

ATTACHMENT 1 TO APPENDIX A / ADJUNTO 1 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to BOGOTA(3.7m)

SATELLITE DATA	Satellite : PAS-1R Location: 45.0W			
	Uplink Beam: US_LAM_CVUP Dnlink Beam: US_LAM_CVDN			
	Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW			
	G/T: -.1 dB/K, SFD: -89.0 dBW/m2 Dnlink EIRP: 43.1 dBW			
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Trans Type: LTWTA_C			
	Uplink Frequency:6.000 GHz Dnlink Freq: 3.775 GHz			
	IBO (Nominal) : 5.0 dB OBO (Nominal): 3.5 dB			
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x21			
	BWo: 1500kHz, BWa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB			
LINK BUDGET		CLR SKY	UP FADE	DN FADE
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	51.8	51.8	51.8
	- Uplink Path Loss, clear sky (dB)	-199.6	-199.6	-199.6
	- Uplink Rain Attenuation (dB)	0.0	-2.5	0.0
	+ Satellite G/T (dB/K)	-.1	-.1	-.1
	- Boltzman's Constant (dBW/K-Hz)	228.6	228.6	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8	-61.8	-61.8
	C/N Uplink (dB)	19.0	16.5	19.0
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	43.1	43.1	43.1
	- Carrier Output Backoff (dB)	-20.2	-22.7	-20.2
	Downlink EIRP per carrier (dBW)	22.9	20.4	22.9
	- Earth Station Pointing Error (dB)	-.5	-.5	-.5
	- Downlink Path Loss, clear sky (dB)	-195.3	-195.3	-195.3
	- Downlink Rain Attenuation (dB)	0.0	0.0	-3.2
	+ Earth Station G/T (dB/K)	22.0	22.0	17.4
	- Boltzman's Constant (dBW/K-Hz)	228.6	228.6	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8	-61.8	-61.8
	C/N Dnlink (dB)	16.0	13.5	8.1
COMPOSITE PERFORMANCE	C/N Uplink (dB)	19.0	16.5	19.0
	C/N Dnlink (dB)	16.0	13.5	8.1
	C/I Intermod (dB)	14.3	11.9	14.3
	C/I Uplink Co-channel (dB)	23.4	20.9	23.4
	C/I Dnlink Co-Channel (dB)	23.4	20.9	23.4
	C/I Uplink Adj. Sat. (PAS3) (dB)	16.7	14.2	16.7
	C/I Dnlink Adj. Sat. (PAS3) (dB)	16.8	14.3	16.8
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	16.7	14.2	16.7
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	17.5	14.9	17.5
	C/(N+I) COMPOSITE (dB)	7.8	5.3	5.3
	- Required System Margin (dB)	-1.0	-1.0	-1.0
	Net C/(N+I) COMPOSITE (dB)	6.8	4.3	4.3
	- Minimum Required C/N (dB)	-4.3	-4.3	-4.3
	Excess Link Margin (dB)	2.5	0.0	0.0
	TRANSPONDER UTILIZATION	% BW/CARR: 4.86, % PWR/CARR: 2.14, Max No. Carriers: 20.6		
	Downlink EIRP per carrier toward beam center: 23.2 dBW			
TRANSMIT EARTH	Loc: HONDURAS_TEGUCIGA ID:1381 AZ: 105.0 Elev: 39.2			
	LAT: 14.1N LON: 87.2W ALT: 1370m RainRate: 76.1mm/hr			

STATION	Carrier Power: 4.0 watts		
RECEIVE	Loc: COLOMBIA_BOGOTA	ID: AZ: 97.9	Elev: 54.6
EARTH STA.	LAT: 4.6N	LON: 75.1W	ALT: 1830m RainRate: 79.2mm/hr
DENSITY	Uplink Pwr Den: -55.7 dBW/Hz, Dnlink EIRP Den: -38.6 dBW/Hz		
INFORMATION	Max Dnlink PFD: -164.9 dB(W/m2/4kHz) @ Beam Center		
AVAILABILITY	Uplink: 99.998%, Dnlink: 99.998%, Composite Link: 99.995%		
LOSS IN C/(N+I) DUE TO ADJ SAT INTF: PAS3 = 1.3dB, THRDS-6 = 1.2dB			

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PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to BOGOTA(3.7m)

[Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz)	: 36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz)	: 6.000	Dnlink Frequency (GHz)	: 3.775
G/T, beam center (dB/K)	: 1.29	EIRP, beam center (dBW)	: 43.36
G/T, beam edge (dB/K)	: -10.0	EIRP, beam edge (dBW)	: 34.0
G/T, toward Tx ES (dB/K)	: -1	EIRP, toward Rx ES (dBW)	: 43.1
SFD, beam edge (dBW/m2)	: -79.1		
SFD, toward Tx ES (dBW/m2)	: -89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB)	: 8.0	Nominal Uplink Co-Chan C/I (dB)	: 27
Input Backoff (dB)	: 5.0	Nominal Dnlink Co-Chan C/I (dB)	: 27
Output Backoff (dB)	: *	Minimum Uplink Rain Margin (dB)	: 0.5*
(C/Im) - Nominal (dB)	: *	Actual Uplink Rain Margin (dB)	: 2.5
Min. System Margin (dB)	: 1.0	Uplink Power Control Margin (dB)	: .0
Max No Carriers / Trans	: *	Minimum Dnlink Rain Margin (dB)	: 0.5*
Required Link Availability	: 99.9	Actual Dnlink Rain Margin (dB)	: 7.8
		Dnlink Pointing Error (dB)	: 0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	:	PAS3	THRDS-6
Interfering Satellite Location (deg)	:	43W	47W
Uplink Interference (dB or dBW/Hz)	:	-46	-46
Uplink Polarization Advantage (dB)	:	0	0
Downlink Interference (dB or dBW/Hz)	:	-37.6	-35.2
Downlink Polarization Advantage (dB)	:	0	0
Rx E/S Topocentric Angle (deg)	:	2.16	2.17
Rx E/S Pointing Error (deg)	:	-0.30	0.30
Rx E/S Off-Axis Angle (deg)	:	1.86	2.47
Rx E/S Adj. Sat. Discrimination (dB)	:	18.0	21.1

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N	(operating, dB): 4.3
Modulation	: QPSK	Eb/No	(operating, dB): 5.5
Code Rate	: 1/2x216/236-V	C/N	(threshold, dB): 4.3
Info Rate (kbps)	: 1144	Eb/No	(threshold, dB): 5.5
Occupied Bandwidth (kHz)	: 1500		

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Allocated Bandwidth (kHz): 1750

----- Transmit Earth Station -----

----- Receive Earth Station -----

Location: HONDURAS__TEGUCIGALP

Latitude (deg): 14.1N

Longitude (deg): 87.2W

Rain Rate (mm/hr): 76.1

E/S Type or Model No: 1381

E/S Manufacturer : PRODELIN

E/S Diam. (m): 3.8

E/S Freq (nom, GHz): 6.175

E/S Tx Gain (dBi): 46.0

ULPC Margin (dB): .0

Location: COLOMBIA__BOGOTA

Latitude (deg): 4.6N

Longitude (deg): 75.1W

Rain Rate (mm/hr): 79.2

E/S Type or Model No:

E/S Manufacturer : STANDARD

E/S Diam. (m): 3.7

E/S Freq (nom, GHz): 3.95

E/S Gain (nom, dBi): 41.2

E/S Feed Loss (dB): 0.20

E/S Ant. Temp(deg K): 25

E/S LNA Temp (deg K): 35

E/S G/T (nom, dB/K): *

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TEGUCIGALP(3_8m) to BOGOTA(3_7m).DTA
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ATTACHMENT 2 TO APPENDIX A / ADJUNTO 2 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to GEORGE_T(3.8m)

