

APPLICATION FOR  
CONSTRUCTION PERMIT INFORMATION  
RADIO STATION WSRQ  
SARASOTA, FLORIDA

1220 KHZ 1 KW-D 4 W-N DA-2

January 8, 2015

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Executive Summary - WSRQ

This engineering exhibit supports an application of construction permit for radio station WSRQ in Sarasota, Florida. A minor change in location to a new site with modified parameters is proposed.

WSRQ is presently licensed to operate daytime on 1220 kilohertz with 1 kilowatt and secondary nighttime with 159 watts, utilizing the same directional antenna for both operations. By means of this present application, the licensee proposes to specify a new transmitter site and operate daytime with 1 kilowatt and secondary nighttime with 4 watts utilizing the same two tower directional pattern. The proposed operation will share one of two towers with existing station, WWPR, Bradenton, Florida on 1490 kilohertz.

The proposal is classified as a minor change according to 47 CFR 73.3571(a)(2). As a Class D station operating on one of the channels listed in 73.25(c), the proposal satisfies 47 CFR 73.21(a)(3) which permits operation with a nominal power of not less than 0.25 kilowatt nor more than 50 kilowatts at any time.

The Federal Aviation Administration has not been notified of the proposal as the proposed tower is less than 200 feet AGL and passes the FCC TOWAIR program.

A handwritten signature in black ink, reading "Ronald D. Rackley". The signature is written in a cursive, flowing style.

Ronald D. Rackley, P.E.

January 8, 2015

### Broadcast Facility - WSRQ

The proposed facility complies with the engineering standards and assignment requirements of 47 C.F.R. Sections 73.24(e), 73.24(g), 73.33, 73.45, 73.150, 73.152, 73.160, 73.182(a)-(i), 73.186, 73.189 and 73.1650. Information included herein demonstrates compliance with all relevant requirements. The technical equipment proposed, the location of the transmitter, and other technical phases of operation comply with the regulations governing the same, and the requirements of good engineering practice.

### Proposed Transmitter Location

The location of the proposed WSRQ facility will to be located at NAD27 coordinates:

27-28-32 North

82-32-08 West

One existing and one new tower will be utilized for full time operation.

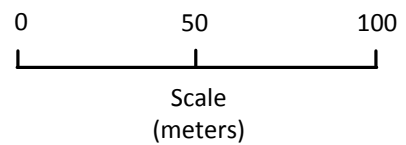
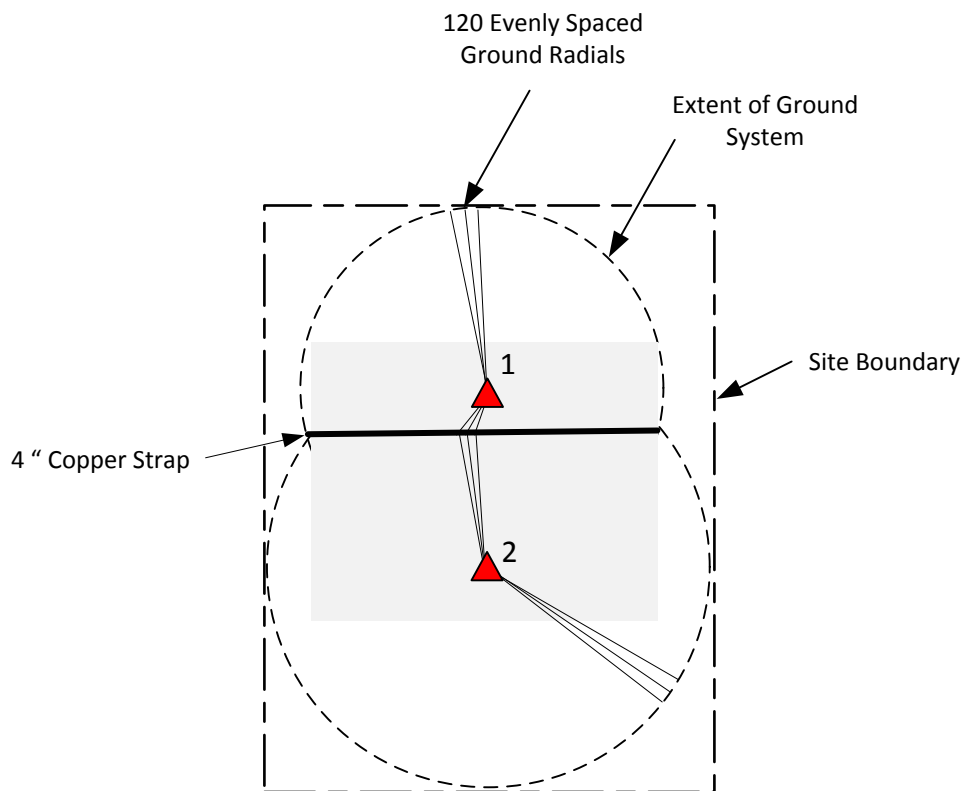
### Ground System

The existing ground system of non-directional station WWPR consists of 120 equally-spaced buried copper wire radials extending to a length of 50.3 meters. The theoretical RMS efficiency of the proposed directional antenna, 299 mV/m, exceeds the minimum value required by the FCC Rules, 282 mV/m, by 17 mV/m. The correction specified for a nondirectional tower in the FCC's "*AM Ground System Correction Factors for nondirectional AM Stations*" with a ground system of 50.3 meters at 1220 kilohertz is 12.9 mV/m. Although the correction factors are not for use with elements of directional antennas, there is no doubt with regard to the proposed antenna system meeting the efficiency requirements of the FCC Rules. When the second tower is added, additional ground wires consisting of 120 equally-spaced buried copper wire radials will extend to a length of 61.4 meters from it except where terminated and bounded to the existing

ground radials. As the new ground system extends in the direction of the major lobe, it is concluded that the calculated efficiency, with no correction applied for the proposed WSRQ directional antenna system, is appropriate for the purposes of this application.

#### Proposed Directional Antenna Patterns

Polar graphs of the proposed daytime and nighttime horizontal plane standard radiation patterns appear on the following pages. Pertinent information with regard to their parameters and characteristics are shown along with the polar graphs.

