

Approved by OMB  
3060-0029  
Expires 5-31-84

Section I

United States of America  
Federal Communications Commission

APPLICATION FOR NEW BROADCAST STATION LICENSE

INSTRUCTIONS

A. This form is to be used in all cases when applying for a Broadcast Station License. It consists of this part, Section I, and the following sections:

- Section II - A, License Application Engineering Data Standard Broadcast
- Section II - B, License Application Engineering Data FM Broadcast
- Section II - C, License Application Engineering Data Television Broadcast

- B. Prepare and file three copies of this form and all exhibits with Federal Communications Commission, Washington, D.C. 20554.  
 C. Number exhibits serially in the space provided in the body of the form and list each exhibit in the space provided on page 2 of this Section. Date each exhibit and each antenna pattern.  
 D. The name of the applicant must be stated exactly as it appears on the construction permit which is being covered.  
 E. Information called for by this application which is already on file with the Commission need not be refiled in this application provided (1) the information is now on file in another application or FCC form filed by or on behalf of this applicant; (2) the information is identified fully by reference to the file number (if any), the FCC form number, and the filing date of the application or other form containing the information and the page or paragraph referred to, and (3) after making the reference, the applicant states; "No change since date of filing." Any such reference will be considered to incorporate into this application all information, confidential or otherwise, contained in the application or other form referred to. The incorporated application or other form will thereafter, in its entirety, be open to the public.  
 F. This application shall be personally signed by the applicant, if the applicant is an individual; by one of the partners, if the applicant is a partnership; by an officer, if the applicant is a corporation; by a member who is an officer, if the applicant is an unincorporated association; by such duly elected or appointed officials as may be competent to do so under the laws of the applicable jurisdiction, if the applicant is an eligible government entity; or by the applicant's attorney in case of the applicant's physical disability or of his absence from the United States. The attorney shall, in the event he signs for the applicant, separately set forth the reason why the application is not signed by the applicant. In addition, if any matter is stated on the basis of the attorney's belief only (rather than his knowledge), he shall separately set forth his reasons for believing that such statements are true.  
 G. BE SURE ALL NECESSARY INFORMATION IS FURNISHED AND ALL PARAGRAPHS ARE FULLY ANSWERED. IF ANY PORTIONS OF THE APPLICATION ARE NOT APPLICABLE, SPECIFICALLY SO STATE. DEFECTIVE OR INCOMPLETE APPLICATIONS MAY BE RETURNED WITHOUT CONSIDERATION.  
 H. See back of last page for Privacy Act Notice.

File No. *BLH 850307LB* (For Commission Use Only)

Name and post office address of applicant (Include ZIP Code)  
(See Instruction D)

Gamecock City Broadcasting, Inc.  
P.O. Box 38  
Sumter, SC 29150

RECEIVED

MAR 7 1985

FCC

Notices and communications with respect to this application are to be addressed to the following - named persons at the address indicated (Include ZIP Code)

John D. Marshall  
President

1. Facilities authorized by construction permit

Frequency	Channel No.	Power in kilowatts	
		Night	Day
101.3	267	100Kw	100Kw
Hours of operation 24 hours		Call letters WWDM	

2. Construction permit covered by this application

File number BMPH-840712AF	Date 8/2/84
Construction begun 10/15/84	Construction completed 3/1/85

Is the station now in satisfactory operating condition and ready for regular operation? Yes  No   
If not, explain

PROGRAM DATA

3. Has applicant any contract, arrangement, or understanding, expressed or implied, with a network or organization for the broadcasting of network programs? Yes  No

Does applicant, in the event this application is granted, propose to broadcast network programs? If network programs are to be broadcast, state as Exhibit No. arrangements under which they are to be obtained and attach copies of any contractual arrangement which may have been made. If the arrangement is based on an oral understanding, a written statement of the arrangement should be submitted. Yes  No

FINANCIAL DATA

4. Give actual costs of making installation for which construction was authorized

Transmitter proper including tubes	Antenna system, including antenna-ground system, coupling equipment, transmission line	Frequency and modulation monitors	Studio technical equipment, microphones, transcription equipment, etc.
\$ 52,000	\$ 75,000	\$ 0	\$ 0
Acquiring land \$ 45,000	Acquiring or constructing buildings \$ 15,000	Other items, state nature \$ 0	Total \$ 187,000

All previous edition of this form are canceled.

**FINANCIAL DATA (Continued)**

5. (a) Attach a detailed balance sheet, as at the completion date of the authorized construction, showing applicant's financial position as Exhibit No. (b) If the actual cost of construction materially exceeds the original estimated cost of construction, attach as Exhibit No. a detailed statement showing the plan used to finance such construction. (If applicant is licensee of a broadcast station having on file with the Commission an Annual Financial Report (FCC Form 324) showing its financial position within the past 12 months and the request in this application is for a change in existing facilities, these exhibits need not be supplied provided that no substantial reduction in financial position has occurred.)

n/a

6. State changes, if any, in capitalization, and report any contracts affecting ownership not shown in the application for construction permit. (If none, so state)

n/a

7. Apart from the apparatus constructed, have all the terms, conditions, and obligations set forth in the above-described application for construction permit been fully met? If "No", state exceptions.

