

SELLMEYER ENGINEERING
BROADCAST & COMMUNICATION CONSULTING ENGINEERS
P. O. Box 356 McKinney, Texas 75070
MEMBER AFCCE

EXHIBIT E-1

**ENGINEERING EXHIBITS
APPLICATION TO INCREASE DAYTIME AND NIGHTTIME POWER
MEL WHEELER, INC.
RADIO STATION WVBE
ROANOKE, VIRGINIA
FACILITY NUMBER: 41111**

HAS:

610 KHZ, 1.0 KW, 5.0 KW-LS, DA2-UNL

C,P, FILE NUMBER BP-20040112ABF

610 KHZ, 2.5 KW, 10.0 KW-LS, DA-2-UNL

REQUESTS:

610 KHZ, 2.5 KW, 7.0 KW-LS, DA-2, UNL

MINOR CHANGE

AUGUST, 2009

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FACILITY NUMBER: 41111**

HAS:

610 KHZ, 1.0 KW, 5.0 KW-LS, DA2-UNL

C,P, FILE NUMBER BP-20040112ABF

610 KHZ, 2.5 KW, 10.0 KW-LS, DA-2-UNL

REQUESTS:

610 KHZ, 2.5 KW, 7.0 KW-LS, DA-2, UNL

MINOR CHANGE

AUGUST, 2009

SELLMEYER ENGINEERING
BROADCAST & COMMUNICATIONS CONSULTING ENGINEERS
2 Pecan Grove Circle, Lucas, Texas 75002
MEMBER AFCCE

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610 KHZ, 2.5 KW, 7.0 KW-LS, DA-2
FACILITY ID: 41111
ROANOKE,VIRGINIA

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SELLMEYER ENGINEERING
BROADCAST & COMMUNICATIONS CONSULTING ENGINEERS
2 Pecan Grove Circle, Lucas, Texas 75002
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ENGINEERING STATEMENT
APPLICATION FOR DAYTIME AND NIGHTTIME POWER INCREASE
RADIO STATION WVBE
1360 KHZ, 0.32 KW, 5.0 KW-LS, DA-2
ROANOKE, VIRGINIA
FACILITY NUMBER 41111
MINOR CHANGE

This Engineering Statement has been prepared on behalf of Mel Wheeler, Inc. ("Wheeler"), licensee of Radio Station WVBE, Roanoke, Virginia. Station WVBE is a licensed Class B station presently operating with 5000 watts during daytime hours and 1000 watts during nighttime hours on 610 kilohertz using different directional antenna systems.

The licensee presently holds Construction Permit File Number BP-20040112ABF authorizing construction of a four element directive array at the present transmitter site. It is respectfully requested that this permit be cancelled upon acceptance of the instant application.

By means of this application the licensee proposes to increase daytime power to 7.0 kilowatts, and change the nighttime power to 2.5 kilowatts using different directional antenna systems located on the existing transmitter site in Salem, Virginia.

This proposal is classified as a minor change under Section 73.3571(a)(2) of the Rules. The proposal is acceptable for filing under Section 73.37 of the Rules.

The proposed facility will not have a significant environmental impact under Section 1.1307 of the Rules.

A review of the existing construction permit for WVBE and the construction permit for co-owned WVBE revealed certain features of the plant design which prevent construction in compliance with the terms of the two permits. Tower-5 of the WVBE daytime array and tower-2 of the WFIR array are physically located too close together to permit proper detuning of either tower, making it unlikely that proper adjustment of any of the three directional patterns can be achieved. Further, the high circulating currents

unreasonable stresses on the filtering components required to properly decouple the two stations.

The daytime array of WVBE has been redesigned to permit operation at 7.0 kilowatts with very low circulating currents. The existing north tower (Twr-5) of the daytime array will be replaced with a tower equal in height to all others and a new tower (Twr-6) will be constructed west of the southeast tower of the existing array. These towers will be used in the WVBE daytime array and will permit construction of the WFIR array using the existing tower-4 and the new tower-6.

Proposed Transmitter Location

The location of the transmitter site is that of the presently licensed facility. This proposal requires dismantling on the north tower (Twr-5) of the present daytime directive array and replacement with a taller tower. One new tower (Twr-6 S-W) will be constructed at the location noted on the plat showing the towers and ground system. The coordinates of the center of the array and ground level elevations of the five towers were determined from the Salem, Virginia USGS 7.5 minute topographic map and by reference to satellite imagery.

The application also corrects the coordinates of the daytime and nighttime arrays as determined from satellite photographs of the present site. The registered tower coordinates appear to be correct for the five original towers. The coordinates for the two new towers were determined from the plotted tower locations on the Salem topographical map. The elevations for the two new towers were determined from the topographical map elevations.

The **corrected** NAD-27 coordinates for the center of the proposed daytime array are:

N.L.: 37° 18' 11"

W.L.: 80° 02' 29"

The **corrected** NAD-27 coordinates for the center of the proposed nighttime array are:

N.L.: 37° 18' 12"

W.L.: 80° 02' 31"

The site map appears herein as Exhibit E1-1D. Photographs of the site have been omitted since the site is the existing transmitter site for Station WVBE.

DAYTIME SECTION

Daytime Directional Antenna System

A five element array is proposed for the daytime operation. As indicated on Exhibit E1-1B, all radiating elements are of identical height. Each element has an electrical height of 85.0 degrees, a physical height of 116.1 meters (381 feet) and overall heights of 117.6 meters (386 feet) to 118.3 meters (388 feet) above ground level depending on the location on the property.

The vertical sketch of the proposed array appears herein as Exhibit E1-1B. The plat and horizontal plan sketch appear herein as Exhibit E1-1C.

The tower heights of the new towers 5 and 6 require FAA study and registration. The FAA has been notified of the proposals. The tower-5 registration will be modified and tower-6 will be registered on receipt of FAA approval.

The directional antenna system was designed in accordance with the criteria of Section 73.150 assuming a one ohm lumped resistance at the current loop of each tower of the array. The one ohm loss RMS was checked by RADIAT and found to agree with the design program calculations.

A summary of the specifications for the directional array appears herein as Exhibit E1-1A.

Compliance with Section 73.24(g)

The population within the proposed 1000 mV/m daytime contour was determined to be 1,044 persons. The population within the 25 mV/m contour was determined to be 186,880 persons, resulting in a 1,000 mV/m population percentage of 0.6 percent of the population within the 25 mV/m contour. This is less than the one percent specified in Section 72.24(g).

The population within the proposed 1000 mV/m nighttime contour was determined to be 385 persons; the population within the 25 mV/m contour was determined to be 147,436 persons resulting in a 1000mV/m population percentage of 0.3 percent of the population within the 25 mV/m contour. This is less than the one percent specified in Section 72.24(g). Thus the instant proposals comply with the Rule.

The station has operated for more than 60 years from this site with no known blanketing problems. Should any overload or blanketing problems be caused by the proposed construction, the licensee will undertake correction as required by the applicable Rules.

Daytime Allocation Study

The list of stations considered appears herein as Exhibit E1-2G.

The daytime allocation study is broken into four separate maps for clarity. All stations, authorized or proposed as noted in CDBS on July 31, 2009 were studied. Exhibit E1-2A shows the relevant stations on the co-channel allocation. Exhibit E1-2B shows all stations relevant to the two first adjacent allocation. Exhibit E1-2C shows all stations relevant to the second adjacent allocation. Exhibit E1-2D shows all stations relevant to the third adjacent channel allocation.

All contours were calculated from data in the Commission's CDBS files using the database current as of July 31, 2009. Field measurement data was used for conductivities for stations sufficiently close to the WVE transmitter site to require detailed study. The stations for which measured data was used include:

CO CHANNEL STATIONS:

WVBE, 610 kHz, Roanoke, VA (Subject)
WFNZ, 610 kHz, Charlotte, NC
WLVE, 610 kHz, Winchester, VA (Currently Silent)

FIRST ADJACENT CHANNEL STATIONS:

WWNR, 620 kHz, Beckley, WV
WVAR, 620 kHz, Richwood, WV
WSJS, Winston Salem, NC
WDNC, 620 kHz, Durham, NC

SECOND ADJACENT CHANNEL STATIONS:

WLVA, 590 kHz, Lynchburg, VA (CP and STA to operate on 580 kHz)

THIRD ADJACENT CHANNEL STATIONS:

WLVA, 580 kHz, Lynchburg, VA, (CP and STA to operate on 580 kHz)

Note: The terms of the STA to operate on 580 kHz involve an Interference Reduction Agreement ("IRA") with co-owned station WLES, Bel Air, VA now operating under STA

on 590 kHz. The IRA contains a commitment for WLVA to abandon operation on 590 kHz.

For other stations considered, the Commission's map M-3 was used as the source of conductivity data. No contours are sufficiently close to require use of measured data. The M-3 data files for those stations have been omitted in the interest of minimizing files size. The data files will be supplied should the Staff so request. All contours were calculated in accordance with Section 73.183 of the Rules.

The Daytime Standard Pattern tabulation appears herein as Exhibit E1-2E. The graphical plot appears here as Exhibit E1-2F.

The tabulation of daytime margins and radiation limits appears herein as Exhibit E1-2H. Where clearance margins exceed reasonable levels, the file was truncated to eliminate meaningless data. All relevant stations in Region 2 were considered in the initial study.

NOTE REGARDING MEASURED CONDUCTIVITY FILES

All measured conductivity data was previously accepted in BP-20040112ABF and has been consolidated in the following exhibits:

WVBE: Exhibit E1-2L-1. All others appear in Exhibits E1-2L-2 and E1-2L-3.

DAYTIME COVERAGE

Exhibit E1-2I contains a table of distances to contours used to generate the allocation and coverage maps for daytime service

Exhibit E1-2J shows the existing and proposed 0.5, 2.0 and 5.0 mV/m service contours. The 5.0 mV/m contour covers all of the city limits of Roanoke, Virginia as shown on Exhibit E1-2K

NIGHTTIME SECTION

Nighttime Directional Antenna System

The nighttime array was designed to protect all known existing and proposed stations in Region II. A nighttime study was first completed using all Region II stations. The files were then culled to remove all stations which exhibited a clearance margin greater than the value of the major lobe of the night pattern. These facilities are shown in Exhibit E1-3A, the nighttime permissible radiation study which also contains the 25 and 50 percent exclusion RSS interference studies for each station. The proposed

facility does not enter the 50% exclusion RSS calculation of any known existing or proposed domestic station nor does it cause interference to any Region II class A facility. The station enters the 25% exclusion calculation for Station WFNZ. This limit has not been increased. No other stations are affected by WVBE

The nighttime standard pattern was calculated in accordance with current Rules of the Commission. The nighttime directive array will utilize towers 1, 2, 3 and 4 of the daytime array with towers 5 and 6 detuned during nighttime hours. The plotted pattern appears herein as Exhibit E1-3B. The tabulation at vertical angles from the horizontal through 60 degrees elevation appears as Exhibit E1-3C.

The proposed WVBE nighttime interference free limit was determined to be 10.85 mV/m as shown in Exhibit E1-3D.

The distances to the nighttime interference free contour are tabulated in Exhibit E1-3E and plotted on the map of Exhibit E1-3F. The facility covers in excess of ninety percent of the land area within the city limits of Roanoke, Virginia. The facility will serve ninety percent of the population with an interference free signal.

Main Studio Location

The main studio will remain at its present location within the 5.0 mV/m daytime and 10.85 mV/m nighttime contours.

Environmental Considerations

The proposed site is a relatively flat area located within the Salem, Virginia city limits where the station has been located for more than 60 years. No significant disturbance of the property will be required to construct the proposed facilities. Some excavation will be required for construction of the ground system. No other significant ground work will be required.

The proposed operation is categorically excluded from further environmental processing. The site meets the criteria established in Section 1.1306 of the Rules.

The applicant is working to comply with the terms of the recently enacted Tribal Notification and site investigation requirements and will amend the instant application as soon as the investigation is completed. The land is located near an industrial park and an older housing area. There is no reason to believe, at this time, that the site contains

any artifacts of interest to any Indian Tribes. Upon completion of the process the Commission will be notified of the results.

RADIOFREQUENCY FIELDS

Due to imminent diplexing of Station WFIR on two of the towers of the site, a maximum power of 15 kilowatts in any one tower was assumed. The maximum operating power of WVBE is 7.0 kilowatts and maximum operating power of WFIR is 10 kilowatts. For an antenna with 10 kilowatts into a tower between 85 and 134 electrical degrees, OET Bulletin 65, Edition 97-01, August, 1997, suggests a fence having a minimum distance of from a tower or radio frequency feeder of 2 meters. For a tower with an operating power of 50 kilowatts, the minimum distance is 4 meters. For protection of the ground system and the coupling and filtering apparatus in the immediate vicinity of the tower bases, the applicant will construct a fence no closer than four meters from each tower. This will comply with the requirements of OET Bulletin 65.

It is evident that the proposed facility will be in full compliance with the guidelines of OET Bulletin 65.

The site will operate on a full time basis. Most, if not all, maintenance on the towers will be done during daytime hours. Suitable non-directional networks will be constructed at two towers to facilitate low power non-directional operation during such maintenance. Should work be required during operation, the power will be reduced to a safe level in the appropriate non-directional mode or operations will be suspended for the duration of the required work.

SELLMEYER ENGINEERING
BROADCAST & COMMUNICATION CONSULTING ENGINEERS
2 Pecan Grove Circle, Lucas, Texas 75002
MEMBER AFCCE

CERTIFICATION OF ENGINEER

I hereby state that:

I am President of Sellmeyer Engineering

The Firm of Sellmeyer Engineering has been retained by Mel Wheeler, Inc. to prepare this Engineering Exhibit

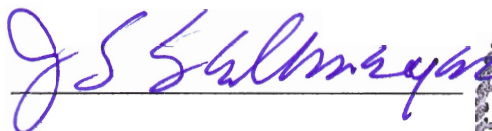
I am a graduate of Arizona State University with the degree of Bachelor of Science in Engineering

I am a Registered Professional Engineer in the States of Ohio and Texas

My qualifications as an Engineer are a matter of record with the Federal Communications Commission

This Engineering Exhibit was prepared by me personally or under my direct supervision, and

All facts stated herein are true and correct to the best of my knowledge and belief.



J. S. Sellmeyer, P. E.

August 13, 2009

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SELLMEYER ENGINEERING
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EXHIBIT E1-1A
DESCRIPTION OF PROPOSED ANTENNA SYSTEM
RADIO STATION WVBE
610 KHZ, 2.5 KW, 7.0 KW-LS, DA-2
ROANOKE, VIRGINIA

TOWER DETAILS

The proposed directional antenna system consists of four vertical steel radiators arranged in an in-line configuration with a fifth radiator located east of the northwest tower and a sixth radiator located west of the southeast element of the in-line elements. All towers are 381 feet (116.1 meters) in height (85.0°) at the operating frequency of 610 kilohertz. Each of the elements is series fed.

GROUND SYSTEM

The ground system consists of 120 number 10 AWG copper wire radials, uniformly spaced about the base of each tower, 405 feet (123 meters) in length, except where they intersect with those of another tower where they are bonded to a transverse copper strap. An additional 120 number 10 AWG copper wire radials, 50 feet (15.2 meters) in length, will be interspersed with the longer radials. All radials will be buried at a depth of six to ten inches below grade level. All radials will be silver soldered to the ground ring around the tower base, antenna coupler pad, transverse strap or transmitter building pad as applicable.

