Approved by OMB
3060-0678

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Callsign/Satellite ID:

APPLICATION FOR EARTH STATION AUTHORIZATIONS FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
Cross City 3.8 meter earth station application resubmission Aug 2013

1-8. Legal Name of Applicant

Name:	HARRIS CORPORATION	Phone Number:	321-797-9234
DBA Name:		Fax Number:	321-727-9125
Street:	1025 West Nasa Blvd.	E-Mail:	bfitch@harris.com
City:	Melbourne	State:	FL
Country:	USA	Zipcode:	32919 -
Attention:	Bruce Fitch		

9-16. Name of Contact Representative

Name:	George Y. Wheeler	Phone Number:	202-955-3000
Company:	Holland & Knight LLP	Fax Number:	202-955-5564
Street:	800 17th Street, NW Suite 1100	E-Mail:	george.wheeler@hklaw.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20006-
Attention:	George Y. Wheeler	Relationship:	Legal Counsel

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.

a.
◉ a1. Earth Station
(N/A) a2. Space Station

b.
◉ b1. Application for License of New Station
○ b2. Application for Registration of New Domestic Receive-Only Station
(N/A) b3. Amendment to a Pending Application
(N/A) b4. Modification of License or Registration
(N/A) b5. Assignment of License or Registration
(N/A) b6. Transfer of Control of License or Registration
(N/A) b7. Notification of Minor Modification
(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
(N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
○ b10. Other (Please specify)
○ b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.

17c. Is a fee submitted with this application?
○ If Yes, complete and attach FCC Form 159.

If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).

○ Governmental Entity ○ Noncommercial educational licensee

◉ Other(please explain): Resubmission of File #SES-LIC-20130607-00474 pursuant to DA 13-1746, fee not reqd per, 47 CFR

17d.

Fee Classification BAX - Fixed Satellite Transmit/Receive Earth Station

18. If this filing is in reference to an existing station, enter:	19. If this filing is an amendment to a pending application enter:	
(a) Call sign of station:	(a) Date pending application was filed:	(b) File number of pending application:
Not Applicable	Not Applicable	Not Applicable

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

☒ a. Fixed Satellite

☐ b. Mobile Satellite

☐ c. Radiodetermination Satellite

☐ d. Earth Exploration Satellite

☐ e. Direct to Home Fixed Satellite

☐ f. Digital Audio Radio Service

☐ g. Other (please specify)

21. STATUS: Choose the button next to the applicable status. Choose only one.

○ Common Carrier ◉ Non-Common Carrier

22. If earth station applicant, check all that apply.

☒ Using U.S. licensed satellites

☐ Using Non-U.S. licensed satellites

23. If applicant is providng INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

○ Connected to a Public Switched Network ○ Not connected to a Public Switched Network ◉ N/A

24. FREQUENCY BAND(S): Place an "X" in the box(es) next to all applicable frequency band(s).

☒ a. C-Band (4/6 GHz) ☐ b. Ku-Band (12/14 GHz)

☐ c.Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: Frequency Upper:

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

◉ a. Fixed Earth Station

○ b. Temporary-Fixed Earth Station

○ c. 12/14 GHz VSAT Network

○ d. Mobile Earth Station

(N/A) e. Geostationary Space Station

(N/A) f. Non-Geostationary Space Station

○ g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY: Choose only one.

◉ Transmit/Receive ○ Transmit-Only ○ Receive-Only ○ N/A

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

Not Applicable

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.

○ **Yes** ◉ **No**

Rad Haz

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?	○ Yes ◉ No
30. Is the applicant an alien or the representative of an alien?	○ Yes ◉ No ○ N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	○ Yes ◉ No ○ N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	○ Yes ◉ No ○ N/A
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	○ Yes ◉ No ○ N/A
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.	

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	○ Yes ◉ No
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstances.	○ Yes ◉ No
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explination of circumstances.	○ Yes ◉ No
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attemptiing unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition?If Yes, attach as an exhibit, an explanation of circumstances	○ Yes ◉ No
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	○ Yes ◉ No
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. *See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.*	◉ Yes ○ No
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in *47 C.F.R. 25.137, as appropriate*. If No, proceed to question 43.	○ Yes ◉ No
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?	

43. Description. (Summarize the nature of the application and the services to be provided). Harris Corporation requests authority to construct and operate a 3.8 meter C Band earth station to be used in connection with a critical project for the Federal Aviation Administration. The earth station will provide air traffic radar services to the FAA.Name: FAA Infra Cont

43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.	(●) **A**
By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.	( ) **B**
By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.	( ) **C**

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- ( ) Individual
- ( ) Unincorporated Association
- ( ) Partnership
- (●) Corporation
- ( ) Governmental Entity
- ( ) Other (please specify)

45. Name of Person Signing	46. Title of Person Signing
Jim Sheppard	Program Manager

47. Please supply any need attachments.

Attachment 1: App Purp-Link Bud	Attachment 2:	Attachment 3:

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B:(Technical and Operational Description)

FOR OFFICIAL USE ONLY

Location of Earth Station Site

E1: Site Identifier:	CROSS CITY	E5. Call Sign:	E130024
E2: Contact Name	BRUCE FITCH	E6. Phone Number:	321-309-5517
E3. Street:	CTY - 10191 NE 351 HWY	E7. City:	OLD TOWN
		E8. County:	DIXIE
E4. State	FL	E9. Zip Code	32680
E10. Area of Operation:		FIXED POINT SPECIFIED IN E11 & E12	

E11. Latitude:	29 ° 44 ' 36.9 " N			
E12. Longitude:	83 ° 0 ' 1.8 " W			
E13. Lat/Lon Coordinates are:		○ NAD-27	◉ NAD-83	○ N/A
E14. Site Elevation (AMSL):		18.3 meters		

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide asNon Comp Statement a technical analysis showing compliance with two-degree spacing policy.	○ Yes ◉ No ○ N/A
E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	○ Yes ○ No ◉ N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	○ Yes ◉ No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	◉ Yes ○ No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	○ Yes ◉ No
E20. FAA Notification - (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and or the FAA's study regarding the potential hazard of the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.	○ Yes ◉ No

