

Exhibit B

Remote Terminal #2 (SAA) Link Budgets

TECOM Antenna (SAA) 15 Degree (low) Skew Inbound Link Budget

TECOM Antenna (SAA) 15 Degree (low) Skew Outbound Link Budget

TECOM Antenna (SAA) 65 Degree (high) Skew Inbound Link Budget

TECOM Antenna (SAA) 65 Degree (high) Skew Outbound Link Budget

Remote Terminal #3 (GSAA) Link Budgets

QEST Antenna (GSAA) 0 Degree (low) Skew Inbound Link Budget

QEST Antenna (GSAA) 0 Degree (low) Skew Outbound Link Budget

QEST Antenna (GSAA) 65 Degree (high) Skew Inbound Link Budget

QEST Antenna (GSAA) 65 Degree (high) Skew Outbound Link Budget

T-12 Coverage Contour

Inroute Signal:	QPSK 1/2
Uplink Frequency (MHz):	14125.0
Downlink Frequency (MHz):	12250.0
Baseband BW (MHz):	1.024
Spread BW (MHz):	1.024
Required C/N (dB):	2.10

Ku Antenna Link Budget

Link Budget for satellite **T-12** at **-109.2** degreesSkew operational limit: **15** degrees

Outroute Signal:	QPSK 9/10
Uplink Frequency (MHz):	14125.0
Downlink Frequency (MHz):	12250.0
Bandwidth (MHz):	45
Required C/N (dB):	6.60

Inroute signal:	QPSK 1/2	rate	1.024	Msp	in bandwidth	1.024	MHz
Outroute signal:	QPSK 9/10	rate	45	Msp	in bandwidth	45	MHz

Satellite:	T-12
Longitude (deg East):	-109.2
Maximum Saturated Downlink EIRP (dBW):	52.7
G/T towards Remote (dB/K):	2.79
G/T towards NOC (dB/K):	2.40
G/T Degradation (dB):	0
Saturation Flux Density (dBW/m ²):	-90
Attenuation Setting (dB):	3
Saturated EIRP towards NOC (dBW):	51
Saturated EIRP towards Remote (dBW):	51.7
Max Authorized Downlink EIRP (dBW/Hz):	-22

Remote:	Los Angeles	<u>Lat</u>	<u>Long</u>
		33.67	-117.87
NOC:	SLC	40.72	-111.9

Remote:	Los Angeles
Latitude (deg North):	33.67
Longitude (deg East):	-117.87
TX Antenna Gain (dBi):	28.80
TX Power (dBm):	42.50
TX Backoff (dB):	0.00
Power into flange w losses (dBW/4 kHz):	-11.58
Unimpaired EIRP Density (dBW/ 4 kHz)	17.22
RX G/T (dB/K):	11.70
Antenna Mispoint (dB):	0.50
Rain Attenuation (dB):	0.00
Atmospheric Attenuation (dB):	0.50

	<u>Inroute Path:</u>	<u>Ideal Link</u>	<u>Mispoint/ Rain/ Atmospheric Losses</u>	<u>Ideal w/ Satellite/ Cross-pol Interference</u>	<u>Mispoint/ Intermod/ Satellite/ Cross-pol Interference</u>
EIRP towards satellite (dBW)		41.30	40.30	41.30	40.30
Uplink Path Loss (dB)		206.84	206.84	206.84	206.84
Spreading Loss (dB)		-162.38	-162.38	-162.38	-162.38
Flux Density at Satellite (dBW/m ²)		-121.08	-122.08	-121.08	-122.08
Uplink C/T (dB)		-162.75	-163.75	-162.75	-163.75
C/No (dB)		65.86	64.86	65.86	64.86
Noise BW (dB-Hz)		60.10	60.10	60.10	60.10
Interference (dB)		N/A	N/A	-11.99	-11.99
Uplink C/N (dB)		5.75	4.75	4.83	4.00
Satellite downlink EIRP (dBW)		19.71	18.71	19.71	18.71
Downlink Path Loss (dB)		205.71	205.71	205.71	205.71
Downlink C/T (dB)		-148.77	-150.77	-148.77	-150.77
C/No (dB)		79.83	77.83	79.83	77.83
Noise BW (dB-Hz)		60.10	60.10	60.10	60.10
Interference (dB)		N/A	N/A	-11.99	-11.99
Downlink C/N (dB)		19.73	17.73	11.32	10.96
Cumulative C/N (dB)		5.58	4.54	3.95	3.20
Necessary C/N (dB)		2.10	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)		3.48	2.44	1.85	1.10

Inroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-15.1
Cross-Pol Uplink (dB):	-15.1
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-11.99

Ku Antenna Link Budget

Link Budget for satellite **T-12** at **-109.2** degrees

Skew operational limit: **15** degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-25.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-20.80

NOC:

SLC	
Latitude (deg North):	40.72
Longitude (deg East):	-111.9
Antenna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134.00
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX backoff (dB):	0.00
Conducted TX Power to Antenna (dBW):	25.00
Power into flange (dBW/ 4 kHz):	-15.51
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5

Outroute Path:

	<u>Ideal Link</u>	<u>Mispoint/ Rain/ Atmospheric Losses</u>	<u>Ideal w/ Satellite/ Cross-pol Interference</u>	<u>Mispoint / Intermod/ Satellite/ Cross-pol Interference</u>
EIRP towards satellite (dBW)	85.10	84.10	85.10	84.10
Uplink Path Loss (dB)	206.95	206.95	206.95	206.95
Spreading Loss (dB)	-162.49	-162.49	-162.49	-162.49
Flux Density at Satellite (dBW/m^2)	-77.39	-78.39	-77.39	-78.39
Uplink C/T (dB)	-119.45	-120.45	-119.45	-120.45
C/No (dB)	109.16	108.16	109.16	108.16
Noise BW (dB-Hz)	76.53	76.53	76.53	76.53
Interference (dB)	N/A	N/A	-23.98	-23.98
Uplink C/N (dB)	32.62	31.62	23.42	23.29
Satellite downlink EIRP (dBW)	51.70	51.70	51.70	51.70
Downlink Path Loss (dB)	205.60	205.60	205.60	205.60
Downlink C/T (dB)	-142.20	-143.20	-142.20	-143.20
C/No (dB)	86.40	85.40	86.40	85.40
Noise BW (dB-Hz)	76.53	76.53	76.53	76.53
Interference (dB)	N/A	N/A	-20.80	-20.80
Downlink C/N (dB)	9.87	8.87	9.53	8.60
Cumulative C/N (dB)	9.85	8.85	9.36	8.45
Necessary C/N (dB)	6.60	6.60	6.60	6.60
Cumulative Outroute Link Margin (dB)	3.25	2.25	2.76	1.85

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-15.1
Cross-Pol Downlink (dB):	-15.1
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-11.99

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-30.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-23.98

Inroute Signal: QPSK 1/2
 Uplink Frequency (MHz): 14125.0
 Downlink Frequency (MHz): 12250.0
 Baseband BW (MHz): 0.256
 Spread BW (MHz): 2.048
 Required C/N (dB): 2.10

Ku Antenna Link Budget

Link Budget for satellite **T-12** at **-109.2** degrees

Skew operational limit: **65** degrees

Outroute Signal: QPSK 5/6
 Uplink Frequency (MHz): 14125.0
 Downlink Frequency (MHz): 12250.0
 Bandwidth (MHz): 45
 Required C/N (dB): 5.40

Inroute signal: QPSK 1/2 rate 0.256 Msps in bandwidth 2.048 MHz
Outroute signal: QPSK 5/6 rate 45 Msps in bandwidth 45 MHz

Satellite: **T-12**
 Longitude (deg East): -109.2
 Maximum Saturated Downlink EIRP (dBW): 52.7
 G/T towards Remote (dB/K): 0.79
 G/T towards NOC (dB/K): 2.40
 G/T Degradation (dB): 0
 Saturation Flux Density (dBW/m²): -90
 Attenuation Setting (dB): 3
 Saturated EIRP towards NOC (dBW): 51
 Saturated EIRP towards Remote (dBW): 48.7
 Max Authorized Downlink EIRP (dBW/Hz): -22