Yes  No

8. Is a request for authority to conduct program tests a part of this application?

Yes  No

THE APPLICANT hereby waives any claim to the use of any particular frequency or of the ether as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934).

THE APPLICANT represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

THE APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations, and that all the exhibits are a material part hereof and are incorporated herein as if set out in full in the application.

**CERTIFICATION**

I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Signed and dated this 5th day of March 1985

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND IMPRISONMENT. U. S. CODE, TITLE 18, SECTION 1001.

Gamecock City Broadcasting, Inc.

(NAME OF APPLICANT)

By [Signature]

(SIGNATURE)

Title President

**EXHIBITS furnished as required by this form:**

Exhibit No.	Section and Para. No. of Form	Name of officer or employee (1) by whom or (2) under whose direction exhibit was prepared (show which)	Official title
EE-1	302-2B	Alan S. Hovermale	Consulting Engineer
EE-2	Proof	Electronic Research, Inc.	Antenna Manufacturer
EE-3	Surveyor Statement	C. LaVerne Steadman	Registered Land Surveyor

Broadcast Application		FEDERAL COMMUNICATIONS COMMISSION		Section 11-B	
LICENSE APPLICATION ENGINEERING DATA FM BROADCAST			Name of Applicant GAMECOCK CITY BROADCASTING, INC.		
1. Facilities authorized in construction permit			9. Transmission line		
Call Sign WWDM	File No. of construction permit BMPH-840712AF		Make Myat Inc.	Type No. 301-001	Description Rigid Coax
Frequency 101.3 MHz	Effective radiated power in kilowatts 100KWH 82KWV	Antenna height above average terrain 403meters	Size: (nominal inside transverse dimension) in inches 3 1/8	Length in feet 1135	Rated efficiency in percent for this length 74.0%
2. Station location			10. Modulation monitor		
State South Carolina		City or town Sumter	Make Belar	Type No. FMM-1	
3. Transmitter location			11. Frequency measurements		
State South Carolina		County Richland	Give the following data on the checks of the frequency		
City or town Leesburg		Street Address (or other identification) 1 mile E of Intersection of US601 and Screaming Eagle Rd.	Date and Time	Frequency measured by such agency or method	
4. Main studio location			1. 3/4/85 12:09AM	101.300050 Mhz	
State South Carolina		County Sumter	2. 3/4/85 12:18AM	101.300049 MHz	
City or town Sumter		Street address Bradham Boulevard	3. 3/4/85 1:07AM	101.300050 MHz	
5. Remote control point location			Name of checking agency or method used		
State South Carolina		City or Town Sumter	Hovermale Associates, Inc. using a Fluke 1980A Counter Serial 642.		
Street Address (or other identification) Bradham Boulevard			12. Attach as Exhibit No. EE-1 data, diagrams, and appropriate graphs together with description of measurement procedures and instruments with regard to the following: (All measurements shall be made with the equipment adjusted for normal program operation and shall include all circuits between the main studio microphone terminals and the antenna output, including telephone lines, preemphasis circuits and any equalizers employed except for microphones, and without compression if a compression amplifier is installed.)		
6. Transmitter installed			a. Audio frequency response from 50 to 15,000 Hertz for approximately 25, 50 and 100 percent modulation. Measurements shall be made on at least the following audio frequencies: 50, 100, 400, 1000, 5000, 10,000 and 15,000 Hertz. The frequency response measurements should normally be made without deemphasis; however, standard 75 microsecond deemphasis may be employed in the measuring equipment or system provided the accuracy of the deemphasis circuit is sufficient to insure that the measured response is within the prescribed limits.		
Make Continental	Type No. 816R-4	Rated Power 27.5 KW	b. Audio frequency harmonic distortion for 25, 50 and 100 percent modulation for the fundamental frequencies of 50, 100, 400, 1000 and 5000 Hertz. Audio frequency harmonics for 100 percent modulation for fundamental frequencies of 10,000 and 15,000 Hertz. Measurements shall normally include harmonics to 30,000 Hertz. The distortion measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.		
7. Operating constants			c. Output noise level (frequency modulation) in the band of 50 to 15,000 Hertz in decibels below the audio frequency level representing frequency swing of 75 kilohertz. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.		
D.C. plate current in last radio stage in amperes 3.97	Applied D.C. plate voltage of last radio stage, in volts 8950v		d. Output noise level (amplitude modulation) in the band of 50 to 15,000 Hertz in decibels below the level representing 100 percent amplitude modulation. The noise measurements shall be made employing 75 microsecond deemphasis in the measuring equipment or system.		
Plate input power to last radio stage, in kilowatts 35.531 Kw	Efficiency factor F of transmitter at operating power, in percent 77.3%				
Transmitter power output in kw by indirect method 27.466 Kw	RF transmission line meter reading 100%				
8. Antenna					
Antenna make and type No. Harris FMD-6B		Number of sections 6	Power gain 4.92		
Height of antenna radiation center above ground 341.07 Meters					
Geographical coordinates of antenna (to nearest second) North latitude 34° 03' 04"			West Longitude 80° 40' 55"		
Description of antenna supporting structure Uniform cross section tower with 70 foot pole mounted at top. Overall height above ground 348 meters. Tower is uniform guyed.					
Overall height above ground of antenna supporting structure (without obstruction lighting) 348 meters					

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

No Changes made.