POINTS OF COMMUNICATION

Satellite Name:SES-2 (S2826) | SES-2 | 87 W.L. If you selected OTHER, please enter the following:	
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier:	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna GainTransmint and/or Recieve(____dBi at _____GHz)
CROSS CITY	1	1	Prodelin	1383	3.8	46.2 dBi at 6.17
						41.9 dBi at 3.912

E28. Antenna Id	E33/34. Diameter Minor/Major(meters)	E35. Above Ground Level (meters)	E36. Above Sea Level (meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers (dBW)
1	3.8/3.8	4.0	22.3	0.0	0.067	0.0	34.5

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands(MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V,L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier(dBW)	E49. Maximum ERIP Density per Carrier(dBW/4kHz)
1	3700 4200	R	Vertical	64K0G7W	0.0	0.0

E50. Modulation and Services QPSK						
1	5925 6425	T	Horizontal	64K0G7W	34.5	22.5
E50. Modulation and Services QPSK						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc E/W Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon(dBW/4kHz)
1	Geostationary	5925 6425	15.0/ 139.0	101.4	10.9	251.5	20.9	-24.0

REMOTE CONTROL POINT LOCATION

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E65. Phone Number
E62. Street Address			
E63. City	E67. County	E64/68. State/Country /	E66. Zip Code

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

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HARRIS CORPORATION
FCC FORM 312
NEW EARTH STATION
AUGUST 2013

Application Purpose

Harris Corporation ("Harris") hereby submits this FCC Form 312 application for a proposed 3.8 meter transmit/receive C Band earth station to be located in Old Town, Florida. This application is a resubmission of its Form 312 application made with the Commission on June 07, 2013[1] under File No. SES-LIC-20130607-00474.

On August 12, 2013 the Commission dismissed File No. SES-LIC-20130607-00474 without prejudice to refiling[2] for the following reasons:

- ***Harris lists the Total Input Power at antenna flange in Item E38 of its Schedule B as 0.071 Watts for the digital emission designator 64K0G7W listed in Item E47. However, the RF Radiation Hazard study provided as part of Harris's application lists the input power at antenna flange as 0.067 Watts. Furthermore, the stated maximum input power of 0.071 Watts (-11.5dBW) does not appear to be sufficient to close the link with SES-2. Therefore, if Harris elects to re-file this application, it must confirm that the power requested is sufficient to close the link with SES-2, submit a link budget in support of such a confirmation, and update the frequency coordination.***

- ***Harris lists, in Items E54-58 of Schedule B, the eastern and western limits of the satellite arc, the range of antenna elevation angles, and the range of antenna azimuth angles. Specifically, Harris lists the antenna azimuth angle in the western limit as 252.0 degrees. However, our computations show the antenna azimuth angle in the western limit should be 251.5 degrees.***

Harris has corrected the relevant portions of FCC Form 312, Schedule B within this application. As requested, Harris is also supplying the link budget demonstrating that the power level noted within the application is sufficient to close the link with SES-2.

Because this submission only supplies the corrected information as noted, an additional application fee is not required pursuant to 47 C.F.R. § 1.1111(d).

[1] Which in turn was a resubmission of a Form 312 application filed by Harris on January 31, 2013 under File No. SES-LIC-20130131-00129.

[2] ***See DA 13-1746, released August 12, 2013.***

SES WORLD SKIES LINK BUDGET ANALYSIS

Prepared by:	kavanaught	Date:	7-Sep-12
Customer Name:	<insert prospect name>		
Project Name:			
Scenario name:	**FTI-SAT CTY C BAND SOM STATION**		

Spacecraft:		SES-2
Orbital location:		273 ° E longitude
Transponder information		
Transponder ID:		13C
Start frequency (U/D):	MHz	6167.0/3942.0
Bandwidth:	MHz	36.0
Saturated EIRP:	dBW	43.6
Saturated flux density:	dBW/m²	-90.5
G/T:	dB/K	3.5
Input back-off:	dB	5.5
Output back-off:	dB	4.0
Operational mode:		Multi carrier
Inclined orbit:		0.0
ALC mode, Range:	dB	No, 0.0
Resource usage summary		
Required bandwidth:	MHz	**0.20**
Equivalent EIRP:	dBW	17.1
EIRP margin:	dB	6.0
Total		
Number of carriers:		2
EIRP:	dBW	11.1
PEB of carriers:	MHz	0.05
Allocated bandwidth:	MHz	0.160
Bandwidth margin:	MHz	0.040
Calculation type:		Clear Sky + Worse of Up & Downlink Fades
Analysis target:		Transponder Resource

Earth stations			
Tx earth station ID:		USA-SOM-008	USA-AGH-0038N
Earth station city:		Somis , California	Cross City , FL
Antenna diameter:	m	9.00	3.80
Latitude:	deg. N	41.83	29.63
Longitude:	deg. E	-120.63	276.87
Antenna elevation angle:	degrees	30.9	55.2
Antenna azimuth angle (E of N):	degrees	135.1	187.8
Uplink aspect correction:	dB	1.2	1.1
Tracking capability (yes/no):		no	no
Receive earth station ID:		USA-AGH-0038N	USA-SOM-008
Earth station city:		Cross City , FL	Somis , California
Antenna diameter:	m	3.80	9.00
Latitude:	deg. N	29.63	41.83
Longitude:	deg. E	276.87	-120.63
Antenna elevation angle:	degrees	55.2	30.9
Antenna azimuth angle (E of N):	degrees	187.8	135.1
Rx E/S G/T clear sky:	dB/K	21.9	29.7
Downlink aspect correction:	dB	1.2	2.8
Tracking capability (yes/no):		no	no
CARRIER			
Carrier ID:		C:USA-SOM-008>USA-AGH-0038N	C:USA-AGH-0038N>USA-SOM-008
Part of topology:		Duplex (2)	Duplex (2)
Information rate:	Mbps	**0.096**	**0.096**
Overhead rate:	kbps	0.0	0.0
FEC inner coding:		0.750	0.750
RS outer coding (if used):		n/a	n/a
Coding type:		Turbo Coding	Turbo Coding
Transmission rate:	Mbps	0.128	0.128
Modulation scheme:		QPSK	QPSK
Symbol rate:	Msps	0.064	0.064
Allocated bandwidth:	MHz	**0.080**	**0.080**
Noise bandwidth:	MHz	0.064	0.064
Desired threshold Eb/No:	dB	6.1	6.1
Frame length		n/a	n/a
Pilot insertion		n/a	n/a
BANDWIDTH REQUIREMENTS			
Allocated bandwidth:	MHz	0.080	0.080
Calculated PEB, one carrier:	MHz	**0.030**	**0.020**
PEB/ABW ratio:		0.378	0.250
Required bandwidth, one carrier:	MHz	0.08	0.08
Number of carriers (multiplier):		1	1
Total BW per carrier type:	MHz	0.10	0.10

