

Ku-Band Spot Uplink/Ku-Band Spot Downlink 12.5-12.75 GHz

| UPLINK BEAM INFORMATION | | | | | | |
|---|-----------|-------------|-------------|-------------|-----------|-----------|
| Uplink Beam Name | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT |
| Uplink Frequency (GHz) | 14.25 | 14.25 | 14.25 | 14.25 | 14.25 | 14.25 |
| Uplink Beam Polarization | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR |
| Uplink Relative Contour Level (dB) | -4 | -4 | -4 | -4 | -4 | -4 |
| Uplink Contour G/T (dB/K) | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 |
| Uplink SFD (dBW/m2) | -77.2 | -89.2 | -83.2 | -83.2 | -83.2 | -83.2 |
| Rain Rate (mm/hr) | 42 | 42 | 42 | 42 | 42 | 42 |
| DOWNLINK BEAM INFORMATION | | | | | | |
| Downlink Beam Name | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT |
| Downlink Frequency (GHz) | 11.95 | 11.95 | 11.95 | 11.95 | 11.95 | 11.95 |
| Downlink Beam Polarization | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR |
| Downlink Relative Contour Level (dB) | -4 | -4 | -4 | -4 | -4 | -4 |
| Downlink Contour EIRP (dBW) | 43.7 | 43.7 | 43.7 | 43.7 | 43.7 | 43.7 |
| Rain Rate (mm/hr) | 42 | 42 | 42 | 42 | 42 | 42 |
| ADJACENT SATELLITE 1 | | | | | | |
| Satellite 1 Orbital Location | 31.5E | 31.5E | 31.5E | 31.5E | 31.5E | 31.5E |
| Uplink Power Density (dBW/Hz) | -45 | -45 | -45 | -45 | -45 | -45 |
| Uplink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 |
| Downlink EIRP Density (dBW/Hz) | -21.4 | -21.4 | -21.4 | -21.4 | -21.4 | -21.4 |
| Downlink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 |
| ADJACENT SATELLITE 2 | | | | | | |
| Satellite 1 Orbital Location | 34.9E | 34.9E | 34.9E | 34.9E | 34.9E | 34.9E |
| Uplink Power Density (dBW/Hz) | -45 | -45 | -45 | -45 | -45 | -45 |
| Uplink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 |
| Downlink EIRP Density (dBW/Hz) | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 |
| Downlink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 |
| CARRIER INFORMATION | | | | | | |
| Carrier ID | 36M0F3F | 77M0G7W | 10M3G7W | 100KG7W | 1M45G7W | 400KG7W |
| Carrier Modulation | TV/FM | QPSK | QPSK | QPSK | BPSK | BPSK |
| Peak to Peak Bandwidth of EDS (MHz) | 4 | N/A | N/A | N/A | N/A | N/A |
| Information Rate(kbps) | N/A | 52563 | 6000 | 64 | 512 | 128 |
| Code Rate | N/A | 1/2x188/204 | 1/2x188/204 | 1/2x239/256 | R1/2 | R1/2 |
| Occupied Bandwidth(kHz) | 36000 | 64451 | 6771.1 | 75.4 | 1229 | 307 |
| Allocated Bandwidth(kHz) | 36000 | 77000 | 10300 | 100 | 1450 | 400 |
| Minimum C/N, Clear Sky (dB) | 10 | 3.36 | 3.87 | 2.99 | 3.4 | 3.4 |
| Minimum C/N, Rain (dB) | 10 | 3.36 | 3.57 | 2.79 | 2.7 | 2.7 |
| UPLINK EARTH STATION | | | | | | |
| Earth Station Diameter (meters) | 3.7 | 2.4 | 1.8 | 1.8 | 1.8 | 1.8 |
| Earth Station Gain (dBi) | 52.7 | 49 | 46.4 | 46.4 | 46.4 | 46.4 |
| Earth Station Elevation Angle | 20 | 20 | 20 | 20 | 20 | 20 |
| DOWNLINK EARTH STATION | | | | | | |
| Earth Station Diameter (meters) | 11.0 | 3.0 | 6.1 | 6.1 | 7.0 | 6.1 |
| Earth Station Gain (dBi) | 60.4 | 49.2 | 55.5 | 55.5 | 57.0 | 55.5 |
