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## MULTIPLE SERVICES STUDY

Associated with the  
Co-ownership of Stations:

KWYW(FM) – Lost Cabin, WY  
KDNO(FM) – Thermopolis, WY  
KFCW(FM) – Riverton, WY  
KTAK(FM) – Riverton, WY  
KVOW(AM) – Riverton, WY  
WHAK-FM – Rogers City, MI  
WHSB(FM) – Alpena, MI  
WIDL(FM) – Cass City, MI  
WKYO(AM) – Caro, MI  
WWTH(FM) – Oscoda, MI

Interim Contour Methodology

**August 2021**

### **CERTIFICATION OF ENGINEERS**

The firm of Munn-Reese, Broadcast Engineering Consultants, with offices at 385 Airport Drive, Coldwater, Michigan, has been retained for the purpose of preparing the technical data forming this report.

The data utilized in this report was taken from the FCC Secondary Database and data on file. While this information is believed accurate, errors or omissions in the database and file data are possible. This firm may not be held liable for damages as a result of such data errors or omissions.

The report has been prepared by properly trained electronics specialists under the direction of the undersigned whose qualifications are a matter of record before the Federal Communications Commission.

I declare under penalty of the laws of perjury that the contents of this report are true and accurate to the best of my knowledge and belief.

August 28, 2021

**MUNN-REESE**



By \_\_\_\_\_

Bruce Bellamy, President

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Coldwater, Michigan 49036  
Telephone: 517-278-7339

**MUNN-REESE**  
Broadcast Engineering Consultants  
Coldwater, MI 49036

# Engineering Statement

This firm was retained to determine whether the above stations listed stations commonly owned or controlled by the same entity complies with the Commission's multiple ownership rule, 47 C.F.R. Section 73.3555. This study assumes there are (10) commonly owned stations. This report is being submitted with the application for transfer of control of the above referenced stations. Portions of these holdings are subject to analysis under the *Interim Contour-overlap Methodology*. This study addresses the *Interim Contour-overlap Methodology* portion of these holdings.

There are two distinct groups of stations with (5) in the state of Wyoming and (5) in the state of Michigan.

For the Wyoming group of (5) stations KQYW(FM), KDNO(FM), KFCW(FM), WTAK(FM), and KVOW(FM) define Market #1.

For the Michigan group of (5) stations WHAK-FM and WHSB(FM) define Market #2, WHSB(FM) and WWTH(FM) define Market #3, and WIDL(FM) and WKYO(FM) define Market #4.

The existing facilities of the stations included in this report were determined using currently updated copies of the FCC computer databases of AM and FM stations. The listed facilities served as the basis for the computation of the respective principal community contours. The accuracy of the results of this study is understood to be limited to the accuracy of these databases. The FCC databases give no indication of licensed facilities that may be inoperative, construction permit facilities that may now be operating under program test authority (but have not yet been issued a license) or facilities which may have been licensed since the last update. Therefore, some stations may have been included or excluded erroneously. However, unless otherwise indicated, all licensed facilities known to be inoperative and all known applications and construction permit facilities, have been eliminated from consideration in this study.

For AM stations, Map M-3 soil conductivity values and the authorized licensed transmitting facilities served as the basis for the computation of the predicted 5.0 mV/m groundwave contour in accordance with §73.183 of the FCC Rules. The distance to the contour was computed for seventy-two (72) equally spaced azimuths beginning with 0° True. For FM stations, the authorized Center of Radiation and ERP values were utilized to compute the predicted 3.16 mV/m (70 dBu) contour as provided in §73.313 of the Rules. The predicted FM contours shown in this report are based on the use of 72 equally spaced terrain radials beginning with 0° True.

As stated before, there are three (4) unique and distinct markets associated with this filing that require the *Interim Contour-overlap Methodology*. The markets have been defined, in accordance with §73.3555 of the FCC Rules, as the area within the total perimeter formed by the combined principal community contours of the commonly owned stations comprising these markets.

**Exhibit 1.0** shows the nine (5) Wyoming stations under common control or proposed to be under common control that are relevant for this ownership group. To aid in identifying the respective contours, current or proposed AM contours have been shown with dashed lines, while current or proposed FM contours have been shown with solid lines. The Market #1 common overlap areas have been designated as well.

