

ENGINEERING STATEMENT  
APPLICATION FOR A DTV  
CONSTRUCTION PERMIT FOR  
AN EXISTING TELEVISION TRANSLATOR  
K38CZ, LINCOLN CITY/NEWPORT, OREGON  
CHANNEL 38 5823 WATTS MAX ERP 358 METERS RC/AMSL

APRIL 2010

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

COHEN, DIPPELL AND EVERIST, P. C.

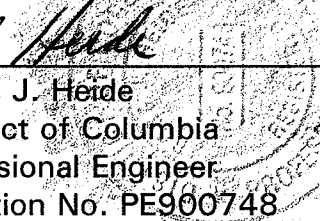
City of Washington            )  
  ) ss  
District of Columbia         )

Ross J. Heide, being duly sworn upon his oath, deposes and states that:

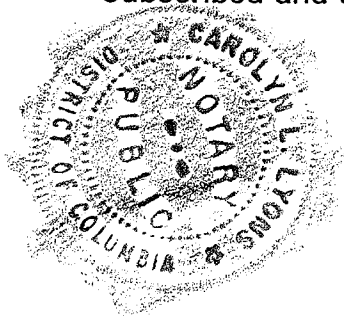
He is a graduate of the Massachusetts Institute of Technology in Operations Research and Management Science, a Registered Professional Engineer in the District of Columbia, and employed by Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

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.

  
Ross J. Heide  
Ross J. Heide  
District of Columbia  
Professional Engineer  
Registration No. PE900748

Subscribed and sworn to before me this 9<sup>th</sup> day of April, 2010.

  
Carolyn Lyons  
Notary Public

My Commission Expires: 2/28/2013

### INTRODUCTION

This engineering statement has been prepared on behalf of NVT Portland Licensee, LLC, licensee of TV translator K38CZ, Lincoln City/Newport, Oregon. This statement supports the licensee's request to convert to DTV operation on the currently licensed analog channel 38, commonly referred to as "flash-cut" with a DTV effective radiated power ("ERP") of 5823 watts at a radiation center above mean sea level ("RCAMSL") of 358 meters.

### TRANSMITTER SITE

The existing antenna will be utilized and no significant alteration of the tower is proposed. There is no change in transmitter site. The geographic coordinates of the site follow below.

North Latitude: 44° 45' 23"

West Longitude: 124° 02' 49"

NAD-27

### ELEVATION DATA

Elevation of site above mean sea level	320 meters (1049.9 feet)
Center of radiation of antenna above ground level	38 meters (124.7 feet)
Center of radiation of antenna above mean sea level	358 meters (1174.5 feet)

The existing tower is less than 200 feet and does not require an Antenna Structure Registration Number ("ASRN").

EQUIPMENT DATA

Transmitter:	Type-approved, TTE XLS1000 (simple mask) or equivalent
Transmission Line:	Andrew, Type LDF7-50A, 1-5/8" foam heliax, 44.1 meters (144.7 feet) with 82.6% efficiency or equivalent [0.573 dB loss/100 ft]
Antenna:	Jampro, directional, slot antenna with maximum gain of 28.2 and 0° electrical beam tilt

POWER DATA

Transmitter:	250 W	23.98 dBW
Transmission Line Efficiency (Loss):	82.6%	(0.829) dB
Input Into Antenna:	206.5 W	23.15 dBW
Antenna Gain:	28.2	14.50 dB
ERP:	5823 W	37.65 dBW

As indicated above, the transmitter with typical power output of 250 watts will deliver 206.5 watts to the input of the antenna. The antenna, having a maximum gain of 28.2 and an electrical beam tilt of 0°, will produce maximum ERP of 5823 watts. A map providing the protected contour of the proposed facility compared to the currently licensed operation of K38CZ has been included as Exhibit E-1 of this report. The antenna elevation pattern and associated tabulation and the horizontal pattern and accompanying tabulation are on file at the Commission as the currently licensed antenna for K38CZ with no alterations has been proposed.

### Other Broadcast Facilities

A brief analysis was completed to determine the presence of stations in the vicinity of the K38CZ tower using the April 7, 2010 data contained within the Commission's Consolidated Database System ("CDBS"). Within 500 meters of the proposed site, there are no authorized FM radio stations or television stations. Seven (7) licensed low-power analog television and television translator stations aside from K38CZ were found within 500 meters in addition to six (6) low-power CP's and applications. There are no AM facilities 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 K38CZ 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](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 K38CZ digital translator facilities and all relevant stations listed in the FCC database as of April 7, 2010. The study results and the included stations are listed in Table I.

FCC Rule, Section 1.1307

The proposed 5823 watt directional operation will utilize a Jampro custom antenna (or equivalent) described above with a center of radiation above ground of 38 meters. The proposed antenna is side-mounted on the tower with an overall height of 41 meters above ground.

