

AMENDED ENGINEERING EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT

prepared for

Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
Facility ID 58724
1360 kHz 5 kW/0.8 kW DA-2 U

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FCC Form 301, Section III-A

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Exhibit 13
COMPREHENSIVE ENGINEERING EXHIBIT
prepared for
Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
Facility ID 58724
1360 kHz 5 kW/0.8 kW DA-2 U

Salt of the Earth Broadcasting, Inc. (“*SEBI*”), is the licensee of Station KWWJ(AM), 1360 kHz, at Baytown, Texas. KWWJ operates from a directional antenna array utilizing different day and night directional patterns. A recent geographical site survey (attached as **Exhibit 13-Figure 1**) was undertaken in an effort to reduce the tower lighting requirements and associated operational and maintenance costs. The survey, instead, revealed unexpected coordinate and tower height discrepancies between the license and the long-built towers.

The FAA has been notified of the coordinate correction and an updated Determination of No Hazard has been issued for all three towers.¹ The Antenna Structure Registrations (“ASR”) for all towers have been modified to show the corrected coordinates and heights. The corresponding ASR Numbers for each tower are shown in the Tech Box portion of FCC Form 301. *SEBI* now seeks to modify its Station license for the purpose of correcting geographic coordinates of the center of the KWWJ array and the radiation height of the three structures.

It is not known when these discrepancies first occurred. The last known tower construction was performed in 1985 by the prior licensee when two of the three towers were replaced after being damaged by the effects of a hurricane (see BL-19850903AF). *SEBI* has made no physical changes to the towers since it became the licensee in 1988. *SEBI* also relied on the original tower descriptions in the license documentation in its daytime power increase construction permit and subsequent license application and proof of performance (see BL-19960503AD.)

There are no physical changes to the KWWJ antenna system or tower parameters proposed herein. The operating parameters, with the exception of the nighttime power reduction, are the same as those currently licensed. Therefore, it is respectfully requested that the construction permit sought by this application not be conditioned on a proof of performance. The most recent full proof of performance for the daytime pattern was filed as BL-19960503AD after the daytime power was increased to 5 kW with no change in the nighttime operation. As mentioned above, the most recent

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proof of performance for the nighttime pattern was filed as BL-19850903AF by the prior licensee after reconstruction of two towers resulting from significant hurricane damage.

Corrected Coordinates

When converted to NAD27 and rounded to the nearest whole second, the recent site survey revealed differences of approximately one-second latitude between the actual and licensed KWWJ coordinates. The surveyed geographic coordinates of the center tower (Tower 2) are being used as the coordinates of the array. This results in an apparent minor move in a northerly direction. The licensed and corrected coordinates are shown below:

Licensed Coordinates
29° 46' 28" North Latitude
95° 00' 55" West Longitude
(NAD 27 Datum)

Corrected Coordinates
29° 46' 29" North Latitude
95° 00' 55" West Longitude
(NAD 27 Datum)

Corrected Tower Height

The KWWJ license shows the height of the center tower to be 5 feet (3.1 electrical degrees) taller than the outside towers. As part of the tower survey *SEBI* was surprised to learn that the radiation height for all three towers appears to be essentially the same. Further, the radiation height was calculated to be slightly *taller* than the licensed height of 99.6° and 102.1°. That was determined from the tower surveyed elevations shown in **Exhibit 13-Figure 1**. When rounded to the nearest foot and subtracting the 1 foot base insulator height, the height of the tower structures (not including the navigation beacon and lightning rod) is calculated to be 210 feet². At this height the new electrical height is 104.5°. Thus all calculations for the operation of the station herein have been performed at 104.5°.

Since there is a proposed change in tower height, daytime and nighttime allocations studies were performed. Using the corrected coordinates and tower height, stations with existing daytime contour overlap are not materially worsened and no new contour overlap is created by this coordinate

¹ See FAA Study Numbers: 2014-ASW-8504-OE, 2014-ASW-8505-OE, and 2014-ASW-8506-OE.

² Due to rounding small fractions of a foot in the Tower Survey, Tower 1 radiation height computes to 209 feet. For consistency in this application, all towers are assumed to be the 210' in height.

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correction. The nighttime allocations studies revealed an increased tower height results in a calculated increase in interference to a Mexican facility. Therefore a *reduction* in nighttime operating power from 1.0 kW to 0.8 kW is proposed herein and no coordination with the Mexican government is required. This power reduction also eliminates all calculated interference increases to all domestic facilities as well.