PROPOSED THEORETICAL PARAMETERS (DAYTIME ANTENNA SYSTEM)

<u>TOWER</u>	<u>FIELD RATIO</u>	<u>PHASE</u>	<u>SPACING</u>	<u>BEARING</u>	<u>HEIGHT</u>
1	1.000	0.0°	0.0°	0.0°	85.0°
2	0.802	213.0°	160.0°	300.0°	88.5°
3	0.357	193.0°	80.0°	300.0°	85.0°
4	0.671	93.5°	149.7°	337.7°	85.0°
5	0.307	192.2°	136.2°	264.8°	85.0°

<u>OPERATING POWER:</u>	7.0 kW
<u>THEORETICAL RMS:</u>	866.28 mV/m
<u>STANDARD RMS:</u>	910.02 mV/m
<u>THEORETICAL RSS:</u>	820.15 mV/m
<u>Q:</u>	26.46 mV/m

PROPOSED THEORETICAL PARAMETERS (NIGHTTIME ANTENNA SYSTEM)

<u>TOWER</u>	<u>FIELD RATIO</u>	<u>PHASE</u>	<u>SPACING</u>	<u>BEARING</u>	<u>HEIGHT</u>
1	1.000	0.0°	0.0°	0.0°	85.0°
2	2.310	-165.5°	80.0°	120.0°	85.0°
3	2.360	33.1°	160.0°	120.0°	85.0°
4	1.040	-134.5°	240.0°	120.0°	85.0°

<u>OPERATING POWER:</u>	2.5 kW
<u>THEORETICAL RMS:</u>	465.38 mV/m
<u>STANDARD RMS:</u>	490.81 mV/m
<u>THEORETICAL RSS:</u>	1749.41 mV/m
<u>Q:</u>	43.74 mV/m

<u>SITE LOCATION:</u>	1002 Newman Drive, Salem, Roanoke County, Virginia
DAYTIME C.O.A.:	NIGHTTIME C.O.A.:
N.L.: 37° 18' 11"	N.L.: 38° 18' 12"
W.L.: 80° 02' 29"	W.L.: 80° 02' 31"
(Ref: NAD-27)	

TOWER REGISTRATION NUMBERS:

Tower-1:	1035287	Tower-4:	1035290
Tower-2:	1035288	Tower-5:	1035291 (To be modified)
Tower-3:	1035289	Tower-6:	(NEW) (To be registered)

TOWER ELEVATION DATA:

<u>TOWER</u>	<u>GROUND ELEVATION</u>	<u>BASE PIER & INSULATOR</u>	<u>TOWER STEEL</u>	<u>BEACON</u>	<u>OVERALL HT AGL *</u>
1	1192 FT (332.2 M)	3.0 FT (0.9 M)	381 FT (116.1 M)	2.0 FT (0.6 M)	385.8 FT (117.6 M)
2	1085 FT (330.7 M)	5.2 FT (1.6 M)	381 FT (116.1 M)	2.0 FT (0.6M)	387.8 FT (118.2 M)
3	1075 FT (327.7 M)	5.2 FT (1.6 M)	381 FT (116.1 M)	2.0 FT (0.6M)	388.1FT (118.3 M)
4	1058 FT (323.1 M)	3.9 FT (1.2 M)	381 FT (116.1 M)	2.0 FT (0.6 M)	386.8 FT (117.9 M)
5	1110 FT (338.3 M)	4.9 FT (1.5 M)	381 FT (116.1 M)	2.0 FT (0.6 M)	387.8 FT (118.2 M)
6	1071 FT (326.4 M)	4.9 FT (1.5 M)	381 FT (116.1 M)	2.0 FT (0.6 M)	387.8 FT (118.2 M)

* Rounded to nearest foot

20090810

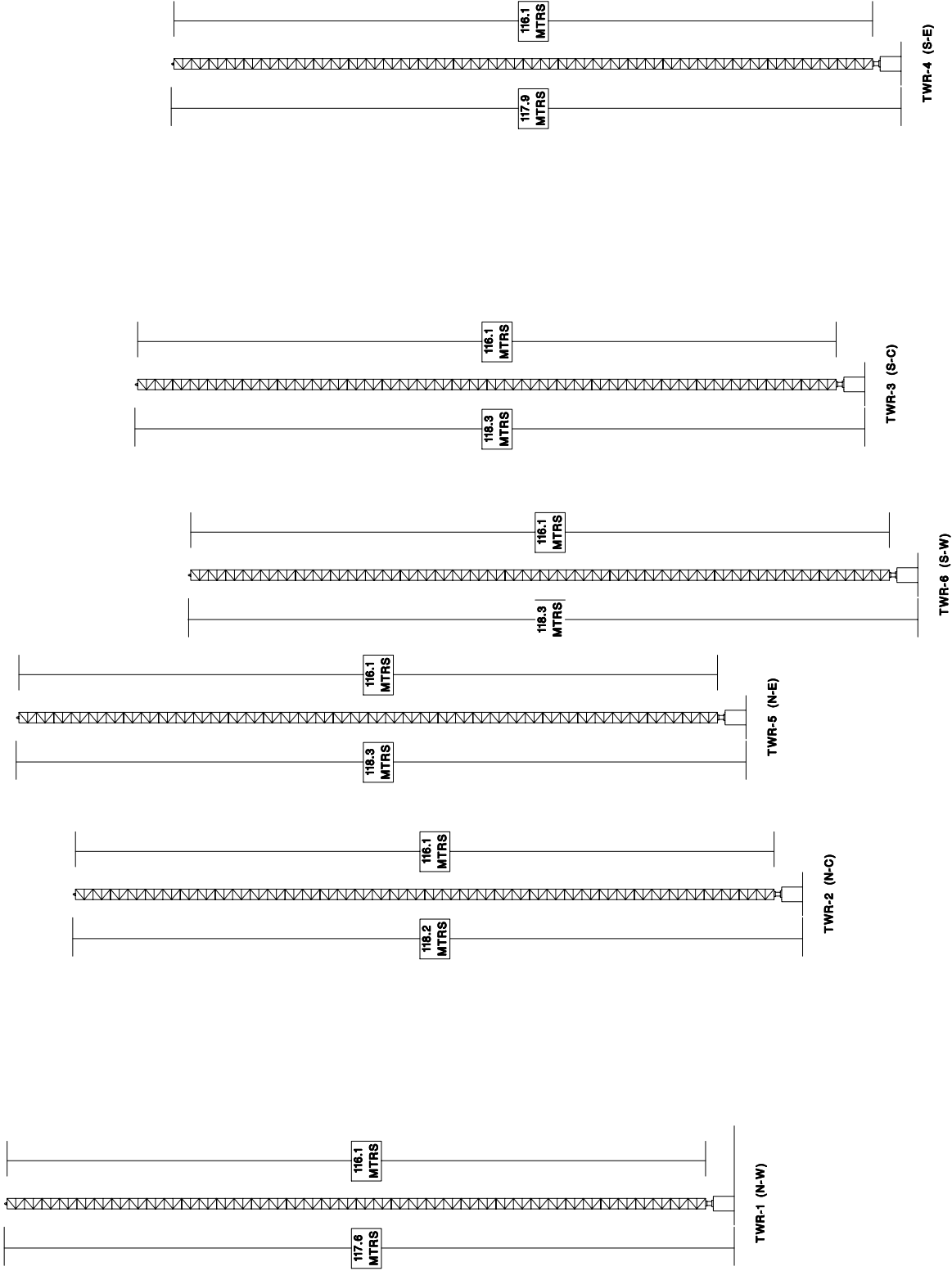
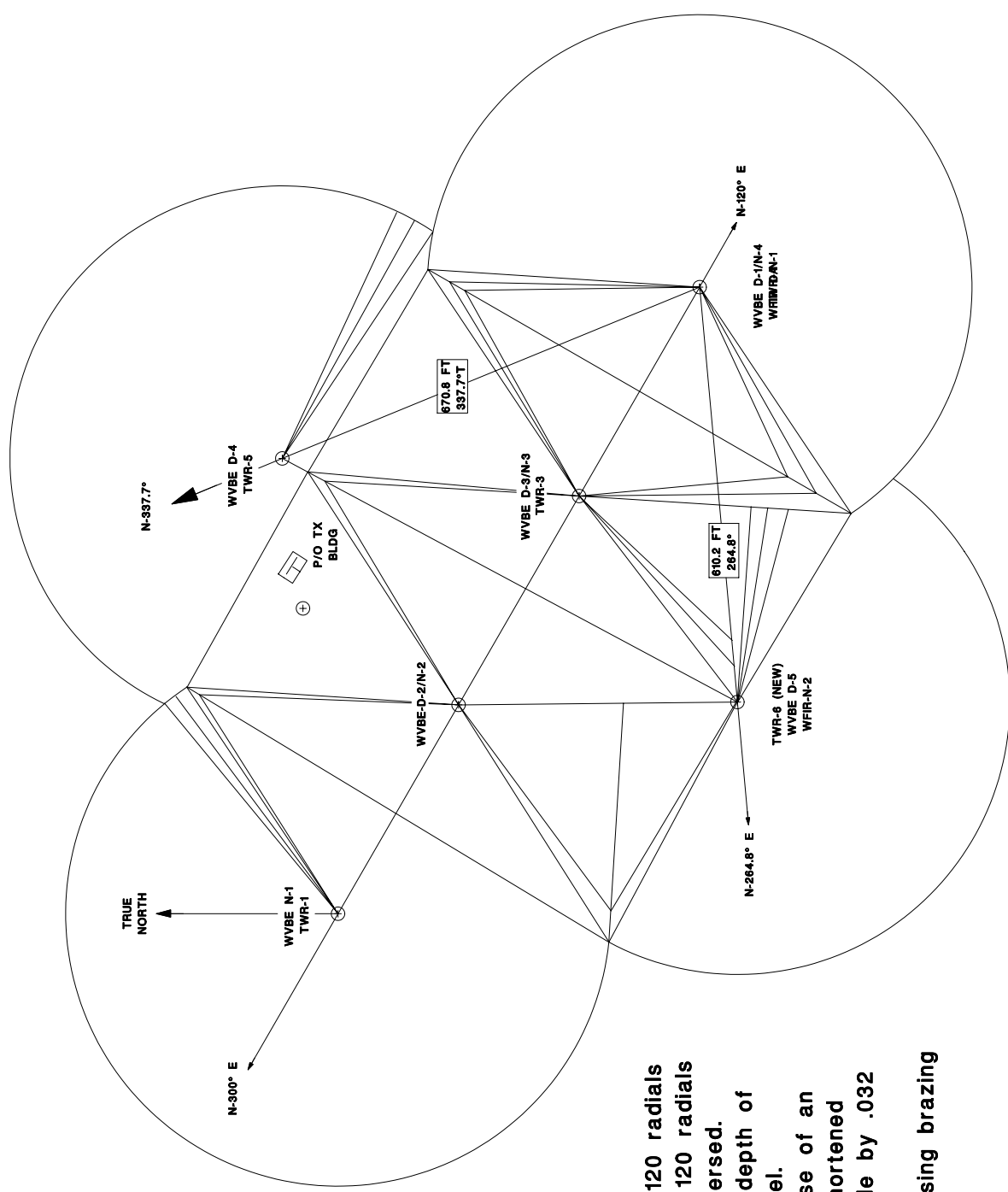


EXHIBIT E1-1B

VERTICAL PLAN SKETCH
WVBE/WFIR ANTENNA SYSTEM
20090801, JSS

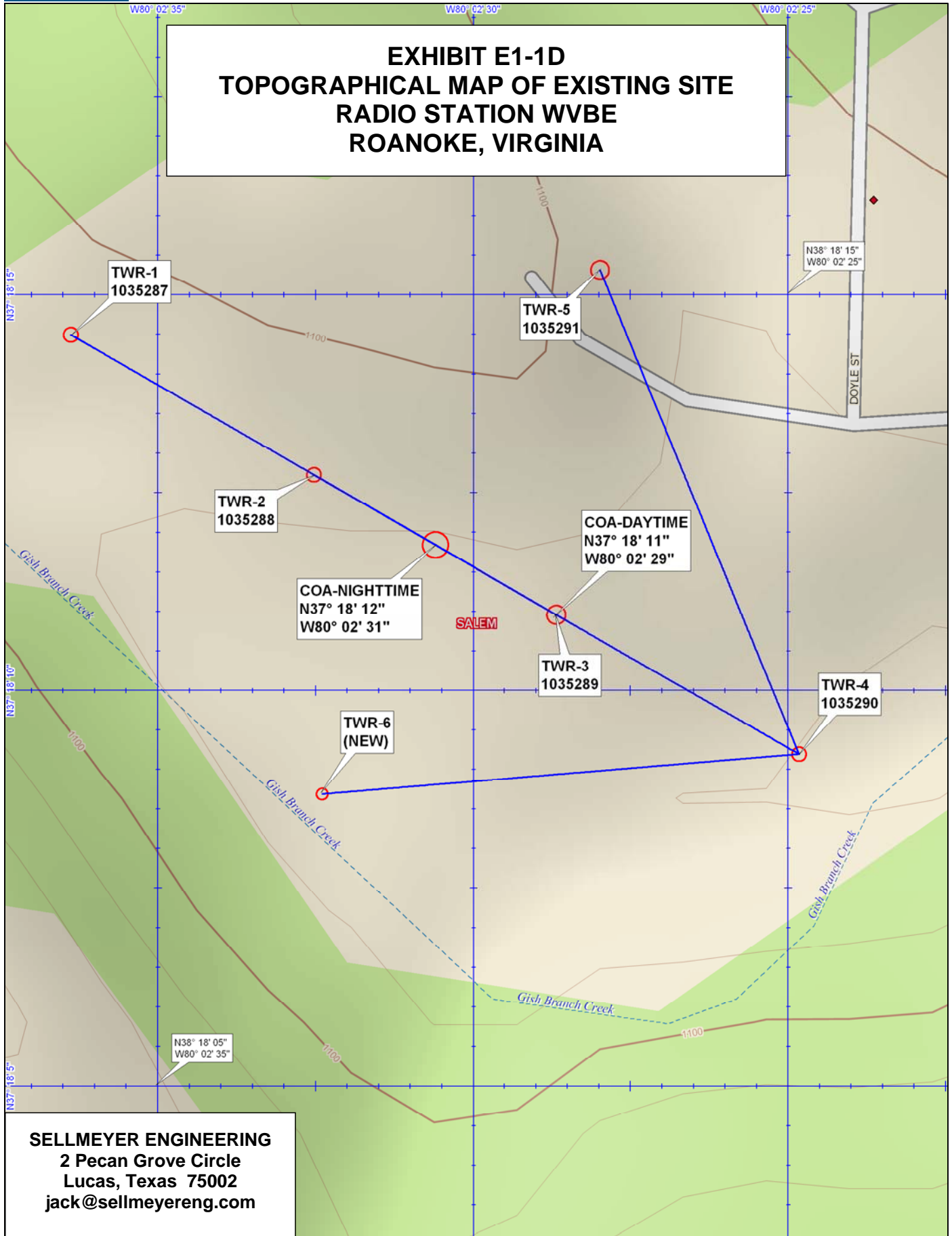
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NOTE:

- 1: Ground System consists of 120 radials each 123.5 mtrs in length, with 120 radials each 15.2 mtrs in length interspersed.
- 2: All radials are buried to a depth of 6 to 10 inches below grade level.
- 3: Where radials intercept those of an adjacent tower, they are foreshortened and terminated on a 4 inch wide by .032 in thick copper strap.
- 4: All connections are made using brazing process or silver solder.

