

ENGINEERING STATEMENT
APPLICATION FOR
DIGITAL FLASH-CUT
K31CR, PRINEVILLE, ETC., OREGON
CHANNEL 31 15 KW MAX DA ERP 1609 METERS RC/AMSL

JULY 2008

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 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

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

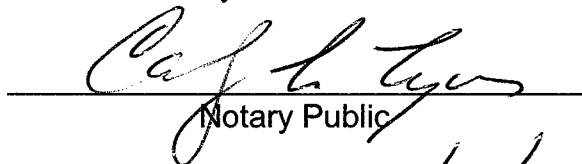
That the attached engineering report was prepared by him or under his supervision and direction and

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.

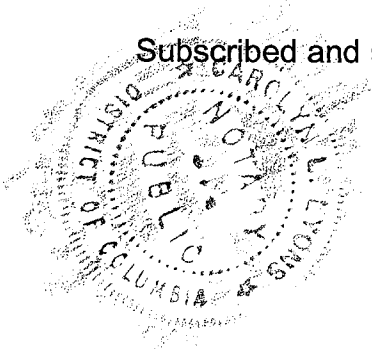


Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 15th day of July, 2008.


Notary Public

My Commission Expires: 2/28/2013



COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Martin R. Doczkat being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer of the Pennsylvania State University, and is a staff engineer at Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

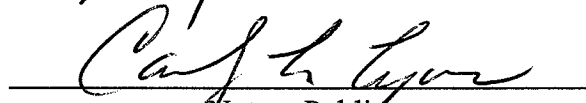
That the attached engineering report was prepared by him or under his supervision and direction and

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.



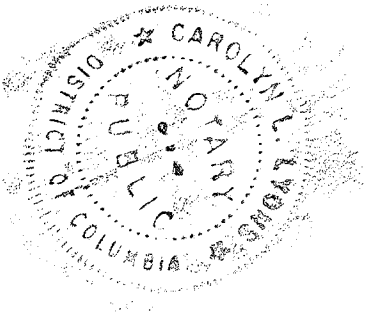
Martin R. Doczkat

Subscribed and sworn to before me this 15th day of July, 2008.



Notary Public

My Commission Expires: 2/28/2013



Introduction

This engineering statement has been prepared on behalf of NVT Portland Licensee, LLC, ("NVT"), licensee of television translator station K31CR, Prineville, Etc., Oregon. K31CR operates on Channel 31 with an analog maximum effective radiated power ("ERP") of 27.7 kW and an antenna radiation center above mean sea level ("RCAMSL") of 1609 meters. The instant application requests to digitally "flash-cut" its analog facilities to digital on Channel 31 with a digital maximum ERP of 15 kW and an antenna RCAMSL of 1609 meters.

Transmitter Site

The proposed digital "flash-cut" will utilize the existing tower currently used by the licensed operation of K31CR. A tower sketch is provided as Exhibit E-1. The geographic coordinates of the existing site are as follows:

North Latitude: 44° 11' 51"

West Longitude: 120° 58' 35"

NAD-27

Elevation Data

Elevation of site above mean sea level	1578 meters (5177 feet)
Center of radiation of antenna above ground level	31 meters (102 feet)
Center of radiation of antenna above mean sea level	1609 meters (5280 feet)
Overall tower height above mean sea level	1616 meters (5302 feet)

Antenna Structure Registration for the existing tower is not required since the overall height of the tower including appurtenances is 38 meters (125 feet).

Equipment Data

Transmitter:	Type-approved
Mask:	Simple
Transmission Line:	Andrew, Type LDF7-50A, 1-5/8" foam dielectric, 35 meters (115 feet) with 86.5% efficiency
Antenna:	Bogner, Model B16UQ with maximum gain of 15.3 dBd. See Exhibit E-2 for the antenna pattern data

Power Data

Transmitter:	0.51 kW	-2.91 dBk
Transmission Line Efficiency/Loss:	86.5%	0.63 dB
Input Into Antenna:	0.44 kW	-3.54 dBk
Antenna Gain: (Maximum)	34.0	15.3 dBd
ERP:	15 kW	11.76 dBk

As indicated above, the transmitter with typical power output of 0.51 kW (simple mask) will deliver 0.44 kW to the input of the antenna. The antenna, having a maximum power gain of 34.0, will produce a maximum ERP of 15 kW. The Bogner, B16UQ antenna azimuth pattern and the associated tabulation are included as Exhibit E-2. A coverage map providing the

protected contour of the proposed digital facility relative to the currently licensed analog operation of K31CR has been included as Exhibit E-3 of this report.

