

**Engineering exhibit  
in support of the FCC 302 application for  
Radio Station  
KJMS**

Radio station KJMS was issued a construction permit (file number BPH-20031001CCP) for the re-location of the transmitter site to the towers of radio station WWTQ, Memphis, Tennessee. As a special condition of this construction permit, the licensee of KJMS was required to present a partial proof of performance of the directional pattern of radio station WWTQ prior to the issuance of Program Test Authority.

The licensee of WWTQ provided the engineering staff of KJMS with multiple antenna systems proofs. Included in these copies were an 8-point per radial 6 radial partial proof from 2001, a 16-point per radial 14 radial, partial proof from 1979 and a full proof from 1973.

**Antenna Sample System**

The sample system for this array consists of torodial transformers mounted in the tuning house of towers 1-4 and a sample loop mounted on tower 5. These are connected using equal electrical length sample lines which are then connected to a Potomac AM-19 (204) antenna monitor. These elements were not changed during the construction work and remain as described in the station license.

**Common Point**

The common point Resistance and Reactance were measured and they matched the values listed on the station license.

**Field Measurement Point Selection**

When the Memphis engineering staff selected the points to be used for this partial proof, they believed they could use the same points from the 2001 partial proof. Unfortunately, several of the points on the 2001 partial reflect back to points on the 1979 partial, but not to points on the 1973 full proof. This mistake was not discovered until after the physical construction work was completed and the post construction partial proof was run.

Since there is no practical post-construction way to measure the additional points necessary to have 8 points from the last full proof on all the radials, the decision was made to present the valid points that were selected from the pre-construction field work. Then additional points ranging from 2km to 40km, post construction, would be measured (using accessible points from the 1973 full proof) to show that the radiation pattern of radio station WWTQ did not exceed the levels established by the last full proof (1973).

Many points near the transmitter site are no longer accessible due to the presence of the Mississippi and Loosahatchie rivers and their associated levees.

### **Field Strength Measurements**

The field measurement work for this exhibit was done by the following Clear Channel engineering staff:

Alonzo Pendelton  
Gary Condrey  
Duncan Fuller  
Michael Golchert

The field meters used for all of these measurements are:

FIM-41	SN# 1209	
FIM-21	SN# 1053	
FIM-21	SN# 309	Calibrated 9/05

The meter measurements were compared to each other and were found to be in close agreement.

Field strength measurements were made along the six WWTQ monitor point radials at locations specified in the 1973 proof-of-performance for the nighttime pattern. Distances to those locations from the WWTQ transmitter site have been converted from miles to kilometers. Field strength measurements were made for the nighttime directional pattern with an input power of 5,400 watts. A tabulation of meter readings for the measured pattern is included in this exhibit.

### **Field Strength Measurement Analysis**

Field strength measurements were analyzed in accordance with Section 73.154 of the FCC Rules. The arithmetic ratios of the measured post construction directional to the measured directional of the 1973 full proof were averaged for each radial. This value was multiplied by the directional reference field as listed in the 1973 proof. The resultant value was compared to the maximum value permitted as listed in the 1973 proof.

### **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 are still 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



**WWTQ  
8° Radial  
Pre-Construction**

<b>Point</b>	<b>Distance (km)</b>	<b>Proof Date</b>	<b>Proof Time</b>	<b>Proof mV/m</b>	<b>Measured Date</b>	<b>Measured Time</b>	<b>Measured mV/m</b>	<b>Ratio</b>
8-6 (MP)	3.28	12/7/73	1013	26.00	9/8/04	1045	9.90	0.381
8-8	4.19	12/7/73	1019	22.00	9/8/04	1100	9.00	0.400
8-10	4.48	12/7/73	1025	12.50	9/8/04	1103	8.20	0.656
8-12	5.26	12/7/73	1032	16.20	9/8/04	1106	9.00	0.556
8-13	5.43	12/7/73	1035	19.30	9/8/04	1108	9.00	0.466
8-14	5.75	12/7/73	1040	15.60	9/8/04	1110	6.60	0.417
8-15	7.15	12/7/73	1108	8.70	9/8/04	1114	5.80	0.667
8-18	12.20	12/7/73	1134	5.30	9/8/04	1121	1.50	0.283