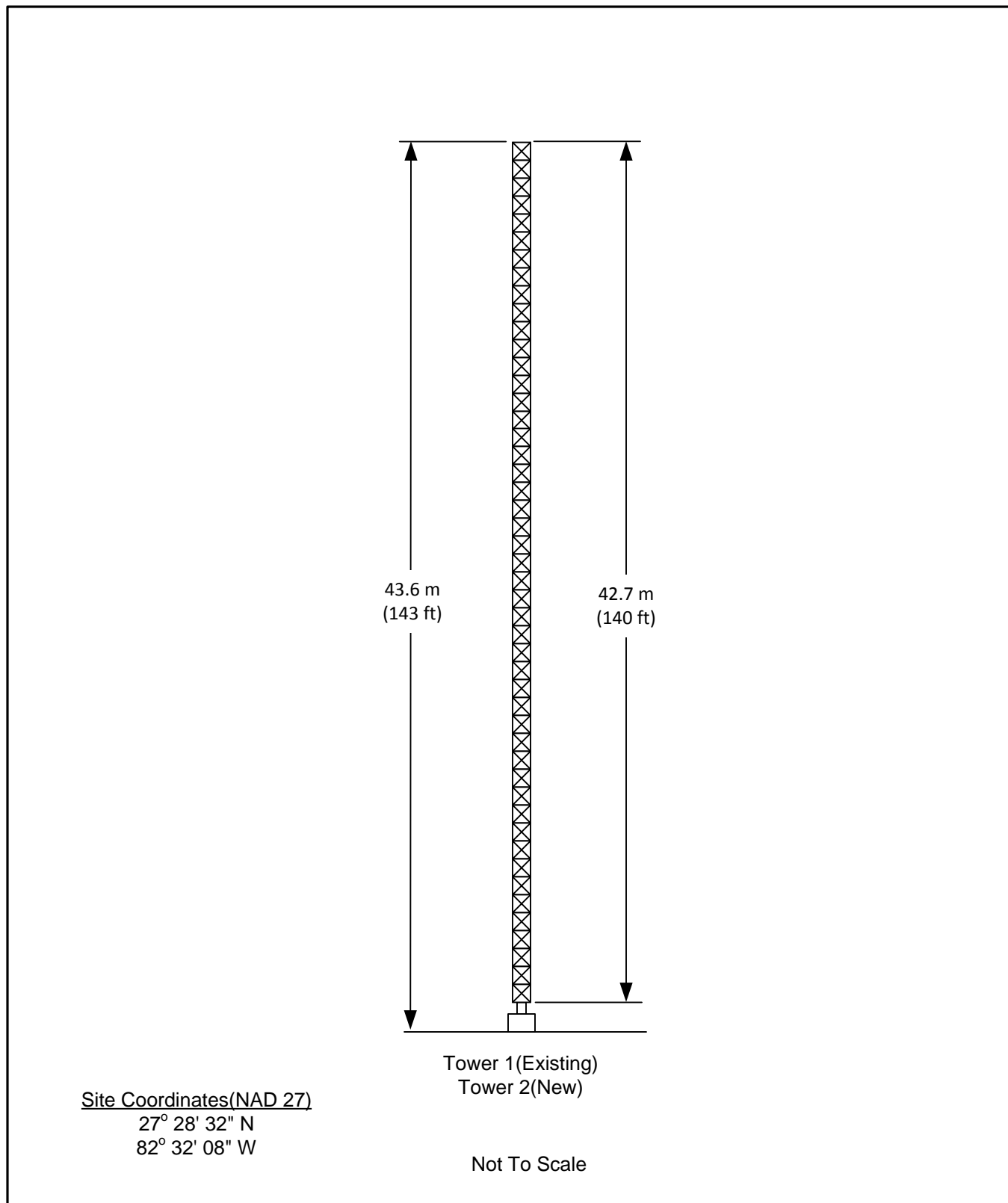


Site Coordinates(NAD 27)  
 27° 28' 32" N  
 82° 32' 08" W

## **ANTENNA SITE PLAN**

RADIO STATION WSRQ  
 SARASOTA, FLORIDA  
 1220 KHZ 1 KW-D 4 W-N U DA-2

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

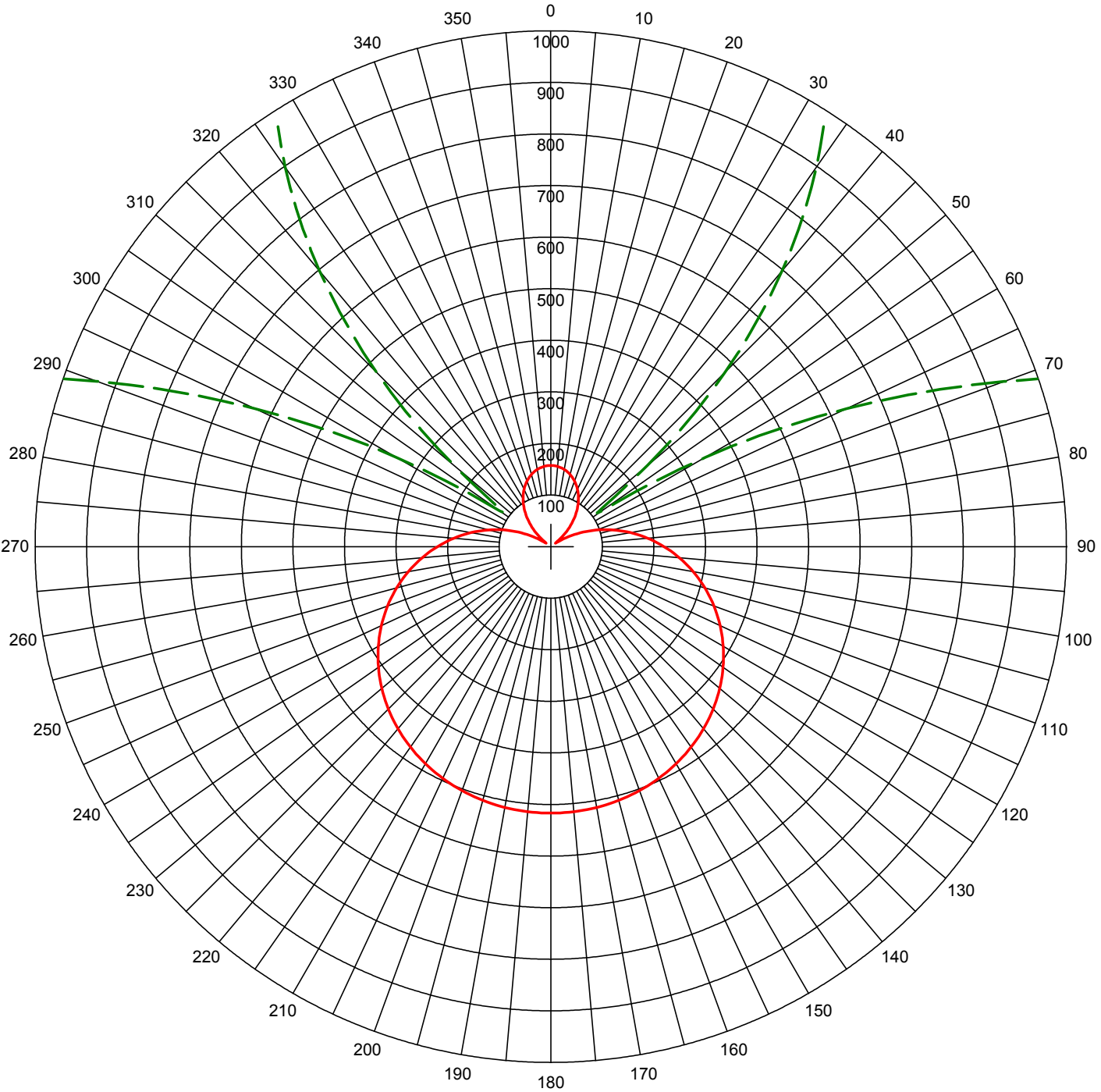


## SKETCH OF ANTENNA ELEMENTS

RADIO STATION WSRQ  
SARASOTA, FLORIDA  
1220 KHZ 1 KW-D 4 W-N U DA-2

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

AM Directional Pattern



Standard Horizontal Plane Pattern