Daytime Allocations

Pertinent nearby stations operating on cochannel and adjacent channels are shown in **Exhibit 13-Figures 3, 4, and 5**. There is no cognizable change in the contour locations, consequently the licensed contours have not been drawn on the attached exhibits. A computer program was used to calculate the area of overlap, excluding the water, for each station where overlap is shown. This land area was compared to the contour overlap land area of the licensed facility. The changes are shown in the “Delta” column of the table below. As shown, the changes in area are de minimis when compared to the overlap area and the larger protected coverage area.

<u>Callsign</u>	<u>Frequency</u>	<u>Protected Contour Total Land Area (sq. km)</u>	<u>Interference from KWWJ Contour Overlap Area (sq. km)</u>			<u>Delta as a Percentage of Total Coverage Area</u>
			<u>Licensed</u>	<u>Proposed</u>	<u>Delta</u>	
KKTX(Lic)	1360	26,860 (0.5 mV/m)	5,420	5,508	88	0.3%
KNIR(Lic)	1360	11,924 (0.5 mV/m)	4,656	4,724	68	0.6%
KCOX(Lic)	1350	20,085 (0.5 mV/m)	1,905	1,949	44	0.2%
KJCE(Lic)	1370	30,839 (0.5 mV/m)	677	719	42	0.1%
KRCM(Lic)	1380	3,509 (5.0 mV/m)	527	539	12	0.3%
KRCM(App)	1380	3,509 (5.0 mV/m)	527	539	12	0.3%

<u>Callsign</u>	<u>Frequency</u>	<u>KWWJ Protected Contour Total Land Area (sq. km)</u>	<u>Interference to KWWJ Contour Overlap Area (sq. km)</u>			<u>Delta as a Percentage of Total Coverage Area</u>
			<u>Licensed</u>	<u>Proposed</u>	<u>Delta</u>	
KKTX(Lic)	1360	27,509 (0.5 mV/m)	12,348	12,320	-28	---
KNIR(Lic)	1360	27,509 (0.5 mV/m)	6,564	6,596	32	0.1%
KCOX(Lic)	1350	27,509 (0.5 mV/m)	3,450	3,496	46	0.2%
KJCE(Lic)	1370	27,509 (0.5 mV/m)	291	314	23	0.1%
KRCM(Lic)	1380	6,786 (5.0 mV/m)	527	539	12	0.2%
KRCM(App)	1380	6,786 (5.0 mV/m)	527	539	12	0.2%

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Nighttime Coverage and Allocations Considerations

The calculated nighttime interference free signal level for KWWJ continues to be 13.8 mV/m. Though no longer required under Section 73.24 of the Commission's rules, **Exhibit 13-Figure 7** shows that the 13.8 mV/m NIF contour of the proposed 0.8 kW operation clearly continues to cover the entire community of Baytown.

The results of a night study showing the required protection to each pertinent station as well as the proposed radiation and the resulting difference ("margin") are shown in **Exhibit 13-Table I**. Note that positive margin is where the required protection exceeds the proposed radiation. Additional information on the night study can be provided upon request.

It is believed that the proposed nighttime operation complies with all domestic and international allocations rules and policies.

Changes to Nighttime Monitor Point Limits

The following table lists the licensed monitor point limits as well as the suggested monitor point limits for the proposed 0.8 kW operation.

<u>Azimuth</u>	<u>Distance from Transmitter (km)</u>	<u>Licensed Maximum Field Strength (mV/m)</u>	<u>Proposed Maximum Field Strength (mV/m)</u>
37°	5.20	34.5	30.9
220°	3.38	8.7	7.8
229°	3.98	13.5	12.1
245°	2.77	34.2	30.6
326°	4.02	32.9	29.4
354°	4.17	19.3	17.3

Environmental Considerations

Based on information provided by the applicant, it is believed that the provisions of Section 1.1307(a)(1-7) would not apply in this case since no construction is proposed and no change in existing structure marking requirements is required. Therefore, it is believed that this application may also be categorically excluded from environmental processing pursuant to Section 1.1306 of the Commission's rules. The station currently complies with the limits specified in Section 1.1310 and

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satisfies the exposure criteria set forth in the Commission's OET Bulletin No. 65. The impact of human exposure to radiofrequency energy also will not change.

It is believe this proposal is in compliance with all Commission Rules and policies regarding coordinate correction. An FCC Form 302-AM, Application for License, will be filed immediately upon the grant of this Construction Permit.