Remote: **Airborne**
NOC: **SLC**
Lat 16.55
Long -83.8
 40.72 -111.9

Inroute Path:Ideal Link

**Mispoint/
 Rain/
 Atmospheric
 Losses**

**Ideal w/
 Satellite/
 Cross-pol
 Interference**

**Mispoint/
 Intermod/
 Satellite/
 Cross-pol
 Interference**

Remote: **Airborne**
 Latitude (deg North): 16.55
 Longitude (deg East): -83.8
 TX Antenna Gain (dBi): 28.80
 TX Power (dBm): 37.50
 TX Backoff (dB): 0.00
 Power into flange w losses (dBW/4 kHz): -19.59
 Unimpaired EIRP Density (dBW/ 4 kHz): **9.21**
 RX G/T (dB/K): 11.70
 Antenna Mispoint (dB): 0.50
 Rain Attenuation (dB): 0.00
 Atmospheric Attenuation (dB): 0.50

EIRP towards satellite (dBW)	36.30	35.30	36.30	35.30
Uplink Path Loss (dB)	206.76	206.76	206.76	206.76
Spreading Loss (dB)	-162.30	-162.30	-162.30	-162.30
Flux Density at Satellite (dBW/m ²)	-126.00	-127.00	-126.00	-127.00
Uplink C/T (dB)	-169.67	-170.67	-169.67	-170.67
C/No (dB)	58.93	57.93	58.93	57.93
Noise BW (dB-Hz)	54.08	54.08	54.08	54.08
Interference (dB)	N/A	N/A	-11.11	-11.11
Uplink C/N (dB)	4.85	3.85	3.93	3.10
Satellite downlink EIRP (dBW)	12.79	11.79	12.79	11.79
Downlink Path Loss (dB)	205.71	205.71	205.71	205.71
Downlink C/T (dB)	-155.69	-157.69	-155.69	-157.69
C/No (dB)	72.91	70.91	72.91	70.91
Noise BW (dB-Hz)	54.08	54.08	54.08	54.08
Interference (dB)	N/A	N/A	-11.11	-11.11
Downlink C/N (dB)	18.82	16.82	10.43	10.08
Cumulative C/N (dB)	4.68	3.63	3.05	2.31
Necessary C/N (dB)	2.10	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	2.58	1.53	0.95	0.21

Inroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-14.2
Cross-Pol Uplink (dB):	-14.2
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-11.11

Ku Antenna Link Budget

Link Budget for satellite **T-12** at **-109.2** degrees

Skew operational limit: **65** degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-25.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-20.80

NOC:

SLC	
Latitude (deg North):	40.72
Longitude (deg East):	-111.9
Antenna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134.00
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX backoff (dB):	0.00
Conducted TX Power to Antenna (dBW):	25.00
Power into flange (dBW/ 4 kHz):	-15.51
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5

Outroute Path:

	<u>Ideal Link</u>	<u>Atmospheric Losses</u>	<u>Ideal w/ Satellite/ Cross-pol Interference</u>	<u>Mispoint/ Rain/ Atmospheric Losses</u>	<u>Mispoint / Intermod/ Satellite/ Cross-pol Interference</u>
EIRP towards satellite (dBW)	85.10	84.10	85.10	84.10	84.10
Uplink Path Loss (dB)	206.95	206.95	206.95	206.95	206.95
Spreading Loss (dB)	-162.49	-162.49	-162.49	-162.49	-162.49
Flux Density at Satellite (dBW/m^2)	-77.39	-78.39	-77.39	-78.39	-78.39
Uplink C/T (dB)	-119.45	-120.45	-119.45	-120.45	-120.45
C/No (dB)	109.16	108.16	109.16	108.16	108.16
Noise BW (dB-Hz)	76.53	76.53	76.53	76.53	76.53
Interference (dB)	N/A	N/A	-23.98	-23.98	-23.98
Uplink C/N (dB)	32.62	31.62	23.42	23.42	23.29
Satellite downlink EIRP (dBW)	48.70	48.70	48.70	48.70	48.70
Downlink Path Loss (dB)	205.53	205.53	205.53	205.53	205.53
Downlink C/T (dB)	-145.13	-146.13	-145.13	-146.13	-146.13
C/No (dB)	83.48	82.48	83.48	82.48	82.48
Noise BW (dB-Hz)	76.53	76.53	76.53	76.53	76.53
Interference (dB)	N/A	N/A	-20.80	-20.80	-20.80
Downlink C/N (dB)	6.94	5.94	6.77	6.77	5.80
Cumulative C/N (dB)	6.93	5.93	6.68	5.73	5.73
Necessary C/N (dB)	5.40	5.40	5.40	5.40	5.40
Cumulative Outroute Link Margin (dB)	1.53	0.53	1.28	0.33	0.33

