

### 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: 45

2. Frequency Offset

☐ No offset ☐ Zero offset ☐ Plus offset ☒ Minus offset

3. Translator Input Channel No. (microwave)

4. Primary station proposed to be rebroadcast:

Call Sign	City	State	Channel
KFVE	Honolulu	HI	5

5. Antenna Location Coordinates: (NAD 27)

19° 43' 51" ☒ N ☐ S Latitude  
155° 04' 11" ☐ E ☒ W Longitude

6. Antenna Structure Registration Number: \_\_\_\_\_

☐ Not applicable ☒ FAA Notification Filed with FAA

7. Antenna Location Site Elevation Above Mean Sea Level: 2 meters

8. Overall Tower Height Above Ground Level: 43 meters

9. Height of Radiation Center Above Ground Level: 38 meters

10. Maximum Effective Radiated Power (ERP) Towards Radio Horizon: 150 kW

11. Maximum ERP in any Horizontal and Vertical Angle: 150 kW

12. Transmitting Antenna: ☐ Nondirectional ☒ Directional "Off-the-shelf" ☐ Directional composite

Manufacturer Andrew	Model ALP16M2-HSW-45
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Directional Antenna Relative Field Values:

Rotation: 240° ☐ No rotation ☐ N/A (Nondirectional)

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0	1.000	60	0.990	120	0.680	180	0.241	240	0.680	300	0.990
10	0.985	70	0.997	130	0.605	190	0.253	250	0.758	310	0.959
20	0.951	80	0.975	140	0.510	200	0.302	260	0.845	320	0.929
30	0.925	90	0.922	150	0.397	210	0.397	270	0.922	330	0.925
40	0.929	100	0.845	160	0.302	220	0.510	280	0.975	340	0.951
50	0.959	110	0.758	170	0.253	230	0.605	290	0.997	350	0.985
Additional Azimuths											

**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

13. **Interference.** The proposed facility complies with all of the following applicable rule sections. Check all those that apply.

☒ Yes ☐ No

See Explanation  
in Exhibit No.

**TV broadcast analog system protection.**

- a. ☒ 47 C.F.R. Section 74.705.

**Digital TV station protection.**

- b. ☒ 47 C.F.R. Section 74.706.

**Low Power TV and TV translator station protection.**

- c. ☒ 47 C.F.R. Section 74.707.

14. **Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (*i.e.*, the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance. An **Exhibit is required.**

☒ Yes ☐ No

See Explanation  
in Exhibit No.

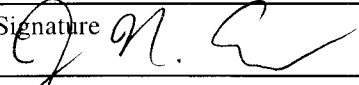
Exhibit No.  
See Text

By checking "Yes" above, 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.

**PREPARER'S CERTIFICATION ON PAGE 6 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 Jonathan N. Edwards		Relationship to Applicant (e.g., Consulting Engineer) Technical Consultant	
Signature 		Date August 22, 2000	
Mailing Address du Treil, Lundin & Rackley, Inc., 201 Fletcher Avenue			
City Sarasota		State or Country (if foreign address) FL	ZIP Code 34237
Telephone Number (include area code) (941) 329-6000		E-Mail Address (if available) JON@DLR.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).

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
LPTV STATION K45CT (FAC ID. 34446)  
HILO, HAWAII  
CH 45(-) 150 KW (MAX-DA)

Technical Narrative

The technical exhibit of which this narrative is part supports an application for construction permit for low power television (LPTV) station K45CT at Hilo, Hawaii. Station K45CT is licensed to operate on channel 45 with a directional antenna (DA) maximum visual effective radiated power (ERP) of 91.8 kilowatts (kW) and an antenna radiation center height above mean sea level (RCAMSL) of 2504 meters (BLTT-19940307IE).

Proposed Facilities

Station K45CT proposes to change its transmitter site to a building rooftop at 71 Banyon Drive, Hilo, Hawaii (NAD 27 coordinates: 19-43-51 N, 155-04-11 W). Station K45CT proposes to mount an Andrew 16-bay directional antenna on an existing 50 foot pole on the building rooftop. The existing overall structure height is less than 200 feet and does not require FCC tower registration. There will be no change in the overall height of the existing structure. The proposed DA maximum visual ERP is 150 kW and the antenna RCAMSL is 39.6 meters. There will be no change in community of license or channel.

The closest city listed in the FCC's LPTV window notification is Honolulu, Hawaii. The K45CT site is located 340 kilometers from Honolulu, well in excess of the FCC's 121-kilometer freeze distance.

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NTSC Allocation Considerations

A study has been conducted using the provisions of Sections 74.705, 74.707 and 74.709 to assure that the proposal will not create prohibited interference with other authorized or pending NTSC full-power and LPTV stations. No prohibited interference to any NTSC stations will be created by the proposed operation.

DTV Allocation Considerations

There are no DTV allotments or assignments on channels 44, 45 or 46 within sufficient distance from the proposed K45CT site for interference concerns. Therefore, no adverse impact to any DTV assignments is expected from the proposal.