SES WORLD SKIES LINK BUDGET ANALYSIS

LINK BUDGET		Clear sky	Clear sky
Earth station transmit EIRP/carrier:	dBW	**37.4**	**35.2**
Transmit pointing loss:	dB	0.25	0.25
Uplink path loss:	dB	200.0	199.6
Uplink aspect correction:	dB	1.2	1.1
Uplink atmospheric loss:	dB	0.08	0.06
Uplink rain margin, if used:	dB	0.3	1.2
Target uplink availability:	%	99.98	99.98
Availability calculated for:		Annual	Annual
Per carrier flux density:	dBW/m²	-126.8	-128.6
Transponder saturation flux density:	dBW/m²	-90.5	-90.5
Transponder beam centre G/T:	dB/K	3.5	3.5
C/T uplink (thermal):	dBW/K	-160.5	-162.4
C/N uplink:	dB	20.0	18.2
C/T uplink (interference prior to ASI):	dBW/K	-150.5	-150.5
C/I uplink (prior to ASI):	dB	30.0	30.0
Carrier input back-off:	dB	36.3	38.1
Carrier output back-off:	dB	34.8	36.6
Carrier downlink EIRP at BC:	dBW	**8.9**	**7.1**
Calculated power equivalent bandwidth:	MHz	0.030	0.020
Receive pointing loss:	dB	0.25	0.25
Downlink atmospheric loss:	dB	0.05	0.08
Downlink aspect correction:	dB	1.2	2.8
Downlink path loss:	dB	195.7	196.1
Downlink rain margin, if used:	dB	0.2	2.0
Target downlink availability:	%	99.98	100.00
Rx E/S G/T clear sky:	dB/K	21.9	29.7
Rx E/S G/T degraded:	dB/K	n/a	n/a
C/T downlink (thermal):	dBW/K	-166.4	-162.5
C/N downlink:	dB	14.1	18.1
C/T downlink (interference prior to ASI):	dBW/K	-162.4	-162.4
C/I downlink (prior to ASI):	dB	18.1	18.1
C/(N+I) total prior ASI:	dB	11.9	13.3
C/I adjacent spacecraft interference:	dB	12.4	12.6
C/(N+I) total:	dB	9.1	9.9
Eb/No total, clear sky:	dB	7.3	8.1
MARGINS			
Implementation margin:	dB	1.0	1.0
Required threshold C/(N+I):	dB	8.9	8.9
Desired threshold Eb/No:	dB	6.1	6.1
Threshold margin:	dB	0.2	1.0
Margins shown for:		Clear Sky	Clear Sky
Link availability:	%	99.964	99.979
Power density and ITU Limits			
Uplink			
On-axis power spectral density:	dBW/Hz	-64.3	-59.1
Off-axis EIRP density per 4 KHz:	dBW/4 kH	-11.21	-6.00
ITU limit -3 degrees:	dBW/4 kH	20.07	20.07
Margin to ITU limit:	dB	31.3	26.1
Downlink			
On-axis power spectral density:	dBW/Hz	-39.2	-41.0
PSD at earth's surface per 4 kHz:	dBW/4 kH	-165.45	-167.67
ITU limit per 4 kHz:	dBW/4 kH	-152.00	-152.00
Margin to ITU limit:	dB	13.5	15.7
Interference and Intermodulation			
Earth station intermodulation:	dB	33.0	33.0
Transponder intermodulation:	dB	20.0	20.0
Adjacent carrier interference:	dB	27.0	27.0
Co-channel interference:	dB	26.0	26.0
Adjacent channel interference:	dB	33.0	33.0
Terrestrial interference uplink:	dB	33.0	33.0
Terrestrial interference downlink:	dB	33.0	33.0
ASI uplink:	dBW/Hz	-43.0	-43.0
ASI downlink:	dBW/Hz	-30.0	-30.0
HPA Sizing			
Earth Station:		USA-SOM-008	USA-AGH-0038N
Antenna diameter:	m	9.0	3.8
Total number of carriers:		1	1
Total EIRP required:	dBW	37.4	35.2
Peak antenna gain:	dBi	53.7	46.2
UPC:	dB	n/a	n/a
Post HPA losses:	dB	0.0	0.0
HPA type:		SSPA	SSPA
HPA mode:		Multi carrier	Single carrier
Required backoff:	dB	4.0	1.0
Additional margin:	dB	0.0	0.0
Required HPA size:	Watts	0.1	0.1
Recommended HPA size:	Watts	1.0	1.0

SES WORLD SKIES LINK BUDGET ANALYSIS

Prepared by:	kavanaught	Date:	7-Sep-12

Customer Name:	<insert prospect name>
Project Name:	

Scenario name: **FTI-SAT CTY C BAND SOM STATION**

Spacecraft:		SES-2
Orbital location:		273 ° E longitude
Transponder ID		13C
Start frequency (U/D):	MHz	6167.0/3942.0

Earth Station:		USA-AGH-0038N
Antenna diameter:	m	3.8
Total number of carriers:		1
Total EIRP required:	dBW	35.2
Peak antenna gain:	dBi	46.2
UPC:	dB	n/a
Post HPA losses:	dB	0.0
HPA type:		SSPA
HPA mode:		Single carrier
Required backoff:	dB	1.0
Additional margin:	dB	0.0
Required HPA size:	Watts	0.1
Recommended HPA size:	Watts	1.0

