

**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)	11	OVERHEAD	1
FEC	1/2	Reed Solomon	1
bandwidth occupied (KHz)	13.20		
BER	1.00E-07		
Eb/No (dB)	6.1	N° portadoras	
N° of carriers	2337.00	2337.66	10067.65
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)	35.00

E/T Tx example

HPA (W)	0.17	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	42.90	-49.10
Ant. Diameter (m)	1.18	

Polarization discrim (dB)	30.00	
Accuracy polarization(°)	0.10	
% unavailability		0.15000
Rain atten.		2.84
Atmosp. Atten. loss (dB)	0.20	
aiming error loss (dB)	0.30	
sky loss (dB)	206.90	
D.F.P. (dBW/m2)	-131.03	-133.87
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-88.00	
Back-off Input (dB)	43.03	45.87
Geogr. advantage (dB)	-3.00	
G/T satellite in the BEAM CENTER (dB/K)	4.70	
C/N up (dB)	16.69	13.85
C/I cochannel up(dB)	22.34	19.50
C/(N+I) without other interf. satellites up) (dB)	13.00	10.16
psd Interference from satellite 2°(dBW/Hz)	-50.00	
C/I with other interf. Satellites 2° up (dB)	22.32	19.48
c/(N+I) with other interf. Satellites up (dB)	12.52	9.68
Xpolar Interference excess (dB)	3.0	

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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		-35.56
Back-off output (dB)	42.35	45.19	
Geogr. advantage (dB)	-3.00		
% unavailability			0.35000
Rain Atten.			2.23
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	205.37		
G/T E/T Rx. (dB/K)	31.00		26.94
E/T Rx Example			
Ant. Gain(dB)	49.62		
antenna-receptor loss(dB)	0.10		
Tina (°K)	45.00		
Ta (°K)	20.00		
Tsyst. (°K)	71.15		
Ant. Diameter (m)	2.88		

Polarization discrim.(dB)	30.00		
C/N down (dB)	15.17	12.33	8.87
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)	11.05	8.45	7.50
deirp Interference from satellite 2°(dBW/Hz)	-30.00		
C/I with other interf. Satellites 2° down (dB)	19.59	19.59	17.36
c/(N+I) with other interf. Satellites up (dB)	10.48	8.13	7.08
Xpolar Interference excess (dB)	2.3		

GLOBAL RESULTS

C/(N+I) without other interf. satellites TOTAL) (dB)	8.91	6.21	6.42
C/(N+I) with other interf. satellites Total (dB)	8.37	5.83	5.99
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	8.66	6.12	6.28
Eb/No request (dB)	6.10	6.10	6.10
Margin (nominal)(dB)	2.56	0.02	0.18