

**SECTION III - LICENSE APPLICATION ENGINEERING DATA**

Name of Applicant

Vero Beach Broadcasters, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☐ Station License

☒ Direct Measurement

**EXHIBIT B**
**APPLICATION FOR STATION LICENSE**
**VERO BEACH BROADCASTERS, LLC**
**W289CF FM TRANSLATOR**
**CH 289D - 105.7 MHZ - 0.25 KW**
**VERO BEACH, FLORIDA**
**May 2016**
**1. Facilities authorized in construction permit**

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
WTTB		1490	U	Night 1.0	Day 1.0

**2. Station location**

State	City or Town
Florida	Vero Beach

**3. Transmitter location**

State	County	City or Town	Street address (or other identification)
FL	Indian River	Vero Beach	3120 10th Place

**4. Main studio location**

State	County	City or Town	Street address (or other identification)
FL	Indian River	Vero Beach	1235 16th Street

**5. Remote control point location (specify only if authorized directional antenna)**

State	County	City or Town	Street address (or other identification)
FL	Indian River	Vero Beach	1235 16th Street

6. Has type-approved stereo generating equipment been installed?

☐ Yes ☒ No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68?

☐ Yes ☐ No

☒ Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed.

Exhibit No.

**8. Operating constants:**

RF common point or antenna current (in amperes) without modulation for night system 2.25		RF common point or antenna current (in amperes) without modulation for day system 2.25	
Measured antenna or common point resistance (in ohms) at operating frequency Night 198	Day 198	Measured antenna or common point reactance (in ohms) at operating frequency Night +J 69.1	Day +J 69.1

**Antenna indications for directional operation**

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
N/A						

Manufacturer and type of antenna monitor:

N/A

## SECTION III - Page 2

9. Description of antenna system (If directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary.)

Type Radiator  6 Wire Folded Unipole	Overall height in meters of radiator above base insulator, or above base, if grounded.  49	Overall height in meters above ground (without obstruction lighting)  49	Overall height in meters above ground (include obstruction lighting)  49	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.  Exhibit No.
---	---	--	--	--

Excitation ☐ Series ☒ Shunt

Geographic coordinates to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

North Latitude	27 °	37 '	12 "	West Longitude	80 °	25 '	04 "
----------------	------	------	------	----------------	------	------	------

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits.

Exhibit No.

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system.

Exhibit No.

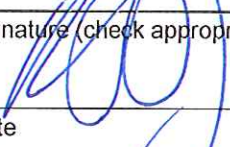
10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

Coordinated corrected by 3 seconds of longitude.

11. Give reasons for the change in antenna or common point resistance.

Installation of FM translator Antenna per Construction Permit BMPFT-20160129AAB.

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name (Please Print or Type)  R. Stuart Graham	Signature (check appropriate box below) 
Address (include ZIP Code)  Graham Brock, Inc. P. O. Box 24466 St. Simons Island, GA 31522-7466	Date May 10, 2016
	Telephone No. (Include Area Code) 912-638-8028

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☒ Technical Consultant

☐ Other (specify)

**APPLICATION FOR STATION LICENSE**  
**DIRECT MEASUREMENT OF POWER**  
**CORRECTION OF COORDINATES**  
**VERO BEACH BROADCASTERS, LLC**  
**WTTB (AM) RADIO STATION**  
**1490 kHz - 1.0 kW - NDU**  
**VERO BEACH, FLORIDA**  
**April 2016**

**TECHNICAL STATEMENT**

This Technical Statement was prepared on behalf of Vero Beach Broadcasters, LLC ("Vero Beach"), licensee of AM radio station WTTB, 1490 kHz, Vero Beach, Florida. Vero Beach is filing this application for station license and direct measurement of power due to the installation of an FM transmission line and antenna for FM translator W289CF. In addition, following a survey of the tower, the coordinates of WTTB are corrected from North Latitude 27° 37' 12" and West Longitude 80° 25' 01" to North Latitude 27° 37' 12" and West Longitude 80° 25' 04".

This tower has been registered with the FCC and assigned Antenna Structure Registration Number 1239136. The FAA has been notified of the change in coordinates and site elevation. Once the expected Determination of No Hazard to Air Navigation is issued, the Antenna Structure Registration will be updated to reflect the correct coordinates. A copy of the surveyor's statement is attached to this application as well as the NADCON conversion to NAD '27 datum.

