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## MINOR MODIFICATION TO A LICENSED FM TRANSLATOR

**CALL SIGN: W217CH**  
**FACILITY ID: 71664**  
**FCC FILE NO.: BLFT-20161223ABH**  
**LOCATION: WILLIAMSON, WV**

### **Prepared For:**

West Virginia Educational  
Broadcasting Authority  
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Charleston, WV 25301-1223

### **Prepared By:**

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## **1.0 INTRODUCTION AND SCOPE OF WORK**

West Virginia Educational Broadcasting Authority (“WVEBA”) is the licensee of an FM translator station having call sign W217CH<sup>1</sup>. It is herein proposed to use the W217CH facility as a fill-in translator for WVEBA’s full-service FM station WVKM-FM<sup>2</sup>. As such the proposed facility will increase the ERP from 10W to 250W and employ a directional antenna to meet Section 74.1201(g) coverage requirements. Furthermore, the licensee W217CH has become mutually exclusive with a new original construction permitted facility having facility ID number 765467 and will change to channel 202 pursuant to 47 CFR Section 74.1233(a)(1)(i)(A)(2).

## **2.0 MINOR MODIFICATION**

It is herein proposed to change the channel from 217 to 202. The proposed channel change is considered “minor” since the November 2 – 9, 2021 FM broadcast reserve band filing window produced an original construction permit<sup>3</sup> granted as facility ID 765467 which is mutually exclusive with W217CH as currently licensed as demonstrated in Appendix A. Appendix A demonstrates that the licensed 40dBμV/m F(50-10) interfering contour shares significant prohibited overlap with the construction permitted 60 dBμV/m F(50,50) protected contour. W217CH is secondary to the granted original construction permit and is thus displaced from channel 217. The instant application qualifies for same band channel displacement relief as a minor modification application pursuant to 47 CFR Section 74.1233(a)(1)(i)(A)(2).

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<sup>1</sup> Facility ID 71664

<sup>2</sup> Facility ID 67039, FCC File No.: BLED-20170202ABE

<sup>3</sup> FCC File No.: 0000166290

### **3.0 47 CFR SECTION 74.1204 AND 73.1205 ALLOCATION ANALYSIS**

Appendix B contains contour overlap studies using 30 arc-second FCC terrain data which indicate that the closest prohibited contour overlap occurs with WVBL having a 4.6km separation buffer. Appendix B also demonstrates inbound contour overlap from WEBS and WCQR-FM which is not prohibited, and the instant applicant accepts the interference. As such the contour protection requirements specified in 47 CFR Section 74.1204 have been met by a significant margin to all applicable broadcast stations. Pursuant to Section 73.1205 pertaining to TV channel 6 stations, there are no TV Channel 6 stations to study within 146km of the W217CH transmitter site.

### **4.0 CONTOUR ANALYSIS AND TRANSLATOR FILL-IN COMPLIANCE**

Appendix C illustrates the 1 mV/m (60 dBμ/m) protected contour of the proposed W217CH facility relative to the 1 mV/m (60 dBμ/m) protected contour of fill-in station WVKM(FM). Appendix C utilizes 30 arc-second FCC terrain data and a computer program which calculates and plots the distances to the protected contours using Figure 1 of Section 73.333 showing the F(50,50) propagation curve. As demonstrated the proposed W217CH protected contour is completely subsumed by the WVKM(FM) contour and thus complies with the fill-in translator coverage restrictions found in Section 74.1201(g).

### **5.0 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>4</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 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 4.33% 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.

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<sup>4</sup> Terrain extraction is based upon a 3 arc second point spacing terrain database.

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.

