

REQUEST FOR EXTENSION OF SPECIAL TEMPORARY AUTHORITY

L3Harris Technologies, Inc. ("L3Harris") hereby requests an extension of the FCC Special Temporary Authority ("STA") previously granted to L3Harris under FCC File Nos. SES-STA-20210914-01569 and SES-STA-20211012-01704 and extended under FCC File No. SES-STA-20211109-01803 to operate 2.4m Flyaway C-Band terminal at the Galliano, LA heliport to facilitate continued critical air traffic communications for the FAA. L3Harris requests an extension of **sixty days** from January 13, 2022. A C-Band Frequency Coordination study has been completed for the Galliano, LA 2.4m Flyaway C-Band terminal and is attached hereto. No objections were returned in the coordination process.

As noted in the previous STA requests, L3Harris¹ has deployed a temporary fixed Prodelin 2.4m C-Band terminal at the Galliano, LA heliport in order to support FAA Air Traffic Control operations owing to damage caused to existing terrestrial communications as well as extensive structural damage to the FAA Remote Communications Air to Ground facility at Grand Isle, LA (GNI RCAG) from Hurricane Ida. The FAA, to ensure the safety of the flying public, normally requires that diverse delivery paths (either diverse terrestrial paths, or microwave, or satellite) exist for all air traffic control. The FAA facility GNI RCAG, is a FCC licensed C-Band site and lost the ability to send voice and data both terrestrially and via satellite. Specifically, as a result of damage from Hurricane Ida, existing FAA terrestrial communications transmitting voice and data traffic to the FAA Houston Air Route Control Center and the New Orleans airport (MSY) were rendered inoperable, requiring L3Harris to deploy a Prodelin 2.4m C-Band Flyaway antenna system at the Galliano, LA heliport to carry voice and data traffic back to the FAA Houston Air Route Control Center and the New Orleans airport (MSY). The Flyaway system at Galliano, LA carries the voice and data traffic formerly handled by the GNI RCAG facility. Deployment of the 2.4m Flyaway C-Band terminal is allowing critical air traffic communications to be uplinked via the L3Harris satellite network back to the FAA Houston Air Route Control Center and the New Orleans airport (MSY) until the existing terrestrial system can be repaired and/or replaced.

As noted in the prior STA extension request under FCC File No. SES-STA-20211109-01803, based on current construction and service restoration projections, the existing FAA facility GNI RCAG is not projected to be restored for both terrestrial and satellite communications until Jul-Sep 2022. Owing to that projection, L3Harris, in conjunction with the previous STA extension request, had filed an FCC Form 312 new license request on November 9, 2021 seeking to obtain a permanent temporary fixed C-Band authorization for its 2.4m Flyaway C-Band terminal at the Galliano, LA heliport (See FCC No. SES-LIC-20211109-01801²). Grant of this STA extension request and processing of the permanent license request will ensure critical operational continuity.

L3Harris submits that a grant of this STA extension request will serve the public interest because it will assist the FAA's mission of ensuring flight safety.

¹ L3Harris Technologies, Inc. serves as the current FAA Telecommunications Infrastructure contractor

² This request has been assigned FCC Call Sign E210426

Micronet Communications, Inc.

812 Lexington Dr
Plano, Texas 75075
972-422-7200

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M2127204 6.34 GHz
Licensee: L3HARRIS TECHNOLOGIES, INC.

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Pursuant to Parts 25.203 and 101.103(d) of the FCC Rules and Regulations, a frequency coordination study was conducted by Micronet Communications, Inc. for the following proposed earth station:

GAO_RTR, LA

The results of the study indicate that no unacceptable interference will result with existing, proposed or prior coordinated radio facilities.

Coordination was performed with existing, proposed and prior coordinated carriers within coordination range on the following dates:

10/08/2021 Original PCN

There were no unresolved interference objections.

The attached coordination data was forwarded on the latest date to the following parties within coordination range or their authorized coordination agents:

ALABAMA GREAT SOUTHERN RAILROAD CO
CLECO POWER LLC
COMSEARCH INC
ENERGY XXI GULF COAST, INC.
ENERGY XXI LLC
ENTERGY SERVICES, LLC
JEFFERSON PARISH SHERIFF'S OFFICE
LOOP LLC
LOUISIANA GENERATING, LLC
LOUISIANA, STATE OF
MICRONET COMMUNICATIONS INC
NEW ORLEANS, CITY OF
PLAQUEMINES PARISH GOVERNMENT
RIGNET SATCOM, INC.
SOUTHERN LIGHT, LLC
ST. BERNARD PORT, HARBOR & TERMINAL DISTRICT
T-MOBILE LICENSE LLC
TAMPNET LICENSEE LLC
TELELINK INC
TRANSCONTINENTAL GAS PIPE LINE CO., LLC
UNION PACIFIC RAILROAD COMPANY
WIRELESS APPLICATIONS CORP
WWL-TV, INC.

