

**TYPICAL C-BAND LINK BUDGETS**

|                                   |          | 24K0G7D | 26K7G7D | 80K0G7D | 106K0G7D | 160K0G7D | 640K0G7D | 4M33G7D | 6M10G7W | 6M10G7W | 6M10G7W | 30M0G7W | 8M00G7D | 8M00G7D | 36M0F9F | 36M0F9F | 33M3G7D |
|-----------------------------------|----------|---------|---------|---------|----------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| G rx sat                          | (dBi)    | 28.4    | 28.4    | 28.4    | 28.4     | 28.4     | 28.4     | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    | 28.4    |
| T sat                             | (K)      | 446.7   | 446.7   | 446.7   | 446.7    | 446.7    | 446.7    | 446.7   | 446.7   | 446.7   | 446.7   | 446.7   | 446.7   | 446.7   | 446.7   | 446.7   | 446.7   |
| G tx sat                          | (dBi)    | 28.6    | 28.6    | 28.6    | 28.6     | 28.6     | 28.6     | 28.6    | 28.6    | 28.6    | 28.6    | 28.6    | 28.6    | 28.6    | 28.6    | 28.6    | 28.6    |
| Transp BW                         | (MHz)    | 36      | 36      | 36      | 36       | 36       | 36       | 36      | 36      | 36      | 36      | 36      | 36      | 36      | 36      | 36      | 36      |
| Signal BW                         | (MHz)    | 0.024   | 0.0267  | 0.08    | 0.106    | 0.16     | 0.64     | 4.33    | 6.1     | 6.1     | 6.1     | 30      | 8       | 8       | 36      | 36      | 33.3    |
| C/Nthr Clr Sky                    | (dB)     | 5.3     | 8.3     | 7       | 2.8      | 2.8      | 2.8      | 6.1     | 6.4     | 6.4     | 6.4     | 9.8     | 6.1     | 6.1     | 13      | 13      | 9.8     |
| Service Area                      |          |         |         |         |          |          |          |         |         |         |         |         |         |         |         |         |         |
| Uplink EOC U/L                    | (dB)     | -4      | -4      | -4      | -4       | -4       | -4       | -4      | -4      | -4      | -4      | -4      | -4      | -4      | -4      | -4      | -4      |
| G 1m²                             | (dBi)    | 37.3    | 37.3    | 37.3    | 37.3     | 37.3     | 37.3     | 37.3    | 37.3    | 37.3    | 37.3    | 37.3    | 37.3    | 37.3    | 37.3    | 37.3    | 37.3    |
| G/T max                           | (dB/K)   | 1.9     | 1.9     | 1.9     | 1.9      | 1.9      | 1.9      | 1.9     | 1.9     | 1.9     | 1.9     | 1.9     | 1.9     | 1.9     | 1.9     | 1.9     | 1.9     |
| FSL                               | (dB)     | 200.2   | 200.2   | 200.2   | 200.2    | 200.2    | 200.2    | 200.2   | 200.2   | 200.2   | 200.2   | 200.2   | 200.2   | 200.2   | 200.2   | 200.2   | 200.2   |
| L atmos                           | (dB)     | 0.15    | 0.15    | 0.15    | 0.15     | 0.15     | 0.15     | 0.15    | 0.15    | 0.15    | 0.15    | 0.15    | 0.15    | 0.15    | 0       | 0       | 0.15    |
| Space Station SFD/EIRP            |          |         |         |         |          |          |          |         |         |         |         |         |         |         |         |         |         |
| Min                               |          | -100.4  | -100.4  | -100.4  | -100.4   | -100.4   | -100.4   | -100.4  | -100.4  | -100.4  | -100.4  | -100.4  | -100.4  | -100.4  | -100.4  | -100.4  | -100.4  |
