

**JULES COHEN, P.E.  
CONSULTING ENGINEER**

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**ENGINEERING STATEMENT IN SUPPORT OF  
SPECIAL TEMPORARY AUTHORITY  
KCRA HEARST-ARGYLE TELEVISION, INC.  
KQCA-DT, STOCKTON, CALIFORNIA**

This engineering statement, prepared on behalf of KCRA Hearst-Argyle, Television, Inc., licensee of KQCA-TV, Stockton, California, is in support of a request for Special Temporary Authority (STA) for KQCA-DT. KQCA-DT has pending an application for modification of construction permit (File No. BMPCDT-20020626AAA) requesting authority to share the antenna of KMAX-DT, Sacramento, California, authorized in construction permit BPCDT-19991029AGC. The antenna has been placed on the existing registered tower licensed to KCRA-TV. The antenna conforms to the issued construction permit with a minor change. The antenna radiation center has been lowered from the specified 590 meters above ground and above mean sea level to 583 meters.

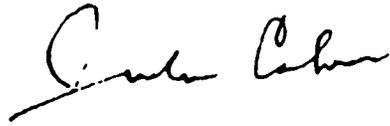
KQCA-DT requests permission to operate temporarily at an effective radiated power of 385.9 kilowatts (25.9 dBk). At that power level, the f(50,90) signal strength over the principal community is substantially in excess of the signal strength required by FCC rules.

For easy reference purposes, a copy of the digital technical portion of the 301 form is attached.

**Jules Cohen, P.E.**  
**Consulting Engineer**

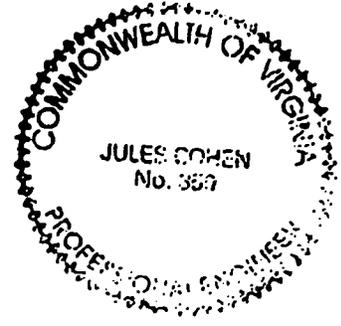
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I declare under the penalty of perjury that the foregoing is correct to the best of my knowledge and belief.



Jules Cohen, P.E.

January 13, 2004



Complete Questions 1-5 of the Certification Checklist and provide all data and information for the proposed facility, as requested in Technical Specifications, Items 1-13.

**Certification Checklist:** A correct answer of "Yes" to all of the questions below will ensure an expeditious grant of a construction permit. However, if the proposed facility is located within the Canadian or Mexican borders, coordination of the proposal under the appropriate treaties may be required prior to grant of the application. An answer of "No" will require additional evaluation of the applicable information in this form before a construction permit can be granted.

1. The proposed DTV facility complies with 47 C.F.R. Section 73.622 in the following respects:

- (a) It will operate on the DTV channel for this station as established in 47 C.F.R. Section 73.622.  Yes  No
- (b) It will operate from a transmitting antenna located within 5.0 km (3.1 miles) of the DTV reference site for this station as established in 47 C.F.R. Section 73.622.  Yes  No
- (c) It will operate with an effective radiated power (ERP) and antenna height above average terrain (HAAT) that do not exceed the DTV reference ERP and HAAT for this station as established in 47 C.F.R. Section 73.622.  Yes  No

2. The proposed facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RF radiation exceeding the applicable health and safety guidelines, and therefore will not come within 47 C.F.R. Section 1.1307.  Yes  No

Applicant must submit the Exhibit called for in Item 13.

3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community.  Yes  No

4. The requirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, radio receiving installations and FCC monitoring stations have either been satisfied or are not applicable.  Yes  No

5. The antenna structure to be used by this facility has been registered by the Commission and will not require reregistration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely effect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.  Yes  No

## TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

## TECH BOX

1. Channel Number: DTV 46 Analog TV, if any 58

2. Zone:  I  II  III

3. Antenna Location Coordinates: (NAD 27)  
38° 15' 54"  N  S Latitude  
121° 29' 24"  E  W Longitude

4. Antenna Structure Registration Number: 1015686  
 Not applicable  FAA Notification Filed with FAA

5. Antenna Location Site Elevation Above Mean Sea Level: 0 meters

6. Overall Tower Height Above Ground Level: 610 meters

7. Height of Radiation Center Above Ground Level: 583 meters

8. Height of Radiation Center Above Average Terrain: 580 meters

9. Maximum Effective Radiated Power (average power): 385.9 kW

10. Antenna Specifications:

Manufacturer	Model
DIELECTRIC	TUG-05-16/80H-1-B

a.  Not Applicable

b. Electrical Beam Tilt: 0.75 degrees  Not Applicable

c. Mechanical Beam Tilt: \_\_\_\_\_ degrees toward azimuth \_\_\_\_\_ degrees True  Not Applicable

Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c).