The proposed operation based upon the current OET Bulletin No. 65, Edition 97-01 dated August 1997 and Supplement A meets the provisions of the FCC radiofrequency field ("RFF") guidelines, and thus, complies with Section 1.1307 of the FCC Rules. The elevation pattern for the Jampro antenna shows a maximum relative field of less than 0.2 toward the ground (30° to 90° below the horizontal). Calculation according to OET Bulletin 65 predicts a maximum RFF power density of less than  $6.0 \mu\text{W}/\text{cm}^2$ , 2 meters above ground or less than 1.5% of the uncontrolled Maximum Permissible Exposure ("MPE") guideline. As this is less than 5% of the MPE, Section 1.1307(b)(3) of the Commission's Rules does not require an RFF assessment of all of the stations in the vicinity.

The RFF contribution is calculated using the following basic 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

$\text{ERP}_V$  = peak visual ERP in watts

$\text{ERP}_A$  = RMS aural ERP in watts

ERP = ERP (horizontally polarized) + ERP (vertically polarized)

Authorized personnel and rigging contractors will be alerted to the potential zone of high radiation 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 applicant 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.



PROTECTED CONTOUR OF  
ANALOG LICENSE CH. 38  
74 dBu F(50,50)

PROTECTED CONTOUR OF  
PROPOSED DIGITAL CH. 38  
51 dBu F(50,90)

K38CZ SITE

POLK

MARION

LINCOLN

BENTON

LINN

EXHIBIT 1  
PROTECTED CONTOUR  
OF THE PROPOSED DIGITAL OPERATION OF  
**K38CZ, LINCOLN CITY/NEWPORT, OREGON**  
CHANNEL 38 5823 WATTS ERP (MAX. DA) 358 METERS RCAMSL  
APRIL 2010

0 5 10 15  
Kilometers

CREATED WITH MAPTITUDE® GIS FOR WINDOWS FROM CALIPER CORPORATION

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I  
LONGLEY-RICE INTERFERENCE  
FOR THE OPERATION FOR  
K38CZ, LINCOLN CITY/NEWPORT, OREGON  
CHANNEL 38 5823 W MAX ERP 358 METERS RCAMSL  
APRIL 2010

<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>
23	KEVU-LP	EUGENE OR	112.1	LIC	BLTTA-20020802AAR	0.00%
23	K52ET	TILLAMOOK OR	55.9	CP	BDISTT-20061212ABH	No interference
24	KKEI-CA	PORTLAND OR	132.9	APP	BDISTTA-20090102ACF	0.00%
35	KORK-CA	PORTLAND OR	132.9	LIC	BLTTA-20070831ACZ	0.00%
35	K35CR	TILLAMOOK-LINCOLN CI OR	55.9	LIC	BLTTL-19940829IB	0.00%
36	K36GU	ROCKAWAY & VICINITY OR	110.1	LIC	BLTT-20030610AAE	0.00%
36	KORS-CA	SALEM OR	75.4	LIC	BLTTA-20020722ABK	No interference
38	K38JK-D	EUGENE OR	109.5	CP MO	BMPDTL-20100111AEI	No interference
38	K38JK-D	EUGENE OR	109.5	LIC	BLDTL-20091217AFG	No interference
38	K20DT	GRANTS PASS OR	263.2	CP	BDISDTL-20090630AHV	No interference
38	K53EI	HOOD RIVER OR	222	CP	BDFCDTL-20090630AFI	No interference
38	K53EI	HOOD RIVER OR	222	CP	BDISTT-20070822ABB	No interference
38	K38DT	NORTH LAPINE OR	224.8	LIC	BLTT-19930401JG	No interference
38	K38AH	PENDLETON, ETC. OR	377	LIC	BLTT-19950612II	0.00%
38	KKEI-CA	PORTLAND OR	132.9	LIC	BLTTA-20070831ADB	No interference
38	K64DA	POWERS OR	204.5	CP	BDISDTT-20090211ADJ	No interference
38	K38LQ-D	ROSEBURG OR	180.9	CP	BDCCDTT-20091120AGD	No interference
38	K38KU-D	SWEET HOME OR	90.3	CP	BDFCDTL-20090608AAI	0.02%
38	K38KL-D	ELLENSBURG WA	366.1	LIC	BLDTT-20100104ADM	No interference
38	K38GS	GRAYS RIVER, LEBAM WA	193.4	LIC	BLTT-20040412ACX	No interference
38	K38KM-D	LONGVIEW WA	180.1	CP MO	BMPDTL-20080318ABQ	No interference
38	KOMO-TV	SEATTLE WA	345.2	APP	BPCDT-20080620AHD	No interference
38	KOMO-TV	SEATTLE WA	345.2	CP	BPCDT-20090527AAF	No interference
38	KOMO-TV	SEATTLE WA	345.2	LIC	BLCDT-19991221AAQ	No interference
38	K38IT	STEMILT, ETC. WA	396.6	LIC	BLTT-20091217AAO	No interference
39	NEW	CORVALLIS OR	46.5	APP	BNPDTL-20090825BEN	No interference
39	K39CL	YONCALLA OR	136.9	CP	BDFCDTL-20091102ADD	0.00%
39	K39CL	YONCALLA OR	136.9	LIC	BLTTL-19920302II	0.00%
40	K40EG	TILLAMOOK OR	55.9	LIC	BLTT-19960130JA	0.00%
41	K41GG	ROCKAWAY, ETC. OR	110.1	LIC	BLTT-20010420AAU	0.00%

COHEN, DIPPELL AND EVERIST, P.C.

