

**Engineering exhibit  
in support of the FCC 302 application for  
Radio Station  
WLZT-FM**

Radio station WLZT- has been issued a construction permit (file number BPH-20031112AIA) for the installation of FM broadcast antennas on tower five of radio station WTVN, Columbus, Ohio. As special condition 1 of this construction permit, the licensee of WLZT-FM is required to present a partial proof of performance of the directional pattern of radio station WTVN prior to the issuance of the WLZT License.

**Changes to the array**

The purpose of the WLZT-FM construction permit was to install the WLZT-FM antenna, isocouplers and related coaxial cables on the WTVN tower. Tower #5 (ASR 1033684) was the element in the array that is designated to supported the WLZT-FM antenna. This tower, as modified, consists of a uniform cross section, guyed tower. The FM antennas were mounted at the height specified in the construction permit.

In preparation for the installation of the WLZT-FM antenna, related isocouplers and coaxial cables, a pylon was removed from the top of tower 5. This was replaced by a Lambda section of tower exactly the same height as the pylon that was removed.

**Antenna Sample System**

The sample system for this array consists of toroidal current transformers mounted in the tuning house of towers 1-6. These are connected using equal electrical length sample lines that are then connected to a Potomac AM-1901-6 antenna monitor. These elements were not changed during the construction work and remain as described in the station license.

**Antenna Monitor Parameters**

The values on the WTVN changed slightly. The new values are:

<b>Tower</b>	<b>Phase</b>	<b>Ratio</b>
1	+4.0	0.895
2	+110.5	0.810
3	+101.0	0.875
4	+91.0	0.380
5	+52.5	0.096
6 (ref)	+0.0	1.000

**Common Point Impedance**

The Common Point Resistance and Reactance were measured and remain unchanged from the licensed values.

### **Field Measurement Point Selection**

Field points were selected from the points described in the 1975 full proof. A minimum of seven points, plus the monitor point, were selected for each of the nine monitored radials.

### **Field Strength Measurements**

The following Clear Channel engineering staff did the field measurement work for this exhibit:

Dan Mettler  
Greg Savoldi

The field meter used for all of the measurements is:

FIM-41          SN# 2159          Calibrated 3/2004

Field strength measurements were made along the nine WTVN monitor point radials at locations specified in the 1975 proof-of-performance for the nighttime pattern. Distances to those locations from the WTVN transmitter site have been converted from miles to kilometers.

Field strength measurements were made for the non-directional modes with an input power of 5,000 watts. For the directional mode an input power of 5,400watts was used. A tabulation of meter readings for the measured pattern is included in this exhibit as Appendix A

### **Field Strength Measurement Analysis**

Field strength measurements were analyzed in accordance with Section 73.154 of the FCC Rules. The logarithmic ratios of the measured directional radials to the measured non-directional radials were averaged for each radial. This resultant value was compared to the value recorded as part of the 1975 full proof. In no case did the post-construction value exceed the 1975 full proof value.

### **RFR Compliance**

The construction authorized by this Construction Permit did not cause this site to exceed the general public RFR radiation limits. Inside the occupational area, signs and fencing remain in place to conform to the RFR limits as described in the FCC rules.

Respectfully submitted,



Michael A. Golchert  
AM Field Engineer  
Clear Channel Communications

### Summary of Parameters

**WTVN, Columbus, Ohio**  
610 kHz

<b>Day Mode</b>	2.63a @ 722 ohms	-j 240	NDA
<b>Night Mode</b>	10.39a @ 50 ohms	+j 0	DA-N

**Antenna Monitor:** AM-1901-6

**Night Mode:**

Tower	Phase	Ratio	Base Current
1	+4.0	0.895	7.75a
2	+110.5	0.810	7.10a
3	+101.0	0.875	7.75a
4	+91.0	0.380	3.25a
5	+52.5	0.096	0.84a
6 (ref)	+0.0	1.000	8.60a

