

TECHNICAL EXHIBIT  
PARTIAL PROOF-OF-PERFORMANCE  
CLEAR CHANNEL BROADCASTING LICENSES, INC.  
RADIO STATION WKIP  
POUGHKEEPSIE, NEW YORK

February 26, 2002

1450 KHZ 1 KW U DA-D

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1450 KHZ    1 KW   U   DA-D

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Engineering Statement

The technical exhibit of which this narrative is part was prepared on behalf of Clear Channel Broadcasting Licenses, Inc., licensee of AM broadcast station WKIP, Poughkeepsie, New York. WKIP operates on 1450 KHZ with a power of 1 KW both day and night. It operates with a two-tower directional antenna daytime and employs a non-directional antenna for nighttime operation. This report details the results of a partial proof-of-performance of the WKIP daytime directional antenna and information regarding direct measurement of power for the nighttime non-directional antenna following readjustment of the directional antennas operating parameters.

The readjustment work and partial proof-of-performance followed work on two co-located FM stations, WRNQ and WPFK, under construction permit numbers BXPB-19991112ACV and BXPB-19991112ACU. The FM CP work included the installation of transmission line and a new antenna system for auxiliary operation for WRNQ and WPFK on tower one of the WKIP

array. The transmission line is insulated from the tower to the one quarter wavelength point, then bonded to the tower at intervals for the rest of its length.

Included herein are the detailed measurement data concerning the partial proof-of-performance of the daytime directional antenna system as required by conditions on the FM construction permits. Information regarding measurement of the non-directional nighttime base impedance is also included. As can be seen from the information provided, the partial proof-of-performance field strength and base impedance measurements reflect operation of the WKIP daytime directional antenna pattern within the Rules of the FCC and the terms of the station license.

#### Antenna Sampling System

The Potomac Instruments type AM-19(204) antenna monitor employed by WKIP remains unchanged.

#### Field Strength Measurements

Field strength measurements were made along the 2 monitor point radials and the two non-monitored radials closest to them and at locations specified in the latest full proof-of-performance (1966) for the daytime pattern. Distances to those locations from the WKIP transmitter site have been converted from miles to kilometers. Field strength measurements were made for the daytime directional antenna with an input power of 1,080 watts. A tabulation of meter readings for the measured patterns is included herein as Figure 1. Figure 2 summarizes the results of the field

strength measurements. A tabulation of the measured field strength data is included as Figure 3.

Field strength measurements were made by Mr. William Weeks and Mr. William Draper. A Potomac Instruments field strength meter and a Nems Clarke field strength meter, as tabulated below, were used for the measurements. Field strength readings with the both meters were cross-checked and found to agree within the range suggested by their manufacturer's rated accuracy.

| Meter Type | Serial Number |
|------------|---------------|
| PI FIM-211 | 171           |
| NC 120E    | 1289          |

#### Field Strength Measurement Analysis

Field strength measurements were analyzed in accordance with Section 73.154 of the FCC Rules. The ratios of measured 2001 directional to measured 1966 directional fields were averaged for each radial. The radial averages thus obtained were multiplied by the corresponding 1966 measured radial directional unattenuated fields to determine the present directional radiation values for the four daytime radials.

#### Direct Measurement of Power

The common-point impedance for the daytime directional antenna and the tower 1 base impedance for the

nighttime antenna were measured after the minor adjustments of the antenna phasing and coupling equipment had been completed. Tabulations of measured impedance data for the daytime and nighttime operation are included in Figure 1. Impedance measurements were made by Mr. William Weeks utilizing a Delta OIB-1, SN266, impedance bridge. The accuracy of the bridge used was checked with a precision resistor prior to its use and was found to be within the manufacturer's specifications.

Tower Sketch

As a condition with the construction permits for the two FM stations, WRNQ and WPKF, a sketch is required for the towers impacted by the modifications. Figure 4 shows the tower sketch of the installation.



