

CONSOLIDATED ENGINEERING EXHIBIT

FCC Form 349 Long Form - Section III-A - Engineering

ENGINEERING STATEMENT

LONG-FORM APPLICATION FOR A NEW FM TRANSLATOR AT MILLBOURNE, PA

SUMMARY

Applicant Denise Choi hereby submits a Form 349 Long-Form application, for a new FM translator to serve Millbourne, PA. The original Short-Form submission was BNPFT-20030317LVS. An LPFM Preclusion Study was included as part of the amended Short Form, filed April 19, 2013, and amended again (to change input station, only) on June 12, 2013.

A change in the antenna height and ERP is proposed. A new LPFM Preclusion Showing is included herein as **Exhibit 1**.

This proposal would rebroadcast WPEB, Philadelphia, a non-commercial Class D station. The translator would be operated on a non-commercial basis.

ANTENNA INFORMATION

An SWR FMEC/3-.75WS 3-bay antenna is proposed, to minimize downward signal strength, allowing it to qualify for a 3rd-adjacent waiver. See **Exhibit 13**.

EXHIBIT 13

FM OVERLAP REQUIREMENTS

INTERFERENCE PROTECTION

This application meets all requirements of 47 CFR §74.1204 regarding interference protection to other stations and authorizations.

Stations considered:

ID	City	St	Chan	CL	Stat	Prefix	ARN	FID	Dist	Notes
Co-channel										
W236AF	BURLINGTON	NJ	236	DX	LIC	BLFT	20001129ACC	85965	33.3	
WZZO	BETHLEHEM	PA	236	B	LIC	BMLH	20111025AGT	14375	74.9	
1st Adjacent Channel										
WRSD	FOLSOM	PA	235	DM	LIC	BLED	19830131AH	56368	11.9	
20030314AYB	PENNSAUKEN	NJ	237	DX	APP	BNPFT	20030314AYB	141664	13.4	
20030317EGH	PHILADELPHIA	PA	235	DX	APP	BNPFT	20030317EGH	141475	17.2	
W235AP	RADNOR	PA	235	DX	LIC	BLFT	20070607ACB	141458	18.3	
20030317ELI	MARLTON	NJ	235	DX	APP	BNPFT	20030317ELI	141548	25.3	
2nd & 3rd Adjacent Channel										
WBEN-FM	PHILADELPHIA	PA	239	B	LIC	BLH	19991122ABE	22308	10.2	2nd Adj. Protection by Ratio Method
WPST	TRENTON	NJ	233	B	LIC	BLH	19910307KA	25013	41.6	2rd Adj. Protection by Ratio Method
IF Channel										
W289AZ	TRENTON	NJ	289	DX	LIC	BLFT	20071107ADK	141522	39.0	I.F. protection not required - less than 99W

There are no other stations within range. Contour protection to Co-channel and 1st-Adjacent stations is shown by **Exhibits 13a - d**.

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503-245-6065

CONTOUR PROTECTION TO 3rd-ADJACENT STATIONS - WBEN-FM AND WPST

Contour protection to 3rd adjacent stations WBEN-FM, Philadelphia, PA & WPST, Trenton, NJ is provided using the ratio method. The F(50/50) contour of WBEN-FM is 91.25dBu at the proposed translator site, while the contour of WPST is 64.47dBu at the proposed site. Using the appropriate U/D ratio of 40dB, the corresponding “worst-case” interfering contour of the proposed translator is 104.47dBu. At the full 7 watts ERP, this contour would extend to a distance of 111.1 meters from the antenna. However, the field strength of the proposed translator’s antenna system falls quickly at depression angles below the horizon. Using elevation pattern data provided by SWR for an FMEC/3-.75WS 3-bay 3/4-wavelength-spaced antenna, the distance to the 104.47dBu contour at various depression angles is tabulated in **Exhibit 13e**.

The proposed antenna would be on a 7 meter tower on top of a 29 meter bell tower of a church. The center of radiation would be 28 meters above the uppermost populated floor level of the church.¹ The surrounding neighborhood (within 120 meters) has many 3 and 4 story buildings. The uppermost populated floor level of these buildings is believed to be no less than 22 meters below the center of radiation. Horizontally, the closest building to the tower is about 25 meters.

Exhibit 13e tabulates this data. The green shaded area represents those points over the neighboring buildings, while the heavy yellow area represents those areas over the church. As shown by **Exhibit 13e**, the worst-case 3rd adjacent interfering contour extends no closer than 6.3 meters above the uppermost populated area. Therefore, there are no populated areas within the interference zone.

¹The Calvary United Methodist Church has 2 above-ground floor levels. The bell tower is not a populated area.

Exhibit 13a - Co-channel Contour Protection

Brown Broadcast Services, Inc.

Job: 20030317LVS Millbourne LONG FORM Aug2013.fmj

Master Database: 2013_Aug_21.fmd

Lat: N39:56:54 Lon: W075:13:09 NAD-27

Scale: 1:833333

Channel: 236 Class: DX

rfInvestigator Version 3.7.8

by rfSoftware, Inc.

