

**TECHNICAL EXHIBIT  
Prepared In Support of  
Application for Minor Change of  
Non-Commercial Digital Television  
For Applicant**

**Arkansas Educational Television Commission**

**KETZ-DT**

**EL DORADO, ARKANSAS  
CHANNEL 12  
7.2 KW (Max-DA)  
538 M**

**May 25, 2006**



**Dennis Wallace  
Meintel, Sgrignoli, & Wallace  
1282 Smallwood Drive  
Suite 372  
Waldorf, MD. 20603**

### **Background & Proposed Facilities:**

This Technical Exhibit supports an application for minor modification of the construction permit for digital television station KETZ-DT on DTV channel 12 at El Dorado, Arkansas. Pursuant to the Report and Order adopted by the Federal Communications Commission in MB Docket 04-282 and RM-11042 on December 27, 2004, the FCC allotted channel 12 in place of channel 30 for KETZ's digital television operations. The FCC assigned a directional effective radiated power (ERP) of 6 (kW) and an antenna radiation center height above average terrain (HAAT) of 541 meters for the allotment. Subsequently KETZ filed for a construction permit on Channel 12 with an ERP of 10 kilowatts. This CP was granted on March 30, 2005 (File Number BMPEDT-20050329AEE). This CP was a modification of the original channel 12 construction permit (File Number BMPEDT-20040527AEL).

At this time, AETC desires a final modification of its construction permit to reduce the effective radiated power from 10 KW as granted in the current construction permit to a new lower ERP of 7.2KW. The reason for this change is to accommodate the lower powered transmitter that was installed by AETC. In order to meet the tight construction schedule for this facility and to better utilize the financial resources of AETC, a transmitter with an output power of 3KW was determined to be the best solution. In order to achieve, the higher 10KW ERP, AETC would have had to purchase additional transmitter cabinets which was deemed uneconomic by AETC. The facility will utilize a Jampro antenna that is identical to the previously proposed Dielectric antenna.

Therefore, the station proposes to operate DTV channel 12 with essentially unchanged parameters, with the exception of the antenna model number and effective radiated power. The proposed facility will remain at the following site location N33-04-41; W92-13-41. It is proposed to operate with a Jampro JHD-HV2 2/4 (8), "Cardioid" type antenna with a maximum ERP of 7.2 kilowatts and an HAAT of 538 meters. As noted in the previous construction permit application these facilities exceed those allotted in MM Docket No. 04-282, therefore the application is not considered "checklist".

A sketch of the existing tower structure is presented in Figure 1 showing the location of the existing KTVE NTSC antenna and the proposed KETZ-DT antenna. The FCC antenna registration number for this existing tower is 1039950. No change in height is proposed, as the proposed antenna will be side-mounted. The pertinent elevation data is supplied on the sketch.

Figure 2 is data for the proposed Jampro antenna. Jampro has assigned model number JHD-HV2 2/4 (8) for this antenna. This antenna will consist of a total of 8 panels arranged in a configuration of 4 panels placed around the faces of the tower and each of these will consist of 2 panels in height. A graph of the azimuth and elevation patterns is provided in the figure as well as the tabulated pattern data.

### **Antenna Pattern Max/Min Ratio Waiver:**

The proposed antenna has a null at approximately 290 degrees that exceeds the commission's max/min ratio as established in section 73.685 (e) of the commission's rules. This null is a by-product of the "cardioid" design as implemented by the manufacturer and is not required for meeting the commission's *de minimus* interference rules. Therefore, the applicant (KETZ) requests a waiver of section 73.685 (e) for this application.

A study was undertaken to evaluate the antenna pattern to ensure that the minimum "City Grade" coverage would be achieved over the city of license based upon the manufacturer's antenna data. This study indicates that the required 43dBu would be met at the city of license. Further, a study was conducted to determine if the *de minimus* criteria would be met if the null was set to -15dB as the maximum allowed under section 73.685(e), this would in effect simulate the "worst-case" scenario with respect to potential interference to other stations. This study indicates that the *de minimus* criteria is met, even with the ERP set to -15dB at the bearings of interest instead of the values provided by the antenna manufacturer.