For Market #1, the market defining contours have been shown in **Exhibit 2.0** of this report along with enough additional principal community contours entering the market. The defining contours have been shown with purple dashed lines on this map. AM contours entering the market have been denoted in light blue lines. FM contour entering the market have been shown in red lines. Co-owned stations entering the market, but not defining the market have been omitted. **Exhibit 2.1** is a tabulation of the stations.

Under the current rules, Market #1 falls at least within the minimum limitations set forth in §73.3555 (a)(1)(iii): ***In a radio market with between 15 and 29 full-power, commercial and noncommercial radio stations, not more than 6 commercial radio stations in total or not more than 4 commercial stations in the same service (AM or FM).*** The principal community contours of at least fifteen (12) other stations entering the Market are shown in **Exhibit 2.0**. Including the (4) FM and 1 (AM) stations which define the market, there are at

least (17) aural services in Market #1. **Exhibit 2.1** lists the facilities of the individual stations used in this Market #1 report.

**Exhibit 3.0** shows the nine (5) Michigan stations under common control or proposed to be under common control that are relevant for this ownership group. To aid in identifying the respective contours, current or proposed AM contours have been shown with dashed lines, while current or proposed FM contours have been shown with solid lines. The Market #2, Market #3, and Market #4 common overlap areas have been designated as well.

For Market #2 the market defining contours have been shown in **Exhibit 4.0** of this report along with enough additional principal community contours entering the market. The defining contours have been shown with purple dashed lines on this map. AM contours entering the market have been denoted in light blue lines. FM contour entering the market have been shown in red lines. Co-owned stations entering the market, but not defining the market have been omitted. **Exhibit 4.1** is a tabulation of the stations.

Under the current rules, Market #2 falls at least within the minimum limitations set forth in §73.3555 (a)(1)(iv): ***In a radio market with 14 or fewer full-power, commercial and noncommercial radio stations, not more than 5 commercial radio stations in total or not more than 3 commercial stations in the same service (AM or FM); provided however, that no person or single entity (or entities under common control) may have a cognizable interest in more than 50% of the full-power, commercial and noncommercial stations in such market unless the combination of stations comprises not more than one AM and one FM station.*** The principal community contours of at least four (4) other stations entering the Market #4 are shown in **Exhibit 3.0**. Including the (2) FM stations which define the market, there are at least six (6) aural services in "Market 4", giving less than a 50% interest in the market. **Exhibit 4.1** lists the facilities of the individual stations used in this Market #2 report.

For Market #3 the market defining contours have been shown in **Exhibit 5.0** of this report along with enough additional principal community contours entering the market. The defining contours have been shown with purple dashed lines on this map. AM contours entering the market have been denoted in light blue lines. FM contour entering the market have been shown in red lines. Co-owned stations entering the market, but not defining the market have been omitted. **Exhibit 5.1** is a tabulation of the stations.