## **6.0 CERTIFICATION**

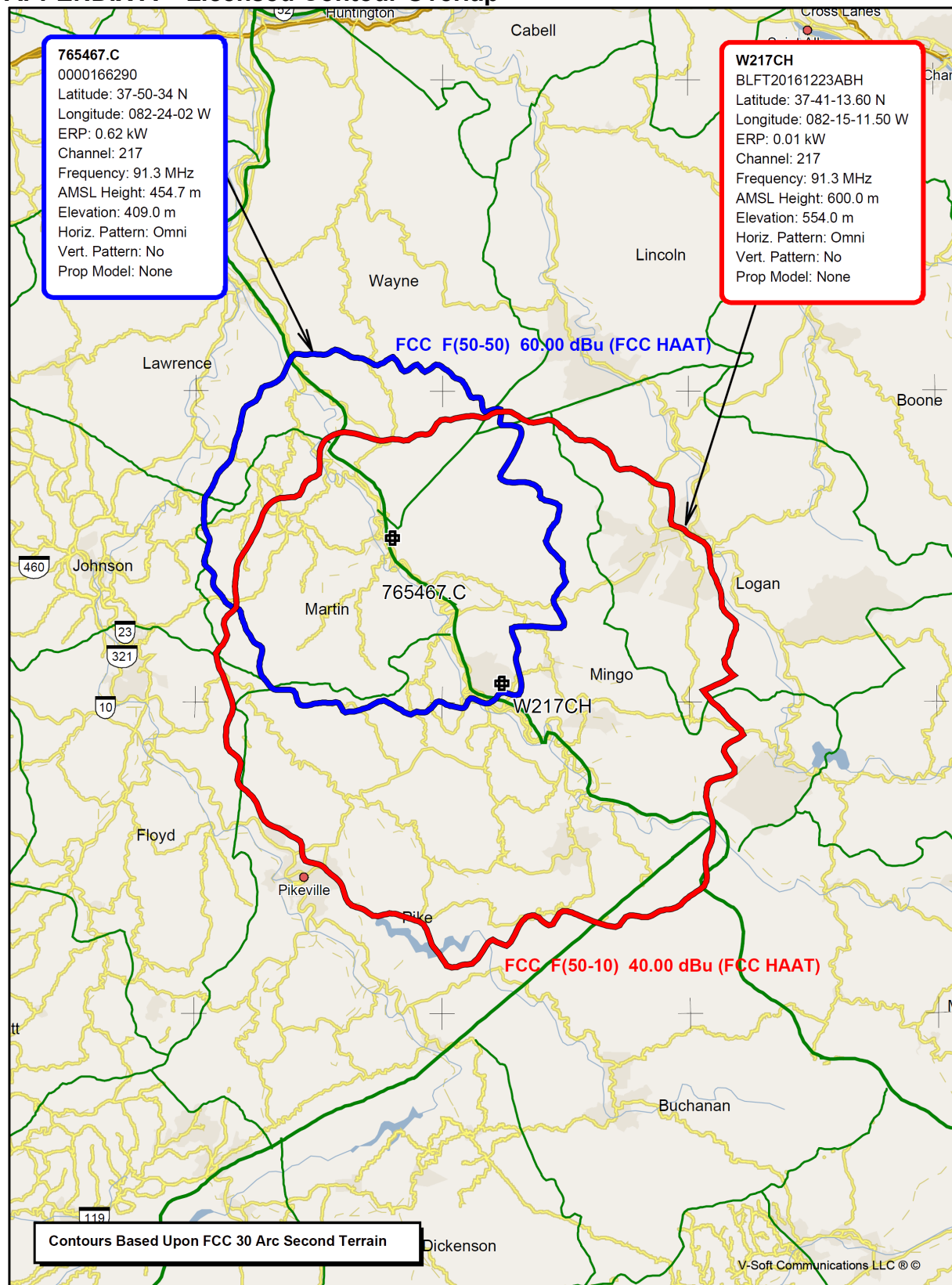
The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on May 19, 2022

