

**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	QPSK		
Information rate (Kb/s)	45000	OVERHEAD	1
FEC	7/8	Reed Solomon	47/51
bandwidth occupied (KHz)	33483.28		
BER	1.00E-07		
Eb/No (dB)	6.5	Nº portadoras	
Nº of carriers	1.00	1.38	2.53
IBO total (dB)	3.00		
OBO total (dB)	2.321		
C/I intermodulation	18.063		
Occupation factor	1.32		
availability (%)	99.80		
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)	74.00

E/T Tx example

HPA (W)	528.00	
HPA-antena (dB) loss	0.20	ES off axis psd (dBW/Hz)
Ant. gain (dB)	46.97	-48.22
Ant. Diameter (m)	4.49	

Polarization discrim (dB)	35.00	
Accuracy polarization(°)	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)	-96.03	-96.49
saturation D.F.P.in the BEAM CENTER (dBW/m2)	-89.00	
Back-off Input (dB)	7.03	7.49
Geogr. advantage (dB)	-7.00	
G/T satellite in the BEAM CENTER (dB/K)	-1.00	
C/N up (dB)	19.47	19.01
C/I cochannel up(dB)	24.89	24.43
C/(N+I) without other interf. satellites up) (dB)	14.83	14.37
psd Interference from satellite 2°(dBW/Hz)	-38.70	
C/I with other interf. Satellites 2° up (dB)	15.98	15.52
c/(N+I) with other interf. Satellites up (dB)	12.36	11.90
Xpolar Interference excess (dB)	3.0	

Clear sky

Rain
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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 (Km) Altitude	100.00		
Down Frequency (GHz)	3.66		SAT deirp (dBW/Hz)
EIRP satellite in the beam center (dBW)	41.00		-40.60
Back-off output (dB)	6.35	6.81	
Geogr. advantage (dB)	-5.00		
% unavailability			0.12000
Rain Atten.			0.15
Atmosp. Atten. loss (dB)	0.20		
aiming error loss (dB)	0.30		
sky loss (dB)	195.06		
G/T E/T Rx. (dB/K)	30.00		29.30
E/T Rx Example			
Ant. Gain(dB)	48.78		
antenna-receptor loss(dB)	0.20		
Tina (°K)	40.00		
Ta (°K)	20.00		
Tsyst. (°K)	72.15		
Ant. Diameter (m)	8.57		

Polarization discrim.(dB)	35.00		
C/N down (dB)	17.44	16.98	16.59
C/I cochannel down(dB)	25.57	25.57	25.57
C/I channel adjacent (dB)	24.70	24.70	24.70
C/(N+I) without other interf. satellites down) (dB)	13.09	12.68	12.76
deirp Interference from satellite 2°(dBW/Hz)	-34.50		
C/I with other interf. Satellites 2° down (dB)	16.21	16.21	16.06
c/(N+I) with other interf. Satellites up (dB)	11.36	11.09	11.09
Xpolar Interference excess (dB)	2.3		

GLOBAL RESULTS

C/(N+I) without other interf. satellites TOTAL) (dB)	10.86	10.43	10.66
C/(N+I) with other interf. satellites) Total (dB)	8.82	8.46	8.67
Excess margin (dB)	0.50	0.50	0.50
Eb/No available (interf nominal)(dB)	7.04	6.68	6.88
Eb/No request (dB)	6.50	6.50	6.50
Margin (nominal)(dB)	0.54	0.18	0.38