

**W222CD
BNPFT-20180417AAJ AMENDMENT**

**MINOR MODIFICATION
MATTOON WAIVER**

Request for waiver of § 74.1233(a)(1):

This application requests a Mattoon Waiver to serve as a fill-in AM translator for WAKY(AM) in Louisville, KY (facility ID # 30798) in accordance with the waiver granted for the move of W263AQ (DA-11-1495). The proposed W222CD facility is mutually exclusive with the licensed W222CD facility because the proposed 40 dBu (50:10) interfering contour overlaps the licensed 60 dBu (50:50) contour as demonstrated in exhibit E1AA.

Dismissal of CP BPFT-20151221CIU upon grant of this application is requested.

Allocation discussion:

All exhibits utilize the Globe 30 second terrain database which is the Commission's default database.

E1	Channel study
E1A	Mattoon overlap
W1B	NEW 223 application interference plot
E1C	WFPK analysis
E1D	Aerial view of interference area
E1E	DA tabulation
E2	60 dBu and 2 mV/m contours plot
E3	ASR

A channel study is included demonstrating compliance with §74.1204. Analysis of 2nd adjacent channel station WFPK on 220B is provided as E1A. A plot of the proposed 60 dBu is provided as E2 showing that it is entirely contained within the WAKY(AM) 25 mile circle.

WFPK analysis:


The proposed W222CD facility will be located inside the protected contour of 2nd adjacent channel station WFPK on channel 220B. Therefore, an interference analysis has been conducted based

on the U/D ratio of +40 dB at the proposed site. The WFPK (50,50) contour at the proposed site is 81.9 dBu and the (50,10) interference contour is 121.9 dBu. Exhibit E1A demonstrates that this interfering contour does not reach any occupied area of the building on which it will be installed - PNC Plaza. meters above ground.

Clearly, this interference contours will not reach any populated area or major highways. Based on this showing a waiver of Section 74.1204 is requested in accordance with *Living Way Ministries, Inc.* (FCC 08-242).

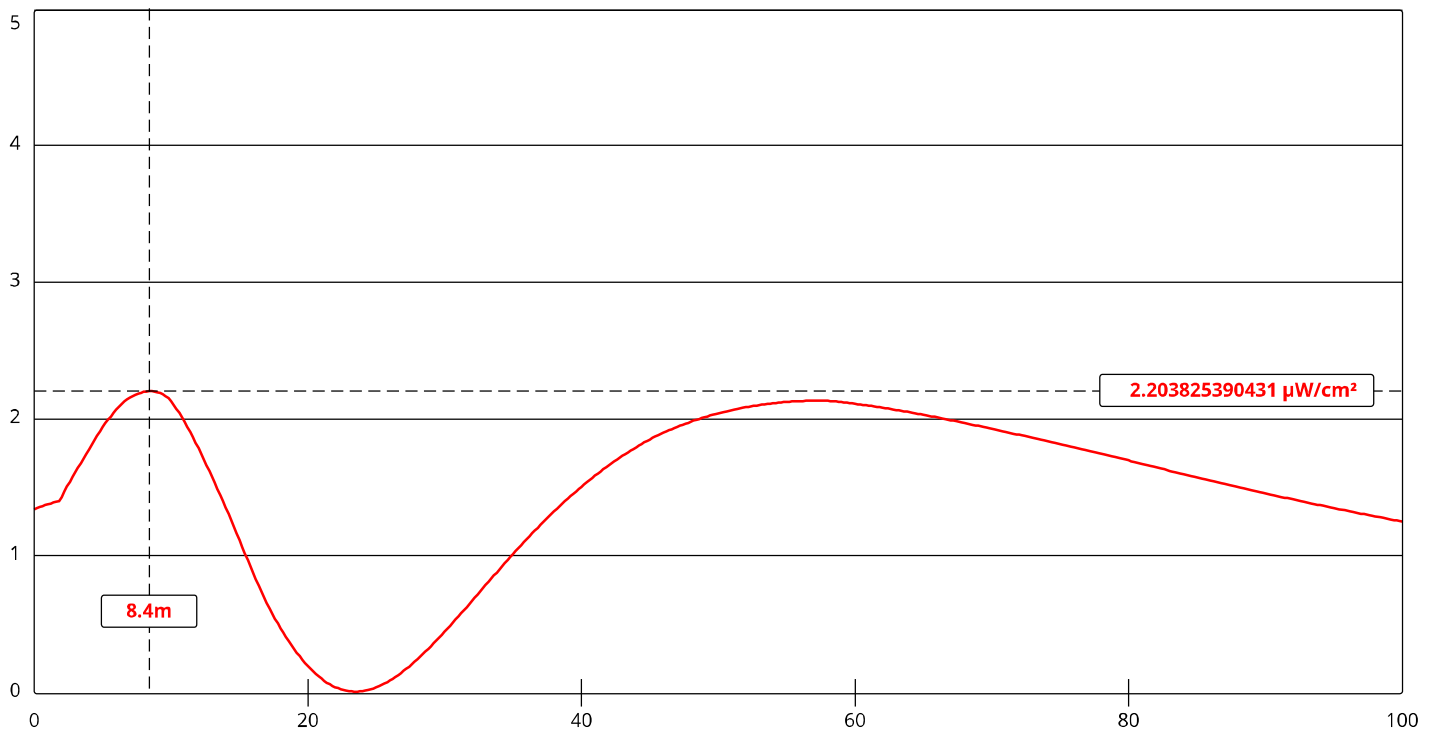
FAA and RF Exposure Calculation:

The proposed facility will be located on a pole extending no more than 20 feet above the top retainer wall on the PNC Plaza building. Therefore, it is categorically exempt from FAA processing. A two bay 75% spaced PSI FML-2 circularly polarized antenna mounted at 3 meters above the building wall and 23 meters above the highest occupied floor. The RF contribution of the proposed translator was calculated to be 2.2 $\mu\text{Watts}/\text{cm}^2$ using FMMODEL (see below). This is 1.1% of the maximum permissible 200 micro-watts/cm² exposure for general population/uncontrolled exposure, and well below 5% of that limit which requires consideration. The RF level on the roof was calculated using FMMODEL to be 10 $\mu\text{Watts}/\text{cm}^2$ or 1% of the maximum occupational level. The proposed translator facility complies with Commission RF radiation limits.