SATELLITE DATA	Satellite : PAS-1R Uplink Beam: US_LAM_CVUP Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW G/T: -.1 dB/K, SFD: -89.0 dBW/m2 Dnlink EIRP: 41.5 dBW	Location: 45.0W Dnlink Beam: US_LAM_CVDN
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Uplink Frequency:6.000 GHz IBO (Nominal) : 5.0 dB	Trans Type: LTWTA_C Dnlink Freq: 3.775 GHz OBO (Nominal): 3.5 dB
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x21 Bwo: 1500kHz, Bwa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB	
LINK BUDGET		
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	52.1
	- Uplink Path Loss, clear sky (dB)	-199.6
	- Uplink Rain Attenuation (dB)	0.0
	+ Satellite G/T (dB/K)	-.1
	- Boltzman's Constant (dBW/K-Hz)	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8
	C/N Uplink (dB)	19.2
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	41.5
	- Carrier Output Backoff (dB)	-20.0
	Downlink EIRP per carrier (dBW)	21.5
	- Earth Station Pointing Error (dB)	-.5
	- Downlink Path Loss, clear sky (dB)	-195.5
	- Downlink Rain Attenuation (dB)	0.0
	+ Earth Station G/T (dB/K)	24.0
	- Boltzman's Constant (dBW/K-Hz)	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8
	C/N Dnlink (dB)	16.4
COMPOSITE PERFORMANCE	C/N Uplink (dB)	19.2
	C/N Dnlink (dB)	16.4
	C/I Intermod (dB)	14.6
	C/I Uplink Co-channel (dB)	23.7
	C/I Dnlink Co-Channel (dB)	23.7
	C/I Uplink Adj. Sat. (PAS3) (dB)	16.9
	C/I Dnlink Adj. Sat. (PAS3) (dB)	15.8
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	16.9
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	16.8
	C/(N+I) COMPOSITE (dB)	7.8
	- Required System Margin (dB)	-1.0
	Net C/(N+I) COMPOSITE (dB)	6.8
TRANSMIT EARTH STATION	- Minimum Required C/N (dB)	-4.3
	Excess Link Margin (dB)	2.5
		0.0
TRANSPONDER UTILIZATION	% BW/CARR: 4.86, % PWR/CARR: 2.26, Max No. Carriers: 20.6 Downlink EIRP per carrier toward beam center: 23.4 dBW	
TRANSMIT EARTH STATION	Loc: HONDURAS_TEGUCIGA ID:1381 AZ: 105.0 Elev: 39.2 LAT: 14.1N LON: 87.2W ALT: 1370m RainRate: 76.1mm/hr Carrier Power: 4.3 watts	

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|RECEIVE      |Loc: CAYMAN_ISLANDS_GE ID:1381      AZ: 114.1 Elev: 43.1 |
|EARTH STA.   |LAT: 19.3N LON: 81.4W ALT: 0.0m RainRate: 106.mm/hr |
|-----|-----|
|DENSITY      |Uplink Pwr Den: -55.4 dBW/Hz, Dnlink EIRP Den: -38.4 dBW/Hz |
|INFORMATION  |Max Dnlink PFD: -164.8 dB(W/m2/4kHz) @ Beam Center |
|-----|-----|
|AVAILABILITY|Uplink: 99.998%, Dnlink: 99.998%, Composite Link: 99.995% |
|-----|-----|
|LOSS IN C/(N+I) DUE TO ADJ SAT INTF: PAS3 = 1.4dB, THRDS-6 = 1.2dB |
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PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to GEORGE_T(3.8m)
[Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz):	36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz):	6.000	Dnlink Frequency (GHz):	3.775
G/T, beam center (dB/K):	1.29	EIRP, beam center (dBW):	43.36
G/T, beam edge (dB/K):	-10.0	EIRP, beam edge (dBW):	34.0
G/T, toward Tx ES (dB/K):	-.1	EIRP, toward Rx ES (dBW):	41.5
SFD, beam edge (dBW/m2):	-79.1		
SFD, toward Tx ES (dBW/m2):	-89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB):	8.0	Nominal Uplink Co-Chan C/I (dB):	27
Input Backoff (dB):	5.0	Nominal Dnlink Co-Chan C/I (dB):	27
Output Backoff (dB):	*	Minimum Uplink Rain Margin (dB):	0.5*
(C/Im) - Nominal (dB):	*	Actual Uplink Rain Margin (dB):	2.5
Min. System Margin (dB):	1.0	Uplink Power Control Margin(dB):	.0
Max No Carriers / Trans:	*	Minimum Dnlink Rain Margin (dB):	0.5*
Required Link Availability:	99.9	Actual Dnlink Rain Margin (dB):	8.2
		Dnlink Pointing Error (dB):	0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	:	PAS3	THRDS-6
Interfering Satellite Location (deg):		43W	47W
Uplink Interference (dB or dBW/Hz):		-46	-46
Uplink Polarization Advantage (dB):		0	0
Downlink Interference (dB or dBW/Hz):		-37.6	-35.2
Downlink Polarization Advantage (dB):		0	0
Rx E/S Topocentric Angle (deg):		2.12	2.13
Rx E/S Pointing Error (deg):		-0.30	0.30
Rx E/S Off-Axis Angle (deg):		1.82	2.43
Rx E/S Adj. Sat. Discrimination (dB):		18.5	21.9

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N	(operating, dB): 4.3
Modulation	: QPSK	Eb/No	(operating, dB): 5.5
Code Rate	: 1/2x216/236-V	C/N	(threshold, dB): 4.3
Info Rate (kbps):	1144	Eb/No	(threshold, dB): 5.5
Occupied Bandwidth (kHz):	1500		
Allocated Bandwidth (kHz):	1750		

----- Transmit Earth Station ----- ----- Receive Earth Station -----

- A-ADJ-02-3 -

Location: HONDURAS__TEGUCIGALP
Latitude (deg): 14.1N
Longitude (deg): 87.2W
Rain Rate (mm/hr): 76.1
E/S Type or Model No: 1381
E/S Manufacturer : PRODELIN
E/S Diam. (m): 3.8
E/S Freq (nom, GHz): 6.175
E/S Tx Gain (dBi): 46.0
ULPC Margin (dB): .0

Location: CAYMAN_ISLANDS__GEORGE_T
Latitude (deg): 19.3N
Longitude (deg): 81.4W
Rain Rate (mm/hr): 106.
E/S Type or Model No: 1381
E/S Manufacturer : PRODELIN
E/S Diam. (m): 3.8
E/S Freq (nom, GHz): 3.95
E/S Gain (nom, dBi): 42.1
E/S Feed Loss (dB): 0.20
E/S Ant. Temp(deg K): 25
E/S LNA Temp (deg K): 20
E/S G/T (nom, dB/K): *

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TEGUCIGALP(3_8m) to GEORGE_T(3_8m).DTA
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ATTACHMENT 3 TO APPENDIX A / ADJUNTO 3 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to Guayaquil(3.7m)

SATELLITE DATA	Satellite : PAS-1R Uplink Beam: US_LAM_CVUP Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW G/T:-.1 dB/K, SFD:-89.0 dBW/m2 Dnlink EIRP: 42.0 dBW	Location: 45.0W Dnlink Beam: US_LAM_CVDN
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Uplink Frequency:6.000 GHz IBO (Nominal) : 5.0 dB	Trans Type: LTWTA_C Dnlink Freq: 3.775 GHz OBO (Nominal): 3.5 dB
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x21 Bwo: 1500kHz, Bwa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB	
LINK BUDGET		
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	52.3
	- Uplink Path Loss, clear sky (dB)	-199.6
	- Uplink Rain Attenuation (dB)	0.0
	+ Satellite G/T (dB/K)	-.1
	- Boltzman's Constant (dBW/K-Hz)	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8
	C/N Uplink (dB)	19.5
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	42.0
	- Carrier Output Backoff (dB)	-19.7
	Downlink EIRP per carrier (dBW)	22.3
	- Earth Station Pointing Error (dB)	-.5
	- Downlink Path Loss, clear sky (dB)	-195.4
	- Downlink Rain Attenuation (dB)	0.0
	+ Earth Station G/T (dB/K)	22.0
	- Boltzman's Constant (dBW/K-Hz)	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8
	C/N Dnlink (dB)	15.3
COMPOSITE PERFORMANCE	C/N Uplink (dB)	19.5
	C/N Dnlink (dB)	15.3
	C/I Intermod (dB)	14.8
	C/I Uplink Co-channel (dB)	23.9
	C/I Dnlink Co-Channel (dB)	23.9
	C/I Uplink Adj. Sat. (PAS3) (dB)	17.2
	C/I Dnlink Adj. Sat. (PAS3) (dB)	16.0
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	17.2
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	16.8
	C/(N+I) COMPOSITE (dB)	7.8
	- Required System Margin (dB)	-1.0
	Net C/(N+I) COMPOSITE (dB)	6.8
	- Minimum Required C/N (dB)	-4.3
	Excess Link Margin (dB)	2.5
TRANSPONDER UTILIZATION	% BW/CARR: 4.86, % PWR/CARR: 2.4, Max No. Carriers: 20.6 Downlink EIRP per carrier toward beam center: 23.7 dBW	
TRANSMIT EARTH STATION	Loc: HONDURAS_TEGUCIGA ID:1381 LAT: 14.1N LON: 87.2W ALT: 1370m Carrier Power: 4.5 watts	AZ: 105.0 Elev: 39.2 RainRate: 76.1mm/hr

