

BROADCAST WORKS!

Building Great Radio Stations

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Engineering Statement
Partial Proof of Performance
Radio Station KJIM
1500 KHz, 1.0 KW DA-D
Sherman, Texas
25 January 2007

This firm was retained by the Bible Broadcasting Network, the holder of construction permit BMPED-20060523AAP, for radio station KYFB-FM, to study the possibility of re-radiation toward radio station KJIM, Sherman, Texas. Station KJIM is located 1.51 kilometres from the proposed KYFB-FM site on a bearing of 144.6 degrees, relative to true north. Under the special operating conditions of their construction permit, the Bible Broadcasting Network is obligated to make pre-construction and post-construction measurements on the directional array of radio station KJIM, and assure that the associated array is not adversely affected by the proposed construction.

KYFB-FM constructed its facility on an already established tower, registration number 1012248. It was not anticipated that there would be any adverse affects to radio station, KJIM.

Pre-construction field measurements were made on the four monitored radials, on 6 December 2006. These measurements were analyzed by the log ratio method against data obtained from the last full proof of performance and the inverse distance fields determined.

Post-construction field measurements were made on 23 January 2007. This data was analyzed by the log ratio method against pre-construction measurements made in 2006. The inverse distance field for each radial was obtained by multiplying the antilog of the average ratio for each radial by the inverse distance field obtained from the pre-construction measurements. A summary of the measured fields appears herein as Exhibit E-1. The summary includes both the radial field and the fields measured at the monitor points. The individual radial data is tabulated in Exhibits E1-1 through E1-8.

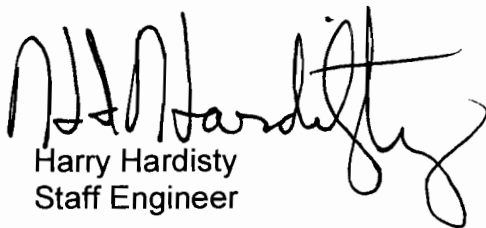
It is noted that the monitoring point on the 280 degree radial is out of tolerance on both the pre and post construction. The measurement, at this point in the 1969 Proof of Performance, was also above the present licensed limit. This is a discrepancy that station KJIM may want to pursue further. Points, subsequent to the monitor point on that radial, tracked pretty close to the 1969 proof.

Differences between the pre and post construction measurements are apparently due to a change in soil moisture. When the pre-construction measurements were made, the ground was dry and cracked. The entire region had been under drought conditions. The post-construction measurements were taken after significant rainfall and the ground was saturated to the point that pools of water were standing in many areas.

The field measurements were made by me, on the 100 and 135 degree radials, using a Potomac FIM-21, serial number 1090, calibrated on 23 February 1993. The measurements on the 65 and 280 degree radials were made by Ian LaVigne, under my direction, a person known by me to be qualified to make such field measurements and is regularly assigned, by this firm, to these projects. Ian was using a Potomac FIM-41, serial number 1368, calibrated 28 March 2005. Both FIMs were checked against each other, before measurements were made, on both the pre and post construction measurement trips. Both metres were found to agree within the manufacturer's tolerances. The KJIM common point current was verified at the licensed value of 4.60 amperes, before measurements began, each day measurements were taken. KJIM presently has no working antenna monitor.

The measurement locations were taken from the last full proof of performance, dated 8 January 1969. Fortunately, there has been relatively little change, in this area, since that time, and all measurement points were easily located on the map. Both Ian and I were equipped with Xmap on laptop computers, with GPS receivers, so repeatability was assured. The same set of points was re-measured following the completion of construction of radio station KYFB-FM.

It is my opinion, based on the measured data, that the construction of KYFB-FM has had no significant adverse affect on the operation of station KJIM.



Harry Hardisty
Staff Engineer

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Exhibit E-1
Tabulation of Measured Radials
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Sherman, Texas

<u>Radial</u>	<u>1969 Fld</u>	<u>2006 Pre</u>	<u>2007 Post</u>	<u>STD Pat</u>	<u>Status</u>
65 Deg	59.00	32.21	39.13	65.00	Ok
100 Deg	90.00	59.98	69.08	94.30	Ok
135 Deg	60.00	44.38	49.37	65.00	Ok
280 Deg	146.00	132.86	144.55	152.00	Ok

Tabulation of Monitor Point Measurements

<u>Radial</u>	<u>1969 Fld</u>	<u>2006 Pre</u>	<u>2007 Post</u>	<u>Lic. Limit</u>	<u>Status</u>
65 Deg	12.5	8.50	9.40	15.50	Ok
100 Deg	37.5	28.50	31.00	38.50	Ok
135 Deg	35.2	31.20	31.00	38.00	Ok
280 Deg	*	38.20	43.10	35.30	High

* Monitor point is in a different location, on the 1990 license, from the 1969 proof. This figure is not available from the 1969 proof.

