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ENGINEERING EXHIBIT EE-1:

**GERALD LOCKLEAR
WPEM-LP - LOW POWER TELEVISION STATION
LUMBERTON, NORTH CAROLINA**

DIGITAL DISPLACEMENT APPLICATION

**FCC FACILITY NUMBER
24090**

**HAS: CHANNEL 47, LUMBERTON, NC (ANALOG)
REQ: CHANNEL 42, LUMBERTON, NC (DIGITAL)**

**APPLICATION FOR AUTHORITY TO MAKE
CHANGES IN A LOW POWER TELEVISION BROADCAST
OR TELEVISION TRANSLATOR STATION**

MARCH 2010

**ENGINEERING EXHIBIT
IN SUPPORT OF
AN APPLICATION FOR AUTHORITY TO MAKE
CHANGES IN A LOW POWER TELEVISION BROADCAST
OR TELEVISION TRANSLATOR STATION**

**LOW POWER DIGITAL TELEVISION STATION WPEM-LP
LUMBERTON, NORTH CAROLINA**

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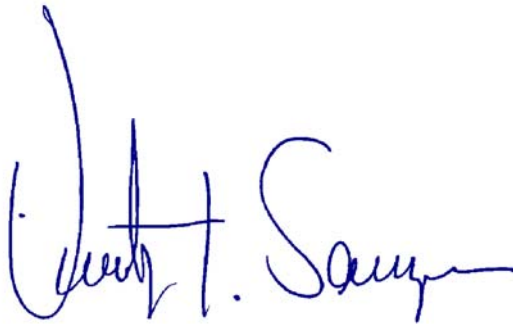
1. F.C.C. Form 346, Section III
2. F.C.C. Form 346, Section III (certification)
3. Declaration of Engineer
4. Narrative Statement
5. Figure 1, Predicted Service Contours
6. Figure 2, Directional Antenna Details
7. Figure 3, Allocation Study

DECLARATION

I, Timothy Z. Sawyer, declare and that I have provided engineering services in the area of telecommunications since 1969. My qualifications are a matter of record with the Federal Communications Commission. I am a senior engineer with the firm of Mullaney Engineering, Inc., consulting radio telecommunications engineers with offices in Gaithersburg, Maryland.

The firm of Mullaney Engineering, Inc., has been retained by GERALD LOCKLEAR, to prepare the instant engineering exhibit in support of **an application for authority to make changes in a Low Power Television Broadcast Translator Station WPEM-LP, Lumberton, North Carolina (FCC FACILITY ID NUMBER: 24090).**

All facts contained herein are true of my own knowledge except those stated to be on information and belief, and as to those facts, I believe them to be true. I declare under the penalty of perjury that the foregoing is true and correct.



Timothy Z. Sawyer

Executed on the 3rd day of March 2010

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NARRATIVE STATEMENT:

I. GENERAL:

This engineering statement and the instant engineering exhibit of which it is part has been prepared on behalf of GERALD LOCKLEAR, (hereinafter "LOCKLEAR").

LOCKLEAR is the licensee of Low-Power Television Station WPEM-LP, Lumberton, North Carolina, FCC facility identification number 24090.

Displacement Application

By means of the instant application, LOCKLEAR seeks authorization to change its authorized television channel from analog Television Channel 47 to digital Television Channel 42.

LOCKLEAR's authorized operation on channel 47 has been displaced, as it is within 265 kilometers of three (3) co-channel full-service digital television facilities or allotments. A displacement statement, as required by the

Commission's Rules and Regulations, has been prepared and is being filed within this application, in the appropriate section of the application/form.

The facilities will be built to comply with the *FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* and the instant proposal is categorically excluded from environmental processing pursuant to the provisions of Section 1.1306 of the Commission's Rules. A more detailed discussion of environmental factors is included under the heading Environmental Considerations below.

Information requested by exhibits in response to questions on Section III of FCC Form 346-III is incorporated in the following paragraphs, figures, and tables.

Processing of this application is requested under the rules currently in effect at the time of filing.

II. ENGINEERING DISCUSSION:

A. Transmitter/Antenna Location:

LOCKLEAR proposes to side-mount its directional antenna on an existing communications tower (**FCC tower registration number: 1007489**) which has an overall height above ground (structure/tower height) of 154.2 meters. The ground elevation at the site is 43.9 meters above mean sea level.

The antenna will be side-mounted on the existing tower with a center of radiation at 147.8 meters above ground level (RCAGL), 191.7 meters above mean sea level (RCAMSL).

