

**ENGINEERING REPORT**  
**PARTIAL PROOF OF PERFORMANCE**  
on  
**WSBT(AM) – South Bend, IN**

In Response to the Final TV Re-Pack  
Antenna Replacement at WNDU-TV  
South Bend, IN

**June, 2020**

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

# **TABLE OF CONTENTS**

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Table of Contents

Certification of Engineer

Discussion of Report

Exhibit 1 – WSBT(AM) DAYTIME ARRAY OPERATING PARAMETERS

Exhibit 2 – WSBT(AM) NIGHTTIME ARRAY OPERATING PARAMETERS

# **CERTIFICATION OF ENGINEERS**

The firm of Munn-Reese, Inc., 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 is based on field measurements made by the undersigned, or others under the supervision of the undersigned, on the dates and times indicated in the report.

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 perjury that the contents of this report are true and accurate to the best of my knowledge and belief.

June 24, 2020

By   
Edmond R. Trombley, Senior Engineer  
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## **DISCUSSION**

The firm of Munn-Reese, was retained to prepare this report detailing a Daytime and Nighttime Before and After Partial Proof of Performance on AM Radio Station WSBT(AM) – South Bend, IN, facility ID No. 73985. WSBT(AM) operates with 5.0 kw of daytime directional power using a four tower directional array and 5.0 kw of nighttime power utilizing a four tower directional antenna array, common towers but with different operating parameters.

This Partial Proof was conducted on the daytime and nighttime WSBT(AM) directional patterns in response to the final TV broadcast antenna replacement as part of the TV re-pack for WNDU-TV, South Bend, IN.

In years past this office has made several partial proof measurements on WSBT(AM) involving these two TV towers and others in the near vicinity of WSBT(AM). Because of their tall nature, 0.8563 wavelengths, this pair of towers has never been players with the WSBT(AM) day or night arrays.

Monitor Point measurements were made on WSBT-AM before and after the final TV antenna was installed and compared against the WSBT-AM License monitor point limits. The most current license for WSBT(AM) is BZ-20130103AFQ. the before measurements were conducted October 18, 2019. The after measurements were

conducted on June 18, 2020 after the pandemic lock down lifted.

Monitor point measurements were conducted on both patterns on the dates and times indicated by Mr. Edmond R. Trombley, Senior engineer at Munn-Reese. The measurements were taken using Potomac Instruments Field Intensity Meter, Model FIM-41, S/N 1263 last calibrated May 30, 2018.

The results indicate the WSBT(AM) daytime and nighttime directional operations remains within the daytime and nighttime licensed patterns and limits as presently authorized.

## **EXHIBIT 1 - DAYTIME ARRAY OPERATING PARAMETERS**

### **LICENSED DAYTIME ANTENNA OPERATING PARAMETERS**

	Phase	Ratio
Tower 1 North	-147.0	0.438
Tower 2 North Center	0	1.000
Tower 3 South Center	-161.0	0.433
Tower 4 South	113.0	0.140

### **DAYTIME OPERATING PARAMETERS DURING THE PRE – MEASUREMENTS**

October 31, 2019	Phase	Ratio
Tower 1 North	-146.7	0.442
Tower 2 North Center	0	1.000
Tower 3 South Center	-160.7	0.431
Tower 4 South	112.7	0.139

### **DAYTIME OPERATING PARAMETERS DURING THE POST – MEASUREMENTS**

June 18, 2020	Phase	Ratio
Tower 1 North	-146.6	0.446
Tower 2 North Center	0	1.000
Tower 3 South Center	-160.4	0.448
Tower 4 South	114	0.143

### **DAYTIME MEASURED MONITOR POINT VALUES PRE AND POST**

RADIAL	DISTANCE	PRE VALUE	POST VALUE	FCC LIMIT
45.0°	4.09 km	33.0 mV/m	28.5 mV/m	55.9 mV/m
108.0°	5.33 km	60.0 mV/m	45.0 mV/m	63.3 mV/m
275.0°	2.53 km	99.0 mV/m	85.0 mV/m	168.2 mV/m
330.0°	1.69 km	400.0 mV/m	325.0 mV/m	518.9 mV/m

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## **EXHIBIT 2 - NIGHTTIME ARRAY OPERATING PARAMETERS**

### **LICENSED NIGHTTIME ANTENNA OPERATING PARAMETERS**

	Phase	Ratio
Tower 1 North	+150.9°	0.342
Tower 2 North Center	0°	1.000
Tower 3 South Center	-139.4°	0.679
Tower 4 South	+45.9°	0.375

### **NIGHTTIME OPERATING PARAMETERS DURING THE PRE – MEASUREMENTS**

OCTOBER 31, 2019	Phase	Ratio
Tower 1 North	+150.8°	0.349
Tower 2 North Center	0°	1.000
Tower 3 South Center	-140.1°	0.675
Tower 4 South	+46.1°	0.377

### **NIGHTTIME OPERATING PARAMETERS DURING THE POST – MEASUREMENTS**

June 18, 2020	Phase	Ratio
Tower 1 North	+150.6°	0.350
Tower 2 North Center	0°	1.000
Tower 3 South Center	-140.0°	0.680
Tower 4 South	+46.3°	0.378

### **NIGHTTIME MEASURED MONITOR POINT VALUES PRE AND POST**

RADIAL	DISTANCE	PRE VALUE	POST VALUE	FCC LIMIT
67.5°	3.22 km	9.3 mV/m	5.3 mV/m	14.30 mV/m
88.0°	6.76 km	6.50 mV/m	6.8 mV/m	8.43 mV/m
130.0°	4.14 km	10.0 mV/m	7.3 mV/m	19.18 mV/m
183.0°	2.61 km	35.9 mV/m	40.3 mV/m	50.20 mV/m
265.0°	5.36 km	23.0 mv/m	15.8 mv/m	26.33 mV/m
304.5°	2.49 km	159.5 mv/m	219.6 mv/m	249.70 mV/m

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