HISPASAT-LINK BUDGET
DIGITAL SERVICES CARRIER Nº 1

REF. LINK
TRANSPONDER Nº
SATELLITE AMAZONAS-2

	Clear Sky	Rain up	Rain down
GENERAL DATA			
Transponder bandwidth(MHz)	36		
carrier type	outbound		
Modulation	QPSK		
Information rate (Kb/s)	2048	OVERHEAD	1
FEC	3/4	Reed Solomon	1
bandwidth occupied (KHz)	1638.40		
BER	1.00E-07		
Eb/No (dB)	8	Nº portadoras	
LINEALIZADOR (0=NO, 1=SI)	**1**	**BW**	**POT**
Nº of carriers	18.00	18.83	36.55
IBO total (dB)	3.00		
OBO total (dB)	2.321		
C/I intermodulation	18.063		
Occupation factor	1.32		
availability (%)	99.70		
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 Frecuency (GHz)	14.00		
EIRP E/T Tx.(dBW)	**62.40**		

E/T Tx example	
HPA (W)	8.84
HPA-antena (dB) loss	0.20
Ant. gain (dB)	53.14
Ant. Diameter (m)	3.70

ES off axis psd (dBW/Hz) -52.88

Polarization discrim (dB)	30.00		
Accuracy polarization(º)	0.10		
% unavailability		0.13000	
Rain atten.		3.08	
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	206.90		
D.F.P. (dBW/m2)	-102.63	-105.71	
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-84.00		
Back-off Input (dB)	18.63	21.71	
Geogr. advantage (dB)	-2.00		
G/T satellite in the BEAM CENTER (dB/K)	6.70		
C/N up (dB)	26.15	23.07	
C/I cochannel up(dB)	22.34	19.26	
C/(N+I without other interf. satellites up) (dB)	19.08	16.00	
psd Interference from satellite 2º(dBW/Hz)	-50.00		
C/I with other interf. Satelllites 2º up (dB)	28.78	25.70	
c/(N+I) with other interf. Satelllites up (dB)	18.64	15.56	
Xpolar Interference excess (dB)	3.0		

	Clear sky	Rain up	rain down
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 (m) Altitude	100.00		
Down Frecuency (GHz)	12.00		SAT deirp (dBW/Hz)
EIRP satellite in the beam center (dBW)	50.00		-30.09
Back-off output (dB)	17.95	21.03	
Geogr. advantage (dB)	-2.00		
% unavailability			0.17000
Rain Atten.			3.45
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**		25.08

E/T Rx Example	
Ant. Gain(dB)	48.62
Tlna (ºK)	45.00
Ta (ºK)	20.00
Tsyst. (ºK)	71.15
Ant. Diameter (m)	2.57

Polarization discrim.(dB)	30.00		
C/N down (dB)	20.63	17.55	12.26
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)	14.53	12.05	10.65
deirp Interference from satellite 2º(dBW/Hz)	-30.00		
C/I with other interf. Satelllites 2º down (dB)	25.05	25.05	21.60
c/(N+I) with other interf. Satelllites up (dB)	14.16	11.83	10.32
Xpolar Interference excess (dB)	2.3		

GLOBAL RESULTS

C/(N+I without other interf. satellites TOTAL) (dB)	13.22	10.58	10.07
C/(N+I with other interf. satellites) Total (dB)	12.83	10.30	9.72
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	11.37	8.83	8.25
Eb/No request (dB)	8.00	8.00	8.00
Margin (nominal)(dB)	3.37	0.83	0.25