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ENGINEERING EXHIBIT
APPLICATION FOR
DTV CONSTRUCTION PERMIT
OHIO/OKLAHOMA HEARST-ARGYLE TELEVISION, INC.
STATION KOCO-DT, OKLAHOMA CITY, OKLAHOMA
CH. 7 34.0 KW AVG. (MAX-DA) 430 METERS

In a Report and Order, adopted June 1, 2001, and released June 6, 2001, the FCC allotted Channel 7 in substitution for Channel 16 to Oklahoma City, Oklahoma, for use for station KOCO-DT. The specifications were for maximum average effective radiated power of 42.0 kW and antenna radiation center height of 446 meters above average terrain. By means of the instant application for construction permit, Ohio/Oklahoma Hearst-Argyle Television, Inc. (hereafter, Hearst-Argyle), seeks to implement the Channel 7 DTV facility, but with a modified maximum average effective radiated power of 34.0 kW and a modified antenna radiation center height of 430 meters above average terrain. As demonstrated herein, the modified facilities provide the necessary 2% de minimis interference protection to all NTSC and DTV stations and allotments.

The site to be employed is the same as set forth in the referenced Report and Order, i.e., 35° 33' 45" North Latitude; 97° 29' 24" West Longitude. The foregoing geographic coordinates are NAD 27. The tower that will support the Channel 7 DTV antenna is the same as employed to support the antenna for Channel 5 analog station KOCO-TV. The antenna structure registration (ASR) number is 1009951. The KOCO-DT antenna will be mounted on the tower with the radiation center at an elevation of 426 meters above ground level; 781 meters above mean sea level.

The antenna that will be employed is a Dielectric , Model THV-6A7-R C170SP, and the azimuth pattern is furnished herein as Figure 1. The tabulation of relative fields for the

pattern of Figure 1 is supplied in Figure 2. Figure 3 is the vertical plane radiation pattern for the antenna, and Figure 4 is the tabulation of relative field data for the pattern of Figure 3.

Figure 5 is a map demonstrating that the entire principal community of Oklahoma City is encompassed by the 43 dBu, F(50,90) contour for the proposed KOCO-DT operation. The FCC, since the original submission of the petition to allot Channel 7 to Oklahoma City, has adopted the 43 dBu, F(50,90) signal strength level for principal community service for high band VHF stations. Supporting data for the contour determination are provided in Figure 6.

An allocation study using the FCC's FLR software has been conducted for the proposed KOCO-DT facility. An Alpha processor was employed. Two runs were performed. The first run was with the database for the stations of interest the same as employed by the FCC in establishing the data for Appendix B in the Second Memorandum Opinion and Order on Reconsideration of the Fifth and Sixth Report and Orders in MM Docket No. 87-268. The results of this run permitted a comparison with the FCC's results, and, also, provided a reference for comparison with the results obtained for the second run. For the second run, the facilities proposed herein for KOCO-DT were substituted for the original KOCO-DT, Channel 16 allotment facilities of the aforementioned Appendix B that were used in the first run. By this means any changes in the results between the two runs would be attributable to the proposed KOCO-DT operation.

The study results demonstrated that two analog stations would receive interference from the proposed KOCO-DT operation, but the interference would not exceed the 2% de minimis maximum that is allowed toward each station. Neither station would have cumulative interference from DTV allotments approaching the 10% maximum limit permitted by the Rules.

Station KOAM-TV, Pittsburg, Kansas, operating on Channel 7 with peak visual effective radiated power of 316 kW and antenna radiation center height of 332 meters above average terrain, has a population of 481,388 persons within the Grade B contour that is not affected by terrain losses. New interference would be caused by the proposed KOCO-DT operation which would impact 9,407 persons, or 1.95% of the base Grade B population of 481,388 persons. The 2% de minimis allowable interference criterion is satisfied. No interference from other DTV allotments is caused, so the 10% cumulative interference limit will not be exceeded.

