

Technical Report Supporting a Minor Modification of a License Facility Construction Permit Application

Pursuant to 47 C.F.R. Section 73:

*WHA1(FM).L - Greenfield, MA
(Facility ID: 25833)*

*"Correction of HAAT &
Increase in Power"*

*2.4 kW at 111 meters HAAT
CH252A (98.3 MHz)*

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EXPLANATION OF PROPOSAL: This Minor Modification of a License Facility and accompanying Technical Report supports a Minor Construction Permit Application for FM station WHAI(FM) - Greenfield, MA (Facility ID: 25833). Diplexing with a concurrent, by not contingently filed, WRSI(FM) - Turners Falls, MA (Facility ID: 8775) proposed facility is requested. A new common antenna is proposed. Continued operation on CH252A (98.3 MHz), with a power of 2.4 kW ERP (Circular Polarization) is requested from an antenna height of 323.5 meters AMSL (111 meters HAAT). WHAI(FM) will continue to employ a non-directional antenna. WHAI(FM) will continue to serve the community of Greenfield, MA.

FACILITY COMPLIANCE SHOWINGS: A map of the proposed 60 dB μ service contour in relation to the present 60 dB μ service contour has been included in **Exhibit 1**. The proposed minor change service area will overlap a portion of the present service area as noted in the exhibit. In addition, this exhibit demonstrates city grade service of 3.16 mV/m, or 70 dB μ F(50:50), to at least 80% of the community of license¹. In this instance, 100% coverage of the community will be maintained.

A Longley-Rice coverage map of the proposed operation has been plotted in **Exhibit 2**. The applicant acknowledges this map has been provided for illustrative purposes only.

The proposed facility will be located on an existing 59 meter AGL tower which does not require Antenna Structure Registration. In support of this filing, a copy of USGS Topographic Aerial Photomapping of the existing tower site has been included in **Exhibit 3**. A depiction of the tower and antenna configuration has been included in **Exhibit 4**. Further notification to the FAA or ASR governing authorities is not required as this proposal will not increase the overall tower height.

The applicant would like to note use of the FCC's own Globe 1 km terrain database for the HAAT showings contained herein (<https://www.fcc.gov/media/radio/haat-calculator>). A copy of the proposed HAAT calculation has been included in **Exhibit 5**. In addition, the requested Former 3 kW Class A (§73.213(c) grandfathered) power of 2.4 kW ERP has been verified accurate for the proposed 111 meter HAAT value as noted in **Exhibit 5**.

As no change in frequency, class or community of license is proposed herein, the existing Special Allotment Reference Point remains valid and unchanged for this WHAI(FM) - Greenfield, MA; CH252A (98.3 MHz) filing. The coordinates of record represent a continued viable site location which meets both the current allocation restrictions and completely encompasses the community of license city limits with a 13.4 km Former 3 kW Class A city grade reference arc.

¹ John R. Hughes, 50 Fed. Reg. 5679 (Feb. 11, 1985) and *Letter to Southwest Communications, Inc.*, ref. 8920-HVT (MMB July 16, 1986) (80 percent city-grade signal coverage of community deemed substantial for compliance with 47 C.F.R. Section 73.315)

ALLOCATION COMPLIANCE SHOWINGS: Processing under 47 C.F.R. Section 73.213(c) as a Former 3 kW Class A Grandfathered Station is requested herein. The proposed full-service site will meet all Former 3 kW Class A spacing requirements of 47 C.F.R. Section 73.213(c) toward each allocation concern. A tabulation of the spacings toward each relevant allocation protection is found in ***Exhibit 6***.

The remainder of the information in this report is responsive to the Rules of the Commission, and provides the data for the FCC's online master LMS (Licensing and Management System) form.

ENVIRONMENTAL COMPLIANCE SHOWINGS: The proposed facility complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments as set forth under §1.1310 and/or §1.1307(b)(3) of the Commission's rules and the guidelines for RF radiation protection guidelines as set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01). Compliance has been demonstrated in the attached ***RF Appendix 1*** of this filing. The facility is, or will be, properly marked with signs. Entry is, or will be, restricted by means of fencing with locked doors or gates. In addition, coordination with other users of the site will be secured to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Regarding compliance with the NEPA, Nationwide Programmatic Agreement and NHPA Section 106 for tower co-location, compliance with the Agreement is not required where no new tower construction is being proposed and the tower is not being substantially altered. Specifically, compliance is not necessary where only an antenna is being replaced on an existing structure, as here. However, should the Commission determine compliance is necessary, upon notification to the applicant, the applicant will file FCC Form 621.

