FCC Form 302
March 1977

Approved By GAO
B-180227 (RO 176)

(For Commission Use Only)
File No. BZ-800109AJ

Section I

United States of America
Federal Communications Commission

APPLICATION FOR NEW BROADCAST STATION LICENSE

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

Pioneer Valley Broadcasting Co.
Box 268
15 Hampton Avenue
Northampton, Mass. 01060

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

RECEIVED
JAN 9 1980
F.C.C.
OFFICE OF THE SECRETARY

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 [illegible] and list each exhibit in the space provided on page 2 of this Sec[illegible]. 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.

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

Charles DeRose, Radio Station WHMP
Box 268, 15 Hampton Avenue
Northampton, Mass. 01060

1. Facilities authorized by construction permit

Frequency	Channel No.	Power in kilowatts	
		Night	Day
1400 KHz	-	.25	1.0

Hours of operation	Call letters
unlimited	WHMP

2. Construction permit covered by this application

File number	Date
existing facility	

Construction begun	Construction completed

AURAL EXISTING FACILITY
JAN 15 1980

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 organization for the broadcasting of network programs? Yes ☐ No ☐

Does applicant, in the event this application is granted, propose to broadcast network programs? Yes ☐ No ☐
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.

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.
$	$	$	$

Acquiring land	Acquiring or constructing buildings	Other items, state nature	Total
$	$	$	$

FIRST MEASUREMENT JAN 1980

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.)

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)

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 4th day of January, 1980

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

X Pioneer Valley Broadcasting, Co.
(NAME OF APPLICANT)

By Charles W. DeRoo
(SIGNATURE)

Title President and General Manager

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
ENG.	II-A Para. 9	Lindsay M. Collins (1)	Consulting Engineer

Broadcast Application | FEDERAL COMMUNICATIONS COMMISSION | Section II-A

LICENSE APPLICATION ENGINEERING DATA STANDARD BROADCAST

Name of applicant: Pioneer Valley Broadcasting Co.

Purpose of authorization applied for: (Check one)

	Answer paragraphs
☐ Station license	1-13
☒ Direct measurement of power	2,6,7,8,9,14

1. Facilities authorized in construction permit

Call Sign	File No. of construction permit	Frequency	Hours of operation	Power in kilowatts Night	Power in kilowatts Day
WHMP					

2. Station location

State	City or town
Massachusetts	Northampton

3. Transmitter location

State	County

City or Town	Street Address (or other identification)

4. Main studio location

State	County

City or Town	Street and number

5. Remote control point location (only if authorized)

State	City or town

Street Address (or other identification)

6. Transmitter Installed

Make	Type No.	Rated Power
~~RCA~~	BTA-1R ~~BT-250-K~~	1.0KW .250 Kz

Last radio stage

	Total unmodulated plate current	Plate voltage
Night BTA-1R	.237	1450
Night BT-250-K	.217	1510
Day BTA-1R	.470	3040
Day BT-250-K	.217	1510

Manufacturer's recommended operating efficiency for the last radio frequency amplifier stage in percent. BTA1R 70% BT-250-K 70%

Is inverse feedback utilized? Yes ☐ No ☒

If "Yes", to what value of feedback power is transmitter adjusted (in db)

Efficiency of the last radio frequency amplifier stage as now adjusted

BTA-1R (use formula $\frac{I_a^2}{E_p} \frac{R_a (100)\%}{I_p}$)

Day 70.0%

Nite 72.7% BT250-K 76.3% D & N

7. Operating constants: (If directional system, give current at point of resistance measurement.)

RF common point or antenna current without modulation for night power in amperes	RF common point or antenna current without modulation for day power in amperes
2.15	4.295 (4.3)

Actual measured antenna or common point resistance (in ohms) at operating frequency	Actual measured antenna or common point reactance (in ohms) at operating frequency
Night 54.2 Day 54.2	Night +J45.5 Day +J45.5

Currents, and phases for directional operation DNA

Tower	Phase reading in degrees Night	Phase reading in degrees Day	Antenna base current Night	Antenna base current Day	Remote indication of antenna current Night	Remote indication of antenna current Day

Manufacturer and type of antenna monitor:

Describe equipment used for remote indication of antenna currents (antenna monitor or other method)

8. 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. Height figures should not include obstruction lighting.)