RECEIVE	Loc: ECUADOR_Guayaquil ID: AZ: 86.9 Elev: 49.4
EARTH STA.	LAT: 2.2S LON: 79.9W ALT: 30.0m RainRate: 70.2mm/hr
DENSITY	Uplink Pwr Den: -55.2 dBW/Hz, Dnlink EIRP Den: -38.1 dBW/Hz
INFORMATION	Max Dnlink PFD: -164.4 dB(W/m2/4kHz) @ Beam Center
AVAILABILITY	Uplink: 99.998%, Dnlink: 99.998%, Composite Link: 99.995%
LOSS IN C/(N+I) DUE TO ADJ SAT INTF:	PAS3 = 1.3dB, THRDS-6 = 1.2dB

SATOPT5_PAS (Version 5.74)
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PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to Guayaquil(3.7m)
[Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz)	: 36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz)	: 6.000	Dnlink Frequency (GHz)	: 3.775
G/T, beam center (dB/K)	: 1.29	EIRP, beam center (dBW)	: 43.36
G/T, beam edge (dB/K)	: -10.0	EIRP, beam edge (dBW)	: 34.0
G/T, toward Tx ES (dB/K)	: -.1	EIRP, toward Rx ES (dBW)	: 42.0
SFD, beam edge (dBW/m2)	: -79.1		
SFD, toward Tx ES (dBW/m2)	: -89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB)	: 8.0	Nominal Uplink Co-Chan C/I (dB)	: 27
Input Backoff (dB)	: 5.0	Nominal Dnlink Co-Chan C/I (dB)	: 27
Output Backoff (dB)	: *	Minimum Uplink Rain Margin (dB)	: 0.5*
(C/Im) - Nominal (dB)	: *	Actual Uplink Rain Margin (dB)	: 2.5
Min. System Margin (dB)	: 1.0	Uplink Power Control Margin (dB)	: .0
Max No Carriers / Trans	: *	Minimum Dnlink Rain Margin (dB)	: 0.5*
Required Link Availability	: 99.9	Actual Dnlink Rain Margin (dB)	: 7.3
		Dnlink Pointing Error (dB)	: 0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	: PAS3	THRDS-6
Interfering Satellite Location (deg)	: 43W	47W
Uplink Interference (dB or dBW/Hz)	: -46	-46
Uplink Polarization Advantage (dB)	: 0	0
Downlink Interference (dB or dBW/Hz)	: -37.6	-35.2
Downlink Polarization Advantage (dB)	: 0	0
Rx E/S Topocentric Angle (deg)	: 2.14	2.15
Rx E/S Pointing Error (deg)	: -0.30	0.30
Rx E/S Off-Axis Angle (deg)	: 1.84	2.45
Rx E/S Adj. Sat. Discrimination (dB)	: 17.9	21.0

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N	(operating, dB): 4.3
Modulation	: QPSK	Eb/No	(operating, dB): 5.5
Code Rate	: 1/2x216/236-V	C/N	(threshold, dB): 4.3
Info Rate (kbps)	: 1144	Eb/No	(threshold, dB): 5.5
Occupied Bandwidth (kHz)	: 1500		
Allocated Bandwidth (kHz)	: 1750		

----- Transmit Earth Station ----- ----- Receive Earth Station -----

- A-ADJ-03-3 -

Location: HONDURAS__TEGUCIGALP
Latitude (deg): 14.1N
Longitude (deg): 87.2W
Rain Rate (mm/hr): 76.1
E/S Type or Model No: 1381
E/S Manufacturer : PRODELIN
E/S Diam. (m): 3.8
E/S Freq (nom, GHz): 6.175
E/S Tx Gain (dBi): 46.0
ULPC Margin (dB): .0

Location: ECUADOR__Guayaquil
Latitude (deg): 2.2S
Longitude (deg): 79.9W
Rain Rate (mm/hr): 70.2
E/S Type or Model No:
E/S Manufacturer : STANDARD
E/S Diam. (m): 3.7
E/S Freq (nom, GHz): 3.95
E/S Gain (nom, dBi): 41.2
E/S Feed Loss (dB): 0.20
E/S Ant. Temp(deg K): 25
E/S LNA Temp (deg K): 35
E/S G/T (nom, dB/K): *

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22-Aug-07 16:20 INPUT FILE: C:\SATOPT5_PAS74\Link Budgets\ICA0 Lima - Manaus\PAS-1R-4C
TEGUCIGALP(3_8m) to Guayaquil(3_7m).DTA
PanAmSat, Customer Support Engineering.

ATTACHMENT 4 TO APPENDIX A / ADJUNTO 4 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to HAVANA(3.8m)

SATELLITE DATA	Satellite : PAS-1R Uplink Beam: US_LAM_CVUP Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW G/T:-.1 dB/K, SFD:-89.0 dBW/m2 Dnlink EIRP: 40.8 dBW	Location: 45.0W Dnlink Beam: US_LAM_CVDN
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Uplink Frequency:6.000 GHz IBO (Nominal) : 5.0 dB	Trans Type: LTWTA_C Dnlink Freq: 3.775 GHz OBO (Nominal): 3.5 dB
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x21 Bwo: 1500kHz, Bwa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB	
LINK BUDGET		CLR SKY UP FADE DN FADE
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	52.4 52.4 52.4
	- Uplink Path Loss, clear sky (dB)	-199.6 -199.6 -199.6
	- Uplink Rain Attenuation (dB)	0.0 -2.5 0.0
	+ Satellite G/T (dB/K)	-.1 -.1 -.1
	- Boltzman's Constant (dBW/K-Hz)	228.6 228.6 228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8 -61.8 -61.8
	C/N Uplink (dB)	19.6 17.1 19.6
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	40.8 40.8 40.8
	- Carrier Output Backoff (dB)	-19.6 -22.1 -19.6
	Downlink EIRP per carrier (dBW)	21.2 18.7 21.2
	- Earth Station Pointing Error (dB)	-.5 -.5 -.5
	- Downlink Path Loss, clear sky (dB)	-195.5 -195.5 -195.5
	- Downlink Rain Attenuation (dB)	0.0 0.0 -2.8
	+ Earth Station G/T (dB/K)	24.0 24.0 18.9
	- Boltzman's Constant (dBW/K-Hz)	228.6 228.6 228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8 -61.8 -61.8
	C/N Dnlink (dB)	16.0 13.5 8.1
COMPOSITE PERFORMANCE	C/N Uplink (dB)	19.6 17.1 19.6
	C/N Dnlink (dB)	16.0 13.5 8.1
	C/I Intermod (dB)	14.9 12.5 14.9
	C/I Uplink Co-channel (dB)	24.0 21.5 24.0
	C/I Dnlink Co-Channel (dB)	24.0 21.5 24.0
	C/I Uplink Adj. Sat. (PAS3) (dB)	17.3 14.8 17.3
	C/I Dnlink Adj. Sat. (PAS3) (dB)	15.3 12.8 15.3
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	17.3 14.8 17.3
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	16.4 13.9 16.4
	C/(N+I) COMPOSITE (dB)	7.8 5.3 5.3
	- Required System Margin (dB)	-1.0 -1.0 -1.0
	Net C/(N+I) COMPOSITE (dB)	6.8 4.3 4.3
	- Minimum Required C/N (dB)	-4.3 -4.3 -4.3
	Excess Link Margin (dB)	2.5 0.0 0.0
TRANSPONDER UTILIZATION	% BW/CARR: 4.86, % PWR/CARR: 2.46, Max No. Carriers: 20.6 Downlink EIRP per carrier toward beam center: 23.8 dBW	
TRANSMIT EARTH STATION	Loc: HONDURAS_TEGUCIGA ID:1381 LAT: 14.1N LON: 87.2W ALT: 1370m Carrier Power: 4.6 watts	AZ: 105.0 Elev: 39.2 RainRate: 76.1mm/hr