Date: 8/29/2013 2:22:08 PM

PROPOSED

Interfering: 40dBu F(50,10)

Interfering: 34dBu F(50,10)

AFFECTED

Protected: 60dBu F(50,50)

Protected: 54dBu F(50,50)



EXHIBIT 13b

FMOver Analysis - Proposed vs. WZZO, Bethlehem, PA

08-29-2013 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

WZZO BMLH20111025AGT

1558768 Proposed

Channel = 236B
Max ERP = 30 kW
RCAMSL = 321 M
N. Lat. 40 37 13.0
W. Lng. 75 17 37.0
Protected
54 dBu

Channel = 236D
Max ERP = 0.007 kW
RCAMSL = 66 M
N. Lat. 39 56 54.0
W. Lng. 75 13 09.0
Interfering
34 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
130.0	030.0000	0182.2	063.8	051.7	000.0070	0041.5	054.3	15.17	
131.0	030.0000	0181.0	063.7	051.8	000.0070	0041.6	053.1	15.48	
132.0	030.0000	0180.5	063.6	051.9	000.0070	0041.8	052.0	15.79	
133.0	030.0000	0180.8	063.7	052.2	000.0070	0042.1	051.0	16.12	
134.0	030.0000	0181.5	063.7	052.4	000.0070	0042.4	049.9	16.46	
135.0	030.0000	0182.2	063.8	052.7	000.0070	0042.7	048.8	16.80	
136.0	030.0000	0182.7	063.9	052.9	000.0070	0043.0	047.7	17.14	
137.0	030.0000	0182.7	063.8	053.1	000.0070	0043.2	046.6	17.48	
138.0	030.0000	0181.9	063.8	053.1	000.0070	0043.2	045.4	17.81	
139.0	030.0000	0180.3	063.6	053.0	000.0070	0043.1	044.3	18.13	
140.0	030.0000	0178.0	063.4	052.8	000.0070	0042.9	043.2	18.43	
141.0	030.0000	0174.9	063.1	052.4	000.0070	0042.4	042.1	18.71	
142.0	030.0000	0171.4	062.7	051.9	000.0070	0041.8	041.0	18.96	
143.0	030.0000	0167.6	062.3	051.3	000.0070	0041.1	039.9	19.21	
144.0	030.0000	0163.9	061.8	050.6	000.0070	0040.5	038.8	19.46	
145.0	030.0000	0160.7	061.5	050.0	000.0070	0040.0	037.8	19.75	
146.0	030.0000	0158.2	061.2	049.3	000.0070	0039.7	036.8	20.06	
147.0	030.0000	0156.4	060.9	048.7	000.0070	0039.4	035.7	20.39	
148.0	030.0000	0155.0	060.8	048.2	000.0070	0039.2	034.7	20.74	
149.0	030.0000	0153.8	060.6	047.6	000.0070	0039.0	033.7	21.09	
150.0	030.0000	0153.2	060.5	047.1	000.0070	0038.8	032.7	21.46	
151.0	030.0000	0153.2	060.5	046.6	000.0070	0038.7	031.7	21.86	
152.0	030.0000	0152.8	060.5	046.0	000.0070	0038.5	030.7	22.27	
153.0	030.0000	0151.1	060.3	045.0	000.0070	0038.1	029.7	22.67	
154.0	030.0000	0147.6	059.8	043.5	000.0070	0037.5	028.9	22.97	
155.0	030.0000	0143.6	059.3	041.7	000.0070	0036.7	028.1	23.23	
156.0	030.0000	0140.5	058.8	040.0	000.0070	0035.3	027.4	23.35	
157.0	030.0000	0138.8	058.6	038.6	000.0070	0031.8	026.6	23.05	
158.0	030.0000	0138.3	058.5	037.3	000.0070	0028.9	025.7	23.15	
159.0	030.0000	0139.6	058.7	036.5	000.0070	0027.4	024.7	23.79	
160.0	030.0000	0142.4	059.1	035.9	000.0070	0026.6	023.7	24.54	
161.0	030.0000	0144.6	059.4	035.0	000.0070	0025.5	022.6	25.27	
162.0	030.0000	0145.2	059.5	033.6	000.0070	0023.7	021.8	25.93	
163.0	030.0000	0145.7	059.5	032.0	000.0070	0021.6	020.9	26.58	
164.0	030.0000	0146.9	059.7	030.3	000.0070	0019.2	020.1	27.26	
165.0	030.0000	0148.2	059.9	028.5	000.0070	0017.4	019.2	27.95	
166.0	030.0000	0149.1	060.0	026.4	000.0070	0015.6	018.4	28.60	
167.0	030.0000	0150.2	060.2	024.1	000.0070	0012.6	017.6	29.24	
168.0	030.0000	0152.0	060.4	021.7	000.0070	0009.5	016.8	29.90	