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February 26, 2002

**Figure 1**

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Tabulation of Meter Readings

Daytime Directional

|                                | <u>Tower 1</u> | <u>Tower 2</u> |
|--------------------------------|----------------|----------------|
| Antenna Monitor Ratio          | 0.220          | 1.000          |
| Antenna Monitor Phase (deg)    | +147.0         | +0.0           |
| Daytime Common Point Impedance | 50 + j1.4 ohms |                |
| Daytime Common Point Current   | 4.65 amperes   |                |
| Daytime Antenna Input Power    | 1080 watts     |                |

Nighttime Non-Directional

|                                   |                |
|-----------------------------------|----------------|
| Nighttime Tower #1 Base Impedance | 62 - j294 ohms |
| Nighttime Tower #1 Base Current   | 4.02 amperes   |
| Nighttime Antenna Input Power     | 1000 watts     |

**Figure 2**

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Summary of Measured Field Strength Data

| Radial<br>deg. T | 1966<br>Measured<br>DA-Day<br>(1 kW) | 2001<br>Measured<br>DA-Day<br>(1 kW) | Standard<br>Pattern<br>DA-Day<br>(1 kW) |
|------------------|--------------------------------------|--------------------------------------|---|
| 150              | 117.5                                | 82.2                                 | 136.8 *                                 |
| 176              | 115.9                                | 77.2                                 | 136.8                                   |
| 200              | 120.7                                | 88.3                                 | 136.8 *                                 |
| 238              | 196.3                                | 147.6                                | 209.2                                   |

\* Monitored Radial



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Tabulation of Measured Field Strength Data

150 Degrees True Radial - Day

| Point<br>Number                         | Distance<br>(km) | 1966<br>1 kW, DAD           | 2001 1 kW, DAD            |                             | Ratio<br>(DA/DA) |
|---|------------------|-----------------------------|---------------------------|-----------------------------|------------------|
|   |                  | Field<br>Strength<br>(mV/m) | Date &<br>Time<br>(local) | Field<br>Strength<br>(mV/m) |                  |
|   |                  |                             | 6/6/2001                  |                             |                  |
| 9MP                                     | 2.38             | 24.0                        | 1410                      | 23.0                        | 0.958            |
| 15                                      | 3.25             | 12.5                        | 1418                      | 11.0                        | 0.880            |
| 17                                      | 5.07             | 6.90                        | 1425                      | 4.10                        | 0.594            |
| 19                                      | 6.23             | 4.90                        | 1437                      | 2.20                        | 0.449            |
| 22                                      | 7.93             | 2.70                        | 1448                      | 1.70                        | 0.630            |
| 23                                      | 9.04             | 2.10                        | 1454                      | 1.30                        | 0.619            |
| 24                                      | 10.67            | 1.80                        | 1513                      | 1.15                        | 0.639            |
| 25                                      | 11.94            | 0.900                       | 1521                      | 0.780                       | 0.867            |
| 26                                      | 15.24            | 0.470                       | 1530                      | 0.310                       | 0.660            |
| Average Ratio:                          |                  |                             |                           |                             | 0.699            |
| 1966 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 117.5            |
| 2001 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 82.2             |

176 Degrees True Radial - Day

| Point<br>Number                         | Distance<br>(km) | 1966<br>1 kW, DAD           | 2001 1 kW, DAD            |                             | Ratio<br>(DA/DA) |
|---|------------------|-----------------------------|---------------------------|-----------------------------|------------------|
|   |                  | Field<br>Strength<br>(mV/m) | Date &<br>Time<br>(local) | Field<br>Strength<br>(mV/m) |                  |
|   |                  |                             | 6/6/2001                  |                             |                  |
| 14                                      | 3.27             | 15.5                        | 1647                      | 11.0                        | 0.710            |
| 16                                      | 4.81             | 7.40                        | 1640                      | 5.00                        | 0.676            |
| 17                                      | 5.47             | 6.55                        | 1634                      | 3.40                        | 0.519            |
| 18                                      | 6.24             | 4.75                        | 1629                      | 2.60                        | 0.547            |
| 22                                      | 9.12             | 2.30                        | 1618                      | 2.20                        | 0.957            |
| 23                                      | 10.12            | 1.60                        | 1611                      | 0.900                       | 0.563            |
| 24                                      | 11.68            | 1.20                        | 1603                      | 1.10                        | 0.917            |
| 25                                      | 14.61            | 1.00                        | 1545                      | 0.440                       | 0.440            |
| Average Ratio:                          |                  |                             |                           |                             | 0.666            |
| 1966 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 115.9            |
| 2001 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 77.2             |

