

HISPASAT-LINK BUDGET
DIGITAL SERVICES

REF. LINK
TRANSPONDER N°
SATELLITE

AMAZONAS-3
Clear Sky

Rain
up

Rain
down

GENERAL DATA

Transponder bandwidth(MHz)	54		
carrier type	outbound		
Modulation	8-PSK		
Information rate (Kb/s)	64	OVERHEAD	15/16
FEC	2/3	Reed Solomon	67/73
bandwidth occupied (KHz)	44.63		
BER	1.00E-07		
Eb/No (dB)	6.7	Nº portadoras	
Nº of carriers	1037.00	1037.14	318.37
IBO total (dB)	3.00		
OBO total (dB)	2.321		
C/I intermodulation	18.063		
Occupation factor	1.32		
availability (%)	99.90		
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)	5.89
EIRP E/T Tx.(dBW)	53.00

E/T Tx example

HPA (W)	4.20	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	46.97	-40.46
Ant. Diameter (m)	4.49	

Polarization discrim (dB)	35.00	
Accuracy polarization(º)	0.10	
% unavailability		0.08000
Rain atten.		0.46
Atmosp. Atten. loss (dB)	0.20	
aiming error loss (dB)	0.30	
sky loss (dB)	199.38	
D.F.P. (dBW/m2)	-117.03	-117.49
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-89.00	
Back-off Input (dB)	28.03	28.49
Geogr. advantage (dB)	-7.00	
G/T satellite in the BEAM CENTER (dB/K)	-1.00	
C/N up (dB)	27.22	26.76
C/I cochannel up(dB)	24.89	24.43
C/(N+I) without other interf. satellites up) (dB)	20.86	20.39
psd Interference from satellite 2º(dBW/Hz)	-38.70	
C/I with other interf. Satellites 2º up (dB)	23.73	23.27
c/(N+I) with other interf. Satellites up (dB)	19.05	18.59
Xpolar Interference excess (dB)	3.0	

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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)	3.66		SAT deirp (dBW/Hz)
EIRP satellite in the beam center (dBW)	41.00		-32.85
Back-off output (dB)	27.35	27.81	
Geogr. advantage (dB)	-5.00		
% unavailability			0.02000
Rain Atten.			0.44
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	195.06		
G/T E/T Rx. (dB/K)	18.90		17.41
E/T Rx Example			
Ant. Gain(dB)	37.68		
antenna-receptor loss(dB)	0.20		
Tlna (ºK)	40.00		
Ta (ºK)	20.00		
Tsyst. (ºK)	72.15		
Ant. Diameter (m)	2.39		

Polarization discrim.(dB)	25.00		
C/N down (dB)	14.09	13.63	12.17
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)	12.39	12.04	11.00
deirp Interference from satellite 2º(dBW/Hz)	-34.50		
C/I with other interf. Satellites 2º down (dB)	12.86	12.86	12.42
c/(N+I) with other interf. Satellites up (dB)	9.61	9.42	8.64
Xpolar Interference excess (dB)	2.3		

GLOBAL RESULTS

C/(N+I) without other interf. satellites TOTAL) (dB)	11.81	11.45	10.57
C/(N+I) with other interf. satellites Total (dB)	9.14	8.92	8.26
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	7.08	6.86	6.20
Eb/No request (dB)	6.70	6.70	6.70
Margin (nominal)(dB)	0.38	0.16	-0.50