

HISPASAT-LINK BUDGET DIGITAL SERVICES

REF. LINK
TRANSPONDER N°
SATELLITE

AMAZONAS-1
Clear Sky

Rain
up

Rain
down

GENERAL DATA

Transponder bandwidth(MHz)	36		
carrier type	outbound		
Modulation	QPSK		
Information rate (Kb/s)	2048	OVERHEAD	1
FEC	3/4	Reed Solomon	1
bandwidth occupied (KHz)	1638.40		
BER	1.00E-07		
Eb/No (dB)	8	N° portadoras	
N° of carriers	18.00	18.83	22.54
IBO total (dB)	3.00		
OBO total (dB)	2.321		
C/I intermodulation	18.063		
Occupation factor	1.32		
availability (%)	99.50		
satellite longitude	-36		

UPLINK

E/T Tx Name	new York
E/T Tx (degrees E) Longitude	-74.00
E/T Tx (degrees N) latitude	40.75
E/T Tx (m) Altitude	100.00
Uplink Frequency (GHz)	14.00
EIRP E/T Tx.(dBW)	62.50

E/T Tx example

HPA (W)	10.00	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	52.70	-52.34
Ant. Diameter (m)	3.65	

Polarization discrim (dB)	30.00	
Accuracy polarization(°)	0.10	
% unavailability		0.12000
Rain atten.		3.23
Atmosp. Atten. loss (dB)	0.20	
aiming error loss (dB)	0.30	
sky loss (dB)	206.90	
D.F.P. (dBW/m2)	-104.53	-107.76
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-88.00	
Back-off Input (dB)	16.53	19.76
Geogr. advantage (dB)	-4.00	
G/T satellite in the BEAM CENTER (dB/K)	4.70	
C/N up (dB)	22.25	19.03
C/I cochannel up(dB)	22.34	19.11
C/(N+I) without other interf. satellites up) (dB)	17.42	14.19
psd Interference from satellite 2°(dBW/Hz)	-50.00	
C/I with other interf. Satellites 2° up (dB)	28.88	25.66
c/(N+I) with other interf. Satellites up (dB)	17.12	13.89
Xpolar Interference excess (dB)	3.0	

Clear sky

Rain
up

rain
down

DOWNLINK

E/T Rx Name	MIAMI		
E/T Rx (degrees E) Longitude	-80.18		
E/T Rx (degrees N) Latitude	25.77		
E/T Rx (Km) Altitude	100.00		
Down Frequency (GHz)	12.00		SAT deirp (dBW/Hz)
EIRP satellite in the beam center (dBW)	48.00		-29.99
Back-off output (dB)	15.85	19.08	
Geogr. advantage (dB)	-5.00		
% unavailability			0.38000
Rain Atten.			2.12
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	205.37		
G/T E/T Rx. (dB/K)	30.00		26.04
E/T Rx Example			
Ant. Gain(dB)	48.78		
antenna-receptor loss(dB)	0.20		
Tina (°K)	40.00		
Ta (°K)	20.00		
Tsyst. (°K)	72.15		
Ant. Diameter (m)	2.61		

Polarization discrim.(dB)	30.00		
C/N down (dB)	17.73	14.51	11.65
C/I cochannel down(dB)	22.52	22.52	22.52
C/I channel adjacent (dB)	24.70	24.70	24.70
C/(N+I) without other interf. satellites down) (dB)	14.35	11.72	10.55
deirp Interference from satellite 2°(dBW/Hz)	-30.00		
C/I with other interf. Satellites 2° down (dB)	22.31	22.31	20.20
c/(N+I) with other interf. Satellites up (dB)	13.71	11.36	10.10
Xpolar Interference excess (dB)	2.3		

GLOBAL RESULTS

C/(N+I) without other interf. satellites TOTAL) (dB)	12.61	9.77	9.73
C/(N+I) with other interf. satellites Total (dB)	12.08	9.43	9.31
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	10.61	7.96	7.84
Eb/No request (dB)	8.00	8.00	8.00
Margin (nominal)(dB)	2.61	-0.04	-0.16