Charles M. Anderson 4-23-2018

FM Model

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data [published in 1985 by the EPA](#)



[View Tabular Results +](#)

Channel Selection	Channel 222 (92.3 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	23	Distance (m)	100
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	2	Element Spacing (λ)	.75
Num of Points	500	Apply	

E1 CHANNEL STUDY

REFERENCE		CH# 222D - 92.3 MHz, Pwr= 0.25 kW DA, HAAT= 114.2 M, COR= 271 M										DISPLAY DATES	
38 15 13.0 N.		Average Protected F(50-50)= 13.73 km										DATA 04-22-18	
85 45 33.0 W.		Standard Directional										SEARCH 04-23-18	
CH	CALL	TYPE	ANT	AZI	DIST	LAT	PWR(kW)	INT(km)	PRO(km)	*IN*	*OUT*		
CITY		STATE		<--	FILE #	LNG	HAAT (M)	COR(M)	LICENSEE	(Overlap in km)			
222D	W222CD	CP	DC_	165.5	16.80	38 06 26.0	0.250	16.80	16.80	64.5R	-47.7M		
Fairdale		KY		345.5	BPFT20151221CIU	85 42 40.0		305	Washington County	Cbc, Inc			
222D	W222CD	APP	DC_	82.2	3.18	38 15 27.0	0.250	3.18	3.18	64.5R	-61.3M		
Elizabethtown		KY		262.2	BPFT20180417AAJ	85 43 23.0		213	Washington County	Cbc, Inc			
220B	WFPK	LIC_CN		330.4	14.27	38 21 55.0	6.800	4.3	45.9	6.6	-31.6*		
Louisville		KY		150.4	BLED19981005KC	85 50 24.0	236	426	Kentucky Public Radio, Inc				

See E1C and E1D for disproof of WFPK interference per *Living Way*.

222D W222CD Elizabethtown	LIC_V_ KY	175.0 355.0	41.79 BLFT20151221CIK	37 52 45.0 85 43 03.0	0.250	41.79 300	41.79 Washington County Cbc, Inc	64.5R	-22.7M
222B WTTT Bloomington	LIC_CX IN	345.4 165.2	132.63 BMLH20160429ABG	39 24 27.0 86 08 52.0	37.000 332	149.0 574	76.6 Sarkes Tarzian, Inc.	-19.7*	45.7
222B WTTT Trafalgar	APP_CX IN	345.4 165.2	132.63 BPH20180320ABU	39 24 27.0 86 08 52.0	37.000 332	149.0 574	76.6 Sarkes Tarzian, Inc.	-19.7*	45.7
222B WTTT Bloomington	LIC_CN IN	345.4 165.2	132.63 BMLH19880426KB	39 24 27.0 86 08 52.0	37.000 332	149.0 574	76.6 Sarkes Tarzian, Inc.	-19.7*	45.7
223D 1777862 Louisville	APP_C_ KY	346.3 166.3	8.48 BNPFT20180130AHC	38 19 40.0 85 46 56.0	0.010	6.4 198	4.6 New Albany Broadcasting Co	0.1	0.9
276C2 WQNU Lyndon	LIC_NCX KY	66.6 246.7	19.91 BLH20080714ADM	38 19 28.0 85 33 00.0	23.000 169	0.0 359	0.0 Sm-wqnu, Lic	14.5R	5.4M
223C WBKR Owensboro	LIC_CY KY	238.1 57.3	134.34 BLH19870121KD	37 36 29.0 87 03 15.0	100.000 320	106.9 453	73.7 Townsquare Media Of Evansv	12.2	38.0