TABLE I  
LONGLEY-RICE INTERFERENCE  
FOR THE OPERATION FOR  
K38CZ, LINCOLN CITY/NEWPORT, OREGON  
CHANNEL 38 5823 W MAX ERP 358 METERS RCAMSL  
APRIL 2010

<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>
42	K42CZ	LINCOLN CITY, ETC. OR	0	LIC	BLTT-19930608IF	No interference
45	K45CV	CORVALLIS OR	90.5	LIC	BLTT-19930604IG	0.00%

### Section III - Engineering (Digital)

#### TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

#### TECH BOX

1. Channel: \_\_\_\_\_
2. Translator Input Channel No. \_\_\_\_\_
3. Station proposed to be rebroadcast:

Call Sign	City	State	Channel
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4. Antenna Location Coordinates: (NAD 27)

\_\_\_\_° \_\_\_\_' \_\_\_\_" ☐ N ☐ S Latitude  
\_\_\_\_° \_\_\_\_' \_\_\_\_" ☐ E ☐ W Longitude

5. Antenna Structure Registration Number: \_\_\_\_\_

☐

Not applicable

See Explanation  
in Exhibit No.

☐

FAA Notification Filed with FAA

6. Antenna Location Site Elevation Above Mean Sea Level: \_\_\_\_\_ meters
7. Overall Tower Height Above Ground Level: \_\_\_\_\_ meters
8. Height of Radiation Center Above Ground Level: \_\_\_\_\_ meters
9. Maximum Effective Radiated Power (ERP): \_\_\_\_\_ kW
10. Transmitter Output Power: \_\_\_\_\_ kW
11. a. Transmitting Antenna: ☐ Nondirectional ☐ Directional ☐ Directional composite

Manufacturer	Model
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- b. Electrical Beam Tilt: \_\_\_\_\_ degrees ☐ Not applicable

c. Directional Antenna Relative Field Values:

Rotation: \_\_\_\_\_ ° ☐ No rotation ☐ N/A (Nondirectional)

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

**NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.**

12. **Out-of-Channel Emission Mask:** Simple ☐ Stringent ☐

**CERTIFICATION**

13. **Interference.** The proposed facility complies with all of the following applicable rule sections. 47 C.F.R. Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030. ☐ Yes ☐ No 

See Explanation in Exhibit No.

14. **Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (*i.e.*, the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance. An **Exhibit is required.** ☐ Yes ☐ No 

See Explanation in Exhibit No.

Exhibit No.

By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

15. **Channels 52-59.** If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable:

☐ The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available.

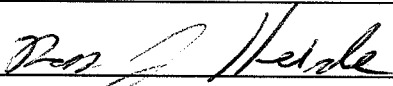
☐ Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licensees of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.

**PREPARER'S CERTIFICATION ON PAGE 8 MUST BE COMPLETED AND SIGNED.**

16. **Channels 60-69.** If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable:

- ☐ Pursuant to Section 74.786(e), the applicant has notified, within 30 days of filing this application, all commercial wireless licensees of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees,
- ☐ Pursuant to Section 74.786(e), the applicant proposing operation on channel 63, 64, 68 and 69 ("public safety channels") has secured a coordinated spectrum use agreement(s) with 700 MHz public safety regional planning committee(s) and state frequency administrator(s) of the region(s) and state(s) within which the antenna site of the digital LPTV or TV translator station is proposed to locate, and those adjoining regions and states with boundaries within 75 miles of the proposed station location.
- ☐ Pursuant to Section 74.786(e), an applicant for a channel adjacent to channel 63, 64, 68 or 69 has notified, within 30 days of filing this application, the 700 MHz public safety regional planning committee(s) and state administrator(s) of the region and state containing the proposed digital LPTV or TV translator antenna site and regions and states whose geographic boundaries lie within 50 miles of the proposed LPTV or TV translator antenna site.

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name Ross J. Heide		Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature 		Date April 9, 2010	
Mailing Address Cohen, Dippell and Everist, P.C., 1300 L Street, NW, Suite 1100			
City Washington	State or Country (if foreign address) DC		ZIP Code 20005
Telephone Number (include area code) (202) 898-0111		E-Mail Address (if available) cde@attglobal.net	

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