

**APPLICATION  
FOR A  
CONSTRUCTION  
PERMIT**

**FCC FORM 301**

**FACILITY NUMBER 59490**

**WDAI**

**PAWLEYS ISLAND, SOUTH CAROLINA**

**CHANNEL 253C3 (98.5 MHz)**

**ERP: 10.0 kW (H&V)**

**HAAT: 156.9 METERS (H&V)**

**APPLICANT: Cumulus Licensing Corp**

**APRIL, 2001**

**Prepared by:**



**2421 Presidents Drive, Suite B-23  
Montgomery, AL 36116  
(334) 323-3620**

**Engineering Statement**  
**In Support of an**  
**Application for a Construction Permit**  
**WDAI, 253C3, Pawleys Island, South Carolina**

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**ENGINEERING STATEMENT**

**Of**

**Lee S. Reynolds**

**And**

**Virgle Leon Strickland**

**In Support of an**

**Application for a**

**Construction Permit**

**WDAI**

**Pawleys Island, South Carolina**

**Channel 253C3 – 98.5 MHz**

**ERP: 10.0 kW(H&V)**

**HAAT: 156.9 m (H&V)**

**April, 2001**

**General**

As broadcast technical consultants doing business as Reynolds Technical Associates, we have been authorized by Cumulus Licensing Corp (herein referred to as “Henderson” as well as “The Applicant”), licensee of WDAI, Pawleys Island, South Carolina, to conduct engineering studies and prepare the engineering portion of an application for a construction permit.

This instant application seeks a one-step up-grade of WDAI, from 253A to 253C3 as a minor change of license facility (BLH -19931112KA ). This application is contingent with WBZF, Hartsville, South Carolina.

The attached engineering exhibits will show that when WDAI operates as a class C2 facility with an ERP of 10 kW and a HAAT of 156.9 meters (CORAMSL of 158.5 meters), it will be in compliance with all the Commission's Rules and Regulations.

**Channel Spacing Study**  
**(Exhibit E, Figure 1)**

A channel spacing study was performed to insure that the proposed site meets all of the minimum separation requirements with respect to other authorized co-channel, adjacent-channel, I.F. separated channels, new allocations and proposed allocations. The stations considered in the study are listed by channel in Exhibit E, Figure 1 showing the location, separation, and the required minimum spacing of each.

The results of the channel allocation study indicates that The Applicant's proposed transmitter site will meet all the required §73.215 separation requirements specified in the Commission's Rules and Regulations.

Exhibit E, Figure 1A is an allocations study demonstrating that the allocation site meets the separation requirements for a class C3 and Exhibit E, Figure 1B is a map with the hypothetical 70 dBu F(50,50) contour for a class C3 facility and the city boundaries of Pawleys Island. The map demonstrates that the hypothetical 70 dBu contour encompasses the entire city of Pawleys Island.

**The Site, Surrounding Terrain and Predicted Service Contours**  
**(Exhibits E, Figures 2 through 4)**

A computer study was conducted to determine the average terrain elevations for each of the eight required radials, plus an additional 16 radials (one every 15°) for a total of 24, beginning with true north, then at intervals of 15 degrees. Only the 8 cardinal radials were considered to establish the terrain average. The average of each cardinal radial was

taken from three to sixteen kilometers, at 0.1-km intervals. The NGDC 30-second database was used to conduct the computer study. Exhibit E, Figure 2 is a copy of the terrain study and the contour study showing the distance to the service contours and the average elevations of each.

Exhibit E, Figure 3 is a contour comparison study showing that when the proposed operates with 10.0 kilowatts at 156.9 meters HAAT, it is equivalent to 25.0 kilowatts at 100.0 meters.

The allocation site is shown in Exhibit E, Figure 4 on the Brookgreen, South Carolina 7.5-minute quadrangle map.

The proposed site is shown in Exhibit E, Figure 5 on the Brookgreen, South Carolina 7.5-minute quadrangle map.

The proposed site is currently being used by WYAV and the applicant proposes to co-locate on the existing tower. The antenna registration number for the supporting structure is 1044153.

There are no proposed or authorized FM or TV transmitters, nor any non-broadcast radio stations within 60 meters of the proposed antenna. There are no proposed or authorized FM or TV transmitters that may produce receiver-induced intermodulation interference within ten (10) kilometers of the proposed transmitting antenna. There are no AM facilities within 3.2 kilometers of the proposed tower site.

The distance to the blanketing (115 dBu) contour is calculated to be 1.246 kilometers.

**Antenna and Supporting Structure**  
**(Exhibit E, Figure 6)**

The elevation above mean sea level of the proposed site is 6.1 meters (20.0 feet) AMSL. According to a computer study of the eight cardinal radials at 3 to 16 kilometers (utilizing

the NGDC 30-second database), the average terrain surrounding the proposed transmitter site is 1.6 meters (5.4). Therefore, the proposed site is 4.5 meters (16.6 feet) above the average terrain. Exhibit E, Figure 6 is a vertical plane sketch of the proposed supporting structure depicting the elevations in meters as well as feet.

