

# ENGINEERING EXHIBIT

## Amendment to an Application for Broadcast Station License

prepared for

**Beach TV Properties, Inc.**  
WAWD(TV) Fort Walton Beach, Florida  
Facility ID 54938  
Ch. 49 32 kW (MAX-DA) 61m

### Table of Contents

FCC Form 302, Section III – Engineering

#### Exhibit 7

Statement A (Amended)	Engineering Statement
Attachment 1 (Amended)	Manufacturer Provided Azimuth Relative Field Pattern (Prior to rotation 4° counter clockwise)
Attachment 1 (Amended)	Manufacturer Provided Azimuth Relative Field Pattern Tabulation (Prior to rotation 4° counter clockwise)
Figure 1 (Amended)	Antenna Horizontal Plane Radiation Pattern Comparison
Figure 2 (Amended)	Antenna Vertical Plane (Elevation) Relative Field Pattern
Table I (Amended)	Antenna / Line System Gains and Losses

*This material supplies a “hard copy” of the engineering portions of this amendment as entered June 9, 2011 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: 49	
2.	Operating Constants	
	Transmitter power output (average power at input to transmission line, after any filter attached to the transmitter, if used)	Transmission line power loss
	0.23 dBk      1.05 kW	1.29 dB
	Antenna Input power	Maximum antenna power gain
	-1.06 dBk	16.11 dB
		Maximum effective radiated power
		15.05 dBk      32 kW
3.	Antenna Data	
	Manufacturer	Model
	PSI	PSILP16AH-49

**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**

4.	<b>Main Studio Location.</b> The main studio location complies with 47 C.F.R. Section 73.1125.	<input checked="" type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 6]
5.	<b>Constructed Facility</b> The facility was constructed as authorized in the underlying construction permit or complies with 47 C.F.R. Section 73.1690.	<input checked="" type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 7]
6.	<b>Special Operating Conditions.</b> The facility was constructed in compliance with all special operating conditions, terms, and obligations described in the construction permit.  <b>An exhibit may be required.</b> Review the underlying construction permit	<input checked="" type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 8]
7.	<b>Transmitter.</b> The transmitter complies with 47 C.F.R. Section 73.1660.	<input checked="" type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 9]

**APPLICATION FILED PURSUANT TO 47 C.F.R. SECTIONS 73.1675(c) OR 73.1690(c).**

Only applicants filing this application pursuant to 47 C.F.R. Sections 73.1675(c) or 73.1690(c) must complete the following section.

8.	<b>Changing transmitter power output.</b> Is this application being filed to authorize a change in transmitter power output caused by the replacement of an omnidirectional antenna with another omnidirectional antenna or an alteration of the transmission line system? See 47 C.F.R. Sections 73.1690(c)(1) and (c)(10).	<input type="radio"/> Yes <input type="radio"/> No
9.	<b>Replacing a directional antenna.</b> Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(3) to replace a directional antenna with another directional antenna?  If "Yes" to the above, the applicant certifies the following:	<input type="radio"/> Yes <input type="radio"/> No
	a. <b>Pattern of Directional Antenna.</b> The proposed theoretical antenna pattern complies with 47 C.F.R. Section 73.1690(c)(3). <b>Exhibit is required.</b>	<input type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 10]
10.	<b>Use a formerly licensed main facility as an auxiliary facility.</b> Is this application being filed pursuant to 47 C.F.R. Section 73.1675(c)(1) to request authorization to use a formerly licensed main facility as an auxiliary facility and/or change the ERP of the proposed auxiliary facility?  If "Yes" to the above, the applicant certifies the following:	<input type="radio"/> Yes <input type="radio"/> No
	a. <b>Auxiliary antenna service area.</b> The proposed auxiliary facility complies with 47 C.F.R. Section 73.1675(a). <b>Exhibit is required.</b>	<input type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 11]
	b. <b>Environmental Protection Act.</b> The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1 306 (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).  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.	<input type="radio"/> Yes <input type="radio"/> No  See Explanation in [Exhibit 12]
11.	<b>Change the license status.</b> Is this application being filed pursuant to 47 C.F.R. Section 73.1690(c)(9) to change the license status from commercial to noncommercial or from noncommercial to commercial?  If "Yes" to above, submit an exhibit providing full particulars. For applications changing license status from commercial to noncommercial, include Section II of FCC Form 340 as an exhibit to this application.	<input type="radio"/> Yes <input type="radio"/> No  [Exhibit 13]

