

ITSO Kenya Link Budget Analysis

Nishaal Goure Sunkurh

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Introduction

- Nishaal Goure Sunkurh
- Customer Solutions Engineer at Intelsat
- Based in the Sandton Office in Johannesburg
- Tel: +27 11 535 4700
- E-mail: Nishaal.GoureSunkurh@Intelsat.com

Guidelines

- Mobile Phones: Kindly switch to Silent Mode
- Please ask questions

Link Budget Analysis

- What is a **Link Budget Analysis**?

- A **link budget** Analysis is a mathematical calculation that takes into account of all of the gains and losses from the transmitter, through the medium (free space, cable, waveguide, fiber, etc.) to the receiver in a telecommunication system.

- What is a **Link Availability**?

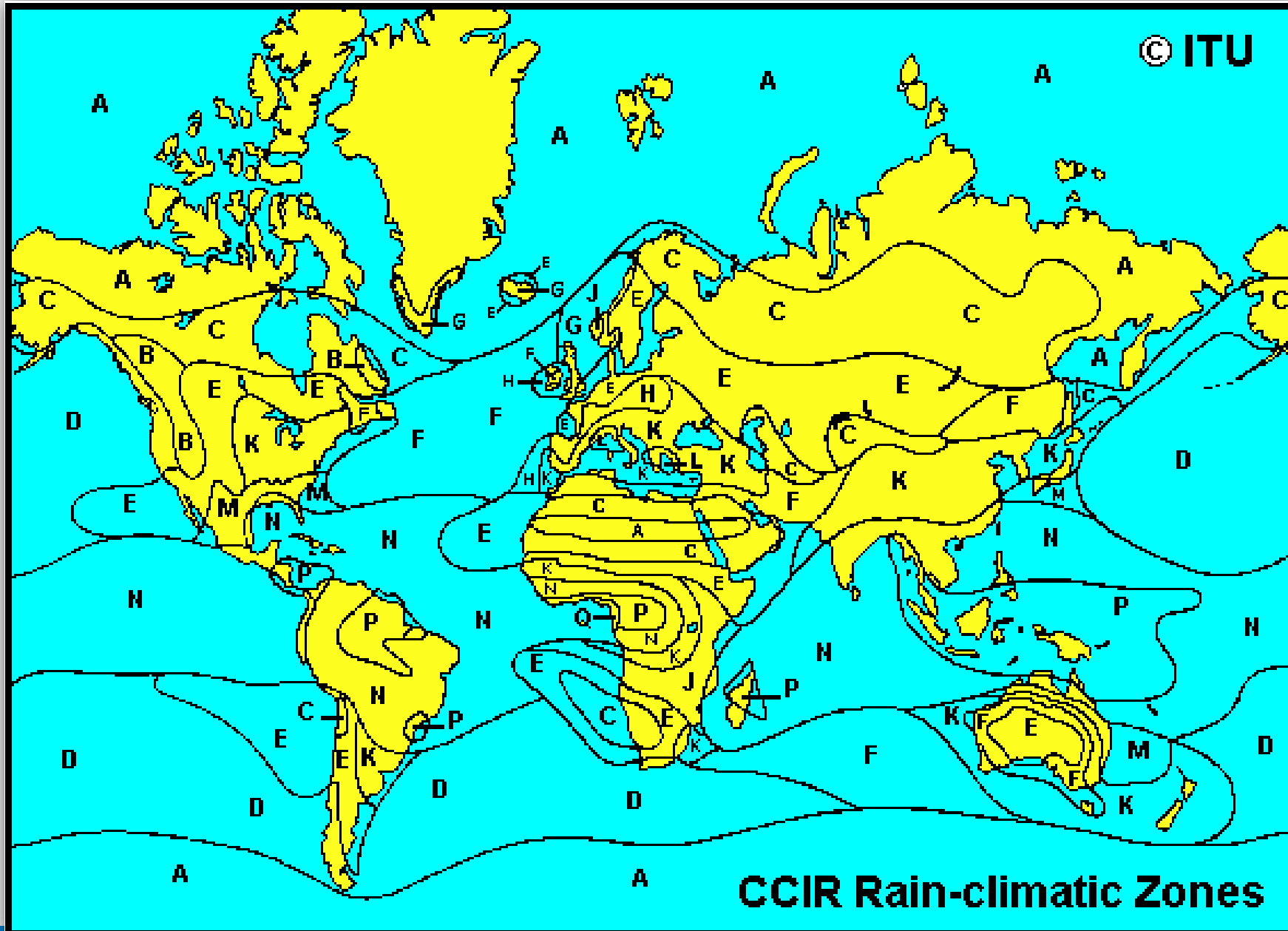
- **Link availability** is the percentage of time over a year that the communications **link** will be operational.

Availability	99.96%	99.90%	99.60%	99.00%
Number of hours in outage per year	3.5	8.8	35	87.6
Number of days in outage per year	1/6	1/3	1 1/2	3 1/4

Link Budget Analysis

- Uplink in %
- Downlink in %
- End to End Link = $100 - [(100 - A_u) + (100 - A_d)]$
 - Example: 99.75 % uplink, 99.75 % downlink
 - = $100 - [(100 - 99.75) + (100 - 99.75)]$
 - = $100 - (.25) + (.25)$
 - End to End Link = **99.50 %**
- Uplink and Downlink rain attenuation must also be added
 - Minor impact on C-Band
 - Major impact on Ku-Band
- Caution:
 - Do not use a large difference in uplink and downlink availability to meet End to End availability requirements

Rain Climatic Zones



Alphabet	Amount of Rain
A	Little to No Rain
Q	Rain Almost Everyday

Rain Climatic Zones

- 14 GHz Rain Attenuation vs. Availability for ITU rain Zones

	14 GHz Rain Attenuation by Zone													
AV(av. yr.)	A	B	C	D	E	F	G	H	J	K	L	M	N	P
99.999	4.15	6.56	8.42	10.93	12.83	16.62	17.88	19.13	20.98	25.23	35.24	36.75	49.19	50.47
99.995	2.49	3.93	5.04	6.55	7.69	9.96	10.71	11.46	12.58	15.12	21.12	22.02	29.48	30.25
99.990	1.94	3.06	3.93	5.10	5.99	7.76	8.34	8.92	9.79	11.77	16.44	17.15	22.96	23.55
99.950	1.01	1.60	2.05	2.66	3.12	4.05	4.35	4.66	5.11	6.14	8.58	8.95	11.98	12.29
99.900	0.74	1.17	1.50	1.95	2.29	2.97	3.19	3.42	3.75	4.51	6.30	6.56	8.79	9.02
99.700	0.44	0.69	0.89	1.15	1.35	1.75	1.88	2.02	2.21	2.66	3.71	3.87	5.18	5.32
99.500	0.34	0.53	0.68	0.89	1.04	1.35	1.45	1.55	1.70	2.05	2.86	2.98	3.99	4.10
99.000	0.23	0.37	0.47	0.61	0.72	0.93	1.00	1.07	1.18	1.42	1.98	2.06	2.76	2.83
98.000	0.16	0.25	0.32	0.42	0.49	0.63	0.68	0.73	0.80	0.96	1.34	1.40	1.87	1.92
97.000	0.13	0.20	0.25	0.33	0.39	0.50	0.54	0.58	0.63	0.76	1.06	1.11	1.48	1.52
96.000	0.11	0.17	0.21	0.28	0.33	0.42	0.45	0.49	0.53	0.64	0.89	0.93	1.25	1.28
95.000	0.09	0.15	0.19	0.24	0.28	0.37	0.40	0.42	0.47	0.56	0.78	0.82	1.09	1.12

Rain Climatic Zones

- 12 GHz Rain Attenuation vs. Availability for ITU rain Zones

	12 GHz Rain Attenuation by Zone													
AV(av. yr.)	A	B	C	D	E	F	G	H	J	K	L	M	N	P
99.999	2.86	4.61	5.98	7.85	9.28	12.17	13.13	14.09	15.53	18.84	26.77	27.99	38.22	39.32
99.995	1.71	2.76	3.58	4.71	5.56	7.29	7.87	8.45	9.31	11.29	16.05	16.77	22.91	23.57
99.990	1.33	2.15	2.79	3.66	4.33	5.68	6.13	6.58	7.25	8.79	12.49	13.06	17.84	18.35
99.950	0.70	1.12	1.46	1.91	2.26	2.96	3.20	3.43	3.78	4.59	6.52	6.82	9.31	9.58
99.900	0.51	0.82	1.07	1.40	1.66	2.17	2.35	2.52	2.77	3.37	4.78	5.00	6.83	7.02
99.700	0.30	0.49	0.63	0.83	0.98	1.28	1.38	1.48	1.64	1.99	2.82	2.95	4.03	4.14
99.500	0.23	0.37	0.49	0.64	0.75	0.99	1.07	1.14	1.26	1.53	2.17	2.27	3.10	3.19
99.000	0.16	0.26	0.34	0.44	0.52	0.68	0.74	0.79	0.87	1.06	1.50	1.57	2.14	2.21
98.000	0.11	0.18	0.23	0.30	0.35	0.46	0.50	0.54	0.59	0.72	1.02	1.07	1.46	1.50
97.000	0.09	0.14	0.18	0.24	0.28	0.37	0.40	0.42	0.47	0.57	0.81	0.84	1.15	1.18
96.000	0.07	0.12	0.15	0.20	0.24	0.31	0.33	0.36	0.39	0.48	0.68	0.71	0.97	1.00
95.000	0.06	0.10	0.13	0.17	0.21	0.27	0.29	0.31	0.34	0.42	0.59	0.62	0.85	0.87

Rain Climatic Zones

- 6 GHz Rain Attenuation vs. Availability for ITU rain Zones

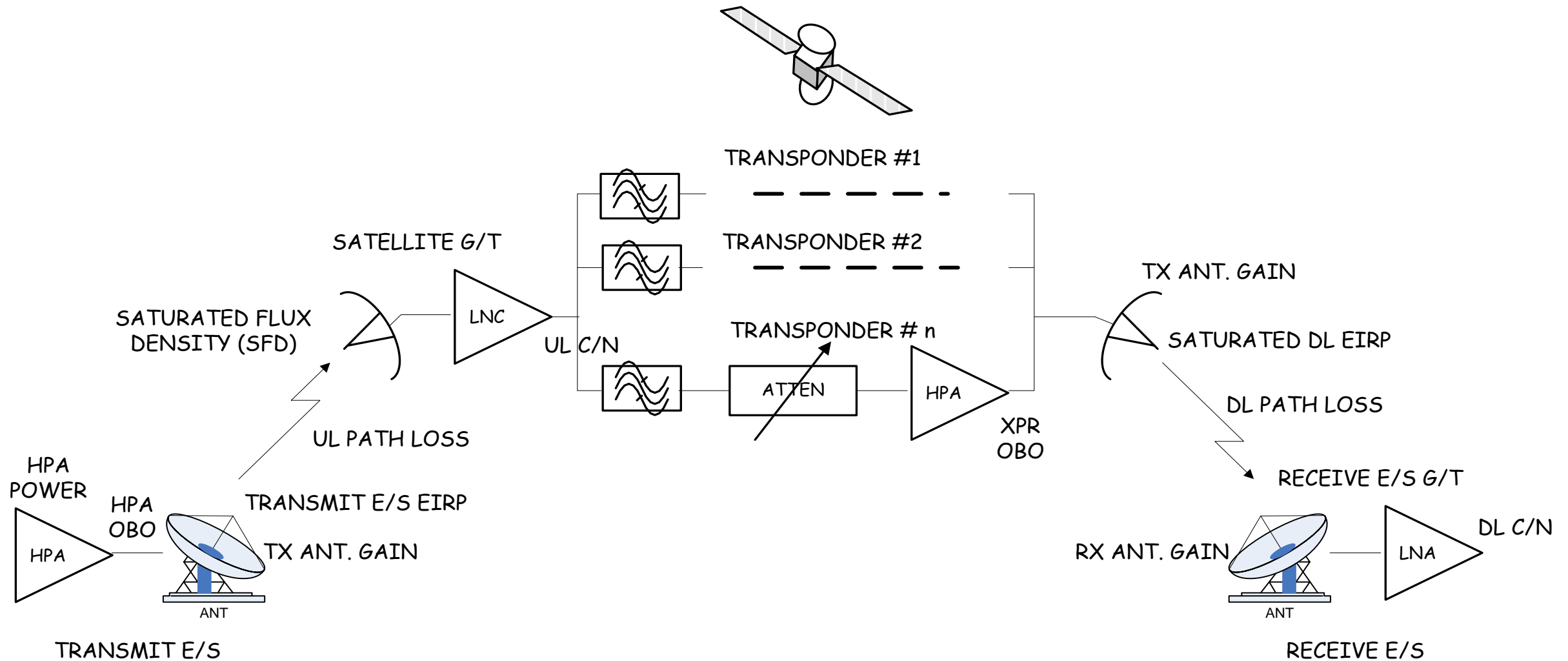
	6 GHz Rain Attenuation by Zone													
AV(av.yr.)	A	B	C	D	E	F	G	H	J	K	L	M	N	P
99.999	0.31	0.51	0.67	0.89	1.06	1.42	1.54	1.66	1.84	2.25	3.28	3.44	4.84	5.00
99.995	0.18	0.30	0.40	0.53	0.64	0.85	0.92	0.99	1.10	1.35	1.97	2.06	2.90	2.99
99.990	0.14	0.24	0.31	0.42	0.50	0.66	0.72	0.77	0.86	1.05	1.53	1.61	2.26	2.33
99.950	0.07	0.12	0.16	0.22	0.26	0.34	0.37	0.40	0.45	0.55	0.80	0.84	1.18	1.22
99.900	0.05	0.09	0.12	0.16	0.19	0.25	0.27	0.30	0.33	0.40	0.59	0.62	0.86	0.89
99.700	0.03	0.05	0.07	0.09	0.11	0.15	0.16	0.17	0.19	0.24	0.35	0.36	0.51	0.53
99.500	0.02	0.04	0.05	0.07	0.09	0.11	0.12	0.13	0.15	0.18	0.27	0.28	0.39	0.41
99.000	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.09	0.10	0.13	0.18	0.19	0.27	0.28
98.000	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.09	0.13	0.13	0.18	0.19
97.000	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.10	0.10	0.15	0.15
96.000	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.04	0.05	0.06	0.08	0.09	0.12	0.13
95.000	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.07	0.08	0.11	0.11

Rain Climatic Zones

- 4 GHz Rain Attenuation vs. Availability for ITU rain Zones

	4 GHz Rain Attenuation by Zone													
AV(av.yr.)	A	B	C	D	E	F	G	H	J	K	L	M	N	P
99.999	0.08	0.12	0.15	0.19	0.22	0.29	0.31	0.33	0.36	0.42	0.57	0.60	0.77	0.79
99.995	0.05	0.07	0.09	0.12	0.13	0.17	0.18	0.20	0.21	0.25	0.34	0.36	0.46	0.47
99.990	0.04	0.06	0.07	0.09	0.10	0.13	0.14	0.15	0.17	0.20	0.27	0.28	0.36	0.37
99.950	0.02	0.03	0.04	0.05	0.05	0.07	0.07	0.08	0.09	0.10	0.14	0.15	0.19	0.19
99.900	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.08	0.10	0.11	0.14	0.14
99.700	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.06	0.06	0.08	0.08
99.500	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.05	0.05	0.06	0.06
99.000	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.04
98.000	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03
97.000	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
96.000	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02
95.000	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02

Basic Satellite Link Model



Coupling Loss

- **Uplink**

- The total loss between HPA output and the antenna
- Waveguide components
- OMT
- Feed
- Filter truncation

- **Downlink**

- The total loss between antenna and LNA/LNB input
- Feed
- OMT
- Waveguide components

Antenna Mispointing Loss

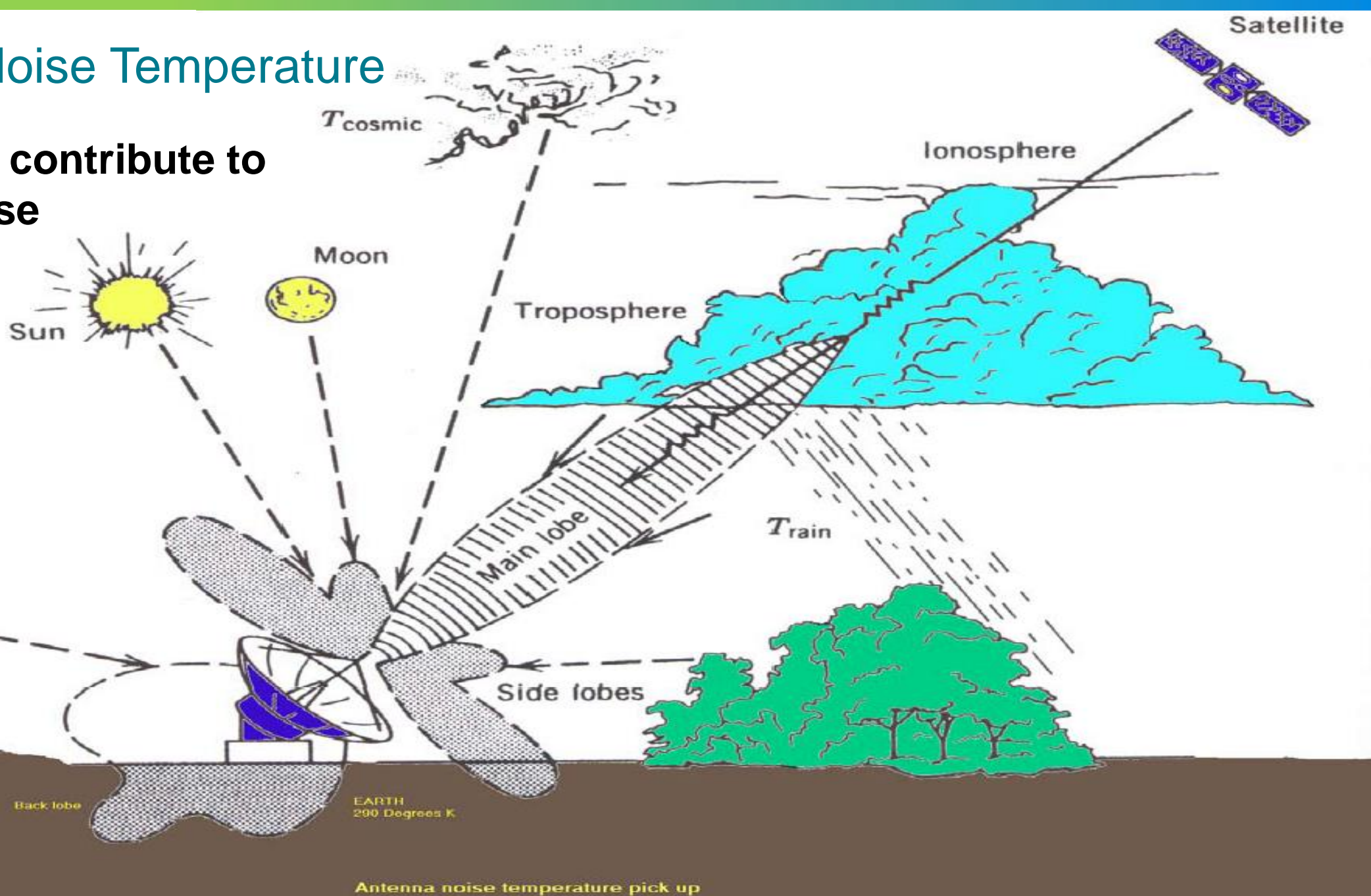
- Allows for the pointing loss between the ground station antenna and the satellite antenna
 - It is unlikely that the antenna will be targeted exactly due to initial installation errors
 - Antenna stability due to wind
 - Station keeping accuracy of the satellite
- A typical allowance for mispointing is 0.5 dB
 - A large antenna without tracking may require more due to the narrow beamwidth

LNA / LNB Noise Temperature

- C-Band are normally quoted as Noise Temperature in \square Kelvin
- Ku-Band are normally quoted as Noise Figure in dB
 - Noise Figure to Noise Temperature
 - Noise temperature (T) = $290 * (10^{(\text{Noise Figure}/10)} - 1)$
Example: Noise Figure = 1.0 dB
Noise Temp = $290 * (10^{(1.0/10)} - 1) = 75^\circ\text{K}$
 - The higher the frequency the more difficult and expensive it is to achieve low noise figures
- The LNA/LNB is one of the most critical components of an antenna system receive system
 - Major factor in determining the systems figure of merit (G/T)
 - Frequency stability of LNB critical depending on type of service
 - Low data rate carriers

Antenna Noise Temperature

- Factors that contribute to antenna noise



Antenna Noise Temperature

- The total noise temperature of the antenna , ($T_{\text{ant}} = T_{\text{sky}} + T_{\text{gnd}}$) depends mainly on the following factors:
 - Sky Noise (T_{sky})
 - The sky noise consists of two main components, atmospheric and the background radiation (2.7K)
 - The upper atmosphere is an absorbing medium
 - Sky noise increases with elevation due to the increasing path through the atmosphere
 - Ground Noise (T_{gnd})
 - The dominant contribution to antenna noise is ground noise pick up through side lobes
 - Noise temperature increases as the elevation angle decreases since lower elevation settings, will pick up more ground noise due to side lobes intercepting the ground
 - A deep dish picks up less ground noise at lower elevations compared to shallow ones
- Since antenna noise temperature has so many variable factors, an estimate is perhaps the best we can hope for

Antenna Noise Temperature

- Typical 3.6m antenna – Offset

Elevation angle (deg)	Noise temp (C band)	Noise temp (Ku band) (K)
10	24	31
20	16	23
30	15	21
40	14	20

- Typical 6m antenna

Elevation angle (deg)	Noise temp (C band)	Noise temp (Ku band) (K)
10	39	55
20	30	40
40	23	37

Antenna Noise Temperature

- Typical 10m C-Band antenna

Elevation angle (deg)	Noise temp (C band)
5	46
10	35
15	29
20	24
30	17
40	14

- To the above you need to add extra according to the complexity of the feed:
 - 2 port rx only, add 4.5
 - 2 port rx and tx, add 4.5
 - 3 port 2 rx and 1 tx, add 4.5
 - 4 port 2 rx and 2 tx, add 9.9

Antenna Gain

$$G = \frac{4\pi A}{\lambda^2} e_A = \frac{\pi^2 d^2}{\lambda^2} e_A$$

where:

A is the area of the antenna aperture, that is, the mouth of the parabolic reflector

d is the diameter of the parabolic reflector, if it is circular

λ is the wavelength of the radio waves.

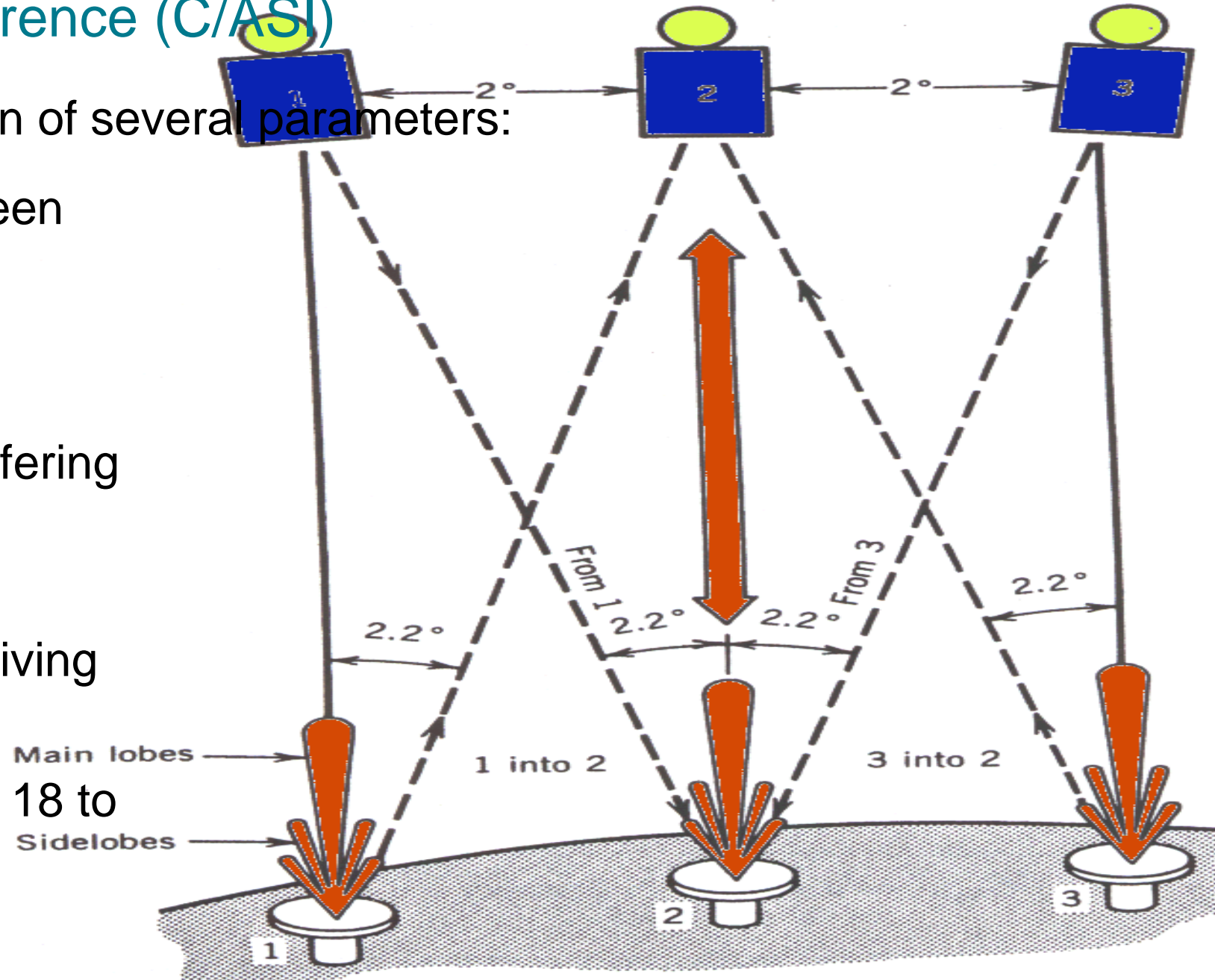
e_A is a dimensionless parameter between 0 and 1 called the *aperture efficiency*. The aperture efficiency of typical parabolic antennas is 0.55 to 0.70.

