

ENGINEERING STATEMENT
APPLICATION FOR A DTV
CONSTRUCTION PERMIT FOR FLASHCUT FOR
AN EXISTING TELEVISION TRANSLATOR STATION
W32CV, IRONWOOD, MICHIGAN
CHANNEL 32 8.452 KW MAX ERP 612.7 METERS RC/AMSL

JULY 2015

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

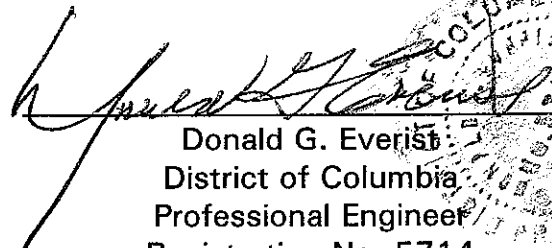

Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1420 N Street, N.W., Suite One, Washington, D.C. 20005;

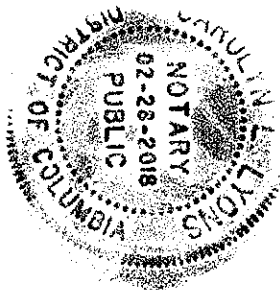
That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.


Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714


Subscribed and sworn to before me this 29th day of July, 2015.





Notary Public

My Commission Expires: 2/28/2018

Introduction

This engineering statement has been prepared on behalf of KQDS Acquisition Corp., licensee of TV translator, W32CV, Ironwood, Michigan. This statement supports the licensee's request to convert to DTV operation on the currently licensed analog Channel 32, commonly referred to as "flash-cut" with a DTV effective radiated power ("ERP") of 8.452 kW at a radiation center above mean sea level ("RCAMSL") of 612.7 meters. This proposed operation of the digital operation for W32CV has received prior approval from Canada for this site and technical operation.

Transmitter Site

The existing antenna will be utilized and no significant alteration of the tower is proposed or required. The existing tower (Exhibit E-1) is located at 133 Germania Street, Hurley, Wisconsin. There is no change in transmitter site. The geographic coordinates of the site follow below.

North Latitude: 46° 26' 28"

West Longitude: 90° 11' 26"

NAD-27

The antenna registration number is 1064395. The application will specify the ASRN NAD-83 coordinates which are:

North Latitude: 46° 26' 28"

West Longitude: 90° 11' 27"

NAD-83

Elevation Data

Elevation of site above mean sea level	506.0 meters (1660 feet)
Center of radiation of antenna above ground level	106.7 meters (350 feet)
Center of radiation of antenna above mean sea level	612.7 meters (2010 feet)
Overall height of tower above ground level	129.5 meters (425 feet)

Equipment Data

Transmitter:	Type-approved
Transmission Line:	Andrew, Type HJ7-50A, 1-5/8", 121.9 meters (400 feet) with 62% efficiency
Antenna:	Dielectric, TLP16-B with maximum gain of 14.35 dB and 1.0° electrical beam tilt

Power Data

Transmitter:	0.500 kW	-3.98 dBk
Emission Mask:	Full Service	
Transmission Line Loss:	0.190 kW	2.07 dB
Input Into Antenna:	0.310 kW	-5.08 dBk
Antenna Gain:	27.2	14.35 dB
ERP:	8.452 kW	9.27 dBk
Emission Mask:	Full Service	

As indicated above, the transmitter with typical power output of 0.5 kW will deliver 0.310 kW to the input of the antenna. The antenna, having a maximum gain of 14.35 dB and an electrical beam tilt of 1.0°, will produce maximum ERP of 8.452 kW. A map providing the protected contour of the proposed facility compared to the currently licensed operation of W32CV has been included as Exhibit E-2 of this report. The antenna elevation pattern with the associated tabulation and the horizontal pattern with the accompanying tabulation are on file at the Commission as this antenna make and model has been designated as “Off-the-Shelf”, and is the currently licensed antenna for W32CV with no alterations proposed.

Other Broadcast Facilities

A brief analysis was completed to determine the presence of stations in the vicinity of the W32CV tower using the July 1, 2015 data contained within the Commission’s Consolidated Database System (“CDBS”). Within 500 meters of the proposed site, there is one authorized FM radio station, one FM translator, no authorized DTV and NTSC television stations, and no authorized low-power analog television or television translator stations aside from W32CV. There is one AM facility within 3.2 km of the existing tower. Although no adverse technical affects are expected due to the proposed changes, the licensee will take measures to resolve any problems proven to be related to the changes proposed in this application.

