



**Kessler and Gehman Associates**  
Consultants • Broadcast • Wireless

**TELEVISION  
TRANSLATOR POST  
TRANSITION CHANNEL  
DISPLACEMENT  
RELIEF APPLICATION  
FOR WYHB-LP  
FACILITY ID 74358**

Chattanooga, TN

**Prepared For:**

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**Prepared On:**

May 24, 2018

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## **1.0 MINOR MODIFICATION CHANNEL DISPLACEMENT RELIEF ELIGIBILITY**

Ying Hua Bennis (“YHB”) is the licensee of an Analog Low Power Television Translator Station having call sign WYHB-LP, Facility ID 74358. WYHB-LP is licensed to operate on channel 39 with an ERP of 10.4 KW through a directional antenna. LPTV/translator stations that currently broadcast on channels (38-51) are automatically displaced because they are in the new 600 MHz band for mobile broadband service and thus WYHB-LP is clearly eligible to file for channel displacement relief in the April 10, 2018 through June 1, 2018 post-incentive auction special displacement window and is the purpose of the instant application.

Pursuant to 47 CFR Section 74.787(b) the instant application is considered a “minor” change because:

- The change in frequency is related to displacement relief as outlined above.
- The proposed change in transmitting antenna location site has been chosen such that the entire protected contour of the licensed facility is enveloped within the proposed contour as illustrated in Appendix C.
- The proposed change in transmitting antenna location site is 8.9km and thus less than 30 miles (48km) from the reference coordinates of the existing station’s antenna location.

## **2.0 STATION TRANSMITTER LOCATION AND ELEVATION**

It is proposed to move WYHB-LP 8.9 km toward 205.9 degrees from true north from its licensed location to existing tower which has an FCC Antenna Structure Registration (“ASR”) number of 1043736. The instant application does not propose to increase or modify the existing support structure and thus modification of the ASR is not necessary.

### **3.0 ALLOCATION ANALYSIS AND WAIVER REQUEST**

Appendix B are the summarized results from TVStudy V2.2.5. As indicated the proposed facility is predicted to receive 3.90% aggregate inbound interference, which is acceptable to YHB. Appendix B also demonstrates that the proposed facility is predicted to cause 42.92% interference to pre-transition station WTNB-CD Facility ID 49240, FCC File No.: 0000001208.

Using TVStudy V2.2.5, all high band VHF and UHF channels were studied in detail far beyond the Channel Study data provided by the Commission released in Public Notice DA 18-124. It was determined that there are no channels available which could replicate the licensed WYHB-LP facility and comply with the provisions of 47 CFR Section 73.3700(g). TVStudy analysis has indicated that Channel 27 allows the best replication of the Channel 39 WYHB-LP licensed facility in the post transition period.

It is therefore respectfully requested to waive 47 CFR Section 73.3700(g)(2)(i) requiring protection to pre-auction channel 27 WTNB-CD. YHB understands and agrees to a condition that it will not begin transmitting on channel 27 prior to the discontinuation of WTNB-CD from using channel 27 scheduled for September 6 2019. YHB also understands that if a conditionally granted WYHB-LP facility is to remain silent for a consecutive 12-month period prior to discontinuation of operation by WTNB-CD, the Commission will consider a request for extension or reinstatement pursuant to Section 312(g) of the Act and a request for waiver of the applicable Commission rule.

### **4.0 AM STATION PROXIMITY**

No AM stations are located within 3.2 km of the proposed facility. Pursuant to 47 C.F.R. Section 1.30002(e), the construction or extension of an antenna-supporting structure shall be considered subject to the moment method analysis and prior notification requirement; however, the instant application does not

propose to extend the existing structure or build a new structure. Thus, the proposed facility is exempt from further AM analysis consideration.

## **5.0 INTERNATIONAL COORDINATION**

The WYHB-LP transmitter site is 1504.3 km from the Mexican border and 762.6 km from the Canadian border and this is not required to coordinate with foreign entities.