Exhibit No.
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d. Polarization:  Horizontal  Circular  Elliptical

c. Directional Antenna Relative Field Values:  Not applicable (Nondirectional)  
 Rotation: \_\_\_\_\_ °  No rotation

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

If a directional antenna is proposed, the requirements of 47 C.F.R. Section 73.625(c) must be satisfied. Exhibit required.

Exhibit No.

11. Does the proposed facility satisfy the interference protection provisions of 47 C.F.R. Section 73.623(a)? (Applicable only if Certification Checklist Items 1(a), (b), or (c) are answered "No.")  Yes  No

If "No," attach as an Exhibit justification therefor, including a summary of any related previously granted waivers.

Exhibit No.

12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefor. (Applicable only if Certification Checklist Item 3 is answered "No.")

Exhibit No.

13. Environmental Protection Act. Submit in an Exhibit the following:

Exhibit No.  
43

a. If Certification Checklist Item 2 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.

By checking "Yes" to Certification Checklist Item 2, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

If Certification Checklist Item 2 is answered "No," an Environmental Assessment as required by 47 C.F.R. Section 1.1311.

PREPARER'S CERTIFICATION IN SECTION III MUST BE COMPLETED AND SIGNED.

# Dielectric

Proposal #: **DCA-10040-6** Antenna Type: **TUG-05-16/80H-2-B**  
 Call Letters: **KMAX** Location: **Sacramento, CA**

Channel: **21 DTV**

Electrical Specifications		Value		Remarks
		Ratio	dB	
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	30.9	14.90	
	Vpol			
RMS Gain at Horizontal over Halfwave Dipole	Hpol	15.4	11.88	
	Vpol			
Peak Directional Gain over Halfwave Dipole	Hpol			
	Vpol			
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol			
	Vpol			
Circularity		+/- 1.5 dB		
Axial Ratio		dB		
Beam Tilt		0.75 deg		
Average Power	DTV	160 kW	22.04 dBk	
Antenna Input:	T/L 2 x	7-3/16 in	75.0 ohm	Type: EI/DCA EHT
Maximum Antenna Input VSWR		Channel 1.10 : 1		Note: Recommend Antenna and feed line be pressurized to 15 PSI
Patterns	Azimuth	TUG-05-5150		
	Elevation	16U309000	16U309000-90	
Mechanical Specifications		Metric	English	Full Stack
Height with Lightning Protector	H4	m	ft	118.1 ft
Height Less Lightning Protector	H2	18.9 m	61.9 ft	114.1 ft
Height of Center of Radiation	H3	9.4 m	31.0 ft	Above tower top
Basic Wind Speed	V	144.8 km/h	90 mi/h	TIA/BIA-222-F.
Force Coeff. x Projected Area	CaAc	12.91 m <sup>2</sup>	139.0 ft <sup>2</sup>	Above tower top 236 ft <sup>2</sup>
Moment Arm	D1	9.6 m	31.5 ft	Above tower top 52.4 ft
Force Coeff. x Projected Area	CaAc	m <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>
Moment Arm	D3	m	ft	ft
Pole Bury Length	D2	m	ft	ft
Weight	W	11.4 t	25,200 lbs	32,300 lbs
Radome	Full Cylindrical			White
Antenna designed in accordance with ATSC specifications for design of structural steel for building as prescribed by TIA/BIA-222-F.				

**NOTE:**

Prepared By :  
 Original Date : 19-Aug-02

SRR

Revision: 6

Approved By :  
 Rev. Date: 3-Apr-03

RN

# Dielectric

Proposal #: **DCA-10040-6** Antenna Type: **TUG-05-16/80H-1-B**  
 Call Letters: **KQCA** Location: **Sacramento, CA**