Type radiator	Height in feet of complete radiator above base insulator, or above base if grounded.
vertical, tapered square cross section, self-supporting	176'

Overall height in feet above ground. (without obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully as EXHIBIT ____.
181'	DNA

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	West longitude
42 19 36	72 39 28

If not fully describe above, give further details and dimensions including any other antennas mounted on tower and associated isolation circuits as EXHIBIT ____. none

Details and dimensions of ground system: (Attach sketch as EXHIBIT ____ if necessary for complete description).

120 buried copper wire radials 281' long, a copper ground screen 30' x 30', overlaid with 120 equally spaced copper wire radials varying in length from 150 to 220 feet.

Broadcast Application | STANDARD BROADCAST ENGINEERING DATA | Section II-A, Page 2

9. Antenna resistance measurement

Attach as Exhibit No. ENG. the following:

a. Qualifications of persons taking measurements.

b. Schematic diagram showing clearly all components of coupling circuits, point of resistance measurement, location of antenna ammeter, connection to and characteristics of all tower lighting isolation circuits, static drains, and any other fixtures, lines etc. connected to or supported by the antenna, including other antennas and associated circuits.

c. Full description of method used to make measurements.

d. Manufacturer's name of each calibrated instrument used and manufacturer's rated accuracy.

e. Date, accuracy, and by whom each instrument was last calibrated.

f. Table of complete data taken.

g. The graph drawn of 10 to 12 readings in a band 50 to 60 kilohertz wide with the operating frequency near the center.

10. Modulation monitor

Make	Type No.

11. Frequency measurements

Give the following data on the checks of the frequency

	Date and Time	Frequency measured by such agency or method
1.		
2.		
3.		

Name of checking agency or method used

12. Give method of varying power to compensate for variation of line voltage.

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

None.

Note: RCA BTA-1R is currently designated Main-Day; Alt.- Night.

RCA 250K is designated Aux-Day; Alt. - Night.

14. Give reason for the change in antenna or common point resistance.

Gradual deteriation of antenna ground system; exact cause if undetermined.

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 December 10, 1979

Signature Lindsay M. Collins

Lindsay M. Collins

(check appropriate box below)

- [ ] Technical Director
- [ ] Registered Professional Engineer
- [X] Consultant
- [ ] Chief Operator

Telephone 603 938 5341 (include Area Code)

Northeast Broadcast Lab.
RFD
Bradford, N.H. 03221

NORTHEAST BROADCAST LAB, INC.

15 CHARLES STREET, P.O. BOX 1176
SOUTH GLENS FALLS, N. Y. 12801
518 - 793-2181

WHMP NORTHAMPTON

ANTENNA RESISTANCE MEASUREMENTS

DECEMBER 3, 1979

ENGINEERING REPORT

NORTHEAST BROADCAST LAB, INC.

15 CHARLES STREET (518) 793-2181 SOUTH GLENS FALLS, N.Y. 12801

WHMP NORTHAMPTON

ANTENNA RESISTANCE MEASUREMENTS

INTRODUCTION

A gradual change in transmitter operating efficiency was noted at WHMP over a period of many months. A spot check was made of the antenna resistance to determine the reason for the change in efficiency.

It was found that sufficient change had taken place in the antenna to warrant making new resistance measurements and filing for direct measurement of power with a new value of antenna current with the Federal Communications Commission.

New resistance and reactance measurements were made and are a part of this report.

ANTENNA SYSTEM

The WHMP antenna system employs a 176 foot tapered, square cross section, self-supporting, series excited vertical radiator with an overall height above ground of 181 feet.

AC Power for the unused tower lighting system is fed across the base by means of a tower lighting choke. No auxillary antennas are mounted on this tower.

