

# ENGINEERING EXHIBIT

## Application to Modify an FM Auxiliary Antenna Construction Permit

prepared for

**Lincoln Financial Media Company of Florida**

WAXY-FM Miramar, Florida

Facility ID 29567

Ch. 282C1 (Auxiliary) 35.8 kW 184.4 m

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FCC Form 301, Section III-B – FM Engineering

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*This material supplies a "hard copy" of the engineering portions of this application as entered June 25, 2013 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's name and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.*

**Section III-B - FM Engineering**

**TECHNICAL SPECIFICATIONS**

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

**TECH BOX**

1.	Channel Number: 282
2.	Class (select one): <input type="radio"/> A <input type="radio"/> B1 <input type="radio"/> B <input type="radio"/> C3 <input type="radio"/> C2 <input checked="" type="radio"/> C1 <input type="radio"/> C0 <input type="radio"/> C <input type="radio"/> D
3.	Antenna Location Coordinates: (NAD 27)  Latitude: Degrees 25 Minutes 59 Seconds 09 <input checked="" type="radio"/> North <input type="radio"/> South  Longitude: Degrees 80 Minutes 11 Seconds 37 <input checked="" type="radio"/> West <input type="radio"/> East
4.	Proposed Allotment or Assignment Coordinates: (NAD 27) <input checked="" type="checkbox"/> Not Applicable  Latitude: Degrees Minutes Seconds <input type="radio"/> North <input type="radio"/> South  Longitude: Degrees Minutes Seconds <input type="radio"/> West <input type="radio"/> East
5.	Antenna Structure Registration Number: 1224225 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA
6.	Overall Tower Height Above Ground Level: 310.6meters
7.	Height of Radiation Center Above Mean Sea Level: 186.3 meters(H)    186.3 meters(V)
8.	Height of Radiation Center Above Ground Level: 182.9meters(H)    182.9meters(V)
9.	Height of Radiation Center Above Average Terrain: 184.4meters(H)    184.4meters(V)
10.	Effective Radiated Power: 35.8 kW(H)    35.8 kW(V)
11.	Maximum Effective Radiated Power: <input checked="" type="checkbox"/> Not Applicable (Beam-Tilt Antenna ONLY)    kW(H)    kW(V)
12.	Directional Antenna Relative Field Values: <input checked="" type="checkbox"/> Not applicable (Nondirectional) Rotation (Degrees): <input type="checkbox"/> No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0		10		20		30		40		50	
60		70		80		90		100		110	
120		130		140		150		160		170	
180		190		200		210		220		230	
240		250		260		270		280		290	
300		310		320		330		340		350	
Additional Azimuths											

[Relative Field Polar Plot](#)

**NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.**

**CERTIFICATION**

**AUXILIARY ANTENNA APPLICANTS ARE NOT REQUIRED TO RESPOND TO ITEMS 13-16. PROCEED TO ITEM 17.**

<p>13. <b>Availability of Channels.</b> The proposed facility complies with the allotment requirements of 47 C.F.R. Section 73.203.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 27]</p>
<p>14. <b>Community Coverage.</b> The proposed facility complies with 47 C.F.R. Section 73.315.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 28]</p>
<p>15. <b>Main Studio Location.</b> The proposed main studio location complies with 47 C.F.R. Section 73.1125.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 29]</p>
<p>16. <b>Interference.</b> The proposed facility complies with all of the following applicable rule sections: Check all those that apply:</p> <p><b>Separation Requirements.</b> <input type="checkbox"/> a) 47 C.F.R. Section 73.207</p> <p><b>Grandfathered Short-Spaced.</b></p> <p><input type="checkbox"/> b) 47 C.F.R. Section 73.213(a) with respect to station(s): [Exhibit 31] <b>Exhibit required</b></p> <p><input type="checkbox"/> c) 47 C.F.R. Section 73.213(b) with respect to station(s): [Exhibit 32] <b>Exhibit required</b></p> <p><input type="checkbox"/> d) 47 C.F.R. Section 73.213(c) with respect to station(s): [Exhibit 33] <b>Exhibit required.</b></p> <p><b>Contour Protection</b></p> <p><input type="checkbox"/> e) 47 C.F.R. Section 73.215 with respect to station(s): [Exhibit 34] <b>Exhibit required.</b></p>	<p><input type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 30]</p>
<p>17. <b>Environmental Protection Act.</b> The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine compliance through the use of the RF worksheets in Appendix A, an <b>Exhibit is required.</b></p> <p>By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>See Explanation in [Exhibit 35]</p>

	electromagnetic exposure in excess of FCC guidelines.	
18.	<b>Community of License Change - Section 307(b).</b> If the application is being submitted to change the facility's community of license, then the applicant certifies that it has attached an exhibit containing information demonstrating that the proposed community of license change constitutes a preferential arrangement of station assignments under Section 307(b) of the Communications Act of 1934, as amended (47 U.S.C. Section 307(b)).  <b>An exhibit is required</b> unless this question is not applicable.	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A  [Exhibit 36]
<b>PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.</b>		

