

***AMENDMENT TO
APPLICATION FOR CONSTRUCTION PERMIT***

**W33EM-D – ALTOONA, PENNSYLVANIA
FACILITY ID: 68024
CHANNEL 33 – 2.0 kW ERP DA**

DIGITAL NETWORKS–NORTHEAST, LLC

OCTOBER 2021

AMENDMENT TO APPLICATION FOR CONSTRUCTION PERMIT

The following engineering statement and attached exhibits have been prepare for **Digital Networks-Northeast, LLC** ("Northeast"), licensee of digital low power television station W33EM-D at Altoona, Pennsylvania, and are in support of their amendment to application for construction permit to modify that facility.¹ This application seeks to modify the current license for the facility, which is assigned LMS File No. 000012076, and amend the pending application under LMS File No. 0000157813.

By way of email, the Staff advised the applicant that there appeared to be a lack of contour overlap between the licensed and proposed technical parameters. Although calculations from the undersigned engineer graphically demonstrated overlap, the area of overlap was extremely small. As a result, it is certainly recognized that due to rounding and other differences between the computing platforms used, the level of overlap is questionable. In order to alleviate any questions, Northeast is in this amendment specifying a different site to be used.

W33EM-D is licensed to operate on television channel 33 with a maximum effective radiated power of 1.58 kW at a center of radiation of 421.6 meters above mean sea level, 30.5 meters above ground level, utilizing a composite directional antenna. The proposed facility would operate on television channel 33 with a maximum effective radiated power of 2.0 kW. The proposed center of radiation is 756.6 meters above mean sea level, or 30.0 meters above ground level. The tower to be utilized is assigned 1287762 as its Antenna Structure Registration Number. A composite directional antenna consisting of two Kathrein-Scala PR-TV antennas is proposed for use. One

¹ The Facility ID for W33EM-D at Altoona, Pennsylvania is 68024.

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element is to be oriented at 120 degrees true, with the remaining at 290 degrees true. Equal power division will be employed.

The map in Exhibit E-1 provides a comparison between the licensed and proposed technical parameters, and illustrates the 51 dBu F(50,90) contour for each. A large area of overlap between the two contours exists, and is shaded in green. A relocation of the transmitter site is proposed, and this map demonstrates that the relocation distance is less than thirty miles. The specified technical parameters therefore are a minor change to the existing license.

Exhibit E-2 is the output from *TVStudy* for the proposed technical parameters. This study demonstrates that the proposed technical parameters would not fail interference checks to other relevant proposed and authorized facilities. This study was completed using a cell size of 1.0 km at a profile spacing of 1.0 kilometer.

The proposed facility is not located within the West Virginia quiet zone and is located at a significant distance from the Table Mountain receiving zone. The distance from the proposed site to the Laurel, Maryland monitoring station is 200.6 kilometers. Additionally, the proposed facility would not constitute a significant environmental impact and is exempt from environmental processing. The proposed antenna would be mounted to an existing tower that is registered with the Commission. The addition of the antenna to this tower would not increase the already existing environmental impact present from the tower.

In addition, the proposed facility would not result in human exposure at ground level to radiofrequency radiation in excess of the Commission's safety standards. Using the equations in

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Supplement A of *OET Bulletin 65*, the calculated worst-case power density at ground level assuming a downward radiation relative field of 0.3 is $7.367 \mu\text{W}/\text{cm}^2$. This value is less than the upper limit of the uncontrolled environment condition. Northeast certifies it will coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Coordination activities will include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation.

The proposed facility complies with the provisions of Section 74.709 of the Commission's Rules. No land mobile protection issues have been identified based on the tables in that section of the rules, or on the output of *TVStudy*. The proposed facility also complies with Sections 74.793(e)-(h) and 74.793(h) of the Commission's Rules.