Micronet Communications, Inc.

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SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M2127204

6.34 GHz

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Respectfully Submitted,

A handwritten signature in black ink that reads "Jeremy B. Lewis". The signature is written in a cursive style with a large, stylized 'J' and 'L'.

Jeremy Lewis
Systems Engineer

Attached: 1 data sheet

Micronet Communications, Inc.
812 Lexington Dr
Plano, Texas 75075
972-422-7200

File: M2127204

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TECHNICAL CHARACTERISTICS OF TRANSMIT RECEIVE EARTH STATION

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Company:	L3HARRIS TECHNOLOGIES, INC.		
Site Name, State:	GAO_RTR, LA		
Call Sign:			
Latitude	(NAD83)	29 24	50.9 N
Longitude	(NAD83)	90 17	43.5 W
Elevation AMSL	(ft/m)	0.00	0.00
Receive Frequency Range	(MHz)	4120	
Transmit Frequency Range	(MHz)	6345	
Range of Satellite Orbital Long.	(deg W)	86.00	88.00
Range of Azimuths from North	(deg)	171.30	175.33
Antenna Centerline	(ft/m)	10.00	3.05
Antenna Elevation Angles	(deg)	55.38	55.61

Equipment Parameters		Receive	Transmit
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Antenna Gain, Main Beam	(dbI)	38.00	42.00
15 DB Half Beamwidth	(deg)	3.00	2.00

Antennas Receive: PRODELIN 2244 (2.4M)
 Transmit: PRODELIN 2244 (2.4M)

Max Transmitter Power	(dbW/4KHz)	-23.59
Max EIRP Main Beam	(dbW/4KHz)	18.41
Modulation / Emission Designator	DIGITAL 36M0G7W	

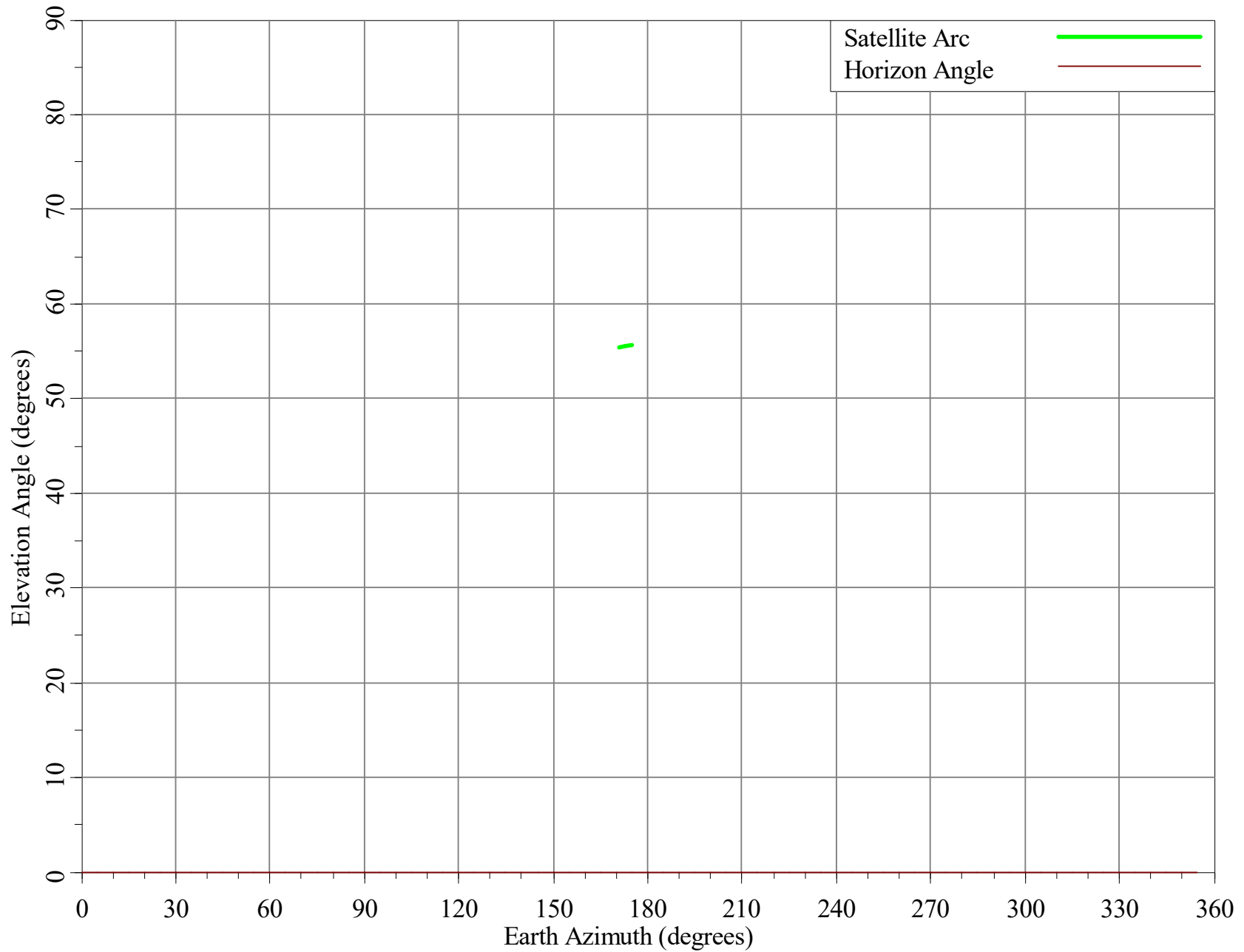
Coordination Parameters		Receive	Transmit
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Max Greater Circle Distances	(km)	334.48	106.32
Max Rain Scatter Distances	(km)	526.18	100.00
Max Interference Power Long Term	(dbW)	-158.60	-154.80
Max Interference Power Short Term	(dbW)	-153.90	-126.80
Rain Zone / Radio Zone		1	A

