RECEIPT COPY
ACCEPTED/FILED
OCT 10 2011
Federal Communications Commission
Office of the Secretary

Federal Communications Commission
Washington, D. C. 20554

Approved by OMB
3060-0627
Expires 01/31/98

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.

FOR COMMISSION USE ONLY
FILE NO.

SECTION I - APPLICANT FEE INFORMATION

1. PAYOR NAME (Last, First, Middle Initial)

Mid-West Management, Inc.

MAILING ADDRESS (Line 1) (Maximum 35 characters)
730 Ray O Vac Drive

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
Madison	WI	53711

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
6082731000	WHIT	19622

2. A. Is a fee submitted with this application? ☐ Yes ☑ No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

☐ Governmental Entity ☐ Noncommercial educational licensee ☑ Other (Please explain):

C. If Yes, provide the following information: Direct Measurement of Power

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in the "Mass Media Services Fee Filing Guide." Column (B) lists the Fee Multiple applicable for this application. Enter fee amount due in Column (C).

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
	0001	$	

To be used only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

(A)	(B)	(C)	FOR FCC USE ONLY
	0001	$	

	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	$	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Mid-West Management, Inc.		
MAILING ADDRESS 730 Ray O Vac Drive		
CITY Madison	STATE WI	ZIP CODE 53711

2. This application is for:

☑ Commercial ☐ Noncommercial

☑ AM Directional ☐ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
WHIT	Madison, WI	--	--	--

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620?

☑ Yes ☐ No

If No, explain in an Exhibit.

Exhibit No.

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met?

☑ Yes ☐ No

If No, state exceptions in an Exhibit.

Exhibit No.

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect?

☐ Yes ☐ No

If Yes, explain in an Exhibit.

Exhibit No.

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)?

☐ Yes ☐ No

☑ Does not apply

If No, explain in an Exhibit.

Exhibit No.

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination?

☐ Yes ☐ No

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter.

Exhibit No.

8. Does the applicant, or any party to the application, have a petition on file to migrate to the expanded band (1605-1705 kHz) or a permit or license either in the existing band or expanded band that is held in combination (pursuant to the 5 year holding period allowed) with the AM facility proposed to be modified herein?

☐ Yes ☐ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

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

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 set out in full in

CERTIFICATION

1. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b).

☑ Yes ☐ No

2. 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.

Name	Signature	
Thomas Walker		
Title	Date	Telephone Number
President		6082731000

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

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

Mid-West Management, Inc.

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☐ Station License ☒ Direct Measurement of Power

1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
WHIT	N/A	1550	D	-	5.0

2. Station location

State	City or Town
WI	Madison

3. Transmitter location

State	County	City or Town	Street address (or other identification)
WI	Dane	Madison	5024 Easy Lacy Road

4. Main studio location

State	County	City or Town	Street address (or other identification)
WI	Dane	Madison	730 Rayovac Drive

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

State	County	City or Town	Street address (or other identification)
WI	Dane	Madison	730 Rayovac Drive

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.

No Change

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
N/A	10.4

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
N/A	50	N/A	±j0

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
1	-	+0.0	-	1.00		
2	-	+126.0	-	1.05		
3	-	-6.0	-	0.99		
4	-	+127.0	-	1.02		

Manufacturer and type of antenna monitor: Potomac Instruments 1901 (4188) S/N 780

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

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
Uniform cross section, guyed and base insulated	48.5 m	49.7 m	49.7 m	Exhibit No. N/A

Excitation [X] Series [ ] Shunt

Registration not required

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			
	43 °	00 '	08 "		89 °	23 '	13 "

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits. On File - No Change

Exhibit No.

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. On File - No Change

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?

N/A

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

Installation of a microwave antenna, CAT 6 feed line, and power isolation choke on Tower 3.