B. Coverage & Service Contours:

Figure 1, is a map showing the location of the present analog Channel 47 and the proposed digital Channel 42 service contours of WPEM-LP. As can be seen on the map, the service contours of the present and proposed facilities overlap, therefore the proposed changes are minor.

C. Proposed Antenna:

The proposed antenna is An ERI "ALP12L1-HSW-42" directional UHF slot antenna. This antenna employs 0.5 degrees of electrical beam tilt.

The maximum power at any angle (i.e., below or above the horizon will not exceed 15-kilowatts (15,000 watts).

Information regarding the antenna directional pattern is included in Figure 2.

C. Allocation Study:

Relocation of the WPEM-LP operation from Channel 47 analog to Channel 42 digital will not result in an increase in interference to any full service analog or digital television stations, Class A television stations or any existing DTV allotments or full-service applications or permits.

Pending applications for low-power television secondary services (analog or digital) have been superseded by this application as a qualified priority displacement application.

The Commission's LP-1 computer program and the Longley Rice propagation method described in OET Bulletin No. 69 were used in this

determination. The results of the OET styled study are contained within Figure 3.

D. Environmental Considerations:

The applicant believes its proposal will not significantly affect the environment for the following reasons.

The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high intensity white lights. Furthermore, operation of the proposed facility will not involve the exposure of workers or the general public to levels of radio frequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. (The current FCC guidelines are based upon criteria contained in the National Council of Radiation Protection and Measurements (NCRP) Report No.86 (1986) and ANSI/IEEE C95.1-1992.)

With regard to the last item, the WPEM-LP/LD antenna is to be side-mounted on an existing tower 147.8 meters above ground level.

Based upon a worst case downward relative field value of 0.25 for all angles greater than 15 degrees below the horizon and a maximum horizontal power of 15-kilowatts, and an antenna height of 147.8 meters above ground. The power density level 2 meters above ground is predicted to be 0.0006 mW/cm² or less. The computed power density is 0.028 percent of the Commission's guidelines for a controlled area and 0.14 percent of an uncontrolled area. No further study is required.

The applicant will fully-cooperate and coordinate with all site users as required by the Commission's rules.

III. SUMMARY:

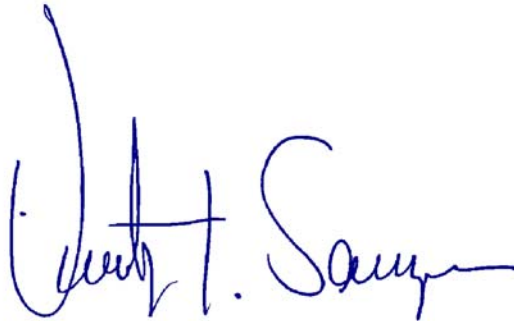
LOCKLEAR proposes to MODIFY the facilities of Low Power Television Station WPEM-LP to specify operation on digital television channel 42 as a result of displacement of its authorized analog operation on Channel 47.

Operation as proposed herein would not cause/increase any normally prohibited contour overlap, and would not have any significant impact on the environment.

The proposed operation will not create any new interference to other facilities or receive any new interference.

- . The proposed operation is fully in compliance with all other areas of the Commission's rules and applicable international agreements.

3 March 2010

A handwritten signature in blue ink, reading "Timothy Z. Sawyer". The signature is written in a cursive, flowing style. The first name "Timothy" is written with a large, looped 'T'. The last name "Sawyer" is written with a large, looped 'S' and a trailing flourish.

Timothy Z. Sawyer

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PRESENT AND PROPOSED SERVICE CONTOURS

CHANNEL 47 - ANALOG 74 DBU FCC CONTOUR
CHANNEL 42 - DIGITAL 51 DBU FCC CONTOUR

FIGURE 1

WPEM-LP

ANALOG LICENSE

BLTTL19960530JB

Latitude: 34-40-27 N

Longitude: 079-02-29 W

Channel: 47Z

Frequency: 671.0 MHz

ERP: 6.66 kW

Antenna HAAT: 158.0 m

Antenna AMSL Height: 192.0 m

Antenna AGL Height: 148.0 m

Site Elevation AMSL: 44.0 m

Horiz. Pattern: Omni

WPEM- DIGITAL APP

DIGITAL APPLICATION

Latitude: 34-40-26 N

Longitude: 079-02-21 W

Channel: 42

Frequency: 641.0 MHz

ERP: 15.00 kW

Antenna HAAT: 158.0 m

Antenna AMSL Height: 192.0 m

Antenna AGL Height: 148.0 m

Site Elevation AMSL: 44.0 m

Horiz. Pattern: Directional

74 DBU FCC CONTOUR - ANALOG CH 47

51 DBU FCC CONTOUR DIGITAL CH 42

Population Database: 2005 US Census Estimate

ANALOG 74 DBU SERVICE CONTOUR

Total Population Within Contour: 66,677

Total Housing Units Within Contour: 26,086

Total Area Within Contour: 808.85 sq. km

DIGITAL 51 DBU SERVICE CONTOUR

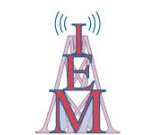
Total Population Within Contour: 406,024