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.

Date March 4, 1985

Signature

  
(check appropriate box below)

Telephone No. 803-473-3899  
(include area code)

- Technical Director  
 Registered Professional Engineer  
 Consulting Engineer  
 Chief Operator

ENGINEERING EXHIBIT EE-1 FM AUDIO PROOF

# HOVERMALE ASSOCIATES

*Radio Communication Technical Services*

HOME TELEPHONE 803/473-2758  
ALAN S. HOVERMALE, Chief Engineer

TELEPHONE 803/773-4391, MOBILE PHONE 77  
POST OFFICE BOX 565  
MANNING, S. C. 29102

PROOF OF PERFORMANCE MEASUREMENTS

RADIO STATION WWDM-FM

SUMTER, S.C.

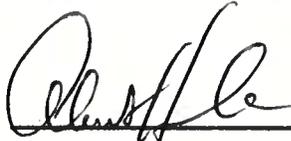
MARCH 4, 1985

## ENGINEER'S STATEMENT

This is to certify that the data contained within this Proof of Performance report is as factual and accurate as the present state of the art permits. It is further attested that the measurements were conducted on the fourth day of March, 1985, using the broadcast facilities of WWDM-FM at new site, Sumter, S.C. in accordance with applicable rules and regulations of the Federal Communications Commission.

The facts presented within this Proof of Performance report are true and accurate to the best of my knowledge and belief at the time of signing.

Alan S. Hovermale,



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Date Signed: March 5, 1985

License # P1-6-35000

Expires May 7, 1986

EQUIPMENT LISTING  
RADIO STATION WWDM-FM

ITEM	MAKE	TYPE	SERIAL#	CALIBRATION
Test System	Sound Technology	1710A	106-03603	6/10/79
Mod Mon.	Belar	FMM-1	103566	12/15/77
Mod Mon.	Belar	FMS-11	202321	12/17/77
Oscilliscope	Leader	LB0520	8090691	8/5/83
Gain Set	Cinema	6343	5214	6/7/77
Audio Gen.	Sound Technology	1710A	103-00803	4/5/78

Note: The modulation monitor was located at the transmitter site during the measurement procedure.

## PROCEDURE

System gain was maintained as used in normal programming. Any AGC, limiter, or clipper circuits were disabled at the time measurements were performed.

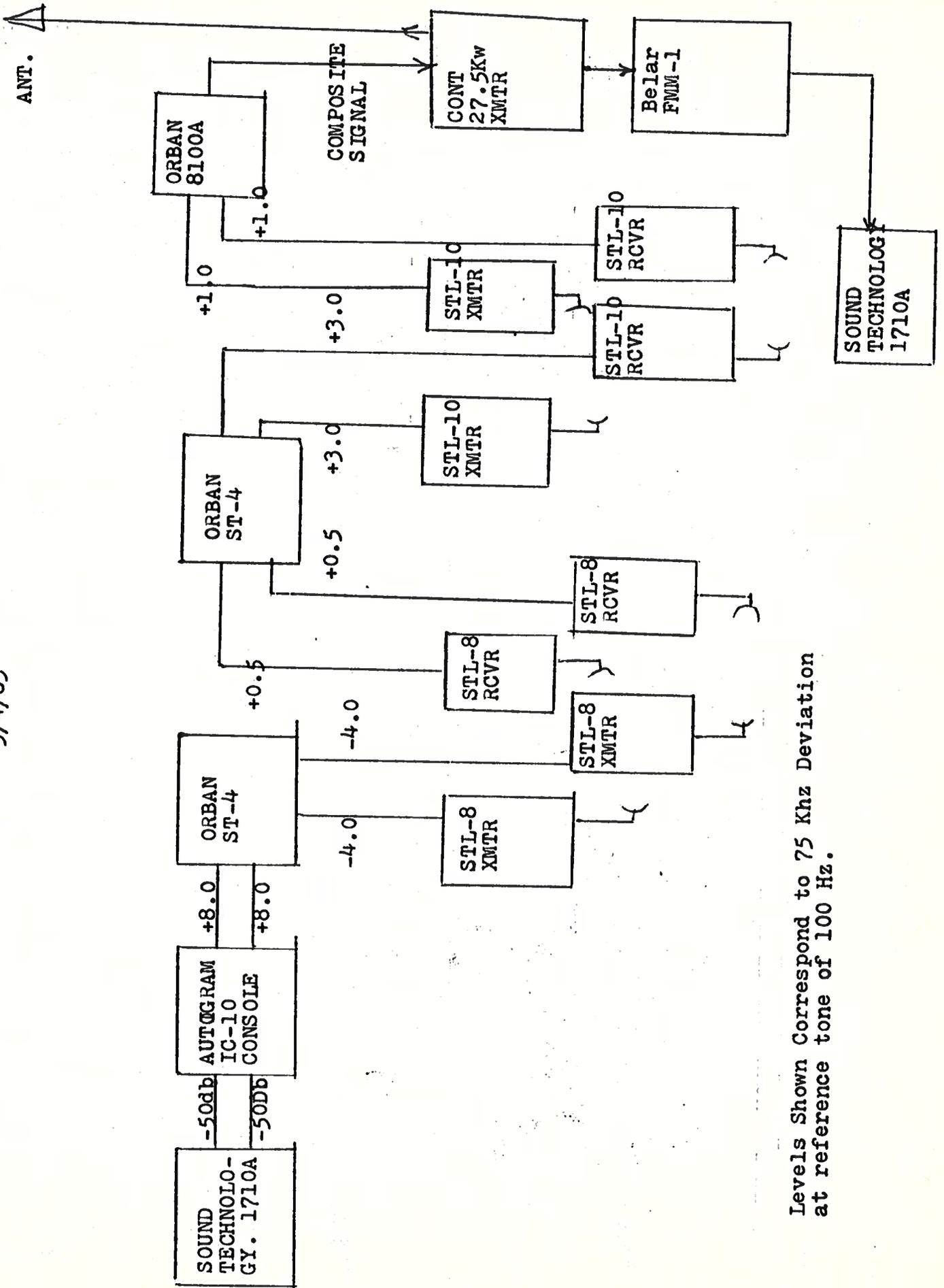
A microphone input level of minus 50 db was used to achieve 100% modulation. A microphone input level of minus 56 db to achieve 50% modulation. A microphone input level of minus 62 db to achieve 25% modulation.