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)	Signature (check appropriate box below)
Derek R. Gorman	
Address (include ZIP Code) P.O. Box 807 2324 N. Cleveland-Massillon Road Bath, OH 44210-0807	Date 10/9/2017 Telephone No. (Include Area Code) 330/659-4440

[ ] Technical Director

[ ] Registered Professional Engineer

[ ] Chief Operator

[X] Technical Consultant

[ ] Other (specify)

ENGINEERING EXHIBIT E-2

APPLICATION FOR DIRECT

MEASUREMENT OF POWER

WHIT(AM) - MADISON, WI

Mid-West Management, Inc.
Madison, WI

October 9, 2017

Prepared for: Mr. John Bauer
Mid-West Management, Inc.
730 Rayovac Dr.
Madison, WI 53711

CARL E. SMITH CONSULTING ENGINEERS

2324 N. CLEVE-MASS RD., BOX 807 330/659-4440 FAX: 330/659-9234 BATH, OHIO 44210-0807

CONTENTS

ENGINEERING AFFIDAVIT

State of Ohio)
) ss:
County of Summit)

Roy P. Stype, III, being duly sworn, deposes and states that he is a graduate Electrical Engineer, a qualified and experienced Communications Consulting Engineer whose works are a matter of record with the Federal Communications Commission and that he is a member of the Firm of "Carl E. Smith Consulting Engineers" located at 2324 North Cleveland-Massillon Road in the Township of Bath, County of Summit, State of Ohio, and that the Firm has been retained by Mid-West Management, Inc. to prepare the attached "Engineering Exhibit E-2."

The deponent states that the Exhibit was prepared by him or under his direction and is true of his own knowledge, except as to statements made on information and belief and as to such statements, he believes them to be true.

Roy P. Stype, III

Subscribed and sworn to before me on **October 9, 2017.**

Notary Public

/SEAL/

Nancy A. Adams, Notary Public
Residence - Cuyahoga County
State Wide Jurisdiction, Ohio
My Commission Expires Sept. 27, 2020

ENGINEERING AFFIDAVIT

State of Ohio)
) ss:
County of Summit)

Derek R. Gorman, being duly sworn, deposes and states that he is a qualified and experienced Communications Consulting Engineer whose works are a matter of record with the Federal Communications Commission and that he is a member of the Firm of "Carl E. Smith Consulting Engineers" located at 2324 North Cleveland-Massillon Road in the Township of Bath, County of Summit, State of Ohio, and that the Firm has been retained by Mid-West Management, Inc. to prepare the attached "Engineering Exhibit E-2."

The deponent states that the Exhibit was prepared by him or under his direction and is true of his own knowledge, except as to statements made on information and belief and as to such statements, he believes them to be true.

Derek R. Gorman

Subscribed and sworn to before me on **October 9, 2017.**

Notary Public

Nancy A. Adams, Notary Public
Residence - Cuyahoga County
State Wide Jurisdiction, Ohio
My Commission Expires Sept. 27, 2020

/SEAL/

ENGINEERING STATEMENT

1.0 GENERAL

This engineering exhibit is prepared on behalf of Mid-West Management, Inc., licensee of Radio Station WHIT(AM) - Madison, Wisconsin, in support of an application to determine power by the direct method. It details the results of a recent partial proof of performance which was conducted on the WHIT daytime directional pattern following the installation of a microwave antenna, CAT 6 feed line, and power isolation choke on tower 3 of the directional array as required by Section 1.30003 of the FCC Rules.

Following the completion of this installation, the operating parameters of the WHIT daytime directional pattern were adjusted to restore the radiated fields to within those authorized in the standard pattern. A partial proof of performance was then conducted on the daytime pattern and the results are detailed in Section 2.0 of this exhibit.

New common point impedance measurements were also conducted on the WHIT directional antenna system following the adjustment of the daytime pattern. These measurements are detailed in Section 3.0 of this exhibit.

As shown by the data contained in this exhibit, the WHIT daytime directional pattern has been restored to proper operation. Accordingly, it is requested that WHIT be authorized to resume determination of its operating power by the direct method.

2.0 DAYTIME DIRECTIONAL FIELD STRENGTH MEASUREMENTS

Partial proof of performance measurements were conducted on each monitor point radial that was measured in the 1971 full proof of performance for the WHIT daytime directional antenna system. These measurements were then analyzed against the 1971 full proof of performance using log ratio analysis techniques. The calculated log ratio for each radial was then multiplied by the radial's 1971 directional inverse field strength to obtain the present measured inverse field strength for each radial.

Table 2.0 provides calibration data for the field strength meters which were used to conduct this partial proof of performance. Tables 2.1 through 2.6 present the measurements and log ratio analysis for each radial. Table 2.7 is a tabulation of the log ratio for each radial, the 1971 directional inverse field strength for each radial, and the daytime directional inverse field strengths measured in this proof. The standard pattern limit for each radial is also tabulated in this table, showing that the measured field strength does not exceed the limit on any radial.