Total Housing Units Within Contour: 168,146

Total Area Within Contour: 5848.86 sq. km

Scale 1:1,000,000

0 20 40 60 km



Mullaney
Engineering, Inc.
MARCH 2010

WPEM DIGITAL DIRECTIONAL ANTENNA
PATTERN

FIGURE 2

Azimuth (deg)	Relative Field
0.0	0.975
10.0	0.922
20.0	0.845
30.0	0.758
40.0	0.680
50.0	0.605
60.0	0.510
70.0	0.397
80.0	0.302
90.0	0.253
100.0	0.241 <- MIN
110.0	0.253
120.0	0.302
130.0	0.397
140.0	0.510
150.0	0.605
160.0	0.680
170.0	0.758
180.0	0.845
190.0	0.922
200.0	0.975
210.0	0.997
220.0	0.990
230.0	0.959
240.0	0.929
250.0	0.925
260.0	0.951
270.0	0.985
280.0	1.000 <--MAX
290.0	0.985
300.0	0.951
310.0	0.925
320.0	0.929
330.0	0.959
340.0	0.990
350.0	0.997

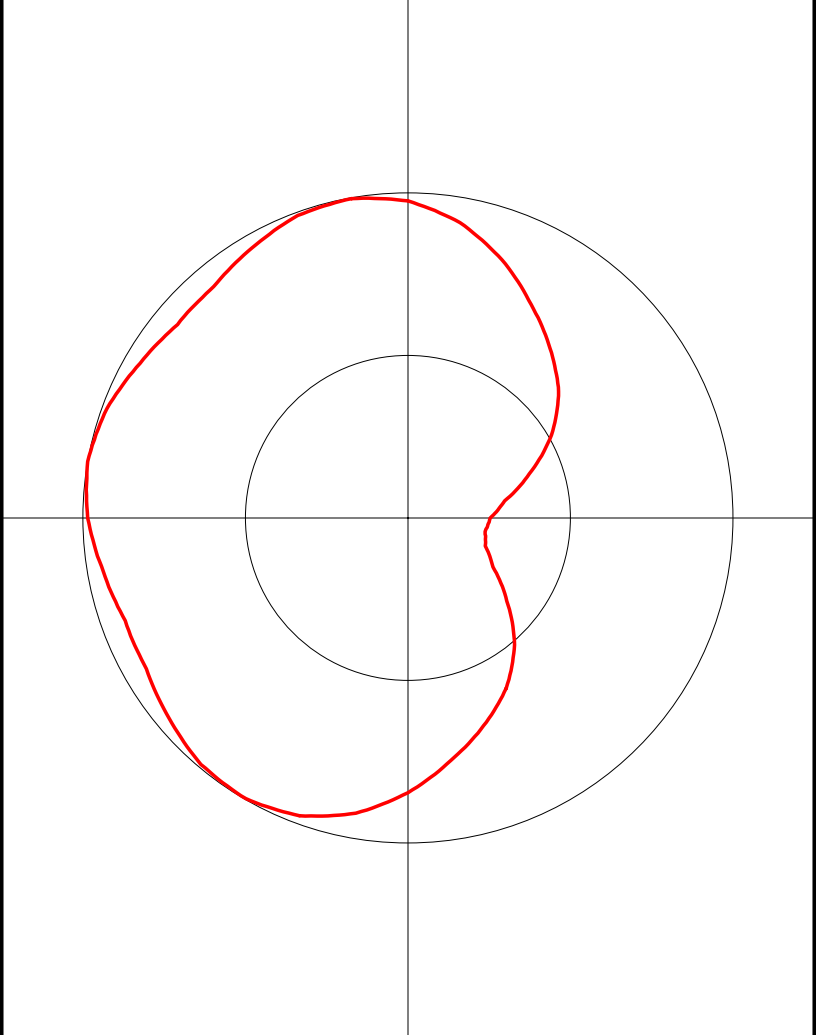


FIGURE 3 - OET BULLETIN NUMBER 69 INTERFERENCE STUDY RESULTS
Summary Study

Census data selected: 2000
Post DTV Transition Database Selected

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Record Selected for Analysis