Graphs

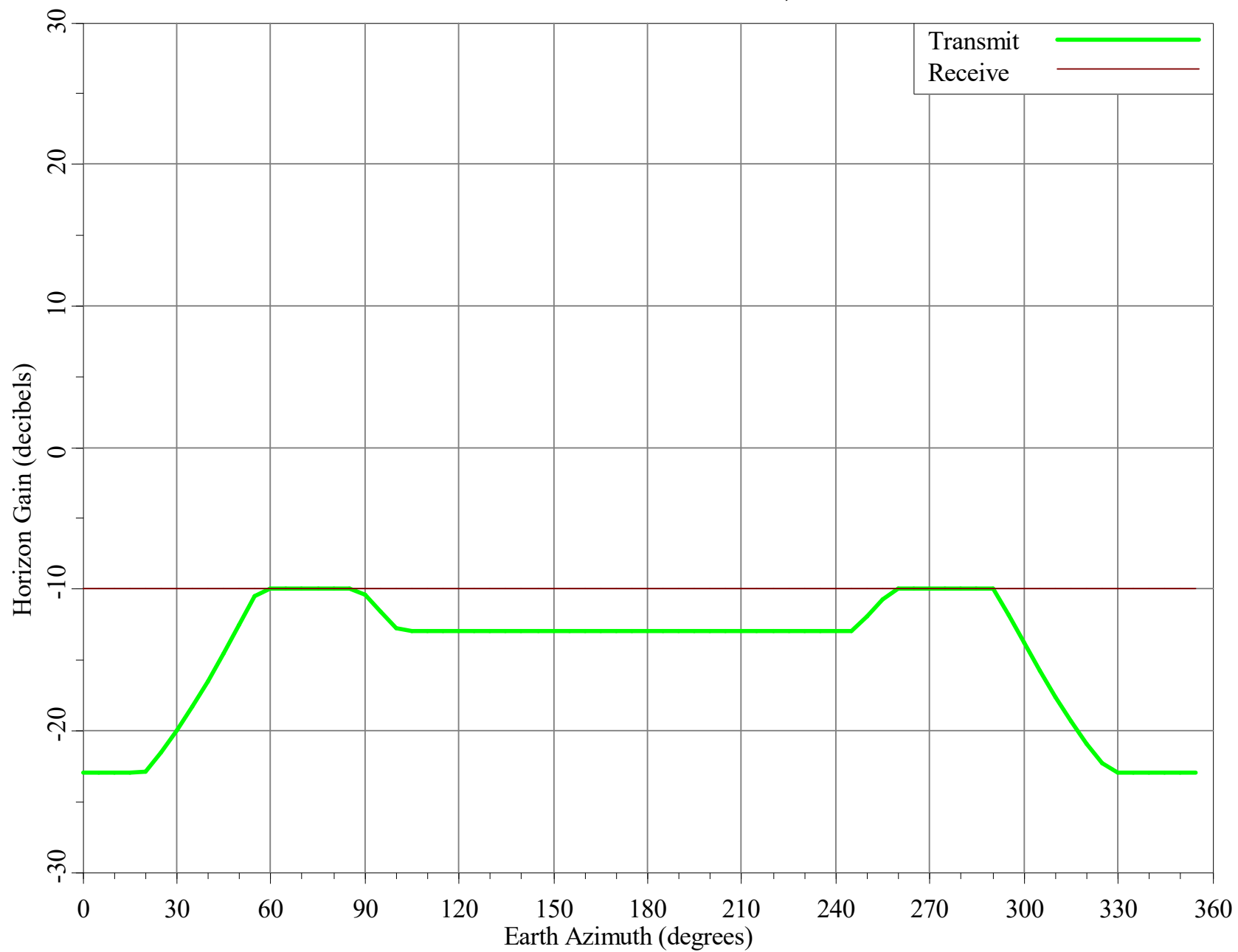
Horizon Angle & Satellite Arc for GAO_RTR, LA

