Comprehensive Technical Statement
In Support of
Brown Student Radio
Application for New LPFM Station
101.1 MHz, Channel 266L1
Providence, RI

Second adjacent interference waiver requested

Introduction

Brown Student Radio proposes a new LPFM station to serve Providence, RI on 101.1 MHz, channel 266L1.

The proposed site meets all spacing requirements with respect to all other operating facilities, construction permits, allocations, and applications, with the exception of WWBB, FCC Facility ID # 54568. A second adjacent interference waiver is requested. Full details supporting the waiver request are included.

Data Sources

Distances were calculated using the FCC method defined in 73.208 of the Commission's Rules.

The facility data used in preparing the application was current as of June 17, 2013. Compliance with all spacing and interference requirements was confirmed as of November 8, 2013.

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Allocation Study

The following table lists all potential conflicts whose distances fall within 25 km of the required separations[1]:

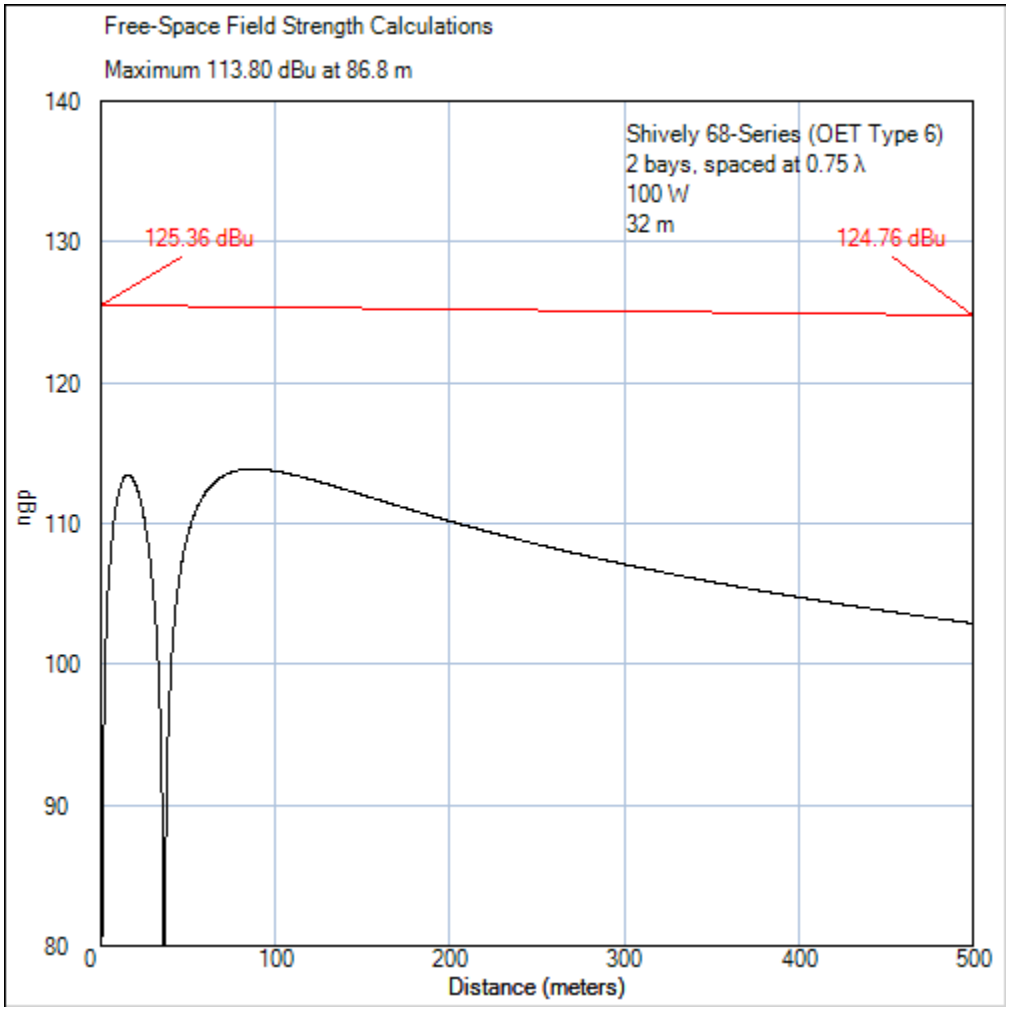
facid	adj	chan	lpclass	rrs	status	call	st	city	kW	da	haat	brg	km	req	Δ
54568	2	268B	B		LIC	WWBB	RI	PROVIDENCE	14	Y	290	56	14.34	67	-52.66
13806	2	264B	B		LIC	WZLX	MA	BOSTON	22	N	235	26	67.72	67	0.72
48547	1	265A	A		LIC	WKNL	CT	NEW LONDON	6	Y	99	236	70.68	56	14.68
29571	0	266A	A		LIC	WHYA	MA	MASHPEE	6	N	83	105	82.06	67	15.06
35240	0	266B	B		LIC	WGIR-FM	NH	MANCHESTER	12	N	313	355	131.99	112	19.99
29571	0	266A	A		CP	WHYA	MA	MASHPEE	2.9	N	141	97	91.74	67	24.74

