

**ENGINEERING REPORT**

**PARTIAL PROOF  
OF PERFORMANCE**

on

**WSBT(AM) – South Bend, IN**  
Facility ID No. 73985

In response to  
W241AD – South Bend, IN  
Translator Construction Permit  
File No. BPFT-20120104ACL

March, 2012

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Broadcast Engineering Consultants  
Coldwater, MI 49036

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# 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.

March 28, 2012

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# Discussion

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The firm of Munn-Reese, Inc., was retained to prepare this report detailing a Partial Proof of Performance on AM Radio Station WSBT(AM) – South Bend, IN (Facility ID No. 73985), License No. BZ-19931108AB, as required by Special Condition/Restriction (1) on W241AD – South Bend, IN (Facility ID No. 79264) Construction Permit File No. BPFT-20120104ACL. The W241AD Construction Permit authorizes relocation of the FM Translator onto ASR #1030677. The ASR #1030677 tower is a grounded tower located directly on the WSBT(AM) array property. The ASR #1030677 tower is not part of the WSBT(AM), array however, the tower has been detuned for the operating frequency of WSBT(AM).

WSBT(AM) – South Bend, IN currently operates on 960 kHz with 5.0 kW of daytime directional power using a four tower array and 5.0 kW of nighttime directional power using a separate four tower array. W241AD is authorized to operate with 0.210 kW (H&V) of non-directional power at 417 meters AMSL (152 meters AGL). As stated before, the W241AD antenna is mounted on ASR #1030677 which is a grounded tower detuned for the AM frequency of 960 kHz and located directly on the WSBT(AM) array property.

Directional field strength measurements were conducted by Mr. Edmond R. Trombley and Mr. Richard P. Grzebik, engineers in the employ of Munn-Reese, Inc. Mr. Trombley made his measurements using Potomac Instruments Field Intensity Meter, Model #FIM-41, Serial Number 1307. This meter was last calibrated March 21, 2011. Mr. Grzebik made his measurements using Potomac Instruments Field Intensity Meter, Model #FIM-41, Serial Number 1474. This meter was last calibrated September 15, 2008. FIM-41 Field Meter #1474 was compared against the other meter currently in calibration and found to be within the required tolerance.

Measurements were taken on the four (4) daytime monitor point radials and six (6) nighttime monitor point radials meeting the requirements of 47 C.F.R. §73.154(a) of the FCC Rules. Field strength measurements were taken on the dates and at the times indicated in the respective Tabulations of Field Strength Measurements, shown as **Exhibit 1.0** for day operation and **Exhibit(s) 2.0 to 2.1** for night operation. The tabulation sheets show the distance from the transmitter site to each point in units of kilometers. The locations and point numbers were derived from topographical maps in conjunction with GPS assistance. Both before and after measurements were taken with the identical meter regardless of engineer performing the measurements. Before and after measurements were taken approximately one (1) week apart from each other.

**Exhibit 3.0** provides a summary of the field intensity measurements made on the daytime and nighttime arrays. As seen in this exhibit, as well as the actual measurements in **Exhibit(s) 1.0 to 2.2**, all ratios are well within the allowable 10% for each individual radial as well as the average of all radials combined. In light of the measurements taken and uniform results obtained, the recent addition of W241AD to ASR #1030677 is believed to have had a negligible effect on the WSBT(AM) daytime or nighttime operations.

# Exhibit 1.0

## Daytime Field Strength Measurements - 45.0°T, 108.0°T, 275.0°T & 330.0° True

Call:		WSBT		Frequency (kHz): 960			Power (kW): 5.0			Engineer: Edmund R. Trombley		
				Bearing (°T): 45.0						Meter Model: FIM-41 S/N: 1307		
										Calibration Date: March 21, 2011		
Point #	2012 Before Directional			2012 After Directional			Distance km	Direct Ratio	Remarks	Log Ratio	Other Notes	
	mV/m	Time	Date	mV/m	Time	Date						
1	73.0	1225	03-19-12	73.0	1015	03-26-12	3.26	1.0000		0.0000		
2	32.0	1022	03-19-12	32.0	1024	03-26-12	4.74	1.0000		0.0000		
3	35.0	1037	03-19-12	35.0	1029	03-26-12	5.86	1.0000		0.0000		
4	26.0	1047	03-19-12	26.0	1037	03-26-12	7.41	1.0000		0.0000		
5	17.0	1057	03-19-12	17.0	1044	03-26-12	8.10	1.0000		0.0000		
6	11.3	1120	03-19-12	11.9	1058	03-26-12	10.32	1.0531		0.0517		
7	5.90	1138	03-19-12	6.00	1111	03-26-12	14.18	1.0169		0.0168		
8	6.50	1147	03-19-12	6.20	1119	03-26-12	14.70	0.9538		-0.0473		
9	5.00	1152	03-19-12	5.10	1126	03-26-12	16.16	1.0200		0.0198		
10	3.80	1158	03-19-12	3.50	1135	03-26-12	16.99	0.9211		-0.0822		
								Arithmetic Ratio:			0.9965	
								Log Ratio:			0.9959	

