

T Z SAWYER TECHNICAL CONSULTANTS

2130 HUTCHISON GROVE COURT, SUITE 100
FALLS CHURCH, VIRGINIA 22043
TELEPHONE (703) 848-2130 / (202) 642-2130

DIGITAL NETWORKS - SOUTHEAST, LLC

WWHL-LD, Digital Channel 31

FACILITY ID: 995

NASHVILLE, TN

MINOR CHANGE APPLICATION AMENDMENT
CHANGE ANTENNA TYPE AND MODEL
ANTENNA HEIGHT AND EFFECTIVE RADIATED POWER

April 2022

Engineering Narrative Statement

Executive Summary:

This application proposes to amend the antenna radiation pattern, antenna height, and effective radiated power (ERP). No change in site location is proposed. The proposed site is well develop existing communications site. No new construction will occur at this site with the exception of the applicant's antenna and associated equipment. The supporting structure has been issued an FCC ASR of:

Service Map - Minor Change Rule Compliance

A service map is included herein as Figure 1. This application proposes a modification of the radiated pattern, minor increase in antenna height, and an increase in radiated power (ERP). As shown on the service map (Figure 1) the proposal meets the minor change criteria for low-power television facilities.

Directional Antenna Pattern Details

Antenna Manufacturer	Model/Type	RCAMSL
PSI	PSILP-12OI	366.4 meters

A relative field tabulation and graphical plot of the horizontal radiation pattern is included in Figure 2. Horizontal only polarization is proposed with a maximum effective radiated directional power of 15.0 kilowatts.

Figure 3 FCC TVStudy Summary

Applicant requests that a cell size of 1.0 km and a terrain profile spacing 0.1km to be utilized.

It is requested that the FCC TVStudy program should be modified during the analysis of this proposal with a cell size of 1.0 kilometers and a profile spacing interval of 0.1 kilometers, which is appropriate due to the terrain characteristic in the Nashville area.

The summary report from the FCC TVStudy analysis when using the modified study parameters, indicates no interference failures to other facilities. Applicant accepts all incoming interference from licensed or pending applications.

Respectfully submitted on April 5, 2022.

Timothy Z. Sawyer, Technical Consultant
T Z Sawyer Technical Consultants
2130 Hutchison Grove Court, Suite 100
Falls Church, Virginia 22043
Telephone: (703) 848-2130
e Mail to: tzsawyer@tzsawyer.com

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".