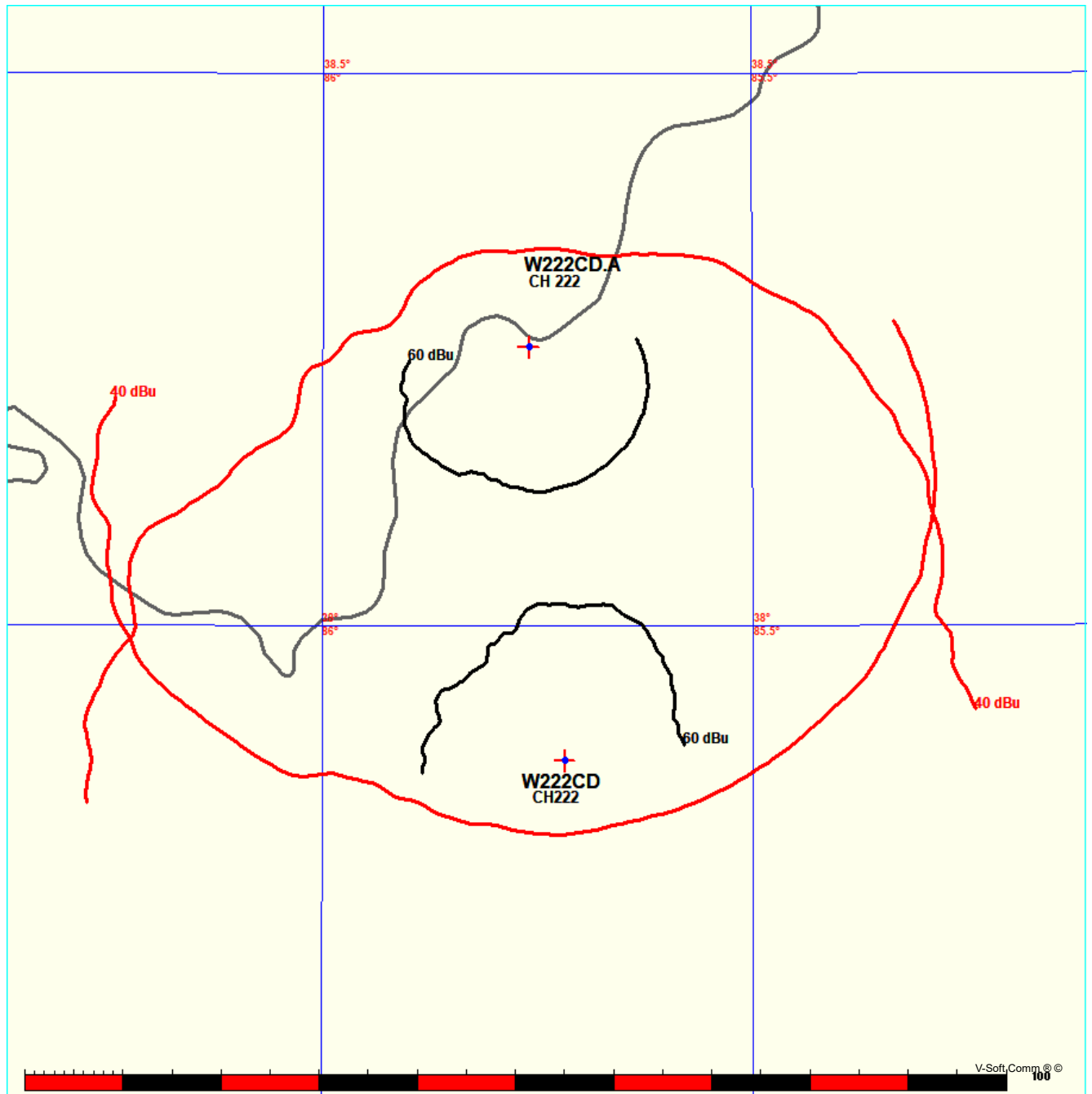
Terrain database is GLOBE 30 Sec, R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

E1A MATTOON OVERLAP

FMCommander Single Allocation Study - 04-23-2018 - GLOBE 30 Sec
W222CD.A's Overlaps (In= -24.35 km, Out= -23.25 km)

W222CD.A CH 222 D DA
Lat= 38 15 13.0, Lng= 85 45 33.0
0.25 kW 114.2 m HAAT, 271 m COR
Prot.= 60 dBu, Intef.= 40 dBu

W222CD CH 222 D BLFT20151221CIK
Lat= 37 52 45.0, Lng= 85 43 03.0
0.25 kW 0 m HAAT, 300 m COR
Prot.= 60 dBu, Intef.= 40 dBu



E1B W222CD - BNPFT-20180130AHC FMOVER

04-23-2018 Terrain Data: GLOBE 30 Sec FMOVER Analysis

W222CD.A

BNPFT20180130AHC

Channel = 222D
Max ERP = 0.25 kW
RCAMSL = 271 m
N. Lat. 38 15 13.0
W. Lng. 85 45 33.0
Protected
60 dBu

