

250-Mile Window Application

Minor Mod of Application

BMPFT- 20160517AAP

Facility ID No: 140333

This exhibit is for minor modification of translator permit for W225CH Facility ID No. 140333, BMPFT- 20160517AAP, which specifies changes of location of approximately 198 miles, to channel 265, and of antenna location, elevation, type and model to become fill in for AM station WPOP, Facility ID No.: 37232, Hartford, Connecticut.

Antenna Location

The proposed antenna is to be mounted on an existing rooftop communication site, co-located with WUCS, that does not require registration, at 167 meters above ground. A directional antenna is proposed, the pattern is given in **Figure 0**. Below as **Figure 1** is an overlap and spacing study from which it can be determined that this proposal is within the protected contour of **second** adjacent channel full-power stations WKCI and WRCH.

73.1204 Compliance

We will demonstrate that a lack of population and/or other factors allow this proposal to be compliant with 74.1204. The process commonly called “Living Way”, allows for the use of D/U Analysis, also known as “signal strength ratio methodology” to be utilized to demonstrate compliance. In this instant case the facility to be protected is on a second or third adjacent channel and is to be afforded protection from signals 40 dB stronger than the protected facility presents near the proposed translator antenna location.

Concerning WKCI; In **Figure 2** a map showing that the predicted 64.4 dBu signal contour of the protected station falls 500 meters beyond the proposed translator antenna location is given. This proposal can only cause predicted interference to the protected facility by having a signal exceeding 104.4 dBu ($64.4 + 40$) in a habitable/populated area. Utilizing the line of sight equation considering the proposed antenna horizontal elevation pattern of **Figure 0**, and the vertical pattern as shown in **Figure 3**, it has been determined that a 104.4 dBu signal developed by 140 watts, as proposed, will not reach any habitable areas.

In **Figure 4** an aerial image of the area near the proposed antenna location is given, with the 104.1 dBu interference contour at 0° elevation superimposed over the image. There are several areas of concern that have been investigated inside that contour to determine that no habitable area will receive an interference level signal due to the effect of the combined emission patterns of the proposed antenna.

An example determination is presented in **Figure 5 and 6** where the building to the west (left in image) of the antenna location was investigated. This building has habitable space 102 meters above ground, at a horizontal distance of 50 meters from the proposed antenna along a radial 281° T from the proposed antenna. The slant angle of suppression for consideration is 51° as indicated in **Figure 6**, where the slant distance from the antenna to the point of interest is shown as 82 meters. As the horizontal pattern limits emission along that ray path to less than 60 watts, as given in **Figure 0**, application of the vertical pattern emissivity and the line of site equation presented in **Figure 6** indicate that the habitable space will not be subject to interference. Numerous other areas were investigated and all were found not to receive a signal greater than 104.1 dBu as a result of the combination of vertical and horizontal plane relative emissivity, and distance from the radiator.

Concerning WRCH; In **Figure 2** a map showing that the predicted 84 dBu signal contour of the protected station falls 500 meters beyond the proposed translator antenna location is given. As this is a signal of greater value than that of WKCI, protection of the stronger WRCH signal is assured by the protection of the weaker WKCI signal.

Thus the provisions of the rules section concerning prohibited overlap will not apply as it has been demonstrated that no actual interference will occur due to a lack of population and other factors as applied in this instant proposal.

Fill-in and Minor Change Status

This proposal is to serve as a fill-in translator for station WPOP, Facility ID No.: 37232, Hartford, Connecticut. The map of **Figure 6** demonstrates that the proposed 60 dBu contour is contained within the 2 mV/M signal and a 25 mile radius of the WPOP facility. It can also be seen that the proposed and permitted facilities are within the allowed 250 mile distance.

RF Fields Statement

Due to the complexity of the surrounding RF environment, applicant will take power density measurements prior to filing of an application for license, demonstrating compliance with 73 CFR 1.1306.