Earth Station:		USA-SOM-008
Antenna diameter:	m	9.0
Total number of carriers:		1
Total EIRP required:	dBW	37.4
Peak antenna gain:	dBi	53.7
UPC:	dB	n/a
Post HPA losses:	dB	0.0
HPA type:		SSPA
HPA mode:		Multi carrier
Required backoff:	dB	4.0
Additional margin:	dB	0.0
Required HPA size:	Watts	0.1
Recommended HPA size:	Watts	1.0

ANALYSIS OF NON-IONIZING RADIATION
for HARRIS CORPORATION
Site: Cross City State: FL
Latitude: 29 44 36.9 Longitude: 83 0 1.8 (NAD83)
12-03-2012

The Office of Science and Technology Bulletin, No. 65, October 1985 and revised August 1997, specifies that the maximum level of non-ionizing radiation that a person may be exposed to over a six minute period is an average power density equal to 5 mW/cm**2 (five milliwatts per centimeter squared) for a controlled environment. For an uncontrolled environment, the maximum level of non-ionizing radiation that a person may be exposed to over a thirty minute period is an average power density equal to 1 mW/cm**2 (one milliwatt per centimeter squared). It is the purpose of this report to determine the maximum power flux densities of the earth station in the far zone, near zone, transition zone, at the main reflector surface, and between the antenna edge and the ground.

Parameters which were used in the calculations:
==========

Antenna Diameter, (D) = 3.8000 m

Antenna Surface Area (Sa) = pi(D**2)/4 = 11.3411 m**2

Wavelength at 6.1750 GHz (lambda) = 0.0485 m

Transmit Power at Flange (P) = 0.0670 Watts

Antenna Gain at Earth Site (GES) = 46.0000 dBi = 39810.7171
Power Ratio:
AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = $\frac{(n)(D^{**}2)}{\text{lambda}}$ = 178.6392 m

Far Zone Power Density (Rf) = $\frac{(GES)(P)}{4*pi*(Df^{**}2)}$ = 0.0067 W/m**2

= 0.0007 mW/cm**2

2. NEAR ZONE CALCULATIONS

Power Flux Density is considered to be at a maximum value throughout the entire length of this Zone. The Zone is contained within a cylindrical volume which has the same diameter as the antenna. Beyond the Near Zone, the Power Flux Density will decrease with distance from the Antenna.

Distance to the Near Zone (Dn) = $\frac{D^{**}2}{4*\text{lambda}}$ = 74.4330 m

Near Zone Power Density (Rn) = $\frac{16.0(n)P}{pi(D^{**}2)}$ = 0.0142 W/m**2

= 0.0014 mW/cm**2

3. TRANSITION ZONE CALCULATIONS

The Power Density begins to decrease with distance in the Transition Zone. While the Power Density decreases inversely with distance in the Transition Zone, the Power Density decreases inversely with the square of the distance in the Far Zone. Since the maximum Power Density in the Transition Zone will not exceed the Near Zone values, it is not calculated.

4. MAIN REFLECTOR ZONE

Main Reflector Power Density = $\frac{2(P)}{Sa}$ = 0.0118 W/m**2

= 0.0012 mW/cm**2

5. ZONE BETWEEN THE MAIN REFLECTOR AND THE GROUND

Applying uniform illumination of the Main Reflector Surface:

Main to Ground Power Density = $\frac{P}{Sa}$ = 0.0059 W/m**2

= 0.0006 mW/cm**2

CALCULATED SAFETY MARGINS SUMMARY
AND EVALUATION

Controlled Safety Margin = 5.0 - Calculated Zone Value (mW/cm**2)

Zones	Safety Margins (mW/cm**2)	Conclusions
1. Far Zone	4.9993	Complies with ANSI
2. Near Zone	4.9986	Complies with ANSI
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	4.9988	Complies with ANSI
5. Main Reflector to Ground	4.9994	Complies with ANSI

Uncontrolled Safety Margin = 1.0 - Calculated Zone Value (mW/cm**2)

Zones	Safety Margins (mW/cm**2)	Conclusions
1. Far Zone	0.9993	Complies with ANSI
2. Near Zone	0.9986	Complies with ANSI
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	0.9988	Complies with ANSI
5. Main Reflector to Ground	0.9994	Complies with ANSI

6. EVALUATION

A. Controlled Environment
B. Uncontrolled Environment
All Zones comply with ANSI Standards.

U.S. Department
of Transportation

800 Independence Ave., S.W.
Washington, D.C. 20591

**Federal Aviation
Administration**

ASU330-FTI-06-6219
18 January 2006

Harris Corporation
Attn: Elizabeth Briscoe
Mail Stop F- 11A
1025 West NASA Boulevard
Melbourne, FL 32919

Subject: FAA Concurrence for Harris C-Band and Ku-Band License Submissions

Dear Ms. Briscoe:

This letter serves to affirm that Harris Corporation, the FAA Telecommunications Infrastructure contractor, requires C-Band and Ku-Band Satellite Frequency Licenses to meet the FAA's data and voice service requirements from remote locations. FAA Satellite communications are essential to the air traffic control and safety of flight within the National Airspace System (NAS). These licenses will also be used in response to emergency operations such as disaster recovery. Granting these licenses is considered in the best interest of the flying public.

If you have any questions regarding matter, please call me at 202.493.5963.

Sincerely,

//s//

Susan Eicher
FTI Contracting Officer

HARRIS CORPORATION
FCC FORM 312
AUGUST 2013

Non-Compliant Antenna Statement

Re: 3.8 Meter Fixed Earth Station
Fixed Satellite Service
C-Band: 3700 – 4200 MHz and 5925.0 – 6425.0 MHz

Harris Corporation ("Harris" or "Applicant") proposes to use a Prodelin 1383, 3.8 meter antenna for its proposed earth station located in Old Town, FL at the coordinates of 28-44-36.9 N, 083-00-01.8 W. The Prodelin 1383 does not strictly comply with 25.209 of the FCC Rules and Regulations.

Pursuant to the *Part 25 Earth Station Fifth Report and Order*, the International Bureau (Bureau) provides a List of Approved Non-Routine Earth Station Antennas. Specifically the website http://www.fcc.gov/ib/sd/nresa lists non-routine earth station antennas licensed for use by one or more U.S. earth station operators since March 15, 2005.