Based upon these studies and assurances from the antenna manufacturer, the applicant believes that the proposed antenna would minimize any potential interference to other stations while also maintaining the required City Grade signal level requirements at the City of License. In addition, by utilizing a side-mounted antenna arrangement, additional stability in the pattern will be realized. In consideration of the above reasons, AETC respectfully requests a waiver of Section 73.685(e) of the Commission's Rules with respect to its application at El Dorado, Arkansas.

### **Other Radio and Television Stations**

No adverse impact on the existing operation of co-located stations or any authorized non-broadcast stations is expected from the proposed Channel 12 operation. However, in case of a problem, the applicant takes the full responsibility to eliminate any objectionable interference, including that caused by intermodulation to the authorized radio and TV operations.

The proposed station meets the spacing requirements with respect to the Canadian and Mexican borders as well as FCC Monitoring stations. The proposed station also meets the required spacing with regard to "Quiet Zones".

### **Coverage Map**

Figure 3 is a map illustrating the predicted coverage contours. The map provides the predicted 36dBu noise limited contour and the 43 dBu "City Grade" contour. The contours have been calculated using the normal FCC prediction methods with the antenna pattern data supplied by the antenna manufacturer.

**“De Minimus” Interference Study:**

An interference analysis was performed using the procedures outlined in the FCC’s OET-69 bulletin. The results of the study indicate that the proposed station complies with the interference protection provisions of the FCC’s “*de minimus*” interference standard.

Interference calculations for the potentially affected stations are listed below:

Channel	Call Sign	City/State	Status	Application Ref. No.	% IX Caused
11	KTHV	Little Rock, AR	LIC	BMLCT-20030728AAV	0.0%
11	KAQY	Columbia, LA	LIC	BLCT-19981222KG	0.0%
12	KTHV	Little Rock, AR	LIC	BLCDT-20041029AIX	1.92%
12	KTHV-DT	Little Rock, AR	PLN	DTVPLN-DTVP0094	1.18%
12	WYES-TV	New Orleans, LA	LIC	BMLET-20040301ABP	0.0%
12	KSLA-TV	Shreveport, MS	LIC	BLCT-1757	1.73%
12	WMAE-TV	Booneville, MS	LIC	BLET-20001011ABQ	0.0%
12	WJTV	Jackson, MS	LIC	BMLCT-19850919KV	1.65%
12	KBMT	Beaumont, TX	LIC	BLCT-19820802KF	0.0%
13	KETG-TV	Arkadelphia, AR	LIC	BPRM-20000803AAA	0.0%
13	KETG	Arkadelphia, AR	LIC	BLEDT-20040608AAX	0.0%
13	KLTM-TV	Monroe, LA	LIC	BLET-19981113KE	0.11%

From the above, it is apparent that the proposed KETZ-DT operation on channel 12 complies with the FCC’s 2% / 10% interference standard toward all authorized analog and DTV assignments.

**Environmental Considerations**

Under section 1.1306 of the Commission rules, an environmental impact assessment is not required for this request. The proposal does not specify a location in a designated wilderness area, a wildlife preserve, areas of critical habitats, historic district, Indian religious site, or flood plain, and will not involve significant changes in surface features. Additionally, the tower is an existing structure.

The proposed operation was evaluated for human exposure to radiofrequency (RF) energy using the procedures outlined in the Commission’s OET Bulletin 65. The proposed antenna will be installed such that its center of radiation is approximately 530 meters above the ground level. An ERP of 7.2 kilowatts, horizontally polarized, will be employed. An analysis was conducted using the elevation pattern data provided by the antenna manufacturer. The analysis was conducted using formulas from FCC Bulletin OET-65. The analysis indicated that the power density at the base of the tower (2 meters above ground) is well below the maximum permissible exposure limits for the “uncontrolled/general population” limits. At locations away from the base of the tower and building the calculated power density is even lower, due to the increasing distance away from the antenna.