| Earth Station G/T (dB/K) | 38.0 | 26.7 | 33.1 | 33.1 | 34.6 | 33.1 |
| Earth Station Elevation Angle | 20 | 20 | 20 | 20 | 20 | 20 |
| LINK FADE TYPE | | | | | | |
| LINK FADE TYPE | Clear Sky | Clear Sky | Clear Sky | Clear Sky | Clear Sky | Clear Sky |
| UPLINK PERFORMANCE | | | | | | |
| Uplink Earth Station EIRP (dBW) | 75.2 | 73.7 | 61.2 | 40.7 | 52.3 | 46.7 |
| Uplink Path Loss, Clear Sky (dB) | -207.5 | -207.5 | -207.5 | -207.5 | -207.5 | -207.5 |
| Uplink Rain Attenuation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Satellite G/T(dB/K) | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 |
| Boltzman Constant(dBW/K-Hz) | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 |
| Carrier Noise Bandwidth (dB-Hz) | -75.6 | -78.1 | -68.3 | -48.8 | -60.9 | -54.9 |
| Uplink C/N(dB) | 26.6 | 22.5 | 19.8 | 18.9 | 18.4 | 18.8 |
| DOWNLINK PERFORMANCE | | | | | | |
| Downlink EIRP per Carrier (dBW) | 38.2 | 43.7 | 30.2 | 9.7 | 21.3 | 15.7 |
| Antenna Pointing Error (dB) | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 |
| Downlink Path Loss, Clear Sky (dB) | -205.9 | -205.9 | -205.9 | -205.9 | -205.9 | -205.9 |
| Downlink Rain Attenuation | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| Earth Station G/T (dB/K) | 38.0 | 26.7 | 33.1 | 33.1 | 34.6 | 33.1 |
| Boltzman Constant(dBW / K - Hz) | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 |
| Carrier Noise Bandwidth (dB-Hz) | -75.6 | -78.1 | -68.3 | -48.8 | -60.9 | -54.9 |
| Downlink C / N(dB) | 22.8 | 14.4 | 17.1 | 16.2 | 17.2 | 16.1 |
| COMPOSITE LINK PERFORMANCE | | | | | | |
| C/N Uplink (dB) | 26.6 | 22.5 | 19.8 | 18.9 | 18.4 | 18.8 |
| C/N Downlink (dB) | 22.8 | 14.4 | 17.1 | 16.2 | 17.2 | 16.1 |
| C/I Intermodulation (dB) | N/A | N/A | 19.0 | 18.0 | 17.5 | 17.9 |
| C/I Uplink Co-Channel (dB)* | 28.9 | 28.6 | 27.4 | 27.0 | 27.0 | 27.0 |
| C/I Downlink Co-Channel (dB)* | 28.9 | 28.6 | 27.4 | 27.0 | 27.0 | 27.0 |
| C/I Uplink Adjacent Satellite 1 (dB) | 19.3 | 15.3 | 12.6 | 11.6 | 11.1 | 11.5 |
| C/I Downlink Adjacent Satellite 1 (dB) | 19.4 | 10.5 | 13.6 | 12.6 | 13.7 | 12.5 |
| C/I Uplink Adjacent Satellite 2 (dB) | 22.6 | 18.6 | 15.9 | 14.9 | 14.4 | 14.9 |
| C/I Downlink Adjacent Satellite 2 (dB) | 21.7 | 13.9 | 16.2 | 15.2 | 16.2 | 15.2 |
| C/(N+I) Composite (dB) | 13.4 | 6.6 | 7.1 | 6.1 | 6.3 | 6.1 |
| Required System Margin (dB) | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 |
| Net C/(N+I) Composite (dB) | 12.4 | 5.6 | 6.1 | 5.1 | 5.3 | 5.1 |
| Minimum Required C/N (dB) | -10.0 | -3.4 | -3.9 | -3.0 | -3.4 | -3.4 |
| Excess Link Margin (dB) | 2.4 | 2.2 | 2.2 | 2.1 | 1.9 | 1.7 |
| Number of Carriers | 2 | 1 | 10 | 1120 | 77 | 280 |
| CARRIER DENSITY LEVELS | | | | | | |
| Uplink Power Density (dBW/Hz) | -53.1 | -53.4 | -53.5 | -54.5 | -55.0 | -54.5 |
| Downlink EIRP Density At Beam Peak (dBW/Hz) | -33.4 | -30.4 | -34.1 | -35.1 | -35.6 | -35.1 |

Ku-Band Spot Uplink/Ku-Band Spot Downlink 10.95-11.2 & 11.45-11.7 GHz

| UPLINK BEAM INFORMATION | | | | | | | |
|---|-----------|-------------|-------------|-------------|-----------|-----------|-------------|
| Uplink Beam Name | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT |
| Uplink Frequency (GHz) | 14.25 | 14.25 | 14.25 | 14.25 | 14.25 | 14.25 | 14.25 |
| Uplink Beam Polarization | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR |
| Uplink Relative Contour Level (dB) | -4 | -4 | -4 | -4 | -4 | -4 | -4 |
| Uplink Contour G/T (dB/K) | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 |
| Uplink SFD (dBW/m2) | -77.2 | -89.2 | -83.2 | -83.2 | -83.2 | -83.2 | -89.2 |
| Rain Rate (mm/hr) | 42 | 42 | 42 | 42 | 42 | 42 | 42 |
| DOWNLINK BEAM INFORMATION | | | | | | | |
| Downlink Beam Name | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT | KUSPOT |
| Downlink Frequency (GHz) | 11.95 | 11.95 | 11.95 | 11.95 | 11.95 | 11.95 | 11.95 |
| Downlink Beam Polarization | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR | LINEAR | CIRCULAR |
| Downlink Relative Contour Level (dB) | -4 | -4 | -4 | -4 | -4 | -4 | -4 |
| Downlink Contour EIRP (dBW) | 43.7 | 43.7 | 43.7 | 43.7 | 43.7 | 43.7 | 43.7 |
| Rain Rate (mm/hr) | 42 | 42 | 42 | 42 | 42 | 42 | 42 |
| ADJACENT SATELLITE 1 | | | | | | | |
| Satellite 1 Orbital Location | 31.5E | 31.5E | 31.5E | 31.5E | 31.5E | 31.5E | 31.5E |
| Uplink Power Density (dBW/Hz) | -45 | -45 | -45 | -45 | -45 | -45 | -45 |
| Uplink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Downlink EIRP Density (dBW/Hz) | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 |
| Downlink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADJACENT SATELLITE 2 | | | | | | | |
| Satellite 1 Orbital Location | 34.9E | 34.9E | 34.9E | 34.9E | 34.9E | 34.9E | 34.9E |
| Uplink Power Density (dBW/Hz) | -45 | -45 | -45 | -45 | -45 | -45 | -45 |
| Uplink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Downlink EIRP Density (dBW/Hz) | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 | -20.0 |
| Downlink Polarization Advantage (dB) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CARRIER INFORMATION | | | | | | | |
| Carrier ID | 36M0F3F | 77M0G7W | 10M3G7W | 100K.G7W | 1M45G7W | 400K.G7W | 112M0G7W |
| Carrier Modulation | TV/FM | QPSK | QPSK | QPSK | BPSK | BPSK | QPSK |
| Peak to Peak Bandwidth of EDS (MHz) | 4 | N/A | N/A | N/A | N/A | N/A | N/A |
| Information Rate(kbps) | N/A | 52563 | 6000 | 64 | 512 | 128 | 86015 |
| Code Rate | N/A | 1/2x188/204 | 1/2x188/204 | 1/2x239/256 | R1/2 | R1/2 | 1/2x188/204 |
| Occupied Bandwidth(kHz) | 36000 | 64451 | 6771.1 | 75.4 | 1229 | 307 | 93335 |
| Allocated Bandwidth(kHz) | 36000 | 77000 | 10300 | 100 | 1450 | 400 | 112000 |
| Minimum C/N, Clear Sky (dB) | 10 | 3.36 | 3.87 | 2.99 | 3.4 | 3.4 | 3.36 |
| Minimum C/N, Rain (dB) | 10 | 3.36 | 3.57 | 2.79 | 2.7 | 2.7 | 3.36 |
| UPLINK EARTH STATION | | | | | | | |
| Earth Station Diameter (meters) | 3.7 | 2.4 | 1.8 | 1.8 | 1.8 | 1.8 | 3.0 |
| Earth Station Gain (dBi) | 52.7 | 49 | 46.4 | 46.4 | 46.4 | 46.4 | 49.7 |
| Earth Station Elevation Angle | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| DOWNLINK EARTH STATION | | | | | | | |
| Earth Station Diameter (meters) | 11.0 | 3.0 | 6.1 | 7.0 | 7.0 | 7.0 | 3.7 |
| Earth Station Gain (dBi) | 60.4 | 49.2 | 55.5 | 57.0 | 57.0 | 57.0 | 51.1 |