**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 RICHARD H. MERTZ	Relationship to Applicant (e.g., Consulting Engineer) CONSULTANT	
Signature	Date 06/09/2011	
Mailing Address CAVELL, MERTZ & ASSOCIATES, INC. 7732 DONEGAN DRIVE		
City MANASSAS	State or Country (if foreign address) VA	Zip Code 20109 -
Telephone Number (include area code) 7033929090	E-Mail Address (if available) RMERTZ@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 1**

**Description:** NATURE OF AMENDMENT

THE FOLLOWING ITEMS HAVE BEEN AMENDED:

RESPONSE TO SECTION II, ITEM 2, EXHIBIT 2.

SECTION III, ITEM 5, EXHIBIT 7

**Attachment 1****Exhibit 2**

**Description:** CHANGES COMPARED TO UNDERLYING CP

SEE CHANGE IN ANTENNA AND PATTERN DATA IN SECTION III SUBMITTED WITH THIS AMENDED APPLICATION.

**Attachment 2****Exhibit 7**

**Description:** EXHIBIT 7 STATEMENT A (AMENDED)

EXHIBIT 7 CONTAINS THE TABLE OF CONTENTS, A COPY OF THE ENGINEERING PORTIONS OF THE FORM, STATEMENT A, ATTACHMENTS 1 AND 2, FIGURES 1 AND 2, AND TABLE I. STATEMENT A AND TABLE I HAVE BEEN UPDATED TO PROVIDE ADDITIONAL INFORMATION REQUESTED BY COMMISSION STAFF. FURTHER, ATTACHMENTS 1 AND 2 AND FIGURES 1 AND 2 HAVE BEEN ADDED.

**Attachment 7****Description**

[Exhibit 7 – Statement A \(Amended\)](#)

**Attachment 8**

Exhibit 7 - Statement A (Amended)  
**APPLICATION FOR BROADCAST STATION LICENSE**  
prepared for  
**Beach TV Properties, Inc.**  
WAWD(DT) Fort Walton Beach, Florida  
Facility ID 54938  
Ch. 49 32 kW (MAX-DA) 61m

This engineering statement has been prepared on behalf of *Beach TV Properties, Inc.* (“*Beach*”) permittee of digital television station WAWD(TV), Channel 49, Fort Walton Beach, FL, in support of *Beach*’s license application for this facility. The instant statement is intended to amend the pending WAWD(TV) license application (see FCC File No. BLCDDT-20100429AAK) to provide additional information regarding the station antenna as requested by Commission Staff.

WAWD(TV) is presently authorized (BMPCDDT-20080624ACF, “CP”) to construct a digital television facility on Channel 49 with an ERP of 32 kW and 61 meters height above average terrain (“HAAT”). 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 CP, *Beach* has made a good faith effort to notify nearby health care facilities within the WAWD service area, according to information provided by the applicant.

### **Differences from the Construction Permit**

An ERI model ALP16L1-HSH-49 directional antenna was specified in the CP. For the actual installation, an alternate antenna manufacturer was selected which provided an antenna with an equivalent horizontal azimuth pattern. A PSI model PSILP16AH-49 antenna was purchased and installed. The manufacturer provided azimuth relative field pattern plot (prior to rotation 4° counter clockwise) is provided in **Exhibit 7 – Attachment 1 (Amended)**. A tabulation of the azimuth relative field data plot (prior to rotation 4° counter clockwise) is provided in **Exhibit 7 – Attachment 2 (Amended)**. The installation instructions for the antenna provided to *Beach* permitted installation of the antenna with its major lobes oriented toward 86 degrees and 264 degrees True as specified in the CP.

Exhibit 7 – Statement A (Amended)  
**APPLICATION FOR BROADCAST STATION LICENSE**  
(Page 2 of 2)

Comparison of the azimuth pattern tabulations between the authorized pattern and the PSI antenna indicate that there is little difference between the antenna azimuth patterns (see **Exhibit 7 – Figure 1 (Amended)**). The antenna vertical plane (elevation) relative field plot is provided in **Exhibit 7 – Figure 2 (Amended)**. **Exhibit 7 – Table I (Amended)** provides a summary of the system gain and loss calculations.