TABLE 2.0

FIELD STRENGTH METER
CALIBRATION INFORMATION
Mid-West Management, Inc.
Madison, WI

PI-4100, S/N 250	September 23, 2014
FIM-21, S/N 537	July 14, 2010
FIM-41, S/N 1396	February 26, 2010

Note: Prior to conducting the WHIT partial proof of performance, measurements were made at a common location with all of the above field strength meters. Close correlation was observed between these meters verifying the accuracy of all three of these field strength meters.

TABLE 2.1
WHIT DAYTIME DIRECTIONAL
FIELD STRENGTH MEASUREMENTS
65.00 DEGREE RADIAL

MID-WEST MANAGEMENT, INC.
MADISON, WI

(1)	(2)	(3)	(4)	(5)
POINT	DISTANCE (mi)	1971 DAYTIME FIELD STRENGTH (mV/m)	PRESENT DAYTIME FIELD STRENGTH (mV/m)	LOG RATIO (4)/(3)
22	4.58	9.600	7.800	-0.0902
23	4.88	5.200	6.000	0.0621
24-MP	5.48	4.400	2.300	-0.2817
26	7.73	3.650	1.600	-0.3582
27	9.83	2.600	0.880	-0.4705
28	10.37	1.900	1.220	-0.1924
29	12.29	1.340	0.960	-0.1448
30	13.17	1.000	0.600	-0.2218
31	15.95	0.780	0.370	-0.3239
			LOG AVERAGE:	0.5962

ALL POINTS MEASURED ON 9/20/2017 BETWEEN THE HOURS OF 1047 AND 1135 CDT BY TREVOR HOFFMAN USING POTOMAC INSTRUMENTS FIM-41, S/N 1396.

TABLE 2.2
WHIT DAYTIME DIRECTIONAL
FIELD STRENGTH MEASUREMENTS
105.40 DEGREE RADIAL

MID-WEST MANAGEMENT, INC.
MADISON, WI

(1)	(2)	(3)	(4)	(5)
POINT	DISTANCE (mi)	1971 DAYTIME FIELD STRENGTH (mV/m)	PRESENT DAYTIME FIELD STRENGTH (mV/m)	LOG RATIO (4)/(3)
12-MP	1.26	6.950	11.000	0.1994
21	2.90	2.600	1.950	-0.1249
22	3.10	2.650	1.650	-0.2058
23	3.63	3.230	4.450	0.1392
24	4.52	2.400	2.950	0.0896
25	5.20	1.250	0.990	-0.1013
26	6.10	0.960	0.418	-0.3611
27	8.78	0.540	0.655	0.0838
			LOG AVERAGE:	0.9223

ALL POINTS MEASURED ON 9/19/2017 BETWEEN THE HOURS OF 1411 AND 1459 CDT BY DEREK GORMAN USING POTOMAC INSTRUMENTS 4100, S/N 250.

TABLE 2.3
WHIT DAYTIME DIRECTIONAL
FIELD STRENGTH MEASUREMENTS
145.00 DEGREE RADIAL

MID-WEST MANAGEMENT, INC.
MADISON, WI

(1)	(2)	(3)	(4)	(5)
POINT	DISTANCE (mi)	1971 DAYTIME FIELD STRENGTH (mV/m)	PRESENT DAYTIME FIELD STRENGTH (mV/m)	LOG RATIO (4)/(3)
20-MP	3.00	2.750	5.200	0.2767
21	3.40	1.700	2.910	0.2334
22	5.70	0.840	0.620	-0.1319
23	5.90	0.710	0.540	-0.1189
24	7.00	0.520	0.840	0.2083
25	8.95	0.360	0.680	0.2762
26	10.15	0.350	0.470	0.1280
27	12.06	0.270	0.220	-0.0889
			LOG AVERAGE:	1.2528

ALL POINTS MEASURED ON 9/20/2017 BETWEEN THE HOURS OF 0935 AND 1010 CDT BY TREVOR HOFFMAN USING POTOMAC INSTRUMENTS FIM-41, S/N 1396.