Only WWBB is short spaced. A second adjacent interference waiver is requested. Full details supporting the waiver request follow.

[1] *The columns in the table include "lpclass," which is the class of the record as determined in accordance with the note to paragraphs a, b, and c in 73.807; "rrs," which indicates whether the station was listed as carrying a radio reading service on a subcarrier in 2000; "req," which is the separation required by 73.807; and "Δ" which is the margin over that required separation (a negative number here indicates a short spacing).*

Second Adjacent Channel Interference Waiver Request

Based on the FCC contour methodology and USGS03 terrain data, the WWBB signal at the proposed transmitter site is 85.36 dBu. 500 m beyond the site, the WWBB signal is 84.76 dBu. The allowable interfering signal levels are 115.36 dBu and 114.76 dBu, respectively.



The proposed antenna is a Shively 6812B, consisting of two bays spaced at 0.75 λ. A tabulation of the composite vertical pattern of this configuration follows, and the manufacturer's data sheet for one bay is attached.

The proposed signal strength is plotted in black. The allowable interfering signal is plotted in red. The maximum signal strength of 113.8 dBu is at least 10 dB below the allowable signal. A tabulation of the field strengths behind the above graph will be provided on request.

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The composite vertical pattern of the proposed antenna is as follows:

dangle	fld		dangle	fld		dangle	fld	
0	1.000	<-- max						
1	0.999		31	0.301		61	0.235	
2	0.996		32	0.270		62	0.236	
3	0.991		33	0.240		63	0.237	<-- max
4	0.985		34	0.209		64	0.236	
5	0.975		35	0.180		65	0.234	
6	0.965		36	0.151		66	0.232	
7	0.952		37	0.123		67	0.229	
8	0.938		38	0.095		68	0.225	
9	0.922		39	0.069		69	0.219	
10	0.904		40	0.044		70	0.214	
11	0.884		41	0.019		71	0.208	
12	0.864		42	0.004		72	0.201	
13	0.841		43	0.027		73	0.194	
14	0.817		44	0.048		74	0.186	
15	0.793		45	0.068		75	0.177	
16	0.767		46	0.087		76	0.168	
17	0.740		47	0.105		77	0.158	
18	0.711		48	0.122		78	0.148	
19	0.682		49	0.137		79	0.138	
20	0.652		50	0.152		80	0.127	
21	0.622		51	0.165		81	0.115	
22	0.591		52	0.177		82	0.104	
23	0.559		53	0.188		83	0.092	
24	0.527		54	0.197		84	0.080	
25	0.495		55	0.206		85	0.067	
26	0.463		56	0.214		86	0.055	
27	0.430		57	0.220		87	0.042	
28	0.397		58	0.225		88	0.028	
29	0.365		59	0.230		89	0.015	
30	0.333		60	0.233		90	0.000	

The vertical pattern of a single bay of the proposed antenna is attached.