Average Ratio: 0.4781  
1973 DA Reference Field: 101.37  
Average Ratio times DA reference field: 48.47  
1973 CP Limit: 40.00

**WWTQ  
8° Radial  
Post-Construction**

Point	Distance (km)	Proof Date	Proof Time	Proof mV/m	Measured Date	Measured Time	Measured mV/m	Ratio
8-6 (MP)	3.28	12/7/73	1013	26.00	1/9/06	1253	7.50	0.288
8-7	4.05	12/7/73	1017	23.80	2/8/06	958	5.80	0.244
8-8	4.19	12/7/73	1019	22.50	1/9/06	1259	10.50	0.467
8-9	4.34	12/7/73	1022	20.00	2/8/06	1010	7.70	0.385
8-11	4.91	12/7/73	1029	19.70	2/8/06	1020	11.10	0.563
8-13	5.43	12/7/73	1035	19.30	1/9/06	1310	11.00	0.570
8-14	5.75	12/7/73	1040	15.60	1/9/06	1315	9.00	0.577
8-16	9.01	12/7/73	1116	7.50	2/8/06	1033	3.08	0.411
8-17	11.34	12/7/73	1130	4.10	2/8/06	1040	2.05	0.500
8-18	12.20	12/7/73	1134	5.30	1/9/06	1424	1.40	0.264
8-19	15.40	12/7/73	1145	4.00	2/8/06	1050	0.64	0.160
8-20	16.41	12/7/73	1148	3.35	2/8/06	1058	0.60	0.179
8-21	17.22	12/7/73	1151	2.50	2/8/06	1103	0.86	0.344

Average Ratio: 0.3809  
1973 DA Reference Field: 101.37  
Average Ratio times DA reference field: 38.61  
1973 CP Limit: 40.00

**WWTQ  
59° Radial  
Pre-Construction**

<b>Point</b>	<b>Distance (km)</b>	<b>Proof Date</b>	<b>Proof Time</b>	<b>Proof mV/m</b>	<b>Measured Date</b>	<b>Measured Time</b>	<b>Measured mV/m</b>	<b>Ratio</b>
59-8 (MP)	2.93	12/3/73	1146	12.80	9/8/04	1216	15.00	1.172
59-9	3.14	12/3/73	1149	12.50	9/8/04	1214	12.00	0.960
59-10	3.34	12/3/73	1151	7.50	9/8/04	1211	8.00	1.067
59-11	5.05	12/3/73	1201	5.90	9/8/04	1204	2.50	0.424
59-15	17.20	12/3/73	1248	1.75	9/8/04	1141	0.45	0.257
59-16	17.90	12/3/73	1251	1.85	10/20/04	1516	0.30	0.162

Average Ratio: 0.6736  
 1973 DA Reference Field: 57.92  
 Average Ratio times DA reference field: 39.01  
 1973 CP Limit: 121.00

**WWTQ  
59° Radial  
Post-Construction**

Point	Distance (km)	Proof Date	Proof Time	Proof mV/m	Measured Date	Measured Time	Measured mV/m	Ratio
59-6	2.14	12/3/73	1141	11.00	2/8/06	1310	14.00	1.273
59-7	2.38	12/3/73	1143	12.2	2/8/06	1313	13.70	1.123
59-8 (MP)	2.93	12/3/73	1146	12.8	11/11/06	1357	19.00	1.484
59-9	3.14	12/3/73	1149	12.5	11/11/06	1359	5.00	0.400
59-10	3.34	12/3/73	1151	7.5	11/11/06	1401	12.50	1.667
59-11	5.05	12/3/73	1201	5.9	11/11/06	1406	3.50	0.593
59-13	10.94	12/3/73	1236	4.10	2/8/06	1253	2.72	0.663
59-14	12.31	12/3/73	1240	4.25	2/8/06	1248	2.28	0.536
59-15	17.20	12/3/73	1248	1.75	1/9/06	1529	0.55	0.314
59-16	17.90	12/3/73	1251	1.85	1/9/06	1524	1.00	0.541
59-17	22.69	12/3/73	1300	0.92	2/8/06	1232	0.28	0.304
59-19	27.35	12/3/73	1309	1.00	2/8/06	1218	0.56	0.560
59-20	29.28	12/3/73	1314	1.27	2/8/06	1211	0.46	0.362