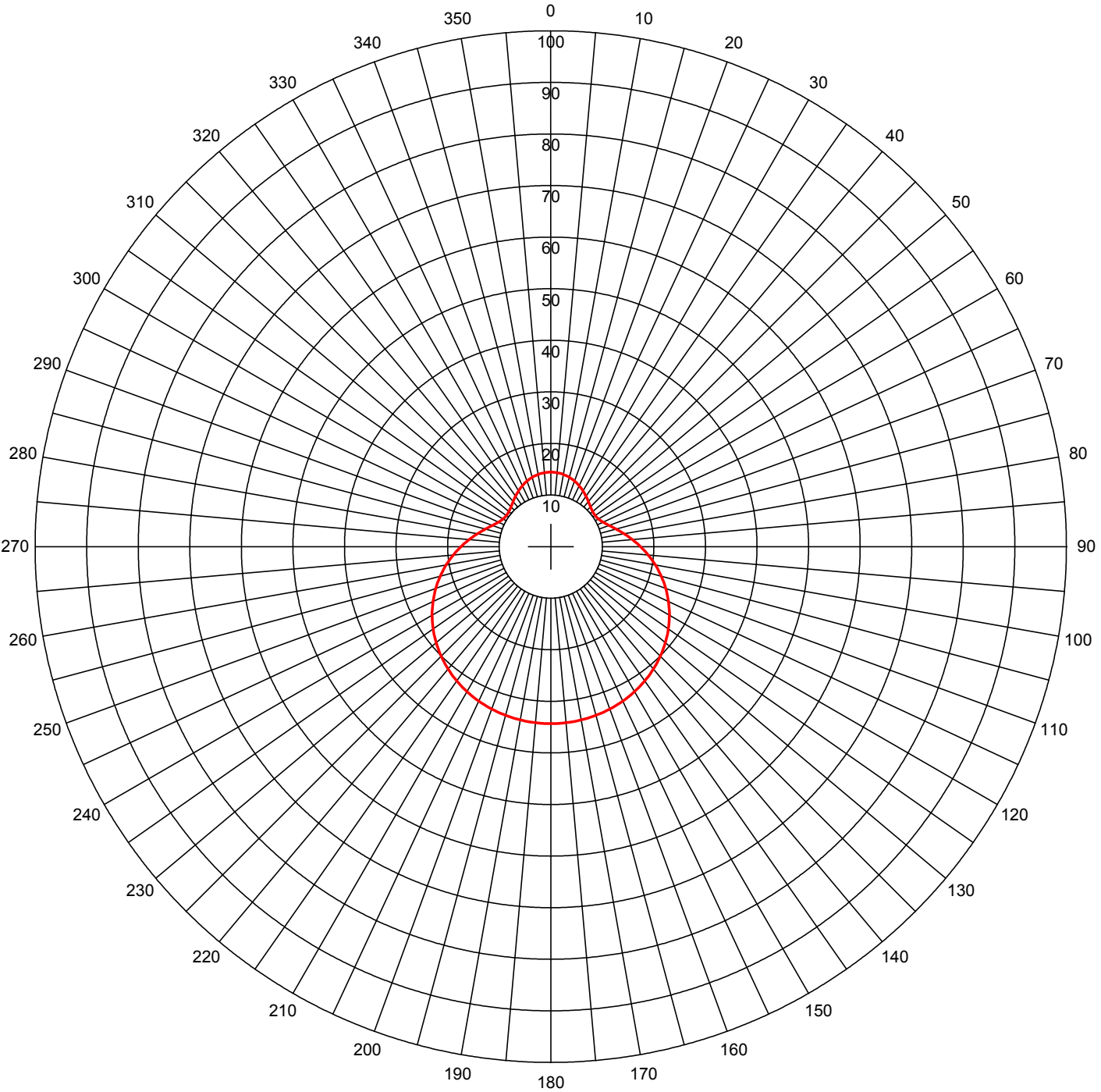
— Pattern (mV/m @ 1km)  
- - - Pattern X10

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Switch	TL Switch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	62.6	0	0	0.0	0.0	0.0	0.0
2	1.000	-139.0	70.0	180.0	62.6	0	0	0.0	0.0	0.0	0.0

Call: WSRQ  
Freq: 1220 kHz  
SARASOTA, FL, US  
Hours: D  
Lat: 27-28-32 N  
Lng: 082-32-08 W  
Power: 1.0 kW  
Theo RMS: 299.0 mV/m@1km  
                  @ 1.0 kW  
Theo RMS: 422.1 mV/m@1km  
                  @ 1.0 kW