RECEIVE	Loc: CUBA_HAVANA	ID:1381	AZ: 117.2 Elev: 40.3
EARTH STA.	LAT: 23.1N LON: 82.4W	ALT: 60.0m	RainRate: 91.7mm/hr
DENSITY	Uplink Pwr Den: -55.1 dBW/Hz, Dnlink EIRP Den: -38.0 dBW/Hz		
INFORMATION	Max Dnlink PFD: -164.5 dB(W/m2/4kHz) @ Beam Center		
AVAILABILITY	Uplink: 99.998%, Dnlink: 99.998%, Composite Link: 99.995%		
LOSS IN C/(N+I) DUE TO ADJ SAT INTF: PAS3 = 1.5dB, THRDS-6 = 1.2dB			

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PanAmSat, Customer Support Engineering.

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to HAVANA(3.8m)
[Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz)	: 36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz)	: 6.000	Dnlink Frequency (GHz)	: 3.775
G/T, beam center (dB/K)	: 1.29	EIRP, beam center (dBW)	: 43.36
G/T, beam edge (dB/K)	: -10.0	EIRP, beam edge (dBW)	: 34.0
G/T, toward Tx ES (dB/K)	: -.1	EIRP, toward Rx ES (dBW)	: 40.8
SFD, beam edge (dBW/m2)	: -79.1		
SFD, toward Tx ES (dBW/m2)	: -89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB)	: 8.0	Nominal Uplink Co-Chan C/I (dB)	: 27
Input Backoff (dB)	: 5.0	Nominal Dnlink Co-Chan C/I (dB)	: 27
Output Backoff (dB)	: *	Minimum Uplink Rain Margin (dB)	: 0.5*
(C/Im) - Nominal (dB)	: *	Actual Uplink Rain Margin (dB)	: 2.5
Min. System Margin (dB)	: 1.0	Uplink Power Control Margin (dB)	: .0
Max No Carriers / Trans	: *	Minimum Dnlink Rain Margin (dB)	: 0.5*
Required Link Availability	: 99.9	Actual Dnlink Rain Margin (dB)	: 7.8
		Dnlink Pointing Error (dB)	: 0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	: PAS3	THRDS-6
Interfering Satellite Location (deg)	: 43W	47W
Uplink Interference (dB or dBW/Hz)	: -46	-46
Uplink Polarization Advantage (dB)	: 0	0
Downlink Interference (dB or dBW/Hz)	: -37.6	-35.2
Downlink Polarization Advantage (dB)	: 0	0
Rx E/S Topocentric Angle (deg)	: 2.11	2.12
Rx E/S Pointing Error (deg)	: -0.30	0.30
Rx E/S Off-Axis Angle (deg)	: 1.81	2.42
Rx E/S Adj. Sat. Discrimination (dB)	: 18.3	21.8

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N (operating, dB)	: 4.3
Modulation	: QPSK	Eb/No (operating, dB)	: 5.5
Code Rate	: 1/2x216/236-V	C/N (threshold, dB)	: 4.3
Info Rate (kbps)	: 1144	Eb/No (threshold, dB)	: 5.5
Occupied Bandwidth (kHz)	: 1500		
Allocated Bandwidth (kHz)	: 1750		

- A-ADJ-04-3 -

----- Transmit Earth Station -----

Location: HONDURAS_TEGUCIGALP
 Latitude (deg): 14.1N
 Longitude (deg): 87.2W
 Rain Rate (mm/hr): 76.1
 E/S Type or Model No: 1381
 E/S Manufacturer : PRODELIN
 E/S Diam. (m): 3.8
 E/S Freq (nom, GHz): 6.175
 E/S Tx Gain (dBi): 46.0
 ULPC Margin (dB): .0

----- Receive Earth Station -----

Location: CUBA_HAVANA
 Latitude (deg): 23.1N
 Longitude (deg): 82.4W
 Rain Rate (mm/hr): 91.7
 E/S Type or Model No: 1381
 E/S Manufacturer : PRODELIN
 E/S Diam. (m): 3.8
 E/S Freq (nom, GHz): 3.95
 E/S Gain (nom, dBi): 42.1
 E/S Feed Loss (dB): 0.20
 E/S Ant. Temp(deg K): 25
 E/S LNA Temp (deg K): 20
 E/S G/T (nom, dB/K): *

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 22-Aug-07 16:18 INPUT FILE: C:\SATOPT5_PAS74\Link Budgets\ICAO Lima - Manaus\PAS-1R-4C
 TEGUCIGALP(3_8m) to HAVANA(3_8m).DTA
 PanAmSat, Customer Support Engineering.

ATTACHMENT 5 TO APPENDIX A / ADJUNTO 5 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to KINGSTON(3.8m)

SATELLITE DATA	Satellite : PAS-1R Uplink Beam: US_LAM_CVUP Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW G/T:-.1 dB/K, SFD:-89.0 dBW/m2 Dnlink EIRP: 40.8 dBW	Location: 45.0W Dnlink Beam: US_LAM_CVDN
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Uplink Frequency:6.000 GHz IBO (Nominal) : 5.0 dB	Trans Type: LTWTA_C Dnlink Freq: 3.775 GHz OBO (Nominal): 3.5 dB
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x21 Bwo: 1500kHz, Bwa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB	
LINK BUDGET		
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	52.2
	- Uplink Path Loss, clear sky (dB)	-199.6
	- Uplink Rain Attenuation (dB)	0.0
	+ Satellite G/T (dB/K)	-.1
	- Boltzman's Constant (dBW/K-Hz)	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8
	C/N Uplink (dB)	19.3
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	40.8
	- Carrier Output Backoff (dB)	-19.8
	Downlink EIRP per carrier (dBW)	21.0
	- Earth Station Pointing Error (dB)	-.5
	- Downlink Path Loss, clear sky (dB)	-195.4
	- Downlink Rain Attenuation (dB)	0.0
	+ Earth Station G/T (dB/K)	24.0
COMPOSITE PERFORMANCE	- Boltzman's Constant (dBW/K-Hz)	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8
	C/N Dnlink (dB)	15.9
	C/N Uplink (dB)	19.3
	C/N Dnlink (dB)	15.9
	C/I Intermod (dB)	14.7
	C/I Uplink Co-channel (dB)	23.8
TRANSMIT EARTH STATION	C/I Dnlink Co-Channel (dB)	23.8
	C/I Uplink Adj. Sat. (PAS3) (dB)	17.0
	C/I Dnlink Adj. Sat. (PAS3) (dB)	15.6
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	17.0
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	16.4
	C/(N+I) COMPOSITE (dB)	7.7
	- Required System Margin (dB)	-1.0
UTILIZATION	Net C/(N+I) COMPOSITE (dB)	6.7
	- Minimum Required C/N (dB)	-4.3
	Excess Link Margin (dB)	2.4
TRANSPONDER UTILIZATION		
% BW/CARR: 4.86, % PWR/CARR: 2.33, Max No. Carriers: 20.6 Downlink EIRP per carrier toward beam center: 23.5 dBW		
TRANSMIT EARTH STATION		
Loc: HONDURAS_TEGUCIGA ID:1381 AZ: 105.0 Elev: 39.2 LAT: 14.1N LON: 87.2W ALT: 1370m RainRate: 76.1mm/hr Carrier Power: 4.4 watts		

