

NIGHTTIME CONTOUR INFORMATION
WPEN, PHILADELPHIA, PENNSYLVANIA
950 kHz – 21kW N/50 kW D – DA-2

*Exhibit 14A - Form 301, Section III-A AM Engineering
Technical Specifications*

Engineering Exhibit of WPEN, Philadelphia, Pennsylvania

TABULATION OF
COMPUTED DISTANCE TO CONTOURS
FOR THE PROPOSED 21 kW NIGHTTIME OPERATION OF
WPEN, PHILADELPHIA, PENNSYLVANIA

September 2004

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PHILADELPHIA WWDB SITE , PA

Call: WPEN Proposed Nighttime

Coordinates: N 40 9 15 W 75 22 10

Frequency: 950 kHz Number of contours: 3

Azimuth	Radiation (mV/m at one km)	Distances to Contours in Kilometers :		
		Contour levels in mV/m.		
		1000.000	5.000	3.600
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.0	136.32	.13	12.18	14.78
5.0	171.48	.17	13.96	16.81
10.0	203.23	.20	15.39	18.43
15.0	222.46	.21	16.19	19.34
20.0	220.66	.21	16.12	19.25
25.0	191.45	.18	14.88	17.85
30.0	136.37	.13	12.18	14.78
35.0	106.11	.11	10.42	12.77
40.0	211.22	.20	15.73	18.81
45.0	400.00	.38	22.08	25.95
50.0	635.92	.59	27.68	32.22
55.0	906.58	.82	32.60	37.75
60.0	1201.82	1.06	36.98	42.68
65.0	1511.29	1.31	40.88	47.09
70.0	1824.62	1.55	44.34	51.02
75.0	2131.91	1.78	47.40	54.50
80.0	2424.33	2.00	50.07	57.54
85.0	2694.41	2.19	52.36	60.16
90.0	2936.28	2.36	54.30	62.38
95.0	3145.56	2.50	55.91	64.21
100.0	3319.28	2.62	57.19	65.68
105.0	3455.56	2.71	58.17	66.80
110.0	3553.36	2.77	58.86	67.59
115.0	3612.18	2.81	59.27	68.06
120.0	3631.80	2.82	59.40	68.21
125.0	3612.18	2.81	59.27	68.06
130.0	3553.36	2.77	58.86	67.59
135.0	3455.56	2.71	58.17	66.80
140.0	3319.28	2.62	57.19	65.68
145.0	3145.56	2.50	55.91	64.21
150.0	2936.28	2.36	54.87	62.94
155.0	2694.41	2.19	53.47	61.26
160.0	2424.33	2.00	51.70	59.17
165.0	2131.91	1.78	49.55	56.65
170.0	1824.62	1.55	47.04	53.72

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COMPUTED DISTANCE TO CONTOURS
FOR THE PROPOSED 21 kW NIGHTTIME OPERATION OF
WPEN, PHILADELPHIA, PENNSYLVANIA
September 2004
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Azimuth	Radiation (mV/m at one km)	Distances to Contours in Kilometers :		
		Contour levels in mV/m.		
		1000.000	5.000	3.600
175.0	1511.29	1.31	44.01	50.22
180.0	1201.82	1.06	39.80	45.49
185.0	906.58	.82	32.60	40.17
190.0	635.92	.59	27.68	32.22
195.0	400.00	.38	22.08	25.95
200.0	211.22	.20	15.73	18.81
205.0	106.11	.11	10.42	12.77
210.0	136.37	.13	12.18	14.78
215.0	191.45	.18	14.88	17.85
220.0	220.66	.21	16.12	19.25
225.0	222.46	.21	16.19	19.34
230.0	203.23	.20	15.39	18.43
235.0	171.48	.17	13.96	16.81
240.0	136.32	.13	12.18	14.78
245.0	106.68	.11	10.46	12.81
250.0	89.45	.10	9.33	11.50
255.0	84.88	.10	9.01	11.14
260.0	86.27	.10	9.11	11.25
265.0	87.51	.10	9.20	11.35
270.0	86.77	.10	9.15	11.29
275.0	85.30	.10	9.04	11.17
280.0	85.20	.10	9.04	11.16
285.0	87.52	.10	9.20	11.35
290.0	91.40	.10	9.46	11.66
295.0	94.87	.10	9.70	11.93
300.0	96.24	.10	9.79	12.03
305.0	94.87	.10	9.70	11.93
310.0	91.40	.10	9.46	11.66
315.0	87.52	.10	9.20	11.35
320.0	85.20	.10	9.04	11.16
325.0	85.30	.10	9.04	11.17
330.0	86.77	.10	9.15	11.29
335.0	87.51	.10	9.20	11.35
340.0	86.27	.10	9.11	11.25
345.0	84.88	.10	9.01	11.14
350.0	89.45	.10	9.33	11.50
355.0	106.68	.11	10.46	12.81