"The Commission has ruled that an Earth station applicant proposing to use an antenna on this list may no longer be required to attach antenna radiation plots as an exhibit to their applications, as required by Section 25.132 (b)(3) of the Commission's rules, 47 C.F.R. § 25.132 (b)(3). Rather, they need only to provide an attachment to their applications citing the particular non-routine earth station antenna they plan to use, and an application file number and call sign of a license in which that type of non-routine antenna has been previously approved."

Accordingly, Harris submits the application file number and call sign, File No. SES-MOD-20080531-00695 (Call Sign: E980383), of a previously licensed Prodelin 1383, 3.8 meter earth station, which indicates that the 3.8 meter antenna proposed in this application will operate without conflict.

The applicant agrees to accept any adjacent satellite interference in the 4 GHz receive band as a result of the performance of the antenna in the 1º to 1.5º region. The applicant understands that no adjacent satellite interference protection will be available in the 1º to 1.5º regions. The applicant understands that adjacent satellite interference protection applies only to the extent of the criteria set forth in §25.209. Should the use of this antenna cause interference to other systems; the applicant agrees to terminate transmission upon notice from the Commission.

Micronet Communications, Inc.
720 F Avenue, Suite 100
Plano, Texas 75074
972-422-7200

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M1227712 5.93 GHz
Licensee: HARRIS CORPORATION

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:

Cross City, FL

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:

06/07/2013 No-impact change notification pursuant to Section 101.103(d)(2)(ix) - No response required.

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

ALLTEL COMMUNICATIONS INC
ALLTEL COMMUNICATIONS LLC
ALLTEL COMMUNICATIONS LLC - S FLORIDA
ALLTEL FLORIDA INC
COMSEARCH INC
DUKE ENERGY BUSINESS SERVICES, LLC
EMBARQ FLORIDA INC
HARRIS CORPORATION
M/A COM PRIVATE RADIO SYSTEMS INC
MICRONET COMMUNICATIONS INC
NEW CINGULAR WIRELESS PCS LLC
NEW CINGULAR WIRELESS PCS LLC - GEORGIA
NEW CINGULAR WIRELESS PCS LLC-FLORIDA
NORTH FLORIDA BROADBAND AUTHORITY
SUMTER ELECTRIC COOPERATIVE INC
T-MOBILE LICENSE LLC
VERIZON WIRELESS (VAW) LLC
VERIZON WIRELESS PERSONAL COMM L P (FL)
VERIZON WIRELESS PERSONAL COMMUNICATIONS LP

Micronet Communications, Inc.
720 F Avenue, Suite 100
Plano, Texas 75074
972-422-7200

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M1227712 5.93 GHz
Licensee: HARRIS CORPORATION

Respectfully Submitted,

Jeremy Lewis
Systems Engineer

Attached: 1 data sheet

Micronet Communications, Inc.
720 F Avenue, Suite 100
Plano, Texas 75074
972-422-7200