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-14.2
Cross-Pol Downlink (dB):	-14.2
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-11.11

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-30.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-23.98

Inroute Signal: QPSK 1/2
 Uplink Frequency (MHz): 14125
 Downlink Frequency (MHz): 12250
 Baseband BW (MHz): 1.024
 Spread BW (MHz): 1.024
 Required C/N (dB): 2.10

GSAA Link Budget

Link Budget for satellite **T-12** at **-109.2** degrees

Regulatory-Operational Skew limit: **0** degrees

Regulatory-Operational Elevation limit: **45** degrees

Outroute Signal: QPSK 9/10
 Uplink Frequency (MHz): 14125
 Downlink Frequency (MHz): 12250
 Bandwidth (MHz): 45
 Required C/N (dB): 6.60

Inroute signal: QPSK 1/2 rate **1.024** Msps in bandwidth **1.024** MHz
Outroute signal: QPSK 9/10 rate **45** Msps in bandwidth **45** MHz

Satellite: **T-12**
 Longitude (deg East): -109.2
 Maximum Saturated Downlink EIRP (dBW): 52.7
 G/T towards Remote (dB/K): 2.79
 G/T towards NOC (dB/K): 2.40
 G/T Degradation (dB): 0
 Saturation Flux Density (dBW/m^2): -90
 Attenuation Setting (dB): 3
 Saturated EIRP towards NOC (dBW): 51
 Saturated EIRP towards Remote (dBW): 51.7
 Max Authorized Downlink EIRP (dBW/Hz): -22

Remote: **Grand Junction**
NOC: **SLC**
Lat **Long**
 39.125 -108.53
 40.72 -111.9

Remote: **Grand Junction**
 Latitude (deg North): 39.125
 Longitude (deg East): -108.53
 TX Antenna Gain (dBi): 33.60
 Coax and Skew Module losses (dB): 5.2
 Radome Loss (dB): 0.5
 TX Power (dBm): **43.68**
 TX Backoff (dB): 0.00
 Power into flange w losses (dBW/4 kHz): **-15.60**
 Unimpaired EIRP Density (dBW/ 4 kHz) **17.50**
 RX G/T (dB/K): 12.60
 Antenna Mispoint (dB): 0.50
 Rain Attenuation (dB): 0.00
 Atmospheric Attenuation (dB): 0.50

<u>Inroute Path:</u>	<u>Ideal Link</u>	<u>Mispoint/ Rain/ Atmospheric Losses</u>	<u>Ideal w/ Satellite/ Cross-pol Interference</u>	<u>Mispoint/ Intermod/ Satellite/ Cross-pol Interference</u>
EIRP towards satellite (dBW)	41.58	40.58	41.58	40.58
Uplink Path Loss (dB)	206.92	206.92	206.92	206.92
Spreading Loss (dB)	-162.46	-162.46	-162.46	-162.46
Flux Density at Satellite (dBW/m^2)	-120.88	-121.88	-120.88	-121.88
Uplink C/T (dB)	-162.54	-163.54	-162.54	-163.54
C/No (dB)	66.06	65.06	66.06	65.06
Noise BW (dB-Hz)	60.10	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-12.19	-12.19
Uplink C/N (dB)	5.96	4.96	5.03	4.20
Satellite downlink EIRP (dBW)	19.91	18.91	19.91	18.91
Downlink Path Loss (dB)	205.71	205.71	205.71	205.71
Downlink C/T (dB)	-148.57	-150.57	-148.57	-150.57
C/No (dB)	80.04	78.04	80.04	78.04
Noise BW (dB-Hz)	60.10	60.10	60.10	60.10
Interference (dB)	N/A	N/A	-12.19	-12.19
Downlink C/N (dB)	19.93	17.93	11.51	11.16
Cumulative C/N (dB)	5.78	4.74	4.15	3.41
Necessary C/N (dB)	2.10	2.10	2.10	2.10
Cumulative Inroute Link Margin (dB)	3.68	2.64	2.05	1.31

Inroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-15.3
Cross-Pol Uplink (dB):	-15.3
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-12.19

GSAA Link Budget

Link Budget for satellite **T-12** at **-109.2** degrees

Regulatory-Operational Skew limit: **0** degrees
 Regulatory-Operational Elevation limit: **45** degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-25.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-20.80

NOC:

SLC	
Latitude (deg North):	40.72
Longitude (deg East):	-111.9
Antenna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134.00
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX backoff (dB):	0.00
Conducted TX Power to Antenna (dBW):	25.00
Power into flange (dBW/ 4 kHz):	-15.51
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5

Outroute Path:

EIRP towards satellite (dBW)	85.10
Uplink Path Loss (dB)	206.95
Spreading Loss (dB)	-162.49
Flux Density at Satellite (dBW/m^2)	-77.39
Uplink C/T (dB)	-119.45
C/No (dB)	109.16
Noise BW (dB-Hz)	76.53
Interference (dB)	N/A
Uplink C/N (dB)	32.62
Satellite downlink EIRP (dBW)	51.70
Downlink Path Loss (dB)	205.68
Downlink C/T (dB)	-141.88
C/No (dB)	86.72
Noise BW (dB-Hz)	76.53
Interference (dB)	N/A
Downlink C/N (dB)	10.19

Ideal Link

85.10	84.10
206.95	206.95
-162.49	-162.49
-78.39	-78.39
-120.45	-120.45
108.16	108.16
76.53	76.53
N/A	N/A
31.62	31.62
51.70	51.70
205.68	205.68
-142.38	-142.38
86.22	86.22
76.53	76.53
N/A	N/A
9.69	9.69

**Mispoint/
Rain/
Atmospheric
Losses**

85.10	85.10
206.95	206.95
-162.49	-162.49
-77.39	-77.39
-119.45	-119.45
109.16	109.16
76.53	76.53
-23.98	-23.98
23.42	23.42
51.70	51.70
205.68	205.68
-141.88	-141.88
86.72	86.72
76.53	76.53
-20.80	-20.80
9.83	9.83

**Ideal w/
Satellite/
Cross-pol
Interference**

84.10	84.10
206.95	206.95
-162.49	-162.49
-78.39	-78.39
-120.45	-120.45
108.16	108.16
76.53	76.53
-23.98	-23.98
23.29	23.29
51.70	51.70
205.68	205.68
-142.38	-142.38
86.22	86.22
76.53	76.53
-20.80	-20.80
9.37	9.37

**Mispoint /
Intermod/
Satellite/
Cross-pol
Interference**

84.10	84.10
206.95	206.95
-162.49	-162.49
-78.39	-78.39
-120.45	-120.45
108.16	108.16
76.53	76.53
-23.98	-23.98
23.29	23.29
51.70	51.70
205.68	205.68
-142.38	-142.38
86.22	86.22
76.53	76.53
-20.80	-20.80
9.37	9.37

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-15.3
Cross-Pol Downlink (dB):	-15.3
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-12.19

Cumulative C/N (dB)	10.17	9.66	9.64	9.19
Necessary C/N (dB)	6.60	6.60	6.60	6.60
Cumulative Outroute Link Margin (dB)	3.57	3.06	3.04	2.59

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-30.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-23.98

Inroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-16.5
Cross-Pol Uplink (dB):	-16.5
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-13.30

