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ENGINEERING EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
KMBC HEARST-ARGYLE TELEVISION, INC.  
STATION KMBC-DT, KANSAS CITY, MISSOURI  
CHANNEL 9 116 KW (H & V) 352 METERS

INTRODUCTION

KMBC Hearst-Argyle Television, Inc. (hereafter, Hearst-Argyle) is the licensee of Station KMBC-DT, Kansas City, Missouri. The station has been allotted post-transition operation on Channel 9 with maximum directional effective radiated power of 85 kW and antenna radiation center height above average terrain of 357 meters. The instant application seeks a permit to operate KMBC-DT on Channel 9 with non-directional effective radiated power of 116 kW (H & V) and antenna radiation center height above average terrain of 352 meters.

The antenna that will be employed is the same Dielectric, Model TCL-12A9, antenna that is employed for the Channel 9 analog operation for Station KMBC-TV. The ASRN for the antenna supporting tower is 1006711. The NAD '27 geographic coordinates for the site are: 39° 05' 01" N. Latitude; 94° 30' 57" W. Longitude.

The licensed antenna height above average terrain for the KMBC-TV analog facility is 357 meters. This value was determined before 1990, using the terrain elevation database that was then in common usage and a different computer and algorithm than the ones that are currently employed by the FCC for allotment purposes..

For allotment purposes, the FCC currently uses the 3 arc-second terrain elevation database and a computer algorithm that yields a height of 352 meters above average terrain for the same 612 meter antenna radiation center height above mean sea level as was used before for KMBC-TV. In light of the FCC's dictum that its computer results are controlling, the 352 meter value for the antenna height above average terrain is set forth herein for the sake of conformity.

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The 116 kW ERP that is proposed for KMBC-DT is the maximum that is permitted for a Zone II DTV station operating in the high VHF band segment (Channels 7-13), with an antenna height above average terrain of 352 meters.

#### INTERFERENCE CONSIDERATIONS

A study has been performed for the proposed KMBC-DT operation to determine compliance with the FCC's requirement that new interference to a post-transition Appendix B allotment not exceed 0.5 % in population, using the 2000 Census. The TV Interference and Spacing Analysis Program that was used was the William Meintel implementation of the FCC's program. Mr. Meintel was the contractor who developed the FCC's program. A Sunblade processor was used. The Post Transition Appendix B DTV facilities that are set forth in the Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and Eighth Report and Order in MB Docket No. 87-268, Released March 2008, were used for the study. No changes were made to any of the FCC's default values. The undersigned has closely replicated FCC results in the past using Mr. Meintel's program with the Sunblade processor.

Figure 1 presents the results of the study. USERRECORD01 sets forth the proposed KMBC-DT facilities. Of the four co-channel and adjacent channel stations that are potentially affected by the proposed operation (see the second page of the study for the identifications of the stations), Station KAFT-DT, Fayetteville, Arkansas, Channel 9, would receive the greatest percentage of interference from the proposed KMBC-DT operation. The impacted population is shown to be 0.3795 %, (which rounds to 0.4 %), from the proposed KMBC-DT facility. Since this interference level is less than 0.5 %, without taking into consideration the interference that may be caused to KAFT-DT by the Appendix B allotment for KMBC-DT, it was not necessary to perform a separate analysis for the allotment facility to establish a reference for the determination of "new" KMBC-DT interference to KAFT-DT, or to any other station. The proposed KMBC-DT operation complies with the FCC's 0.5 % population new interference limitation requirement.

#### PROPOSED OPERATION DETAILS

As stated earlier, the antenna that is proposed for KMBC-DT, Channel 9, use is the same antenna that is presently employed for analog Station KMBC-TV, Channel 9. The antenna is non-directional and is a Dielectric, Type TCL-12A9, with 0.75° electrical beam tilt. The antenna has a power gain of 4.9 (6.90 dBd) in each polarization plane. Figure 2 is the elevation relative field pattern for the antenna. Figure 3 is a tabulation of relative field data for the pattern of Figure 2.

Energy from the transmitter will be transferred to the antenna by means of a 396 meter length of Dielectric, 75 ohm, rigid coaxial transmission line having a nominal diameter of 15.6 centimeters. The transmission line efficiency at Channel 9 for the given length is 70.2 % (1.53 dB loss). With the transmitter power output level set at 33.7 kW, circularly polarized ERP of 116 kW will be achieved.