File: M1227712

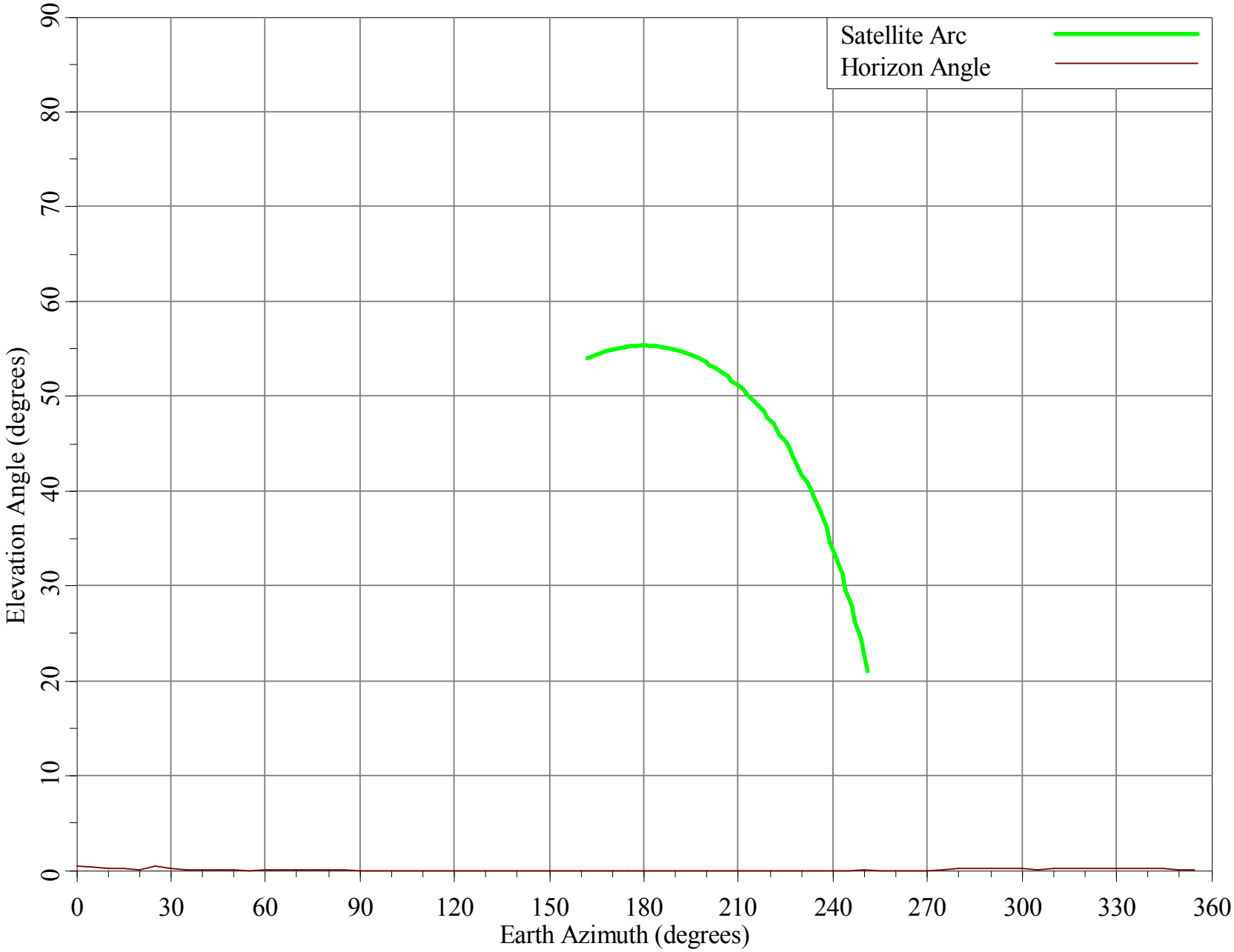
TECHNICAL CHARACTERISTICS OF TRANSMIT RECEIVE EARTH STATION

Company:		HARRIS CORPORATION	
Site Name, State:		Cross City, FL	
Call Sign:			
Latitude	(NAD83)	29 44 36.9 N	
Longitude	(NAD83)	83 0 1.8 W	
Elevation AMSL	(ft/m)	60.00	18.29
Receive Frequency Range	(MHz)	3700-4200	
Transmit Frequency Range	(MHz)	5925-6425	
Range of Satellite Orbital Long.	(deg W)	74.00	139.00
Range of Azimuths from North	(deg)	162.29	251.50
Antenna Centerline	(ft/m)	10.00	3.05
Antenna Elevation Angles	(deg)	53.95	20.94

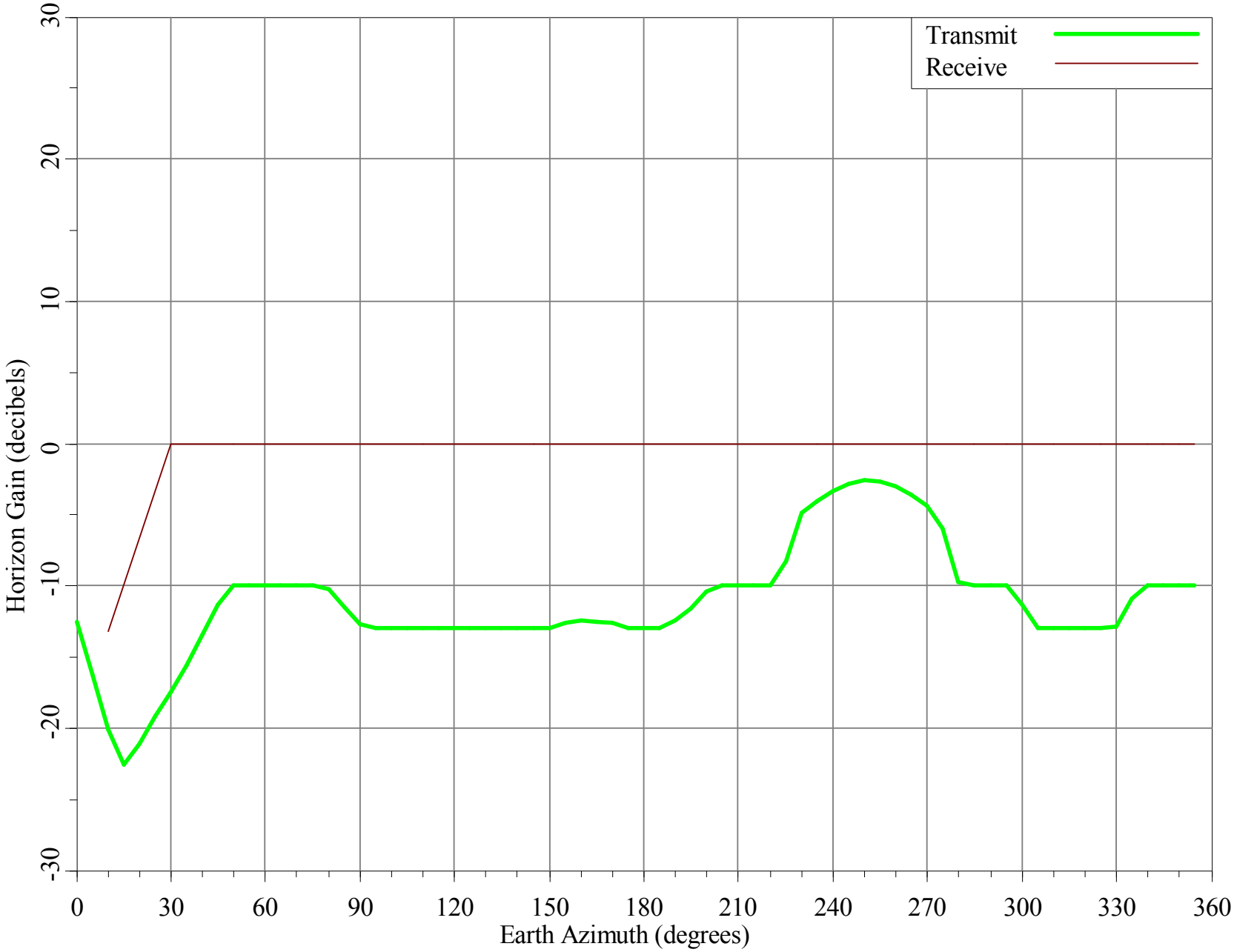
Equipment Parameters		Receive	Transmit
Antenna Gain, Main Beam	(dbI)	41.90	46.00
15 DB Half Beamwidth	(deg)	0.80	0.70
Antennas	Receive: PRODELIN 1383		
	Transmit: PRODELIN 1383		
Max Transmitter Power	(dbW/4KHz)		-23.50
Max EIRP Main Beam	(dbW/4KHz)		22.50
Modulation / Emission Designator	DIGITAL	64K0G7W	

