



**ENGINEERING EXHIBIT
IN SUPPORT OF AN
APPLICATION FOR CONSTRUCTION PERMIT
STATION WTJZ – NEWPORT NEWS, VIRGINIA
1270 kHz – 15.0 kW D, 2.0 kW N, U, DA-2**

Applicant: Chesapeake-Portsmouth Broadcasting

JANUARY, 2004

TABLE OF CONTENTS

FCC Form 301 - Section III-A

STATEMENT OF JAMES SADLER

FIGURE NUMBER

Antenna System Specifications	1
Vertical Plane Antenna Sketch	2
Ground System Plat	3
Daytime Horizontal Plane Standard Radiation Pattern	4
Tabulation of Daytime Horizontal Plane Radiation Pattern	5
Nighttime Horizontal Plane Standard Radiation Pattern	6
Tabulation of Nighttime Horizontal Plane Radiation Pattern	7
Tabulation of Nighttime Vertical Plane Radiation Pattern	8
Present Daytime and Nighttime 1000 mV/m Contours	9
Proposed Daytime and Nighttime 1000 mV/m Contours	10
Present and Proposed Daytime Contours	11
Present and Proposed Nighttime Interference-Free Service Contours	12
Daytime Allocation Study	13
Tabulation of Stations Considered in Daytime Allocation Study	14
Nighttime Allocation Study	15
Appendix A - Tabulation of Distances to Proposed Groundwave Contours	
Appendix B - Tabulation of Measured Conductivity Data	
Appendix C - Field Strength Measurement Data	



**TECHNICAL NARRATIVE
IN SUPPORT OF AN APPLICATION FOR
CONSTRUCTION PERMIT
WTJZ – NEWPORT NEWS, VIRGINIA
1270 kHz – 15.0 kW-D/1.8 kW-N, U, DA-2**

Applicant: Chesapeake-Portsmouth Broadcasting

This office has been authorized by Chesapeake-Portsmouth Broadcasting, licensee of standard broadcast station WTJZ, Newport News, Virginia, to prepare this narrative, FCC Form 301, Section III-A, and the associated Figures in support of an Application for Construction Permit to increase the daytime and nighttime power and employ a directional antenna during both daytime and nighttime hours (DA-2). Presently, WTJZ is licensed to serve Newport News, Virginia, on 1270 kilohertz with power of 1.5 kilowatts daytime and 0.9 kilowatts nighttime employing a directional antenna during nighttime hours only (DA-N).

The instant application proposes to increase the daytime power to 15 kilowatts, increase nighttime power to 1.8 kilowatts, install a new directional antenna system for use during daytime hours and modify the operating characteristics of the existing nighttime directional antenna system. The proposal is considered to be a minor change under 47 CFR 73.3571(a)(2).

TOWERS AND GROUND SYSTEM

It is proposed to construct a new tower, which will be employed in combination with the existing three towers in both the new daytime directional antenna array and the modified nighttime directional antenna array. The new tower will be uniform cross-section, guyed and insulated. Pertinent elevation data associated with the new tower is contained on the vertical plane antenna sketch included as Figure 2. The existing ground system will be modified to incorporate the additional tower. Details of the ground system are included on the ground system plat contained in Figure 3

PROPOSED ANTENNA SYSTEM

A fourth tower will be constructed on the west side of the existing three in-line towers. All four radiators will be 90.0 electrical degrees in height and employed during both daytime and nighttime hours. Complete specifications for the proposed daytime and nighttime directional antenna systems are included herein as Figure 1.

The proposed directional antenna patterns were calculated in accordance with the equations set forth in 47 CFR 73.150. A polar plot of the proposed daytime horizontal plane standard radiation pattern is included herein as Figure 4. Figure 5 is a tabulation of the proposed daytime horizontal plane radiation pattern. A polar plot of the proposed nighttime directional antenna horizontal

plane standard radiation pattern is contained herein as Figure 6. Figure 7 is a tabulation of the proposed nighttime horizontal plane radiation pattern. The proposed nighttime vertical plane radiation pattern, which has been calculated between 5 degrees and 60 degrees zenith in 5 degree increments, is tabulated in Figure 8.

FIELD STRENGTH CONTOURS

The existing and proposed daytime and nighttime field strength contours are plotted on a series of maps contained in Figures 9, 10, 11, and 12. Figure 9 shows the present daytime and nighttime 1000 mV/m blanketing contours. The proposed daytime and nighttime 1000 mV/m blanketing contours are shown on Figure 10. The population within the proposed nighttime 1000 mV/m contour is less than the specified limit of 1.0 percent of the population within the proposed 25 mV/m contour. The population within the proposed daytime 1000 mV/m contour is greater than 1.0 percent of the population within the proposed 25 mV/m contour. Therefore, a waiver of 47 CFR 73.24(g) is requested herein. Support for the waiver request is contained elsewhere in this application.

The existing and proposed daytime 25, 5, 2, and 0.5 mV/m field strength contours are shown on Figure 11. As shown on Figure 11, neither the present nor the proposed daytime 5 mV/m contours fully encompass the community of license as prescribed in 47 CFR 73.24(i). The present daytime 5 mV/m contour

provides coverage to 42.7 percent of Newport News, while the proposed 5 mV/m contour increases the coverage of Newport News to 61.3 percent. The present and proposed nighttime interference-free (NIF) service contours are shown on the map provided in Figure 12. The contours provide coverage to 5.68 percent and 5.98 percent, respectively, of the city of Newport News.

Because the both the existing and proposed facilities fail to serve 100 percent of the community of license during daytime hours and 80 percent or greater during nighttime hours, a waiver of 47 CFR 73.24(i) is respectively requested. The waiver is believed to be justified based on the proposed service increase during both day and night operation.

The field strength contours were calculated using the "equivalent distance" method for paths consisting of more than one conductivity. Conductivity data employed in the calculation of field strength contours was obtained from FCC Figure M-3, except that measured conductivity data was employed where available. A tabulation of the conductivity data employed is included as Appendix B. The sources of the measured conductivity data are provided in Appendix A.

DAYTIME ALLOCATION STUDY

Stations requiring particular study and the pertinent field strength contours associated with those stations are shown on a series of maps contained in Figure 13. All field strength contours were calculated using the "equivalent distance"

method for paths consisting of more than one conductivity. Conductivity data employed in the calculation of field strength contours was obtained from FCC figure M-3, except that measured conductivity data was employed where available. The stations included in the allocation study, the sources for the measured conductivity data and the facilities associated with each station are listed on Figure 14.

The proposed daytime operation will not create new prohibited overlap with any existing or proposed facilities. The present daytime operation of WTJZ has minor overlap of field strength contours due to unusual salt-water path propagation with Station WJWK, Seaford, Delaware, and Station WWRC, Washington, DC. The proposed operation will not increase the existing overlap with either of these stations. Therefore, the proposal is fully compliant with 47 CFR 73.37 with respect to prohibited contour overlap.

47 CFR 73.24(g) WAIVER JUSTIFICATION

The population within the proposed daytime 1000 mV/m contour is greater than 300 persons and greater than one percent of the population within the proposed daytime 25 mV/m contour; therefore, a waiver of 47 CFR 73.24(g) is requested. A total of 1.43 percent of the population within in the daytime 25 mV/m contour resides within the proposed daytime 1000 mV/m contour.

The existing WTJZ transmitter site is located near the end of a peninsula such that majority of the area within the 25 mV/m contour is over water. As a result, the population within the 25 mV/m contour is unduly low in comparison to that of the 1000 mV/m contour. Much of the area within the area within the 1000 mV/m contour is industrialized. The station has operated from this site for many years with no known complaints of blanketing interference. Although the extent and location of blanketing or cross-modulation interference is difficult to predict, the licensee will satisfy all reasonable complaints of blanketing interference as required by 47 CFR 73.88.

The proposal will serve the public interest by increasing the population within the daytime 5 mV/m contour by 496,286 persons and increasing the population within the nighttime interference-free contour by 17,750 persons. The proposed daytime and nighttime operations will not create any new objectionable interference with any existing station.