TABLE 2.4
WHIT DAYTIME DIRECTIONAL
FIELD STRENGTH MEASUREMENTS
175.00 DEGREE RADIAL

MID-WEST MANAGEMENT, INC.
MADISON, WI

(1)	(2)	(3)	(4)	(5)
POINT	DISTANCE (mi)	1971 DAYTIME FIELD STRENGTH (mV/m)	PRESENT DAYTIME FIELD STRENGTH (mV/m)	LOG RATIO (4)/(3)
20-MP	2.15	24.800	23.200	-0.0290
21	3.50	15.000	5.800	-0.4127
22	3.70	12.500	9.000	-0.1427
24	4.52	10.500	6.200	-0.2288
25	5.00	9.500	4.200	-0.3545
26	7.05	3.150	1.300	-0.3844
27	8.30	3.350	1.400	-0.3789
28	10.06	1.450	0.800	-0.2583
			LOG AVERAGE:	0.5325

ALL POINTS MEASURED ON 9/19/2017 BETWEEN THE HOURS OF 1609 AND 1649 CDT BY TREVOR HOFFMAN USING POTOMAC INSTRUMENTS FIM-41, S/N 1396.0

TABLE 2.5
WHIT DAYTIME DIRECTIONAL
FIELD STRENGTH MEASUREMENTS
225.00 DEGREE RADIAL

MID-WEST MANAGEMENT, INC.
MADISON, WI

(1)	(2)	(3)	(4)	(5)
POINT	DISTANCE (mi)	1971 DAYTIME FIELD STRENGTH (mV/m)	PRESENT DAYTIME FIELD STRENGTH (mV/m)	LOG RATIO (4)/(3)
21-MP	2.20	16.000	14.800	-0.0339
22	3.60	7.500	5.100	-0.1675
23	4.97	2.800	2.800	0.0000
24	5.40	3.800	3.400	-0.0483
25	5.70	3.300	2.900	-0.0561
26	7.14	2.300	1.860	-0.0922
27	8.60	2.000	0.540	-0.5686
28	9.30	1.500	0.840	-0.2518
29	9.90	1.000	0.960	-0.0177
			LOG AVERAGE:	0.7289

ALL POINTS MEASURED ON 9/19/2017 BETWEEN THE HOURS OF 1623 AND 1708 CDT BY JOHN BAUER USING POTOMAC INSTRUMENTS FIM-21, S/N 537.

TABLE 2.6
WHIT DAYTIME DIRECTIONAL
FIELD STRENGTH MEASUREMENTS
265.00 DEGREE RADIAL

MID-WEST MANAGEMENT, INC.
MADISON, WI

(1)	(2)	(3)	(4)	(5)
POINT	DISTANCE (mi)	1971 DAYTIME FIELD STRENGTH (mV/m)	PRESENT DAYTIME FIELD STRENGTH (mV/m)	LOG RATIO (4)/(3)
20-MP	2.15	10.000	12.600	0.1004
21	3.06	10.000	5.530	-0.2573
22	3.76	8.500	8.100	-0.0209
23	5.00	1.700	2.700	0.2009
24	6.50	2.600	1.950	-0.1249
25	7.26	1.900	1.600	-0.0746
26	8.26	1.800	1.380	-0.1154
27	9.50	1.000	1.160	0.0645
29	12.30	0.520	0.715	0.1383
			LOG AVERAGE:	0.9775

ALL POINTS MEASURED ON 9/19/2017 BETWEEN THE HOURS OF 1614 AND 1753 CDT BY DEREK GORMAN USING POTOMAC INSTRUMENTS 4100, S/N 250.

TABLE 2.7
TABULATION OF MEASURED
WHIT DAYTIME DIRECTIONAL
INVERSE FIELD STRENGTHS

MID-WEST MANAGEMENT, INC.
MADISON, WI

RADIAL (Degrees)	1971 DAYTIME INVERSE FIELD (mV/m) (mi)	(km)	LOG AVERAGE	PRESENT DAYTIME INVERSE FIELD (mV/m) (mi)	(km)	RADIATION LIMIT (mV/m) (mi)	(km)
65.00	36.9	59.4	0.5962	22.0	35.4	40.0	64.4
105.40	12.7	20.4	0.9223	11.7	18.9	16.3	26.2
145.00	8.8	14.2	1.2528	11.0	17.7	16.2	26.1
175.00	80.7	129.9	0.5325	43.0	69.2	90.0	144.8
225.00	43.4	69.8	0.7289	31.6	50.9	48.0	77.2
265.00	28.1	45.2	0.9775	27.5	44.2	58.6	94.3

