

# ECHOSTAR-86.5W Link Budgets

## Medium Power Mode

### Link Parameters

#### Modulation Parameters:

Information Bit Rate per Carrier	(kbps)
FEC Rate	
Reed-Solomon Ratio (188/204, None)	
Overall Coding Overhead	(%)
Modulation Type (BPSK/QPSK/8PSK/16QAM)	
Filter Roll-off Factor ("alpha")	(%)

#### 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)

#### 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)

1	2	3
13 meter Feeder Link E/S Nominal Feeder Link Site	13 meter Feeder Link E/S Nominal Feeder Link Site	13 meter Feeder Link E/S Nominal Feeder Link Site
to	to	to
45 cm Receive-Only	45 cm Receive-Only	45 cm Receive-Only
30,719	30,719	30,719
5/6	5/6	5/6
188/204	188/204	188/204
30.2%	30.2%	30.2%
QPSK	QPSK	QPSK
20	20	20
-86.5	-86.5	-86.5
Cheyenne	Cheyenne	Cheyenne
-104.7	-104.7	-104.7
41.1	41.1	41.1
37,865	37,865	37,865
38.9	38.9	38.9
1876.0	1876.0	1876.0
Miami	New York	Los Angeles
-80.3	-74.0	-118.2
25.9	40.8	34.0
36,571	37,692	37,934
59.0	41.2	38.0
1.0	15.0	33.0
17,550	17,550	17,550
4.2	4.2	4.2
6.3	6.3	6.3
2.0	2.0	2.0
4.3	4.3	4.3
13.0	13.0	13.0
65	65	65
65.7	65.7	65.7
70.0	70.0	70.0
0.1	0.1	0.1
0.20	0.20	0.20