Figure 4 is a map that shows the calculated noise-limited, 36 dBu, and principal community service, 43 dBu, F(50,90), contours for the proposed operation. All of Kansas City is encompassed by the 43 dBu contour, as required by the Rules. The interference-free population that will be served within the 36 dBu contour is 2,415,000 persons. This is in contrast to the 2,344,000 persons who were projected to be served by the earlier referenced, Appendix B, allotment facilities for KMBC-DT. Figure 5 provides the underlying supporting information for the contours of Figure 4. Calculations were made at 10° intervals, as required by the FCC's Rules. The antenna center height above average terrain values that are listed are based on elevation data from the FCC's NGDC 30" terrain elevation database.

#### ENVIRONMENTAL IMPACT CONSIDERATIONS

Environmental impact considerations are addressed for the proposed operation. Since the site that is to be employed is already used for broadcasting purposes, only the environmental impact concern relating to radiofrequency radiation (rfr) exposure of

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humans is germane from among the list of environmentally sensitive conditions listed in Section 1.1306 of the FCC Rules.

Commencement of the KMBC-DT operation, that is proposed herein, will occur after the cessation of the KMBC-TV, Channel 9, analog operation on February 17, 2009. Since the analog operation for KMBC-TV, Channel 9, will cease before the implementation of the digital operation for KMBC-DT, Channel 9, the impact of the analog operation of KMBC-TV is ignored in the rfr exposure analysis that is presented.

Consideration of prospective exposure levels to the general public at uncontrolled locations is discussed first. This is then followed by a discussion related to worker exposure at controlled locations.

The elevation pattern of Figure 2 and accompanying "Tabulation of Elevation Pattern" of Figure 3 for the proposed KMBC-DT antenna show that the relative field throughout the depression angle range from 9.4° to 90° below the horizontal plane, does not exceed 0.2. In the interest of using conservative criteria for determining the rfr exposure levels from the post-transition KMBC-DT, Channel 9, antenna, a target for uncontrolled location calculations has been chosen to be a point at the tower base. The height above ground level for the target is 2 meters, corresponding, approximately, to the height of a person's head.

The use of a person's head as the touchstone for evaluating if overexposure occurs, rather than by evaluating for average whole body exposure, as set forth in the FCC's adopted standard, simplifies the calculation and adds an additional safety factor, as well. Also, additional safety factors are built-in by assuming that all the radiation emanates from the bottom of the antenna, and that the maximum relative field radiation within the recited depression angle range prevails throughout the depression angle range.

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A ray from the KMBC-DT, Channel 9, antenna, at a depression angle of  $9.4^\circ$ , would impinge at a target 2 meters above the earth's surface at a distance of 1,914 meters from the tower base, assuming flat earth. Within this 1,914-meter range, the greatest level of equivalent plane wave power density that could occur would be at the 2-meter above ground level target at the tower base.

A test calculation, using OET Bulletin 65, Edition 97-01, procedures, has been performed. The distance to the target from the antenna bottom was 317 meters. The calculation included a 1.6 ground reflection coefficient. The maximum ERP used was 232 kW. The elevation pattern relative field value that was used was 0.2. The resultant equivalent plane wave power density at the target was determined to be  $0.0031 \text{ mW/cm}^2$ , corresponding to 1.5 % of the maximum permissible exposure (MPE) of  $0.2 \text{ mW/cm}^2$  for Channel 9 (186-192 MHz.). The 1.5 % of the MPE contribution from the proposed KMBC-DT operation is less than the 5 % trigger value for cooperative involvement in remedial actions in the event of an overexposure condition at an uncontrolled location. The calculation that was made assumed that the earth was flat.

Another calculation to a target that is located 2 meters above ground level at a distance of 1,914 meters from the tower base was performed. This time the maximum radiation of 232 kW from the antenna was used with no consideration to elevation plane directivity. The equivalent plane wave power density turned out to be  $0.0063 \text{ mW/cm}^2$ , corresponding to 3.2 % of the MPE. Thus, the exposure levels from the proposed facility at uncontrolled locations, based on these conservative calculations, will not exceed 3.2 % of the MPE anywhere.

As to worker, or controlled location exposure concerns, the KMBC-DT tower is within a fenced enclosure, and the gate entranceway is kept locked at all times. Access within the fence is available only to authorized personnel. Those workers who have

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activities that require tower climbing, are aware of the procedures to follow to avoid rfr over-exposure. A radiation hazard warning sign is posted on the fence. The fenced area qualifies as a controlled location work area.