### SECTION III - PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name RICHARD H. MERTZ		Relationship to Applicant (e.g., Consulting Engineer) CONSULTANT	
Signature		Date 06/25/2013	
Mailing Address CAVELL, MERTZ & ASSOCIATES, INC. 7732 DONEGAN DRIVE			
City MANASSAS	State or Country (if foreign address) VA	Zip Code 20109 -	
Telephone Number (include area code) 7033929090	E-Mail Address (if available) RMERTZ@CAVELLMERTZ.COM		

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

#### Exhibits

##### Exhibit 27

**Description:** WAXY-FM AUXILIARY ANTENNA EXHIBIT 27

EXHIBIT 27 CONTAINS STATEMENT A, NATURE OF THE PROPOSAL, ALLOCATION CONSIDERATIONS; AND FIGURE 1. EXPEDITED PROCESSING OF THE INSTANT APPLICATION IS RESPECTFULLY REQUESTED ON BEHALF OF THE APPLICANT.

##### Attachment 27

#### Description

[WAXY-FM Auxiliary Antenna Exhibit 27](#)

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**Exhibit 28**

**Description:** WAXY-FM AUXILIARY ANTENNA EXHIBIT 28

PLEASE SEE EXHIBIT 27

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**Attachment 28**

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**Exhibit 29**

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**Attachment 29**

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**Exhibit 35**

**Description:** WAXY-FM AUXILIARY ANTENNA EXHIBIT 35

EXHIBIT 35 CONTAINS A TABLE OF CONTENTS; THE ENGINEERING PORTIONS OF THE FORM; STATEMENT B, ENVIRONMENTAL CONSIDERATIONS; AND FIGURE 2.

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**Attachment 35**

**Description**

[WAXY-FM Auxiliary Antenna Exhibit 35](#)

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Exhibit 35 - Statement B  
**ENVIRONMENTAL CONSIDERATIONS**  
prepared for  
**Lincoln Financial Media Company of Florida**  
WAXY-FM Miramar, Florida  
Facility ID 29567  
Ch. 282C1 (Auxiliary) 35.8 kW 184.4 m

**Introduction**

The instant proposal is not believed to have a significant environmental impact as defined under §1.1306 of the Commission's Rules. Consequently, preparation of an Environmental Assessment is not required.

*Lincoln Financial Media Company of Florida* herein proposes to construct an auxiliary antenna facility at the WAXY-FM main transmitter site currently under construction. A non-directional FM transmitting antenna will be employed and side mounted on an existing tower structure with the Antenna Structure Registration Number 1224225.

The use of existing tower structure has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. No change in structure height is proposed, thus no change in current structure marking and lighting requirements is anticipated. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

**Human Exposure to Radiofrequency Electromagnetic Field**

The proposed operation was evaluated for human exposure to radiofrequency electromagnetic field using the procedures outlined in the Commission's OET Bulletin 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility exceeds the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the cited adopted guidelines.

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**ENVIRONMENTAL CONSIDERATIONS**  
(Page 2 of 3)

The WAXY-FM auxiliary antenna center of radiation will be 182.9 meters above ground level. An effective radiated power of 35.8 kilowatts, circularly polarized, will be employed utilizing an ERI model SHPX-4BC-HW-SP non-directional FM antenna. The vertical plane relative field pattern reaches a maximum of 20 percent (from -25° to -90° below the horizontal) as shown in the attached **Exhibit 35-Figure 2** and is employed for this calculation. The “uncontrolled/general population” limit specified in §1.1310 for FM Channel 282 (104.3 MHz) is 200  $\mu\text{W}/\text{cm}^2$ . The formula used for calculating signal density in this analysis is essentially the same as equation (10) in OET 65.

$$S = (33.4098) (F^2) (ERP) / D^2$$

Where:

- S = power density in microwatts/cm<sup>2</sup>
- ERP = total (average) ERP in Watts
- F = relative field factor
- D = distance in meters

Using this formula and the above assumptions, the proposed facility would contribute a power density of 2.9  $\mu\text{W}/\text{cm}^2$  at two meters above ground level near the antenna support structure, or 1.45 percent of the general population/uncontrolled limit.

§1.1307(b)(3) states that facilities are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent of the exposure limit. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be considered independently from this proposal. Accordingly, it is believed that the impact of the proposed operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

### **Safety of Tower Workers and the General Public**

As demonstrated herein, excessive levels of RF energy attributable to the proposal will not be caused at publicly accessible areas at ground level or near the base of the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission’s guidelines. Nevertheless, site access will be restricted and controlled through the use of a locked perimeter fence. Additionally, appropriate RF exposure warning signs will be posted.