Figure 0. Antenna Pattern

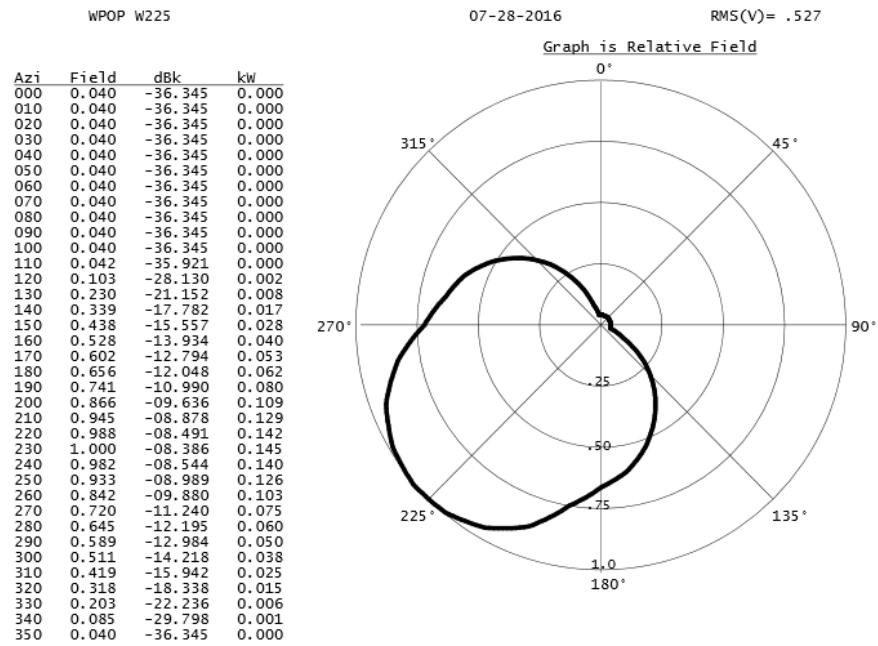


Figure 1. Overlap and Spacing Study

WPOP W225CH Amfm Radio Licenses, L.L.C. CH# 265D - 100.9 MHz, Pwr= 0.145 kw DA, HAAT= 0.0 M, COR= 182 M Average Protected F(50-50)= 6.19 km Standard Directional										
REFERENCE 41 46 00.0 N. 72 40 38.0 W.										
CH CITY	CALL	TYPE ANT	AZI	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT* (Overlap in km)
263B	WRCH New Britain	LIC _CX CT	241.5 61.4	14.69 BMLH20090430AAN	41 42 13.0 72 49 57.0	7.500 381	5.0 475	68.9	-1.4	-55.8*
265A	WRNX Amherst	LIC ZEX MA	2.8 182.9	53.96 BLH20120110ADN	42 15 07.0 72 38 41.0	0.870 262	80.5 364	28.4	-29.0*	16.7
267B	WKCI-FM Hamden	LIC NCX CT	211.2 31.0	43.24 BLH20021011ABD	41 26 01.0 72 56 45.0	12.000 279	5.4 379	65.5	24.4	-23.9*
265A	WKNL New London	LIC ZC_	128.9 309.3	57.48 BLH20111101AJR	41 26 27.0 72 08 29.0	6.000 99	68.3 167	15.8	-16.8*	21.9
265D	W26SDB Milbrook	LIC DV_	208.0 27.8	52.47 BLFT20150604ABL	41 20 58.5 72 58 22.3	0.250	7.3 185	2.1	31.8	5.8
264B	WHUD Peekskill	LIC _CY NY	245.2 64.4	112.16 BMLH19880126KC	41 20 18.0 73 53 41.0	50.000 152	74.8 317	62.0	26.0	25.9
211A	WECB Willimantic	LIC _C_	103.5 283.8	39.40 BMLD20060227AEK	41 41 00.0 72 13 01.0	0.430 116	0.0 245	0.0	9.5R	29.9M
268B	WPDH Poughkeepsie	LIC _CN NY	267.7 86.8	109.86 BLH19861110KF	41 43 09.0 73 59 47.0	4.400 469	4.1 580	68.6	95.8	40.0
265A	WKLI-FM Albany	LIC _CX NY	317.7 136.8	146.24 BLH20150728AAX	42 43 54.8 73 52 56.7	6.000 98	93.2 202	33.2	45.9	88.9
211A	WRXC Shelton	LIC _CX CT	219.0 38.7	57.82 BMLD20100122ACR	41 21 43.0 73 06 48.0	0.045 147	0.0 262	0.0	9.5R	48.3M
211A	WGSK South Kent	LIC _CX CT	262.3 81.7	68.03 BMLD20090706ABA	41 40 54.0 73 29 13.0	0.077 39	0.0 274	0.0	9.5R	58.5M