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169.0	030.0000	0154.3	060.7	019.1	000.0070	0005.6	016.0	30.59
170.0	030.0000	0156.5	061.0	016.2	000.0070	0001.9	015.3	31.23
171.0	029.7904	0158.5	061.1	012.7	000.0070	0001.4	014.7	31.83
172.0	029.5815	0159.5	061.2	008.8	000.0070	-0001.2	014.3	32.32
173.0	029.3733	0159.6	061.1	004.6	000.0070	-0003.5	014.1	32.57
174.0	029.1659	0159.8	061.1	000.2	000.0070	0002.5	013.9	32.72
175.0	028.9592	0159.8	061.0	355.8	000.0070	-0003.4	013.9	32.72
176.0	028.7532	0159.9	061.0	351.5	000.0070	-0006.3	014.0	32.61
177.0	028.5480	0160.8	061.0	347.2	000.0070	-0004.1	014.1	32.49
178.0	028.3435	0161.7	061.1	342.9	000.0070	-0002.4	014.3	32.25
179.0	028.1398	0162.5	061.1	338.9	000.0070	0002.3	014.6	31.90
180.0	027.9367	0161.9	060.9	335.3	000.0070	-0010.5	015.2	31.34
181.0	027.4181	0160.8	060.6	332.3	000.0070	-0011.8	015.9	30.69
182.0	026.9043	0159.7	060.3	329.7	000.0070	-0011.5	016.7	30.01
183.0	026.3953	0158.0	059.9	327.5	000.0070	-0014.1	017.6	29.25
184.0	025.8912	0156.4	059.6	325.6	000.0070	-0018.4	018.5	28.48
185.0	025.3920	0154.3	059.1	324.0	000.0070	-0020.1	019.5	27.67
186.0	024.8976	0152.8	058.8	322.5	000.0070	-0021.1	020.5	26.90
187.0	024.4081	0150.5	058.3	321.5	000.0070	-0021.6	021.6	26.08
188.0	023.9235	0147.6	057.7	320.7	000.0070	-0021.6	022.7	25.24
189.0	023.4437	0144.5	057.1	320.2	000.0070	-0021.6	023.8	24.41
190.0	022.9688	0141.3	056.5	319.8	000.0070	-0021.7	025.0	23.61
191.0	022.4208	0138.5	055.9	319.5	000.0070	-0021.8	026.2	22.86
192.0	021.8795	0135.9	055.3	319.2	000.0070	-0021.9	027.3	22.17
193.0	021.3448	0133.5	054.7	319.0	000.0070	-0022.1	028.4	21.54
194.0	020.8167	0131.6	054.2	318.7	000.0070	-0022.4	029.5	20.97
195.0	020.2952	0129.8	053.7	318.5	000.0070	-0022.6	030.5	20.46
196.0	019.7803	0127.6	053.2	318.4	000.0070	-0022.7	031.6	19.98
197.0	019.2721	0125.8	052.7	318.3	000.0070	-0022.8	032.6	19.57
198.0	018.7704	0124.9	052.3	318.0	000.0070	-0023.1	033.6	19.20
199.0	018.2754	0124.5	052.0	317.7	000.0070	-0023.4	034.5	18.85
200.0	017.7870	0124.5	051.8	317.3	000.0070	-0023.8	035.5	18.52
201.0	017.3736	0124.8	051.6	316.9	000.0070	-0024.1	036.3	18.20
202.0	016.9651	0125.5	051.5	316.5	000.0070	-0024.4	037.2	17.90
203.0	016.5615	0126.5	051.4	316.0	000.0070	-0024.7	038.1	17.62
204.0	016.1627	0127.7	051.4	315.6	000.0070	-0025.0	038.9	17.33
205.0	015.7688	0129.7	051.4	315.1	000.0070	-0025.4	039.7	17.07
206.0	015.3797	0133.0	051.7	314.3	000.0070	-0026.0	040.5	16.83
207.0	014.9955	0136.9	052.0	313.5	000.0070	-0026.5	041.3	16.59
208.0	014.6161	0140.7	052.3	312.8	000.0070	-0026.8	042.1	16.36
209.0	014.2416	0144.2	052.5	312.2	000.0070	-0026.8	042.9	16.12
210.0	013.8720	0147.7	052.8	311.6	000.0070	-0026.8	043.7	15.88
211.0	013.6182	0151.8	053.2	310.9	000.0070	-0026.7	044.6	15.66
212.0	013.3667	0156.7	053.6	310.1	000.0070	-0026.5	045.4	15.44
213.0	013.1175	0162.4	054.1	309.3	000.0070	-0026.1	046.3	15.22
214.0	012.8707	0168.0	054.6	308.6	000.0070	-0025.6	047.2	15.01
215.0	012.6263	0172.6	054.9	308.2	000.0070	-0025.1	048.1	14.80
216.0	012.3842	0176.1	055.1	307.9	000.0070	-0024.8	049.1	14.59
217.0	012.1444	0178.6	055.2	307.8	000.0070	-0024.6	050.0	14.39
218.0	011.9070	0180.7	055.2	307.8	000.0070	-0024.6	051.0	14.18
219.0	012.0967	0182.8	055.5	307.5	000.0070	-0024.1	052.0	13.97

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Exhibit 13c - 1st Adjacent Channel Contour Protection

Brown Broadcast Services, Inc.

Job: 20030317LVS Millbourne LONG FORM Aug2013.fmj

Master Database: 2013_Aug_21.fmd

Lat: N39:56:54 Lon: W075:13:09 NAD-27

Scale: 1:333333

Channel: 236 Class: DX

rfInvestigator Version 3.7.8

by rfSoftware, Inc.

Date: 8/29/2013 2:25:23 PM

PROPOSED

Protected: 60dBu F(50,50)

Interfering: 54dBu F(50,10)

AFFECTED

Protected: 60dBu F(50,50)

Interfering: 54dBu F(50,10)