Station KSWO-TV, Lawton, Oklahoma, operating on Channel 7 with peak visual effective radiated power of 316 kW and antenna radiation center height of 320 meters above average terrain, has a population of 387,682 persons within the Grade B contour that is not affected by terrain losses. New interference would be caused by the proposed KOCO-DT operation which would impact 6,403 persons, or 1.65% of the base Grade B population of 387,682 persons. The 2% de minimis allowable interference criterion is satisfied. No interference from other DTV allotments is caused, so the 10% cumulative interference limit will not be exceeded.

The proposed KOCO-DT operation, when implemented, will have no significant impact on the environment. Since an existing site that is used for broadcasting purposes will be employed for the proposed KOCO-DT facility, only the concerns relating to radio-frequency radiation (rfr) exposure to the general public at uncontrolled locations and to workers at controlled locations merit discussion from among the list of environmentally sensitive items set forth in Section 1.1307 of the FCC Rules.

Insofar as rfr exposure to the public at uncontrolled locations is concerned, the following is germane. The proposed antenna has a downward radiation within the range of 18°-90° below the horizontal plane that does not exceed 15% of the maximum occurring in the horizontal plane. (See Figure 3.) A test calculation to an imaginary target that is two meters above ground level at the tower base would provide a result representing the highest power density level that could prevail at any location on the ground to a distance of 1305 meters from the tower base. Using OST Bulletin 65 equations with a ground reflection coefficient of 1.6, the test calculation yielded a power density level at the target of 0.000142 mW/cm^2 , corresponding to 0.07% of the maximum permissible exposure (MPE) of 0.2 mW/cm^2 for uncontrolled locations at Channel 7. The exposure level is too small to be of concern.

In order to determine the maximum exposure that could occur beyond 1305 meters from the tower base, another test calculation, similar to the first test calculation was performed, but this time using the maximum effective radiated power of 34 kW at a distance of 1305 meters. The calculation result revealed that the maximum possible contribution to the MPE would not exceed 0.33%. The exposure level is too small to be of concern.

With respect to worker exposure concerns, the procedures already in place for the avoidance of over-exposure to rfr from the KOCO-TV antenna, will be extended to take into account the KOCO-DT antenna. Whenever work must be performed in the near vicinity of either antenna, excitation to the antenna, or to both antennas, if necessary, will be terminated. Only persons authorized by the licensee are permitted access within the fenced area surrounding the tower and radiation hazard signs are posted. These procedures will assure that workers will not be over-exposed to rfr according to the FCC's adopted standard.

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KOCO-DT, Oklahoma City, Oklahoma
Engineering Exhibit (continued)

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The foregoing demonstrates that compliance with the FCC's requirements for the avoidance of overexposure to rfr for both uncontrolled and controlled locations will be achieved. This proposal does not require an environmental assessment.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 30, 2001.

Bernard R. Segal, P.E.

Bernard R. Segal, P. E.