Procedures that are now in place regarding power reduction or termination of excitation to the antenna, according to the work effort location that is involved in order to avoid worker overexposure to rfr, will continue to be observed. In this manner, avoidance of overexposure of workers to rfr will continue to be achieved.

The proposal does not require the preparation of an "Environmental Assessment".

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 30, 2008.

*Bernard R. Segal, P.E.*

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Maryland Registration No. 25811

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FIGURE 1

TV INTERFERENCE AND  
SPACING ANALYSIS PROGRAM RESULTS  
STATION KMBC-DT, KANSAS CITY, MISSOURI  
CH. 9 116 KW (H & V) 352 METERS

Census data selected 2000

Post Transition Data Base Selected  
/space/software/cdbs/tvdb.sff\_B  
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 05-29-2008 Time: 11:14:44

Record Selected for Analysis

KMBC-DT USERRECORD-01 KANSAS CITY MO US  
Channel 09 ERP 116. kW HAAT 352. m RCAMSL 00612 m  
Latitude 039-05-01 Longitude 0094-30-57  
Status APP Zone 2 Border  
Last update Cutoff date Docket  
Comments  
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	36.0 dBu F(50,90) (km)
0.0	116.000	365.1	118.4
45.0	116.000	389.4	120.6
90.0	116.000	332.7	115.7
135.0	116.000	327.7	115.3
180.0	116.000	345.1	116.8
225.0	116.000	318.7	114.6
270.0	116.000	368.4	118.7
315.0	116.000	372.5	119.0

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

Proposed facility OK to FCC Monitoring Stations



Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
09	KMBC-DT	KANSAS CITY MO	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan No.	Call	City/State	Dist(km)	Status	Application	Ref.
08	KOMUTV	COLUMBIA MO	195.8	LIC	BDTV	-0850
09	KAFT	FAYETTEVILLE AR	365.9	LIC	BDTV	-0069
09	KCRG-TV	CEDAR RAPIDS IA	423.3	LIC	BDTV	-0462
09	KCAU-TV	SIOUX CITY IA	415.2	LIC	BDTV	-0484

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Analysis of Interference to Affected Station 1

Channel	Call	City/State	Application	Ref. No.
08	KOMUTV	COLUMBIA MO	BDTV	-0850

Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application	Ref.
07	KHQA-TV	HANNIBAL MO	144.7	LIC	BDTV	-0852
08	KAIT	JONESBORO AR	353.3	LIC	BDTV	-0076
08	KCCI	DES MOINES IA	344.5	LIC	BDTV	-0470
08	WSIU-TV	CARBONDALE IL	276.7	LIC	BDTV	-0516
08	951215KK	GALESBURG IL	313.5	LIC	BDTV	-0534
09	KMBC-DT	KANSAS CITY MO	195.8	APP	USERRECORD-01	

Proposed station is beyond the site to  
nearest cell evaluation distance

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# Analysis of Interference to Affected Station 2

## Analysis of current record

Channel	Call	City/State	Application	Ref. No.
09	KAFT	FAYETTEVILLE AR	BDTV	-0069

## Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application	Ref.
08	KJRH	TULSA OK	150.1	LIC	BDTV	-1254
09	KWTV	OKLAHOMA CITY OK	314.6	LIC	BDTV	-1243
10	KOLR	SPRINGFIELD MO	183.4	LIC	BDTV	-0870
10	KTUL	TULSA OK	143.9	LIC	BDTV	-1255
09	KMBC-DT	KANSAS CITY MO	365.9	APP	USERRECORD-01	

Total scenarios = 1

Result key: 1

Scenario 1 Affected station 2  
Before Analysis

Results for: 9A AR FAYETTEVILLE BDTV 0069 LIC  
HAAT 501.0 m, ATV ERP 19.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	957639	39694.0
not affected by terrain losses	903115	35870.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	13969	715.6
lost to ATV IX only	13969	715.6
lost to all IX	13969	715.6

