



## **ENGINEERING STATEMENT**

**IN SUPPORT OF**

**APPLICATION FOR MINOR CHANGE TO CONSTRUCTION PERMIT**

**WTVF-TV**

**NASHVILLE, TN**

### **Background**

Scripps Broadcasting Holdings LLC (Scripps) is the licensee of WTVF which has been authorized to operate its post-incentive auction facility on Ch. 36 (0000026801) at Nashville, TN, with an ERP of 1000 kW at an HAAT of 431.0m. The tower is located at the following coordinates:

36° 16' 05.0'' N (NAD 83)  
86° 47' 16.0'' W

Scripps now wishes to “maximize” the WTVF post-incentive auction facility by changing its antenna pattern from directional to omni-directional; all other facility parameters will remain the same.

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### **Antenna System and Tower**

WTVF intends to replace the existing top-mounted directional WTVF Ch. 25 antenna (ERI ATW24HS3-ETOX-25H) with a new omni-directional slotted array antenna for Ch. 36 (ERI ATW24HS3-ETO-36H). The antenna will be installed on the registered tower ASR#1041373. The replacement of the top-mounted antenna will not result in a change in the overall height of the structure; therefore, neither notification to the FAA nor a modification to the ASR is necessary.

The new Ch. 36 antenna will be elliptically polarized. The vertically polarized radiation will not exceed the horizontally polarized component in any azimuth.

### **Coverage**

The entire principal community of Nashville, TN is well within the predicted F(50,90) 48 dBu contour based on the proposed omni-directional 1000 kW ERP.

The proposed ERP and HAAT for WTVF (1000 kW at an HAAT of 431.0 m) exceeds the maximum allowed under Part 73.622(f)(7) of the FCC Rules; however WTVF currently operates on Ch. 25 with an ERP of 1000 kW and, therefore, its current operation has already been approved by the Commission to exceed the maximum allowable ERP/HAAT combination.

Furthermore, the WTVF coverage was reduced when the Commission assigned the station Ch. 36 for post-transition operation (also with an ERP of 1000 kW). Typically, when a station moves up in channel, its ERP must be increased to offset the change in receive antenna dipole factor. Since WTVF was already operating at the maximum allowable ERP for UHF stations, the Commission was not able to increase its ERP, which effectively reduced the station's overall

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coverage area. This effect can be seen in the interference-free coverage area for each facility, as calculated by TVStudy (version 2.2.4), which is shown below:

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#### Licensed WTVF Ch. 25 Facility (BLCDT20120913AAW)

tvstudy v2.2.4 (Z2Qz3)  
Database: localhost, Station Data: LMS TV 2018-01-03 (14), Study: WTVF-BLCDT20120913AAW-PreTran, Model: Longley-Rice  
Start: 2018.01.08 14:16:22

Scenario	Service area		Terrain-limited		Interference-free	
Desired station						
Coverage						
WTVF D25 DT LIC NASHVILLE, TN	37954.7	2,416,110	36757.5	2,397,634	36757.5	2,397,634

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#### Authorized Post-Transition WTVF CP Facility (BLANK0000026801)

tvstudy v2.2.4 (Z2Qz3)  
Database: localhost, Station Data: LMS TV 2018-01-03 (14), Study: WTVF-Ch35-CP-BLANK0000026801, Model: Longley-Rice  
Start: 2018.01.08 14:26:39

Scenario	Service area		Terrain-limited		Interference-free	
Desired station						
Coverage						
WTVF D36 DT CP NASHVILLE, TN	36441.7	2,365,383	35317.0	2,348,542	35317.0	2,348,542

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#### Proposed WTVF Maximized Facility (BLANK0000034672)

tvstudy v2.2.4 (Z2Qz3)  
Database: localhost, Station Data: LMS TV 2018-01-03 (14), Study: WFTV-Ch36Max-BLANK0000034672, Model: Longley-Rice  
Start: 2018.01.08 14:55:27

Scenario	Service area		Terrain-limited		Interference-free	
Desired station						
Coverage						
WTVF D36 DT APP NASHVILLE, TN	37485.2	2,384,622	36220.2	2,367,601	36220.2	2,367,601

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As can be seen from the TVStudy information, the calculated terrain-limited interference-free coverage area of the licensed WTVF Ch. 25 facility (36,757.5 sq. km) is larger than the coverage area of either the post-transition Ch. 36 CP facility (35,317 sq. km) or the proposed maximized facility (36,220.2 sq. km). Since WTVF is not increasing its ERP or the overall coverage area of WTVF, the proposed ERP/HAAT of the maximized facility satisfies the requirements of Part 73.622(f)(7) of the FCC Rules.

### **Interference**

An interference check study was run using the FCC TVStudy software (Version 2.2.3) for the proposed WTVF post-repack maximized facility parameters. The summary results of the study show that the proposed facility is not predicted to cause more than 0.5% new interference to any other surrounding co-channel or adjacent channel post-repack facilities (see attached study results).

