

S1 BEAM: DIGITAL (97K6G7W, 6M48G7W, 25M6G7W, 27M8G7W)

| Satellite Information | | S1 | | S1 | | S1 | | S1 | | S1 | | S1 | | S1 | |
|------------------------------------|------------|--------|--------|---------|---------|---------|---------|---------|---------|--------|--------|---------|---------|---------|---------|
| Beam Uplink | | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 |
| Tr. SFD (dBW/m2 ; BE) | | -87 | -87 | -87 | -87 | -87 | -87 | -73 | -73 | -73 | -73 | -73 | -73 | -73 | -73 |
| Tr. G/T (dB/K ; BE) | | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| Beam Downlink | | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 |
| Tr. EIRP (dBW ; BE) | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Carrier Information | | | | | | | | | | | | | | | |
| Carrier Type | | TURBO | TURBO | DTV | DTV | DIGITAL | DIGITAL | DIGITAL | DIGITAL | TURBO | TURBO | DTV | DTV | DIGITAL | DIGITAL |
| Modulation | | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK | QPSK |
| Eb/No Threshold | dB | 4.9 | 4.9 | 6.8 | 6.8 | 5.4 | 5.4 | 5.7 | 5.7 | 4.9 | 4.9 | 6.8 | 6.8 | 5.4 | 5.4 |
| C/N Threshold | dB | 7.3 | 7.3 | 8.9 | 8.9 | 5 | 5 | 7.5 | 7.5 | 7.3 | 7.3 | 8.9 | 8.9 | 5 | 5 |
| Information Rate (IR) | kbil/s | 32064 | 32064 | 32064 | 32064 | 64 | 64 | 6312 | 6312 | 32064 | 32064 | 32064 | 32064 | 64 | 64 |
| Overhead (OH) | kbil/s | 0 | 0 | 0 | 0 | 0 | 0 | 631.2 | 631.2 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEC Code Rate | | 0.875 | 0.875 | 0.875 | 0.875 | 0.5 | 0.5 | 0.75 | 0.75 | 0.875 | 0.875 | 0.875 | 0.875 | 0.5 | 0.5 |
| R-S Code Rate | | N/A | N/A | 204,188 | 204,188 | 219,201 | 219,201 | N/A | N/A | N/A | N/A | 204,188 | 204,188 | 219,201 | 219,201 |
| Noise Bandwidth | MHz | 18.322 | 18.322 | 19.882 | 19.882 | 0.070 | 0.070 | 4.629 | 4.629 | 18.322 | 18.322 | 19.882 | 19.882 | 0.070 | 0.070 |
| Total Availability | % | 99.615 | 99.651 | 99.615 | 99.652 | 99.612 | 99.651 | 99.615 | 99.652 | 99.606 | 99.651 | 99.609 | 99.6 | 99.603 | 99.651 |
| U/L Availability | % | 99.786 | 99.75 | 99.786 | 99.75 | 99.786 | 99.75 | 99.786 | 99.75 | 99.829 | 99.75 | 99.829 | 99.713 | 99.829 | 99.75 |
| D/L Availability | % | 99.829 | 99.902 | 99.829 | 99.902 | 99.826 | 99.901 | 99.829 | 99.902 | 99.777 | 99.902 | 99.78 | 99.887 | 99.774 | 99.901 |
| System Margin | dB | 1.6 | 1.5 | 1.6 | 1.5 | 1.6 | 1.5 | 1.6 | 1.5 | 1.8 | 1.5 | 1.8 | 1.4 | 1.8 | 1.5 |
| Transmit Earth Station Data | | | | | | | | | | | | | | | |
| Antenna Diameter | meters | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 |
| Peak Antenna Gain | dBi | 58.4 | 43.1 | 58.4 | 43.1 | 58.4 | 43.1 | 58.4 | 43.1 | 58.4 | 43.1 | 58.4 | 43.1 | 58.4 | 43.1 |
| Receive Earth Station Data | | | | | | | | | | | | | | | |
| Antenna Diameter | meters | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 | 1.2 | 7 |