Channel = 223D
Max ERP = 0.01 kW
RCAMSL = 198 m
N. Lat. 38 19 40.0
W. Lng. 85 46 56.0
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
297.0	000.0014	0079.3	003.1	186.3	000.0100	0063.7	006.9	53.00	
298.0	000.0013	0078.6	003.0	185.4	000.0100	0063.7	006.9	53.03	
299.0	000.0012	0077.5	002.9	184.6	000.0100	0063.6	006.8	53.05	
300.0	000.0011	0076.3	002.8	183.7	000.0100	0063.5	006.8	53.05	
301.0	000.0010	0075.4	002.8	183.2	000.0100	0063.4	006.8	53.10	
302.0	000.0010	0075.0	002.8	182.7	000.0100	0063.4	006.8	53.16	
303.0	000.0009	0074.9	002.7	182.3	000.0100	0063.4	006.8	53.23	
304.0	000.0009	0075.2	002.7	181.8	000.0100	0063.4	006.7	53.30	
305.0	000.0008	0075.8	002.7	181.4	000.0100	0063.5	006.7	53.37	
306.0	000.0008	0076.7	002.6	181.1	000.0100	0063.6	006.7	53.45	
307.0	000.0007	0077.8	002.6	180.7	000.0100	0063.6	006.7	53.52	
308.0	000.0007	0078.7	002.6	180.3	000.0100	0063.7	006.7	53.58	
309.0	000.0007	0079.4	002.6	179.8	000.0100	0063.8	006.6	53.64	
310.0	000.0006	0079.4	002.5	179.3	000.0100	0063.9	006.6	53.67	
311.0	000.0006	0078.7	002.4	178.6	000.0100	0063.9	006.6	53.64	
312.0	000.0005	0077.3	002.4	177.8	000.0100	0064.0	006.7	53.59	
313.0	000.0005	0076.3	002.3	177.1	000.0100	0064.0	006.7	53.53	
314.0	000.0004	0076.5	002.2	176.5	000.0100	0064.0	006.7	53.47	
315.0	000.0004	0078.0	002.2	175.9	000.0100	0064.0	006.7	53.41	
316.0	000.0003	0080.1	002.1	175.3	000.0100	0064.0	006.8	53.35	
317.0	000.0003	0081.6	002.0	174.7	000.0100	0063.9	006.8	53.26	
318.0	000.0002	0082.2	002.0	174.1	000.0100	0063.9	006.8	53.12	
319.0	000.0002	0082.4	001.9	173.4	000.0100	0063.8	006.9	52.97	
320.0	000.0002	0082.6	001.8	172.7	000.0100	0063.7	007.0	52.79	
321.0	000.0002	0082.9	001.8	172.5	000.0100	0063.6	006.9	52.83	
322.0	000.0002	0083.0	001.8	172.3	000.0100	0063.6	006.9	52.86	
323.0	000.0002	0083.1	001.8	172.1	000.0100	0063.5	006.9	52.89	
324.0	000.0002	0083.0	001.8	171.9	000.0100	0063.4	006.9	52.92	
325.0	000.0002	0083.0	001.8	171.6	000.0100	0063.3	006.9	52.95	
326.0	000.0002	0083.5	001.8	171.4	000.0100	0063.3	006.9	52.98	
327.0	000.0002	0084.3	001.8	171.2	000.0100	0063.2	006.8	53.02	
328.0	000.0002	0085.5	001.8	171.0	000.0100	0063.2	006.8	53.06	
329.0	000.0002	0086.3	001.8	170.8	000.0100	0063.1	006.8	53.10	
330.0	000.0002	0086.6	001.8	170.5	000.0100	0063.0	006.8	53.13	
331.0	000.0002	0086.7	001.8	170.3	000.0100	0063.0	006.8	53.15	
332.0	000.0002	0087.3	001.8	170.0	000.0100	0062.9	006.8	53.18	
333.0	000.0002	0088.5	001.8	169.8	000.0100	0062.8	006.7	53.21	
334.0	000.0002	0090.2	001.8	169.6	000.0100	0062.8	006.7	53.25	
335.0	000.0002	0091.8	001.8	169.3	000.0100	0062.7	006.7	53.29	
336.0	000.0002	0093.3	001.8	169.1	000.0100	0062.6	006.7	53.32	
337.0	000.0002	0095.1	001.8	168.8	000.0100	0062.4	006.7	53.35	
338.0	000.0002	0097.3	001.9	168.6	000.0100	0062.3	006.7	53.39	
339.0	000.0002	0100.0	001.9	168.3	000.0100	0062.2	006.6	53.43	
340.0	000.0002	0102.8	001.9	168.1	000.0100	0062.1	006.6	53.47	
341.0	000.0002	0107.0	001.9	167.8	000.0100	0062.0	006.6	53.53	
342.0	000.0002	0112.2	001.9	167.6	000.0100	0061.9	006.6	53.60	
343.0	000.0002	0117.3	002.0	167.3	000.0100	0061.9	006.5	53.67	
344.0	000.0002	0120.9	002.0	167.0	000.0100	0061.8	006.5	53.71	
345.0	000.0002	0122.8	002.0	166.7	000.0100	0061.8	006.5	53.73	
346.0	000.0002	0123.7	002.0	166.4	000.0100	0061.8	006.5	53.74	
347.0	000.0002	0124.2	002.0	166.1	000.0100	0061.8	006.5	53.74	
348.0	000.0002	0124.5	002.0	165.8	000.0100	0061.8	006.5	53.74	
349.0	000.0002	0124.6	002.0	165.5	000.0100	0061.8	006.5	53.74	
350.0	000.0002	0124.8	002.0	165.1	000.0100	0061.8	006.5	53.73	
351.0	000.0002	0124.8	002.0	164.8	000.0100	0061.7	006.5	53.71	
352.0	000.0002	0124.9	002.0	164.5	000.0100	0061.6	006.5	53.69	

E1B CONTINUED

E1C WFPK ANALYSIS

W222CD.A LOUISVILLE, KY, Showing Protection to WFPK 74.1204(d)
 Study - Using GLOBE 30 SEC Terrain Database Translator or LPFM Maximum Licensed ERP = 0.25
 Translator or LPFM Antenna Height AG = 22.5 Meters
 W222CD.A Antenna Model = PSI FML-2-075