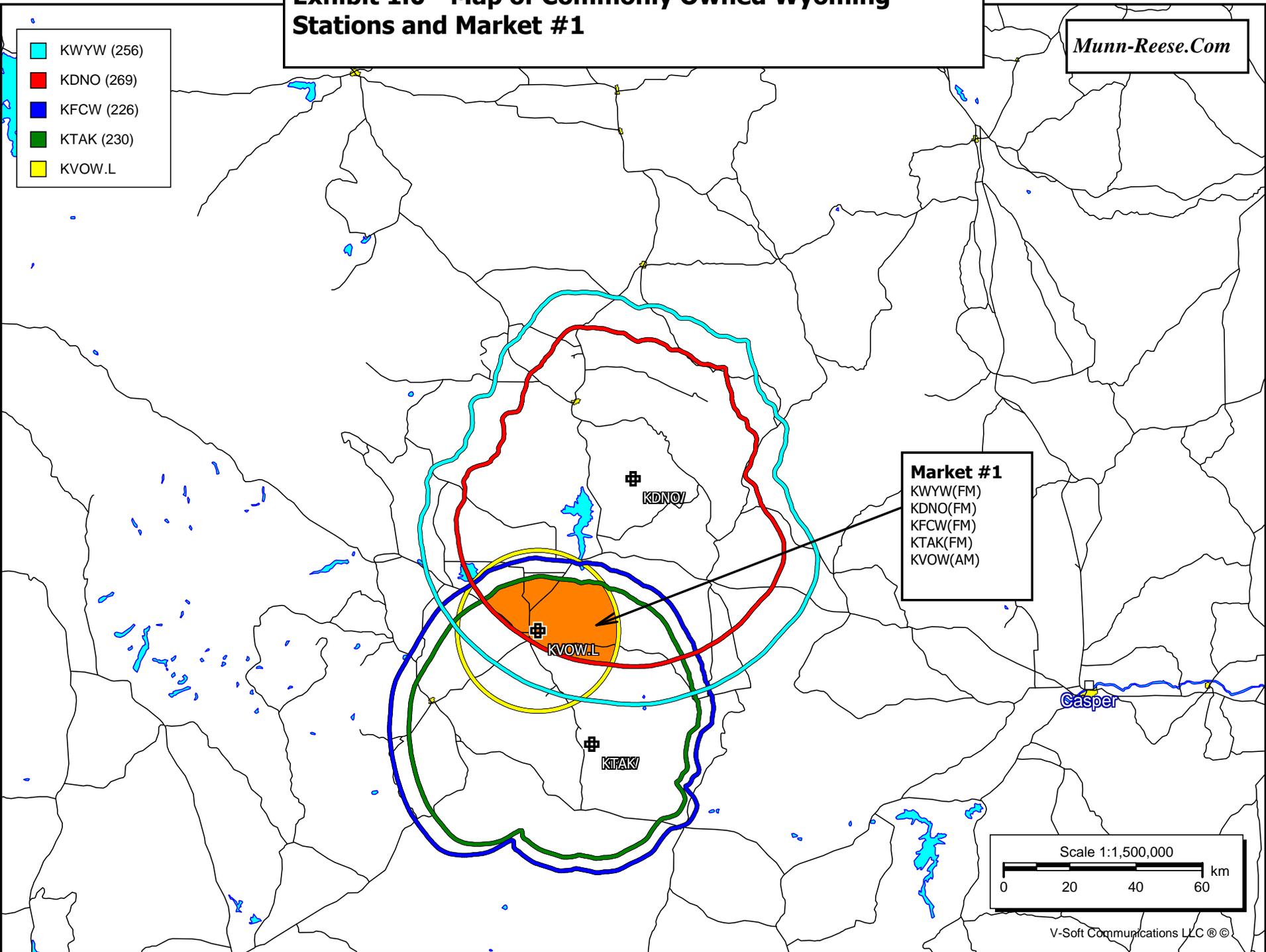
Under the current rules, Market #3 falls at least within the minimum limitations set forth in §73.3555 (a)(1)(iv): ***In a radio market with 14 or fewer full-power, commercial and noncommercial radio stations, not more than 5 commercial radio stations in total or not more than 3 commercial stations in the same service (AM or FM); provided however, that no person or single entity (or entities under common control) may have a cognizable interest in more than 50% of the full-power, commercial and noncommercial stations in such market unless the combination of stations comprises not more than one AM and one FM station.*** The principal community contours of at least four (4) other stations entering the Market #4 are shown in **Exhibit 3.0**. Including the (2) FM stations which define the market, there are at least six (6) aural services in "Market 4", giving less than a 50% interest in the market. **Exhibit 5.1** lists the facilities of the individual stations used in this Market #3 report.

The Market #4 consists of (1) AM and (1) FM station and therefore is allowed in a market of any size.

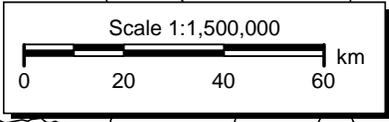
# Exhibit 1.0 - Map of Commonly Owned Wyoming Stations and Market #1

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- KWYW (256)
- KDNO (269)
- KFCW (226)
- KTAK (230)
- KVOW.L