Because of the antenna change, the RFR exposure calculation was revisited based on the new antenna's elevation pattern. The PSI antenna has a center of radiation 46.8 meters above ground level. An ERP of 32 kilowatts, horizontally polarized, is employed utilizing a PSI model PSILP16AH-49 directional antenna. According to elevation pattern data provided by the antenna manufacturer, the PSILP16AH-49 antenna has a relative field of 10 percent or less from 15 to 90 degrees below the horizontal plane (i.e.: below the antenna) on Channel 49. Thus, a value of 10 percent relative field is used for this calculation. The "uncontrolled/general population" limit specified in §1.1310 for television Channel 49 (center frequency of 683 MHz) is 455.3 µW/cm<sup>2</sup>.

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 study, 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 the same as equation (10) in OET-65:

$$S = (33.4098) (F^2) (ERP) / D^2$$

Where:

S	=	power density in microwatts/cm <sup>2</sup>
ERP	=	total (average) ERP in Watts
F	=	relative field factor
D	=	distance in meters

Using this formula and the above assumptions, the facility would contribute a maximum power density of 5.3 µW/cm<sup>2</sup> at two meters above ground, or 1.2 percent of the general population/uncontrolled MPE limit. At ground level locations away from the base of the tower, the

Exhibit 7 – Statement A (Amended)  
**APPLICATION FOR BROADCAST STATION LICENSE**  
(Page 2 of 2)

calculated RF power density is lower, due to the increasing distance from the transmitting antenna. Thus, the facility complies with §1.1307(b) of the Commission's Rules regarding exposure to radiofrequency radiation.

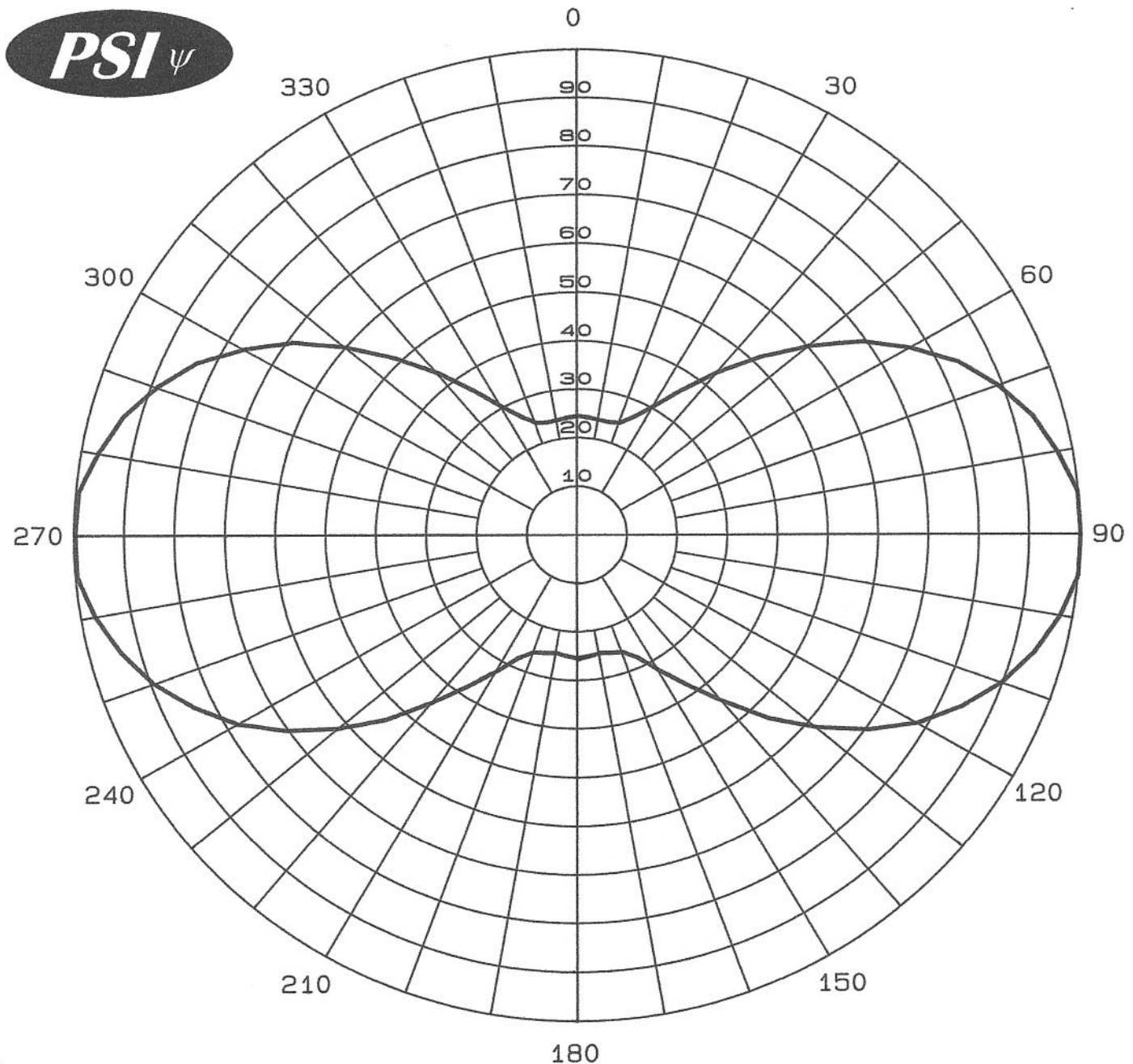
§1.1307(b)(3) states that facilities are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of other facilities using this site may be considered independently. Accordingly, it is believed that the impact of the WAWD operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