Engineering Exhibit of WPEN, Philadelphia, Pennsylvania

TABULATION OF
AZIMUTH RADIATION AND GROUND CONDUCTIVITIES
FOR THE PROPOSED NIGHTTIME OPERATION OF
WPEN, PHILADELPHIA, PENNSYLVANIA

September 2004

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Call: WPEN Proposed Nighttime
 PHILADELPHIA WWDB SITE, PA
 Coordinates: N 40 9 15 W 75 22 10
 Frequency: 950 kHz

Azimuth	Radiation (mV/m at one km)	Ground Conductivity Data:							
		Region conductivity in mS/m followed by distance in km to the end of region. E - map data; M - measurement data.							
.0	136.32	4.0E	79.4	2.0E	112.9	4.0E	515.1	10.0E	597.0
		4.0E	627.4	2.0E	817.8	2.0E	1073.1		
5.0	171.48	4.0E	85.5	2.0E	117.2	4.0E	540.7	10.0E	610.9
		4.0E	628.0	2.0E	810.5	2.0E	1073.1		
10.0	203.23	4.0E	92.4	2.0E	124.3	4.0E	547.6	10.0E	601.9
		4.0E	637.2	2.0E	830.0	2.0E	1073.1		
15.0	222.46	4.0E	94.3	2.0E	133.6	4.0E	323.4	2.0E	375.8
		4.0E	559.1	10.0E	687.4	4.0E	740.2	2.0E	889.7
20.0	220.66	4.0E	92.6	2.0E	145.5	4.0E	335.2	2.0E	576.4
		4.0E	652.0	6.0E	773.7	4.0E	844.9	2.0E	1016.7
25.0	191.45	4.0E	90.2	2.0E	158.5	4.0E	353.0	2.0E	547.0
		.5E	600.8	4.0E	847.4	5000.0E	913.5	4.0E	924.6
30.0	136.37	4.0E	89.3	2.0E	160.7	4.0E	366.3	2.0E	429.8
		1.0E	489.0	.5E	670.0	4.0E	785.4	1.0E	950.5
35.0	106.11	4.0E	89.2	2.0E	157.0	4.0E	329.3	1.0E	981.2
40.0	211.22	4.0E	90.8	2.0E	146.7	4.0E	262.6	1.0E	514.7
45.0	400.00	4.0E	94.3	2.0E	127.1	4.0E	187.5	1.0E	493.9
		2.0E	617.5	5000.0E	630.0	2.0E	784.6	1.0E	870.3
50.0	635.92	4.0E	109.9	2.0E	111.0	4.0E	176.3	1.0E	254.3
		2.0E	424.3	1.0E	446.5	2.0E	483.4	5000.0E	801.0
55.0	906.58	4.0E	170.8	1.0E	240.6	2.0E	433.7	5000.0E	905.8
60.0	1201.82	4.0E	132.1	5000.0E	133.1	4.0E	136.6	5000.0E	141.0
		4.0E	142.6	5000.0E	150.2	4.0E	151.4	5000.0E	158.4
		4.0E	160.4	5000.0E	252.2	2.0E	381.5	5000.0E	382.1
65.0	1511.29	4.0E	122.4	5000.0E	126.0	.5E	218.7	5000.0E	321.1
		2.0E	362.2	5000.0E	382.2	2.0E	394.6	5000.0E	395.3
70.0	1824.62	4.0E	101.9	5000.0E	147.2	.5E	252.7	5000.0E	261.9
		.5E	291.8	5000.0E	295.2	.5E	307.4	5000.0E	1073.1
75.0	2131.91	4.0E	120.9	5000.0E	1073.1				
80.0	2424.33	4.0E	119.4	5000.0E	1073.1				
85.0	2694.41	4.0E	116.6	5000.0E	1073.1				
90.0	2936.28	4.0E	114.4	5000.0E	1073.1				
95.0	3145.56	4.0E	107.4	5000.0E	1073.1				
100.0	3319.28	4.0E	110.7	5000.0E	1073.1				
105.0	3455.56	4.0E	111.4	5000.0E	1073.1				
110.0	3553.36	4.0E	111.4	5000.0E	1073.1				
115.0	3612.18	4.0E	114.6	5000.0E	1073.1				
120.0	3631.80	4.0E	113.0	5000.0E	1073.1				