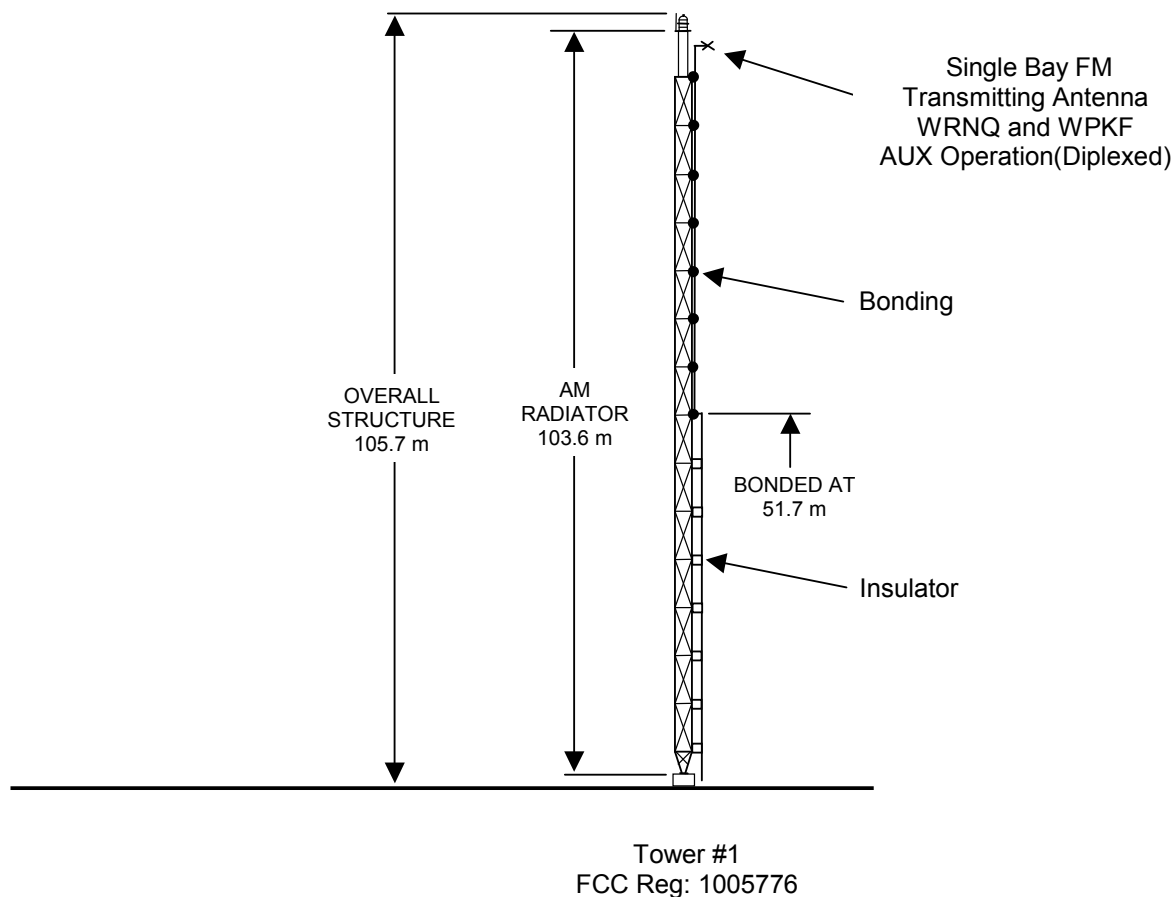
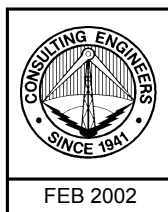
200 Degrees True Radial - Day

