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

Undesired-to-Desired Ratio Method	
BLH-19880311KC f(50,50) signal	89.420 dBu [1][2]
Second-adjacent protection	+ 40 dB
Interference-zone boundary	129.42 dBu
Distance to 129.42 dBu	23.7 m (ERP <= 0.1 kW) [1]

The worst-case interference zone to KJMY is a sphere of radius 23.7 meters.

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

Undesired-to-Desired Ratio Method	
BMLH-20021113AAK f(50,50) signal	88.600 dBu [1][2]
Second-adjacent protection	+ 40 dB
Interference-zone boundary	128.6 dBu
Distance to 128.6 dBu	26.1 m (ERP <= 0.1 kW) [1]

The worst-case interference zone to KSFI is a sphere of radius 26.1 meters, shown projected on the ground in the following map.

[1] tvfmfs() Fortran subroutine as distributed by the FCC. At distances less than or equal to 1.5 km, tvfmfs() 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 Array

Since KSFI is the weaker signal with the stricter requirement, we will consider only KSFI, so KJMY will be implicitly protected.

Antenna Height above ground 133 meters
Antenna Height Above Sea Level 1437 meters
HAAT -61 meters

24th floor is the last occupied floor and the tower on the roof is off of the 26th floor heli pad elevator room. The height of the 24th floor is 109 meters.

Thus, the antenna is 24 meters above the highest occupied floor.

The interference zone produces a worst-case circle of radius 26.1 meters on the ground which is shown on the map.   Since the antenna height is 24 meters above the highest occupied floor, further study is required.

At 100 watts, the interfering contour would extend to a distance of 26.1 meters from the antenna. However, even with a single bay 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 128.6 dBu contour is tabulated below.

The data shows that the lowest point at which the signal strength rises to 128.6 dBu is 13.205 meters below the center of radiation of the antenna system, or 10.7 meters above the highest occupied floor. Therefore there will be no interference to KJMY or KSFI.

depression angle below horizon	relative field	db from relative	ERP	angular distance to contour	vertical distance	horizontal distance	clearance above Floor
0	1	0.00	100.00	26.045	0.000	26.045	24.000
5	0.996	-0.03	99.20	25.940	2.261	25.842	21.739
10	0.985	-0.13	97.02	25.654	4.455	25.264	19.545
15	0.967	-0.29	93.51	25.185	6.518	24.327	17.482
20	0.942	-0.52	88.74	24.534	8.391	23.054	15.609
25	0.91	-0.82	82.81	23.701	10.016	21.480	13.984
30	0.871	-1.20	75.86	22.685	11.342	19.646	12.658
35	0.826	-1.66	68.23	21.513	12.339	17.622	11.661
40	0.774	-2.23	59.91	20.159	12.958	15.442	11.042
45	0.717	-2.89	51.41	18.674	13.205	13.205	10.795
50	0.654	-3.69	42.77	17.033	13.048	10.949	10.952
55	0.586	-4.64	34.34	15.262	12.502	8.754	11.498
60	0.514	-5.78	26.42	13.387	11.593	6.693	12.407
65	0.437	-7.19	19.10	11.381	10.315	4.810	13.685
70	0.357	-8.95	12.74	9.298	8.737	3.180	15.263
75	0.273	-11.28	7.45	7.110	6.868	1.840	17.132
80	0.186	-14.61	3.46	4.844	4.771	0.841	19.229
85	0.096	-20.35	0.92	2.500	2.491	0.218	21.509
90	0.001	-60.00	0.00	0.026	0.026	0.000	23.974