Micronet Communications, Inc.

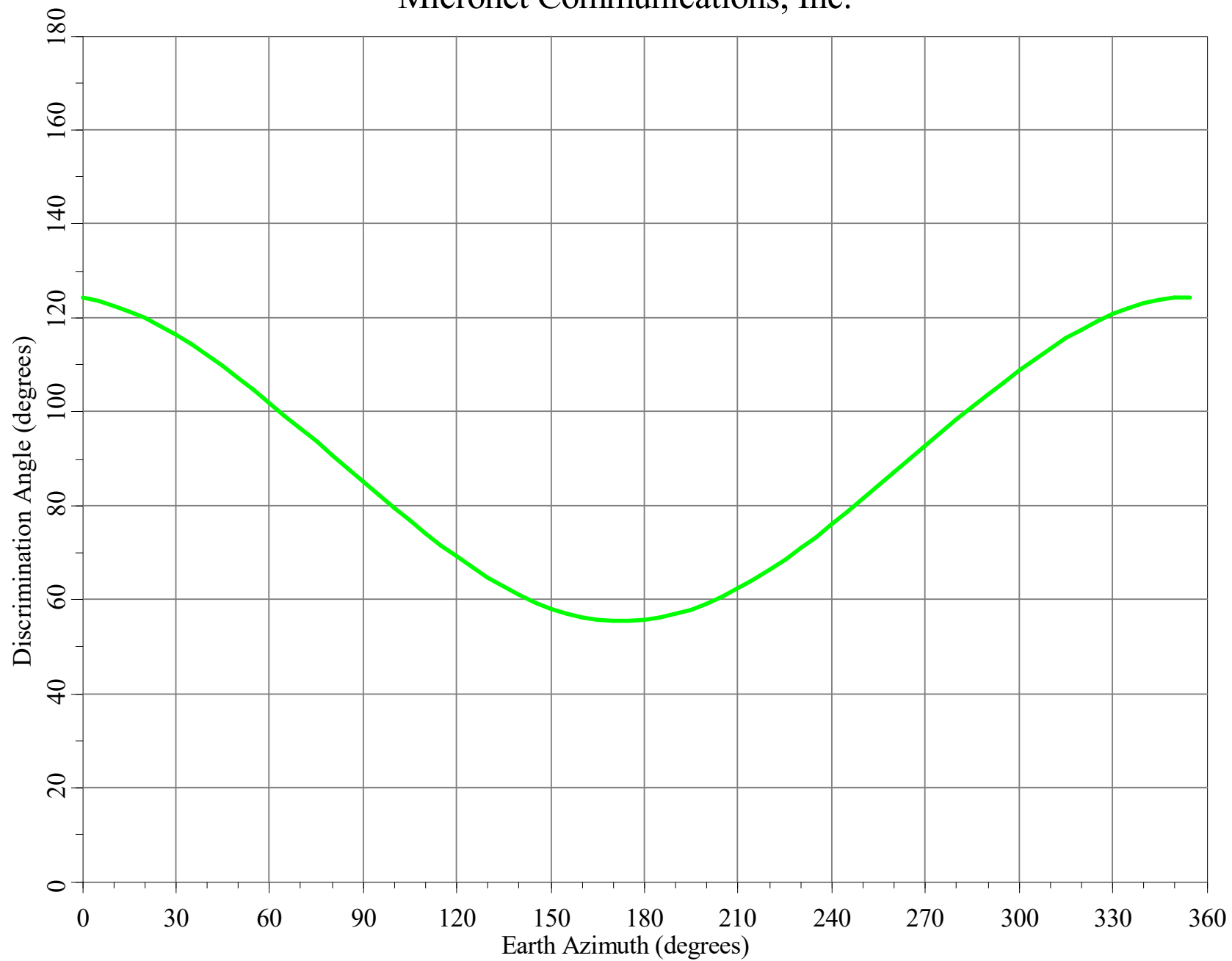


Horizon Gain for GAO_RTR, LA