Potential Interfering Stations Included in above Scenario 1

8A OK TULSA	BDTV	1254	LIC
9A OK OKLAHOMA CITY	BDTV	1243	LIC
10A MO SPRINGFIELD	BDTV	0870	LIC
10A OK TULSA	BDTV	1255	LIC

## After Analysis

Results for: 9A AR FAYETTEVILLE BDTV 0069 LIC  
HAAT 501.0 m, ATV ERP 19.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	957639	39694.0
not affected by terrain losses	903115	35870.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	17343	820.2
lost to ATV IX only	17343	820.2
lost to all IX	17343	820.2

Potential Interfering Stations Included in above Scenario 1

8A OK TULSA	BDTV	1254	LIC
9A OK OKLAHOMA CITY	BDTV	1243	LIC
10A MO SPRINGFIELD	BDTV	0870	LIC
10A OK TULSA	BDTV	1255	LIC
9A MO KANSAS CITY	USERRECORD01		APP

Percent new IX = 0.3795%

Worst case new IX 0.3795% Scenario 1

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### Analysis of Interference to Affected Station 3

#### Analysis of current record

Channel	Call	City/State	Application Ref. No.
09	KCRG-TV	CEDAR RAPIDS IA	BDTV -0462

#### Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application Ref.
08	KCCI	DES MOINES IA	156.0	LIC	BDTV -0470
08	951215KK	GALESBURG IL	165.8	LIC	BDTV -0534
08	WKBT	LA CROSSE WI	201.7	LIC	BDTV -1747
09	KCAU-TV	SIOUX CITY IA	359.9	LIC	BDTV -0484
09	WILL-TV	URBANA IL	367.8	LIC	BDTV -0560
09	KMSP-TV	MINNEAPOLIS MN	321.3	LIC	BDTV -0832
09	WAOW-TV	WAUSAU WI	337.9	LIC	BDTV -1773
10	KTC	ROCHESTER MN	146.9	LIC	BDTV -0839
09	KMBC-DT	KANSAS CITY MO	423.3	APP	USERRECORD-01

Proposal causes no interference

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### Analysis of Interference to Affected Station 4

#### Analysis of current record

Channel	Call	City/State	Application Ref. No.
09	KCAU-TV	SIOUX CITY IA	BDTV -0484

#### Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application Ref.
08	KLKN	LINCOLN NE	209.2	LIC	BDTV -1028
08	KESD-TV	BROOKINGS SD	210.6	LIC	BDTV -1419
09	KCRG-TV	CEDAR RAPIDS IA	359.9	LIC	BDTV -0462
09	KMSP-TV	MINNEAPOLIS MN	370.9	LIC	BDTV -0832

09	KABY-TV	ABERDEEN SD	310.3	LIC	BDTV	-1417
10	KOLN	LINCOLN NE	213.3	LIC	BDTV	-1029
09	KMBC-DT	KANSAS CITY MO	415.2	APP	USERRECORD-01	

Total scenarios = 1

Result key: 2  
 Scenario 1 Affected station 4  
 Before Analysis

Results for: 9A IA SIOUX CITY BDTV 0484 LIC  
 HAAT 616.0 m, ATV ERP 22.3 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	665652	45505.5
not affected by terrain losses	649457	44810.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	9599	297.1
lost to ATV IX only	9599	297.1
lost to all IX	9599	297.1

Potential Interfering Stations Included in above Scenario 1

9A IA CEDAR RAPIDS	BDTV	0462	LIC
9A MN MINNEAPOLIS	BDTV	0832	LIC
9A SD ABERDEEN	BDTV	1417	LIC

After Analysis

Results for: 9A IA SIOUX CITY BDTV 0484 LIC  
 HAAT 616.0 m, ATV ERP 22.3 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	665652	45505.5
not affected by terrain losses	649457	44810.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	9653	313.1
lost to ATV IX only	9653	313.1
lost to all IX	9653	313.1

Potential Interfering Stations Included in above Scenario 1

9A IA CEDAR RAPIDS	BDTV	0462	LIC
9A MN MINNEAPOLIS	BDTV	0832	LIC
9A SD ABERDEEN	BDTV	1417	LIC
9A MO KANSAS CITY	USERRECORD01		APP

Percent new IX = 0.0084%

Worst case new IX 0.0084% Scenario 1

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Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application Ref. No.
09	KMBC-DT	KANSAS CITY MO	USERRECORD-01