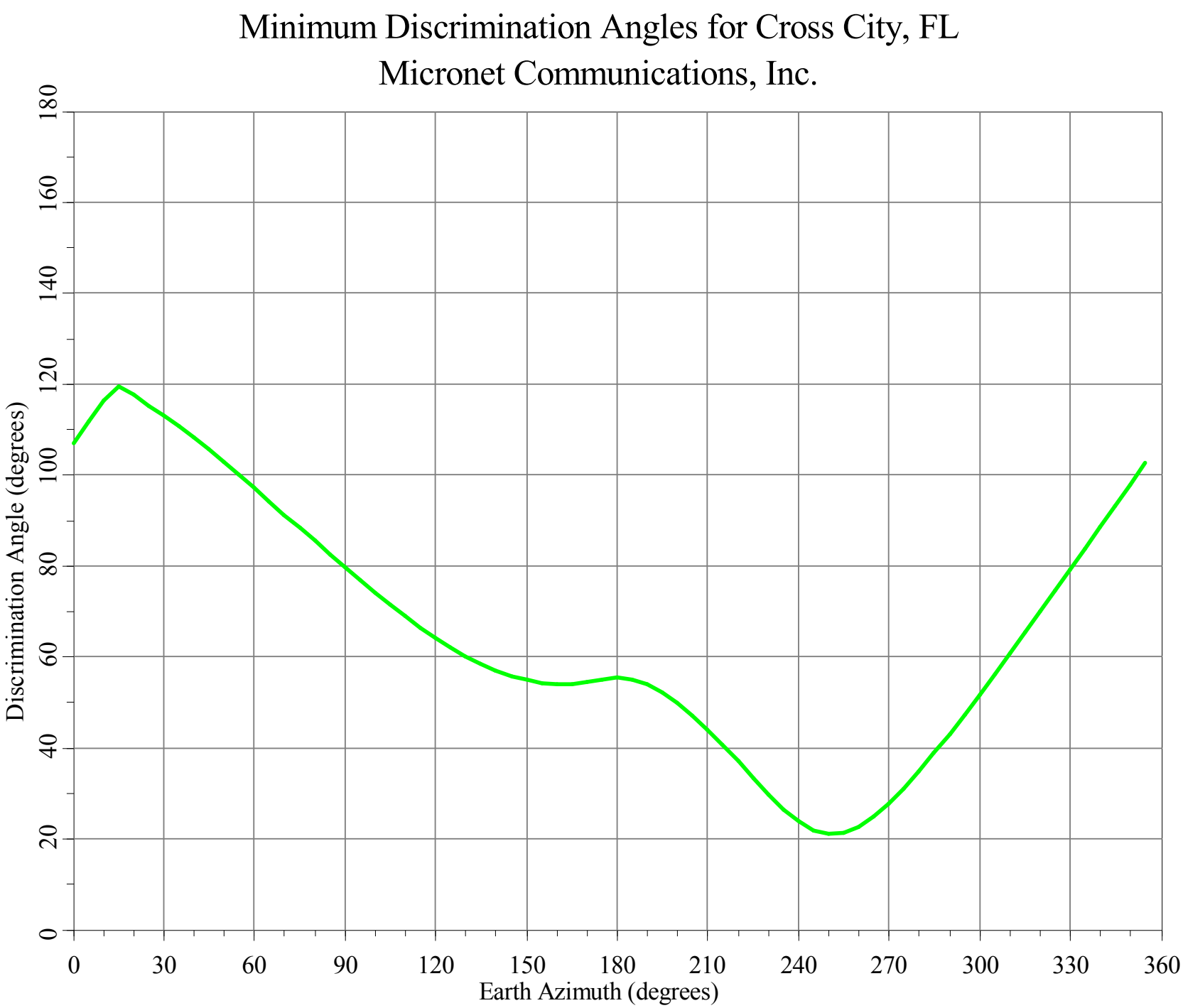
Coordination Parameters		Receive	Transmit
Max Greater Circle Distances	(km)	302.49	129.13
Max Rain Scatter Distances	(km)	517.36	100.00
Max Interference Power Long Term	(dbW)	-140.60	-154.00
Max Interference Power Short Term	(dbW)	-118.40	-130.80
Rain Zone / Radio Zone		1	A

Horizon Angle & Satellite Arc for Cross City, FL
Micronet Communications, Inc.

