27	CV	SUB	10.0	1 MHz/T1	4.8	2	14.7 MHz	15	1	New York + Phila + DC	-0.1	0.1	–	–	–	–
28 (33%)	CV	SUB	10.0	1 MHz/T1	4.8	2	14.7 MHz	15	1	New York + Phila + DC	-2.4	-2.4	–	–	–	–
29 (33%)	CV	HUB(scatter)	7.0	20MHz/FMTV	4.8	2	14.7MHz	1	0	New York	-2.8	-3.1	12	10.7	12.4	13.5
30(33%)	CV	HUB	7.0	20MHz/FMTV (with 10 dB peaking)	4.8	2	1MHz/T1	1	0	New York	-9.8	-10.1	9.1	8.7	10.4	11.8
31	CV	SUB	-10.0	10kHz/16kbps	4.8	2	500kHz	50	0	New York	10.8	10.8	7.1	5.1	7.0	8.6
32(33%)	CV	SUB	-10.0	10kHz/16 kbps	4.8	2	500kHz	50	0	New York	4.7	4.3	5.5	4.9	6.9	8.2
33	CV	SUB	24.8	30MHz/45Mbps	4.8	2	14.7MHz	1	0	New York	10.8	7.7	6.6	5.6	7.0	8.8
34(33%)	CV	SUB	24.8	30MHz/45Mbps	4.8	2	14.7	1	0	New York	6.9	2.3	5.6	5.7	6.4	8.3

Table B3

TI LMDS INTERFERENCE INTO SPACE STATION PROX OPS RECEIVER (350 KM ALTITUDE; 5.9° RECV BEAM HPBW)

CASE #	SYSTEM	SUB/HUB	MAX EIRP (dBW)	Xmit BW Data Rate	Cell Radius (km)	Rain Zone	Recv BW (MHz)	# of intfers per cell	# AZ aligned with S/C	MSAs	I/N Margins (dB) at Beam Elevation Angle for 100% Coverage of SMA[1]					
									per cell		0°	5°	15°	20°	30°	40°
1	TI	SUB	20.0	2.5 MHz/3.3 Mbps	5.0	2	14.7	5	0	New York	3.8	3.2	-0.8	-1.9	-0.1	1.2
2 (33%)[2]	TI	SUB	20.0	2.5MHz/3.3Mbps	5.0	2	14.7	5	0	New York	-4.5	-3.9	-2.7	-1.8	0.2	1.3
3	TI	SUB	20.0	2.5 MHz/3.3Mbps	5.0	2	14.7	5	1	New York	-6.6	-7.1	-4.8	-4.2	0.5	1.6
4 (33%)	TI	SUB	20.0	2.5 MHz/3.3Mbps	5.0	2	14.7	5	1	New York	-12.9	-13.3	-5.8	-4.2	0.6	2.3
5	TI	SUB	20.0	2.5 MHz/3.3Mbps	2.5	1	14.7	5	0	Miami	7.8	7.5	-2.1	-3.4	-5.5	-4.5
6 (33%)	TI	SUB	20.0	2.5 MHz/3.3Mbps	2.5	1	14.7	5	0	Miami	-6.2	-5.4	-6.3	-5.3	-5.6	-4.5
7	TI	SUB	20.0	2.5 MHz/3.3Mbps	2.5	1	14.7	5	1	Miami	-1.9	-1.1	-5.2	-6.3	-5.1	-3.9
8 (33%)	TI	SUB	20.0	2.5 MHz/3.3Mbps	2.5	1	14.7	5	1	Miami	-15.1	-15.4	-9.6	-8.0	-5.0	-4.0
9	TI	SUB	32.0	30 MHz/40 Mbps	5.0	2	14.7	1	0	New York	1.9	-0.1	-3.3	-3.7	-1.6	-0.9
10(33%)	TI	SUB	32.0	30 MHz/40 Mbps	5.0	2	14.7	1	0	New York	-4.5	-3.3	-3.8	-3.8	-2.1	-0.1

[1] Note that in some cases as described in footnote 2 below, the entire SMA area may not be covered simply because the beam footprint itself is smaller than the SMA area. This is usually true at the higher beam elevations. The footprint areas for the indicated elevations are: 141540km^2(0°); 151300km^2(5°); 39900km^2(15°); 19587km^2(20°); 7212km^2(30°); and 3612km^2(40°). For comparison, the areas of the MSAs are: 19825km^2(New York); 8196km^2(Miami); and 50702km^2 (New York + Philadelphia + Wash D.C. MSAs combined). Also, where the footprint area is larger than the SMA area and the 33% rule is assumed, the area occupied by LMDS cells is considered to be the SMA area + 33% of the area remaining in the footprint.

