

Engineering Statement  
**REQUEST FOR SPECIAL TEMPORARY AUTHORIZATION**

prepared for  
**KATV, LLC**  
KATV(TV) Little Rock, Arkansas  
Facility ID 33543  
Ch. 22 (digital) 42 kW (MAX-DA) 410.8 m

*KATV, LLC* (“*KATV*”) is the permittee of DTV station KATV(TV), digital Channel 22, Little Rock, Arkansas (“CP”, File No. BMPCDT-20080619ALF). As the Commission is aware, the main KATV tower collapsed during a maintenance activity causing both the analog Channel 7 and digital Channel 22 operations to go off-the-air. In the interim, KATV(TV)’s programming normally broadcast on digital Channel 22 is being carried as a secondary channel by another digital station. The arrangement with the other station will terminate on Saturday, January 31, 2009.

Construction of the replacement tower has been completed and is awaiting delivery of the new Channel 22 main antenna. In order for KATV(TV) to continue to provide digital television programming, *KATV* hereby requests permission to employ an interim facility at the new tower site.

Under its CP, KATV(TV) is authorized to operate with an effective radiated power (“ERP”) of 1000 kilowatts at an antenna height above average terrain (“HAAT”) of 515 meters. *KATV* respectfully requests a Special Temporary Authorization (“STA”) to operate KATV(TV) digital Channel 22 with a reduced ERP using the facilities described herein. The proposed STA facility will employ the same tower structure as the authorized CP for KATV(TV); no changes in the supporting structure height would be required under this proposal.

**Facilities Requested**

The proposed STA will employ an ERI model ALP24M3-HSOC-22 antenna which is directional in the horizontal plane with 0.75° of electrical beam tilt. A maximum ERP of 42 kW will be employed with an antenna center of radiation located at a height of 255.1 meters above ground level. The technical parameters for the proposed STA operation are summarized in the attached **Exhibit 38-Table 1**. **Exhibit 38-Figure 1** provides the horizontal plane relative field pattern. **Exhibit 38-Figure 2** provides the vertical plane (elevation) relative field pattern.

As shown in **Exhibit 38-Figure 3**, the 41 dBμ DTV service contour of the proposed STA facility would not extend beyond that authorized in the CP. **Exhibit 38-Figure 3** also demonstrates

that the enhanced principal community coverage requirement of 48 dBμ completely encompasses Little Rock, Arkansas, the city of license.

### **Environmental Considerations**

The instant STA request is not believed to have a significant environmental impact as defined under Section 1.1306 of the FCC Rules. Consequently, preparation of an Environmental Assessment is not required. The use of existing towers has been characterized as being environmentally preferable by the FCC, according to Note 1 of §1.1306 of the FCC Rules. Since the proposal involves an authorized tower structure (no change in height is proposed to accommodate the instant STA request), this application may be categorically excluded from environmental processing pursuant to §1.1306 of the FCC Rules.

The proposed operation was evaluated for human exposure to radiofrequency (RF) energy using the procedures outlined in the FCC's OET Bulletin No. 65 ("OET 65"). The proposed KATV(TV) digital Channel 22 STA antenna will be situated such that its center of radiation is 255.1 meters above ground level. An ERP of 42 kilowatts, horizontally polarized, will be employed. The transmitting antenna has a relative field 28 percent or less from 15 to 90 degrees below the horizontal plane (i.e., below the antenna), according to data provided by the manufacturer (see **Exhibit 38-Figure 2**). Thus, a value of 28 percent relative field is used for this calculation. The "uncontrolled/general population" limit specified in §1.1310 for Channel 22 is 347.3 μW/cm<sup>2</sup>.

OET-65's formula for television transmitting antennas is based on the NTSC transmission standards, where average power is normally much less than the peak power. For the DTV facility in the instant proposal, the peak-to-average ratio is different than the NSTC ratio. The DTV ERP figure herein refers to the *average* power level. The formula used for calculating DTV signal density in this analysis is essentially the same as equation (9) in OET-65.

$$S = ((33.4098) (F^2) (ERP)) / D^2$$

Where:

S	=	power density in microwatts/cm <sup>2</sup>
ERP	=	total (average) ERP in Watts
F	=	relative field factor
D	=	distance in meters

Using this formula, the proposed facility would contribute a power density of  $2.21 \mu\text{W}/\text{cm}^2$  at two meters above ground level near the antenna support structure, or 0.64 percent of the “uncontrolled / general population” limit. At ground level locations away from the base of the tower, the calculated RF power density is even lower, due to the increasing distance from the transmitting antenna.