## Appendix A

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**52° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
7 [MP]	5.79	6/9/75	1859	98.00	6/01/06	920	31.50	-0.4929
8	6.47	"	1850	85.00	"	928	26.00	-0.5144
9	6.94	"	1845	86.00	"	932	24.50	-0.5453
10	7.55	"	1832	65.00	"	936	21.00	-0.4907
11	8.69	"	1815	68.00	"	940	13.00	-0.7186
12	9.94	"	1806	53.00	"	943	12.50	-0.6274
13	10.49	"	1800	85.00	"	947	19.00	-0.6507
14	11.26	6/10/75	1545	50.00	"	952	16.50	-0.4815

Average of Log Ratios:	0.2722
NDA Reference Field:	643.60
Log-Ratio times Reference Field:	175.16
CP Limit:	328.79

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**67° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
1 [MP]	3.10	6/30/75	1611	202.00	06/01/06	1102	12.00	-1.2262
2	3.35	"	1608	149.00	"	1059	10.00	-1.1732
3	3.96	"	1604	136.00	"	1056	5.40	-1.4011
4	4.30	"	1600	142.00	"	1052	4.60	-1.4895
5	5.15	"	1554	116.00	"	1048	6.90	-1.2256
7	7.40	"	1546	81.00	"	1036	9.90	-0.9128
9	7.98	"	1533	74.00	"	1012	7.00	-1.0241
10	8.48	"	1530	60.50	"	1005	6.00	-1.0036
11	8.84	"	1525	54.20	"	1001	5.50	-0.9936

Average of Log Ratios: 0.0690  
NDA Reference Field: 91.87  
Log-Ratio times Reference Field: 47.75  
CP Limit: 101.39

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**88° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
2 [MP]	2.77	6/10/75	1804	263.0	06/01/06	1108	16.00	-1.2158
3	3.41	"	1759	188.0	"	1112	9.00	-1.3199
4	3.78	"	1755	183.0	"	1116	12.00	-1.1833
5	4.15	"	1747	190.0	"	1118	9.00	-1.3245
8	7.89	"	1715	73.0	"	1146	6.00	-1.0852
9	9.49	"	1704	66.0	"	1201	6.80	-0.9870
10	10.02	"	1701	63.7	"	1203	3.70	-1.2359
11	11.02	"	1657	50.0	"	1206	3.10	-1.2076
12	11.94	"	1649	58.0	"	1215	6.80	-0.9309
13	12.81	"	1639	54.0	"	1221	3.90	-1.1413

Average of Log Ratios: 0.0687  
NDA Reference Field: 740.14  
Log-Ratio times Reference Field: 50.83  
CP Limit: 64.36

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**138° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
6 [MP]	4.83	6/10/75	1749	128.0	06/01/06	1313	14.00	-0.9611
7	5.02	"	1746	133.0	"	1314	14.00	-0.9777
8	5.84	"	1743	124.0	"	1320	14.00	-0.9473
9	7.00	"	1739	104.0	"	1323	9.40	-1.0439
11	8.93	"	1731	73.0	"	1356	7.50	-0.9883
12	9.49	"	1729	73.0	"	1354	5.50	-1.1230
13	9.77	"	1725	76.0	"	1352	5.80	-1.1174
14	10.22	"	1721	67.0	"	1344	4.20	-1.2028

Average of Log Ratios: 0.0901  
NDA Reference Field: 804.50  
Log-Ratio times Reference Field: 72.50  
CP Limit: 96.56

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**159° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
7 [MP]	5.31	6/10/75	0852	142.00	06/01/06	1434	13.50	-1.0220
8	5.58	"	0913	113.00	"	1438	12.00	-0.9739
9	5.82	"	0947	114.00	"	1443	10.50	-1.0357
10	6.15	"	0951	111.00	"	1445	10.00	-1.0453
16	10.65	"	1626	65.50	06/01/06	1414	2.10	-1.4940
17	12.07	"	1619	60.00	"	1408	2.20	-1.4357
18	12.52	"	1613	51.00	"	1405	1.80	-1.4523
19	15.10	"	1607	45.00	"		1.40	-1.5071

Average of Log Ratios: 0.0568  
NDA Reference Field: 804.50  
Log-Ratio times Reference Field: 45.68  
CP Limit: 102.98

