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9049 SHADY GROVE COURT  
GAITHERSBURG, MD 20877

**ENGINEERING EXHIBIT EE-1:**

**R AND S BROADCASTING LLC  
LOW-POWER TELEVISION STATION WESA-LP**

**DIGITAL CHANNEL 34  
"FLASH-CUT" APPLICATION**

**MAY 2009**

**FCC FACILITY NUMBER: 31453**

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

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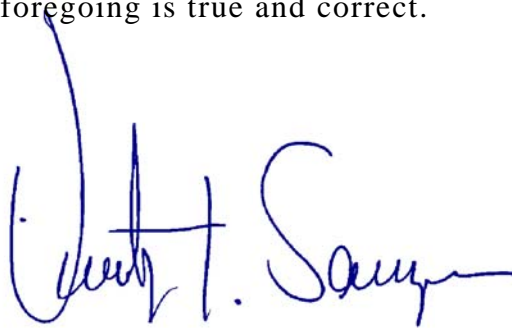
1. F.C.C. Form 346, Section III (Certification)
2. F.C.C. Form 346, Section III (Engineering Digital)
3. Declaration of Engineer
4. Narrative Statement
5. Figure 1, Predicted Coverage Contours
6. Figure 2, Directional Antenna Details
7. Figure 3, Allocation Study

## **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 R AND S BROADCASTING LLC, to prepare the instant engineering exhibit in support of *an application for Authority to Construct or Make Changes in a Low-Power Television Broadcast Station, FCC FACILITY ID NUMBER: 31453.*

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 1st day of May 2009

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**MAY 2009**

**NARRATIVE STATEMENT:**

**I. GENERAL:**

This engineering statement and the instant engineering exhibit of which it is part has been prepared on behalf of R AND S BROADCASTING LLC, (hereinafter "RSB").

Station WESA-LP holds a digital flash-cut construction permit (BDFCDTL-20080319ACP) to operate on digital channel 34 with a directional antenna and a maximum effective radiated power (ERP) of 3.5 kW, and an antenna height above mean sea level (RCAMSL) of 283.5 meters with an antenna height above ground (AGL) of 36.6 meters.

RSB proposes to increase the maximum authorized power of the station from 3.5 kilowatts to 15.0 kilowatts, no other changes are proposed.

The proposed 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 (digital) is incorporated in the following paragraphs, figures and/or tables.

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

**ENGINEERING DISCUSSION:**

Figure 1 is a map showing the present and proposed 51 dBu (digital) coverage contours. As can be seen on the map, the 51 dBu digital contours overlap as required by the Commission's minor change rules.

**PROPOSED FACILITIES:**

This application proposes digital operation on the construction permit channel assignment (TV channel 34), at the authorized construction permit transmitter site using the same antenna system.

The antenna supporting structure is 45.7 meters in overall height above the ground and does not require FCC tower registration or notification to the FAA. No changes in the height of the existing structure are required. The ground elevation above mean sea level (AMSL) of the site is 246.9 meters.

The applicant proposes to side-mount its antenna with a center of radiation at 36.6 meters above ground on the existing structure.

This is an existing communication site that has been authorized for use by WESA-LP in FCC Construction Permit BMPTTL-20070716ABW and License Permit BLTTL-20080707AAF.

Figure 2 contains a horizontal radiation (relative field) pattern of the directional horizontal radiation pattern.

**ALLOCATION CONSIDERATIONS:**

A study has been conducted to assure that the proposal will not create prohibited interference with other licensed, authorized or pending analog or digital full-service TV, LPTV or TV Translator or Class-A TV stations.

Using the procedures outlined in the FCC's OET-69 Bulletin, a 1-kilometer cell size resolution and 1990 U.S. Census, the proposal complies with the current FCC policy (i.e., less than 0.5% new interference caused to other pertinent assignments).

Each station of concern has been analyzed using the methods described in OET Bulletin No. 69, and the results indicate that no interference (unmasked) or interference above 0.5% of the service population of the station studied will occur.

The results of the OET Bulletin No. 69 styled study are contained with Figure 3.

The applicant recognizes that its proposal is secondary to authorized full-service and Class-A television analog or digital operations or proposals.