EXHIBIT E1-1D TOPOGRAPHICAL MAP OF EXISTING SITE RADIO STATION WVBE ROANOKE, VIRGINIA



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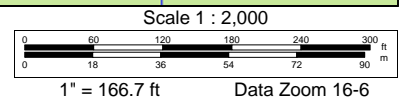
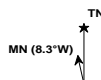
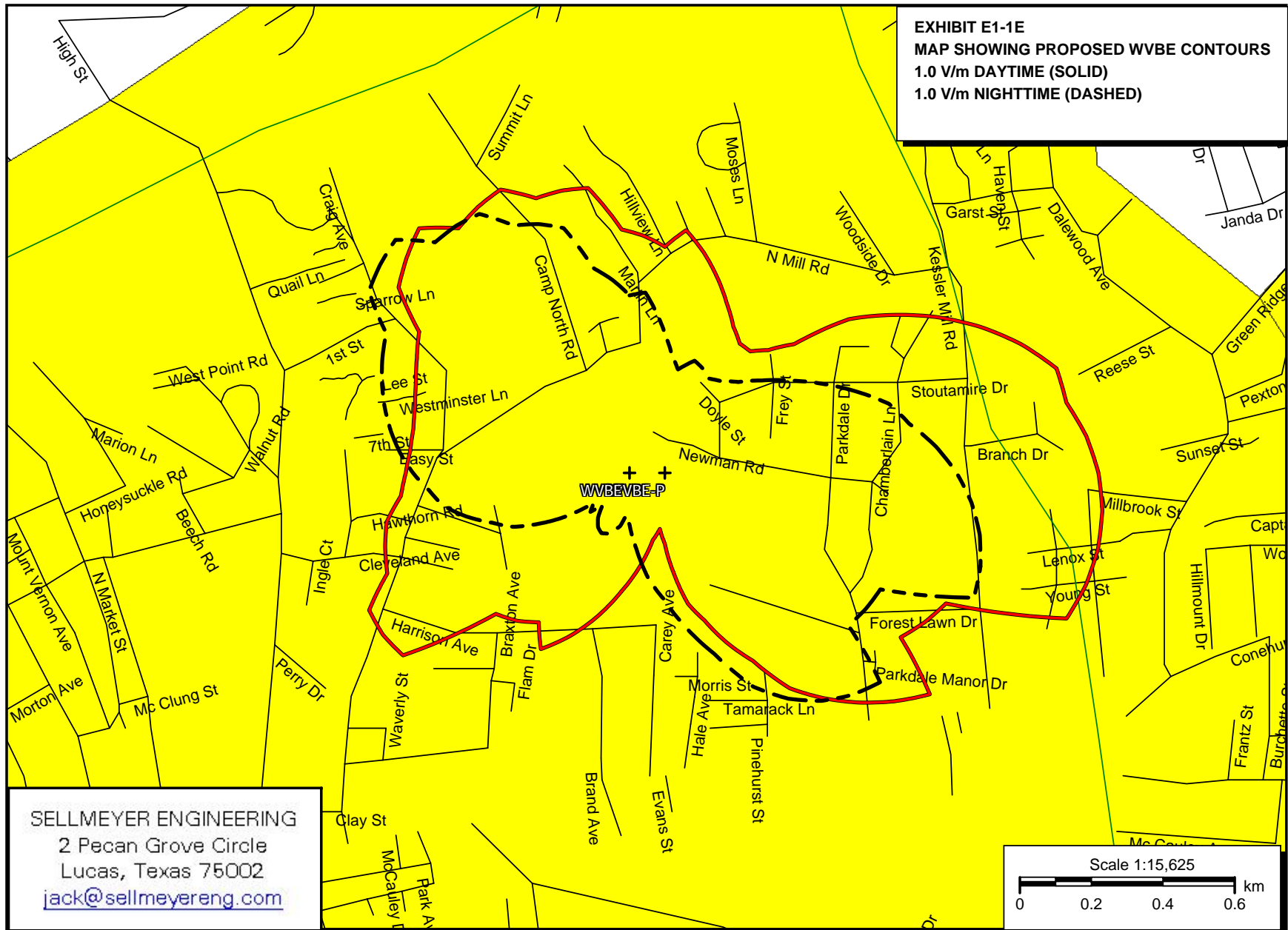


EXHIBIT E1-1E
MAP SHOWING PROPOSED WVBE CONTOURS
1.0 V/m DAYTIME (SOLID)
1.0 V/m NIGHTTIME (DASHED)



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EXHIBIT E1-2
DAYTIME SECTION
RADIO STATION WVBE
610 KHZ, 1.0 KW, 5.0 KW-LS, DA-2 UNL
ROANOKE, VIRGINIA

REQUESTS:
610 KHZ, 2.5 KW, 7.0 KW-LS, DA-2 UNL

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EXHIBIT E1-2

DAYTIME SECTION

RADIO STATION WVBE

610 KHZ, 1.0 KW, 5.0 KW-LS, DA-2 UNL

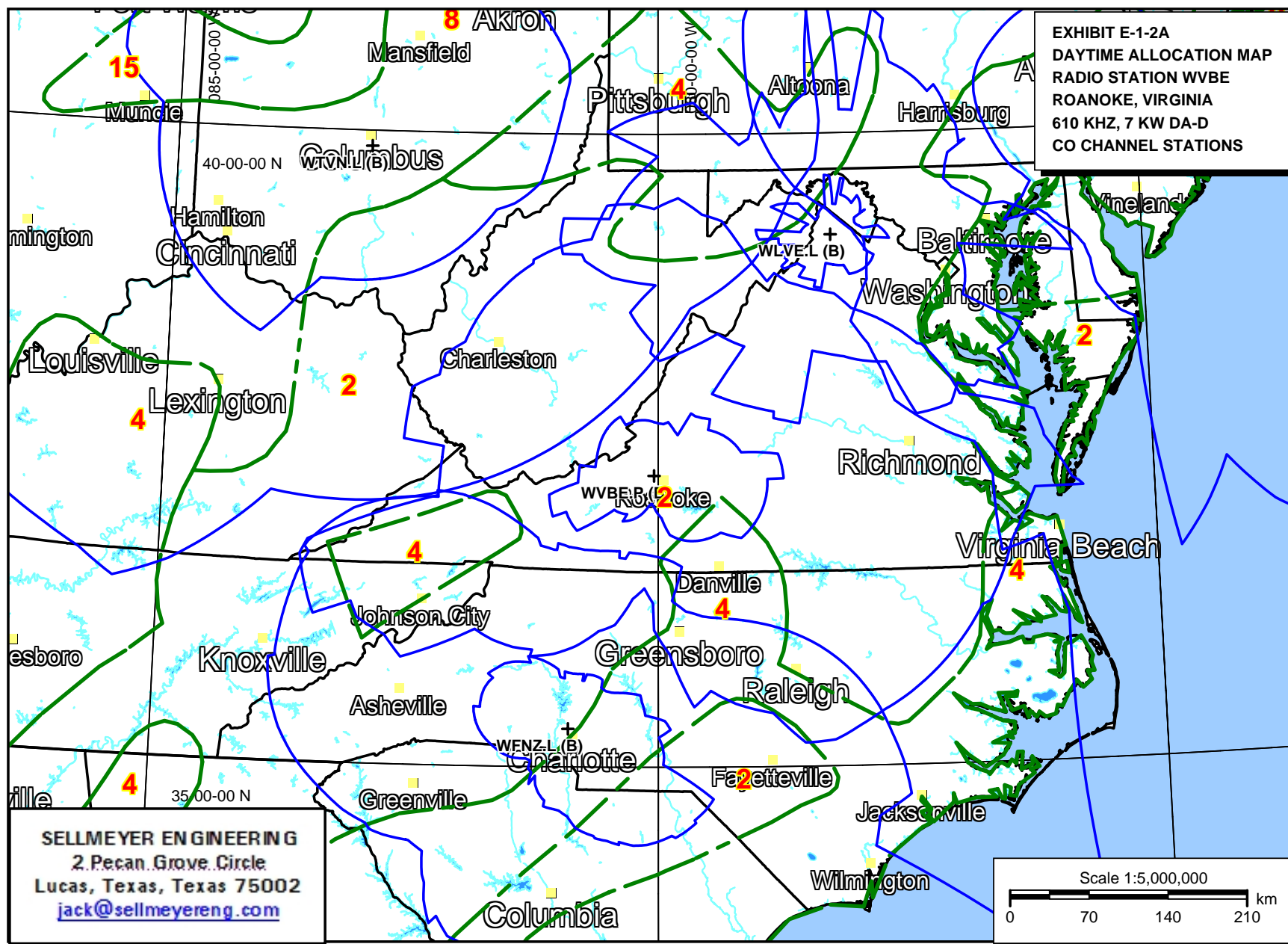
ROANOKE, VIRGINIA

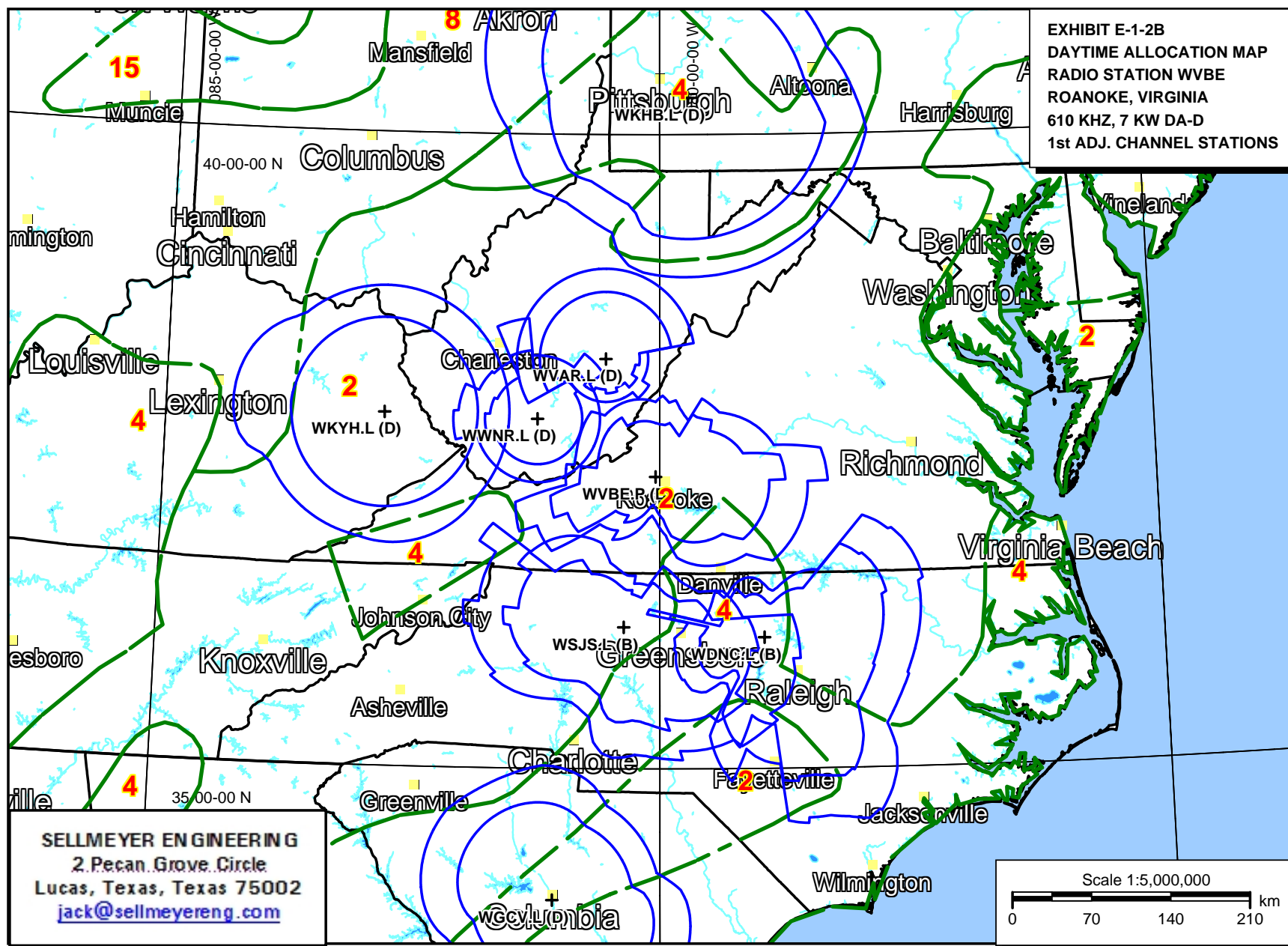
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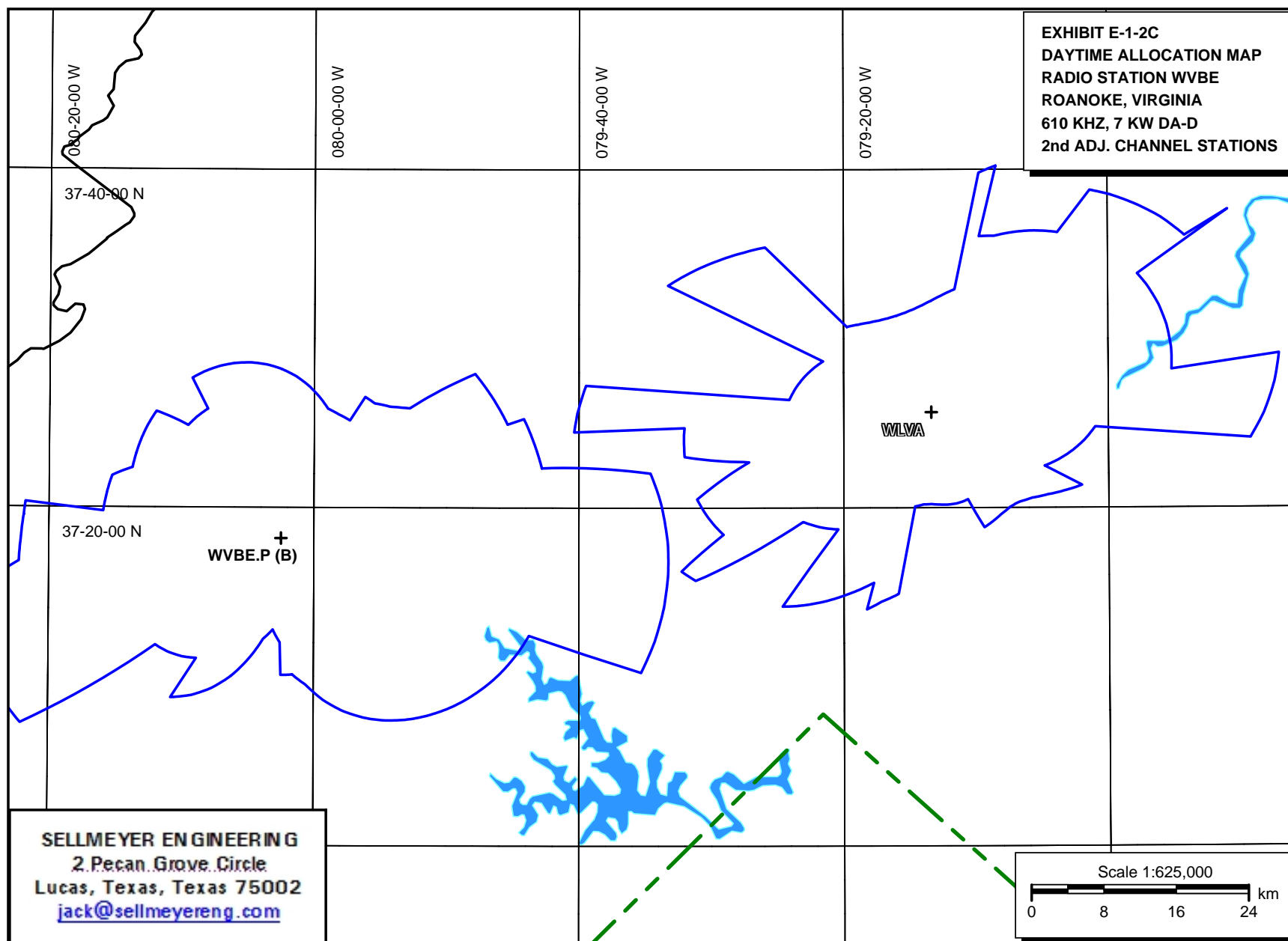
610 KHZ, 2.5 KW, 7.0 KW-LS, DA-2 UNL

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
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E1-2A	Daytime Allocation Study Co-Channel
E1-2B	Daytime Allocation Study 1 st Adj Channel
E1-2C	Daytime Allocation Study 2 nd Adj Channel
E1-2D	Daytime Allocation Study 3 rd Adj Channel
E1-2E	Tabulation of Daytime Standard Pattern
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E1-2K	Map Showing 0.5 mV/m Contours
E1-2L	Tabulation of Conductivities from BP-20040112ABF







