

ECHOSTAR-1 Link Budgets

Link Parameters

Modulation Parameters:

Information Bit Rate per Carrier	(kbps)
FEC Rate	
Overall Coding Overhead	(%)
Modulation Type (BPSK/QPSK/8PSK/16QAM)	
Filter Roll-off Factor ("alpha")	(%)

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

Link Geometry:

Satellite Longitude	(°East)
Tx E/S City Location	(name)
Tx E/S Longitude	(°East)
Tx E/S Latitude	(°North)
Tx E/S Range to Satellite	(Km)
Tx E/S Elevation to Satellite	(°)
Tx E/S Altitude	(m)
Rx E/S City Location	(name)
Rx E/S Longitude	(°East)
Rx E/S Latitude	(°North)
Rx E/S Range to Satellite	(km)
Rx E/S Elevation to Satellite	(°)
Rx E/S Altitude	(m)

41,200
2/3
56.5%
8PSK
20
-77.0
Gilbert
-111.8
33.4
38,075
36.3
300.0
Mexico City
-99.2
19.4
36,725
56.0
2240.0

Link (per carrier):

Carrier Frequency	(MHz)
HPA Power Level (to give required PFD at satellite)	(W)
HPA Power in dBW	(dBW)
Post-HPA Losses	(dB)
Tx E/S Power to Antenna in dBW	(dBW)
Tx E/S Antenna Diameter	(m)
Antenna Efficiency	(%)
Tx E/S Antenna Gain	(dB)
Tx E/S EIRP	(dBW)
E/S Pointing Loss	(dB)
Atmospheric Loss	(dB)
Availability up	(%)
Rain attenuation	(dB)
Free Space Loss	(dB)

17,550
31.4
15.0
2.0
13.0
13.0
55
65.0
77.9
0.1
0.34
99.9
2.7
200.0