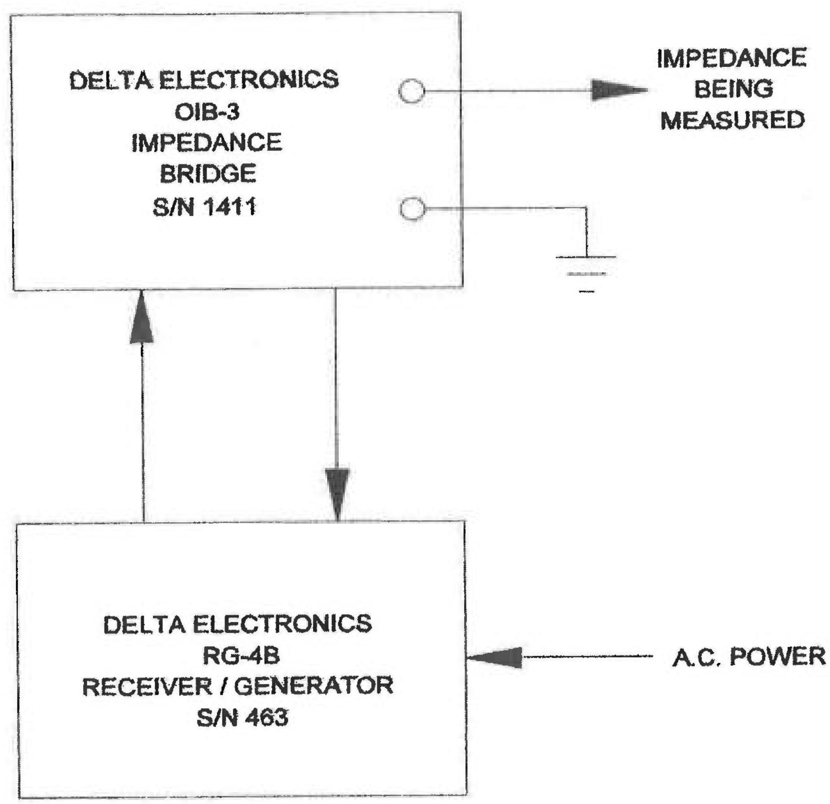
3.0 IMPEDANCE MEASUREMENTS

All impedance measurements were conducted on September 21, 2017, by Derek Gorman, using the equipment shown in Figure 3.0. A Delta Electronics RG-4B receiver/generator was used as the signal source and the bridge detector. A Delta Electronics OIB-3 was used as the bridge. The manufacturer's stated accuracy is ±2%, ±1 ohm.

The WHIT daytime directional common point impedance measurements are tabulated in Table 3.1 and plotted in Figure 3.1. The resistance values were read directly from the sum of the switch and dial positions on the bridge. The reactance values were also read directly from the sum of the switch and dial positions on the bridge and then corrected by multiplying the reading by the frequency in MHz.

Figure 3.2 is a diagram of the WHIT feeder system showing the point at which these impedance measurements were made.