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|RECEIVE      |Loc: JAMAICA_KINGSTON ID:1381      AZ: 116.5 Elev: 48.2 |
|EARTH STA.   |LAT: 18.0N LON: 76.8W ALT: 300.m  RainRate: 100.mm/hr |
|-----|-----|
|DENSITY      |Uplink Pwr Den: -55.3 dBW/Hz, Dnlink EIRP Den: -38.2 dBW/Hz |
|INFORMATION  |Max Dnlink PFD: -164.6 dB(W/m2/4kHz) @ Beam Center |
|-----|-----|
|AVAILABILITY|Uplink: 99.997%, Dnlink: 99.998%, Composite Link: 99.995% |
|-----|-----|
|LOSS IN C/(N+I) DUE TO ADJ SAT INTF: PAS3 = 1.4dB, THRDS-6 = 1.3dB |
|-----|-----|

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SATOPT5_PAS (Version 5.74)
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PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to KINGSTON(3.8m)
[Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz):	36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz):	6.000	Dnlink Frequency (GHz):	3.775
G/T, beam center (dB/K):	1.29	EIRP, beam center (dBW):	43.36
G/T, beam edge (dB/K):	-10.0	EIRP, beam edge (dBW):	34.0
G/T, toward Tx ES (dB/K):	-.1	EIRP, toward Rx ES (dBW):	40.8
SFD, beam edge (dBW/m2):	-79.1		
SFD, toward Tx ES (dBW/m2):	-89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB):	8.0	Nominal Uplink Co-Chan C/I (dB):	27
Input Backoff (dB):	5.0	Nominal Dnlink Co-Chan C/I (dB):	27
Output Backoff (dB):	*	Minimum Uplink Rain Margin (dB):	0.5*
(C/Im) - Nominal (dB):	*	Actual Uplink Rain Margin (dB):	2.4
Min. System Margin (dB):	1.0	Uplink Power Control Margin(dB):	.0
Max No Carriers / Trans:	*	Minimum Dnlink Rain Margin (dB):	0.5*
Required Link Availability:	99.9	Actual Dnlink Rain Margin (dB):	7.6
		Dnlink Pointing Error (dB):	0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	:	PAS3	THRDS-6
Interfering Satellite Location (deg):		43W	47W
Uplink Interference (dB or dBW/Hz):		-46	-46
Uplink Polarization Advantage (dB):		0	0
Downlink Interference (dB or dBW/Hz):		-37.6	-35.2
Downlink Polarization Advantage (dB):		0	0
Rx E/S Topocentric Angle (deg):		2.14	2.15
Rx E/S Pointing Error (deg):		-0.30	0.30
Rx E/S Off-Axis Angle (deg):		1.84	2.45
Rx E/S Adj. Sat. Discrimination (dB):		18.8	21.9

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N	(operating, dB): 4.3
Modulation	: QPSK	Eb/No	(operating, dB): 5.5
Code Rate	: 1/2x216/236-V	C/N	(threshold, dB): 4.3
Info Rate (kbps):	1144	Eb/No	(threshold, dB): 5.5
Occupied Bandwidth (kHz):	1500		
Allocated Bandwidth (kHz):	1750		

----- Transmit Earth Station ----- ----- Receive Earth Station -----

- A-ADJ-05-3 -

Location: HONDURAS__TEGUCIGALP
Latitude (deg): 14.1N
Longitude (deg): 87.2W
Rain Rate (mm/hr): 76.1
E/S Type or Model No: 1381
E/S Manufacturer : PRODELIN
E/S Diam. (m): 3.8
E/S Freq (nom, GHz): 6.175
E/S Tx Gain (dBi): 46.0
ULPC Margin (dB): .0

Location: JAMAICA__KINGSTON
Latitude (deg): 18.0N
Longitude (deg): 76.8W
Rain Rate (mm/hr): 100.
E/S Type or Model No: 1381
E/S Manufacturer : PRODELIN
E/S Diam. (m): 3.8
E/S Freq (nom, GHz): 3.95
E/S Gain (nom, dBi): 42.1
E/S Feed Loss (dB): 0.20
E/S Ant. Temp(deg K): 25
E/S LNA Temp (deg K): 20
E/S G/T (nom, dB/K): *

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22-Aug-07 16:17 INPUT FILE: C:\SATOPT5_PAS74\Link Budgets\ICA0 Lima - Manaus\PAS-1R-4C
TEGUCIGALP(3_8m) to KINGSTON(3_8m).DTA
PanAmSat, Customer Support Engineering.

ATTACHMENT 6 TO APPENDIX A / ADJUNTO 6 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to Manaus(3.7m)

SATELLITE DATA	Satellite : PAS-1R Location: 45.0W			
	Uplink Beam: US_LAM_CVUP	Dnlink Beam: US_LAM_CVDN		
	Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW			
	G/T:-.1 dB/K, SFD:-89.0 dBW/m2 Dnlink EIRP: 39.7 dBW			
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Trans Type: LTWTA_C			
	Uplink Frequency:6.000 GHZ	Dnlink Freq: 3.775 GHZ		
	IBO (Nominal) : 5.0 dB	OBO (Nominal): 3.5 dB		
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x2			
	BWo: 1500kHz, BWa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB			
LINK BUDGET		CLR SKY	UP FADE	DN FADE
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	53.3	53.3	53.3
	- Uplink Path Loss, clear sky (dB)	-199.6	-199.6	-199.6
	- Uplink Rain Attenuation (dB)	0.0	-2.5	0.0
	+ Satellite G/T (dB/K)	-.1	-.1	-.1
	- Boltzman's Constant (dBW/K-Hz)	228.6	228.6	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8	-61.8	-61.8
	C/N Uplink (dB)	20.5	18.0	20.5
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	39.7	39.7	39.7
	- Carrier Output Backoff (dB)	-18.7	-21.2	-18.7
	Downlink EIRP per carrier (dBW)	21.0	18.5	21.0
	- Earth Station Pointing Error (dB)	-.5	-.5	-.5
	- Downlink Path Loss, clear sky (dB)	-195.1	-195.1	-195.1
	- Downlink Rain Attenuation (dB)	0.0	0.0	-2.4
	+ Earth Station G/T (dB/K)	22.0	22.0	18.0
	- Boltzman's Constant (dBW/K-Hz)	228.6	228.6	228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8	-61.8	-61.8
	C/N Dnlink (dB)	14.2	11.7	7.8
COMPOSITE PERFORMANCE	C/N Uplink (dB)	20.5	18.0	20.5
	C/N Dnlink (dB)	14.2	11.7	7.8
	C/I Intermod (dB)	15.8	13.4	15.8
	C/I Uplink Co-channel (dB)	24.9	22.4	24.9
	C/I Dnlink Co-Channel (dB)	24.9	22.4	24.9
	C/I Uplink Adj. Sat. (PAS3) (dB)	18.2	15.7	18.2
	C/I Dnlink Adj. Sat. (PAS3) (dB)	15.2	12.7	15.2
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	18.2	15.7	18.2
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	15.8	13.3	15.8
	C/(N+I) COMPOSITE (dB)	7.8	5.3	5.3
	- Required System Margin (dB)	-1.0	-1.0	-1.0
	Net C/(N+I) COMPOSITE (dB)	6.8	4.3	4.3
	- Minimum Required C/N (dB)	-4.3	-4.3	-4.3
	Excess Link Margin (dB)	2.5	0.0	0.0
TRANSPONDER UTILIZATION	% BW/CARR: 4.86, % PWR/CARR: 3.02, Max No. Carriers: 20.6			
	Downlink EIRP per carrier toward beam center: 24.7 dBW			
TRANSMIT EARTH STATION	Loc: HONDURAS_TEGUCIGA ID:1381 AZ: 105.0 Elev: 39.2			
	LAT: 14.1N LON: 87.2W ALT: 1370m RainRate: 76.1mm/hr			
	Carrier Power: 5.7 watts			