Interference Analysis

A study of predicted interference caused by the proposed W32CV digital translator operation has been performed using the Longley-Rice program for which the source data has been posted by the Commission on its website at http://www.fcc.gov/oet/dtv/dtv_apps.html. The

FCC's FORTRAN-77 code was modified only to the extent necessary (primarily input/output handling) for the program to run on a Microsoft Windows XP/Intel platform. Comparison of service/interference areas and population indicates this model closely matches the FCC's digital low-power TV/translator evaluation program. Best efforts have been made to use data and calculation identical to the FCC's program. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 1 sq. km. Using 3-second terrain data sampled approximately every 1.0 km at one-degree azimuth intervals with 2000 census centroids, all studies are based upon data in the current CDBS database update of the FCC's engineering database. A Longley-Rice study was performed with the proposed W32CV digital translator facilities and all relevant stations listed in the FCC database as of July 9, 2015. The study results and the included stations are listed in Table I.

Other Licensed and Broadcast Facilities

No adverse technical effect is anticipated by the proposed DTV operation to any other FCC licensed facility. If required, the licensee will install filters or take other measures as necessary to resolve the problem.

FCC Rule, Section 1.1307

Pursuant to OET Bulletin No. 65 dated August 1997, these non-broadcast stations are all exempt from RFF evaluations for the following reason:

<u>Station</u>	<u>Licensed Under Part No.</u>	<u>Reason for Exemption</u>
	Part 74, Subpart F	Subpart F Exempt
	Part 90	Antenna Height > 10 meters
	Part 90	ERP < 1000 watts
	Part 74, Subpart F	Subpart F Exempt

The RFF contribution of each station will be calculated using the following formula:

$$S = \frac{33.4(F^2) \text{ Total ERP}}{R^2}$$

where:

S = power density in $\mu\text{W}/\text{cm}^2$

F = relative field factor

Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization

R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

ERP = $[0.4 \text{ ERP}_V + \text{ERP}_A]$ for NTSC Stations

ERP_V = peak visual ERP in watts

ERP_A = RMS aural ERP in watts

The proposed 8.452 kW directional operation will utilize a Dielectric, Type TLP16-B antenna (or equivalent) described above with a center of radiation above ground of 106.7 meters. The proposed antenna is side-mounted on an existing tower with an overall height of 129.5 meters above ground. The proposed digital operation of W32CV will create a radiofrequency field level of $1.6 \mu\text{W}/\text{cm}^2$ at the base of the tower. This level is less than 0.4% of the Maximum Permissible Exposure (“MPE”) limit for the general population and uncontrolled environment.

Authorized personnel and rigging contractors will be alerted to the potential zone of high field levels on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on or near the tower. Workers and the general public, therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