Other Broadcast Facilities

A brief analysis was completed to determine the presence of stations in the vicinity of the proposed tower on which K31CR is to operate using the June 6, 2008 data contained within the Commission's Consolidated Database System ("CDBS"). Within 0.1 km of the proposed site, there are no authorized FM radio stations. Aside from K31CR, one digital Class A television operation, one Class A analog television operation, and five low-power analog television or television translator stations are authorized to operate within 0.1 km of the licensed K31CR site. There are no AM facilities within 3.22 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 channel 31 K31CR low-power digital "flash-cut" 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 1990 census centroids, all studies are based upon data in the current CDBS database. A Longley-Rice study was performed with the proposed channel 31 K31CR low-power digital facilities and all potentially affected stations listed in the FCC database as of May 30, 2008. The results of the study are included as Exhibit E-4.

The proposed operation based upon the current OET Bulletin No. 65, Edition No. 97-01, dated August 1997 and Supplement A meets the provisions of the FCC radio frequency field ("RFF") guidelines, and thus, complies with Section 1.1307 of the FCC Rules. Provisions will be made to reduce power or to terminate the transmitter emissions, as appropriate, when it is necessary for authorized personnel to be on the tower.

FCC Rule Section 1.1307

The following equations from OET Bulletin No. 65 have been used to calculate the predicted radiofrequency fields at 2 meters above ground at the base of the tower:

Digital Television Broadcast Stations

$$S = [(33.4)(F^2)(ERP^2)]/R^2$$

S = Power Density in Microwatts/sq. cm ($\mu\text{W}/\text{cm}^2$)

F = Relative Field Factor in the downward direction of interest (-60° to -90° elevation)

ERP_v = Total Peak Visual ERP in Watts

ERP_A = Total Aural ERP in Watts

ERP = Power in Watts

R = Distance from 2 meters above ground to center of radiation in meters

[illegible]

Therefore, the total assumed RFF percentage at two meters above the ground in the vicinity of the K31CR proposed site will be less than 119% for an uncontrolled environment and 23.8% for a controlled environment.

It is reported that the site is remote.¹ Further, access to an antenna structure adjacent to the structure on which the antenna is to be mounted is restricted and appropriately marked with warning signs.

Authorized personnel and rigging contractors will be alerted to the potential zone of high radio frequency 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 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.

¹See Exhibit 9 of the granted application for authority to construct or make changes in a television translator station filed for KUBN-LP, Channel 43, Bend, Oregon (FCC File No. BDISTTL-20060822AIL), which reports the remoteness of the site, restrictions, signs, and specifies transmitter coordinates identical to the proposed coordinates for K31CR. Reliance has been made on this report although this has not been independently verified.

- (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 will be located on a tower which was built prior to the adoption of WT Docket No. 03-128 and will not affect 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 MEAN SEA LEVEL