The ground system consists of 120 buried copper wire radials 281 feet long, a copper ground screen 30' x 30', and an additional 120 equally spaced radials varying in length from 150 to 220 feet.

The location of this antenna system is:

42° 19' 36" North Latitude

72° 39' 28" West Longitude.

ENGINEERING REPORT

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EQUIPMENT USED

The test equipment used to measure the WHMP antenna impedance included:

1) Delta model OIB-1 Radio Frequency Bridge, s/n 560

2) Delta model RG-1 Receiver/Generator, s/n 056

The rated accuracy of this bridge is $\pm$ 2%; $\pm$ 1.0 ohms, for both resistance and reactance.

This bridge was last calibrated by Delta Electronics in Springfield, Virginia, on October 15, 1979. Calibration information furnished by Delta shows that it's accuracy is better than specified over the ranges covered in this report.

PROCEDURE

The equipment was set up as shown in Figure 1. The generator was zero beat with the station's transmitter to establish a 1400 KHz reference. The incremental dial on the Receiver/Generator was then used to determine frequencies at 5 KHz intervals out to 30 KHz above and below the operating frequency.

For each frequency, the bridge was nulled and the indications on it's resistance and reactance dials were recorded. The resistance values were determined directly from the bridge. The Reactance values were found by multiplying the indications on the reactance dial by the measured frequency in MHz.

This information was used to plot the graphs in Figure 2.

The new antenna resistance was found to be 54.2 ohms, and the new antenna reactance was found to be 45.5 ohms inductive.

NEW POWER DETERMINATION

Operating power is determined from the formula:

$$P = I^2 R,$$

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where P is the radiated power in watts; R is the antenna resistance; and I is the antenna current in amperes.

Substituting in the formula, the required antenna current for a daytime carrier power of 1000 watts is found to be 4.295 (4.3) amps; and for a night time carrier power of 250 watts, the required antenna current is found to be 2.15 amps.

ADDITIONAL INFORMATION

The antenna tuning unit input was tuned to: 51.0 +J3.5

The transmission line input was measured to be: 52.5 +J8.4
The transmission line current meter indicated: 4.38 Amps
with the transmitter adjusted for an antenna current of 4.3 A.
The dummy load was measured to be: 52.0 +J5.3.