Exhibit 35 - Statement B  
**ENVIRONMENTAL CONSIDERATIONS**  
(Page 3 of 3)

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level or at the base of the tower structure. A site exposure policy will be employed protecting maintenance workers from excessive exposure when work must be performed on the tower or in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines will be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations.

**Conclusion**

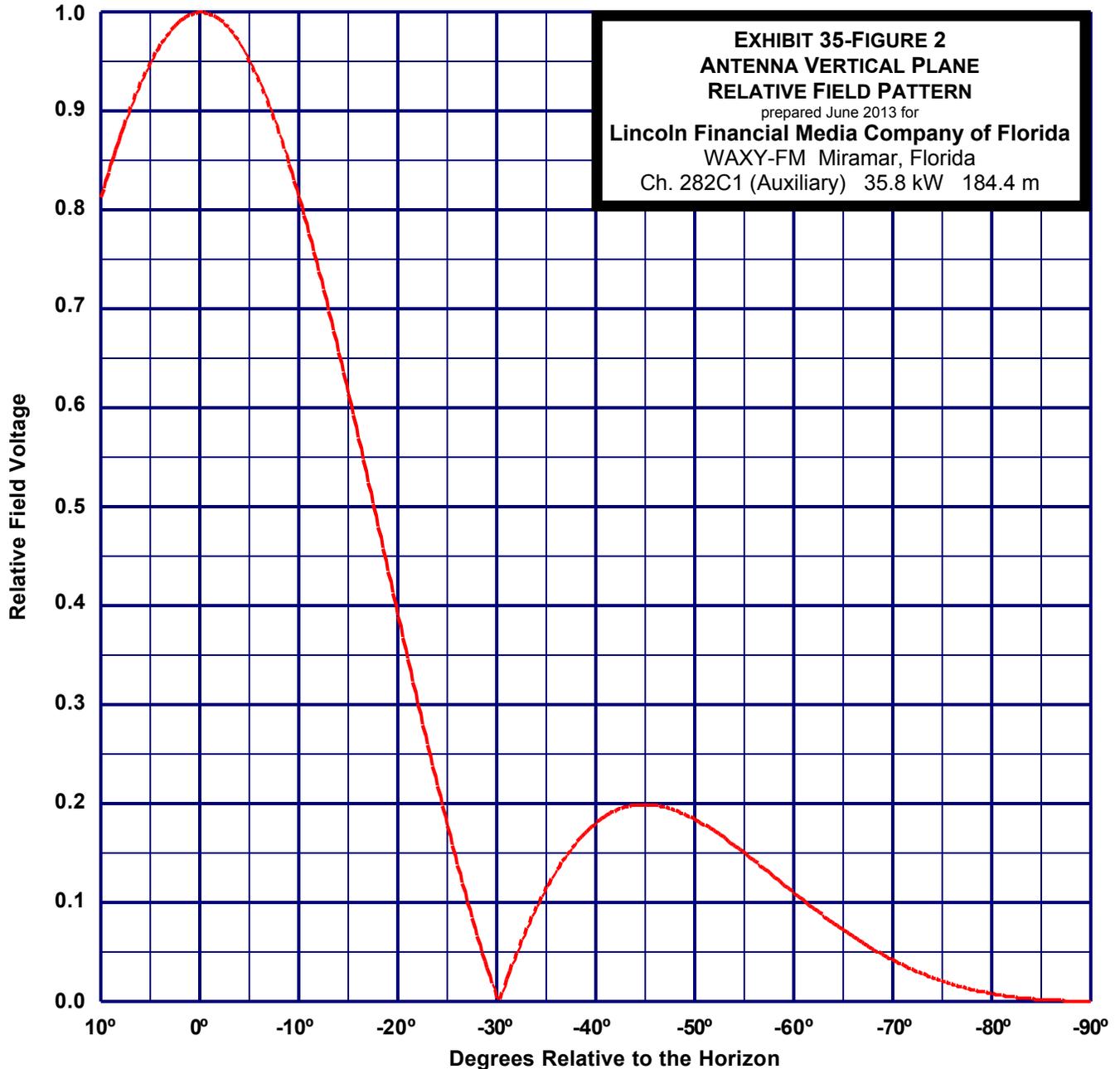
Based on the preceding, it is believed that the instant proposal may be categorically excluded from environmental processing under Section 1.1306 of the Rules; hence preparation of an Environmental Assessment is not required.



# Vertical Plane Relative Field Pattern

ERI TYPE SHP, SHPX, MP, MPX, LP OR LPX ELEMENTS

A 4 level, .5 wave-length spaced non directional antenna  
with 0° beam tilt, 0% null fill and a H/V maximum power ratio of 1.000



<b>Vertical Polarization Gain:</b>
Maximum: 1.307 (1.163 dB)
Horizontal Plane: 1.307 (1.163 dB)

<b>Horizontal Polarization Gain:</b>
Maximum: 1.307 (1.163 dB)
Horizontal Plane: 1.307 (1.163 dB)