Map created on: 4/6/2022
NED 3 Second US Terrain

MINOR AMENDMENT TO PENDING
CONSTRUCTION PERMIT APPLICATION
LMS APP: 0000148633

WWHL-LD NASHVILLE, TN CHANNEL 31 LPTV
15-KW DIRECTIONAL PSI PSILP-120I ANTENNA
RCAGL: 54.5 M
RCAMSL: 366.3 M

FIGURE 1

PROPOSED FCC 51 DBU F(50,90)
CONTOUR

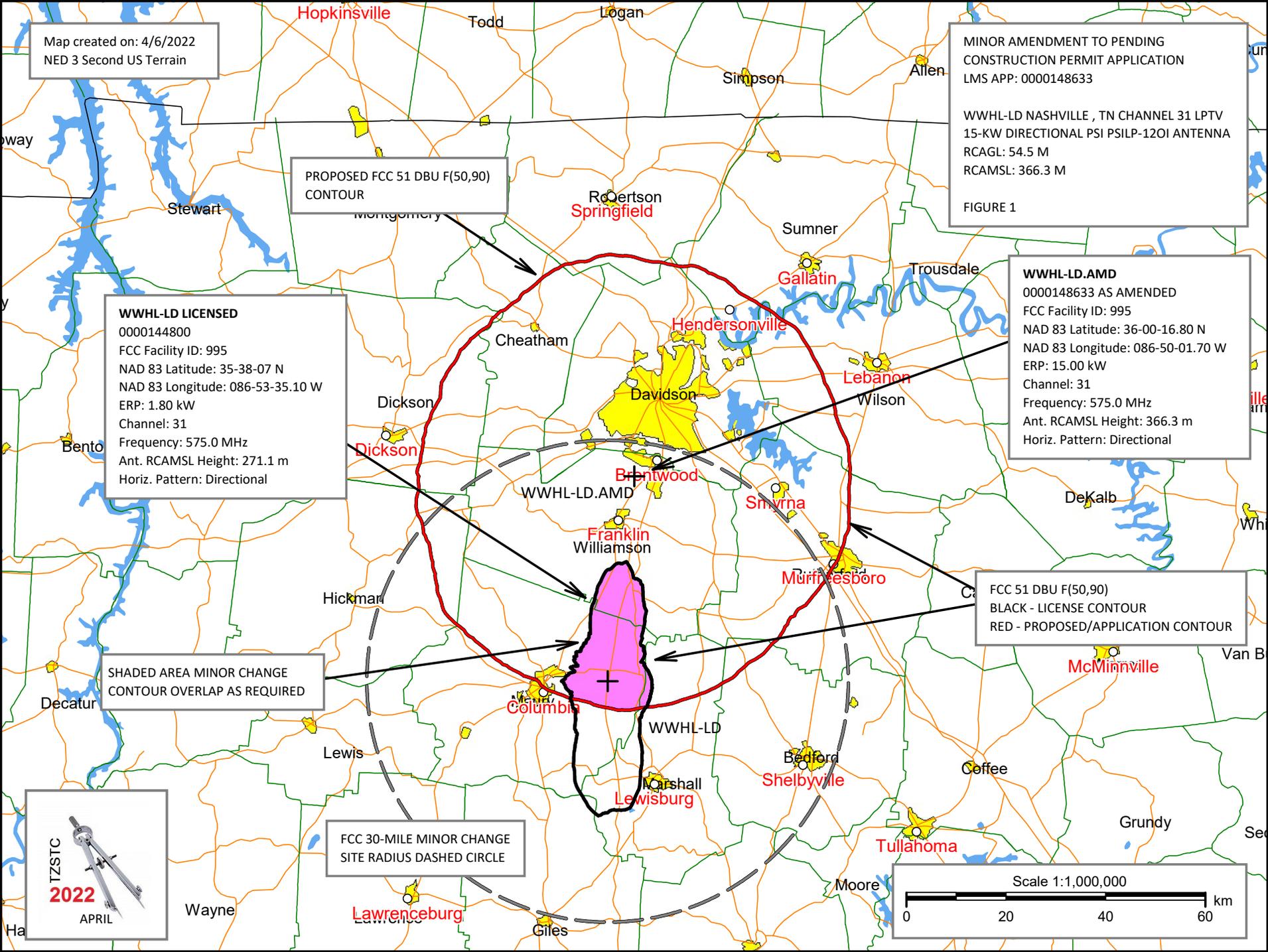
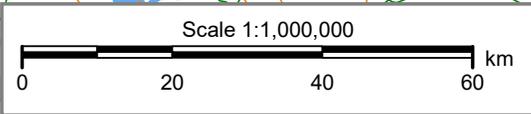
WWHL-LD LICENSED
0000144800
FCC Facility ID: 995
NAD 83 Latitude: 35-38-07 N
NAD 83 Longitude: 086-53-35.10 W
ERP: 1.80 kW
Channel: 31
Frequency: 575.0 MHz
Ant. RCAMSL Height: 271.1 m
Horiz. Pattern: Directional

WWHL-LD.AMD
0000148633 AS AMENDED
FCC Facility ID: 995
NAD 83 Latitude: 36-00-16.80 N
NAD 83 Longitude: 086-50-01.70 W
ERP: 15.00 kW
Channel: 31
Frequency: 575.0 MHz
Ant. RCAMSL Height: 366.3 m
Horiz. Pattern: Directional

FCC 51 DBU F(50,90)
BLACK - LICENSE CONTOUR
RED - PROPOSED/APPLICATION CONTOUR

SHADED AREA MINOR CHANGE
CONTOUR OVERLAP AS REQUIRED

FCC 30-MILE MINOR CHANGE
SITE RADIUS DASHED CIRCLE



Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	1.0
10.0	1.0
20.0	0.98
30.0	0.95
40.0	0.91
50.0	0.87
60.0	0.82
70.0	0.76
80.0	0.71
90.0	0.66
100.0	0.63
110.0	0.61
120.0	0.6
130.0	0.6
140.0	0.62
150.0	0.64
160.0	0.66
170.0	0.67
180.0	0.67
190.0	0.67
200.0	0.66
210.0	0.64
220.0	0.62
230.0	0.6
240.0	0.6
250.0	0.61
260.0	0.63
270.0	0.66
280.0	0.71
290.0	0.76
300.0	0.82
310.0	0.87
320.0	0.91
330.0	0.95
340.0	0.98
350.0	1.0