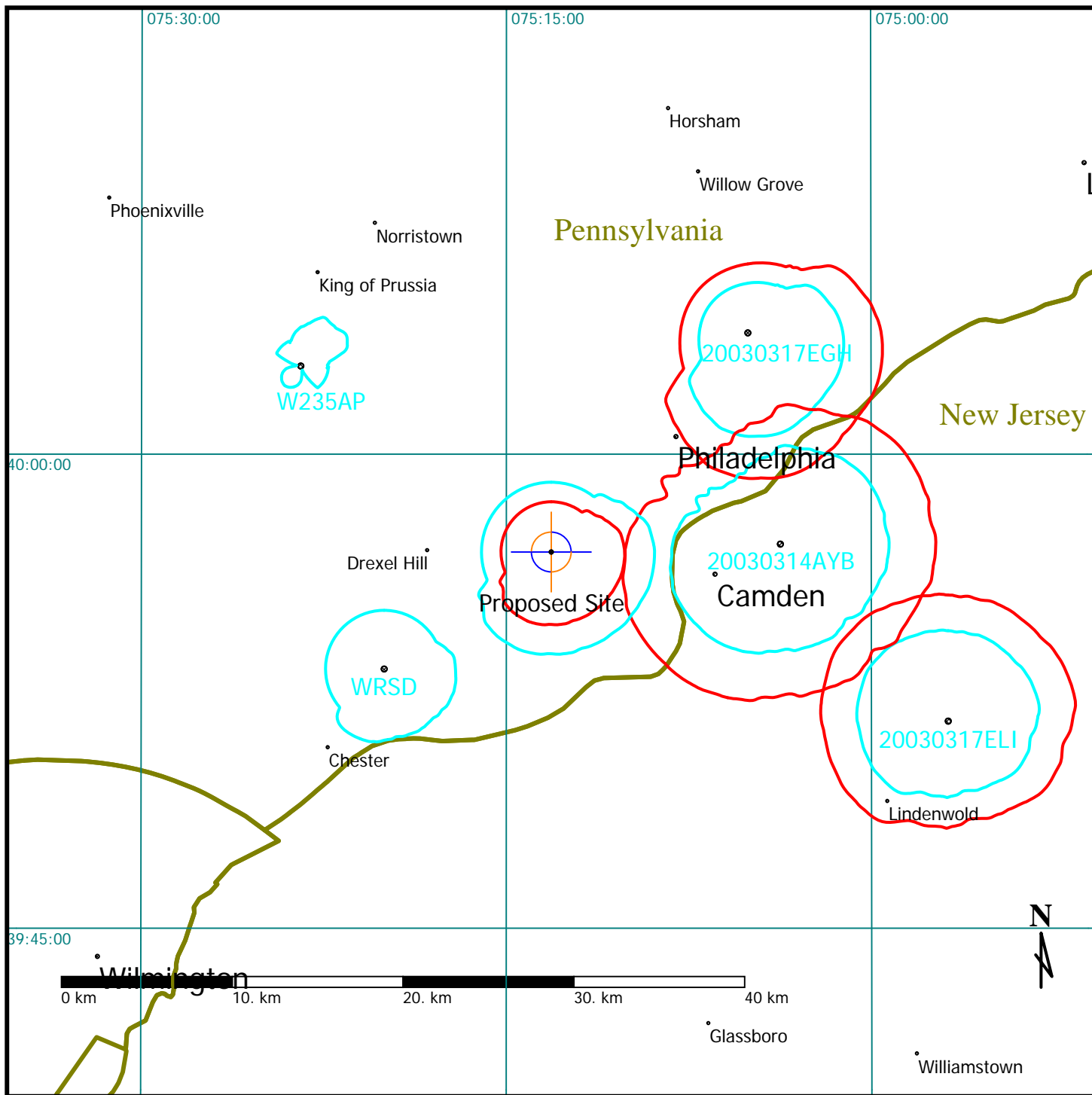


EXHIBIT 13d

FMOver Analysis - Proposed vs. 20030314AYB, Pennsauken, PA

08-29-2013 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

1558768 Proposed

1557003 BNPFT20030314AYB

Channel = 236D
Max ERP = 0.007 kW
RCAMSL = 66 M
N. Lat. 39 56 54.0
W. Lng. 75 13 09.0
Protected
60 dBu

Channel = 237D
Max ERP = 0.038 kW
RCAMSL = 72 M
N. Lat. 39 57 09.0
W. Lng. 75 03 44.0
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
043.0	000.0070	0037.3	003.2	279.6	000.0380	0054.3	011.3	49.02	
044.0	000.0070	0037.7	003.2	279.5	000.0380	0054.4	011.3	49.13	
045.0	000.0070	0038.1	003.2	279.4	000.0380	0054.4	011.2	49.23	
046.0	000.0070	0038.5	003.3	279.3	000.0380	0054.5	011.2	49.33	
047.0	000.0070	0038.8	003.3	279.2	000.0380	0054.6	011.1	49.43	
048.0	000.0070	0039.1	003.3	279.1	000.0380	0054.7	011.1	49.54	
049.0	000.0070	0039.5	003.3	279.0	000.0380	0054.8	011.0	49.64	
050.0	000.0070	0040.1	003.3	278.9	000.0380	0054.9	010.9	49.75	
051.0	000.0070	0040.8	003.4	278.8	000.0380	0054.9	010.9	49.87	
052.0	000.0070	0041.9	003.4	278.7	000.0380	0055.0	010.8	50.00	
053.0	000.0070	0043.1	003.5	278.7	000.0380	0055.0	010.7	50.14	
054.0	000.0070	0044.3	003.5	278.7	000.0380	0055.0	010.7	50.28	
055.0	000.0070	0045.3	003.6	278.6	000.0380	0055.1	010.6	50.41	
056.0	000.0070	0045.9	003.6	278.5	000.0380	0055.2	010.5	50.54	
057.0	000.0070	0046.4	003.6	278.3	000.0380	0055.4	010.5	50.66	
058.0	000.0070	0046.7	003.6	278.1	000.0380	0055.5	010.4	50.78	
059.0	000.0070	0047.3	003.7	277.9	000.0380	0055.7	010.3	50.91	
060.0	000.0070	0048.0	003.7	277.7	000.0380	0055.8	010.3	51.04	
061.0	000.0070	0048.8	003.7	277.6	000.0380	0056.0	010.2	51.18	
062.0	000.0070	0049.7	003.8	277.4	000.0380	0056.2	010.1	51.33	
063.0	000.0070	0050.6	003.8	277.2	000.0380	0056.4	010.1	51.48	
064.0	000.0070	0051.5	003.8	277.0	000.0380	0056.6	010.0	51.63	
065.0	000.0070	0052.3	003.9	276.8	000.0380	0056.9	009.9	51.78	
066.0	000.0070	0052.9	003.9	276.5	000.0380	0057.2	009.9	51.92	
067.0	000.0070	0053.6	003.9	276.2	000.0380	0057.5	009.8	52.07	
068.0	000.0070	0054.7	003.9	276.0	000.0380	0057.7	009.8	52.21	
069.0	000.0070	0055.9	004.0	275.8	000.0380	0057.8	009.7	52.36	
070.0	000.0070	0057.2	004.0	275.5	000.0380	0058.0	009.6	52.50	
071.0	000.0070	0058.2	004.1	275.2	000.0380	0058.1	009.6	52.64	
072.0	000.0070	0059.1	004.1	274.9	000.0380	0058.3	009.5	52.76	
073.0	000.0070	0059.9	004.1	274.6	000.0380	0058.5	009.5	52.88	
074.0	000.0070	0060.8	004.2	274.2	000.0380	0058.7	009.4	53.01	
075.0	000.0070	0061.5	004.2	273.8	000.0380	0059.0	009.4	53.12	
076.0	000.0070	0061.9	004.2	273.4	000.0380	0059.2	009.3	53.22	
077.0	000.0070	0062.1	004.2	273.0	000.0380	0059.4	009.3	53.30	
078.0	000.0070	0062.2	004.2	272.6	000.0380	0059.6	009.3	53.36	
079.0	000.0070	0062.3	004.2	272.1	000.0380	0059.9	009.3	53.43	
080.0	000.0070	0062.5	004.2	271.7	000.0380	0060.0	009.2	53.49	
081.0	000.0070	0062.7	004.2	271.3	000.0380	0060.2	009.2	53.55	
082.0	000.0070	0063.0	004.2	270.8	000.0380	0060.4	009.2	53.61	

