

## **Technical Report**

### **KTWB 223C AUXILIARY APPLICATION**

This technical report is submitted in support of an application for an auxiliary facility for KTWB at Sioux Falls, SD (FCC facility # 41972). Exhibit E-2 prepared by Midwest Sioux Falls chief engineer Al Gilbertson demonstrates the lack of impact on nearby AM station KSOO.

#### **KTWB(FM) Auxiliary Analysis:**

The KTWB(FM) auxiliary facility will be located on the existing 215 meter tower, ASR 1042076, at coordinates:

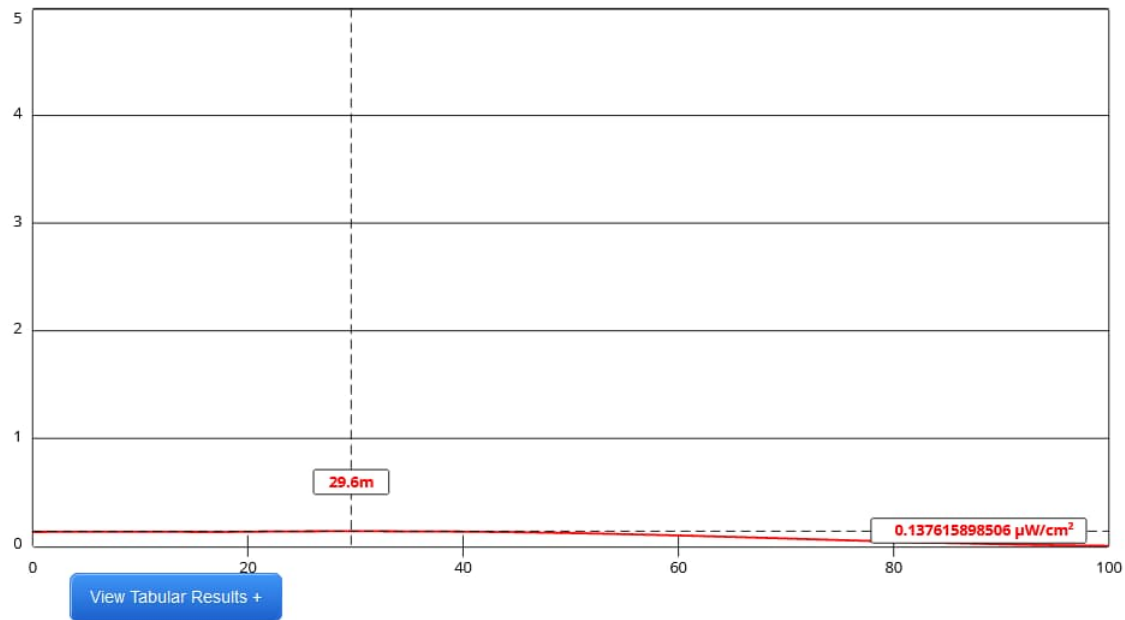
**43-30-11.0 N 096-34-37.0 W NAD 83.**

A Nicom BKG77 four bay, 85% wavelength-spaced, non-directional antenna will be mounted at a COR AGL of 200 meters, 608 meters AMSL and will operate at 4.0 kW ERP. The auxiliary facility 60 dBu contour is contained within the KTWB(FM) 60 dBu contour (exhibit E-3). The FCC 30 second terrain HAAT is 182 meters (exhibit E-1).

#### **RF Exposure Calculation:**

The RF contribution was calculated using FMModel , and is calculated to be 0.14  $\mu\text{W}/\text{cm}^2$  which is below the 200  $\mu\text{W}/\text{cm}^2$  maximum permissible for general public exposure and less than the 5% requiring consideration.

**FMModel Output:**



Channel Selection	Channel 223 (92.5 MHz) ▼		
Antenna Type +	EPA Type 2: Opposed V Dipole ▼		
Height (m)	200	Distance (m)	100
ERP-H (W)	4000	ERP-V (W)	4000
Num of Elements	4	λ	0.85
Num of Points	500	Apply	

**Conclusion:**

It is concluded that the proposed KTWB Auxiliary facility complies with Commission rules and policies.