## **6.0 RADIO FREQUENCY RADIATION COMPLIANCE**

A theoretical analysis has been conducted of the human exposure to radio frequency radiation (“RFR”) using the calculation methodology described in OET Bulletin 65, Edition 97-01. The RFR analysis is conducted pursuant to the following methodology:

Terrain<sup>1</sup> extraction is compiled from the proposed tower site to radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

Starting from the origin the maximum calculated RFR value is determined among the 360 degree radials for each 0.001 mile increment, the value is then converted into a percentage of the maximum allowable general

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<sup>1</sup> Terrain extraction is based upon a 3 arc second point spacing terrain database.

population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

The resulting RFR study in Appendix D demonstrates that the peak exposure is 0.01% of the most restrictive permissible exposure threshold. Pursuant to OET Bulletin 65 concerning multiple-user transmitter sites only those licensees whose transmitters produce power density levels greater than 5.0% of the exposure limit are considered significant contributors to RFR. Since the proposed operation is within 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR exposure. Thus, contributions to exposure from other RF sources in the vicinity of the proposed facility were not taken into account. The instant application is compliant with the FCC limits for human exposure to RF radiation and is excluded from further environmental processing since no changes are proposed to the tower structure in order to accommodate the proposed antenna.

A chain link fence encloses the support structure and the applicant will cooperate with any other users of the tower by reducing the power to the antenna or if necessary completely cutting it off to protect maintenance workers on the tower.

## **7.0 CERTIFICATION**

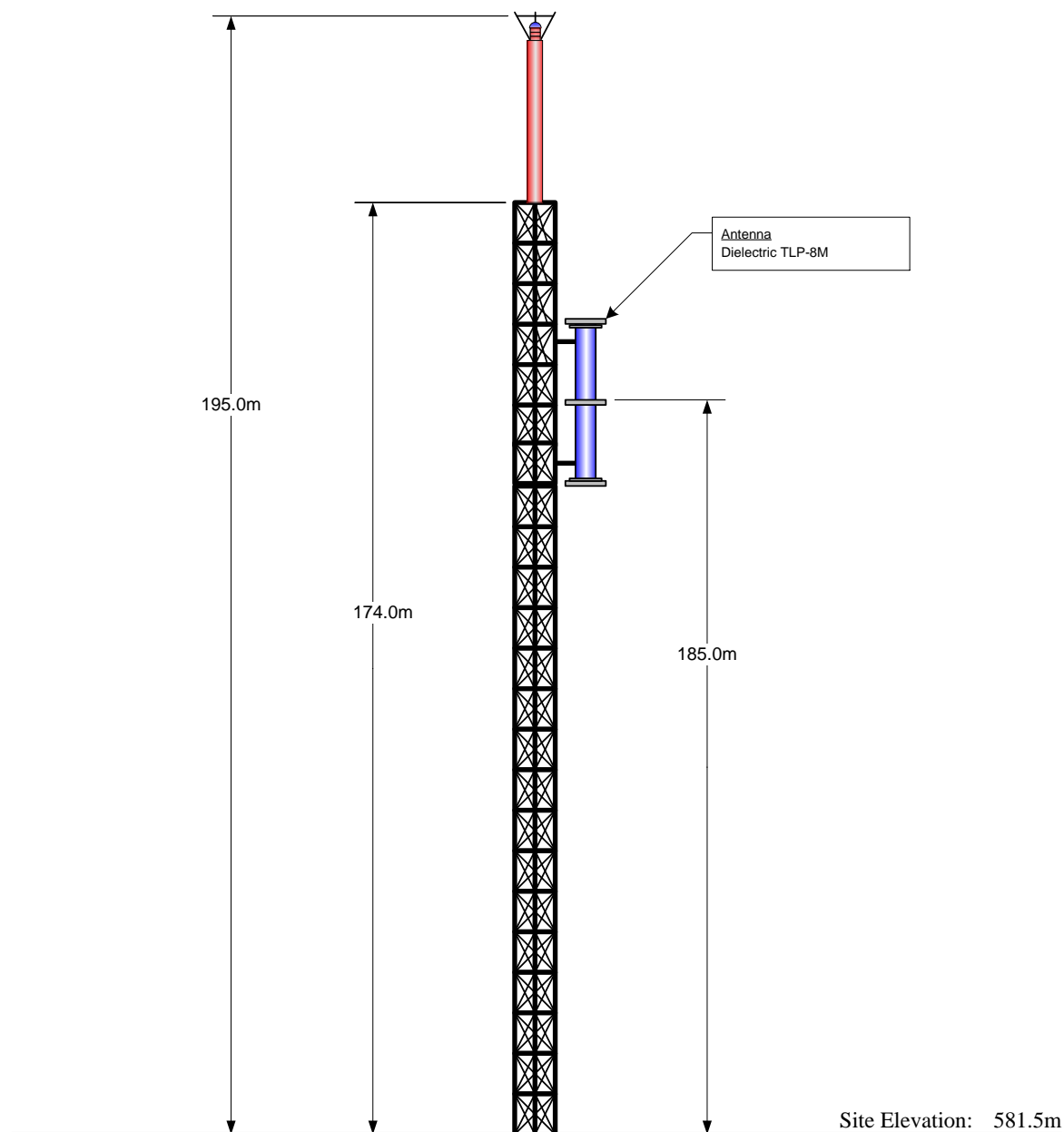
The foregoing statement and the report regarding the engineering work are true and correct to the best of my knowledge. Executed May 24, 2018.