| Max                               |          | -80.4   | -80.4   | -80.4   | -80.4    | -80.4    | -80.4    | -80.4   | -80.4   | -80.4   | -80.4   | -80.4   | -80.4   | -80.4   | -80.4   | -80.4   | -80.4   |
| PAD wrt mid-range                 | (dB)     | -3      | -3      | -3      | -3       | -3       | -3       | -3      | -3      | -3      | -3      | -6      | -3      | -3      | 4.5     | 4.5     | -6      |
| SFD (@ Beam Ctr)                  | (dBW/m²) | -93.4   | -93.4   | -93.4   | -93.4    | -93.4    | -93.4    | -93.4   | -93.4   | -93.4   | -93.4   | -96.4   | -93.4   | -93.4   | -85.9   | -85.9   | -96.4   |
| Sat EIRP max                      | (dBW)    | 43.2    | 43.2    | 43.2    | 43.2     | 43.2     | 43.2     | 43.2    | 43.2    | 43.2    | 43.2    | 43.2    | 43.2    | 43.2    | 43.2    | 43.2    | 43.2    |
| Uplink (TX Earth Station)         |          |         |         |         |          |          |          |         |         |         |         |         |         |         |         |         |         |
| Diam                              | (m)      | 7       | 7       | 7       | 8        | 4.5      | 7        | 4.5     | 7       | 7       | 7       | 8       | 8       | 8       | 8       | 8       | 10      |
| Gtx                               | (dBi)    | 51.3    | 51.3    | 51.3    | 52.4     | 47.4     | 51.3     | 47.4    | 51.3    | 51.3    | 51.3    | 52.4    | 52.4    | 52.4    | 52.4    | 52.4    | 54.4    |
| EIRP ES (EOC)                     | (dBW)    | 39.8    | 42.3    | 46.3    | 47.4     | 49.1     | 55.3     | 60.6    | 63.3    | 63.3    | 63.3    | 71.4    | 63.9    | 63.9    | 78.0    | 78.0    | 71.6    |
| Ptx (EOC)                         | (dBW)    | -11.5   | -9.0    | -5.0    | -5.0     | 1.7      | 4.0      | 13.2    | 12.0    | 12.0    | 12.0    | 19.0    | 11.5    | 11.5    | 25.6    | 25.6    | 17.3    |
| Ptx (COB)                         | (dBW)    | -15.5   | -13.0   | -9.0    | -9.0     | -2.3     | 0.0      | 9.2     | 8.0     | 8.0     | 8.0     | 15.0    | 7.5     | 7.5     | 21.6    | 21.6    | 13.3    |
| Downlink (Space Station)          |          |         |         |         |          |          |          |         |         |         |         |         |         |         |         |         |         |
| Ptx (max COB)                     | (dBW)    | -18.4   | -15.9   | -11.9   | -10.9    | -8.9     | -2.9     | 2.6     | 5.1     | 5.1     | 5.1     | 14.6    | 5.6     | 5.6     | 11.6    | 11.6    | 14.6    |
| Ptx (min EOC)                     | (dBW)    | -21.4   | -18.9   | -14.9   | -13.9    | -11.9    | -5.9     | -0.4    | 2.1     | 2.1     | 2.1     | 14.5    | 2.6     | 2.6     | 11.5    | 11.5    | 14.5    |
| EIRP sat                          | (dBW)    | 10.2    | 12.7    | 16.7    | 17.7     | 19.7     | 25.7     | 31.2    | 33.7    | 33.7    | 33.7    | 43.2    | 34.2    | 34.2    | 40.2    | 40.2    | 43.2    |
| RX Earth Station                  |          |         |         |         |          |          |          |         |         |         |         |         |         |         |         |         |         |