Translator/ Booster Input Interference

There is one translator within 10 km of the proposed site, W229AN, FCC Facility ID # 156667. Two records exist, for a license ("LIC") and for a Construction Permit ("CP"). W229AM rebroadcasts AM station WSTL. In both records, it is fed terrestrially, and there is no possibility of interference from the proposal.

There are no FM Boosters within 50 km of the proposed site.

Form 318 Tech Box Data

Class	LP100
Channel	266
Coordinates (NAD-27)	41 47 55 N Lat 71 26 24 W Lon
ASR	1216375
Site Elevation AMSL	20 m
Overall Tower Height AGL	43 m
Radiation Center AGL	32 m
Power/height certification	YES
Environmental	YES - Exhibit 11 (This document)

Additional Information

Coordinates (NAD-83)	41 47 55.3 N Lat 71 26 22.4 W Lon
Height above average terrain	12 m (FCC online HAAT calculator, 360 radials)
Estimated ERP	100 W-H + 100 W-V
Antenna type	Omnidirectional
Manufacturer / Model	SHI 6812B-2-SS-0.75

International

The FM Agreements with Canada and Mexico require evaluation and potential coordination of any proposal within 320 km of the border.

The distance to the nearest point along the US/Canada border is 357 km. Coordination with Canada is not required.

The distance to the nearest point along the US/Mexico border is 2,933 km. Coordination with Mexico is not required.

Quiet Zones

The proposed site is outside the National Radio Quiet Zone (National Radio Astronomy Observatory Notification Area) in West Virginia.

The proposed site is outside the Arecibo Observatory notification area in Puerto Rico.

The proposed site is not within a 100 km extension of the Table Mountain Radio Receiving Zone in Colorado.

Protected Monitoring Stations

The nearest Protected Monitoring Station is 351 km distant, in Belfast, ME. This is well beyond any potential 80 dBu contour.

Environmental

The antenna will be mounted 32 m above ground on an existing 43 m tower, ASR # 1216375. No construction or excavation will be performed.

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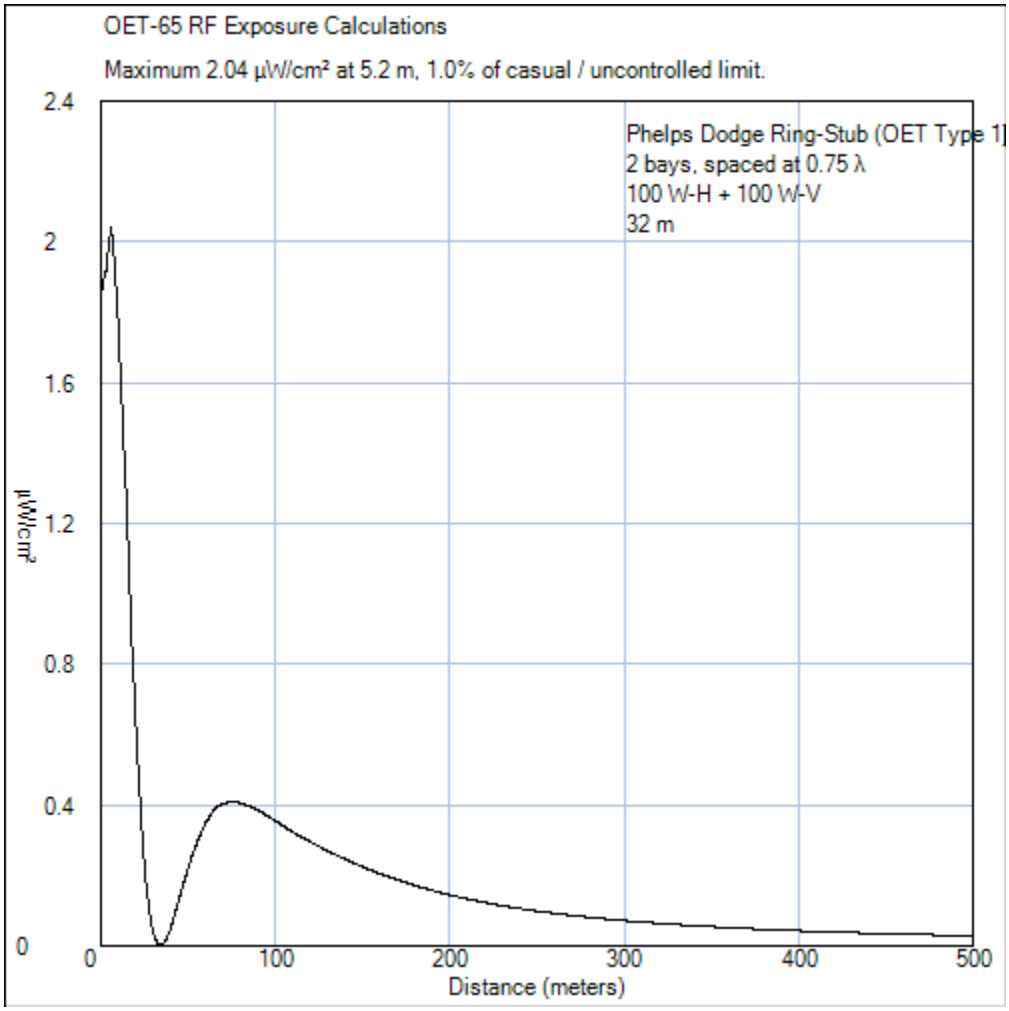
RF Exposure