Lindsay M. Collins

Lindsay M. Collins
Pl-1-19571
December 10, 1979

RFD, Bradford, N.H. 03221

ENGINEERING REPORT
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FIGURE 1
BLOCK DIAGRAM OF TEST SET-UP

WHMP NORTHAMPTON
DECEMBER 3, 1979

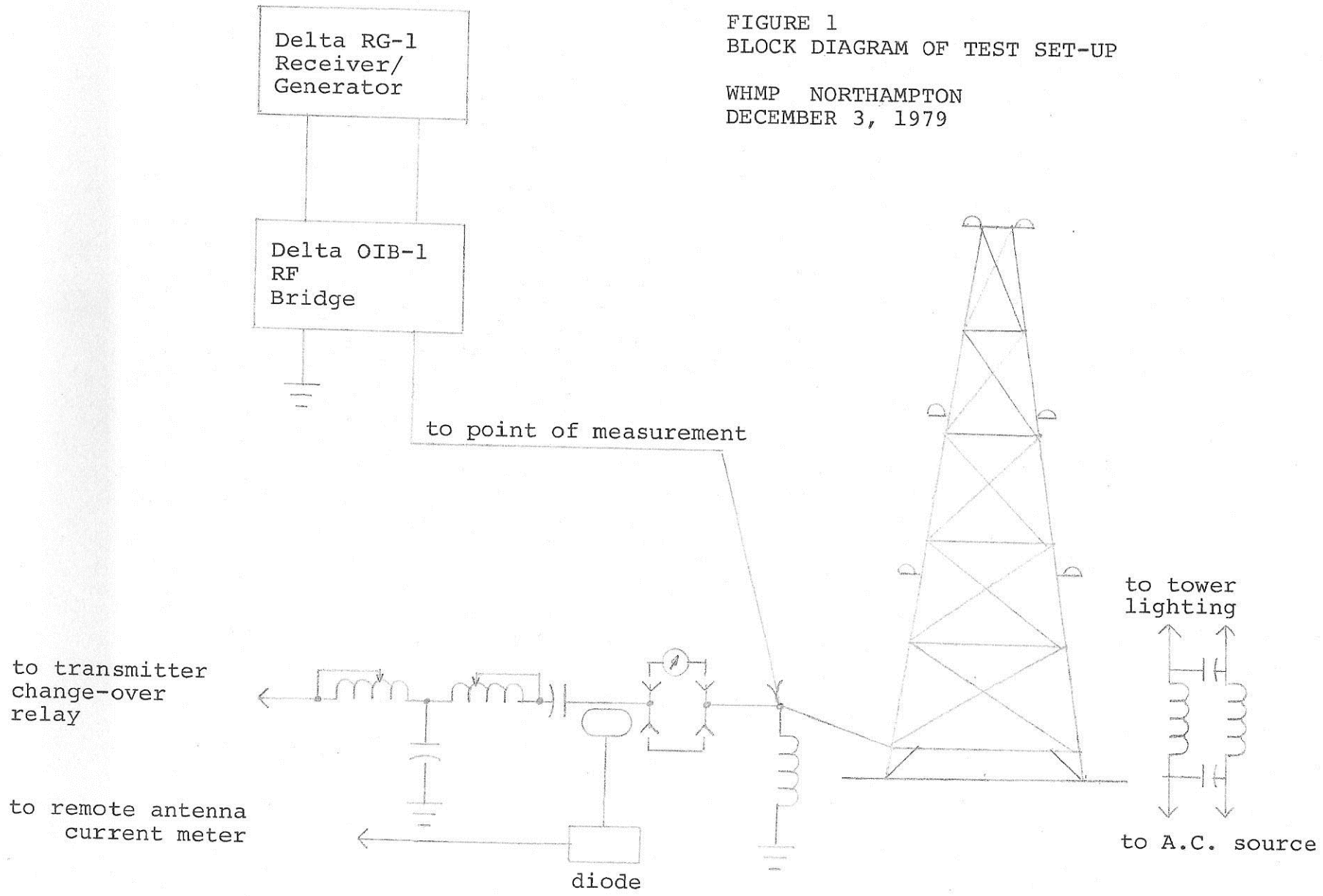

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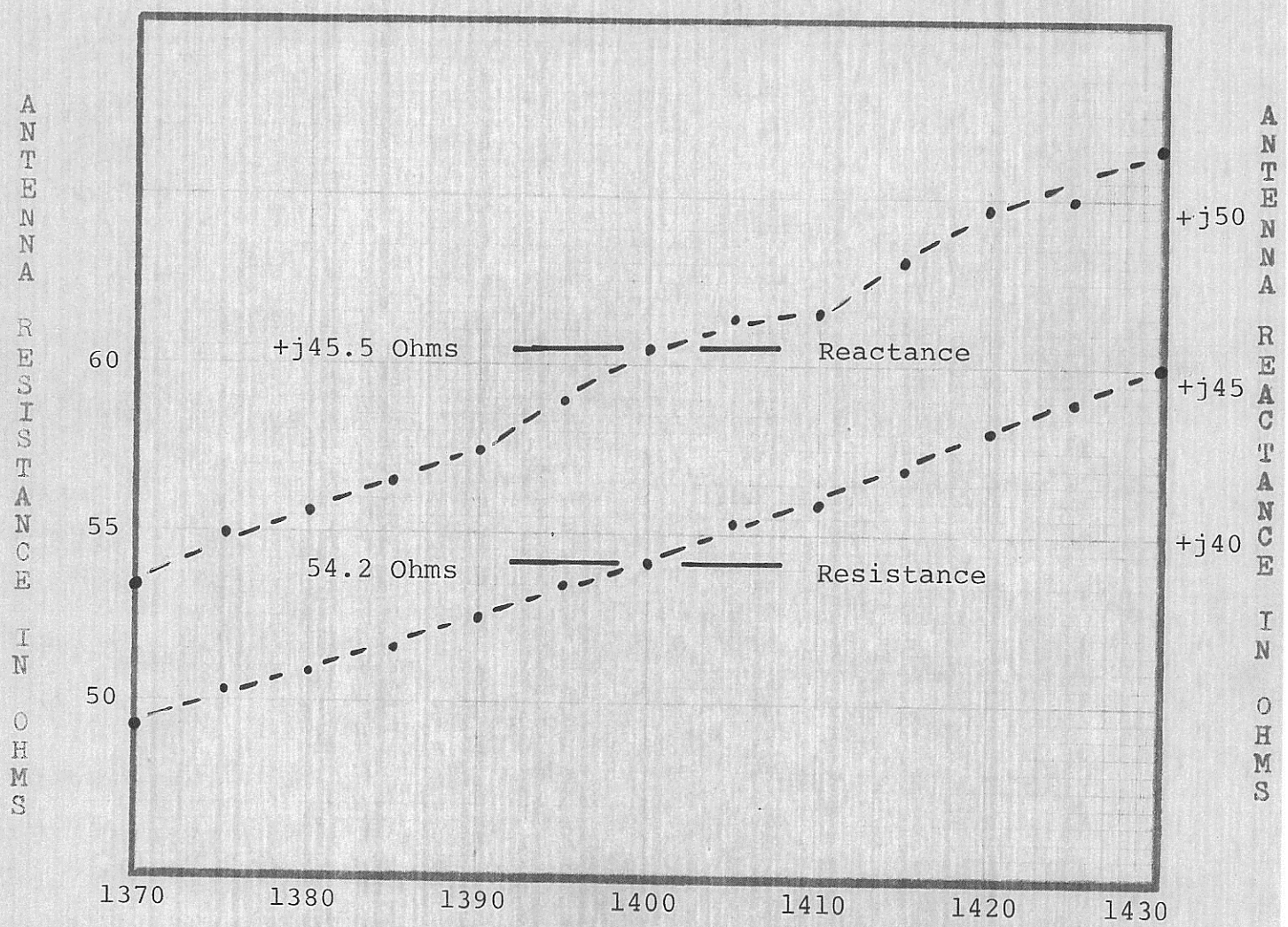
FIGURE 2
ANTENNA RESISTANCE AND
REACTANCE MEASUREMENTS
WHMP NORTHAMPTON
DECEMBER 3, 1979



MEASURED VALUES OF ANTENNA RESISTANCE AND REACTANCE

FREQUENCY	RESISTANCE	REACTANCE
1370 KHz	49.3 Ohms	+j38.4 Ohms
1375	50.3	+j39.9
1380	50.8	+j40.7
1385	51.7	+j41.6
1390	52.5	+j42.4
1395	53.5	+j44.0
1400 ----------	54.2 ----------	+j45.5
1405	55.3	+j46.4
1410	55.9	+j46.6
1415	57.0	+j48.1
1420	58.1	+j49.7
1425	59.0	+j50.0
1430	60.0	+j51.5

ENGINEERING REPORT

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STATEMENT OF QUALIFICATIONS

I, Lindsay M. Collins, of Bradford, N.H., state:

That I am a qualified and experienced radio engineer.

That I have held a First Class Radiotelephone license since 1972.

That I have been employed in the field of Broadcast Engineering since 1972, and as a Broadcast Technical Consultant since 1974.

That my qualifications are a matter of record with the Federal Communications Commission, having filed numerous applications and technical measurements with them in the past.

That I performed the measurements and prepared the technical data contained in the attached report, and that all of the data and calculations are true and accurate to the best of my knowledge and belief.

Lindsay M. Collins

Lindsay M. Collins
Pl-1-19571