Average Ratio: 0.7555  
1973 DA Reference Field: 57.92  
Average Ratio times DA reference field: 43.76  
1973 CP Limit: 121.00

**WWTQ  
85° Radial  
Pre-Construction**

<b>Point</b>	<b>Distance (km)</b>	<b>Proof Date</b>	<b>Proof Time</b>	<b>Proof mV/m</b>	<b>Measured Date</b>	<b>Measured Time</b>	<b>Measured mV/m</b>	<b>Ratio</b>
85-15 (MP)	3.90	12/8/73	1140	15.50	9/8/04	1257	4.50	0.290
85-17	4.53	11/30/73	1310	7.80	9/8/04	1259	9.50	1.218
85-18	5.14	11/30/73	1313	8.20	9/8/04	1302	10.00	1.220
85-19	5.81	11/30/73	1318	4.20	9/8/04	1304	8.00	1.905
85-21	8.05	11/30/73	1328	3.20	9/8/04	1310	9.00	2.813
85-23	10.60	11/30/73	1344	4.20	9/8/04	1317	4.60	1.095
85-24	11.70	11/30/73	1353	5.00	9/8/04	1324	4.00	0.800
85-25	13.27	11/30/73	1408	1.15	10/20/04	1524	3.60	3.130
85-26	14.86	11/30/73	1411	2.80	9/8/04	1332	2.00	0.714
85-27	16.43	11/30/73	1415	3.00	10/20/04	1543	1.20	0.400

Average Ratio: 1.3585  
1973 DA Reference Field: 56.32  
Average Ratio times DA reference field: 76.51  
1973 CP Limit: 95.00

**WWTQ  
85° Radial  
Post-Construction**

<b>Point</b>	<b>Distance (km)</b>	<b>Proof Date</b>	<b>Proof Time</b>	<b>Proof mV/m</b>	<b>Measured Date</b>	<b>Measured Time</b>	<b>Measured mV/m</b>	<b>Ratio</b>
85-8	1.61	12/8/73	956	69.00	2/6/06	1322	40.00	0.580
85-11	2.61	12/8/73	1129	32.00	2/6/06	1350	17.70	0.553
85-14	3.35	12/8/73	1138	18.50	2/6/06	1339	8.70	0.470
85-15 (MP)	3.90	12/8/73	1140	15.50	1/11/06	1059	5.50	0.355
85-17	4.53	11/30/73	1310	7.80	1/11/06	1105	7.20	0.923
85-18	5.14	11/30/73	1313	8.20	1/11/06	1108	5.40	0.659
85-19	5.81	11/30/73	1318	4.20	1/11/06	1114	7.30	1.738
85-21	8.05	11/30/73	1328	3.20	1/11/06	1122	5.80	1.813
85-23	10.60	11/30/73	1344	4.20	1/11/06	1136	4.30	1.024
85-25	13.27	11/30/73	1408	1.15	1/11/06	1155	3.60	3.130
85-26	14.86	11/30/73	1411	2.80	1/11/06	1252	2.00	0.714

Average Ratio:	1.0872
1973 DA Reference Field:	56.32
Average Ratio times DA reference field:	61.23
1973 CP Limit:	95.00