Stations Potentially Affecting This Station

Chan No.	Call	City/State	Dist(km)	Status	Application Ref.
08	KOMUTV	COLUMBIA MO	195.8	LIC	BDTV -0850
09	KAFT	FAYETTEVILLE AR	365.9	LIC	BDTV -0069
09	KCRG-TV	CEDAR RAPIDS IA	423.3	LIC	BDTV -0462
09	KCAU-TV	SIOUX CITY IA	415.2	LIC	BDTV -0484

Total scenarios = 1

Result key: 3  
 Scenario 1 Affected station 5  
 Before Analysis

Results for: 9A MO KANSAS CITY USERRECORD01 APP  
 HAAT 352.0 m, ATV ERP 116.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	2420766	43277.1
not affected by terrain losses	2415006	42067.6
lost to NTSC IX	0	0.0
lost to additional IX by ATV	262	107.8
lost to ATV IX only	262	107.8
lost to all IX	262	107.8

Potential Interfering Stations Included in above Scenario 1

9A AR FAYETTEVILLE	BDTV	0069	LIC
9A IA SIOUX CITY	BDTV	0484	LIC

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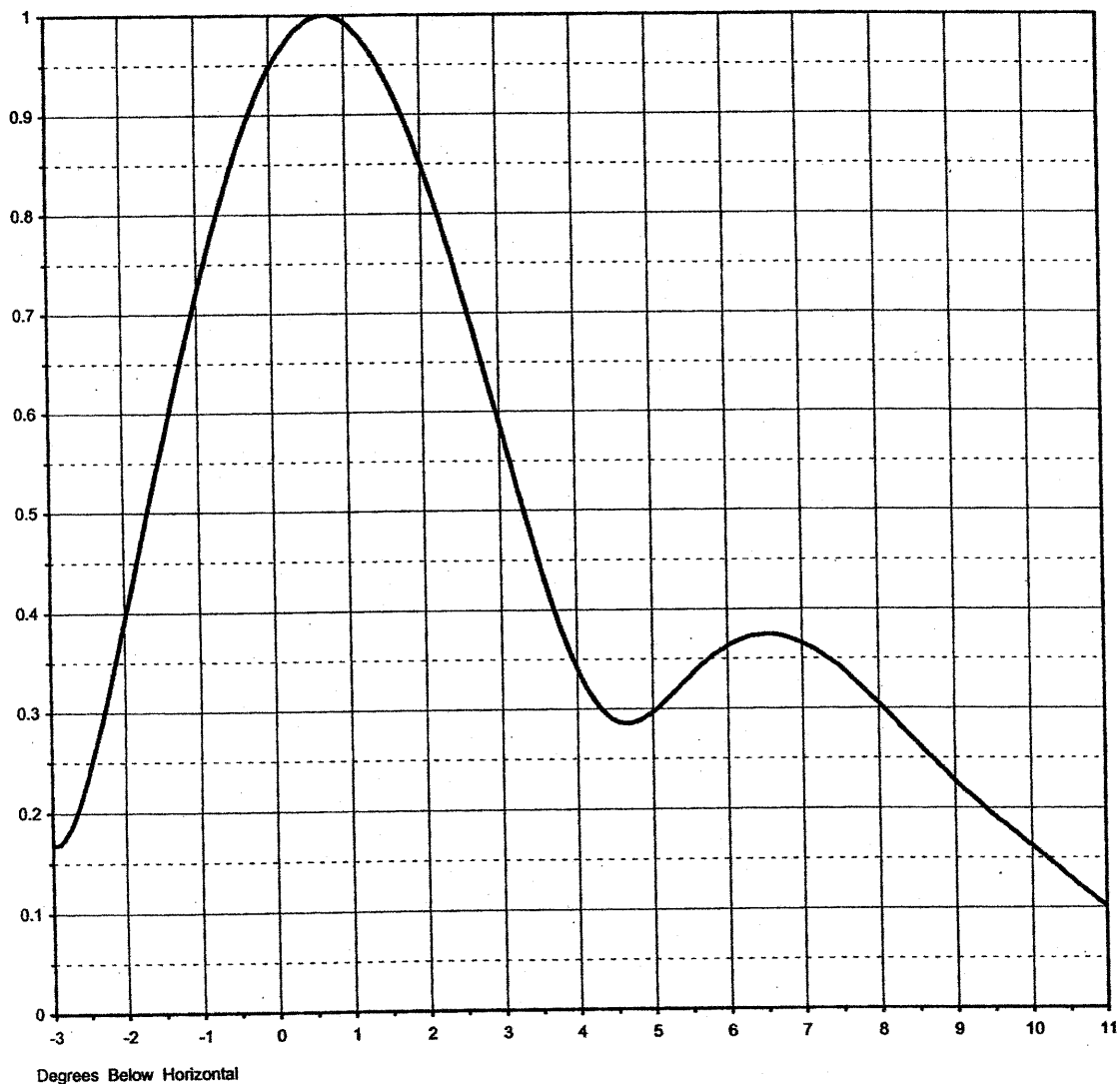