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature
License Expires November 30, 2021

Jeremy D. Ruck, PE
October 5, 2021

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W33EM-D.X

0000157813

Latitude: 40-00-46.70 N

Longitude: 078-53-20.70 W

ERP: 2.00 kW

Channel: 33

Frequency: 587.0 MHz

AMSL Height: 756.6 m

Horiz. Pattern: Directional

Prop Model: FCC Contour

W33EM-D

0000120706

Latitude: 39-51-15.70 N

Longitude: 078-37-52 W

ERP: 1.58 kW

Channel: 33

Frequency: 587.0 MHz

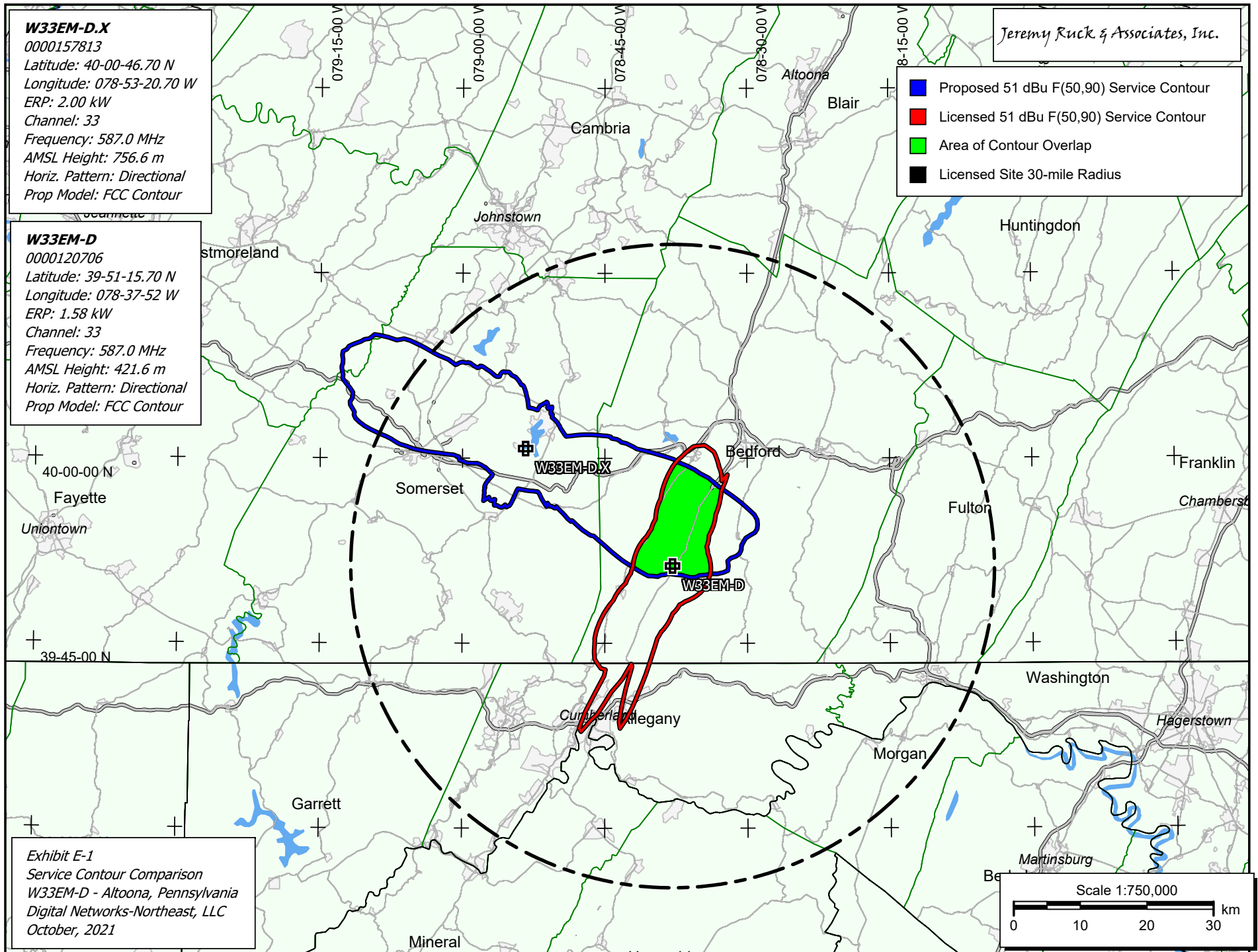
AMSL Height: 421.6 m

Horiz. Pattern: Directional

Prop Model: FCC Contour

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- Proposed 51 dBu F(50,90) Service Contour
- Licensed 51 dBu F(50,90) Service Contour
- Area of Contour Overlap
- Licensed Site 30-mile Radius

**Exhibit E-1**

Service Contour Comparison

W33EM-D - Altoona, Pennsylvania

Digital Networks-Northeast, LLC

October, 2021

Exhibit E-2 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: K33EM CH33 CP MOD AMD ASRN 1287762 756.6 m AMSL 2 kW PR-TV x2 1@120 1@290,
Model: Longley-Rice
Start: 2021.10.05 13:00:11

Study created: 2021.10.05 13:00:11

Study build station data: LMS TV 2021-10-05

Proposal: W33EM-D D33 LD APP Altoona, PA
File number: BLANK0000157813
Facility ID: 68024
Station data: User record
Record ID: 385
Country: U.S.