The "Blanketing" rule of 47 CFR 73.24(g) was established to encourage the location of transmitters in uncongested areas. Waivers of this rule have been granted in instances where the population within the 1000 mV/m contour was far greater than 1.43 percent of the population within the 25 mV/m contour¹. In this case, the population threshold of 1 percent is exceeded by less

¹ See The Peninsula Broadcasting Co. (WBCG), 14 RR 72 and O.K. Broadcasting Corp. (WEEL), 2 RR 2d 311.

than half of one percent. The increase in service area and the fact that the applicant has agreed to satisfy all reasonable complaints of blanketing interference clearly warrant a waiver of 47 CFR 73.24(g) and a grant of this application.

NIGHTTIME ALLOCATION STUDY

The results of the nighttime allocation study are included in Figure 15. Sheet 1 of the Nighttime Allocation Study shows the computation of the existing and proposed night limits at WTJZ, while Sheets 2 through 17 contain complete studies to pertinent co-channel and adjacent-channel stations and pending applications. Sheet 18 is a legend corresponding to the record codes provided in right-hand column. The proposed nighttime operation will not raise the 25 percent RSS nighttime limit of any station or pending application.

FAA NOTIFICATION AND TOWER REGISTRATION

The proposed tower is less than 200 feet in height and therefore does not require notification to the FAA nor FCC Tower Registration.

RADIOFREQUENCY RADIATION IMPACT

The proposed operation was evaluated in terms of potential radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to

Radiofrequency Radiation." WTJZ is proposed to operate with 15.0 kilowatts daytime and 1.8 kilowatts at night. The WTJZ towers are presently fenced to prevent inadvertent access within at least 2.4 meters from the tower bases. A fence will be constructed around the new tower to also prevent inadvertent access within at least 2.4 meters from the tower base.

As interpolated from Supplement A, Table 2 of the Bulletin, the electric and magnetic field strength is predicted to be within the FCC guidelines at an interpolated distance of 2.25 meters from the tower base. Therefore, the proposed facility fully complies with the Commission's exposure guidelines. In the event it is necessary for workers to enter the restricted areas around the towers, appropriate measures will be taken to comply with occupation exposure guidelines. Appropriate RF warning signs will be posted on all tower fences.

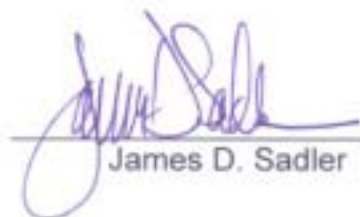
ENVIRONMENTAL CONSIDERATIONS

The proposal is categorically excluded from environmental processing as it meets all of the criteria for such an exclusion in Section 1.1306 of the Rules. The proposal will not involve construction at a transmitter site specified in Section 1.1307(a)(1)-(7) and does not involve high intensity lighting under Section 1.1307(a)(8) or result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in Section 1.1307(b).

SUMMARY

This technical narrative, FCC Form 301, Section III-A, and the attached Figures were prepared by me or under my direct supervision and are believed to be true and correct. It is submitted that the proposed operation described herein complies with the technical standards of the Rules and Regulations of the Commission with the exception 47 CFR 73.24(g) and 47 CFR 73.24(i) for which waivers are requested herein.

DATED: January 5, 2004



James D. Sadler

ANTENNA SYSTEM SPECIFICATIONS
WTJZ - NEWPORT NEWS, VIRGINIA
1270 kHz - 15 kW D/1.8 kW-LS, U, DA-2

Geographic Coordinates 37° 01' 52" North Latitude
76° 22' 00" West Longitude

Number of Radiating Elements 4

Power (nominal) 15 kW-D, 1.8 kW-N

Type of Radiators Uniform cross-section, insulated, guyed towers

Height of Radiators

Radiator (90.0 electrical degrees) 59.0 m (193.6 ft)

Overall height above ground (without lighting) 59.9 m (196.6 ft)

Overall height above ground (with lighting) 59.9 m (196.6 ft)

Overall height above mean sea level (with lighting) 61.4 m (201.6 ft)

Daytime Array Parameters

	<u>Tower 1</u>	<u>Tower 2</u>	<u>Tower 3</u>	<u>Tower 4</u>
Field Ratio	1.000	1.121	0.862	1.084
Phase Angle (deg.)	0.0	-80.9	+14.6	+105.4
Spacing (deg./meters)	0.0/0.0	85.0/55.7	170.0/111.5	117.8/77.2
Orientation (deg. True)	0.0	355.0	355.0	332.2

Theoretical RMS at One Kilometer 1149 mV/m

Nighttime Array Parameters

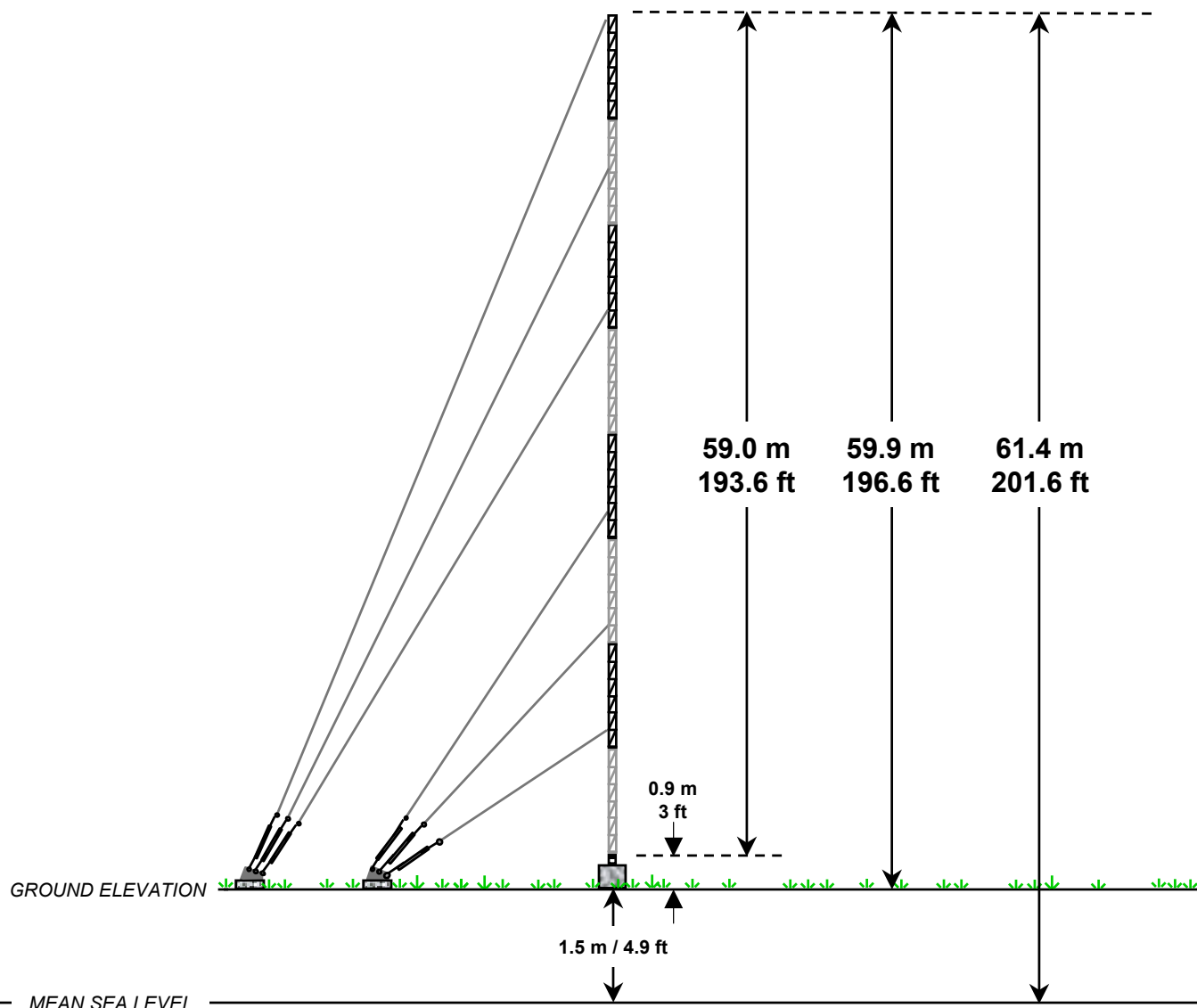
	<u>Tower 1</u>	<u>Tower 2</u>	<u>Tower 3</u>	<u>Tower 4</u>
Field Ratio	0.151	1.000	0.513	0.736
Phase Angle (deg.)	+25.9	0.0	+92.8	+159.7
Spacing (deg./meters)	0.0/0.0	85.0/55.7	170.0/111.5	117.8/77.2
Orientation (deg. True)	0.0	355.0	355.0	332.2
Theoretical RMS at One Kilometer				414.2 mV/m

Ground System:

The proposed ground system will consist of 120 buried copper wire radials evenly spaced around each tower. Each radial will be 59.0 meters (194 feet) in length except where foreshortened between towers and at the property boundary and easements. Radials will be cut and bonded at the intersection with transverse copper straps.