The applicant recognizes the proposal is secondary to authorized full-service analog and DTV operations. The applicant understands that it must correct and/or eliminate prohibited interference that may result from its proposed operation.

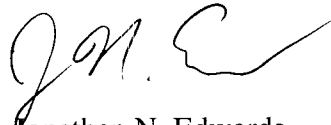
Radiofrequency Electromagnetic Field Exposure

The proposed K45CT facilities were evaluated in terms of potential radio frequency (RF) energy exposure at rooftop level to workers and the authorized public. A visual ERP of 150 kW with 10% aural power was assumed. The proposed radiation center is 9.8 meters above rooftop level. A “worst-case” relative field value of 0.142 was assumed for the Andrew 16-bay antenna’s downward radiation (see Figure 2). The calculated “worst-case” value would occur at an angle of 77° below horizontal from the radiation center and about 1.8 meters from the base of the tower (and 2 meters above rooftop level). This calculated RFR value is 0.7974 mW/cm<sup>2</sup>, which is 36% of the FCC's recommended limit of 2.2 mW/cm<sup>2</sup> for

channel 45 for a "controlled" environment. If necessary, RF measurements will be taken to ensure that the RF levels do not exceed the recommended limits.

Access to the transmitting site is restricted and appropriately marked with warning signs. As this is a multi-user site, an agreement will be in effect to control access to the site. In the event that workers or other authorized personnel access the rooftop or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down.

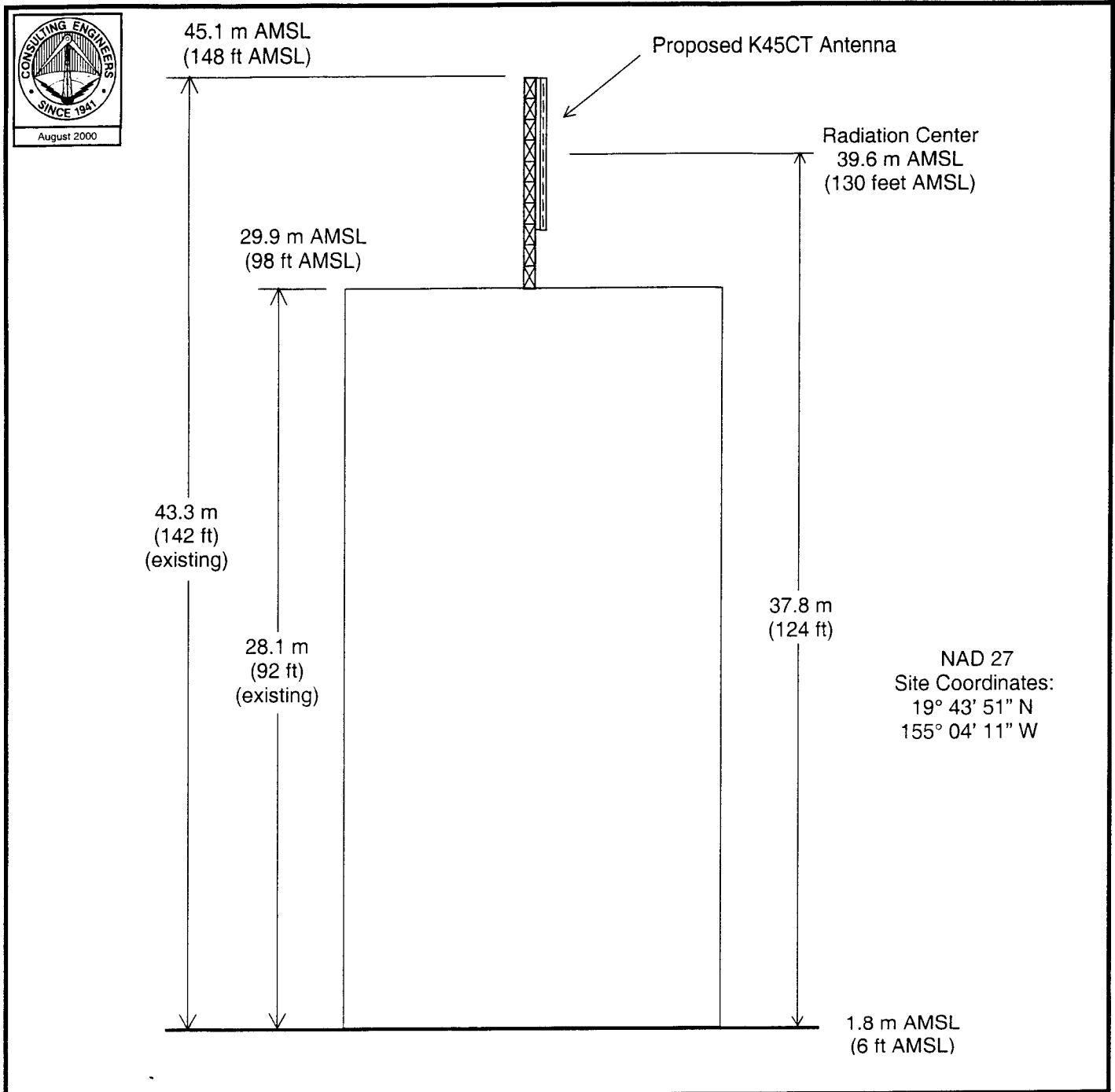
In addition, it appears that the existing structure is otherwise excluded from environmental processing as it complies with all the criteria for such an exclusion in Section 1.1306.