CERTIFICATION OF TECHNICAL CONSULTANT: *I declare, under penalty of perjury, that the contents of this report are true and accurate to the best of my knowledge and belief. I further certify I have over twenty-one years of experience as a broadcast technical consultant before the Federal Communications Commission ("the FCC"); and am familiar with the Code of Federal Regulations Title 47 ("the Rules") as pertaining to this report and its contents herein. The underlying data utilized in this report was taken directly from FCC databases or indirectly through third party software vendors securing data directly from FCC databases. This firm cannot be held liable for errors or omissions resulting from the underlying data. The information contained herein is believed accurate to the date reported below.*


Justin W. Asher, Technical Consultant

June 22, 2020

Exhibit 1

Service Contour Study: Present vs Proposed Operations

Proposed 60 dBμ F(50:50) Contour
Present 60 dBμ F(50:50) Contour

Proposed 70 dBμ F(50:50) Contour
Present 70 dBμ F(50:50) Contour

WHA1.P
Greenfield, MA
Proposed Operation
Facility ID: 25833
Latitude: 42-34-15.10 N
Longitude: 072-38-41.10 W
ERP: 2.40 kW
Channel: 252A (98.3 MHz)
AMSL Height: 323.5 m
Horiz. Pattern: Omni

70 dBμ F(50:50) Contour
Total Population: 51,372
Total Area: 698.1 sq. km

60 dBμ F(50:50) Contour
Total Population: 156,848
Total Area: 2,098.9 sq. km

WHA1.L
Greenfield, MA
BLH19910312KB
Facility ID: 25833
Latitude: 42-34-15.30 N
Longitude: 072-38-40.30 W
ERP: 2.00 kW
Channel: 252A (98.3 MHz)
AMSL Height: 324.0 m
Horiz. Pattern: Omni

70 dBμ F(50:50) Contour
Total Population: 48,565
Total Area: 638.3 sq. km

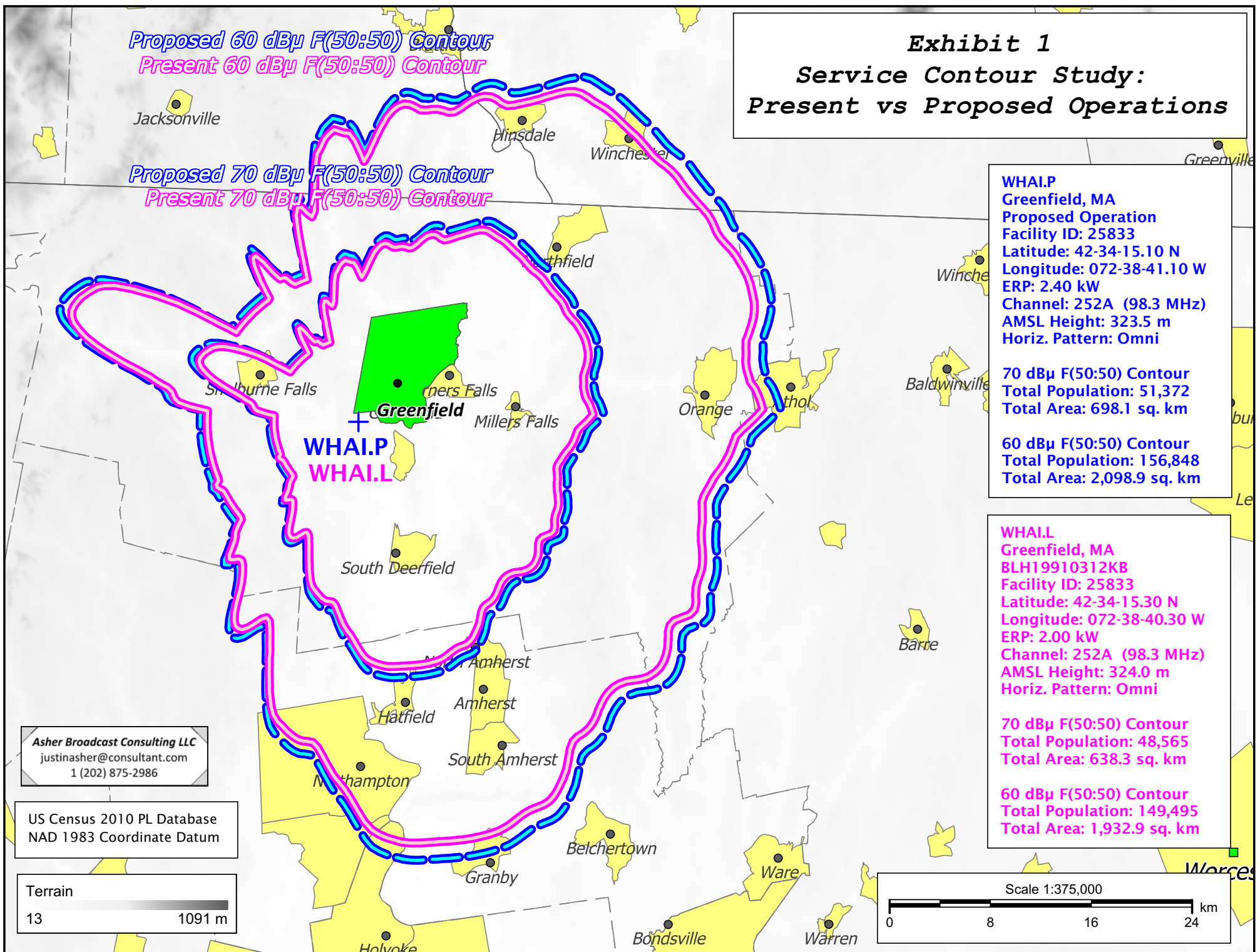
60 dBμ F(50:50) Contour
Total Population: 149,495
Total Area: 1,932.9 sq. km

