

ENGINEERING EXHIBIT
PARTIAL PROOF-OF-PERFORMANCE
AM BROADCAST STATION KCCV
OVERLAND PARK, KANSAS
760 KHZ, 6 KW, DA-D

April 11, 2003

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Table of Contents

Engineering Statement

Figure 1

Tabulation of Meter Readings

Figure 2

Summary of Measured Field Strength Data

Figure 3

Tabulation of Measured Field Strength Data

ENGINEERING EXHIBIT
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AM BROADCAST STATION KCCV
OVERLAND PARK, KANSAS
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Engineering Statement

This Engineering Exhibit was prepared on behalf of AM broadcast station KCCV, Overland Park, Kansas concerning a partial proof-of-performance, which was conducted after readjustment of the directional antenna operating parameters. KCCV is licensed for operation on 760 kHz, with a nominal power of 6.0 kW using a single directional antenna mode during daytime hours.

The KCCV array was readjusted following the installation of a new 353-m tower structure located 2.1-km south-southwest of the KCCV antenna array. The new tower is owned by Richland Towers. The new tower replaces an old 353-m tower structure that was located 12.5 m south of the new tower. Dismantlement of the old tower was completed on Wednesday, April 9, 2003. The KCCV antenna parameters were readjusted after the old tower was dismantled to compensate for the change in the electromagnetic environment with the installation of the new Richland Towers tower structure and the removal old tower structure.

Included herein are the detailed measurement data concerning the partial proof-of-performance of the KCCV daytime directional antenna system, which was prepared in accordance with Section 73.154 of the FCC Rules.

It is noted that there has been no change in the KCCV licensed antenna sampling system. There has been no change in the antenna ground system. Furthermore, there is no change in the antenna common point impedance or current. The antenna input power remains unchanged at 6,318 watts.

Field Strength Measurements

Field strength measurements were made along 4 radials and at locations specified in the latest full proof-of-performance for KCCV from 1990.* Field strength measurements were made for the directional antenna mode with an input power of 6,318 watts. A tabulation of meter readings for the measured pattern 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 conducted by Mr. M. Donald Crain. A Potomac Instruments FIM-41 field strength meter bearing Serial Number 941 was employed for the measurements. The meter was last calibrated in February, 1991 by Potomac Instruments. Its calibration was reaffirmed as recently as March, 2003 with another duTreil, Lundin & Rackley, Inc. field strength meter that was recently purchased and calibrated by Potomac Instruments; and it was found to be in good agreement.

Field Strength Measurement Analysis

Field strength measurements were analyzed in accordance with Section 73.154 of the FCC Rules. The arithmetic ratios of measured 2003 directional to measured 1990 directional fields were averaged for each radial. The radial averages thus

* See Proof of Performance, FCC File No. BL-891204AA.

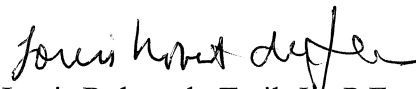
Overland Park, Kansas

Page 3

obtained were multiplied by the corresponding 1990 measured radial directional unattenuated fields to determine the present directional radiation values for all radials measured.

Conclusion

As can be seen from the data provided herein, the KCCV directional antenna system, as presently adjusted, meets the requirements of the FCC rules and the terms of the station authorization. It is requested that a modified license be issued specifying the operating parameters provided herein.



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Consulting Engineer

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April 11, 2003

ENGINEERING EXHIBIT
 PARTIAL PROOF-OF-PERFORMANCE
 AM BROADCAST STATION KCCV
 OVERLAND PARK, KANSAS
 760 KHZ, 6 KW, DA-D

Tabulation of Meter Readings

| Directional [†] | Tower #1(W) | Tower #2(C) | Tower #3(E) |
|---|-------------|-------------|-------------|
| Antenna Monitor Ratio | 0.49 | 1.00 | 0.95 |
| Antenna Monitor Phase (deg.) | +15.7 | 0.0 | +12.0 |
| Daytime Common Point Impedance (Ω) | 50 + j0 | | |
| Daytime Common Point Current (A) | 11.24 | | |
| Daytime Antenna Input Power (W) | 6,318 | | |

[†] Sampling system approved under Section 73.68(b) of the FCC Rules.