Additionally, the applicant will restrict access to the tower and building areas to prevent unauthorized personnel from accessing the antenna. Further, the applicant will conduct measurements of RF Exposure levels following construction to ensure compliance with applicable RFR standards. The applicant will also develop an RF exposure safety program for all workers that will be accessing the site. Any time workers will be working on the tower, the applicant will cease operations of the transmitters.

Based upon the preceding, it is believed that this instant proposal may be categorically excluded from environmental processing under Section 1.1306 of the Commission's Rules; therefore, preparation of an Environmental Assessment is not required.

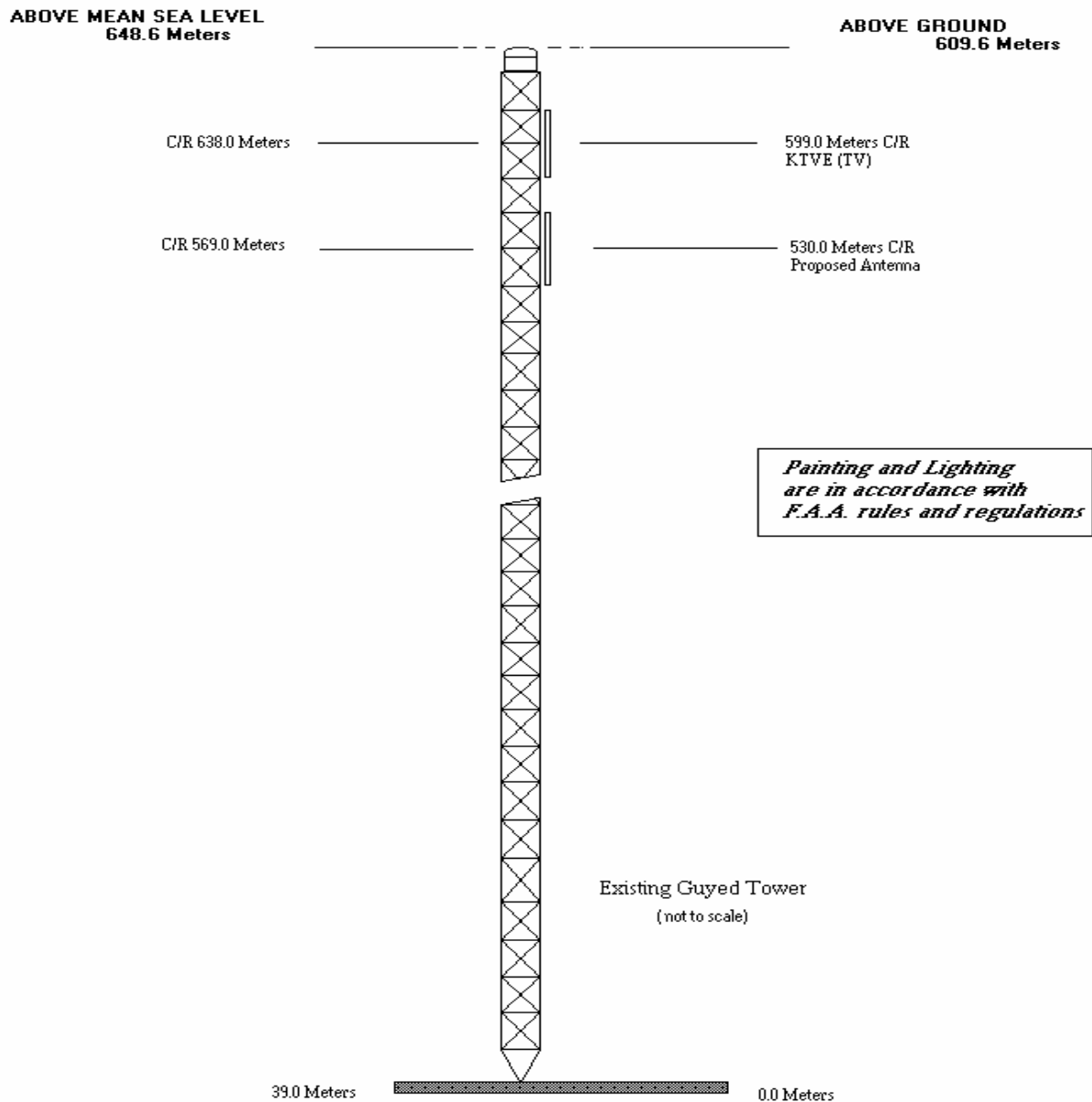
**Certification**

This statement with associated exhibits was prepared by me or under my direction. All assertions in this statement are true of my own personal knowledge except where otherwise indicated and these latter assertions are based on information from sources known reliable and believed to be true.