ABOVE GROUND

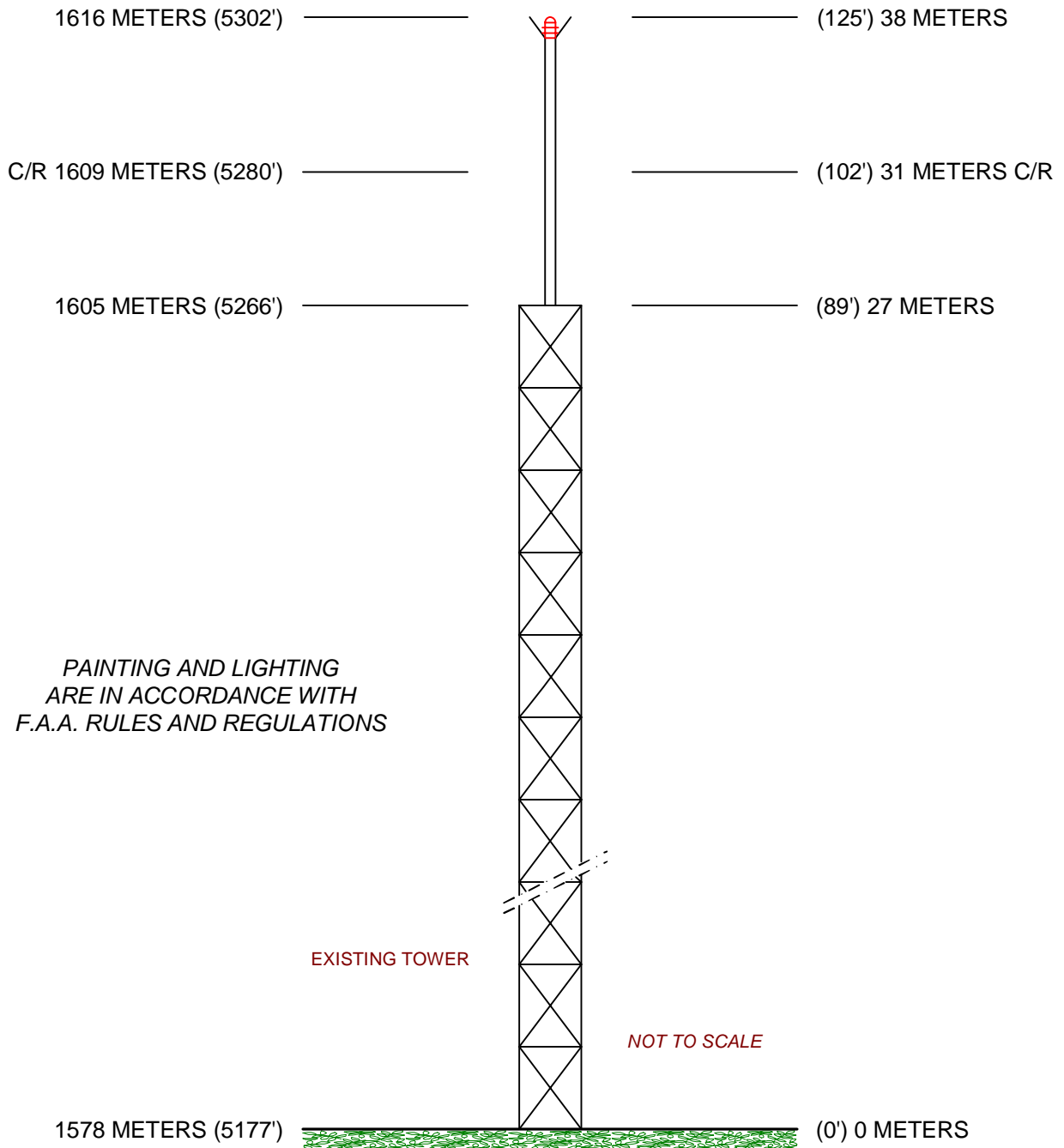


EXHIBIT E-1
VERTICAL SKETCH
FOR THE PROPOSED OPERATION OF
K31CR, PRINEVILLE, ETC., OREGON

JULY 2008

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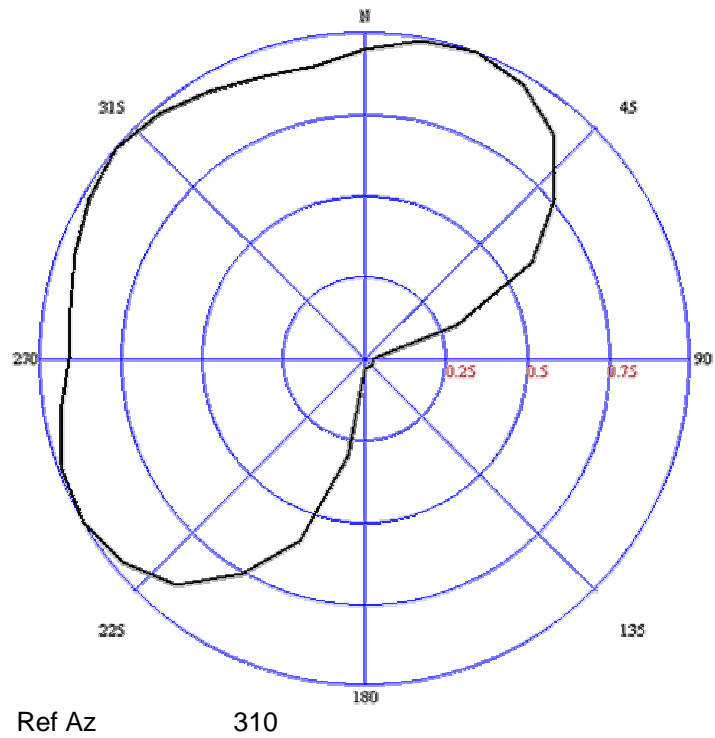
EXHIBIT E-2

