

HISPASAT-LINK BUDGET  
DIGITAL SERVICES

REF. LINK  
TRANSPONDER Nº  
SATELLITE

AMAZONAS  
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	Nº portadoras	
LINEALIZADOR (0=NO, 1=SI)	1	BW	POT
Nº of carriers	2337.00	2337.66	3333.71
IBO total (dB)	3.00		
OBO total (dB)	2.321		
C/I intermodulation	18.063		
Occupation factor	1.32		
availability (%)	99.50		
satellite longitude	-61		

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)	39.80

E/T Tx example

HPA (W)	20.00	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	49.20	-50.61
Ant. Diameter (m)	2.40	

Polarization discrim (dB)	30.00		
Accuracy polarization(°)	0.10		
% unavailability		0.08000	
Rain atten.		4.03	
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	206.90		
D.F.P. (dBW/m2)	-126.23	-130.26	
saturation D.F.P.in the BEAM CENTER (dBW)	-88.00		
Back-off Input (dB)	38.23	42.26	
Geogr. advantage (dB)	-3.00		
G/T satellite in the BEAM CENTER (dB/K)	4.70		
C/N up (dB)	21.49	17.46	
C/I cochannel up(dB)	22.34	18.31	
C/(N+I without other interf. satellites up) (dB)	16.89	12.86	
psd Interference from satellite 2º(dBW/Hz)	-50.00		
C/I with other interf. Satellites 2º up (dB)	27.12	23.09	
c/(N+I) with other interf. Satellites up (dB)	16.49	12.46	
Xpolar Interference excess (dB)	3.0		

Clear sky  
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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	-30.76	
Back-off output (dB)	37.55	41.58	
Geogr. advantage (dB)	-5.00		
% unavailability			0.42000
Rain Atten.			1.98
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		22.48

E/T Rx Example

Ant. Gain(dB)	44.92
antenna-receptor loss(dB)	0.10
Tlna (°K)	45.00
Ta (°K)	20.00
Tsyst. (°K)	71.15
Ant. Diameter (m)	1.68

Polarization discrim.(dB)	25.00		
C/N down (dB)	13.27	9.24	7.47
C/I cochannel down(dB)	19.53	19.53	19.53
C/I channel adjacent (dB)	24.70	24.70	24.70
C/(N+I without other interf. satellites down) (dB)	11.27	7.79	6.85
deirp Interference from satellite 2º(dBW/Hz)	-30.00		
C/I with other interf. Satellites 2º down (dB)	17.69	17.69	15.71
c/(N+I) with other interf. Satellites up (dB)	10.38	7.37	6.32
Xpolar Interference excess (dB)	2.3		

GLOBAL RESULTS

C/(N+I without other interf. satellites TOTAL)	10.22	6.61	6.44
C/(N+I with other interf. satellites) Total (dB)	9.43	6.20	5.92
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	9.72	6.49	6.21
Eb/No request (dB)	6.10	6.10	6.10
Margin (nominal)(dB)	3.62	0.39	0.11