COORDINATES NAD-27
NORTH LATITUDE: 37° 01' 52"
WEST LONGITUDE: 76° 22' 00"

FIGURE 2

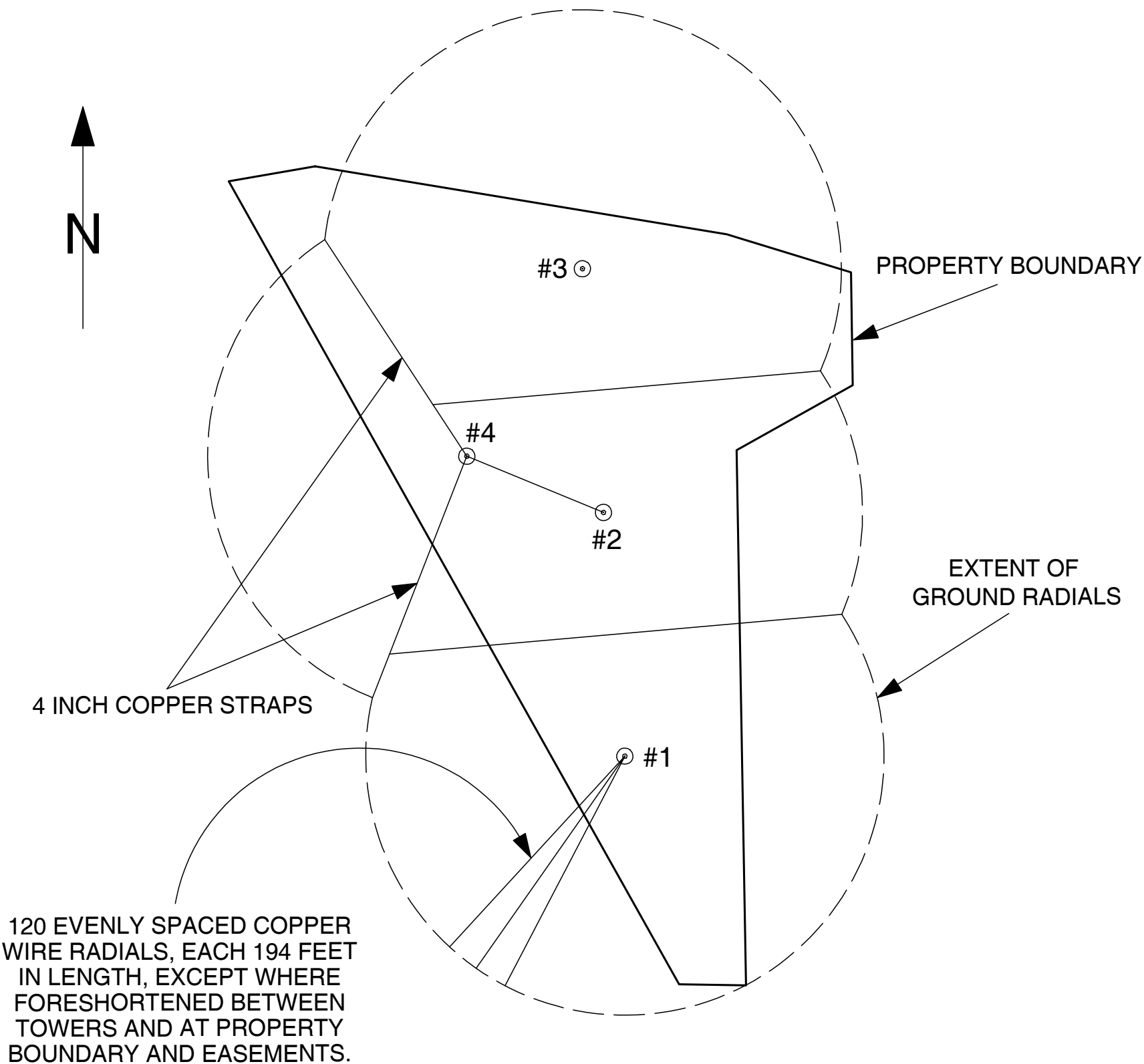


VERTICAL PLAN ANTENNA SKETCH
WTJZ - NEWPORT NEWS, VIRGINIA
1270 kHz - 15.0 kW D / 1.8 kW N, U, DA-2
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NOT DRAWN TO SCALE

FIGURE 3



GROUND SYSTEM PLAT
WTJZ - NEWPORT NEWS, VIRGINIA
1270 kHz - 15.0 kW D / 1.8 kW N, U, DA-2
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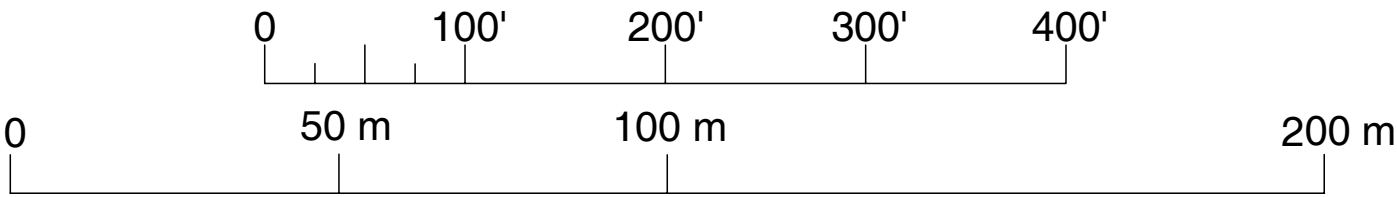
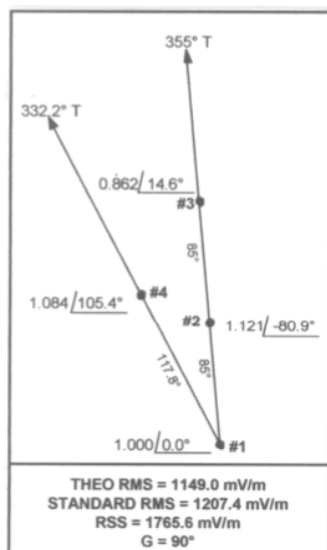
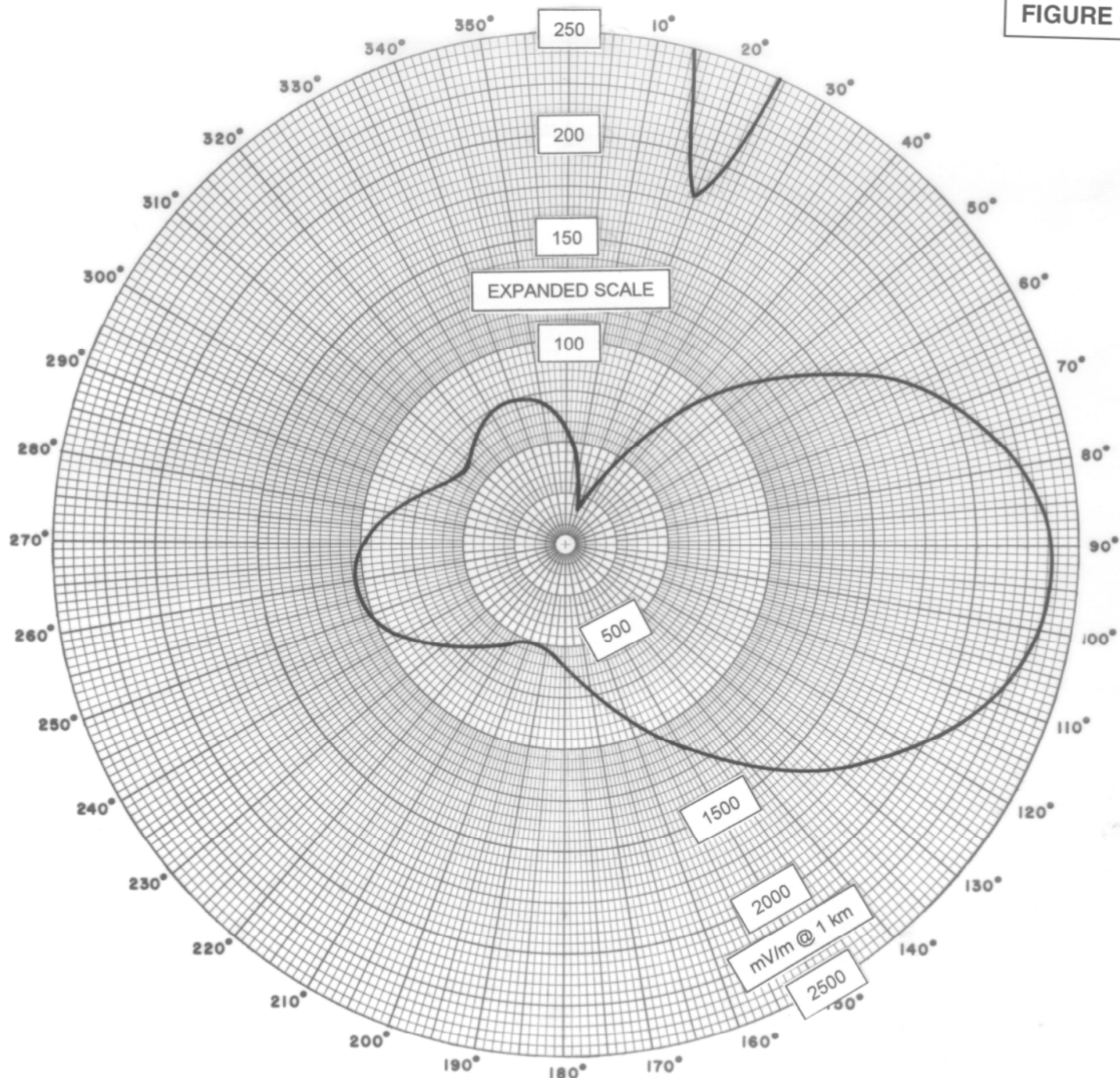