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Exhibit E1-1
Radial N-65 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre-Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
MP 1	2.88	12.50	8.50	11/25/68	12/06/06	0.6800	-0.1675
2	3.66	9.30	3.90			0.4194	-0.3774
3	5.30	3.52	1.58			0.4489	-0.3479
4	7.02	2.80	1.40			0.5000	-0.3010
5	7.64	2.50	1.17			0.4680	-0.3298
6	9.51	1.82	0.94			0.5165	-0.2869
7	12.12	0.94	0.76			0.8085	-0.0923
8	12.74	1.03	0.65			0.6311	-0.1999

ARITHMETIC AVG DA/REF READINGS.	0.5590
LOG-RATIO AVERAGE DA/REF READINGS.	0.5460
REFERENCE FIELD.	59.00
LOG-RATIO TIMES REFERENCE FIELD.	32.21
CP/STANDARD PATTERN MAX PERMISSIBLE. ...	65.00

Exhibit E1-5
Radial N-65 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre/Post Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
MP 1	2.88	8.50	9.40	12/06/06	01/23/07	1.1059	0.0437
2	3.66	3.90	3.90			1.0000	0.0000
3	5.30	1.58	1.62			1.0253	0.0109
4	7.02	1.40	1.60			1.1429	0.0580
5	7.64	1.17	1.40			1.1966	0.0779
6	9.51	0.94	1.28			1.3617	0.1341
7	12.12	0.76	1.05			1.3816	0.1404
8	12.74	0.65	0.87			1.3385	0.1266

ARITHMETIC AVG DA/REF READINGS.	1.1940
LOG-RATIO AVERAGE DA/REF READINGS.	1.2148
REFERENCE FIELD.	32.21
LOG-RATIO TIMES REFERENCE FIELD.	39.13
CP/STANDARD PATTERN MAX PERMISSIBLE. ...	65.00

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Exhibit E1-2
Radial N-100 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre-Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
MP 1	1.61	37.50	28.50	11/25/68	12/06/06	0.7600	-0.1192
2	2.88	12.40	11.50			0.9274	-0.0327
3	3.42	14.00	10.20			0.7286	-0.1375
4	5.31	9.30	5.70			0.6129	-0.2126
5	6.06	6.00	4.15			0.6917	-0.1601
6	7.08	5.56	3.18			0.5719	-0.2426
7	7.58	6.20	2.85			0.4597	-0.3375
8	8.82	4.00	2.72			0.6800	-0.1675

ARITHMETIC AVG DA/REF READINGS.	0.6790
LOG-RATIO AVERAGE DA/REF READINGS.	0.6665
REFERENCE FIELD.	90.00
LOG-RATIO TIMES REFERENCE FIELD.	59.98
CP/STANDARD PATTERN MAX PERMISSIBLE. ...	94.30

Exhibit E1-6
Radial N-100 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre/Post Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
MP 1	1.61	28.50	31.00	12/06/06	01/23/07	1.0877	0.0365
2	2.88	11.50	13.50			1.1739	0.0696
3	3.42	10.20	11.50			1.1275	0.0521
4	5.31	5.70	6.50			1.1404	0.0570
5	6.06	4.15	4.70			1.1325	0.0540
6	7.08	3.18	3.80			1.1950	0.0774
7	7.58	2.85	3.60			1.2632	0.1015
8	8.82	2.72	3.00			1.1029	0.0426

ARITHMETIC AVG DA/REF READINGS.	1.1529
LOG-RATIO AVERAGE DA/REF READINGS.	1.1517
REFERENCE FIELD.	59.98
LOG-RATIO TIMES REFERENCE FIELD.	69.08
CP/STANDARD PATTERN MAX PERMISSIBLE. ...	94.30