Standard good engineering practices were used in making the tests. The last calibration date of each piece of test equipment is listed in this report. Therefore, the data contained in this report is believed to quite accurate.

Distortion measurements were made at the applicable modulation level, i.e.: 25%, 50%, 100%. Response is listed as a departure from the ideal directly in db.

Measurements were made with the monitors located at the transmitter site.

EQUIPMENT SETUP PLAN  
 RADIO STATION WWDM  
 3/4/85



Levels Shown Correspond to 75 KHz Deviation  
 at reference tone of 100 Hz.

MONOPHONIC TABLES  
 RADIO STATION WJDM-FM  
 SUMTER, S.C.

1. Audio Frequency Response: (without de-emphasis)

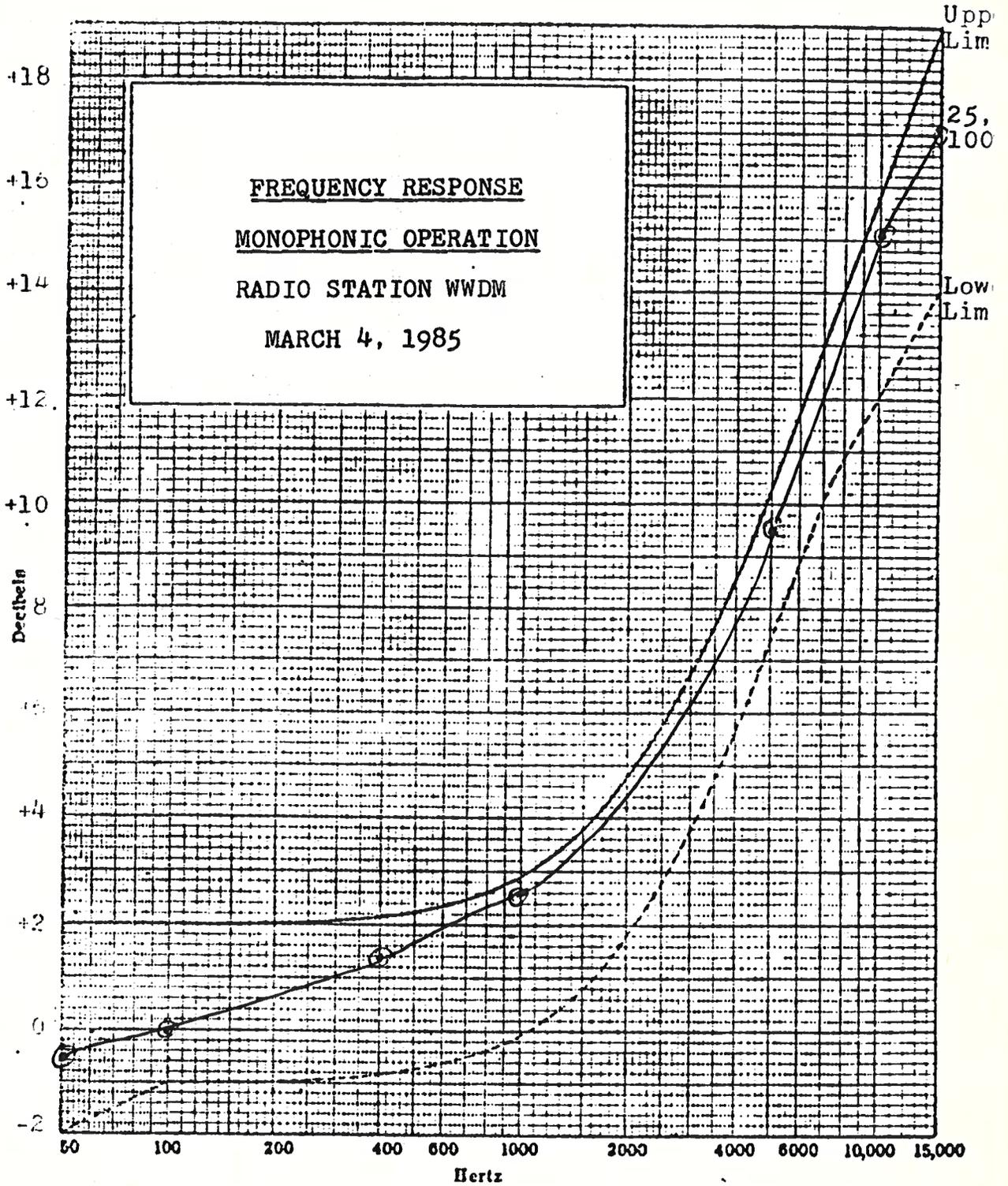
	25%	50%	100%	Modulation
50 Hz	-0.5	-0.5	-0.5	db.
100	0.0	0.0	0.0	(reference)
400	+1.4	+1.4	+1.4	
1000	+2.5	+2.5	+2.6	
5000	+9.5	+9.5	+9.5	
10000	+15.3	+15.2	+15.1	
15000	+17.1	+17.1	+17.1	