**Predicted Service Contours**  
**(Exhibit E, Figure 7)**

Exhibit E, Figure 7 is a map that shows the F(50,50) 70-dBu contour and 60 dBu contours. The map shows that 100% of the community of license (Pawleys Island, South Carolina) is encompassed by the F(50,50) 70-dBu contour, in compliance with §73.315(a) of the Commission's Rules and Regulations.

**Predicted Service Contours**  
**(Exhibits E, Figure 8 through 10)**

Exhibit E, Figure 8 is a map displaying the protected and interfering contours of WBZF and WDAI. Exhibits 9 and 10 are FM overlap studies.

**Human Exposure to Radiofrequency Radiation**  
**(No Exhibits)**

The proposed FM facility was evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with the RF Worksheet #1 (FCC Worksheet 3, pages 5 and 6).

The proposed center of radiation was rounded to above ground level is 152 meters, with an ERP (both horizontally and vertically) of 10.0 kW. Also included the study was WYAV with the ERP of 100 Kw at 295 meters above ground level. According to this study, the power density 2 meters above ground at the base of the tower is 0.327 mW/cm<sup>2</sup>. Even though this is less than the 1.0 mW/cm<sup>2</sup> required for controlled/occupational limit, it is more than the 0.2 mW/cm<sup>2</sup> required for general

public/uncontrolled population. An additional study was performed displaying that the controlled/occupational limit and uncontrolled/general public limits are in compliance. WYAV has the ERP of 100 kW at 295 meters above ground level, the power density at 2 meters above ground level at the base of the tower is  $0.078 \text{ mW/cm}^2$ . The applicant proposes WDAI will have the ERP of 10.0 kW at 152 meters above ground level, the power density at 2 meters above ground level at the base of the tower is  $0.029 \text{ mW/cm}^2$ . Adding the power density of both facilities gives the results of  $0.107 \text{ mW/cm}^2$ .

A radiofrequency radiation warning sign is to be placed at the base of the tower with clearly visible instructions to workers who climb the tower. The sign shall instruct anyone working on the tower to reduce (or turn off) the FM transmitter, whichever is appropriate, in order to avoid harmful exposure to radiofrequency radiation.

**Environmental Impact**  
**(No Exhibits)**

A grant of the proposed construction would not constitute a major action as defined in the Commission's Rules and Regulations.

During operation, the facility will produce no chemical or significant thermal pollution, and no ionizing radiation will be generated. Areas of high intensity radiofrequency fields will be confined to the immediate area of the transmitting antenna, far above the ground and away from any human and wildlife population.

The area is not officially designated as a wilderness area or wildlife preserve and is not pending consideration. The area has no significant value in American history, architecture, archaeology, or culture, which is listed in the Register of Historic Places, and it is not eligible for listing. It is not recognized either nationally or locally for special scenic or recreational value.

## **Conclusion**

This statement/application has been prepared for The Applicant by utilizing the latest available information, cross-checked with the Federal Communications Commission and other sources. Therefore, it is submitted that the proposed is in compliance with the Commission's Rules and Regulations and other sources. Therefore, it is submitted that the engineering data compiled and demonstrated herein for the proposed is in compliance with Commission's Rules and Regulations at the time of this application's filing date. We welcome the opportunity to discuss with the staff of the Federal Communications Commission the engineering data contained in this application. Should any questions arise concerning the information, please contact us.

The following pages are exhibits prepared and assembled in support of the proposed.

Lee S. Reynolds  
2421 Presidents Drive, Suite B-23  
Montgomery, Alabama 36116  
(334) 323-3620

Leon Strickland  
2421 Presidents Drive, Suite B-23  
Montgomery, Alabama 36116  
(334) 323-3620



### **Statement of the Consultants**

The instant engineering statement (amendment to a pending application) was prepared for Cumulus Licensing Corp (“The Applicant”) and supports an application for a construction permit of WDAI, Pawleys Island, South Carolina. It was developed by Lee S. Reynolds and Virgle Leon Strickland of Reynolds Technical Associates and may not be used for purposes other than submission to the Commission by The Applicant.

It may not be reproduced in its entirety, or in part, by anyone (other than from the Commission) without the written consent of Strickland and/or Reynolds.

It is prepared for The Applicant under contractual agreement, and its certification by Strickland/Reynolds is used accordingly. If The Applicant fails in its contractual obligation, Strickland/Reynolds reserve the right to withdraw its certification.

The information in this application is compiled from the most recent Commission and outside data. Strickland/Reynolds are not responsible for errors resulting from incorrect data or unpublished rule and procedure changes.

For Strickland and Reynolds:

A handwritten signature in black ink, reading "Lee S. Reynolds", is written over a horizontal line.

Lee S. Reynolds

April 18<sup>th</sup>, 2001

2421 Presidents Drive, Suite B-23  
Montgomery, Alabama 36116  
(334) 323-3620