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Exhibit E1-3
Radial N-135 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre-Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
MP 1	1.26	35.20	31.20	11/25/68	12/06/06	0.8864	-0.0524
2	2.75	14.00	14.50			1.0357	0.0152
3	3.95	10.00	7.10			0.7100	-0.1487
4	4.47	10.00	6.50			0.6500	-0.1871
5	4.68	9.90	6.90			0.6970	-0.1568
6	5.55	7.60	4.90			0.6447	-0.1906
7	6.65	5.25	3.80			0.7238	-0.1404
8	9.01	4.00	2.60			0.6500	-0.1871

ARITHMETIC AVG DA/REF READINGS.	0.7497
LOG-RATIO AVERAGE DA/REF READINGS.	0.7396
REFERENCE FIELD.	60.00
LOG-RATIO TIMES REFERENCE FIELD.	44.38
CP/STANDARD PATTERN MAX PERMISSIBLE. ...	65.00

Exhibit E1-7
Radial N-135 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre/Post Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
MP 1	1.26	31.20	31.00	12/06/06	01/23/07	0.9936	-0.0028
2	2.75	14.50	16.00			1.1034	0.0428
3	3.95	7.10	7.80			1.0986	0.0408
4	4.47	6.50	7.20			1.1077	0.0444
5	4.68	6.90	7.90			1.1449	0.0588
6	5.55	4.90	5.90			1.2041	0.0807
7	6.65	3.80	4.20			1.1053	0.0435
8	9.01	2.60	3.00			1.1538	0.0621

ARITHMETIC AVG DA/REF READINGS.	1.1139
LOG-RATIO AVERAGE DA/REF READINGS.	1.1125
REFERENCE FIELD.	44.38
LOG-RATIO TIMES REFERENCE FIELD.	49.37
CP/STANDARD PATTERN MAX PERMISSIBLE. ...	65.00

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Exhibit E1-4
Radial N-280 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre-Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
1	1.07	102.00	126.00	11/25/68	12/06/06	1.2353	0.0918
MP 2	2.76	41.00	38.20			0.9317	-0.0307
3	3.78	30.05	24.00			0.7987	-0.0976
4	4.19	25.20	21.20			0.8413	-0.0751
5	5.80	18.20	17.50			0.9615	-0.0170
6	7.33	12.80	12.30			0.9609	-0.0173
7	8.33	11.50	10.50			0.9130	-0.0395
8	9.38	10.06	7.25			0.7207	-0.1423

ARITHMETIC AVG DA/REF READINGS.	0.9204
LOG-RATIO AVERAGE DA/REF READINGS.	0.9100
REFERENCE FIELD.	146.00
LOG-RATIO TIMES REFERENCE FIELD.	132.86
CP/STANDARD PATTERN MAX PERMISSIBLE. . .	152.00

Exhibit E1-8
Radial N-280 Degrees
Radio Station KJIM
1500 KHz, 1.0 KW, DA-D
Pre/Post Construction Measurements

PT#	DIST-MI	REF DA	DA mV/m	REF DATE	DA DATE	DA/REF	LOG
1	1.07	126.00	131.00	12/06/06	01/23/07	1.0397	0.0169
MP 2	2.76	38.20	43.10			1.1283	0.0524
3	3.78	24.00	26.50			1.1042	0.0430
4	4.19	21.20	25.00			1.1792	0.0716
5	5.80	17.80	17.40			0.9775	-0.0099
6	7.33	12.30	13.50			1.0976	0.0404
7	8.33	10.50	11.40			1.0857	0.0357
8	9.38	7.25	8.00			1.1034	0.0428

ARITHMETIC AVG DA/REF READINGS.	1.0895
LOG-RATIO AVERAGE DA/REF READINGS.	1.0880
REFERENCE FIELD.	132.86
LOG-RATIO TIMES REFERENCE FIELD.	144.55
CP/STANDARD PATTERN MAX PERMISSIBLE. . .	152.00

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CERTIFICATION OF ENGINEER

I hereby state that:

I am employed by Broadcast Works, as a staff engineer, and have been so employed since 1 January 1996.

I am an SBE certified Senior Radio Broadcast Engineer and AM Directional Specialist, certification number 4605.

This engineering exhibit was prepared by me, personally or under my direct supervision.

All facts stated herein are true and correct to the best of my knowledge and belief.


Harry Hardisty
13 February 2007