266B	WCBS-FM New York	LIC _CX NY	224.4 43.6	157.55 BLH20060301ABK	40 44 54.0 73 59 10.0	6.700 408	79.5 422	66.8	65.1	63.2
211A	WYQQ Charlton	LIC _CX MA	53.4 233.8	73.43 BLED20140422AAT	42 09 29.0 71 57 48.0	0.120 80	0.0 296	0.0	9.5R	63.9M
264B	WZLX Boston	LIC _CN MA	63.3 244.4	146.87 BLH19911018KF	42 20 50.0 71 04 59.0	21.500 235	75.2 258	63.7	69.3	77.9
268D	W293BN Leicester	CP _C_	46.9 227.4	87.83 BPFT20160129ABW	42 18 11.0 71 53 52.0	0.054	0.5 466	12.5	84.9	75.3
212A	WWPT Westport	LIC _CN CT	219.6 39.2	85.57 BLED19860224KF	41 10 19.0 73 19 43.0	0.330 39	0.0 96	0.0	9.5R	76.1M
264D	W264AJ Southampton	LIC _CN NY	166.3 346.5	99.79 BLFT20000131ACI	40 53 36.0 72 23 48.0	0.250 34	11.0 39	7.7	77.9	76.6
211A	WPUT North Salem	LIC DCX NY	240.7 60.1	86.18 BLED20120628AAJ	41 23 03.0 73 34 35.0	0.440 -13	0.0 160	0.0	9.5R	76.7M
211A	WPUT North Salem	CP DCX NY	239.7 59.1	87.07 BPED20141124ABY	41 22 06.0 73 34 35.0	0.130 41	0.0 208	0.0	9.5R	77.6M
262D	W262AS Bridgehampton	LIC _C_	162.6 342.9	92.45 BLFT20070323AIA	40 58 19.0 72 20 54.0	0.027 91	0.4 96	7.3	81.4	84.7
268A	WWBB Providence	LIC ZCX RI	86.0 266.9	105.48 BLH20150126AAI	41 49 30.4 71 24 38.0	6.000 91	2.2 132	21.2	101.0	84.2
268A	WWBB Providence	LIC ZCX RI	86.0 266.9	105.48 BLH20151123CHI	41 49 30.4 71 24 38.0	6.000 91	2.2 132	21.2	101.0	84.2
266B	WGIR-FM Manchester	LIC _CN NH	33.1 213.9	162.00 BLH19910718KC	42 58 54.0 71 35 21.0	11.500 313	72.5 457	62.0	87.0	94.2
262B	WHTZ Newark	LIC _CN NJ	224.4 43.6	157.55 BLH19940204KD	40 44 54.0 73 59 10.0	6.000 415	4.6 429	66.1	140.1	89.9
212B	WAMC-FM Albany	LIC _CX NY	337.5 157.1	104.86 BMLD201010102ABH	42 38 14.0 73 10 07.0	10.000 600	0.0 1073	0.0	14.5R	90.4M