Ryan Wilhour



Consulting Engineer

## APPENDIX A – Licensed Contour Overlap



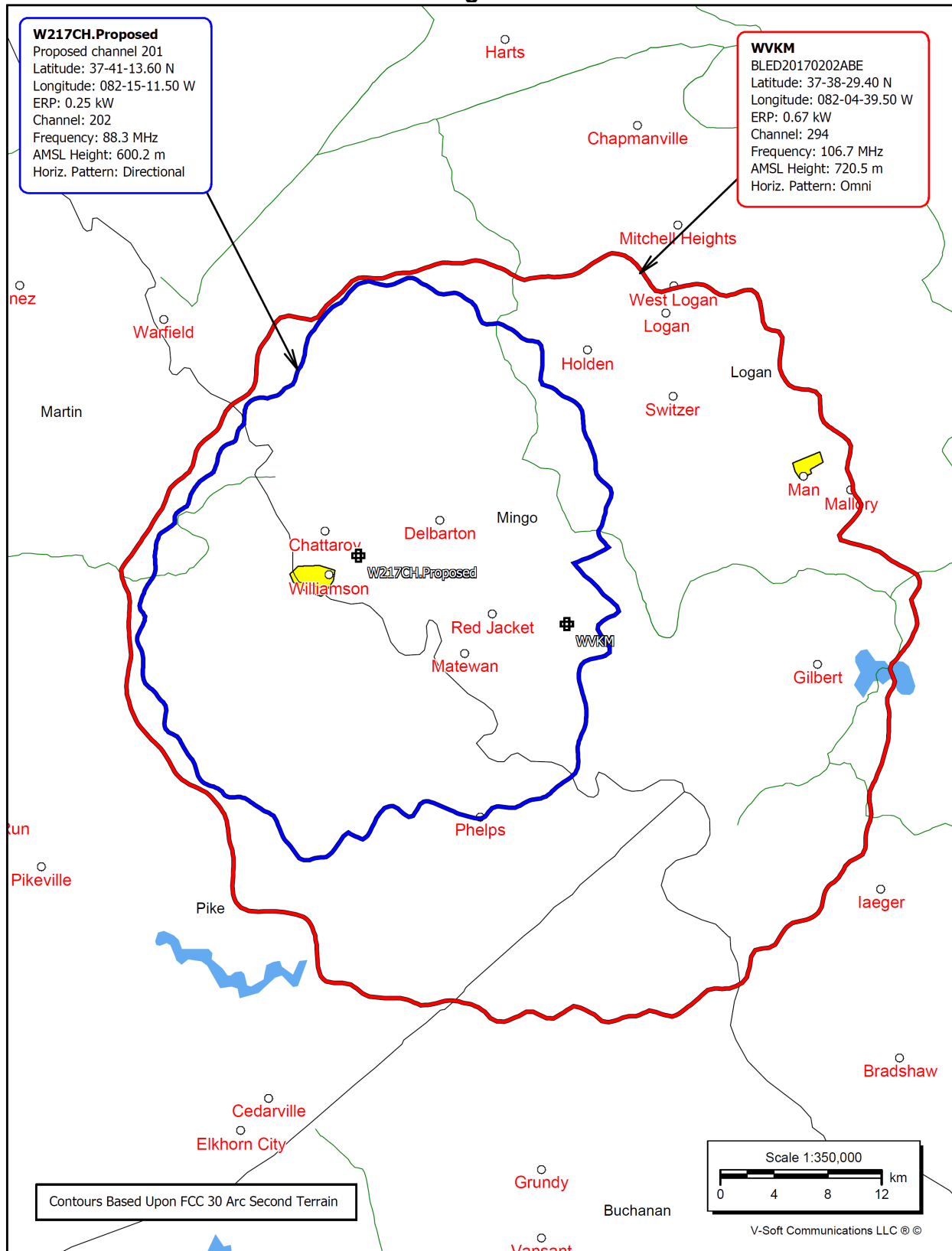
## APPENDIX B – 47 CFR Section 74.1204 Allocation Analysis