**Market #1**  
KWYW(FM)  
KDNO(FM)  
KFCW(FM)  
KTAK(FM)  
KVOW(AM)

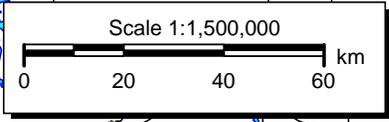
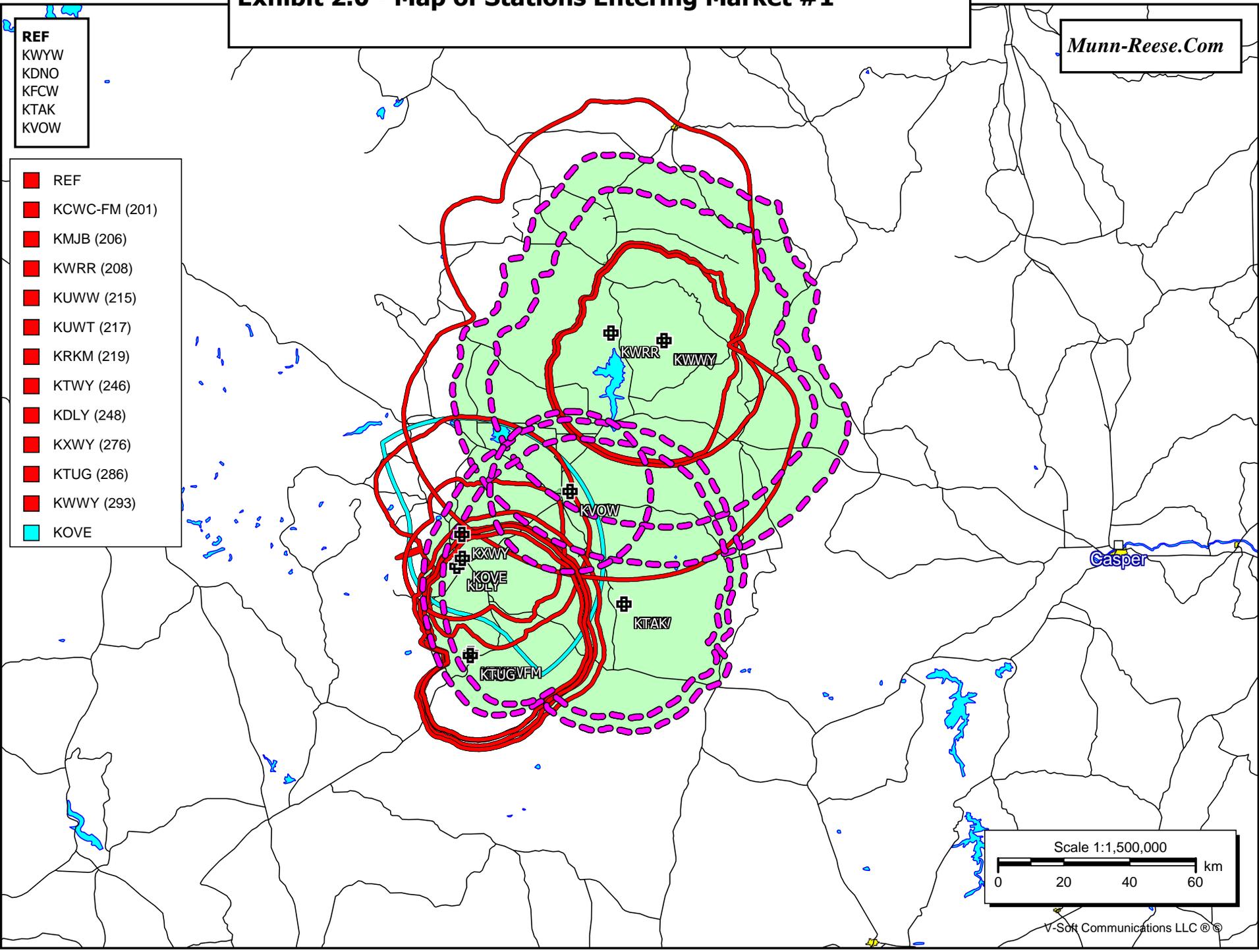


# Exhibit 2.0 - Map of Stations Entering Market #1

Munn-Reese.Com

**REF**  
KWYW  
KDNO  
KFCW  
KTAK  
KVOW

- REF
- KCWC-FM (201)
- KMJB (206)
- KWRR (208)
- KUWW (215)
- KUWT (217)
- KRKM (219)
- KTWY (246)
- KDLY (248)
- KXWY (276)
- KTUG (286)
- KWWY (293)
- KOVE



# Exhibit 2.1

## Tabulation of Select Stations Entering "Market 1"

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Total number of overlapping contours: 17

Reference:

Callsign	Type	Chan City	St	File Number	Dist (km)	Azi (deg)
KWYW	FM	256C Lost Cabin	WY	BLH20010730AAA	0.0	0.0
KDNO	FM	269C1 Thermopolis	WY	BLH20011030AAI	0.0	0.0
KFCW	FM	226C1 Riverton	WY	BLH19841205KR	80.8	188.8
KTAK	FM	230C1 Riverton	WY	BLH19811221AS	80.8	188.9
KVOW	AM	1450 RIVERTON	WY	BL19820907AA	54.0	212.1