Figure 2. Contour Map

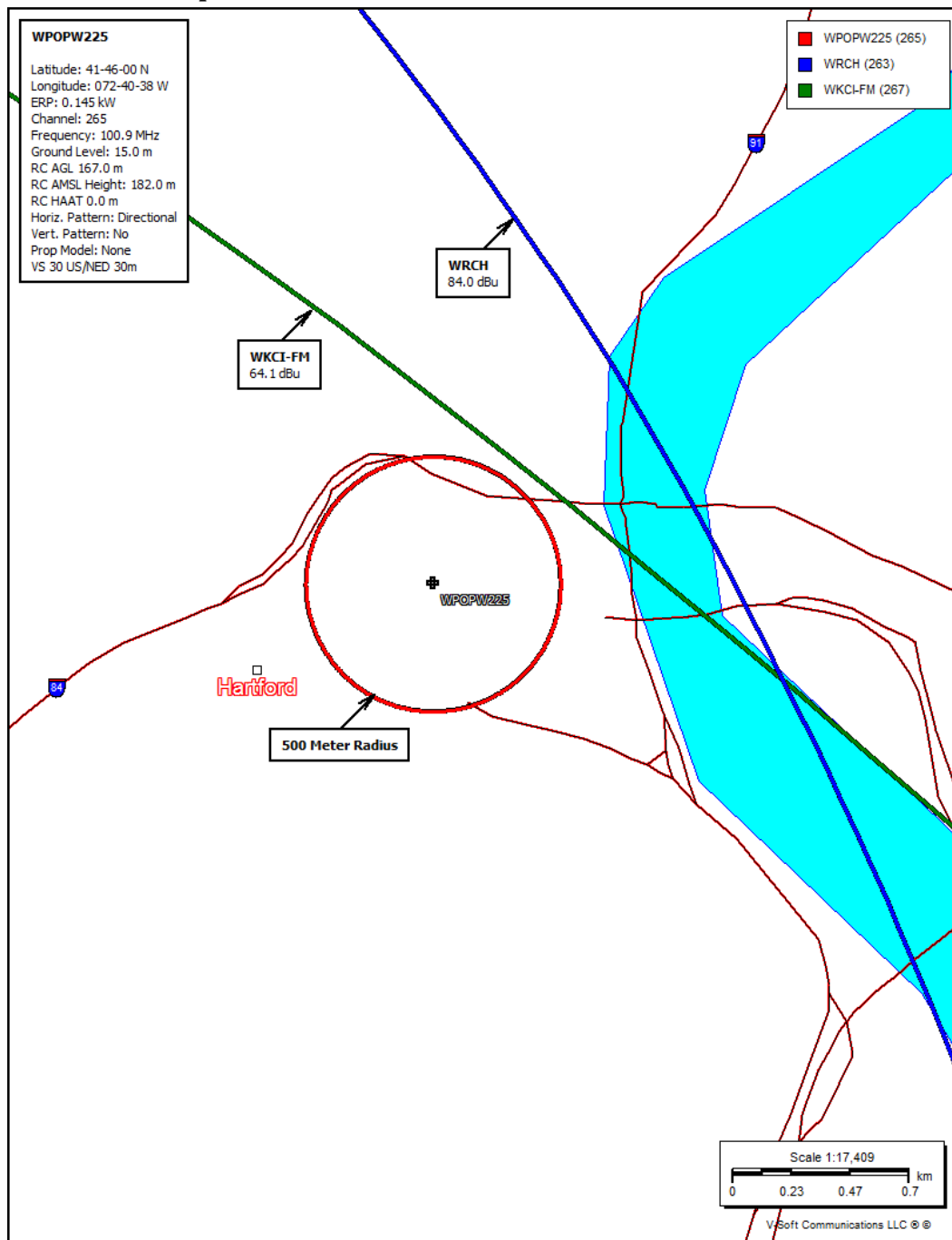


Figure 3. Vertical Elevation Pattern

Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field
1	0.999	19	0.827	37	0.473	55	0.166	73	0.022
2	0.998	20	0.810	38	0.453	56	0.154	74	0.019
3	0.995	21	0.792	39	0.433	57	0.142	75	0.016
4	0.992	22	0.774	40	0.414	58	0.130	76	0.013
5	0.987	23	0.756	41	0.394	59	0.119	77	0.011
6	0.981	24	0.737	42	0.375	60	0.109	78	0.008
7	0.975	25	0.718	43	0.357	61	0.099	79	0.007
8	0.967	26	0.698	44	0.338	62	0.090	80	0.005
9	0.959	27	0.678	45	0.320	63	0.082	81	0.004
10	0.949	28	0.658	46	0.303	64	0.073	82	0.003
11	0.939	29	0.638	47	0.286	65	0.066	83	0.002
12	0.928	30	0.617	48	0.269	66	0.059	84	0.001
13	0.915	31	0.597	49	0.253	67	0.052	85	0.001
14	0.903	32	0.576	50	0.237	68	0.046	86	0.001
15	0.889	33	0.555	51	0.222	69	0.040	87	0.000
16	0.874	34	0.535	52	0.207	70	0.035	88	0.000
17	0.859	35	0.514	53	0.193	71	0.030	89	0.000
18	0.843	36	0.494	54	0.179	72	0.026	90	0.000

Elevation Pattern Tabulation

Antenna models: 6014, 6015, 6020, 6510, 6513, 6600, 68xx except 6832, & Versa2une, 2-bay half-wave-spaced.

