

ENGINEERING EXHIBIT

Application for Digital Television Station Construction Permit

prepared for

Viacom Television Stations Group of Los Angeles LLC
KCAL-DT Los Angeles, California

Facility ID 21422
Ch. 43 495 kW 951 m

Table of Contents

FCC Form 301, Section III-D

Exhibit 40

Statement A	Nature of the Proposal - Proposed Antenna System
Figure 1, 1A	Antenna Horizontal Plane Radiation Pattern
Figure 2	Antenna Vertical (Elevation) Plane Pattern
Figure 3	Proposed Coverage Contours
Table 1	Antenna, Elevation, and Contour Data

Exhibit 41

Statement B	Allocation Considerations - Interference Analysis
Figure 4	Coverage Contour Comparison
Table 2	Interference Analysis Results Summary
Table 3	Class A Station Interference Analysis Results Summary

Exhibit 43

Statement C	Environmental Considerations
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This material supplies a "hard copy" of the engineering portions of this application as entered July 30, 2004 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.	
<p>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.</p>	
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 from 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 checked="" type="radio"/> Yes <input 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 43 Analog TV, if any 9
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 13 Seconds 38 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 118 Minutes 4 Seconds 0 <input checked="" type="radio"/> West <input type="radio"/> East
4.	Antenna Structure Registration Number: 1007719 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA
5.	Antenna Location Site Elevation Above Mean Sea Level: 1741 meters
6.	Overall Tower Height Above Ground Level: 141.4 meters
7.	Height of Radiation Center Above Ground Level: 103 meters
8.	

	Height of Radiation Center Above Average Terrain :	950.9 meters																																																																																																																								
9.	Maximum Effective Radiated Power :	495 kW																																																																																																																								
10.	<p>Antenna Specifications:</p> <p>a. Manufacturer HAR Model TAD-16UDA-8/64</p> <p>b. Electrical Beam Tilt: 1.7 degrees <input type="checkbox"/> Not Applicable</p> <p>c. Mechanical Beam Tilt: 1 degrees toward azimuth 217 degrees True <input type="checkbox"/> Not Applicable Attach as an Exhibit all data specified in 47 C.F.R. Section 73.685. [Exhibit 39]</p> <p>d. Polorization: <input checked="" type="radio"/> Horizontal <input type="radio"/> Circular <input type="radio"/> Elliptical</p> <p>e. Directional Antenna Relative Field Values: <input type="checkbox"/> Not applicable (Nondirectional)</p> <p>[For a composite directional (not off-the-shelf) antenna, press the following button to fill in the relative field values subform.] [Relative Field Values]</p> <div style="text-align: center; border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>10e. Directional Antenna Relative Field Values</p> <p>[Fill in this subform for a composite directional (not off-the-shelf) antenna, only.]</p> </div> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td colspan="12">e. Directional Antenna Relative Field Values:</td> </tr> <tr> <td colspan="12">Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation</td> </tr> <tr> <th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th><th>Degrees</th><th>Value</th> </tr> <tr> <td>0</td><td>0.81</td><td>10</td><td>0.933</td><td>20</td><td>0.756</td><td>30</td><td>0.817</td><td>40</td><td>0.932</td><td>50</td><td>0.658</td> </tr> <tr> <td>60</td><td>0.904</td><td>70</td><td>0.861</td><td>80</td><td>0.787</td><td>90</td><td>0.805</td><td>100</td><td>0.895</td><td>110</td><td>0.715</td> </tr> <tr> <td>120</td><td>0.759</td><td>130</td><td>0.842</td><td>140</td><td>0.56</td><td>150</td><td>0.718</td><td>160</td><td>0.641</td><td>170</td><td>0.546</td> </tr> <tr> <td>180</td><td>0.525</td><td>190</td><td>0.553</td><td>200</td><td>0.423</td><td>210</td><td>0.408</td><td>220</td><td>0.464</td><td>230</td><td>0.327</td> </tr> <tr> <td>240</td><td>0.447</td><td>250</td><td>0.49</td><td>260</td><td>0.479</td><td>270</td><td>0.525</td><td>280</td><td>0.605</td><td>290</td><td>0.554</td> </tr> <tr> <td>300</td><td>0.634</td><td>310</td><td>0.759</td><td>320</td><td>0.567</td><td>330</td><td>0.835</td><td>340</td><td>0.824</td><td>350</td><td>0.767</td> </tr> <tr> <td colspan="2">Additional Azimuths</td><td>36</td><td>0.986</td><td>126</td><td>0.907</td><td>216</td><td>0.492</td><td>306</td><td>0.783</td><td colspan="2"></td> </tr> </table> <p style="text-align: center; color: red; margin: 0;">Relative Field Polar Plot</p>		e. Directional Antenna Relative Field Values:												Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation												Degrees	Value	0	0.81	10	0.933	20	0.756	30	0.817	40	0.932	50	0.658	60	0.904	70	0.861	80	0.787	90	0.805	100	0.895	110	0.715	120	0.759	130	0.842	140	0.56	150	0.718	160	0.641	170	0.546	180	0.525	190	0.553	200	0.423	210	0.408	220	0.464	230	0.327	240	0.447	250	0.49	260	0.479	270	0.525	280	0.605	290	0.554	300	0.634	310	0.759	320	0.567	330	0.835	340	0.824	350	0.767	Additional Azimuths		36	0.986	126	0.907	216	0.492	306	0.783												
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	<p>If a directional antenna is proposed, the requirements of 47 C.F.R. Sections 73.625(c) must be satisfied. [Exhibit 40] Exhibit required.</p>																																																																																																																									
11.	<p>Does the proposed facility satisfy the interference protection provisions of 47 C.F.R. Section 73.623(a)? <input checked="" type="radio"/> Yes <input type="radio"/> No (Applicable only if Certification Checklist items 1(a), (b), or (c) are answered "No".)</p> <p>If No, attach as an Exhibit justification therefore, including a summary of any previously granted waivers. [Exhibit 41]</p>																																																																																																																									
12.	<p>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 42]</p>																																																																																																																									
13.	<p>Environmental Protection Act. Submit in an Exhibit the following: [Exhibit 43]</p>																																																																																																																									