[2] Cases marked 33% refer to the method in which the effective area within the beam footprint area is calculated. The effective area is assumed to be that area occupied by LMDS cells. For cases marked (33%), the effective area is equal to the beam area if the beam area is less than or equal to the quantity (%coverage*A_{SMA}) which is the percent LMDS coverage (in terms of area) of the indicated SMA (statistical metropolitan area). If the beam area is greater than this quantity, then the effective area is taken to be this quantity + 33% of the beam area outside this area (i.e. A_{EFF} = (%coverage*A_{SMA}) + 0.33*(A_{BEAM}-%coverage*A_{SMA})). For cases not marked (33%), A_{EFF} = A_{BEAM} for A_{BEAM}<=%coverage*A_{SMA} and A_{EFF}=%coverage*A_{SMA} for beam areas greater than %coverage*SMA (i.e. the rest of the beam area is assumed to be empty of LMDS cells)

Table 13.4

11 (33%)	TI	SUB	32.0	30 MHz/40 Mbps	2.5	1	14.7	1	0	Miami	-7.9	-7.0	-8.5	-7.2	-7.4	-6.6
12(33%)	TI	SUB	32.0	30 MHz/40 Mbps	5.0	2	14.7	1	0	NY+PHILA +DC	-6.7	-8.7	–	–	–	–
14 (33%)	TI	SUB	20.0	2.5 MHz/3.3Mbps	5.0	2	14.7	5	0	NY+PHILA +DC	-5.8	-5.7	–	–	–	–
15	TI	HUB	20.0	40 MHz/65 Mbps	5.0	2	14.7	1	0	New York	-5.4	-5.2	0.6	-2.0	0.6	4.3
16 (33%)	TI	HUB	20.0	40 MHz/65 Mbps	5.0	2	14.7	1	0	New York	-12.3	-12.6	-0.9	-2.0	0.6	4.3
17	TI	HUB	20.0	40 MHz/65 Mbps	2.5	1	14.7	1	0	Miami	-0.2	-.05	-.24	-2.8	-5.1	-1.5
18 (33%)	TI	HUB	20.0	40 MHz/65 Mbps	2.5	1	14.7	1	0	Miami	-14.1	-14.5	-4.4	-4.8	-5.1	-1.5
19	TI	HUB	25.0	60 MHz/200 Mbps	5.0	2	14.7	1	0	New York	-8.6	-8.5	-2.7	-5.3	-2.7	1.0
20 (33%)	TI	HUB	25.0	60 MHz/200Mbps	5.0	2	14.7	1	0	New York	-15.6	-15.9	-4.2	-5.3	-2.7	1.0
21	TI	HUB	25.0	60 MHz/200Mbps	2.5	1	14.7	1	0	Miami	-3.4	-3.3	-3.5	-6.1	-8.4	-4.7
22 (33%)	TI	HUB	25.0	60MHz/200Mbps	2.5	1	14.7	1	0	Miami	-17.3	-17.8	-7.6	-8.1	-8.4	-4.7
23 (33%)	TI	HUB	20.0	40 MHz/65 Mbps	5.0	2	14.7	1	0	NY+PHILA +DC	-14.1	-14.3	–[1]	–	–	–
24 (33%)	TI	HUB	25.0	60MHz/200Mbps	5.0	2	14.7	1	0	NY+PHILA +DC	-17.3	-17.5	–	–	–	–
25(33%)	TI	HUB with scattering	20.0	40MHz/65Mbps	5.0	2	14.7	1	0	New York	-12.3	-12.6	-0.9	-2.0	0.6	4.3
26	TI	SUB	20.0	2.5MHz/3.3Mbps	5.0	2	1MHz	1	0	New York	-2.9	4.2	-0.9	-2.9	-0.6	0.6
27(33%)	TI	SUB	20.0	2.5MHz/3.3Mbps	5.0	2	1MHz	1	0	New York	-4.4	-4.2	-4.5	-2.3	-0.5	0.7

[1] Values are not given for these beam elevations since the footprint does not encompass all three MSAs

TABLE B5

ENDGATE LMDS INTERFERENCE INTO SPACE STATION PROX OPS RECEIVER (350 KM ALTITUDE; 5.9° RECV BEAM HPBW)																	
CASE #	SYSTEM	SUB/HUB	MAX EIRP (dBW)	Xmit BW Data Rate	Cell Radius (km)	Rain Zone	Recv BW (MHz)	# of intfers per cell	# AZ aligned with S/C	MSAs	I/N Margins (dB) at Beam Elevation Angle for 100% & 33% beam fill					
									per cell		0°	5°	15°	20°	30°	40°
1	EG	SUB	5.0	29.2MHz/45Mbps	7.6	2	14.7	36[1]	0	100%	16.0	16.1	25.9	27.5	30.1	31.4
2	EG	SUB	5.0	29.2MHz/45Mbps	7.6	2	14.7	36	0	33%	18.2	19.1	31.7	33.1	35.8	36.9
3	EG	SUB	-10.0	1 MHz/T1	7.6	2	2 MHz	72	0	100%	17.4	17.0	26.2	27.8	30.4	32.1
4	EG	SUB	-10.0	1MHz/T1	7.6	2	2 MHz	72	0	33%	17.9	18.2	32.2	37.3	36.0	37.2
5	EG	SUB	-10.0	1MHz/T1	7.6	2	1 MHz	36	0	100%	17.9	16.8	26.1	27.8	30.2	32.1
6	EG	SUB	-10.0	1MHz/T1	7.6	2	1 MHz	36	0	33%	18.6	19.6	32.3	33.5	35.9	37.9
7	EG	SUB	-10.0	1MHz/T1	4.5	1	1 MHz	36	0	100%	15.2	14.3	22.1	27.8	26.2	27.9
8	EG	SUB	-10.0	1 MHz/T1	4.5	1	1 MHz	36	0	33%	18.2	17.2	28.4	29.4	31.8	33.7
9	EG	HUB	11.5	29.2MHz/45Mbps	7.6	2	14.7	1	0	100%	-2.2	-2.1	27.1	32.5	39.1	43.3
10	EG	HUB	11.5	29.2MHz/45Mbps	4.5	1	14.7	1	0	100%	-3.1	-3.1	23.2	28.3	34.8	38.9
11	EG	HUB with scattering	11.5	29.2MHz/45Mbps	4.5	1	14.7	1	0	100%	-3.1	-3.2	23.2	26.6	28.2	29.3