Kessler and Gehman Associates, Inc.



Ryan Wilhour  
Consulting Engineer

## APPENDIX A – Tower Elevation Diagram



Antenna CRAGL:	185.0 m
Antenna CRMSL:	766.5 m
Antenna HAAT:	416.5 m

NAD 83 Coordinates:	
N. Latitude:	35° 08' 06.0"
W. Longitude:	85° 19' 25.0"

NOTE: NOT TO SCALE

FCC Tower Registration Number:	1043736
FAA Study Number	SO-OE-65-177

## WYHB-LP – Post Transition Channel Displacement Relief

Chattanooga, TN

### APPENDIX B – TVStudy V2.2.5 Allocation Analysis

Study created: 2018.05.24 10:59:59

Study build station data: LMS TV 2018-05-24

Proposal: WYHB-LP D27 LD LIC CHATTANOOGA, TN  
File number: WYHB-LP Channel 27  
Facility ID: 74358  
Station data: User record  
Record ID: 3176  
Country: U.S.

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

Search options:  
Non-U.S. records included  
Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WTJP-TV	D26	DT	LIC	GADSDEN, AL	BLCDT20110304ACB	179.3 km
No	W26EM-D	D26	LD	CP	ATHENS, GA	BPDTL20141216ABG	202.0
No	WLVO-LD	D26	LD	LIC	Atlanta, GA	BLANK0000008263	172.9
No	WTBS-LP	N26-	TX	LIC	ATLANTA, GA	BLTTL20000620AEP	175.3
No	W47DY-D	D26	LD	APP	CANTON/WAYNESVILLE, NC	BLANK0000054211	224.3
Yes	W18DS-D	D26	LD	APP	CHATTANOOGA, TN	BLANK0000051827	8.9
No	WATE-TV	D26	DT	LIC	KNOXVILLE, TN	BMLCDT20041203AEG	157.8
No	WNTU-LP	D26-	LD	CP	NASHVILLE, TN	BLANK0000048995	183.1
No	WNTU-LP	N26-	TX	LIC	NASHVILLE, TN	BLTTL20001018ABZ	174.2
No	WBUN-LD	D27	LD	LIC	BIRMINGHAM, AL	BLDTL20130909ACA	228.5
No	WAIQ	D27	DT	LIC	MONTGOMERY, AL	BLEDT20060706ACK	318.8
No	WNAL-LD	D27-	LD	LIC	SCOTTSBORO, AL	BLANK0000044789	115.9
Yes	WNAL-LD	N27-	TX	LIC	SCOTTSBORO, AL	BLTT20060126AEL	86.0
Yes	WAGA-TV	D27	DT	LIC	ATLANTA, GA	BLCDT20060728AEL	174.1
No	W27DT-D	D27	LD	CP	BYROMVILLE, GA	BNPDTL20100510AFT	346.0
No	W27DK-D	D27	LD	CP	COLUMBUS, GA	BNPDTL20090825BYF	316.6
No	W27DV-D	D27	LD	CP	DUBLIN, GA	BNPDTL20100510AHA	369.8
No	WTVQ-DT	D27	DT	CP	LEXINGTON, KY	BLANK0000026675	332.7
No	W27DH-D	D27	LD	LIC	Louisville, KY	BLANK0000010566	359.0
No	W27DH-D	D27	LD	CP	Louisville, KY	BLANK0000036475	373.4
No	WCBI-TV	D27	DT	CP	COLUMBUS, MS	BLANK0000024641	360.2
No	W27DS-D	D27	LD	CP	STARKVILLE, MS	BNPDTL20100512AII	368.0
No	W27DW-D	D27	LD	CP	TUPELO, MS	BNPDTL20100512AIL	315.2
No	W41DL-D	D27	LD	APP	BOONE, NC	BLANK0000053444	348.8
