HISPASAT-LINK BUDGET
DIGITAL SERVICES

REF. LINK
TRANSPONDER Nº
SATELLITE HISPASAT-1C

	Clear Sky	Rain up	Rain down
GENERAL DATA			
Transponder bandwidth(MHz)	36		
carrier type	DIGITAL		
Modulation	QPSK		
Information rate (Kb/s)	11790		
FEC	0.59		
bandwidth occupied (KHz)	13488.56		
BER	1.00E-08		
Nº of carriers	2.00		
IBO total (dB)	6.00		
OBO total (dB)	3.200		
C/I intermodulation	30.000		
Occupation factor	1.32		
availability (%)	99.50		
satellite longitude	-30		
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)	**69.00**		

E/T Tx example		
HPA (W)	8.00	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	60.17	-62.47
Ant. Diameter (m)	8.63	

Polarization discrim (dB)	35.00		
Accuracy polarization(º)	0.10		
% unavailability		0.13000	
Rain atten.		3.30	
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	207.21		
D.F.P. (dBW/m2)	-96.14	-99.44	
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-87.70		
Back-off Input (dB)	8.44	11.74	
Geogr. advantage (dB)	-1.80		
G/T satellite in the BEAM CENTER (dB/K)	4.30		
C/N up (dB)	21.09	17.79	
C/I cochannel up(dB)	23.89	20.59	
C/(N+I without other interf. satellites up) (dB)	17.24	13.94	
psd Interference from satellite 2º(dBW/Hz)	-50.00		
C/I with other interf. Satelllites 2º up (dB)	26.23	22.93	
c/(N+I) with other interf. Satelllites up (dB)	16.72	13.42	

	Clear sky	Rain up	rain down
DOWNLINK			
E/T Rx Name	BOGOTA		
E/T Rx (degrees E) Longitude	-74.10		
E/T Rx (degrees N) Latitude	4.60		
E/T Rx (m) Altitude	95.00		
Down Frecuency (GHz)	12.00		SAT deirp (dBW/Hz)
EIRP satellite in the beam center (dBW)	48.00		-30.93
Back-off output (dB)	5.64	8.94	
Geogr. advantage (dB)	-2.00		
% unavailability			0.37000
Rain Atten.			2.00
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	205.60		
G/T E/T Rx. (dB/K)	**19.20**		17.39

E/T Rx Example	
Ant. Gain(dB)	42.28
antenna-receptor loss(dB)	0.20
Tlna (ºK)	140.00
Ta (ºK)	43.00
Tsyst. (ºK)	194.12
Ant. Diameter (m)	1.24

Polarization discrim.(dB)	30.00		
C/N down (dB)	10.77	7.47	6.96
C/I cochannel down(dB)	23.64	23.64	23.64
C/I channel adjacent (dB)	24.70	24.70	24.70
C/(N+I without other interf. satellites down) (dB)	10.36	7.26	6.78
deirp Interference from satellite 2º(dBW/Hz)	-30.00		
C/I with other interf. Satelllites 2º down (dB)	17.87	17.87	15.87
c/(N+I) with other interf. Satelllites up (dB)	9.65	6.89	6.28

GLOBAL RESULTS

C/(N+I without other interf. satellites TOTAL) (dB)	9.55	6.41	6.41
C/(N+I with other interf. satellites) Total (dB)	8.87	6.02	5.90
Excess margin (dB)	0.00	0.00	0.00
Eb/No available (interf nominal)(dB)	9.46	6.61	6.49
Eb/No request (dB)	6.50	6.50	6.50
Margin (nominal)(dB)	2.96	0.11	-0.01