Submitted this 25<sup>th</sup> day of May, 2006.

By: \_\_\_\_\_  
Dennis Wallace  
Meintel, Sgrignoli, & Wallace

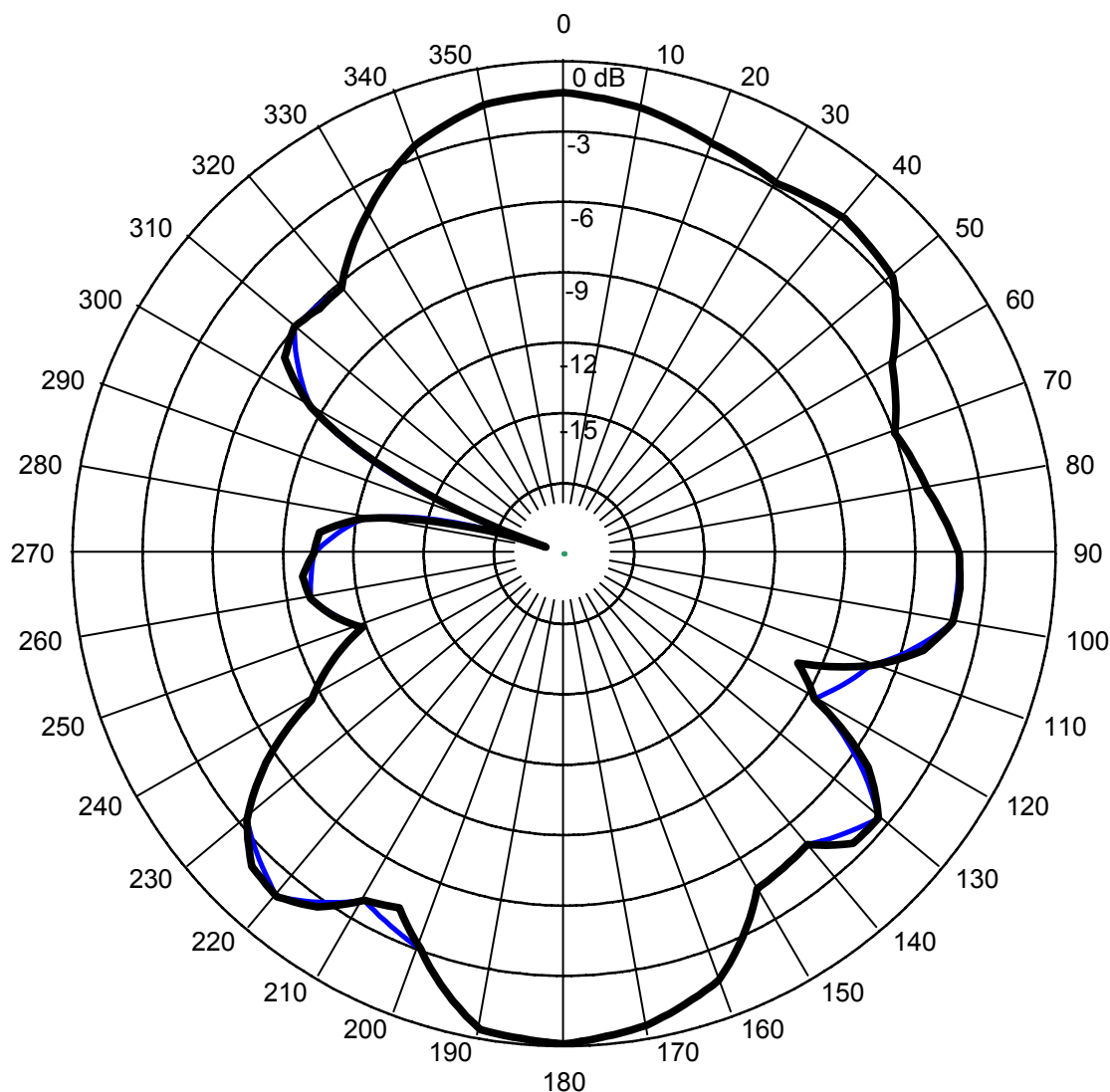
**Vertical Sketch for the Proposed Operation at**  
**KETZ-DT**  
**El Dorado, Arkansas**  
May, 2006