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

08 Aug 2001

KOCO-DT

Oklahoma City, OK

THV-6A7-R C170SP

FIGURE 1

Channel 7

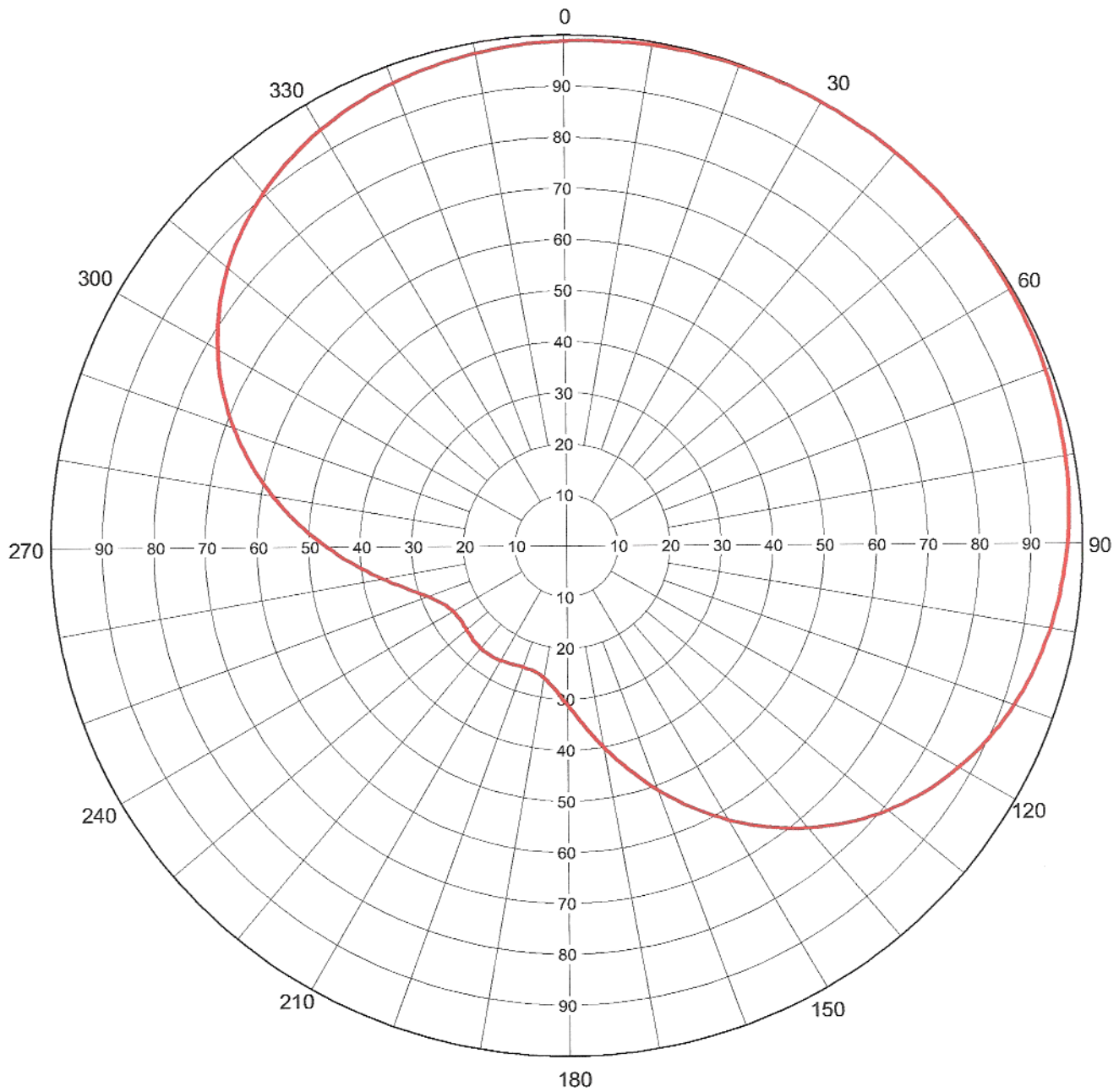
AZIMUTH PATTERN

RMS Gain at Main Lobe
Calculated / Measured

1.70 (2.30 dB)
Calculated

Frequency
Drawing #

177 MHz
THV-C170SP-7



Remarks:



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

30 Aug 2001

KOCO-DT

Oklahoma City, OK

THV-6A7-R C170SP

FIGURE 2

Channel 7

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # THV-C170SP-7

Angle	Field	ERP (kW)	ERP (dBk)
0	0.988	33.2	15.21
10	0.993	33.5	15.25
20	0.997	33.8	15.29
30	1.000	34.0	15.31
40	1.000	34.0	15.31
50	0.998	33.9	15.30
60	0.995	33.7	15.27
70	0.990	33.3	15.23
80	0.983	32.9	15.17
90	0.971	32.1	15.06
100	0.952	30.8	14.89
110	0.922	28.9	14.61
120	0.875	26.0	14.15
130	0.809	22.3	13.47
140	0.723	17.8	12.50
150	0.621	13.1	11.18
160	0.509	8.8	9.45
170	0.401	5.5	7.38
180	0.312	3.3	5.20
190	0.262	2.3	3.68
200	0.252	2.2	3.34
210	0.259	2.3	3.58
220	0.261	2.3	3.65
230	0.254	2.2	3.41
240	0.254	2.2	3.41
250	0.287	2.8	4.47
260	0.362	4.5	6.49
270	0.465	7.4	8.66
280	0.577	11.3	10.54
290	0.684	15.9	12.02
300	0.777	20.5	13.12
310	0.851	24.6	13.91
320	0.905	27.8	14.45
330	0.942	30.2	14.80
340	0.965	31.7	15.01
350	0.979	32.6	15.13