May 27, 2023

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5900 Lake Cyrus Drive  
Hoover, AL 35244  
270-535-4432

### Antenna Height Above Average Terrain Calculations -- Results

#### Input Data

Latitude **43° 30' 11" North**

Longitude **96° 34' 38" West (NAD 83)**

These coordinates convert to NAD 27 coordinates of  
43° 30' 11.09", North, 96° 34' 36.84" West (NAD 27).

Height of antenna radiation center above mean sea level: **608 meters AMSL**

Number of Evenly Spaced Radials = **8**      0° is referenced to True North

#### Results

Calculated HAAT = **182 meters**

Antenna Height Above Average Terrain calculated  
using FCC 30 second terrain database (continental USA only)

#### Individual "Radial HAAT" Values, in meters

0°	203.1 m
45°	185.0 m
90°	162.1 m
135°	179.9 m
180°	198.5 m
225°	183.6 m
270°	165.7 m
315°	178.6 m

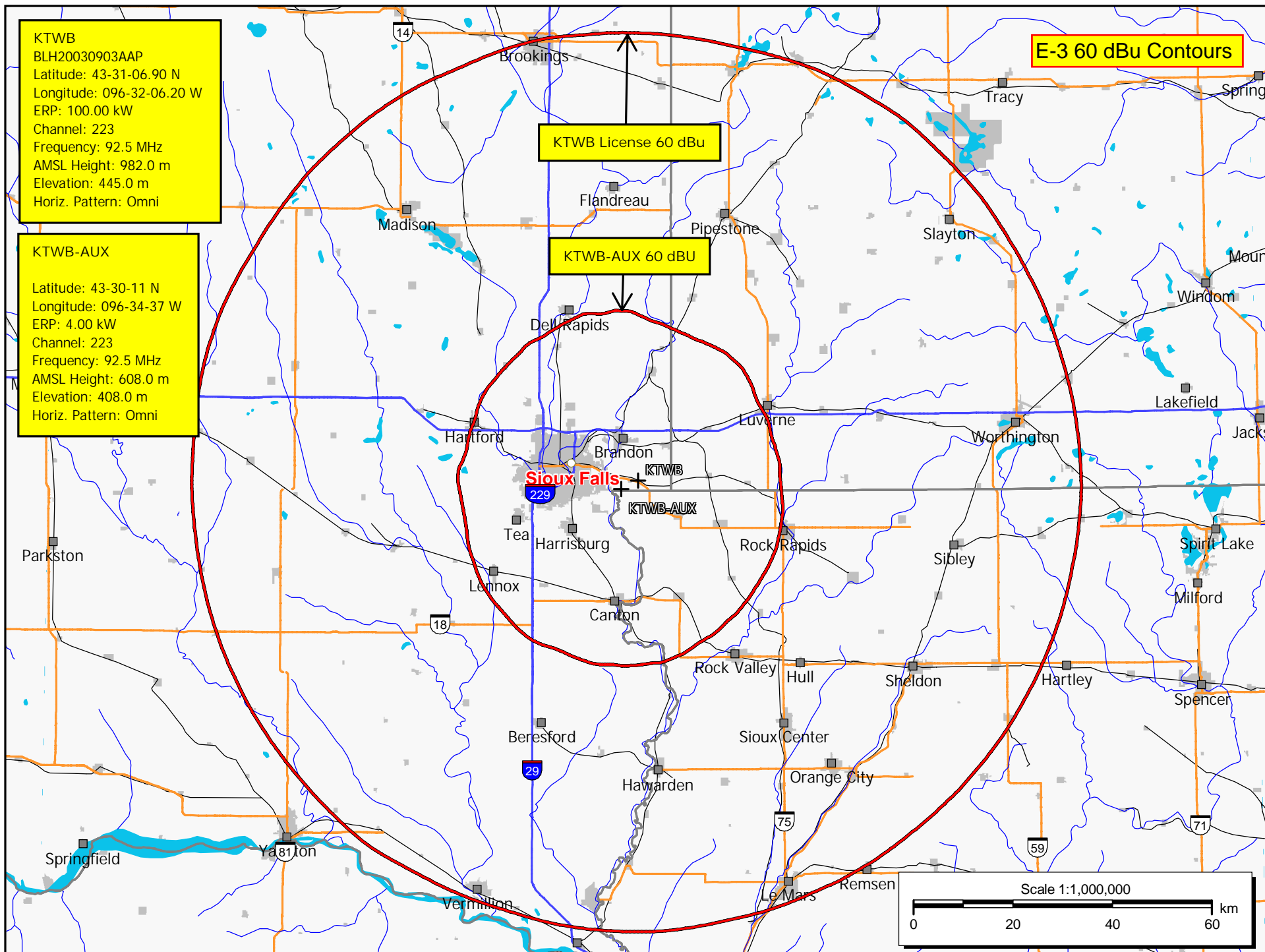
**Proposal for Auxillary Station for KTWB:**  
Class C, 92.5 Mhz, Channel 223 FID: 41972