AM Directional Pattern



Standard Horizontal Plane Pattern

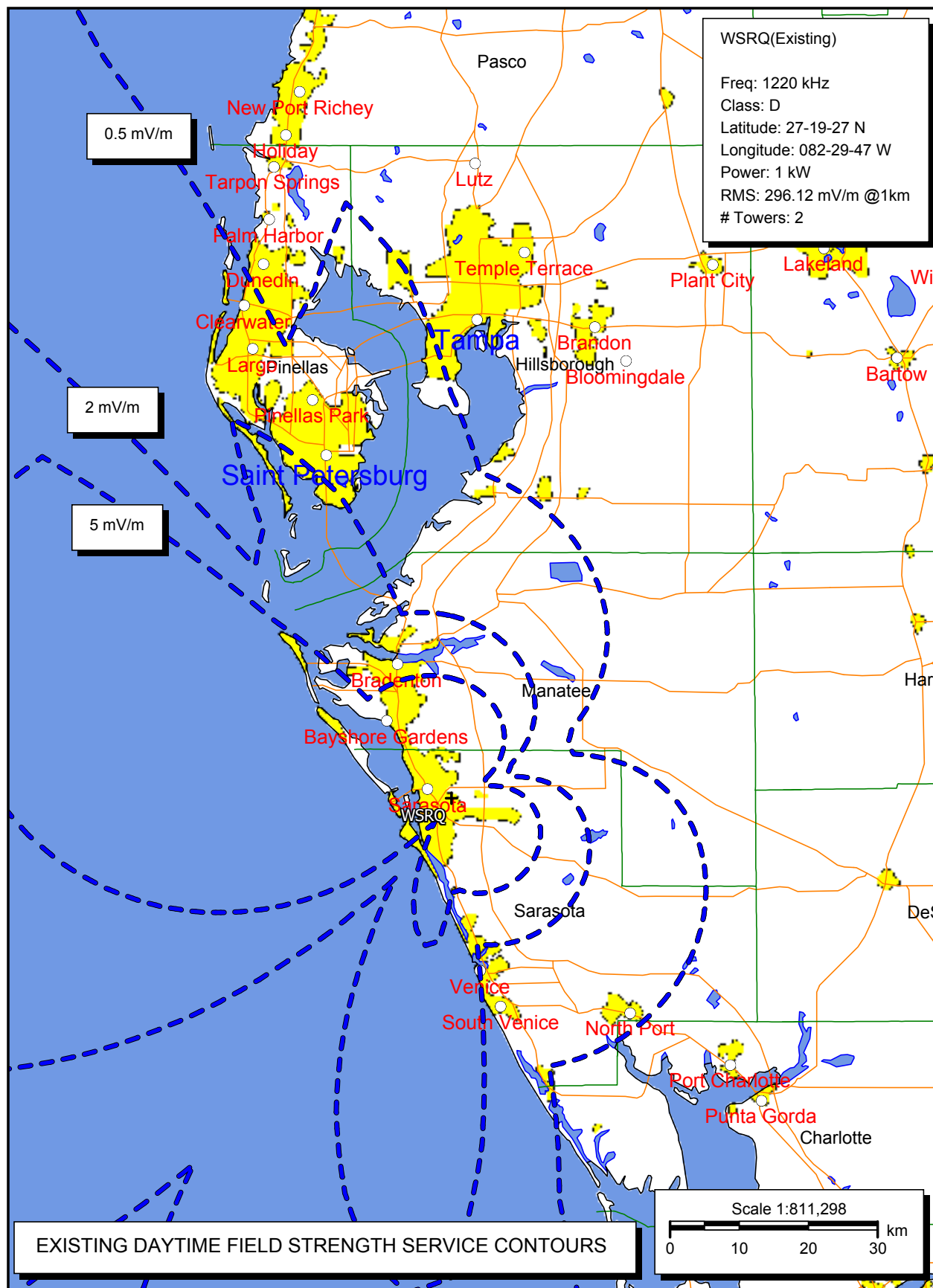
— Pattern (mV/m @ 1km)  
— Pattern X10

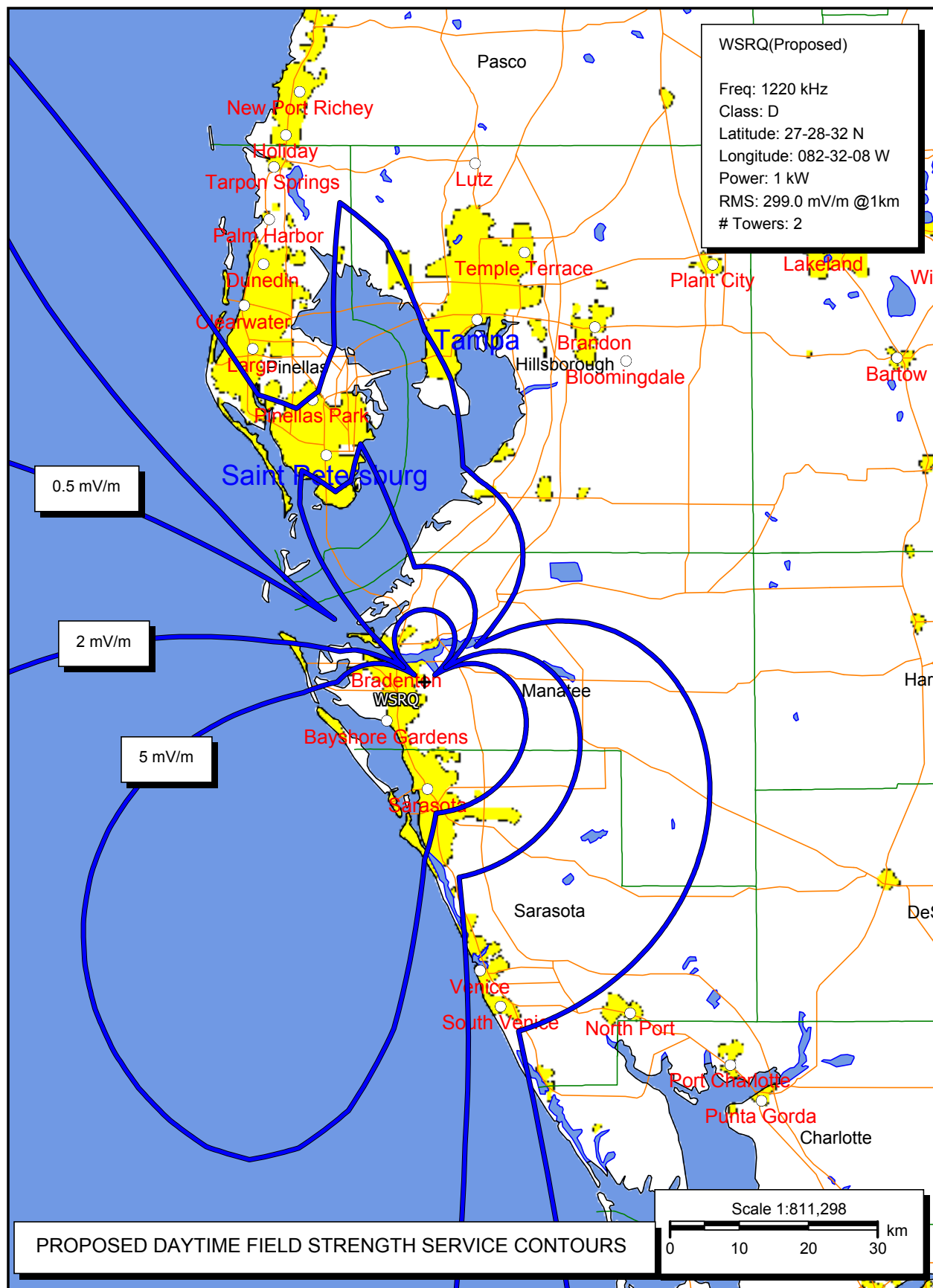
#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Switch	TL Switch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	62.6	0	0	0.0	0.0	0.0	0.0
2	1.000	-139.0	70.0	180.0	62.6	0	0	0.0	0.0	0.0	0.0

Call: WSRQ  
Freq: 1220 kHz  
SARASOTA, FL, US  
Hours: N  
Lat: 27-28-32 N  
Lng: 082-32-08 W  
Power: 0.004 kW  
Theo RMS: 18.9 mV/m@1km  
                  @ 0.004 kW  
Theo RSS: 26.7 mV/m@1km  
                  @ 0.004 kW

Principal Community Coverage and Service Contours - WSRQ

The proposed facility complies with the community coverage requirements of 47 C.F.R. Section 73.24(i). The daytime 5 mV/m contour encompasses the 100 percent of the population and 99.9% of the area for the principal community to be served. The Sarasota limits used for the analysis were obtained from a map in the TIGER 2010 U.S. census files. Maps showing the proposed and existing daytime field strength service contours appear on the following pages.





### Allocation Requirements - WSRQ

The proposed facility complies with the requirements of 47 C.F.R. Section 73.37, 73.182 and 73.187. The proposed operation does not involve overlap of signal strength contours with other stations where there is not already such overlap. A daytime allocation study was made utilizing a combination of FCC Figure M-3 conductivities. A nighttime allocation study shows protection to all stations and international allotments operating on the co-channel and adjacent channel frequencies. The following figures support a conclusion that this proposal comports with all interference protection requirements.

### Cuban Station CMDM

The requirements for contour overlap protection between WSRQ and co-channel station CMDM fall in an area of regulatory uncertainty owing to the fact that no direct agreement exists between the United States and Cuba with regard to protection requirements. For many years, the NARBA agreement governed protection from interference between stations in the United States and Cuba and it required that the 0.025 mV/m contour of one station not overlap the 0.5 mV/m contour of another station on a co-channel in a situation such as exists between WSRQ and CMDM. Cuba formally abrogated the NARBA agreement, but never adopted the Region Two Agreement that came later, leaving no binding requirement with regard to interference between the countries. The protection standard of the Region Two Agreement for daytime studies utilizes a map of ground conductivities developed to cover the regions of North, Central and South American regions. The NARBA agreement specifies ground conductivity of just the North America region and most closely resembles the M3 conductivity digitized with regard to boundary definition. In comparing the two maps, it was found that there are some small but sometimes significant differences between them. In the case of the WSRQ proposal, the overlap with CMDM is reduced using the NARBA conductivity data while it is slightly increased with the Region Two conductivity data. As shown on the

attached pages, the NARBA data better represents the country outlines and thus was used for our analysis.

#### Allocation Study Data

Maps showing the field strength contours requiring study and tabulations of pertinent data regarding the daytime, critical hours and nighttime allocation studies appear on the following pages.

## Tabulation of Data Employed in the Calculation of Groundwave Contours

Reference Station: WSRQ, 1220 kHz  
Location: 27-28-32 N, 082-32-08 W

### 1200 kHz

97.4 km WJUA L 26-42-52 N 082-02-46 W 50.0 kW DA2 - 2093.0 mV/m@1km  
60.5 mi Azi: 150.2 Class: B Sched: U File #: BMML20120410AEI  
Location: PINE ISLAND CENTER, FL, US

### 1210 kHz

277.9 km WNMA L 25-54-00 N 080-21-49 W 47.0 kW DA2 - 2002.0 mV/m@1km  
172.7 mi Azi: 129.4 Class: B Sched: U File #: BL20031028AEK  
Location: MIAMI SPRINGS, FL, US

### 1220 kHz

146.4 km WOTS L 28-19-27 N 081-23-44 W 1.0 kW NDD - 305.8 mV/m@1km  
90.9 mi Azi: 50.4 Class: D Sched: U File #: BL19971117KD  
Location: KISSIMMEE, FL, US

540.2 km CMDM 22-48-00 N 081-01-00 W 10.0 kW ND1 - 336.6 mV/m@1km  
335.7 mi Azi: 163.8 Class: B Sched: U File #:  
Location: C ESPANA, , CU