2. Audio Frequency Harmonic Content: (with de-emphasis)

	25%	50%	100%	Modulation
50 Hz	1.0	1.0	1.1	%
100	0.8	0.7	0.7	
400	0.7	0.6	0.6	
1000	0.6	0.7	0.7	
5000	0.7	0.8	0.7	
10000	0.5	0.7	0.6	
15000	0.5	0.7	0.7	

3. FM Noise Level: (with de-emphasis)  
 -65.0db below level corresponding  
 to 75 KHz deviation.

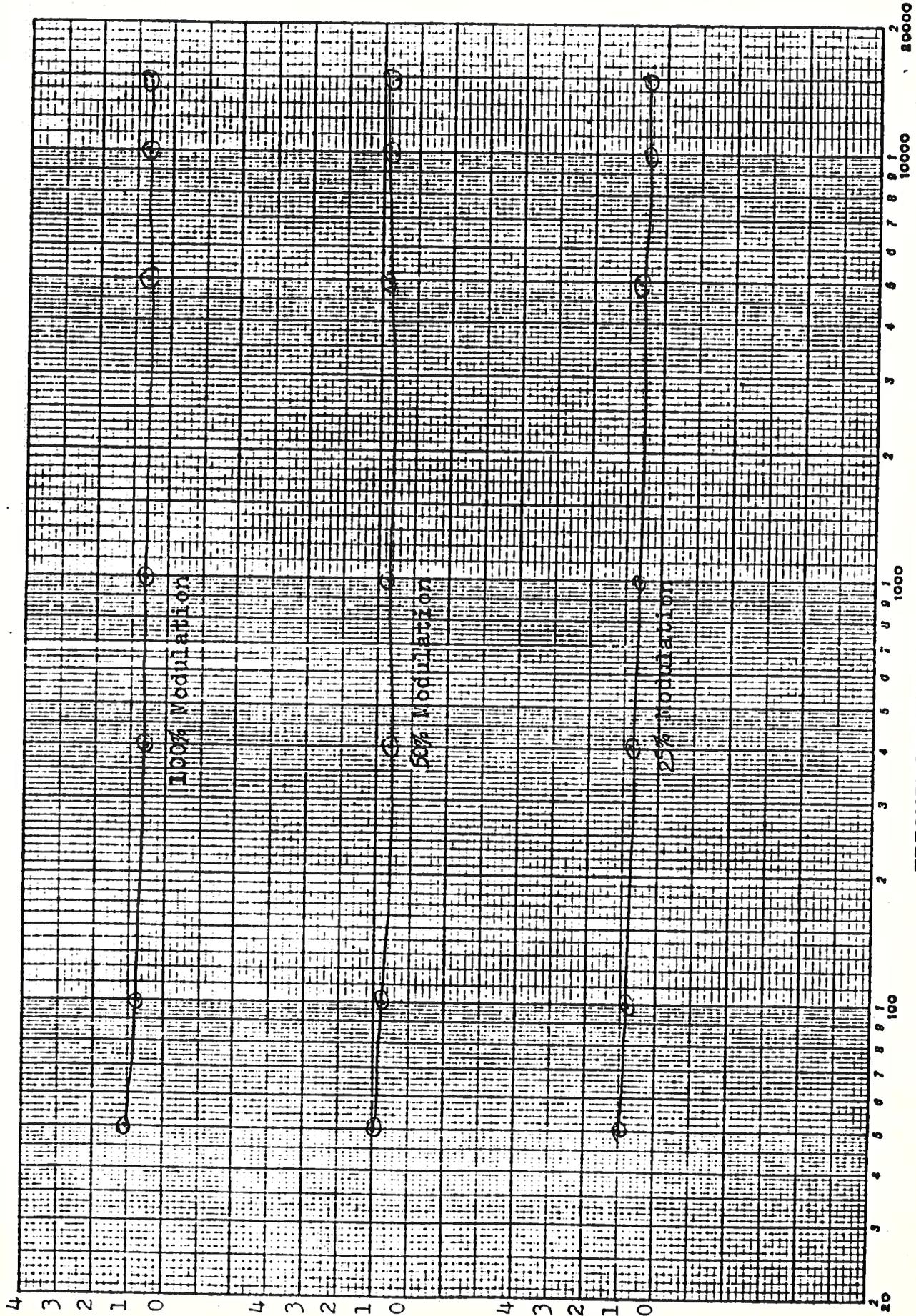
4. AM Noise Level: (with de-emphasis)  
 -57.5db below level corresponding  
 to 100% modulation.