Maxima

Angle	Field	ERP (kW)	ERP (dBk)
37	1.000	34.0	15.31
217	0.261	2.3	3.65

Minima

Angle	Field	ERP (kW)	ERP (dBk)
199	0.252	2.2	3.34
235	0.252	2.2	3.34

Remarks:



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

08 Aug 2001

KOCO-DT

Channel 7

Oklahoma City, OK

THV-6A7-R C170SP

FIGURE 3

ELEVATION PATTERN

RMS Gain at Main Lobe

6.0 (7.78 dB)

Beam Tilt

0.50 Degrees

RMS Gain at Horizontal

5.9 (7.71 dB)

Frequency

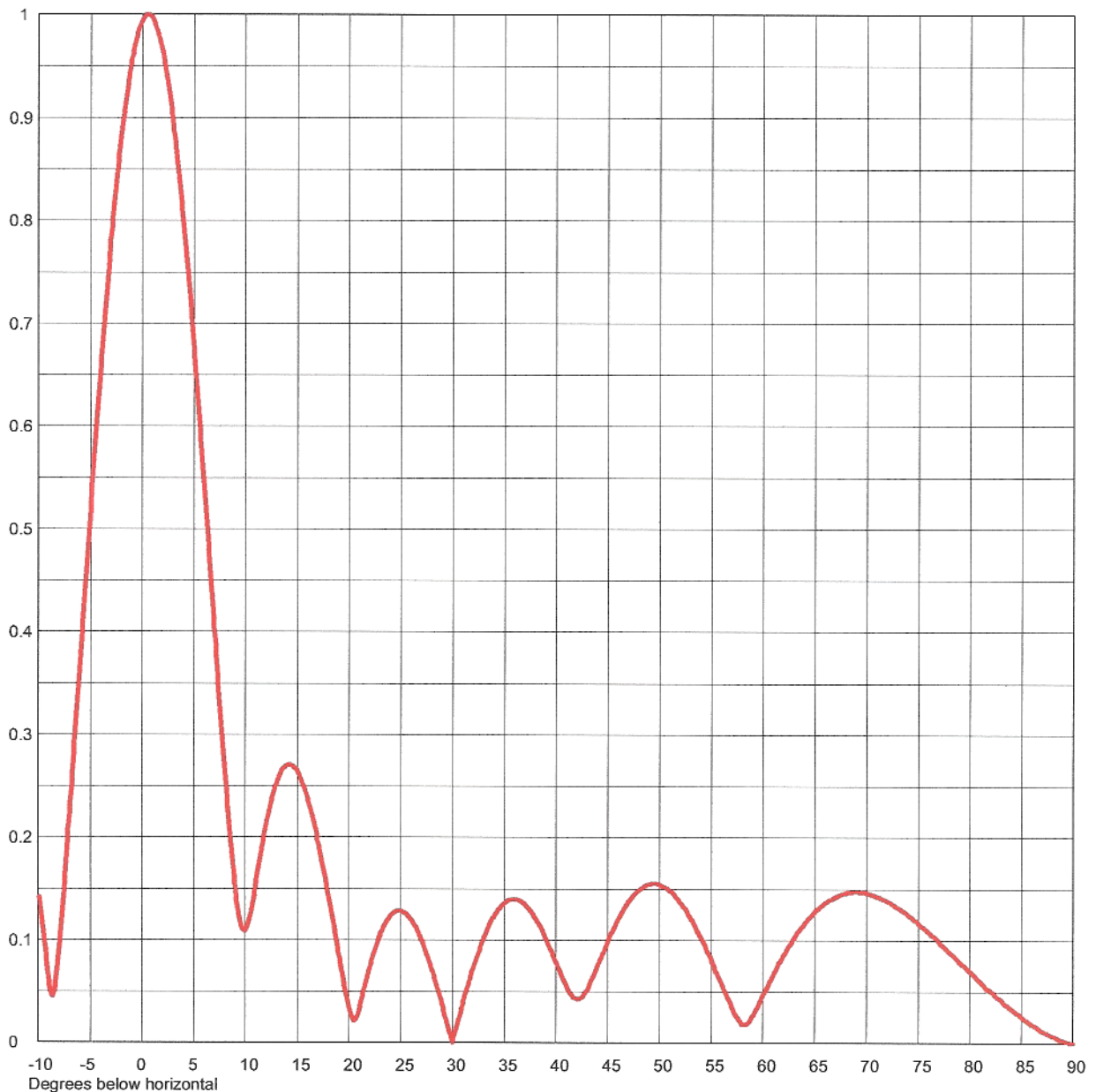
177.00 MHz

Calculated / Measured

Calculated

Drawing #

06V060050



Remarks:



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

08 Aug 2001

KOCO-DT

Oklahoma City, OK

THV-6A7-R C170SP

FIGURE 4

Channel 7

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # 06V060050

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.150	2.4	0.939	10.6	0.130	30.5	0.019	51.0	0.148	71.5	0.141
-9.5	0.106	2.6	0.926	10.8	0.142	31.0	0.037	51.5	0.144	72.0	0.138
-9.0	0.062	2.8	0.911	11.0	0.154	31.5	0.055	52.0	0.137	72.5	0.135
-8.5	0.048	3.0	0.895	11.5	0.184	32.0	0.072	52.5	0.130	73.0	0.132
-8.0	0.091	3.2	0.878	12.0	0.212	32.5	0.087	53.0	0.122	73.5	0.129
-7.5	0.153	3.4	0.859	12.5	0.235	33.0	0.101	53.5	0.113	74.0	0.125
-7.0	0.222	3.6	0.840	13.0	0.252	33.5	0.113	54.0	0.103	74.5	0.121
-6.5	0.294	3.8	0.820	13.5	0.264	34.0	0.122	54.5	0.093	75.0	0.117
-6.0	0.367	4.0	0.798	14.0	0.270	34.5	0.130	55.0	0.082	75.5	0.113
-5.5	0.441	4.2	0.776	14.5	0.270	35.0	0.136	55.5	0.070	76.0	0.108
-5.0	0.515	4.4	0.753	15.0	0.265	35.5	0.139	56.0	0.058	76.5	0.104
-4.5	0.587	4.6	0.729	15.5	0.254	36.0	0.140	56.5	0.047	77.0	0.099
-4.0	0.656	4.8	0.704	16.0	0.239	36.5	0.138	57.0	0.035	77.5	0.094
-3.5	0.721	5.0	0.678	16.5	0.220	37.0	0.135	57.5	0.025	78.0	0.089
-3.0	0.781	5.2	0.652	17.0	0.197	37.5	0.129	58.0	0.018	78.5	0.084
-2.8	0.804	5.4	0.626	17.5	0.172	38.0	0.122	58.5	0.019	79.0	0.079
-2.6	0.825	5.6	0.599	18.0	0.145	38.5	0.113	59.0	0.026	79.5	0.075
-2.4	0.846	5.8	0.571	18.5	0.117	39.0	0.102	59.5	0.035	80.0	0.070
-2.2	0.865	6.0	0.544	19.0	0.088	39.5	0.091	60.0	0.046	80.5	0.065
-2.0	0.883	6.2	0.516	19.5	0.060	40.0	0.079	60.5	0.056	81.0	0.060
-1.8	0.900	6.4	0.487	20.0	0.035	40.5	0.067	61.0	0.066	81.5	0.055
-1.6	0.916	6.6	0.459	20.5	0.021	41.0	0.056	61.5	0.076	82.0	0.051
-1.4	0.930	6.8	0.431	21.0	0.033	41.5	0.047	62.0	0.085	82.5	0.046
-1.2	0.944	7.0	0.403	21.5	0.053	42.0	0.043	62.5	0.094	83.0	0.042
-1.0	0.956	7.2	0.375	22.0	0.073	42.5	0.044	63.0	0.102	83.5	0.037
-0.8	0.966	7.4	0.347	22.5	0.090	43.0	0.051	63.5	0.109	84.0	0.033
-0.6	0.975	7.6	0.320	23.0	0.104	43.5	0.062	64.0	0.116	84.5	0.029
-0.4	0.983	7.8	0.293	23.5	0.115	44.0	0.074	64.5	0.122	85.0	0.025
-0.2	0.989	8.0	0.267	24.0	0.123	44.5	0.086	65.0	0.127	85.5	0.022
0.0	0.994	8.2	0.242	24.5	0.127	45.0	0.098	65.5	0.132	86.0	0.018
0.2	0.998	8.4	0.218	25.0	0.128	45.5	0.109	66.0	0.136	86.5	0.015
0.4	1.000	8.6	0.195	25.5	0.126	46.0	0.119	66.5	0.139	87.0	0.012
0.6	1.000	8.8	0.173	26.0	0.120	46.5	0.129	67.0	0.142	87.5	0.009
0.8	0.999	9.0	0.154	26.5	0.112	47.0	0.137	67.5	0.144	88.0	0.006
1.0	0.997	9.2	0.137	27.0	0.101	47.5	0.143	68.0	0.145	88.5	0.004
1.2	0.993	9.4	0.124	27.5	0.087	48.0	0.148	68.5	0.146	89.0	0.002
1.4	0.987	9.6	0.114	28.0	0.072	48.5	0.152	69.0	0.147	89.5	0.001
1.6	0.980	9.8	0.110	28.5	0.055	49.0	0.154	69.5	0.146	90.0	0.000
1.8	0.972	10.0	0.109	29.0	0.038	49.5	0.155	70.0	0.146		
2.0	0.963	10.2	0.113	29.5	0.019	50.0	0.154	70.5	0.144		
2.2	0.952	10.4	0.121	30.0	0.000	50.5	0.152	71.0	0.143		

Remarks:

FIGURE 5

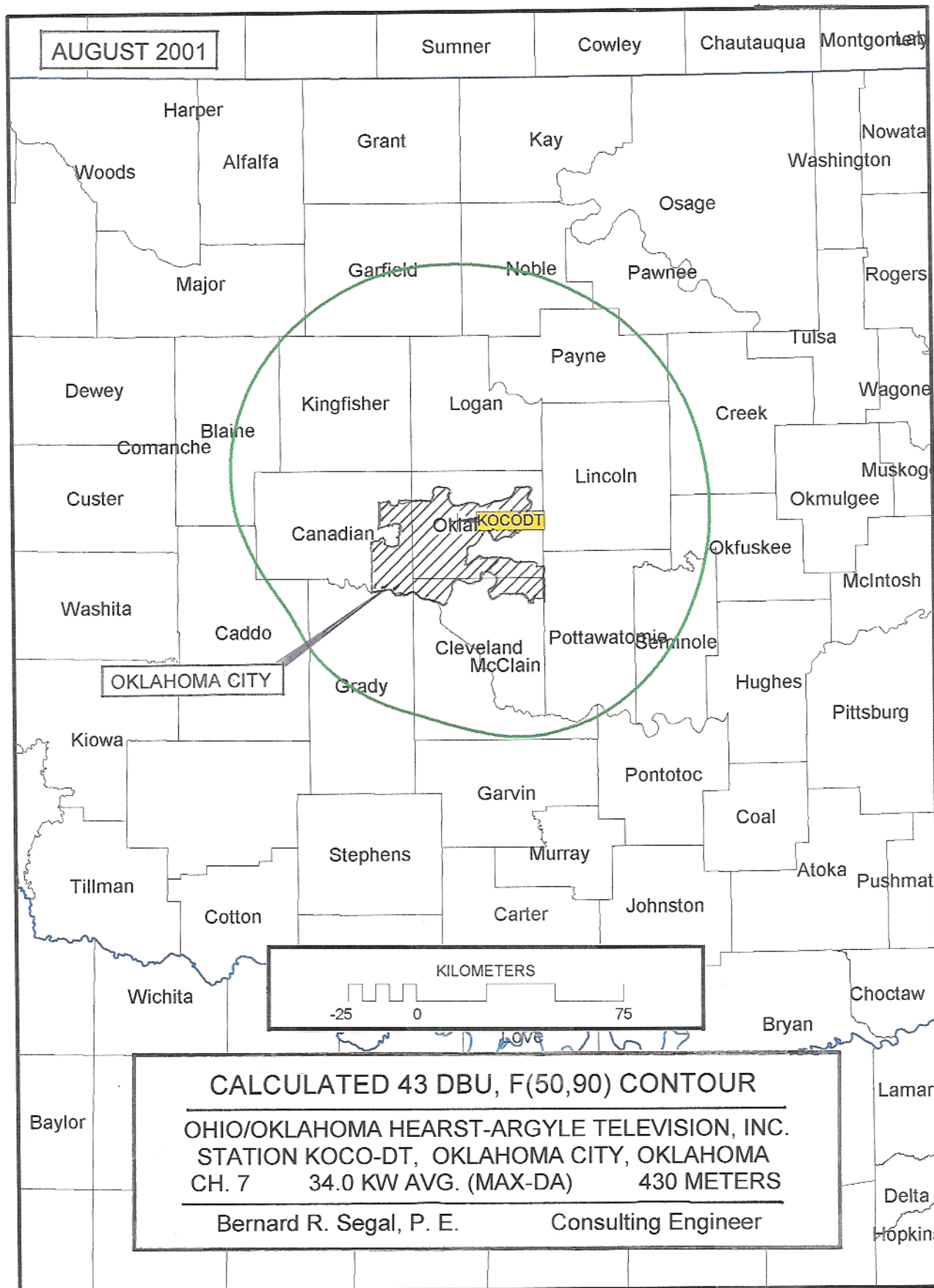


Figure 6

KOCO-DT, OKLAHOMA CITY, OKLAHOMA
CH. 7 34.0 KW AVG. (MAX-DA) 430 METERS

Tabulation of Average Elevations, ERP's Employed, and
Distances to the 43 dBu, F(50,90) Contour

Site Coordinates: 35° 33' 45" North Latitude
97° 29' 24" West Longitude

Antenna Radiation Center: 781 m AMSL

<u>Azimuth</u> (Deg. T.)	<u>Radiation Center</u> <u>Above 3.2-16.1 km</u> <u>Terrain Avg.</u> (meters)	<u>ERP</u> (kW)	<u>Distance to</u> <u>43 dBu, F(50,90)</u> <u>Contour</u> (km)
0	428	33.2	98.0
15	434	33.7	98.5
30	442	34.0	99.1
45	455	33.9	100.1
60	455	33.7	99.9
75	444	33.1	99.0
90	424	32.1	98.1
105	421	29.9	96.8
120	423	26.0	95.8
135	425	20.0	93.9
150	422	13.1	90.5
165	422	7.04	85.8
180	417	3.31	79.6
195	420	2.25	76.7
210	421	2.28	76.8
225	422	2.26	76.8
240	401	2.19	75.3
255	401	3.57	79.1
270	414	7.35	85.6
285	425	13.5	90.9
300	436	20.5	94.7
315	441	26.2	96.9
330	438	30.2	97.9
345	441	32.1	98.5
Average*	430		

* The average is for the eight standard radials.