Yes	WUNW	D27	DD	APP	CANTON, NC	BLANK0000036076	224.3
Yes	WUNW	D27	DT	CP	CANTON, NC	BLANK0000035959	224.3
Yes	WUNW	D27	DT	LIC	CANTON, NC	BLEDT20110921AAA	224.3
No	WGTB-CD	D27	DT	CP	CHARLOTTE, NC	BLANK0000028505	379.2
No	WCCB	D27	DT	LIC	CHARLOTTE, NC	BLCDT20020227AAZ	417.0
No	WDYH-LD	D27	LD	LIC	Columbia, SC	BLANK0000004617	361.9
No	WDYH-LD	D27	LD	CP	Columbia, SC	BLANK0000036473	372.4
Yes	WTNB-CD	D27	DC	LIC	CLEVELAND, TN	BLANK0000001208	40.7
No	WYJJ-LD	D27	LD	LIC	JACKSON, TN	BLDTL20140516ABM	323.1
No	WKPT-TV	D27	DT	LIC	KINGSPORT, TN	BLANK0000003746	321.4
No	WLJT-DT	D27	DT	CP	LEXINGTON, TN	BLANK0000034926	303.7
No	WKRN-TV	D27	DT	LIC	NASHVILLE, TN	BLCDT20090624ABO	169.8
No	WTO	D28	DT	LIC	HOMEWOOD, AL	BLCDT20060406AAG	228.5
No	WDWW-LD	D28	LD	LIC	CLEVELAND, GA	BLANK0000013970	172.9
Yes	WELF-TV	D28	DT	CP	DALTON, GA	BLANK0000026361	35.7
No	WEZK-LP	N28z	TX	LIC	KNOXVILLE, TN	BLTTL20001011ACO	159.0
No	WEZK-LP	D28	LD	CP	KNOXVILLE, TN	BDFCDTL20130918AHU	159.0
No	WKUW-LD	D28	LD	APP	WHITE HOUSE, TN	BLANK0000051642	183.1
No	W21BZ	N30-	TX	LIC	COLLEGE DALE, TN	BLTTL19990802JH	25.8
No	W34DB	N34+	TX	LIC	LEWISBURG, TN	BLTTL20050309ABL	137.5

No non-directional AM stations found within 0.8 km



## WYHB-LP – Post Transition Channel Displacement Relief

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No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D27  
Mask: Full Service  
Latitude: 35 8 6.00 N (NAD83)  
Longitude: 85 19 25.00 W  
Height AMSL: 766.5 m  
HAAT: 416.5 m  
Peak ERP: 1.00 kW  
Antenna: Dielectric TLP-8M 145.0 deg  
Elev Pattn: Generic  
Elec Tilt: 1.00

50.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.056 kW	203.1 m	22.3 km
45.0	0.473	525.1	45.6
90.0	0.996	535.1	50.3
135.0	0.812	546.8	49.3
180.0	0.918	547.4	50.0
225.0	0.748	468.4	46.4
270.0	0.198	265.3	31.7
315.0	0.051	240.8	23.7

Distance to Canadian border: 762.6 km

Distance to Mexican border: 1504.3 km

Conditions at FCC monitoring station: Powder Springs GA  
Bearing: 158.6 degrees Distance: 151.8 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 293.5 degrees Distance: 1832.8 km

Study cell size: 1.00 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%

\*\*IX check failure to BLANK0000001208 LIC scenario 1, 42.92% interference caused