| G/T of ES at 4 or 11 GHz | dB/K | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 |
| Peak Antenna Gain | dBi | 41.5 | 57.2 | 41.5 | 57.2 | 41.5 | 57.2 | 41.5 | 57.2 | 41.5 | 57.2 | 41.5 | 57.2 | 41.5 | 57.2 |
| C/N Uplink Per Carrier | | | | | | | | | | | | | | | |
| Per carrier uplink EIRP | dBW | 71.2 | 63.3 | 73.2 | 65.3 | 44.7 | 36.8 | 65.5 | 57.5 | 65.0 | 72.6 | 67.0 | 74.5 | 58.5 | 46.1 |
| Pathloss at uplink frequency | dB | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 | 207.2 |
| Satellite G/T at BE | dB/K | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| C/N uplink, thermal | dB | 21.8 | 13.8 | 23.4 | 15.5 | 19.5 | 11.5 | 22.0 | 14.1 | 35.5 | 23.2 | 37.2 | 24.7 | 33.2 | 20.9 |
| C/N ES HPA | | | | | | | | | | | | | | | |
| HPA IM | dBW/4kHz | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| C/N ES HPA-IM | dB | 26.6 | 18.7 | 28.3 | 20.3 | 24.3 | 16.3 | 26.8 | 18.9 | 40.4 | 28.0 | 42.0 | 29.6 | 38.0 | 25.7 |
| C/I TWTA IM at BE | | | | | | | | | | | | | | | |
| Satellite TWTA IM at BE | dBW/4kHz | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 | -21.1 |
| C/I TWTA IM per carrier | dB | 26.4 | 18.4 | 28.0 | 20.1 | 24.1 | 16.1 | 26.6 | 18.6 | 26.1 | 13.8 | 27.8 | 15.3 | 23.8 | 11.5 |
| C/N Downlink Per Carrier | | | | | | | | | | | | | | | |
| Per carrier BE EIRP | dBW | 41.9 | 34.0 | 43.9 | 35.9 | 15.4 | 7.4 | 36.1 | 28.2 | 41.6 | 29.3 | 43.6 | 31.2 | 15.1 | 2.8 |
| Pathloss at downlink frequency | dB | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 | 205.6 |
| ES G/T at tpdr downlink frequency | dB/K | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 | 19.3 | 35.2 |
| C/N downlink, thermal | dB | 11.6 | 19.5 | 13.2 | 21.1 | 9.3 | 17.2 | 11.8 | 19.7 | 11.3 | 14.9 | 12.9 | 16.4 | 9.0 | 12.6 |
| C/I Co-Channel | | | | | | | | | | | | | | | |
| C/I co-channel interference, total | dB | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Total C/N (clr-sky) | | | | | | | | | | | | | | | |
| C/N total per carrier | dB | 10.9 | 10.9 | 12.5 | 12.5 | 8.6 | 8.6 | 11.1 | 11.1 | 11.1 | 10.9 | 12.7 | 12.4 | 8.8 | 8.6 |
| Margin for ASI | dB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Margin for terrestrial losses | dB | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Margin for other losses | dB | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 |
| C/N total (clear-sky) | dB | 8.9 | 8.8 | 10.5 | 10.4 | 6.6 | 6.5 | 9.1 | 9.0 | 9.1 | 8.8 | 10.7 | 10.3 | 6.8 | 6.5 |
| Margin | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| U/L PSD at BE | dBW/Hz | -59.8 | -52.5 | -58.2 | -50.8 | -62.1 | -54.8 | -59.6 | -52.2 | -46.1 | -43.1 | -44.4 | -41.6 | -48.4 | -45.4 |
| PFd at BP | dBW/m2/MHz | -128.0 | -136.0 | -126.4 | -134.3 | -130.3 | -138.3 | -127.8 | -135.8 | -128.3 | -140.6 | -126.6 | -139.1 | -130.6 | -142.9 |