| Earth Station G/T (dB/K) | 38.0 | 26.7 | 33.1 | 34.6 | 34.6 | 34.6 | 28.6 |
| Earth Station Elevation Angle | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| LINK FADE TYPE | | | | | | | |
| | Clear Sky | Clear Sky | Clear Sky | Clear Sky | Clear Sky | Clear Sky | Clear Sky |
| UPLINK PERFORMANCE | | | | | | | |
| Uplink Earth Station EIRP (dBW) | 75.2 | 73.7 | 61.2 | 40.7 | 52.3 | 46.7 | 73.7 |
| Uplink Path Loss, Clear Sky (dB) | -207.5 | -207.5 | -207.5 | -207.5 | -207.5 | -207.5 | -207.5 |
| Uplink Rain Attenuation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Satellite G/T(dB/K) | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 |
| Boltzman Constant(dBW/K-Hz) | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 |
| Carrier Noise Bandwidth (dB-Hz) | -75.6 | -78.1 | -68.3 | -48.8 | -60.9 | -54.9 | -79.7 |
| Uplink C/N(dB) | 26.6 | 22.5 | 19.8 | 18.9 | 18.4 | 18.8 | 20.9 |
| DOWNLINK PERFORMANCE | | | | | | | |
| Downlink EIRP per Carrier (dBW) | 38.2 | 43.7 | 30.2 | 9.7 | 21.3 | 15.7 | 43.7 |
| Antenna Pointing Error (dB) | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 |
| Downlink Path Loss, Clear Sky (dB) | -205.9 | -205.9 | -205.9 | -205.9 | -205.9 | -205.9 | -205.9 |
| Downlink Rain Attenuation | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0.0 |
| Earth Station G/T (dB/K) | 38.0 | 26.7 | 33.1 | 34.6 | 34.6 | 34.6 | 28.6 |
| Boltzman Constant(dBW / K - Hz) | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 | 228.6 |
| Carrier Noise Bandwidth (dB-Hz) | -75.6 | -78.1 | -68.3 | -48.8 | -60.9 | -54.9 | -79.7 |
| Downlink C / N(dB) | 22.8 | 14.4 | 17.1 | 17.7 | 17.2 | 17.6 | 14.7 |
| COMPOSITE LINK PERFORMANCE | | | | | | | |
| C/N Uplink (dB) | 26.6 | 22.5 | 19.8 | 18.9 | 18.4 | 18.8 | 20.9 |
| C/N Downlink (dB) | 22.8 | 14.4 | 17.1 | 17.7 | 17.2 | 17.6 | 14.7 |
| C/I Intermodulation (dB) | N/A | N/A | 19.0 | 18.0 | 17.5 | 17.9 | N/A |
| C/I Uplink Co-Channel (dB)* | 28.9 | 28.6 | 27.4 | 27.0 | 27.0 | 27.0 | 27.0 |
| C/I Downlink Co-Channel (dB)* | 28.9 | 28.6 | 27.4 | 27.0 | 27.0 | 27.0 | 27.0 |
| C/I Uplink Adjacent Satellite 1 (dB) | 19.3 | 15.3 | 12.6 | 11.6 | 11.1 | 11.5 | 13.7 |
| C/I Downlink Adjacent Satellite 1 (dB) | 18.0 | 9.1 | 12.2 | 12.8 | 12.3 | 12.7 | 9.6 |
| C/I Uplink Adjacent Satellite 2 (dB) | 22.6 | 18.6 | 15.9 | 14.9 | 14.4 | 14.9 | 17.0 |
| C/I Downlink Adjacent Satellite 2 (dB) | 21.7 | 13.9 | 16.2 | 16.7 | 16.2 | 16.6 | 14.1 |
| C/(N+I) Composite (dB) | 13.0 | 6.0 | 6.7 | 6.5 | 6.0 | 6.4 | 5.9 |
| Required System Margin (dB) | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 |
| Net C/(N+I) Composite (dB) | 12.0 | 5.0 | 5.7 | 5.5 | 5.0 | 5.4 | 4.9 |
| Minimum Required C/N (dB) | -10.0 | -3.4 | -3.9 | -3.0 | -3.4 | -3.4 | -3.4 |
| Excess Link Margin (dB) | 2.0 | 1.6 | 1.8 | 2.5 | 1.6 | 2.0 | 1.5 |
| Number of Carriers | 2 | 1 | 10 | 1120 | 77 | 280 | 1 |
| CARRIER DENSITY LEVELS | | | | | | | |
| Uplink Power Density (dBW/Hz) | -53.1 | -53.4 | -53.5 | -54.5 | -55.0 | -54.5 | -55.7 |
| Downlink EIRP Density At Beam Peak (dBW/Hz) | -33.4 | -30.4 | -34.1 | -35.1 | -35.6 | -35.1 | -32.0 |