Channel: **46 DTV**

Electrical Specifications		Value		Remarks
		Ratio	dB	
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	32.7	15.15	
	Vpol			
RMS Gain at Horizontal over Halfwave Dipole	Hpol	9.1	9.59	
	Vpol			
Peak Directional Gain over Halfwave Dipole	Hpol			
	Vpol			
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol			
	Vpol			
Circularity		+/- 1.5 dB		
Axial Ratio		dB		
Beam Tilt		0.75 deg		
Average Power	DTV			See Ch 21 Specifications Sheet
Antenna Input:	T/L 2 x	7-3/16 in	75.0 ohm	Type: EIA/DCA EHT
Maximum Antenna Input VSWR		Channel 1.10 : 1		
Patterns	Azimuth	TUG-05-6650		
	Elevation	16U327000	16U327000-90	
Mechanical Specifications		Metric	English	Full Stack
Height with Lightning Protector	H4	See Ch 21 Specifications Sheet for Mechanical Specifications		
Height Less Lightning Protector	H2			
Height of Center of Radiation	H3			
Basic Wind Speed	V			
Force Coeff. x Projected Area	CaAc			
Moment Arm	D1			
Force Coeff. x Projected Area	CaAc			
Moment Arm	D3			
Pole Bury Length	D2			
Weight	W			
Radome				
Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA/EIA-222-F.				

**NOTE:**

Prepared By : **SRR**  
 Original Date : **19-Aug-02**

Approved By : **RN**  
 Revision: **6** Rev. Date: **3-Apr-03**



Proposal Number **DCA-10040** Revision: **6**  
Date **3-Apr-03**  
Call Letters **KQCA** Channel **46**  
Location **Sacramento, CA**  
Customer **Richland Tower**  
Antenna Type **TUG-05-16/80H-1-B**

## SYSTEM SUMMARY

### Antenna:

Type:	<b>TUG-05-16/80H-1-B</b>	ERP:	<b>600 kW</b>	H Pol	<b>( 27.78 dBk )</b>
Channel:	<b>46</b>	Gain*:	<b>32.7</b>		<b>( 15.15 dB )</b>
Location:	<b>Sacramento, CA</b>	Input Power:	<b>18.3 kW</b>		<b>( 12.64 dBk )</b>

### Transmission Line:

Type:	<b>digit/EHT</b>	Attenuation:	<b>2.29 dB</b>
Size:	<b>7-3/16 in</b>	Efficiency:	<b>59.0%</b>
Impedance:	<b>75 ohm</b>		
Length:	<b>2,050 ft</b>		<b>624.8 m</b>

Combiner:	<b>DCA</b>	Attenuation:	<b>0.25 dB</b>
		Efficiency:	<b>94.4%</b>

### Combiner Input:

Power Required: **33.0 kW ( 15.18 dBk )**

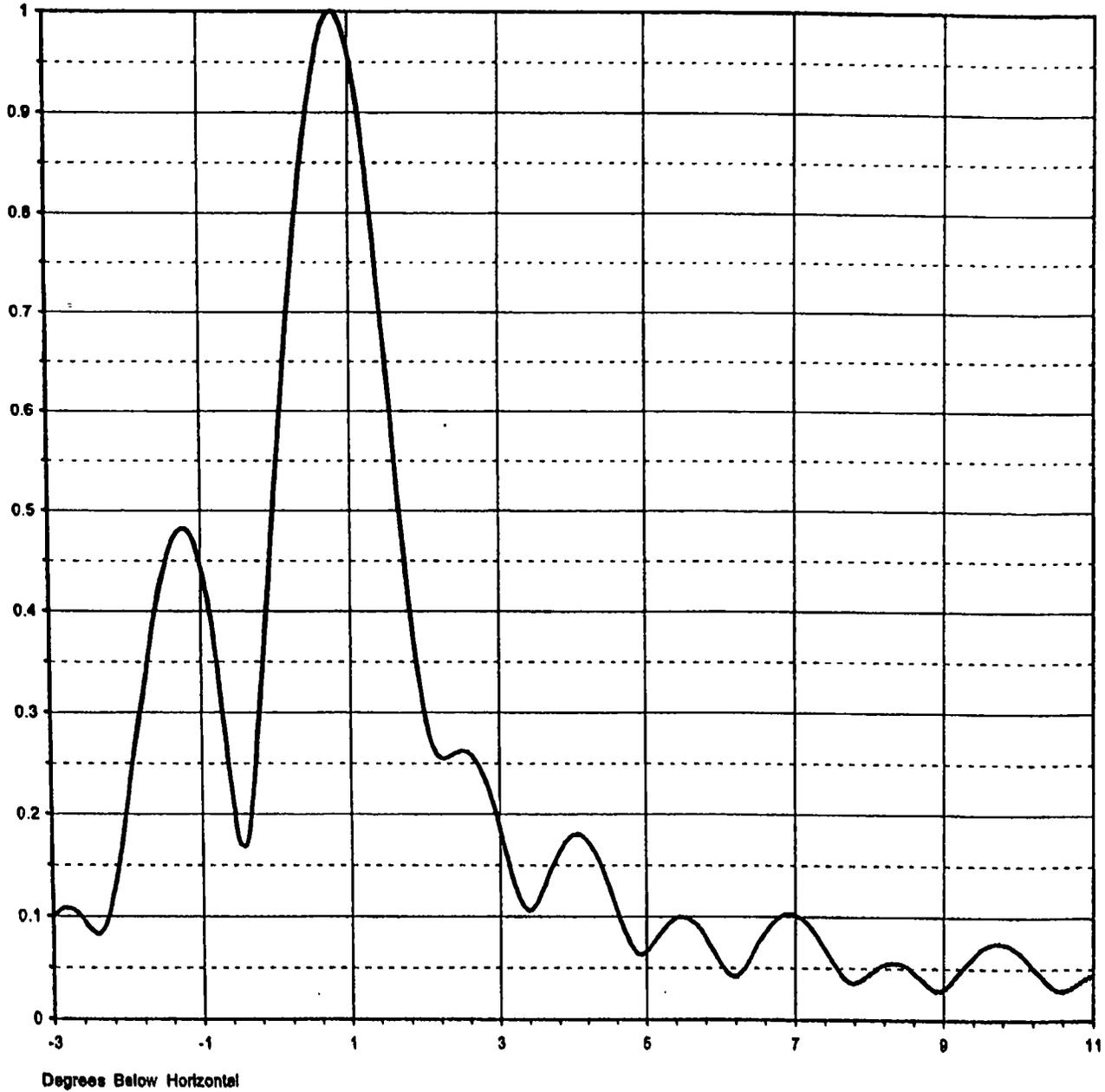
\* Gain is with respect to half wave dipole.