**Safety of Tower Workers and the General Public**

As demonstrated herein, excessive levels of RF energy attributable to WAWD will not be caused at publicly accessible areas at ground level near the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission's guidelines. Nevertheless, appropriate RF exposure warning signs will continue to be posted and access will be restricted by fencing and other appropriate means.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level. A site exposure policy is employed protecting maintenance workers from excessive exposure when work must be performed on the structure or in areas where high RF levels may be present. Such protective measures include, but are not 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 would otherwise be exceeded. *Beach* will coordinate with other licensees utilizing this site. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas.

Exhibit 7 - Attachment 1 (Amended)  
Manufacturer Provided Azimuth Relative Field Pattern  
(Prior to rotation 4° counter clockwise)



Calculated Relative Field  
Azimuth Plane Pattern  
Low Power UHF Slot  
Antenna Type: PSILP  
Pattern Type: AH  
Directivity: 2.46 (3.91 dB)  
Date: 7/1/97  
Rev. 0

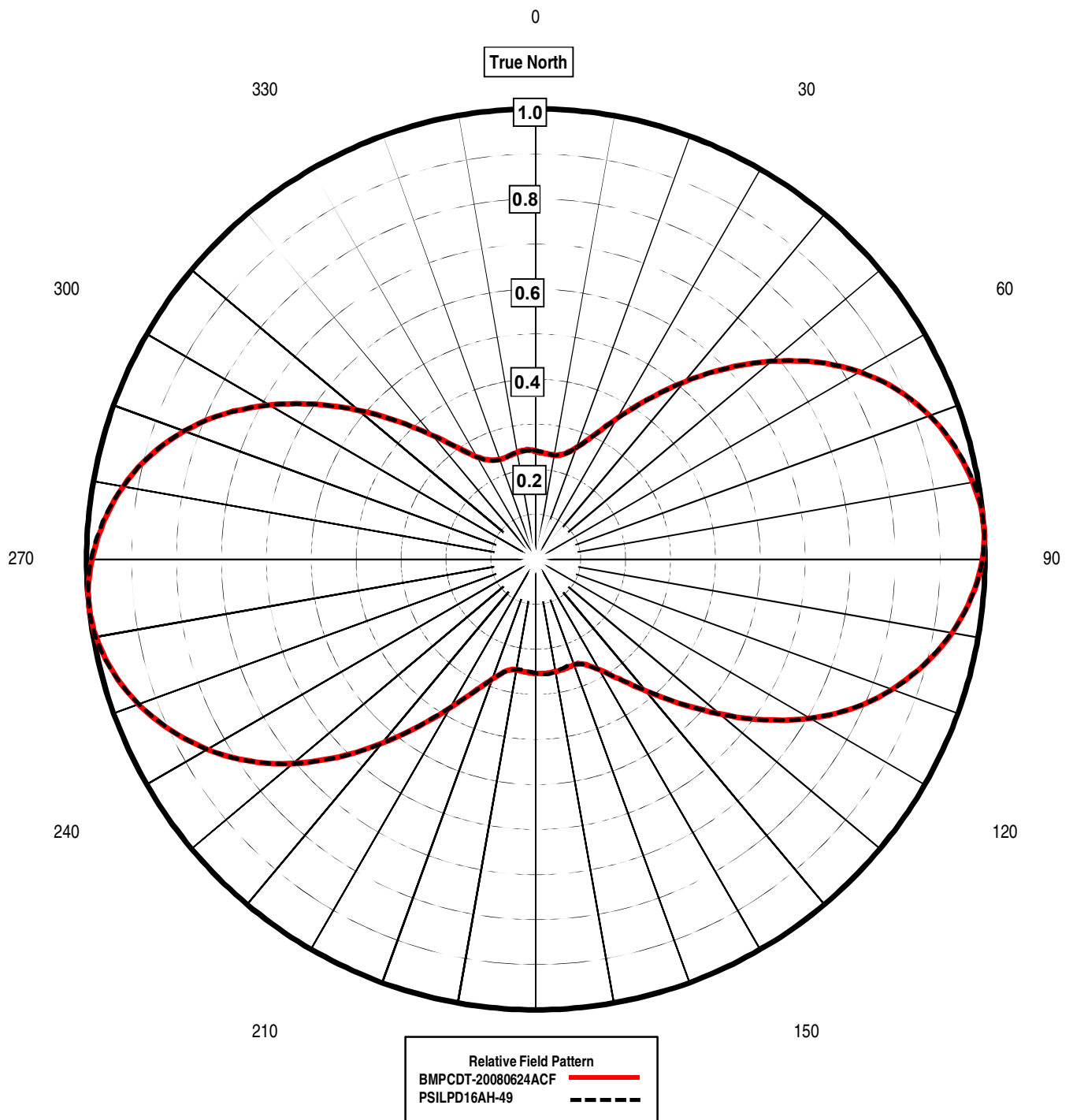
**PROPAGATION SYSTEMS, INC.**  
**PO BOX 113**  
**EBENSBURG, PA. 15931**