621.7 km WABF L 30-30-39 N 087-54-13 W 1.0 kW ND1 - 305.3 mV/m@1km  
386.3 mi Azi: 301.4 Class: D Sched: U File #: BL20020114ABF  
Location: FAIRHOPE, AL, US

### 1230 kHz

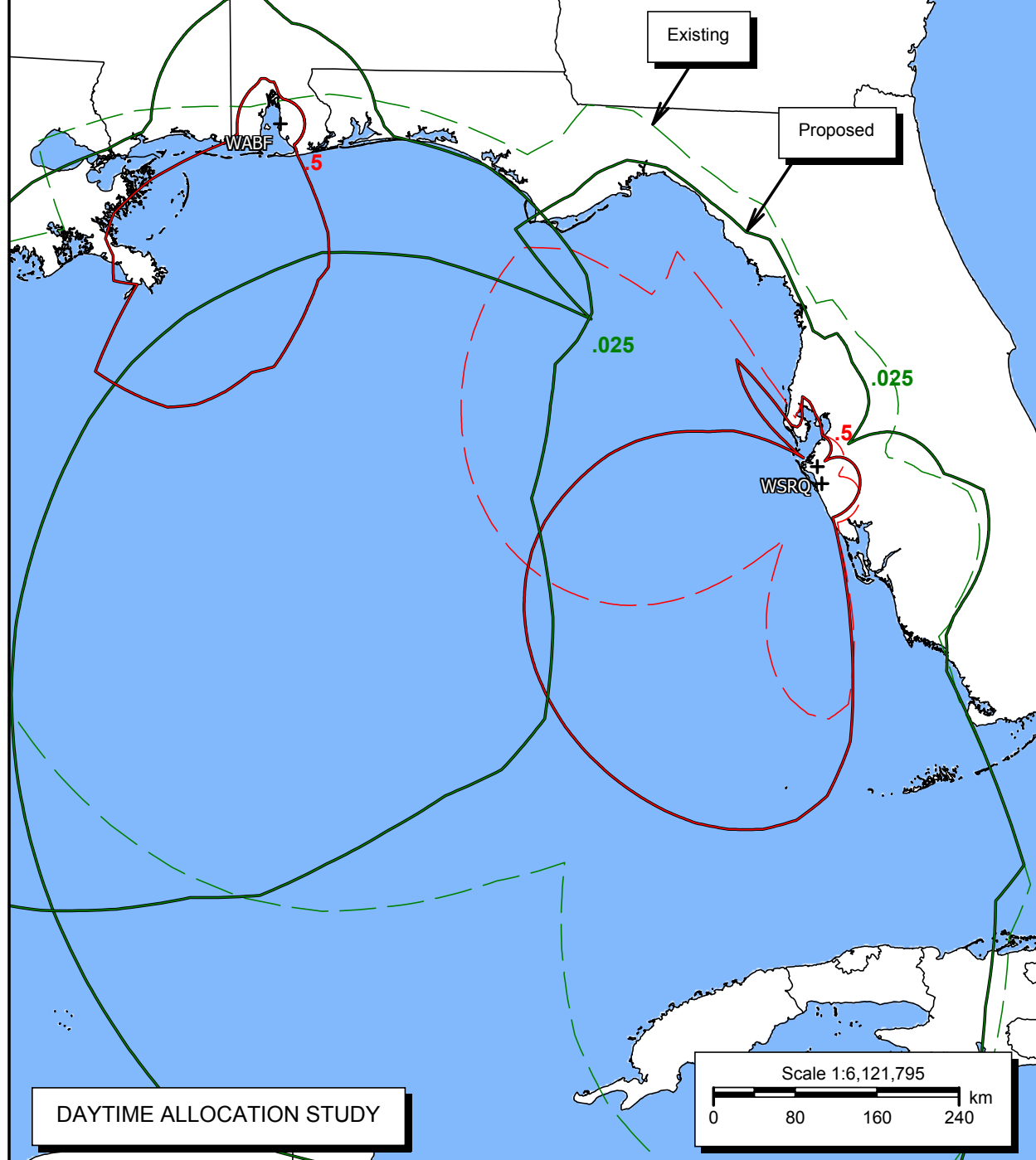
84.3 km WONN L 28-02-23 N 081-57-39 W 1.0 kW ND1 - 321.9 mV/m@1km  
52.4 mi Azi: 42.4 Class: C Sched: U File #: BL  
Location: LAKELAND, FL, US

WSRQ

Freq: 1220 kHz  
Class: D  
Latitude: 27-28-32 N  
Longitude: 082-32-08 W  
Power: 1 kW  
RMS: 299 mV/m @1km  
# Towers: 2