ANTENNA MANUFACTURER DATA

K31CR, PRINEVILLE, ETC., OREGON

FCC: K31CR - Antenna ID: 18062

Azimuth	Field_Value
0	1
10	0.98
20	0.95
30	0.92
40	0.91
50	0.95
60	0.99
70	1
80	0.97
90	0.9
100	0.76
110	0.59
120	0.3
130	0.03
140	0.03
150	0.03
160	0.03
170	0.03
180	0.03
190	0.03
200	0.03
210	0.03
220	0.03
230	0.03
240	0.3
250	0.59
260	0.76
270	0.9
280	0.97
290	1
300	0.99
310	0.95
320	0.91
330	0.92
340	0.95
350	0.98



ANTELOPE

COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.

SPRAY

MONUMENT

WARM SPRINGS

51 dBu F(50,90)
15 kW ERP

WHEELER

City-County Airport

MADRAS

METOLIS

Cove Palisades State Park

CULVER

John Day Fossil Beds Nat Mon

MITCHELL

John Day Fossil Beds Nat Mon

T C J D Fossil Beds State Park

DAYVILLE

74 dBu F(50,50)
27.7 kW ERP

unction State Airport

Peter Skene Ogden State Park

Smith Rock State Park

TERREBONNE

Cline Falls Airstrip

PRINEVILLE

REDMOND

SISTERS

K31CR SITE



Cold Springs Landing Field

CROOK

Tumalo State Park

Bend Muni Airport

Shelvin Park

BEND

Bend Golf Course

DESCHUTES RIVER WOODS

Prineville Reservoir St Park

DESCHUTES

Millican Airport

THREE RIVERS

LA PINE

EXHIBIT E-3
MAP SHOWING
THE PROPOSED DTV "FLASH-CUT" OPERATION OF
K31CR, PRINEVILLE, ETC., OREGON
CHANNEL 31 15 kW DA ERP 1609 METERS RCMSL
IN RELATION TO
ITS CURRENTLY LICENSED ANALOG OPERATION
JULY 2008

0 10 20 30

Kilometers

CREATED WITH MAPTITUDE(r) GIS FOR WINDOWS FROM CALIPER CORPORATION

COHEN, DIPPELL AND EVERIST, P.C.

EXHIBIT E-4

TABULATION OF
DIGITAL LOW-POWER LONGLEY-RICE ANALYSIS
OF THE TENTATIVELY PROPOSED MAXIMIZED OPERATION
ASSUMING CURRENTLY LICENSED SITE, HEIGHT AND ANTENNA FOR
K31CR, PRINEVILLE, ETC., OREGON
CHANNEL 31 15 KW DA ERP 1609 METERS RCAMSL
JUNE 2008