Proposal Number **DCA-6229**  
Date **6-Dec-88**  
Call Letters **KMBC** Channel **9**  
Location **Kansas City, MO**  
Customer  
Antenna Type **TCL-12A9**

FIGURE 2

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>4.90 (6.90 dB)</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>4.40 (6.43 dB)</b>	Frequency	<b>189.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>TCL050075</b>





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FIGURE 3

# **TABULATION OF ELEVATION PATTERN**

Elevation Pattern Drawing #: **TCL050075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.109	2.4	0.754	10.6	0.131	30.5	0.101	51.0	0.051	71.5	0.013
-9.5	0.145	2.6	0.700	10.8	0.119	31.0	0.109	51.5	0.050	72.0	0.012
-9.0	0.184	2.8	0.644	11.0	0.107	31.5	0.114	52.0	0.049	72.5	0.011
-8.5	0.227	3.0	0.587	11.5	0.084	32.0	0.116	52.5	0.048	73.0	0.010
-8.0	0.274	3.2	0.531	12.0	0.084	32.5	0.113	53.0	0.047	73.5	0.009
-7.5	0.325	3.4	0.476	12.5	0.109	33.0	0.105	53.5	0.045	74.0	0.008
-7.0	0.378	3.6	0.425	13.0	0.144	33.5	0.095	54.0	0.043	74.5	0.007
-6.5	0.425	3.8	0.379	13.5	0.177	34.0	0.082	54.5	0.040	75.0	0.006
-6.0	0.460	4.0	0.341	14.0	0.201	34.5	0.068	55.0	0.037	75.5	0.006
-5.5	0.473	4.2	0.312	14.5	0.214	35.0	0.055	55.5	0.034	76.0	0.005
-5.0	0.458	4.4	0.293	15.0	0.215	35.5	0.045	56.0	0.030	76.5	0.005
-4.5	0.411	4.6	0.286	15.5	0.204	36.0	0.040	56.5	0.026	77.0	0.005
-4.0	0.332	4.8	0.288	16.0	0.183	36.5	0.042	57.0	0.023	77.5	0.004
-3.5	0.233	5.0	0.297	16.5	0.156	37.0	0.046	57.5	0.020	78.0	0.004
-3.0	0.168	5.2	0.310	17.0	0.126	37.5	0.052	58.0	0.019	78.5	0.005
-2.8	0.178	5.4	0.325	17.5	0.097	38.0	0.057	58.5	0.020	79.0	0.005
-2.6	0.213	5.6	0.340	18.0	0.070	38.5	0.062	59.0	0.022	79.5	0.005
-2.4	0.265	5.8	0.353	18.5	0.049	39.0	0.066	59.5	0.024	80.0	0.005
-2.2	0.326	6.0	0.363	19.0	0.037	39.5	0.070	60.0	0.027	80.5	0.005
-2.0	0.392	6.2	0.370	19.5	0.039	40.0	0.073	60.5	0.030	81.0	0.005
-1.8	0.460	6.4	0.374	20.0	0.054	40.5	0.076	61.0	0.032	81.5	0.005
-1.6	0.528	6.6	0.375	20.5	0.075	41.0	0.079	61.5	0.034	82.0	0.005
-1.4	0.595	6.8	0.372	21.0	0.099	41.5	0.079	62.0	0.035	82.5	0.005
-1.2	0.660	7.0	0.366	21.5	0.121	42.0	0.078	62.5	0.036	83.0	0.005
-1.0	0.722	7.2	0.358	22.0	0.139	42.5	0.075	63.0	0.036	83.5	0.005
-0.8	0.779	7.4	0.347	22.5	0.151	43.0	0.070	63.5	0.036	84.0	0.005
-0.6	0.830	7.6	0.334	23.0	0.157	43.5	0.063	64.0	0.035	84.5	0.004
-0.4	0.876	7.8	0.320	23.5	0.154	44.0	0.055	64.5	0.034	85.0	0.004
-0.2	0.916	8.0	0.305	24.0	0.145	44.5	0.047	65.0	0.033	85.5	0.004
0.0	0.948	8.2	0.289	24.5	0.129	45.0	0.040	65.5	0.031	86.0	0.000
0.2	0.972	8.4	0.273	25.0	0.110	45.5	0.035	66.0	0.029	86.5	0.000
0.4	0.989	8.6	0.257	25.5	0.088	46.0	0.033	66.5	0.028	87.0	0.000
0.6	0.998	8.8	0.242	26.0	0.067	46.5	0.034	67.0	0.026	87.5	0.000
0.8	1.000	9.0	0.227	26.5	0.050	47.0	0.038	67.5	0.024	88.0	0.000
1.0	0.993	9.2	0.213	27.0	0.040	47.5	0.042	68.0	0.023	88.5	0.000
1.2	0.978	9.4	0.200	27.5	0.039	48.0	0.046	68.5	0.021	89.0	0.000
1.4	0.956	9.6	0.187	28.0	0.046	48.5	0.049	69.0	0.020	89.5	0.000
1.6	0.927	9.8	0.181	28.5	0.056	49.0	0.051	69.5	0.018	90.0	0.000
1.8	0.892	10.0	0.168	29.0	0.067	49.5	0.052	70.0	0.017		
2.0	0.850	10.2	0.156	29.5	0.078	50.0	0.052	70.5	0.016		
2.2	0.804	10.4	0.144	30.0	0.090	50.5	0.051	71.0	0.014		