**Exhibit 7 - Attachment 2 (Amended)**  
**Manufacturer Provided Azimuth Relative Field Pattern Tabulation**  
**(Prior to rotation 4° counter clockwise)**

**PROPAGATION SYSTEMS INC.**  
**Relative Field Tabulation**  
 Antenna Model: PSILP16AH-49  
 Gain: 40.81 (16.11 dBd)

Angle	Relative Field	Power Gain	Gain dB
0	0.242	2.39	3.78
10	0.237	2.29	3.60
20	0.242	2.39	3.78
30	0.302	3.72	5.71
40	0.432	7.62	8.82
50	0.600	14.69	11.67
60	0.764	23.82	13.77
70	0.889	32.25	15.09
80	0.967	38.16	15.82
90	1.000	40.81	16.11
100	0.974	38.72	15.88
110	0.897	32.84	15.16
120	0.781	24.89	13.96
130	0.622	15.79	11.98
140	0.451	8.30	9.19
150	0.324	4.28	6.32
160	0.258	2.72	4.34
170	0.248	2.51	4.00
180	0.256	2.67	4.27
190	0.248	2.51	4.00
200	0.258	2.72	4.34
210	0.324	4.28	6.32
220	0.451	8.30	9.19
230	0.622	15.79	11.98
240	0.781	24.89	13.96
250	0.897	32.84	15.16
260	0.974	38.72	15.88
270	1.000	40.81	16.11
280	0.967	38.16	15.82
290	0.889	32.25	15.09
300	0.764	23.82	13.77
310	0.600	14.69	11.67
320	0.432	7.62	8.82
330	0.302	3.72	5.71
340	0.242	2.39	3.78
350	0.237	2.29	3.60





**EXHIBIT 7 - FIGURE 1 (Amended)**  
**ANTENNA HORIZONTAL PLANE  
RADIATION PATTERN COMPARISON**

prepared June 2011 for  
**Beach TV Properties, Inc.**  
WAWD(TV) Fort Walton Beach, Florida  
Facility Id 54938  
Ch. 49 32 kW (MAX-DA) 61 m