WPEM- SE USERRECORD-01 LUMBERTON NC US
Channel 42 ERP 15. kW HAAT 146. m RCAMSL 00192 m STRINGENT MASK
Latitude 034-40-26 Longitude 0079-02-21
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 280.
Last update Cutoff date Docket
Comments
Applicant

Cell Size for Service Analysis 1.0 km/side
Distance Increments for Longley-Rice Analysis 1.00 km

Not full service station

Facility meets maximum power limit

Azimuth (Deg)	ERP (kW)	HAAT (m)	51.0 dBu F(50,90) (km)
0.0	14.259	140.6	45.8
45.0	6.192	144.7	41.9
90.0	0.960	145.7	32.3
135.0	3.085	152.2	38.8
180.0	10.710	152.8	45.2
225.0	14.245	148.3	46.3
270.0	14.553	145.4	46.3
315.0	12.890	141.5	45.4

Contour Overlap to Proposed Station
Contour Overlap Evaluation to Proposed Station Complete

LANDMOBILE SPACING VIOLATIONS FOUND
NONE

Proposed facility OK to FCC Monitoring Stations
Proposed facility OK toward West Virginia quiet zone
Proposed facility OK toward Table Mountain
Proposed facility is beyond the Canadian coordination distance
Proposed facility is beyond the Mexican coordination distance
Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
42	WPEM- SE	LUMBERTON NC	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
41	NEW	JACKSONVILLE NC	146.8	APP	BNPDTL	-20100202ABH
41	WWIW-LP	RALEIGH NC	127.6	CP	BDISTTL	-20070305ABA
41	WNCR-LD	TARBORO NC	178.0	LIC	BLDTL	-20090709AOT
41	WSOC-TV	LANCASTER SC	182.0	CP	BDRTCDT	-20090630AEU
42	WJBF	AUGUSTA GA	293.3	LIC	BLCDT	-20060615AAV
42	W42AX	BAKERSVILLE NC	323.9	CP	BDFCDTT	-20090818ABC
42	W42AX	BAKERSVILLE NC	323.9	LIC	BLTT	-19910208JG
42	W42DF-D	CASHIERS NC	362.9	LIC	BLDTT	-20091119ABU
42	W42DR-D	MARION NC	253.3	APP	BSTA	-20090519AAB
42	W42DR-D	MARION NC	253.3	LIC	BLDTT	-20090610ACD
42	NEW	NEW BERN NC	203.5	APP	BNPDTL	-20100210AAY
42	NEW	WILMINGTON NC	84.2	APP	BNPDTL	-20090825BVJ
42	NEW	WILMINGTON NC	105.4	APP	BNPDTL	-20090825AGB
42	WRAY-TV	WILSON NC	152.1	LIC	BLCDT	-20060609AAX
42	WJNI-LP	NORTH CHARLESTON SC	217.4	LIC	BLTTTL	-20060623AAZ
42	WMSY-TV	MARION VA	334.9	LIC	BLEDT	-20030428ABS
42	WCVE-TV	RICHMOND VA	340.9	LIC	BLCDT	-20050606AHG
42	WCVE-TV	RICHMOND VA	340.9	CP	BPEDT	-20080610AAQ
43	WHFL-LP	GOLDSBORO NC	119.7	LIC	BLTTA	-20070621ABF
43	WHFL-LP	GOLDSBORO NC	119.7	CP	BDFCDTA	-20090629ACY
43	WLXI	GREENSBORO NC	150.4	CP	BPCDT	-20080619AII
43	WLXI	GREENSBORO NC	150.4	LIC	BLCDT	-20060630ADU
43	W43CR-D	WILMINGTON NC	98.8	CP	BNPDTL	-20090825AGF
43	W43CU-D	FLORENCE SC	81.4	CP	BNPDTL	-20090825BKG
44	W44CN	GREENVILLE NC	176.6	LIC	BLTT	-20061031AAO
44	WYBE-CA	PINEHURST NC	64.6	LIC	BLTTTL	-19990811JH
44	WZGS-CA	RALEIGH NC	126.9	LIC	BLTTA	-20090127ACI
44	WZGS-CA	RALEIGH NC	126.9	STA	BSTA	-20050324AIS
45	W45CO	FAYETTEVILLE NC	47.3	LIC	BLTT	-20040908AAY
45	W45CN	ROCKY MOUNT NC	175.8	LIC	BLTT	-20040802AYS
49	W49AN	MYRTLE BEACH SC	94.8	LIC	BLTTTL	-19940927ID
50	W50DX	COLUMBIA SC	194.7	LIC	BLTT	-20080305ADA

[illegible]

Study of this proposal found NO PROBLEMS