United States of America

FEDERAL COMMUNICATIONS COMMISSION

AM BROADCAST STATION LICENSE

Official Mailing Address:

MIDWEST COMMUNICATIONS, INC.
904 GRAND AVE
WAUSAU WI 54403

Authorizing Official:

Son Nguyen
Supervisory Engineer
Audio Division
Media Bureau

Grant Date: June 27, 2017

This license expires 3:00 a.m. local time, October 01, 2020.

Facility Id: 54485

Call Sign: WKZO

License File Number: BZ-20170221ACZ

This supersedes authorization of same date to correct the description of directional antenna system. (HKC 7/11/2017)

Subject to the provisions of the Communications Act of 1934, subsequent acts and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions set forth in this license, the licensee is hereby authorized to use and operate the radio transmitting apparatus herein described.

This license is issued on the licensee's representation that the statements contained in licensee's application are true and that the undertakings therein contained so far as they are consistent herewith, will be carried out in good faith. The licensee shall, during the term of this license, render such broadcasting service as will serve the public interest, convenience, or necessity to the full extent of the privileges herein conferred.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequency designated in the license beyond the term hereof, nor in any other manner than authorized herein. Neither the license nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This license is subject to the right of use or control by the Government of the United States conferred by Section 606 of the Communications Act of 1934.

Hours of Operation: Unlimited

Average hours of sunrise and sunset:
Local Standard Time (Non-Advanced)

Jan.	8:15 AM	5:30 PM	Jul.	5:15 AM	8:15 PM
Feb.	7:45 AM	6:15 PM	Aug.	5:45 AM	7:45 PM
Mar.	7:00 AM	6:45 PM	Sep.	6:15 AM	7:00 PM
Apr.	6:00 AM	7:30 PM	Oct.	7:00 AM	6:00 PM
May	5:15 AM	8:00 PM	Nov.	7:30 AM	5:15 PM
Jun.	5:00 AM	8:15 PM	Dec.	8:00 AM	5:15 PM

Name of Licensee: MIDWEST COMMUNICATIONS, INC.

Station Location: KALAMAZOO, MI

Frequency (kHz): 590

Station Class: B

Antenna Coordinates:

		Day				
Latitude:	N	42 Deg	20 Min	55 Sec		
Longitude:	W	85 Deg	33 Min	48 Sec		
		Night				
Latitude:	N	42 Deg	20 Min	55 Sec		
Longitude:	W	85 Deg	33 Min	48 Sec		

Transmitter(s): Type Accepted. See Sections 73.1660, 73.1665 and 73.1670 of the Commission's Rules.

Nominal Power (kW): Day: 5.0 Night: 5.0

Antenna Input Power (kW): Day: 5.0 Night: 5.4

Antenna Mode: Day: ND Night: DA

(DA=Directional Antenna, ND=Non-directional Antenna; CH=Critical Hours)

Current (amperes): Day: 19.76 Night: 8.32

Resistance (ohms): Day: 12.8 Night: 78

Non-Directional Antenna: Day

Radiator Height: 99.1 meters; 70.2 deg

Theoretical Efficiency: 294.51 mV/m/kw at 1km

Antenna Registration Number(s):

Day:

Tower No.	ASRN	Overall Height (m)
1	1005086	

Night:

Tower No.	ASRN	Overall Height (m)
1	1005087	
2	1005089	
3	1005088	
4	1005086	

DESCRIPTION OF DIRECTIONAL ANTENNA SYSTEM

Theoretical RMS (mV/m/km): Night: 680.75

Standard RMS (mV/m/km):

Augmented RMS (mV/m/km): Night: 715.3

Q Factor: Night: 22.39

Theoretical Parameters:

Night Directional Antenna:

Tower No.	Field Ratio	Phasing (Deg.)	Spacing (Deg.)	Orientation (Deg.)	Tower Ref Switch *	Height (Deg.)
1	1.0000	0.000	0.0000	0.000	0	70.2
2	0.7700	-90.000	97.8000	68.000	0	70.2
3	1.0000	0.000	187.0000	92.000	0	70.2
4	0.7700	90.000	105.5000	114.200	0	70.2

* Tower Reference Switch
0 = Spacing and orientation from reference tower
1 = Spacing and orientation from previous tower

Augmentation Parameters:

Aug No.	Central Azimuth (Deg. T)	Span (Deg.)	Radiation at Central Azimuth (mV/m @ 1 km)
1	85.0	12.0	57.94
2	136.0	37.0	32.19
3	232.0	36.0	48.28
4	266.0	12.0	64.37
5	272.0	12.0	67.59

Night Directional Operation:

Twr. No.	Phase (Deg.)	Antenna Monitor Sample Current Ratio
1	0	1
2	-83.8	0.75
3	13	1.46
4	77	0.97

Antenna Monitor: POTOMAC INSTRUMENTS AM-19(204)

Monitoring Points:

Night Operation:

Radial (Deg. T)	Distance From Transmitter (kM)	Maximum Field Strength (mV/m)
85	7.08	8.71
117.5	2.88	68.55
173	5.68	82.36
250	4.99	19
266	7	7.26
295	7.77	34.14

Special operating conditions or restrictions:

1 Direction of 85 True North: From the transmitter, go east 0.6 miles on McKinley Ave. to Riverview Dr., turn right and go 0.45 miles southwest on Riverview Dr. to Mt. Olivet Rd. Turn left onto Mt. Olivet Rd. and go 0.95 miles to Howlandsburg Rd. Turn left onto Howlandsburg Rd. and go 2.16 miles to Hwy. M-43, then turn left and go northeast 1.95 miles to County Rd. EF. The measuring location is on the west edge of M-43 Hwy. directly across the road from the Kalamazoo Plug Co. This location is 4.40 miles/7.08 km from transmitter. Coordinates in NAD27 are 42-21-17.1 N, 85-28-41.5 W. The field intensity measured at this point should not exceed 8.71 mV/m.

Direction of 117.5 True North: From the transmitter, proceed east on McKinley Ave. 0.6 miles to Riverview Rd. Proceed southwest 0.45 miles to Mt. Olivet Rd. Proceed southeast, then south 0.95 miles to Howlandsburg Rd. Turn east and proceed 0.75 miles to 24th St. Turn north and proceed 0.3 miles north to the monitor point. The measuring location is on the east edge of the road, even with fence line to east, south of driveway at 5370 24th St. This location is 1.79 miles/2.88 km from transmitter. Coordinates in NAD27 are 42-20-15.0 N, 85-31-52.4 W. The field intensity measured at this point should not exceed 68.55 mV/m.

Direction of 173 True North: From the transmitter, proceed east on McKinley Ave. 0.6 miles to Riverview Rd. Proceed southwest and south 4.0 miles to Sherwood Ave. Proceed east 0.38 miles to E. Main St. Proceed east on E. Main St. 0.52 miles to Chicago Ave. Proceed south 0.22 miles to Church of God of Prophecy on west side of street. This location is 3.53 miles/5.68 km from transmitter. Coordinates in NAD27 are 42-17-55.8 N, 85-33-10.3 W. The field intensity measured at this point should not exceed 82.35 mV/m.

Special operating conditions or restrictions:

2 Direction of 250 True North: From the transmitter, proceed east on McKinley Ave. 0.6 miles to Riverview Rd. Proceed north 1.83 miles to D Ave.
Proceed west 3.9 miles to 14th St. Proceed south 3.0 miles to G Ave. Proceed east 0.5 miles to monitor point. Measuring location is at South edge of road at point, in line with storage garage to north and garage to south. This location is 3.1 miles/4.99 km from transmitter. Coordinates in
NAD27 are 42-19-58.5 N, 85-37-08.5 W. The field intensity measured at this point should not exceed 19.0 mV/m.

Direction of 266 True North: From the transmitter, proceed east on McKinley Ave. 0.6 miles to Riverview Rd. Proceed north 1.83 miles to D Ave.
Proceed west 4.9 miles to 12th St. Proceed south on 12th St. 2.3 miles to the monitor point. The measuring location is on the west side of 12th St., even with north edge of driveway at 5684 12th St. This location is 4.35 miles/7.00 km from transmitter. Coordinates in NAD27 are 42-20-34.4 N, 85-38-49.1 W. The field intensity measured at this point should not exceed 7.26 mV/m.

Direction of 295 True North: From the transmitter, proceed east on McKinley Ave. 0.6 miles to Riverview Rd. Proceed left and go north 1.83 miles to D Ave., turn left onto D Ave. and go west 4.9 miles to 12th St. The measuring location is on the northeast corner of the intersection of
12th St. and D Ave. 10 feet east of the stop sign. This location is 4.83 miles/7.77 km from transmitter. Coordinates in NAD27 are
42-22-35.6 N,
85-38-56.0 W. The field intensity measured at this point should not exceed 34.14 mV/m.

3 DESCRIPTION OF DIRECTIONAL ANTENNA SYSTEM
No. and Type of Elements: Tower 1 is a guyed uniformed cross-section tower. Tower 2, 3 and 4 are four tapered, self-supporting insulated steel towers.

Ground System consists of 120 radials 427' long under each tower approximately 6 inches.

*** END OF AUTHORIZATION ***