Figure 2

ENGINEERING EXHIBIT
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 AM BROADCAST STATION KCCV
 OVERLAND PARK, KANSAS
 760 KHZ, 6 KW, DA-D

Summary of Measured Field Strength Data

| 1990 Proof Radial (deg. True) | 1990 Measured DA (6 kW) (mV/m @ 1 km) | 2003 Measured DA (6 kW) (mV/m @ 1 km) | Standard / Augmented Pattern (mV/m @ 1 km) | Monitored Radial (*) |
|----------------------------------|--|--|--|----------------------------|
| 71.5 | 460 | 446.3 | 462.9 | |
| 118 | 135 | 129.5 | 159.5 | * |
| 254.5 | 625 | 572.0 | 645.0 | |
| 298 | 275 | 260.8 | 309.4 | * |

ENGINEERING EXHIBIT
ANTENNA PARTIAL PROOF-OF-PERFORMANCE
AM BROADCAST STATION KCCV
OVERLAND PARK, KANSAS
760 KHZ, 6 KW, DA-D

| KCCV 71.5° Radial | | | | | | | |
|---|----------|------|---------------------|--------|-------------------|--------|---------------------|
| | Distance | | 1990 Proof DA Field | | Apr-2003 DA Field | | Apr-2003/1990 Ratio |
| Point Number | (miles) | (km) | Date/Time | (mV/m) | Date/Time | (mV/m) | Linear |
| 216 | 1.93 | 3.10 | * | 120 | 04-11-03/821 | 125 | 1.0417 |
| 217 | 2.00 | 3.22 | * | 100 | 04-11-03/824 | 101 | 1.0100 |
| 218 | 2.49 | 4.00 | * | 98 | 04-11-03/830 | 110 | 1.1224 |
| 219 | 2.98 | 4.80 | * | 85 | 04-11-03/834 | 82 | 0.9647 |
| 220 | 3.49 | 5.61 | * | 74 | 04-11-03/837 | 68 | 0.9189 |
| 221 | 3.99 | 6.42 | * | 64 | 04-11-03/846 | 55 | 0.8594 |
| 222 | 4.49 | 7.22 | * | 36.8 | 04-11-03/851 | 35.5 | 0.9647 |
| 223 | 5.11 | 8.22 | * | 37.5 | 04-11-03/858 | 33 | 0.8800 |
| 224 | 5.49 | 8.83 | * | 24 | 04-11-03/903 | 22 | 0.9167 |
| 225 | 5.98 | 9.63 | * | 21 | 04-11-03/907 | 21.5 | 1.0238 |
| Average of Ratio: | | | | | | | 0.9702 |
| 1990 DA Analyzed Field Strength (mV/m): | | | | | | | 460.0 |
| 2003 DA Analyzed Field Strength (mV/m): | | | | | | | 446.3 |

*See 1990 Proof of Performance, FCC File No. BL-891204AA.

ENGINEERING EXHIBIT
ANTENNA PARTIAL PROOF-OF-PERFORMANCE
AM BROADCAST STATION KCCV
OVERLAND PARK, KANSAS
760 KHZ, 6 KW, DA-D

