| S13.c. | K_A | K_B | K_C | K_D | K_E | K_F | K_G |
|---|---|---|---|---|---|---|---|
| Parameter | Digital TV MCPC 40 Mbps QPSK ¾ RS | Digital TV MCPC 32 Mbps QPSK ¾ RS | Digital TV SCPC QPSK ¾ RS | Digital TV SCPC QPSK ¾ RS | 56 Kbps QPSK ¾ RS | 1.544 Mbps QPSK ¾ RS | Digital TV MCPC 50 Mbps 8PSK ⅔ RS |
| Carrier designation | 36M0G7W | 27M0G7W | 6M95G1W | 5M00G1W | 100KG1W | 1M60G1W | 36M0G7W |
| Data Rate (dB-Hz) | 76 | 75 | 69 | 67.6 | 47.5 | 61.9 | 77 |
| Throughput rate (Mbps) | 40 | 32 | 8 | 6 | 0.056 | 1.544 | 50 |
| Symbol rate (Msps) | 28.8 | 22.9 | 5.7 | 4.2 | 0.041 | 1.117 | 27.2 |
| **Uplinks:** | | | | | | | |
| Transmit Power (dBW) | 20 | 20 | 8.9 | 8.9 | -2 | 8 | 20 |
| Transmit Loss (dB) | -2.5 | -2.5 | -2.5 | -2.5 | -2.5 | -2.5 | -2.5 |
| Antenna diameter (m) | 6.1 | 6.1 | 3.7 | 3.7 | 1.8 | 1.8 | 6.1 |
| Antenna Gain (dBi) | 57.3 | 57.3 | 53.0 | 53.0 | 46.7 | 46.7 | 57.3 |
| Ground Station EIRP (dBW) | 74.8 | 74.8 | 59.4 | 59.4 | 42.2 | 52.2 | 74.8 |
| Uplink Rain Loss (dB) | -2 | -2 | -2 | -2 | -2 | -2 | -2 |
| Free Space Loss (dB) | -207 | -207 | -207 | -207 | -207 | -207 | -207 |
| Satellite G/T (dB/K) | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Boltzmann's Constant (dBW/K-Hz) | -228.6 | -228.6 | -228.6 | -228.6 | -228.6 | -228.6 | -228.6 |
| Eb/N0 (dB) | 21.4 | 22.4 | 13.0 | 14.4 | 17.3 | 12.9 | 20.4 |
| Eb/I0 (dB) | 18 | 18 | 16 | 16 | 16 | 16 | 18 |
| Total Eb/(N0 + I0) (dB) | 16.4 | 16.7 | 11.2 | 12.1 | 13.6 | 11.2 | 16.0 |
| **Downlinks:** | | | | | | | |
| Satellite Carrier EIRP (dBW) | 52.5 | 51.3 | 42.4 | 40.9 | 23.9 | 36.0 | 52.5 |
| Interference bandwidth (MHz) | 36 | 27 | 6.95 | 5 | 0.1 | 1.6 | 36 |
| Satellite EIRP density (dBW/4KHz) | 12.96 | 12.96 | 9.96 | 9.96 | 9.96 | 9.96 | 12.96 |
| Downlink Rain Loss (dB) | -3 | -3 | -3 | -3 | -3 | -3 | -3 |
| Free Space Loss (dB) | -205.4 | -205.4 | -205.4 | -205.4 | -205.4 | -205.4 | -205.4 |
| Ground station antenna dia (m) | 1.2 | 1.2 | 2.4 | 2.4 | 1.2 | 2.4 | 2.4 |
| Ground Station G/T (dB/K) | 20.9 | 20.9 | 26.9 | 26.9 | 20.9 | 26.9 | 26.9 |
| Eb/N0 (dB) | 17.6 | 17.4 | 20.5 | 20.5 | 17.5 | 21.2 | 22.6 |
| C/IM (dB) | | | 18 | 18 | 18 | 18 | |
| Eb/Imo (dB) | | | 16.6 | 16.6 | 16.6 | 16.6 | |
| C/I (dB) | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Eb/I0 (ASI) (dB) | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 12.3 |
| Eb/I0 (dB) | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 12.3 |
| Eb/(N0 + I0) (dB) | 12.1 | 12.1 | 11.3 | 11.3 | 10.8 | 11.4 | 12.0 |
| Total Up/Down Eb/(N0+Io)(dB) | 10.8 | 10.8 | 8.2 | 8.7 | 9.0 | 8.3 | 10.5 |
| Required Eb/N0 (dB) | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | 7.2 |
| Margin (dB) | 5.4 | 5.4 | 2.8 | 3.3 | 3.6 | 2.9 | 3.3 |

| **S13.d.** | **K_H** |
|---|---|
| | Ku-band |
| Parameter | Typical TV/FM link |
| Carrier designation | 36M0F3F |
| **Uplinks:** | |
| Transmit Power (dBW) | 22 |
| Transmit Loss (dB) | -1 |
| Antenna diameter (m) | 6.1 |
| Antenna Gain (dBi) | 57.3 |
| Ground Station EIRP (dBW) | 78.3 |
| Uplink Rain Loss (dB) | -2 |
| Free Space Loss (dB) | -207 |
| Satellite G/T (dB/K) | 3 |
| Bandwidth (dB-Hz) | 75.6 |
| Boltzmann's Constant (dBW/K-Hz) | -228.6 |
| C/N, uplink (dB) | 25.4 |
| **Downlinks:** | |
| Satellite Carrier EIRP (dBW) | 52.5 |
| Downlink Rain Loss (dB) | -3 |
| Free Space Loss (dB) | -205.4 |
| Ground station antenna dia (m) | 1.2 |
| Ground Station G/T (dB/K) | 20.9 |
| C/N, DL (dB) | 18.0 |
| C/I ASI (dB) | 18 |
| C/Ntot, dB | 15.0 |
| Required (dB) | 11 |
| Margin (dB) | 4.0 |

**CMD**

| **S13.d.** | **K_TC** |
|---|---|
| Tx ES dia (typical), m | 8.4 |
| Tx ES gain, dBi | 60.2 |
| Tx ES antenna input power, dBW | 10 |
| Tx ES EIRP, dBW | 70.2 |
| Link loss, dB | 207.5 |
| Satellite G/T, dB/K | 3 |
| Command carrier bandwidth, MHz | 0.8 |
| Tx ES antenna input power density, dBW/Hz | -50 |
| Carrier-to-Noise Ratio, dB | 35.3 |
| Required CNR, dB | 10 |
| Margin | 25.3 |

**TLM**

| **S13.d.** | **K_TM** |
|---|---|
| EIRP, dBW | 19 |
| Carrier bandwidth, MHz | 0.4 |
| EIRP density, dBW/4kHz | -1.00 |
| Tx ES dia (typical), m | 5.7 |
| Rx ES antenna gain, dB | 55.0 |
| Rx ES G/T, dB/K | 34.6 |
| Rain fade, dB | 8 |
| CNR, dB | 11.18 |
| CNR (required), dB | 9 |
| Margin, dB | 2.2 |