

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	8-PSK		
Information rate (Kb/s)	11300	OVERHEAD	15/16
FEC	2/3	Reed Solomon	67/73
bandwidth occupied (KHz)	7879.64		
BER	1.00E-07		
Eb/No (dB)	5.5	Nº portadoras	
Nº of carriers	3.00	3.92	4.93
IBO total (dB)	7.00		
OBO total (dB)	3.373		
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)	68.10

E/T Tx example

HPA (W)	34.00	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	52.99	-53.85
Ant. Diameter (m)	3.77	

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)	-97.93	-100.77
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-84.00	
Back-off Input (dB)	13.93	16.77
Geogr. advantage (dB)	-3.00	
G/T satellite in the BEAM CENTER (dB/K)	4.70	
C/N up (dB)	22.03	19.19
C/I cochannel up(dB)	18.34	15.50
C/(N+I) without other interf. satellites up) (dB)	15.59	12.75
psd Interference from satellite 2°(dBW/Hz)	-50.00	
C/I with other interf. Satellites 2° up (dB)	27.66	24.82
c/(N+I) with other interf. Satellites up (dB)	15.33	12.49
Xpolar Interference excess (dB)	7.0	

Clear sky

Rain
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rain
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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		-31.27
Back-off output (dB)	10.30	13.14	
Geogr. advantage (dB)	-5.00		
% 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)	30.00		25.94
E/T Rx Example			
Ant. Gain(dB)	48.62		
antenna-receptor loss(dB)	0.10		
Tina (°K)	45.00		
Ta (°K)	20.00		
Tsyst. (°K)	71.15		
Ant. Diameter (m)	2.57		

Polarization discrim.(dB)	30.00		
C/N down (dB)	16.46	13.62	10.16
C/I cochannel down(dB)	21.47	21.47	21.47
C/I channel adjacent (dB)	24.70	24.70	24.70
C/(N+I) without other interf. satellites down) (dB)	12.37	9.92	8.80
deirp Interference from satellite 2°(dBW/Hz)	-30.00		
C/I with other interf. Satellites 2° down (dB)	20.88	20.88	18.65
c/(N+I) with other interf. Satellites up (dB)	11.79	9.59	8.38
Xpolar Interference excess (dB)	3.4		

GLOBAL RESULTS

C/(N+I) without other interf. satellites TOTAL) (dB)	10.68	8.10	7.98
C/(N+I) with other interf. satellites Total (dB)	10.20	7.79	7.58
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	8.14	5.72	5.51
Eb/No request (dB)	5.50	5.50	5.50
Margin (nominal)(dB)	2.64	0.22	0.01