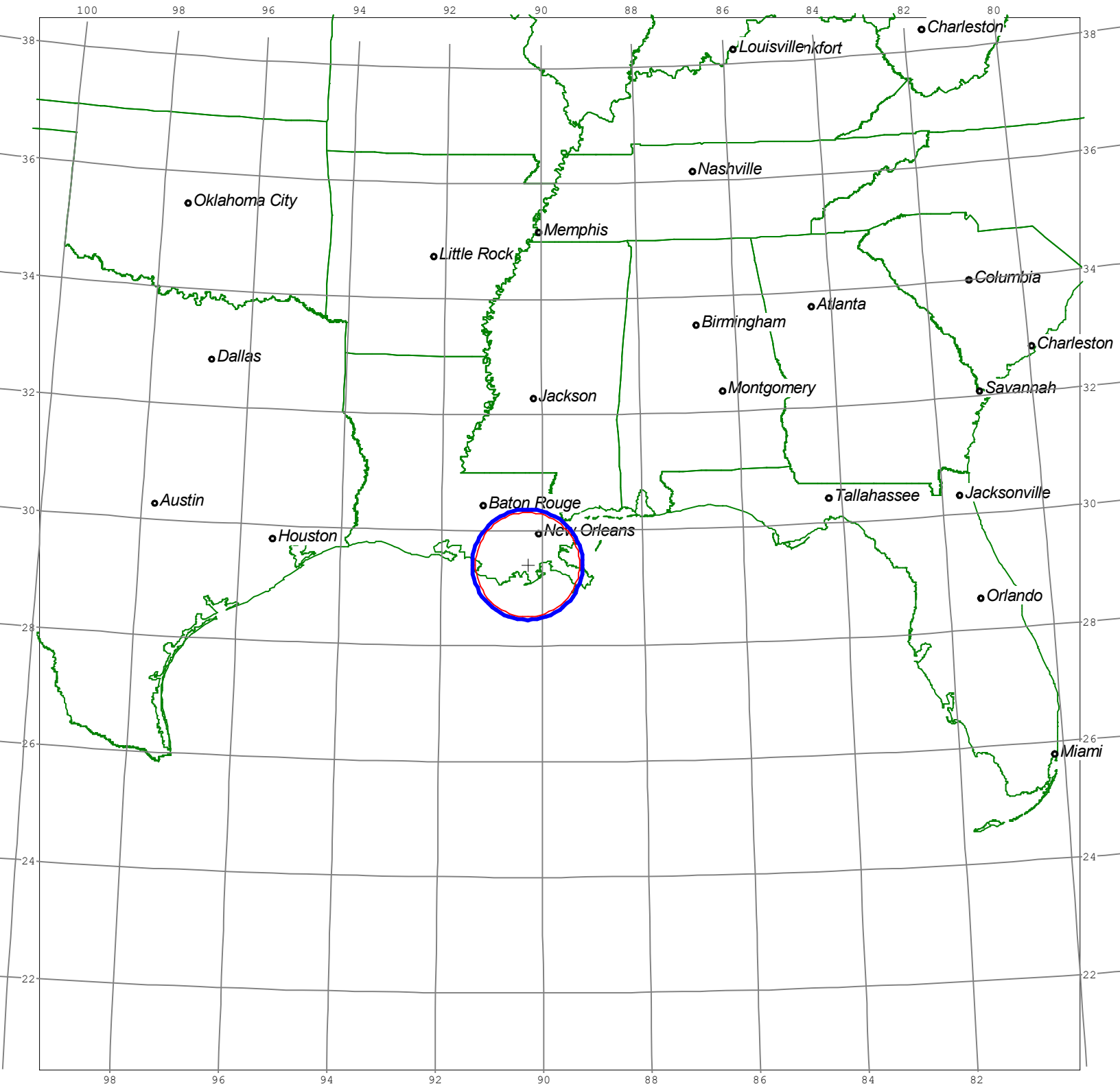
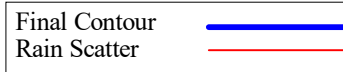
Micronet Communications, Inc.