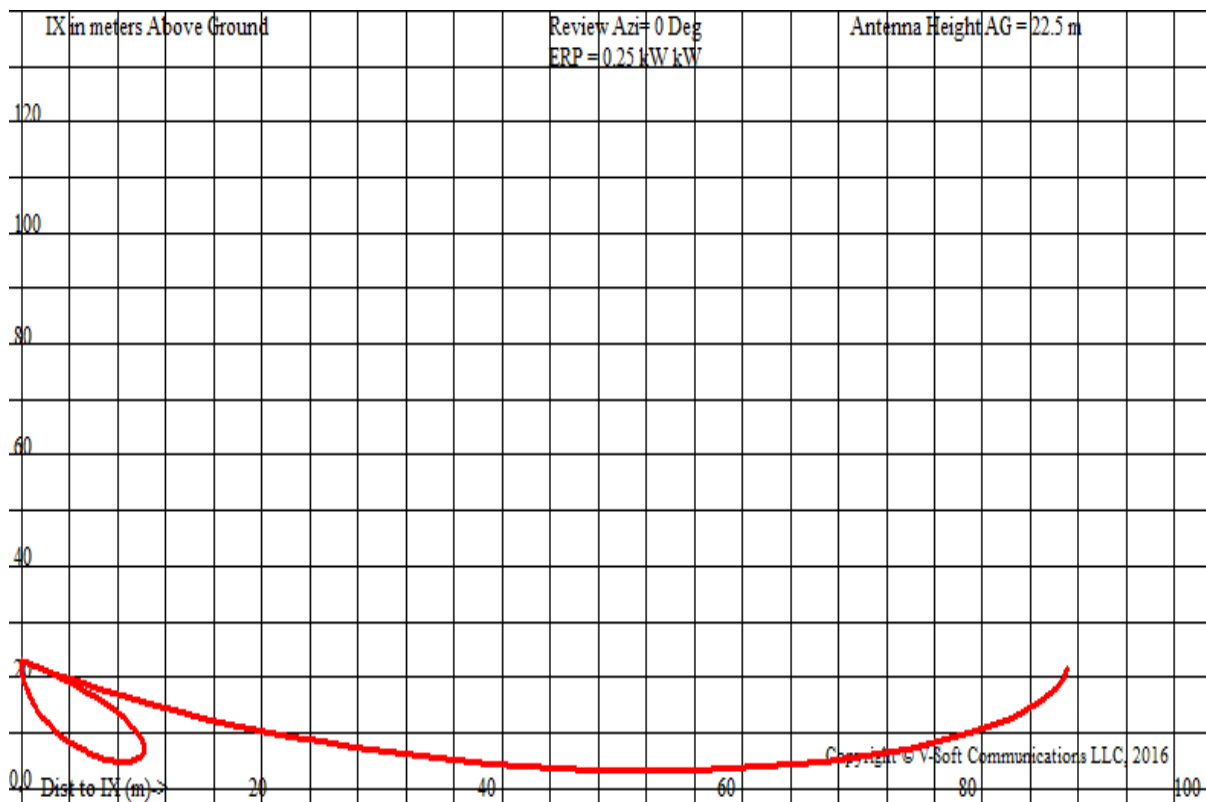
Protected Station's Contour = 81.90702 dBu
 Translator's or LPFM's full Interference contour 121.90702

Review Azimuth = 0 Degrees True
 Relative Field on the horizon at Review Azimuth = 1.000
 Translator/LPFM ERP on the horizon at Review Azimuth = 0.25 kW
 Distance between stations = 14.3 km
 Protected Station= WFPK, 6.8 kW, 426 M Meters COR AMSL