**MAY 2008**

0 20 40  
kilometers

**43 DBU**

**36 DBU**

**CALCULATED F(50,90) CONTOURS**

**KMBC HEARST-ARGYLE TELEVISION, INC.**  
**STATION KMBC-DT, KANSAS CITY, MISSOURI**  
**CHANNEL 9 116 KW (H & V) 352 METERS**

**Bernard R. Segal, P. E.**      **Consulting Engineer**



BERNARD R. SEGAL, P. E.  
CONSULTING ENGINEER  
KENSINGTON, MARYLAND

FIGURE 5

ELEVATION DATA AND  
DISTANCES TO SERVICE CONTOURS  
PROPOSED KMBC-DT, KANSAS CITY, MISSOURI  
CH. 9 116 KW (H & V) 352 METERS

NAD '27 Site Coordinates: 39° 05' 01" N; 94° 30' 57" W  
Antenna Radiation Center: 612 meters AMSL

Azimuth (Deg. True)	HAAT (meters)	Depression Angle To Radio Horizon (degrees)	Distance To	
			43 dBu Contour (km)	36 dBu Contour (km)
0	368	0.5	104.2	118.7
10	373	0.5	104.5	119.1
20	381	0.5	105.2	119.8
30	388	0.5	105.7	120.4
40	392	0.5	106.0	120.8
50	388	0.5	105.7	120.4
60	346	0.5	102.5	116.9
70	330	0.5	101.2	115.6
80	332	0.5	101.4	115.8
90	339	0.5	101.9	116.3
100	341	0.5	102.1	116.5
110	355	0.5	101.6	116.0
120	332	0.5	101.4	115.8
130	330	0.5	101.2	115.6
140	336	0.5	101.7	116.1
150	337	0.5	101.8	116.2
160	333	0.5	101.5	115.9
170	335	0.5	101.6	116.0
180	348	0.5	102.6	117.1
190	363	0.5	103.8	118.3
200	350	0.5	102.8	117.2
210	334	0.5	101.5	115.9
220	325	0.5	100.8	115.2
230	327	0.5	101.0	115.4
240	318	0.5	100.2	114.6
250	328	0.5	101.0	115.5
260	332	0.5	101.4	115.8
270	370	0.5	104.3	118.8
280	358	0.5	103.4	117.9
290	351	0.5	102.8	117.3
300	360	0.5	103.5	118.0
310	377	0.5	104.8	119.4
320	372	0.5	104.5	119.0
330	359	0.5	103.5	117.9
340	350	0.5	102.8	117.2
350	356	0.5	103.2	117.7

Note: In each direction, the relative field at the depression angle to the radio horizon exceeded 90% of the maximum in the vertical plane. Therefore, the maximum ERP was used to determine the contour distance.