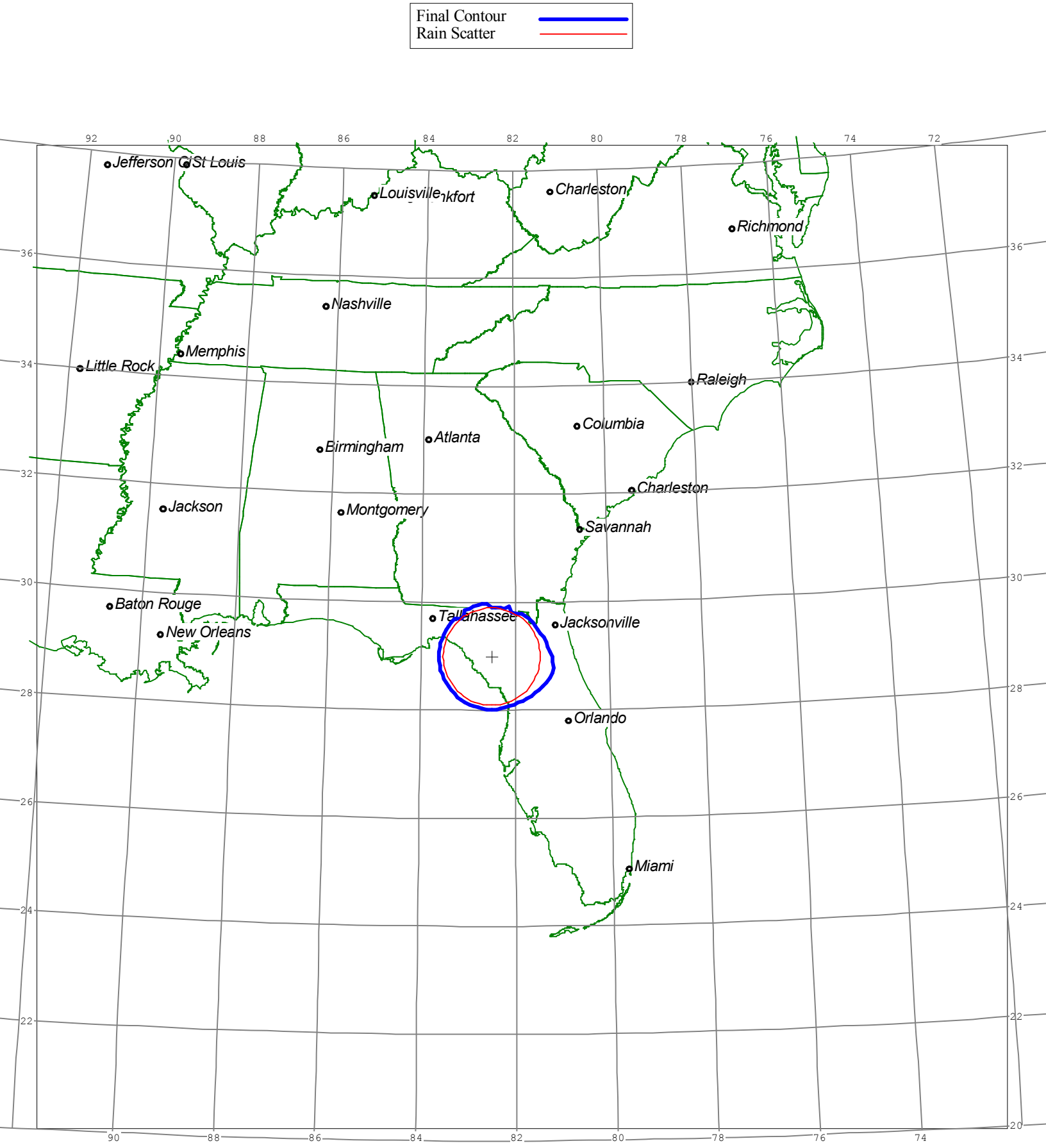


Horizon Gain for Cross City, FL
Micronet Communications, Inc.




Minimum Discrimination Angles for Cross City, FL
Micronet Communications, Inc.
Discrimination Angle (degrees)
0
20
40
60
80
100
120
140
160
180
0
30
60
90
120
150
180
210
240
270
300
330
360
Earth Azimuth (degrees)

Final Contour & Rain Scatter for Cross City, FL - Transmit

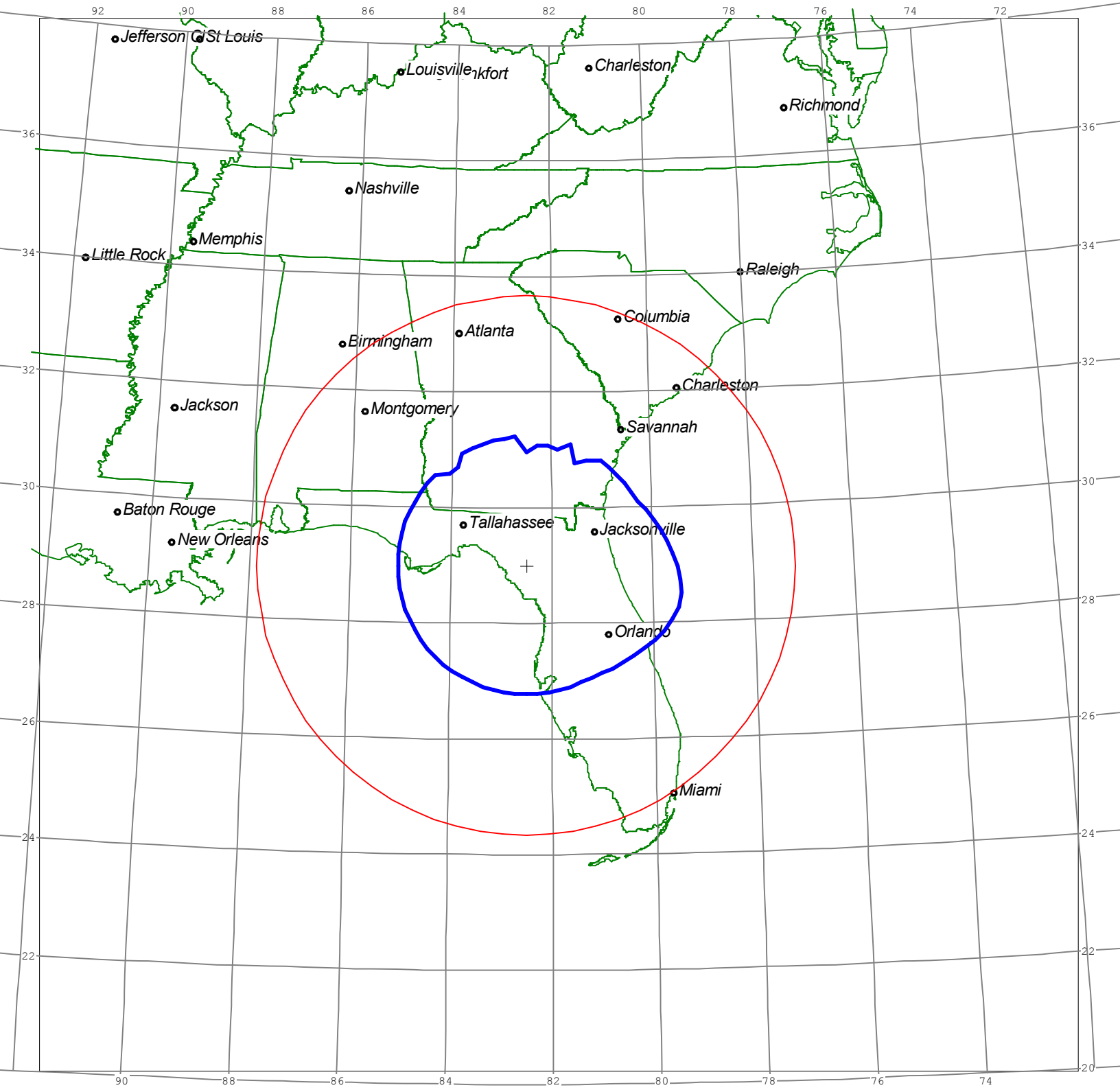


SCALE - 1:10000000 1 inch = 157.8 miles

Final Contour & Rain Scatter for Cross City, FL - Receive

SCALE - 1:10000000 1 inch = 157.8 miles

Final Contour
Rain Scatter



HARRIS CORPORATION
FCC FORM 312
NEW EARTH STATION
AUGUST 2013

FAA NOTIFICATION NOT REQUIRED

FAA notification is not required pursuant to 47 C.F.R. § 17.7(a), because the antenna is less than 6.1 meters in height above ground level.