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|RECEIVE      |Loc: BRAZIL__Manaus      ID: AZ: 78.6 Elev: 72.0
|EARTH STA.   |LAT: 3.1S  LON: 60.0W  ALT: 30.0m  RainRate: 109.mm/hr
|-----
|DENSITY      |Uplink Pwr Den: -54.2 dBW/Hz, Dnlink EIRP Den: -37.1 dBW/Hz
|INFORMATION  |Max Dnlink PFD: -163.2 dB(W/m2/4kHz) @ Beam Center
|-----
|AVAILABILITY|Uplink: 99.998%,  Dnlink: 99.998%,  Composite Link: 99.995%
|-----
|LOSS IN C/(N+I) DUE TO ADJ SAT INTF: PAS3 = 1.4dB, THRDS-6 = 1.3dB
|-----

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SATOPT5_PAS (Version 5.74)
PanAmSat, Customer Support Engineering.

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to Manaus(3.7m)
[Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz):	36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz):	6.000	Dnlink Frequency (GHz):	3.775
G/T, beam center (dB/K):	1.29	EIRP, beam center (dBW):	43.36
G/T, beam edge (dB/K):	-10.0	EIRP, beam edge (dBW):	34.0
G/T, toward Tx ES (dB/K):	-.1	EIRP, toward Rx ES (dBW):	39.7
SFD, beam edge (dBW/m2):	-79.1		
SFD, toward Tx ES (dBW/m2):	-89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB):	8.0	Nominal Uplink Co-Chan C/I (dB):	27
Input Backoff (dB):	5.0	Nominal Dnlink Co-Chan C/I (dB):	27
Output Backoff (dB):	*	Minimum Uplink Rain Margin (dB):	0.5*
(C/Im) - Nominal (dB):	*	Actual Uplink Rain Margin (dB):	2.5
Min. System Margin (dB):	1.0	Uplink Power Control Margin(dB):	.0
Max No Carriers / Trans:	*	Minimum Dnlink Rain Margin (dB):	0.5*
Required Link Availability:	99.9	Actual Dnlink Rain Margin (dB):	6.5
		Dnlink Pointing Error (dB):	0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	:	PAS3	THRDS-6
Interfering Satellite Location (deg):		43W	47W
Uplink Interference (dB or dBW/Hz):		-46	-46
Uplink Polarization Advantage (dB):		0	0
Downlink Interference (dB or dBW/Hz):		-37.6	-35.2
Downlink Polarization Advantage (dB):		0	0
Rx E/S Topocentric Angle (deg):		2.22	2.22
Rx E/S Pointing Error (deg):		-0.30	0.30
Rx E/S Off-Axis Angle (deg):		1.92	2.52
Rx E/S Adj. Sat. Discrimination (dB):		18.4	21.3

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N	(operating, dB): 4.3
Modulation	: QPSK	Eb/No	(operating, dB): 5.5
Code Rate	: 1/2x216/236-V	C/N	(threshold, dB): 4.3
Info Rate (kbps):	1144	Eb/No	(threshold, dB): 5.5
Occupied Bandwidth (kHz):	1500		
Allocated Bandwidth (kHz):	1750		

- A-ADJ-06-3 -

----- Transmit Earth Station -----

Location: HONDURAS_TEGUCIGALP
 Latitude (deg): 14.1N
 Longitude (deg): 87.2W
 Rain Rate (mm/hr): 76.1
 E/S Type or Model No: 1381
 E/S Manufacturer : PRODELIN
 E/S Diam. (m): 3.8
 E/S Freq (nom, GHz): 6.175
 E/S Tx Gain (dBi): 46.0
 ULPC Margin (dB): .0

----- Receive Earth Station -----

Location: BRAZIL_Manaus
 Latitude (deg): 3.1S
 Longitude (deg): 60.0W
 Rain Rate (mm/hr): 109.5
 E/S Type or Model No:
 E/S Manufacturer : STANDARD
 E/S Diam. (m): 3.7
 E/S Freq (nom, GHz): 3.95
 E/S Gain (nom, dBi): 41.2
 E/S Feed Loss (dB): 0.20
 E/S Ant. Temp(deg K): 25
 E/S LNA Temp (deg K): 35
 E/S G/T (nom, dB/K): *

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 22-Aug-07 16:20 INPUT FILE: C:\SATOPT5_PAS74\Link Budgets\ICA0 Lima - Manaus\PAS-1R-4C
 TEGUCIGALP(3_8m) to Manaus(3_7m).DTA
 PanAmSat, Customer Support Engineering.

ATTACHMENT 7 TO APPENDIX A / ADJUNTO 7 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to Miami(7.0m)

SATELLITE DATA	Satellite : PAS-1R Uplink Beam: US_LAM_CVUP Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW G/T:-.1 dB/K, SFD:-89.0 dBW/m2 Dnlink EIRP: 39.2 dBW	Location: 45.0W Dnlink Beam: US_LAM_CVDN
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Uplink Frequency:6.000 GHz IBO (Nominal) : 5.0 dB	Trans Type: LTWTA_C Dnlink Freq: 3.775 GHz OBO (Nominal): 3.5 dB
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x21 BWo: 1500kHz, BWa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB	
LINK BUDGET		CLR SKY UP FADE DN FADE
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	51.1 51.1 51.1
	- Uplink Path Loss, clear sky (dB)	-199.6 -199.6 -199.6
	- Uplink Rain Attenuation (dB)	0.0 -2.4 0.0
	+ Satellite G/T (dB/K)	-.1 -.1 -.1
	- Boltzman's Constant (dBW/K-Hz)	228.6 228.6 228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8 -61.8 -61.8
	C/N Uplink (dB)	18.3 15.8 18.3
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	39.2 39.2 39.2
	- Carrier Output Backoff (dB)	-20.9 -23.3 -20.9
	Downlink EIRP per carrier (dBW)	18.3 15.9 18.3
	- Earth Station Pointing Error (dB)	-.5 -.5 -.5
	- Downlink Path Loss, clear sky (dB)	-195.5 -195.5 -195.5
	- Downlink Rain Attenuation (dB)	0.0 0.0 -3.9
	+ Earth Station G/T (dB/K)	27.5 27.5 23.1
	- Boltzman's Constant (dBW/K-Hz)	228.6 228.6 228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8 -61.8 -61.8
	C/N Dnlink (dB)	16.6 14.2 8.3
COMPOSITE PERFORMANCE	C/N Uplink (dB)	18.3 15.8 18.3
	C/N Dnlink (dB)	16.6 14.2 8.3
	C/I Intermod (dB)	13.6 11.2 13.6
	C/I Uplink Co-channel (dB)	22.7 20.3 22.7
	C/I Dnlink Co-Channel (dB)	22.7 20.3 22.7
	C/I Uplink Adj. Sat. (PAS3) (dB)	15.9 13.5 15.9
	C/I Dnlink Adj. Sat. (PAS3) (dB)	19.0 16.6 19.0
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	15.9 13.5 15.9
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	18.3 15.9 18.3
	C/(N+I) COMPOSITE (dB)	7.7 5.3 5.3
	- Required System Margin (dB)	-1.0 -1.0 -1.0
	Net C/(N+I) COMPOSITE (dB)	6.7 4.3 4.3
	- Minimum Required C/N (dB)	-4.3 -4.3 -4.3
	Excess Link Margin (dB)	2.4 0.0 0.0
TRANSPONDER UTILIZATION	% BW/CARR: 4.86, % PWR/CARR: 1.81, Max No. Carriers: 20.6 Downlink EIRP per carrier toward beam center: 22.4 dBW	
TRANSMIT EARTH STATION	Loc: HONDURAS_TEGUCIGA ID:1381 LAT: 14.1N LON: 87.2W ALT: 1370m Carrier Power: 3.4 watts	AZ: 105.0 Elev: 39.2 RainRate: 76.1mm/hr