MWMBD2 5/02/98



CARL E. SMITH CONSULTING ENGINEERS
2324 N. CLEVE-MASS., RD. BOX 807
BATH, OHIO 44210-0807
(330) 659-4440

FIG. 3.0

BLOCK DIAGRAM OF
IMPEDANCE MEASURING EQUIPMENT

MID-WEST MANAGEMENT, INC.
MADISON, WI

TABLE 3.1

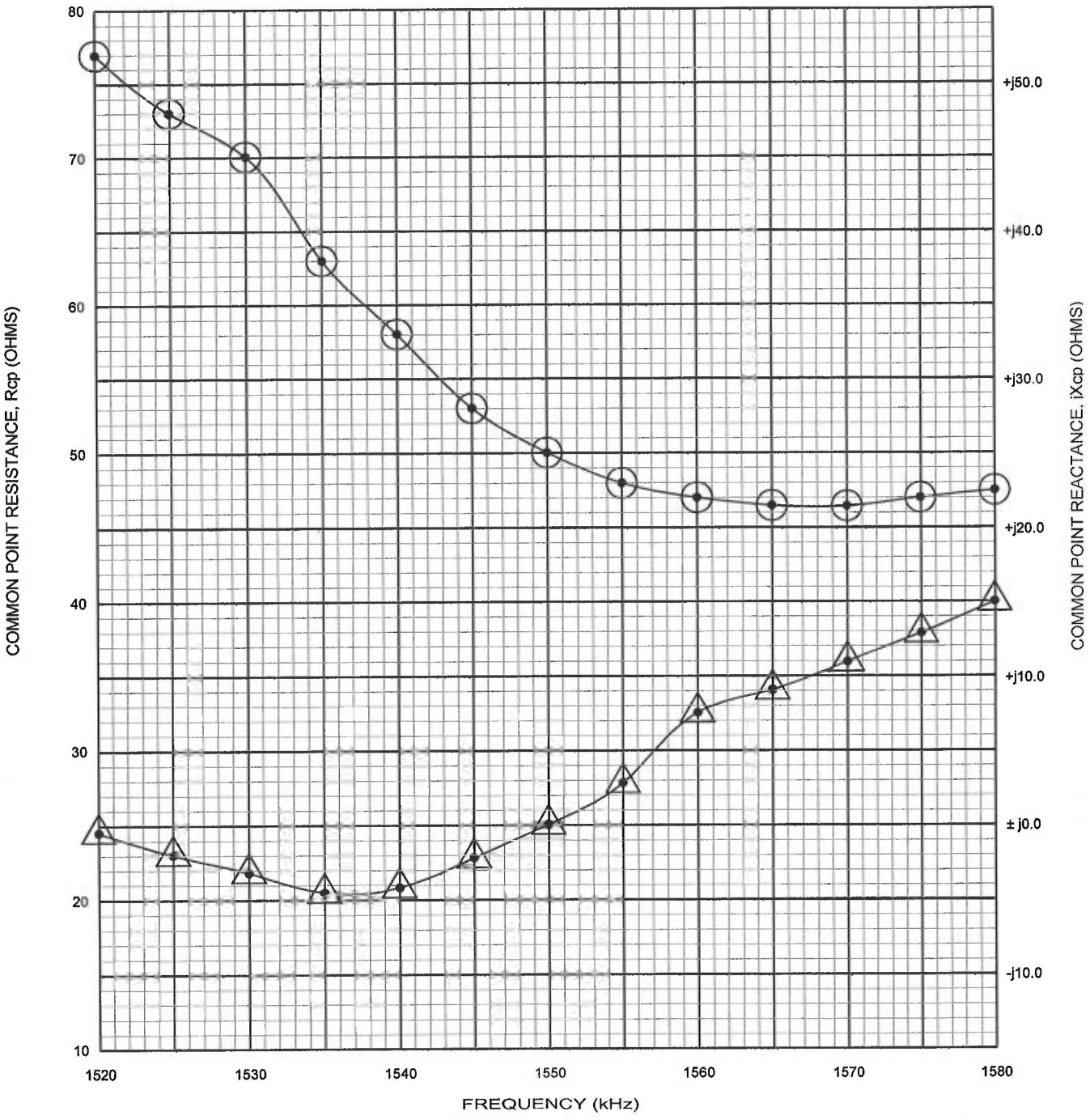
WHIT DAYTIME DIRECTIONAL
COMMON POINT
IMPEDANCE MEASUREMENTS
Mid-West Management, Inc.
Madison, WI

Frequency (kHz)	Resistance (ohms)	Reactance (ohms)
1520	77.0	-j0.5
1525	73.0	-j2.0
1530	70.0	-j3.2
1535	63.0	-j4.5
1540	58.0	-j4.2
1545	53.0	-j2.3
* 1550	50.0	+j0.0
1555	48.0	+j2.8
1560	47.0	+j7.5
1565	46.5	+j9.1
1570	46.5	+j11.0
1575	47.0	+j12.9
1580	47.5	+j15.0