Build options:

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

Search options:

Non-U.S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WIIC-LD	N29+	TX	LIC	PITTSBURGH, PA	BLTTTL19981230JB	103.1 km
No	WBPA-LD	N30+	TX	LIC	PITTSBURGH, PA	BLANK0000007299	108.0
No	WRZB-LD	D32	LD	LIC	WASHINGTON, DC	BLANK0000024420	195.6
No	WYFX-LD	D32	LD	LIC	YOUNGSTOWN, OH	BLANK0000082699	188.3
No	WMVH-CD	D32	DC	LIC	CHARLEROI, PA	BLANK0000079929	86.5
No	WMVH-CD	D32	DC	CP	CHARLEROI, PA	BLANK0000127551	86.5
No	WHP-TV	D32	DT	LIC	HARRISBURG, PA	BLANK0000080028	175.5
No	WKHU-CD	D32	DC	LIC	KITTANNING, PA	BLANK0000079958	102.1
No	WKHU-CD	D32	DC	CP	KITTANNING, PA	BLANK0000127549	102.1
No	WCAV	D32	DT	LIC	CHARLOTTESVILLE, VA	BLANK0000092578	228.2
No	WHUT-TV	D33	DT	LIC	WASHINGTON, DC	BLANK0000151089	195.1
No	WOWZ-LP	D33	LD	CP	SALISBURY, MD	BLANK0000137660	319.2
No	WUNL-TV	D33	DT	LIC	WINSTON-SALEM, NC	BLANK0000121301	424.5
No	WSKG-TV	D33	LD	CP	BINGHAMTON, NY	BLANK0000054938	334.9
No	WGRZ	D33	DT	LIC	BUFFALO, NY	BLANK0000137137	302.0
No	W41DO-D	D33	LD	APP	NEW YORK, NY	BLANK0000048498	424.8
No	W32EI-D	D33-	LD	APP	PORT JERVIS, NY	BLANK0000054805	401.6
No	WQIZ-LD	D33+	LD	LIC	ASHLAND, OH	BLANK0000136481	301.3
No	WQIZ-LD	N33+	TX	LIC	ASHLAND, OH	BLTTTL20020211ABL	301.3
No	WHIO-TV	D33	DT	LIC	DAYTON, OH	BLANK0000087475	458.1
Yes	WFMJ-TV	D33	DT	LIC	YOUNGSTOWN, OH	BLANK0000089155	189.6
No	WJAC-TV	D33	LD	LIC	JOHNSTOWN, PA	BLANK0000150586	72.6
No	WPSG	D33	DT	LIC	PHILADELPHIA, PA	BLANK0000129342	310.4
No	WQPX-TV	D33	DT	LIC	SCRANTON, PA	BLANK0000080158	309.8
No	W33AD	D33	LD	CP	CONCORD, VA	BLANK0000152263	297.4
No	W33AD	N33	TX	LIC	CONCORD, VA	BLTTTL19821108IO	297.0
No	WTVZ-TV	D33	DT	CP	NORFOLK, VA	BLANK0000117232	412.3
No	WTVZ-TV	D33	DT	LIC	NORFOLK, VA	BLANK0000125150	412.3
No	WOCW-LD	D33+	LD	LIC	CHARLESTON, WV	BLANK0000074740	302.0
No	W33EJ-D	D33	LD	LIC	MOOREFIELD, WV	BLANK0000081241	114.5
No	WDTV	D33	DT	APP	WESTON, WV	BLANK0000140471	147.5
No	WRC-TV	D34	DT	LIC	WASHINGTON, DC	BLANK0000153860	195.6
No	W34FL-D	D34	LD	LIC	HARRISBURG/LANCASTER, PA	BLANK0000144300	196.9
No	WPXI	D34	LD	LIC	PITTSBURGH, PA	BLANK0000106623	157.7
No	WHSV-TV	D34	LD	LIC	Massanutten, VA	BLANK0000120242	180.4
Yes	WNPB-TV	D34	DT	LIC	MORGANTOWN, WV	BLANK0000106559	82.4
No	CIII-DT-22D33		DT	LIC	STEVENSON, ON	BLANKCANADA222	377.7