RECEIVE	Loc: USA_Miami	ID: AZ: 121.7 Elev: 40.8
EARTH STA.	LAT: 25.8N LON: 80.2W	ALT: 0.0m RainRate: 95.7mm/hr
DENSITY	Uplink Pwr Den: -56.4 dBW/Hz, Dnlink EIRP Den: -39.3 dBW/Hz	
INFORMATION	Max Dnlink PFD: -165.8 dB(W/m2/4kHz) @ Beam Center	
AVAILABILITY	Uplink: 99.997%, Dnlink: 99.998%, Composite Link: 99.995%	
LOSS IN C/(N+I) DUE TO ADJ SAT INTF: PAS3 = 1.1dB, THRDS-6 = 1.2dB		

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PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to Miami(7.0m)
[Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz)	: 36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz)	: 6.000	Dnlink Frequency (GHz)	: 3.775
G/T, beam center (dB/K)	: 1.29	EIRP, beam center (dBW)	: 43.36
G/T, beam edge (dB/K)	: -10.0	EIRP, beam edge (dBW)	: 34.0
G/T, toward Tx ES (dB/K)	: -.1	EIRP, toward Rx ES (dBW)	: 39.2
SFD, beam edge (dBW/m2)	: -79.1		
SFD, toward Tx ES (dBW/m2)	: -89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB)	: 8.0	Nominal Uplink Co-Chan C/I (dB)	: 27
Input Backoff (dB)	: 5.0	Nominal Dnlink Co-Chan C/I (dB)	: 27
Output Backoff (dB)	: *	Minimum Uplink Rain Margin (dB)	: 0.5*
(C/Im) - Nominal (dB)	: *	Actual Uplink Rain Margin (dB)	: 2.4
Min. System Margin (dB)	: 1.0	Uplink Power Control Margin (dB)	: .0
Max No Carriers / Trans	: *	Minimum Dnlink Rain Margin (dB)	: 0.5*
Required Link Availability	: 99.9	Actual Dnlink Rain Margin (dB)	: 8.3
		Dnlink Pointing Error (dB)	: 0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	: PAS3	THRDS-6
Interfering Satellite Location (deg)	: 43W	47W
Uplink Interference (dB or dBW/Hz)	: -46	-46
Uplink Polarization Advantage (dB)	: 0	0
Downlink Interference (dB or dBW/Hz)	: -37.6	-35.2
Downlink Polarization Advantage (dB)	: 0	0
Rx E/S Topocentric Angle (deg)	: 2.11	2.12
Rx E/S Pointing Error (deg)	: -0.16	0.16
Rx E/S Off-Axis Angle (deg)	: 1.95	2.28
Rx E/S Adj. Sat. Discrimination (dB)	: 24.9	26.6

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N (operating, dB)	: 4.3
Modulation	: QPSK	Eb/No (operating, dB)	: 5.5
Code Rate	: 1/2x216/236-V	C/N (threshold, dB)	: 4.3
Info Rate (kbps)	: 1144	Eb/No (threshold, dB)	: 5.5
Occupied Bandwidth (kHz)	: 1500		
Allocated Bandwidth (kHz)	: 1750		

- A-ADJ-07-3 -

----- Transmit Earth Station -----

Location: HONDURAS_TEGUCIGALP
 Latitude (deg): 14.1N
 Longitude (deg): 87.2W
 Rain Rate (mm/hr): 76.1
 E/S Type or Model No: 1381
 E/S Manufacturer : PRODELIN
 E/S Diam. (m): 3.8
 E/S Freq (nom, GHz): 6.175
 E/S Tx Gain (dBi): 46.0
 ULPC Margin (dB): .0

----- Receive Earth Station -----

Location: USA_Miami
 Latitude (deg): 25.8N
 Longitude (deg): 80.2W
 Rain Rate (mm/hr): 95.7
 E/S Type or Model No:
 E/S Manufacturer : STANDARD
 E/S Diam. (m): 7.0
 E/S Freq (nom, GHz): 3.95
 E/S Gain (nom, dBi): 47.5
 E/S Feed Loss (dB): 0.15
 E/S Ant. Temp(deg K): 45
 E/S LNA Temp (deg K): 35
 E/S G/T (nom, dB/K): *

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 22-Aug-07 16:09 INPUT FILE: C:\SATOPT5_PAS74\Link Budgets\ICAO Lima - Manaus\PAS-1R-4C
 TEGUCIGALP(3_8m) to Miami(7_0m).DTA
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ATTACHMENT 8 TO APPENDIX A / ADJUNTO 8 AL APÉNDICE A

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to PANAMA_CITY(3.8m)

SATELLITE DATA	Satellite : PAS-1R Location: 45.0W	
	Uplink Beam: US_LAM_CVUP	Dnlink Beam: US_LAM_CVDN
	Uplink POL: V, Dnlink POL: V, EIRP, beam center: 43.36 dBW	
	G/T: -.1 dB/K, SFD: -89.0 dBW/m2	Dnlink EIRP: 42.8 dBW
TRANSPONDER DATA	Trans Bandwidth :36.0 MHz Trans Type: LTWTA_C	
	Uplink Frequency:6.000 GHz	Dnlink Freq: 3.775 GHz
	IBO (Nominal) : 5.0 dB	OBO (Nominal): 3.5 dB
CARRIER DATA	Type: Linkway 2100, Info Rate: 1144 kbps, Mod: QPSK, 1/2x21	
	BWo: 1500kHz, BWa: 1750kHz, C/N: 4.3dB, C/N_thresh: 4.3dB	
LINK BUDGET		CLR SKY UP FADE DN FADE
UPLINK PERFORMANCE	Earth Station EIRP (dBW)	51.4 51.4 51.4
	- Uplink Path Loss, clear sky (dB)	-199.6 -199.6 -199.6
	- Uplink Rain Attenuation (dB)	0.0 -2.4 0.0
	+ Satellite G/T (dB/K)	-.1 -.1 -.1
	- Boltzman's Constant (dBW/K-Hz)	228.6 228.6 228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8 -61.8 -61.8
	C/N Uplink (dB)	18.6 16.1 18.6
DOWNLINK PERFORMANCE	Satellite Saturation EIRP (dBW)	42.8 42.8 42.8
	- Carrier Output Backoff (dB)	-20.6 -23.0 -20.6
	Downlink EIRP per carrier (dBW)	22.2 19.8 22.2
	- Earth Station Pointing Error (dB)	-.5 -.5 -.5
	- Downlink Path Loss, clear sky (dB)	-195.4 -195.4 -195.4
	- Downlink Rain Attenuation (dB)	0.0 0.0 -3.3
	+ Earth Station G/T (dB/K)	24.0 24.0 18.5
	- Boltzman's Constant (dBW/K-Hz)	228.6 228.6 228.6
	- Carrier Noise Bandwidth (dB-Hz)	-61.8 -61.8 -61.8
	C/N Dnlink (dB)	17.1 14.7 8.4
COMPOSITE PERFORMANCE	C/N Uplink (dB)	18.6 16.1 18.6
	C/N Dnlink (dB)	17.1 14.7 8.4
	C/I Intermod (dB)	13.9 11.5 13.9
	C/I Uplink Co-channel (dB)	23.0 20.6 23.0
	C/I Dnlink Co-Channel (dB)	23.0 20.6 23.0
	C/I Uplink Adj. Sat. (PAS3) (dB)	16.3 13.8 16.3
	C/I Dnlink Adj. Sat. (PAS3) (dB)	16.9 14.4 16.9
	C/I Uplink Adj. Sat. (THRDS-6) (dB)	16.3 13.8 16.3
	C/I Dnlink Adj. Sat. (THRDS-6) (dB)	17.6 15.1 17.6
	C/(N+I) COMPOSITE (dB)	7.7 5.3 5.3
	- Required System Margin (dB)	-1.0 -1.0 -1.0
	Net C/(N+I) COMPOSITE (dB)	6.7 4.3 4.3
	- Minimum Required C/N (dB)	-4.3 -4.3 -4.3
	Excess Link Margin (dB)	2.4 0.0 0.0
	TRANSPONDER UTILIZATION	% BW/CARR: 4.86, % PWR/CARR: 1.94, Max No. Carriers: 20.6
	Downlink EIRP per carrier toward beam center: 22.7 dBW	
TRANSMIT EARTH STATION	Loc: HONDURAS_TEGUCIGA ID:1381 AZ: 105.0 Elev: 39.2	
	LAT: 14.1N LON: 87.2W ALT: 1370m RainRate: 76.1mm/hr	
	Carrier Power: 3.7 watts	