Special Operating Condition #3 of the W289CF construction permit (BPFT-20160129AAB) states:

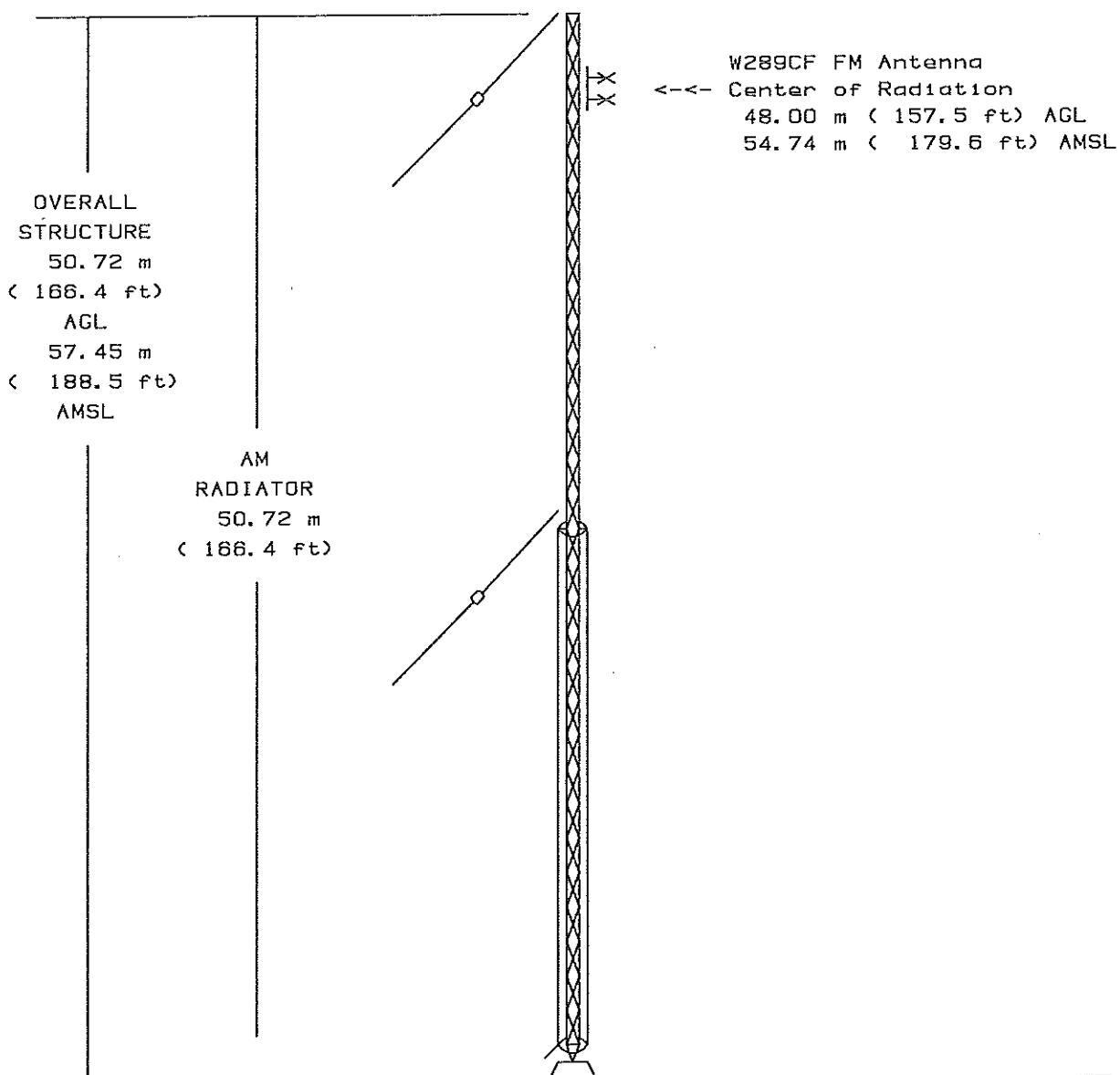
*"This construction permit authorizes the mounting of an antenna on the nondirectional tower of the AM station identified below. During the installation of the antenna, the AM station shall determine operating power by the indirect method (see Section 73.51 of the Commission's Rules).*

*Upon completion of the antenna installation, antenna impedance measurements on the AM antenna shall be made. If the resistance of the AM antenna has changed by more than 2 percent from the licensed value (see Section 73.45(c)(1) of the Commission's Rules), an application for the AM station to return to direct power measurement, including a tower sketch of the installation, shall be filed with the Commission by the AM station licensee using form FCC 302-AM. (See Section 1.30003 of the commission's Rules.) The permittee must submit confirmation of completion of the requirements of this condition in the application for license to cover this construction permit.*

*WTTB, Facility ID No. 26241, Vero Beach, Florida"*

Following the installation of the FM translator's antenna and transmission line, the impedance of the tower was measured, which indicated the tower impedance was 198 ohms resistance with +J 69.1 ohms reactance. The resistance figure differs from the licensed value.