FIGURE 4



PROPOSED DAYTIME HORIZONTAL
PLANE STANDARD RADIATION PATTERN
WTJZ - NEWPORT NEWS, VIRGINIA
1270 kHz - 15.0 kW D / 1.8 kW N, U, DA-2
JANUARY, 2004

COORDINATES NAD-27
NORTH LATITUDE: 37° 01' 52"
WEST LONGITUDE: 76° 22' 00"

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Figure 5

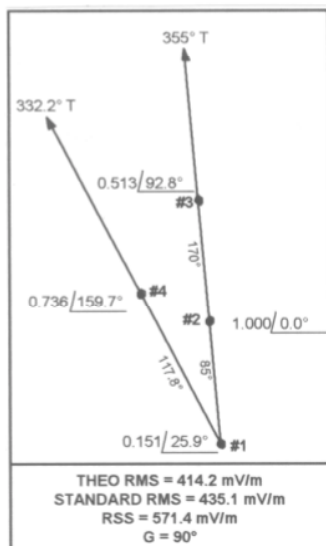
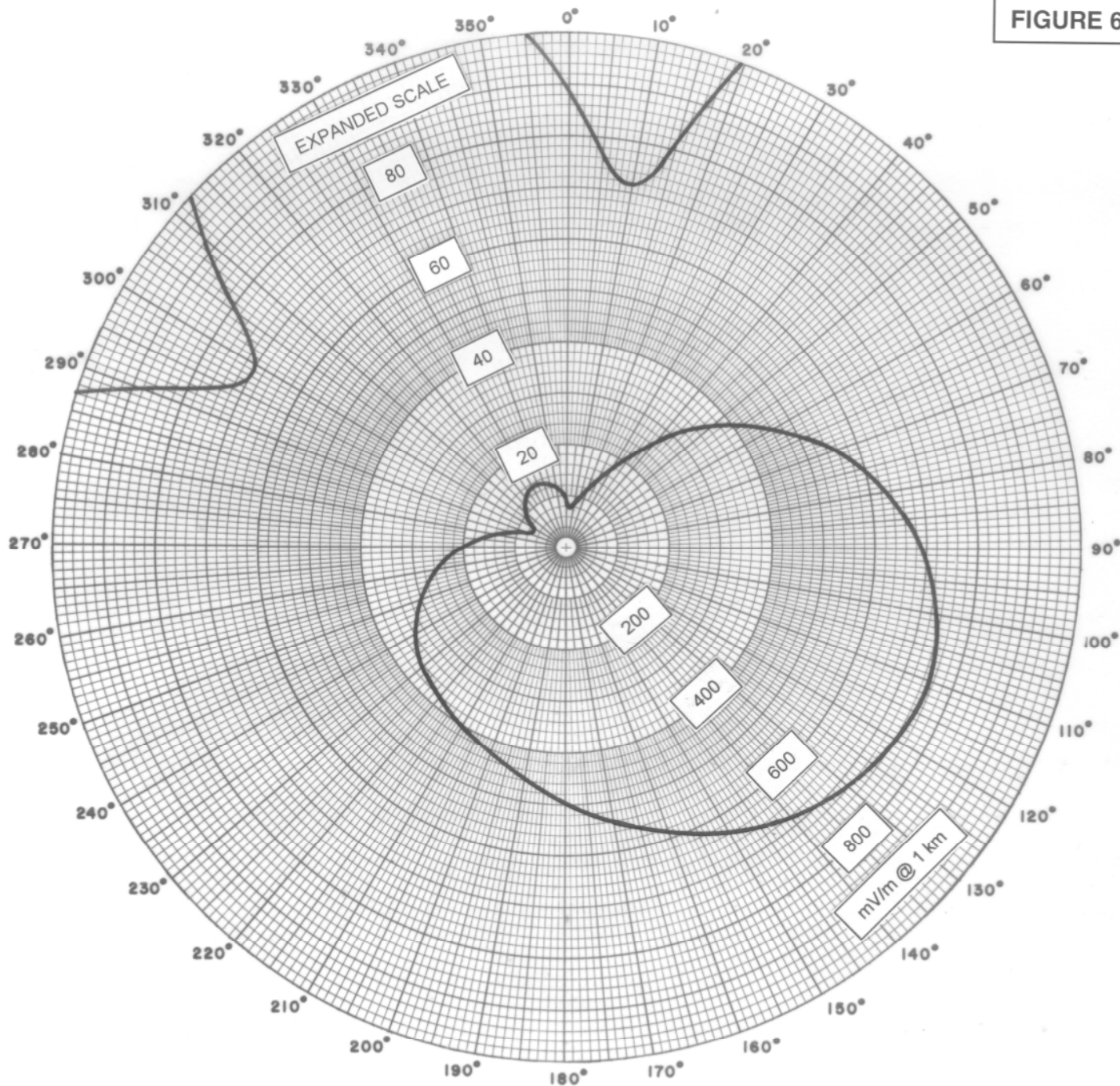
TABULATION OF DAYTIME HORIZONTAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VA 1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	526.6	554.9	180	571.5	601.8
5	434.5	458.6	185	531.7	560.2
10	328.5	348.0	190	505.9	533.2
15	221.3	237.0	195	493.9	520.7
20	166.6	181.0	200	495.4	522.2
25	245.6	262.0	205	510.1	537.6
30	402.1	424.8	210	537.6	566.3
35	586.9	618.0	215	577.1	607.7
40	785.2	825.7	220	626.9	659.8
45	989.7	1040.2	225	684.5	720.2
50	1194.8	1255.4	230	746.5	785.2
55	1394.9	1465.4	235	809.0	850.7
60	1584.7	1664.6	240	867.6	912.1
65	1758.8	1847.3	245	918.0	965.1
70	1912.3	2008.4	250	956.4	1005.3
75	2040.8	2143.4	255	979.3	1029.3
80	2140.9	2248.5	260	984.5	1034.8
85	2210.3	2321.2	265	971.0	1020.6
90	2247.6	2360.4	270	939.3	987.4
95	2253.0	2366.1	275	891.4	937.1
100	2227.9	2339.8	280	831.1	873.9
105	2174.7	2283.9	285	764.0	803.5
110	2096.9	2202.2	290	697.2	733.5
115	1998.5	2098.9	295	639.2	672.8
120	1883.9	1978.6	300	598.4	630.0
125	1757.7	1846.1	305	580.4	611.1
130	1624.3	1706.1	310	585.3	616.4
135	1487.8	1562.8	315	607.9	639.9
140	1351.9	1420.2	320	639.4	673.0
145	1219.7	1281.6	325	671.5	706.5
150	1094.0	1149.7	330	697.1	733.5
155	977.0	1026.9	335	711.4	748.4
160	870.3	915.0	340	710.7	747.7
165	775.5	815.6	345	692.9	729.0
170	693.6	729.8	350	656.5	690.9
175	625.5	658.4	355	601.0	632.8