Overlapping Contours:

Callsign	Type	Chan City	St	File Number	Dist (km)	Azi (deg)
KCWC-FM	FM	201C2 Riverton	WY	BLED19850305KW	111.5	211.8
KMJB	FM	206C2 Hudson	WY	BLED20111102AIB	112.1	211.8
KWRR	FM	208C Ethete	WY	BLED20021007AAE	16.4	277.9
KUWW	FM	215C2 Fort Washakie	WY	BLED20180402ACK	111.5	211.8
KUWT	FM	217C2 Thermopolis	WY	BLED20061005ADD	0.3	256.0
KRKM	FM	219C2 Fort Washakie	WY	0000125139	111.5	211.8
KTWY	FM	246C1 Shoshoni	WY	BMLD20171214AAL	0.2	253.0
KDLY	FM	248C1 Lander	WY	BLH20100126ADQ	93.0	222.7
KXWY	FM	276C2 Hudson	WY	BLED20180725AAQ	85.0	226.4
KTUG	FM	286C2 Hudson	WY	BLH20140721AED	112.1	211.8
KWWY	FM	293C1 Shoshoni	WY	BMLD20171214AAK	0.2	253.0
KOVE	AM	1330 LANDER	WY	BL20080806ACL	90.1	223.0

Distance and bearing calculations from coordinates: 43-26-17.95 N, 107-59-36.97 W

Duopoly Options:

TV: Not Included

FM: 3.16 mV/m (70 dBu); Include NCE

AM: 5.0 mV/m

Stations more than 92 km from the common area were excluded.

# Exhibit 3.0 - Map of Commonly Owned Michigan Stations and Markets #2, #3, and #4

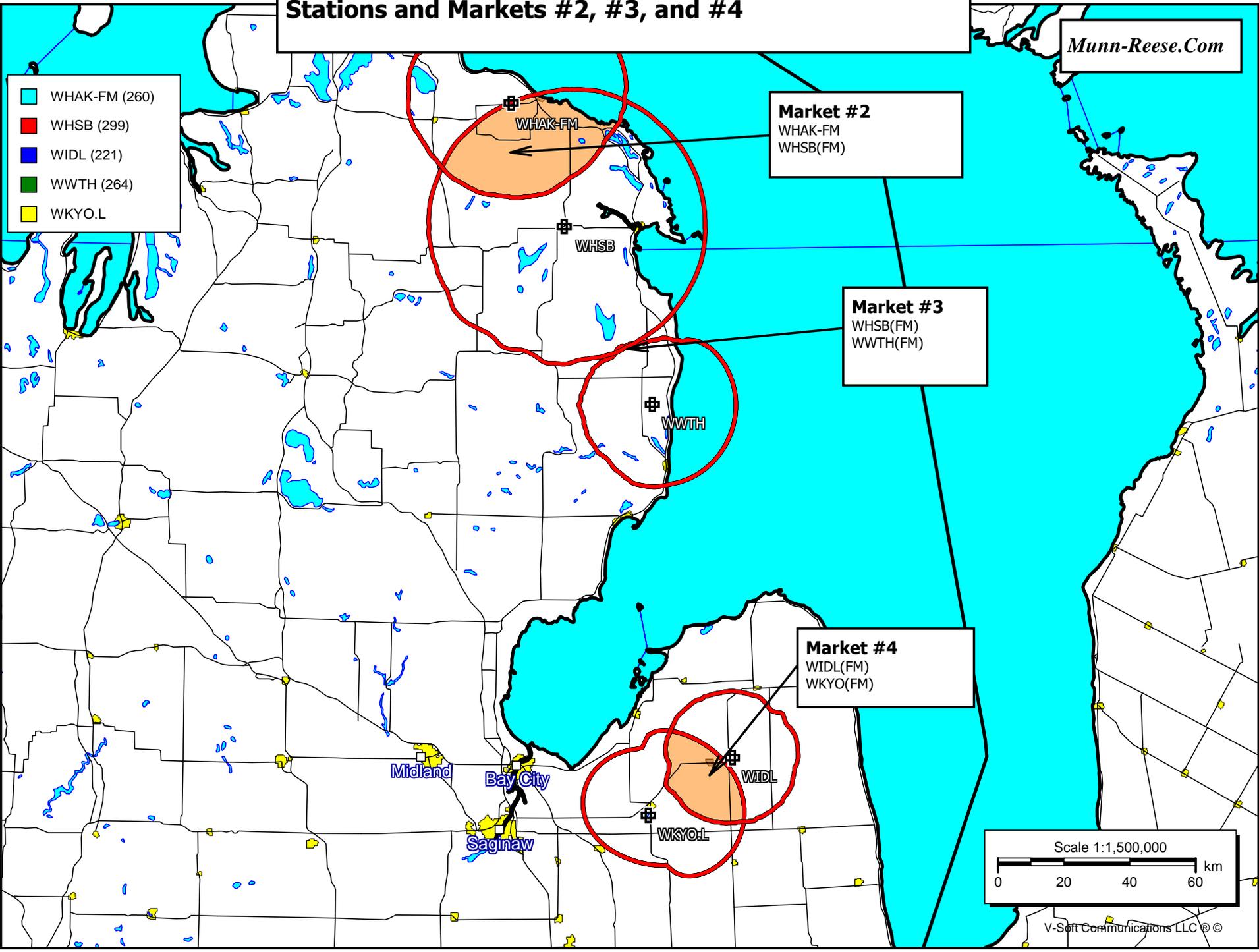
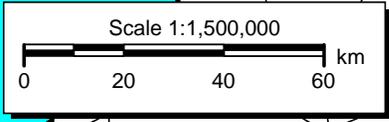
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- WHAK-FM (260)
- WHSB (299)
- WIDL (221)
- WWTH (264)
- WKYO.L