Call:		WSBT		Frequency (kHz): 960			Power (kW): 5.0			Engineer: Edmund R. Trombley		
				Bearing (°T): 108.0						Meter Model: FIM-41 S/N: 1307		
										Calibration Date: March 21, 2011		
Point #	2012 Before Directional			2012 After Directional			Distance km	Direct Ratio	Remarks	Log Ratio	Other Notes	
	mV/m	Time	Date	mV/m	Time	Date						
1	70.0	1345	03-19-12	72.0	1156	03-26-12	2.96	1.0286		0.0282		
2	66.0	1349	03-19-12	68.0	1204	03-26-12	3.57	1.0303		0.0299		
3	25.4	1235	03-19-12	25.0	1220	03-26-12	6.98	0.9843		-0.0159		
4	28.0	1239	03-19-12	27.5	1225	03-26-12	8.70	0.9821		-0.0180		
5	17.0	1242	03-19-12	17.0	1233	03-26-12	10.35	1.0000		0.0000		
6	14.0	1247	03-19-12	14.0	1238	03-26-12	12.50	1.0000		0.0000		
7	13.7	1252	03-19-12	13.5	1246	03-26-12	13.25	0.9854		-0.0147		
8	10.0	1301	03-19-12	11.0	1256	03-26-12	15.49	1.1000		0.0953		
9	9.50	1310	03-19-12	9.70	1305	03-26-12	17.21	1.0211		0.0208		
10	9.90	1319	03-19-12	9.80	1317	03-26-12	18.90	0.9899		-0.0102		
								Arithmetic Ratio:			1.0122	
								Log Ratio:			1.0116	

Call:		WSBT		Frequency (kHz): 960			Power (kW): 5.0			Engineer: Richard P. Grzebek		
				Bearing (°T): 275.0						Meter Model: FIM-41 S/N: 1474		
										Calibration Date: Sept. 15, 2008		
Point #	2012 Before Directional			2012 After Directional			Distance km	Direct Ratio	Remarks	Log Ratio	Other Notes	
	mV/m	Time	Date	mV/m	Time	Date						
1	302	1306	03-19-12	310	1139	03-26-12	0.87	1.0265		0.0261		
2	205	1302	03-19-12	212	1137	03-26-12	1.21	1.0341		0.0336		
3	208	1257	03-19-12	212	1135	03-26-12	1.32	1.0192		0.0190		
4	145	1252	03-19-12	151	1132	03-26-12	1.90	1.0414		0.0405		
5	129	1248	03-19-12	135	1129	03-26-12	2.22	1.0465		0.0455		
6	74.0	1239	03-19-12	74.0	1124	03-26-12	2.90	1.0000		0.0000		
7	112	1235	03-19-12	113	1122	03-26-12	3.02	1.0089		0.0089		
8	63.0	1231	03-19-12	66.0	1119	03-26-12	3.47	1.0476		0.0465		
9	35.0	1225	03-19-12	38.5	1116	03-26-12	4.59	1.1000		0.0953		
10	34.0	1213	03-19-12	34.9	1112	03-26-12	5.42	1.0265		0.0261		
								Arithmetic Ratio:			1.0351	
								Log Ratio:			1.0348	

Call:		WSBT		Frequency (kHz): 960			Power (kW): 5.0			Engineer: Richard P. Grzebek		
				Bearing (°T): 330.0						Meter Model: FIM-41 S/N: 1474		
										Calibration Date: Sept. 15, 2008		
Point #	2012 Before Directional			2012 After Directional			Distance km	Direct Ratio	Remarks	Log Ratio	Other Notes	
	mV/m	Time	Date	mV/m	Time	Date						
1	680	1055	03-19-12	675	1025	03-26-12	1.11	0.9926		-0.0074		
2	670	1059	03-19-12	670	1027	03-26-12	1.24	1.0000		0.0000		
3	321	1112	03-19-12	321	1034	03-26-12	2.31	1.0000		0.0000		
4	222	1118	03-19-12	224	1037	03-26-12	2.91	1.0090		0.0090		
5	164	1127	03-19-12	167	1040	03-26-12	3.54	1.0183		0.0181		
6	137	1132	03-19-12	141	1044	03-26-12	4.00	1.0292		0.0288		
7	129	1136	03-19-12	133	1046	03-26-12	4.22	1.0310		0.0305		
8	129	1141	03-19-12	135	1050	03-26-12	4.80	1.0465		0.0455		
9	84.0	1146	03-19-12	84.0	1053	03-26-12	5.23	1.0000		0.0000		
10	72.0	1157	03-19-12	72.0	1101	03-26-12	7.29	1.0000		0.0000		
								Arithmetic Ratio:			1.0127	
								Log Ratio:			1.0125	





## Exhibit 3.0 Tabulation of Daytime & Nighttime Ratios

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### Daytime Operation:

Radial	Arithmetic Ratio	Log Ratio
45.0°T	0.9965	0.9959
108.0°T	1.0122	1.0116
275.0°T	1.0351	1.0348
330.0°T	1.0127	1.0125
Average:	1.0141	1.0137

### Nighttime Operation:

Radial	Arithmetic Ratio	Log Ratio
67.5°T	0.9657	0.9650
88.0°T	0.9593	0.9587
130.0°T	0.9756	0.9745
183.0°T	0.9773	0.9763
265.0°T	0.9479	0.9440
304.5°T	0.9842	0.9821
Average:	0.9683	0.9668