

Command Link Budgets

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|---|--------------------|------------------------|
| Emission Designator | 860KF3D | 860KF3D |
| Modulation | FM | FM |
| Occupied Bandwidth (kHz) | 860 | 860 |
| Allocated Bandwidth (kHz) | 1000 | 1000 |
| Satellite Beam Name | NRF | Global |
| Satellite Beam Polarization* | RHCP LHCP | Horizontal Vertical |
| Frequency (MHz) | 24751.5 25248.5 | 5925.5 6424.5 |
| Uplink Earth Station Antenna Size (m) | 9 | 9 |
| Uplink Earth Station Antenna Gain (dBi) | 65.7 | 53.8 |
| Uplink Earth Station Transmitter Power (dBW) | 15.3 | 19.2 |
| Uplink Earth Station EIRP (dBW) | 81.0 | 73.0 |
| Satellite Beam G/T @ Earth Station Site (dB/K) | -11.6 | -11.5 |
| Boltzman's Constant (dBW/K-Hz) | 228.6 | 228.6 |
| Carrier Noise Bandwidth (dB-Hz) | 59.3 | 59.3 |
| Antenna Pointing Error (dB) | 0.5 | 0.5 |
| Path Loss – Clear Sky (dB) | 212.2 | 200.3 |
| Gaseous Attenuation (dB) | 0.2 | 0.0 |
| C/N (dB) | 25.8 | 30.0 |
| Required C/N (dB) | 10.0 | 10.0 |
| Margin (dB) | 14.8 | 20.0 |

*Note

RHCP: Right Hand Circular Polarization

LHCP: Left Hand Circular Polarization

Telemetry Link Budgets

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|--|--------------------|------------------|
| Emission Designator | 250KG7D | 250KG7D |
| Information Rate (kbps) | 4 | 4 |
| FEC | N/A | N/A |
| Modulation | PSK/ PM | PSK/PM |
| Occupied Bandwidth (kHz) | 250 | 250 |
| Allocated Bandwidth (kHz) | 350 | 350 |
| Satellite Beam Name | NTF | Global |
| Satellite Beam Polarization* | RHCP LHCP | Vertical |
| Frequency (MHz) | 17303.0 17303.5 | 4197.0 4198.5 |
| Receive Earth Station Antenna Size (m) | 9 | 9 |
| Receive Earth Station Antenna Gain (dBi) | 62.2 | 50.8 |
| Receive Earth Station G/T (dB/K) | 39.8 | 29.9 |
| Downlink Beam EIRP @ Receive Earth Station Site (dBW) | 19.0 | 15.0 |
| Boltzman's Constant (dBW/K-Hz) | 228.6 | 228.6 |
| Carrier Noise Bandwidth (dB-Hz) | 54.0 | 54.0 |
| Antenna Pointing Error (dB) | 0.5 | 0.5 |
| Path Loss – Clear Sky (dB) | 208.9 | 196.6 |
| Gaseous Attenuation (dB) | 0.2 | 0 |
| C/N (dB) | 23.8 | 22.4 |
| Required C/N (dB) | 13.9 | 13.9 |
| Margin (dB) | 9.9 | 8.5 |

*Note

RHCP: Right Hand Circular Polarization

LHCP: Left Hand Circular Polarization

ULPC Link Budgets

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|--|--------------------|
| Emission Designator | 50K0G7X |
| Information Rate (kbps) | N/A |
| FEC | N/A |
| Modulation | PM |
| Occupied Bandwidth (kHz) | 50 |
| Allocated Bandwidth (kHz) | 50 |
| Satellite Beam Name | NTF |
| Satellite Beam Polarization* | RHCP LHCP |
| Frequency (MHz) | 17301.0 17301.5 |
| Receive Earth Station Antenna Size (m) | 0.65 |
| Receive Earth Station Antenna Gain (dBi) | 39.3 |
| Receive Earth Station G/T (dB/K) | 16.2 |
| Downlink Beam EIRP @ Receive Earth Station Site (dBW) | 18 |
| Boltzman's Constant (dBW/K-Hz) | 228.6 |
| Carrier Noise Bandwidth (dB-Hz) | 47.0 |
| Antenna Pointing Error (dB) | 0.3 |
| Path Loss – Clear Sky (dB) | 208.9 |
| Gaseous Attenuation (dB) | 0.2 |
| C/N (dB) | 6.4 |
| Required C/N (dB) | 4.0 |
| Margin (dB) | 2.4 |

*Note

RHCP: Right Hand Circular Polarization

LHCP: Left Hand Circular Polarization