**WWTQ  
224° Radial  
Pre-Construction**

<b>Point</b>	<b>Distance (km)</b>	<b>Proof Date</b>	<b>Proof Time</b>	<b>Proof mV/m</b>	<b>Measured Date</b>	<b>Measured Time</b>	<b>Measured mV/m</b>	<b>Ratio</b>
224-7 (MP)	1.85	12/4/73	920	64.00	9/8/04	1652	85.00	1.328
224-10	10.30	12/4/73	946	9.50	9/8/04	1357	6.80	0.716
224-11	10.90	12/4/73	954	4.40	9/8/04	1400	8.00	1.818
224-13	11.40	12/4/73	1023	5.30	9/8/04	1402	6.00	1.132
224-14	11.60	12/4/73	1025	6.40	9/8/04	1405	5.60	0.875
224-15	11.90	12/4/73	1028	5.30	9/8/04	1407	7.00	1.321
224-18	24.56	12/4/73	1124	2.10	10/20/04	1037	1.00	0.476
224-19	25.21	12/4/73	1127	1.77	10/20/04	1040	1.00	0.565
224-21	26.30	12/4/73	1131	2.30	10/20/04	1044	2.50	1.087

Average Ratio: 1.0353  
1973 DA Reference Field: 88.50  
Average Ratio times DA reference field: 91.63  
1973 CP Limit: 152.00

**WWTQ  
224° Radial  
Post-Construction**

Point	Distance (km)	Proof Date	Proof Time	Proof mV/m	Measured Date	Measured Time	Measured mV/m	Ratio
224-7 (MP)	1.85	12/4/73	920	64.00	1/11/06	1417	80.00	1.250
224-10	10.30	12/4/73	946	9.50	1/11/06	1007	7.60	0.800
224-11	10.90	12/4/73	954	4.40	1/11/06	1012	5.80	1.318
224-12	11.04	12/4/73	956	6.40	2/9/06	957	6.20	0.969
224-13	11.34	12/4/73	1023	5.30	1/11/06	1019	4.70	0.887
224-14	11.60	12/4/73	1025	6.40	1/11/06	1023	5.50	0.859
224-15	11.90	12/4/73	1028	5.30	1/11/06	1029	7.20	1.358
224-17	21.88	12/4/73	1119	0.80	2/9/06	1035	2.12	2.650
224-18	24.56	12/4/73	1124	2.10	1/11/06	1458	1.60	0.762
224-19	25.21	12/4/73	1127	1.77	1/11/06	1503	1.65	0.932
224-20	25.42	12/4/73	1129	2.42	2/9/06	1045	2.68	1.107
224-21	26.30	12/4/73	1131	2.30	1/11/06	1512	2.80	1.217
224-23	38.46	12/4/73	1154	0.59	2/9/06	1112	1.18	2.000
224-24	42.64	12/5/73	1204	0.75	2/9/06	1120	1.32	1.760

Average Ratio:	1.2765
1973 DA Reference Field:	88.50
Average Ratio times DA reference field:	112.97
1973 CP Limit:	152.00

**WWTQ**  
**277° Radial**  
**Pre-Construction**

Point	Distance (km)	Proof Date	Proof Time	Proof mV/m	Measured Date	Measured Time	Measured mV/m	Ratio
277-8 (MP)	6.46	12/6/73	1000	5.60	9/8/04	1445	10.00	1.786
277-9	6.99	12/6/73	1005	4.10	9/8/04	1448	5.00	1.220
277-13	14.5	12/6/73	1047	1.95	9/8/04	1435	4.50	2.308
277-14	15.2	12/6/73	1056	2.30	9/8/04	1431	5.50	2.391
277-15	15.8	12/6/73	1107	1.85	9/8/04	1425	4.00	2.162
277-18	22.77	12/6/73	1158	1.62	10/20/04	1109	1.50	0.926
277-19	25.93	12/6/73	1212	0.64	10/20/04	1124	1.70	2.656
277-20	29.19	12/6/73	1225	0.66	10/20/04	1136	2.00	3.030

Average Ratio: 2.0599  
1973 DA Reference Field: 35.40  
Average Ratio times DA reference field: 72.92  
1973 CP Limit: 101.00

