

**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)	38010	OVERHEAD	1
FEC	3/4	Reed Solomon	47/51
bandwidth occupied (KHz)	32995.91		
BER	1.00E-07		
Eb/No (dB)	5.5	N° portadoras	
N° of carriers	1.00	0.94	0.36
IBO total (dB)	7.00		
OBO total (dB)	2.900		
C/I intermodulation	15.741		
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)	76.00

E/T Tx example

HPA (W)	210.00	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	52.98	-52.16
Ant. Diameter (m)	3.77	

Polarization discrim (dB)	30.00	
Accuracy polarization(°)	0.10	
% unavailability		0.09000
Rain atten.		3.78
Atmosp. Atten. loss (dB)	0.20	
aiming error loss (dB)	0.30	
sky loss (dB)	206.90	
D.F.P. (dBW/m2)	-90.53	-94.31
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-88.00	
Back-off Input (dB)	2.53	6.31
Geogr. advantage (dB)	-3.50	
G/T satellite in the BEAM CENTER (dB/K)	4.70	
C/N up (dB)	23.21	19.43
C/I cochannel up(dB)	18.34	14.56
C/(N+I) without other interf. satellites up) (dB)	16.11	12.32
psd Interference from satellite 2°(dBW/Hz)	-50.00	
C/I with other interf. Satellites 2° up (dB)	29.34	25.56
c/(N+I) with other interf. Satellites up (dB)	15.90	12.12
Xpolar Interference excess (dB)	7.0	

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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		-30.08
Back-off output (dB)	2.90	6.68	
Geogr. advantage (dB)	-5.00		
% unavailability			0.41000
Rain Atten.			2.01
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	205.37		
G/T E/T Rx. (dB/K)	26.30		22.44
E/T Rx Example			
Ant. Gain(dB)	45.08		
antenna-receptor loss(dB)	0.20		
Tina (°K)	40.00		
Ta (°K)	20.00		
Tsyst. (°K)	72.15		
Ant. Diameter (m)	1.71		

Polarization discrim.(dB)	25.00		
C/N down (dB)	13.94	10.16	8.07
C/I cochannel down(dB)	18.95	18.95	18.95
C/I channel adjacent (dB)	24.70	24.70	24.70
C/(N+I) without other interf. satellites down) (dB)	11.23	8.02	7.19
deirp Interference from satellite 2°(dBW/Hz)	-30.00		
C/I with other interf. Satellites 2° down (dB)	18.52	18.52	16.51
c/(N+I) with other interf. Satellites up (dB)	10.48	7.65	6.71
Xpolar Interference excess (dB)	2.9		

GLOBAL RESULTS

C/(N+I) without other interf. satellites TOTAL) (dB)	10.00	6.65	6.66
C/(N+I) with other interf. satellites Total (dB)	9.39	6.32	6.21
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	8.27	5.21	5.10
Eb/No request (dB)	5.50	5.50	5.50
Margin (nominal)(dB)	2.77	-0.29	-0.40