Fields in mV/m @ 1 Kilometer

FIGURE 6



PROPOSED NIGHTTIME HORIZONTAL
PLANE STANDARD RADIATION PATTERN
WTJZ - NEWPORT NEWS, VIRGINIA
1270 kHz - 15.0 kW D / 1.8 kW N, U, DA-2
JANUARY, 2004

COORDINATES NAD-27
NORTH LATITUDE: 37° 01' 52"
WEST LONGITUDE: 76° 22' 00"

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Figure 7

TABULATION OF NIGHTTIME HORIZONTAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA 1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	82.7	88.1	180	474.7	498.6
5	71.0	76.1	185	455.3	478.3
10	66.9	71.8	190	437.6	459.8
15	75.8	81.0	195	421.7	443.0
20	97.4	103.4	200	407.4	428.0
25	127.9	135.1	205	394.8	414.8
30	164.0	172.9	210	383.6	403.0
35	204.2	214.9	215	373.4	392.3
40	247.2	260.0	220	363.8	382.3
45	292.2	307.2	225	354.2	372.3
50	338.6	355.8	230	344.2	361.7
55	385.4	404.9	235	333.0	350.0
60	431.8	453.7	240	320.1	336.4
65	477.1	501.2	245	305.1	320.7
70	520.4	546.6	250	287.5	302.2
75	560.8	589.0	255	267.2	281.0
80	597.6	627.6	260	244.2	256.9
85	630.0	661.7	265	218.8	230.2
90	657.5	690.6	270	191.4	201.5
95	679.7	713.9	275	162.7	171.5
100	696.4	731.4	280	133.9	141.4
105	707.5	743.0	285	106.6	113.0
110	713.0	748.8	290	83.4	88.8
115	713.3	749.1	295	68.3	73.3
120	708.8	744.3	300	65.4	70.3
125	699.8	735.0	305	73.5	78.6
130	687.1	721.6	310	86.9	92.4
135	671.1	704.8	315	100.8	106.9
140	652.5	685.3	320	112.9	119.4
145	631.9	663.7	325	121.8	128.8
150	609.9	640.5	330	127.0	134.2
155	586.9	616.4	335	128.3	135.5
160	563.5	591.9	340	125.5	132.7
165	540.2	567.4	345	119.0	125.8
170	517.4	543.5	350	109.0	115.4
175	495.4	520.4	355	96.4	102.3

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 5 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	81.1	86.4	180	472.6	496.4
5	69.9	74.9	185	453.4	476.3
10	66.5	71.4	190	435.8	457.9
15	76.0	81.2	195	420.0	441.2
20	97.9	103.8	200	405.8	426.3
25	128.2	135.4	205	393.2	413.1
30	164.1	172.9	210	382.0	401.4
35	203.9	214.6	215	371.8	390.7
40	246.6	259.3	220	362.2	380.6
45	291.2	306.1	225	352.6	370.5
50	337.1	354.3	230	342.5	360.0
55	383.4	402.9	235	331.3	348.2
60	429.5	451.2	240	318.4	334.7
65	474.3	498.3	245	303.4	318.9
70	517.2	543.2	250	285.9	300.6
75	557.2	585.2	255	265.8	279.4
80	593.6	623.4	260	242.9	255.5
85	625.7	657.1	265	217.7	229.0
90	653.0	685.8	270	190.4	200.5
95	675.0	708.9	275	162.0	170.7
100	691.5	726.3	280	133.3	140.8
105	702.5	737.8	285	106.1	112.4
110	708.1	743.6	290	82.8	88.2
115	708.4	744.0	295	67.3	72.3
120	704.0	739.3	300	63.9	68.7
125	695.2	730.1	305	71.5	76.5
130	682.7	716.9	310	84.5	90.0
135	666.9	700.4	315	98.3	104.3
140	648.6	681.1	320	110.2	116.7
145	628.2	659.8	325	119.1	125.9
150	606.4	636.9	330	124.3	131.4
155	583.7	613.0	335	125.6	132.7
160	560.5	588.8	340	122.9	129.9
165	537.5	564.6	345	116.5	123.2
170	514.9	540.8	350	106.7	113.0
175	493.2	518.0	355	94.4	100.2

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 10 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	76.3	81.5	180	466.3	489.8
5	66.9	71.7	185	447.6	470.2
10	65.6	70.4	190	430.4	452.2
15	76.8	81.9	195	414.9	435.8
20	99.1	105.1	200	400.9	421.2
25	129.1	136.4	205	388.4	408.1
30	164.3	173.1	210	377.3	396.4
35	203.1	213.8	215	367.1	385.7
40	244.7	257.3	220	357.4	375.6
45	288.1	302.9	225	347.8	365.4
50	332.7	349.6	230	337.6	354.8
55	377.7	396.9	235	326.4	343.0
60	422.4	443.8	240	313.5	329.5
65	466.0	489.5	245	298.6	313.9
70	507.6	533.1	250	281.3	295.8
75	546.4	573.9	255	261.5	274.9
80	581.8	611.0	260	239.1	251.5
85	613.0	643.8	265	214.3	225.5
90	639.5	671.6	270	187.7	197.6
95	661.0	694.2	275	159.8	168.5
100	677.1	711.1	280	131.7	139.1
105	687.9	722.5	285	104.7	111.0
110	693.5	728.3	290	81.1	86.5
115	694.0	728.8	295	64.6	69.4
120	689.9	724.5	300	59.4	64.0
125	681.5	715.8	305	65.5	70.4
130	669.5	703.1	310	77.7	82.9
135	654.4	687.3	315	90.9	96.6
140	636.7	668.7	320	102.5	108.6
145	617.1	648.1	325	111.2	117.7
150	596.0	626.0	330	116.3	123.0
155	574.1	603.0	335	117.7	124.4
160	551.7	579.5	340	115.2	121.9
165	529.4	556.0	345	109.2	115.6
170	507.4	533.0	350	100.0	106.0
175	486.3	510.8	355	88.5	94.0

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 15 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	69.1	74.0	180	455.8	478.9
5	62.6	67.3	185	437.9	460.1
10	64.8	69.5	190	421.4	442.7
15	78.3	83.4	195	406.4	426.9
20	101.1	107.2	200	392.8	412.6
25	130.6	137.8	205	380.5	399.8
30	164.5	173.3	210	369.5	388.2
35	201.8	212.3	215	359.3	377.5
40	241.5	253.9	220	349.5	367.3
45	282.9	297.4	225	339.8	357.1
50	325.5	342.0	230	329.5	346.3
55	368.4	387.0	235	318.3	334.5
60	410.9	431.7	240	305.5	321.1
65	452.3	475.2	245	290.8	305.7
70	491.9	516.7	250	273.9	287.9
75	528.9	555.5	255	254.6	267.7
80	562.5	590.8	260	232.9	245.0
85	592.3	622.1	265	209.0	220.0
90	617.6	648.6	270	183.4	193.1
95	638.2	670.2	275	156.5	164.9
100	653.7	686.6	280	129.2	136.5
105	664.2	697.6	285	102.8	108.9
110	669.7	703.4	290	79.0	84.2
115	670.5	704.2	295	60.8	65.4
120	666.9	700.3	300	52.7	57.1
125	659.2	692.3	305	56.3	60.8
130	648.1	680.6	310	66.9	71.6
135	634.0	665.8	315	79.2	84.3
140	617.4	648.4	320	90.2	95.7
145	598.9	629.0	325	98.5	104.4
150	579.1	608.2	330	103.6	109.7
155	558.3	586.4	335	105.1	111.3
160	537.1	564.2	340	103.0	109.1
165	515.9	541.9	345	97.6	103.5
170	495.1	520.1	350	89.4	94.9
175	475.0	498.9	355	79.2	84.4