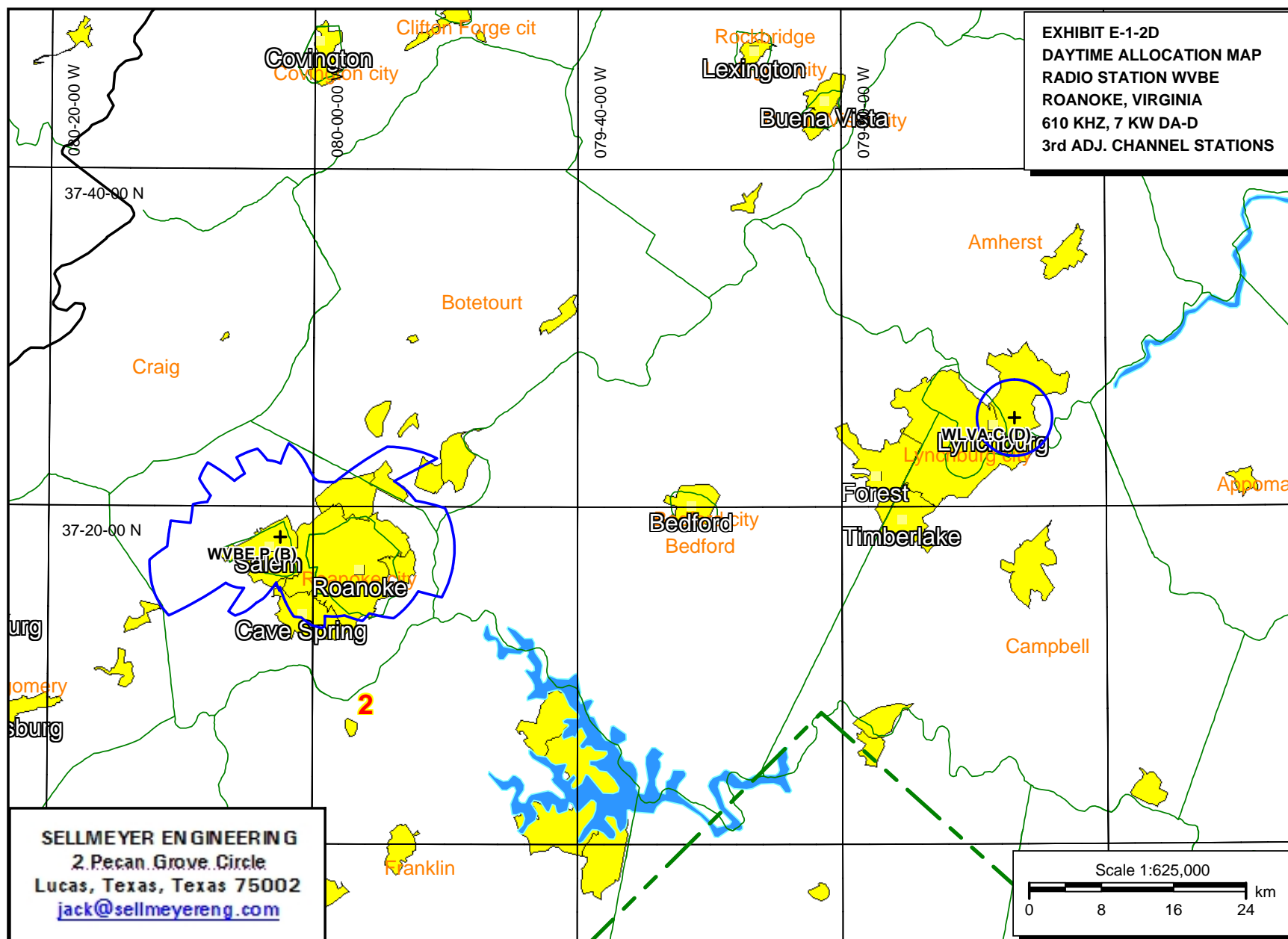


EXHIBIT E1-2E
TABULATION OF PROPOSED DAYTIME STANDARD PATTERN

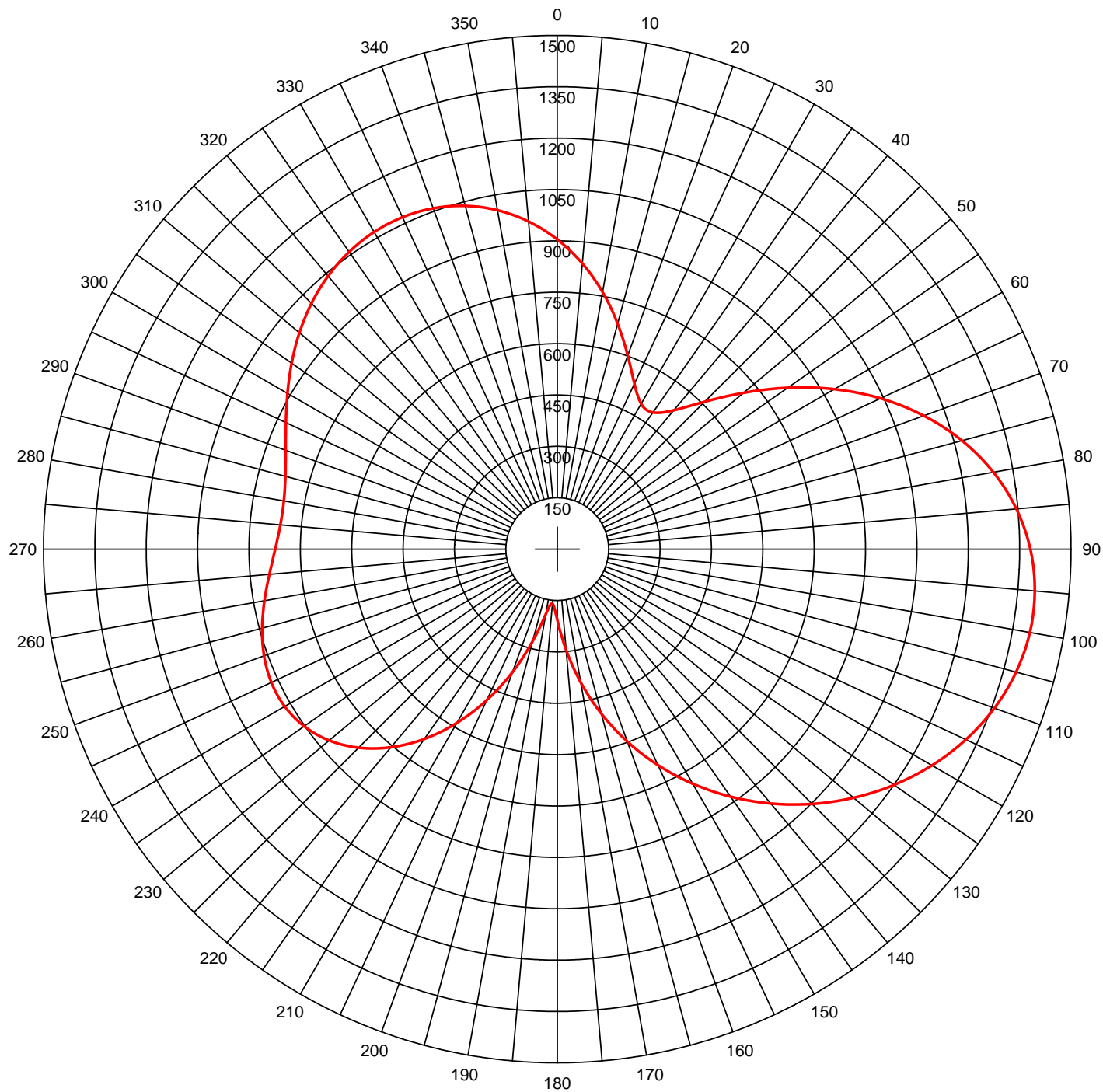
Call: WVBE.P (B)
 Freq: 610 kHz
 ROANOKE, VA, US
 Hours: D
 Lat: 37-18-11 N
 Lng: 080-02-29 W
 Power: 7.0 kW
 Theo RMS: 866.28 mV/m @ 1km @ 7.0 kW

#	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	85.0	0	0	0.0	0.0	0.0	0.0
2	0.802	213.0	160.0	300.0	85.0	0	0	0.0	0.0	0.0	0.0
3	0.357	193.0	80.0	300.0	85.0	0	0	0.0	0.0	0.0	0.0
4	0.671	93.5	149.7	337.7	85.0	0	0	0.0	0.0	0.0	0.0
5	0.307	192.2	136.2	264.8	85.0	0	0	0.0	0.0	0.0	0.0

 Standard Horizontal Plane Pattern

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	904.21	5.0	837.46	10.0	761.97
15.0	681.31	20.0	601.63	25.0	533.01
30.0	489.91	35.0	487.02	40.0	529.39
45.0	608.43	50.0	709.93	55.0	821.47
60.0	934.06	65.0	1041.38	70.0	1138.93
75.0	1223.50	80.0	1292.89	85.0	1345.71
90.0	1381.31	95.0	1399.64	100.0	1401.19
105.0	1386.90	110.0	1358.08	115.0	1316.26
120.0	1263.13	125.0	1200.37	130.0	1129.61
135.0	1052.26	140.0	969.49	145.0	882.18
150.0	790.93	155.0	696.13	160.0	598.10
165.0	497.38	170.0	395.20	175.0	294.89
180.0	206.31	185.0	159.62	190.0	193.11
195.0	279.44	200.0	382.00	205.0	486.34
210.0	585.95	215.0	676.70	220.0	755.53
225.0	820.19	230.0	869.18	235.0	901.92
240.0	918.75	245.0	921.00	250.0	910.99
255.0	891.98	260.0	868.01	265.0	843.63
270.0	823.46	275.0	811.56	280.0	810.66
285.0	821.68	290.0	843.62	295.0	873.98
300.0	909.49	305.0	946.76	310.0	982.69
315.0	1014.73	320.0	1040.82	325.0	1059.38
330.0	1069.22	335.0	1069.38	340.0	1059.09
345.0	1037.75	350.0	1004.89	355.0	960.30

EXHIBIT E1-2F - PROPOSED STD PATTERN



Theo RMS: 866.282 mV/m@1km
Std RMS: 910.02 mV/m@1km
Q: 26.458 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	85.0	0	0	0.0	0.0	0.0	0.0
2	0.802	213.0	160.0	300.0	85.0	0	0	0.0	0.0	0.0	0.0
3	0.357	193.0	80.0	300.0	85.0	0	0	0.0	0.0	0.0	0.0
4	0.671	93.5	149.7	337.7	85.0	0	0	0.0	0.0	0.0	0.0
5	0.307	192.2	136.2	264.8	85.0	0	0	0.0	0.0	0.0	0.0

Call: WVBE.P (B)
Freq: 610 kHz
ROANOKE, VA, US
Hours: D
Lat: 37-18-11 N
Lng: 080-02-29 W
Power: 7.0 kW
Theo RMS: 866.28 mV/m@1km
@ 7.0 kW

EXHIBIT E1-2G
TABULATION OF STATIONS CONSIDERED

Reference Station: WVBE.P (B), 610 kHz
Location: 37-18-11 N, 080-02-29 W

***** 580 kHz (-3) *****

83.2 km WLVA.C (D)C 37-25-15 N 079-06-55 W 0.25 kW ND2 - 282.0 mV/m@1km
51.7 mi Azi: 81.2 Class: D Sched: U File #: BP20071119AKG
Location: LYNCHBURG, VA, US

NOTE: Operating under STA with long wire antenna from another site

***** 590 kHz (-2) *****

73.9 km WLVA L 37-25-39 N 079-13-23 W 5.0 kW DA2 - 645.4 mV/m@1km
45.9 mi Azi: 79.5 Class: B Sched: U File #: BL19951002AD
Location: LYNCHBURG, VA, US

NOTE: Off the air since 2004 or earlier; site dismantled

225.6 km WLES.C (D)C 37-30-52 N 077-30-28 W 0.6 kW ND2 - 317.0 mV/m@1km
140.2 mi Azi: 84.8 Class: D Sched: U File #: BP20071119AKH
Location: BON AIR, VA, US

NOTE: Operating under STA; License conditioned on construction & licensing of WLVA-CP on 580 KHZ

***** 600 kHz (-1) *****

112.1 km WVAR.L (D)L 38-13-50 N 080-32-49 W 1.0 kW NDD - 282.0 mV/m@1km
69.7 mi Azi: 336.5 Class: D Sched: U File #: BL
Location: RICHWOOD, WV, US
134.6 km WSJS.L (B)L 36-07-00 N 080-21-26 W 5.0 kW DA2 - 692.0 mV/m@1km
83.7 mi Azi: 192.0 Class: B Sched: U File #: BL
Location: WINSTON-SALEM, NC, US
248.3 km WKYH.L (D)L 37-47-19 N 082-47-07 W 5.0 kW ND1 - 281.6 mV/m@1km
154.3 mi Azi: 281.7 Class: D Sched: U File #: BL19861120AC
Location: PAINTSVILLE, KY, US

***** 610 kHz (CO) *****

234.8 km WFNZ.L (B)L 35-18-03 N 080-53-18 W 5.0 kW DA2 - 621.2 mV/m@1km
145.9 mi Azi: 198.6 Class: B Sched: U File #: BL20070327AES
Location: CHARLOTTE, NC, US
264.0 km WLVE.L (B)L 39-11-53 N 078-13-13 W 0.5 kW DA2 - 196.3 mV/m@1km
164.0 mi Azi: 37.7 Class: B Sched: U File #: BL
Location: WINCHESTER, VA, US

NOTE: silent under STA since November 17, 2008; Site dismantled in 2008

383.5 km WTVN.L (B)L 39-52-34 N 082-58-49 W 5.0 kW DAN - 341.2 mV/m@1km
238.3 mi Azi: 317.2 Class: B Sched: U File #: BL20061017ADR
Location: COLUMBUS, OH, US
515.1 km WIP.L (B)L 39-51-56 N 075-06-43 W 5.0 kW DA1 - 772.5 mV/m@1km
320.1 mi Azi: 58.0 Class: B Sched: U File #: BL19861110AE
Location: PHILADELPHIA, PA, US

EXHIBIT E1-2G
TABULATION OF STATIONS CONSIDERED, CONTINUED

*** 620 kHz (+1) ***

116.9 km WNNR.L (D)L 37-45-18 N 081-14-12 W 5.0 kW ND2 - 283.7 mV/m@1km
72.6 mi Azi: 295.1 Class: D Sched: U File #: BL20020225ACM

Location: BECKLEY, WV, US

*** 620 kHz (+1) ***

170.7 km WDNC.L (B)L 36-02-03 N 078-57-47 W 5.0 kW DA2 - 684.0 mV/m@1km
106.1 mi Azi: 145.9 Class: B Sched: U File #: BL20030131AKI

Location: DURHAM, NC, US

332.8 km WKHB.L (D)L 40-17-20 N 079-42-04 W 5.5 kW ND2 - 286.9 mV/m@1km
206.8 mi Azi: 5.2 Class: D Sched: U File #: BL20010416ABD

Location: IRWIN, PA, US

381.8 km WGCV.L (D)L 33-57-34 N 081-02-28 W 2.5 kW ND2 - 282.0 mV/m@1km
237.3 mi Azi: 193.4 Class: D Sched: U File #: BL20050218ACR

Location: CAYCE, SC, US

EXHIBIT E1-2H
Daytime Radiation Margin &
Radiation Limit Report for WVBE-P

DAYTIME RADIATION MARGIN REPORT

Reference Station:

Call: WVBE.P (B) Freq: 610 kHz ROANOKE, VA, US
 Lat: 37-18-11 N Power: 7.0 kW
 Lng: 080-02-29 W Theo RMS: 866.17 mV/m @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	85.0	0	0	0.0	0.0	0.0	0.0
2	0.802	213.0	160.0	300.0	85.0	0	0	0.0	0.0	0.0	0.0
3	0.357	193.0	80.0	300.0	85.0	0	0	0.0	0.0	0.0	0.0
4	0.671	93.5	149.7	337.7	85.0	0	0	0.0	0.0	0.0	0.0
5	0.307	192.2	138.2	264.8	85.0	0	0	0.0	0.0	0.0	0.0

Call	Freq	City	ST	Dist	Azi	In	Out
WWNR.L (D)	620	BECKLEY	WV	117.0	295.0	6.20	1.22
WLVA	590	LYNCHBURG	VA	73.8	79.5	7.40	7.40
WLVE.L (B)	610	WINCHESTER	VA	263.9	37.7	24.23	7.90
WVAR.L (D)	600	RICHWOOD	WV	112.2	336.4	23.65	14.63
WDNC.L (B)	620	DURHAM	NC	170.6	145.9	49.62	28.57
WFNZ.L (B)	610	CHARLOTTE	NC	234.8	198.7	40.73	46.92
WTVN.L (B)	610	COLUMBUS	OH	383.5	317.2	13.02	52.91
WLVA.C (D)	580	LYNCHBURG	VA	83.1	81.2	60.01	60.01
WSJS.L (B)	600	WINSTON-SALE	NC	134.6	192.0	59.48	61.07
WKYH.L (D)	600	PAINTSVILLE	KY	248.4	281.7	83.71	91.62
WKHB.L (D)	620	IRWIN	PA	332.8	5.2	129.71	138.19
WIP.L (B)	610	PHILADELPHIA	PA	515.0	58.0	155.01	155.00
WLES.C (D)	590	BON AIR	VA	225.5	84.8	163.78	163.78
WGC.V.L (D)	620	CAYCE	SC	381.9	193.4	240.02	261.08

DAYTIME RADIATION LIMIT REPORT

Radiation Limit Report for WVBE.P (B)

