

ENGINEERING EXHIBIT

Application for Modification of Digital Television Station Construction Permit

prepared for

KRCA License Corp.

KRCA-DT Riverside, California

Facility ID 22161

Ch. 68 500 kW 907 m

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FCC Form 301, Section III-D - DTV Engineering

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Exhibit 44

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This material supplies a "hard copy" of the engineering portions of this application as entered June 16, 2006 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's name and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.

SECTION III-D - DTV ENGINEERING DATA		
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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
(b) It will operate form a transmitting antenna located within 5.0 km (3.1 miles) of the DTV reference site for this location as established in 47 C.F.R. Section 73.622.	<input type="radio"/> Yes <input checked="" type="radio"/> 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.	<input type="radio"/> Yes <input checked="" type="radio"/> 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. Applicant must submit the Exhibit called for in Item 13.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community.	<input checked="" type="radio"/> Yes <input type="radio"/> 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	
5. The antenna structure to be used by this facility has been registered by the Commission and will not require registration 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No	

SECTION III-D - DTV Engineering	
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 68 Analog TV, if any 62	
2. Zone:	
<input type="radio"/> I <input checked="" type="radio"/> II <input type="radio"/> III	
3. Antenna Location Coordinates: (NAD 27)	
Latitude:	
Degrees 34 Minutes 12 Seconds 48 <input checked="" type="radio"/> North <input type="radio"/> South	
Longitude:	
Degrees 118 Minutes 3 Seconds 41 <input checked="" type="radio"/> West <input type="radio"/> East	
4. Antenna Structure Registration Number: 1213941	
<input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA	
5. Antenna Location Site Elevation Above Mean Sea Level:	1655 meters
6. Overall Tower Height Above Ground Level:	61 meters
7. Height of Radiation Center Above Ground Level:	54 meters
8. Height of Radiation Center Above Average Terrain :	907 meters
9. Maximum Effective Radiated Power :	500 kW
10. Antenna Specifications:	
a. Manufacturer DIE Model TFU-24DSC-R 3C170P	

b. Electrical Beam Tilt:
1.5 degrees ☐ Not Applicable

c. Mechanical Beam Tilt:
1 degrees toward azimuth
205 degrees True ☐ Not Applicable

Attach as an Exhibit all data specified in 47 C.F.R. Section 73.685. [Exhibit 40]

d. Polarization:
☒ Horizontal ☐ Circular ☐ Elliptical

e. Directional Antenna Relative Field Values: ☐ Not applicable (Nondirectional)

[For a composite directional (not off-the-shelf) antenna, press the following button to fill in the relative field values subform.]
[Relative Field Values]

10e. Directional Antenna Relative Field Values

[Fill in this subform for a composite directional (not off-the-shelf) antenna, only.]

e. Directional Antenna Relative Field Values:

Rotation (Degrees): ☒ No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0	0.151	10	0.207	20	0.189	30	0.152	40	0.349	50	0.555
60	0.653	70	0.784	80	0.861	90	0.999	100	0.904	110	0.923
120	0.938	130	0.731	140	0.747	150	0.715	160	0.585	170	0.541
180	0.57	190	0.578	200	0.552	210	0.493	220	0.458	230	0.519
240	0.606	250	0.582	260	0.668	270	0.815	280	0.753	290	0.812
300	0.874	310	0.738	320	0.698	330	0.595	340	0.487	350	0.248
Additional Azimuths	91	1									

[Relative Field Polar Plot](#)

If a directional antenna is proposed, the requirements of 47 C.F.R. Sections 73.625(c) must be satisfied. **Exhibit required.** [Exhibit 41]

11. Does the proposed facility satisfy the interference protection provisions of 47 C.F.R. Section 73.623(a)? ☒ Yes ☐ No
(Applicable only if **Certification Checklist** items 1(a), (b), or (c) are answered "No".)
[Exhibit 42]
If No, attach as an Exhibit justification therefore, including a summary of any previously granted waivers.

12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefore. (Applicable only if **Certification Checklist** item 3 is answered "No".) [Exhibit 43]

13. **Environmental Protection Act. Submit in an Exhibit** the following: [Exhibit 44]
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.

PREPARERS CERTIFICATION ON SECTION III MUST BE COMPLETED AND SIGNED.