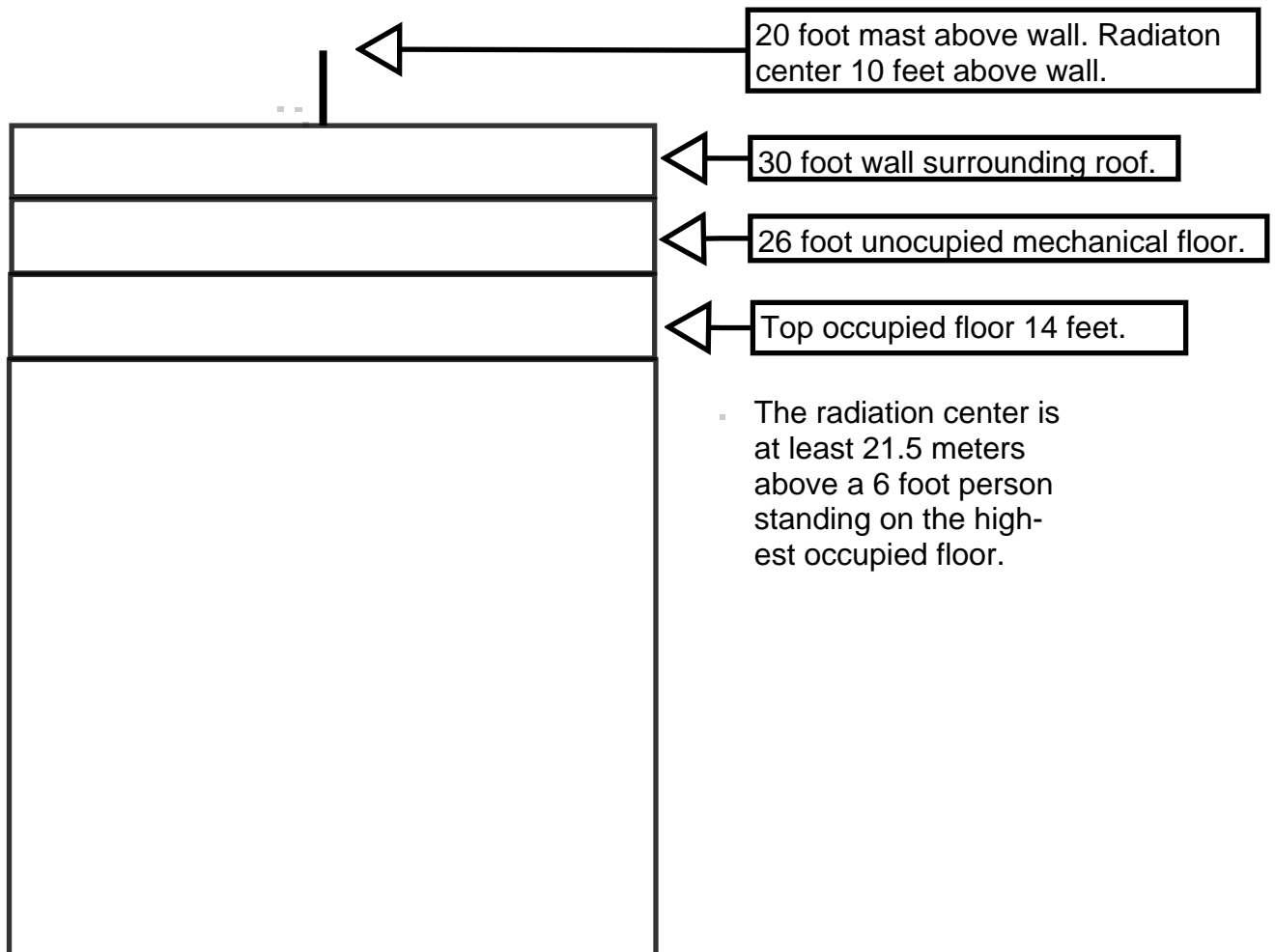
Depression Angle From Horizon(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.00	1.0	0.2500	089.0469	089.0469	022.500
01.00	0.998	1.0	0.2490	088.8688	088.8553	020.949
02.00	0.996	1.0	0.2480	088.6908	088.6367	019.405
03.00	0.991	1.0	0.2455	088.2455	088.1246	017.882
04.00	0.984	1.0	0.2421	087.6222	087.4087	016.388
05.00	0.975	1.0	0.2377	086.8208	086.4904	014.933
06.00	0.964	1.0	0.2323	085.8412	085.3710	013.527
07.00	0.952	1.0	0.2266	084.7727	084.1408	012.169
08.00	0.937	1.0	0.2195	083.4370	082.6250	010.888
09.00	0.921	1.0	0.2121	082.0122	081.0025	009.670
10.00	0.903	1.0	0.2039	080.4094	079.1878	008.537
11.00	0.884	1.0	0.1954	078.7175	077.2712	007.480
12.00	0.863	1.0	0.1862	076.8475	075.1682	006.523
13.00	0.84	1.0	0.1764	074.7994	072.8823	005.674
14.00	0.817	1.0	0.1669	072.7513	070.5903	004.900
15.00	0.792	1.0	0.1568	070.5252	068.1221	004.247
16.00	0.765	1.0	0.1463	068.1209	065.4820	003.723
17.00	0.738	1.0	0.1362	065.7166	062.8451	003.286
18.00	0.71	1.0	0.1260	063.2233	060.1290	002.963
19.00	0.68	1.0	0.1156	060.5519	057.2530	002.786
20.00	0.65	1.0	0.1056	057.8805	054.3899	002.704
21.00	0.62	1.0	0.0961	055.2091	051.5421	002.715
22.00	0.589	1.0	0.0867	052.4486	048.6295	002.852
23.00	0.557	1.0	0.0776	049.5991	045.6563	003.120
24.00	0.525	1.0	0.0689	046.7496	042.7079	003.485
25.00	0.493	1.0	0.0608	043.9001	039.7870	003.947
26.00	0.46	1.0	0.0529	040.9616	036.8160	004.544
27.00	0.428	1.0	0.0458	038.1121	033.9581	005.197
28.00	0.395	1.0	0.0390	035.1735	031.0564	005.987
29.00	0.363	1.0	0.0329	032.3240	028.2712	006.829
30.00	0.331	1.0	0.0274	029.4745	025.5257	007.763
31.00	0.299	1.0	0.0224	026.6250	022.8221	008.787
32.00	0.268	1.0	0.0180	023.8646	020.2383	009.854
33.00	0.237	1.0	0.0140	021.1041	017.6994	011.006
34.00	0.207	1.0	0.0107	018.4327	015.2814	012.193
35.00	0.178	1.0	0.0079	015.8504	012.9839	013.409
36.00	0.149	1.0	0.0056	013.2680	010.7340	014.701
37.00	0.121	1.0	0.0037	010.7747	008.6050	016.016
38.00	0.094	1.0	0.0022	008.3704	006.5960	017.347
39.00	0.068	1.0	0.0012	006.0552	004.7058	018.689
40.00	0.043	1.0	0.0005	003.8290	002.9332	020.039
41.00	0.018	1.0	0.0001	001.6028	001.2097	021.448
42.00	0.005	1.0	0.0000	000.4452	000.3309	022.202
43.00	0.027	1.0	0.0002	002.4043	001.7584	020.860
44.00	0.048	1.0	0.0006	004.2743	003.0746	019.531
45.00	0.068	1.0	0.0012	006.0552	004.2817	018.218
46.00	0.086	1.0	0.0018	007.6580	005.3197	016.991
47.00	0.104	1.0	0.0027	009.2609	006.3159	015.727
48.00	0.12	1.0	0.0036	010.6856	007.1501	014.559
49.00	0.135	1.0	0.0046	012.0213	007.8867	013.427
50.00	0.149	1.0	0.0056	013.2680	008.5285	012.336

E1B CONTINUED

51.00	0.162	1.0	0.0066	014.4256	009.0783	011.289
52.00	0.174	1.0	0.0076	015.4942	009.5392	010.290
53.00	0.184	1.0	0.0085	016.3846	009.8605	009.415
54.00	0.194	1.0	0.0094	017.2751	010.1541	008.524
55.00	0.202	1.0	0.0102	017.9875	010.3172	007.766
56.00	0.209	1.0	0.0109	018.6108	010.4070	007.071
57.00	0.215	1.0	0.0116	019.1451	010.4272	006.444
58.00	0.22	1.0	0.0121	019.5903	010.3813	005.886
59.00	0.224	1.0	0.0125	019.9465	010.2732	005.402
60.00	0.227	1.0	0.0129	020.2137	010.1068	004.994
61.00	0.228	1.0	0.0130	020.3027	009.8429	004.743
62.00	0.229	1.0	0.0131	020.3917	009.5733	004.495
63.00	0.229	1.0	0.0131	020.3917	009.2577	004.331
64.00	0.228	1.0	0.0130	020.3027	008.9001	004.252
65.00	0.226	1.0	0.0128	020.1246	008.5050	004.261
66.00	0.224	1.0	0.0125	019.9465	008.1130	004.278
67.00	0.22	1.0	0.0121	019.5903	007.6546	004.467
68.00	0.216	1.0	0.0117	019.2341	007.2052	004.666
69.00	0.211	1.0	0.0111	018.7889	006.7333	004.959
70.00	0.205	1.0	0.0105	018.2546	006.2434	005.346
71.00	0.199	1.0	0.0099	017.7203	005.7692	005.745
72.00	0.192	1.0	0.0092	017.0970	005.2833	006.240
73.00	0.184	1.0	0.0085	016.3846	004.7904	006.831
74.00	0.176	1.0	0.0077	015.6723	004.3199	007.435
75.00	0.168	1.0	0.0071	014.9599	003.8719	008.050
76.00	0.159	1.0	0.0063	014.1585	003.4252	008.762
77.00	0.149	1.0	0.0056	013.2680	002.9846	009.572
78.00	0.139	1.0	0.0048	012.3775	002.5734	010.393
79.00	0.129	1.0	0.0042	011.4871	002.1918	011.224
80.00	0.118	1.0	0.0035	010.5075	001.8246	012.152
81.00	0.107	1.0	0.0029	009.5280	001.4905	013.089
82.00	0.096	1.0	0.0023	008.5485	001.1897	014.035
83.00	0.085	1.0	0.0018	007.5690	000.9224	014.987
84.00	0.073	1.0	0.0013	006.5004	000.6795	016.035
85.00	0.061	1.0	0.0009	005.4319	000.4734	017.089
86.00	0.049	1.0	0.0006	004.3633	000.3044	018.147
87.00	0.037	1.0	0.0003	003.2947	000.1724	019.210
88.00	0.025	1.0	0.0002	002.2262	000.0777	020.275
89.00	0.012	1.0	0.0000	001.0686	000.0186	021.432
90.00	0.001	1.0	0.0000	000.0890	000.0000	022.411



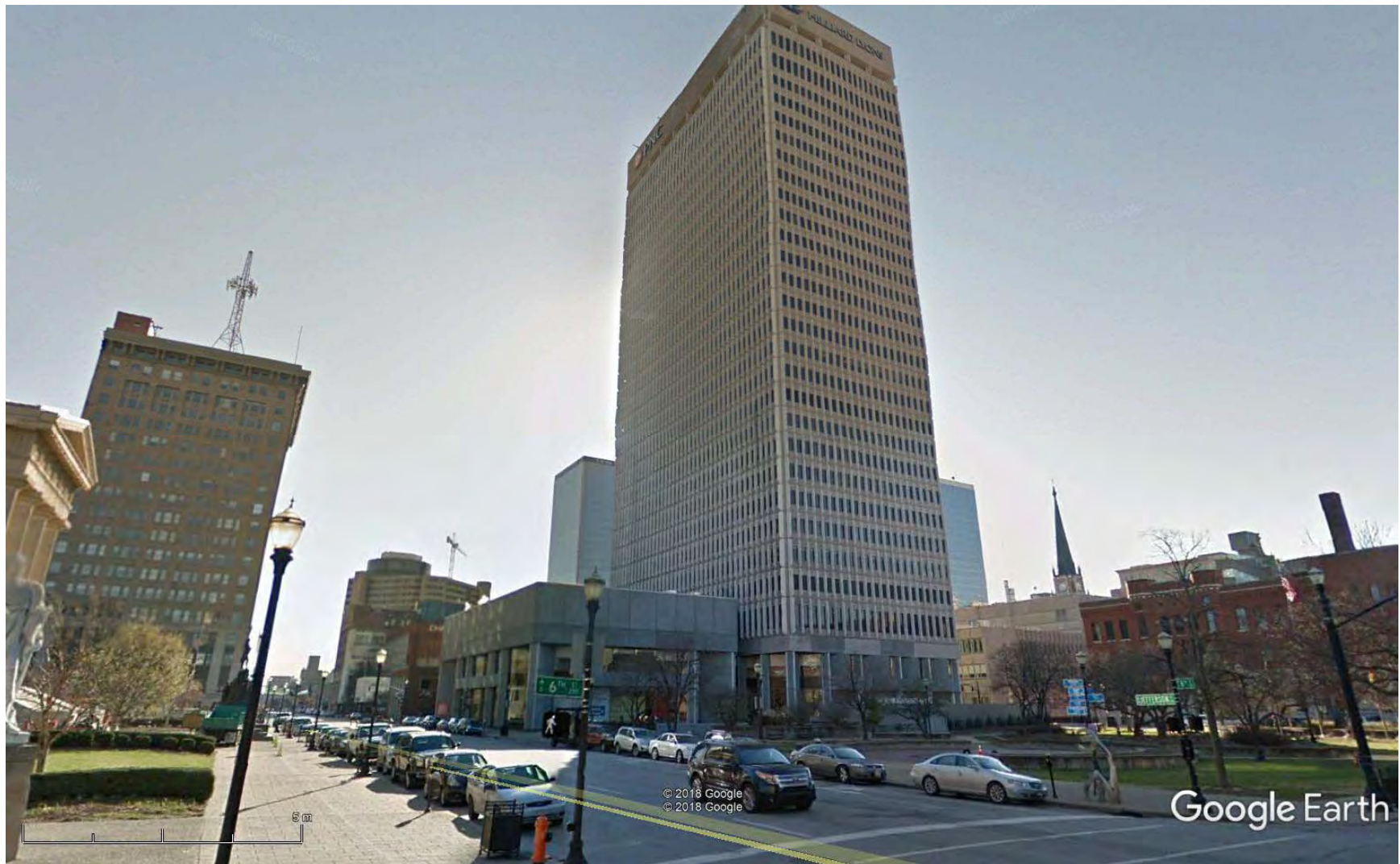
0 = 2 meter person standing on the top occupied floor.