DISTORTION MEASUREMENTS

RADIO STATION WWDM-FM

MARCH 4, 1985



FREQUENCY IN CYCLES PER SECOND

**ENGINEERING EXHIBIT EE-2 ANTENNA PROOF STATEMENT**

DUAL POLARIZED DIRECTIONAL FM ANTENNA FOR  
STATION WWDM, SUMTER, SOUTH CAROLINA

Electronics Research Inc., is providing a dual polarized directional FM antenna to the Harris Corporation Broadcast Division that is specifically designed to meet the requirements of WWDM.

The antenna is the Harris Type FMD-6B, and consists of 6 bays using two driven horizontal dipoles, two passive horizontal radiators, one driven vertical dipole, and three passive vertical radiators per bay. The power distribution and phase relationship to the driven elements was fixed in order to achieve the directional radiation pattern for both the horizontal and vertical polarization components.

The antenna pattern measurements were made on an antenna pattern range which is owned and operated by Electronics Research, Inc. The tests were performed under the direction of Thomas B. Silliman, President of Electronics Research, Inc. Mr. Silliman has both the Bachelor of Electrical Engineering and the Master of Electrical Engineering degrees from Cornell University, and is also a registered professional engineer in the States of Indiana, Maryland and Minnesota.

DESCRIPTION OF THE TEST PROCEDURE

A single layer of the complete array, with the horizontal and vertical elements in place, was tested on a steel pole having an outside diameter of 14 inches, which is the same type of structure to be used to support the WWDM array. The elements and brackets used for the test are the same as those being supplied with the antenna. All measurements were made at the WWDM operating frequency of 101.3 MHz.

The test pole was erected vertically on a pedestal turntable to facilitate the taking of measurements in the XY, or horizontal plane, for both the horizontal and vertical polarization components. The test antenna bay was mounted approximately twenty feet above ground. The turntable is equipped with a motor drive and azimuth indicating servo mechanism, the resolution of this azimuth measuring servo system being approximately one-tenth of a degree.

DUAL POLARIZED DIRECTIONAL FM ANTENNA FOR  
STATION WWDM, SUMTER, SOUTH CAROLINA

DESCRIPTION OF THE TEST PROCEDURE  
(continued)

The antenna under test was operated in the transmitting mode and fed from a Wavetek Model 3000 Signal Generator which was set at the frequency of 101.3 MHz. The frequency of this signal generator was constantly monitored by means of a Heathkit Model IM4110 Frequency Meter.

A corner reflector broad-band dipole receiving antenna was located approximately six hundred feet removed from the antenna under test, and mounted at the same height above average terrain as the radiation center of the antenna under test. The corner reflector receiving antenna is rotatable in its mount, thereby permitting the measurement of either the horizontal or vertical polarization component. The signal received by the dipole was fed back, via a buried 50 ohm Heliac cable, to a Scientific-Atlanta Series 1710 Portable Microwave Receiver used in conjunction with a Scientific-Atlanta Model 1720 Low Frequency Converter, this receiving equipment being located in the building. The relative field strength was plotted as a function of azimuth.

METHOD OF ACHIEVING THE PATTERN

The directional horizontal plane radiation patterns were developed by the use of two driven horizontal dipole elements, two parasitic horizontal reflectors, one driven vertical dipole, and three parasitic vertical elements per bay. A power divider is used near the bottom of the antenna to feed the system. The power distribution and phase relationship between the driven elements was fixed when the antenna was manufactured. Proper maintenance of the elements in good condition should be all that is required to maintain the pattern in adjustment.

The measured horizontal plane relative field pattern, for both the horizontal and vertical polarization components, is shown on Figure 1, attached. The calculated vertical plane relative field pattern is shown on Figure 2, attached.

DUAL POLARIZED DIRECTIONAL FM ANTENNA FOR  
STATION WWDN, SUMNER, SOUTH CAROLINA

CONCLUSIONS

The directivity complies with the FCC requirement that the ratio of maximum to minimum radiation shall not exceed 15 decibels in the horizontal plane. In addition, the radiation change does not exceed 2 decibels per 10 degrees of azimuth. The vertically polarized RMS does not exceed the horizontally polarized RMS. No vertical polarization radiation exceeds that of the horizontal polarization radiation component at any azimuth in the horizontal plane.

The radiated field at North 287.7 degrees East does not exceed 16.99 dbk (50.0 kilowatts) for either the horizontal or vertical polarization component.