Adjacent Channel Interference C/ACI

- Unwanted electrical interference from signals that are immediately adjacent in frequency to the desired signal
 - Due to imperfections in the transmission channel and/or equipment
- This parameter specifies the expected interference level with respect to the wanted carrier
- Typical values, irrespective of whether the uplink or downlink co-channel C/ASI is of interest, are in the range 24 to 30 dB

Adjacent Satellite Interference (C/ASI)

- The level of ASI is a function of several parameters:
 - Orbital separation between the desired and the interfering satellites
 - Antenna side lobe performance of the interfering uplink earth station
 - Antenna side lobe performance of the receiving earth station
 - Typically in the range of 18 to 30 dB



Cross Polarization Interference C/XPI

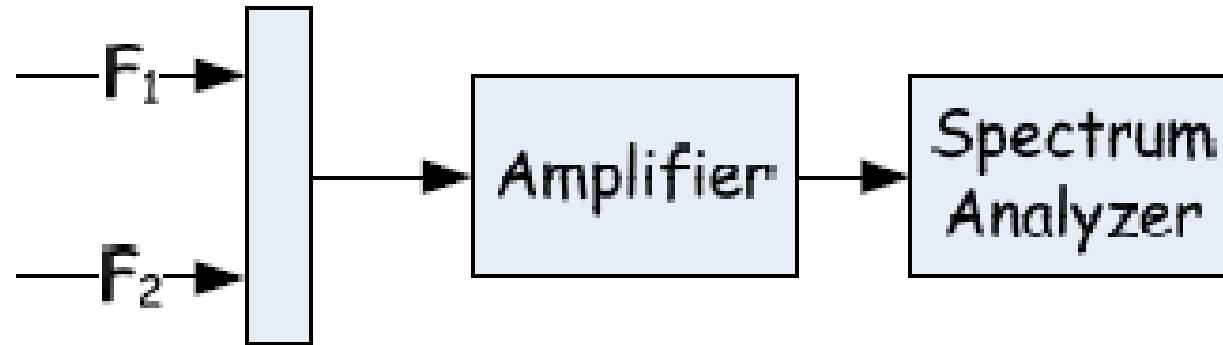
- A value for the carrier to cross polarization interference noise ratio C/XPI in dB
- Specifies the expected interference level with respect to the wanted carrier
- Typical values, irrespective of whether the uplink or downlink C/XPI is of interest, are in the range 24 to 34 dB

Total Cross-Pol Isolation	
Total XPI = $-20\log[10(S_{xp}/20)+10(E_{xp}/20)]$	
Satellite X-Pol =	40 dB
Antenna X-Pol =	35 dB
Total X-Pol Isolation =	31.1 dB

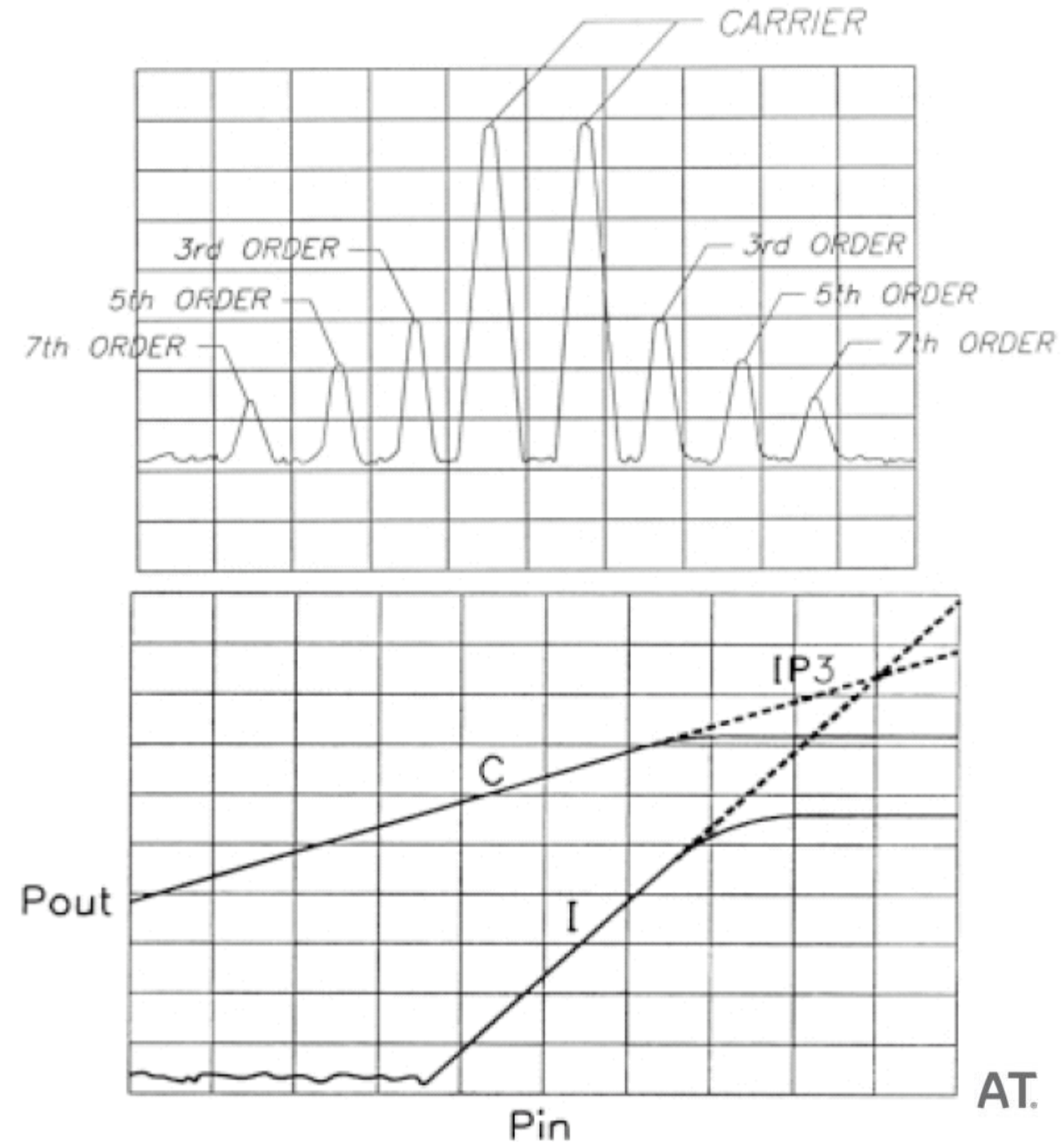
Cross Polarization Interference C/XPI

- Frequency re-use by dual polarization doubles the available frequency spectrum at each orbital location using orthogonal signals (V-H)
- Since orthogonal polarization is not perfect in actual implementation
 - There is some coupling between the orthogonal signals generated by the transmitting antenna and at the receiving antenna
 - These couplings can create signal degradation
 - In addition, the transmitted wave and the orientation of the receiving antenna polarizer also affect the polarization angle and hence, introduce degradation to the receiving antenna polarization performance
- The rotation of the antenna polarizer angle with respect to the satellite downlink wave's tilt angle effects the receiving antenna polarization isolation performance.

HPA Intermodulation (C/IM)



- As P_{in} is increased, the intermodulation signal will increase with power three times as fast as the carrier signal.



Satellite Information

- **Satellite Longitude**

- Orbital position

- **Satellite receive G/T**

- Value to the specific location of the uplink earth station
- Obtained from satellite operators or G/T contour maps

- **Satellite saturation flux density SFD**

- The power needed to saturate the satellite's transponder

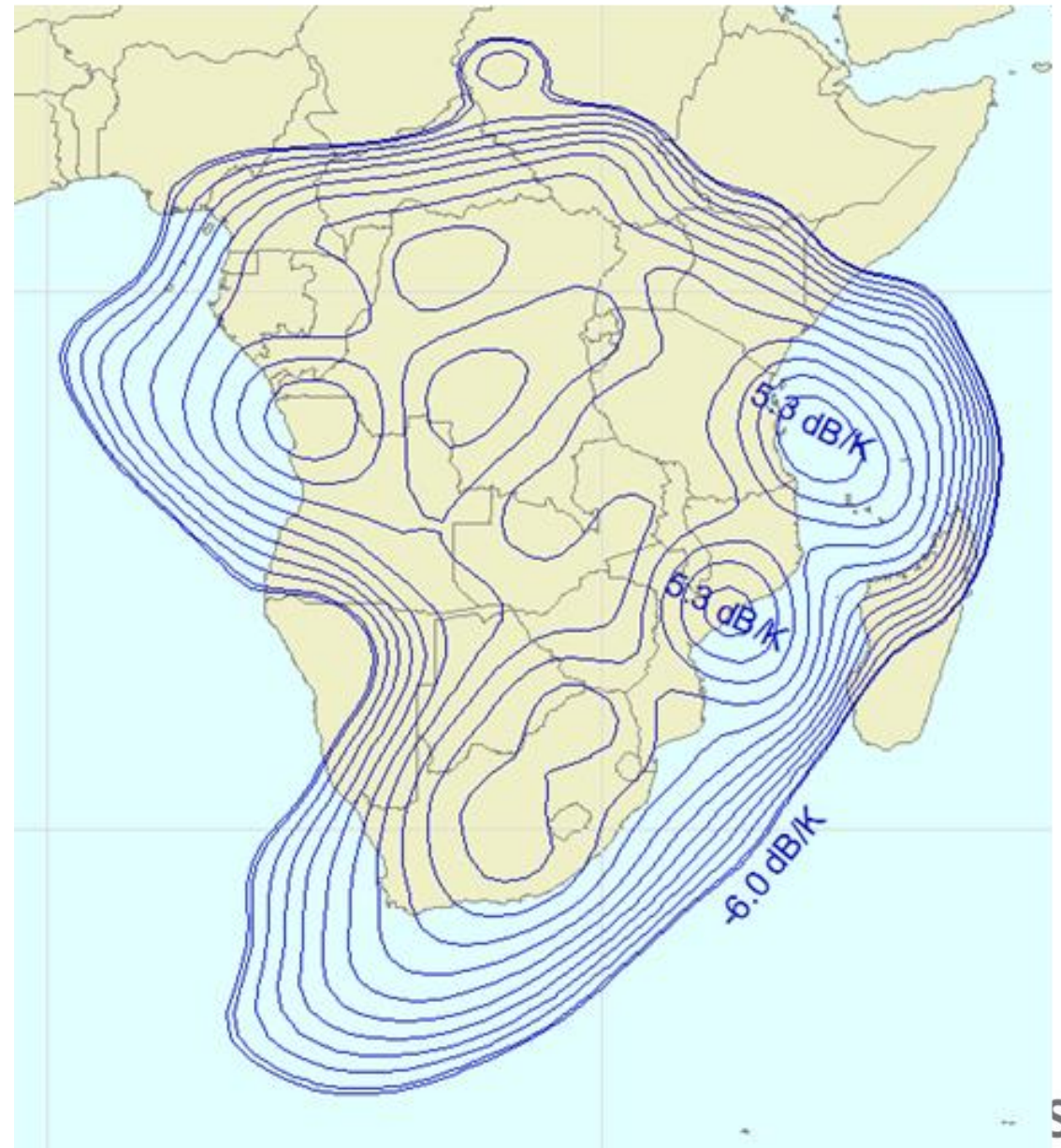
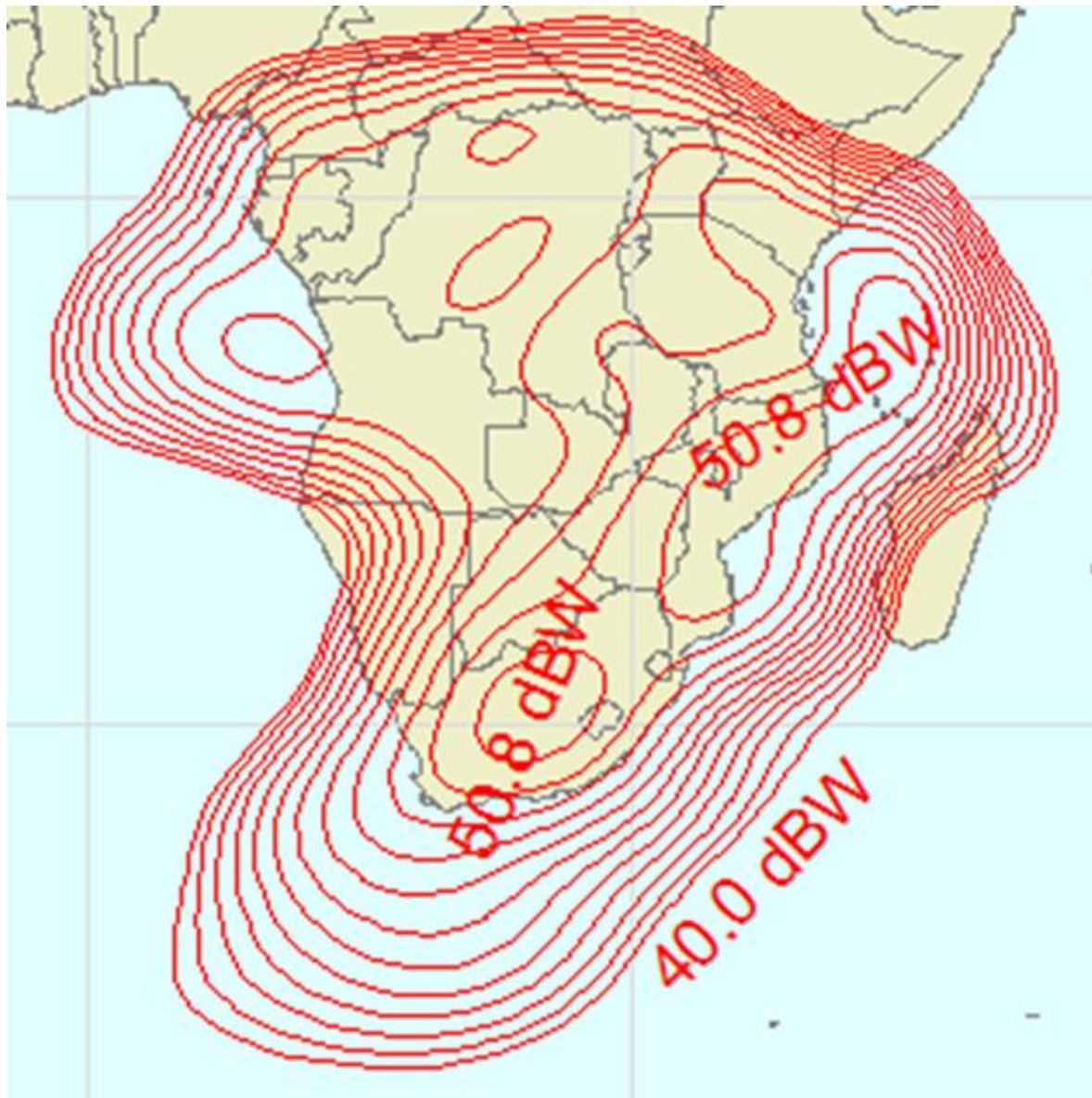
- **Satellite gain setting**

- Most satellites have a gain step attenuator, which affects all carriers in the transponder
- May, or may not, be include in the SFD specification

- **Satellite EIRP (saturation)**

- Transponder's effective isotropic radiated power (EIRP) at saturation in the specific direction of the receive earth receive station Value to the specific location of the uplink earth station
- Obtained from satellite operators or G/T contour maps

Example of EIRP and G/T Contour



Satellite Information

- **Transponder bandwidth**
 - Satellites full transponder bandwidth
- **Transponder input back-off (IBO)**
 - Input back off, or operating point, relative to saturation to reduce intermodulation interference
- **Transponder output back-off (OBO)**
 - Related, in a non linear fashion, to the input back-off
- **Transponder intermodulation interference C/IM**
 - Specifies the carrier-to-intermodulation noise ratio in dB
 - Depends on such factors as center frequency and the exact number, type and positions of other carriers sharing the transponder
 - Increasing the input back-off also reduces the effect of this interference.
 - There is little C/IM effect if only one carrier is present in the transponder

Carrier Information

- **Required Overall Eb/No for desired BER**

- Depends on:

- Modulation Type
- FEC Rate
- Coding

BER PERFORMANCE (E_b/N_0 , dB)

Viterbi				Viterbi & Reed-Solomon				56 kbps, Sequential			
BER	1/2	3/4	7/8	BER	1/2	3/4	7/8	BER	1/2	3/4	7/8
10^{-3}	3.8	4.9	6.1	10^{-6}	4.1	5.6	6.7	10^{-3}		4.6	5.5
10^{-4}	4.6	5.7	6.9	10^{-7}	4.2	5.8	6.9	10^{-4}	4.1	5.1	6.1
10^{-5}	5.3	6.4	7.6	10^{-8}	4.4	6.0	7.1	10^{-5}	4.5	5.5	6.6
10^{-6}	6.0	7.2	8.3	10^{-10}	5.0	6.3	7.5	10^{-6}	5.0	5.9	7.3
10^{-7}	6.6	7.9	8.9					10^{-7}	5.4	6.4	7.8
10^{-8}	7.2	8.5	9.6					10^{-8}	5.8	6.8	8.4

1544 kbps Sequential				1544 kbps, Sequential & RS				8PSK with/without RS		
BER	1/2	3/4	7/8	BER	1/2	3/4	7/8	BER	2/3 w/o RS	2/3 with RS
10^{-3}	4.8	5.2	6.0	10^{-6}	4.1	5.6	6.7	10^{-6}	8.7	6.1
10^{-4}	5.2	5.7	6.4	10^{-7}	4.2	5.8	6.9	10^{-7}	9.5	6.4
10^{-5}	5.6	6.1	6.9	10^{-8}	4.4	6.0	7.1	10^{-8}	10.2	6.6
10^{-6}	5.9	6.5	7.4	10^{-10}	5.0	6.3	7.5	10^{-9}	11	6.9
10^{-7}	6.3	7.0	7.9					10^{-10}	11.8	7.2
10^{-8}	6.7	7.4	8.4							

Turbo Product Codec					Viterbi, OQPSK			
BER	QPSK	BPSK		8PSK	BER	1/2	3/4	7/8
	3/4	21/44	5/16	3/4				
10^{-6}	3.9	2.8	-	7.0	10^{-3}	4.1	5.2	6.4
10^{-7}	4.1	3.1	-	7.3	10^{-4}	4.9	6.0	7.2
10^{-8}	4.3	3.3	-	7.6	10^{-5}	5.6	6.7	7.9
10^{-9}	4.8	3.7	4.0	8.0	10^{-6}	6.3	7.5	8.6
					10^{-7}	6.9	8.2	9.2
					10^{-8}	7.5	8.8	9.9

Satellite Information

- **Information rate**

- User information rate of the data in Mbps

- **Overhead (% information rate)**

- Amount of "overhead" added to the information data rate to account for miscellaneous signaling requirements
 - i.e. Reed Solomon

- **Modulation**

- Type of modulation
 - BPSK, QPSK, 8PSK, 16QAM, etc.

- **Forward error correction (FEC) code rate**

- Code rate used with forward error correction
 - 0.5, 0.667, 0.75, .875, etc.

Satellite Information

- **Roll off factor**

- The occupied bandwidth of a carrier is normally taken to be 1.1 times the symbol rate, thus the roll off factor is 1.1

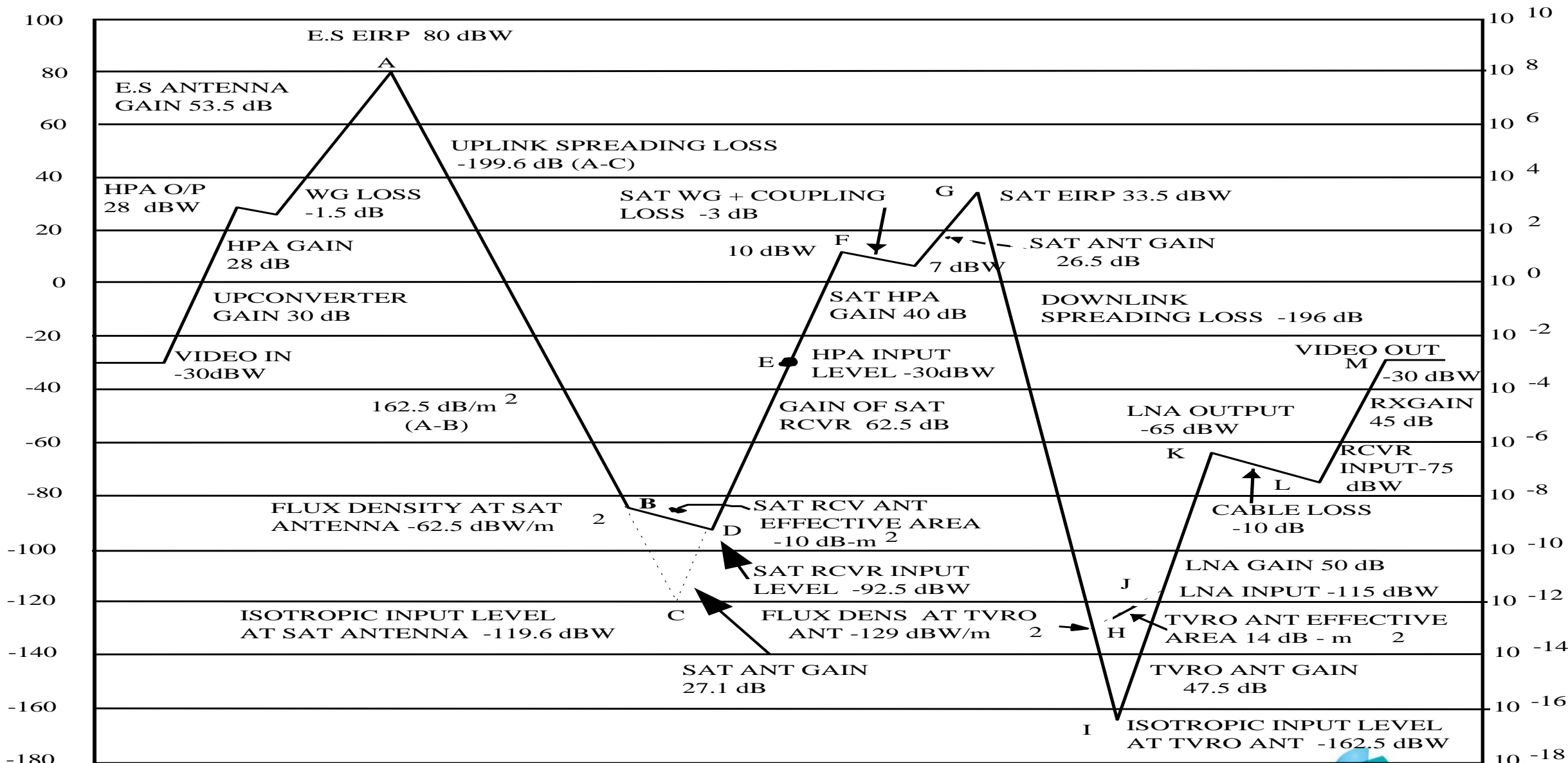
- **System margin**

- Accounts for uncertainty in the various input parameters and to allow for difficult to quantify nonlinear effects such as AM-PM conversion and perhaps terrestrial interference

- **Bit error rate (BER)**

- The BER of the link
- 10^{-7} was typical of legacy systems
- 10^{-9} is desirable for IP links

Gains and Losses of a satellite link



Essential Information

- Site latitude and Site longitude
- Frequency
- Polarization
- Rain-climatic zone
- Antenna aperture
- Antenna efficiency (or gain)
- Coupling Loss
- Antenna mispointing loss
- LNB noise temperature
- Antenna ground noise temperature
- Adjacent channel interference C/ACI
- Adjacent satellite Interference C/ASI
- Cross polarization interference C/XPI
- HPA intermodulation interference C/I
- Satellite Orbital Location
- Satellite receive G/T
- Satellite saturation flux density SFD
- Satellite gain setting
- Satellite EIRP (saturation)
- Transponder bandwidth
- Transponder input back-off (IBO)
- Transponder output back-off (OBO)
- Transponder intermodulation Interference C/IM
- Required Overall Eb/No
- Information rate
- Overhead (% information rate)
- Modulation
- Forward error correction (FEC) code rate
- Roll off factor
- System margin
- Bit Error Rate (BER)

Link Budget Parameters

- The majority of link budget parameters are out of your control
- Those that you may control
 - Antenna size
 - Transmit
 - Receive
 - LNA / LNB
 - Noise Temperature
 - Carrier
 - Modulation type
 - FEC rate
 - Coding

Symbol Rate and Bandwidth Calculations

Bandwidth Calculation		
Symbol Rate = Information Rate/(Modulation * FEC Rate)		
Information Rate =	1544	kbps
Modulation Type =	2	1 = BPSK, 2 = QPSK, 3 = 8PSK, 4 = 16QAM
FEC Rate =	0.75	.5, .75, .875, etc
Symbol Rate =	1029.3	kHz
Occupied Bandwidth =	1132.3	kHz
Bandwidth Calculation with Reed Solomon		
Symbol Rate = Information Rate/(Modulation * FEC Rate * Coding)		
Information Rate =	1544	kbps
Modulation Type =	2	1 = BPSK, 2 = QPSK, 3 = 8PSK, 4 = 16QAM
FEC Rate =	0.75	.5, .75, .875, etc
Inner =	188	
Outer =	204	
Reed Solomon	0.92	Overhead
Symbol Rate =	1116.9	kHz
Occupied Bandwidth =	1229	kHz

Link Budget Parameters

- Carrier – (modulation, FEC, coding)
 - Satellite bandwidth required
 - Balanced power and bandwidth operation
 - i.e. 10% transponder power, 10% transponder bandwidth
- HPA power requirement
 - Ensure proper backoff to prevent intermodulation and spectral regrowth

Link Budget



INTELSAT

Envision. Connect. Transform.

