

Application requests a waiver for a location which is short-spaced on a second-adjacent channel with BLH-19880311KC, callsign KJMY, class C, status LIC, BOUNTIFUL, UT, channel 258, facility ID 6543[3]

Undesired-to-Desired Ratio Method

BLH-19880311KC f(50,50) signal: 89.6 dBu [1][2]
Second-adjacent protection: + 40 dB
Interference-zone boundary: 129.6 dBu
Distance to 129.6 dBu: 23 m (HAAT = -191 m, ERP <= 0.1 kW) [1]

Our distance of 23 meters differs from what Citicasters found because Citicasters used the average HAAT (all around) of 900 meters resulting in a f(50,50) signal of 87.973 dBu, where our calculations are based on 1097.6 meters along the 54.5 degree radial.

Taking the Citicasters number, the worst case, we confirmed their number of 28.23 meters based in an interfering contour of 127.97 dBu.

Application requests a waiver for a location which is short-spaced on a second-adjacent channel with BMLH-20021113AAK, callsign KSFI, class C, status LIC, SALT LAKE CITY, UT, channel 262, facility ID 60452[3]

Undesired-to-Desired Ratio Method

BMLH-20021113AAK f(50,50) signal: 88.6 dBu [1][2]
Second-adjacent protection: + 40 dB
Interference-zone boundary: 128.6 dBu
Distance to 128.6 dBu: 26 m (HAAT = -191 m, ERP <= 0.1 kW) [1]

This signal strength is based on a HAAT of 1289.8 along the 68 degree radial. The average HAAT (all around) is 1140 meters, predicting a signal strength of 87.61 dBu.

[1] tvfmfs_metric() C-language subroutine as distributed by the FCC.
At distances less than or equal to 1.5 km, tvfmfs_metric() uses the free-space method.

[2] FCC HAAT Calculator web page,
http://transition.fcc.gov/mb/audio/bickel/haat_calculator.html

[3] CDBS database downloaded 2014-09-09 03:05:00

As a courtesy, and with an abundance of caution, we will protect KSFI at 87.6 dBu. The interfering signal strength is 127.6 dBu.

The interference zone produces a worst-case circle of radius 29.23 meters on the ground which is shown on the following map. The antenna height above ground is 20 meters and there is an occupied structure nearby, so further study is required.

At 100 watts, the interfering contour would extend to a distance of 29.23 meters from the antenna. However, using a 2-bay half-wave spaced antenna, the field strength of the proposed LPFM's antenna system falls quickly at depression angles below the horizon. Using elevation pattern data provided by Shively (see below) the distance to the 127.6 dBu contour is tabulated below.

The data shows that the lowest point at which the signal strength rises to 127.6 dBu is 10.009 meters below the center of radiation of the antenna system, or 17.9 meters above the ground.

From Google street view, it appears that tallest building nearby is of residential construction and is 3 stories high counting the attic. Figuring 3 meters per floor and an additional 2 meters for the first floor, this puts the attic floor at 8 meters, the attic ceiling at 11 meters. This building is outside of the interference circle. Industrial and commercial buildings closer appear to be lower. Since the lowest point of the 127.6 dBu contour is 9.9 meters above ground, there will be no interference to either KSFI or KJMY.

depression angle below horizon	relative field	db from relative	ERP	angular distance to contour	vertical distance	horizontal distance	clearance above ground
0	1	0.00	100.00	29.223	0.000	29.223	20.000
5	0.99	-0.09	98.01	28.930	2.521	28.820	17.479
10	0.959	-0.36	91.97	28.024	4.866	27.599	15.134
15	0.91	-0.82	82.81	26.593	6.883	25.686	13.117
20	0.846	-1.45	71.57	24.722	8.456	23.231	11.544
25	0.77	-2.27	59.29	22.501	9.509	20.393	10.491
30	0.685	-3.29	46.92	20.017	10.009	17.336	9.991
35	0.596	-4.50	35.52	17.417	9.990	14.267	10.010
40	0.508	-5.88	25.81	14.845	9.542	11.372	10.458
45	0.422	-7.49	17.81	12.332	8.720	8.720	11.280
50	0.342	-9.32	11.70	9.994	7.656	6.424	12.344
55	0.271	-11.34	7.34	7.919	6.487	4.542	13.513
60	0.208	-13.64	4.33	6.078	5.264	3.039	14.736
65	0.156	-16.14	2.43	4.559	4.132	1.927	15.868
70	0.112	-19.02	1.25	3.273	3.076	1.119	16.924
75	0.077	-22.27	0.59	2.250	2.173	0.582	17.827
80	0.048	-26.38	0.23	1.403	1.381	0.244	18.619
85	0.023	-32.77	0.05	0.672	0.670	0.059	19.330
90	0.001	-60.00	0.00	0.029	0.029	0.000	19.971