**Market #2**  
WHAK-FM  
WHSB(FM)

**Market #3**  
WHSB(FM)  
WWTH(FM)

**Market #4**  
WIDL(FM)  
WKYO(FM)





# Exhibit 4.1

## Tabulation of Select Stations Entering "Market 2"

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Total number of overlapping contours: 23

Reference:

Callsign	Type	Chan	City	St	File Number	Dist (km)	Azi (deg)
WHAK-FM	FM	260C2	Rogers City	MI	BLH19940509KD	0.0	0.0
WHSB	FM	299C1	Alpena	MI	BLH19971027KE	40.6	156.4

Overlapping Contours:

Callsign	Type	Chan	City	St	File Number	Dist (km)	Azi (deg)
WSFP	FM	201C2	Harrisville	MI	BLED20130920ADZ	83.3	157.8
WGZR	FM	205C3	Alpena	MI	BMLD20171220AAT	67.1	153.5
WTLI	FM	207C1	Bear Creek Township	MI	BLED20150420ABI	69.8	249.0
WJOJ	FM	209C2	Rust Township	MI	BLED20130920AEB	83.3	157.8
WPHN	FM	213C	Gaylord	MI	BMLD20150410ABJ	34.5	213.2
WCML-FM	FM	219C0	Alpena	MI	BLED20101006AAG	34.5	213.2
WFDX	FM	223C1	Atlanta	MI	BLH19881107KA	54.2	218.8
WAVC	FM	230C2	Mio	MI	BMLD20181217AAM	82.0	205.0
WKJZ	FM	235C2	Hillman	MI	BLH19940103KA	41.9	180.1
WWSS	FM	237C2	Tuscarora Township	MI	BLH20120201ALS	52.9	264.7
WCMB-FM	FM	239C2	Oscoda	MI	BLED20170310AAK	86.6	158.3
WLXT	FM	242C1	Petoskey	MI	BMLH20110406AAV	75.2	263.8
WRGZ	FM	244C2	Rogers City	MI	BMLH20060203ABK	12.1	115.8
WCHY	FM	249C3	Cheboygan	MI	BLH20111108AHH	43.3	310.5
WATZ-FM	FM	257C2	Alpena	MI	BLH19890818KB	67.1	153.5
WMJZ-FM	FM	268C2	Gaylord	MI	BLH20031015ADR	56.8	222.4
WGFM	FM	286C1	Cheboygan	MI	BLH20080822AAQ	69.8	249.0
WZTK	FM	289A	Alpena	MI	BLH20140627ACH	50.4	136.9
WWMK	FM	292C2	Onaway	MI	BMLH20160406AAC	43.3	310.5
WHAK	AM	960	ROGERS CITY	MI	BL8057	0.0	0.0
WJML	AM	1110	PETOSKEY	MI	BL19980817AC	79.0	265.2