**WWTQ**  
**277° Radial**  
**Post-Construction**

<b>Point</b>	<b>Distance (km)</b>	<b>Proof Date</b>	<b>Proof Time</b>	<b>Proof mv/m</b>	<b>Measured Date</b>	<b>Measured Time</b>	<b>Measured mV/m</b>	<b>Ratio</b>
277-8 (MP)	6.46	12/6/73	1000	5.60	1/9/06	1420	10.00	1.786
277-9	6.99	12/6/73	1005	4.10	1/9/06	1425	6.20	1.512
277-10	7.53	12/6/73	1007	1.55	2/9/06	1331	8.20	5.290
277-13	14.50	12/6/73	1047	1.95	1/9/06	1409	6.20	3.179
277-14	15.20	12/6/73	1056	2.30	1/9/06	1405	5.80	2.522
277-15	15.80	12/6/73	1107	1.85	1/9/06	1400	5.10	2.757
277-18	22.77	12/6/73	1158	1.62	1/9/06	1343	2.20	1.358
277-19	25.93	12/6/73	1212	0.64	1/9/06	1328	2.40	3.750
277-20	29.19	12/6/73	1225	0.66	1/9/06	1310	2.40	3.636
277-21	31.68	12/6/73	1228	0.71	2/9/06	1237	1.88	2.648
224-22	38.94	12/6/73	1235	0.86	2/9/06	1225	1.63	1.895

Average Ratio:	2.7576
1973 DA Reference Field:	35.40
Average Ratio times DA reference field:	97.62
1973 CP Limit:	101.00

**WWTQ  
315.5° Radial  
Pre-Construction**

<b>Point</b>	<b>Distance (km)</b>	<b>Proof Date</b>	<b>Proof Time</b>	<b>Proof mV/m</b>	<b>Measured Date</b>	<b>Measured Time</b>	<b>Measured mV/m</b>	<b>Ratio</b>
315-5 (MP)	1.78	12/6/73	1308	31.00	9/8/04	1051	37.00	1.194
315-7	11.80	12/2/73	1125	2.10	9/8/04	1525	0.40	0.190
315-9	15.60	12/2/73	1134	1.60	9/8/04	1541	0.80	0.500
315-10	18.00	12/2/73	1147	3.10	9/8/04	1545	1.20	0.378
315-16	27.67	12/2/73	1239	0.70	10/20/04	1255	0.90	1.286
315-17	29.33	12/2/73	1246	0.64	10/20/04	1305	0.60	0.938

Average Ratio: 0.7491  
 1973 DA Reference Field: 33.79  
 Average Ratio times DA reference field: 25.31  
 1973 CP Limit: 40.00

**WWTQ**  
**315.5° Radial**  
**Post-Construction**

Point	Distance (km)	Proof Date	Proof Time	Proof mV/m	Measured Date	Measured Time	Measured mV/m	Ratio
315-5 (MP)	1.78	12/6/73	1308	31.00	1/11/06	1347	52.00	1.677
315-6	1.85	12/6/73	1310	26.00	2/8/06	1420	35.80	1.377
315-9	15.60	12/2/73	1134	1.60	1/11/06	1056	0.55	0.344
315-10	18.00	12/2/73	1147	3.10	1/11/06	1104	1.40	0.472
315-12	20.43	12/2/73	1205	1.15	2/9/06	1425	1.48	1.287
315-14	23.97	12/2/73	1215	1.25	2/9/06	1443	1.35	1.080
315-15	26.07	12/2/73	1230	1.20	2/9/06	1514	0.90	0.750
315-16	27.67	12/2/73	1239	0.70	1/11/06	1143	1.10	1.571
315-17	29.33	12/2/73	1246	0.64	1/11/06	1225	0.84	1.313
315-18	31.86	12/2/73	1253	0.43	2/9/06	1539	0.46	1.070
315-19	33.63	12/2/73	1257	0.73	2/10/06	956	0.36	0.493
315-20	34.92	12/2/73	1300	0.56	2/10/06	1000	0.46	0.821

Average Ratio:	1.0196
1973 DA Reference Field:	33.79
Average Ratio times DA reference field:	34.45
1973 CP Limit:	40.00