

TECHNICAL EXHIBIT
APPLICATION FOR FM CONSTRUCTION PERMIT
FM TRANSLATOR W226BI
MERIDIAN, MISSISSIPPI
CH 226D 0.075 KW

Technical Narrative

This Technical Exhibit was prepared in support of an application for construction permit for a FM translator station W226BI at Meridian, Mississippi. W226BI is currently licensed to operate with an effective radiated power (ERP) of 150 watts (BLFT-20100608AEC). This application proposes to modify the transmitter site, as the present transmitter site is no longer available. Therefore, this application is classified as a minor change as there will be contour overlap with the present and proposed 60 dBu contours. The translator will remain a fill-in translator for WMER(AM) at Meridian, Mississippi.

Meridian, Mississippi is considered a rural market and therefore no consideration of the LPFM impact is required.

Tower Registration

The proposed antenna supporting structure is the former analog WGBC(TV) facility, which is assigned antenna structure registration number 1212542. This tower has an overall tower height of 405 feet. The proposed radiation center will be 375 feet above ground level.

Predicted Coverage Contour

The predicted 60 dBu coverage contour was calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km from the proposed site were computed using the N.G.D.C. 30-second terrain database. The distances to the predicted 60 dBu coverage contour for the proposal was determined using the average elevations of radials spaced every 30-degrees of azimuth. It is proposed to use an ERI 2-bay 0.75 wave length spaced transmitting antenna. The antenna radiation center height above average terrain and the ERP in each radial direction were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to the contour. Figure 1 is a map showing the predicted 60 dBu coverage contour of the proposed translator facility.

The presently licensed 60 dBu contour is also shown on the map to indicate this is a minor change application.

Allocation Considerations

Toward all licensed and authorized stations, there is no prohibited contour overlap predicted except toward WQST-FM on Channel 223C0 at Forest, Mississippi.

The protected 60 dBu contour of WQST-FM receives overlap from the proposed W226BI 100 dBu interfering contour. However, using the ratio method, no actual interference is predicted to WQST-FM at ground level. The FCC propagation curves predict that WQST-FM has a field strength of 62 dBu at the proposed transmitter site. Applying a 40 dB desired-to-undesired ratio, the proposed facility does not cause interference to population within the 102 dBu for WQST-FM.

Employing the actual vertical antenna pattern to calculate the extent of the 102 dBu interfering contour, it can be predicted that this field or greater would not even exist at ground level and therefore there is no population within this interference area as permitted

by Section 74.1204(d) of the Commission's Rules. Using the ERI 2 bay, 0.75 wavelength spaced transmitting antenna specifications provided in the herein Appendix, it is calculated in Table 1 that the greatest field predicted at ground level is 108 dBu, below the 109 dBu "worst-case" value.

Depression Angle from Transmitting Antenna	Maximum Relative Field (Appendix)	Minimum Distance ground level (m) ¹	Predicted Field at Ground Level (dBu)
90°	0.10	114	95.7
80°	0.18	115	100.3
70°	0.25	121	101.9
60°	0.25	131	101.4
55°	0.22	139	100.0
50°	0.16	149	96.3
45°	0.08	161	92.7
40°	0.04	177	91.8
35°	0.18	199	92.0
30°	0.34	227	99.2
25°	0.50	270	101.7
20°	0.65	333	101.9
15°	0.80	441	100.9
10°	0.91	656	98.4
5°	0.98	1310	93.1

Table 1. Predicted Ground Level Field Strength Using Proposed 2-Bay 0.75wavelength spaced Antenna Vertical Pattern.

Radio Frequency Exposure Analysis

The proposal is categorically excluded from environmental processing, as an existing tower site is to be employed, and the proposal complies with the FCC Rules concerning human exposure to radio frequency (RF) energy. The proposal will not exceed 2 percent of the RF exposure limit for general population/uncontrolled environments for the frequency proposed. The calculation of RF energy at ground level was made under the procedures of OET Bulletin No. 65.² The formula employed is as follows:

¹ Assumes uniform terrain around the proposed supporting structure.

² Federal Communications Commission OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01, August 1997).

$$S = \frac{(33.4)F^2P}{R^2}$$

Where, S = power density in $\mu\text{W}/\text{cm}^2$, F = relative field factor at the angle to the calculation point, P = the total effective radiated power relative to a dipole in watts, and R = distance from the antenna radiation center to the calculation point in meters. Based on the conservative assumption of a relative field factor of 1.0 with a total effective radiated power of 150 watts (horizontal and vertical polarization), and an antenna radiation center height above ground of 114 meters, the calculated power density will not exceed $1 \mu\text{W}/\text{cm}^2$. Therefore, the calculated RF exposure at ground level will not exceed 5 percent of the limit of $200 \mu\text{W}/\text{cm}^2$ for an uncontrolled electromagnetic environment. As the predicted exposure contribution is less than five percent, consideration of other emitters is not necessary.