| KCCV 118° Radial | | | | | | |
|---|----------|-------|---------------------|--------|-------------------|--------|
| Point Number | Distance | | 1990 Proof DA Field | | Apr-2003 DA Field | |
| | (miles) | (km) | Date/Time | (mV/m) | Date/Time | (mV/m) |
| 318 | 1.86 | 3.00 | * | 38 | 04-10-03/1714 | 38.5 |
| 319 | 1.94 | 3.12 | * | 42 | 04-10-03/1717 | 48 |
| 320 | 2.50 | 4.02 | * | 17.3 | 04-10-03/1722 | 13.5 |
| 321 | 3.08 | 4.96 | * | 13.2 | 04-10-03/1726 | 10.1 |
| 322-MP | 3.52 | 5.66 | * | 15.9 | 04-10-03/1730 | 15.9 |
| 323 | 3.96 | 6.38 | * | 9.6 | 04-10-03/1734 | 11 |
| 324 | 4.42 | 7.12 | * | 8.4 | 04-10-03/1738 | 8.3 |
| 325 | 5.09 | 8.19 | * | 12.5 | 04-10-03/1743 | 10.2 |
| 326 | 5.65 | 9.10 | * | 6.1 | 04-10-03/1747 | 5.95 |
| 327 | 6.79 | 10.93 | * | 5.4 | 04-10-03/1753 | 5.2 |
| Average of Ratio: | | | | | | 0.9590 |
| 1990 DA Analyzed Field Strength (mV/m): | | | | | | 135.0 |
| 2003 DA Analyzed Field Strength (mV/m): | | | | | | 129.5 |

*See 1990 Proof of Performance, FCC File No. BL-891204AA.

ENGINEERING EXHIBIT
ANTENNA PARTIAL PROOF-OF-PERFORMANCE
AM BROADCAST STATION KCCV
OVERLAND PARK, KANSAS
760 KHZ, 6 KW, DA-D

| KCCV 254.5° Radial | | | | | | | |
|---|----------|-------|---------------------|--------|-------------------|--------|---------------------|
| | Distance | | 1990 Proof DA Field | | Apr-2003 DA Field | | Apr-2003/1990 Ratio |
| Point Number | (miles) | (km) | Date/Time | (mV/m) | Date/Time | (mV/m) | Linear |
| 617 | 2.05 | 3.30 | * | 175 | 04-10-03/1634 | 165 | 0.9429 |
| 618 | 2.49 | 4.00 | * | 143 | 04-10-03/1626 | 130 | 0.9091 |
| 619 | 3.01 | 4.85 | * | 112 | 04-10-03/1615 | 102 | 0.9107 |
| 620 | 3.48 | 5.60 | * | 94 | 04-10-03/1612 | 89 | 0.9468 |
| 621 | 3.87 | 6.23 | * | 84 | 04-10-03/1605 | 77 | 0.9167 |
| 622 | 4.47 | 7.19 | * | 70 | 04-10-03/1558 | 68 | 0.9714 |
| 623 | 4.94 | 7.95 | * | 64 | 04-10-03/1551 | 59 | 0.9219 |
| 624 | 5.51 | 8.87 | * | 58 | 04-10-03/1527 | 50 | 0.8621 |
| 625 | 5.86 | 9.43 | * | 47 | 04-10-03/1531 | 41 | 0.8723 |
| 626 | 6.90 | 11.11 | * | 39 | 04-10-03/1538 | 35 | 0.8974 |
| Average of Ratio: | | | | | | | 0.9151 |
| 1990 DA Analyzed Field Strength (mV/m): | | | | | | | 625.0 |
| 2003 DA Analyzed Field Strength (mV/m): | | | | | | | 572.0 |

*See 1990 Proof of Performance, FCC File No. BL-891204AA.

ENGINEERING EXHIBIT
ANTENNA PARTIAL PROOF-OF-PERFORMANCE
AM BROADCAST STATION KCCV
OVERLAND PARK, KANSAS
760 KHZ, 6 KW, DA-D