| Diameter                          | (m)      | 4.5     | 4.5     | 4.5     | 4.5      | 4.5      | 4.5      | 4.5     | 4.5     | 7       | 8       | 4.5     | 7       | 10      | 4.5     | 7       | 10      |
| G rx ES                           | (dBi)    | 43.5    | 43.5    | 43.5    | 43.5     | 43.5     | 43.5     | 43.5    | 43.5    | 47.4    | 48.5    | 43.5    | 47.4    | 50.5    | 43.5    | 47.4    | 50.5    |
| T ES                              | (K)      | 80      | 80      | 80      | 80       | 80       | 80       | 80      | 80      | 80      | 80      | 80      | 80      | 80      | 80      | 80      | 80      |
| U/L Interference Allocations      |          |         |         |         |          |          |          |         |         |         |         |         |         |         |         |         |         |
| (C/I)U/L X-pol, Adj Ch, ASI, IMOD | (dB)     | 15.0    | 17.0    | 16.3    | 16.1     | 16.3     | 16.2     | 13.4    | 14.5    | 14.5    | 14.5    | 19.9    | 13.8    | 13.8    | 27.6    | 27.6    | 19.4    |
| C/N Thermal Up                    | (dB)     | 25.5    | 27.6    | 26.8    | 26.6     | 26.8     | 26.8     | 24.0    | 25.0    | 25.0    | 25.0    | 26.1    | 24.3    | 24.3    | 32.8    | 32.8    | 25.6    |
| (C/N) Total Up                    | (dB)     | 14.6    | 16.7    | 15.9    | 15.7     | 15.9     | 15.9     | 13.1    | 14.1    | 14.1    | 14.1    | 19.0    | 13.4    | 13.4    | 26.5    | 26.5    | 18.5    |
| D/L Interference Allocations      |          |         |         |         |          |          |          |         |         |         |         |         |         |         |         |         |         |
| (C/I)U/L X-pol, Adj Ch, ASI, IMOD | (dB)     | 15.7    | 17.7    | 16.9    | 16.7     | 16.9     | 16.9     | 14.1    | 15.1    | 15.8    | 15.9    | 20.7    | 15.1    | 15.4    | 20.2    | 24.0    | 22.4    |
| C/N Dn (COB)                      | (dB)     | 22.8    | 24.8    | 24.0    | 23.9     | 24.0     | 24.0     | 21.2    | 22.2    | 25.9    | 27.1    | 24.9    | 25.4    | 28.2    | 21.4    | 25.3    | 31.0    |
| (C/N) Total Dn (COB)              | (dB)     | 14.9    | 16.9    | 16.1    | 15.9     | 16.1     | 16.1     | 13.3    | 14.3    | 15.4    | 15.6    | 19.3    | 14.7    | 15.2    | 17.7    | 21.6    | 21.9    |
| C/N Dn (EOC)                      | (dB)     | 15.8    | 17.8    | 17.0    | 16.9     | 17.0     | 17.0     | 14.2    | 15.2    | 18.9    | 20.1    | 20.8    | 18.4    | 21.2    | 19.3    | 23.2    | 26.9    |
| (C/N) Total Dn (EOC)              | (dB)     | 10.0    | 11.9    | 11.2    | 11.0     | 11.2     | 11.1     | 8.3     | 9.4     | 11.2    | 11.6    | 16.3    | 10.6    | 11.5    | 15.6    | 19.5    | 20.2    |
| C/N total max                     | (dB)     | 11.8    | 13.8    | 13.0    | 12.8     | 13.0     | 13.0     | 10.2    | 11.2    | 11.7    | 11.8    | 16.1    | 11.0    | 11.2    | 17.2    | 20.4    | 16.9    |
| C/N total min                     | (dB)     | 8.7     | 10.7    | 9.9     | 9.7      | 9.9      | 9.9      | 7.1     | 8.1     | 9.4     | 9.7     | 14.4    | 8.8     | 9.3     | 15.3    | 18.7    | 16.3    |
| Link Margin                       | (dB)     | 3.4     | 2.4     | 2.9     | 6.9      | 7.1      | 7.1      | 1.0     | 1.7     | 3.0     | 3.3     | 4.6     | 2.7     | 3.2     | 2.3     | 5.7     | 6.5     |