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

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Exhibit E-2 - TVStudy Interference Study

Channel: D33
 Mask: Full Service
 Latitude: 40 0 46.70 N (NAD83)
 Longitude: 78 53 20.70 W
 Height AMSL: 756.6 m
 HAAT: 64.6 m
 Peak ERP: 2.00 kW
 Antenna: SCA PR-TV x2 Array 1@120 1@290 0.0 deg
 Elev Pattn: Generic

50.6 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.017 kW	57.0 m	8.7 km
45.0	0.017	8.9	6.3
90.0	0.071	117.3	17.2
135.0	0.799	93.7	27.6
180.0	0.018	9.8	6.4
225.0	0.017	61.4	9.0
270.0	0.401	48.4	17.4
315.0	0.167	119.9	22.0

Proposal 25.60 dBu contour does not cross Canadian border
 Distance to Canadian border: 282.7 km

Distance to Mexican border: 2285.2 km

Conditions at FCC monitoring station: Laurel MD
 Bearing: 117.4 degrees Distance: 200.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
 Bearing: 279.0 degrees Distance: 2231.5 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%

----- Interference to BLANK0000089155 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WFMJ-TV	D33	DT	LIC	YOUNGSTOWN, OH	BLANK0000089155	
Undesireds:	W33EM-D	D33	LD	APP	Altoona, PA	BLANK0000157813	189.6 km
	WMVH-CD	D32	DC	LIC	CHARLEROI, PA	BLANK0000079929	123.5
	WKHU-CD	D32	DC	LIC	KITTANNING, PA	BLANK0000079958	98.3
	WGRZ	D33	DT	LIC	BUFFALO, NY	BLANK0000137137	250.4
	WHIO-TV	D33	DT	LIC	DAYTON, OH	BLANK0000087475	340.0
	WDTV	D33	DT	APP	WESTON, WV	BLANK0000140471	199.4
	WNPB-TV	D34	DT	LIC	MORGANTOWN, WV	BLANK0000106559	170.9
	CIII-DT-22D33	DT	LIC	STEVENSON, ON	BLANKCANADA222	188.2	
	CKNX-TV	D33	DT	LIC	WINGHAM, ON	BLANKCANADA245	337.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
27701.9 4,319,279	26329.3 3,775,025	25323.1 3,560,006	25322.1 3,559,944	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EM-D D33 LD APP	2.0 188	1.0 62	
WGRZ D33 DT LIC	616.6 118,568	176.3 10,872	
WHIO-TV D33 DT LIC	65.9 21,774	24.9 3,486	
WDTV D33 DT APP	478.6 107,906	229.5 48,180	
WNPB-TV D34 DT LIC	3.0 72	2.0 49	
CIII-DT-22 D33 DT LIC	127.4 79,921	8.0 3,748	
CKNX-TV D33 DT LIC	496.6 135,456	38.1 8,122	

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Exhibit E-2 - TVStudy Interference Study

Interference to BLANK0000089155 LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WFMJ-TV	D33	DT	LIC	YOUNGSTOWN, OH	BLANK0000089155	
Undesireds:	W33EM-D	D33	LD	APP	Altoona, PA	BLANK0000157813	189.6 km
	WMVH-CD	D32	DC	LIC	CHARLEROI, PA	BLANK0000079929	123.5
	WKHU-CD	D32	DC	CP	KITTANNING, PA	BLANK0000127549	98.3
	WGRZ	D33	DT	LIC	BUFFALO, NY	BLANK0000137137	250.4
	WHIO-TV	D33	DT	LIC	DAYTON, OH	BLANK0000087475	340.0
	WDTV	D33	DT	APP	WESTON, WV	BLANK0000140471	199.4
	WNPB-TV	D34	DT	LIC	MORGANTOWN, WV	BLANK0000106559	170.9
	CIII-DT-22D33	DT	LIC		STEVENSON, ON	BLANKCANADA222	188.2
	CKNX-TV	D33	DT	LIC	WINGHAM, ON	BLANKCANADA245	337.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
27701.9 4,319,279	26329.3 3,775,025	25318.1 3,559,844	25317.1 3,559,782	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EM-D D33 LD APP	2.0 188	1.0 62	
WKHU-CD D32 DC CP	19.9 987	5.0 162	
WGRZ D33 DT LIC	616.6 118,568	177.3 10,998	
WHIO-TV D33 DT LIC	65.9 21,774	24.9 3,486	
WDTV D33 DT APP	478.6 107,906	219.6 47,597	
WNPB-TV D34 DT LIC	3.0 72	2.0 49	
CIII-DT-22 D33 DT LIC	127.4 79,921	8.0 3,748	
CKNX-TV D33 DT LIC	496.6 135,456	38.1 8,122	