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503-245-6065

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
083.0	000.0070	0063.3	004.2	270.4	000.0380	0060.6	009.2	53.67	
084.0	000.0070	0063.7	004.2	269.9	000.0380	0060.8	009.2	53.73	
085.0	000.0070	0064.0	004.3	269.4	000.0380	0061.0	009.1	53.79	
086.0	000.0070	0064.3	004.3	269.0	000.0380	0061.2	009.1	53.84	
087.0	000.0070	0064.6	004.3	268.5	000.0380	0061.4	009.1	53.89	
088.0	000.0070	0064.9	004.3	268.1	000.0380	0061.7	009.1	53.94	
089.0	000.0070	0065.0	004.3	267.6	000.0380	0061.9	009.1	53.97	
090.0	000.0070	0065.0	004.3	267.1	000.0380	0062.0	009.1	53.98	
091.0	000.0070	0065.0	004.3	266.6	000.0380	0062.1	009.1	53.98	
092.0	000.0070	0065.0	004.3	266.2	000.0380	0062.2	009.1	53.98	
093.0	000.0070	0065.1	004.3	265.7	000.0380	0062.3	009.1	53.98	
094.0	000.0070	0065.1	004.3	265.2	000.0380	0062.4	009.1	53.97	
095.0	000.0070	0065.1	004.3	264.8	000.0380	0062.4	009.1	53.96	
096.0	000.0070	0065.1	004.3	264.3	000.0380	0062.6	009.2	53.95	
097.0	000.0070	0065.1	004.3	263.9	000.0380	0062.8	009.2	53.95	
098.0	000.0070	0065.1	004.3	263.4	000.0380	0063.0	009.2	53.94	
099.0	000.0070	0065.1	004.3	263.0	000.0380	0063.2	009.2	53.93	
100.0	000.0070	0065.1	004.3	262.5	000.0380	0063.4	009.2	53.92	
101.0	000.0070	0065.1	004.3	262.1	000.0380	0063.7	009.3	53.91	
102.0	000.0070	0065.2	004.3	261.6	000.0380	0064.0	009.3	53.91	
103.0	000.0070	0065.2	004.3	261.2	000.0380	0064.4	009.3	53.91	
104.0	000.0070	0065.2	004.3	260.8	000.0380	0064.8	009.3	53.91	
105.0	000.0070	0065.3	004.3	260.3	000.0380	0065.2	009.4	53.90	
106.0	000.0070	0065.3	004.3	259.9	000.0380	0065.5	009.4	53.88	
107.0	000.0070	0065.3	004.3	259.5	000.0380	0065.8	009.4	53.86	
108.0	000.0070	0065.3	004.3	259.1	000.0380	0066.2	009.5	53.84	
109.0	000.0070	0065.4	004.3	258.7	000.0380	0066.5	009.5	53.81	
110.0	000.0070	0065.3	004.3	258.3	000.0380	0066.7	009.5	53.77	
111.0	000.0070	0065.2	004.3	258.0	000.0380	0066.9	009.6	53.71	
112.0	000.0070	0064.9	004.3	257.6	000.0380	0067.1	009.6	53.65	
113.0	000.0070	0064.6	004.3	257.3	000.0380	0067.2	009.7	53.57	
114.0	000.0070	0064.3	004.3	257.0	000.0380	0067.3	009.7	53.49	
115.0	000.0070	0064.0	004.3	256.7	000.0380	0067.4	009.8	53.42	
116.0	000.0070	0063.8	004.3	256.3	000.0380	0067.5	009.8	53.33	
117.0	000.0070	0063.5	004.2	256.1	000.0380	0067.6	009.9	53.25	
118.0	000.0070	0063.2	004.2	255.8	000.0380	0067.7	009.9	53.16	
119.0	000.0070	0063.1	004.2	255.5	000.0380	0067.8	010.0	53.08	
120.0	000.0070	0063.1	004.2	255.2	000.0380	0067.8	010.1	53.00	
121.0	000.0070	0063.3	004.2	254.8	000.0380	0067.9	010.1	52.92	
122.0	000.0070	0063.5	004.2	254.5	000.0380	0068.0	010.2	52.84	
123.0	000.0070	0063.5	004.2	254.3	000.0380	0068.0	010.2	52.75	
124.0	000.0070	0063.5	004.2	254.0	000.0380	0068.1	010.3	52.66	
125.0	000.0070	0063.3	004.2	253.8	000.0380	0068.1	010.3	52.56	
126.0	000.0070	0063.1	004.2	253.5	000.0380	0068.1	010.4	52.46	
127.0	000.0070	0063.0	004.2	253.3	000.0380	0068.2	010.4	52.35	
128.0	000.0070	0062.9	004.2	253.1	000.0380	0068.2	010.5	52.25	
129.0	000.0070	0063.0	004.2	252.8	000.0380	0068.3	010.6	52.16	
130.0	000.0070	0063.3	004.2	252.6	000.0380	0068.3	010.6	52.07	
131.0	000.0070	0063.6	004.2	252.3	000.0380	0068.4	010.7	51.98	
132.0	000.0070	0063.9	004.3	252.1	000.0380	0068.5	010.7	51.89	

