Kessler and Gehman Associates
Consultants • Broadcast • Wireless

REQUEST FOR SPECIAL TEMPORARY AUTHORITY FOR A TV TRANSLATOR CHANNEL DISPLACEMENT W41DK-D

Keyser, WV

Prepared For:

West Virginia Educational
Broadcasting Authority
600 Capitol ST
Charleston, WV 25301-1223

Prepared By:

Ryan Wilhour
Consulting Engineering
Kessler and Gehman Associates
507 NW 60th Street, Suite D
Gainesville, FL 32607-2055
352-332-3157 Extension 3
ryan@kesslerandgehman.com
www.kesslerandgehman.com

Prepared On:

November 21, 2017

TABLE OF CONTENTS

1.0 BACKGROUND AND WAVIER REQUEST

This engineering statement was prepared on behalf of West Virginia Educational Broadcasting Authority ("WVEBA"), licensee of digital TV translator station W41DK-D located at Keyser, WV.

On September 27, 2017 a 120 day advance notification letter[1] was issued to WVEBA which informs that T-Mobile is preparing to commence operations on its 600MHz spectrum in the Partial Economic Area ("PEA") # 114 by February 4, 2018 and W41DK is likely to cause harmful interference to T-Mobile's operations. The required termination of W41DK from using channel 41 will occur before the Commission opens a special displacement LPTV and translator window.

Due to the timing of these circumstances, WVEBA respectfully requests a waiver of the Displacement Freeze, in accordance with the procedures[2] announced by the FCC. The grant of the instant STA and a simultaneously filed displacement application for channel 16 will allow W41DK to continue providing service to viewers with minimal disruption and thus will best serve the public interest.

2.0 ALLOCATION ANALYSIS

Using TVStudy v2.2.3 software in conjunction with the Commission's Version 2 TVIXCheck.xml template dated May 16, 2017, W41DK was studied for allocation violations. The following build options were enabled to ensure protection of pre and post auction facilities:

- Protect records not on baseline channel
- Protect baseline records from LPTV

[1] Refer to Appendix A
[2] *Incentive Auction Task Force and Media Bureau Set Forth Tools Available to LPTV/Translator Stations Displaced Prior to the Special Displacement Window*, Public Notice, DA 17-584 (rel June 14, 2017)

Appendix B demonstrates no outbound interference conflicts occur to any pre or post transition stations. The facility is predicted to experience up to 2.46% inbound interference which is permissible.

3.0 RF EXPOSURE ANALYSIS

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[3] 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 Illustrated In Appendix C demonstrates that the peak exposure is 4.69% of the most restrictive permissible exposure threshold.

[3] Terrain extraction is based upon a 3 arc second point spacing terrain database.

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 thus is excluded from further environmental processing.

A chain link fence shall encompass the proposed support structure. 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 in order to protect maintenance workers on the tower.

4.0 CERTIFICATION

I, Ryan Wilhour, am an engineering associate of Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and have been working in the field of radio and television broadcast consulting since 1996. I am a graduate of the University of Florida with a Bachelor of Science degree in electrical engineering. I state that I personally conducted the site survey. The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge.

Ryan Wilhour

Consulting Engineer
November 21, 2017

Appendix A – T-Mobile Certified Letter

VIA CERTIFIED MAIL & EMAIL

September 27, 2017

WEST VIRGINIA EDUCATIONAL BROADCAST

600 Capitol St

Charleston, WV 25301

RE: Notification of Intent to Begin 600MHz Operations

Dear W41DK-D/ Facility ID:167356 Licensee:

T-Mobile USA, Inc. ("T-Mobile") is notifying you that T-Mobile is preparing to commence operations on its 600MHz spectrum in the Partial Economic Area ("PEA") # 114 by 2/4/2018 and your station is likely to cause harmful interference to T-Mobile's operations.

To determine if your station(s) is likely to cause interference, an interference analysis has been performed, as specified by the Federal Communications Commissions' ("FCC") Inter-service Interference procedures[1], using publicly available information in the FCC's Licensing and Management System ("LMS") for your facility. This analysis predicts field strength at T-Mobile's base station and user equipment locations in the PEA # 114 market from your facility. The FCC has set the thresholds at which the predicted field strength from low power TV and translator stations creates a sufficient interference risk to wireless facilities. T-Mobile has determined that your facility exceeds those thresholds and is an interference risk to its wireless operations.