**Previously protected full-service ANALOG stations that have notified the Commission and cease analog operation are not protected in accordance with the Commission's rules and policies concerning required protection to pre and post DTV transition facilities.**

**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.)

Based upon a worst case downward field value of 0.15 for all angles 15 degrees and greater below the horizon, and a digital power of 15 kilowatts, and an antenna height of 36.6 meters above ground. The power density level 2-meters above ground is predicted to be 0.0038 mW/cm<sup>2</sup> or less. The computed power density is 0.192% of the Commission's guidelines for a controlled area and 0.961% for an uncontrolled area. This level is well below the Commission's guidelines for maximum exposure levels to electromagnetic fields and no further study is required.

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

## **II SUMMARY:**

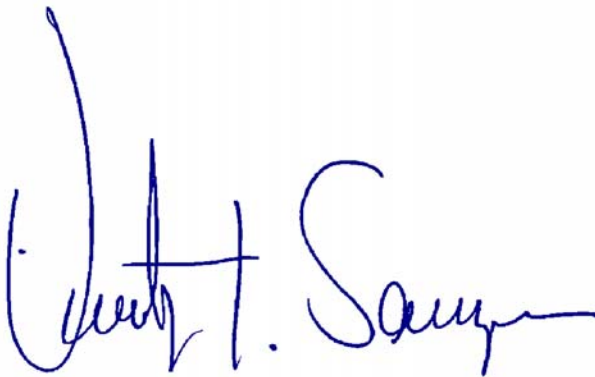
The proposed station will operate on Digital Television Channel 34 with a maximum ERP of 15- kilowatts (15,000 Watts), utilizing a DIRECTIONAL antenna system.

The estimated digital transmitter power output to produce the requested ERP is 365 watts.

Operation as proposed herein would not cause/increase any normally prohibited contour overlap using a terrain dependant - OET Bulletin No. 69 review, and would not have any significant impact on the environment. The proposed operation will not create any new prohibited interference.

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

1 May 2009

A handwritten signature in blue ink, appearing to read "Timothy Z. Sawyer". The signature is fluid and cursive, with a large initial "T" and "S".

---

Timothy Z. Sawyer

MULLANEY ENGINEERING, INC.  
9049 SHADY GROVE COURT  
GAITHERSBURG, MARYLAND USA  
TEL.: (301) 921-0115

**WESA-LP-D.C DIGITAL**

APPLICATION TO MODIFY DIGITAL C.P.

BDFCDTL20080319ACP

Latitude: 42-07-11 N

Longitude: 072-24-39 W

Channel: 34

Frequency: 593.0 MHz

ERP: 15.00 kW

Antenna HAAT: 225.0 m

Antenna AMSL Height: 283.5 m

Horiz. Pattern: Directional

**PRESENT AND PROPOSED**

DIGITAL TELEVISION CH 34 SERVICE CONTOURS

SPRINGFIELD, MA

FIGURE 1

**PROPOSED (SOLID LINE) 15.0-KW ERP**

FCC 51 DBU F(50,90) DIGITAL SERVICE CONTOUR

**PRESENT (DASHED LINE) 3.5-KW ERP**

FCC 51 DBU F(50,90) DIGITAL SERVICE CONTOUR

**PREDICTED SIGNAL LEVELS**

> 51.0 dBu  
41.0 - 51.0

**US Census 2005 Estimate of Population**

Field strength above 51.00 db uV/m

Present

Proposed

Population: 1,158,051

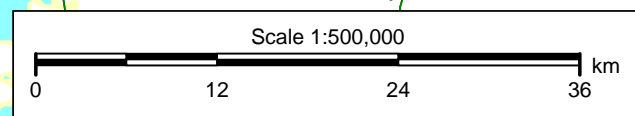
Population: 1,277,592

Housing Units: 468,976

Housing Units: 519,051



Mullaney  
Engineering, Inc.  
APRIL 2009



Azimuth (deg)	Effective Field
0.0	0.150
10.0	0.080
20.0	0.050
30.0	0.030 <-- MIN
40.0	0.030 <-- MIN
50.0	0.040
60.0	0.050
70.0	0.070
80.0	0.080
90.0	0.070
100.0	0.050
110.0	0.045
120.0	0.035
130.0	0.060
140.0	0.080
150.0	0.130
160.0	0.170
170.0	0.230
180.0	0.315
190.0	0.415
200.0	0.530
210.0	0.635
220.0	0.755
230.0	0.850
240.0	0.930
250.0	0.980
260.0	1.000 <-- MAX
270.0	0.980
280.0	0.940
290.0	0.850
300.0	0.740
310.0	0.635
320.0	0.525
330.0	0.410
340.0	0.300
350.0	0.230