GSAA Link Budget

Link Budget for satellite **T-12** at **-109.2** degrees

Outroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-25.0
Cross-Pol Downlink (dB):	-25.0
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-20.80

Regulatory-Operational Skew limit: **65** degrees
Regulatory-Operational Elevation limit: **55** degrees

NOC:

Latitude (deg North):	40.72
Longitude (deg East):	-111.9
Antenna diameter (m):	9 m
RX Antenna Gain (dBi):	58.5
Antenna Noise Temp (K):	64
Antenna LNA Temp (K):	70
Total Noise Temp (K):	134.00
Antenna G/T (dB/K):	37.23
TX Antenna Gain (dBi):	60.1
TX backoff (dB):	0.00
Conducted TX Power to Antenna (dBW):	25.00
Power into flange (dBW/ 4 kHz):	-15.51
Antenna mis-point (dB):	0.5
Rain Attenuation (dB):	0
Atmospheric Attenuation (dB):	0.5

Outroute Path:

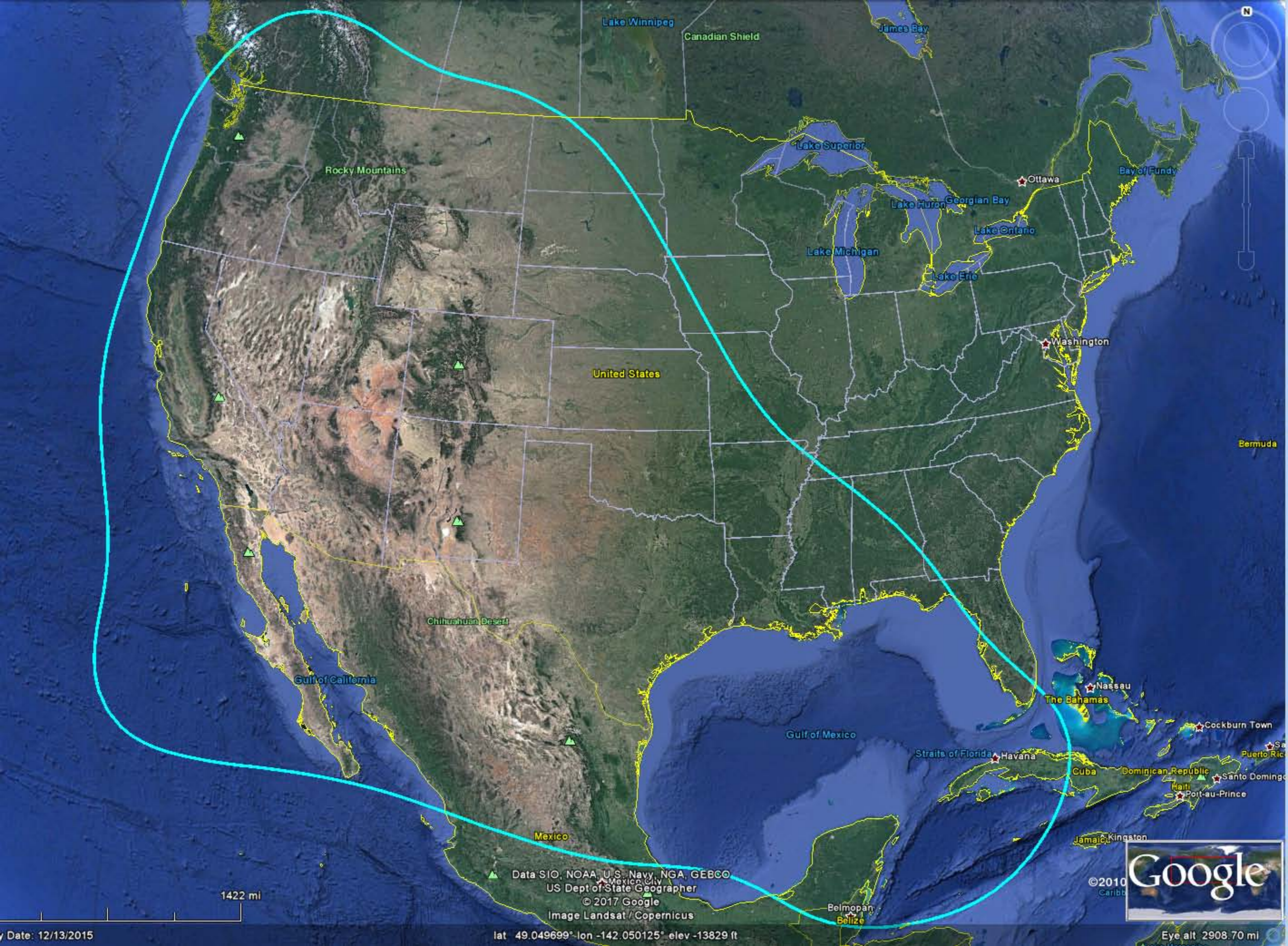
	<u>Ideal Link</u>	<u>Atmospheric Losses</u>	<u>Ideal w/ Satellite/ Cross-pol Interference</u>	<u>Mispoint/ Rain/ Atmospheric Losses</u>	<u>Mispoint / Intermod/ Satellite/ Cross-pol Interference</u>
EIRP towards satellite (dBW)	85.10	84.10	85.10	84.10	84.10
Uplink Path Loss (dB)	206.95	206.95	206.95	206.95	206.95
Spreading Loss (dB)	-162.49	-162.49	-162.49	-162.49	-162.49
Flux Density at Satellite (dBW/m^2)	-77.39	-78.39	-77.39	-78.39	-78.39
Uplink C/T (dB)	-119.45	-120.45	-119.45	-120.45	-120.45
C/No (dB)	109.16	108.16	109.16	108.16	108.16
Noise BW (dB-Hz)	76.53	76.53	76.53	76.53	76.53
Interference (dB)	N/A	N/A	-23.98	-23.98	-23.98
Uplink C/N (dB)	32.62	31.62	23.42	23.42	23.29
Satellite downlink EIRP (dBW)	45.70	45.70	45.70	45.70	45.70
Downlink Path Loss (dB)	205.55	205.55	205.55	205.55	205.55
Downlink C/T (dB)	-147.75	-148.25	-147.75	-148.25	-148.25
C/No (dB)	80.85	80.35	80.85	80.35	80.35
Noise BW (dB-Hz)	76.53	76.53	76.53	76.53	76.53
Interference (dB)	N/A	N/A	-20.80	-20.80	-20.80
Downlink C/N (dB)	4.32	3.82	4.22	4.22	3.73
Cumulative C/N (dB)	4.31	3.81	4.17	3.68	3.68
Necessary C/N (dB)	3.30	3.30	3.30	3.30	3.30
Cumulative Outroute Link Margin (dB)	1.01	0.51	0.87	0.38	0.38