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 20 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	60.7	65.2	180	441.4	463.6
5	58.5	62.9	185	424.5	445.9
10	64.9	69.5	190	408.8	429.5
15	80.7	85.9	195	394.5	414.4
20	103.9	110.0	200	381.4	400.7
25	132.3	139.6	205	369.5	388.2
30	164.5	173.3	210	358.6	376.8
35	199.6	210.0	215	348.5	366.1
40	236.9	249.1	220	338.7	355.9
45	275.7	289.8	225	328.9	345.6
50	315.5	331.5	230	318.5	334.8
55	355.5	373.5	235	307.3	322.9
60	395.2	415.2	240	294.7	309.7
65	433.8	455.7	245	280.3	294.6
70	470.7	494.4	250	263.9	277.5
75	505.2	530.6	255	245.4	258.0
80	536.6	563.6	260	224.7	236.4
85	564.4	592.8	265	202.1	212.6
90	588.1	617.7	270	177.7	187.1
95	607.4	638.0	275	152.3	160.5
100	622.2	653.4	280	126.3	133.3
105	632.2	664.0	285	100.8	106.7
110	637.7	669.7	290	77.1	82.1
115	638.8	670.9	295	57.3	61.7
120	635.8	667.7	300	45.3	49.5
125	629.0	660.6	305	44.6	48.8
130	619.0	650.1	310	52.8	57.1
135	606.2	636.7	315	63.7	68.3
140	591.1	620.8	320	73.9	78.8
145	574.2	603.0	325	81.9	87.1
150	555.9	583.9	330	86.8	92.2
155	536.8	563.8	335	88.6	94.0
160	517.2	543.2	340	87.1	92.4
165	497.5	522.5	345	82.6	87.8
170	478.1	502.2	350	75.8	80.8
175	459.3	482.5	355	67.8	72.5

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 25 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	53.2	57.3	180	422.9	444.3
5	56.2	60.4	185	407.3	427.9
10	66.8	71.3	190	392.7	412.6
15	84.3	89.5	195	379.2	398.4
20	107.2	113.3	200	366.8	385.4
25	134.1	141.4	205	355.4	373.4
30	164.1	172.8	210	344.8	362.2
35	196.5	206.8	215	334.7	351.7
40	230.8	242.7	220	325.0	341.5
45	266.5	280.1	225	315.2	331.2
50	302.9	318.3	230	304.9	320.4
55	339.5	356.7	235	293.7	308.7
60	375.7	394.7	240	281.4	295.7
65	411.0	431.7	245	267.5	281.2
70	444.7	467.1	250	251.8	264.7
75	476.1	500.1	255	234.3	246.4
80	504.8	530.2	260	214.9	226.0
85	530.3	556.9	265	193.8	203.9
90	552.1	579.8	270	171.1	180.2
95	569.9	598.6	275	147.5	155.4
100	583.6	612.9	280	123.2	130.1
105	593.1	622.9	285	99.2	104.9
110	598.5	628.6	290	76.1	81.0
115	599.9	630.1	295	55.4	59.6
120	597.6	627.6	300	39.5	43.5
125	591.9	621.7	305	32.7	36.7
130	583.2	612.5	310	36.5	40.5
135	572.0	600.7	315	45.6	49.6
140	558.6	586.7	320	54.8	59.0
145	543.5	570.8	325	62.3	66.7
150	527.1	553.6	330	67.2	71.8
155	509.9	535.5	335	69.3	73.9
160	492.1	516.9	340	68.6	73.2
165	474.3	498.2	345	65.5	70.0
170	456.6	479.6	350	60.7	65.0
175	439.4	461.6	355	55.7	60.0

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 30 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	49.0	52.8	180	400.7	421.0
5	57.1	61.2	185	386.6	406.1
10	70.6	75.2	190	373.2	392.1
15	88.8	94.0	195	360.7	379.0
20	110.7	116.9	200	349.1	366.8
25	135.6	142.9	205	338.2	355.4
30	163.0	171.6	210	328.0	344.6
35	192.3	202.3	215	318.2	334.4
40	223.2	234.7	220	308.6	324.3
45	255.2	268.3	225	298.9	314.1
50	287.8	302.5	230	288.8	303.5
55	320.6	336.9	235	277.9	292.1
60	353.0	370.8	240	266.0	279.6
65	384.5	403.9	245	252.8	265.7
70	414.5	435.4	250	238.0	250.2
75	442.6	464.9	255	221.7	233.1
80	468.3	491.8	260	203.9	214.4
85	491.1	515.8	265	184.5	194.1
90	510.7	536.4	270	163.9	172.5
95	526.8	553.3	275	142.4	150.0
100	539.4	566.5	280	120.3	126.9
105	548.2	575.8	285	98.3	103.9
110	553.5	581.3	290	76.7	81.5
115	555.2	583.1	295	56.4	60.5
120	553.6	581.4	300	38.3	42.1
125	549.0	576.6	305	24.7	28.7
130	541.8	569.0	310	20.4	24.7
135	532.2	558.9	315	25.8	29.8
140	520.7	546.8	320	34.0	37.7
145	507.6	533.1	325	41.1	44.8
150	493.3	518.1	330	46.1	49.9
155	478.2	502.2	335	48.8	52.7
160	462.5	485.8	340	49.3	53.2
165	446.7	469.2	345	48.2	52.0
170	431.0	452.7	350	46.5	50.3
175	415.6	436.5	355	46.0	49.8

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 35 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	50.1	53.8	180	375.0	393.9
5	61.4	65.5	185	362.4	380.7
10	76.1	80.7	190	350.4	368.1
15	93.7	99.1	195	339.1	356.2
20	113.9	120.2	200	328.4	345.0
25	136.4	143.7	205	318.2	334.3
30	160.8	169.2	210	308.5	324.2
35	186.8	196.4	215	299.2	314.3
40	214.0	225.0	220	289.9	304.6
45	242.0	254.4	225	280.5	294.7
50	270.6	284.4	230	270.6	284.4
55	299.2	314.4	235	260.2	273.4
60	327.5	344.0	240	248.9	261.6
65	354.9	372.8	245	236.5	248.6
70	381.1	400.3	250	222.9	234.3
75	405.6	426.1	255	208.0	218.7
80	428.1	449.6	260	191.9	201.8
85	448.1	470.6	265	174.6	183.7
90	465.3	488.7	270	156.3	164.5
95	479.6	503.7	275	137.2	144.5
100	490.9	515.5	280	117.7	124.1
105	499.0	524.0	285	98.1	103.6
110	503.9	529.3	290	78.8	83.5
115	505.9	531.3	295	60.3	64.3
120	505.1	530.4	300	42.9	46.4
125	501.6	526.8	305	27.0	30.6
130	495.8	520.7	310	13.5	18.2
135	487.9	512.5	315	6.6	13.3
140	478.3	502.4	320	12.7	17.5
145	467.3	490.8	325	20.1	24.0
150	455.2	478.1	330	25.9	29.4
155	442.3	464.6	335	29.9	33.4
160	428.9	450.5	340	32.5	36.0
165	415.3	436.2	345	34.7	38.1
170	401.6	421.8	350	37.4	40.9
175	388.1	407.7	355	42.2	45.8