HANS CONSULTING COMPANY
Professional Engineers and Land Surveyors
P O Box 1324
Baytown, Texas 77522
(281) 427-6054

KWWJ TOWER SURVEY
BAYTOWN, TEXAS

Tower # 1:
LATITUDE: 29° 46' 30.1" North
LONGITUDE: 95° 00' 56.8" West
ELEVATIONS: **FEET**
Ground at tower base (above mean sea level): 23.88
Top of tower foundation (above mean sea level): 27.59
Top of tower structure (above mean sea level):.....238.32
Top of navigation light (above mean sea level):240.78
Top of tower appurtenances (above mean sea level):241.83

Tower # 2:
LATITUDE: 29° 46' 29.5" North
LONGITUDE: 95° 00' 55.8" West
ELEVATIONS: **FEET**
Ground at tower base (above mean sea level): 22.87
Top of tower foundation (above mean sea level): 27.26
Top of tower structure (above mean sea level):.....238.02
Top of navigation light (above mean sea level):240.49
Top of tower appurtenances (above mean sea level):241.76

Tower # 3:
LATITUDE: 29° 46' 28.7" North
LONGITUDE: 95° 00' 54.2" West
ELEVATIONS: **FEET**
Ground at tower base (above mean sea level): 23.00
Top of tower foundation (above mean sea level): 27.26
Top of tower structure (above mean sea level):.....238.12
Top of navigation light (above mean sea level):240.58
Top of tower appurtenances (above mean sea level):241.70

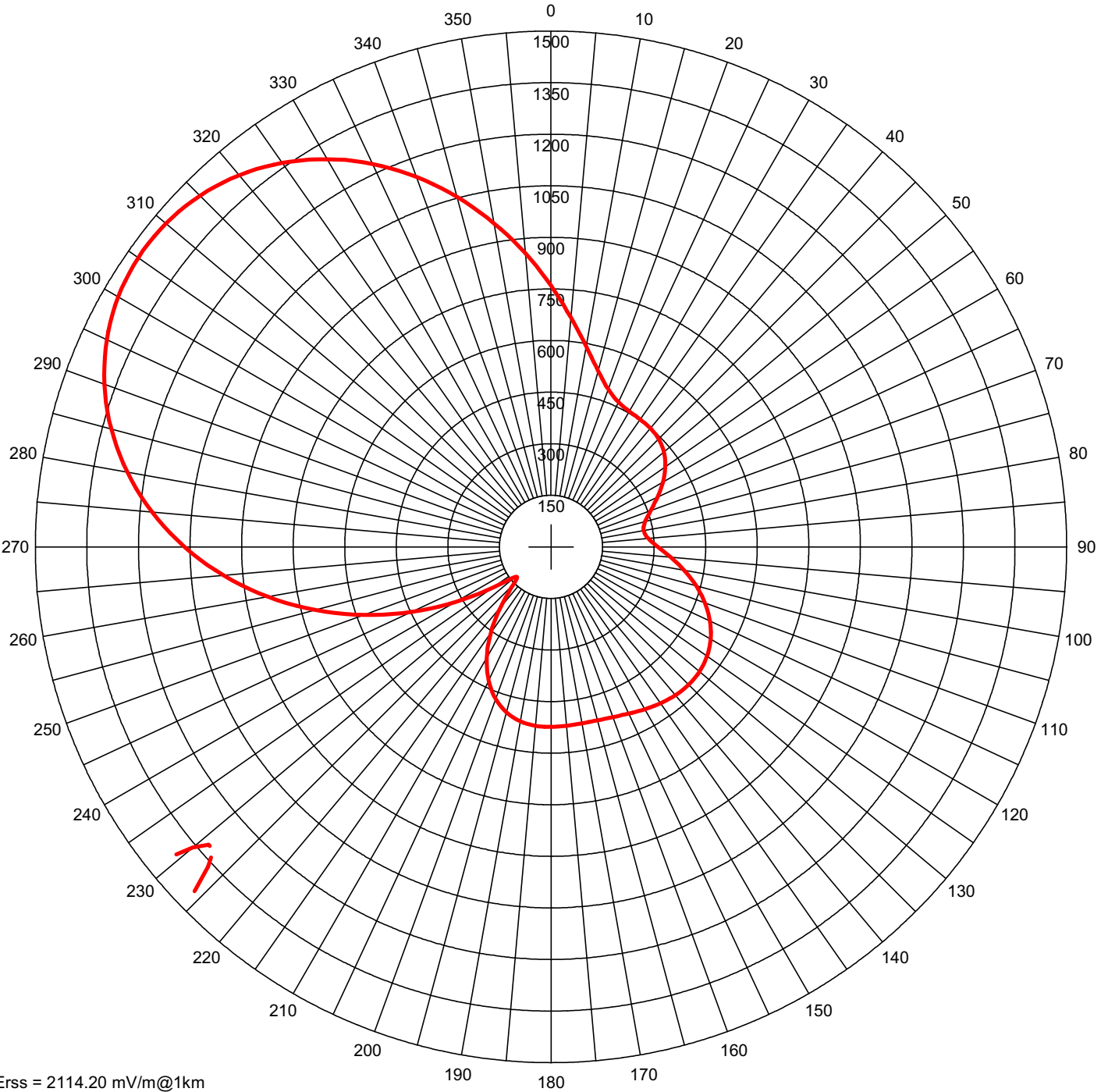
Horizontal position based on NAD 83 Control
Elevation are NAVD 2001 Adjustment obtained by GPS observation using GEOID 12A.
The survey complies with FAA Obstacle Accuracy Code 2C – Horizontal Position +/- 50 feet,
Vertical elevation +/- 20 feet.



