



Kessler and Gehman Associates
Consultants • Broadcast • Wireless

**DIGITAL TELEVISION
TRANSLATOR POST
TRANSITION CHANNEL
DISPLACEMENT
RELIEF APPLICATION
FOR W50DP-D
FACILITY ID 69322**

Hanover, NH

Prepared For:

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1.0 MINOR MODIFICATION CHANNEL DISPLACEMENT RELIEF ELIGIBILITY

New Hampshire Public Broadcasting (“*NHPB*”) is the licensee of a digital Low Power Television Station (“*LPTV*”) having call sign W50DP-D, Facility ID 69322. W50DP-D is licensed¹ to operate on channel 50 with an ERP of 0.228 KW through an omni-directional antenna using a Full Service Emission Mask. 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 W50DP-D is clearly eligible to file for channel displacement relief in the April 10, 2018 through May 15, 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.
- There is no physical change in transmitting antenna location² such that the protected contour resulting from the change does not overlap some portion of the protected contour of the authorized facilities of the existing station as illustrated in Appendix C.
- There is no change in transmitting antenna location greater 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 keep W50DP-D at its licensed location on an existing tower which has an FCC Antenna Structure Registration (“*ASR*”) number of 1034695. The instant application does not propose to increase or modify the existing support structure.

¹ FCC File No.: BLDTT-20101019ABD

² The instant application makes a correction to the site coordinates to match ASR Number: 1034695

3.0 ALLOCATION ANALYSIS

Appendix B are the summarized results from TVStudy V2.2.5. As indicated the proposed facility is predicted to receive 2.26 % aggregate inbound interference to which is acceptable to SBCCD. The proposed facility is compliant with all stations in both the pre and post transition periods.

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 proposed W50DP-D transmitter site is 2977.3 km from the Mexican border and will require coordination with the Mexican authorities; however, the proposed 25.86 dBμ contour crosses the Canadian border and will require coordination with Canada.

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:

Terrain³ 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 F demonstrates that the peak exposure is 0.38% 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.

³ 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.

7.0 CERTIFICATION

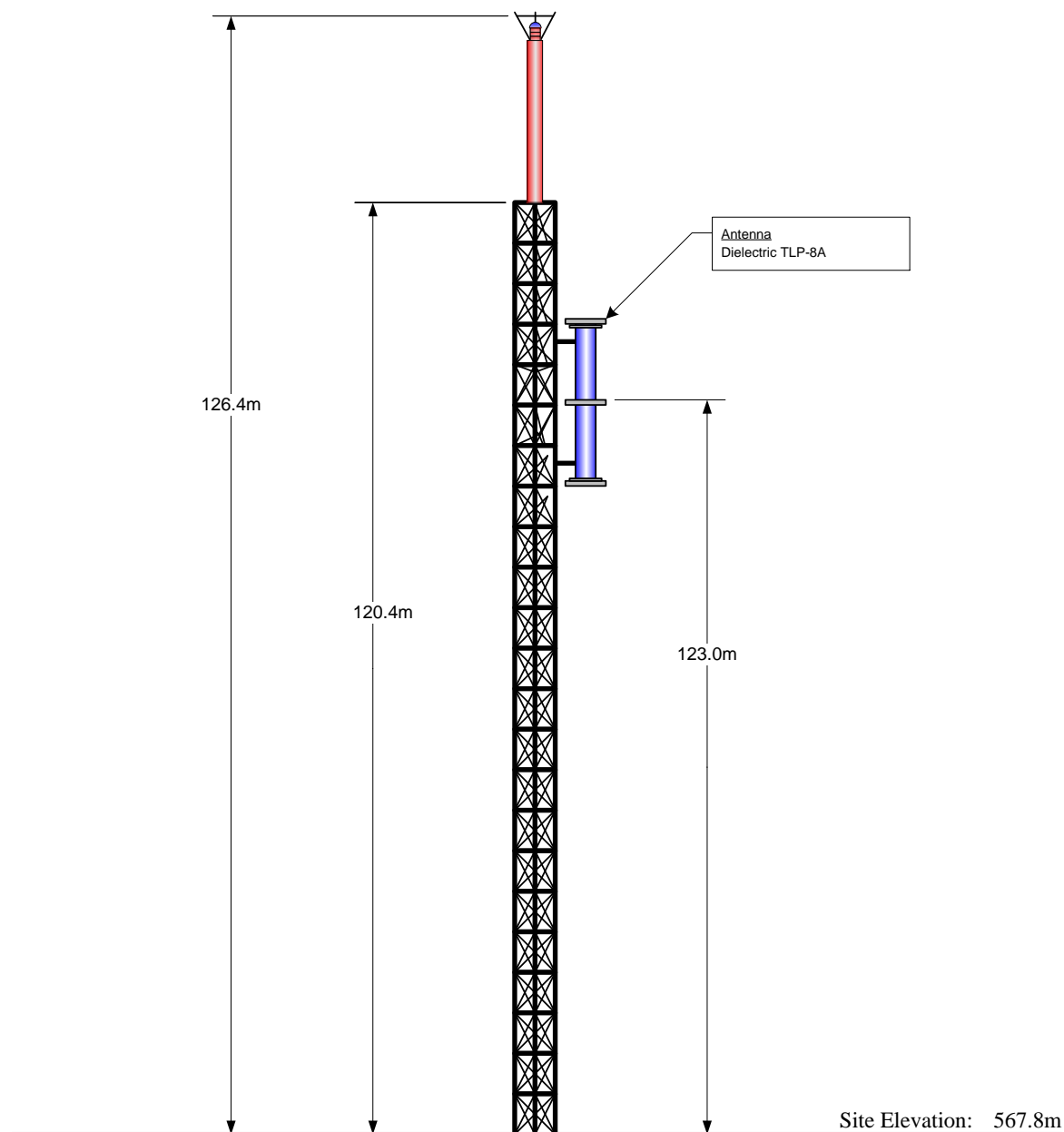
The foregoing statement and the report regarding the engineering work are true and correct to the best of my knowledge. Executed April 11, 2018.

Kessler and Gehman Associates, Inc.



Ryan Wilhour
Consulting Engineer

APPENDIX A – Tower Elevation Diagram



Antenna CRAGL:	690.8 m
Antenna CRMSL:	123.0 m
Antenna HAAT:	380.9 m

NAD 83 Coordinates:	
N. Latitude:	43° 42' 32.1"
W. Longitude:	72° 09' 14.6"

NOTE: NOT TO SCALE

FCC Tower Registration Number:	1034695
FAA Study Number	2016-ANE-3278-OE

W50DP-D – Post Transition Channel Displacement Relief

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APPENDIX B – TVStudy V2.2.5 Allocation Analysis

Study created: 2018.04.11 07:57:59

Study build station data: LMS TV 2018-04-11

Proposal: W50DP-D D36 LD LIC HANOVER, NH

File number: W50DP Ch 36 Omni

Facility ID: 69322

Station data: User record

Record ID: 2944

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	WGBI-LP	N21	TX	LIC	FARMINGTON, ME	BLTT19980428JE	188.2 km
No	W21CQ	N21+	TX	LIC	BENNINGTON, VT	BLTTL20061201AAG	134.6
No	WMUR-LP	N29-	TX	LIC	LITTLETON, NH	BLTTL20000601AEG	61.7
No	WVIT	D35	DT	LIC	NEW BRITAIN, CT	BLANK0000048456	230.0
No	WHDH	D35	DT	CP	BOSTON, MA	BLANK0000024842	173.0
No	WHDH	D35	DT	BL	BOSTON, MA	DTVBL72145	173.0
No	WPME	D35	DT	LIC	LEWISTON, ME	BLCDT20081103ADE	147.4
Yes	WFSB	D36	DT	CP	HARTFORD, CT	BLANK0000024832	221.4
Yes	WFSB	D36	DT	BL	HARTFORD, CT	DTVBL53115	221.4
No	NEW	D36	LD	APP	NANTUCKET, MA	BNPDTL20090825ABM	321.6
No	NEW	D36	LD	APP	NANTUCKET ISLAND, MA	BNPDTL20090825AYT	321.6
Yes	WMEA-TV	D36	DT	CP	BIDDEFORD, ME	BLANK0000034397	113.5
Yes	WMEA-TV	D36	DT	BL	BIDDEFORD, ME	DTVBL39656	113.5
No	WNJU	D36	DT	LIC	LINDEN, NJ	BLANK0000049867	361.9
No	W35DK-D	N36z	TX	LIC	SUSSEX, NJ	BLTT19970806JC	345.7
No	WENY-TV	D36	DT	LIC	ELMIRA, NY	BLCDT20090730AAH	436.8
No	WCBS-TV	D36	DT	CP	NEW YORK, NY	BLANK0000033867	366.5
No	WCBS-TV	D36	DT	BL	NEW YORK, NY	DTVBL9610	366.5
No	WTKO-CD	D36	DC	LIC	ONEIDA, NY	BLANK0000001610	292.6
Yes	WCFE-TV	D36	DT	CP	PLATTSBURGH, NY	BLANK0000034025	176.1
Yes	WCFE-TV	D36	DT	BL	PLATTSBURGH, NY	DTVBL46755	176.1
No	WSPX-TV	D36	DT	CP	SYRACUSE, NY	BLANK0000029579	317.2
No	WSPX-TV	D36	DT	BL	SYRACUSE, NY	DTVBL64352	317.2
No	WNGN-LD	D36	LD	APP	TROY, NY	BLANK0000051693	134.6

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No	WSWB	D36	LD	LIC	SCRANTON, PA	BLCDT20091217AEX	353.2
No	WRIW-CD	D36	DC	LIC	PROVIDENCE, RI	BLANK0000001555	216.8
No	W38CB	N38+	TX	LIC	LITTLETON, NH	BLTT19950725II	61.7
No	CFJP-DT	D35	DT	LIC	MONTRAL, QC	BLANKCANADA279	229.8

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D36
Mask: Full Service
Latitude: 43 42 32.10 N (NAD83)
Longitude: 72 9 14.60 W
Height AMSL: 690.8 m
HAAT: 380.9 m
Peak ERP: 15.0 kW
Antenna: Omnidirectional
Elev Pattn: Generic
Elec Tilt: 2.00

50.9 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	433.6 m	62.3 km
45.0	15.0	269.1	53.8
90.0	15.0	341.3	57.8
135.0	15.0	364.4	58.9
180.0	15.0	328.3	57.1
225.0	15.0	398.0	60.5
270.0	15.0	447.5	62.9
315.0	15.0	465.3	63.5

**Proposal 25.86 dBu contour crosses Canadian border, coordination required

Distance to Canadian border: 144.2 km

Distance to Mexican border: 2977.3 km

Conditions at FCC monitoring station: Belfast ME

Bearing: 70.5 degrees Distance: 258.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 273.2 degrees Distance: 2744.5 km

W50DP-D – Post Transition Channel Displacement Relief

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Study cell size: 1.00 km

Profile point spacing: 1.00 km

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

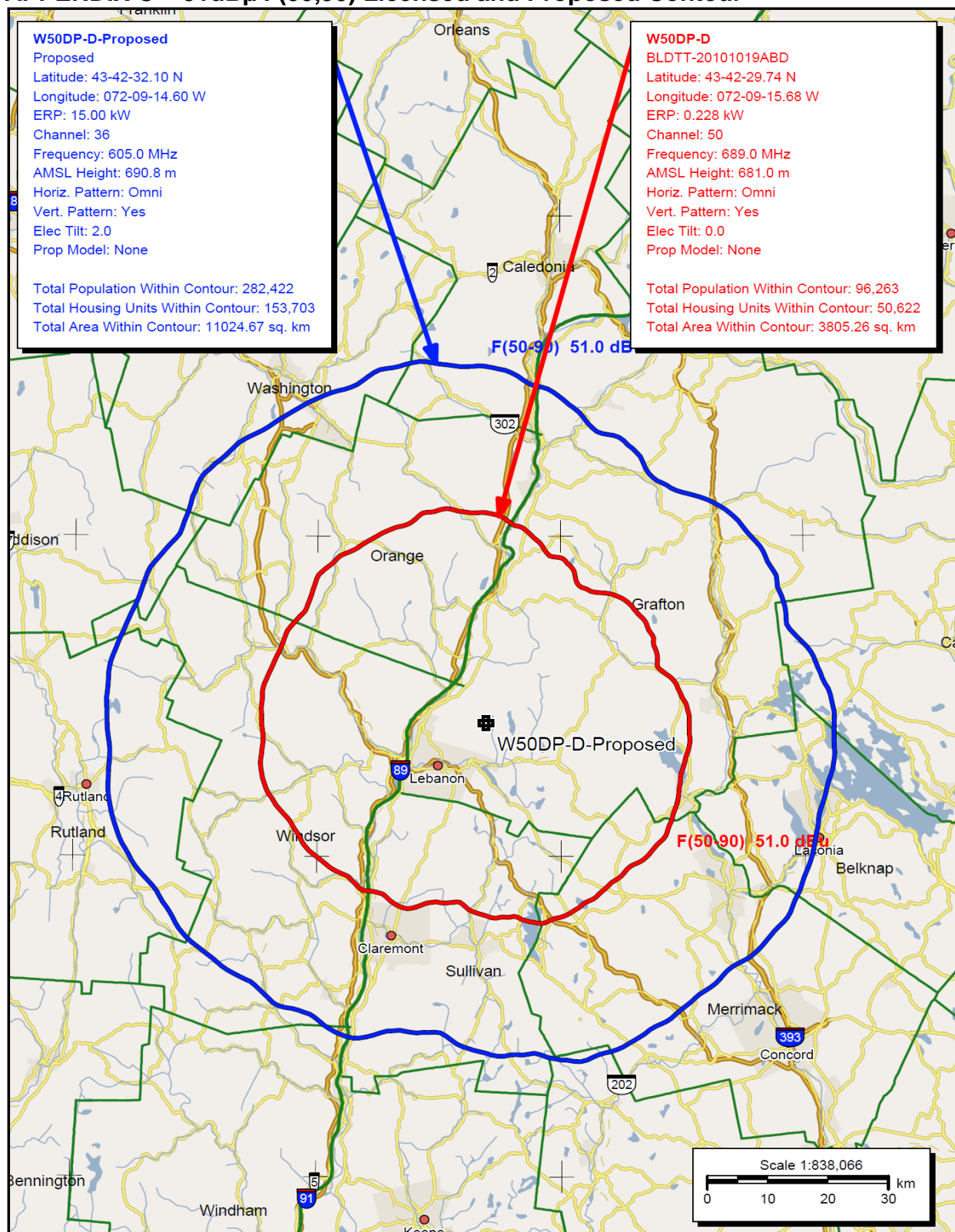
Maximum new IX to LPTV: 2.00%

---- Below is IX received by proposal W50DP Ch 36 Omni ----

Proposal receives 2.26% interference from scenario 1

No IX check failures found.

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



APPENDIX D – Far Field Exposure to RF Emissions