Link Budget

- Where to start
 - TX antenna gain (Size and efficiency)
 - RX antenna gain (Size and efficiency)
 - LNA noise temperature
 - Modulation Type
 - FEC Rate
 - Coding
 - Required E_b/N_0 for desired availability
 - Uplink rain margin
 - Downlink rain margin
- Run calculation

Link Budget

- Verify bandwidth % vs. power % of transponder
 - Bandwidth greater than power
 - Smaller receive antenna
 - Higher order modulation
 - Higher FEC rate
 - Power greater than bandwidth
 - Larger receive antenna
 - Lower order modulation
 - Lower FEC rate
 - Change E_b/N_0 requirements
- Repeat calculations

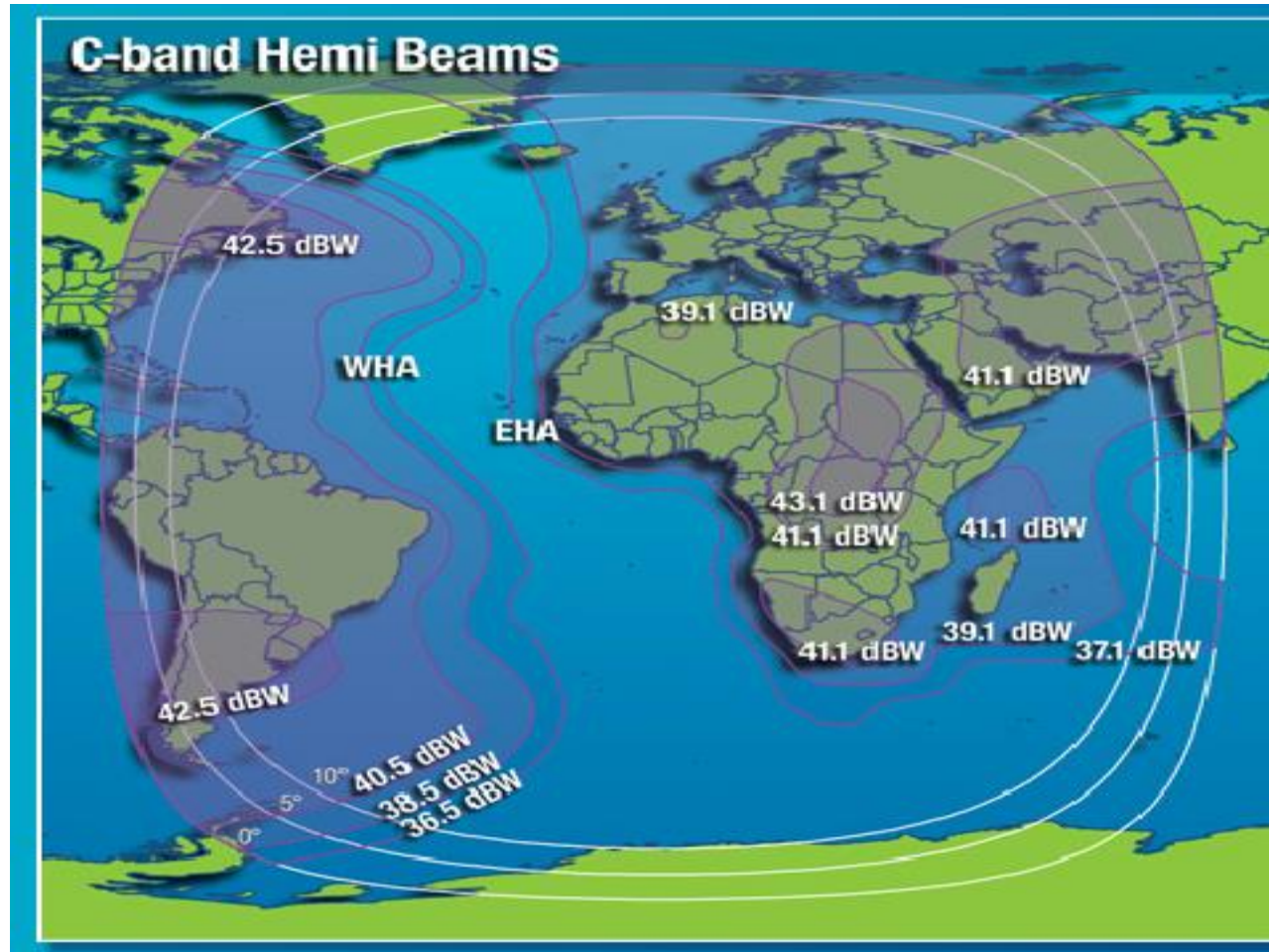
Link Budget Example

- Determine Satellite BW and Amplifier Size for Link
 - 4 X E1 Voice Service - Interconnect
 - Kigali to Germany
 - Kigali Optional 2.4m or 9m
 - Germany Fuschsstad 13m
 - Modems: CDM625 with option of Carrier Cancellation technology

Select Satellite....



Select Beams



Intelsat 10-02 at 359° E



key parameters



detailed footprints

footprints

C-band



C-band Hemi Beams



C-band Zone Beams

Ku-band



Ku-band Spot 1



Ku-band Spot 2



Ku-band Spot 3/3X

Set up Satellite and Transponders

Lease Transmission Plan

Spacecraft Parameters

Lease Name: Kigali FUS
SVO-L Number: 1
Satellite Flight: 1002
Satellite Location (Deg. E): 359.00
(Deg. W): 1.00
Operating Mode: Normal
Uplink Beam: EHA
Downlink Beam: EHA
Transponder Freq. Slot: 3-4
Amplifier Power Level: Normal
Amplifier Power (watts): 69.2
VSAT Optimized Transponder:

SFD Beam Edge (dBW/m²): OMA -79.0
Lease BW (MHz): LST Calculated
 User Specified

Total Transponder Beam Edge Parameters


Intelsat	IS-1002	22/22
Bandwidth		72.0 MHz
Polarization		Circular/Circular
Center Freq. (Up/Down)		6.0500 / 3.8250 GHz
G/T		-6.5 dB/K
U/L Meas. Improve. Factor:		.0 dB
EIRP		37.0 dBW
D/L Meas. Improve. Factor:		.8 dB
Oper. Mode:	MultiCarrier Txpdr Lease	
IBO		-6.5 dB
OBO		-4.0 dB

Available Beam Edge Lease Resource

Bandwidth	MHz
Operating FD	dBW/m ²
EIRP	dBW

Number of Active Carriers: 0
No Link Budget Analysis performed

[View Summary of Links...](#) [Accept](#)



Define Carrier

Digital Carrier Definition

Select From Available Products & Modems...

Carrier Type	? DIGITAL	Information Rate	8.192	kbits/s
Performance (BER)		Alloc. BW a=	0.25	MHz
FEC Code Rate	3/4 .7500	Noise BW		MHz
R-S Code Rate	n= N/A k= N/A	Spreading Factor:	1	
Overhead	.0 %	Min Uplink Rain Margin:		dB
Modulation	8-PSK	Min Dnlink Degrad. Margin:		dB
Eb/No Threshold	4	Total Availability	99.96	% yr
C/N Threshold		Transmit ES Code		New ES
U/L Carrier Center Freq.	6014.00000	Receive ES Code		New ES
Car/Link	1	Act. Fact.	100	%

Link: 1 1 1

Return Accept Copy Cancel

- User Specified
 - LST Calculated

Look Up Modem Specifications

TURBO PRODUCT CODEC BER Rate 3/4 QPSK Rate 3/4 8PSK/8-QAM Rate 3/4 16-QAM BER (with two adjacent carriers, each 7 dB higher than the desired carrier)	For:	Rate 3/4 (Q, OQ) Guaranteed Eb/No: (typical value in parentheses)	Rate 3/4 (8PSK, 8-QAM) Guaranteed Eb/No: (typical value in parentheses)	Rate 3/4 (16-QAM) Guaranteed Eb/No: (typical value in parentheses)
	BER=10 ⁻⁶	3.8dB (3.4dB)	6.4 dB (6.0 dB)	7.8 dB (7.4 dB)
	BER=10 ⁻⁷	4.1dB (3.7dB)	6.7 dB (6.3 dB)	8.1 dB (7.7 dB)
	BER=10 ⁻⁸	4.4dB (4.0dB)	7.1 dB (6.7 dB)	8.5 dB (8.2 dB)
TURBO PRODUCT CODEC BER Rate 7/8 QPSK Rate 7/8 8PSK/8-QAM Rate 7/8 16-QAM BER (with two adjacent carriers, each 7 dB higher than the desired carrier)	For:	Rate 7/8 (Q, OQ) Guaranteed Eb/No: (typical value in parentheses)	Rate 7/8 (8PSK, 8-QAM) Guaranteed Eb/No: (typical value in parentheses)	Rate 7/8 (16-QAM) Guaranteed Eb/No: (typical value in parentheses)
	BER=10 ⁻⁶	4.3 dB (4.0 dB)	7.0 dB (6.7 dB)	8.1 dB (7.7 dB)
	BER=10 ⁻⁸	4.5 dB (4.2 dB)	7.2 dB (6.8 dB)	8.4 dB (8.1 dB)

Define Earth Stations

Earth Station Definition



Primary Input

<input checked="" type="checkbox"/> ES Code	<input type="text" value="KIG240"/>	<input type="checkbox"/> ES Name	
<input checked="" type="checkbox"/> Band	<input type="text" value="C-Band"/> ▾	<input type="checkbox"/> City (nearest)	
<input checked="" type="checkbox"/> Diameter	<input type="text" value="2.4"/> meters	<input type="checkbox"/> Country	▾
<input type="checkbox"/> Intelsat Standard		<input type="checkbox"/> Nominal Pat Adv (Tr)	6.2 dB
<input checked="" type="checkbox"/> G/T*	<input type="text" value="Calculate"/> ▾ <input type="text" value="19.5"/> dB/K	<input type="checkbox"/> Nominal Pat Adv (Rx)	4.9 dB
* G/T at 4 GHz or 11 GHz			
<input checked="" type="checkbox"/> Longitude	<input type="text" value="30.2426"/> Deg. E	<input type="checkbox"/> 30 Deg 14 Min 33 Sec	
<input checked="" type="checkbox"/> Latitude	<input type="text" value="-1.9527"/> Deg. N	<input type="checkbox"/> -1 Deg 57 Min 10 Sec	

Other Input

<input checked="" type="checkbox"/> Tracking	<input type="text" value="None"/> ▾	<input type="checkbox"/> LNA Temperature	30.0 K
<input type="checkbox"/> Elevation Angle	53.5 Deg	<input type="checkbox"/> Feed Losses	.2 dB
<input type="checkbox"/> Azimuth Angle	273.2 Deg	<input type="checkbox"/> VSWR LNA	2.0
<input type="checkbox"/> Polarization Sense	Circular	<input type="checkbox"/> Sidelobe Constant	32.0 dBi
<input type="checkbox"/> Ant. Efficiency (Tr)	.65	<input type="checkbox"/> Peak Ant. Gain (Tr)	41.8 dBi
<input type="checkbox"/> Ant. Efficiency (Rx)	.65	<input type="checkbox"/> Peak Ant. Gain (Rx)	37.8 dBi

ESIS Database - User Specified - LST Calculated

Frequencies Assumed: 6.0500 / 3.8250  

Current Satellite Location: 359.00 °E

Run Analysis – 2.4m

Analysis

Link Analysis Description: Carriers: Assigned: 2 Active: 2 Links: Number: 2 Active: 2

	Link 1	Link 2				
Modulation	QPSK	QPSK				
Information Rate	8192.0	8192.0				kbits/s
FEC Code Rate	.8750	.8750				
R-S Code Rate	N/A	N/A				
Clear Sky Eb/No Available	6.0	5.4				dB
Number of Assigned Carriers	1	1				
Transmit ES Code	KIG240	FUS930				m
Transmit ES Size	2.4	9.3				
Receive ES Code	FUS930	KIG240				m
Receive ES Size	9.3	2.4				dB/K
Receive ES G/T	31.8	19.5				
Coordination Limit Check	Passed	Passed				

Total Lease Resource Usage:

LST calculated	(MultiCarrier Txpdr Lease)	Total BW allocated	6.3195 MHz
MultiCarrier Txpdr Lease		Total BW (Power Equival.)	6.4660 MHz
Total EIRP utilized	22.5 dBW	Total BW utilized	6.4660 MHz
Total EIRP available	22.6 dBW	Total BW available	6.5000 MHz
Margin (available - utilized)	.0 dB	Margin (avail. - utiliz.)	.0340 MHz

Carrier levels comply with coordination agreements.

Determine BUC Size

Determine Bandwidth

The screenshot shows a software window titled "HPA Sizing Calculator" with a close button (X) in the top right corner. The window contains a table of parameters and their values. At the top, there is a tab labeled "1" and a dropdown menu showing "KIG240". The table lists the following parameters:

Total E/S UL EIRP through HPA	54.7	dBW
Peak antenna gain	41.8	dB _i
Losses from HPA to antenna feed	0.2	dB
Required power at HPA output port	13.2	dBW
HPA output back-off	3.0	dB
Saturated HPA output power	16.2	dBW
Required HPA size	41.4	Watts

At the bottom of the window, there are three buttons: "Quit", "Accept", and a printer icon.

Total BW allocated	6.3195	MHz
Total BW (Power Equival.)	6.4660	MHz
Total BW utilized	6.4660	MHz
Total BW available	6.5000	MHz

Run Analysis for Kigali 9.3m

CCT Network Definition

CCT Network ID: Center Frequency (MHz):
Number of Networks to Consider: Frequency Separation (MHz):

Dir	Tx ESA	Rx ESA	Info Rate (kbps)	Modem Model	Modulation & Coding	Roll-Off Factor	Cancellation Gain at Tx (dB)	Availability (% yr)	U/L Rain Margin (dB)	D/L Rain Margin (dB)
Out	FUS930	KIG930	8192	CDM-625	8PSK; 3/4 FEC; 6.40 dB Eb/No	.25	26.0	99.96		
In	KIG930	FUS930	8192	CDM-625	8PSK; 3/4 FEC; 6.40 dB Eb/No	.25	26.0	99.96		

<Footer>

Determine BUC Size

The screenshot shows a software window titled "HPA Sizing Calculator" with a close button (X) in the top right corner. The window contains a list of parameters and their values for a device labeled "KIG930". The parameters are:

- Total E/S UL EIRP through HPA: 56.3 dBW
- Peak antenna gain: 53.9 dBi
- Losses from HPA to antenna feed: 0.2 dB (input field)
- Required power at HPA output port: 2.7 dBW
- HPA output back-off: 3.0 dB (input field)
- Saturated HPA output power: 5.7 dBW
- Required HPA size: 3.7 Watts

At the bottom of the window, there are three buttons: "Quit", "Accept", and a printer icon.

Determine Bandwidth

Total BW allocated	4.5511	MHz
Total BW (Power Equival.)	4.5242	MHz
Total BW utilized	4.5511	MHz
Total BW available	4.6000	MHz

Introduction to LST5

- LST5 – Lease Transmission Plan Program, Version 5
- Official link budget tool for planned services on Intelsat satellites
- Utilizes Intelsat satellite technical parameters and corresponding lease transponder characteristics (based on IESS-410)
- Assists Intelsat customers in generating preliminary link budget analysis and transmission plans
- Free to download from *My Intelsat* by Intelsat customers
- Also available to accredited vendors and technical consultants (subject to review and approval by Intelsat)
- Regular updates of associated satellite data also posted on *MyIntelsat*

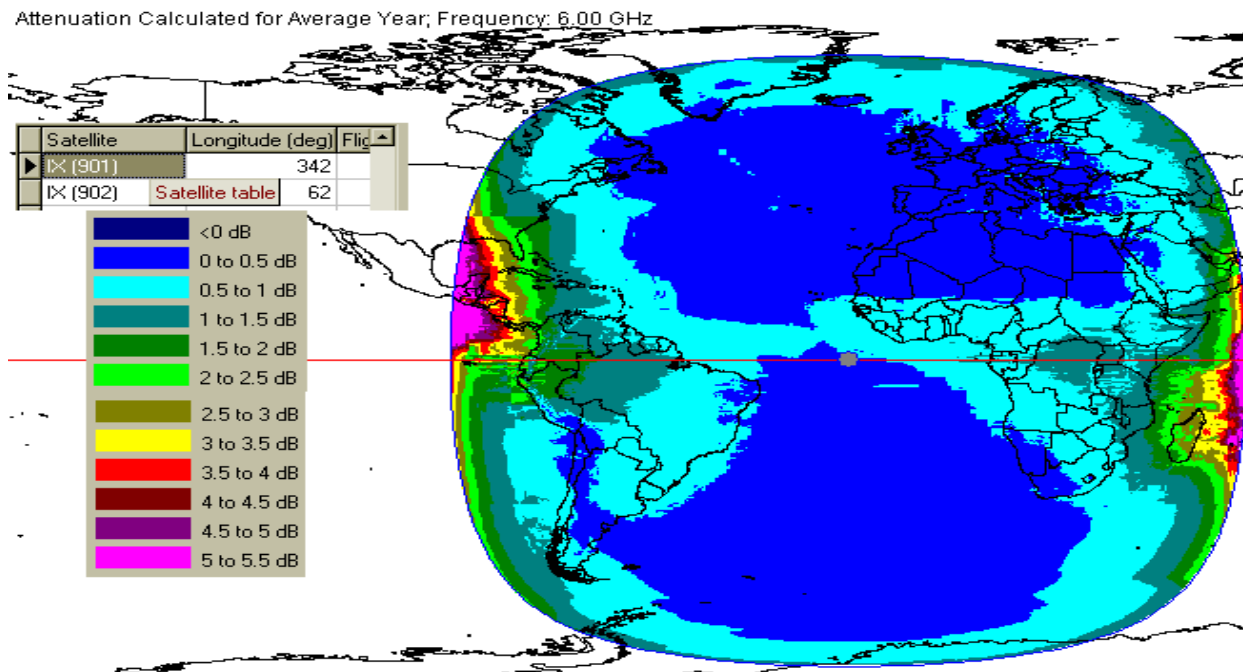
Key Input Data – Rain margins

- Total Link Availability - Performance
 - Up link and down link margins to compensate for attenuation due to rain

•Satellite

•Antenna Location

•Frequency



Application

Availability	99.96%	99.90%	99.60%	99.00%
Number of hours in outage per year	3.5	8.8	35	87.6
Number of days in outage per year	1/6	1/3	1 1/2	3 1/4

- Questions

- Thank you

The LST Software Tool



Latest version: v 1.9.0

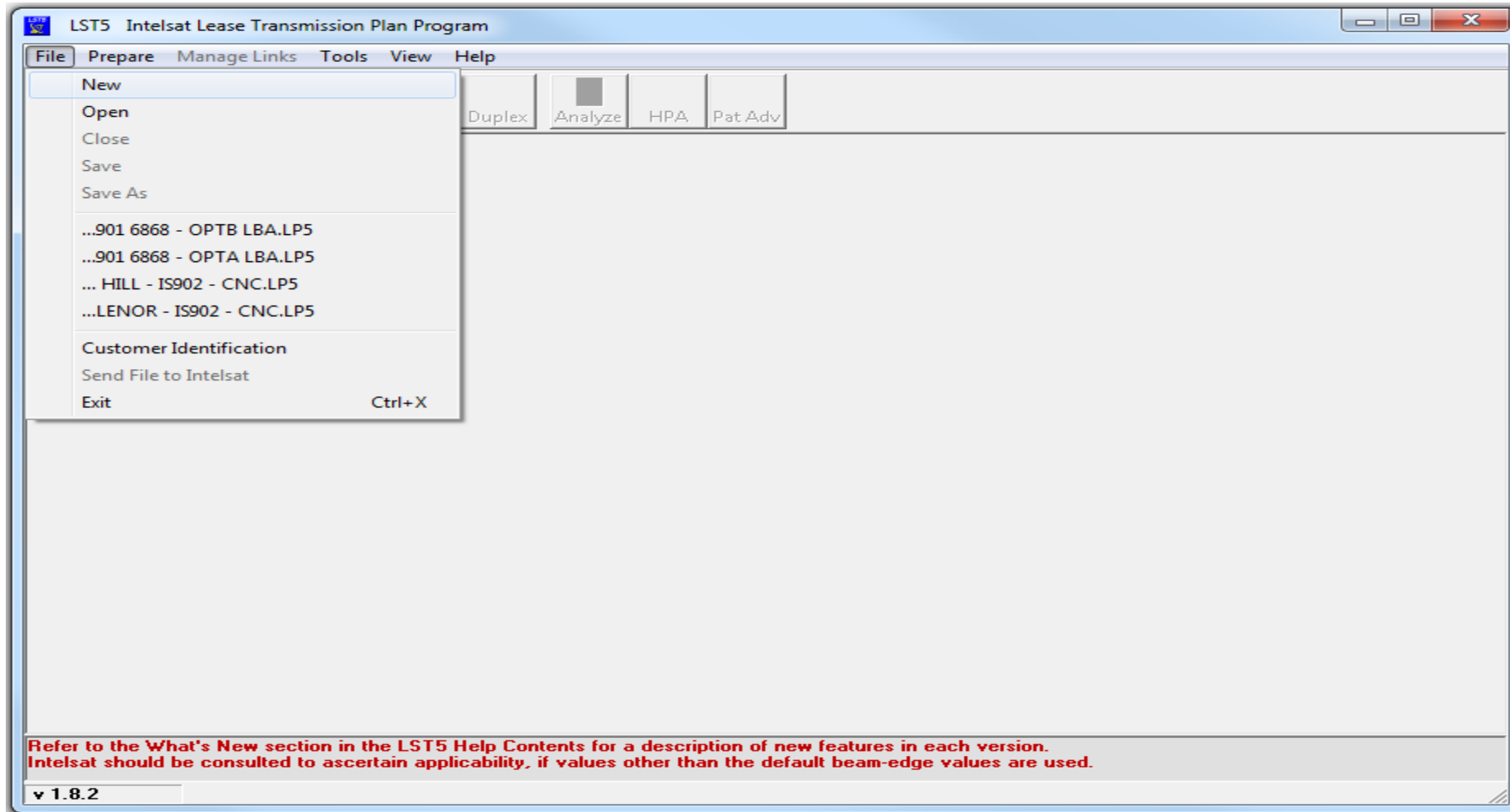
Introduction

- Why is it important for customers to use LST5?
- Not only an LBA calculation tool
 - Local E/S database
 - CCT tool
 - Modem database
 - Location reports
 - HPA calculations