Gordon W. Hans
Registered Professional Land Surveyor #1748
December 7, 2014



AM Directional Pattern



Erss = 2114.20 mV/m@1km
Theo RMS: 728.879 mV/m@1km
Std RMS: 767.333 mV/m@1km
Q: 52.855 mV/m@1km

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	104.5	0	0	0.0	0.0	0.0	0.0
2	1.080	166.5	54.0	131.0	104.5	0	0	0.0	0.0	0.0	0.0
3	0.350	-40.0	136.0	123.0	104.5	0	0	0.0	0.0	0.0	0.0

EXHIBIT 13 - FIGURE 2
DAYTIME RADIATION PATTERN PLOT

prepared August 2016 for
Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
1360 kHz 5.0/0.8 kW DA-2 U

Cavell, Mertz & Associates, Inc.
Manassas, Virginia

EXHIBIT 13 - FIGURE 3
DAYTIME ALLOCATIONS STUDY
CO-CHANNEL

prepared August 2016 for

Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
1360 kHz 5.0/0.8 kW DA-2 U

KMNY(AM), Hurst, TX
Facility ID 10825
1360 kHz 50 kW DA-2 U
0.025 mV/m Contour
0.5 mV/m Contour

Proposed KWWJ(AM)
Facility ID 58724
1360 kHz 5 kW DA-2 U
0.025 mV/m Contour
0.5 mV/m Contour

XEIK(AM) Piedras Negras, CI
Facility ID 103192
1360 kHz 0.5 kW ND1 U
0.025 mV/m Contour
0.5 mV/m Contour

KNIR(AM), New Iberia, LA
Facility ID 6349
1360 kHz 1 kW ND-2 U
0.025 mV/m Contour
0.5 mV/m Contour

KKTXX(AM), Corpus Christi, TX
Facility ID 55166
1360 kHz 1 kW ND-1 U
0.025 mV/m Contour
0.5 mV/m Contour

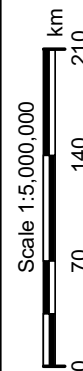


EXHIBIT 13 - FIGURE 4
DAYTIME ALLOCATIONS STUDY
1ST ADJACENT

prepared August 2016 for

Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
1360 kHz 5.0/0.8 kW DA-2 U

KCOR(AM), San Antonio, TX
 Facility ID 67069
 1350 kHz 5 kW DA-N U
 0.25 mV/m Contour
 0.5 mV/m Contour

KJCE(AM), Jasper, TX
 Facility ID 1243
 1350 kHz 5 kW DA-2 U
 0.25 mV/m Contour
 0.5 mV/m Contour

KCOX(AM), Jasper, TX
 Facility ID 35710
 1350 kHz 5 kW ND-1 U
 0.25 mV/m Contour
 0.5 mV/m Contour

WWWL(AM), New Orleans, LA
 Facility ID 72959
 1350 kHz 5 kW DA-N U
 0.25 mV/m Contour
 0.5 mV/m Contour

Proposed KWWJ(AM)
 Facility ID 58724
 1360 kHz 5 kW DA-2 U
 0.25 mV/m Contour
 0.5 mV/m Contour