Relative Field at 0° Depression = 1.000

Figure 4. Image Near Proposed Antenna Location with 104.1 dBu Contour

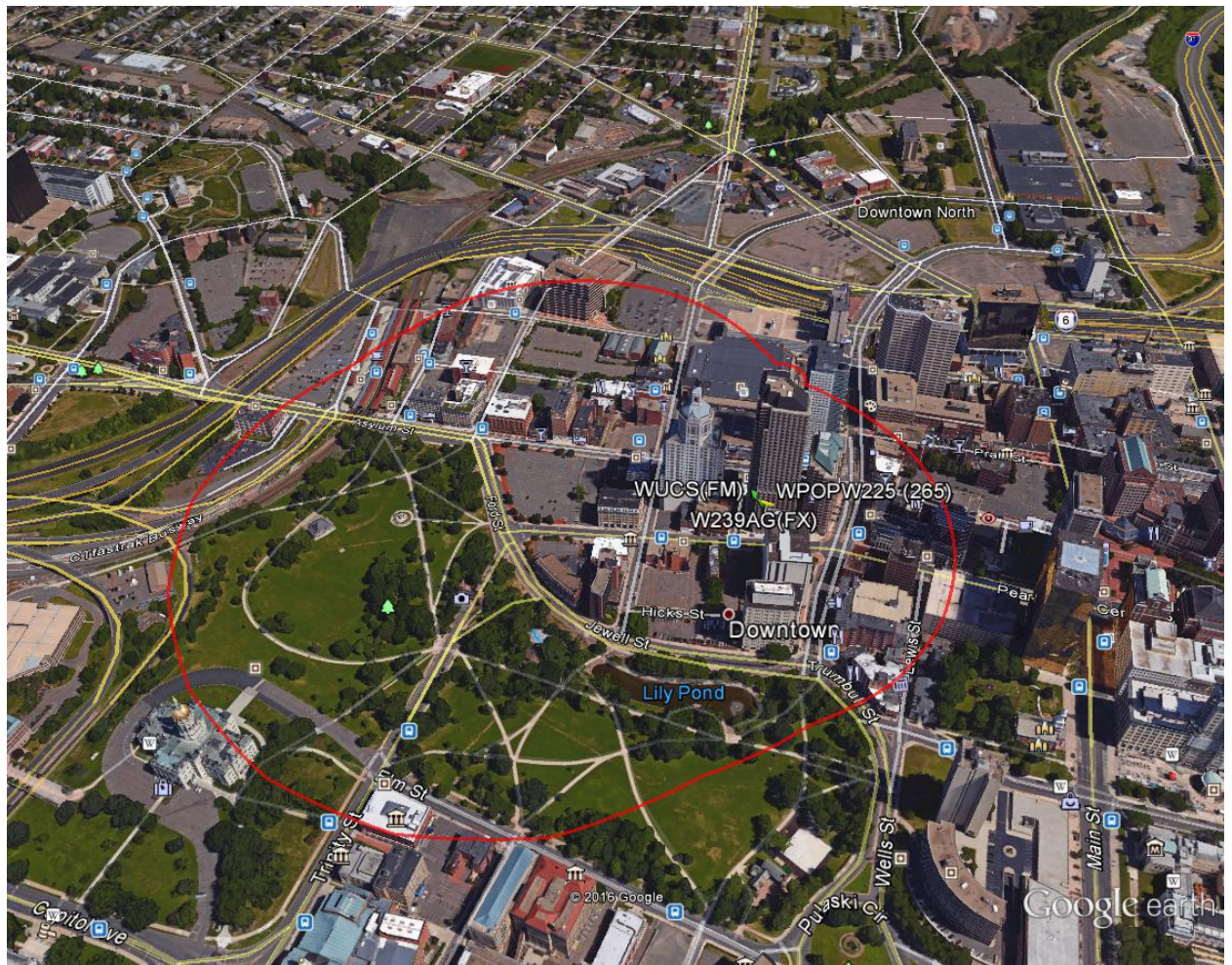




Figure 5. Map with Distance and Azimuth Given

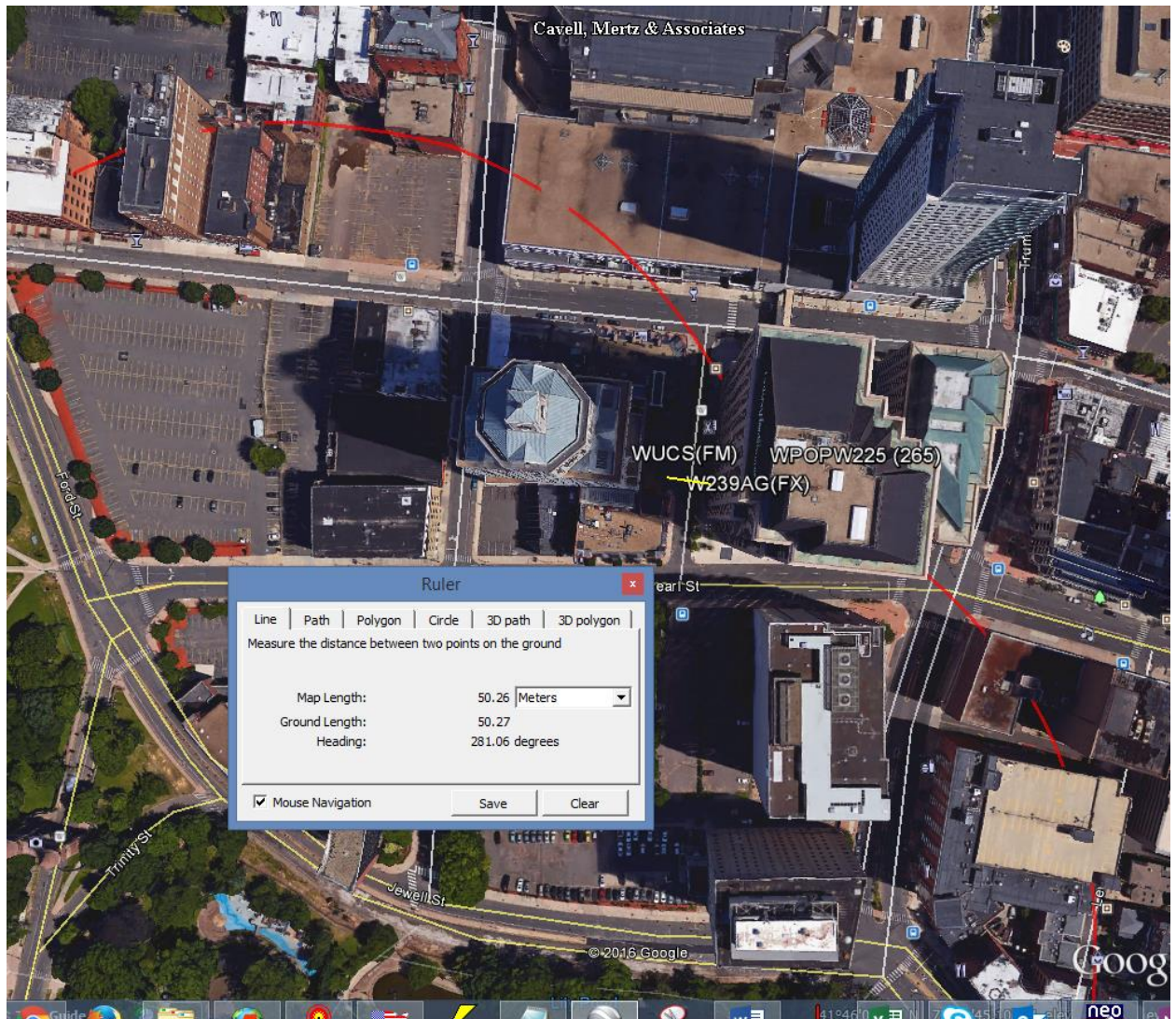


Figure 6. Sample Signal Level Determination.


	A	B	C	D	E	F	G
1	Triangle Geometry						
2	Known Values			Values			
3	Angle of Suppression	51.431	degrees	Distance from the base of tower	51.831	meters	
4	Height of the antenna	65	meters	Distance from antenna to surface	83.135	meters	
5	Distance from the base of tower	50	meters	Height of the antenna	62.703	meters	
6	Distance from antenna to surface	82.006	meters	Distance from antenna to surface	80.198	meters	