§1.1307(b)(3) states that facilities at locations with multiple emitters (such as the case at hand) are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be considered independently from this proposal. Accordingly, it is believed that the impact of the proposed operation should not be considered to be a factor at or near ground level as defined in §1.1307(b).

As demonstrated herein, excessive levels of RF energy will not be caused at publicly accessible areas at ground level near the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the FCC’s guidelines. Nevertheless, tower access will continue to be restricted and controlled through the use of a locked fence. Additionally, appropriate RF exposure warning signs will continue to be posted.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level. A site exposure policy will continue to be employed protecting maintenance workers from excessive exposure when work must be performed on the tower in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines will be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations.

Based on the preceding, it is believed that the instant proposal may be categorically excluded from environmental processing under Section 1.1306 of the Rules, hence preparation of an Environmental Assessment is not required.

## Engineering Statement

Page 4 of 4

### **Certification**

The undersigned hereby certifies that the foregoing statement was prepared by him or under his direction, and that it is true and correct to the best of his knowledge and belief. Mr. Mertz is a principal in the firm of *Cavell, Mertz & Associates, Inc.*, holds a Bachelor of Science degree from Oglethorpe University, and has submitted numerous engineering exhibits to the Federal Communications Commission. His qualifications are a matter of record with that agency.



Richard H. Mertz  
January 29, 2009

Cavell, Mertz & Associates, Inc.  
7839 Ashton Avenue  
Manassas, VA 20109  
(703) 392-9090

### **Attachments**

Table I	Proposed Operating Parameters
Figure 1	Antenna Horizontal Plane Relative Field Pattern
Figure 2	Antenna Vertical Plane (Elevation) Relative Field Pattern
Figure 3	Predicted Coverage Contours

Exhibit 38-Table I  
**PROPOSED OPERATING PARAMETERS**  
 prepared for  
**KATV, LLC**  
 KATV(TV) Little Rock, Arkansas  
 Facility ID 33543  
 Ch. 22 (digital) 42 kW (MAX-DA) 410.8 m

Site Coordinates	34° 47' 49.0" N 92° 29' 19.5" W (NAD-27)
Antenna Structure Registration Number	1263739
Radiation Center	535.5 meters above mean sea level 410.8 meters above average terrain 255.1 meters above ground level
Effective Radiated Power	42 kilowatts
Antenna	ERI ALP24M3-HSOC-22 "Off the shelf" directional pattern rotated 135°T with 0.75° electrical beam tilt.