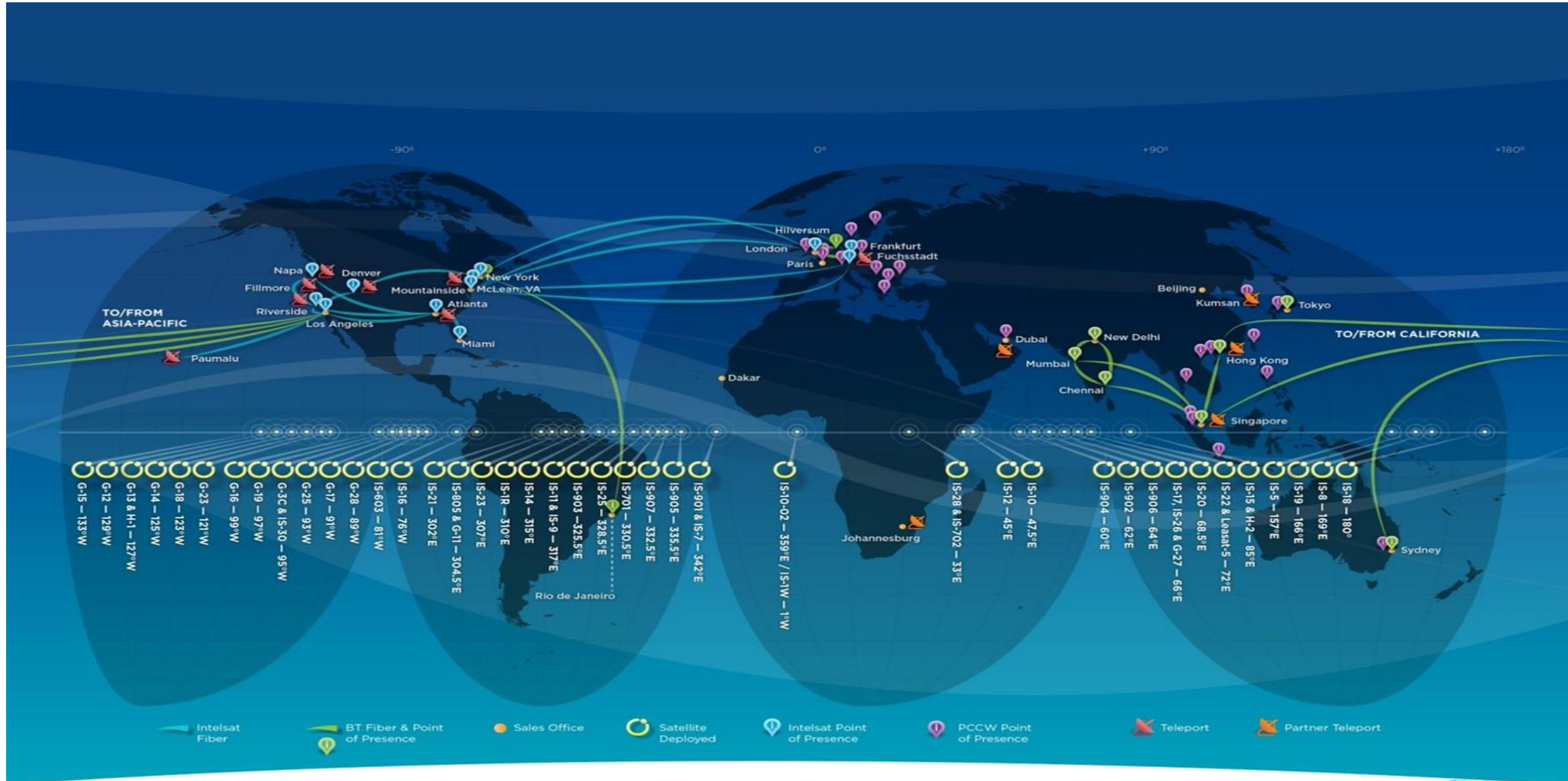
Example 1

- Point to Point link between Fuchsstadt and Yaoundé, Cameroon
- 5 Mbps/s full duplex
- 1.8 m antenna in Yaoundé
- IS-10 @ 47.5°E
- Transponder EF16K
- Comtech cdm625A used at the remote site

Step 1: Entering Satellite Parameters



Key Input Data – Orbital slot



Key Input Data – Beams/Transponder/SFD Selection

(Deg. W) 312.50 G7I
 U/L Meas. Improve. F
 CIDD

GEOG.	PHYS.	FULL NAME
AKV	AKV	Ku-Band Asia V
EAFKH	EAFKH	Ku-Band Europe/Africa H
EAFKV	EAFKV	Ku-Band Europe/Africa V
EMEKV	EMEKV	Ku-Band Europe/Middle East V
ESTKH	ESTKH	Ku-Band Stans/Europe H
GCH	GCH	C-Band Global H
GCV	GCV	C-Band Global V

VSAT Optimized Transponder Bandwidth

Listed by band/region/polarization

U/L & D/L central frequencies, SFD

Slot	U/L Frq	D/L Frq	XPDR	SFD
Ku	14.2700	12.5220	EF13K/EF13K	-84.0
Ku	14.3100	12.5620	EF14K/EF14K	-80.0
Ku	14.3500	12.6020	EF15K/EF15K	-80.0
Ku	14.3900	12.6420	EF16K/EF16K	-80.0
Ku	14.4300	12.6820	EF17K/EF17K	
Ku	14.4700	12.7220	EF18K/EF18K	

SFD Beam Edge [dBW/m2] *OMA -80.0 EIRP

SFD can be modified
 (any changes to be approved by Intelsat!)

VSAT Optimized Transponder

SFD Beam Edge [dBW/m2] *OMA

Lease BW [MHz] LST Calculated User Specified

Step 1: Entering Satellite Parameters

The screenshot shows the LST5 IntelSat Lease Transmission Plan Program interface. The main window is titled "LST5 IntelSat Lease Transmission Plan Program" and has a menu bar with "File", "Prepare", "Manage Links", "Tools", "View", and "Help". Below the menu bar is a toolbar with icons for "Save", "Carrier", "ES", "Interf", "Copy", "Duplex", "Analyze", "HPA", and "Pat Adv".

The "Lease Transmission Plan" dialog box is open, showing the following parameters:

Spacecraft Parameters

- Lease Name: LST-plan
- SVO-L Number: 1
- Satellite Flight: 4210
- Satellite Location (Deg. E): 47.50
- (Deg. W): 312.50
- Operating Mode: Normal
- Uplink Beam: EAFKV
- Downlink Beam: EAFKH
- Transponder Freq. Slot: 16
- Amplifier Power Level: Normal
- Amplifier Power (watts): 100.0
- VSAT Optimized Transponder:

Total Transponder Beam Edge Parameters

- Intelsat IS-10
- Bandwidth: 36.0 MHz
- Polarization: Linear/Linear
- Center Freq. (Up/Down): 14.3900 / 12.6420 GHz
- G/T: -5.0 dB/K
- U/L Meas. Improve. Factor: .0 dB
- EIRP: 41.0 dBW
- D/L Meas. Improve. Factor: .0 dB
- Oper. Mode: MultiCarrier Txprdr Lease
- IBO: -6.0 dB
- OBO: -3.5 dB

Available Beam Edge Lease Resource

- Bandwidth: 6.5 MHz
- Operating FD: -93.4 dBW/m2
- EIRP: 30.1 dBW

Number of Active Carriers: 2
Link Budget Analysis Successful

Buttons: "View Summary of Links...", "Accept", and a printer icon.

Bottom status bar: "Refer to the What's New section in the LST5 Help Contents for a description of new features in each version. Intelsat should be consulted to ascertain applicability, if values other than the default beam-edge values are used." and version "v 1.8.2".

Step 2: Defining Earth Stations Parameters

The screenshot displays the LST5 software interface. A menu is open under the 'Prepare' tab, listing options: Customer Information, Lease Transmission Plan, Carrier Definition, Earth Station Selection (highlighted), Interference Levels and Losses, Beam Pointing, Annotation, and Manage User ModCods. The main window shows the 'Earth Station Parameters' dialog box with the following settings:

- Plan: LST-plan
- Station ID: 1
- Longitude (Deg. E): 4210
- Latitude (Deg. W): 47.50
- Longitude (Deg. W): 312.50
- Operating Mode: Normal
- Uplink Beam: EAFKV
- Downlink Beam: EAFKH
- Transponder Freq. Slot: 16
- Amplifier Power Level: Normal
- Amplifier Power (watts): 100.0
- VSAT Optimized Transponder:
- SFD Beam Edge (dBW/m2): OMA -80.0
- Lease BW (MHz): LST Calculated, User Specified

Buttons: View Summary of Links..., Accept

Total Transponder Beam Edge Parameters

Intelsat IS-10	
Bandwidth	36.0 MHz
Polarization	Linear/Linear
Center Freq. (Up/Down)	14.3900 / 12.6420 GHz
G/T	-5.0 dB/K
U/L Meas. Improve. Factor:	.0 dB
EIRP	41.0 dBW
D/L Meas. Improve. Factor:	.0 dB
Oper. Mode:	MultiCarrier Txprdr Lease
IBO	-6.0 dB
OBO	-3.5 dB

Available Beam Edge Lease Resource

Bandwidth	6.5 MHz
Operating FD	-93.4 dBW/m2
EIRP	30.1 dBW

Number of Active Carriers: 2
No Link Budget Analysis Performed

Refer to the What's New section in the LST5 Help Contents for a description of new features in each version. Intelsat should be consulted to ascertain applicability, if values other than the default beam-edge values are used.

1.8.2

Key Input Data - Earth Stations Parameters

- You know better your E/S Parameters

- Locations
- Antenna Size
 - G/T*
 - Tx/Rx Gain*

**These figures can be estimated from the antenna size.*

- Intelsat provides the information concerning IntelsatOne network

- Intelsat Satellite Guide
- Intelsat App

Step 2: Defining Earth Stations Parameters

The screenshot displays the LST5 IntelSat Lease Transmission Plan Program interface. The main window is titled "LST5 IntelSat Lease Transmission Plan Program" and has a menu bar with "File", "Prepare", "Manage Links", "Tools", "View", and "Help". A "Save" button is visible in the top left. The "Earth Station Selection" dialog box is open, showing the "Earth Station Definition" tab. The dialog is divided into "Primary Input" and "Other Input" sections.

Primary Input

- ES Code: YAO-1M8
- Band: K-Band
- Diameter: 1.8 meters
- Intelsat Standard
- G/T*: Calculate, 22.8 dB/K
- * G/T at 4 GHz or 11 GHz
- Longitude: 13.2000 Deg. E
- Latitude: -8.9000 Deg. N
- ES Name
- City (nearest): Luanda
- Country: Angola
- Nominal Pat Adv (Tr): 5.6 dB
- Nominal Pat Adv (Rx): 4.5 dB
- 13 Deg 12 Min 0 Sec
- 8 Deg 54 Min 0 Sec

Other Input

- Tracking: None
- Elevation Angle: 49.0 Deg
- Azimuth Angle: 77.2 Deg
- Polarization Sense: Linear
- Ant. Efficiency (Tr): .65
- Ant. Efficiency (Rx): .65
- LNA Temperature: 65.0 K
- Feed Losses: .3 dB
- VSWR LNA: 2.2
- Sidelobe Constant: 32.0 dBi
- Peak Ant. Gain (Tr): 46.8 dBi
- Peak Ant. Gain (Rx): 45.7 dBi

ESIS Database - User Specified - LST Calculated

Frequencies Assumed: 14.3900 / 12.6420
Current Satellite Location: 47.50 °E

Buttons: Return, Accept and Save to LST plan, Copy ES, Cancel, Write into Local ES DB

Refer to the What's New section in the LST5 Help Contents for a description of new features in each version. Intelsat should be consulted to ascertain applicability, if values other than the default beam-edge values are used.

v 1.8.2

Step 2: Defining Earth Stations Parameters

The screenshot displays the LST5 software interface with the "Earth Station Definition" dialog box open. The dialog box is divided into several sections:

- Primary Input:**
 - ES Code: FUC-9M0
 - Band: K-Band
 - Diameter: 9.0 meters
 - Intelsat Standard
 - G/T*: Calculate (dropdown), 37.3 dB/K
 - * G/T at 4 GHz or 11 GHz
 - Longitude (with globe icon)
 - Latitude (with globe icon)
- Other Input:**
 - Tracking
 - Elevation Angle
 - Azimuth Angle
 - Polarization Sense
 - Ant. Efficiency (Tr)
 - Ant. Efficiency (Rx)
- Additional Parameters:**
 - ES Name
 - City (nearest)
 - Country (dropdown)
 - Nominal Pat Adv (Tr): 1.6 dB
 - Nominal Pat Adv (Rx): .9 dB
- Database Options:**
 - ESIS Database
 - User Specified
 - LST Calculated

At the bottom of the dialog box, there are buttons for "Return", "Accept and Save to LST plan", "Copy ES", "Cancel", and "Write into Local ES DB".

A "Local ES Database" warning dialog box is overlaid on top of the "Earth Station Definition" dialog box. It contains the following text:

Warning: ES: FUC-9M0 will be written to Local ES DB:
C:\Program Files (x86)\INTELSAT\LST5\Desk\LocalES.mdb.

YES - Continue;
NO - Select another ES DB.

Buttons: Yes, No, Cancel

At the bottom of the main software window, there is a red text notice: "Refer to the What's New section in the LST5 Help Contents for a description of new features in each version. Intelsat should be consulted to ascertain applicability, if values other than the default beam-edge values are used." The version number "v 1.8.2" is visible in the bottom left corner.

Step 3: Defining Carrier Parameters

The screenshot displays the LST5 IntelSat Lease Transmission Plan Program interface. The main window title is "LST5 IntelSat Lease Transmission Plan Program". The menu bar includes "File", "Prepare", "Manage Links", "Tools", "View", and "Help". The "Prepare" menu is open, showing options: "Customer Information", "Lease Transmission Plan", "Carrier Definition", "Earth Station Selection", "Interference Levels and Losses", "Beam Pointing", "Annotation", and "Manage User ModCods".

The "Carrier Definition" dialog box is open, showing the following parameters:

- Plan:** LST-plan
- Transponder:** 1
- Frequency (MHz):** 4210
- Longitude (Deg. E):** 47.50
- Latitude (Deg. W):** 312.50
- Operating Mode:** Normal
- Uplink Beam:** EAFKV
- Downlink Beam:** EAFKH
- Transponder Freq. Slot:** 16
- Amplifier Power Level:** Normal
- Amplifier Power (watts):** 100.0
- VSAT Optimized Transponder:**
- SFD Beam Edge (dBW/m2):** OMA -80.0
- Lease BW (MHz):** LST Calculated User Specified

Buttons at the bottom of the dialog include "View Summary of Links...", "Accept", and a printer icon.

Total Transponder Beam Edge Parameters

IntelSat	IS-10
Bandwidth	36.0 MHz
Polarization	Linear/Linear
Center Freq. (Up/Down)	14.3900 / 12.6420 GHz
G/T	-5.0 dB/K
U/L Meas. Improve. Factor:	.0 dB
EIRP	41.0 dBW
D/L Meas. Improve. Factor:	.0 dB
Oper. Mode:	MultiCarrier Txprdr Lease
IBO	-6.0 dB
OBO	-3.5 dB

Available Beam Edge Lease Resource

Bandwidth	6.5 MHz
Operating FD	-93.4 dBW/m2
EIRP	30.1 dBW

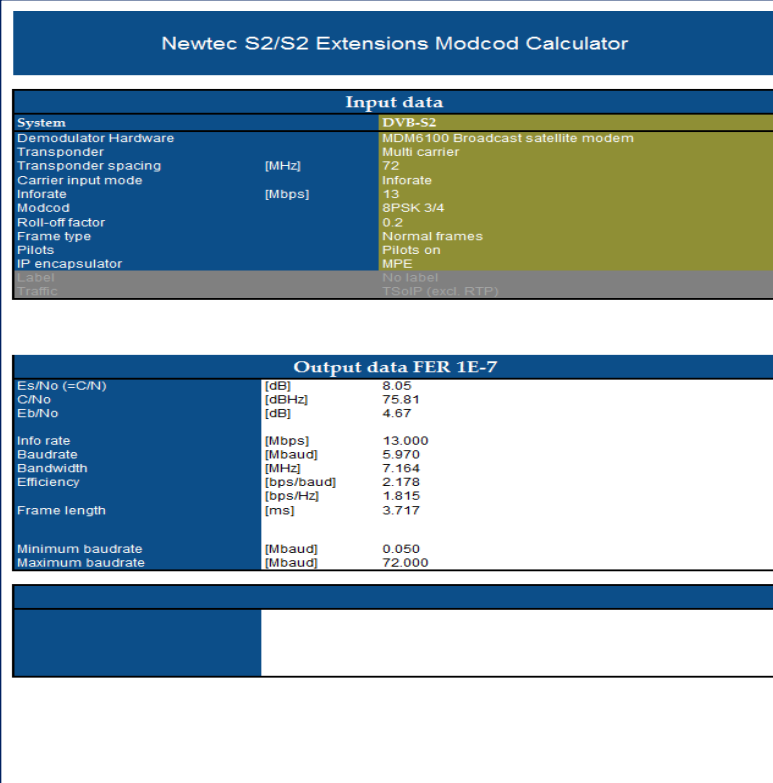
Number of Active Carriers: 2
No Link Budget Analysis Performed

Refer to the What's New section in the LST5 Help Contents for a description of new features in each version. IntelSat should be consulted to ascertain applicability, if values other than the default beam-edge values are used.

v 1.8.2

Key Input Data – Modem specs

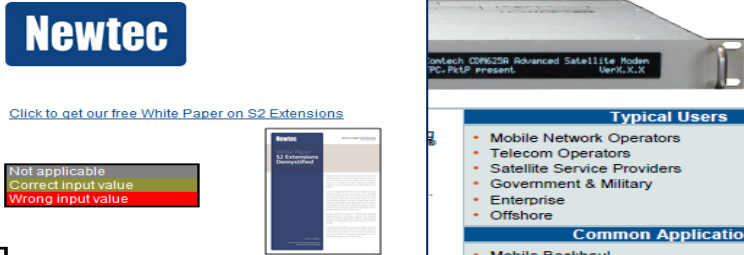
CDM-625A Advanced Satellite Modem
Satellite Modems



Newtec S2/S2 Extensions Modcod Calculator

Input data	
System	DVB-S2
Demodulator Hardware	MDM6100 Broadcast satellite modem
Transponder	Multi carrier
Transponder spacing [MHz]	72
Carrier input mode	Inforate
Inforate [Mbps]	13
Modcod	8PSK 3/4
Roll-off factor	0.2
Frame type	Normal frames
Pilots	Pilots on
IP encapsulator	MPE
Label	No label
Traffic	Traffic (excl. RTP)

Output data FER 1E-7	
ES/No (=C/N)	[dB] 8.05
C/No	[dBHz] 75.81
Eb/No	[dB] 4.67
Info rate	[Mbps] 13.000
Baudrate	[Mbaud] 5.970
Bandwidth	[MHz] 7.164
Efficiency	[bps/ baud] 2.178
	[bps/Hz] 1.815
Frame length	[ms] 3.717
Minimum baudrate	[Mbaud] 0.050
Maximum baudrate	[Mbaud] 72.000



Newtec

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Not applicable
 Correct input value
 Wrong input value

Overhead	
FEC excl. framing overhead	[%] 0.750
Framing overhead	[%] 3.330
FEC incl. framing overhead	[%] 0.726
Encapsulation overhead	[%] 5.100

Rate Information	
Effective IP rate	[Mbps] 12.369
Effective IP efficiency	[bps/Hz] 1.727
Inforate	[Mbps] 13.000
Inforate Efficiency	[bps/Hz] 1.815
Raw data rate	[Mbps] 13.433
Raw data efficiency	[bps/Hz] 1.875

Typical Users

- Mobile Network Operators
- Telecom Operators
- Satellite Service Providers
- Government & Military
- Enterprise
- Offshore

Common Applications


- Mobile Backhaul
- G.703 Trunking
- IP Trunking
- Offshore & Maritime Communications
- Enterprise
- Communications on-the-Move
- Satellite News Gathering

IEEE 1588v2 Precision Time Protocol
 Sub Mux to multiplex IP/Ethernet traffic with serial or G.703 traffic
 Prop & insert for T1/E1
 Enhanced D&I++ for single T1/E1 & quad E1
 Management: 10/100Base-T Ethernet with SNMP, Distant End SNMP Proxy, HTTP, Telnet and EIA-232/EIA-485
 ADIUS Client
 Carrier ID using MetaCarrier® Technology
 Embedded Distant-end Monitor and Control (EDMAC)
 Automatic Uplink Power Control (AUPC)
 Engineering Service Channel (ESC/ESC++)
 Standard high-stability internal reference ($\pm 6 \times 10^{-6}$)
 Tap Adaptive Equalizer
 Band TX: 10 MHz reference for BUC, FSK communications and optional BUC power supply
 Band RX: 10 MHz reference and LNB power supply
 Band: Advanced FSK for LPOD M&C
 T1 and 1:10 redundancy switches available
 Backwards compatible with CDM-625
 Environmentally Resistant version (CDMER-625A) available

Link Budget Analysis Guide

iDX Release 3.1

April 15, 2013



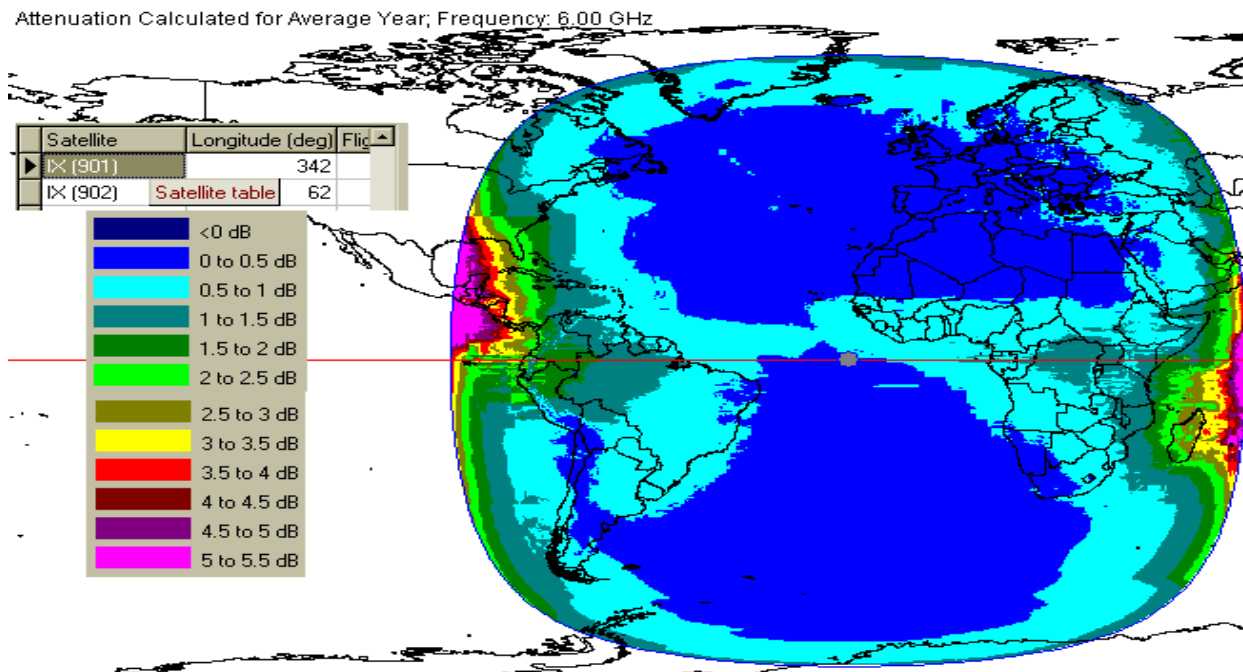
Key Input Data – Rain margins

- Total Link Availability - Performance
 - Up link and down link margins to compensate for attenuation due to rain

•Satellite

•Antenna Location

•Frequency



Application

Availability	99.96%	99.90%	99.60%	99.00%
Number of hours in outage per year	3.5	8.8	35	87.6
Number of days in outage per year	1/6	1/3	1 1/2	3 1/4

Step 3: Defining Carrier Parameters

Digital Carrier Definition

Select From Available Products & Modems...

Carrier Type	? Lease	Information Rate	5000.0	kbits/s
Performance (BER)	10 ⁻⁷	Alloc. BW a=	2.7259	MHz
FEC Code Rate	.6420	Noise BW	2.5961	MHz
R-S Code Rate n=	N/A	Spreading Factor:	1	
Overhead	.0 %	Min Uplink Rain Margin:		dB
Modulation	8QAM	Min Dnlink Degrad. Margin:		dB
Eb/No Threshold	4.6	Total Availability	99.500	% yr
C/N Threshold	7.4	Transmit ES Code	YAO-1M8	Edit ES
U/L Carrier Center Freq.	14372.0000C	Receive ES Code	FUC-9M0	Edit ES
Car/Link	1	Act. Fact.	100	%

Link: 1 1 2

- User Specified
 - LST Calculated

Return Accept Copy Cancel

Step 4: Analyze Link Budget

- Initial link budget evaluation
 - Optimum use of available capacity – Balanced BW/PEB consumption
 - Feasible results
 - Equipment (HPA size, antenna size)
 - Coordination compliance
- Final link budget preparation

Step 4: Analyze Link Budget

Analysis

Link Analysis Description: Carriers: Assigned: 2 Active: 2 Links: Number: 2 Active: 2

	Link 1	Link 2				
Modulation	QPSK	8QAM				
Information Rate	5000.0	5000.0				kbits/s
FEC Code Rate	.7060	.6420				
R-S Code Rate	N/A	N/A				
Clear Sky Eb/No Available	7.2	7.9				dB
Number of Assigned Carriers	1	1				
Transmit ES Code	FUC-9M0	YAO-1M8				
Transmit ES Size	9.0	1.8				m
Receive ES Code	YAO-1M8	FUC-9M0				
Receive ES Size	1.8	9.0				m
Receive ES G/T	22.8	37.3				dB/K
Coordination Limit Check	Passed	Passed				

Total Lease Resource Usage:

LST calculated (MultiCarrier Txpr Lease)		Total BW allocated	6.4440 MHz
MultiCarrier Txpr Lease		Total BW (Power Equival.)	6.2337 MHz
Total EIRP utilized	29.9 dBW	Total BW utilized	6.4440 MHz
Total EIRP available	30.1 dBW	Total BW available	6.5000 MHz
Margin (available - utilized)	.2 dB	Margin (avail. - utiliz.)	.0560 MHz

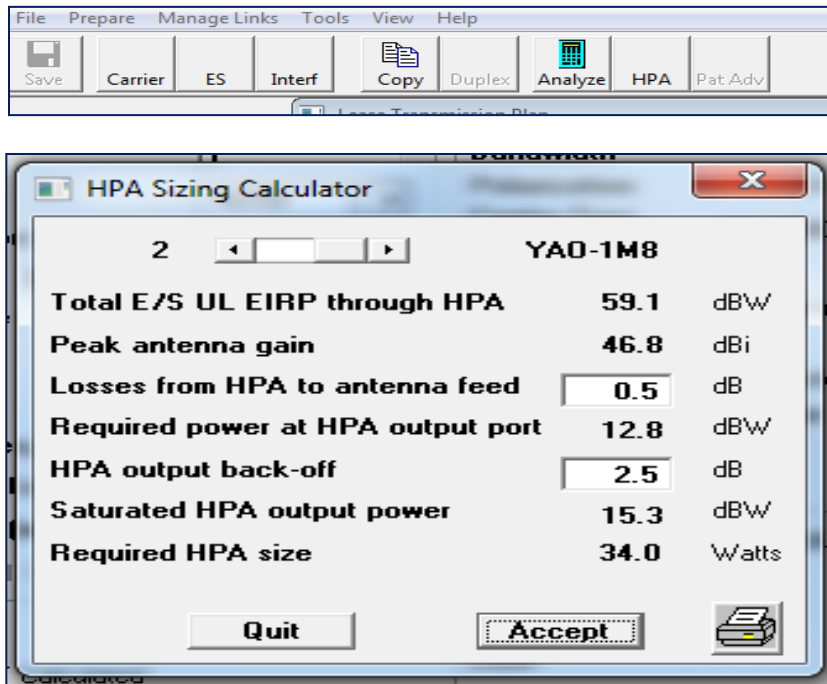
Carrier levels comply with coordination agreements.

Return Report Coordination Compliance Details...

Make sure that *Total BW allocated* and *Total BW (Power Equival.)* are balanced.

Otherwise, iterate the modcods.

Step 4: Analyze Link Budget



- WG losses
- Output back-off (for single carrier transmission, depends on the modulation)
- EIRP/Power density compliance!

Output: Link Budget Report

INTELSAT. <i>Closer, by far</i>		Lease Transmission Plan Program (LST) Lease Summary Information		June 8, 2015	
IS-10 at 47.50 °E		SVO-L Number : 1		Tr. Beam Number : EF16K/EF16K	
LST-plan		Slot : 16		Tr. Cen. Freq. (GHz) : 14.3900 / 12.6420	
Note :					
Beam Uplink (Geog.) : EAFKV	Beam Downlink (Geog.) : EAFKH	Tr BW (MHz) : 36.0			
Beam Uplink (Phys.) : EAFKV	Beam Downlink (Phys.) : EAFKH	Tr BW; (MHz; IESS-410) : 36.0			
Tr. SFD (dBW/m2; BP) : TBD	Tr. IBO (dB) : -6.0	Lease BW usage (MHz) : 6.5			
Tr. SFD (dBW/m2; BE) : -80.0	Tr. OBO (dB) : -3.5	Lease OFD (dBW/m2; BE) : -93.4			
Tr. G/T (dB/K; BE) : -5.0	Tr. EIRP (dBW; BE) : 41.0	Lease EIRP (dBW; BE) : 30.1			
Tr. G/T (dB/K; BP) : 2.3	Tr. EIRP (dBW; BP) : 47.4				
Link Analysis Description:					
MultiCarrier Txpdr Lease		Link 1	Link 2		
Number of links: 2					
Modulation	8QAM	QPSK			
Information Rate	5000.0	5000.0	kbit/s		
FEC Code Rate	.6420	.7060			
R-S Code Rate	N/A	N/A			
Clear Sky Eb/No Available	7.9	7.2	dB		
Number of Assigned Carriers	1	1			
Transmit ES Code	YAO-1M8	FUC-9M0			
Transmit ES Size	1.8	9.0	m		
Receive ES Code	FUC-9M0	YAO-1M8			
Receive ES Size	9.0	1.8	m		
Receive ES G/T	37.3	22.8	dB/K		
Total Leased Resource Usage:					
LST calculated		Total BW allocated	6.4440	MHz	
(MultiCarrier Txpdr Lease)		Total BW PEB	6.2337	MHz	
Total EIRP utilized	29.9 dBW	Total BW utilized	6.4440	MHz	
Total EIRP available	30.1 dBW	Total BW available	6.5000	MHz	
Margin (available-utilized)	.2 dB	Margin (available-utilized)	.0560	MHz	
Notes:					
Communications Systems Engineering		Data Source: IESS 410. Rev. 8b, May 2001.		v:1.8.2	
File:		Saved: File not saved yet.		Pg.1	

INTELSAT. <i>Closer, by far</i>		Lease Transmission Plan Program (LST) Carrier and ES Information		June 8, 2015	
Carrier Information	Link 1	Link 2			
Carrier Type	Lease	Lease			
Performance	10-7	10-7	BER		
Modulation	8QAM	QPSK			
Eb/No Threshold	4.6	3.4	dB		
C/N Threshold	7.4	4.9	dB		
INTELSAT. <i>Closer, by far</i>		Lease Transmission Plan Program (LST) Per Carrier Link Budget Information		June 8, 2015	
Per Carrier UL & DL eirp (Clr-Sky)	Link 1	Link 2			
Transmit ES elevation angle	49.0	22.6	deg.		
Uplink EIRP per carrier	59.1	65.8	dBW		
Pathloss at uplink frequency	207.1	207.8	dB		
Gain of 1 m2 antenna	44.6	44.6	dBi		
Per carrier FD @SC	-103.4	-97.3	dBW/m2		
SC pattern advantage @ES	5.6	1.6	dB		
Per carrier BE FD arriving @ SC	-97.8	-95.7	dBW/m2		
INTELSAT. <i>Closer, by far</i>		Lease Transmission Plan Program (LST) Per Carrier Link Summary & Margin Information		June 8, 2015	
Per Carrier Link Summary	Link 1	Link 2			
Carrier type	Digital	Digital			
Per carrier uplink EIRP	59.1	65.8	dBW		
Per carrier dnlink EIRP	25.7	27.8	dBW		
Per carrier total C/N threshold required	7.4	4.9	dB		
Per carrier total C/N clear sky	10.7	8.7	dB		
Number of active carriers	1.0	1.0			
Total Lease Resource Usage					
Per carrier BE FD arriving @ SC	-97.8	-95.7	dBW/m2		
Total FD @ SC per carrier type	-97.8	-95.7	dBW/m2		
Grand total FD arriving @ SC	-93.6		dBW/m2		
Grand total FD (BE) available	-93.4		dBW/m2		
Margin (*)	.2		dB		
Per carrier BE EIRP	25.7	27.8	dBW		
Total BE EIRP per carrier type	25.7	27.8	dBW		
Grand total EIRP utilized	29.9		dBW		
Grand total EIRP available	30.1		dBW		
Margin (*)	.2		dB		

Step 5: Verification by Intelsat

- For record-keeping:
 - Track link budget changes
- SSOG update:
 - We need a new transmission plan for EVERY change you want to implement
 - Please share both the Link Budget Report AND the .lp5 saved file to speed up the process

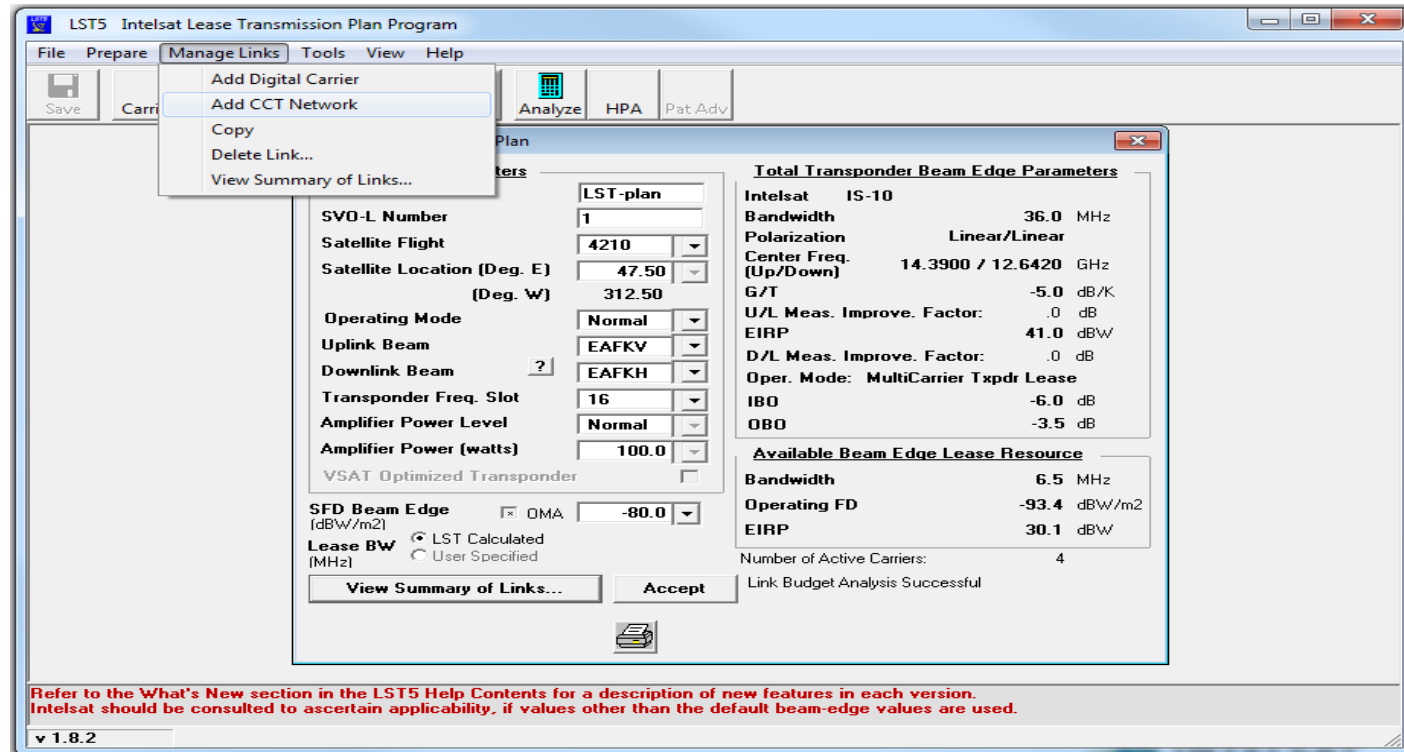
Example 2

- Point to Point link between Fuchsstadt and Yaoundé, Cameroon
- 5Mbps/s full duplex
- 1.8 m antenna in Yaoundé
- IS-10 @ 47.5°E
- Transponder EF16K
- Comtech cdm625A used at remote

- Same assumptions, but this time assuming CCT operation.

CCT analysis

- Steps 1,2 are exactly the same.
 - CCT is not compatible with cross strap – both E/Ss must transmit and receive on the same beam!
- Step 3



CCT analysis

CCT Network Definition

CCT Network ID: Center Frequency (MHz):
Number of Networks to Consider: Frequency Separation (MHz):

Dir	Tx ESA	Rx ESA	Info Rate (kbps)	Modem Model	Modulation & Coding	Roll-Off Factor	Cancellation Gain at Tx (dB)	Availability (% yr)	U/L Rain Margin (dB)	D/L Rain Margin (dB)
Out	FUC-9M0	YAO-1M8	5000	CDM-625A	QPSK; .6110 FEC; 1.90 dB Eb/No	-.05	26.0	99.50		
In	YAO-1M8	FUC-9M0	5000	CDM-625A	QPSK; .6110 FEC; 1.90 dB Eb/No	-.05	26.0	99.50		

<Footer>

- Tx ESA, Rx ESA, Info Rate, Modem model, Roll-off Factor and Availability/Rain Margins must be defined.
- LST5 determines the optimal configuration from the set of available modcods (*Determine Optimal Configuration...*).

CCT analysis

Analysis

Link Analysis Description: Carriers: Assigned: 2 Active: 2 Links: Number: 2 Active: 2

	Link 1	Link 2				
Modulation	QPSK	QPSK				
Information Rate	5000.0	5000.0				kbits/s
FEC Code Rate	.6110	.6110				
R-S Code Rate	N/A	N/A				
Clear Sky Eb/No Available	5.8	5.1				dB
Number of Assigned Carriers	1	1				
Transmit ES Code	FUC-9M0	YAO-1M8				
Transmit ES Size	9.0	1.8				m
Receive ES Code	YAO-1M8	FUC-9M0				
Receive ES Size	1.8	9.0				m
Receive ES G/T	22.8	37.3				dB/K
Coordination Limit Check	Passed	Passed				

Total Lease Resource Usage:

LST calculated	(MultiCarrier Txpdr Lease)	Total BW allocated	4.2962 MHz
MultiCarrier Txpdr Lease		Total BW (Power Equival.)	3.9689 MHz
Total EIRP utilized	27.9 dBW	Total BW utilized	4.2962 MHz
Total EIRP available	28.3 dBW	Total BW available	4.3000 MHz
Margin (available - utilized)	.3 dB	Margin (avail. - utiliz.)	.0038 MHz

Carrier levels comply with coordination agreements.

CCT analysis

- Verifications on steps 4,5 must be carried out as described for non-CCT links.
- Quick overview of the results
 - a) Non CCT network
 - 6.5MHz
 - 34W HPA required at the remote
 - b) CCT network
 - 4.3MHz
 - 17.8W HPA required at the remote

Additional functionalities: Location Performance Report

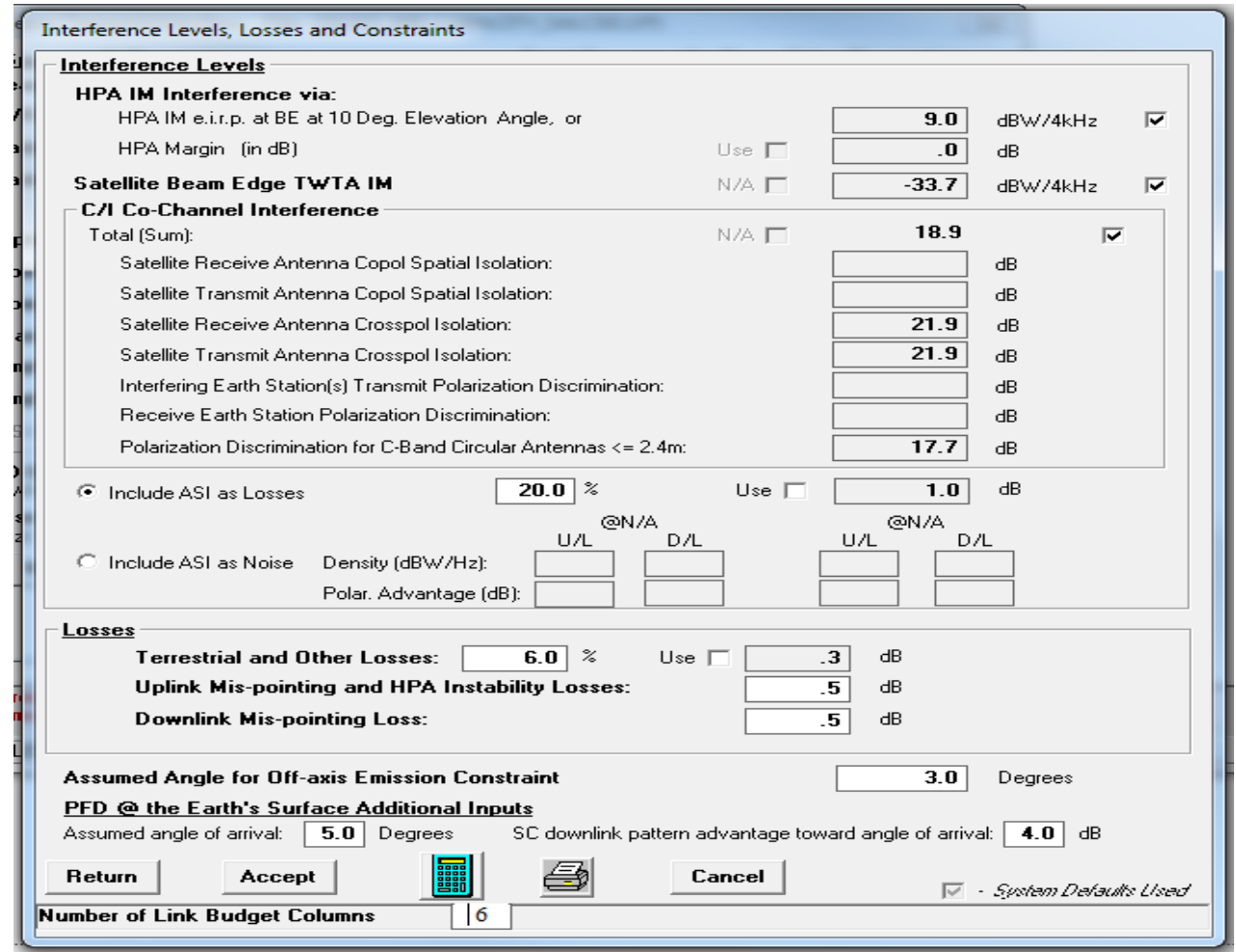
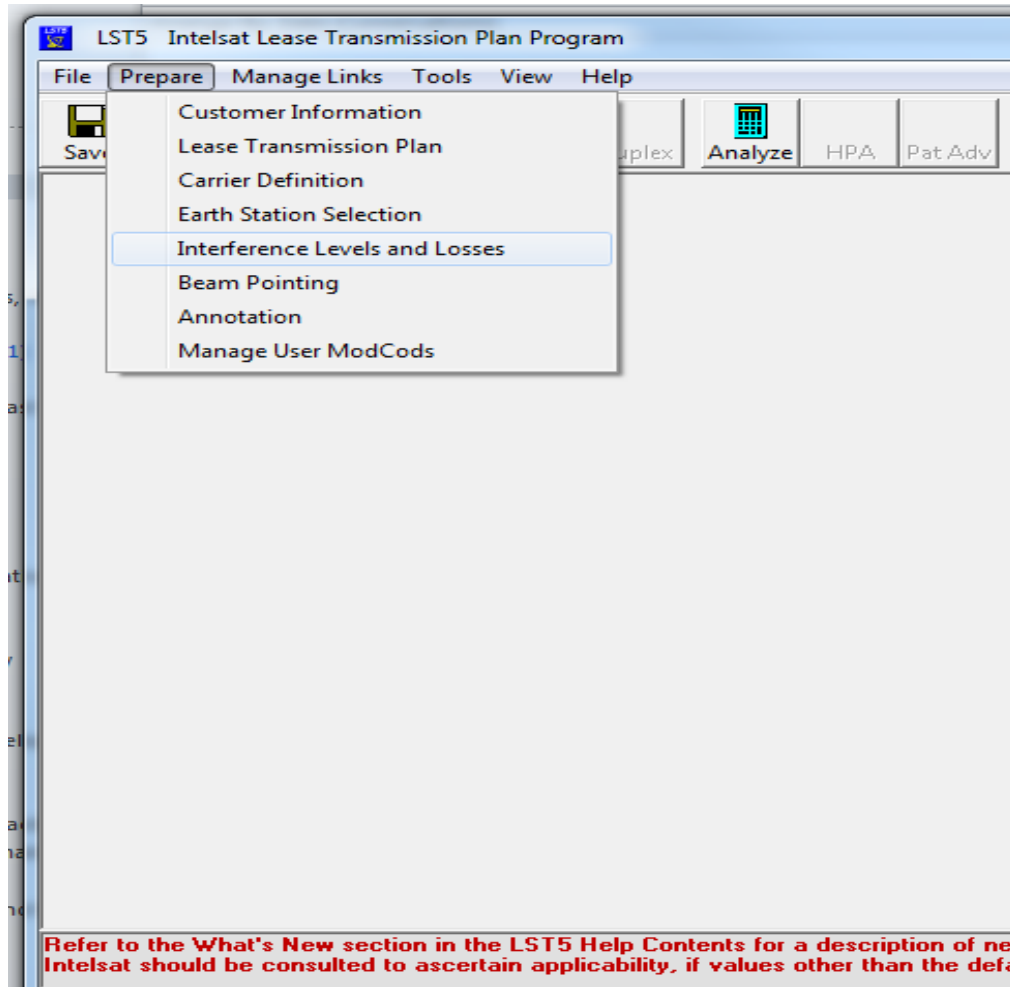
- Available in Tools > Location Performance Report
- Easy understanding of the worst case location within a country in terms of G/T, EIRP and elevation angle.

The screenshot shows a software window titled "Performance Report". It features input fields for "Country" (set to Cameroon), "Province/State", and "City (Lat, Lon)". There are buttons for "Add All Cities" and "Add City". A section for "Transponder Performance & Gain Grid Data" has radio buttons for "Representative" (selected) and "Measured". Below these is a table with the following data:

Location	Latitude [° N]	Longitude [° E]	Sat. G/T [dB/K]	SFD* [dBW/m2]	G/T Delta [dB]	Satr. EIRP [dBW]	EIRP Delta [dB]	Elevation Angle [°]
Cameroon, Abong Mbang	3.98	13.17	1.0	-86.0	1.3	46.3	1.1	49.9
Cameroon, Afade	12.23	14.63	-.9	-84.1	3.2	44.4	3.0	49.5
Cameroon, Akok	2.77	10.30	1.6	-86.6	.7	47.1	.3	46.8
Cameroon, Akom	2.62	10.07	1.6	-86.6	.7	47.0	.4	46.5
Cameroon, Akonolinga	3.78	12.25	1.4	-86.4	.9	46.7	.7	48.9
Cameroon, Akouaya	6.50	9.67	2.1	-87.1	.2	47.1	.3	45.6
Cameroon, Akwaya	6.50	9.67	2.1	-87.1	.2	47.1	.3	45.6
Cameroon, Ambam	2.38	11.28	1.4	-86.4	.9	47.0	.4	47.9
Cameroon, Ayos	3.90	12.52	1.3	-86.3	1.0	46.6	.8	49.2

At the bottom of the window are buttons for "Paste", "Delete Rows", "Clear All", "Grid of Points...", "Compute All", "Generate Report...", and "Close".

Impairments on LST5



MyIntelsat Overview

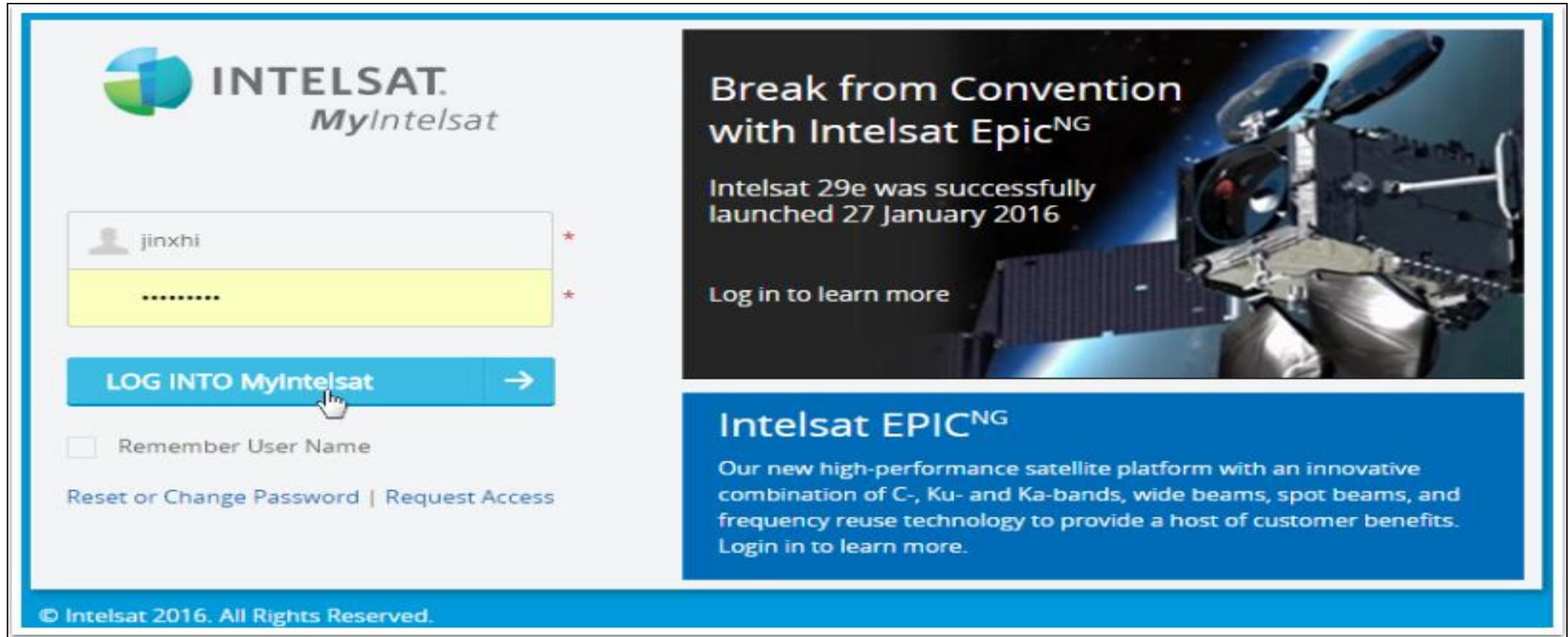


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 - Service information
 - OU capacity, booking information and reports
 - Antennas management
 - Transmission plans management
 - Calculators
 - Satellite information
 - Contacts management
 - Resources

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MyIntelsat Components

Toolbar

	Dashboard Newest Full-time Services Open Service Tickets Recent Invoices OU Pending Charges My Contacts
	Services Full-Time Services Service Tickets Invoices Contract Terms and Conditions
	Occasional Use (OU) Services Active OU Video Capacity Booking Information Major OU Video Routes Routing Log Pending Charges
	Antenna Registration Manager (ARM) Antenna Manager Bulk Update Add New Antenna Antenna Templates
	RF Manager Active RF Capacity Transmission Plans Carrier Templates
	Tools Sun Interference Calculator Lease Transmission Plan (LST5) Azimuth/Elevation Calculator G/T Calculator
	Fleet Detailed Coverage Maps Payload Configuration Notes (PRM)
	Contacts Technical Contacts My Contacts Account Team
	Resources Training & Documentation Satellite Data IntelsatOne Security

Dashboard

- Newest full-time services
- Newest open service tickets
- Recent invoices
- Contacts
- Quick links to popular pages
 - Sun Interference
 - Download LST5
 - Coverage Maps
 - Payload Configuration
 - Training & Documentation
 - Report Service Issue


Dashboard

Home | 0208

-
-
-
-
-
-
-

Full-Time Services Showing 1 to 5 of 28 entries | [See More](#)

SVO	Service Label	Connectivity	Start Date	End Date
1-20000	Network Services On-Net Capacity 36 MHz G-28 NAKV/NAKH KV612/KH612	G-28@271.0°E KV612/KH612	16 Sep 2005	15 Sep 2016
1-20000	Network Services On-Net Capacity 36 MHz G-28 NAKV/NAKH KV618/KH618	G-28@271.0°E KV618/KH618	09 Sep 2005	08 Sep 2020
1-20000	Network Services On-Net Capacity 34 MHz G-28 NAKV/NAKH KV614/KH614	G-28@271.0°E KV614/KH614	09 Sep 2005	08 Sep 2020
1-20000	Network Services On-Net Capacity 3.3 MHz IS-903 WH/WH 11/11	IS-903@325.5°E 11/11	23 Mar 2005	22 Jul 2016
1-20000	Network Services On-Net Capacity 3.7 MHz IS-902 ME/NW 124/44	IS-902@62.0°E 124/44	01 Jun 2006	09 Aug 2016

Service Tickets Showing 1 to 3 of 5 entries | [See More](#)

Ticket ID	Services	Open Date	Status	Current Impact
TT:120717-047	IS-903@325.5°E 11/11	17 Jul 2012	Open	No Impact
TT:130319-029	IS-902@62.0°E 124/44	19 Mar 2013	Open	No Impact
TT:130725-003	IS-903@325.5°E 11/11	25 Jul 2013	Open	No Impact

Recent Invoices Showing 1 to 3 of 422 entries | [See More](#)

Invoice Number	Invoice Period	Invoice Type
Invoice 07768	M12 2015	Monthly Concurrent Invoice
Invoice 07769	M12 2015	Monthly Concurrent Invoice
Invoice 07770	M11 2015	Monthly Arrears Invoice

OU Pending Charges ?

Your company does not currently have any pending charges.

My Contacts Showing 1 to 3 of 53 entries | [See More](#)

Name	Title	Email	Phone(s)
Andrew B.S. Carrasco		ane-techs@verizon.com	p: (207) 364-7871
April Hoffman	VSAT Project Engineer	april.hoffman@verizon.com	p: +1 919-377-7285
Art Shrader	Engineer	art.shrader@verizon.com	p: (972) 578-7163

[SUN INTERFERENCE CALCULATOR](#) →

[LST5](#) →

[SATELLITE COVERAGE MAPS](#) →

[PAYLOAD CONFIGURATION NOTES](#) →

[TRAINING & DOCUMENTATION](#) →

[REPORT SERVICE ISSUE](#) →

News

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Services Page

INTELSAT MyIntelsat Services

Full-Time Services Showing 10 of 29

SVO	Service Label	Connectivity	Start Date	End Date
1-2X3SS	Network Services On-Net Capacity 36 MHz G-28 NAKV/NA	E KV612/KH612	16 Sep 2005	15 Sep 2016
1-2X3DX	Network Services On-Net Capacity 36 MHz G-28 NAKV/NA	E KV618/KH618	09 Sep 2005	08 Sep 2020

Showing 10 of 29 entries

Service Tickets Showing 5 of 5

Ticket ID	Services	Open Date	Status	Current Impact	Source	Category	Subcategory
TT-120717-047	SVO: 1-2X3VM	17 Jul 2012	Open / Assigned	No Impact	3rd Party	Infrastructure	Other

Showing 5 of 5

Invoices Showing 10 of 422

Number	Period	Date	Type	Billing Inquiry
006248-010631-003341	M01 2006	01 Jan 2006	Monthly Concurrent Invoice	?

Showing 10 of 422

1st 10 records with links to see more

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Full-Time Services

- **Search for all types of full-time services in one screen**
 - Contact Number
 - Service Order
 - Service Type
(list is based on customer's portfolio)
 - Orbital Location
 - Status
 - Start Date / End Date range
- **Drilldown to Service Details**
- **Download list of services**

The screenshot displays the 'Services' section of the INTELSAT MyIntelsat portal. It features a search interface for 'Full-Time Services' with filters for Contract, Service Order, Service Type, Orbital Location | Satellite, Status, and Service Activation. A table below shows 28 full-time services found, with columns for SVO, Service Label, Connectivity, Start Date, and End Date. Red annotations highlight the 'Download Service List' button, the 'Click SVO for Service Details' button, and the 'EXCEL' download icon.

SVO	Service Label	Connectivity	Start Date	End Date
1-2X3SS				
1-2X3TX				



Lease Details

- Contract details
- All Service Tickets
- Transmission Plan
 - Download OLM

All full-time service details in one screen

INTELSAT MyIntelsat | Services

Network Services On-Net Capacity | [Contract#] | [Orbital Location] | [Satellite] | [Beams]

General Information

Contract# [Contract#]

Service SVO# [Service SVO#]

Sub Product: Network Services On-Net Capacity

Solution Application: Corporate Networks (VSAT)

Service Specification

Orbital Location [Orbital Location]

Satellite [Satellite]

Beams [Beams]

Transponder [Transponder]

Bandwidth [MHz] [Bandwidth [MHz]]

Teleport [Teleport]

Forward Data Rate [Forward Data Rate]

Return Data Rate [Return Data Rate]

Contract Information

Status: FULLY EXECUTED

Start Date [Start Date]

End Date [End Date]

Monthly Charge [Monthly Charge]

Service Label:
Product | Capacity | S/C | Beam | Xpdr

Service Tickets

Ticket ID	Current Service Impact	Open Date (GMT)	Sub Status	Type	Source
TT:1					
TT:1					
TT:1					

Items per Page: 10

Transmission Plan

[Download OLM](#)

Service Type	Status	UpLink Center Frq (MHz)	Info Rate (Kbps)	Allocated B/W (MHz)	FEC	Calc. UpLink EIRP	TX - ESA	Calc. DnLink EIRP@B/P	RX - ESA	Calc. Co+No/No (dB)
BSN										
BSN										
BSN										
BSN										

Page 1 of 7

Items per Page: 10

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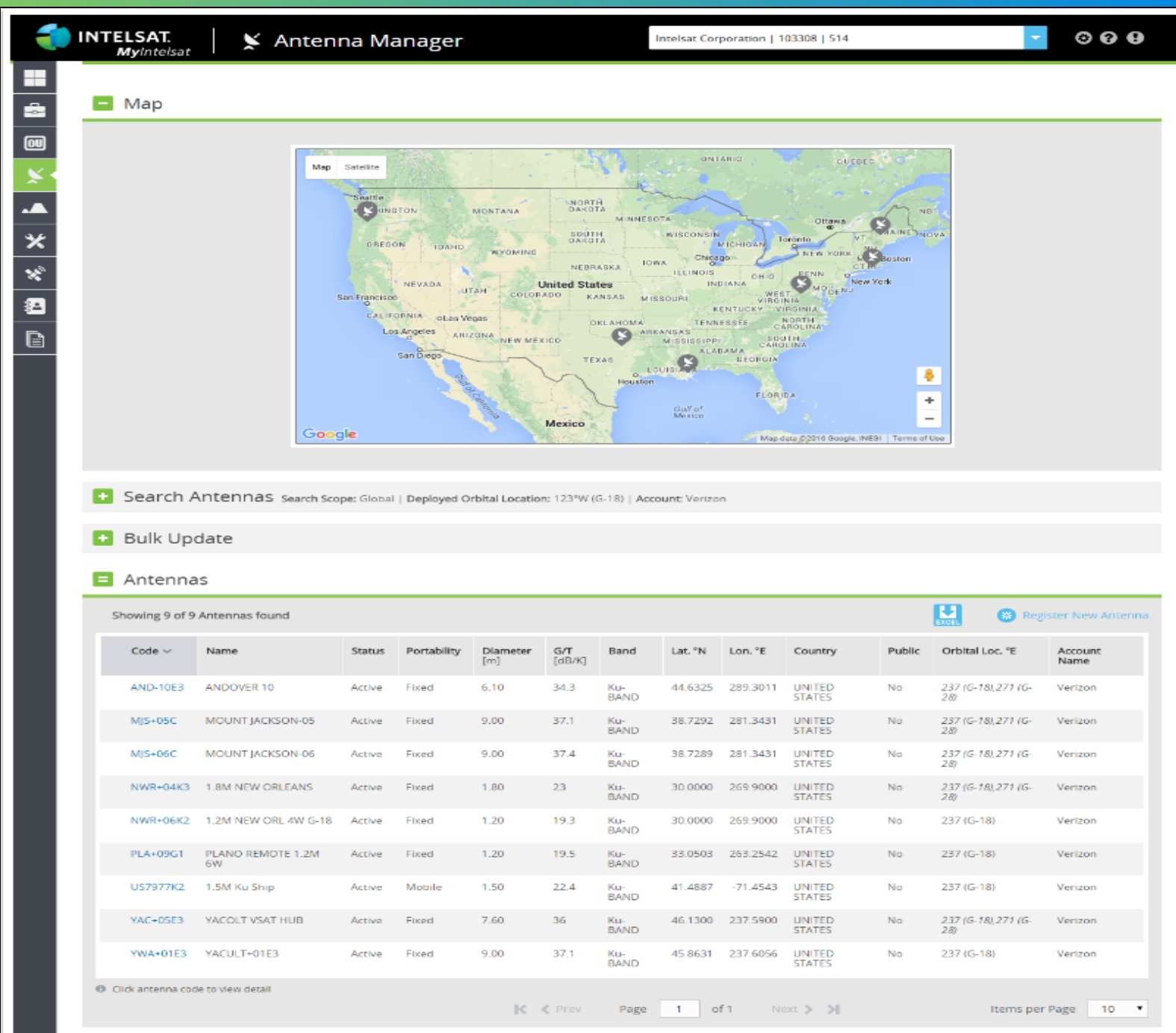
Service Tickets

- **Search for tickets by:**
 - SVO
 - Ticket ID, Type, Category or Source
 - Status
- **Drill down to ticket details**
 - Request update
 - Download impacted services

The screenshot displays the INTELSAT MyIntelsat Services interface. At the top, the header includes the INTELSAT logo and the word "Services". Below the header is a search bar and a navigation menu. The main content area is titled "Search Service Tickets" and includes several filters: Service Identifier (All), Ticket ID (Type something...), Ticket Type (All), Ticket Category (All), Ticket Source (All), Status (Open), and a checkbox for "Closed in the last 30 days". There are "Search" and "Reset" buttons. Below the filters, a table shows "2 Service Tickets found." with columns for Ticket ID, Services, Open Date, Status, Current Impact, Type, Source, Category, and Subcategory. A red arrow points from a ticket in this table to a detailed view of a ticket. The detailed view shows ticket information such as Ticket Type (Interference), Source (3rd Party), Status (Open), and Current Impact (Degraded). It also includes a "Request Update" button and a "Download impacted services" button. Below the ticket details, a table shows "1 Impacted Service found." with columns for Service, Related SVO, Current Impact, Max Impact, and Total Duration.

Antenna Registration Manager (ARM)

- Self-serve antenna registration
- Location validation on maps
- Clone antennas
- Correct existing records
 - Including location adjustments
 - Bulk status changes
- Ability to designate public antennas (*Intelsat teleport antennas are public*)
- Export antennas - sun interference calculation



INTELSAT MyIntelsat | Antenna Manager | Intelsat Corporation | 103308 | 514

Map

Search Antennas Search Scope: Global | Deployed Orbital Location: 123°W (G-18) | Account: Verizon

Bulk Update

Antennas

Showing 9 of 9 Antennas found

Code	Name	Status	Portability	Diameter [m]	G/T [dB/K]	Band	Lat. °N	Lon. °E	Country	Public	Orbital Loc. °E	Account Name
AND-10E3	ANDOVER 10	Active	Fixed	6.10	34.3	Ku-BAND	44.6325	289.3011	UNITED STATES	No	237 (G-18), 271 (G-28)	Verizon
MJS+05C	MOUNT JACKSON-05	Active	Fixed	9.00	37.1	Ku-BAND	38.7292	281.3431	UNITED STATES	No	237 (G-18), 271 (G-28)	Verizon
MJS+06C	MOUNT JACKSON-06	Active	Fixed	9.00	37.4	Ku-BAND	38.7289	281.3431	UNITED STATES	No	237 (G-18), 271 (G-28)	Verizon
NWR+04K3	1.8M NEW ORLEANS	Active	Fixed	1.80	23	Ku-BAND	30.0000	269.9000	UNITED STATES	No	237 (G-18), 271 (G-28)	Verizon
NWR+06K2	1.2M NEW ORL 4W G-18	Active	Fixed	1.20	19.3	Ku-BAND	30.0000	269.9000	UNITED STATES	No	237 (G-18)	Verizon
PLA+09G1	PLANO REMOTE 1.2M 6W	Active	Fixed	1.20	19.5	Ku-BAND	33.0503	263.2542	UNITED STATES	No	237 (G-18)	Verizon
US7977K2	1.5M Ku Ship	Active	Mobile	1.50	22.4	Ku-BAND	41.4887	-71.4543	UNITED STATES	No	237 (G-18)	Verizon
YAC-05E3	YACOLT VSAT HUB	Active	Fixed	7.60	36	Ku-BAND	46.1300	237.5900	UNITED STATES	No	237 (G-18), 271 (G-28)	Verizon
YWA+01E3	YACULT-01E3	Active	Fixed	9.00	37.1	Ku-BAND	45.8631	237.6056	UNITED STATES	No	237 (G-18)	Verizon

Click antenna code to view detail

Page 1 of 1

Items per Page 10

ARM Search

- Integrated search and bulk update
- Search your registered antennas plus “public” antennas registered by other customers

The screenshot displays the IntelSat MyIntelsat Antenna Manager interface. At the top, the IntelSat logo and 'MyIntelsat' are visible on the left, and 'Antenna Manager' is in the center. The user's account information, 'Intelsat Corporation | 103308 | 532', is shown on the right. A sidebar on the left contains navigation icons for Home, Search, Add, Edit, and Print.

The main content area is divided into three sections:

- Map:** A placeholder for a map view.
- Search Antennas:** A search filter section with the following options:
 - Search Scope: My Public Antennas
 - Registered Code: Intelsat-issued code...
 - Antenna Name: Type something...
 - Country: Type something...
 - City: Type something...
 - Band: All
 - Deployed Orbital Location: Any
 - Registered Orbital Location: Any
 - Effective Diameter [m]: Type something...
 - Antenna Status: Active
 - Account: Any
- Bulk Update:** A section with a dropdown menu for 'Bulk Actions' set to 'Please select'.
- Antennas:** A table showing search results. The table has 13 columns: Code, Name, Status, Portability, Diameter [m], G/T [dB/K], Band, Lat. °N, Lon. °E, Country, Public, Orbital Loc. °E, and Account Name. It shows 10 of 132 antennas found.

At the bottom of the interface, there is a footer with the text: 'Copyright ©2016 Intelsat. All Rights Reserved. Contact MyIntelsat | Terms of Use | Privacy Policy | Site Map'.

Code	Name	Status	Portability	Diameter [m]	G/T [dB/K]	Band	Lat. °N	Lon. °E	Country	Public	Orbital Loc. °E	Account Name
ATL-K15	ATL-K15	Active	Fixed	9.00	37	Ku-BAND	33.6597	275.7300	UNITED STATES	Yes	315 (IS-14)	Intelsat Corporation
CRK-C12	CRK-C12 (CC7)	Active	Fixed	4.80	25	C-BAND	39.2772	255.1900	UNITED STATES	Yes	263 (G-19)	Intelsat Corporation
CRS-04F1	CA6,148,48,69,81,85	Active	Fixed	4.50	24.7	C-BAND	-33.0000	299.2167	ARGENTINA	Yes	307 (IS-23)	Intelsat Corporation
CSC-06H3	CALAFATE (84)	Active	Fixed	2.40	21.4	C-BAND	-50.3333	287.7333	ARGENTINA	Yes	307 (IS-23)	Intelsat Corporation
CTG-01H3	CENT GRAL ROCA(12)	Active	Fixed	2.40	21.4	C-BAND	-39.0333	292.4332	ARGENTINA	Yes	307 (IS-23)	Intelsat Corporation



Antenna Detail

- Register new and manage existing antennas
- Place antennas directly on map
- Ability to set an orbital location at registration time

INTELSAT MyIntelsat | **Antenna Manager** | Acme Americas | 123400 | 219

Editing Antenna: ALT-0DH3

Account Name	Acme Americas	Latitude	<input type="radio"/> D/M/S <input type="radio"/> Decimal
Name *	<input type="text" value="Test 23"/>	Latitude	N 33 45 0
Frequency Band *	<input type="text" value="C-BAND"/>	Longitude	W 84 0 0
Shape *	CIRCULAR	Nearest City	CONYERS
Effective Diameter [m] *	<input type="text" value="2.4"/>		
Nominal G/T [dB/K]	19.5		
Polarization Type	Circular		
Portability *	<input type="text" value="Fixed"/>		
Status	Registered		
Orbital Location:			
Per SSOG Records	-		
Registered	<input type="text" value="99°W (G-16)"/>		
Visible to other Intelsat Customers	<input type="checkbox"/>		

Last modified: Sat, 26 Mar 2016 21:37:45 GMT By: braim

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Designed to help customers independently manage their space segment services

Features:

- Active RF capacity by transponder
- Current transmission plan
- Graphical depiction of carrier frequency and power
- Confidence depiction of lease spectrum (when available)
- Quick updates of transmission plan
- Integrated LST5-style link analysis with validation
- Submission for SSOG



Dashboard

- Recent transmission plans
- Contracted capacity
 - Service
 - Total BW
 - Available BW
 - Total power
 - Available power
 - Beam up
 - Beam down

The screenshot displays the INTELSAT RF Manager interface. At the top, the INTELSAT logo and tagline 'Envision. Connect. Transform.' are visible, along with the 'RF Manager' title and an account dropdown menu. The main content area is titled 'RFM Dashboard' and includes a search bar. Below this, there are two primary sections:

RF Transmission Plans

Showing 1 to 2 of 2 entries | [See All \(2\)](#)

Name	Satellite	Transponder	Updated	Status
Demo 1	Intelsat 14	UPBR/UPBK	3 Jun 2015	New
Demo 2	Intelsat 14	UPBR/UPBK	3 Jun 2015	New

Active RF Capacity

Showing 1 to 10 of 18 entries | [See All \(18\)](#)

Service	My Total BW [MHz]	My Avail. BW [MHz]	My Total Power [dBW]	My Avail. Power [dBW]	Beam Up	Beam Down
Intelsat 14 (UPBR) - 140100	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBK) - 140200	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBR) - 140300	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBK) - 140400	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBR) - 140500	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBK) - 140600	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBR) - 140700	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBK) - 140800	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBR) - 140900	100	100	20.0	20.0	100%	100%
Intelsat 14 (UPBK) - 141000	100	100	20.0	20.0	100%	100%



Capacity Detail

- **Satellite Data**

- SFD
- EIRP
- G/T
- Service order
- Contracted power / BW

- **Coverage map**

- Antenna locations when carrier is selected

Satellite Data

Satellite Name	Intelsat 14	Beams (Up / Down)	UEFKH / UEFKV	Service Order(s)	000000-10
Orbital Location	315.00 °E	Polarization (Up / Down)	Horizontal / Vertical	My Bandwidth	00000000
		Transponder	UF8K / UF8K	My Power	00000000
		SFD @ Beam Peak	-94.00 dBW/m ²		
		Saturated EIRP @ Beam Peak	54.30 dBW		
		G/T @ Beam Peak	9.30 dB/K		

Satellite / Beam Map

Elevation Angle:

- None
- 0°, 5°, 10°
- 0°, 5°, 10°, 20°

Beam Contour(s):

- Uplink
- Downlink
- Both

Legend:

- Satellite
- Tx Antenna
- Rx Antenna(s)
- Tx/Rx Antenna(s)

Screen layout subject to change

Capacity Detail

- **Satellite Data**

- SFD
- EIRP
- G/T
- Service order
- Contracted power / BW

- **Capacity Loading**

- Utilization
- Frequency range

- **Spectrum**

The screenshot displays the 'Active RF Capacity' page in the INTELSAT MyIntelsat RF Manager. The interface includes a search bar at the top right and a sidebar with navigation icons on the left. The main content is organized into several sections:

- Satellite Data:** A table providing key parameters for Intelsat 14.

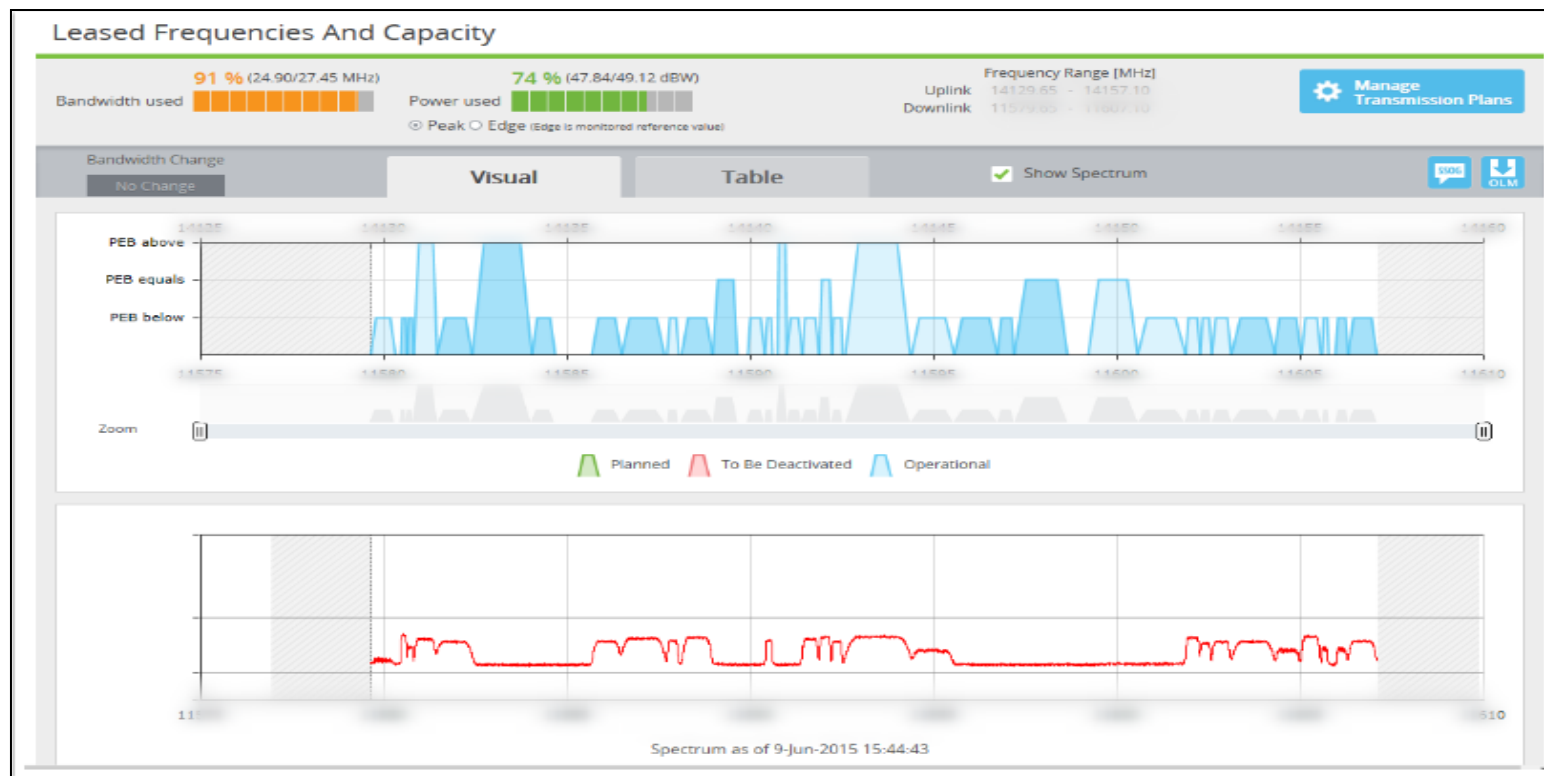
Satellite Name	Intelsat 14	Beams (Up / Down)	EAFV / EAFCH	Service Order(s)	
Orbital Location	315.00 °E	Polarization (Up / Down)	Vertical / Horizontal	My Bandwidth	5.40 MHz
Transponder		SFD @ Beam Peak	-89.00 dBW/m ²	My Power	33.46 dBW
Saturated EIRP @ Beam Peak	46.20 dBW	G/T @ Beam Peak	4.40 dB/K		
- Satellite / Beam Map:** A section for visualizing the satellite's position and beam coverage.
- My Capacity Loading:** A section showing utilization metrics. It features two progress bars: 'Bandwidth used' at 99% (5.36/5.40 MHz) and 'Power used' at 60% (31.23/33.46 dBW). It also displays the frequency range for uplink (6132.60 - 6138.00 MHz) and downlink (3907.60 - 3913.00 MHz) and includes a 'Manage Transmission Plans' button.
- Visual / Table / Show Spectrum:** A section with tabs for different views. The 'Visual' tab is active, showing a graph of Power Error Budget (PEB) over frequency. The graph has three horizontal lines: 'PEB above', 'PEB equals', and 'PEB below'. A blue area under the 'PEB equals' line represents the active capacity loading. A zoom slider is located below the graph.
- Carrier Status filter:** A filter section with three options: 'Planned' (checked), 'Operational', and 'To Be Deactivated'.
- Spectrum:** A section showing a red line graph of the spectrum, with a frequency marker at 3910 MHz. The caption below reads 'Spectrum as of 26-Mar-2016 19:19:24'.

At the bottom of the page, there is a footer with the text: 'Copyright ©2016 Intelsat. All Rights Reserved. Contact MyIntelsat | Terms of Use | Privacy Policy | Site Map'.



Active Transmission Plan

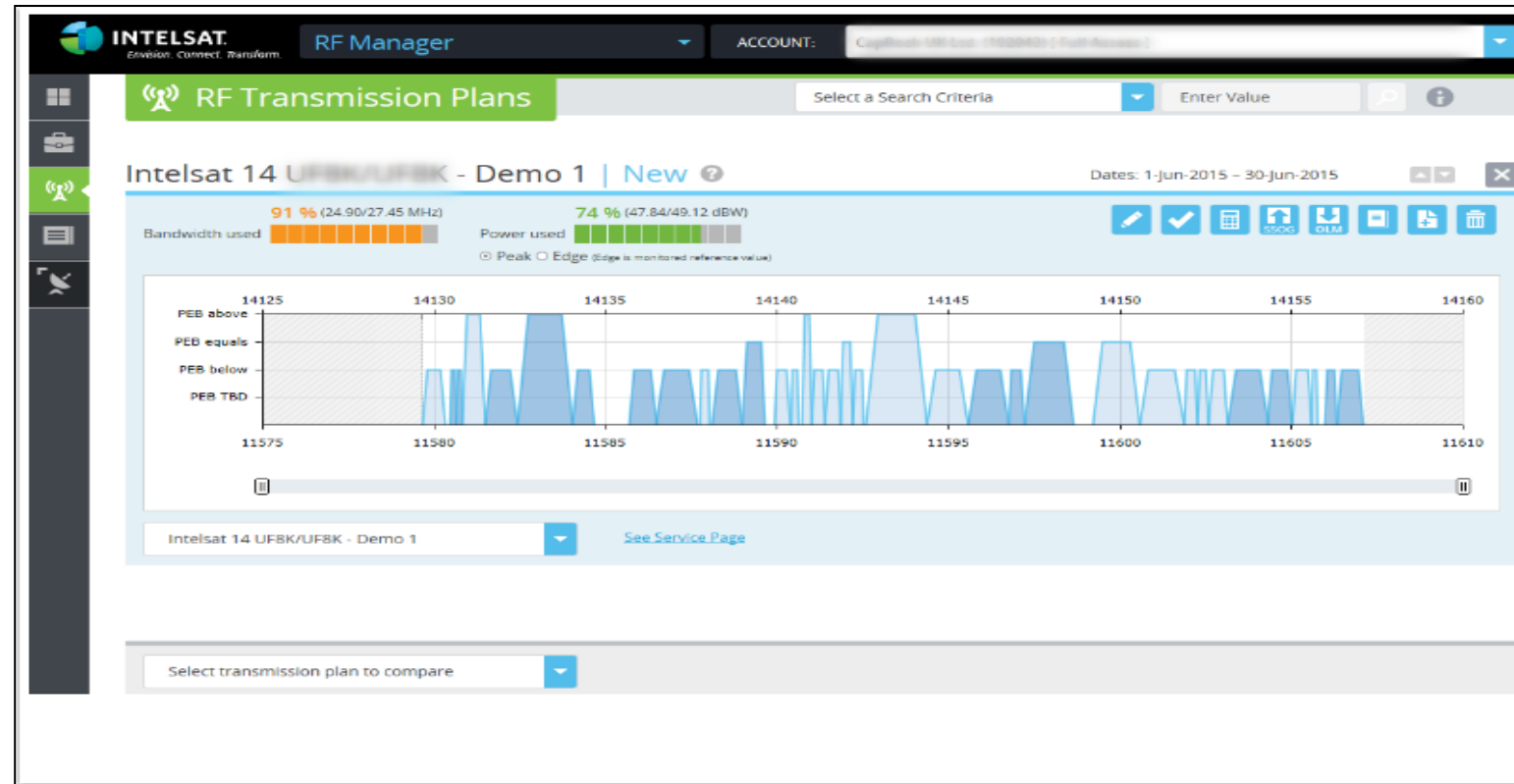
- **Capacity Loading**
 - Utilization
 - Frequency range
- **View SSOG**
- **Download OLM**
- **Spectrum**



Screen layout subject to change

Update Your Transmission Plans

- Create, move, delete carriers
- Run link analysis
- Validate plan
- Submit for SSOG



Screen layout subject to change

- Direct link to ARM
- Ability to save and reuse modem and link parameters
- Ability to label carriers

The screenshot shows the 'Edit Carrier' interface with the following details:

- Carrier ID:** 19144664
- Carrier Label:** [Empty text field]
- Make CCT:**
- Center Frequency:** Uplink [MHz] [Empty field with error message: "This field is required."], Downlink [MHz] 11.569020
- Earth Station Antennas:**
 - Transmit (Tx):**

Code	Size	Gain	Location	For Analysis
ABE-18E1	3.8 m	53.20 dBi	57.10°N, 0.00°W	<input type="checkbox"/>
 - Receive (Rx):**

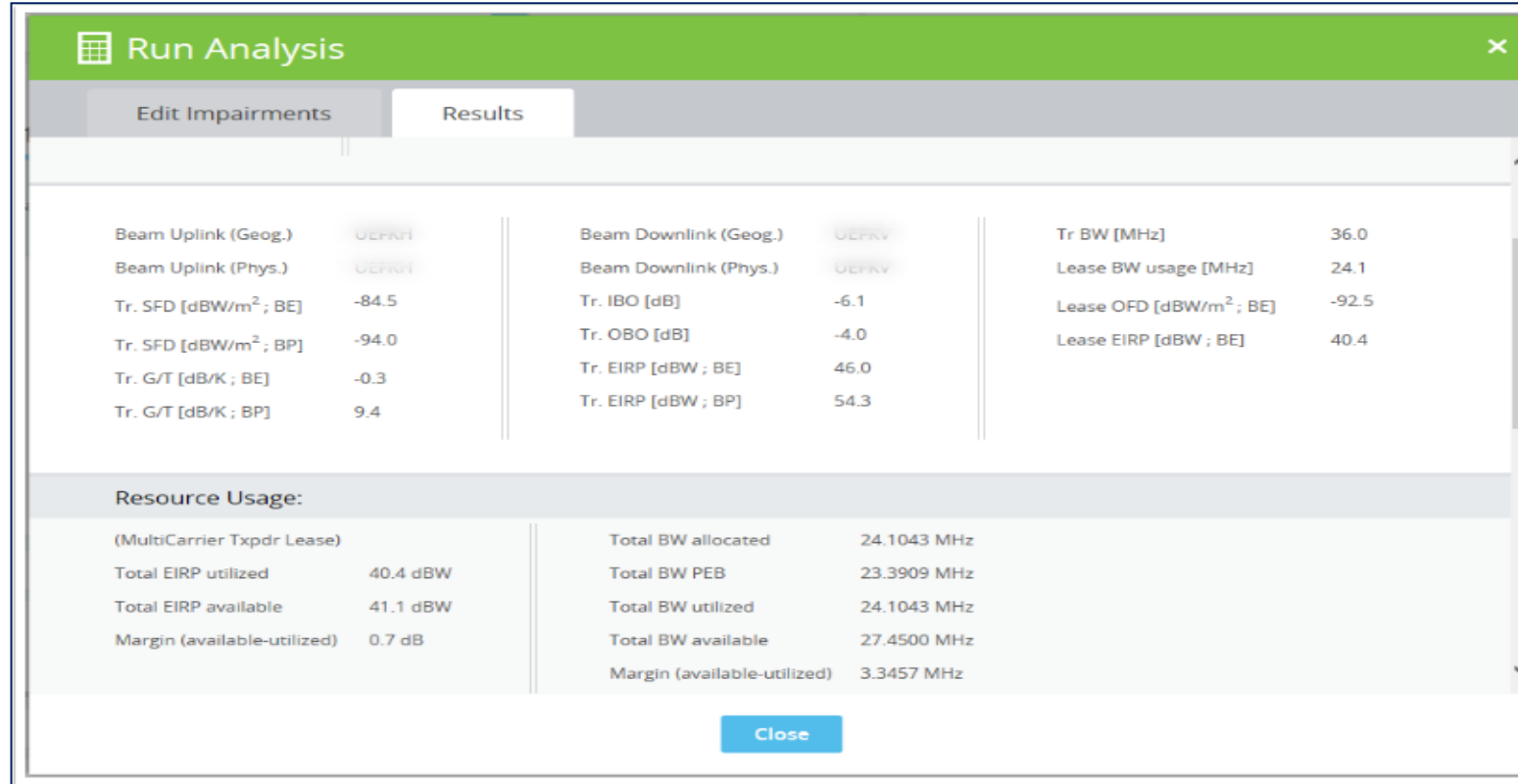
Code	Size	G/T	Location	For Analysis
US0653G	1 m	16.10 dB/K	13.65°N, 0.00°W	<input type="checkbox"/>
- Modem and Link Parameters:**
 - Load from Template:** Select template... [Dropdown]
 - Save as Template:**
 - Data Rate / Bandwidth:**
 - Info Rate [Mbps]:** 1.5690 (Selected)
 - Data Rate [Mbps]:** 1.5690
 - Symbol Rate [Msps]:** 1.4746
 - Allocated BW [MHz]:** 1.7663

Buttons: Save, Cancel

Screen layout subject to change

Link Analysis

- Resource usage
- Link parameters
- Results like LST5



The screenshot displays the 'Run Analysis' window with two tabs: 'Edit Impairments' and 'Results'. The 'Results' tab is active, showing a table of link parameters and a section for resource usage.

Beam Uplink (Geog.)		UEPRN	Beam Downlink (Geog.)		UEPRN	Tr. BW [MHz]		36.0
Beam Uplink (Phys.)		UEPRN	Beam Downlink (Phys.)		UEPRN	Lease BW usage [MHz]		24.1
Tr. SFD [dBW/m ² ; BE]		-84.5	Tr. IBO [dB]		-6.1	Lease OFD [dBW/m ² ; BE]		-92.5
Tr. SFD [dBW/m ² ; BP]		-94.0	Tr. OBO [dB]		-4.0	Lease EIRP [dBW; BE]		40.4
Tr. G/T [dB/K; BE]		-0.3	Tr. EIRP [dBW; BE]		46.0			
Tr. G/T [dB/K; BP]		9.4	Tr. EIRP [dBW; BP]		54.3			

Resource Usage:					
(MultiCarrier Txpr Lease)		Total BW allocated		24.1043 MHz	
Total EIRP utilized	40.4 dBW	Total BW PEB	23.3909 MHz		
Total EIRP available	41.1 dBW	Total BW utilized	24.1043 MHz		
Margin (available-utilized)	0.7 dB	Total BW available	27.4500 MHz		
		Margin (available-utilized)	3.3457 MHz		

Close

Screen layout subject to change

- Send transmission plan to Intelsat
- Email confirmation
- Progress alerts

Submit for SSOG

Satellite	Transponder	Created By	Last Updated By	Last Updated Date
Intelsat 14	UF8K/UF8K	bramw	kimbj	9-Jun-2015

Name *

Requested SSOG Date *

Owner *

Notes (up to 4000 characters)

My first RFM SSOG request!

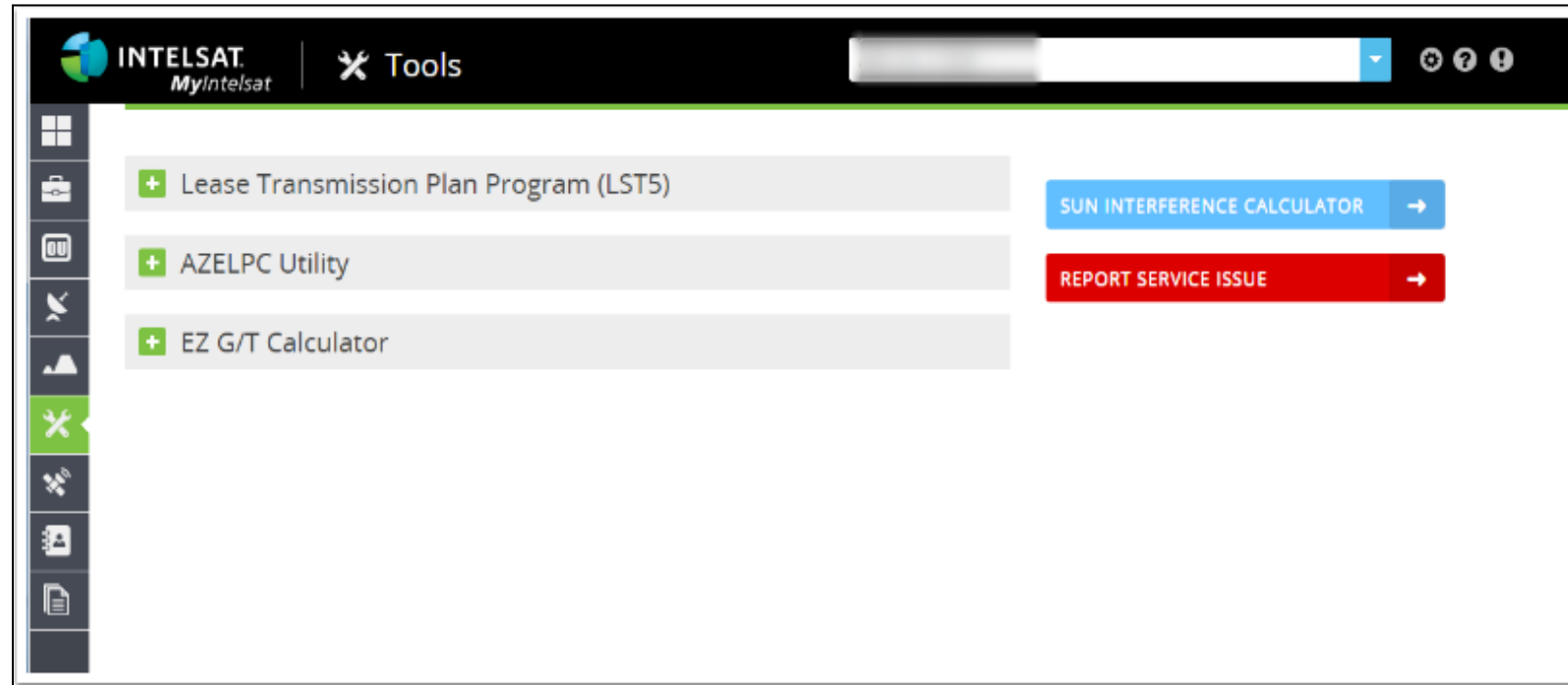
Screen layout subject to change

Calculation Tools

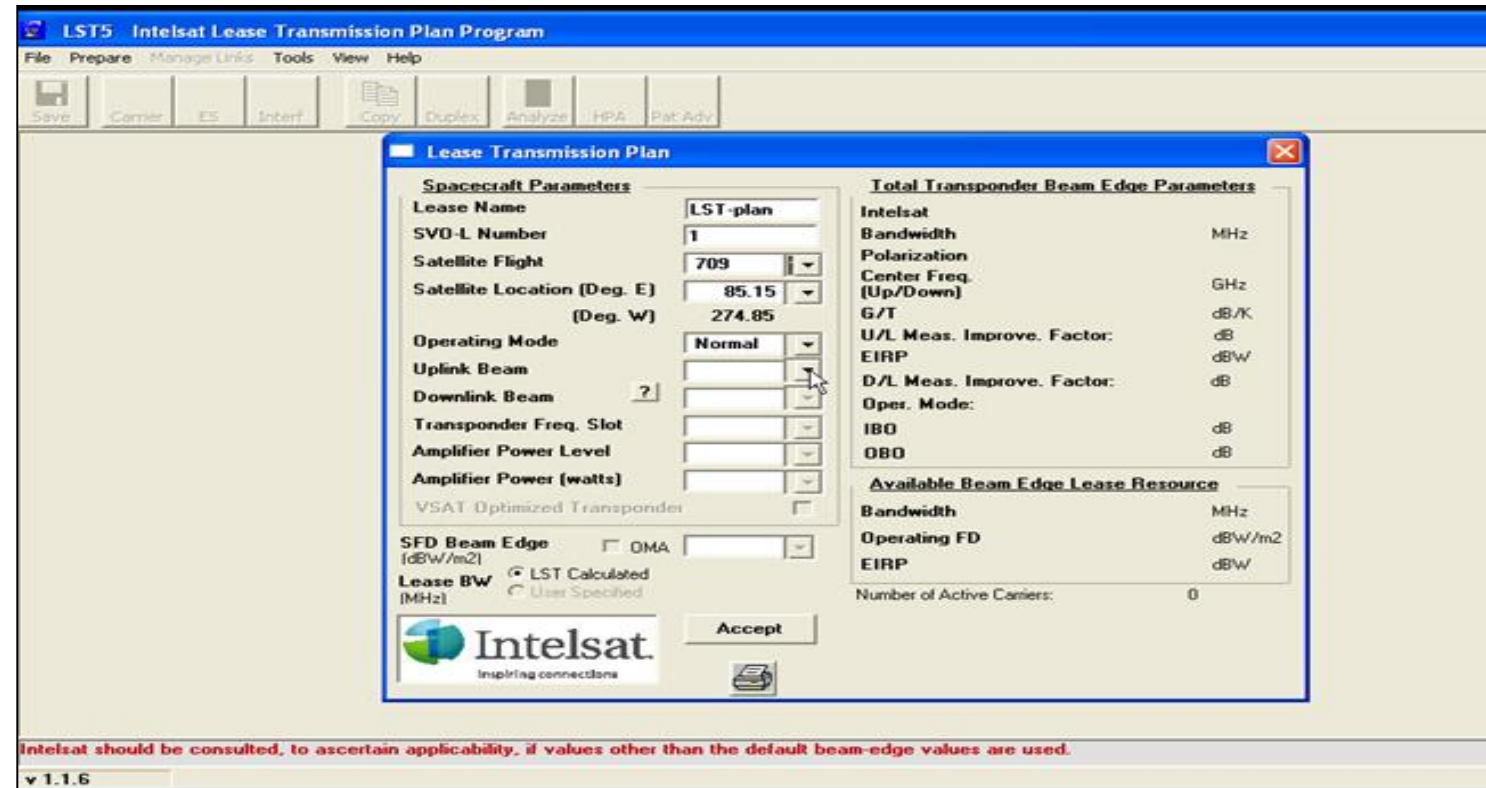
- **Downloadable Tools**

- Lease Transmission Plan Program (LST5)
- AZELPC utility – Azimuth and elevation calculator
- EZ G/T Calculator – Calculate an earth station's receive G/T

- **Quick link to Sun Interference Calculator**



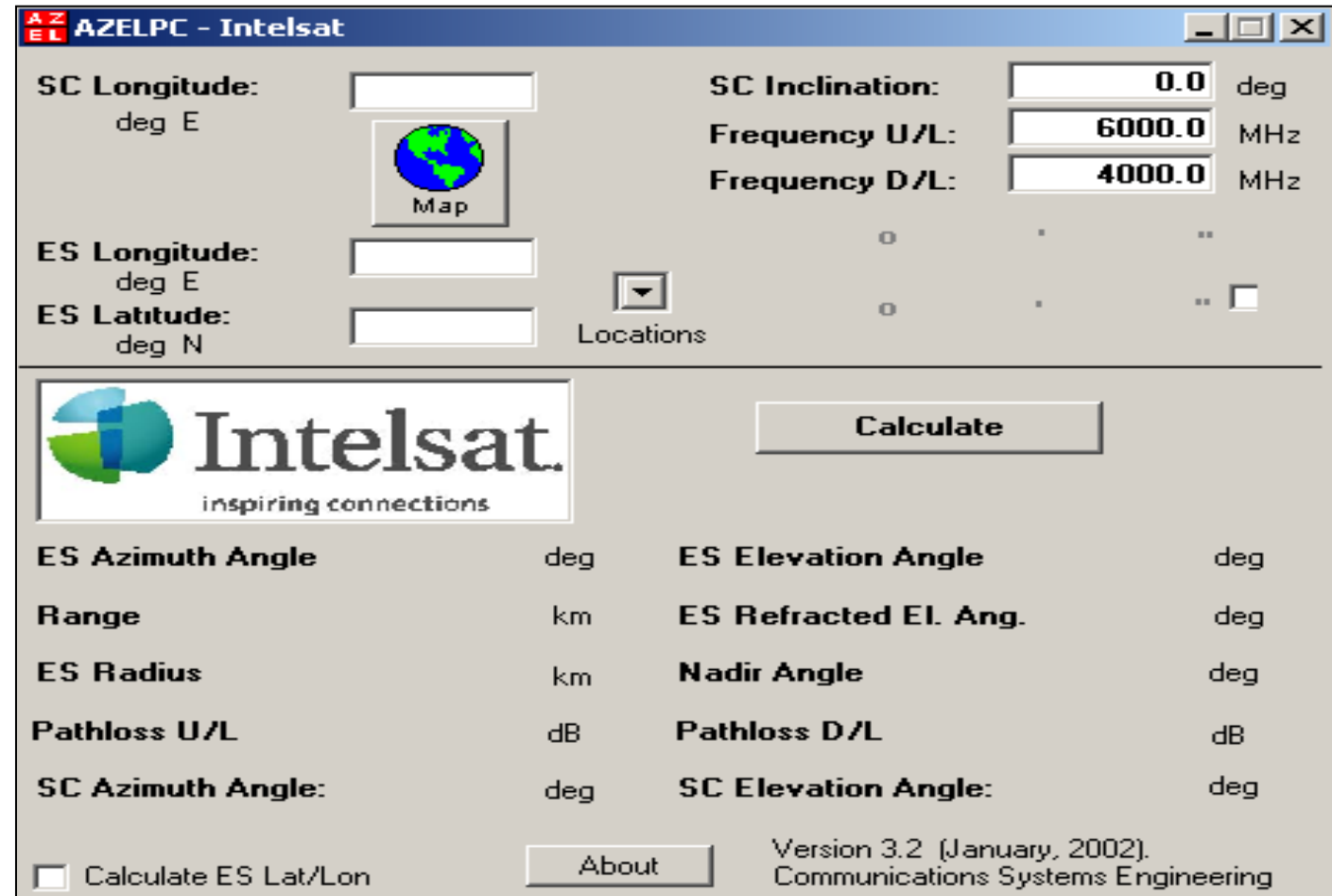
- PC-based Windows program that can be used by customers to determine transponder lease requirements
- Incorporates Intelsat satellite performance data to generate transmission plans and to determine optimum HPA and earth station size requirements.





AZELPC Utility

- Converts geodetic longitude and latitude coordinates of an earth station to satellite azimuth and elevation coordinates given a geostationary satellite location and vice versa
 - Calculations for earth station azimuth and elevation angles do not incorporate longitude and latitude oscillation data (ephemeris parameters)



G/T Measurements Calculator

Measures the ratio of receive gain of the earth station antenna to the total noise temperature of the earth station

Antenna Code

Antenna Standard

Antenna Diameter Meters

Band

Polarity

Antenna Longitude ° ' "

Antenna Latitude ° ' "

Antenna Above Sea Level Kilometers

Antenna Azimuth Degrees

Antenna Elevation Degrees

Satellite

Beacon Frequency MHz

Distance to Satellite Meters

D/L Path Loss dB

D/L EIRP at Beam Center dBW

D/L Aspect Correction dB

Measured Carrier Level dBm

Resolution BW (RBW) kHz

RBW Correction Factor

Measured Noise Floor Level

C/N dB/Hz

Default

Satellite	Satellite Longitude East	Satellite Latitude North	Display East / West
Galaxy 10R	237.00	0.00	West
Galaxy 11	269.00	0.00	West
Galaxy 12	234.95	0.00	West
Galaxy 13/Horizons 1	233.00	0.00	West
Galaxy 14	235.00	0.00	West
Galaxy 15	227.00	0.00	West
Galaxy 16			
Galaxy 17			
Galaxy 23			
Galaxy 25			
Galaxy 26			
Galaxy 27			
Galaxy 28			
Galaxy 3C			
Galaxy 4R			
Galaxy 9			
Intelsat 10			
Intelsat 1002			
Intelsat 12			
Intelsat 1R			
Intelsat 2			
Intelsat 3R			
Intelsat 4			
Intelsat 601			

Satellite	Beacon Band	Beacon Polarity	Aspect Correction dB	Beacon Frequency MHz	Beacon D/L EIRP at BC dBW
Intelsat 1002	C	V	0.5	3950	7.2
Intelsat 1002	C	LHCP	0.5	3950	4.2
Intelsat 1002	C	RHCP	0.5	3950	4.2
Intelsat 1002	Ku	RHCP	0.9	11198	9.4
Intelsat 1002	Ku	H	0.9	11198	6.4
Intelsat 1002	Ku	V	0.9	11198	6.4
Intelsat 701	C	V	0.5	3950	11.8
Intelsat 701	C	LHCP	0.5	3950	8.8
Intelsat 701	C	RHCP	0.5	3950	8.8
Intelsat 701	Ku	RHCP	0.9	11198	12.3
Intelsat 701	Ku	H	0.9	11198	9.3
Intelsat 701	Ku	V	0.9	11198	9.3
Intelsat 702	C	V			
Intelsat 702	C	LHCP			
Intelsat 702	C	RHCP			
Intelsat 702	Ku	RHCP			
Intelsat 702	Ku	H			
Intelsat 702	Ku	V			
Intelsat 704	C	V			
Intelsat 704	C	LHCP			
Intelsat 704	C	RHCP			
Intelsat 704	Ku	RHCP			
Intelsat 704	Ku	H			
Intelsat 704	Ku	V			

Standard	Band	Minimum Antenna Diameter M	Maximum Antenna Diameter M	Minimum G/T	Maximum G/T
A	C	13	32	35	50
B	C	9.5	12.9	31.7	34.9
C	Ku	10	32	37	50
E1	Ku	2.4	3.9	25	28.9
E2	Ku	4	5.9	29	33.9
E3	Ku	6	9.9	34	36.9
F1	C	3.7	5.4	22.7	26.9
F2	C	5.5	7.2	27	28.9
F3	C	7.3	9.4	29	31.6
G	Both	1.2	32	15.1	55
H2	C	1.8	2.3	15.1	18.2
H3	C	2.4	3.6	18.3	22.6
K2	Ku	1.2	1.7	19.8	23.2
K3	Ku	1.8	2.3	23.3	24.9



Sun Interference Calculator

- **Predict possible Sun Interference for your earth station(s)**
 - Long-range planning and near-term projected outage calculation for services on Intelsat satellites
 - Batch or single input options


The screenshot shows the 'Sun Interference Calculator' web application. The header includes the INTELSAT MyIntelsat logo, a 'Tools' menu, and a user profile dropdown for 'Intelsat Corporation | 103308'. The main content area is titled 'Sun Interference Calculator' and contains the following text: 'During certain times of the year, energy from the Sun can overpower a satellite's signal. This is called a Sun fade, Sun transit or Sun outage. For further details, please refer to the [Sun Interference Background](#) document. Use this Sun Interference Calculator below to predict possible Sun Interference for your Earth Station(s). If you select a satellite and the 'View All Registered E/S' Analysis type, the calculator will use the Long-Range Planning Calculation. Otherwise the Near-Term Projected Outage Calculation will be used. Details on sun interference calculation methods are in help. Change history is available in the release notes. Note: We have deployed a change to the Sun Interference Calculator. Please review the release notes in the help before proceeding.'


The calculator form includes a checkbox for 'Use the batch process to submit multiple satellites and/or locations'. Below this are four input fields: 'Satellite' (dropdown), 'Analysis Type' (dropdown), 'Frequency Band' (dropdown), and 'Season' (text input with 'Spring 2016' selected). At the bottom of the form are 'Calculate' and 'Reset' buttons. A footnote states: '* References to Seasons are made to their timing in the Northern Hemisphere'.

The footer of the application contains the copyright notice: '© Intelsat 2016. All Rights Reserved. Contact MyIntelsat | Terms of Use | Privacy Policy | Site Map'.




- Coverage maps
- PRMs







IntelSat Corporation | 103308

PRM

Payload Configuration Notes

- CONUS

G-12@129°W_[231°E] Updated 2015-12-29	G-12@129°W_[231°E] Updated 2015-03-16	G-13_H-1@127°W_[233°E] Updated 2016-03-22	G-14@125°W_[235°E] Updated 2014-12-17
G-15@133°W_[227°E] Updated 2015-12-14	G-16@99°W_[261°E] Updated 2016-03-08	G-17@91°W_[269°E] Updated 2016-03-08	G-18@123°W_[237°E] Updated 2016-03-08
G-19@97°W_[263°E] Updated 2015-12-14	G-23@121°W_[239°E] Updated 2016-01-11	G-25@93.1°W_[266.9°E] Updated 2016-03-08	G-28@89°W_[271°E] Updated 2015-11-09
G-3C@95.05°W_[264.95°E] Updated 2015-04-14			

Red dates: updated within the last month

- AOR

G-11@304.4°E Updated 2015-11-30	IS-10-02@359°E Updated 2016-03-22	IS-11@317°E Updated 2015-03-02	IS-14@315°E Updated 2015-11-05
IS-1R@310°E Updated 2014-05-02	IS-1R@310°E_[50°W] Updated 2016-03-22	IS-1W@1°W Updated 2011-08-22	IS-21@302°E Updated 2015-09-21
IS-23@307°E Updated 2014-12-15	IS-25@328.5°E Updated 2015-09-14	IS-34@304.5°E Updated 2015-12-14	IS-701@330.5°E Updated 2015-11-09
IS-805@304.5°E Updated 2015-12-29	IS-901@342°E Updated 2016-03-22	IS-903@325.5°E Updated 2016-03-08	IS-905@335.5°E Updated 2015-06-15
IS-907@332.5°E Updated 2016-03-08	IS-9@316.9°E Updated 2016-03-08		

Red dates: updated within the last month

- IOR & POR

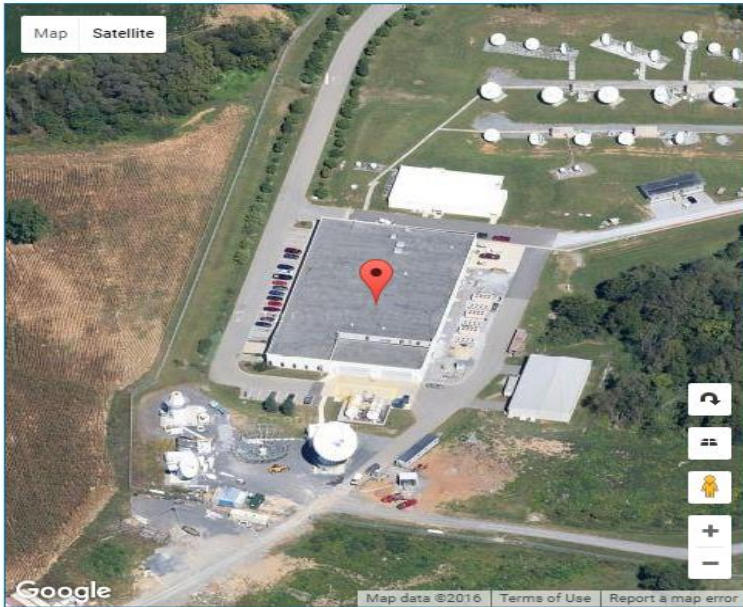
G-26@50°E Updated 2014-05-02	G-27@45.1°E Updated 2013-06-27	H-2@275.15°W_[84.85°E] Updated 2015-10-05	IS-10@47.5°E Updated 2015-09-14
IS-12@45°E Updated 2016-03-08	IS-15@85.15°E Updated 2014-12-01	IS-16@76.2°W_[283.8°E] Updated 2015-11-09	IS-16@79°W_[281°E] Updated 2015-12-29
IS-17@66°E Updated 2016-03-08	IS-18@180°E Updated 2015-11-30	IS-19@166°E Updated 2016-03-08	IS-20@68.5°E Updated 2016-03-08
IS-22@72.1°E Updated 2016-01-11	IS-28@32.8°E Updated 2015-10-20	IS-28@33°E Updated 2014-05-14	IS-5@157°E Updated 2015-10-26
IS-702@33°E Updated 2014-11-24	IS-706@157°E Updated 2014-10-29	IS-7@68.65°E Updated 2013-06-27	IS-8@169°E Updated 2016-03-08
IS-902@62°E Updated 2016-01-11	IS-904@60°E Updated 2015-06-01	IS-906@64°E Updated 2015-10-26	

Red dates: updated within the last month



Coverage Maps

Intelsat 903 at 325.5° E
Status: Station Kept



Footprints Detailed footprints Key parameters Glossary

Footprints

C-band

- 📶 C-band Hemi Beam
- 📶 C-band Zone Beam
- 📶 Mountainside Teleport: 16.4m
- 📶 Fuchsstadt Teleport: 16.4m

Ku-band

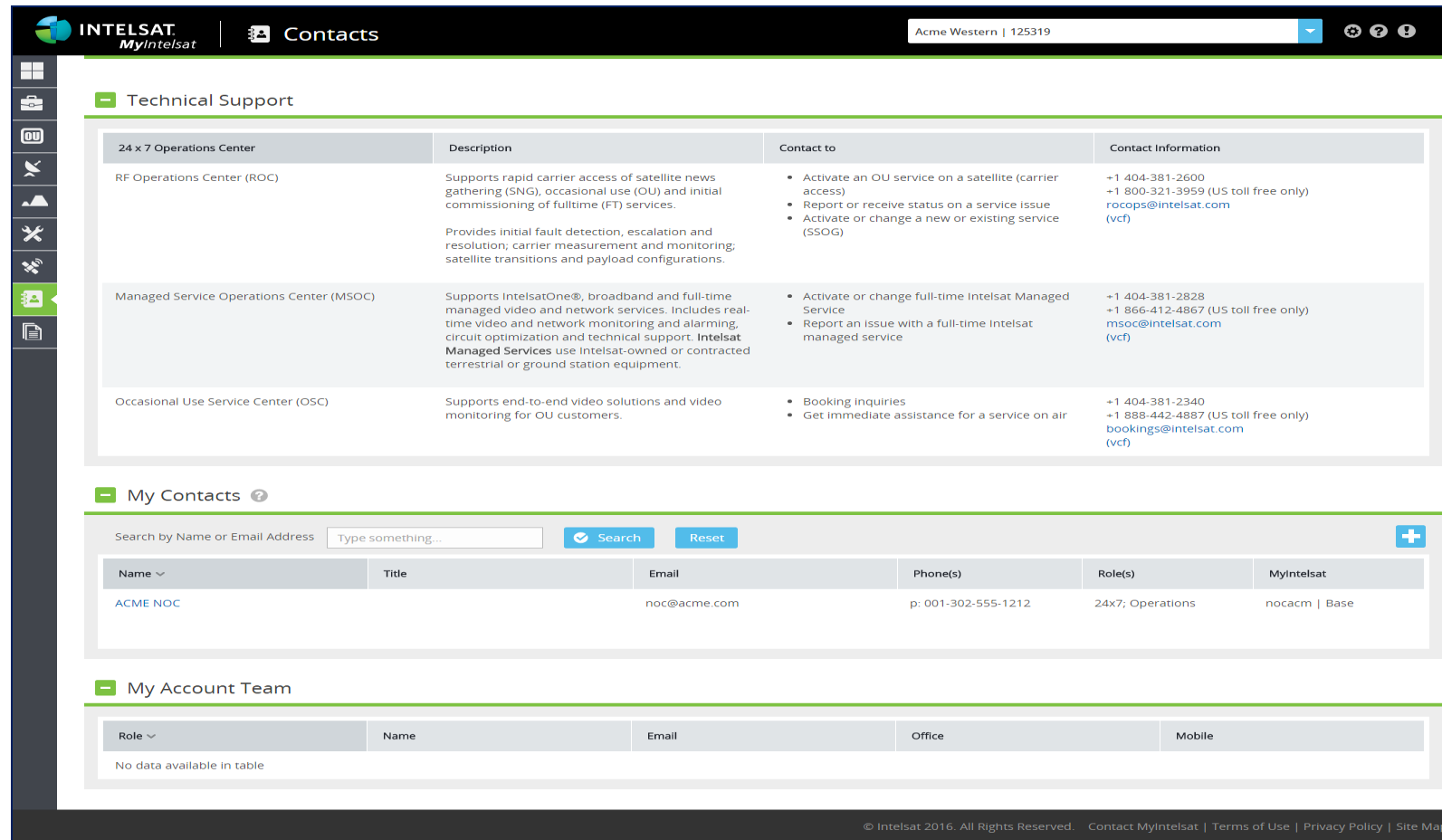
- 📶 Ku-band Spot 1 Beam
- 📶 Ku-band Spot 2 Beam



- **Technical Support**
- **My Contacts**
 - View the contacts Intelsat has on record for your account
 - Edit your own record
 - Request updates
- **My Account Team**

Visible only to users with Full access

 - Sales Director
 - CSE



INTELSAT MyIntelsat | **Contacts** | Acme Western | 125319

Technical Support

24 x 7 Operations Center	Description	Contact to	Contact Information
RF Operations Center (ROC)	Supports rapid carrier access of satellite news gathering (SNG), occasional use (OU) and initial commissioning of fulltime (FT) services. Provides initial fault detection, escalation and resolution; carrier measurement and monitoring; satellite transitions and payload configurations.	<ul style="list-style-type: none"> • Activate an OU service on a satellite (carrier access) • Report or receive status on a service issue • Activate or change a new or existing service (SSOG) 	<ul style="list-style-type: none"> +1 404-381-2600 +1 800-321-3959 (US toll free only) rocops@intelsat.com (vcf)
Managed Service Operations Center (MSOC)	Supports IntelsatOne®, broadband and full-time managed video and network services. Includes real-time video and network monitoring and alarming, circuit optimization and technical support. Intelsat Managed Services use Intelsat-owned or contracted terrestrial or ground station equipment.	<ul style="list-style-type: none"> • Activate or change full-time Intelsat Managed Service • Report an issue with a full-time Intelsat managed service 	<ul style="list-style-type: none"> +1 404-381-2828 +1 866-412-4867 (US toll free only) msoc@intelsat.com (vcf)
Occasional Use Service Center (OSC)	Supports end-to-end video solutions and video monitoring for OU customers.	<ul style="list-style-type: none"> • Booking inquiries • Get immediate assistance for a service on air 	<ul style="list-style-type: none"> +1 404-381-2340 +1 888-442-4887 (US toll free only) bookings@intelsat.com (vcf)

My Contacts

Search by Name or Email Address

Name	Title	Email	Phone(s)	Role(s)	MyIntelsat
ACME NOC		noc@acme.com	p: 001-302-555-1212	24x7; Operations	nocacm Base

My Account Team

Role	Name	Email	Office	Mobile
No data available in table				

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- Training & Documentation

- Overview
- IESS
- SSOG
- LST5 training
- OLM user guide

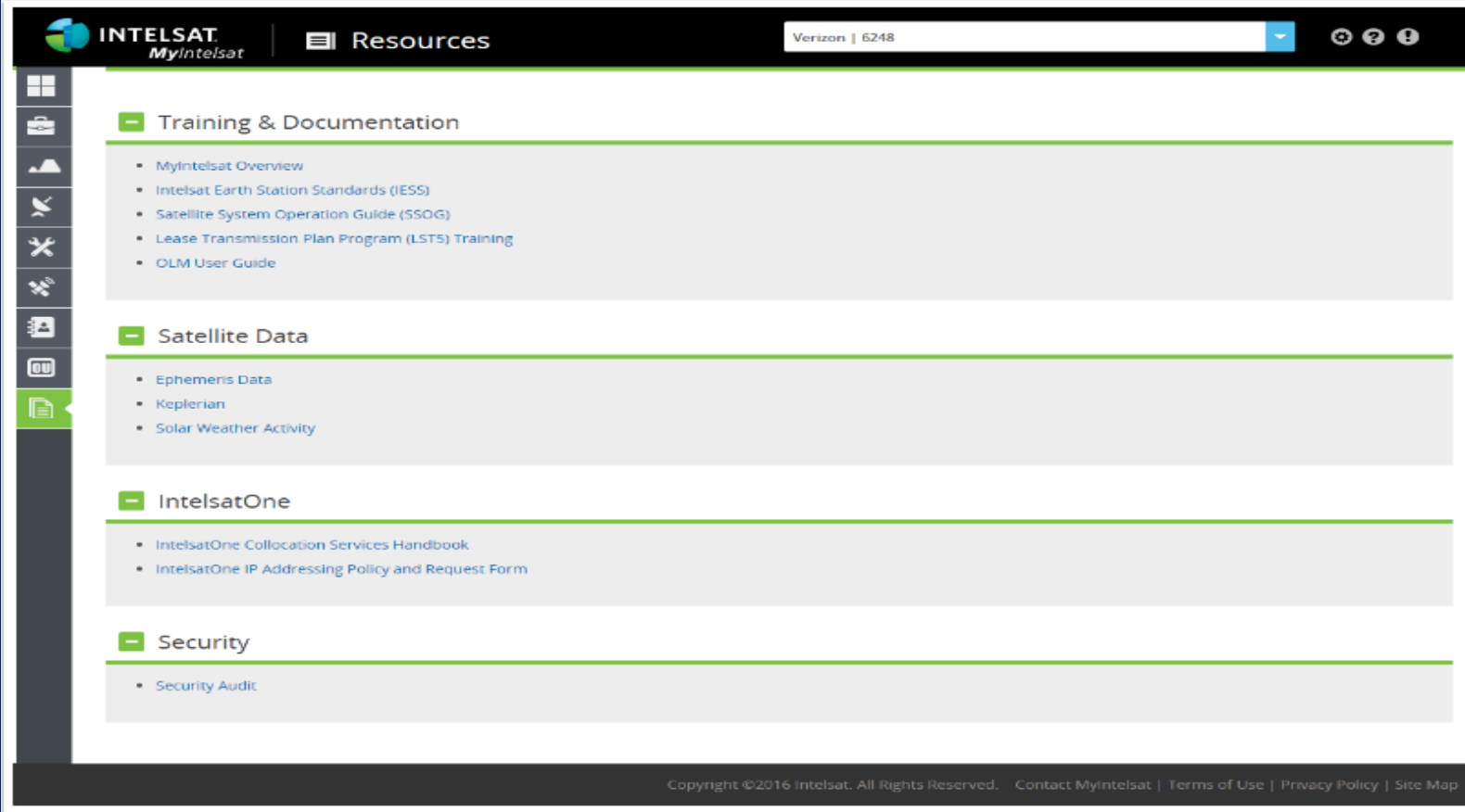
- Satellite Data

Links to intelsat.com

- Ephemeris data
- Keplerian data

- IntelsatOne reference documents

- Security audit report



The screenshot shows the MyIntelsat Resources page. The header includes the INTELSAT MyIntelsat logo, a search bar with 'Verizon | 6248', and utility icons. A left sidebar contains navigation icons, with the 'Resources' icon highlighted. The main content area is organized into four sections, each with a green minus sign icon:

- Training & Documentation**
 - MyIntelsat Overview
 - Intelsat Earth Station Standards (IESS)
 - Satellite System Operation Guide (SSOG)
 - Lease Transmission Plan Program (LST5) Training
 - OLM User Guide
- Satellite Data**
 - Ephemeris Data
 - Keplerian
 - Solar Weather Activity
- IntelsatOne**
 - IntelsatOne Collocation Services Handbook
 - IntelsatOne IP Addressing Policy and Request Form
- Security**
 - Security Audit

The footer contains the text: Copyright ©2016 Intelsat. All Rights Reserved. Contact MyIntelsat | Terms of Use | Privacy Policy | Site Map

Need access?



 **INTELSAT.**
MyIntelsat

User Name *

Password *

LOG INTO MyIntelsat →

Remember User Name

[Reset or Change Password](#) [Request Access](#)

<https://my.intelsat.com/Accounts/AccessRequest>

Access Request Form

- Include account number for faster processing.
- Most requests processed same day

← MyIntelsat Access Request

If you are not an Intelsat customer and you are looking for fleet information or satellite tools, you may find what you are looking for in the [Tools & Resources](#) section of [intelsat.com](#).

Note:

- If you enter an email account provided by a webmail service (gmail, yahoo, outlook), your application will be delayed or disqualified.
- If your employer is an Intelsat customer, providing your customer number will expedite your application.

Salutation	<input type="text" value="None"/>	Street *	<input type="text" value="Street"/>
First Name (Given Name) *	<input type="text" value="First Name"/>	City *	<input type="text" value="City"/>
Last Name (Surname) *	<input type="text" value="Last Name"/>	State/Province *	<input type="text" value="State/Province"/>
Job Title/Duties *	<input type="text" value="Job Title"/>	Country *	<input type="text" value="Select a Country"/>
Company *	<input type="text" value="Company"/>	Zip/Postal Code *	<input type="text" value="Zip/Postal Code"/>
Website *	<input type="text" value="URL"/>	Why do you need access to MyIntelsat? *	<input type="text" value=""/>
Is your company an existing customer? *	<input type="text" value="Select one"/>	<i>(Please include on which Intelsat satellites you have service)</i>	
Customer Number	<input type="text" value="Customer Number"/>		
Select IGC only if you are working with Intelsat General (Military/Government)			
Employer-provided Email *	<input type="text" value="Email"/>		
Phone *	<input type="text" value="Phone"/>		

[Return to Login](#)

Problem? Contact myintelsat.accounts@intelsat.com

MyIntelsat Access Levels

There are **5 different levels of a MyIntelsat account**. Based on the account level, access to different features can be set up for various individuals in a company. Each level's capabilities are summarized below:

	Prospect	Base	Technical	Financial	Full
Services					
– Full-time Services / Service Tickets			X		X
– Full-time Services / Invoices				X	X
OU Corner					
– Active Capacity, Route Maps	X	X	X	X	X
– Booking Information				X	X
Antenna Registration (ARM)		Read only	X		X
RF Manager			X		X
Tools	X	X	X	X	X
Fleet	X	X	X	X	X
Contacts		X	X	X	X
Resources	X	X	X	X	X