Frequency: 610 kHz

Latitude: 37-18-11 N Longitude: 080-02-29 W

* indicates contour of proposed station

Azi (deg)	Rad Limit (mV/m@1km)	Call Letters	Contour Overlap	Azi (deg)	Rad Limit (mV/m@1km)	Call Letters	Contour Overlap
0	2111.6	WVAR.L	([0.500 0.250*])	180	420.0	WFNZ.L	([0.500 0.025*])
5	1726.1	WVAR.L	([0.500 0.250*])	185	533.1	WFNZ.L	([0.500 0.025*])
10	3124.3	WLVE.L	([0.500* 0.025])	190	549.8	WFNZ.L	([0.500 0.025*])
15	3064.9	WLVE.L	([0.500* 0.025])	195	516.2	WFNZ.L	([0.500 0.025*])
20	3567.9	WLVE.L	([0.500* 0.025])	200	615.4	WFNZ.L	([0.500 0.025*])
25	684.5	WLVE.L	([0.500 0.025*])	205	691.0	WFNZ.L	([0.500 0.025*])
30	728.3	WLVE.L	([0.500 0.025*])	210	647.1	WFNZ.L	([0.500 0.025*])
35	601.2	WLVE.L	([0.500 0.025*])	215	677.4	WFNZ.L	([0.500 0.025*])
40	581.7	WLVE.L	([0.500 0.025*])	220	988.7	WFNZ.L	([0.500 0.025*])
45	799.1	WLVE.L	([0.500 0.025*])	225	2479.9	WSJS.L	([0.500 0.250*])
50	1948.9	WLVE.L	([0.500* 0.025])	230	2877.4	WSJS.L	([0.500* 0.250])
55	2277.2	WLVE.L	([0.500* 0.025])	235	1044.2	WSJS.L	([0.500* 0.250])
60	2786.5	WLVE.L	([0.500* 0.025])	240	1995.0	WFNZ.L	([0.500* 0.025])
65	2221.4	WLVA	[5.000 5.000*]	245	2049.2	WFNZ.L	([0.500* 0.025])
70	1937.0	WLVA	[5.000 5.000*]	250	1687.5	WFNZ.L	([0.500* 0.025])
75	3634.3	WLVA	[5.000 5.000*]	255	1941.1	WFNZ.L	([0.500* 0.025])

EXHIBIT E1-2I**Tabulation of Distances to Contours - WVBE Proposed Daytime**

ROANOKE, VA

Call: WVBE.P (B)

Coordinates: N 37° 18' 11" W 80° 02' 29"

Frequency: 610 kHz Number of contours: 5

Azimuth	Radiation (mV/m at one km)	Distances to Contours in Kilometers :				
		Contour levels in mV/m.				
		.025	.500	.250	25.000	5.000
0.0	904.21	234.49	47.21	65.73	8.07	18.55
5.0	837.46	244.89	46.20	71.58	10.32	17.86
10.0	761.97	234.76	46.20	66.80	9.78	17.05
15.0	681.31	232.08	48.76	69.58	9.17	16.13
20.0	601.63	218.53	45.99	63.80	8.52	15.16
30.0	489.91	199.58	41.74	57.80	7.53	15.00
35.0	487.02	208.39	64.14	80.00	7.50	18.16
40.0	529.39	215.41	66.52	80.00	7.89	18.92
45.0	608.43	227.34	70.68	80.15	8.58	20.26
50.0	709.93	229.85	62.94	85.83	15.55	28.10
55.0	821.47	242.90	67.22	91.55	17.11	28.10
60.0	934.06	254.69	71.21	96.86	18.59	28.10
65.0	1041.38	267.22	74.76	101.57	14.27	30.00
70.0	1138.93	275.83	77.81	105.59	15.00	30.00
75.0	1223.50	282.40	80.34	108.92	15.62	30.00
80.0	1292.89	344.32	112.18	148.93	18.64	41.73
85.0	1345.71	353.67	114.06	151.33	19.07	42.50
90.0	1381.31	373.11	115.30	152.92	19.35	43.00
95.0	1399.64	332.22	101.39	135.67	19.49	43.25
100.0	1401.19	323.77	101.44	135.73	19.51	43.27
105.0	1386.90	322.23	100.99	135.17	19.40	43.07
110.0	1358.08	319.10	100.09	134.01	19.17	42.67
115.0	1316.26	311.08	98.75	132.29	16.25	29.21
120.0	1263.13	307.09	97.02	130.05	15.89	28.66
125.0	1200.37	302.23	94.92	127.33	15.45	27.99
130.0	1129.61	296.68	77.53	105.22	13.00	27.21
130.0	1129.61	296.68	77.53	105.22	13.00	27.21
135.0	1052.26	290.00	75.11	102.03	13.00	26.32
140.0	969.49	285.74	72.41	98.45	11.20	25.32
145.0	882.18	282.28	69.41	94.46	10.63	24.22
149.9	792.79	270.66	66.15	90.12	10.01	23.02
150.0	790.93	270.25	66.08	90.03	9.99	22.99
155.0	696.13	227.76	62.39	85.09	11.00	21.63
160.0	598.10	212.95	58.26	79.54	10.27	20.09
165.0	497.38	195.63	53.60	73.25	9.15	18.35
170.0	395.20	206.43	37.70	52.28	8.87	16.35
175.0	294.89	157.14	32.81	45.56	7.21	15.00
180.0	206.31	135.85	27.66	38.48	5.52	15.00
185.0	159.62	99.08	24.45	34.07	5.02	10.04
190.0	193.11	109.21	26.80	37.30	5.88	11.18
195.0	279.44	135.27	31.98	44.42	6.93	13.66
200.0	382.00	145.05	37.10	51.45	7.70	16.07

EXHIBIT E1-2I
Tabulation of Distances to Contours - WVBE Proposed Daytime
Continued

Azimuth	one km)	.025	.500	.250	25.000	5.000
205.0	486.34	164.66	41.60	57.60	9.02	18.14
210.0	585.95	180.50	45.42	62.82	10.00	19.89
215.0	676.70	193.05	48.60	67.15	10.00	21.33
215.0	676.70	193.05	48.60	67.15	10.00	21.33
220.0	755.53	196.01	43.28	60.38	7.30	16.98
225.0	820.19	203.42	45.03	62.77	7.64	17.68
230.0	869.18	208.77	46.32	64.52	7.90	18.19
235.0	901.92	276.34	83.89	112.94	15.12	35.35
240.0	918.75	278.02	84.56	113.83	15.29	35.66
245.0	921.00	292.46	84.65	113.95	15.31	35.70
250.0	910.99	327.00	96.88	130.06	15.21	35.52
255.0	891.98	324.95	96.03	128.43	15.02	35.17
260.0	868.01	313.74	94.93	126.72	14.78	34.72
265.0	843.63	193.08	68.03	80.00	12.64	29.25
270.0	823.46	190.86	67.29	80.00	12.46	28.91
275.0	811.56	189.53	66.85	80.00	12.35	28.72
280.0	810.66	225.57	52.90	72.97	10.13	20.00
285.0	821.68	226.80	53.24	73.42	10.21	20.00
290.0	843.62	229.22	53.90	74.31	10.36	20.00
295.0	873.98	210.94	54.80	75.52	9.00	18.24
300.0	909.49	214.58	55.83	76.91	9.00	18.60
305.0	946.76	205.42	56.88	78.33	11.06	18.97
315.0	1014.73	211.87	58.75	80.85	11.49	19.63
320.0	1040.82	212.71	59.45	70.23	8.00	16.11
325.0	1059.38	214.39	59.94	70.81	8.00	16.26
330.0	1069.22	215.27	60.00	71.11	8.00	16.33
340.0	1059.09	217.07	50.95	70.80	10.00	20.04
345.0	1037.75	215.13	50.45	70.13	10.00	19.85
350.0	1004.89	240.87	49.68	69.08	8.55	19.54
355.0	960.30	239.68	48.60	67.62	8.34	19.11

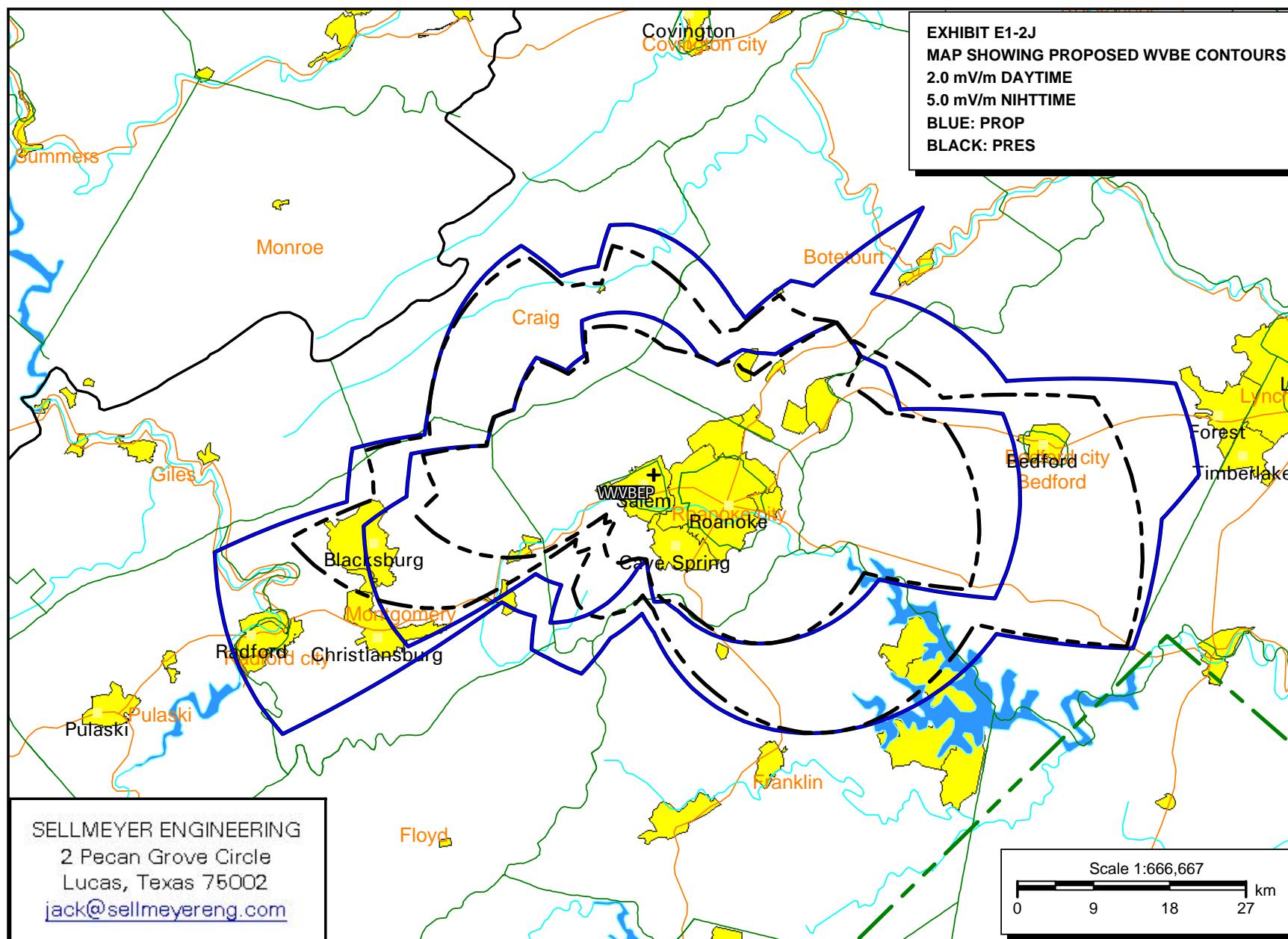
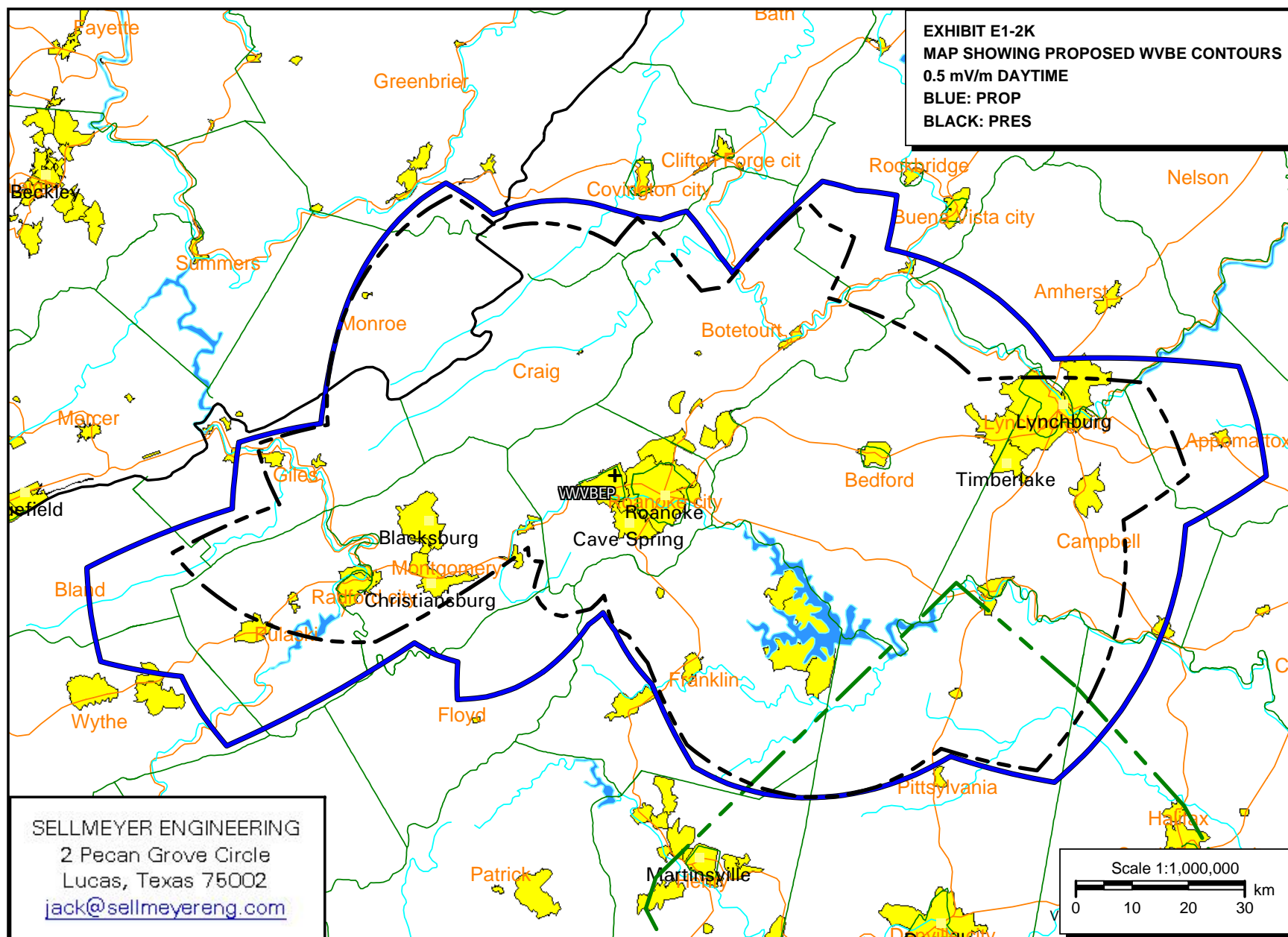


EXHIBIT E1-2K
MAP SHOWING PROPOSED WVBE CONTOURS
0.5 mV/m DAYTIME
BLUE: PROP
BLACK: PRES



SELLMEYER ENGINEERING
2 Pecan Grove Circle
Lucas, Texas 75002
jack@sellmeyereng.com

SELLMEYER ENGINEERING
BROADCAST & COMMUNICATIONS CONSULTING ENGINEERS
2 Pecan Grove Circle, Lucas, Texas 75002
MEMBER AFCCE

EXHIBIT E1-3
RADIO STATION WVBE
NIGHTTIME SECTION
610 KHZ, 2.5 KW DA-N

SELLMEYER ENGINEERING
BROADCAST & COMMUNICATIONS CONSULTING ENGINEERS
2 Pecan Grove Circle, Lucas, Texas 75002
MEMBER AFCCE

EXHIBIT E1-3A
NIGHTTIME PERMISSIBLE RADIATION STUDY
RADIO STATION WVBE
ROANOKE, VIRGINIA

Night Radiation Limit Report for WVBE

Frequency: 610 kHz

Latitude: 37-18-12 N Longitude: 080-02-31 W

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
	--	--	----	-----	-----	-----	-----
6:							
CKTB/A	CA	ON	ST. CATHARINES	6.4	15.2	15.2	835.0
19:							
CFLO/	CA	QC	MONT-LAURIER	18.8	7.5	7.5	1159.5
CFLO/A	CA	QC	MONT-LAURIER	18.8	7.5	7.5	1159.5
CFLO/A	CA	QC	MONT-LAURIER	18.6	7.5	7.5	1165.1
26:							
WHEN	US	NY	SYRACUSE	25.7	9.6	16.7	1387.4
33:							
WVMT	US	VT	BURLINGTON	33.3	6.1	11.4	3139.0
37:							
WLVE	US	VA	WINCHESTER	36.5	28.0	41.6	113.3
41:							
CHNC/A	CA	QC	NEW CARLISLE	40.6	2.6	2.6	366.9
CHNC/A	CA	QC	NEW CARLISLE	40.6	2.6	2.6	366.9
45:							
WZON	US	ME	BANGOR	44.8	3.7	7.9	1860.9
46:							
WGIR	US	NH	MANCHESTER	46.2	6.3	11.7	261.6
48:							
WSNG	US	CT	TORRINGTON	48.3	8.7	15.3	395.5