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**170° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
9 [MP]	4.99	6/9/75	1930	142.00	06/01/06	1451	31.00	-0.6609
11	7.00	"	1921	86.00	"	1456	19.00	-0.6557
12	7.22	"	1916	89.00	"	1458	22.00	-0.6070
13	9.09	"	1905	75.00	"	1503	23.00	-0.5133
14	11.71	"	1856	56.00	"	1509	13.00	-0.6342
15	12.89	"	1850	48.00	"	1512	13.00	-0.5673
16	13.81	"	1840	36.80	"	1515	5.00	-0.8669
18	17.22	"	1828	33.70	"	1522	9.50	-0.5499
19	18.99	"	1811	30.20	"	1526	8.50	-0.5506

Average of Log Ratios:	0.2383
NDA Reference Field:	772.32
Log-Ratio times Reference Field:	184.04
CP Limit:	219.58

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**207° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
5	5.15	8/11/75	1552	127.0	5/23/06	1501	32.0	-0.5987
6 [MP]	5.28	"	1600	135.0	"	1458	39.0	-0.5393
11	9.85	"	1642	65.0	"	1449	18.0	-0.5576
14	13.84	"	1657	45.0	"	1438	12.0	-0.5740
15	15.70	"	1705	39.5	"	1125	10.0	0.5966
16	17.06	"	1708	37.5	"	1129	9.0	-0.6198
17	17.87	"	1712	35.0	"	1132	8.8	-0.5996
18	18.51	"	1834	35.0	"	1136	8.4	-0.6198

Average of Log Ratios: 0.2581  
NDA Reference Field: 756.23  
Log-Ratio times Reference Field: 195.20  
CP Limit: 209.17

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**268° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
2 [MP]	4.02	6/11/75	859	172.0	5/23/06	1307	12.0	-1.1563
5	6.84	"	927	104.0	"	1312	5.4	-1.2846
8	8.16	"	941	90.0	"	1320	4.4	-1.3108
9	8.3	"	945	88.0	"	1322	3.7	-1.3763
10	8.45	"	947	88.0	"	1325	3.3	-1.4260
17	11.26	"	1959	57.0	"	1342	5.6	-1.0077
19	12.95	"	1951	51.9	"	1346	4.3	-1.0817
20	13.51	"	1937	48.5	"	1348	2.8	-1.2386

Average of Log Ratios:	0.0582
NDA Reference Field:	740.14
Log-Ratio times Reference Field:	43.06
CP Limit:	59.53

**WTVN**  
**Columbus, Ohio**  
**610khz**  
**319° Radial**

POINT #	DIST	DATE	TIME	mv/m	DATE	TIME	mv/m	Log-Ratio
	km	NDA	NDA	NDA	DA	DA	DA	NDA/DA
13 [MP]	5.21	6/11/75	1710	142.0	5/23/06	1203	62.00	-0.3599
14	5.52	"	1715	121.0	"	1159	54.00	-0.3504
15	6.92	"	1722	90.0	"	1154	36.00	-0.3979
16	7.16	"	1727	89.0	"	1152	41.00	-0.3366
19	8.59	"	1741	86.0	"	1147	37.00	-0.3663
22	10.23	"	1755	53.0	"	1135	23.00	-0.3625
24	12.35	"	1807	56.5	"	1125	23.50	-0.3810
26	13.96	"	1817	29.5	"	1117	19.00	-0.1911

Average of Log Ratios: 0.4648  
NDA Reference Field: 756.23  
Log-Ratio times Reference Field: 351.51  
CP Limit: 418.34

## Appendix B

### WTVN – Columbus, OH

610KHz – 5KW DA-N

8/24/06

FCC Form 302, Section III – Part 9 Detail for Parameters change

Tower ASRN	Our Twr Number	Type Radiator	Height(m)above base insulator	Height(m) above gnd(no light)	Height w/light
1033688	1	Self-Sup	60.0	60.9	61.9
1033689	2	Self-Sup	60.1	60.8	61.8
1033687	3	Self-Sup	120.3	121.9	122.9
1033685	4	Self-Sup	120.0	121.6	122.6
1033684	5	UnifCrossSec	197.4	198.4	199.4
1033686	6 (ref)	Self-Sup	70.5	71.6	72.6

NOTE: Tower #1 and Tower #2 are top-loaded, consisting of 6 (six) 38m equally spaced wires

NOTE: Tower #6 is top-loaded, consisting of 8 (eight) 45.7m equally spaced wires