7				Height of the antenna	64.117	meters	
8				Distance from the base of tower	51.127	meters	
9				Angle of Suppression	52.431	degrees	
10				Distance from antenna to surface	82.006	meters	
11	Height of the antenna				Angle of Suppression	52.431	degrees
12							Distance from the base of tower
13							50.000
14							meters
15							Angle of Suppression
16							52.431
17							degrees
18							Distance from the base of tower
19							50.000
20							meters
21	ERP	0.06	kw				Angle of Suppression
22	Calculated IX contour	104	dbu				52.431
23							degrees
24	Relative Field	Downward ERP		Distance to interfering contour	Height of IX contour above surface		
25	1	0.0600		meters (hypot)	meters	this value is required.	
26	Translator's IX Contour			342.8275	-203.042		
27	Depression Angle from Horizon	Relative Field	ERP on Depres. Angle (kw)	Dist. To IX Contour (m)		Surface (m)	
28	0	0.999	0.0599	342.4847		65.000	
29	5	0.997	0.0585	338.3707		35.509	
30	10	0.949	0.0540	325.3433		8.505	
31	15	0.889	0.0474	304.7736		-13.881	
32	20	0.810	0.0394	277.6903		-29.976	
33	25	0.718	0.0309	246.1501		-39.028	
34	30	0.617	0.0228	211.5248		-49.762	
35	35	0.514	0.0159	176.2133		-36.072	
36	40	0.414	0.0103	141.9306		-26.231	
37	45	0.320	0.0061	109.7048		-12.573	
38	50	0.237	0.0034	81.2501		2.759	
39	55	0.166	0.0017	56.9094		18.383	
40	60	0.109	0.0007	37.3682		32.638	

Figure 7. Fill-in and Minor Change Distance Map