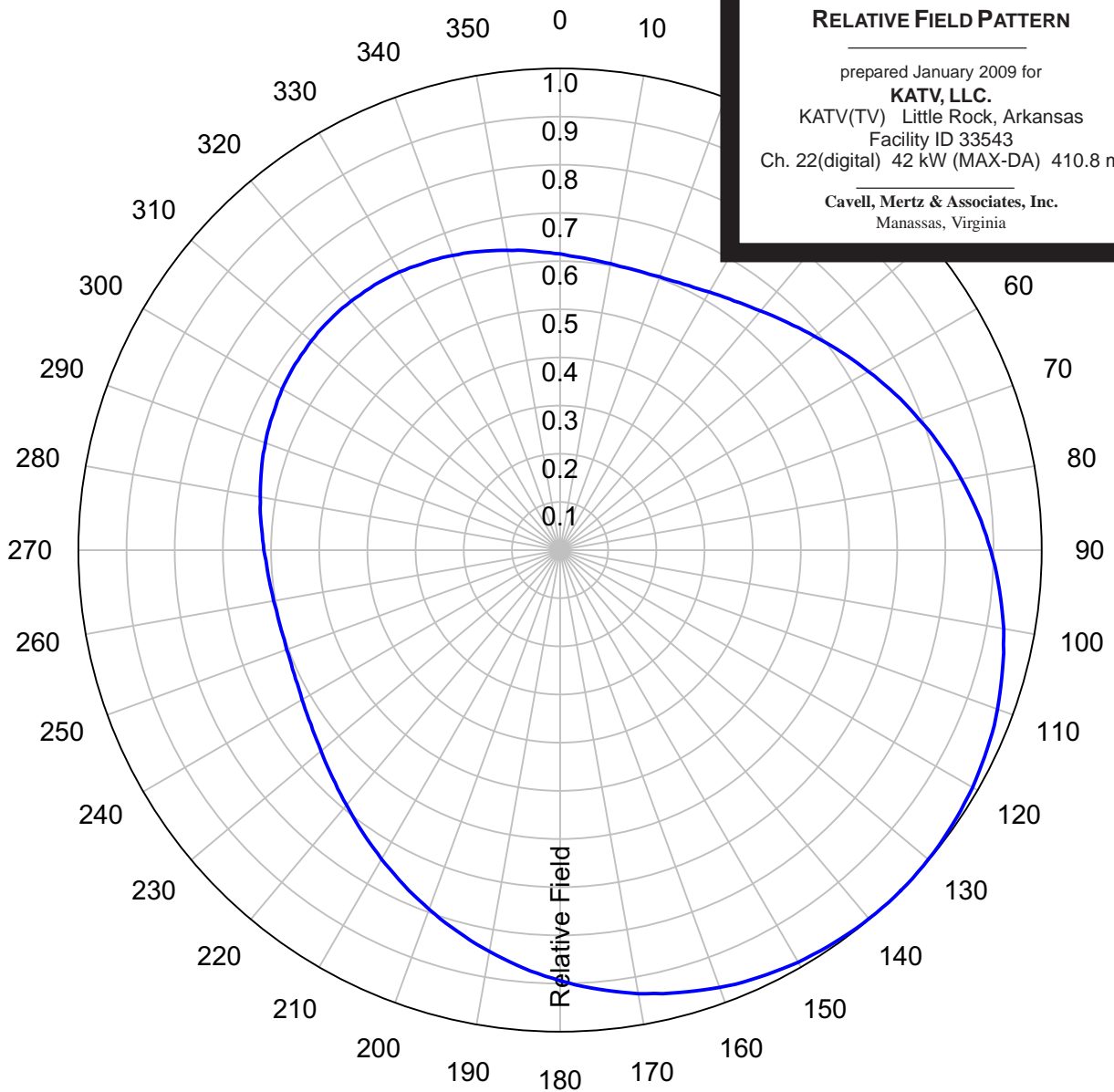
**Directional Antenna Relative Field Pattern**  
 (considering pattern rotation)

Azimuth	Relative		Azimuth	Relative
<u>(°T)</u>	<u>Field</u>		<u>(°T)</u>	<u>Field</u>
0	0.615		180	0.894
10	0.604		190	0.846
20	0.604		200	0.794
30	0.619		210	0.741
40	0.648		220	0.690
50	0.690		230	0.648
60	0.740		240	0.619
70	0.793		250	0.604
80	0.846		260	0.604
90	0.894		270	0.615
100	0.935		280	0.632
110	0.966		290	0.651
120	0.988		300	0.667
130	0.998		310	0.675
135	1.000	maxima	320	0.675
140	0.998		330	0.667
150	0.988		340	0.651
160	0.966		350	0.632
170	0.935			