The antenna system is to be mounted on the pole so that the array is facing North 155 degrees East. This orientation is to be accurately established by a qualified licensed surveyor, as required by the FCC. The installation blueprint supplied with the antenna also shows the proper orientation of the antenna.

The calculated maximum power gain of the horizontally polarized horizontal plane measured pattern is 4.92 (6.92db). The calculated maximum power gain of the vertically polarized horizontal plane measured pattern is 4.13 (6.16 db).

The required input power to the antenna input flange is calculated to be 20.33 kilowatts (13.08 dbk) to provide a maximum horizontal ERP of 100.0 kilowatts (20 dbk), and a maximum vertical ERP of 83.96 kilowatts (19.24 dbk). The input flange to the antenna is 3-1/8 inch EIA 50 ohm female.

Electronics Research, Inc.  
108 Market Street  
Newburgh, IN 47630

September 21, 1984

DIETZGEN CORPORATION  
IN U.S.A.  
NO. 341-P DIETZGEN GRAPH PAPER  
POLAR COORDINATE

FIGURE # 1  
W V D M  
SUMNER S.C.  
101.9 MHz

# MEASURED HORIZONTAL PLANE RELATIVE FIELD PATTERN

SEPT 20, 1984

HORIZONTAL ———  
VERTICAL - - - - -

TRUE NORTH

.25 .50 .75 1.00

ANTENNA ORIENTATION  
NORTH 155 DEGREES EAST

ELECTRONICS RESEARCH, INC.  
108 MARKET STREET  
NEWBURGH, IN 47030

FMD-6B ELEMENT  
14IN. O.D. POLE

MAXIMUM GAIN: HORIZONTAL POL 4.92 (6.92dB)  
VERTICAL POL 4.13 (6.16dB)

40° 320°  
50° 310°  
60° 300°  
70° 290°  
80° 280°  
90° 270°  
100° 260°  
110° 250°  
120° 240°  
130° 230°  
140° 220°

320° 40°  
310° 50°  
300° 60°  
290° 70°  
280° 80°  
270° 90°  
260° 100°  
250° 110°  
240° 120°  
230° 130°  
220° 140°

150° 210° 160° 200° 170° 190° 180° 180° 190° 170° 200° 180° 210° 150°

FIGURE 2

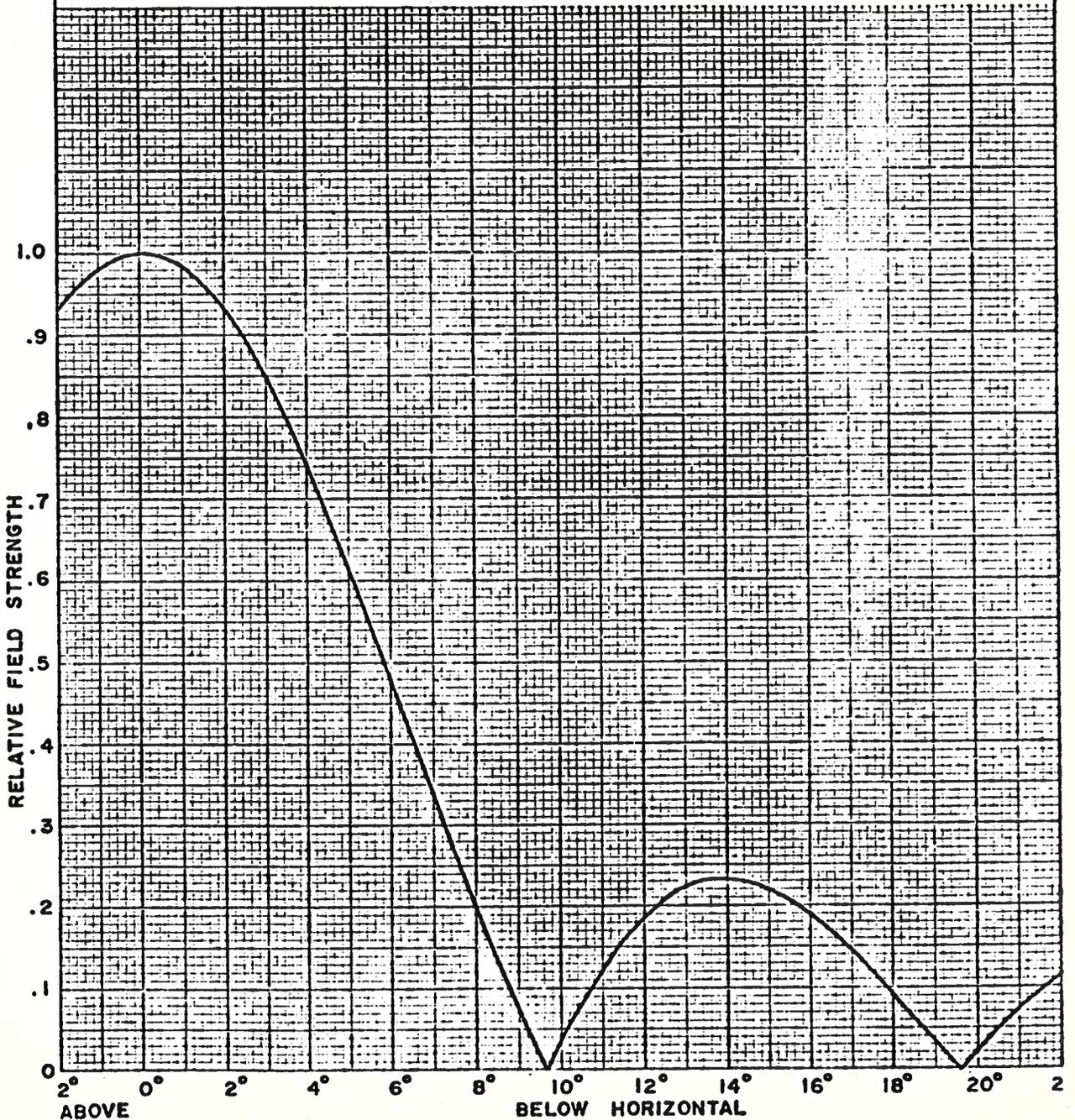
SIX BAY DUAL POLARIZED FM TRANSMITTING ANTENNA