TABULATION OF
AZIMUTH RADIATION AND GROUND CONDUCTIVITIES
FOR THE PROPOSED NIGHTTIME OPERATION OF
WPEN, PHILADELPHIA, PENNSYLVANIA

September 2004

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Radiation		Ground Conductivity Data:							
Azimuth	(mV/m at one km)	Region conductivity in mS/m followed by distance in km to the end of region. E - map data; M - measurement data.							
125.0	3612.18	4.0E	110.9	5000.0E	1073.1				
130.0	3553.36	4.0E	110.0	5000.0E	1073.1				
135.0	3455.56	4.0E	111.4	5000.0E	1073.1				
140.0	3319.28	4.0E	116.7	5000.0E	1073.1				
145.0	3145.56	4.0E	111.7	5000.0E	117.4	4.0E	120.3	5000.0E	1073.1
150.0	2936.28	4.0E	34.6	5000.0E	35.2	4.0E	123.7	5000.0E	1073.1
155.0	2694.41	4.0E	33.7	5000.0E	35.0	4.0E	131.8	5000.0E	1073.1
160.0	2424.33	4.0E	33.1	5000.0E	35.0	4.0E	116.5	5000.0E	121.0
		4.0E	140.3	5000.0E	1073.1				
165.0	2131.91	4.0E	32.8	5000.0E	35.3	4.0E	109.1	5000.0E	138.3
		4.0E	139.7	5000.0E	1073.1				
170.0	1824.62	4.0E	32.7	5000.0E	35.8	4.0E	107.9	5000.0E	1073.1
175.0	1511.29	4.0E	33.1	5000.0E	36.7	4.0E	96.9	5000.0E	143.1
		4.0E	167.7	2.0E	213.3	5000.0E	1073.1		
180.0	1201.82	4.0E	34.7	5000.0E	37.9	4.0E	88.8	5000.0E	122.5
		4.0E	169.8	2.0E	237.2	5000.0E	1073.1		
185.0	906.58	4.0E	36.7	5000.0E	39.5	4.0E	81.8	5000.0E	91.2
		4.0E	172.4	2.0E	285.2	5000.0E	293.9	2.0E	298.7
190.0	635.92	4.0E	40.3	5000.0E	48.3	4.0E	73.2	5000.0E	85.3
		4.0E	175.0	2.0E	226.2	5000.0E	229.0	2.0E	235.1
195.0	400.00	4.0E	50.7	5000.0E	68.7	4.0E	179.1	2.0E	207.3
		5000.0E	210.8	2.0E	213.9	5000.0E	308.9	2.0E	322.7
200.0	211.22	4.0E	181.6	5000.0E	183.6	4.0E	185.1	2.0E	211.4
		5000.0E	246.2	4.0E	248.4	5000.0E	258.9	4.0E	294.2
205.0	106.11	4.0E	152.9	5000.0E	157.9	4.0E	165.6	5000.0E	168.3
		4.0E	171.9	5000.0E	185.6	4.0E	188.1	5000.0E	213.8
210.0	136.37	4.0E	98.0	5000.0E	100.4	4.0E	133.6	5000.0E	198.8
		4.0E	217.3	5000.0E	221.1	4.0E	237.2	5000.0E	238.0
215.0	191.45	4.0E	89.7	5000.0E	106.1	4.0E	135.0	5000.0E	166.3
		4.0E	167.5	5000.0E	170.6	4.0E	170.7	5000.0E	174.8
220.0	220.66	4.0E	84.9	5000.0E	99.5	4.0E	108.1	5000.0E	147.8
		4.0E	154.3	5000.0E	155.7	4.0E	159.8	5000.0E	161.3
225.0	222.46	4.0E	107.1	5000.0E	110.5	4.0E	133.9	5000.0E	134.5
		4.0E	140.9	5000.0E	151.1	4.0E	202.4	5000.0E	204.2
		4.0E	227.5	2.0E	481.7	4.0E	569.2	2.0E	827.4
230.0	203.23	4.0E	144.9	2.0E	1023.4	1.0E	1073.1		
235.0	171.48	4.0E	124.1	2.0E	1073.1				
240.0	136.32	4.0E	125.3	2.0E	631.3	4.0E	799.1	2.0E	999.2
245.0	106.68	4.0E	136.9	2.0E	948.6	4.0E	1073.1		
250.0	89.45	4.0E	160.6	2.0E	891.2	4.0E	1073.1		
255.0	84.88	4.0E	166.2	2.0E	262.3	4.0E	438.2	2.0E	752.1