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Michael D. Brown

3740 S.W. Comus St.

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Terrain Data: FCC NGDC 30 Sec

FMOVer Analysis

1557003 BNPFT20030314AYB

1558768 Proposed

Channel = 237D
Max ERP = 0.038 kW
RCAMSL = 72 M
N. Lat. 39 57 09.0
W. Lng. 75 03 44.0
Protected
60 dBu

Channel = 236D
Max ERP = 0.007 kW
RCAMSL = 66 M
N. Lat. 39 56 54.0
W. Lng. 75 13 09.0
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
223.0	000.0380	0071.7	006.8	117.3	000.0070	0063.4	009.8	45.49	
224.0	000.0380	0071.5	006.8	117.0	000.0070	0063.5	009.7	45.69	
225.0	000.0380	0071.4	006.8	116.8	000.0070	0063.5	009.6	45.90	
226.0	000.0380	0071.6	006.8	116.6	000.0070	0063.6	009.5	46.11	
227.0	000.0380	0071.8	006.8	116.4	000.0070	0063.7	009.4	46.32	
228.0	000.0380	0072.0	006.8	116.2	000.0070	0063.7	009.3	46.54	
229.0	000.0380	0072.0	006.8	115.9	000.0070	0063.8	009.2	46.75	
230.0	000.0380	0072.0	006.8	115.6	000.0070	0063.9	009.1	46.95	
231.0	000.0380	0072.0	006.8	115.3	000.0070	0064.0	008.9	47.16	
232.0	000.0380	0072.0	006.8	115.0	000.0070	0064.0	008.8	47.37	
233.0	000.0380	0072.0	006.8	114.6	000.0070	0064.1	008.7	47.57	
234.0	000.0380	0072.0	006.8	114.2	000.0070	0064.2	008.6	47.77	
235.0	000.0380	0072.0	006.8	113.8	000.0070	0064.3	008.5	47.98	
236.0	000.0380	0072.0	006.8	113.4	000.0070	0064.4	008.4	48.18	
237.0	000.0380	0072.0	006.8	113.0	000.0070	0064.6	008.3	48.38	
238.0	000.0380	0072.0	006.8	112.5	000.0070	0064.7	008.2	48.58	
239.0	000.0380	0072.0	006.8	112.0	000.0070	0064.9	008.1	48.78	
240.0	000.0380	0072.0	006.8	111.5	000.0070	0065.0	008.0	48.98	
241.0	000.0380	0072.0	006.8	111.0	000.0070	0065.2	007.9	49.18	
242.0	000.0380	0072.0	006.8	110.4	000.0070	0065.3	007.9	49.37	
243.0	000.0380	0072.0	006.8	109.8	000.0070	0065.4	007.8	49.56	
244.0	000.0380	0072.0	006.8	109.2	000.0070	0065.4	007.7	49.74	
245.0	000.0380	0072.0	006.8	108.6	000.0070	0065.4	007.6	49.92	
246.0	000.0380	0072.0	006.8	107.9	000.0070	0065.3	007.5	50.10	
247.0	000.0380	0071.9	006.8	107.2	000.0070	0065.3	007.4	50.26	
248.0	000.0380	0071.5	006.8	106.4	000.0070	0065.3	007.4	50.41	
249.0	000.0380	0070.9	006.8	105.5	000.0070	0065.3	007.3	50.52	
250.0	000.0380	0070.0	006.7	104.6	000.0070	0065.2	007.3	50.60	
251.0	000.0380	0069.1	006.7	103.6	000.0070	0065.2	007.3	50.67	
252.0	000.0380	0068.5	006.7	102.7	000.0070	0065.2	007.2	50.75	
253.0	000.0380	0068.2	006.6	101.9	000.0070	0065.2	007.2	50.86	
254.0	000.0380	0068.1	006.6	101.0	000.0070	0065.1	007.1	50.97	
255.0	000.0380	0067.9	006.6	100.2	000.0070	0065.1	007.1	51.08	
256.0	000.0380	0067.6	006.6	99.3	000.0070	0065.1	007.1	51.17	
257.0	000.0380	0067.3	006.6	98.4	000.0070	0065.1	007.0	51.24	
258.0	000.0380	0066.9	006.6	97.4	000.0070	0065.1	007.0	51.30	
259.0	000.0380	0066.3	006.5	96.4	000.0070	0065.1	007.0	51.31	
260.0	000.0380	0065.4	006.5	95.5	000.0070	0065.1	007.0	51.30	
261.0	000.0380	0064.6	006.5	94.5	000.0070	0065.1	007.0	51.27	
262.0	000.0380	0063.7	006.4	93.5	000.0070	0065.1	007.0	51.24	
263.0	000.0380	0063.2	006.4	92.6	000.0070	0065.0	007.0	51.23	
264.0	000.0380	0062.7	006.4	91.7	000.0070	0065.0	007.0	51.22	
265.0	000.0380	0062.4	006.4	90.7	000.0070	0065.0	007.0	51.21	
266.0	000.0380	0062.2	006.4	89.8	000.0070	0065.0	007.0	51.22	
267.0	000.0380	0062.0	006.4	88.9	000.0070	0065.0	007.0	51.20	
268.0	000.0380	0061.7	006.3	88.0	000.0070	0064.9	007.0	51.16	