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-----
|RECEIVE      |Loc: PANAMA_PANAMA_CIT ID:1381      AZ: 102.8 Elev: 48.8
|EARTH STA.   |LAT: 9.0N  LON: 79.5W  ALT: 0.0m  RainRate: 115.mm/hr
|-----
|DENSITY      |Uplink Pwr Den: -56.1 dBW/Hz, Dnlink EIRP Den: -39.0 dBW/Hz
|INFORMATION  |Max Dnlink PFD: -165.4 dB(W/m2/4kHz) @ Beam Center
|-----
|AVAILABILITY|Uplink: 99.997%, Dnlink: 99.998%, Composite Link: 99.995%
|-----
|LOSS IN C/(N+I) DUE TO ADJ SAT INTF: PAS3 = 1.3dB, THRDS-6 = 1.2dB
|-----

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SATOPT5_PAS (Version 5.74)

PanAmSat, Customer Support Engineering.

PAS-1R-4C QPSK 1750kHz TEGUCIGALP(3.8m) to PANAMA_CITY(3.8m)
 [Input Data]

----- SATELLITE -----

Satellite Name	: PAS-1R	Location (deg):	45.0W
Uplink Beam	: US_LAM_CVUP	Dnlink Beam	: US_LAM_CVDN
Trans. BW (MHz):	36.0 MHz	Trans. Type	: LTWTA_C
Uplink Pol.	: V	Dnlink Pol.	: V
Uplink Chan.	: 3C	Dnlink Chan.	: 4C
Uplink Frequency (GHz):	6.000	Dnlink Frequency (GHz):	3.775
G/T, beam center (dB/K):	1.29	EIRP, beam center (dBW):	43.36
G/T, beam edge (dB/K):	-10.0	EIRP, beam edge (dBW):	34.0
G/T, toward Tx ES (dB/K):	-.1	EIRP, toward Rx ES (dBW):	42.8
SFD, beam edge (dBW/m2):	-79.1		
SFD, toward Tx ES (dBW/m2):	-89.0		

----- OPERATING CONDITIONS -----

Attenuator Setting (dB):	8.0	Nominal Uplink Co-Chan C/I (dB):	27
Input Backoff (dB):	5.0	Nominal Dnlink Co-Chan C/I (dB):	27
Output Backoff (dB):	*	Minimum Uplink Rain Margin (dB):	0.5*
(C/Im) - Nominal (dB):	*	Actual Uplink Rain Margin (dB):	2.4
Min. System Margin (dB):	1.0	Uplink Power Control Margin(dB):	.0
Max No Carriers / Trans:	*	Minimum Dnlink Rain Margin (dB):	0.5*
Required Link Availability:	99.9	Actual Dnlink Rain Margin (dB):	8.7
		Dnlink Pointing Error (dB):	0.5

-- ADJACENT SATELLITE INTERFERENCE ----- Sat. No. 1 ----- Sat. No. 2 -----

Interfering Satellite Name	:	PAS3	THRDS-6
Interfering Satellite Location (deg):		43W	47W
Uplink Interference (dB or dBW/Hz):		-46	-46
Uplink Polarization Advantage (dB):		0	0
Downlink Interference (dB or dBW/Hz):		-37.6	-35.2
Downlink Polarization Advantage (dB):		0	0
Rx E/S Topocentric Angle (deg):		2.14	2.15
Rx E/S Pointing Error (deg):		-0.30	0.30
Rx E/S Off-Axis Angle (deg):		1.84	2.45
Rx E/S Adj. Sat. Discrimination (dB):		18.8	21.9

----- CARRIER PARAMETERS -----

Modem Type	: Linkway 2100	C/N	(operating, dB): 4.3
Modulation	: QPSK	Eb/No	(operating, dB): 5.5
Code Rate	: 1/2x216/236-V	C/N	(threshold, dB): 4.3
Info Rate (kbps):	1144	Eb/No	(threshold, dB): 5.5
Occupied Bandwidth (kHz):	1500		
Allocated Bandwidth (kHz):	1750		

- A-ADJ-08-3 -

----- Transmit Earth Station -----

Location: HONDURAS__TEGUCIGALP
 Latitude (deg): 14.1N
 Longitude (deg): 87.2W
 Rain Rate (mm/hr): 76.1
 E/S Type or Model No: 1381
 E/S Manufacturer : PRODELIN
 E/S Diam. (m): 3.8
 E/S Freq (nom, GHz): 6.175
 E/S Tx Gain (dBi): 46.0
 ULPC Margin (dB): .0

----- Receive Earth Station -----

Location: PANAMA__PANAMA_CITY
 Latitude (deg): 9.0N
 Longitude (deg): 79.5W
 Rain Rate (mm/hr): 115.
 E/S Type or Model No: 1381
 E/S Manufacturer : PRODELIN
 E/S Diam. (m): 3.8
 E/S Freq (nom, GHz): 3.95
 E/S Gain (nom, dBi): 42.1
 E/S Feed Loss (dB): 0.20
 E/S Ant. Temp(deg K): 25
 E/S LNA Temp (deg K): 20
 E/S G/T (nom, dB/K): *

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 22-Aug-07 16:11 INPUT FILE: C:\SATOPT5_PAS74\Link Budgets\ICAO Lima - Manaus\PAS-1R-4C
 TEGUCIGALP(3_8m) to PANAMA_CITY(3_8m).DTA
 PanAmSat, Customer Support Engineering.

APENDICE B /APPENDIX B

sysinfo

Motherboard: CX960e Access Switch, Rev:4, ECO:1, Id:30273003
Bootcode Revision: Feb 21 2003 13:00:51 XPG4.0 (Build:2)
Bootcode Checksum: 0x9B9AD2
CPU Name: MPC745, Version: 00083203, Frequency: 333MHz
System memory: 64 MB, FLASH memory: 4 MB
Code: 3578/3584 KB, Binary Config: 31.3/384 KB, PMD: (0.0)/128 KB
Fallback Script: (0.0)/64 KB, Custom Script+Database: (5.9+6.1)/64 KB
Watch Dog Jumper: Absent
Cache Mode: Enabled
Data Buffers are: Not Cached
Application Version: 4.5.2 (XP504527) Jul 18 2006 15:27:09 Diab4.2b
Application Checksum: 0x198AC7B6, Size: 03664197
Application Features: VOIP/G.729/V110/8DIM
SEM is not present

CPU - Checksum, Number

Slot # : I/O Card Type	(ID) : Rev
1 : V.35H	(5) : 1.0
2 : V.24	(2) : 0.0
3 : EMPTY SLOT	(31) :
4 : EMPTY SLOT	(31) :
5 : EMPTY SLOT	(31) :
6 : EMPTY SLOT	(31) :
7 : C54 Dual Analog Voice	(13) : 2.0
8 : C54 Dual Analog Voice	(13) : 2.0

CX_Honduras.: module

[0] alias = CX_Honduras. sysram = 26600 dataram = 14262
upmetick = 34292 rsttmout = 0
swrev = 4.5.2 (XP504527) Jul 18 2006 15:27:09 Diab4.2b
mibrev = 3 configid = CXTOOL_9/7/2006 8:14:14 PM - COCESNA- 1
approval = 0 timeout = 0

CX_Honduras.: =