ Satellite/ Cross-pol Interference**
EIRP towards satellite (dBW)	80.10	78.10	78.10
Uplink Path Loss (dB)	207.40	207.40	207.40
Spreading Loss (dB)	-162.85	-162.85	-162.85
Flux Density at Satellite (dBW/m^2)	-82.75	-84.75	-84.75
Uplink C/T (dB)	-124.10	-126.10	-126.10
C/No (dB)	104.50	102.50	102.50
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-18.86
Uplink C/N (dB)	**29.73**	**27.73**	**18.33**
Satellite downlink EIRP (dBW)	48.00	48.00	48.00
Downlink Path Loss (dB)	205.68	205.68	205.68
Downlink C/T (dB)	-145.98	-146.98	-146.98
C/No (dB)	7.85	6.85	6.85
Noise BW (dB-Hz)	74.77	74.77	74.77
Interference (dB)	N/A	N/A	-9.17
Downlink C/N (dB)	**7.85**	**6.85**	**4.85**
Cumulative C/N (dB)	7.82	6.81	4.66
Necessary C/N (dB)	2.4	2.4	2.4
Cumulative Outroute Link Margin (dB)	**5.42**	**4.41**	**2.26**