Asher Broadcast Consulting LLC
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US Census 2010 PL Database
NAD 1983 Coordinate Datum

Terrain
13 1091 m

Scale 1:375,000
0 8 16 24 km

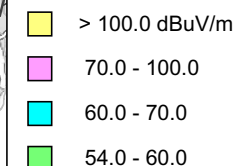


non-FCC-sanctioned coverage map
for illustrative purposes only

US Census 2010 PL Database
NAD 1983 Coordinate Datum

Exhibit 2

Service Contour Study: Proposed Longley-Rice Method



WHAIP
Greenfield, MA
Proposed Operation
Facility ID: 25833
Latitude: 42-34-15.10 N
Longitude: 072-38-41.10 W
ERP: 2.40 kW
Channel: 252A (98.3 MHz)
AMSL Height: 323.5 m
Horiz. Pattern: Omni
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 9.1 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

70 dBμ Longley-Rice Contour
Total Population: 127,077

60 dBμ Longley-Rice Contour
Total Population: 277,537

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Scale 1:750,000



V-Soft Communications LLC ©

The National Map Advanced Viewer

Exhibit 3 - Copy of USGS Topographic Aerial Photomap of Existing Site

#1: 959.6 ft/292.49 m

Site Coordinates

(NGS NADCON)

Latitude

Longitude

NAD 27 datum values: 42 34 14.79133

72 38 42.77560

NAD 83 datum values: 42 34 15.10000

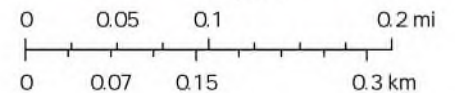
72 38 41.10000

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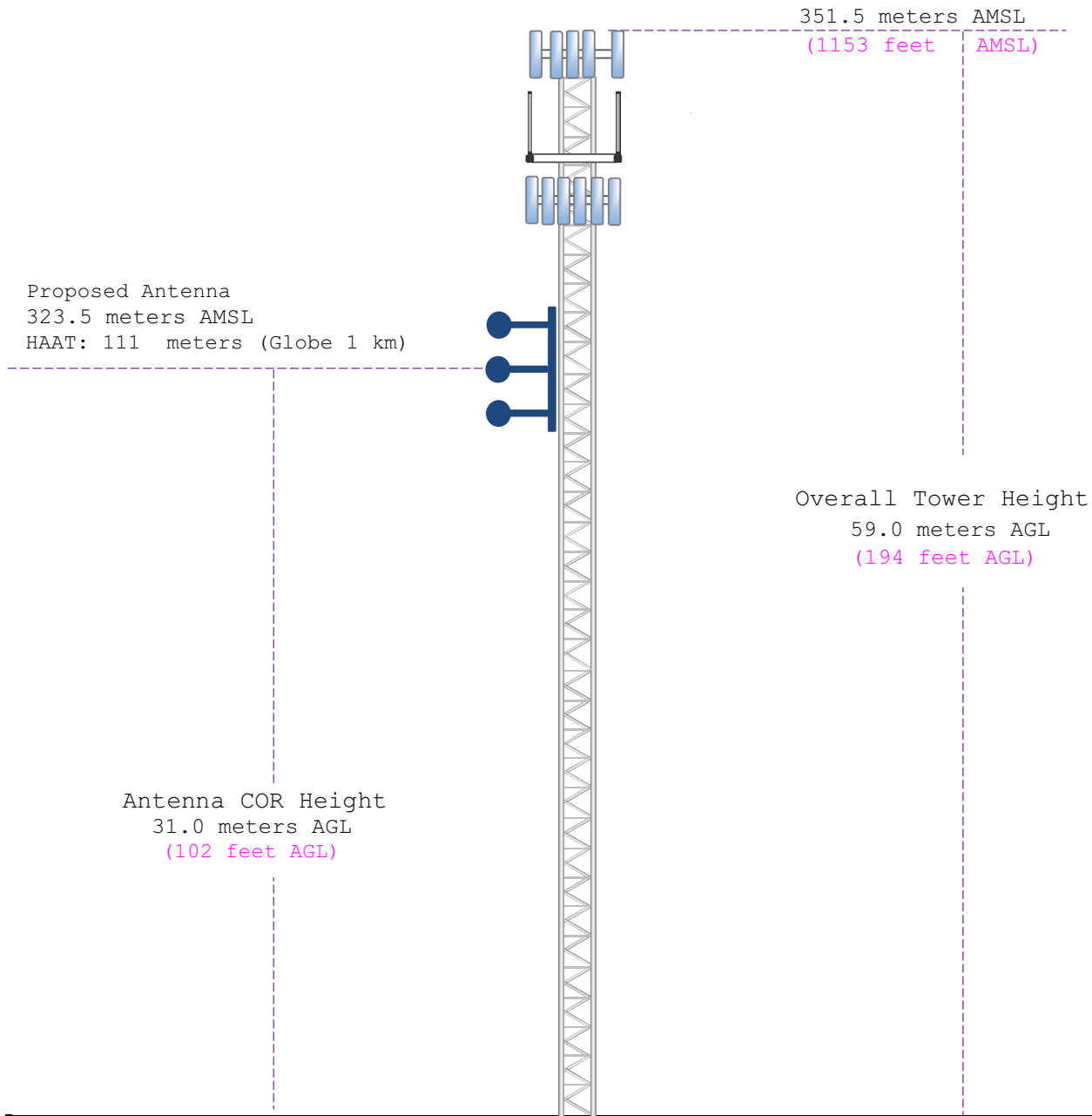
1:9,028



USGS The National Map: Orthoimagery and US Topo. Data refreshed

Exhibit 4

Vertical Plan of Antenna System