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Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
269.0	000.0380	0061.2	006.3	087.1	000.0070	0064.6	007.1	51.06	
270.0	000.0380	0060.7	006.3	086.3	000.0070	0064.4	007.1	50.96	
271.0	000.0380	0060.3	006.3	085.4	000.0070	0064.1	007.1	50.86	
272.0	000.0380	0059.9	006.3	084.5	000.0070	0063.8	007.2	50.75	
273.0	000.0380	0059.4	006.2	083.7	000.0070	0063.6	007.2	50.62	
274.0	000.0380	0058.9	006.2	082.9	000.0070	0063.3	007.2	50.47	
275.0	000.0380	0058.2	006.2	082.1	000.0070	0063.0	007.3	50.31	
276.0	000.0380	0057.7	006.1	081.3	000.0070	0062.8	007.3	50.16	
277.0	000.0380	0056.7	006.1	080.7	000.0070	0062.6	007.4	49.95	
278.0	000.0380	0055.6	006.0	080.0	000.0070	0062.5	007.5	49.74	
279.0	000.0380	0054.8	006.0	079.4	000.0070	0062.4	007.6	49.56	
280.0	000.0380	0054.2	006.0	078.7	000.0070	0062.3	007.7	49.40	
281.0	000.0380	0053.8	005.9	078.0	000.0070	0062.2	007.7	49.27	
282.0	000.0380	0053.1	005.9	077.5	000.0070	0062.1	007.8	49.11	
283.0	000.0380	0052.4	005.9	076.9	000.0070	0062.1	007.9	48.94	
284.0	000.0380	0051.7	005.8	076.4	000.0070	0062.0	007.9	48.77	
285.0	000.0380	0051.2	005.8	075.8	000.0070	0061.9	008.0	48.62	
286.0	000.0380	0050.6	005.8	075.3	000.0070	0061.6	008.1	48.44	
287.0	000.0380	0049.3	005.7	075.0	000.0070	0061.5	008.2	48.20	
288.0	000.0380	0047.5	005.6	074.8	000.0070	0061.4	008.4	47.92	
289.0	000.0380	0045.4	005.4	074.8	000.0070	0061.3	008.5	47.61	
290.0	000.0380	0043.3	005.3	074.8	000.0070	0061.3	008.7	47.30	
291.0	000.0380	0041.4	005.2	074.7	000.0070	0061.3	008.8	47.02	
292.0	000.0380	0040.1	005.1	074.6	000.0070	0061.2	009.0	46.78	
293.0	000.0380	0039.6	005.1	074.3	000.0070	0061.0	009.0	46.60	
294.0	000.0380	0040.4	005.1	073.7	000.0070	0060.5	009.1	46.51	
295.0	000.0380	0042.1	005.2	072.7	000.0070	0059.7	009.0	46.46	
296.0	000.0380	0044.1	005.4	071.8	000.0070	0058.9	009.0	46.40	
297.0	000.0380	0045.7	005.5	070.9	000.0070	0058.1	009.0	46.31	
298.0	000.0380	0046.9	005.5	070.1	000.0070	0057.3	009.0	46.15	
299.0	000.0380	0047.4	005.6	069.5	000.0070	0056.6	009.1	45.96	
300.0	000.0380	0047.2	005.6	069.2	000.0070	0056.2	009.2	45.74	
301.0	000.0380	0045.8	005.5	069.3	000.0070	0056.3	009.3	45.52	
302.0	000.0380	0043.6	005.3	069.6	000.0070	0056.7	009.4	45.29	
303.0	000.0380	0041.5	005.2	069.9	000.0070	0057.1	009.6	45.07	
304.0	000.0380	0040.0	005.1	070.1	000.0070	0057.3	009.7	44.87	
305.0	000.0380	0039.8	005.1	069.9	000.0070	0057.0	009.8	44.68	
306.0	000.0380	0040.7	005.1	069.3	000.0070	0056.3	009.9	44.50	
307.0	000.0380	0041.9	005.2	068.6	000.0070	0055.4	009.9	44.31	
308.0	000.0380	0042.3	005.2	068.2	000.0070	0054.9	009.9	44.11	
309.0	000.0380	0041.2	005.2	068.3	000.0070	0055.0	010.1	43.93	
310.0	000.0380	0039.2	005.0	068.7	000.0070	0055.6	010.2	43.77	
311.0	000.0380	0037.4	004.9	069.1	000.0070	0056.1	010.3	43.61	
312.0	000.0380	0036.1	004.8	069.4	000.0070	0056.4	010.5	43.46	

BROWN BROADCAST SERVICES
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EXHIBIT 13e

SECOND & THIRD-ADJACENT INTERFERENCE PROTECTION TO POPULATED AREAS

20030317LVS	<CALL LETTERS OR FILE NUMBER
MILLBOURNE, PA	<PROPOSED COMMUNITY OF LICENSE
104.47	<INTERFERING CONTOUR OF PROPOSAL - dBu
0.167	<V/m
WPST, TRENTON, NJ	<2nd or 3rd-ADJ STN REQUIRING INTERFERENCE PROT. (worst case)
7	<PROP. ERP (w)
SWR FMEC/3-.75WS	<ANTENNA MODEL

EXPLANATIONS.