WVEBA											
REFERENCE		CH# 202D - 88.3 MHz, Pwr= 0.25 kW DA, HAAT= 257.0 M, COR= 600.2 M DISPLAY DATES								DATA 05-18-22	
37 41 13.6 N.		Average Protected F(50-50)= 20.9 km								SEARCH 05-19-22	
82 15 11.5 W.		Standard Directional									
CH	CALL	TYPE	ANT	AZI.	DIST	LAT.	Pwr (kW)	INT (km)	PRO (km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG.	HAAT (M)	COR (M)	LICENSEE	(Overlap in km)	
202C2	WEBF	LIC	DCN	266.7	125.12	37 36 47.30	7.800	116.1	47.9	-7.5	27.0
Lerose			KY	85.8	BLED20110621AAC	83 40 17.70	282	569	Hour Of Harvest, Inc.		
202C2	WCQR-FM	LIC	DCN	175.8	139.97	36 25 53.30	1.200	124.9	51.7	-7.0	24.2
Kingsport			TN	355.8	BLED19961120KB	82 08 15.40	650	1276	Positive Alternative Radio		
203B	WVBL	LIC	DVN	117.0	99.54	37 16 34.00	50.000	74.7	48.9	4.6	22.6
Bluefield			WV	297.6	BLED20120419AAW	81 15 03.00	32	846	West Virginia Educational		
201A	WNBV	LIC	VN	161.5	46.72	37 17 18.30	0.100	16.5	6.9	12.3	7.0
Grundy			VA	341.6	BLED20081217AAC	82 05 08.40	45	580	Jewell Valley Railroad Inc		
203B	WVPB	LIC	DCN	34.1	92.74	38 22 34.60	44.000	66.0	40.4	8.0	18.1
Charleston			WV	214.5	BLED200606022AAJ	81 39 23.50	134	384	West Virginia Educational		
204C1	WMMT	LIC	DEN	213.9	77.04	37 06 38.30	15.000	6.6	65.5	50.1	10.3
Whitesburg			KY	33.6	BLED19951023KA	82 44 14.50	448	1018	Appalshop, Incorporated		
202B1	WSGR	LIC	CN	330.6	132.39	38 43 21.50	1.700	88.4	32.3	26.9	54.0
New Boston			OH	150.2	BLED20190715AIT	83 00 05.00	233	476	St. Gabriel Radio, Inc.		
201B1	WJJJ	LIC	CN	95.8	100.80	37 35 24.40	0.840	51.9	33.9	29.3	39.8
Beckley			WV	276.5	BLED20100908ACB	81 06 53.30	348	1134	Shofar Broadcasting Corpor		
255C1	WSIP-FM«	LIC	NCN	292.0	51.35	37 51 30.30	100.000	0.0	0.0	21.5R	29.9M
Paintsville			KY	111.6	BLH20110725AFB	82 47 40.60	191	454	S.I.P. Broadcasting Compan		
201D	W201AI	LIC	DHN	195.3	85.76	36 56 34.30	0.090	10.0	6.3	53.0	41.8
Coeburn			VA	15.2	BLFT20060324ADX	82 30 30.50	179	888	Appalshop, Inc.		
201C2	762690	CP	DCN	225.6	139.95	36 48 05.00	3.000	75.6	50.1	44.4	61.7
Harlan			KY	44.9	0000166440	83 22 37.00	407	960	Torstrick Ministries, Inc.		
201A	WMUL	LIC	CN	349.4	83.36	38 25 26.70	1.400	15.6	11.0	48.1	46.2
Huntington			WV	169.3	BLED20121018AAX	82 25 42.80	-15	209	Marshall University Board		

Terrain database is FCC NGDC 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM In & Out distances between contours are shown at closest points. Reference Zone= - Zone 1, Co to 3rd adjacent. All separation margins (if shown) include rounding. Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)« = Station meets FCC minimum distance spacing for its class.



## APPENDIX C – Fill-in Translator Coverage Contour



## APPENDIX D – Far Field Exposure to RF Emissions