Environmental Assessment

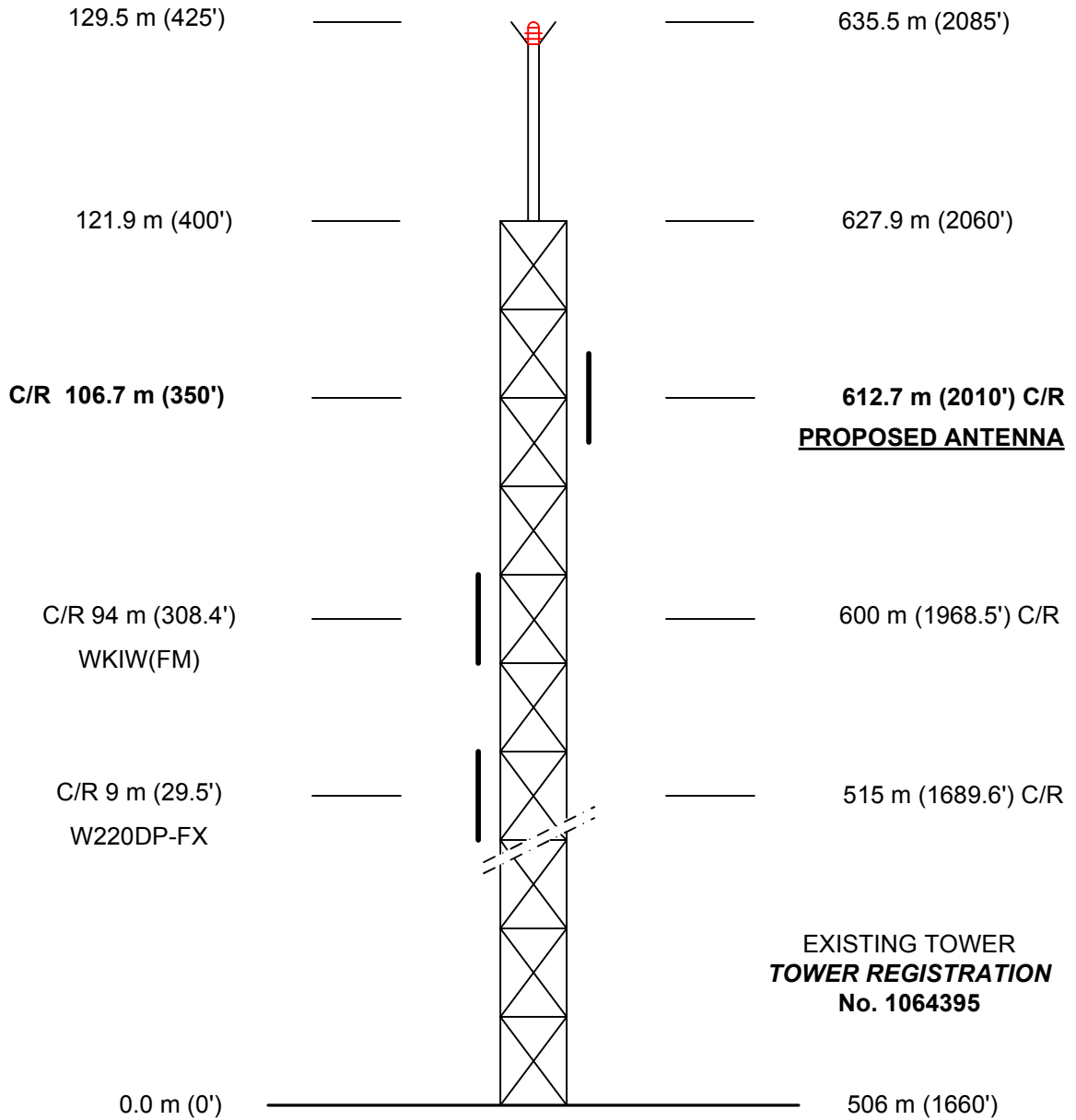
An environmental assessment ("EA") is categorically excluded under Section 1.1306 of the FCC Rules and Regulations as the tower was constructed prior to the requirements specified in WT Docket No. 03-128 and the licensee indicates:

- (a)(1) The existing tower is not located in an officially designated wilderness area.
- (a)(2) The existing tower is not located in an officially designated wildlife preserve.
- (a)(3) The proposed facilities will not affect any listed threatened or endangered species or habitats.
- (a)(3)(ii) The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
- (a)(4) The proposed facilities located on a tower which was built prior to the adoption of WT Docket No. 03-128 and is grandfathered and has not affected any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.
- (a)(5) The existing tower is not located near any known Indian religious sites.
- (a)(6) The existing tower is not located in a flood plain.

- (a)(7) The installation of the DTV facilities on an existing tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
- (a)(8) It is not proposed to equip the tower with high intensity white lights unless required by the FAA.
- (b) Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines contained in OET Bulletin No. 65, Edition 97-01, dated August 1997 and Supplement A.

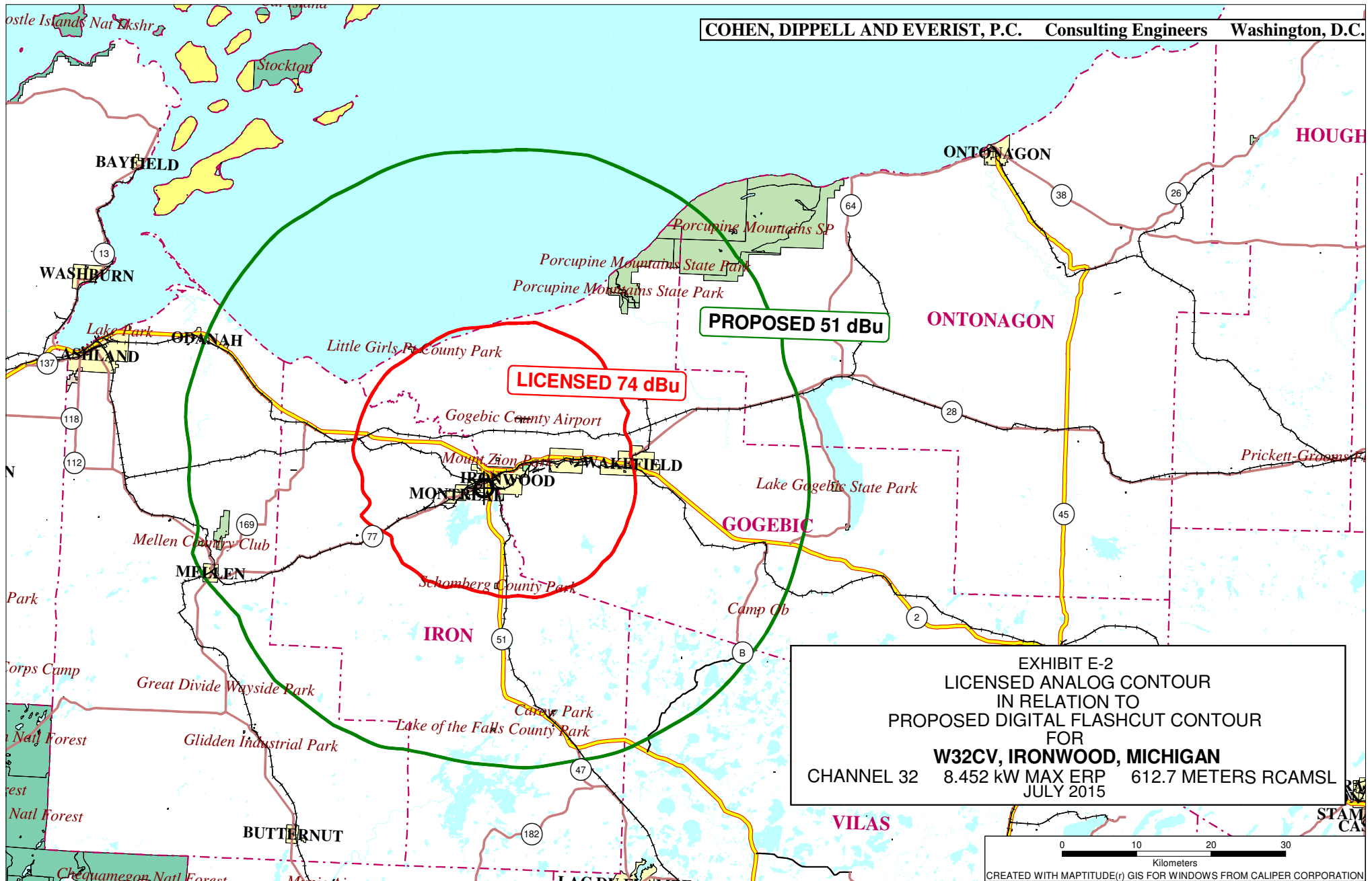
ABOVE GROUND

ABOVE MEAN SEA LEVEL



NOT TO SCALE

EXHIBIT E - 1
VERTICAL SKETCH
FOR THE DT FLASHCUT OPERATION OF
W32CV, IRONWOOD, MICHIGAN
JULY 2015



COHEN, DIPPELL AND EVERIST, P.C.

TABLE I
LONGLEY-RICE INTERFERENCE
FOR THE PRELIMINARY ALLOCATION FOR DIGITAL FLASHCUT
W32CV, IRONWOOD, MICHIGAN
CHANNEL 32 8.452 KW ERP 612.7 METERS RC/AMSL
JULY 2015

N 46° 26' 28"

W 90° 11' 26"

NAD-27

Emission Mask: Full Service

<u>Channel</u>	<u>Call</u>	<u>City/State</u>	<u>Dist(km)</u>	<u>Status</u>	<u>FCC File No.</u>	<u>Result</u>
25	DWAST-LP	ASHLAND WI	61.2	LIC	BLTTL-20050906AAS	No interference
31	K31GH	HAYWARD WI	105.5	LIC	BLTTL-20020729AAS	No interference
31	WFXS-DT	WITTENBERG WI	163.9	LIC	BLCDDT-20090310AED	No interference
32	K32LB-D	ALBERT LEO MN	397	CP	BNPDTL-20100510AJT	No interference
32	NEW	DULUTH MN	152.2	APP	BNPDTL-20100513ABO	No interference
32	K32JZ-D	KABETOGAMA MN	300.9	LIC	BLDTT-20110719ABI	No interference
32	WCCO-TV	MINNEAPOLIS MN	275.3	LIC	BMLCDDT-20120907ABQ	0.00%
32	K32FY	PARK RAPIDS MN	371.2	LIC	BLTT-20020429AAS	0.00%
32	WBUW	JANESVILLE WI	380.9	LIC	BLCDDT-20040930BHL	No interference
32	K32GF	RHINELANDER WI	103.7	LIC	BLTT-20050929AGL	No interference
33	KDLH	DULUTH MN	151.9	LIC	BLANK-0000001644	4.02%
33	W33DH-D	EAU CLAIRE WI	199.2	CP	BNPDTL-20100208ABH	0.00%
33	WZAW-LD	WAUSAU WI	163.9	CP MO	BLANK-0000001707	No interference