

**WHBY(AM) DIRECTIONAL FIELD STRENGTH MEASUREMENTS**

## **WHBY DIRECTIONAL FIELD STRENGTH MEASUREMENTS**

The following engineering statement and attached exhibits have been prepared for Dielectric Communications, Inc. and contain the results of measurements performed on the day and night patterns of WHBY(AM).

The measurements were required to determine if a new tower constructed for WVBO-FM would distort the WHBY antenna patterns. Measurements were performed prior to the construction of the new tower. When the tower was completed, including the installation of all antennas, transmission lines and a detuning skirt, the skirt was tuned for minimum reradiation of the WHBY signal. A second set of measurements was then performed to demonstrate that there was no significant adverse effect on the WHBY patterns.

The attached summary page demonstrates that the WHBY pattern has not been significantly impacted. The nighttime pattern only shows one radial to have changed a significant amount. The 167° radial direct ratio increased by 13.7%. However, that radial was found to be tuned to well below the FCC limits. The monitor point value was 13.0 mV/m prior to the construction of the new tower and 14 mV/m. following the detuning. The FCC limit on that monitor point is 23 mV/m. Therefore, the final values of field strength along that radial do not indicate any significant adverse impact.

The daytime pattern only shows one radial with any significant change. The 217.5° radial would appear to have increased by 10%. However, the monitor point values before and after the construction and detuning remain well below the FCC limit.

The remainder of the variation along all other monitor point radials is within meter tolerance. The total change on all radials is within the range normally expected from day to day. It is respectfully submitted that the new WBVO-FM tower has been successfully detuned to eliminate any harmful impact on WHBY.

The preceding statement and attached exhibits have been prepared by me or under my direction and are true and correct to the best of my knowledge and belief.

/s/ Donald L. Markley

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Date: September 20, 2003

Donald L. Markley, P.E.

## WHBY Directional Field Measurements

### MONITOR POINT AND RATIO SUMMARY

<b>Radial</b>	<b>Point</b>	<b>Distance</b> km	<b>Initial</b> mV/m.	<b>Final</b> mV/m.	<b>Direct</b> <b>Ratio</b>	<b>Log</b> <b>Ratio</b>
<b>Day</b>						
129.5	1	1.68	45	44	1.0379	0.9748
182.5	2	4.59	9.5	8	0.9844	0.9784
217.5	20	4.39	11	11.5	1.1055	1.1004
270.5	22	8.17	4.8	3.1	0.9382	0.8641
<b>Night</b>						
90	28	15.93	2.5	3.2	0.9486	0.8361
133	32	18.5	4.5	4.2V	0.9716	0.9681
167	2	3.54	13	14	1.1367	1.1266
233	20	4.18	23	22.5	1.0328	1.0306
285	23	8.47	7.6	7.6	0.9848	0.9812
310	22	8.6	8.8	7.7	1.0354	1.0116

## **WVBO-FM DATA SHEET**

**Client- Dielectric Communications  
MSO #- 75757**

**New Tower- WVBO FM 103.9 Mhz  
Facility ID #- 69781  
Tower Height- 345' = 145 Degrees (for 1150 Khz)  
Tower Location- N 44 08 23 W 88 29 02**

**AM Station- WHBY  
Frequency- 1150 Khz  
Power- 5 Kw Day and Night  
# of Towers- 5  
Facility ID #- 73660  
Location- N 44 08 48 W 88 28 54  
Direction to WVBO Tower- 192 Degrees True  
Distance to WVBO Tower- 802 Meters**

**Detuning Skirt- Nott Ltd 3 Wire 170' long= 70 Degrees**

## WHBY DIRECTIONAL FIELD MEASUREMENTS

Daytime

129.5 Deg. T.

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio Initial to Final	Log Ratio Initial to Final
1	<b>MP</b> 1.68	45	44	0.9778	-0.0098
2	3.21	37	34	0.9189	-0.0367
4	4.82	21	17.5	0.8333	-0.0792
6	6.43	18.1	15	0.8287	-0.0816
8	8.04	12	11	0.9167	-0.0378
10	9.65	11.5	10	0.8696	-0.0607
12	12.8	2.8	6.5	2.3214	0.3658
13	14.48	7.4	5.5	0.7432	-0.1289
21	16.29	7.3	6.8	0.9315	-0.0308
			Average:	1.0379	0.9748

# WHBY DIRECTIONAL FIELD MEASUREMENTS

Daytime

182.5 Deg. T.

<b>Point</b>	<b>Distance</b> (Km)	<b>Initial</b> (mV/m)	<b>Final</b> (mV/m)	<b>Ratio</b> Initial to Final	<b>Log Ratio</b> Initial to Final
1	1.35	39	32	0.8205	-0.0859
2	<b>MP</b> 4.59	9.5	8	0.8421	-0.0746
2A	8.04	5.5	6	1.0909	0.0378
4	9.65	5.1	5.2	1.0196	0.0084
5	11.2	4.7	4.4	0.9362	-0.0286
6	12.87	3.4	3.6	1.0588	0.0248
7	14.48	2.9	3.3	1.1379	0.0561
8	16.09	3.2	3.1	0.9688	-0.0138
				0.9844	0.9784

## WHBY DIRECTIONAL FIELD MEASUREMENTS

Daytime

217.5 Deg. T.

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio	Log Ratio
				Initial to Final	Initial to Final
1	1.91	31	30	0.9677	-0.0142
20	<b>MP</b> 4.39	11	11.5	1.0455	0.0193
22	6.85	6.1	7.2	1.1803	0.0720
24	8.89	8.2	10	1.2195	0.0862
24A	10.9	9.5	9	0.9474	-0.0235
25	12.51	6.5	7	1.0769	0.0322
26	16.3	3.6	4.2	1.1667	0.0669
27	18.7	2.5	3.1	1.2400	0.0934
			Average:	1.1055	1.1004