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
	--	--	----	-----	-----	-----	-----
50:							
WCAO	US	MD	BALTIMORE	49.4	20.4	31.9	426.2
WSNR	US	NJ	JERSEY CITY	49.5	11.4	19.3	3171.8
51:							
WSNR	US	NJ	JERSEY CITY	51.0	11.2	18.9	3253.4
WSNR	US	NJ	JERSEY CITY	51.2	11.0	18.8	3296.1
52:							
WICC	US	CT	BRIDGEPORT	52.0	9.5	16.5	1018.2
54:							
CKXJ/U	CA	NF	GRAND BANK	53.6	0.0	0.0	1657.8
CKXJ/U	CA	NF	GRAND BANK	53.6	0.0	0.0	1657.8
55:							
WIP	US	PA	PHILADELPHIA	54.9	14.5	23.8	60.7
129:							
ZYI-678-A	BR		SOUZA	129.3	0.0	0.0	52168.4
ZYH249-A	BR		MAL DEODORO	129.4	0.0	0.0	55670.8
132:							
ZYI-899-A	BR		TERESINA	132.4	0.0	0.0	34489.4
142:							
ZYI544-A	BR		REDENCAO	141.9	0.0	0.0	53616.6
143:							
UNK-A	TD		CHAGUANAS TR	143.2	0.0	0.0	31646.8
ZYL-268-A	BR		NOVA LIMA 2	142.8	0.0	0.0	31790.2
144:							
WEXS	US	PR	PATILLAS	143.7	0.0	0.0	3632.2
145:							
WDNC	US	NC	DURHAM	145.4	39.7	54.1	490.6
ZYK-589-A	BR		GUARATINGUET	145.5	0.0	0.0	72485.7
146:							
WYEL	US	PR	MAYAGUEZ	145.9	0.0	0.0	19189.8
147:							
ZYK-532-A	BR		MOGI MIRIM	146.9	0.0	0.0	80929.2
149:							
ZYK-726-A	BR		PIRAJU	149.4	0.0	0.0	90635.9
150:							
CX4-A (50)	UY		MONTEVIDEO	150.6	0.0	0.0	13345.6
ZYI425-A	BR		SINOP	150.0	0.0	0.0	74829.3

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
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151:							
CX4-A (40)	UY		MONTEVIDEO	151.3	0.0	0.0	12851.8
UNK-A	BR		IRANDUBA	151.1	0.0	0.0	60404.6
152:							
CX4-A (30)	UY		MONTEVIDEO	152.2	0.0	0.0	12405.7
153:							
YVSE-B (35)	VE		BARQUISIMETO	152.9	0.0	0.0	4511.1
CX4-A (20)	UY		MONTEVIDEO	153.5	0.0	0.0	12021.4
HIJR-C	DR		SANTIAGO 1	152.8	0.0	0.0	12941.8
154:							
YVSE-B (15)	VE		BARQUISIMETO	154.6	0.0	0.0	4347.0
CX4-A (15)	UY		MONTEVIDEO	154.1	0.0	0.0	11856.1
155:							
YVSE-B (5)	VE		BARQUISIMETO	155.2	0.0	0.0	4193.7
CX4-A (10)	UY		MONTEVIDEO	154.9	0.0	0.0	11710.7
156:							
YVSE-B (355)	VE		BARQUISIMETO	156.2	0.0	0.0	4142.2
CX4-A (0)	UY		MONTEVIDEO	156.5	0.0	0.0	11483.6
157:							
YVSE-B (350)	VE		BARQUISIMETO	156.7	0.0	0.0	4145.6
ZP 30-A (55)	PA		FILADELFIA	157.6	0.0	0.0	10165.9
CX4-A (355)	UY		MONTEVIDEO	157.4	0.0	0.0	11403.7
158:							
YVSE-B (340)	VE		BARQUISIMETO	157.6	0.0	0.0	4248.4
ZP 30-A (5)	PA		FILADELFIA	158.5	0.0	0.0	9894.0
CX4-A (350)	UY		MONTEVIDEO	158.3	0.0	0.0	11347.1
4VJS-A	HA		DELMAS	158.1	0.0	0.0	12770.4
159:							
YVSE-B (325)	VE		BARQUISIMETO	158.9	0.0	0.0	4288.3
ZP 30-A (340)	PA		FILADELFIA	159.2	0.0	0.0	9860.5
CX4-A (345)	UY		MONTEVIDEO	159.2	0.0	0.0	11314.4
160:							
YVSE-B (315)	VE		BARQUISIMETO	159.7	0.0	0.0	4349.0
ZP 30-A (320)	PA		FILADELFIA	159.7	0.0	0.0	9892.5
CX4-A (340)	UY		MONTEVIDEO	160.1	0.0	0.0	11305.8

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
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161:							
YVSE-B (300)	VE		BARQUISIMETO	160.7	0.0	0.0	4476.4
ZP 30-A (270)	PA		FILADELFIA	160.6	0.0	0.0	10162.3
CX4-A (335)	UY		MONTEVIDEO	161.0	0.0	0.0	11321.3
162:							
YVSE-B (280)	VE		BARQUISIMETO	161.7	0.0	0.0	4714.6
CX4-A (330)	UY		MONTEVIDEO	161.9	0.0	0.0	11360.8
163:							
CX4-A (325)	UY		MONTEVIDEO	162.7	0.0	0.0	11424.1
164:							
HJKL-B (90)	CO		BOGOTA 3	164.5	0.0	0.0	7264.3
CX4-A (320)	UY		MONTEVIDEO	163.6	0.0	0.0	11510.5
165:							
HJKL-B (70)	CO		BOGOTA 3	165.2	0.0	0.0	6855.9
CX4-A (310)	UY		MONTEVIDEO	165.2	0.0	0.0	11750.1
166:							
CMJA-D	CU		MAYARI ARRIB	165.6	1.3	1.3	2958.8
HJKL-B (40)	CO		BOGOTA 3	166.4	0.0	0.0	6454.7
CX4-A (305)	UY		MONTEVIDEO	165.9	0.0	0.0	11901.3
CP 63-A	BL		LA PAZ	166.0	0.0	0.0	97018.8
167:							
HJKL-B (15)	CO		BOGOTA 3	167.6	0.0	0.0	6197.7
CX4-A (300)	UY		MONTEVIDEO	166.6	0.0	0.0	12071.9
168:							
HJKL-B (0)	CO		BOGOTA 3	168.5	0.0	0.0	6128.1
CX4-A (290)	UY		MONTEVIDEO	167.8	0.0	0.0	12465.9
169:							
HJKL-B (350)	CO		BOGOTA 3	169.1	0.0	0.0	6117.6
CX4-A (280)	UY		MONTEVIDEO	168.7	0.0	0.0	12919.6
170:							
HJKL-B (340)	CO		BOGOTA 3	169.8	0.0	0.0	6155.7
CX4-A (265)	UY		MONTEVIDEO	169.6	0.0	0.0	13681.1
171:							
HJKL-B (325)	CO		BOGOTA 3	170.6	0.0	0.0	6291.0
172:							
HJKL-B (290)	CO		BOGOTA 3	171.6	0.0	0.0	6673.8
174:							
HCMJ1-B (50)	EC		QUITO 2	174.5	0.0	0.0	8422.2

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
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175:							
HCMJ1-B (30)	EC		QUITO 2	175.4	0.0	0.0	8158.4
176:							
HCMJ1-B (15)	EC		QUITO 2	176.3	0.0	0.0	8039.3
177:							
HCMJ1-B (0)	EC		QUITO 2	177.3	0.0	0.0	7992.1
178:							
HCMJ1-B (355)	EC		QUITO 2	177.7	0.0	0.0	7992.9
179:							
HOHM-B	PM		RPC	178.9	0.0	0.0	6590.9
HCMJ1-B (340)	EC		QUITO 2	178.7	0.0	0.0	8045.0
180:							
CMGA-D	CU		TRINIDAD 1	179.8	2.4	2.4	3067.0
HCMJ1-B (325)	EC		QUITO 2	179.5	0.0	0.0	8168.7
181:							
WIOD	US	FL	MIAMI	180.5	3.6	7.8	293.6
HCMJ1-B (300)	EC		QUITO 2	180.7	0.0	0.0	8524.3
189:							
TIRPT-B	CS		S JOSE 5	188.6	0.0	0.0	7016.2
191:							
YSS-B (80)	ES		MORAZAN	191.2	0.0	0.0	1248.4
192:							
WSJS	US	NC	WINSTON-SALEM	192.1	46.5	60.2	200.1
YSS-B (65)	ES		MORAZAN	192.2	0.0	0.0	1138.6
WBWL	US	FL	JACKSONVILLE	192.0	8.5	14.9	2150.7
193:							
YSS-B (55)	ES		MORAZAN	193.2	0.0	0.0	1075.4
194:							
YSS-B (45)	ES		MORAZAN	194.4	0.0	0.0	1022.9
WDAE	US	FL	ST. PETERSBURG	193.5	5.2	10.1	2661.0
195:							
YSS-B (40)	ES		MORAZAN	195.1	0.0	0.0	1002.3
196:							
YSS-B (35)	ES		MORAZAN	195.8	0.0	0.0	985.5
197:							
YSS-B (30)	ES		MORAZAN	196.6	0.0	0.0	974.5
HRLP-B	HO		TEGUCIGALPA	197.3	0.0	0.0	3598.8

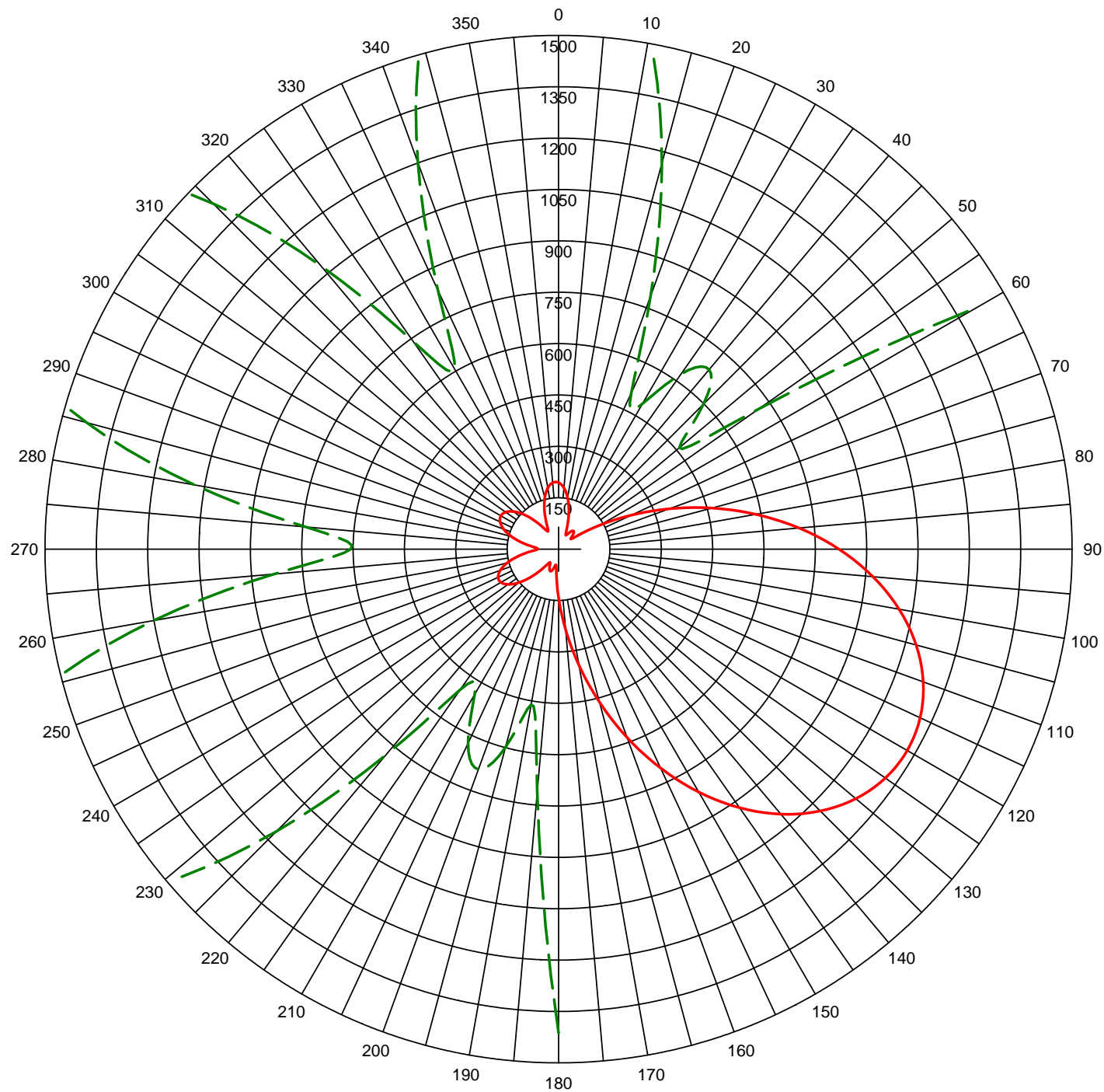
	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
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198:							
YSS-B (25)	ES		MORAZAN	197.5	0.0	0.0	1047.4
199:							
WFNZ	US	NC	CHARLOTTE	199.1	30.9	44.9	55.6
YSS-B (15)	ES		MORAZAN	198.9	0.0	0.0	1198.7
200:							
YSS-B (10)	ES		MORAZAN	199.5	0.0	0.0	1202.6
201:							
YSS-B (0)	ES		MORAZAN	201.3	0.0	0.0	975.4
HRLP 4-B	HO		S ROSA COPAN	201.3	0.0	0.0	5617.8
202:							
YSS-B (355)	ES		MORAZAN	202.0	0.0	0.0	987.1
203:							
YSS-B (350)	ES		MORAZAN	202.7	0.0	0.0	1004.3
TGGA-B (65)	GT		SENOIAL	203.2	0.0	0.0	1275.2
204:							
YSS-B (345)	ES		MORAZAN	203.4	0.0	0.0	1025.3
TGGA-B (40)	GT		SENOIAL	204.4	0.0	0.0	1247.6
205:							
YSS-B (335)	ES		MORAZAN	204.6	0.0	0.0	1078.5
TGGA-B (30)	GT		SENOIAL	204.9	0.0	0.0	1245.7
XEUM/A	MX	YC	VALLADOLID	205.4	0.9	0.9	3916.5
206:							
YSS-B (325)	ES		MORAZAN	205.6	0.0	0.0	1142.0
TGGA-B (15)	GT		SENOIAL	205.6	0.0	0.0	1247.5
207:							
YSS-B (310)	ES		MORAZAN	206.5	0.0	0.0	1252.0
TGGA-B (355)	GT		SENOIAL	206.4	0.0	0.0	1263.6
208:							
TGGA-B (320)	GT		SENOIAL	207.4	0.0	0.0	1322.3
217:							
XEKZ/A	MX	OA	SANTO DOMINGO T	216.7	0.0	0.0	5507.5
XEKZ/A	MX	OA	SANTO DOMINGO T	216.7	0.0	0.0	5521.5
223:							
NEW	US	AL	BABBIE	222.4	7.3	13.3	4502.2
NEW	US	AL	BABBIE	222.6	7.3	13.2	4543.2
224:							
XEJA/A	MX	VC	JALAPA	224.3	0.0	0.0	7122.6

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
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232:							
XECV/A	MX	SL	CD.VALLERES	232.2	0.0	0.0	8179.8
233:							
XEUF/A	MX	MC	URUAPAN	233.1	0.0	0.0	7076.1
238:							
WAGG	US	AL	BIRMINGHAM	237.7	9.2	16.0	188.6
241:							
XEEL/A	MX	ZA	FRESNILLO	240.7	0.0	0.0	5964.8
243:							
WJDX	US	MS	JACKSON	242.4	5.2	10.1	3067.9
245:							
KILT	US	TX	HOUSTON	244.5	1.3	4.6	656.5
248:							
WRJZ	US	TN	KNOXVILLE	247.8	20.5	32.1	460.8
XEBX/A	MX	CI	SABINAS	248.1	0.0	0.0	2971.5
252:							
XHIDAL/A	MX	CH	HIDALGO DEL PAR	251.7	0.0	0.0	5722.3
XEGS/A	MX	SI	GUASAVE	252.3	0.0	0.0	7487.1
XEGS/A	MX	SI	GUASAVE	252.2	0.0	0.0	7517.0
XEGS/O	MX	SI	GUASAVE	252.2	0.0	0.0	7517.0
253:							
KTBB	US	TX	TYLER	252.5	2.2	5.7	11088.0
257:							
XENVA/A	MX	SO	CD.OBREGON	257.4	0.0	0.0	10637.8
258:							
WREC	US	TN	MEMPHIS	258.3	6.8	12.4	1131.5
KMKI	US	TX	PLANO	258.1	1.7	5.2	3424.9
263:							
KARV	US	AR	RUSSELLVILLE	263.2	4.2	8.6	758.8
264:							
KROD	US	TX	EL PASO	263.9	0.0	0.0	12584.4
271:							
KTAR	US	AZ	PHOENIX	271.3	0.0	0.0	8854.2
272:							
KNML	US	NM	ALBUQUERQUE	272.0	0.0	0.3	1140.1
273:							
KOGO	US	CA	SAN DIEGO	272.6	0.0	0.0	16759.6