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 40 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	56.1	59.8	180	346.1	363.5
5	68.1	72.3	185	335.1	352.0
10	82.3	87.0	190	324.6	341.0
15	98.4	103.8	195	314.5	330.3
20	116.4	122.7	200	304.8	320.2
25	136.1	143.3	205	295.5	310.4
30	157.3	165.4	210	286.5	301.0
35	179.6	188.9	215	277.7	291.8
40	203.0	213.4	220	268.9	282.5
45	227.0	238.6	225	260.0	273.2
50	251.4	264.1	230	250.7	263.4
55	275.7	289.7	235	240.9	253.1
60	299.8	314.9	240	230.4	242.1
65	323.1	339.4	245	219.1	230.2
70	345.4	362.8	250	206.8	217.4
75	366.2	384.7	255	193.5	203.5
80	385.3	404.7	260	179.3	188.6
85	402.4	422.7	265	164.2	172.7
90	417.3	438.2	270	148.3	156.1
95	429.7	451.3	275	131.9	138.9
100	439.5	461.6	280	115.2	121.4
105	446.8	469.2	285	98.4	103.9
110	451.4	474.1	290	82.0	86.7
115	453.6	476.4	295	66.1	70.2
120	453.4	476.1	300	51.1	54.7
125	450.9	473.6	305	37.4	40.6
130	446.5	468.9	310	25.2	28.4
135	440.3	462.5	315	15.2	19.0
140	432.6	454.4	320	9.2	14.2
145	423.7	445.0	325	10.6	15.2
150	413.8	434.6	330	15.5	19.4
155	403.1	423.4	335	20.8	24.2
160	391.9	411.6	340	26.0	29.2
165	380.4	399.6	345	31.5	34.7
170	368.9	387.4	350	38.1	41.3
175	357.4	375.4	355	46.1	49.5

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 45 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	64.3	68.2	180	314.3	330.1
5	75.4	79.7	185	305.0	320.4
10	88.0	92.9	190	295.9	310.9
15	102.0	107.6	195	287.1	301.6
20	117.5	123.7	200	278.6	292.7
25	134.2	141.2	205	270.3	284.0
30	152.0	159.9	210	262.1	275.4
35	170.7	179.5	215	254.1	267.0
40	190.2	199.9	220	246.0	258.5
45	210.2	220.9	225	237.7	249.8
50	230.4	242.1	230	229.2	240.9
55	250.5	263.2	235	220.3	231.5
60	270.4	284.1	240	210.8	221.5
65	289.7	304.3	245	200.7	210.9
70	308.1	323.6	250	189.9	199.6
75	325.3	341.7	255	178.4	187.5
80	341.2	358.3	260	166.2	174.8
85	355.4	373.3	265	153.4	161.3
90	367.8	386.3	270	140.0	147.3
95	378.3	397.3	275	126.4	133.0
100	386.7	406.1	280	112.5	118.5
105	393.0	412.8	285	98.7	104.1
110	397.3	417.3	290	85.3	90.0
115	399.5	419.6	295	72.4	76.6
120	399.8	419.9	300	60.3	64.1
125	398.3	418.3	305	49.5	52.8
130	395.1	415.0	310	40.1	43.2
135	390.5	410.1	315	32.8	35.7
140	384.6	403.9	320	27.9	30.8
145	377.6	396.6	325	25.9	28.8
150	369.8	388.4	330	26.7	29.5
155	361.2	379.4	335	29.6	32.4
160	352.2	369.9	340	34.0	36.9
165	342.8	360.1	345	39.6	42.7
170	333.3	350.1	350	46.5	49.8
175	323.8	340.1	355	54.7	58.2

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 50 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	72.3	76.4	180	280.1	294.3
5	81.7	86.2	185	272.5	286.2
10	92.2	97.2	190	264.9	278.3
15	103.9	109.4	195	257.5	270.5
20	116.6	122.7	200	250.2	262.8
25	130.3	137.0	205	242.9	255.2
30	144.7	152.2	210	235.8	247.7
35	159.9	168.1	215	228.6	240.2
40	175.6	184.6	220	221.4	232.6
45	191.7	201.4	225	214.1	224.9
50	207.9	218.4	230	206.5	217.0
55	224.0	235.4	235	198.6	208.7
60	239.9	252.1	240	190.3	200.0
65	255.3	268.2	245	181.6	190.8
70	270.0	283.7	250	172.4	181.2
75	283.9	298.2	255	162.7	171.0
80	296.6	311.5	260	152.6	160.4
85	308.1	323.6	265	142.1	149.4
90	318.1	334.2	270	131.2	138.0
95	326.7	343.2	275	120.2	126.5
100	333.7	350.5	280	109.2	115.0
105	339.1	356.1	285	98.3	103.6
110	342.9	360.1	290	87.7	92.5
115	345.0	362.4	295	77.7	82.1
120	345.7	363.1	300	68.5	72.4
125	344.9	362.3	305	60.3	63.8
130	342.9	360.1	310	53.3	56.6
135	339.6	356.7	315	47.8	50.9
140	335.3	352.1	320	44.1	47.1
145	330.0	346.7	325	42.2	45.1
150	324.1	340.4	330	42.1	45.0
155	317.5	333.5	335	43.7	46.6
160	310.5	326.1	340	46.8	49.9
165	303.1	318.4	345	51.3	54.6
170	295.5	310.4	350	57.1	60.6
175	287.9	302.4	355	64.1	67.8

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 55 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	78.2	82.5	180	244.2	256.5
5	85.7	90.3	185	238.1	250.1
10	94.0	99.0	190	232.0	243.7
15	103.3	108.7	195	225.9	237.3
20	113.2	119.1	200	219.8	230.9
25	123.9	130.3	205	213.8	224.6
30	135.2	142.2	210	207.7	218.2
35	147.0	154.6	215	201.6	211.8
40	159.2	167.3	220	195.5	205.4
45	171.6	180.3	225	189.2	198.8
50	184.1	193.5	230	182.7	192.0
55	196.6	206.5	235	176.0	184.9
60	208.8	219.3	240	169.0	177.6
65	220.6	231.8	245	161.8	170.0
70	232.0	243.7	250	154.2	162.1
75	242.6	254.9	255	146.4	153.9
80	252.5	265.2	260	138.3	145.4
85	261.4	274.6	265	130.0	136.7
90	269.3	282.8	270	121.6	127.9
95	276.1	290.0	275	113.1	119.0
100	281.7	295.8	280	104.7	110.1
105	286.1	300.5	285	96.4	101.5
110	289.3	303.8	290	88.5	93.2
115	291.3	306.0	295	81.1	85.4
120	292.2	306.9	300	74.3	78.3
125	292.0	306.7	305	68.3	72.1
130	290.8	305.4	310	63.3	66.8
135	288.6	303.1	315	59.3	62.7
140	285.6	300.0	320	56.6	59.8
145	281.9	296.1	325	55.1	58.3
150	277.6	291.6	330	54.9	58.1
155	272.8	286.5	335	56.0	59.2
160	267.6	281.0	340	58.2	61.6
165	262.0	275.2	345	61.7	65.2
170	256.2	269.1	350	66.2	69.9
175	250.2	262.8	355	71.7	75.6

Fields in mV/m @ 1 Kilometer

TABULATION OF NIGHTTIME VERTICAL PLANE RADIATION PATTERN

WTJZ - NEWPORT NEWS, VIRGINIA
1270 KHZ - 15.0 KW D/1.8 KW N, U, DA-2

VERTICAL ANGLE 60 DEGREES

AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)	AZIMUTH (DEGREES)	E THEO. (mV/m)	E STD. (mV/m)
0	80.8	85.0	180	207.0	217.5
5	86.4	90.9	185	202.4	212.6
10	92.6	97.5	190	197.7	207.7
15	99.5	104.7	195	192.9	202.7
20	107.0	112.5	200	188.1	197.6
25	114.9	120.9	205	183.3	192.6
30	123.3	129.6	210	178.4	187.4
35	132.0	138.8	215	173.5	182.2
40	141.0	148.2	220	168.4	177.0
45	150.1	157.8	225	163.3	171.6
50	159.3	167.4	230	158.0	166.1
55	168.5	177.0	235	152.6	160.4
60	177.4	186.4	240	147.1	154.6
65	186.1	195.5	245	141.4	148.6
70	194.5	204.3	250	135.5	142.4
75	202.3	212.5	255	129.4	136.0
80	209.6	220.1	260	123.3	129.6
85	216.2	227.1	265	117.0	123.0
90	222.1	233.3	270	110.7	116.4
95	227.2	238.7	275	104.5	109.9
100	231.5	243.2	280	98.4	103.5
105	235.0	246.8	285	92.4	97.3
110	237.6	249.5	290	86.8	91.3
115	239.3	251.4	295	81.5	85.9
120	240.3	252.4	300	76.8	80.9
125	240.4	252.5	305	72.6	76.5
130	239.9	251.9	310	69.2	72.9
135	238.6	250.6	315	66.4	70.1
140	236.7	248.6	320	64.6	68.1
145	234.2	246.0	325	63.6	67.0
150	231.3	242.9	330	63.4	66.9
155	227.9	239.4	335	64.2	67.7
160	224.2	235.5	340	65.9	69.5
165	220.2	231.3	345	68.4	72.1
170	216.0	226.9	350	71.8	75.6
175	211.6	222.2	355	75.9	79.9