[1] ENDGATE uses a sectorized hub wherein the cell is divided into separate 10° sectors (36 sectors in the cell) with the frequency being reused within each sector. Adjacent sectors operate on opposite linear polarizations in order to provide discrimination at the receivers. The number of co-channel interferers per cell (in the case of subscribers) is therefore the victim receive bandwidth/interferer bandwidth x 36. Since the space receiver is assumed to operate on circular polarization and not linear polarization interference can be received from all sectors in a cell

TABLE B6

HP LMDS INTERFERENCE INTO SPACE STATION PROX OPS RECEIVER (350 KM ALTITUDE; 5.9° RECV BEAM HPBW)																	
CASE #	SYSTEM	SUB/HUB	MAX EIRP (dBW)	Xmit BW/ Data Rate	Cell Radius (km)	Rain Zone	Recv BW (MHz)	# of intfers per cell	# AZ aligned with S/C	MSAs	I/N Margins (dB) at Beam Elevation Angle for Indicated Coverage[1]					
									per cell		0°	5°	15°	20°	30°	40°
1	HP	HUB	8.0	40MHz/60Mbps	2.0	2	14.7	1	0	100% of BEAM	-14.5	-15.2	-9.8	-7.6	-2.3	2.1
2	HP	HUB	8.0	40MHz/60Mbps	0.5	1	14.7	1	0	30% of BEAM	-15.4	-15.8	-15.4	-13.1	-8.3	-3.8
3	HP	HUB	8.0	40MHz/60 Mbps	1.0	1	14.7	1	0	MIAMI	2.6	2.7	-7.7	-8.8	-8.1	-3.7
4	HP	HUB	8.0	40MHz/60Mbps	2.0	2	14.7	1	0	New York	-2.7	-2.7	-6.4	-7.6	-2.3	2.1
5 (33%)	HP	HUB	8.0	40MHz/60Mbps	2.0	2	14.7	1	0	New York	-9.3	-9.7	-7.8	-7.6	-2.3	2.1
6	HP	HUB	8.0	40MHz/60Mbps	4.0	2	14.7	1	0	NY+PHILA +DC	-2.2	-2.2	-3.8	-1.6	3.7	8.1
7 (33%)	HP	HUB	8.0	40MHz/60Mbps	4.0	2	14.7	1	0	NY+PHILA +DC	-5.3	-5.6	-3.8	-1.6	3.7	8.1
8	HP	HUB with scattering	8.0	40MHz/60Mbps	2.0	2	14.7	1	0	100% of beam	-14.5	-15.2	-9.8	-7.6	-2.3	2.1
9	HP	SUB	14.0	1MHz/T1	2.0	2	14.7	15	0	100% beam	-7.1	-7.0	0.5	1.8	3.4	4.6
10(33%)	HP	SUB	14.0	1MHz/T1	2.0	2	14.7	15	0	New York	-6.2	-6.4	2.9	1.8	3.5	4.7
11	HP	SUB	14.0	1MHz/T1	2.0	2	14.7	15	0	New York	0.4	-0.4	4.6	1.7	3.4	4.6

[1]Note that in some cases as described in footnote 2 below, the entire SMA area may not be covered simply because the beam footprint itself is smaller than the SMA area. This is usually true at the higher beam elevations. The footprint areas for the indicated elevations are: 141540km^2(0°); 151300km^2(5°); 39900km^2(15°); 19587km^2(20°); 7212km^2(30°); and 3612km^2(40°) For comparison, the areas of the MSAs are: 19825km^2(New York); 8196km^2(Miami), and 50702km^2 (New York + Philadelphia + Wash D C MSAs combined). Also, where the footprint area is larger than the SMA area and the 33% rule is assumed, the area occupied by LMDS cells is considered to be the SMA area + 33% of the area remaining in the footprint

TABLE B 7

12	HP	SUB	14.0	1MHz/T1	1.0	1	14.7	15	0	Miami	5.9	6.2	3.7	0.9	-2.3	-1.2

TABLE 38

** TOTAL PAGE.013 **