XEGNK, Nuevo Laredo, TA
 1370 kHz ND-2 U
 0.5 mV/m Contour

XENVA2, Matamoros, TA
 1370 kHz ND-2 U
 0.5 mV/m Contour

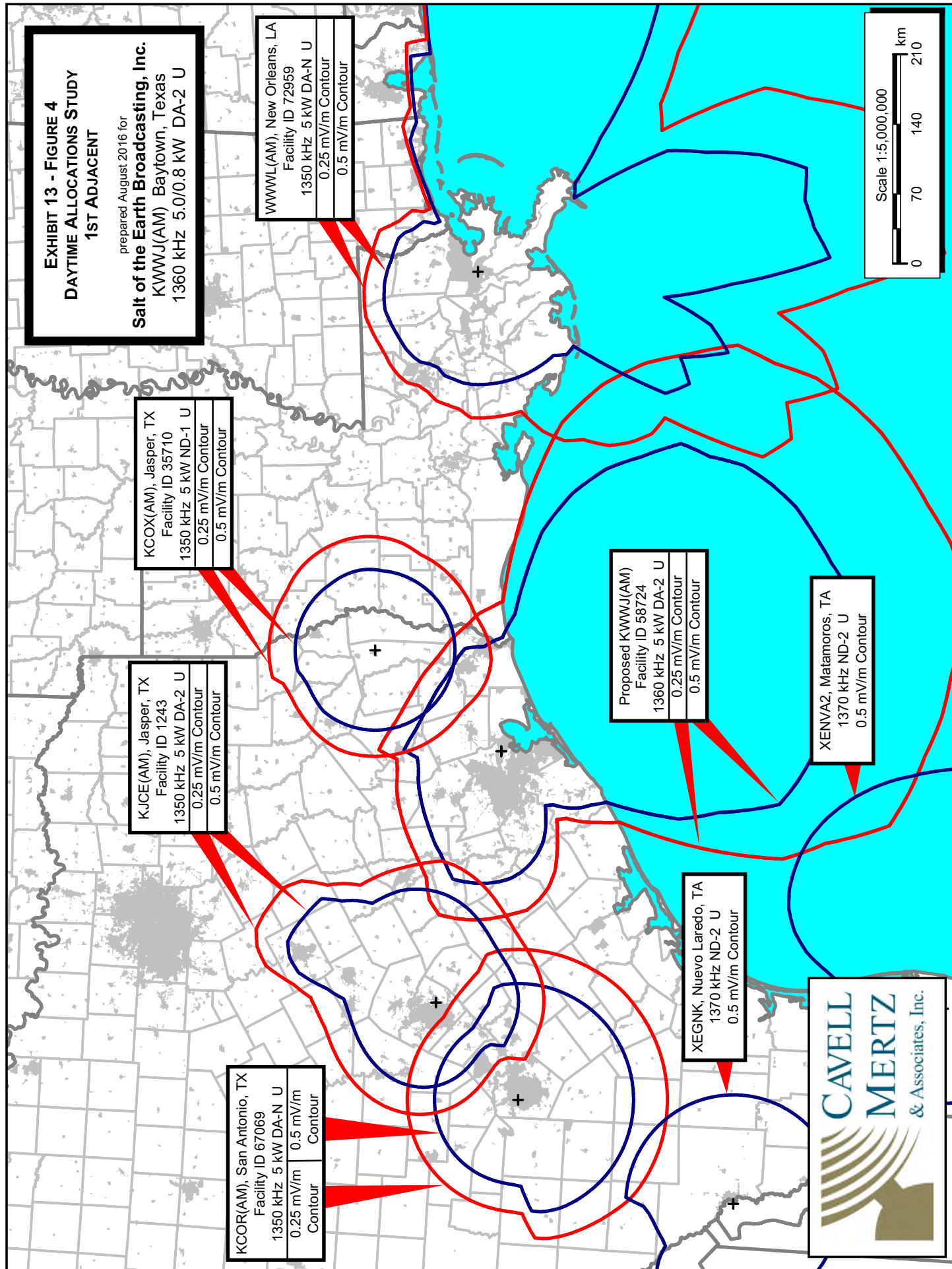
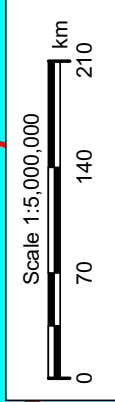


