

ECHOSTAR-8 Link Budgets

Medium Power Mode

| | |
|-----------------|--|
| Link Parameters | 1 |
| | 13 meter Feeder Link E/S Nominal Feeder Link Site |
| | to |
| | 45 cm Receive-Only |

| | |
|---|-------------|
| Modulation Parameters: | |
| Information Bit Rate per Carrier (kbps) | 41,200 |
| FEC Rate | 2/3 |
| Overall Coding Overhead (%) | 56.5% |
| Modulation Type (BPSK/QPSK/8PSK/16QAM) | 8PSK |
| Filter Roll-off Factor ("alpha") (%) | 20 |
| Link Geometry: | |
| Satellite Longitude (°East) | -77.0 |
| Tx E/S City Location (name) | Cheyenne |
| Tx E/S Longitude (°East) | -104.7 |
| Tx E/S Latitude (°North) | 41.1 |
| Tx E/S Range to Satellite (Km) | 38,209 |
| Tx E/S Elevation to Satellite (°) | 34.7 |
| Tx E/S Altitude (m) | 1876.0 |
| Rx E/S City Location (name) | Mexico City |
| Rx E/S Longitude (°East) | -99.2 |
| Rx E/S Latitude (°North) | 19.4 |
| Rx E/S Range to Satellite (km) | 36,725 |
| Rx E/S Elevation to Satellite (°) | 56.0 |
| Rx E/S Altitude (m) | 2240.0 |
| Link (per carrier): | |
| Carrier Frequency (MHz) | 17,550 |
| HPA Power Level (to give required PFD at satellite) (W) | 26.8 |
| HPA Power in dBW (dBW) | 14.3 |
| Post-HPA Losses (dB) | 2.0 |
| Tx E/S Power to Antenna in dBW (dBW) | 12.3 |
| Tx E/S Antenna Diameter (m) | 13.0 |
| Antenna Efficiency (%) | 65 |
| Tx E/S Antenna Gain (dB) | 65.7 |
| Tx E/S EIRP (dBW) | 78.0 |
| E/S Pointing Loss (dB) | 0.1 |
| Atmospheric Loss (dB) | 0.34 |
| Availability up (%) | 99.9 |
| Rain attenuation (dB) | 2.7 |
| Free Space Loss (dB) | 209.0 |
| Satellite: | |