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
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277:							
KAVL	US	CA	LANCASTER	276.9	0.0	0.0	4666.1
278:							
KHNU	US	HI	HILO	277.7	0.0	0.0	35420.3
NEW	US	NV	HENDERSON	278.1	0.0	0.0	36230.7
NEW	US	NV	BOULDER CITY	277.7	0.0	0.0	38098.5
280:							
KIGS	US	CA	HANFORD	280.5	0.0	0.0	39446.8
283:							
KCSP	US	MO	KANSAS CITY	282.8	3.5	7.6	231.0
KJOL	US	CO	GRAND JUNCTION	283.5	0.0	0.0	23117.6
284:							
WTUV	US	KY	LOUISVILLE	284.5	14.6	24.0	817.7
KEAR	US	CA	SAN FRANCISCO	284.2	0.0	0.0	1487.1
288:							
KCOL	US	CO	WELLINGTON	287.6	0.0	1.3	19889.9
289:							
NEW	US	CA	REDDING	288.9	0.0	0.0	34208.3
NEW	US	CA	REDDING	289.1	0.0	0.0	35169.3
290:							
KVNU	US	UT	LOGAN	290.1	0.0	0.0	2199.7
292:							
KRTA	US	OR	MEDFORD	292.5	0.0	0.0	8067.9
297:							
KMNS	US	IA	SIOUX CITY	297.1	2.1	5.6	6109.6
298:							
KPOJ	US	OR	PORTLAND	298.1	0.0	0.0	28845.2
300:							
KONA	US	WA	KENNEWICK-RICHL	299.6	0.0	0.0	5235.7
302:							
WMT	US	IA	CEDAR RAPIDS	301.9	4.8	9.6	1508.5
WMT	US	IA	CEDAR RAPIDS	301.9	4.8	9.6	1508.7
303:							
KWAL	US	ID	WALLACE	302.8	0.0	0.0	25788.7
304:							
KGEZ	US	MT	KALISPELL	304.6	0.0	0.0	50641.1

	Ct	St	City	Azimuth (Deg)	Min Theta (Deg)	Max Theta (Deg)	Limit (mV/m @ 1km)
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306:							
CJAT/A	CA	BC	TRAIL	305.7	0.0	0.0	4110.7
CJAT/A	CA	BC	TRAIL	305.7	0.0	0.0	4110.7
307:							
KOJM	US	MT	HAVRE	307.2	0.0	0.0	2321.1
308:							
CHNL/	CA	BC	KAMLOOPS	308.2	0.0	0.0	14289.0
310:							
KSJB	US	ND	JAMESTOWN	310.5	0.2	3.1	8662.8
314:							
WTMJ	US	WI	MILWAUKEE	313.9	6.9	12.7	849.1
319:							
WTVN	US	OH	COLUMBUS	319.2	19.7	31.1	92.7
CKYL/	CA	AB	PEACE RIVER	319.4	0.0	0.0	7011.6
320:							
KDAL	US	MN	DULUTH	320.2	2.4	6.1	540.6
322:							
CKRW/	CA	YT	WHITEHORSE	322.6	0.0	0.0	23657.3
332:							
CHTM/A	CA	MB	THOMPSON	332.5	0.0	0.0	5203.4
334:							
WSNL	US	MI	FLINT	333.8	10.0	17.2	1619.4

EXHIBIT E1-3B, PROOPOSED NIGHTTIME STD PATTERN



Theo RMS: 465.384 mV/m@1km
Std RMS: 490.807 mV/m@1km
Q: 43.74 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	85.0	0	0	0.0	0.0	0.0	0.0
2	2.310	-165.5	80.0	120.0	85.0	0	0	0.0	0.0	0.0	0.0
3	2.360	33.1	160.0	120.0	85.0	0	0	0.0	0.0	0.0	0.0
4	1.040	-134.5	240.0	120.0	85.0	0	0	0.0	0.0	0.0	0.0

Call: WVBE
Freq: 610 kHz
ROANOKE, VA, US
Hours: N
Lat: 37-18-12 N
Lng: 080-02-31 W
Power: 2.5 kW
Theo RMS: 465.38 mV/m@1km
@ 2.5 kW

SELLMEYER ENGINEERING
BROADCAST & COMMUNICATIONS CONSULTING ENGINEERS
2 Pecan Grove Circle, Lucas, Texas 75002
MEMBER AFCCE

EXHIBIT E1-3C
TABULATION OF NIGHTTIME STANDARD PATTERN
RADIO STATION WVBE
ROANOKE, VIRGINIA

Call: WVBE
Freq: 610 kHz
ROANOKE, VA, US
Hours: N
Lat: 37-18-12 N
Lng: 080-02-31 W
Power: 2.5 kW
Theo RMS: 465.38 mV/m @ 1km @ 2.5 kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swrch	TL Swrch	A (deg)	B (deg)	C (deg)	D (deg)
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1	1.000	0.0	0.0	0.0	85.0	0	0	0.0	0.0	0.0	0.0
2	2.310	-165.5	80.0	120.0	85.0	0	0	0.0	0.0	0.0	0.0
3	2.360	33.1	160.0	120.0	85.0	0	0	0.0	0.0	0.0	0.0
4	1.040	-134.5	240.0	120.0	85.0	0	0	0.0	0.0	0.0	0.0

Standard Horizontal Plane Pattern

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	194.24	5.0	179.55	10.0	152.42
15.0	116.59	20.0	78.46	25.0	50.18
30.0	48.99	35.0	62.48	40.0	68.42
45.0	59.87	50.0	46.12	55.0	71.34
60.0	141.30	65.0	235.24	70.0	344.56
75.0	463.13	80.0	585.25	85.0	705.54
90.0	819.12	95.0	921.80	100.0	1010.12
105.0	1081.37	110.0	1133.59	115.0	1165.43
120.0	1176.13	125.0	1165.43	130.0	1133.59
135.0	1081.37	140.0	1010.12	145.0	921.80
150.0	819.12	155.0	705.54	160.0	585.25
165.0	463.13	170.0	344.56	175.0	235.24
180.0	141.30	185.0	71.34	190.0	46.12
195.0	59.87	200.0	68.42	205.0	62.48
210.0	48.99	215.0	50.18	220.0	78.46
225.0	116.59	230.0	152.42	235.0	179.55
240.0	194.24	245.0	194.72	250.0	181.04
255.0	154.97	260.0	120.13	265.0	83.28
270.0	60.69	275.0	74.01	280.0	107.93
285.0	142.62	290.0	170.57	295.0	188.42
300.0	194.54	305.0	188.42	310.0	170.57
315.0	142.62	320.0	107.93	325.0	74.01
330.0	60.69	335.0	83.28	340.0	120.13
345.0	154.97	350.0	181.04	355.0	194.72

Standard Pattern
Calculated at 5.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	193.00	5.0	178.16	10.0	151.09
15.0	115.52	20.0	77.76	25.0	49.85
30.0	48.73	35.0	62.10	40.0	68.06
45.0	59.72	50.0	45.93	55.0	69.91
60.0	138.45	65.0	230.87	70.0	338.54
75.0	455.40	80.0	575.82	85.0	694.48
90.0	806.58	95.0	907.95	100.0	995.17
105.0	1065.56	110.0	1117.15	115.0	1148.61
120.0	1159.19	125.0	1148.61	130.0	1117.15
135.0	1065.56	140.0	995.17	145.0	907.95
150.0	806.58	155.0	694.48	160.0	575.82
165.0	455.40	170.0	338.54	175.0	230.87
180.0	138.45	185.0	69.91	190.0	45.93
195.0	59.72	200.0	68.06	205.0	62.10
210.0	48.73	215.0	49.85	220.0	77.76
225.0	115.52	230.0	151.09	235.0	178.16
240.0	193.00	245.0	193.87	250.0	180.80
255.0	155.49	260.0	121.41	265.0	84.94
270.0	60.93	275.0	71.08	280.0	103.09
285.0	136.71	290.0	163.97	295.0	181.42
300.0	187.41	305.0	181.42	310.0	163.97
315.0	136.71	320.0	103.09	325.0	71.08
330.0	60.93	335.0	84.94	340.0	121.41
345.0	155.49	350.0	180.80	355.0	193.87

Standard Pattern
Calculated at 10.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	189.28	5.0	174.00	10.0	147.16
15.0	112.36	20.0	75.71	25.0	48.86
30.0	47.95	35.0	60.97	40.0	66.99
45.0	59.27	50.0	45.43	55.0	65.79
60.0	130.17	65.0	218.14	70.0	320.98
75.0	432.82	80.0	548.23	85.0	662.12
90.0	769.84	95.0	867.35	100.0	951.33
105.0	1019.16	110.0	1068.91	115.0	1099.27
120.0	1109.47	125.0	1099.27	130.0	1068.91
135.0	1019.16	140.0	951.33	145.0	867.35
150.0	769.84	155.0	662.12	160.0	548.23
165.0	432.82	170.0	320.98	175.0	218.14
180.0	130.17	185.0	65.79	190.0	45.43
195.0	59.27	200.0	66.99	205.0	60.97
210.0	47.95	215.0	48.86	220.0	75.71
225.0	112.36	230.0	147.16	235.0	174.00
240.0	189.28	245.0	191.27	250.0	179.94
255.0	156.82	260.0	125.02	265.0	89.92
270.0	62.86	275.0	63.87	280.0	89.71
285.0	119.94	290.0	145.09	295.0	161.34
300.0	166.94	305.0	161.34	310.0	145.09
315.0	119.94	320.0	89.71	325.0	63.87
330.0	62.86	335.0	89.92	340.0	125.02
345.0	156.82	350.0	179.94	355.0	191.27

Standard Pattern
Calculated at 15.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	183.06	5.0	167.17	10.0	140.77
15.0	107.25	20.0	72.40	25.0	47.28
30.0	46.67	35.0	59.13	40.0	65.22
45.0	58.48	50.0	44.78	55.0	59.60
60.0	117.27	65.0	198.13	70.0	293.30
75.0	397.14	80.0	504.58	85.0	610.82
90.0	711.51	95.0	802.82	100.0	881.59
105.0	945.29	110.0	992.06	115.0	1020.62
120.0	1030.22	125.0	1020.62	130.0	992.06
135.0	945.29	140.0	881.59	145.0	802.82
150.0	711.51	155.0	610.82	160.0	504.58
165.0	397.14	170.0	293.30	175.0	198.13
180.0	117.27	185.0	59.60	190.0	44.78
195.0	58.48	200.0	65.22	205.0	59.13
210.0	46.67	215.0	47.28	220.0	72.40
225.0	107.25	230.0	140.77	235.0	167.17
240.0	183.06	245.0	186.75	250.0	178.10
255.0	158.40	260.0	130.27	265.0	97.92
270.0	68.85	275.0	57.52	280.0	71.53
285.0	95.31	290.0	116.75	295.0	130.95
300.0	135.88	305.0	130.95	310.0	116.75
315.0	95.31	320.0	71.53	325.0	57.52
330.0	68.85	335.0	97.92	340.0	130.27
345.0	158.40	350.0	178.10	355.0	186.75

Standard Pattern					
Calculated at 20.0 Degrees Elevation					
Azimuth	Field	Azimuth	Field	Azimuth	Field
(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)
0.0	174.36	5.0	157.85	10.0	132.15
15.0	100.42	20.0	68.01	25.0	45.16
30.0	44.94	35.0	56.64	40.0	62.78
45.0	57.31	50.0	44.17	55.0	52.25
60.0	100.97	65.0	172.54	70.0	257.69
75.0	351.09	80.0	448.07	85.0	544.27
90.0	635.68	95.0	718.79	100.0	790.63
105.0	848.84	110.0	891.63	115.0	917.79
120.0	926.58	125.0	917.79	130.0	891.63
135.0	848.84	140.0	790.63	145.0	718.79
150.0	635.68	155.0	544.27	160.0	448.07
165.0	351.09	170.0	257.69	175.0	172.54
180.0	100.97	185.0	52.25	190.0	44.17
195.0	57.31	200.0	62.78	205.0	56.64
210.0	44.94	215.0	45.16	220.0	68.01
225.0	100.42	230.0	132.15	235.0	157.85
240.0	174.36	245.0	180.06	250.0	174.73
255.0	159.35	260.0	136.02	265.0	107.91
270.0	79.75	275.0	59.36	280.0	56.57
285.0	68.87	290.0	84.08	295.0	95.08
300.0	99.00	305.0	95.08	310.0	84.08
315.0	68.87	320.0	56.57	325.0	59.36
330.0	79.75	335.0	107.91	340.0	136.02
345.0	159.35	350.0	174.73	355.0	180.06

Standard Pattern
Calculated at 25.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	163.24	5.0	146.29	10.0	121.64
15.0	92.17	20.0	62.73	25.0	42.59
30.0	42.79	35.0	53.57	40.0	59.71
45.0	55.67	50.0	43.70	55.0	44.95
60.0	82.84	65.0	143.46	70.0	216.91
75.0	298.07	80.0	382.77	85.0	467.12
90.0	547.55	95.0	620.89	100.0	684.46
105.0	736.08	110.0	774.10	115.0	797.36
120.0	805.19	125.0	797.36	130.0	774.10
135.0	736.08	140.0	684.46	145.0	620.89
150.0	547.55	155.0	467.12	160.0	382.77
165.0	298.07	170.0	216.91	175.0	143.46
180.0	82.84	185.0	44.95	190.0	43.70
195.0	55.67	200.0	59.71	205.0	53.57
210.0	42.79	215.0	42.59	220.0	62.73
225.0	92.17	230.0	121.64	235.0	146.29
240.0	163.24	245.0	171.01	250.0	169.24
255.0	158.64	260.0	140.82	265.0	118.14
270.0	93.67	275.0	71.43	280.0	56.52
285.0	52.74	290.0	57.01	295.0	62.42
300.0	64.65	305.0	62.42	310.0	57.01
315.0	52.74	320.0	56.52	325.0	71.43
330.0	93.67	335.0	118.14	340.0	140.82
345.0	158.64	350.0	169.24	355.0	171.01

Standard Pattern
Calculated at 30.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	149.88	5.0	132.82	10.0	109.63
15.0	82.86	20.0	56.82	25.0	39.66
30.0	40.29	35.0	50.01	40.0	56.05
45.0	53.52	50.0	43.28	55.0	38.96
60.0	64.68	65.0	113.24	70.0	173.98
75.0	241.87	80.0	313.20	85.0	384.59
90.0	452.94	95.0	515.50	100.0	569.90
105.0	614.18	110.0	646.86	115.0	666.88
120.0	673.62	125.0	666.88	130.0	646.86
135.0	614.18	140.0	569.90	145.0	515.50
150.0	452.94	155.0	384.59	160.0	313.20
165.0	241.87	170.0	173.98	175.0	113.24
180.0	64.68	185.0	38.96	190.0	43.28
195.0	53.52	200.0	56.05	205.0	50.01
210.0	40.29	215.0	39.66	220.0	56.82
225.0	82.86	230.0	109.63	235.0	132.82
240.0	149.88	245.0	159.45	250.0	161.11
255.0	155.29	260.0	143.18	265.0	126.48
270.0	107.35	275.0	88.19	280.0	71.50
285.0	59.43	290.0	52.82	295.0	50.38
300.0	49.91	305.0	50.38	310.0	52.82
315.0	59.43	320.0	71.50	325.0	88.19
330.0	107.35	335.0	126.48	340.0	143.18
345.0	155.29	350.0	161.11	355.0	159.45