**Exhibit 1**



## Azimuth Pattern



### AZIMUTH PATTERN LIMITS

**Customer: KETZ TV**      **El Dorado, AR**      **October 3, 2005**  
**Frequency: 204-210 MHz / CH 12**   **dB Scale Used**   **Model: JHD-HV2- 2/4 (8) R**  
**Gain approx.: 5.807x/ 7.640 dB**      **Black=Desired, Blue=Jampro Anticipated**



## TABULATION

<u>AZIMUTH</u>	<u>FIELD</u>	<u>AZIMUTH</u>	<u>FIELD</u>
0	0.856	180	0.988
10	0.82	190	0.955
20	0.758	200	0.702
30	0.725	210	0.635
40	0.763	220	0.802
50	0.736	230	0.682
60	0.574	240	0.374
70	0.503	250	0.256
80	0.547	260	0.316
90	0.622	270	0.305
100	0.62	280	0.242
110	0.443	290	0.098
120	0.369	300	0.375
130	0.671	310	0.503
140	0.574	320	0.489
150	0.595	330	0.615
160	0.826	340	0.754
170	0.934	350	0.836

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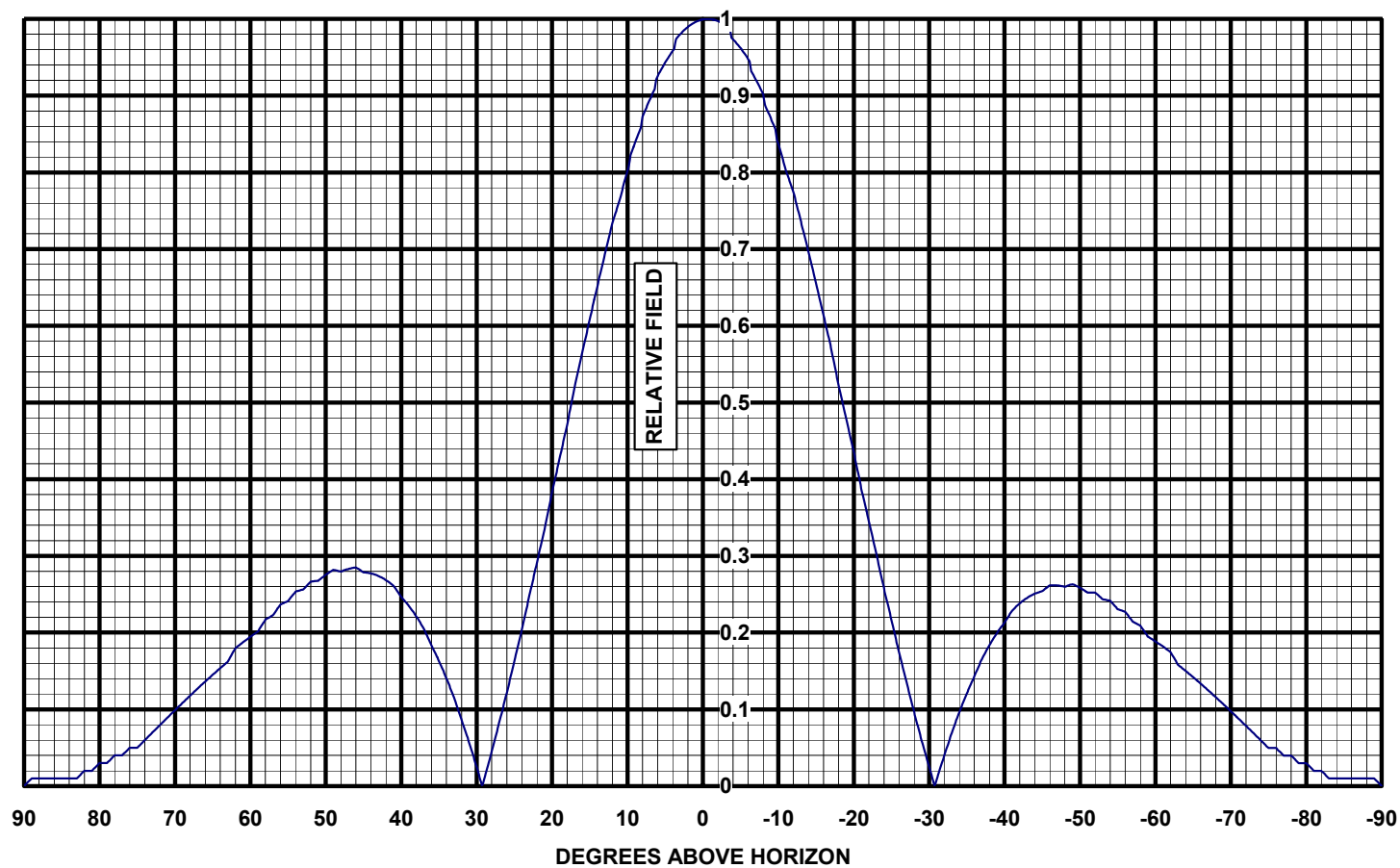
**October 3, 2005**