— Causes  
— Receives  
— No Ix

Sheet 1



DAYTIME ALLOCATION STUDY



WSRQ

Freq: 1220 kHz

Class: D

Latitude: 27-28-32 N

Longitude: 082-32-08 W

Power: 1 kW

RMS: 299 mV/m @1km

# Towers: 2

— Causes

— Receives

— No Ix

Sheet 2

Existing

Proposed

WSRQ

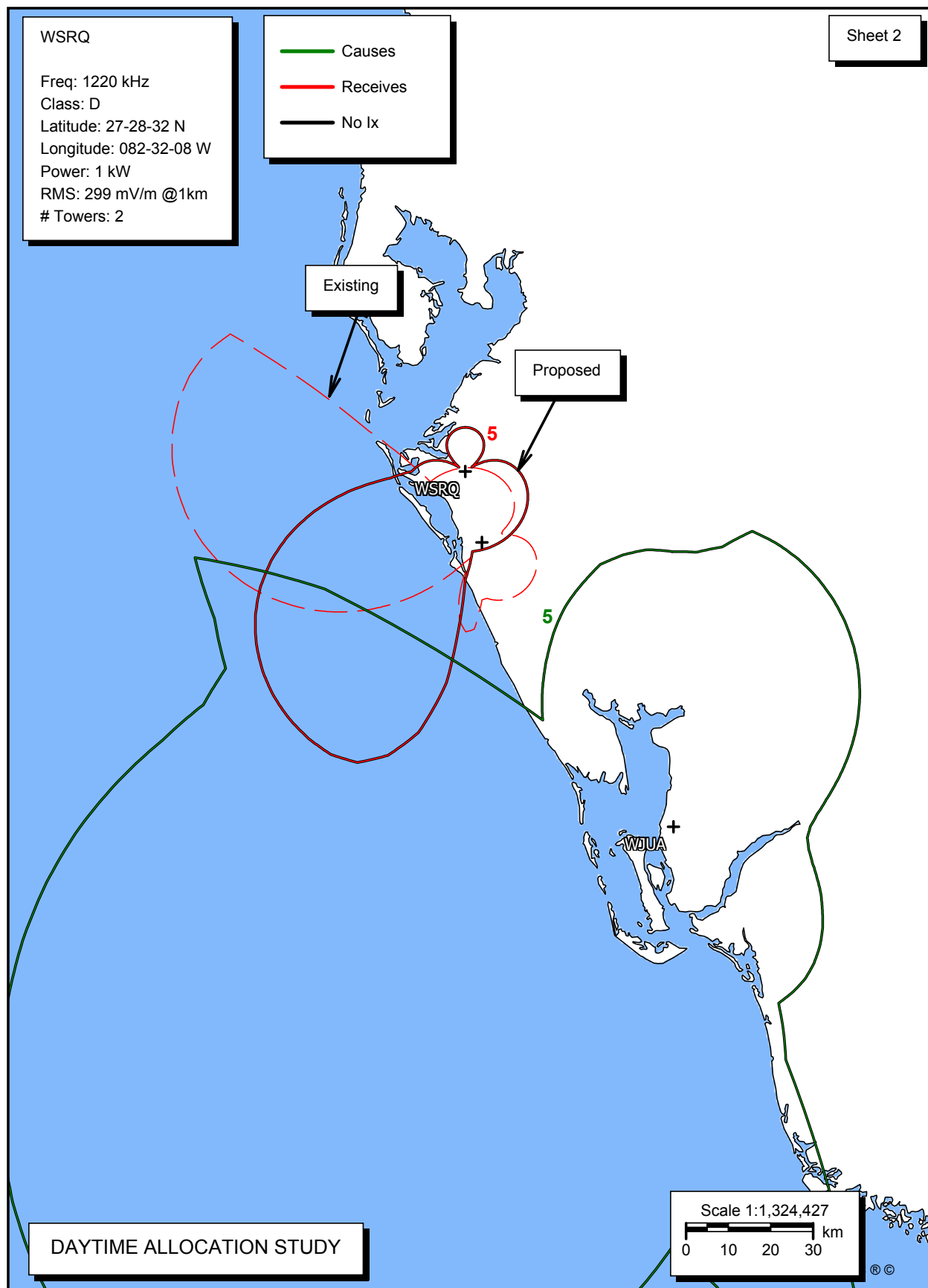
WJUA

DAYTIME ALLOCATION STUDY

Scale 1:1,324,427

0 10 20 30 km

® ©



WSRQ

Freq: 1220 kHz

Class: D

Latitude: 27-28-32 N

Longitude: 082-32-08 W

Power: 1 kW

RMS: 299 mV/m @1km

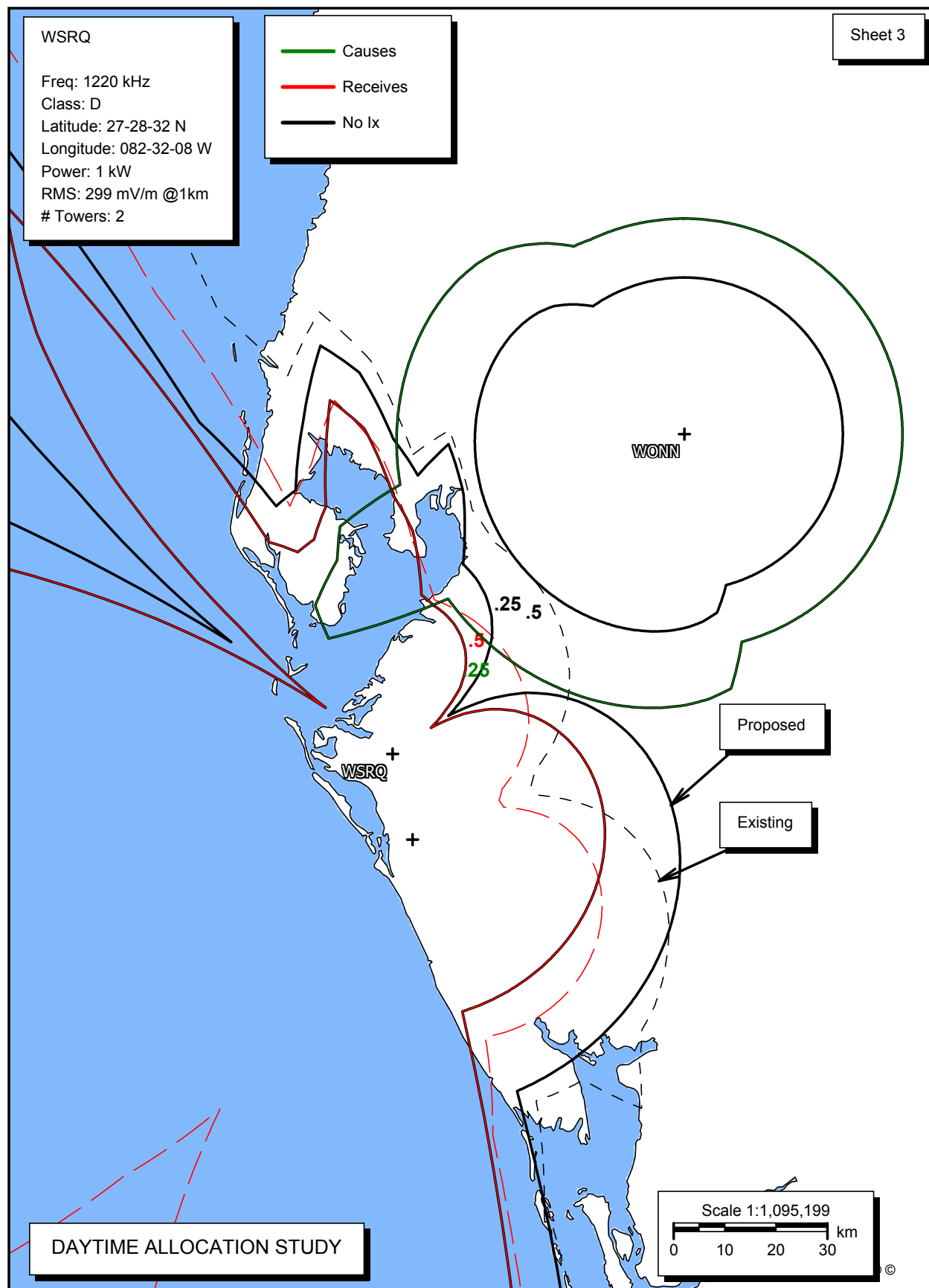
# Towers: 2

Causes

Receives

No Ix

Sheet 3



WSRQ

Freq: 1220 kHz

Class: D

Latitude: 27-28-32 N

Longitude: 082-32-08 W

Power: 1 kW

RMS: 299 mV/m @1km

# Towers: 2

Causes

Receives

No Ix

Sheet 4

Proposed

Existing

WSRQ

.25

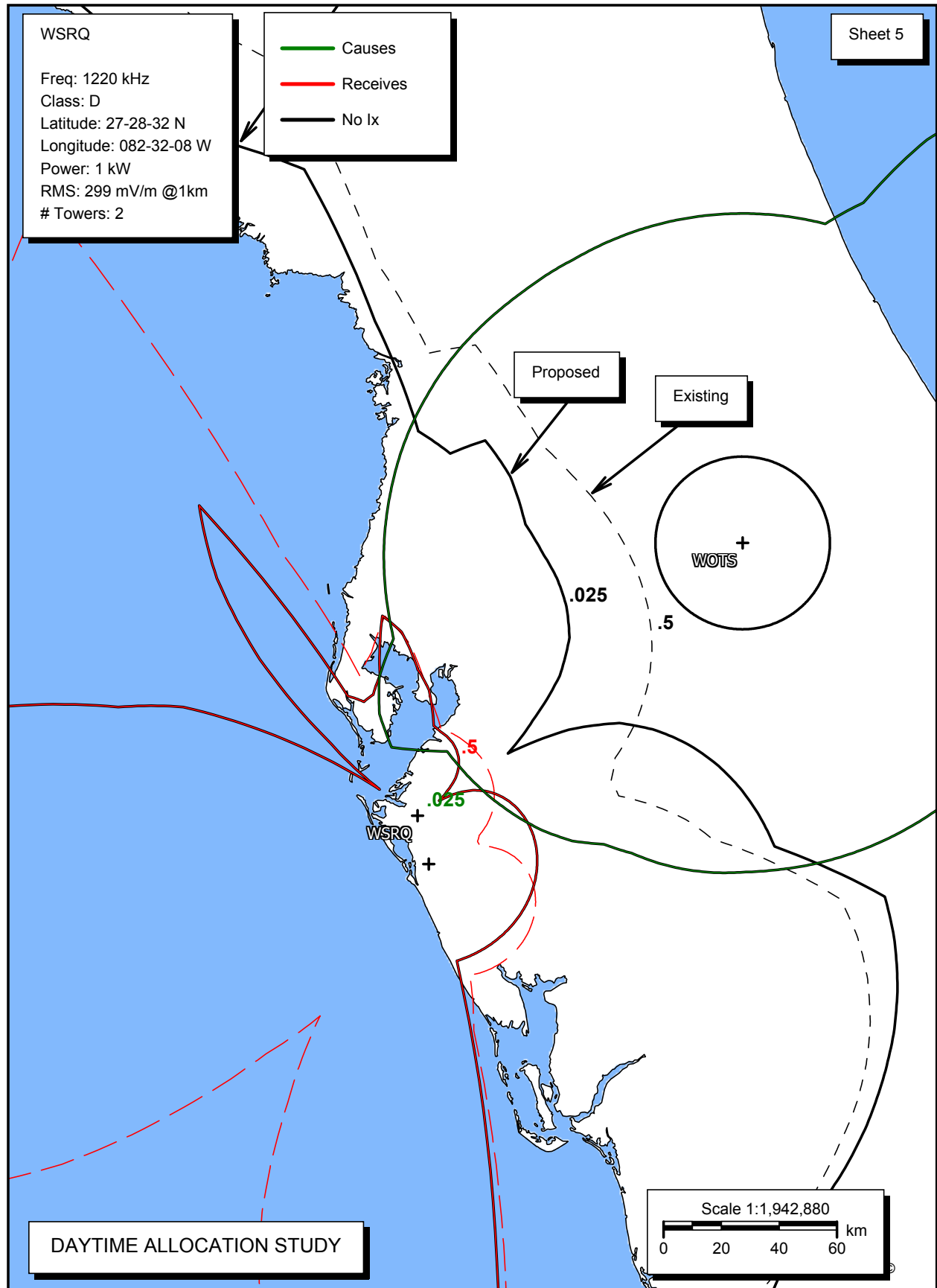
.5

WNMA

DAYTIME ALLOCATION STUDY

Scale 1:2,415,054

0 30 60 90 km