Interference to BLANK0000106559 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WNPB-TV	D34	DT	LIC	MORGANTOWN, WV	BLANK0000106559	
Undesireds:	W33EM-D	D33	LD	APP	Altoona, PA	BLANK0000157813	82.4 km
	WDTV	D33	DT	APP	WESTON, WV	BLANK0000140471	66.4
	WRC-TV	D34	DT	LIC	WASHINGTON, DC	BLANK0000153860	245.3
	WPPX-TV	D34	DT	CP	WILMINGTON, DE	BLANK0000159427	387.7
	WKBW-TV	D34	DT	LIC	BUFFALO, NY	BLANK0000134785	340.6
	WKEF	D34	DT	LIC	DAYTON, OH	BLANK0000113880	384.1
	WSLS-TV	D34	DT	LIC	ROANOKE, VA	BLANK0000081215	279.3
	WJAC-TV	D35	DT	LIC	JOHNSTOWN, PA	BLANK0000080232	100.2
	WTAP-TV	D35	DT	LIC	PARKERSBURG, WV	BLANK0000105709	159.3

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
30668.0 2,131,890	27113.8 1,935,505	25919.4 1,886,093	25906.3 1,885,771	0.05 0.02

Undesired	Total IX	Unique IX, before	Unique IX, after
W33EM-D D33 LD APP	20.1 490	13.1 322	
WDTV D33 DT APP	637.6 32,189	626.6 32,129	
WRC-TV D34 DT LIC	228.0 3,019	191.9 2,582	
WKBW-TV D34 DT LIC	29.0 3,694	17.0 3,311	
WKEF D34 DT LIC	12.9 121	8.9 88	
WSLS-TV D34 DT LIC	21.8 59	14.9 29	
WJAC-TV D35 DT LIC	309.2 11,145	278.0 10,504	
WTAP-TV D35 DT LIC	11.9 65	6.0 38	

Interference to proposal scenario 1

**MX: 4.00% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W33EM-D	D33	LD	APP	Altoona, PA	BLANK0000157813	
Undesireds:	WMVH-CD	D32	DC	LIC	CHARLEROI, PA	BLANK0000079929	86.5 km
	WKHU-CD	D32	DC	LIC	KITTANNING, PA	BLANK0000079958	102.1
	WHUT-TV	D33	DT	LIC	WASHINGTON, DC	BLANK0000151089	195.1
	WQIZ-LD	D33+	LD	LIC	ASHLAND, OH	BLANK0000136481	301.3
	WFMJ-TV	D33	DT	LIC	YOUNGSTOWN, OH	BLANK0000089155	189.6

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Exhibit E-2 - TVStudy Interference Study

WJAC-TV	D33	LD	LIC	JOHNSTOWN, PA	BLANK0000150586	72.6
WPSG	D33	DT	LIC	PHILADELPHIA, PA	BLANK0000129342	310.4
W33AD	D33	LD	CP	CONCORD, VA	BLANK0000152263	297.4
W33EJ-D	D33	LD	LIC	MOOREFIELD, WV	BLANK0000081241	114.5
WDTV	D33	DT	APP	WESTON, WV	BLANK0000140471	147.5

Service area	Terrain-limited	IX-free	Percent IX
944.6 20,359	662.1 15,023	622.9 14,422	5.92 4.00

Undesired	Total IX	Unique IX	Prcnt Unique IX
WHUT-TV D33 DT LIC	3.0 21 0.0	0 0.00 0.00	
WFMJ-TV D33 DT LIC	13.1 50 7.0	11 1.06 0.07	
WJAC-TV D33 LD LIC	27.1 516 17.1	401 2.58 2.67	
WPSG D33 DT LIC	1.0 0 0.0	0 0.00 0.00	
W33EJ-D D33 LD LIC	2.0 0 0.0	0 0.00 0.00	
WDTV D33 DT APP	10.0 150 2.0	53 0.30 0.35	

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