

TECHNICAL EXHIBIT
APPLICATION FOR AUXILIARY ANTENNA
STATION WBUR-FM
BOSTON, MASSACHUSETTS
CH 215B 40 KW 76 M

Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an application for use of a former main antenna as an auxiliary antenna for station WBUR-FM, channel 215B at Boston, Massachusetts. WBUR-FM has just been granted a license to operate with 12.0 kilowatts effective radiated power (ERP) at an antenna height above average terrain (HAAT) of 305 meters employing a directional antenna (BLED-20050812AGN). By means of this application, WBUR-FM proposes to use a formerly licensed main facility (BLED-1564) as an auxiliary facility. Specifically, auxiliary operation is proposed on channel 215B from the formerly licensed main transmitter site atop the Law/Education Building at 765 Commonwealth Avenue in Boston.

Auxiliary Facility Specifications, Compliance With Section 73.1675(a)

It is proposed to operate the auxiliary facility with an effective radiated power (ERP) of 40 kW (circular polarization), using the former main station antenna and transmitter. Other than a reduction in power, no changes in the former main station facility are proposed. For reference, the former main station license is attached as Appendix 1. Based on the antenna height and ERP, the distance to the predicted 60 dBu contour for the auxiliary facility does not exceed the distance to the main station 60 dBu contour at any bearing, except where the two contours lie over the Atlantic Ocean. Figure 1, attached, is a map that demonstrates that the proposed auxiliary facility complies with the provisions of Section 73.1675(a).

Environmental Considerations

The proposed WBUR-FM auxiliary facilities were evaluated in terms of potential radiofrequency radiation exposure in accordance with the OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to

Radiofrequency Radiation”. The auxiliary facility, will make use of the existing 6-bay, Gates FMS-6 circularly polarized FM antenna. The antenna is mounted on a mast on top of the building with radiation center at 97 meters (317 feet) above ground level (ASR#1028570). No other RF radiators are located at the site. A vertical sketch of the former main station facility is attached as Appendix 2; a vertical plane radiation pattern for the antenna is attached as Appendix 3. As can be seen from the vertical plane radiation pattern, the antenna relative field factor at angles below the main beam is greatest at angles directed nearly downward from the antenna (at angles from 65° to 90° below the main beam of the antenna). Using a “worst-case” relative field factor of 0.75, a maximum ERP of 80 kW (40 kW horizontal/40 kW vertical) and Equation 8 on page 22 of OET Bulletin 65 (Edition 97-01, August 1997), the predicted radiofrequency radiation (RFR) level at 2 meters above ground level at the base of the building is calculated to be 82 percent of the FCC limit for uncontrolled environments. This value is calculated based on the assumption that line-of-sight exists between the antenna and the ground; actual RFR levels are predicted to be much less than this value since the building rooftop obstructs the FM signal at these angles.

At angles between 8° and 60° below the antenna main beam, the antenna relative field is 0.25 or less. At these angles, calculated “worst-case” RFR levels fall below the uncontrolled environment guidelines at distances greater than 27 meters (90 feet) from the antenna. In the main beam of the antenna (relative field factor of 1.0), calculated “worst-case” RFR levels fall below the FCC uncontrolled environment guideline at distances greater than 114 meters (375 feet) from the antenna. Based on information from WBUR-FM’s chief engineer, other than on the roof of or inside the Law/Education Building, there are no areas accessible to the general public within these distances.

On the roof of the Law/Education Building, the calculated RFR levels are predicted to exceed both the FCC uncontrolled environment guideline and FCC controlled environment guideline. WBUR-FM’s chief engineer certifies that access to the rooftop of the building is restricted by means of locked doors and RFR warning signs are posted at all access points. Authorized persons can only access the rooftop of the building by obtaining permission from either WBUR-FM’s chief engineer or

from the Boston University Safety Office. In the unusual event authorized personnel require access to the rooftop during the limited time when the auxiliary facility is transmitting, the station certifies that it will cease operations or take other measures to assure that no RFR exposure in excess of FCC guidelines occurs. Other measures include reducing the average exposure by spreading out the work over a longer period of time, wearing “accepted” RFR protective clothing and/or RFR exposure monitors or scheduling work when the station is at reduced power.