Inroute Downlink Interference

Adjacent Channel Downlink (dB):	-30.0
Adjacent Satellite Downlink (dB):	-16.5
Cross-Pol Downlink (dB):	-16.5
Intermod Downlink (dB):	-30.0
Cumulative Interf. Downlink (dB):	-13.30

Outroute Uplink Interference

Adjacent Channel Uplink (dB):	-30.0
Adjacent Satellite Uplink (dB):	-30.0
Cross-Pol Uplink (dB):	-30.0
Intermod Uplink (dB):	-30.0
Cumulative Interf. Uplink (dB):	-23.98



Lake Winnipeg

Canadian Shield

James Bay

Rocky Mountains

Lake Superior

Ottawa

Bay of Fundy

Lake Huron

Georgian Bay

Lake Ontario

Lake Michigan

Lake Erie

Washington

United States

Bermuda

Chihuahuan Desert

Gulf of California

Gulf of Mexico

Nassau

The Bahamas

Cockburn Town

Straits of Florida

Havana

Cuba

Dominican Republic

Santo Domingo

Haiti

Port-au-Prince

Mexico

Jamaica

Kingston

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
US Dept of State Geographer

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1422 mi

Date: 12/13/2015

lat 49.049699° lon -142.050125° elev -13829 ft

Eye alt 2908.70 mi