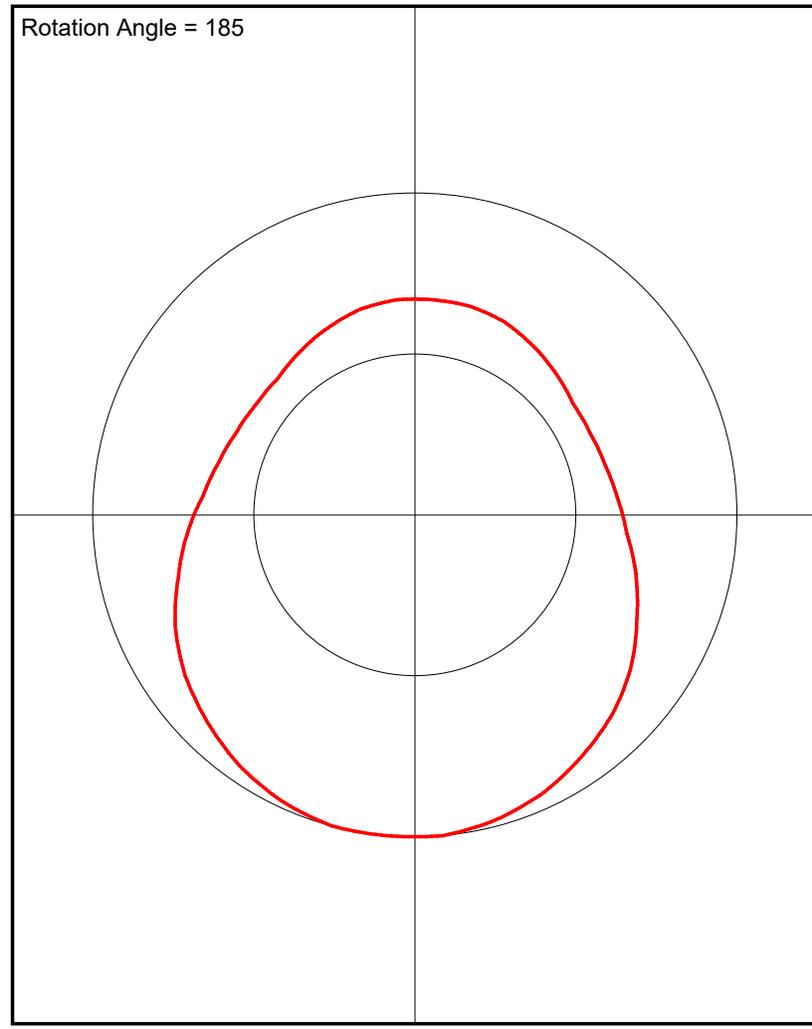


FIGURE 2 - PSI PSILP120I
 TABULATION MUST BE
 ROTATED 185 DEGREES

PROPOSED DIRECTIONAL HORIZONTAL RELATIVE
 FIELD PATTERN AND GRAPHICAL PLOT

FIGURE 3 FCC TVSTUDY SUMMARY RESULTS

NOTE: CELL SIZE 1.0 KM PROFILE 0.1 KM TO BE USED

Proposal: WWHL-LD D31- LD APP Nashville, TN
 File number: WWHL TEST 185 DEG
 Facility ID: 995
 Station data: User record
 Record ID: 603
 Country: U.S.