Ground Elevation: 292.5 meters AMSL (960 feet AMSL)		
Address: Off Old Albany Road		
City: Greenfield	<u>Latitude (D M S)</u> <u>Longitude (D M S)</u>	
County: Franklin	NAD 27 datum values: 42 34 14.79133 72 38 42.77560	
State: MASS	NAD 83 datum values: 42 34 15.10000 72 38 41.10000	
Antenna Structure Registration Not Required	Drawing Is Not To Scale	Asher Broadcast Consulting, LLC justinasher@consultant.com 1(202)875-2986

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1983): (FCC Globe 1 km Database)

Antenna Height Above Average Terrain Calculations – Results

Input Data

Latitude 42° 34' 15.1" North
Longitude 72° 38' 41.1" West (NAD 83)

Height of antenna radiation center above mean sea level: 323.5 meters AMSL

Number of Evenly Spaced Radials = 8 0° is referenced to True North

Results

Calculated HAAT = 111 meters

Antenna Height Above Average Terrain calculated using 1 km GLOBE terrain data

Individual "Radial HAAT" Values, in meters

0°	94.7 m
45°	219.8 m
90°	224.9 m
135°	195.4 m
180°	168.8 m
225°	22.8 m
270°	-7.4 m
315°	-29.0 m

FMpower Results

Section 73.213(c) grandfathered 3 kW Class A facilities for equivalency determination:
Reference ERP = 3.000 kW ERP
Reference HAAT= 100 meters HAAT
E(50.50) 60 dBu protected contour at 2.4 km distance

Equivalent ERP = 2.400 kilowatts (kW)
(rounded per 47 CFR 73.212)

Unrounded ERP = 2.41 kW for 111 meters HAAT

Class A FM stations are authorized throughout the United States.

NAD 1983 to NAD 1927 Conversion:

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum values:	42 34 14.79133	72 38 42.77560
NAD 83 datum values:	42 34 15.10000	72 38 41.10000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	42.5708611°, -072.6447500°
Degrees Minutes	42°34.25167', -072°38.68500'
Degrees Minutes Seconds	42°34'15.1000", -072°38'41.1000"
UTM	18T 693307mE 4715850mN
UTM centimeter	18T 693307.82mE 4715850.07mN
MGRS	18TXN9330715850
Grid North	1.6°
GARS	215MB48
Maidenhead	FN32QN27PA11
GEOREF	HJCN21313425

Exhibit 6

Tabulation of Proposed Former 3 kW Class C Spacings

(C.F.R. Section 73.213(c) Grandfathered Commercial Spacings)

Saga Communications Of New England, LLC

REFERENCE		DISPLAY DATES
42 34 15.10 N.	CLASS = A Int = A	DATA 06-19-20
72 38 41.10 W.	Former Spacings to 3rd Adj.	SEARCH 06-19-20
----- Channel 252 - 98.3 MHz -----		

Call	Channel	Location	Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power	HAAT		
WHA1	LIC 252A	Greenfield	MA 71.2	0.01	104.5	-104.5
42 34 15.3	72 38 40.3		2.000 kW	123 M		
Saga Communications Of New England Public Media, BLH19910312KB						
WILI-FM	LIC 252A	Willimantic	CT 160.1	104.76	104.5	0.26
41 41 00.4	72 12 55.3		1.050 kW	160 M		
Hall Communications, Inc. BMLH20170428AAV						
WLNH-FM	LIC-Z 252C3	Laconia	NH 44.2	147.85	137.5	10.4
43 31 01.3	71 22 07.3	Z	0.700 kW	547 M		
Wbin Media Co., Inc. BLH20130109ACA						
WNNI	LIC-N 255A	Adams	MA 292.6	37.23	26.5	10.7
42 41 54.2	73 03 52.3	N	1.450 kW	159 M		
New England Public Media, BLED20151014ADK						
WJJR	LIC 251C2	Rutland	VT 353.0	115.74	104.5	11.2
43 36 17.2	72 49 12.3		1.150 kW	790 M		
6 Johnson Road Licenses, I BMLH19860411KF						
WTRY-FM	LIC 252A	Rotterdam	NY 279.9	118.37	104.5	13.9
42 44 43.2	74 04 08.4		6.000 kW	97 M		
Capstar Tx, LLC BLH19970326KC						
WTRY-FM	LIC 252A	Rotterdam	NY 279.9	118.37	104.5	13.9
42 44 43.2	74 04 08.4		6.000 kW	97 M		
Capstar Tx, LLC BLH19970326KC						
WBZ-FM	LIC 253B	Boston	MA 103.6	120.53	104.5	16.0
42 18 27.3	71 13 25.1		9.000 kW	349 M		
Beasley Media Group Licens BLH19900131KB						
WINQ-FM	LIC 254A	Winchester	NH 33.6	46.14	26.5	19.6
42 54 57.3	72 19 51.3		2.150 kW	169 M		
Saga Communications Of New England Public Media, BLH20090901AFA						
WSNI	LIC 249A	Keene	NH 33.6	46.14	26.5	19.6
42 54 57.3	72 19 51.3		2.150 kW	169 M		
Saga Communications Of New England Public Media, BLH20090901AFG						
WKZE-FM	LIC-Z 251A	Salisbury	CT 226.8	105.37	63.5	41.9
41 55 08.3	73 34 20.4	Z	1.800 kW	184 M		
Willpower Radio, L.L.C. BLH19920911KD						
WCTW	LIC 253A	Catskill	NY 247.6	106.31	63.5	42.8
42 12 03.3	73 50 07.5		4.700 kW	114 M		
Ihm Licenses, LLC BLH19970616KA						

Reference station has protected zone issue: Canada
All separation margins include rounding