Jonathan N. Edwards

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237

August 22, 2000



## **ANTENNA AND SUPPORTING STRUCTURE**

LPTV STATION K45CT

HILO, HAWAII

CH 45 150 KW (MAX-DA)

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



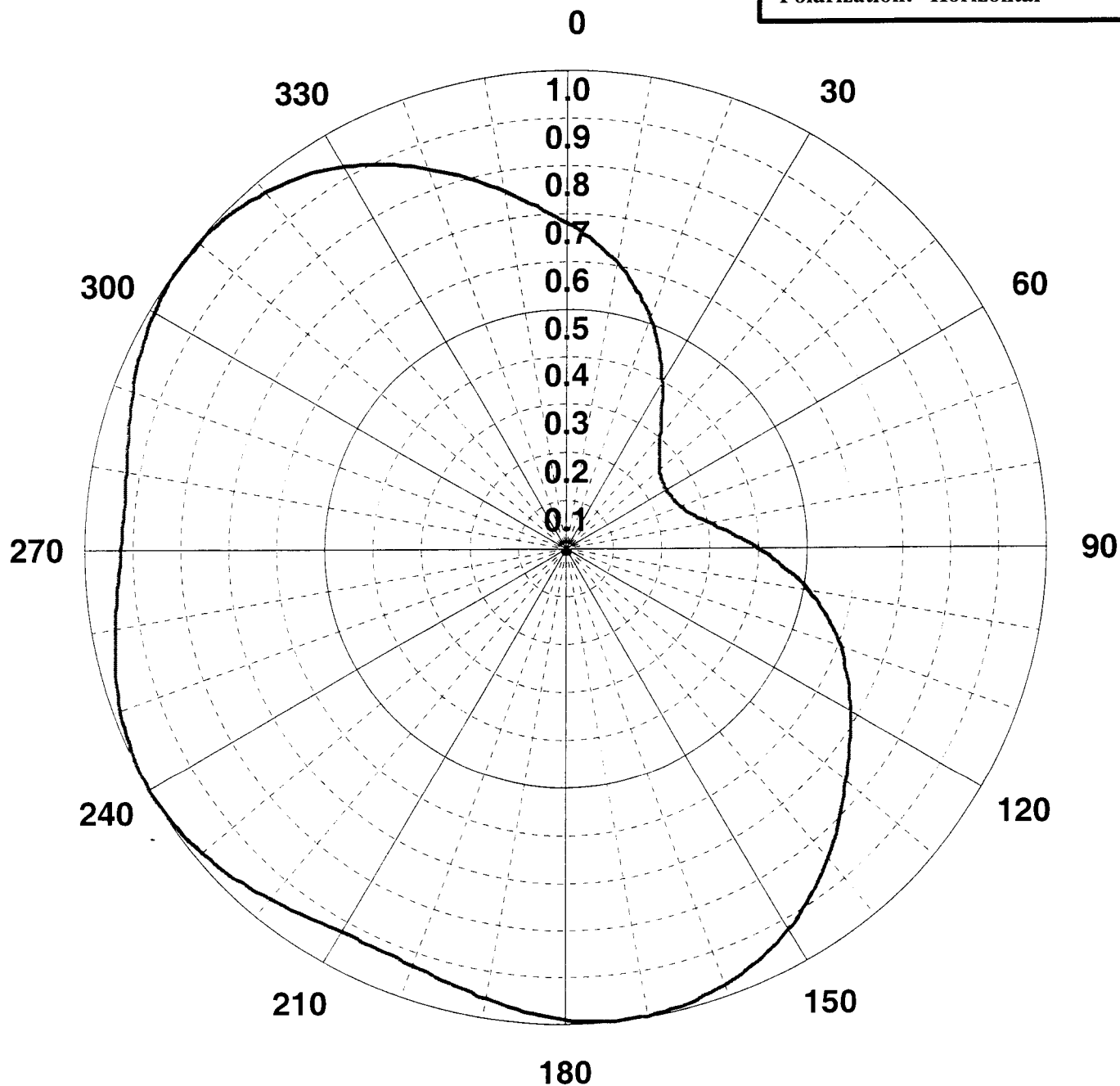
**ANDREW**

Channel: 45

Type: ALP-W

Gain: 1.56 (1.93 dB)

Polarization: Horizontal



ANDREW CORPORATION  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

Company:  
Site:  
Proposal Number:

Date: 8/22/00  
Author:



