



402 Tenth Avenue • PO Box 367 • Haddon Heights, NJ 08035

Engineering Report
Second Adjacent Channel Waiver of
FCC Rule Section § 73.807
Refine Church
December 2023

This report is in support of the applicant's request for waiver of FCC Rule Section § 73.807 (a) with respect to Second Adjacent Channel Class B station WZAK which is short spaced by 44 km with the proposed LPFM station. This report illustrates that this proposal meets the requirements for waiver under the provisions of § 73.807 (e)(1).

The FCC LPFM channel finder determined that the only interference consideration for this proposal is WZAK.

LPFM Channel Finder Study for 41-27-45.00 N, 81-44-22.99 W

228 93.5 MHz	Second Adjacent -45 km	Second-Adjacent (-45 km) WZAK 226 B (FM) CLEVELAND, OH BLH-4273 L2C (GRA)
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As the contour map below shows, the WZAK F(50,50) 74.5 db μ V contour encompasses the proposed F(50,10) 54 db μ V contour. This WZAK contour is exceeded in every location that the proposed operation will exceed a 40 db ratio with respect to the edge of the WZAK service area.

The applicant proposes a three bay PSI FMR-3-0.72WS antenna at 93.5 MHz (the bay spacing changes with frequency.)

The calculations and graph below show that at no point will the proposed LPFM station exceed the +40 db protection ratio within the ground. There are no tall buildings in the vicinity and the ground elevation in the area of the proposed site exceeds the site elevation by more than two meters, occurring on the Denison Avenue roadway between 36 and 55 meters north of the tower. The nuisance signal occurs substantially above that over that range.

This provides adequate information to demonstrate that the requested waiver is technically justified and in the public interest and benefit.

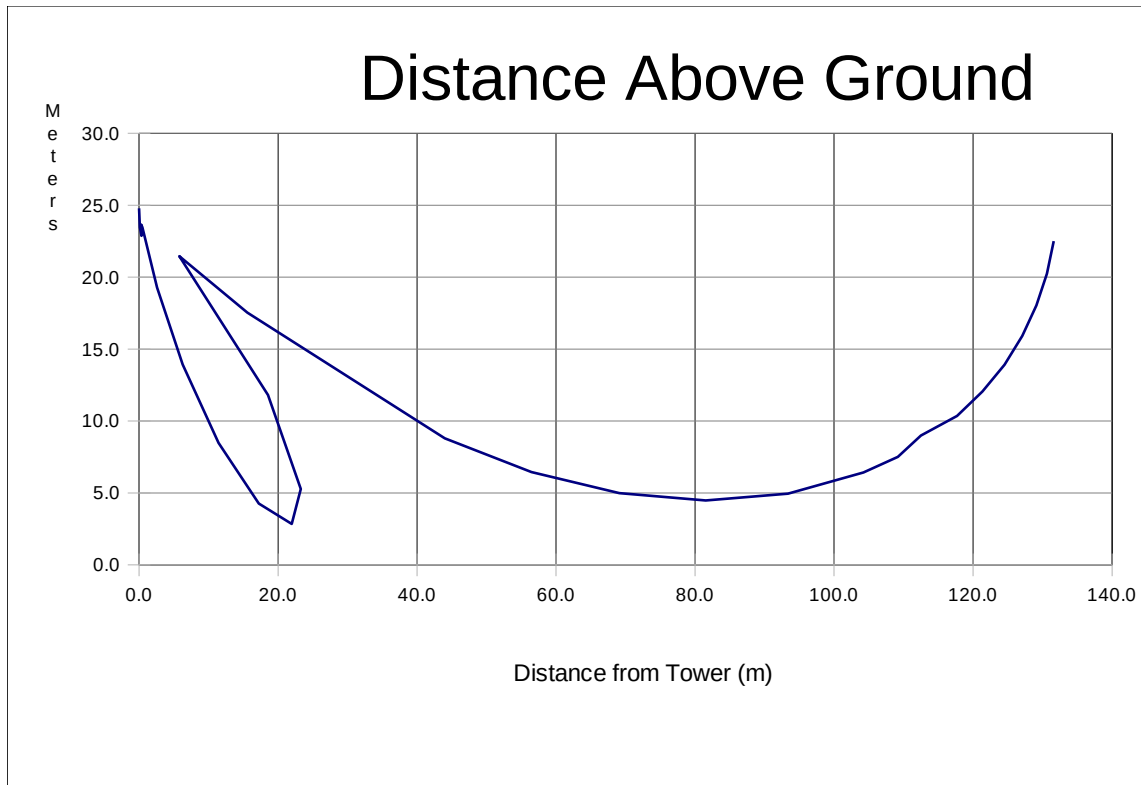
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Study for center of Radiation		24.8 m AGL		ERP	100 Watts
	Element	Bays	Spacing		
Antenna	PSIFMR-	3	0.72	Wavelength Special Dist	

Distance above Ground Level of Interfering Contour

Depression Angle (Degrees)	Slant Distance To 114.5 db μ V (meters)	Horiz Distance To 114.5 db μ V (meters)	Relative Field	ERP Watts	114.5 db μ V Above Gnd (meters)
1	131.62	131.6	0.998	99.608	22.5
2	130.71	130.6	0.991	98.242	20.2
3	129.30	129.1	0.980	96.128	18.0
4	127.39	127.1	0.966	93.308	15.9
5	125.00	124.5	0.948	89.834	13.9
6	122.01	121.3	0.925	85.598	12.0
7	118.59	117.7	0.899	80.865	10.3
8	113.60	112.5	0.861	74.197	9.0
9	110.53	109.2	0.838	70.250	7.5
10	105.85	104.2	0.803	64.419	6.4
12	95.46	93.4	0.724	52.399	5.0
14	84.03	81.5	0.637	40.602	4.5
16	71.89	69.1	0.545	29.715	5.0
18	59.37	56.5	0.450	20.268	6.5
20	46.82	44.0	0.355	12.601	8.8
25	17.20	15.6	0.130	1.702	17.5
30	6.68	5.8	0.051	0.257	21.5
35	22.65	18.6	0.172	2.949	11.8
40	30.37	23.3	0.230	5.303	5.3
45	31.05	22.0	0.235	5.543	2.8 Min Height above Gnd
50	26.81	17.2	0.203	4.132	4.3
55	19.92	11.4	0.151	2.283	8.5
60	12.55	6.3	0.095	0.905	13.9
65	6.10	2.6	0.046	0.214	19.3
70	1.43	0.5	0.011	0.012	23.5
75	1.19	0.3	0.009	0.008	23.6
80	1.96	0.3	0.015	0.022	22.9
85	1.34	0.1	0.010	0.010	23.5
90	0.02	0.0	0.000	0.000	24.8

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114.5 db μ V Contour above Ground