EXHIBIT 13 - FIGURE 5
DAYTIME ALLOCATIONS STUDY
2ND ADJACENT

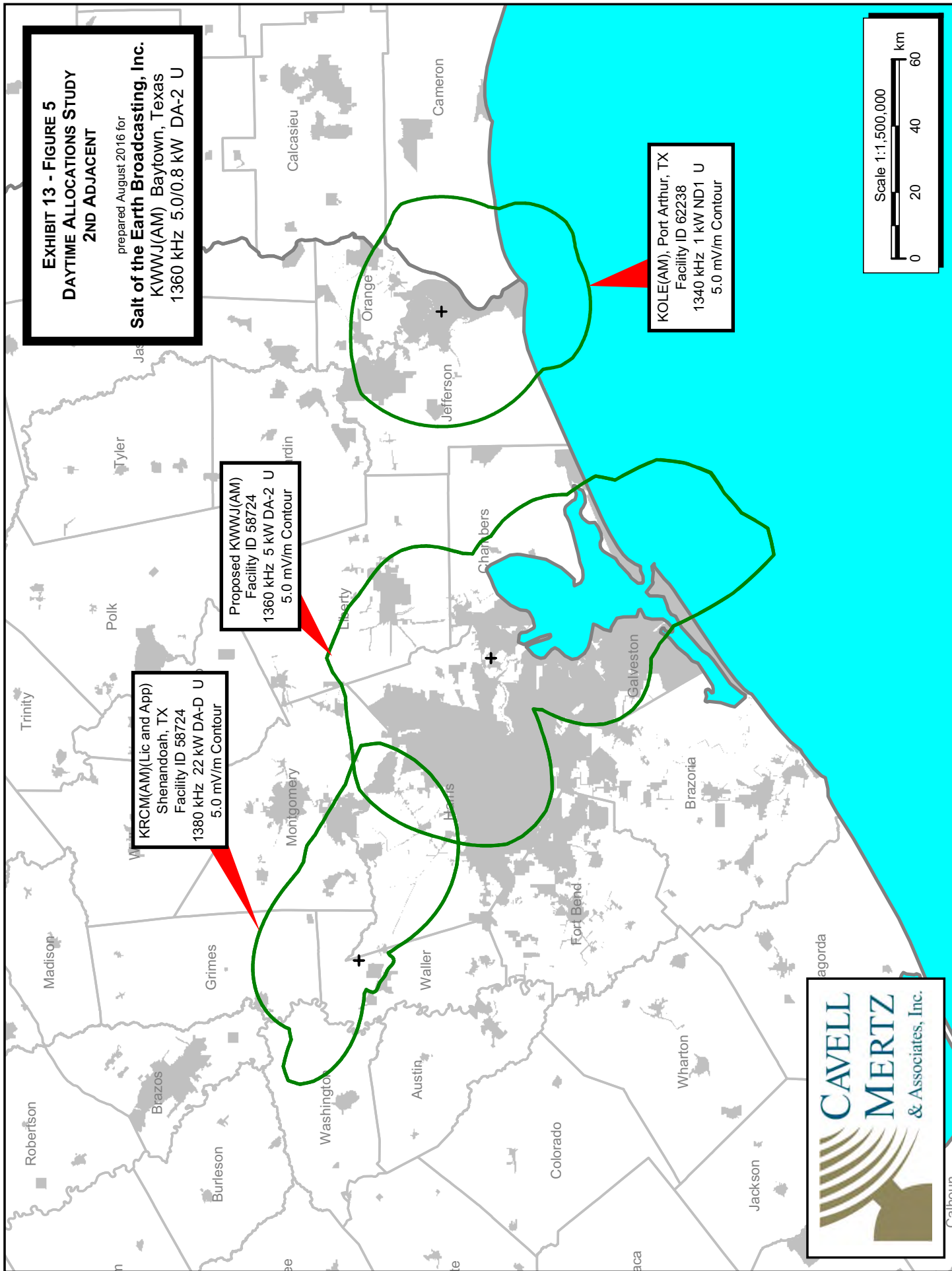
prepared August 2016 for

Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
1360 kHz 5.0/0.8 kW DA-2 U

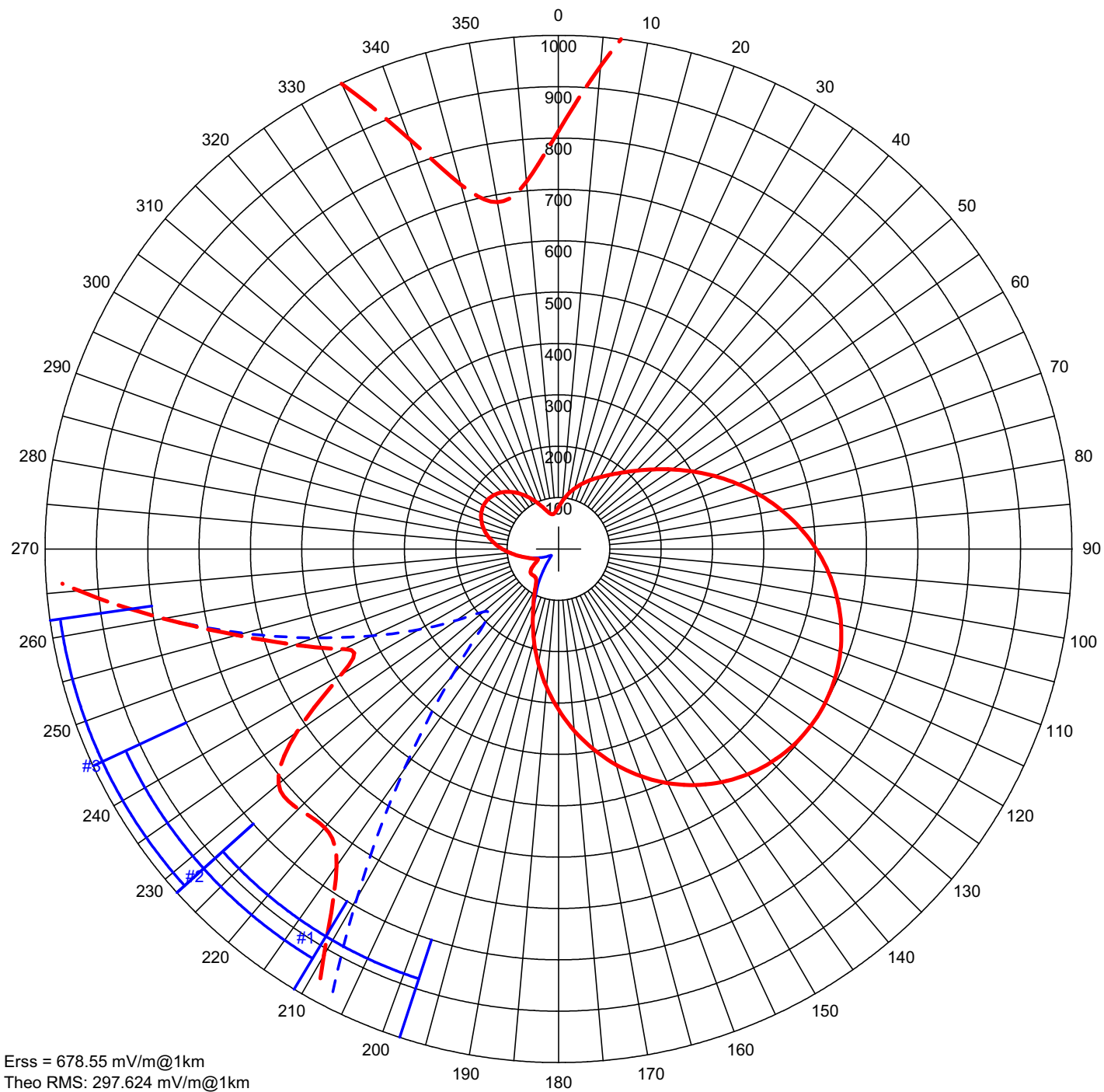
Proposed KWWJ(AM)
Facility ID 58724
1360 kHz 5 kW DA-2 U
5.0 mV/m Contour

KRCM(AM)(Lic and App)
Shenandoah, TX
Facility ID 58724
1380 kHz 22 kW DA-D U
5.0 mV/m Contour

KOLE(AM), Port Arthur, TX
Facility ID 62238
1340 kHz 1 kW ND1 U
5.0 mV/m Contour



AM Directional Pattern



Erss = 678.55 mV/m@1km
Theo RMS: 297.624 mV/m@1km
Std RMS: 313.012 mV/m@1km
Aug RMS: 313.578 mV/m@1km
Q: 16.964 mV/m@1km

Modified Standard Horizontal Plane Pattern

- Aug Pattern (mV/m@1km)
- Std Pattern (mV/m@1km)
- Aug Pattern X10
- Std Pattern X10

#	Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	#	Azimuth (deg)	Radiation (mV/m@1km)	Span (deg)
1	1.000	0.0	15.9	278.0	104.5	0	1	213.00	79.20	30.0
2	0.500	166.0	68.0	303.0	104.5	0	2	228.00	72.00	34.0
3	0.500	-146.0	68.0	123.0	104.5	0	3	245.00	46.10	34.0

EXHIBIT 13 - FIGURE 6 - AMENDED NIGHTTIME RADIATION PATTERN PLOT

prepared August 2016 for
Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
1360 kHz 5.0/0.8 kW DA-2 U

Cavell, Mertz & Associates, Inc.
Manassas, Virginia

**EXHIBIT 13 - FIGURE 7 - AMENDED
NIGHTTIME INTERFERENCE-FREE
COVERAGE**

prepared August 2016 for

Salt of the Earth Broadcasting, Inc.
KWWJ(AM) Baytown, Texas
1360 kHz 5.0/0.8 kW DA-2 U

Chambers

13.8 mV/m NIF
Coverage Contour

Baytown, Texas

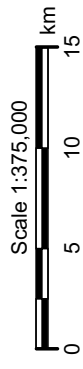


Exhibit 13 - Table I - Amended
NIGHTTIME ALLOCATIONS STUDY

prepared for

Salt of the Earth Broadcasting, Inc.