NO BEAM TILT, NO NULL FILL

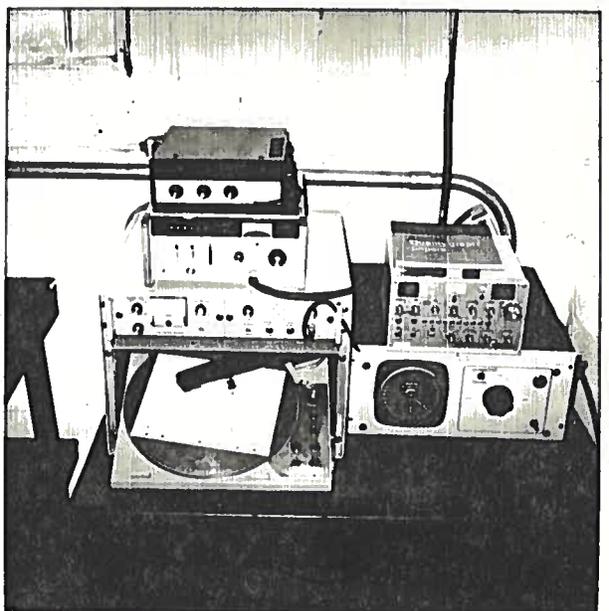
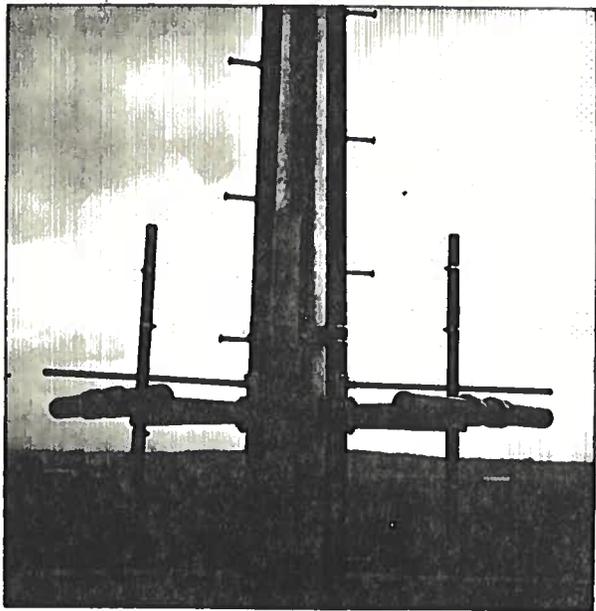
CALCULATED VERTICAL PLANE RELATIVE FIELD PATTERN

ELECTRONICS RESEARCH, INC.

MAY 1981



Printed on 100% Recycled Paper  
Electronics Research, Inc. 6 X 8 in.  
MADE IN U.S.A.



**ENGINEERING EXHIBIT EE-3 SURVEYOR STATEMENT**



**B. P. BARBER & ASSOCIATES, INC.**

ENGINEERS — PLANNERS — SURVEYORS

P. O. BOX 1116 / 2611 FOREST DRIVE / COLUMBIA, SOUTH CAROLINA 29202  
AREA CODE 803 254-4400

MEMBERS: A. S. C. E. / A. W. W. A.  
S. C. SOC. OF ENGRS. / S. C. S. P. E.

March 4, 1985

Mr. William J. Tricarico, Secretary  
Federal Communications Commission  
Washington, DC 20013

Re: Directional Antenna at New WDM  
FM Tower Site in Richland County,  
approximately 18 miles east of  
Columbia, South Carolina

Dear Mr. Tricarico:

This is to advise that on March 1, 1985 we checked the installation of the new directional antenna at the subject site and found it to be on an azimuth direction of 155°-00'-00" east from True North based on the South Carolina Plan Coordinate System within an error of 001°-00'-00" or less.

Please advise if we may be of further assistance at this time.

Very truly yours,

B. P. BARBER & ASSOCIATES, INC.

C. La Verne Steadman  
S.C. P.L.S. No. 7883  
Project Manager

cc: Mr. John Marshall