The antenna will be mounted 32 m above ground. Based on the estimated 100 W ERP, the distance to the 200 µW/cm² limit for casual / uncontrolled exposure in the horizontal lobe of the antenna will be 5.8 m.



Assuming the worst-case antenna, OET Type 1, The maximum RF exposure using the formula in OET-65 is 2 µW/cm². This is 1% of the limit for casual / uncontrolled exposure. Any modern antenna will provide significantly lower exposure.

The site is an established RF communications platform with all appropriate safety measures in place. The applicant commits to providing any additional appropriate signage, and to temporarily suspending operations to protect workers on the tower.

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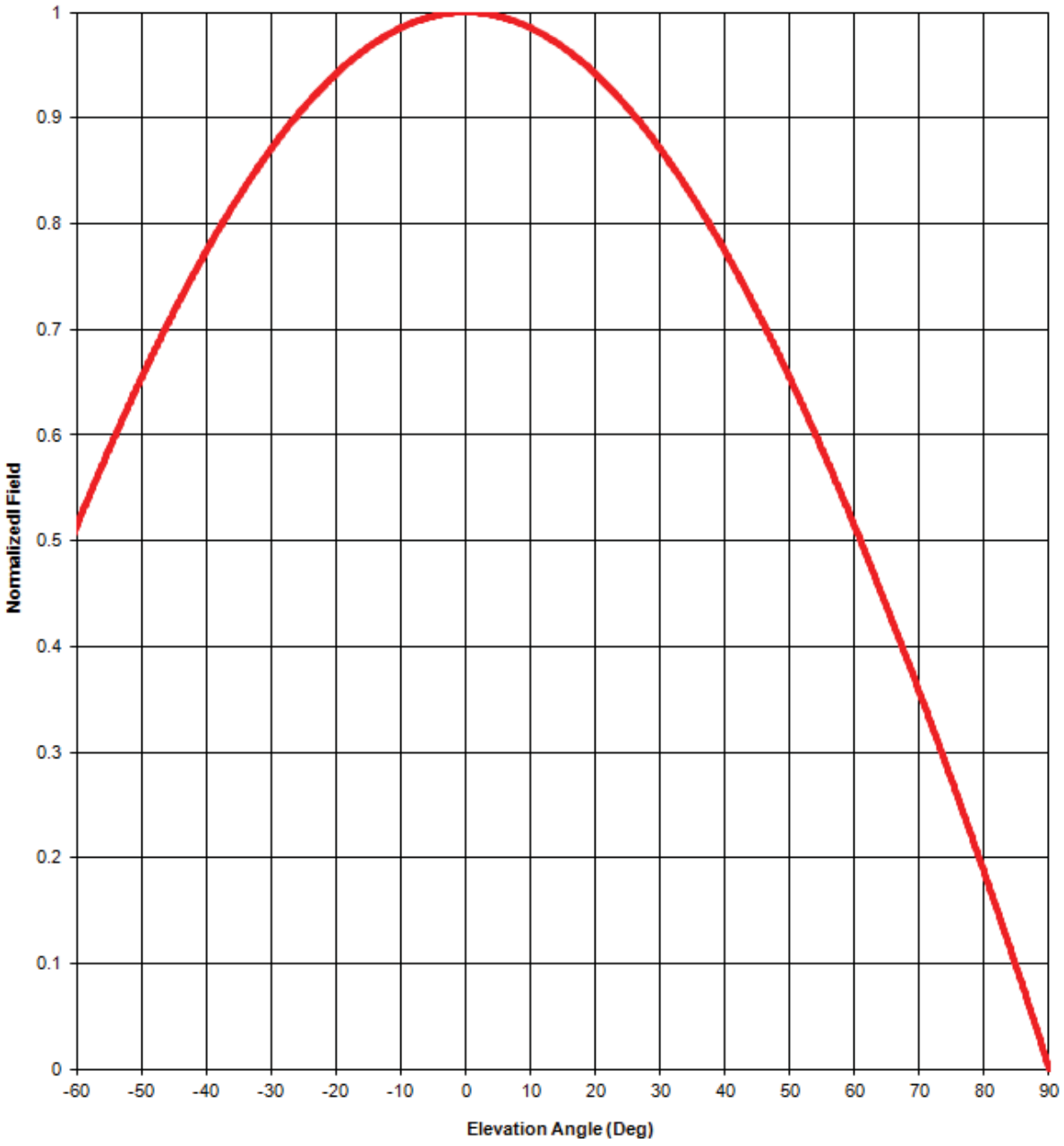
Elevation pattern



Antenna model: 6812b, single bay

Test frequency: 98.1 MHz

Gain (maximum):

Power	dB
0.46	-3.39 dB

Document No. 6812b 1-bay fw (130701)

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Degrees	Rel. Field