WSRQ

Freq: 1220 kHz  
Class: D  
Latitude: 27-28-32 N  
Longitude: 082-32-08 W  
Power: 1 kW  
RMS: 299 mV/m @1km  
# Towers: 2

— Causes  
— Receives  
— No Ix

Sheet 6

Existing

Proposed

WSRQ

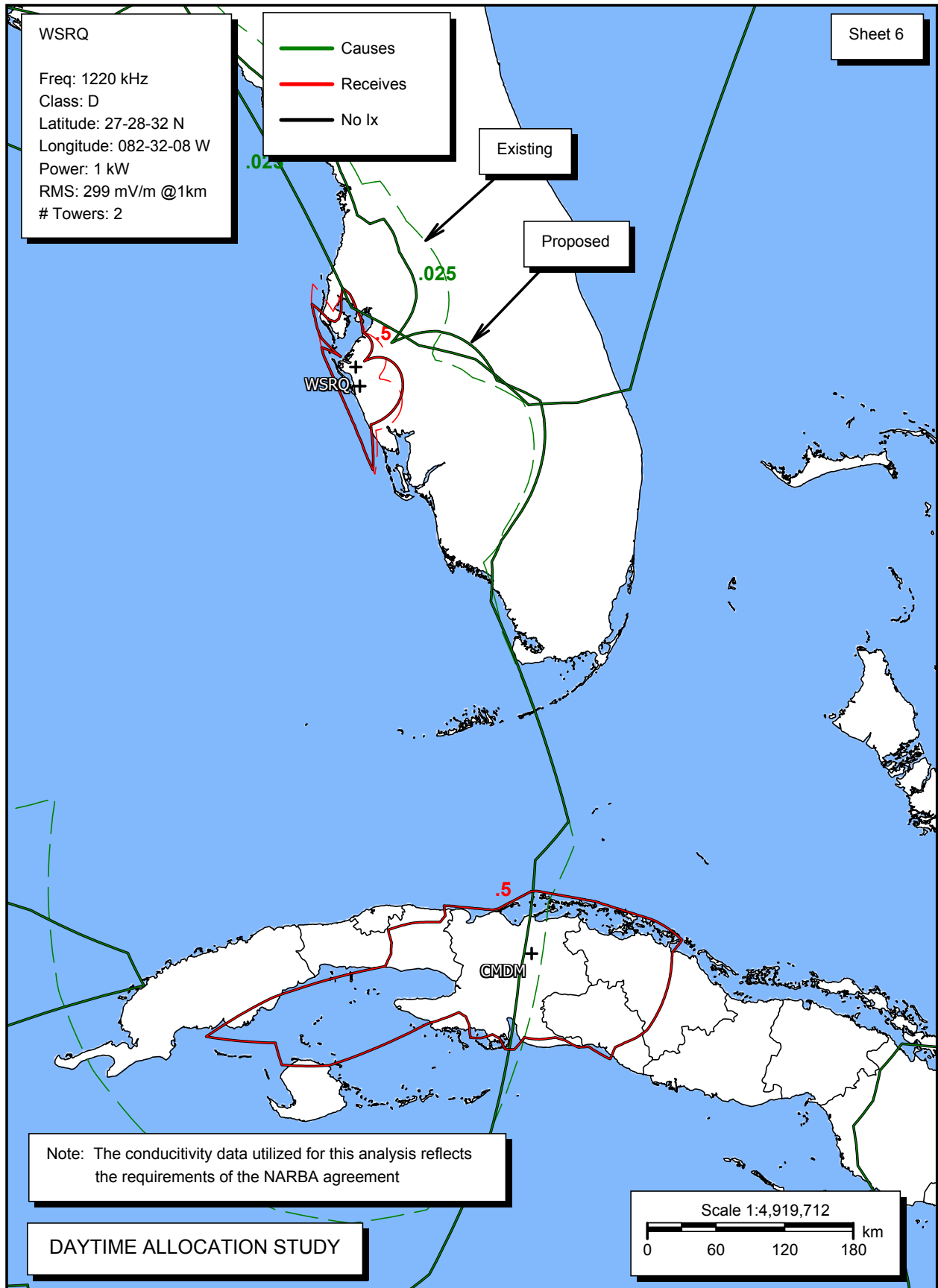
CMDM

Note: The conductivity data utilized for this analysis reflects the requirements of the NARBA agreement

DAYTIME ALLOCATION STUDY

Scale 1:4,919,712

0 60 120 180 km

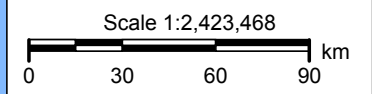


WSRQ

M3/NARBA BOUNDARY

REGION 2

CONDUCTIVITY BOUNDARY MAP



## Nighttime Allocation Study

## Night Allocation Protection Report

Call: WSRQ  
Freq: 1220 kHz  
SARASOTA, FL, US  
Hours: N  
Lat: 27-28-32 N  
Lng: 082-32-08 W  
Power: 0.004 kW  
Theo RMS: 18.9 mV/m @ 1km @ 0.004 kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	62.6	0	0	0.0	0.0	0.0	0.0
2	1.000	-139.0	70.0	180.0	62.6	0	0	0.0	0.0	0.0	0.0