Fields in mV/m @ 1 Kilometer

FIGURE 9

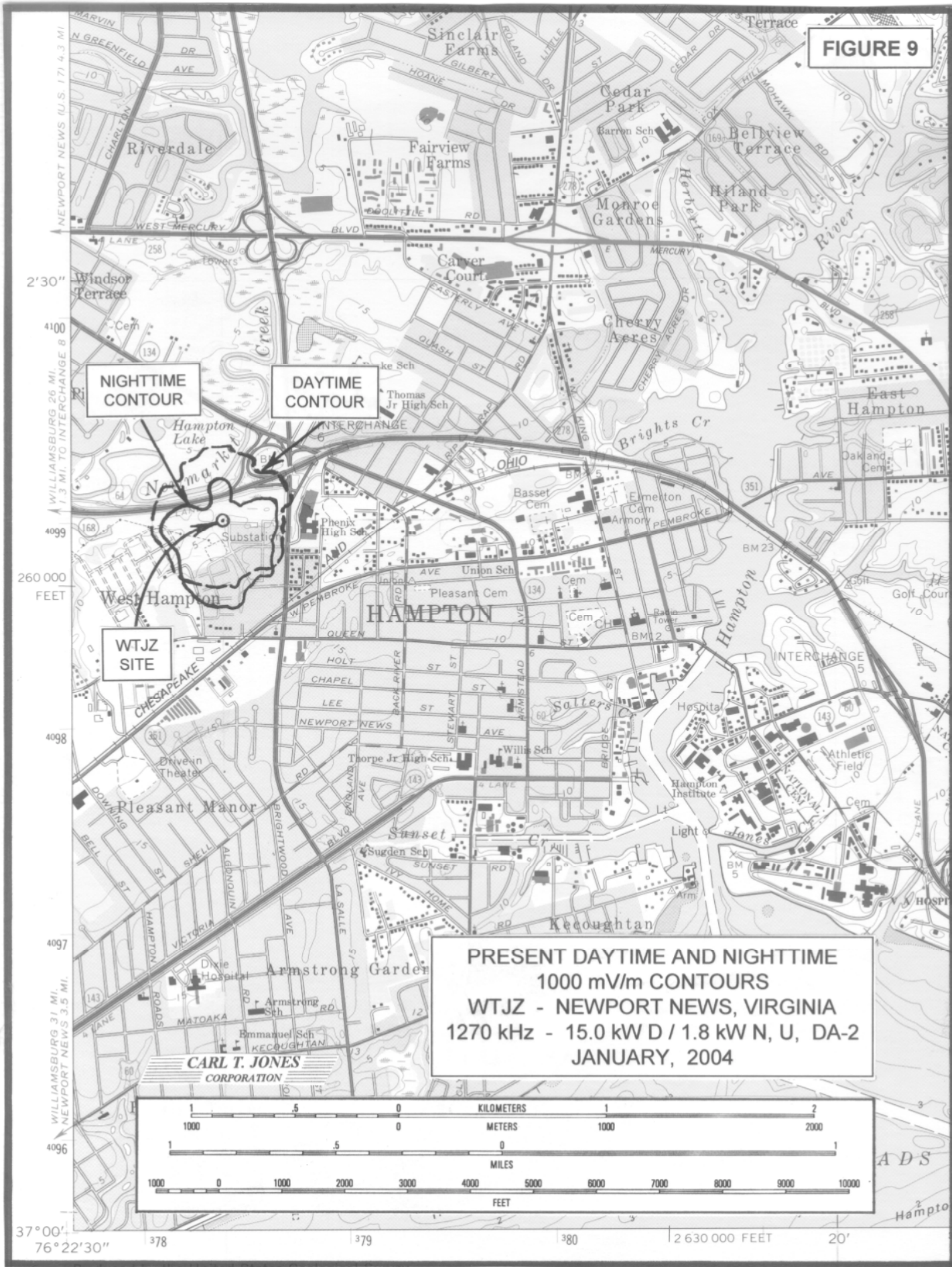
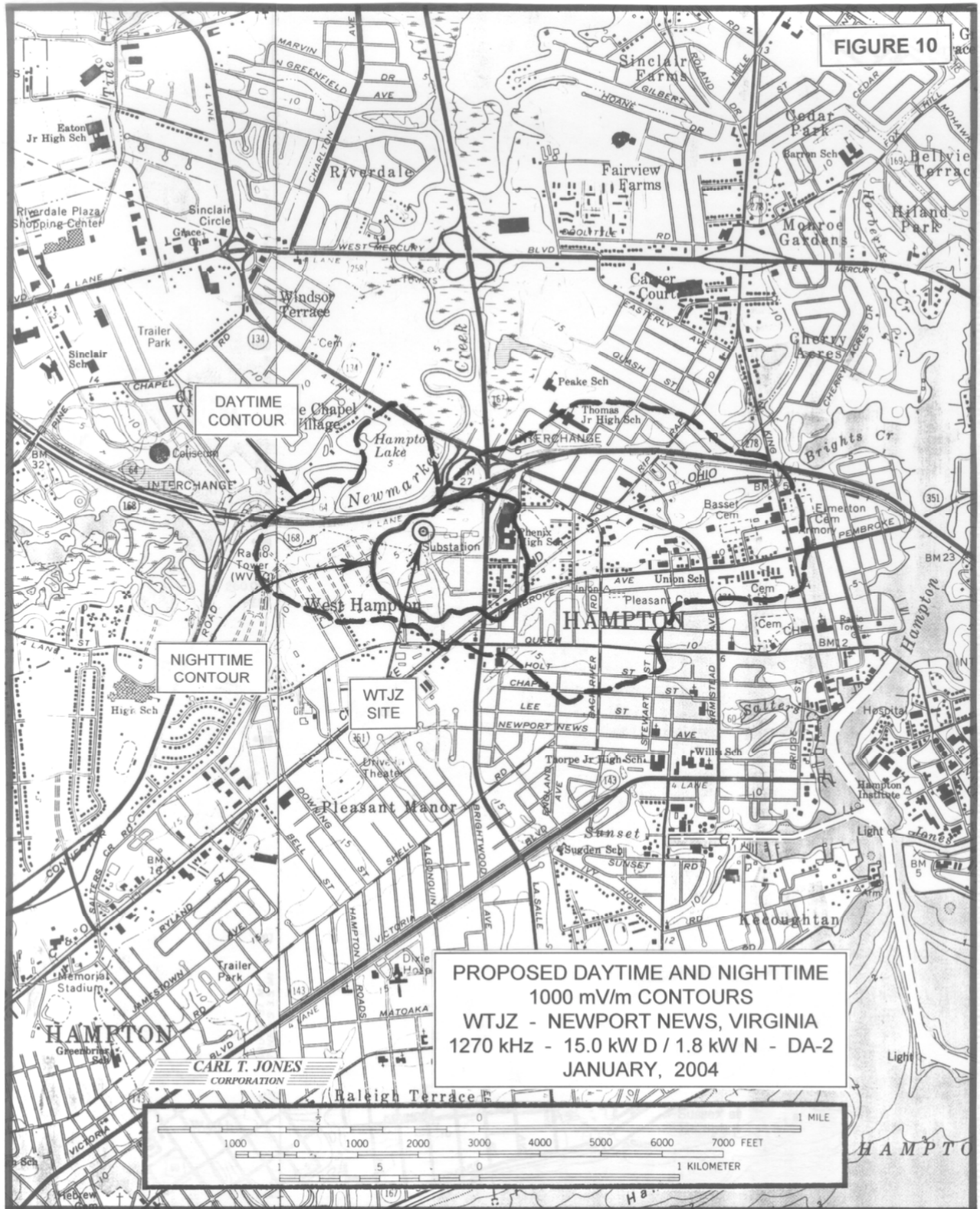


FIGURE 10



PROPOSED DAYTIME AND NIGHTTIME
1000 mV/m CONTOURS
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1270 kHz - 15.0 kW D / 1.8 kW N - DA-2
JANUARY, 2004

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CORPORATION