

# **ENGINEERING EXHIBIT**

## **Application for Broadcast Station License**

prepared for

### **Hawaii Public Television Foundation**

K21IA-D Waipake, Hawaii

Facility ID 26444

Ch. 21 (Flash Cut) 0.36 kW

### **Table of Contents**

FCC Form 347, Section III – Engineering

#### **Exhibit 7**

Statement A	Engineering Statement
Table I	Antenna / Line System Gains and Losses

*This material supplies a “hard copy” of the engineering portions of this application as entered May 26, 2010 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 - 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: 21
2.	Frequency Offset (analog stations): <input type="radio"/> No offset <input type="radio"/> Zero offset <input type="radio"/> Plus offset <input type="radio"/> Minus offset
3.	Antenna Location Coordinates: (NAD 27)  Latitude: Degrees 22 Minutes 11 Seconds 9.9 <input checked="" type="radio"/> North <input type="radio"/> South  Longitude: Degrees 159 Minutes 20 Seconds 9.8 <input checked="" type="radio"/> West <input type="radio"/> East
4.	Maximum Effective Radiated Power (ERP) (if analog station Toward Radio Horizon): 0.36 kW
5.	Maximum ERP in any horizontal and vertical angle (analog stations): kW

**NOTE:** In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

**CERTIFICATION**

**All applicants must complete this section.**

6.	<b>Constructed Facility.</b> The facility was constructed as authorized in the underlying construction permit. <input type="radio"/> Yes <input checked="" type="radio"/> No  See Explanation in [Exhibit 7]
7.	<b>Special Operating Conditions.</b> The facility was constructed in compliance with all special operating conditions, terms, and obligations described in the construction permit. <input checked="" type="radio"/> Yes <input type="radio"/> No See Explanation in [Exhibit 8]  [Exhibit 9]  <b>An exhibit may be required.</b> Review the underlying construction permit.

**PREPARER'S CERTIFICATION ON PAGE 4 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 ROBERT J. CLINTON		Relationship to Applicant (e.g., Consulting Engineer) CONSULTANT			
Signature		Date 5/26/2010			
Mailing Address CAVELL, MERTZ & ASSOCIATES, INC. 7839 ASHTON AVENUE					
City MANASSAS		State or Country (if foreign address) VA		Zip Code 20109 - 2883	
Telephone Number (include area code) 7033929090		E-Mail Address (if available) BCLINTON@CAVELLMERTZ.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 7

**Description:** EXHIBIT 7 - STATEMENT A

EXHIBIT 7 - STATEMENT A (WITH TABLE OF CONTENTS AND COPY OF FORM 347 SECTION III - ENGINEERING)

### Attachment 7

Description
<u>EXHIBIT 7 - STATEMENT A</u>

Exhibit 7 - Statement A  
**APPLICATION FOR BROADCAST STATION LICENSE**  
prepared for  
**Hawaii Public Television Foundation**  
K21IA-D Waipake, Hawaii  
Facility ID 26444  
Ch. 21 (Flash Cut) 0.36 kW

This engineering statement has been prepared on behalf of *Hawaii Public Television Foundation*, (“*HPTF*”) permittee of digital television translator station K21IA-D<sup>1</sup>, Channel 21, Waipake, HI, in support of *HPTF*’s license application for this facility.

K21IA-D is presently authorized (BMPD TT-20090824AJQ, “CP”) to construct a digital television facility on Channel 21 with an ERP of 0.36 kW and 105.8 meters height above mean sea level (“AMSL”) utilizing a Simple emission mask filter. The CP facility has now been constructed and placed into operation pursuant to automatic program test authority.

### **Special Operating Conditions**

As specified by Special Operating Condition 1 of the original CP, *HPTF* understands that K21IA-D is a secondary service, and must not cause interference to the reception of full service stations, as well as accept any interference from same. No additional conditions were included in the CP-Mod, which the instant application references.

### **Differences From the Construction Permit**

A Scala model 4DR-4-2HN directional antenna was specified in the CP and utilized for actual construction. The antenna was installed with its major lobe oriented toward 305 degrees True as specified in the CP. The transmission line losses were recalculated, resulting in a required transmitter power output (“TPO”) of 0.025 kW to achieve the authorized 0.36 kW ERP. **Exhibit 7 – Table I** provides a summary of the system gain and loss calculations. Because the recalculated transmitter output is different than that specified in the CP, item 6 under Section III in the Tech Box has been answered “NO”.

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<sup>1</sup> K21IA-D is the call sign assigned as the digital flash-cut facility for analog translator K66AY.

Exhibit 7 - Table I  
**ANTENNA / LINE SYSTEM GAINS AND LOSSES**  
prepared May 2010 for  
**Hawaii Public Television Foundation**  
K21IA-D Waipake, Hawaii  
Facility ID 26444  
Ch. 21 (Flash Cut) 0.36 kW

License to Cover Constuction Permit BMPDTT-20090824AJQ

<b>Authorized Effective Radiated Power:</b>	<b>0.360 kW</b>	<b>-4.44 dBk</b>
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**Antenna System**

Scala 4DR-4-2HN	Max Power Gain:	15.85	12.00 dB
	<b>Antenna Input Power:</b>	<b>0.023 kW</b>	<b>-16.44 dBk</b>

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**Line and Other Losses**

Transmission Line 7/8" Dielectric FLF-20 Length 50 ft	Efficiency:	90.6 percent	0.43 dB
	<b>Total Losses:</b>		<b>0.43 dB</b>

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<b><u>Transmitter Power Output:</u></b>	<b>0.025 kW</b>	<b>-16.01 dBk</b>
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