

Table D4.1

Wanted System Orbital Location -76.7 deg  
 Interfering System Orbital Location -79 deg and 74W (FCC allocation)  
 Minimum Orbital Separation (Geo-centric) 1.90 deg ; Note: the calculations take topocentric advantage into account

Uplink	I, psd	-47.0	dBw/hz	Tx F	14.000	GHz
Dnlink	I, eirpd	-27.0	dBw/hz	Rx F	11.700	GHz

Carrier Type	64K, 8PSK, R2/3 RS						64K, QPSK, R1/2 RS					
	CONUS	CONUS	Mexico	Mexico	Conus	Conus	CONUS	CONUS	Mexico	Mexico	Conus	Conus
Transmit ES Location	CONUS	CONUS	Mexico	Mexico	Conus	Conus	CONUS	CONUS	Mexico	Mexico	Conus	Conus
Receive ES Location	CONUS	CONUS	Conus	Conus	Mexico	Mexico	CONUS	CONUS	Conus	Conus	Mexico	Mexico
Tx ES Size at SA	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Transmit ES Peak gain	52.7	52.7	52.7	52.7	52.7	52.7	52.7	52.7	52.7	52.7	52.7	52.7
RX ES Size	3.8	12.0	3.8	12.0	3.8	12.0	1.8	3.8	1.8	3.8	1.8	3.8
Receive ES Gain	51.1	61.1	51.1	61.1	51.1	61.1	44.7	51.1	44.7	51.1	44.7	51.1
Receive ES G/T (Temp=105K)	30.9	40.9	30.9	40.9	30.9	40.9	24.4	30.9	24.4	30.9	24.4	30.9
Carrier Type	64KR2/3	64KR2/3	64KR2/3	64KR2/3	64KR2/3	64KR2/3	64KR1/2	64KR1/2	64KR1/2	64KR1/2	64KR1/2	64KR1/2
Occupied bandwidth per carrier (kHz)	34.9	34.9	34.9	34.9	34.9	34.9	69.7	69.7	69.7	69.7	69.7	69.7
Allocated bandwidth per carrier (kHz)	47.1	47.1	47.1	47.1	47.1	47.1	94.1	94.1	94.1	94.1	94.1	94.1
C/N Threshold	10.5	10.5	10.5	10.5	10.5	10.5	4.5	4.5	4.5	4.5	4.5	4.5
System Margin	5.0	5.0	5.0	5.0	2.9	5.0	5.0	5.0	5.0	5.0	3.2	5.0
Other losses(terrestrial, OBE, etc.,)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Clear Sky C/N	16.5	16.5	16.5	16.5	14.4	16.5	10.5	10.5	10.5	10.5	8.7	10.5
Nominal e/s e.i.r.p. per carrier @ES(dBW)	43.9	42.8	46.3	45.2	48.1	43.3	40.5	39.4	42.9	41.9	51.1	40.9
TX ES PSD @ ES	-54.2	-55.3	-51.8	-52.9	-50.0	-54.8	-60.6	-61.7	-58.2	-59.2	-50.0	-60.2
ES eirp @ bp- minimum (dBW)	42.1	41.0	41.7	40.6	46.3	41.5	38.7	37.6	38.3	37.3	49.3	39.1
ES Power @ bp dBW, min	-10.6	-11.7	-11.0	-12.1	-6.4	-11.2	-14.0	-15.1	-14.4	-15.4	-3.4	-13.6
ES Power @ site dBW, max	-8.8	-9.9	-6.4	-7.5	-4.6	-9.4	-12.2	-13.3	-9.8	-10.8	-1.6	-11.8
Sat G/T at bp	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Sat G/T at e/s	0.9	0.9	-1.9	-1.9	0.9	0.9	0.9	0.9	-1.9	-1.9	0.9	0.9
Free space path loss (dB)	207.0	207.0	206.7	206.7	207.0	207.0	207.0	207.0	206.7	206.7	207.0	207.0
Xpndr Input back off, dB	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Xpndr Output back off dB	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Carrier Back off	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
C/N uplink (dB)	21.0	19.9	20.9	19.8	25.2	20.4	14.6	13.5	14.5	13.5	25.2	15.0
X-pol interf:C/I -uplink (dB)-wanted system	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
X-pol interf:C/I -uplink (dB)-interfering ES	28.9	27.8	31.3	30.2	33.1	28.3	22.5	21.4	24.9	23.9	33.1	22.9
C/I - copol asi uplink (dB)	22.7	21.6	22.3	21.2	26.9	22.1	16.3	15.2	15.9	14.9	26.9	16.7
HPA IM at 10 deg el angle(limit: 21,c;10,Ku)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Satellite TWTA IM per carrier @ bp	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0
C/N+I+others, uplink	17.6	16.6	17.5	16.6	20.7	17.1	11.8	10.7	11.7	10.8	20.7	12.2
Downlink e.i.r.p. -bp (dBW)	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8	50.8
Downlink BP-BE difference	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
DL ES Pattern Advantage	4.6	4.6	4.6	4.6	0	0	4.6	4.6	4.6	4.6	0	0
Satellite e.i.r.p.d. per carrier (dBW)-tow es	-32.5	-32.5	-32.5	-32.5	-37.1	-37.1	-32.5	-32.5	-32.5	-32.5	-37.1	-37.1
Satellite e.i.r.p.d. per carrier (dBW)-bp	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0
Satellite e.i.r.p. per carrier (dBW)-at es	13.0	13.0	13.0	13.0	8.4	8.4	16.0	16.0	16.0	16.0	11.4	11.4
Satellite e.i.r.p. per carrier (dBW)-bp	15.5	15.5	15.5	15.5	15.5	15.5	18.5	18.5	18.5	18.5	18.5	18.5
Free space path loss (dB)	205.4	205.4	205.1	205.1	205.4	205.4	205.4	205.4	205.1	205.1	205.4	205.4
Earth station pointing loss (dB)	0.30	0.3	0.3	0.3	0.3	0.3	0.30	0.3	0.3	0.3	0.3	0.3
C/N downlink towards BP (dB)	28.5	38.5	28.7	38.7	23.9	33.9	22.0	28.5	22.3	28.7	17.4	23.9
C/N downlink towards ES (dB)	26.0	36.0	26.2	36.2	16.8	26.8	19.5	26.0	19.8	26.2	10.3	16.8
C/N-thermal-total	19.8	19.8	19.8	19.7	16.2	19.5	13.4	13.3	13.4	13.3	10.1	12.8
Interference & Margins:												
C/I Co-polar downlink interference d/I(dB)	31.1	41.4	31.1	41.4	26.5	36.8	24.2	31.1	24.2	31.1	19.6	26.5
C/I X-polar external interference d/I (dB)	28.5	38.7	28.5	38.7	23.9	34.1	21.6	28.5	21.6	28.5	17.0	23.9
Downlink C/(Nth +I+others) composite with ASI dn	23.3	33.4	23.4	33.5	15.6	25.7	16.6	23.3	16.7	23.4	9.0	15.6
Total C/(Nth +I) composite with ASI tot	16.5	16.5	16.5	16.5	14.5	16.5	10.5	10.5	10.5	10.5	8.8	10.5
Total C/(Nth +others) w/o ASI	18.7	18.7	18.7	18.6	15.7	18.5	13.1	13.0	13.1	13.0	10.0	12.6
C/N Margin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0