SECTION III - PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.		Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER			
Signature		Date 6/16/2006			
Mailing Address CAVELL MERTZ & DAVIS, INC. 7839 ASHTON AVENUE					
City MANASSAS		State or Country (if foreign address) VA		Zip Code 20109 -	
Telephone Number (include area code) 7033929090		E-Mail Address (if available) JDAVIS@CMDCONSULTING.COM			

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Exhibits

Exhibit 40
Description: SEE EXHIBIT 41

Attachment 40

Exhibit 41
Description: EXHIBIT 41 - STATEMENT A

Attachment 41

Description
Exhibit 41 - Statement A

Exhibit 44
Description: EHXIBIT 44 - STATEMENT B

Attachment 44

Description
Exhibit 44 - Statement B

Exhibit 44 - Statement B
ENVIRONMENTAL CONSIDERATIONS
prepared for
KRCA License Corp.
KRCA-DT Riverside, California
Facility ID 22161
Ch. 68 500 kW 907 m

The instant proposal is not believed to have a significant environmental impact as defined under Section 1.1306 of the Commission's Rules. Consequently, preparation of an Environmental Assessment is not required.

Nature of The Proposal

KRCA License Corp. ("KLC") is the permittee of KRCA-DT, Channel 68, Riverside, California (BMPCDT-20000501AFR) and licensee of the paired analog KRCA Channel 62 facility. KRCA-DT is authorized to operate with an effective radiated power ("ERP") of 1000 kW and an antenna height above average terrain ("HAAT") of 907 meters. Under the instant application, *KLC* seeks to modify the KRCA-DT CP to specify a reduction in ERP.

The proposed KRCA-DT antenna is the same antenna as authorized in the Construction Permit ("CP," BMPCDT-20000501AFR). The site area is atop Mount Harvard, adjacent to Mount Wilson, together the site of numerous other authorized television and FM broadcast facilities. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the Commission's Rules. No increase in overall structure height is proposed, thus no change in structure lighting or marking is anticipated. Thus, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's Rules.

Human Exposure to Radiofrequency Electromagnetic Field

The proposed operation was evaluated for human exposure to radiofrequency energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility exceeds the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with

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the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the cited adopted guidelines.

According to the applicant, access to the summit of Mount Harvard is restricted and the site is considered a “controlled” area. Access to the site is restricted with locked gates and warning signs. Further, steep terrain serves to discourage and restrict casual access. Only authorized and trained personnel are permitted within 0.4 km of the site.

The KRCA-DT antenna is installed with its center of radiation 54 meters above ground level. An ERP of 500 kilowatts, horizontally polarized, will be employed. The “uncontrolled/general population” limit specified in §1.1310 for Channel 68 (center frequency 797 MHz) is $531.3 \mu\text{W}/\text{cm}^2$.

OET-65's formula for television transmitting antennas is based on the NTSC transmission standards, where the 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 NTSC 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 ²
ERP	=	total (average) ERP in Watts
F	=	relative field factor
D	=	distance in meters

Using this formula, calculations were made to predict power density at points two meters above ground level locations. Considering actual terrain elevations near the site and the directivity of the proposed antenna system in the horizontal and vertical planes, RF density levels attributable to the proposed KRCA-DT facility will be less than five percent of the occupational / controlled

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Maximum Permissible Exposure (“MPE”) limit at ground level locations within the “controlled access” area. At ground level locations beyond the area restricted to the general public, calculated RF density levels attributable to the proposed KRCA-DT facility will be less than five percent of the general public / uncontrolled MPE.

§1.1307(b)(3) states that facilities contributing less than five percent of the exposure limit at locations with multiple transmitters (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 various other facilities at and 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 ground level as defined under §1.1307(b).

KLC will continue to participate in an RF exposure safety program, along with other broadcasters, non-broadcast FCC licensees, and management of the Mount Harvard site. As necessary, based on further calculations or actual measurements considering all emitters, exposure abatement procedures will be modified and followed.

Safety of Tower Workers and the General Public

As demonstrated herein, excessive levels of RF energy attributable to the proposed KRCA DT operation will not be caused at publicly accessible (unrestricted) areas at ground level near the site. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission’s guidelines. Nevertheless, site access will continue to be restricted and controlled through the use of locked gates. 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 attributable would not occur in areas at ground level within the site area at Mount Harvard. A site exposure policy will be employed protecting maintenance workers from excessive exposure

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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. *KLC* will coordinate exposure procedures with all pertinent stations.

Conclusion

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.