T-Mobile will commence its operations in the PEA # 114 market on 2/4/2018. This letter provides the 120 days' advance notification required by FCC regulations, 47 CFR §73.3700(g)(4).

[1] *See* 30 FCC Rcd 12049, 12071, para. 49 (2015)

T-Mobile USA, Inc. 12920 SE 38th Street, Bellevue, Washington 98006

The FCC regulations also require you to cease operations or eliminate the potential for harmful interference to T-Mobile's wireless facilities in the PEA # 114 market.

The FCC will work with you to attempt find a new television channel outside of the new 600 MHz mobile band that will not interfere with T-Mobile's network. You should review the FCC's Tools Available to LPTV/Translator Station Public Notice (enclosed) released on June 14, 2017 and contact Hossein Hashemzadeh, Melvin Collins, or Barbara Kreisman at the FCC for more information about the options available in your area.[2]

Please email 600MhzFC@T-Mobile.com once you have determined when you will eliminate the interference. If you would like additional information regarding our findings or if it might be possible to coordinate our operations, please submit a request to Dan Wilson, Sr. Manager, Spectrum Engineering, at 600MhzFC@T-Mobile.com.

Sincerely,

/s/ Dan Wilson

Sr. Manager, Spectrum Engineering, T-Mobile USA, Inc.

Appendix B – TVStudy v2.2.3 IX Analysis Summary

```
Study created: 2017.11.20 11:15:02

Study build station data: LMS TV 2017-11-20 (60)

    Proposal: W41DK-D D16 LD LIC KEYSER, WV
 File number: W41dk on channel 16
 Facility ID: 167356
Station data: User record
   Record ID: 2371
     Country: U.S.

Build options:
Protect records not on baseline channel
Protect baseline records from LPTV

Stations affected by proposal:

Call      Chan  Svc Status  City, State              File Number            Distance
W16CO-D   D16   LD  LIC     MIDDLEBURG, PA           BLDTL20110222ADB       223.4 km
WINP-TV   D16   DT  CP      PITTSBURGH, PA           BLANK0000026984        140.3
WINP-TV   D16   DT  APP     PITTSBURGH, PA           BLANK0000034405        140.3
WINP-TV   D16   DT  BL      PITTSBURGH, PA           DTVBL41314             140.3
WNEP-TV   D16   DT  CP      SCRANTON, PA             BLANK0000025543        337.7
WNEP-TV   D16   DT  APP     SCRANTON, PA             BLANK0000034255        337.7
WNEP-TV   D16   DT  BL      SCRANTON, PA             DTVBL73318             337.7
WVAW-LD   D16   LD  LIC     CHARLOTTESVILLE, VA      BLDTL20090218AEG       163.8
WUSV-LD   D16   LD  LIC     CLARKSBURG, WV           BLDTL20140616AEQ       105.2

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

    Channel: D16
       Mask: Stringent
   Latitude:  39 22 55.30 N (NAD83)
  Longitude:  79  4 45.10 W
Height AMSL: 951.3 m
       HAAT: 407.4 m
   Peak ERP: 15.0 kW
    Antenna: Omnidirectional
Elev Pattrn: Generic
  Elec Tilt: 1.5

48.9 dBu contour:
Azimuth      ERP       HAAT   Distance
  0.0 deg   15.0 kW   401.1 m   63.2 km
 45.0       15.0      560.4     69.3
 90.0       15.0      590.0     70.3
135.0       15.0      571.6     69.6
180.0       15.0      449.0     65.7
225.0       15.0      151.3     49.2
270.0       15.0      257.1     55.5
315.0       15.0      294.4     57.6

Database HAAT does not agree with computed HAAT
Database HAAT: 408 m   Computed HAAT: 407 m

Distance to Canadian border: 345.1 km

Distance to Mexican border: 2230.0 km

Conditions at FCC monitoring station: Laurel MD
Bearing: 96.4 degrees   Distance: 195.8 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 280.6 degrees   Distance: 2227.4 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area


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%

**MX with BLANK0000034405 APP, 2.46% interference, scenario 3
**MX with scenario 4, receives 2.46% interference
**MX with scenario 7, receives 2.46% interference
**MX with scenario 8, receives 2.46% interference
```

Appendix C – RF Exposure Analysis