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 7/30/2004	
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 39

Description: EXHIBIT 39

SEE EXHIBIT 40

Attachment 39

Exhibit 40

Description: EXHIBIT 40 - STATEMENT A

EXHIBIT 40 - STATEMENT A - ATTACHED AS A PDF FILE

Attachment 40

Description

[Exhibit 40 - Statement A](#)

Exhibit 41

Description: EXHIBIT 41 - STATEMENT B

EXHIBIT 41 - STATEMENT B - ATTACHED AS A PDF FILE

Attachment 41

Description
Exhibit 41 - Statement B

Exhibit 43

Description: EXHIBIT 43 - STATEMENT C

EXHIBIT 43 - STATEMENT C - ATTACHED AS A PDF FILE

Attachment 43

Description
Exhibit 43 - Statement C

Exhibit 43 - Statement C
ENVIRONMENTAL CONSIDERATIONS
prepared for
Viacom Television Stations Group of Los Angeles LLC
KCAL-DT Los Angeles, California
Facility ID 21422
Ch. 43 495 kW 951 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

Viacom Television Stations Group of Los Angeles LLC ("Viacom") herein proposes a power increase for KCAL-DT, a digital television ("DTV") station on Channel 43, paired with KCAL-TV analog Channel 9, Los Angeles, California. *Viacom* proposes to increase the effective radiated power ("ERP") at the licensed site, located within the Mount Wilson "antenna farm." No change in antenna system or height is proposed. No tower or antenna construction work is necessary to carry out this proposal. A recalculated antenna height above average terrain ("HAAT") of 951 meters is supplied, as is data regarding the impact of mechanical beamtilt on the antenna's horizontal plane pattern.

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 FCC Rules. No change in antenna system or overall structure height is proposed, thus no change in current structure marking and lighting requirements is anticipated. Therefore, 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 Radiation

Viacom participates in an radiofrequency ("RF") electromagnetic field exposure safety program, along with other broadcasters and FCC licensees that utilize the Mount Wilson antenna farm. Measurements have previously been undertaken to determine compliance with the FCC's exposure limit and establish procedures for power reduction during tower work. Following

Exhibit 43 - Statement C
ENVIRONMENTAL CONSIDERATIONS
(page 2 of 2)

construction of the proposed facility, *Viacom* will commission additional RF exposure measurements (and/or detailed calculations) to evaluate the level of RF exposure resulting from the KCAL-DT facility. As necessary, based on these results and considering all emitters, any appropriate changes to exposure abatement procedures will be established and followed, in order to comply with the Commission's exposure limits. Such abatement procedures may involve the restriction of access to certain areas and/or facility modifications to reduce RF levels.

Considering the post-construction measurement and an appropriate abatement program, members of the general public will not be exposed to RF levels in excess of the Commission's guidelines. Site access will continue to be restricted and controlled through the use of locked gates, and RF exposure warning signs will continue to be posted.

With respect to worker safety, authorized personnel will be trained and/or supervised as necessary for access to any "controlled" areas. A site exposure policy will 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-tower RF exposure measurements may also be undertaken to establish the bounds of safe working areas. *Viacom* 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.