Build options:
 Protect pre-transition records not on baseline channel

Search options:
 Non-U.S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	DDWQTV-LPN24+		TX	APP	MURRAY, KY	BLTTL20010425AAF	147.2 km
No	WTCT	D30	DT	LIC	MARION, IL	BLANK0000096223	260.3
No	WELW-LD	D30	LD	LIC	EVANSVILLE, IN	BLANK0000163325	228.4
No	WKPC-TV	D30	DT	LIC	LOUISVILLE, KY	BLANK0000087420	277.2
Yes	WNAB	D30	DT	LIC	NASHVILLE, TN	BLANK0000159669	29.0
No	WAXC-LD	D31	LD	LIC	ALEXANDER CITY, AL	BLDTL20110329ABN	349.6
No	WSFG-LD	D31	LD	CP	BERRY, AL	BLANK0000029418	266.0
No	WSFG-LD	D31	LD	LIC	BERRY, AL	BLANK0000176885	266.0
No	WNCF	D31	DT	LIC	MONTGOMERY, AL	BLANK0000001319	428.5
No	WPCH-TV	D31	DT	LIC	ATLANTA, GA	BLANK0000152274	333.7
No	WSB-TV	D31	LD	LIC	ATLANTA, GA	BLCDT20100429ADZ	361.0
No	WVUT	D31	DT	LIC	VINCENNES, IN	BLANK0000087466	299.7
Yes	WKMA-TV	D31	DT	LIC	MADISONVILLE, KY	BLANK0000087442	145.0
No	K30NE-D	D31	LD	CP	CAPE GIRARDEAU, MO	BLANK0000071795	312.8
No	KDNL-TV	D31	DT	LIC	ST. LOUIS, MO	BLANK0000158069	421.2
No	WGBC	D31	DT	CP	MERIDIAN, MS	BLANK0000035926	442.9
No	WGBC	D31	DT	LIC	MERIDIAN, MS	BLCDT20071024AAK	442.9
No	W31DH-D	D31	LD	LIC	FRANKLIN, ETC, NC	BLANK0000143463	324.7
No	W31AN-D	D31	LD	LIC	MURPHY, NC	BLANK0000144221	274.6
No	WDTN	D31	DT	LIC	DAYTON, OH	BLANK0000126718	470.7
Yes	WBXX-TV	D31	DT	LIC	CROSSVILLE, TN	BLANK0000081641	224.6
No	WLMT	D31	DT	LIC	MEMPHIS, TN	BLCDT20050427ABN	277.9
No	WMJN-LD	D32	LD	LIC	Huntsville, AL	BLANK0000130267	165.9
No	WDRB	D32	DT	LIC	LOUISVILLE, KY	BLANK0000087865	274.9
No	W32EV-D	D32	DC	LIC	ADAMSVILLE, TN	BLANK0000121663	162.5
Yes	WNPX-TV	D32	DT	LIC	FRANKLIN, TN	BLANK0000087615	59.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D31
 Mask: Full Service
 Latitude: 36 0 16.80 N (NAD83)
 Longitude: 86 50 1.70 W
 Height AMSL: 366.3 m
 HAAT: 0.0 m
 Peak ERP: 15.0 kW
 Antenna: PSI-PSILP120I (ID 1003768) 185.0 deg
 Elev Patrn: Generic

50.4 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	6.73 kW	169.7 m	44.6 km
45.0	5.77	173.0	44.0
90.0	6.24	164.2	43.9
135.0	11.4	111.5	43.2
180.0	15.0	151.0	47.5
225.0	12.4	150.9	46.5
270.0	7.04	153.6	43.8
315.0	5.40	157.8	42.7

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 154 m

Distance to Canadian border: 725.6 km
Distance to Mexican border: 1470.2 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 140.5 degrees Distance: 306.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 291.4 degrees Distance: 1669.7 km

Study cell size: 1.00 km
Profile point spacing: 0.10 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Proposal causes 0.02% interference to BLANK0000159669 LIC scenario 2
Proposal causes 0.48% interference to BLANK0000087442 LIC scenario 1
Proposal causes 0.49% interference to BLANK0000081641 LIC scenario 1
Proposal causes 0.39% interference to BLANK0000087615 LIC scenario 1

---- Below is IX received by proposal WWHL TEST 185 DEG ----

Proposal receives 23.75% interference from scenario 1

No IX check failures found.

T Z SAWYER TECHNICAL CONSULTANTS

2130 HUTCHISON GROVE COURT, SUITE 100
FALLS CHURCH, VIRGINIA 22043
TELEPHONE (703) 848-2130 / (202) 642-2130

DIGITAL NETWORKS - SOUTHEAST, LLC

WWHL-LD, Digital Channel 31

FACILITY ID: 995

NASHVILLE, TN

APRIL 2022

REVISED FOR CHANGE IN MOUNTING ELEVATION AGL AND ANTENNA ERP

Environmental Considerations as proposed in the application

Any changes in equipment or additions will not trigger any event with regards to Section 106 of the National Historical Preservation Act (NHPA). This is an existing developed communications site.

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.)

CALCULATED POWER DENSITY AT 2 METERS AGL (0.5 ANTENNA RELATIVE FIELD VALUE)

RCAGL: 54.5 m ERP (H): 15.0 KW HORIZONTAL ONLY	MPE $\mu\text{W}/\text{cm}^2$	CALCULATED VALUE $\mu\text{W}/\text{cm}^2$	% OF MPE	PASS/FAIL
CONTROLLED AREA	1916.7	45.442	2.37%	PASS
PUBLIC AREA	383.3		11.86%	PASS

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs are posted at the site. The applicant will coordinate exposure procedures with any co-located facilities and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

April 6, 2022

Timothy Z. Sawyer, Technical Consultant
T Z Sawyer Technical Consultants
2130 Hutchison Grove Court, Suite 100
Falls Church, Virginia 22043
Telephone: (703) 848-2130
e Mail to: tzsawyer@tzsawyer.com