This application is filed in response to the translator condition to correct the base impedance value and to correct geographic coordinates. Based on the foregoing, it is believed that WTTB is in compliance with the Commission's rules and requests to operate WTTB non-directionally at 1.0 kilowatt during daytime and nighttime hours.



North Latitude 27-37-12 Site Elev 6.74 m ( 22.1 ft) AMSL  
 West Longitude 80-25-04

(Sketch not drawn to scale)  
 Tower Registration Number 1239136

## VERTICAL PLAN SKETCH

SITE ELEVATION - 7 m ( 22 ft) AMSL

TOP OF STRUCTURE - 51 m ( 166 ft) AGL  
 57 m ( 189 ft) AMSL

AM Radiator - 51 m ( 166 ft)

FIGURES ROUNDED TO NEAREST METER (FOOT).

**EXHIBIT A**  
APPLICATION FOR STATION LICENSE  
DIRECT MEASUREMENT OF POWER  
CORRECTION OF COORDINATES  
VERO BEACH BROADCASTERS, LLC  
WTTB (AM) RADIO STATION  
1490 kHz - 1.0 kW - NDU  
VERO BEACH, FLORIDA  
April 2016

**GRAHAM BROCK, INC.**

BROADCAST TECHNICAL CONSULTANTS

# Antenna Base Current & Voltage

## WTTB 1490 Khz 1Kilowatt

### May 01, 2016

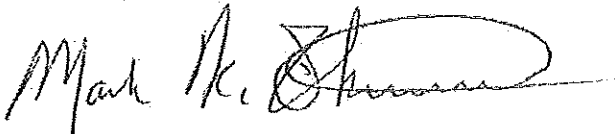
#### Calculated Values

Impedance	Current	Voltage
198 Ohms	2.25 Amps	445 Volts

Impedance measurement was taken Sunday 05/01/2016 with Delta Electronics OIB-1 serial #938 and the above calculations made.

I, Mark K. Skinner attest that I have performed the impedance measurement in accordance to acceptable industry standards and that the above calculations are correct to the best of my knowledge.

Mark K Skinner



Director of Engineering  
WTTB Radio

**EXHIBIT B**  
**APPLICATION FOR STATION LICENSE**  
**DIRECT MEASUREMENT OF POWER**  
**CORRECTION OF COORDINATES**  
**VERO BEACH BROADCASTERS, LLC**  
**WTTB (AM) RADIO STATION**  
**1490 kHz - 1.0 kW - NDU**  
**VERO BEACH, FLORIDA**  
**April 2016**

# Antenna Base Impedance Measurements

WTTB 1490 Khz

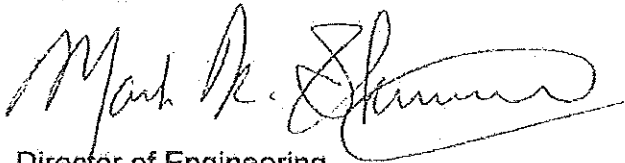
May 01, 2016

Frequency	Resistance	Reactance
1470 Khz	174	+ j 68.0
1480 Khz	184	+ j 68.5
1490 Khz	198	+ j 69.1
1500 Khz	210	+ j 70.2
1510 Khz	221	+ j 71.0

Measurements taken Sunday 05/01/2016 with Delta Electronics OIB-1 serial #938.

I, Mark K. Skinner attest that I have performed these measurements in accordance to acceptable industry standards and that the above information is correct to the best of my knowledge.

Mark K. Skinner



Director of Engineering  
WTTB Radio

EXHIBIT C  
APPLICATION FOR STATION LICENSE  
DIRECT MEASUREMENT OF POWER  
CORRECTION OF COORDINATES  
VERO BEACH BROADCASTERS, LLC  
WTTB (AM) RADIO STATION  
1490 kHz - 1.0 kW - NDU  
VERO BEACH, FLORIDA  
April 2016



William B. Zentz & Associates, Inc.  
Professional Surveying & Mapping  
684 Old Dixie Highway Vero Beach, Florida 32962  
Phone : (772) 567-7552 Fax : (772) 567-1751

### FAA "1-A" Certification

Date: March 16, 2016

Job No. : 101-613

Site: Existing tower  
10<sup>th</sup> Place, W. of 31<sup>st</sup> Ave.  
Vero Beach, FL 32966

For: Vero Beach Broadcasters  
1235 16<sup>th</sup> Street  
Vero Beach, FL 32960

### Center of Tower Coordinates:

NAD 1983 Datum : 27° 37' 13.60" North Latitude  
80° 25' 03.05" West Longitude

Existing ground elevation = 22.1 feet NAVD '88  
Top of tower steel = 166.4 feet AGL

### Notes:


- Data per field work on 3/14/2016.
- Coordinates and ground elevation per field real time kinematic GPS observations.
- Tower height determined by trigonometric leveling.