Call Letters	Ct	St	City	SWFF (100uV/m)	Req Prot (mV/m)	Permis (mV/m)	Cur Rad (mV/m)	Margin (mV/m)
XEB/A (80)	MX	DF	SAN LORENZO TEZ	82.88	0.573	34.56s	31.44	3.13
XEB/O (80)	MX	DF	SAN LORENZO TEZ	82.56	0.619	37.51s	31.47	6.05
XEB1/O (80)	MX	DF	SAN LORENZO TEZ	82.55	0.649	39.33s	31.47	7.86
CMDM-D 50% = 3.765,	CU		C ESPANA	47.23	1.882	199.28	31.12	168.16
25% = 4.555; XEB/A=3.76 HJAV-A=1.50 HJFV-A=1.50 YVAP-A=1.43								
WHKW 50% = 7.108,	US	OH	CLEVELAND	21.27	1.843	433.31	14.41	418.90
25% = 7.372; XEB/A=5.66 WPHT=4.30 ZYJ-458-A=1.96								
WNMA 50% = 10.726,	US	FL	MIAMI SPRINGS	233.80	2.937	628.14	24.10	604.03
25% = 11.748; WPHT=10.73 HJBE-A=3.60 HJFF-A=3.17								
WLPO 50% = 10.939,	US	IL	LASALLE	18.87	2.832	750.44	13.54	736.90
25% = 11.327; WHKW=8.22 XEB/A=7.22 KLBB=2.94								
WPHT (180)	US	PA	PHILADELPHIA	25.88	0.500	966.05G	12.66	953.39
KLBB 50% = 9.232,	US	MN	STILLWATER	10.57	2.993	1415.44	13.30	1402.15
25% = 11.971; WLPO=5.71 XEB/A=5.58 WHKW=4.64 CJRL/A=4.38								
KDDR=3.88 CJRB/ =3.64 CHSC/A=3.25								
KDDR 50% = 9.702,	US	ND	OAKES	7.73	2.577	1667.55	12.57	1654.98
25% = 10.309; CJRB/ =6.42 XEB/A=5.31 CJRL/A=4.98 KLBB=3.49								
HRRD 4-B 50% = 8.964,	HO		GUALACO	12.05	4.482	1860.32	33.65	1826.67
25% = 9.712; XEB/A=8.96 HJAV-A=2.87 XESCRT/A=2.40								
WQUN 50% = 24.286,	US	CT	HAMDEN	16.22	6.697	2064.06	12.81	2051.25
25% = 26.79; WHKW=21.44 CKSM/A=11.40 CJUL/A=8.66 WPHT=7.28								
NEW KUNA 50% = 5.985,	US	ID	KUNA	3.92	1.667	2125.85	10.57	2115.28
25% = 6.667; XEB/A=5.16 KHTS=3.04 KWKU=2.25 CJOC/A=1.89								
KWKU 50% = 9.829,	US	CA	POMONA	5.16	2.457	2381.93	11.84	2370.09
25% = 9.829; XEB/A=9.83								

Call Letters	Ct St City	SWFF (100uV/m)	Req Prot (mV/m)	Permis (mV/m)	Cur Rad (mV/m)	Margin (mV/m)
WLRO	US LA DENHAM SPRINGS	56.39	2.747	2436.04	11.21	2424.82
50% = 10.173, 25% = 10.989; WPHT=8.57 WMPS=5.48 WOAI=4.15						
KHTS	US CA CANYON COUNTRY	4.92	2.638	2683.40	11.70	2671.70
50% = 10.551, 25% = 10.551; XEB/A=9.21 KWKU=5.14						
HRHH-2-B	HO S.PEDRO SULA	11.70	6.476	2767.63	32.98	2734.65
50% = 12.952, 25% = 12.952; XEB/A=12.95						
NEW GREECE	US NY GREECE	15.40	8.472	2751.35	14.05	2737.30
50% = 32.781, 25% = 33.889; WHKW=32.78 CHSC/A=8.60						
NEW LAKEVILLE	US NY LAKEVILLE	16.11	8.960	2781.15	14.04	2767.11
50% = 35.838, 25% = 35.838; WHKW=35.84						
NEW LAKEVILLE	US NY LAKEVILLE	16.11	8.960	2781.15	14.04	2767.11
50% = 35.838, 25% = 35.838; WHKW=35.84						
HRQL 2-B	HO SIGUATEPEQUE	9.62	5.840	3035.70	33.23	3002.47
50% = 11.68, 25% = 11.68; XEB/A=11.68						
CJOC/A	CA AB LETHBRIDGE	2.42	1.680	3470.98	11.60	3459.38
50% = 3.364, 25% = 3.714; CJRL/A=2.21 XEB/A=1.90 KDDR=1.68 KHTS=1.13 CJRB/ =1.10						
TIPJ-B	CS HEREDIA	4.49	3.367	3750.79	34.25	3716.53
50% = 6.734, 25% = 9.164; HJAV-A=5.58 XEB/A=3.78 HJFV-A=3.34 HJKR-A=3.27 HJMT-A=3.13 YVAP-A=2.64						
WMPS	US TN BARTLETT	39.42	3.044	3861.25	11.63	3849.62
50% = 12.177, 25% = 12.177; WPHT=12.18						
HIN-C	DR S DOMINGO 6	8.06	6.590	4089.84	27.72	4062.12
50% = 7.522, 25% = 8.553; YVAP-A=5.73 HJFV-A=3.46 YVRD-A=3.44 HJAV-A=3.18 HJMT-A=2.54						
CJRL/A	CA ON KENORA	4.74	4.020	4236.66	13.59	4223.07
50% = 8.041, 25% = 10.375; WHKW=6.80 CJOC/A=4.29 KDDR=4.00 WLPO=3.90 KLBB=3.43						
ZYJ-458-A (330)	BR RIO DE JANEI	0.39	0.330	4271.98S	30.28	4241.70
50% = 0.67, 25% = 0.925; CP 162-A=0.58 YVRD-A=0.33 UNK-A=0.31 UNK-A=0.28 HJKR-A=0.25 HJMT-A=0.25 XEB/A=0.23 WHKW=0.23						
NEW MONCTON/A	CA NB MONCTON	5.21	4.543	4361.91	12.24	4349.67
50% = 9.086, 25% = 11.063; WHKW=9.09 CFVM/A=3.24 WGNV=3.23 WWSF=3.13 CJUL/A=3.02						
KGYN	US OK GUYMON	13.64	1.387	5081.90	10.51	5071.40
50% = 5.371, 25% = 5.547; WPHT=4.33 WOAI=3.18 XEB/A=1.39						
KGYN	US OK GUYMON	13.64	1.387	5081.91	10.51	5071.41
50% = 5.371, 25% = 5.547; WPHT=4.33 WOAI=3.18 XEB/A=1.39						



Blanketing - WSRQ

The provisions of 47 CFR 73.24(g) require that the population within the 1,000 mV/m contour not exceed 1 percent of the population within the 25 mV/m groundwave contour. At the proposed location, during daytime hours, the proposed 1,000 mV/m contour encompasses 385 persons or 0.43 percent of the 387,155 persons in the 25 mV/m contour. Thus, the requirements of 47 CFR 73.24(g) are met.

No persons reside within the proposed nighttime 1000 mV/m contour.

Environmental Protection - WSRQ

The proposed facility is excluded from environmental processing under the requirements of 47 C.F.R. Section 1.1306. The proposed tower 2 is located within the area of the existing AM station tower on the site and a de-tuned grounded communications tower. Therefore, pursuant to Section 1.1306(B)(Note 3) of the FCC Rules, the instant proposal is categorically excluded from environmental processing. The proposed facility will not have a significant environmental impact and will comply with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments. Space within the existing transmitter building will be used to house the transmitting and antenna phasing equipment. No new building construction is proposed.

The proposed WSRQ operation will be evaluated in terms of both the electric and magnetic field components which will be present at the base of each tower. Using Figures 1 through 4 of Supplement A to OET Bulletin 65, the worst case interpolated distances at which the electric and magnetic fields would fall below ANSI guidelines will be calculated before construction. The areas surrounding the base of each tower will be appropriately restricted with a fence having the required minimum radius unless field measurement data indicates otherwise. The fences will assure that persons on the property outside the fenced areas will not be exposed to radiofrequency field levels in excess of those recommended by the ANSI. In addition, warning signs will be posted.