| Point<br>Number                         | Distance<br>(km) | 1966<br>1 kW, DAD           | 2001 1 kW, DAD            |                             | Ratio<br>(DA/DA) |
|---|------------------|-----------------------------|---------------------------|-----------------------------|------------------|
|   |                  | Field<br>Strength<br>(mV/m) | Date &<br>Time<br>(local) | Field<br>Strength<br>(mV/m) |                  |
|   |                  |                             | 6/6/2001                  |                             |                  |
| 11MP                                    | 2.17             | 33.5                        | 1336                      | 34.0                        | 1.015            |
| 21                                      | 4.38             | 9.05                        | 1344                      | 6.20                        | 0.685            |
| 23                                      | 5.76             | 5.00                        | 1350                      | 5.00                        | 1.000            |
| 26                                      | 7.88             | 4.70                        | 1359                      | 3.40                        | 0.723            |
| 27                                      | 8.59             | 2.60                        | 1403                      | 2.50                        | 0.962            |
| 28                                      | 9.38             | 2.40                        | 1411                      | 1.55                        | 0.646            |
| 29                                      | 10.30            | 2.40                        | 1417                      | 1.20                        | 0.500            |
| 30                                      | 12.21            | 1.62                        | 1443                      | 0.780                       | 0.481            |
| 31                                      | 13.27            | 0.980                       | 1427                      | 0.560                       | 0.571            |
| Average Ratio:                          |                  |                             |                           |                             | 0.732            |
| 1966 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 120.7            |
| 2001 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 88.3             |

238 Degrees True Radial - Day

| Point<br>Number                         | Distance<br>(km) | 1966<br>1 kW, DAD           | 2001 1 kW, DAD            |                             | Ratio<br>(DA/DA) |
|---|------------------|-----------------------------|---------------------------|-----------------------------|------------------|
|   |                  | Field<br>Strength<br>(mV/m) | Date &<br>Time<br>(local) | Field<br>Strength<br>(mV/m) |                  |
|   |                  |                             | 6/6/2001                  |                             |                  |
| 20                                      | 3.97             | 22.5                        | 1519                      | 19.5                        | 0.867            |
| 21                                      | 4.22             | 19.0                        | 1527                      | 19.0                        | 1.000            |
| 24                                      | 7.03             | 7.10                        | 1551                      | 4.70                        | 0.662            |
| 25                                      | 7.43             | 6.30                        | 1554                      | 3.70                        | 0.587            |
| 27                                      | 9.01             | 5.00                        | 1634                      | 2.70                        | 0.540            |
| 29                                      | 10.14            | 3.55                        | 1630                      | 2.50                        | 0.704            |
| 30                                      | 11.42            | 2.30                        | 1625                      | 2.45                        | 1.065            |
| 32                                      | 14.64            | 1.00                        | 1612                      | 0.590                       | 0.590            |
| Average Ratio:                          |                  |                             |                           |                             | 0.752            |
| 1966 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 196.3            |
| 2001 DA Analyzed Field Strength (mV/m): |                  |                             |                           |                             | 147.6            |

Figure 4



## SKETCH OF ANTENNA

**RADIO STATION WKIP  
POUGHKEEPSIE, NEW YORK  
1450 KHZ 1 KW U DA-D**

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

# SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

Clear Channel Broadcasting Licenses, Inc.