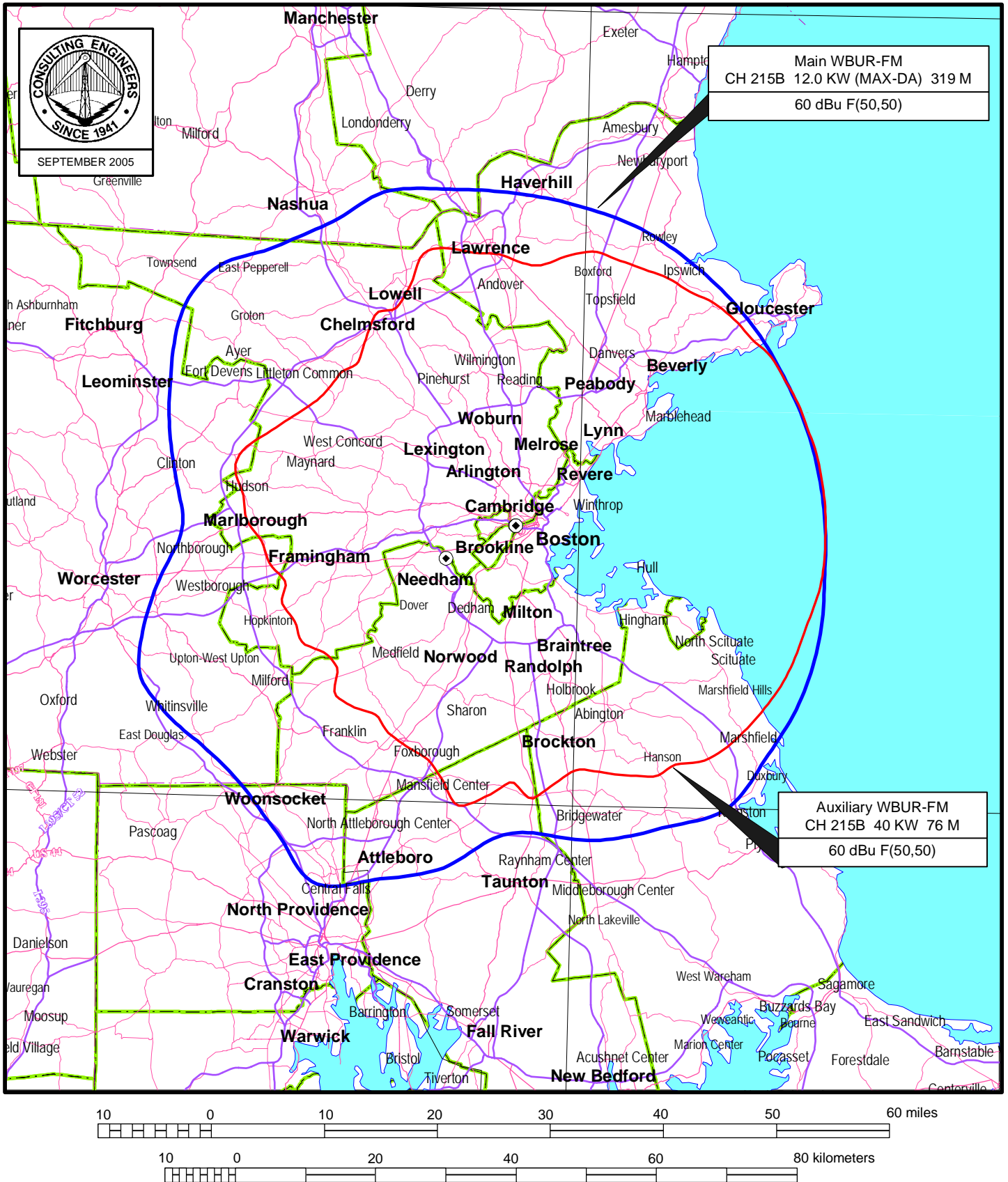
According to WBUR-FM’s chief engineer, inside the Law/Education Building past RFR measurements, made when the main station was operating at 50 kW, showed that RFR levels were negligible with respect to human exposure guidelines. Therefore, it is concluded that at no location will human exposure to RFR exceed the FCC guidelines, either for uncontrolled or controlled environments.