**AZIMUTH PATTERN**

**Type:** ALP-OC  
**Numeric** 1.70 **dBd** 2.30  
**Directivity:**  
**Peak(s) at:**

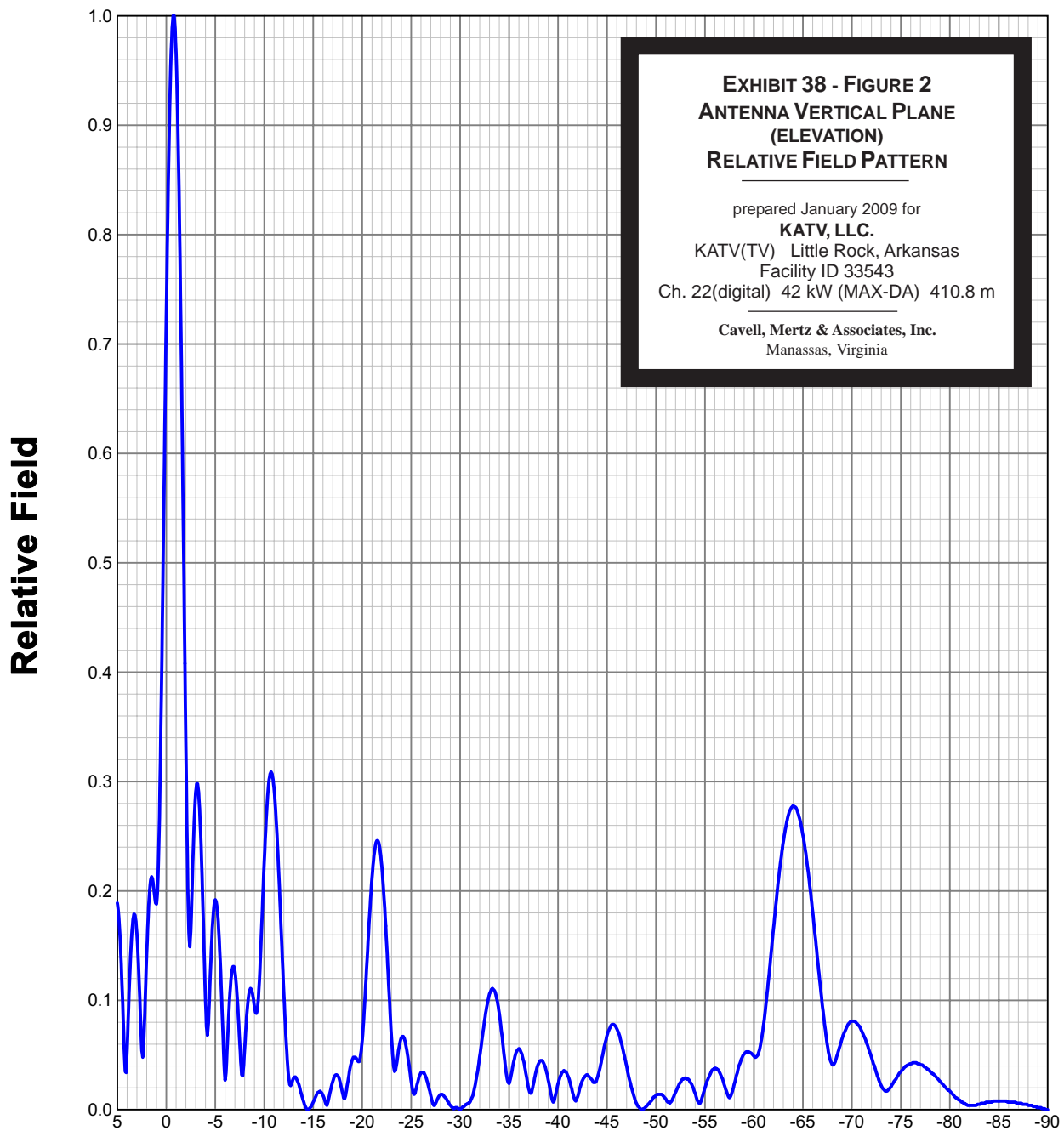
**Channel:** 22  
**Location:**  
**Polarization:** Horizontal  
Note: Pattern shape and directivity may vary with  
channel and mouting configuration.



*Preliminary, subject to final design and review.*

**ELEVATION PATTERN**

Type:	<b>ALP24M3</b>		Channel:	<b>22</b>
Directivity:	<b>Numeric</b>	<b>dBd</b>	Location:	
Main Lobe:	<b>25.21</b>	<b>14.02</b>	Beam Tilt:	<b>-0.75</b>
Horizontal:	<b>13.29</b>	<b>11.23</b>	Polarization:	<b>Horizontal</b>



*Preliminary, subject to final design and review.*