ANTENNA MANUFACTURER: RFT  
Model: PAT-G\_14BAYSFN\_0.75BT

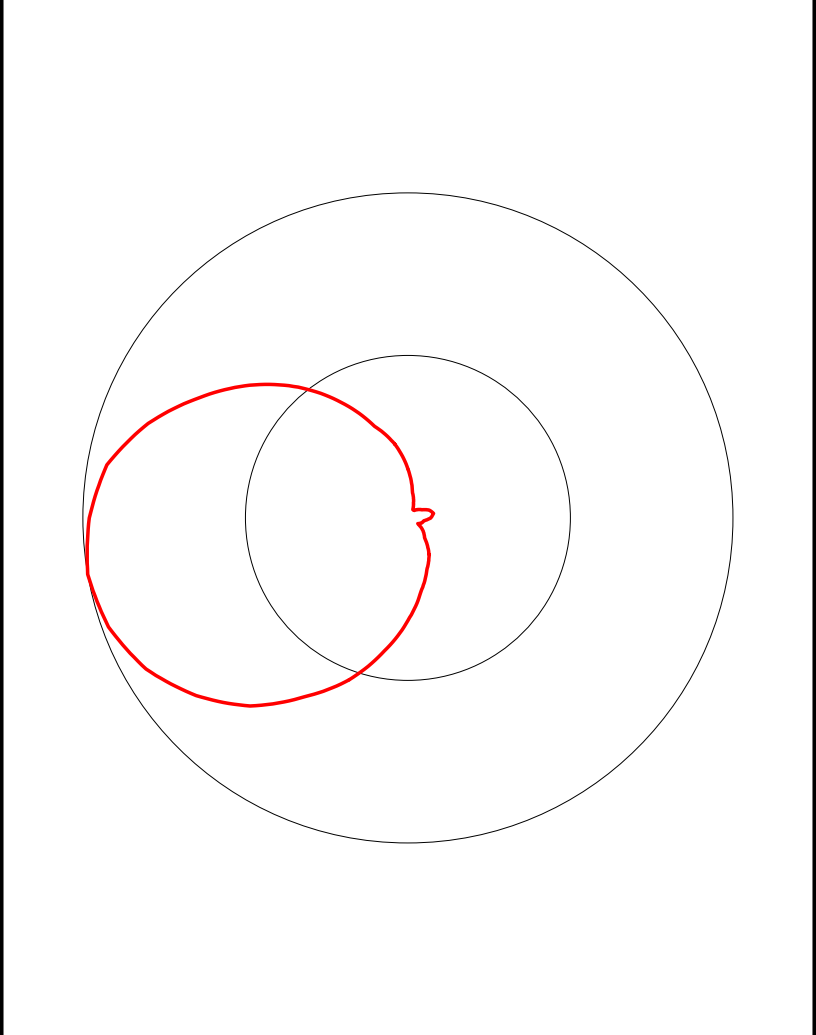


FIGURE 3 - OET BULLETIN NUMBER 60 INTERFERENCE STUDY RESULTS

Summary Study

1990 Census data selected  
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 03-30-2009 Time: 15:43:01

Record Selected for Analysis

WESA-LP- USERRECORD-01 SPRINGFIELD MA US  
Channel 34 ERP 15. kW HAAT 142. m RCAMSL 00284 m STRINGENT MASK  
Latitude 042-07-11 Longitude 0072-24-39  
Status APP Zone 1 Border  
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 0.  
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	0.338	168.6	28.4
45.0	0.018	130.6	12.4
90.0	0.073	90.9	14.6
135.0	0.073	33.0	9.1
180.0	1.488	80.9	28.7
225.0	9.660	204.7	47.8
270.0	14.406	221.7	50.8
315.0	5.046	203.5	44.4

Contour Overlap to Proposed Station

Station  
WCRN-LP 34 LEICESTER MA BLTTL19960130JB causes

Contour overlap to Digital LPTV station  
WESA-LP- 34 SPRINGFIELD MA USERRECORD01  
Required D/U ratio: 2.0

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 quite zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance  
Distance to border = 322.1km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