David E. Dickmann

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, FL 34237-6019
(941) 329-6000

September 7, 2005

Figure 1



MAIN AND AUXILIARY 60 DBU CONTOURS

RADIO STATION WBUR-FM (AUXILIARY)
BOSTON, MASSACHUSETTS
CH 215B 40 KW 76 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Appendix 1
Copy of Former Main Station License
(BLED-1564)

United States of America
FEDERAL COMMUNICATIONS COMMISSION
NON-COMMERCIAL EDUCATIONAL FM
FM BROADCAST STATION LICENSE

File No. BLED-1564

Call Sign: WBUR

Subject to the provisions of the Communications Act of 1934, as amended, treaties, and Commission Rules, and further subject to conditions set forth in this license, the LICENSEE

THE TRUSTESS OF BOSTON UNIVERSITY

is hereby authorized to use and operate the radio transmitting apparatus hereinafter described for the purpose of broadcasting for the term ending 3 a.m. Local Time: April 1, 1978

The licensee shall use and operate said apparatus only in accordance with the following terms:

1. Frequency (MHz) : 90.9
2. Transmitter output power : 16 kw
3. Effective radiated power : 50 kw (H&V)
4. Antenna height above
average terrain (feet) : 250 (H&V)
5. Hours of operation : Unlimited
6. Station location : Boston, Massachusetts
7. Main studio location : 640 Commonwealth Avenue
Boston, Massachusetts
8. Remote Control point : 640 Commonwealth Avenue
Boston, Massachusetts
9. Antenna & supporting structure: North Latitude: 42 ° 21 ' 03 "
West Longitude: 71 ° 06 ' 27 "
GATES FMS-6, 6 sections (H&V), side mounted on a guyed tower on the roof of the
Law-Education Building, 765 Commonwealth Ave., Boston, Mass. Overall height
above ground: 344 feet.
10. Transmitter location : Law-Educ. Bldg., Boston University
765 Commonwealth Avenue
Boston, Massachusetts
11. Transmitter(s) : Gates FM 20H-3

12. Obstruction markings specifications in accordance with the following paragraphs of FCC Form 715: NONE REQUIRED
13. Conditions:

The Commission reserves the right during said license period of terminating this license or making effective any changes or modification of this license which may be necessary to comply with any decision of the Commission rendered as a result of any hearing held under the rules of the Commission prior to the commencement of this license period or any decision rendered as a result of any such hearing which has been designated but not held, prior to the commencement of this license period.

This license is issued on the licensee's representation that the statements contained in licensee's application are true and that the undertakings therein contained so far as they are consistent herewith, will be carried out in good faith. The licensee shall, during the term of this license, render such broadcasting service as will serve public interest, convenience, or necessity to the full extent of the privileges herein conferred.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequency designated in the license beyond the term hereof, nor in any other manner than authorized herein. Neither the license nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This license is subject to the right of use or control by the Government of the United States conferred by section 606 of the Communications Act of 1934.

✓ This license consists of this page and pages ---

Dated: September 29, 1976

hlc

FEDERAL
COMMUNICATIONS
COMMISSION



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Appendix 2
Vertical Sketch of Former Main Station
and Proposed Auxiliary Station