Minimum Discrimination Angles for GAO_RTR, LA
Micronet Communications, Inc.



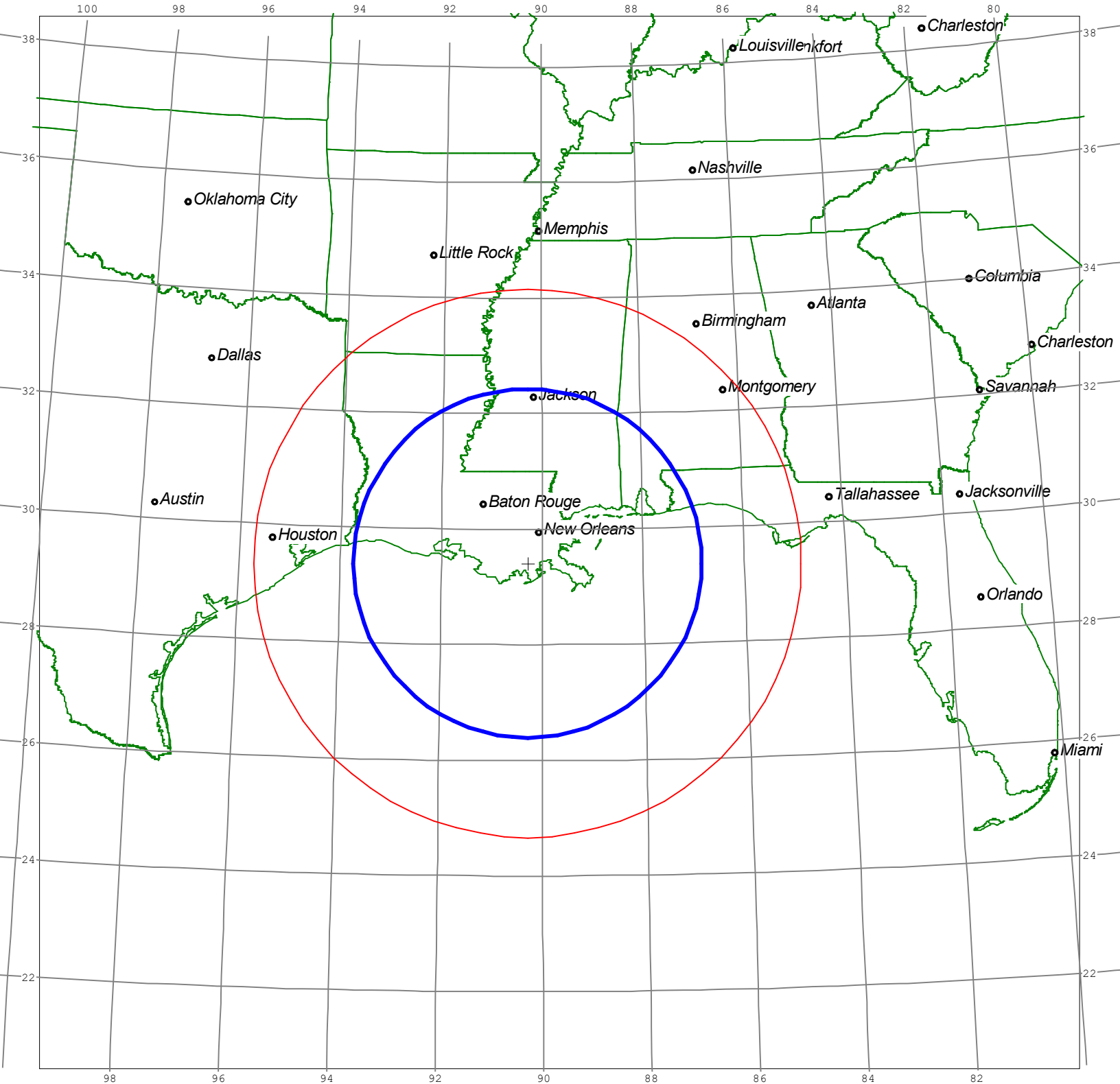
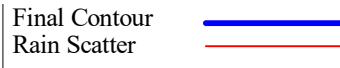
Final Contour & Rain Scatter for GAO_RTR, LA - Transmit