Distance and bearing calculations from coordinates: 45-23-52.95 N, 083-55-19 W

Duopoly Options:

TV: GradeA

FM: 3.16 mV/m (70 dBu); Include NCE

AM: 5.0 mV/m

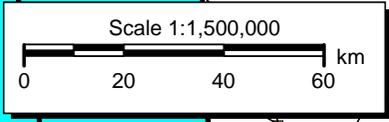
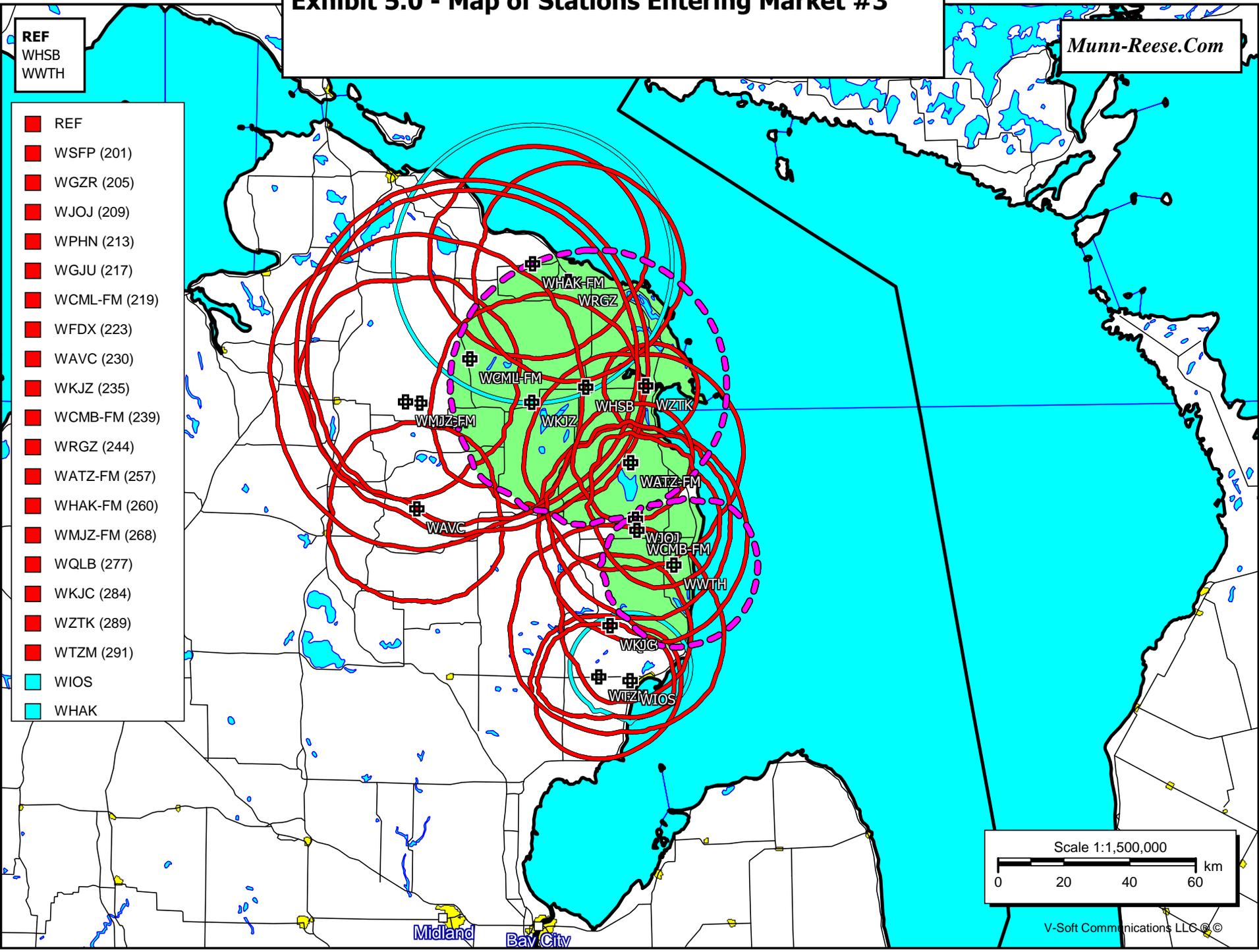
Stations more than 92 km from the common area were excluded.