| KCCV 298° Radial | | | | | | |
|---|----------|------|---------------------|--------|-------------------|--------|
| Point Number | Distance | | 1990 Proof DA Field | | Apr-2003 DA Field | |
| | (miles) | (km) | Date/Time | (mV/m) | Date/Time | (mV/m) |
| 716 | 1.88 | 3.02 | * | 63 | 04-10-03/1351 | 58 |
| 717 | 1.93 | 3.10 | * | 43 | 04-10-03/1353 | 52 |
| 718-MP | 2.00 | 3.22 | * | 56 | 04-10-03/1355 | 52 |
| 719 | 2.47 | 3.97 | * | 32 | 04-10-03/1400 | 35 |
| 720 | 2.96 | 4.76 | * | 45 | 04-10-03/1404 | 32 |
| 721 | 3.43 | 5.52 | * | 47 | 04-10-03/1412 | 46 |
| 722 | 3.95 | 6.35 | * | 35 | 04-10-03/1417 | 33 |
| 723 | 4.31 | 6.93 | * | 32 | 04-10-03/1420 | 29 |
| 724 | 4.74 | 7.63 | * | 29 | 04-10-03/1426 | 26.5 |
| 725 | 5.23 | 8.42 | * | 24.5 | 04-10-03/1434 | 21.5 |
| Average of Ratio: | | | | | | 0.9483 |
| 1990 DA Analyzed Field Strength (mV/m): | | | | | | 275.0 |
| 2003 DA Analyzed Field Strength (mV/m): | | | | | | 260.8 |

*See 1990 Proof of Performance, FCC File No. BL-891204AA.

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

Bott Broadcasting Company

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 (if applicable) | Frequency (kHz) | Hours of Operation | Power in kilowatts | |
|-----------|--|--------------------|--------------------|--------------------|-----|
| | | | | Night | Day |
| KCCV | | 760 | Daytime | | 6.0 |

2. Station location

| State | City or Town |
|--------|---------------|
| Kansas | Overland Park |

3. Transmitter location

| State | County | City or Town | Street address (or other identification) |
|-------|---------|--------------|---|
| MO | Jackson | Kansas City | 4700 Topping |

4. Main studio location

| State | County | City or Town | Street address (or other identification) |
|-------|---------|---------------|---|
| KS | Johnson | Overland Park | 10550 Barkley |

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

| State | County | City or Town | Street address (or other identification) |
|-------|---------|---------------|---|
| KS | Johnson | Overland Park | 10550 Barkley |

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.

n/a

8. Operating constants:

| RF common point or antenna current (in amperes) without modulation for night system | | RF common point or antenna current (in amperes) without modulation for day system | |
|---|-----|---|-----|
| | | 11.24 | |
| 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 |
| | 50 | | 0 |

Antenna indications for directional operation

| Towers | Antenna monitor Phase reading(s) in degrees | | Antenna monitor sample current ratio(s) | | Antenna base currents | |
|--------|--|-------|--|------|-----------------------|-----|
| | Night | Day | Night | Day | Night | Day |
| #1(W) | | +15.7 | | 0.49 | | |
| #2(C) | | 0.0 | | 1.00 | | |
| #3(E) | | +12.0 | | 0.95 | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Manufacturer and type of antenna monitor:

Potomac Instruments, AM-19D(210)

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. |
| Guyed steel uniform cross-section | 98.8 (Towers 1, 2 & 3) | See FCC ASR* | See FCC ASR* | Exhibit No. |

*ASRN's: Tower No. 1: 1034740; Tower No. 2: 1034741; Tower No. 3: 1034739.

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 | 39 ° 02 ' 26 " | West Longitude | 94 ° 30 ' 34 " |
|----------------|----------------|----------------|----------------|

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.

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

Exhibit No.

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) |
| Louis Robert duTreil Jr. | <i>Louis Robert duTreil Jr.</i> |
| Address (include ZIP Code) | Date |
| duTreil, Lundin & Rackley, Inc. 201 Fletcher Ave. Sarasota, FL 34237 | April 11, 2003 |
| | Telephone No. (Include Area Code) |
| | 941-329-6000 |

☐ Technical Director

☒ Registered Professional Engineer

☐ Chief Operator

☐ Technical Consultant

☐ Other (specify)