**Model: JHD-HV2- 2/4 (8) R**





### COMPUTED ELEVATION PATTERN



### ELEVATION PATTERN

**Customer: KETZ TV**

**Frequency: 204-210 MHz / CH 12**

**El Dorado, AR**

**March 17, 2005**

**Model: JHD-HV2-2/4 (8) R**

*50 Years of crafting fine TV and FM Antennas.*

6340 Sky Creek Road, Sacramento, CA 95828  
TEL: 916-383-1177 FAX: 916-383-1182 WEB [www.Jampro.com](http://www.Jampro.com)



## ELEVATION PATTERN TABULATION

### RELATIVE FIELD VS ELEVATION ANGLE

<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>	<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>	<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>
10	0.803	-26	0.175	-61	0.182
9	0.839	-27	0.136	-62	0.175
8	0.873	-28	0.097	-63	0.158
7	0.896	-29	0.060	-64	0.150
6	0.925	-30	0.025	-65	0.142
5	0.943	-31	0.008	-66	0.133
4	0.958	-32	0.039	-67	0.125
3	0.980	-33	0.069	-68	0.116
2	0.990	-34	0.096	-69	0.107
1	0.996	-35	0.121	-70	0.097
0	0.999	-36	0.143	-71	0.088
-1	1.000	-37	0.166	-72	0.079
-2	0.997	-38	0.184	-73	0.069
-3	0.992	-39	0.199	-74	0.059
-4	0.973	-40	0.213	-75	0.049
-5	0.962	-41	0.229	-76	0.050
-6	0.948	-42	0.238	-77	0.040
-7	0.921	-43	0.245	-78	0.040
-8	0.902	-44	0.251	-79	0.030
-9	0.871	-45	0.254	-80	0.030
-10	0.838	-46	0.262	-81	0.020
-11	0.803	-47	0.262	-82	0.020
-12	0.774	-48	0.260	-83	0.010
-13	0.736	-49	0.263	-84	0.010
-14	0.696	-50	0.258	-85	0.010
-15	0.655	-51	0.252	-86	0.010
-16	0.614	-52	0.252	-87	0.010
-17	0.571	-53	0.243	-88	0.010
-18	0.522	-54	0.242	-89	0.010
-19	0.479	-55	0.231	-90	0.000
-20	0.436	-56	0.227		
-21	0.388	-57	0.214		
-22	0.345	-58	0.209		
-23	0.303	-59	0.195		
-24	0.258	-60	0.189		
-25	0.217				