E1D AERIAL VIEW OF 121.9 DBU CONTOUR

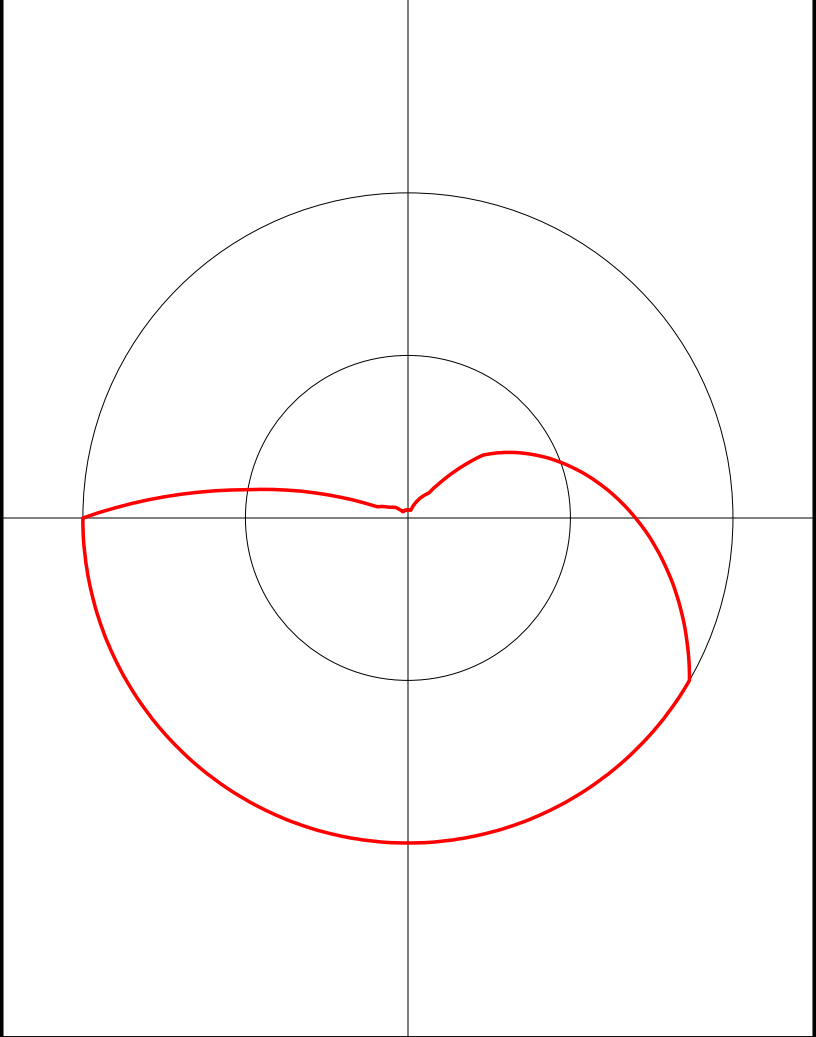


E1D STREET VIEW SHOWING SHORTER BUILDINGS ADJACENT TO PNC PLAZA



E1E Antenna Pattern

Azimuth (deg)	Relative Field
0.0	0.025
10.0	0.025
20.0	0.025
30.0	0.065
40.0	0.1
50.0	0.3
60.0	0.4
70.0	0.5
80.0	0.6
90.0	0.7
100.0	0.8
110.0	0.9
120.0	1.0
130.0	1.0
140.0	1.0
150.0	1.0
160.0	1.0
170.0	1.0
180.0	1.0
190.0	1.0
200.0	1.0
210.0	1.0
220.0	1.0
230.0	1.0
240.0	1.0
250.0	1.0
260.0	1.0
270.0	1.0
280.0	0.5
290.0	0.1
300.0	0.065
310.0	0.05
320.0	0.025
330.0	0.025
340.0	0.025
350.0	0.025



W222CD AMEND

Latitude: 38-15-13 N
Longitude: 085-45-33 W
ERP: 0.25 kW
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 271.0 m
Elevation: 140.0 m
Horiz. Pattern: Directional

E2 CONTOURS

OVERLAP AREA (RED) = 176.7 SQ KM
47% OF W261CO 60 DBU
49% OF W222CD PROPOSED 60 DBU

WAKY 25 MILE RADIUS

PROPOSED 60 DBU

Scale 1:500,000

0 7 14 21 km