<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>
16	K16EM	PRINEVILLE, ETC. OR	26.5	LIC	BLTT-20070809AAT	no interference
17	K17DU	CHRISTMAS VALLEY OR	115	LIC	BLTTL-19970505JE	beyond eval. distance
23	K23CU	PRINEVILLE OR	26.7	LIC	BLTTL-19910513IE	no interference
23	K23FS	SUNRIVER, ETC. OR	55.4	CP	BPTT-20050621AAS	no interference
23	K23FS	SUNRIVER, ETC. OR	55.4	LIC	BLTT-20040408AAW	no interference
24	K57CH	SUNRIVER OR	55.4	CP	BDISTT-20070125ADL	no interference
24	NEW	WARM SPRINGS OR	79.8	APP	BNPTTL-20000831BZN	beyond eval. distance
27	K27DO	BEND, ETC. OR	26.8	LIC	BLTTL-19960507JL	0.66%
28	K28JE	BEND OR	47.4	CP	BNPTTL-20000807AEL	no interference
29	K29CI	PRINEVILLE, ETC. OR	0	LIC	BLTT-19911031SK	no interference
30	K30JT-D	LA PINE OR	70.4	CP	BDCCDTT-20061030ABW	no interference
30	K30EW	MONUMENT, ETC. OR	174.3	CP	BDFCDTL-20060331BDB	no interference
30	K30EW	MONUMENT, ETC. OR	174.3	LIC	BLTTL-19950818JD	beyond eval. distance
30	KPTV-DT	PORTLAND OR	202.9	LIC	BLCDT-20001102AAP	no interference
30	KPDX-DT	VANCOUVER WA	202.9	CP	BPCDT-20080208ACA	no interference
31	NEW	REDDING CA	331.1	APP	BSFDTL-20060630AXR	beyond eval. distance
31	K31FD	BOISE ID	393.3	LIC	BLTTA-20011128ACV	beyond eval. distance
31	K31GP	BROOKINGS, ETC. OR	358.7	LIC	BLTT-20051214ACA	no interference
31	KLSR-DT	EUGENE OR	171.9	LIC	BLCDT-20070104ADQ	no interference
31	K31JS-D	GOLD HILL OR	255.9	CP	BDCCDTT-20061030AMT	no interference
31	KDKF(TV)	KLAMATH FALLS OR	239.4	LIC	BLCT-19891026KE	no interference
31	K31GN	LA GRANDE OR	284.3	LIC	BLTT-20030609AAT	no interference
31	K31HK	RAINIER OR	263.2	LIC	BLTT-20070502ABR	no interference
31	K31AE	SUTHERLIN OR	190.9	LIC	BLTT-19970513JB	no interference
31	K31HZ	THE DALLES, ETC. OR	168.7	LIC	BLTT-20070813ADC	no interference
31	K31AK	ELLENSBURG, ETC. WA	303.3	LIC	BLTT-19880615IE	no interference
31	KONG-DT	EVERETT WA	396.2	LIC	BLCDT-20060627ADG	beyond eval. distance

COHEN, DIPPELL AND EVERIST, P.C.

EXHIBIT E-4

TABULATION OF
DIGITAL LOW-POWER LONGLEY-RICE ANALYSIS
OF THE TENTATIVELY PROPOSED MAXIMIZED OPERATION
ASSUMING CURRENTLY LICENSED SITE, HEIGHT AND ANTENNA FOR
K31CR, PRINEVILLE, ETC., OREGON
CHANNEL 31 15 KW DA ERP 1609 METERS RCAMSL
JUNE 2008

<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>
31	K59BX	GRAYS RIVER WA	322	CP	BDISTT-20060328AGL	no interference
31	KTNW(TV)	RICHLAND WA	256.6	LIC	BLET-20000628AET	no interference
32	K32CC	MONTGOMERY RANCH, ETC OR	55.4	LIC	BLTT-19881013IC	no interference
32	K32DE	PENDLETON, ETC. OR	174.3	LIC	BLTT-19950127JH	beyond eval. distance
32	KRCW-TV	SALEM OR	140.6	LIC	BLCT-19990816KE	no interference
32	K32CC	SUNRIVER OR	55.4	CP	BPTT-20050606AIB	0.59%
32	K32FI	YONCALLA OR	198.1	LIC	BLTTL-20030124AGC	beyond eval. distance
33	K33AG	BEND OR	31.2	LIC	BLTTL-19871223ID	no interference
33	K57GW	LONDON SPRINGS OR	180.6	CP	BDISTT-20051122AEP	beyond eval. distance
33	K33CJ	WASCO/HEPPNER OR	179.1	LIC	BLTTL-19980903JE	beyond eval. distance
34	K34AI	NORTH LA PINE OR	55.4	LIC	BLTT-19881013IB	beyond eval. distance
34	K34AI	SUNRIVER OR	55.4	CP	BPTT-20050606AIA	no interference
34	K65AE	TERREBONNE OR	22.8	CP	BDISTT-20061212ABJ	no interference
35	K35HJ	PRINEVILLE & REDMOND OR	0	CP	BNPTTL-20000829AQZ	no interference
38	K38DT	NORTH LAPINE OR	55.4	LIC	BLTT-19930401JG	beyond eval. distance
38	K38DT	SUNRIVER OR	55.4	CP	BPTT-20050606AHY	no interference
39	KFXO-LP	BEND OR	0	LIC	BLTTL-19931014JH	no interference

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
--------------	-------

- 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 Martin R. Doczkat		Relationship to Applicant (e.g., Consulting Engineer) Consulting Engineer	
Signature 		Date July 15, 2008	
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	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).