### ELEVATION PATTERN

**Customer: KETZ TV**

**Eugene, OR**

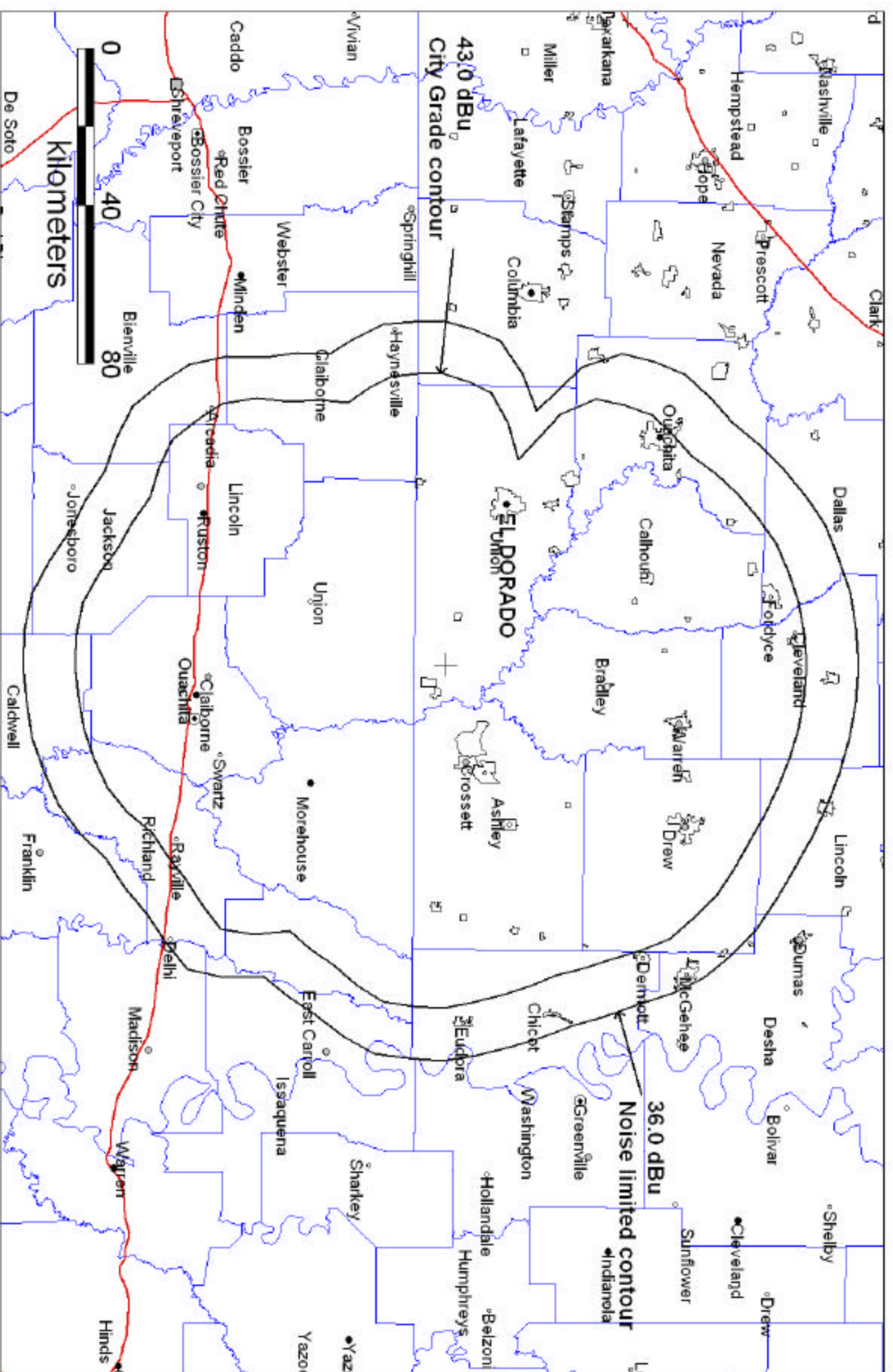
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**KETZ El Dorado, AR - DTV Channel 12 - ERP 7.2 kW**  
**City Grade Coverage Verification**