Proposal Number **DCA-10040** Revision: **6**  
Date **3-Apr-03**  
Call Letters **KQCA** Channel **46**  
Location **Sacramento, CA**  
Customer **Richland Tower**  
Antenna Type **TUG-05-16/80H-1-B**

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>32.70 (15.15 dB)</b>	Beam Thr	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>9.10 (9.59 dB)</b>	Frequency	<b>665.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>16U327000</b>

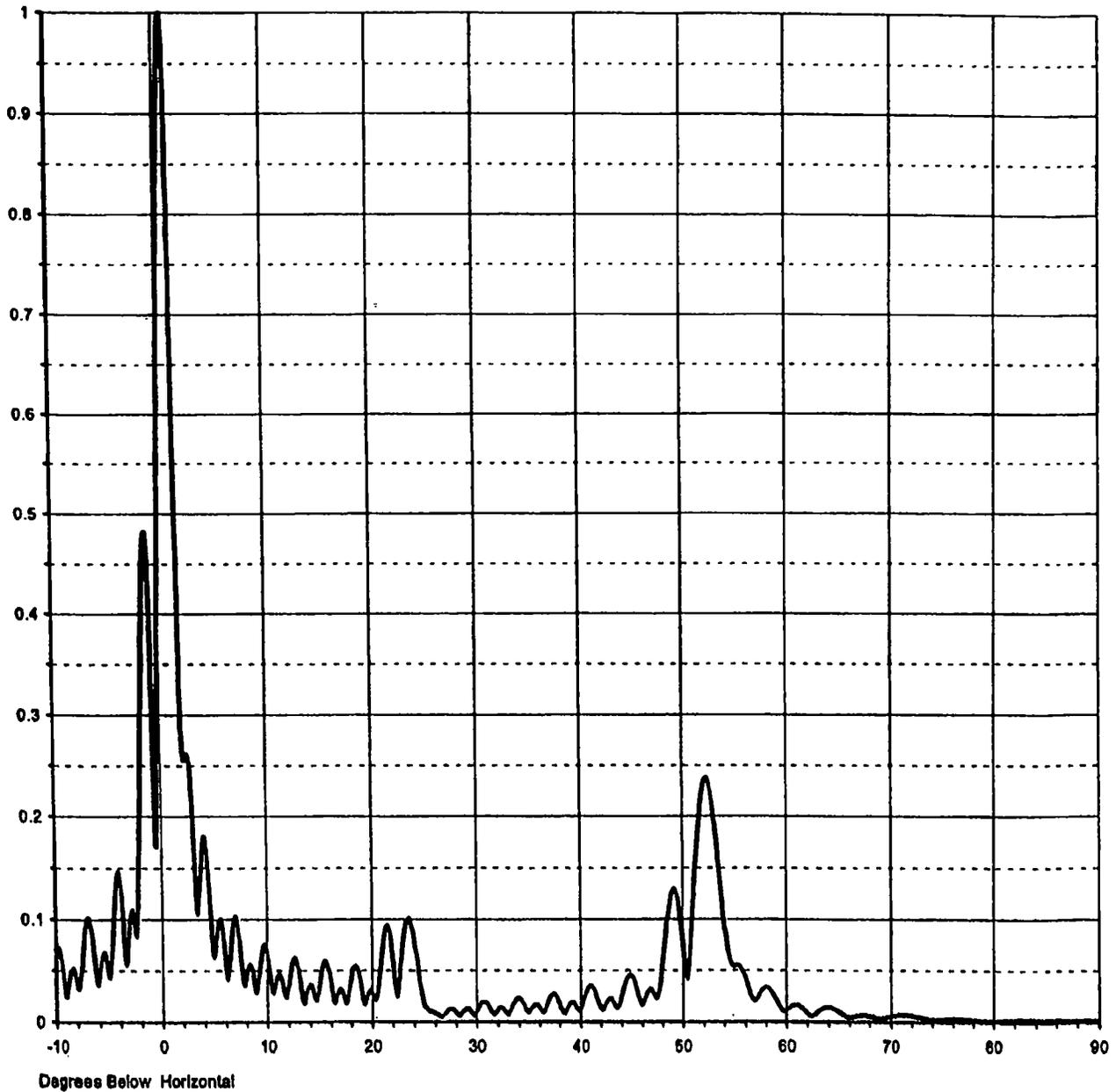




Proposal Number **DCA-10040** Revision: **6**  
Date **3-Apr-03**  
Call Letters **KQCA** Channel **46**  
Location **Sacramento, CA**  
Customer **Richland Tower**  
Antenna Type **TUG-05-16/80H-1-B**

### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>32.70 (15.15 dB)</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>9.10 (9.59 dB)</b>	Frequency	<b>665.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>16U327000-90</b>





Proposal Number **DCA-10040** Revision: **6**  
 Date **3-Apr-03**  
 Call Letters **KQCA** Channel **46**  
 Location **Sacramento, CA**  
 Customer **Richland Tower**  
 Antenna Type **TUG-O5-16/80H-1-B**

### TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: 16U327000-90

Angle	Field										
-10.0	0.070	2.4	0.259	10.8	0.030	30.5	0.016	51.0	0.096	71.5	0.007
-9.5	0.060	2.6	0.259	10.8	0.031	31.0	0.018	51.5	0.173	72.0	0.006
-9.0	0.024	2.8	0.234	11.0	0.040	31.5	0.010	52.0	0.224	72.5	0.005
-8.5	0.051	3.0	0.186	11.5	0.040	32.0	0.010	52.5	0.237	73.0	0.004
-8.0	0.035	3.2	0.131	12.0	0.027	32.5	0.013	53.0	0.212	73.5	0.003
-7.5	0.064	3.4	0.108	12.5	0.058	33.0	0.008	53.5	0.163	74.0	0.002
-7.0	0.101	3.6	0.128	13.0	0.052	33.5	0.015	54.0	0.106	74.5	0.002
-6.5	0.067	3.8	0.162	13.5	0.019	34.0	0.023	54.5	0.065	75.0	0.002
-6.0	0.044	4.0	0.179	14.0	0.035	34.5	0.018	55.0	0.054	75.5	0.003
-5.5	0.066	4.2	0.174	14.5	0.027	35.0	0.010	55.5	0.054	76.0	0.003
-5.0	0.046	4.4	0.147	15.0	0.033	35.5	0.015	56.0	0.046	76.5	0.003
-4.5	0.121	4.6	0.107	15.5	0.058	36.0	0.015	56.5	0.030	77.0	0.003
-4.0	0.139	4.8	0.071	16.0	0.044	36.5	0.009	57.0	0.021	77.5	0.002
-3.5	0.063	5.0	0.065	16.5	0.019	37.0	0.020	57.5	0.027	78.0	0.002
-3.0	0.098	5.2	0.084	17.0	0.032	37.5	0.027	58.0	0.033	78.5	0.002
-2.8	0.108	5.4	0.098	17.5	0.020	38.0	0.020	58.5	0.032	79.0	0.001
-2.6	0.097	5.6	0.097	18.0	0.036	38.5	0.009	59.0	0.024	79.5	0.001
-2.4	0.083	5.8	0.080	18.5	0.054	39.0	0.016	59.5	0.014	80.0	0.001
-2.2	0.122	6.0	0.055	19.0	0.035	39.5	0.017	60.0	0.011	80.5	0.002
-2.0	0.210	6.2	0.042	19.5	0.019	40.0	0.011	60.5	0.014	81.0	0.002
-1.8	0.312	6.4	0.059	20.0	0.030	40.5	0.023	61.0	0.016	81.5	0.002
-1.6	0.403	6.6	0.084	20.5	0.022	41.0	0.034	61.5	0.014	82.0	0.002
-1.4	0.465	6.8	0.100	21.0	0.063	41.5	0.031	62.0	0.009	82.5	0.002
-1.2	0.481	7.0	0.101	21.5	0.093	42.0	0.016	62.5	0.006	83.0	0.002
-1.0	0.443	7.2	0.090	22.0	0.073	42.5	0.015	63.0	0.009	83.5	0.002
-0.8	0.350	7.4	0.068	22.5	0.025	43.0	0.022	63.5	0.013	84.0	0.002
-0.6	0.223	7.6	0.046	23.0	0.068	43.5	0.016	64.0	0.014	84.5	0.002
-0.4	0.171	7.8	0.036	23.5	0.099	44.0	0.019	64.5	0.013	85.0	0.002
-0.2	0.319	8.0	0.044	24.0	0.088	44.5	0.037	65.0	0.010	85.5	0.002
0.0	0.526	8.2	0.053	24.5	0.052	45.0	0.045	65.5	0.006	86.0	0.002
0.2	0.721	8.4	0.054	25.0	0.020	45.5	0.035	66.0	0.004	86.5	0.002
0.4	0.876	8.6	0.046	25.5	0.011	46.0	0.018	66.5	0.005	87.0	0.002
0.6	0.972	8.8	0.033	26.0	0.009	46.5	0.025	67.0	0.006	87.5	0.002
0.8	1.000	9.0	0.030	26.5	0.006	47.0	0.031	67.5	0.006	88.0	0.002
1.0	0.959	9.2	0.044	27.0	0.007	47.5	0.024	68.0	0.005	88.5	0.002
1.2	0.857	9.4	0.061	27.5	0.012	48.0	0.047	68.5	0.004	89.0	0.002
1.4	0.713	9.6	0.072	28.0	0.010	48.5	0.092	69.0	0.003	89.5	0.001
1.6	0.551	9.8	0.075	28.5	0.006	49.0	0.124	69.5	0.004	90.0	0.001
1.8	0.399	10.0	0.071	29.0	0.012	49.5	0.124	70.0	0.005		
2.0	0.294	10.2	0.059	29.5	0.010	50.0	0.087	70.5	0.006		
2.2	0.256	10.4	0.043	30.0	0.007	50.5	0.042	71.0	0.007		

**Jules Cohen, P.E.**  
**Consulting Engineer**

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**EXHIBIT NO. 43**

**APPLICATION FOR SPECIAL TEMPORARY AUTHORITY  
KCRA HEARST-ARGYLE TELEVISION, INC.  
KQCA-DT, STOCKTON, CALIFORNIA**

**Environmental Considerations**

The radiation center of the antenna to be used for the proposed Special Temporary Authorization (STA) for KQCA-DT is 583 meters above ground. Use of this existing tower with no change in height assures the avoidance of a significant effect that would require preparation of an environmental assessment. Furthermore, as discussed below, the operation would comply with maximum permitted RF exposure.

Calculated maximum RF exposure in the vicinity of the KMAX-DT/KQCA-DT tower, at a height of two meters above ground, from the proposed STA operation on channel 46 is 2.12 microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ), 0.48 percent of the general population/uncontrolled maximum permitted exposure of  $443 \mu\text{W}/\text{cm}^2$  at channel 46.

Procedures for avoiding excessive exposure during work on the tower assure that, with the digital transmission system in use, maintenance tasks can be carried out without subjecting workmen to exposure in excess of that permitted by the rules. Power is reduced, or transmitters shut down as necessary to avoid over-exposure.