**Nearby AM station Considerations:**

This proposal's tower site is within 3 km of station KSOO/1000 Khz as follows:

<u>KSOO</u>	AM 1000 kHz	DA2	Daytime	D B LIC	SI OUX FALLS	SD US
BL-20030127AEI		10.0	kW	<u>61322</u>	N 43 29 12.91 W 96 35 49.17	3
towers <u>Central</u>	dist: 2.42 km	bearing: 222.03°	TOWNSQUARE LICENSE, LLC			

Pursuant to §1.30002(a) Proponents of a **significant modification** to a tower that is within the lesser of 3km or 10 wavelengths of a DA AM station, must notify the AM station of such proposal. 10 wavelengths of 1000 KHz (1MHz) is 3km. The above station is only 2.42 km away, so this proposal must consider this regulation. However, pursuant to §1.30002(d), this proposal does not meet the *definition* of a **significant modification**, which is defined as being a change that (1) alters the tower's physical height by 5 electrical degrees or more (for 1Mhz, 5 electrical degrees is a height of 4.16 meters), and (2) the addition or replacement of antennas or transmission lines on a tower that has been detuned or base-insulated. This tower has *not* been detuned and is *not* base-insulated. This application proposes to install a new 4 element FM antenna on the side of the tower with the top most element being approximately 10 meters from the top of the tower. As such it will not alter the *height* of the tower at all. Therefore, this proposal does *not* constitute a **significant modification** and as such will not cause adverse effects to station KSOO directional operations.



## E-4 Registration 1042076



### Registration Detail

Reg Number	1042076	Status	Constructed
File Number	A0909267	Constructed	10/16/2002
EMI	No	Dismantled	
NEPA	No		

### Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

#### Location (in NAD83 Coordinates)

Lat/Long	43-30-11.0 N 096-34-38.0 W	Address	1.7 MI SW
City, State	ROWENA , SD		
Zip	57005	County	MINNEHAHA
Center of AM Array		Position of Tower in Array	

### Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
408.0	215.0
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
623.0	213.0

### Painting and Lightings Specifications

FCC Paragraphs 1, 3, 5, 14, 21

### FAA Notification

FAA Study	00-AGL-6154-OE	FAA Issue Date	10/12/2000
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### Owner & Contact Information

FRN	0002711737	Owner Entity Type	Corporation
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#### Owner

Midwest Communications, Inc.  
Attention To: Mr. Paul Rahmlow  
904 Grand Avenue  
Wausau , WI 54403

P: (715)842-1437  
F:  
E: paul.rahmlow@mwcradio.com

#### Contact

Rahmlow , Paul  
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### Last Action Status

Status	Constructed	Received	07/14/2014
Purpose	Admin Update	Entered	07/14/2014
Mode	Interactive		

### Related Applications