TABULATION OF
AZIMUTH RADIATION AND GROUND CONDUCTIVITIES
FOR THE PROPOSED NIGHTTIME OPERATION OF
WPEN, PHILADELPHIA, PENNSYLVANIA
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Radiation Ground Conductivity Data:

Azimuth	(mV/m at one km)	Region conductivity in mS/m followed by distance in km to the end of region. E - map data; M - measurement data.							
260.0	86.27	4.0E	152.9	2.0E	234.5	4.0E	432.1	2.0E	724.7
265.0	87.51	4.0E	140.6	2.0E	219.1	4.0E	402.8	2.0E	498.7
270.0	86.77	4.0E	131.9	2.0E	208.8	4.0E	535.4	8.0E	1073.1
275.0	85.30	4.0E	125.5	2.0E	201.8	4.0E	267.7	2.0E	305.3
280.0	85.20	4.0E	119.2	2.0E	199.9	4.0E	257.2	2.0E	335.8
		4.0E	441.3	8.0E	639.4	15.0E	705.8	8.0E	1061.9
285.0	87.52	4.0E	111.4	2.0E	202.6	4.0E	249.2	2.0E	377.7
		4.0E	412.0	8.0E	634.1	15.0E	649.8	8.0E	654.6
290.0	91.40	4.0E	104.1	2.0E	404.0	8.0E	595.0	10.0E	679.9
295.0	94.87	4.0E	92.6	2.0E	406.2	8.0E	479.8	4.0E	492.4
		8.0E	550.0	10.0E	604.4	20.0E	676.6	15.0E	687.0
300.0	96.24	4.0E	82.6	2.0E	385.5	4.0E	456.6	8.0E	496.0
305.0	94.87	4.0E	76.0	2.0E	257.1	4.0E	419.8	8.0E	458.4
		10.0E	482.8	4.0E	485.9	10.0E	503.5	4.0E	555.3
310.0	91.40	4.0E	72.5	2.0E	207.3	4.0E	400.8	8.0E	436.5
		10.0E	477.0	20.0E	518.4	4.0E	571.1	6.0E	664.3
315.0	87.52	4.0E	69.8	2.0E	183.2	4.0E	396.1	8.0E	424.9
320.0	85.20	4.0E	67.8	2.0E	165.9	4.0E	393.7	8.0E	472.5
		15.0E	513.6	6.0E	550.3	4.0E	672.1	10.0E	678.9
325.0	85.30	4.0E	66.4	2.0E	131.0	4.0E	343.6	8.0E	468.2
		15.0E	505.4	6.0E	576.2	4.0E	643.8	10.0E	810.0
330.0	86.77	4.0E	66.0	2.0E	112.6	4.0E	361.0	8.0E	446.0
		15.0E	487.6	6.0E	594.6	1.0E	702.8	2.0E	1073.1
335.0	87.51	4.0E	66.4	2.0E	106.6	4.0E	386.5	8.0E	423.8
		15.0E	472.9	6.0E	559.6	1.0E	703.5	2.0E	1063.8
340.0	86.27	4.0E	67.3	2.0E	105.5	4.0E	371.6	8.0E	408.5
		15.0E	445.8	4.0E	446.4	15.0E	451.8	4.0E	543.9
345.0	84.88	4.0E	68.7	2.0E	106.0	4.0E	378.9	8.0E	413.1
		15.0E	459.1	10.0E	474.1	4.0E	540.3	1.0E	697.0
350.0	89.45	4.0E	71.1	2.0E	107.4	4.0E	390.7	8.0E	414.2
		4.0E	419.6	8.0E	441.0	4.0E	450.2	15.0E	463.6
355.0	106.68	4.0E	74.7	2.0E	109.7	4.0E	470.2	15.0E	521.5