EXHIBIT 4A: Galaxy 4R C-Band Link Budgets

UPLINK BEAM INFORMATION					
Uplink Beam Name	Conus	Conus	Conus	Conus	Conus
Uplink Frequency (MHz)	6175	6175	6175	6175	6175
Uplink Beam Polarization	Vertical/Horizontal	Vertical/Horizontal	Vertical/Horizontal	Vertical/Horizontal	Vertical/Horizontal
Uplink Relative Contour Level (dB)	-4	-4	-4	-4	-4
Uplink Contour G/T (dB/K)	-4.0	-4.0	-4.0	-4.0	-4.0
Uplink SFD (dBW/m^2)	-88.0	-88.0	-84.0	-84.0	-84.0
Uplink Input Backoff (dB)	0	0	5	5	5
DOWNLINK BEAM INFORMATION					
Downlink Beam Name	Conus	Conus	Conus	Conus	Conus
Downlink Frequency (MHz)	3950	3950	3950	3950	3950
Downlink Beam Polarization	Horizontal/Vertical	Horizontal/Vertical	Horizontal/Vertical	Horizontal/Vertical	Horizontal/Vertical
Downlink Relative Contour Level (dB)	-4	-4	-4	-4	-4
Downlink Contour EIRP (dBW)	38.1	38.1	38.1	38.1	38.1
Downlink Output Backoff (dB)	0	0	3.5	3.5	3.5
ADJACENT SATELLITE 1					
Satellite 1 Orbital Location	74.85 WL	74.85 WL	74.85 WL	74.85 WL	74.85 WL
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0	0	0	0	0
Downlink EIRP Density (dBW/Hz)	-32.0	-32.0	-32.0	-32.0	-32.0
Downlink Polarization Advantage (dB)	0	0	0	0	0
ADJACENT SATELLITE 2					
Satellite 2 Orbital Location	78.85 WL	78.85 WL	78.85 WL	78.85 WL	78.85 WL
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0	0	0	0	0
Downlink EIRP Density (dBW/Hz)	-32.0	-32.0	-32.0	-32.0	-32.0
Downlink Polarization Advantage (dB)	0	0	0	0	0
CARRIER INFORMATION					
Carrier ID	1	2	3	4	5
Information Rate (kbps)	N/A	36863	6000	1544	64
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	n/a	n/a	n/a	n/a
Code Rate	N/A	3/4 - RS	3/4 - RS	3/4-RS	1/2-RS
Occupied Bandwidth (kHz)	36000	30133	4154	1212.8	75.4
Allocated Bandwidth (kHz)	36000	36000	6875	1550	100
Minimum C/N, Rain (dB)	10.0	6.1	6.7	5.7	3.0
UPLINK EARTH STATION					
Earth Station Diameter (meters)	7.0	7.0	7.0	7.0	7.0
Earth Station Gain (dBi)	51.0	51.0	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20	20
DOWNLINK EARTH STATION					
Earth Station Diameter (meters)	8.1	3.5	3.5	3.5	3.5
Earth Station Gain (dBi)	49.3	41.1	41.1	41.1	41.1
Earth Station G/T, Clear Sky (dB/K)	28.4	21.0	21.0	21.0	21.0
Earth Station Elevation Angle	20	20	20	20	20
UPLINK PERFORMANCE					
Uplink Earth Station EIRP (dBW)	74.9	74.9	68.4	61.9	47.2
Uplink Path Loss, Clear Sky (dB)	-200.2	-200.2	-200.2	-200.2	-200.2
Satellite G/T (dB/K)	-4.0	-4.0	-4.0	-4.0	-4.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-66.2	-60.8	-48.8
Uplink C/N (dB)	23.7	24.5	26.6	25.5	22.8
DOWNLINK PERFORMANCE					
Downlink EIRP per Carrier (dBW)	38.1	38.1	29.1	22.6	7.9
Antenna Pointing Error (dB)	-0.5	-0.5	-0.5	-0.5	-0.5
Downlink Path Loss, Clear Sky (dB)	-196.3	-196.3	-196.3	-196.3	-196.3
Earth Station G/T (dB/K)	28.4	-21.0	21.0	21.0	21.0
Boltzman Constant (dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-66.2	-60.8	-48.8
Downlink C/N (dB)	22.7	16.1	15.7	14.5	11.9
COMPOSITE LINK PERFORMANCE					
C/N Uplink (dB)	23.7	24.5	26.6	25.5	22.8
C/N Downlink (dB)	22.7	16.1	15.7	14.5	11.9
C/I Intermodulation (dB)	n/a	n/a	21.1	19.9	17.3
C/I Uplink Co-Channel (dB)*	24.0	24.0	25.7	25.7	22.9
C/I Downlink Co-Channel (dB)*	24.0	24.0	25.7	25.7	22.9
C/I Uplink Adjacent Satellite 1 (dB)	16.0	16.8	18.9	17.8	15.1
C/I Downlink Adjacent Satellite 1 (dB)	23.0	16.4	16.0	14.9	12.2
C/I Uplink Adjacent Satellite 2 (dB)	16.0	16.8	18.9	17.8	15.1
C/I Downlink Adjacent Satellite 2 (dB)	21.6	11.6	11.2	10.1	7.5
C/(N+I) Composite (dB)	11.0	7.7	7.7	6.7	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	6.7	6.7	5.7	3.0
Minimum Required C/N (dB)	-10.0	-6.1	-6.7	-5.7	-3.0
Excess Link Margin (dB)	0.0	0.6	0.0	0.0	0.0
Number of Carriers	1.0	1.0	3.6	15.8	360.0
CARRIER DENSITY LEVELS					
Uplink Power Density (dBW/Hz)	-42.1	-50.9	-48.8	-49.9	-52.6
Downlink EIRP Density At Beam Peak	-23.9	-32.7	-33.1	-34.2	-36.9

*The C/I level is adjusted depending on the signal level and transponder mode of operation