### **Environmental/RFR**

This report addresses only the conditions specified in 47CFR1.1307 that deal with Radio Frequency Radiation. Any other non-RFR conditions that might require the preparation of an EA are beyond the scope of this report; since the structure is existing and registered, such conditions should not be an issue requiring further consideration.

The location of the proposed post-incentive auction facility is assumed to currently be “in compliance” with FCC guidelines for human exposure to RFR (as defined in OET-65). The worst case ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.006172 mW/cm<sup>2</sup>, which is less than 5% of the MPE for public exposure (0.403333 mW/cm<sup>2</sup>) at

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Ch. 36 (602-608 MHz). The contribution to the overall RFR from the proposed facility is negligible and, therefore, the site will remain “in compliance” with FCC guidelines.

Scripps agrees to comply with the Commission’s requirements regarding power adjustments or cessation of operation as may be necessary to ensure a compliant environment for worker access. Workers will be trained on RFR issues and encouraged to wear personal RFR monitors when on the structure. The tower base is enclosed by a locked security fence and appropriate signage warning of potential RFR hazards is posted.

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### **Certification**

I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.

A handwritten signature in black ink, appearing to read "B. L. Pidek", is written over a horizontal line.

Benjamin L. Pidek, P.E.  
January 8, 2018

Attached:  
WTVF TVStudy Interference Results

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## WTVF Maximization TVStudy Summary Results

Study created: 2017.10.12 11:12:48

Study build station data: LMS TV 2017-10-11 (8)

Proposal: WTVF D36 DT CP NASHVILLE, TN  
File number: WTVF-CP-Omni  
Facility ID: 36504  
Station data: User record  
Record ID: 380  
Country: U.S.  
Zone: II

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
WSES	D36	DT	CP	TUSCALOOSA, AL	BLANK0000025695	315.4 km
WSES	D36	DT	BL	TUSCALOOSA, AL	DTVBL21258	315.4
WUPA	D36	DT	CP	ATLANTA, GA	BLANK0000025344	352.8
WUPA	D36	DT	BL	ATLANTA, GA	DTVBL6900	352.8
WAVE	D36	DT	CP	LOUISVILLE, KY	BLANK0000025348	248.4
WAVE	D36	DT	BL	LOUISVILLE, KY	DTVBL13989	248.4
KBSI	D36	DT	CP	CAPE GIRARDEAU, MO	BLANK0000025127	277.3
KBSI	D36	DT	BL	CAPE GIRARDEAU, MO	DTVBL19593	277.3
WMAV-TV	D36	DT	LIC	OXFORD, MS	BLEDT20090612AAK	344.0
WVLR	D36	DT	CP	TAZEWELL, TN	BLANK0000025318	283.1
WVLR	D36	DT	BL	TAZEWELL, TN	DTVBL81750	283.1

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:

WLAC 1510 L DAN D NASHVILLE, TN BL20101004ADH  
WLAC 1510 L DAN N NASHVILLE, TN BL20101004ADH

Record parameters as studied:

Channel: D36  
Latitude: 36 16 5.00 N (NAD83)  
Longitude: 86 47 16.00 W  
Height AMSL: 616.0 m  
HAAT: 431.0 m  
Peak ERP: 1000 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 0.75

40.9 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	1000 kW	367.9 m	103.6 km
45.0	1000	434.2	109.6
90.0	1000	457.7	111.6
135.0	1000	456.0	111.5
180.0	1000	463.2	112.1
225.0	1000	464.2	112.2
270.0	1000	414.2	107.8
315.0	1000	388.8	105.4

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ERP exceeds maximum

ERP: 1000 kW ERP maximum: 730 kW

\*\*Proposal service area extends beyond baseline plus 1.0%

Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 697.9 km

Distance to Mexican border: 1494.4 km

Conditions at FCC monitoring station: Powder Springs GA

Bearing: 144.3 degrees Distance: 326.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 290.5 degrees Distance: 1663.1 km

Study cell size: 2.00 km

Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Maximum new IX to LPTV: 2.00%

Proposal receives 0.61% interference from scenario 1

Proposal receives 0.61% interference from scenario 2

Proposal receives 0.61% interference from scenario 3

Proposal receives 0.61% interference from scenario 4

Proposal receives 0.61% interference from scenario 5

Proposal receives 0.61% interference from scenario 6

Proposal receives 0.61% interference from scenario 7

Proposal receives 0.61% interference from scenario 8

Proposal receives 0.63% interference from scenario 9

Proposal receives 0.62% interference from scenario 10

Proposal receives 0.63% interference from scenario 11

Proposal receives 0.62% interference from scenario 12

Proposal receives 0.62% interference from scenario 13

Proposal receives 0.62% interference from scenario 14

Proposal receives 0.62% interference from scenario 15

Proposal receives 0.62% interference from scenario 16

No IX check failures found.

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