Standard Pattern
Calculated at 35.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	134.57	5.0	117.87	10.0	96.58
15.0	72.88	20.0	50.53	25.0	36.49
30.0	37.48	35.0	46.05	40.0	51.89
45.0	50.78	50.0	42.71	55.0	35.20
60.0	48.44	65.0	84.22	70.0	131.91
75.0	186.26	80.0	243.89	85.0	301.95
90.0	357.82	95.0	409.18	100.0	453.98
105.0	490.57	110.0	517.63	115.0	534.24
120.0	539.83	125.0	534.24	130.0	517.63
135.0	490.57	140.0	453.98	145.0	409.18
150.0	357.82	155.0	301.95	160.0	243.89
165.0	186.26	170.0	131.91	175.0	84.22
180.0	48.44	185.0	35.20	190.0	42.71
195.0	50.78	200.0	51.89	205.0	46.05
210.0	37.48	215.0	36.49	220.0	50.53
225.0	72.88	230.0	96.58	235.0	117.87
240.0	134.57	245.0	145.44	250.0	150.02
255.0	148.54	260.0	141.79	265.0	131.00
270.0	117.68	275.0	103.48	280.0	90.01
285.0	78.64	290.0	70.30	295.0	65.34
300.0	63.72	305.0	65.34	310.0	70.30
315.0	78.64	320.0	90.01	325.0	103.48
330.0	117.68	335.0	131.00	340.0	141.79
345.0	148.54	350.0	150.02	355.0	145.44

Standard Pattern
Calculated at 40.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	117.74	5.0	101.96	10.0	82.98
15.0	62.64	20.0	44.12	25.0	33.15
30.0	34.44	35.0	41.81	40.0	47.30
45.0	47.42	50.0	41.69	55.0	33.62
60.0	36.17	65.0	58.70	70.0	93.50
75.0	134.68	80.0	179.02	85.0	224.09
90.0	267.74	95.0	308.06	100.0	343.39
105.0	372.34	110.0	393.79	115.0	406.98
120.0	411.43	125.0	406.98	130.0	393.79
135.0	372.34	140.0	343.39	145.0	308.06
150.0	267.74	155.0	224.09	160.0	179.02
165.0	134.68	170.0	93.50	175.0	58.70
180.0	36.17	185.0	33.62	190.0	41.69
195.0	47.42	200.0	47.30	205.0	41.81
210.0	34.44	215.0	33.15	220.0	44.12
225.0	62.64	230.0	82.98	235.0	101.96
240.0	117.74	245.0	129.22	250.0	135.96
255.0	138.00	260.0	135.83	265.0	130.28
270.0	122.40	275.0	113.34	280.0	104.24
285.0	96.13	290.0	89.80	295.0	85.81
300.0	84.45	305.0	85.81	310.0	89.80
315.0	96.13	320.0	104.24	325.0	113.34
330.0	122.40	335.0	130.28	340.0	135.83
345.0	138.00	350.0	135.96	355.0	129.22

Standard Pattern					
Calculated at 45.0 Degrees Elevation					
Azimuth	Field	Azimuth	Field	Azimuth	Field
(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)
0.0	99.96	5.0	85.67	10.0	69.35
15.0	52.53	20.0	37.83	25.0	29.75
30.0	31.21	35.0	37.38	40.0	42.37
45.0	43.46	50.0	39.94	55.0	33.20
60.0	29.39	65.0	38.95	70.0	61.18
75.0	90.03	80.0	122.06	85.0	155.10
90.0	187.40	95.0	217.43	100.0	243.86
105.0	265.60	110.0	281.77	115.0	291.72
120.0	295.08	125.0	291.72	130.0	281.77
135.0	265.60	140.0	243.86	145.0	217.43
150.0	187.40	155.0	155.10	160.0	122.06
165.0	90.03	170.0	61.18	175.0	38.95
180.0	29.39	185.0	33.20	190.0	39.94
195.0	43.46	200.0	42.37	205.0	37.38
210.0	31.21	215.0	29.75	220.0	37.83
225.0	52.53	230.0	69.35	235.0	85.67
240.0	99.96	245.0	111.30	250.0	119.26
255.0	123.76	260.0	125.07	265.0	123.69
270.0	120.32	275.0	115.72	280.0	110.68
285.0	105.94	290.0	102.09	295.0	99.60
300.0	98.74	305.0	99.60	310.0	102.09
315.0	105.94	320.0	110.68	325.0	115.72
330.0	120.32	335.0	123.69	340.0	125.07
345.0	123.76	350.0	119.26	355.0	111.30

Standard Pattern					
Calculated at 50.0 Degrees Elevation					
Azimuth	Field	Azimuth	Field	Azimuth	Field
(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)
0.0	81.92	5.0	69.61	10.0	56.18
15.0	42.90	20.0	31.86	25.0	26.33
30.0	27.86	35.0	32.84	40.0	37.21
45.0	38.93	50.0	37.29	55.0	32.69
60.0	27.38	65.0	27.20	70.0	37.19
75.0	54.60	80.0	75.63	85.0	98.04
90.0	120.30	95.0	141.21	100.0	159.74
105.0	175.06	110.0	186.49	115.0	193.55
120.0	195.93	125.0	193.55	130.0	186.49
135.0	175.06	140.0	159.74	145.0	141.21
150.0	120.30	155.0	98.04	160.0	75.63
165.0	54.60	170.0	37.19	175.0	27.20
180.0	27.38	185.0	32.69	190.0	37.29
195.0	38.93	200.0	37.21	205.0	32.84
210.0	27.86	215.0	26.33	220.0	31.86
225.0	42.90	230.0	56.18	235.0	69.61
240.0	81.92	245.0	92.39	250.0	100.61
255.0	106.43	260.0	109.97	265.0	111.49
270.0	111.40	275.0	110.17	280.0	108.32
285.0	106.30	290.0	104.55	295.0	103.36
300.0	102.95	305.0	103.36	310.0	104.55
315.0	106.30	320.0	108.32	325.0	110.17
330.0	111.40	335.0	111.49	340.0	109.97
345.0	106.43	350.0	100.61	355.0	92.39

Standard Pattern
Calculated at 55.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	64.38	5.0	54.38	10.0	43.95
15.0	34.07	20.0	26.35	25.0	22.95
30.0	24.42	35.0	28.29	40.0	31.94
45.0	33.94	50.0	33.69	55.0	31.20
60.0	27.16	65.0	23.51	70.0	23.84
75.0	30.47	80.0	41.61	85.0	54.86
90.0	68.63	95.0	81.86	100.0	93.75
105.0	103.65	110.0	111.09	115.0	115.69
120.0	117.25	125.0	115.69	130.0	111.09
135.0	103.65	140.0	93.75	145.0	81.86
150.0	68.63	155.0	54.86	160.0	41.61
165.0	30.47	170.0	23.84	175.0	23.51
180.0	27.16	185.0	31.20	190.0	33.69
195.0	33.94	200.0	31.94	205.0	28.29
210.0	24.42	215.0	22.95	220.0	26.35
225.0	34.07	230.0	43.95	235.0	54.38
240.0	64.38	245.0	73.36	250.0	80.98
255.0	87.06	260.0	91.61	265.0	94.74
270.0	96.64	275.0	97.58	280.0	97.84
285.0	97.70	290.0	97.40	295.0	97.15
300.0	97.05	305.0	97.15	310.0	97.40
315.0	97.70	320.0	97.84	325.0	97.58
330.0	96.64	335.0	94.74	340.0	91.61
345.0	87.06	350.0	80.98	355.0	73.36

Standard Pattern
Calculated at 60.0 Degrees Elevation

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	48.09	5.0	40.56	10.0	33.05
15.0	26.29	20.0	21.41	25.0	19.62
30.0	20.93	35.0	23.80	40.0	26.67
45.0	28.63	50.0	29.24	55.0	28.38
60.0	26.22	65.0	23.28	70.0	20.57
75.0	19.71	80.0	21.98	85.0	27.05
90.0	33.60	95.0	40.51	100.0	47.02
105.0	52.58	110.0	56.82	115.0	59.46
120.0	60.36	125.0	59.46	130.0	56.82
135.0	52.58	140.0	47.02	145.0	40.51
150.0	33.60	155.0	27.05	160.0	21.98
165.0	19.71	170.0	20.57	175.0	23.28
180.0	26.22	185.0	28.38	190.0	29.24
195.0	28.63	200.0	26.67	205.0	23.80
210.0	20.93	215.0	19.62	220.0	21.41
225.0	26.29	230.0	33.05	235.0	40.56
240.0	48.09	245.0	55.18	250.0	61.54
255.0	67.02	260.0	71.54	265.0	75.13
270.0	77.86	275.0	79.84	280.0	81.20
285.0	82.09	290.0	82.62	295.0	82.89
300.0	82.98	305.0	82.89	310.0	82.62
315.0	82.09	320.0	81.20	325.0	79.84
330.0	77.86	335.0	75.13	340.0	71.54
345.0	67.02	350.0	61.54	355.0	55.18

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2 Pecan Grove Circle, Lucas, Texas 75002
MEMBER AFCCE

EXHIBIT E1-3D
TABULATION OF NIGHTTIME INTERFERENCE FREE LIMITS
RADIO STATION WVBE
ROANOKE, VIRGINIA

Call: WVBE
Freq: 610 kHz
ROANOKE, VA, US
Hours: N
Lat: 37-18-12 N
Lng: 080-02-31 W
Power: 2.5 kW
Theo RMS: 465.38 mV/m @ 1km @ 2.5 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [10%]

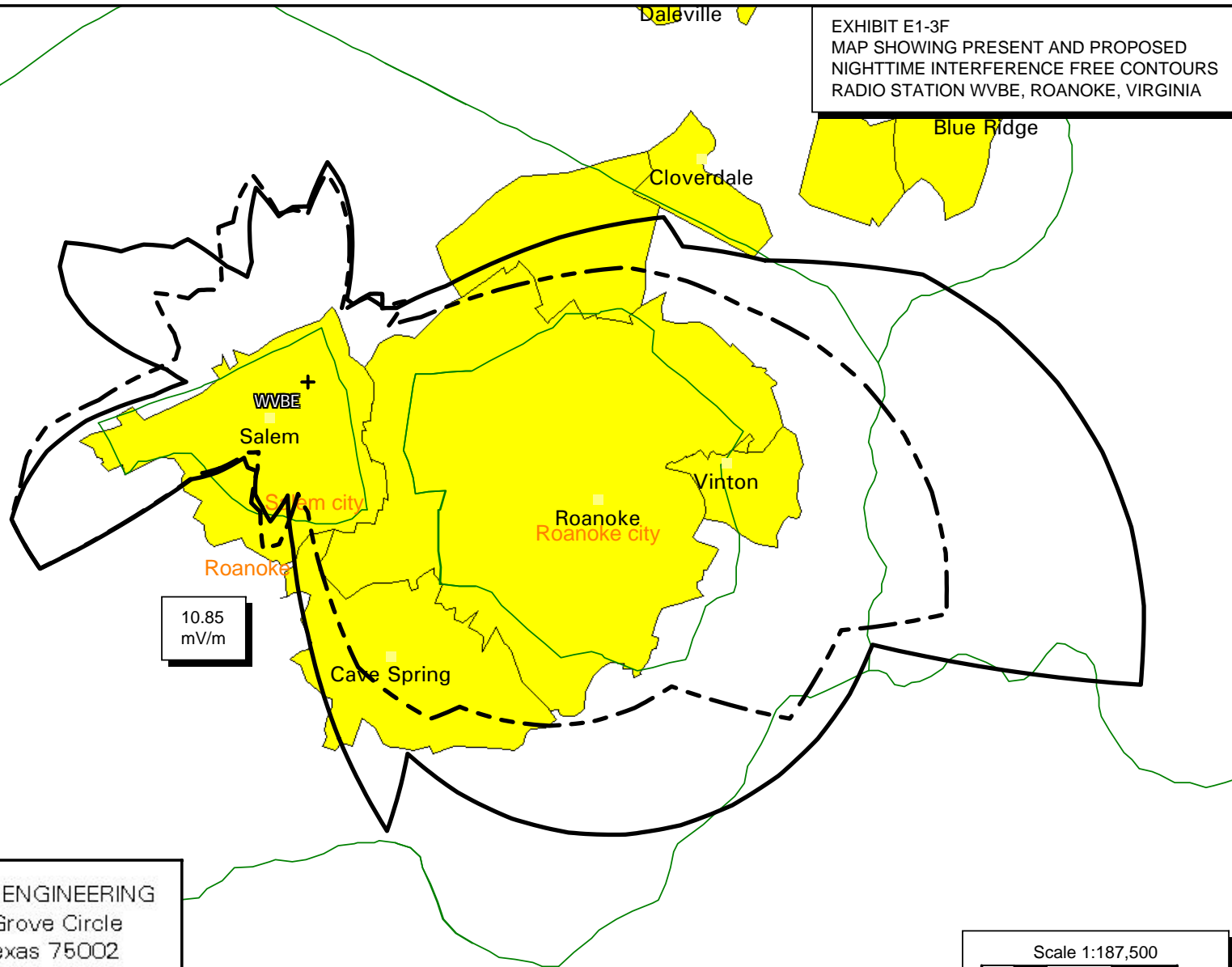
Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta Min Max (deg) (deg)	Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	(%)	RSS Limit (mV/m)	
WIP	0610	PHILADELPHIA	PA	US	514.4	237.9	14.5 23.8	312.80	109.40	6.844	100.0	6.844	
WFNZ	0610	CHARLOTTE	NC	US	235.2	18.6	30.9 44.9	120.11	264.26	6.348	92.8	9.335	
WLVE	0610	WINCHESTER	VA	US	263.9	217.6	28.0 41.6	117.00	236.47	5.533	59.3	<u>10.852</u>	50%
WTVN	0610	COLUMBUS	OH	US	383.4	137.3	19.7 31.1	137.40	159.51	4.383	40.4	11.703	
KCSP	0610	KANSAS CITY	MO	US	1287.6	93.8	3.5 7.6	688.97	25.98	3.580	30.6	12.239	
WAGG	0610	BIRMINGHAM	AL	US	749.9	53.7	9.2 16.0	239.70	67.78	3.250	26.6	<u>12.663</u>	25%
WIOD	0610	MIAMI	FL	US	1273.5	0.5	3.6 7.8	481.71	31.25	3.011	23.8	13.016	
UNK-A	0610	CHAGUANAS TR		TD	3514.1	331.0	0.0 0.0	2188.21	6.30	2.758	21.2	13.305	
CKTB/A	0610	ST. CATHARINES	ON	CA	641.7	186.9	11.2 19.0	122.76	76.76	1.885	14.2	13.438	
WSJS	0600	WINSTON-SALEM	NC	US	134.9	11.9	46.5 60.2	240.11	370.11	1.777	13.2	13.555	
WRJZ	0620	KNOXVILLE	TN	US	368.7	65.5	20.5 32.1	457.24	170.56	1.560	11.5	13.644	
KARV	0610	RUSSELLVILLE	AR	US	1194.6	75.4	4.2 8.6	247.34	31.53	1.559	11.4	13.733	
KILT	0610	HOUSTON		TX	US 1641.0		55.9 1.3	4.6	344.73	19.46	1.342	9.8	13.798

EXHIBIT E1-3E
TABULATION OF DISTANCES TO
PROPOSED WUBE NIGHTTIME INTERFERENCE FREE CONTOUR

Azimuth (DEG)	Distance (KM)	Azimuth (DEG)	Distance (KM)
0.0	5.19	180.0	4.00
5.0	6.44	185.0	3.45
10.0	5.76	190.0	5.06
15.0	4.81	195.0	5.29
20.0	3.61	200.0	4.24
25.0	2.35	205.0	4.10
30.0	2.75	210.0	3.07
35.0	3.18	215.0	2.63
40.0	3.21	220.0	2.83
45.0	3.25	225.0	3.71
50.0	3.86	230.0	4.40
55.0	3.01	235.0	10.00
60.0	3.99	240.0	10.00
65.0	7.06	245.0	10.00
70.0	10.31	250.0	9.36
75.0	12.00	255.0	8.89
80.0	13.49	260.0	8.14
85.0	15.37	265.0	6.42
90.0	16.97	270.0	5.48
95.0	18.30	275.0	4.62
100.0	19.38	280.0	4.11
105.0	20.20	285.0	4.09
110.0	20.78	290.0	4.35
115.0	18.00	295.0	4.90
120.0	18.00	300.0	5.46
125.0	18.00	305.0	4.47
130.0	14.53	310.0	4.38
135.0	14.14	315.0	4.00
140.0	13.59	320.0	4.11
145.0	12.88	325.0	4.62
150.0	11.99	330.0	5.48
155.0	11.00	335.0	5.42
160.0	11.00	340.0	6.09
165.0	9.95	345.0	6.60
170.0	8.89	350.0	5.24
175.0	6.24	355.0	5.30

EXHIBIT E1-3F
MAP SHOWING PRESENT AND PROPOSED
NIGHTTIME INTERFERENCE FREE CONTOURS
RADIO STATION WVBE, ROANOKE, VIRGINIA



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