KWWJ(AM) Baytown, Texas

Facility ID 58724

1360 kHz 5 kW/0.8 kW DA-2 U

Night Allocation Protection Report

Call: KWWJ.800w
Freq: 1360 kHz
BAYTOWN, TX, US
Hours: N
Lat: 29-46-28.70 N
Lng: 095-00-55.10 W
Power: 0.8 kW
Theo RMS: 297.62 mV/m @ 1km @ 0.8 kW
of Augmentations: 3

#	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	15.9	278.0	104.5	0	0	0.0	0.0	0.0	0.0
2	0.500	166.0	68.0	303.0	104.5	0	0	0.0	0.0	0.0	0.0
3	0.500	-146.0	68.0	123.0	104.5	0	0	0.0	0.0	0.0	0.0

Augmentations:

#	Azimuth (deg)	Radiation (mV/m@1km)	Span (deg)
1	213.00	79.20	30.0
2	228.00	72.00	34.0
3	245.00	46.10	34.0

Call Letters	Ct	St	City	Azi (deg)	Ang Low (deg)	Ang High (deg)	SWFF (100uV/m)	Req Prot (mV/m)	Permis (mV/m)	Cur Rad (mV/m)	Margin (mV/m)
KMNY.L	US	TX	HURST	331.45	19.81	31.20	166.84	2.836	84.99	83.39	1.60
KKTX.L	US	TX	CORPUS CHRISTI	227.95	23.22	35.67	200.17	2.837	70.87	63.15	7.71
WMOB.L	US	AL	MOBILE	79.73	10.39	17.79	81.60	7.040	431.38	419.68	11.70
WHNR.L	US	FL	CYPRESS GARDENS	95.29	3.32	7.38	31.12	3.373	541.94	527.42	14.52
XEUL.P/A	MX	YC	PROGRESO	148.97	7.54	7.54	55.71	5.995	538.05	523.50	14.55
WKAT.C	US	FL	NORTH MIAMI	103.14	1.98	5.50	25.20	2.913	577.95	562.48	15.47
WKAT.L	US	FL	NORTH MIAMI	103.47	1.94	5.44	25.05	2.902	579.28	563.78	15.50

Cavell Mertz & Associates, Inc.

Exhibit 13 - Table I - Amended

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NIGHTTIME ALLOCATIONS STUDY

KACT.L	US TX ANDREWS	293.63	8.81	15.44	68.43	3.496	255.44	155.89	99.55
XEIK.O/A	MX CI PIEDRAS NEGRAS	258.93	18.05	18.05	117.32	4.128	175.95	58.56	117.39
WWWL.L	US LA NEW ORLEANS	86.78	15.59	25.35	127.78	1.420	555.78	437.67	118.11
KSCJ.L	US IA SIOUX CITY	355.61	2.55	6.29	23.89	1.074	224.69	72.52	152.18
XEDI.P/A	MX CH CHIHUAHUA	265.86	7.64	7.64	56.39	3.450	305.87	92.42	213.45
XEDI.P/O	MX CH CHIHUAHUA	265.86	7.64	7.64	56.39	3.450	305.87	92.42	213.45
XEDI.P/O	MX CH CHIHUAHUA	265.86	7.64	7.64	56.39	3.450	305.87	92.42	213.45
XEDI.O/A	MX CH CHIHUAHUA	266.02	7.62	7.62	56.27	3.463	307.74	92.93	214.81
XEVAL.O/O	MX SL CD.VALLLES	205.70	9.20	9.20	68.66	4.772	347.52	108.45	239.07
KPHN.L	US KS EL DORADO	349.97	6.95	12.68	52.63	3.247	308.43	67.23	241.20
WTAQ.L	US WI GREEN BAY	18.64	0.81	3.89	15.83	1.211	382.56	131.81	250.75
KDJW.L	US TX AMARILLO	315.55	7.33	13.24	56.29	4.540	403.23	148.97	254.26
XEFBF.O/O	MX VC MARTINEZ DE LA	191.17	7.41	7.41	54.72	5.225	477.41	211.98	265.43
XEFBF.P/A	MX VC MARTINEZ DE LA	191.17	7.41	7.41	54.72	5.225	477.41	211.98	265.43
WSAI.L	US OH CINCINNATI	39.49	2.57	6.32	24.64	2.345	475.92	191.90	284.02
XEDQ.O/A	MX VC SAN ANDRES TUXT	180.92	5.78	5.78	41.01	4.806	585.94	300.60	285.35
KLSD.L	US CA SAN DIEGO	284.57	0.00	1.65	13.46	1.182	438.88	149.66	289.22