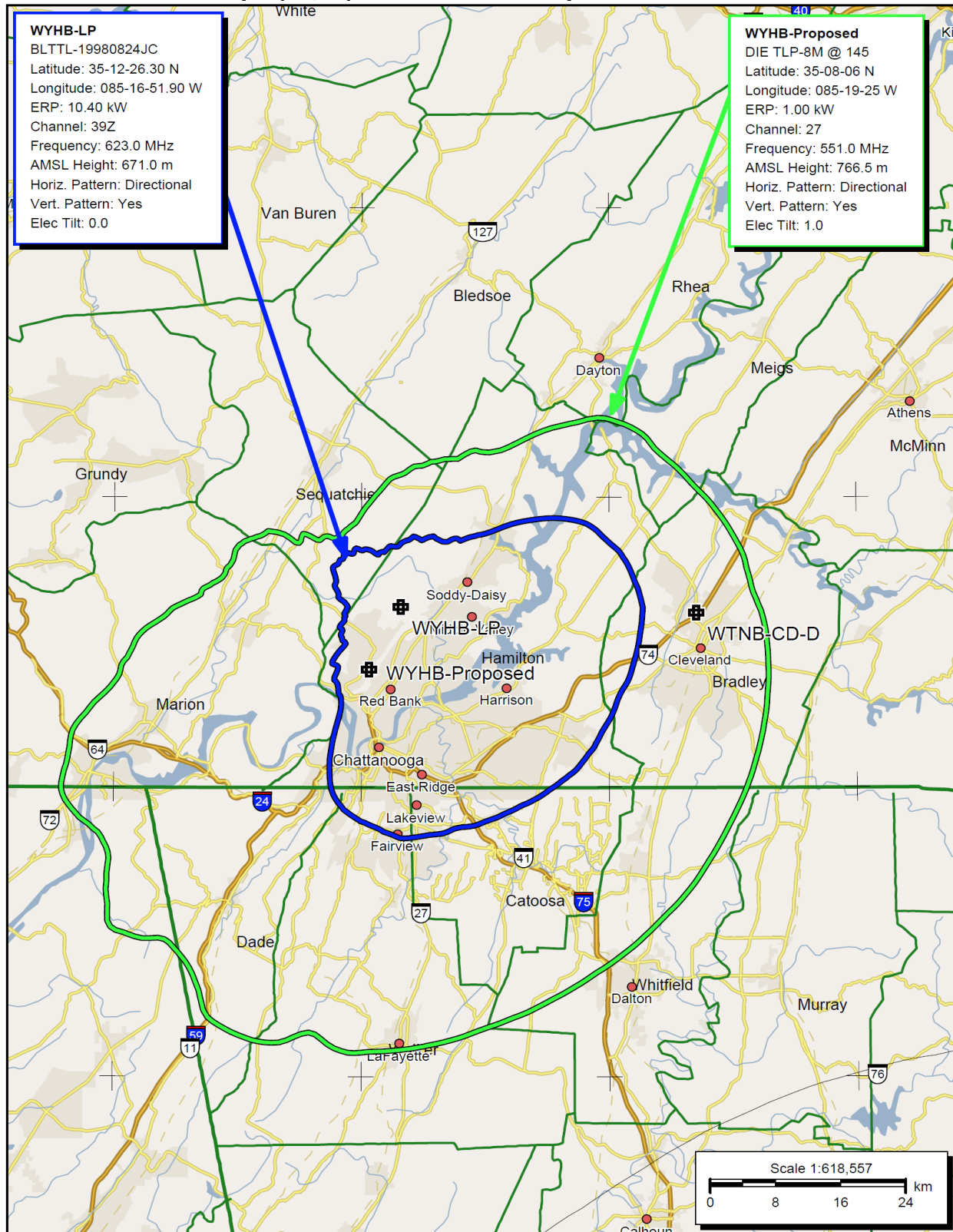
---- Below is IX received by proposal WYHB-LP Channel 27 ----

\*\*MX with BLANK00000051827 APP scenario 1, 3.88% interference received  
\*\*MX with BLANK00000051827 APP scenario 2, 3.90% interference received

## WYHB-LP – Post Transition Channel Displacement Relief

Chattanooga, TN

### APPENDIX C – 51dBμ F(50,90) Licensed and Proposed Contour



## APPENDIX D – Far Field Exposure to RF Emissions