\*\*\*\*\*  
Start of Interference Analysis

Channel	Proposed Station	ARN
34	Call City/State WESA-LP- SPRINGFIELD MA	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
19	WCDC-TV	ADAMS MA	84.7	LIC	BLCT	-19810105KE
20	WTXX	WATERBURY CT	83.7	LIC	BLCT	-19820428KE
26	WNGN-LP	TROY NY	124.3	APP	BPTTL	-20030513AAE
27	WUNI	WORCESTER MA	83.6	APP	BSTA	-20090218ABW
27	WUNI	WORCESTER MA	62.0	LIC	BLCT	-19991214ABC
30	WVIT	NEW BRITAIN CT	58.2	LIC	BLCT	-19791113LC
32	WTMU-LP	BOSTON MA	112.2	LIC	BLTTL	-19950414IE
33	WFSB	HARTFORD CT	50.3	LIC	BLCDDT	-20041029AIL
33	WFSB	HARTFORD CT	50.3	CP	BPCDDT	-20080619AFT
33	WMPX-LP	DENNIS MA	177.3	LIC	BLTTL	-20041202ACZ
33	WMPX-LP	DENNIS MA	177.3	CP	BDFCDTL	-20060322AAN
33	WPXG	CONCORD NH	148.2	LIC	BLCDDT	-20031014AEP
33	WPXG	CONCORD NH	148.2	APP	BPCDDT	-20080619AJF
33	W33AK	NASHUA NH	105.6	LIC	BLTTL	-19950728IB
33	WCBS-TV	NEW YORK NY	205.7	APP	BMPCDDT	-20080619AAZ
33	WCBS-TV	NEW YORK NY	201.2	CP	BPCDDT	-20080523AEI
33	WPIX	NEW YORK NY	201.2	STA	BMDSTA	-20040625ACC
34	W34DR-D	STAMFORD CT	149.9	CP	BDCCDTL	-20061016AEB
34	WCRN-LP	LEICESTER MA	42.0	LIC	BLTTL	-19960130JB
34	WNEU	MERRIMACK NH	117.3	LIC	BLCDDT	-20021028AAH
34	W18BO	PITTSBURG NH	325.9	CP	BDISDTT	-20060331AZC
34	WQAV-LP	ATLANTIC CITY NJ	352.7	LIC	BLTTL	-19970924JG
34	WPXO-LP	EAST ORANGE NJ	201.2	CP	BDFCDTL	-20060320AAW
34	WPXO-LP	EAST ORANGE NJ	201.2	LIC	BLTTL	-20040730AAO
34	WIVT	BINGHAMTON NY	291.4	CP	BPCDDT	-20080314ACR
34	WIVT	BINGHAMTON NY	291.4	LIC	BLCT	-20040113ABJ
34	960910KE	LAKE PLACID NY	271.4	APP	BPET	-19960910KE
34	W34DI	PORT JERVIS NY	205.9	LIC	BLTTL	-20070223AHK
34	WMHT	SCHENECTADY NY	142.9	LIC	BLEDT	-20040108ALV
34	WBQZ-LP	WATERTOWN NY	359.1	LIC	BLTTL	-19950807JA
34	WCAU	PHILADELPHIA PA	330.7	CP	BPCDDT	-20080620AKG
34	WYBE	PHILADELPHIA PA	330.7	LIC	BLEDT	-20030213AAD
35	WVIT	NEW BRITAIN CT	58.2	LIC	BLCDDT	-20041203AEF
35	WZMY-TV	DERRY NH	107.9	LIC	BLCDDT	-20070126ACX
35	WNYX-LP	NEW YORK NY	199.0	CP	BDFCDTL	-20060111ACR
35	WNYX-LP	NEW YORK NY	199.0	CP	BPTTL	-20070705ADS
35	WNYX-LP	NEW YORK NY	199.0	LIC	BLTTL	-20070615ACT
35	W61CE	RUTLAND VT	180.2	CP	BDISTTL	-20060105ABE
36	W54CG	MANCHESTER NH	117.2	APP	BPTTL	-20020729ABS
36	W36AX	MANCHESTER, ETC. VT	127.6	APP	BSTA	-20060310ADT
36	W36AX	MANCHESTER, ETC. VT	127.6	LIC	BLTT	-20060608AAD
38	WHCT-LP	HARTFORD CT	48.1	LIC	BLTTL	-20050822AAP
38	W38DL	ADAMS, ETC. MA	84.7	LIC	BLTT	-20030807ACU
38	WSBK-TV	BOSTON MA	100.2	LIC	BLCT	-19910619KG
38	WNGN-LP	TROY NY	124.3	LIC	BLTTL	-20070904ABG

38	WNGN-LP	TROY NY	124.3	APP	BSTA	-20080912ABA
41	WVBG-LP	GREENWICH NY	137.3	LIC	BLTTL	-20080903ABL
42	W42AE	POUGHKEEPSIE NY	138.4	LIC	BLTTL	-20040225AAW

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Study of this proposal found the following interference problem(s):

NONE.