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☐ Station License

☒ Direct Measurement of Power

## 1. Facilities authorized in construction permit

| Call Sign | File No. of Construction Permit<br>(if applicable) | Frequency<br>(kHz) | Hours of Operation | Power in kilowatts |     |
|-----------|--|--------------------|--------------------|--------------------|-----|
|           |  |                    |                    | Night              | Day |
| WKIP      | N/A  | 1450               | U                  | 1.0                | 1.0 |

## 2. Station location

| State        | City or Town |
|--------------|--------------|
| Pennsylvania | Poughkeepsie |

## 3. Transmitter location

| State | County   | City or Town | Street address<br>(or other identification) |
|-------|----------|--------------|---|
| PA    | Dutchess | Poughkeepsie | Van Wagner Road                             |

## 4. Main studio location

| State | County   | City or Town | Street address<br>(or other identification) |
|-------|----------|--------------|---|
| PA    | Dutchess | Poughkeepsie | 20 Tucker Drive                             |

## 5. Remote control point location (specify only if authorized directional antenna)

| State | County | City or Town | Street address<br>(or other identification) |
|-------|--------|--------------|---|
| N/A   |        |              |   |

6. Has type-approved stereo generating equipment been installed?

☐ Yes ☒ No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68?

☒ Yes ☐ No

☐ Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed.

Exhibit No.

## 8. Operating constants:

|   |      |   |     |
|---|------|---|-----|
| RF common point or antenna current (in amperes) without modulation for night system<br>4.02 |      | RF common point or antenna current (in amperes) without modulation for day system<br>4.65 |     |
| Measured antenna or common point resistance (in ohms) at operating frequency                |      | Measured antenna or common point reactance (in ohms) at operating frequency               |     |
| Night   | Day  | Night   | Day |
| 62.0  | 50.0 | N/A   | N/A |

## Antenna indications for directional operation

| Towers | Antenna monitor<br>Phase reading(s) in degrees |        | Antenna monitor sample<br>current ratio(s) |       | Antenna base currents |     |
|--------|--|--------|--|-------|-----------------------|-----|
|        | Night  | Day    | Night                                      | Day   | Night                 | Day |
| 1      | N/A  | +147.0 | N/A  | 0.220 | N/A                   | N/A |
| 2      |  | 0.0    |  | 1.000 |                       | N/A |
|        |  |        |  |       |                       |     |
|        |  |        |  |       |                       |     |
|        |  |        |  |       |                       |     |

Manufacturer and type of antenna monitor: Potomac Instruments AM-19 (204)

## SECTION III - Page 2

9. Description of antenna system (If directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary.)

| Type Radiator                            | Overall height in meters of radiator above base insulator, or above base, if grounded. | Overall height in meters above ground (without obstruction lighting) | Overall height in meters above ground (include obstruction lighting) | If antenna is either top loaded or sectionalized, describe fully in an Exhibit. |
|--|--|--|--|---|
| UNIFORM CROSS SECTION, GUYED STEEL TOWER | TWR#1: 103.6 m<br>TWR#2: 48.8 m  | TWR#1: 104.8 m<br>TWR#2: 49.7 m                                      | TWR#1: 105.7 m<br>TWR#2: 49.7 m                                      | Exhibit No.<br>N/A  |

Excitation ☒ Series ☐ Shunt

Geographic coordinates to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

|                |             |                |             |
|----------------|-------------|----------------|-------------|
| North Latitude | 41° 42' 18" | West Longitude | 73° 53' 16" |
|----------------|-------------|----------------|-------------|

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits.

Exhibit No.  
FIG. 4

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system.

Exhibit No.  
N/A

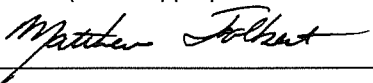
10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

NONE

11. Give reasons for the change in antenna or common point resistance.

N/A

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

|                             |  |
|-----------------------------|--|
| Name (Please Print or Type) | Signature (check appropriate box below)  |
| MATTHEW FOLKERT             |  |
| Address (include ZIP Code)  | Date   |
| 201 FLETCHER AVENUE         | FEBRUARY 25, 2002  |
| SARASOTA, FLORIDA 34237     | Telephone No. (Include Area Code)  |
|                             | 941-329-6000   |

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☒ Technical Consultant

☐ Other (specify)