SCALE - 1:10000000 1 inch = 157.8 miles

Final Contour & Rain Scatter for GAO RTR, LA - Receive

SCALE - 1:10000000 1 inch = 157.8 miles



SES-2

Link Budget Analysis

SES LINK BUDGET ANALYSIS



PREPARED BY
Nick Brown
DATE
10-Sep-21
BUSINESS PARTNER

PROJECT
FTISAT Current Eb/No Readings
REVISION
Current Eb/No Readings

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Satellite	SES-2
Orbital location	°E -87.00
Transponder information	
Transponder ID	21C
Center frequency and polarisation (U/D)	MHz 6345 VLP / 4120 HLP
Bandwidth	MHz 36.00
Transponder Dlk Saturation EIRP Towards Beam-Peak	dBW 43.47
Transponder Beam-Peak G/T	dB/K 3.64
Saturation flux density, Beam-peak	dBW/m² -90.85
Operational mode	Multiple Carrier, [IBO: -5.5 dB OBO: -4 dB]
Inclined (Yes,No)	No

AGGREGATE RESOURCE REQUIREMENTS

Capacity Balanced / BW / PWR Limited	
Number of carriers in transponder	2
Required bandwidth	MHz 0.3
Allocated bandwidth	MHz 0.32
PEB of carriers	MHz 0.27

ANALYSIS HIGHLIGHTS ACROSS ALL SITES IN ANALYSIS

Link margin review [over sites]	
Site with highest clear sky link margin	USA-WBN-004 6175.0/3950.0 Woodbine C5 (CSM, SES-2)>USA-33454 at GAO : 0.0 dB
Site with lowest clear sky link margin	USA-33454 at GAO >USA-WBN-004 6175.0/3950.0 Woodbine C5 (CSM, SES-2) : 0.0 dB
Link availability review [over sites]	
Site with highest link availability	-
Site with lowest link availability	-

Calculation type	Clear sky only	Clear sky only
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Carrier Name	GAO C GW	GAO C RM
Carrier PEB	MHz 0.20	0.06
Carrier Predicted Total C/(N+I)	dB 11.16	11.16
Link total Eb/No	dB 9.40	9.40
Required Eb/No (including implementation and additional margin)	dB 9.40	9.40
Link closes? [2 out of 2, 100 %]	Yes	Yes
Link margin in clear sky (For ACM carriers, residual margin in CS)	dB 0.00	0.00
Target Link Availability	% yr clear weather only	clear weather only
Achieved Link Availability	% yr clear weather only	clear weather only
Availability Requirement Satisfied? [0 out of 2, 0 %]	clear weather only	clear weather only
ALC: Is the overdrive limit exceeded ?	Not computed	Not computed
Balanced/Power/Bandwidth limited	PWR Lim	BW Lim
Carrier PEB to allocated bandwidth ratio	1.27	0.40
Compliance to SES Coordination constraints	No CoCos	No CoCos
Summary of carrier emission levels		
Carrier power density at transmit antenna flange	dBW/Hz -63.31	-53.98
Carrier Uplink EIRP density	dBW/Hz -7.33	-11.69
Carrier power flux spectral density	dBW/m²/Hz -169.89	-174.95
Carrier Downlink EIRP density at beam peak	dBW/Hz -34.09	-39.15

EARTH STATIONS

Tx earth station ID		USA-WBN-004 6175.0/3950	USA-33454 at GAO
Latitude	°N	39.38	29.41
Longitude	°E	-77.08	-90.30
Antenna diameter	m	11.10	2.40
Skew angle at transmit location	deg.	11.79	5.81
Effective (Refracted) Elevation	deg.	43.49	55.70
Uplink aspect correction	dB	0.02	0.91
Receive earth station ID		USA-33454 at GAO	USA-WBN-004 6175.0/3950.0 Woodbine C5 (CSM, SES-2)
Latitude	°N	29.41	39.38
Longitude	°E	-90.30	-77.08
Antenna diameter	m	2.40	11.10
Skew angle at receive location	deg.	5.81	11.79
Effective (Refracted) Elevation	deg.	55.70	43.49
Effective G/T at the carrier frequency (Clear-Sky)	dB/K	18.65	30.03
Downlink aspect correction	dB	1.27	1.59