# Exhibit 5.0 - Map of Stations Entering Market #3

Munn-Reese.Com

REF  
WHSB  
WWTH

- REF
- WSFP (201)
- WGZR (205)
- WJOJ (209)
- WPHN (213)
- WGJU (217)
- WCML-FM (219)
- WFDX (223)
- WAVC (230)
- WKJZ (235)
- WCMB-FM (239)
- WRGZ (244)
- WATZ-FM (257)
- WHAK-FM (260)
- WMJZ-FM (268)
- WQLB (277)
- WKJC (284)
- WZTK (289)
- WTZM (291)
- WIOS
- WHAK



# Exhibit 5.1

## Tabulation of Select Stations Entering "Market 3"

Total number of overlapping contours: 31

Reference:

Callsign	Type	Chan	City	St	File Number	Dist (km)	Azi (deg)
WUPS	FM	253C1	Harrison	MI	BLH20080924AKU	0.0	0.0
WTWS	FM	221A	Houghton Lake	MI	BLH20080919AFJ	0.0	0.0

Overlapping Contours:

Callsign	Type	Chan	City	St	File Number	Dist (km)	Azi (deg)
WFDX	FM	223C1	Atlanta	MI	BLH19881107KA	86.5	20.8
WJZQ	FM	225C1	Cadillac	MI	BMLH20020517AAG	49.7	313.3
WKQZ	FM	227C2	Midland	MI	BLH19881027KB	71.7	133.2
WAVC	FM	230C2	Mio	MI	BLED20140619ABQ	57.5	31.8
WAVC	FM	230C2	Mio	MI	BMLH20181217AAM	57.5	31.8
WCEN-FM	FM	233C1	Hemlock	MI	BMLH20041124AGB	63.5	169.9
WCFX	FM	237A	Clare	MI	BLH20150828ABE	61.0	184.8
WLJW-FM	FM	240C2	Fife Lake	MI	BLED20140207ABG	49.7	313.3
WLXV	FM	244C3	Cadillac	MI	BLH19940204KZ	65.7	279.2
WMRX-FM	FM	249A	Beaverton	MI	BMLH20151016ADO	47.8	159.0
WUGN	FM	259C0	Midland	MI	BLED20130702ABR	87.4	169.5
WQON	FM	262C1	Grayling	MI	BLH19950714KB	31.5	7.2
WGRY-FM	FM	266A	Roscommon	MI	BLH19900322KB	31.5	7.2
WPRJ	FM	269A	Coleman	MI	BLED20050808ACN	57.6	157.1
WLDR-FM	FM	270C1	Traverse City	MI	BMLH20090105AGN	92.7	305.5
WGDN-FM	FM	276C3	Gladwin	MI	BMLH20120515AAB	40.2	157.4
WTCM-FM	FM	278C0	Traverse City	MI	BLH19870203KB	78.7	284.2
WAIR	FM	285A	Lake City	MI	BLED20170428ABF	45.8	264.6
WBMI	FM	288A	West Branch	MI	BLH20071004ABN	38.1	88.2
WSRT	FM	294C1	Gaylord	MI	BMLH20050318AAT	84.5	354.4
WCKC	FM	296A	Cadillac	MI	BLH19930111KB	49.3	254.8
WCDY	FM	300A	Mcbain	MI	BLH20101018AAX	49.3	254.8
WSGW	AM	790	SAGINAW	MI	BMLL20151201HXA	118.5	140.6
WGDN	AM	1350	GLADWIN	MI	BL20020416ABO	42.0	153.6
WMQU	AM	1230	GRAYLING	MI	BL19890809AE	40.3	0.4
WTCM	AM	580	TRAVERSE CITY	MI	BL20090226ACO	90.4	302.5
WJNL	AM	1210	KINGSLEY	MI	BL19980622AD	74.2	294.2
WATT	AM	1240	CADILLAC	MI	BL20130722AFA	53.0	262.4
WLJW	AM	1370	CADILLAC	MI	BL	53.9	263.4

Distance and bearing calculations from coordinates: 44-17-21 N, 084-44-32 W

Duopoly Options:

TV: GradeA

FM: 3.16 mV/m (70 dBu)

AM: 5.0 mV/m