**Cavell, Mertz & Associates, Inc.**  
Manassas, Virginia

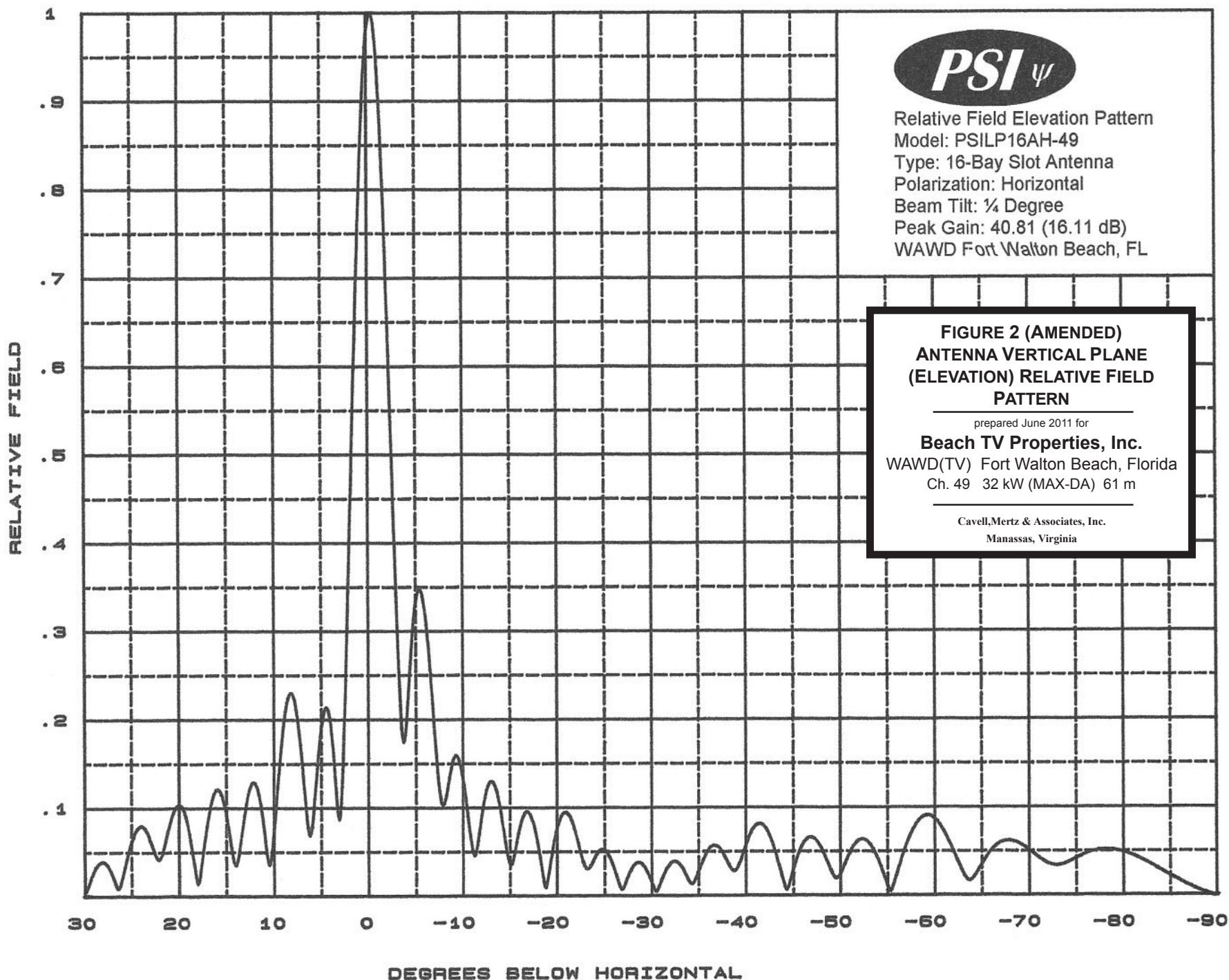


Exhibit 7 - Table I (Amended)  
**ANTENNA / LINE SYSTEM GAINS AND LOSSES**  
prepared June 2011 for  
**Beach TV Properties, Inc.**  
WAWD(DT) Fort Walton Beach, Florida  
Facility ID 54938  
Ch. 49 32 kW (MAX-DA) 61m

License to Cover Constuction Permit BMPCDT-20080624ACF

<b>Authorized Effective Radiated Power:</b>	<b>32 kW</b>	<b>15.05 dBk</b>
---	--------------	------------------

---

**Antenna System**

PSI	Max Power Gain:	40.81	16.11 dB
PSILP16AH-49			
	<b>Antenna Input Power:</b>	<b>0.783 kW</b>	<b>-1.06 dBk</b>

---

**Line and Other Losses**

Transmission Line			
1-5/8" Andrew LDF7-50A			
Length 195 ft	Efficiency:	74.3 percent	1.29 dB
	<b>Total Losses:</b>		<b>1.29 dB</b>

---

<b><u>Transmitter Power Output:</u></b>	<b>1.05 kW</b>	<b>0.23 dBk</b>
---	----------------	-----------------