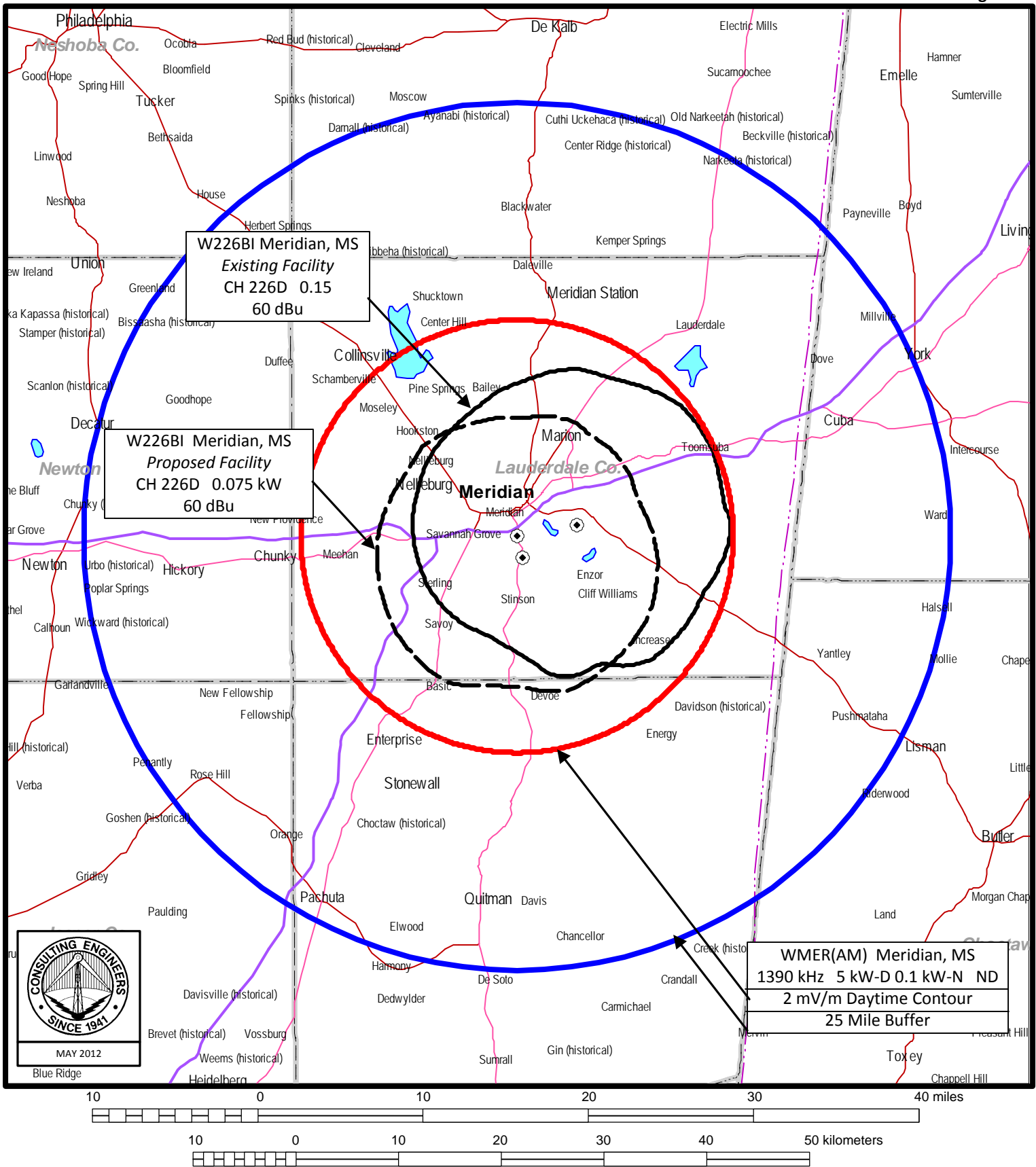
The transmitter site shall be restricted from access. In the event that personnel are required to climb the structure, the proposed FM translator transmissions shall be reduced or terminated as necessary to prevent RF exposure above the FCC recommended limits.

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Figure 1



FCC PREDICTED COVERAGE CONTOURS

FM TRANSLATOR W226BI

MERIDIAN, MISSISSIPPI

CH 226D 0.075 KW

du Treil, Lundin & Rackley, Inc Sarasota, Florida

APPENDIX

PROPOSED TRANSMITTING ANTENNA VERTICAL PLANE ELEVATION PATTERN

ELECTRONICS RESEARCH, INC.
7777 GARDNER ROAD
CHANDLER, IN. 47610

FIGURE 1

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

2 ERI SERIES 100 ELEMENTS
0 DEGREE(S) ELECTRICAL BEAM TILT
0 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL

DECEMBER 15, 2011

ELEMENT SPACING:
0.75 WAVELENGTH

POWER GAIN IS .850 IN THE HORIZONTAL PLANE(.850 IN THE MAX.)