- 1 The green areas represent those angles where the interfering contour might fall above other buildings, all of which have populated surfaces at least 22 meters below the antenna center of radiation
- 2 The yellow areas represent those angles where the interfering contour might fall above or within the building that supports the antenna, in which all populated surfaces are at least 28 meters below the antenna

max ERP (W)	depression angle below horizon (dg)	relative field	ERP (W)	angular distance to contour (m)	vertical distance (below antenna) (m)	horiz distance to contour (m)	vertical distance below antenna required to clear nearest populated level (m)	clearance of interfering contour above nearest populated level (m)
7	0	1	7.00	111.06	0.0	111.1	22	22.0
7	5	0.941	6.20	104.51	9.1	104.1	22	12.9
7	10	0.778	4.24	86.40	15.0	85.1	22	7.0
7	15	0.545	2.08	60.53	15.7	58.5	22	6.3
7	20	0.289	0.58	32.10	11.0	30.2	22	11.0
7	25	0.056	0.02	6.22	2.6	5.6	28	25.4
7	30	0.121	0.10	13.44	6.7	11.6	28	21.3
7	35	0.226	0.36	25.10	14.4	20.6	28	13.6
7	40	0.26	0.47	28.88	18.6	22.1	28	9.4
7	45	0.237	0.39	26.32	18.6	18.6	28	9.4
7	50	0.177	0.22	19.66	15.1	12.6	28	12.9
7	55	0.104	0.08	11.55	9.5	6.6	28	18.5
7	60	0.033	0.01	3.66	3.2	1.8	28	24.8
7	65	0.023	0.00	2.55	2.3	1.1	28	25.7
7	70	0.06	0.03	6.66	6.3	2.3	28	21.7
7	75	0.075	0.04	8.33	8.0	2.2	28	20.0
7	80	0.073	0.04	8.11	8.0	1.4	28	20.0
7	85	0.057	0.02	6.33	6.3	0.6	28	21.7
7	90	0	0.00		0.0	0.0	28	28.0

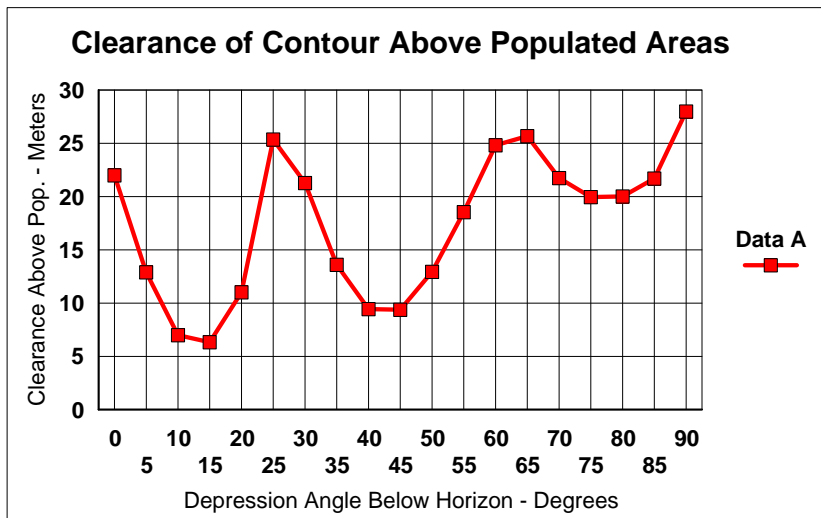


EXHIBIT 17

ENVIRONMENTAL PROTECTION ACT / NIER ANALYSIS

This proposal specifies an SWR FMEC/3-.75WS, three bay, 3/4-wave-spaced antenna mounted 4 meters above the roof of a 29 meter building. The antenna system would be 28 meters above the nearest populated area - the building's 2nd floor. The antenna system is 22 meters above the uppermost floors of nearby buildings (within 120m horizontal distance).

The SWR FMEC antenna is a functional equivalent of the Jampro Double-V "Penetrator" antenna. RF exposures were calculated using FM Model for Windows, Version 2.10, using the "Jampro Double-V (EPA) setting. Even without roof attenuation factored in, FM Model predicts a peak exposure of $0.021\mu\text{W}/\text{cm}^2$ at 29 meters from the tower base, for persons on the 2nd floor. This represents 0.01% of the Maximum Permissible Exposure (MPE) of $200\mu\text{W}/\text{cm}^2$ for uncontrolled environments.

The roof itself is a controlled/occupational area. Access is strictly controlled by a locked door, and the roof is only accessed for maintenance. FM Model predicts a peak exposure on the roof of $3.4\mu\text{W}/\text{cm}^2$ at 2.4 meters from the tower base. This represents 0.34% of the Maximum Permissible Exposure (MPE) of $1000\mu\text{W}/\text{cm}^2$ for controlled/occupational environments.

On the uppermost floors of nearby buildings, within 120 meters horizontal distance, FM Model predicts a peak exposure of $0.03\mu\text{W}/\text{cm}^2$, which represents 0.015% of the Maximum Permissible Exposure (MPE) of $200\mu\text{W}/\text{cm}^2$.

If tower climbing by authorized personnel becomes necessary, or if any roof work involves being above roof level, the transmitter power will be reduced or operation will cease, as necessary, so as to not exceed the RF exposure limits. RF warning signs will be posted at the access door to the roof, and on the 7 meter tower.