### FAA 1-A Accuracy Specifications:

Horizontal (Lat/Long): +/- 15 feet; Vertical: +/- 3 feet

This is to certify that the above data meets FAA 1-A specifications.

Certified By:

  
William B. Zentz, PLS  
Professional Land Surveyor No. 5276  
State of Florida

**EXHIBIT D**  
**APPLICATION FOR STATION LICENSE**  
**DIRECT MEASUREMENT OF POWER**  
**CORRECTION OF COORDINATES**  
**VERO BEACH BROADCASTERS, LLC**  
**WTTB (AM) RADIO STATION**  
**1490 kHz - 1.0 kW - NDU**  
**VERO BEACH, FLORIDA**  
**April 2016**



EXHIBIT E  
APPLICATION FOR STATION LICENSE  
DIRECT MEASUREMENT OF POWER  
CORRECTION OF COORDINATES  
VERO BEACH BROADCASTERS, LLC  
WTTB (AM) RADIO STATION  
1490 kHz - 1.0 kW - NDU  
VERO BEACH, FLORIDA  
April 2016





APPLICATION FOR STATION LICENSE  
DIRECT MEASUREMENT OF POWER  
CORRECTION OF COORDINATES  
VERO BEACH BROADCASTERS, LLC  
WTTB (AM) RADIO STATION  
1490 kHz - 1.0 kW - NDU  
VERO BEACH, FLORIDA  
April 2016

EXHIBIT F

NADCON

North American Datum Conversion

NAD 83 to NAD 27

NADCON Program Version 2.11

=====

Transformation #: 1                      Region: Conus

	Latitude	Longitude
NAD 27 datum values:	27 37 12.48123	80 25 3.86300
NAD 83 datum values:	27 37 13.60000	80 25 3.05000
NAD 27 - NAD 83 shift values:	-1.11877	0.81300(secs.)
	-34.437	22.291 (meters)
Magnitude of total shift:		41.022(meters)



**Project Submission Success**

**Project Name: VERO -000367670-16**

Project VERO -000367670-16 has been submitted successfully to the FAA.

Your filing is assigned Aeronautical Study Number (ASN):  
**2016-ASO-11309-OE**

Please refer to the assigned ASN on all future inquiries regarding this filing.

Please return to the system at a later date for status updates.

It is the responsibility of each e-filer to exercise due diligence to determine if coordination of the proposed construction or alteration is necessary with their state aviation department. Please use the link below to contact your state aviation department to determine their requirements:  
State Aviation Contacts

*To ensure e-mail notifications are delivered to your inbox please add noreply@faa.gov to your address book. Notifications sent from this address are system generated FAA e-mails and replies to this address will NOT be read or forwarded for review. Each system generated e-mail will contain specific FAA contact information in the text of the message.*

**EXHIBIT G**  
**APPLICATION FOR STATION LICENSE**  
**DIRECT MEASUREMENT OF POWER**  
**CORRECTION OF COORDINATES**  
**VERO BEACH BROADCASTERS, LLC**  
**WTTB (AM) RADIO STATION**  
**1490 kHz - 1.0 kW - NDU**  
**VERO BEACH, FLORIDA**  
**April 2016**

**AFFIDAVIT AND QUALIFICATIONS OF CONSULTANT**


*State of Georgia    )*  
*St. Simons Island    ) ss:*  
*County of Glynn    )*

**R. STUART GRAHAM**, being duly sworn, deposes and says that he is an officer of Graham Brock, Inc. Graham Brock has been engaged by Vero Beach Broadcasters, LLC to prepare the attached Technical Exhibit.

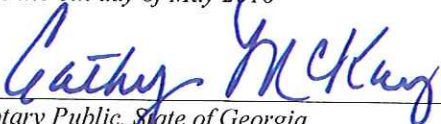
His qualifications are a matter of record before the Federal Communications Commission. He has been active in Broadcast Engineering since 1979.

The attached report was either prepared by him or under his direction and all material and exhibits attached hereto are believed to be true and correct.

*This the 6th day of May 2016.*

  
\_\_\_\_\_  
R. Stuart Graham  
*Affiant*

*Sworn to and subscribed before me  
this the 6th day of May 2016*

  
\_\_\_\_\_  
Notary Public, State of Georgia  
My Commission Expires: March 12, 2019