* - Operating frequency

MWMIIM10 10/05/17

CES-116



⊙ - Rcp

△ - jXcp

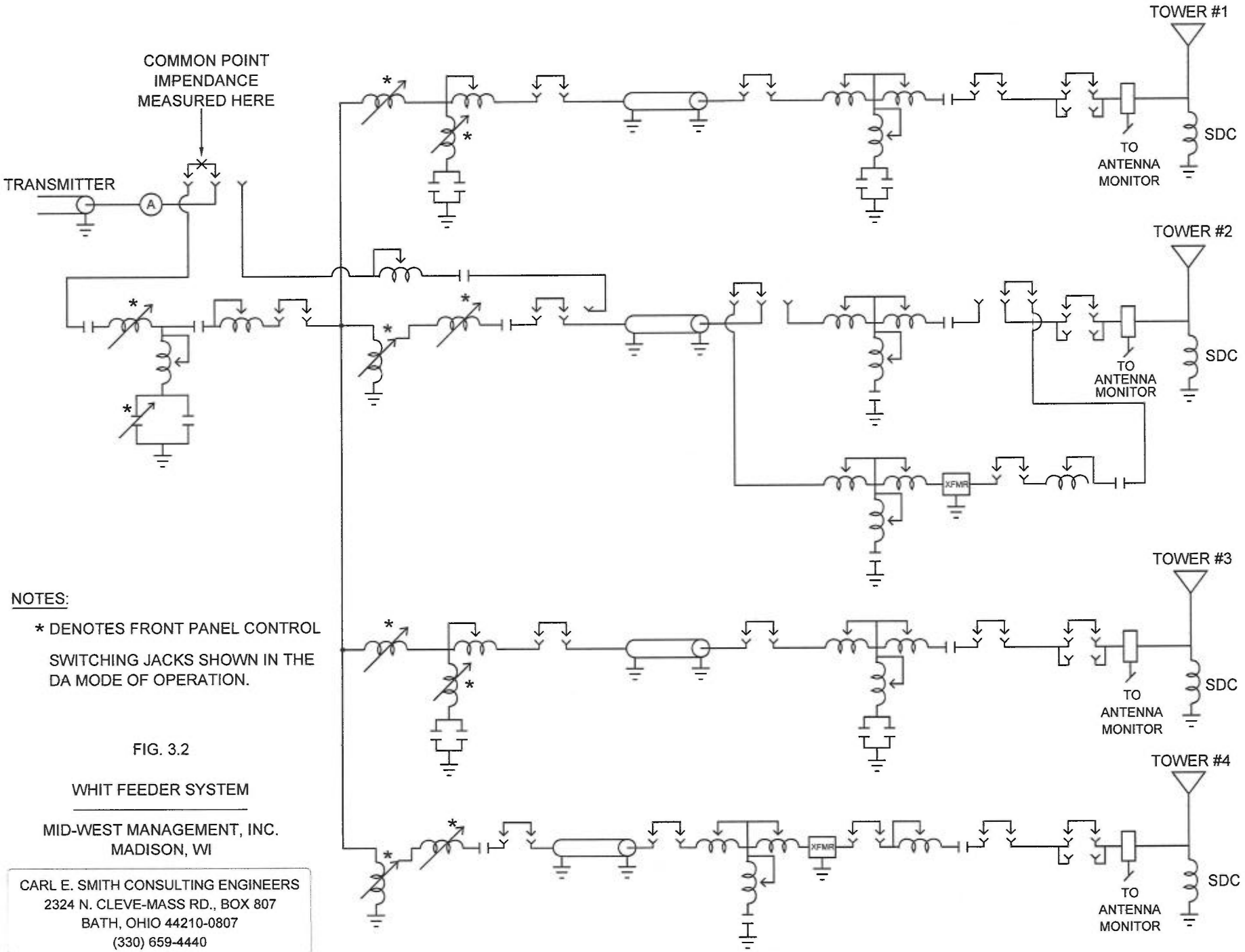
Zcp = 50.0 ± j0.0 OHMS

CARL E. SMITH CONSULTING ENGINEERS
2324 N. CLEVE-MASS RD., BOX 807
BATH, OHIO 44210-0807
(330) 659-4440

FIG. 3.1

WHIT DAYTIME DIRECTIONAL
COMMON POINT
IMPEDANCE MEASUREMENTS

MID-WEST MANAGEMENT, INC.
MADISON, WI



NOTES:

* DENOTES FRONT PANEL CONTROL

SWITCHING JACKS SHOWN IN THE DA MODE OF OPERATION.

FIG. 3.2

WHIT FEEDER SYSTEM

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