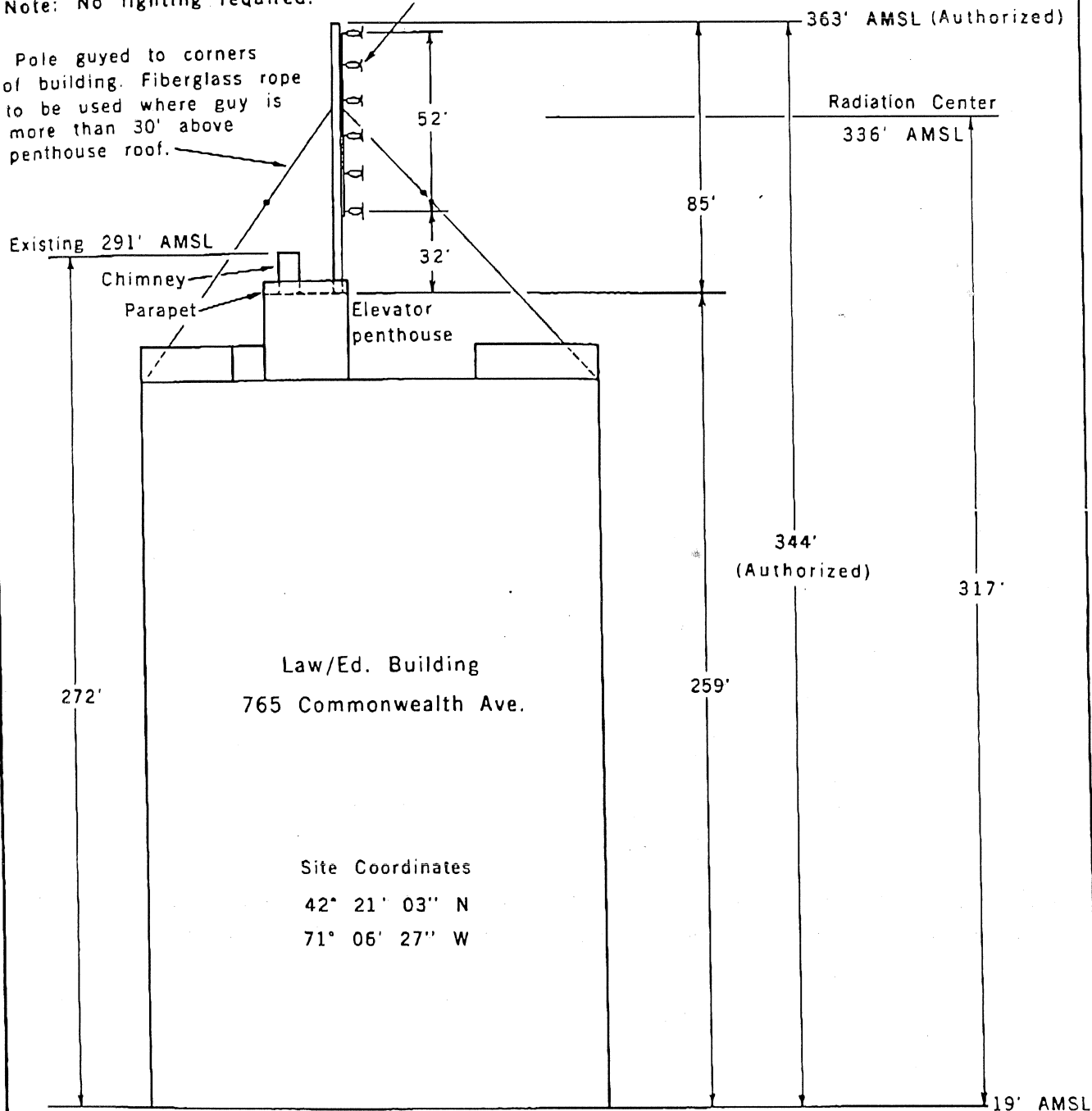
JULY 1975

JULY 1975

Proposed
Gates type FMS-6
antenna

Note: No lighting required.

Pole guyed to corners
of building. Fiberglass rope
to be used where guy is
more than 30' above
penthouse roof.



PROPOSED FM ANTENNA AND SUPPORTING STRUCTURE

THE TRUSTEES OF BOSTON UNIVERSITY
STATION WBUR BOSTON, MASSACHUSETTS
CH 215 50 KW 250 FT

Jules Cohen & Associates Consulting Electronics Engineers

Appendix 3
Antenna Vertical Plane Radiation Pattern

ELECTRONICS RESEARCH, INC.
108 MARKET STREET
NEWBURGH, IN. 47630

-----THEORETICAL-----
VERTICAL PLANE RELATIVE FIELD

6 DUAL CYCLOID ELEMENTS WITH 0 DEGREE(S) BEAM TILT
0 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL

ELEMENT SPACING:
1 WAVELENGTH

8/1/88

FIGURE 100