CARRIER INFORMATION

Carrier uplink centre frequency	MHz	6345.00	6345.00
Carrier downlink centre frequency	MHz	4120.00	4120.00
Number of carriers		1.00	1.00
Modem			
Modulation setting name (clear sky)		QPSK_0.750	QPSK_0.750
Information rate (clear sky)	Mbps	0.19	0.19
Symbol rate	Mbps	0.13	0.13
Aggregate code rate (clear sky)		0.75	0.75
Noise Bandwidth	MHz	0.13	0.13
Spreading Factor		1.00	1.00
Allocated bandwidth	MHz	0.16	0.16
Power Equivalent Bandwidth	MHz	0.20	0.06

ACM analysis (constant SR)

Spectral efficiency in clear sky	b/sym	1.50	1.50
Clear sky throughput	Mbps	0.19	0.19
Clear sky achievable modulation setting		QPSK_0.750	QPSK_0.750

SES LINK BUDGET ANALYSIS

Is the minimum recommended TPD OBO exceeded ?			
Under fade: Spectral efficiency at required availability	b/sym	N/A	N/A
Under fade: Throughput when meeting the required availability	Mbps	N/A	N/A
Under fade : Mod Cod meeting the required availability		N/A	N/A

LINK BUDGET

Uplink Calculations			
Carrier Input Backoff in clear sky	dB	-27.99	-33.05
Carrier FD from Uplink E/S	dBW/m ²	-118.80	-122.97
C/N _{UP,Thermal} : Uplink Thermal Noise ratio (clear sky)	dB	24.84	19.79
C/(N+I) _{UP, NO ASI} : Uplink Thermal Noise and interference ratio prior to ASI (clear sky)	dB	22.01	18.69
C/(N+I)_{UP} Uplink Thermal Noise and interference ratio (clear sky)	dB	17.71	13.22
Total propagation loss considering uplink rain fade	dB		
C/(N+I) _{UP} Uplink Thermal Noise and Interference ratio (UL under fade)	dB		
Resulting uplink path availability	% yr	clear weather only	clear weather only
Downlink Calculations			
Carrier Downlink EIRP towards Receive E/S	dBW	15.70	10.33
Carrier Downlink EIRP at beam peak	dBW	16.98	11.92
Carrier Output Backoff (clear sky)	dB	-26.49	-31.55
C/(N+I) _{DN, NO ASI} : Downlink Thermal Noise and interference ratio prior to ASI (clear sky)	dB	14.54	16.00
C/N _{DN,Thermal} : Downlink Thermal Noise ratio (clear sky)	dB	15.78	21.59
C/(N+I)_{DN} Downlink Thermal Noise and interference ratio (clear sky)	dB	12.25	15.39
Total propagation loss considering downlink rain fade	dB		
C/(N+I) _{DN} Downlink Thermal Noise and Interference ratio (DL under fade)	dB		
Resulting downlink path availability	% yr	clear weather only	clear weather only

NOISE CONTRIBUTION ANALYSIS

Limiting factor		Downlink Thermal Noise	Uplink Adjacent Satellite Interference
Total C/(N+I) clear sky	dB	11.16	11.16
Total Eb/No clear sky	dB	9.40	9.40
Total C/(N+I) (UL fade, DL clear)	dB		
Total C/(N+I) (DL fade, UL clear)	dB		
Total C/(N+I), excluding ASI, clear sky	dB	13.82	14.13
Required C/N (including implementation and additional margin)	dB	11.16	11.16
Required Eb/No (including implementation and additional margin)	dB	9.40	9.40
Link margin in clear sky (For ACM carriers, residual margin in CS)	dB	0.00	0.00

POWER DENSITY REVIEW

Carrier power density at antenna flange (clear sky)	dBW/Hz	-63.31	-53.98
Uplink EIRP density	dBW/Hz	-7.33	-11.69
Skew angle at transmit location	deg.	11.79	5.81
Uplink off-axis EIRP density at 2 deg.	dBW/Hz	-41.84	-32.51
Downlink EIRP density at beam peak	dBW/Hz	-34.09	-39.15

HPA Sizing

Total number of carriers		1.00	1.00
Total EIRP required from E/S	dBW	43.75	39.38
UPC Range	dB	0.00	0.00
HPA type/mode		Not Defined Multi Carrier	Not Defined Multi Carrier
Required backoff	dB	-4.00	-4.00
Required HPA capability	W	0.20	1.50
Recommended HPA size (for a single carrier)	W	HPA type not supplied	HPA type not supplied
Recommended HPA size (to support all carriers)	W	HPA type not supplied	HPA type not supplied

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