1	1.000
2	0.999
3	0.999
4	0.998
5	0.996
6	0.995
7	0.993
8	0.991
9	0.988
10	0.985
11	0.982
12	0.979
13	0.975
14	0.971
15	0.967
16	0.963
17	0.958
18	0.953

Degrees	Rel. Field
19	0.948
20	0.942
21	0.936
22	0.930
23	0.924
24	0.917
25	0.910
26	0.903
27	0.895
28	0.887
29	0.879
30	0.871
31	0.862
32	0.854
33	0.845
34	0.835
35	0.826
36	0.816

Degrees	Rel. Field
37	0.806
38	0.796
39	0.785
40	0.774
41	0.763
42	0.752
43	0.741
44	0.729
45	0.717
46	0.705
47	0.693
48	0.680
49	0.667
50	0.654
51	0.641
52	0.628
53	0.614
54	0.600

Degrees	Rel. Field
55	0.586
56	0.572
57	0.558
58	0.544
59	0.529
60	0.514
61	0.499
62	0.484
63	0.469
64	0.453
65	0.437
66	0.422
67	0.406
68	0.390
69	0.373
70	0.357
71	0.341
72	0.324

Degrees	Rel. Field
73	0.307
74	0.290
75	0.273
76	0.256
77	0.239
78	0.221
79	0.204
80	0.186
81	0.168
82	0.151
83	0.133
84	0.114
85	0.096
86	0.078
87	0.059
88	0.040
89	0.021
90	0.000

Elevation Pattern Tabulation

Antenna model: 6812b, single bay

Relative Field at 0° Depression = 1.000