## WHBY DIRECTIONAL FIELD MEASUREMENTS

Daytime

270.5 Deg. T.

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio	Log Ratio
				Initial to Final	Initial to Final
19	3.36	10	12	1.2000	0.0792
20	4.98	5.2	10	1.9231	0.2840
22	<b>MP</b> 8.17	4.8	3.1	0.6458	-0.1899
23	9.81	3.5	2.1	0.6000	-0.2218
24	12.2	1.2	1.3	1.0833	0.0348
24A	13.8	1.6	1.1	0.6875	-0.1627
24B	15.4	2.2	1.5	0.6818	-0.1663
25	16.7	1.9	1.3	0.6842	-0.1648
Average:				0.9382	0.8641

# WHBY DIRECTIONAL FIELD MEASUREMENTS

Nighttime

090 Deg. T.

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio Initial to Final	Log Ratio Initial to Final
1	1.7	48	46	0.9583	-0.0185
2	3.28	14.9	3.28	0.2201	-0.6573
6	6.43	12	8.5	0.7083	-0.1498
8	8.04	10.2	12.5	1.2255	0.0883
10	9.65	8	6.4	0.8000	-0.0969
12	12.87	5.4	4.3	0.7963	-0.0989
28	<b>MP</b> 15.93	2.5	3.2	1.2800	0.1072
28A	17.37	1.5	2.4	1.6000	0.2041
			Average:	0.9486	0.8361

## WHBY DIRECTIONAL FIELD MEASUREMENTS

Nighttime

133 Deg. T.

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio	Log Ratio
				Initial to Final	Initial to Final
1	1.67	85	98	1.1529	0.0618
2	3.21	59	54	0.9153	-0.0385
4	4.82	39	38	0.9744	-0.0113
6	6.43	25	26	1.0400	0.0170
8	8.04	19	16.8	0.8842	-0.0534
10	9.65	12.8	13.1	1.0234	0.0101
11	11.26	11	11.2	1.0182	0.0078
12	12.8	10.5	11	1.0476	0.0202
13	14.4	8.9	8	0.8989	-0.0463
14	16.09	9.6	8.2	0.8542	-0.0685
31	17.6	6	5.5	0.9167	-0.0378
32	<b>MP</b> 18.5	4.5	4.2	0.9333	-0.0300
Average:				0.9716	0.9681

## WHBY DIRECTIONAL FIELD MEASUREMENTS

Nighttime

167 Deg. T.

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio	Log Ratio
				Initial to Final	Initial to Final
1	2.25	12.6	20	1.5873	0.2007
2	MP	13	14	1.0769	0.0322
2A		12.5	11.5	0.9200	-0.0362
4	6.4	10.1	11.3	1.1188	0.0488
6	8.04	10	10.5	1.0500	0.0212
8	9.65	9.1	10	1.0989	0.0410
9	11.26	8	9	1.1250	0.0512
10	12.87	6.9	7.6	1.1014	0.0420
11	14.48	5.2	5.9	1.1346	0.0548
12	16.09	3.9	4.5	1.1538	0.0621
Average:				1.1367	1.1266

## WHBY DIRECTIONAL FIELD MEASUREMENTS

Nighttime

233 Deg. T.

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio Initial to Final	Log Ratio Initial to Final
20	<b>MP</b> 4.18	23	22.5	0.9783	-0.0095
21	6.22	11	13	1.1818	0.0726
22	8.2	11.5	12	1.0435	0.0185
23	9	10.1	10	0.9901	-0.0043
24	10.2	8	8.8	1.1000	0.0414
24A	11.6	6.8	6.9	1.0147	0.0063
25	13.1	6.1	6	0.9836	-0.0072
26	17.2	3.4	3.3	0.9706	-0.0130
			Average:	1.0328	1.0306

# WHBY DIRECTIONAL FIELD MEASUREMENTS

NIGHTTIME

285 Deg. T.

Point	Distance	Initial	Final	Ratio	Log Ratio
	(Km)	(mV/m)	(mV/m)	Initial to Final	Initial to Final
19	3.49	110	108	0.9818	-0.0080
20	4.11	10	10.5	1.0500	0.0212
21	5.17	15	17	1.1333	0.0544
23	<b>MP</b> 8.47	7.6	7.6	1.0000	0.0000
24	9.91	8	6.6	0.8250	-0.0835
24A	11	10	10	1.0000	0.0000
24B	15.13	5.2	5	0.9615	-0.0170
25A	18.5	4.1	3.8	0.9268	-0.0330
			Average:	0.9848	0.9812

## WHBY DIRECTIONAL FIELD MEASUREMENTS

**NIGHTTIME**

**310 Deg. T.**

Point	Distance (Km)	Initial (mV/m)	Final (mV/m)	Ratio	Log Ratio
				Initial to Final	Initial to Final
19	3.39	47	41	0.8723	-0.0593
20	4.89	13.5	12	0.8889	-0.0512
21	6.54	19	18	0.9474	-0.0235
22	<b>MP</b> 8.6	8.8	7.7	0.8750	-0.0580
23	9.15	3.5	6.1	1.7429	0.2413
24	10.8	7.2	6.8	0.9444	-0.0248
24A	11.8	7	7	1.0000	0.0000
25	13.46	4.4	4.5	1.0227	0.0098
26	16.8	4	4.1	1.0250	0.0107
Average:				1.0354	1.0116