

TECHNICAL EXHIBIT  
AMENDMENT TO  
MINOR CHANGE APPLICATION FOR CONSTRUCTION PERMIT  
TV TRANSLATOR STATION K36DG  
FACILITY ID 67878  
LONGVIEW, WASHINGTON  
CH 36 20 KW (MAX-DA)

Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an amendment to the pending minor change application for construction permit for TV translator station K36DG at Longview, Washington (Facility ID: 67878; File No. BPTTL-20010111ABK). Specifically, this instant amendment application proposes to correct the geographic coordinates for the proposed transmitter site and increase the antenna radiation center height above mean sea level from 430 meters to 442 meters. No other changes are proposed. This application is considered a "minor change" in facilities pursuant to Section 73.3572(a)(2), as there will be no change in frequency (output channel) and the proposed 74 dBu contour will overlap a portion of the authorized 74 dBu contour.

It is proposed to operate on channel 36 (602-608 MHz) with a "plus" carrier frequency offset using an Andrew ALP16L2-HSW directional antenna (Antenna ID 16535) oriented at 260° true. The maximum ERP will be 20 kW. Figure 2 depicts the vertical plane relative field pattern for the proposed Andrew ALP16L2-HSW directional antenna.

Minor Change Application

Figure 1 depicts the licensed and herein proposed 74 dBu contours for K36DG. As indicated, the proposed 74 dBu contour encompasses a portion of the licensed 74 dBu contour. Therefore, the proposed modification is considered a "minor" change in facilities pursuant to Section 73.3572.

Response to Paragraph 13(a) - TV Broadcast Analog Protection

A study has been conducted using the provisions of Section 74.705 which indicates that the K36DG proposal will not create prohibited interference to other existing, authorized or proposed NTSC full-power stations.

Response to Paragraph 13(b) - DTV Station Protection

Calculations based on OET Bulletin No. 69 indicate that the proposed K36DG operation on channel 36 will not cause any (0.0%) interference to any allotted, proposed or actual DTV operating facilities on channels 35 or 36 (channel 37 reserved for radio astronomy).

Response to Paragraph 13(c) - LPTV/TV Translator Protection

A study has been conducted using the provisions of Section 74.707 which indicates that the K36DG proposal will not create prohibited interference to other existing, authorized or proposed LPTV stations with the exception of the following stations:

K21HG, Ch. 21, Rainier, Etc, OR (CP, BNPTT-20000829ASD)  
K36GU, Ch. 36, Rockaway & Vicinity, OR (LIC, BLTT-20030610AAE)  
KORS-LP, Ch. 36, Salem, OR (LIC, BLTTA-20020722ABK)

However, based on the provisions of the OET-69 Bulletin as permitted by FCC rules [Section 74.707(e)] it is believed that K36DG's proposed operation complies with the FCC's interference criteria towards these stations with the exception of the authorized operation of K21HG. Specifically, calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 2 square kilometer grid. The results of the OET Bulletin No. 69 are tabulated on Figure 3 and, as indicated, the K36DG proposal complies with the FCC's 0.5% interference threshold towards K36GU and KORS-LP.

Regarding the authorized operation of K21HG, as indicated elsewhere in this application K21HG has agreed to accept any interference caused by K36DG to its operation.

Response to Paragraph 14 - Environmental Protection Act

The proposed K36DG LPTV facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to

Radiofrequency Radiation."<sup>1</sup> The calculated power density at the base of the tower was calculated using the appropriate equation on Page 13 of the Bulletin. As shown on Figure 2, the vertical plane field values at depression angles toward the tower base (-60° to -90° elevation) are less than 0.2. Therefore, using a greater than expected vertical relative field value of 0.2, an antenna radiation center height above ground level of 34 meters, a maximum visual effective radiated power of 20.0 kilowatts (main lobe ERP) and 22 percent aural power, the calculated power density at 2 meters above ground level at the base of the tower is 0.0162 milliwatt per square centimeter (mW/cm<sup>2</sup>), or less than 5 percent of the Commission's recommended limit applicable to general population/uncontrolled exposure areas (0.40 mW/cm<sup>2</sup> for TV channel 36). Therefore, based on the responsibility threshold of 5%, the proposal will comply with the new RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, as this is a multi-user site, an agreement will be in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down.

Finally, it is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental

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<sup>1</sup> See *Report and Order* in ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 11 FCC Rcd 15123 (1997). See also *First Memorandum Opinion and Order*, ET Docket 93-62, FCC 96-487, adopted December 23, 1996, 11 FCC Rcd 17512 (1997), and *Second Memorandum Opinion and Order and Notice of Proposed Rulemaking*, ET Docket 93-62, FCC 97-303, adopted August 25, 1997.

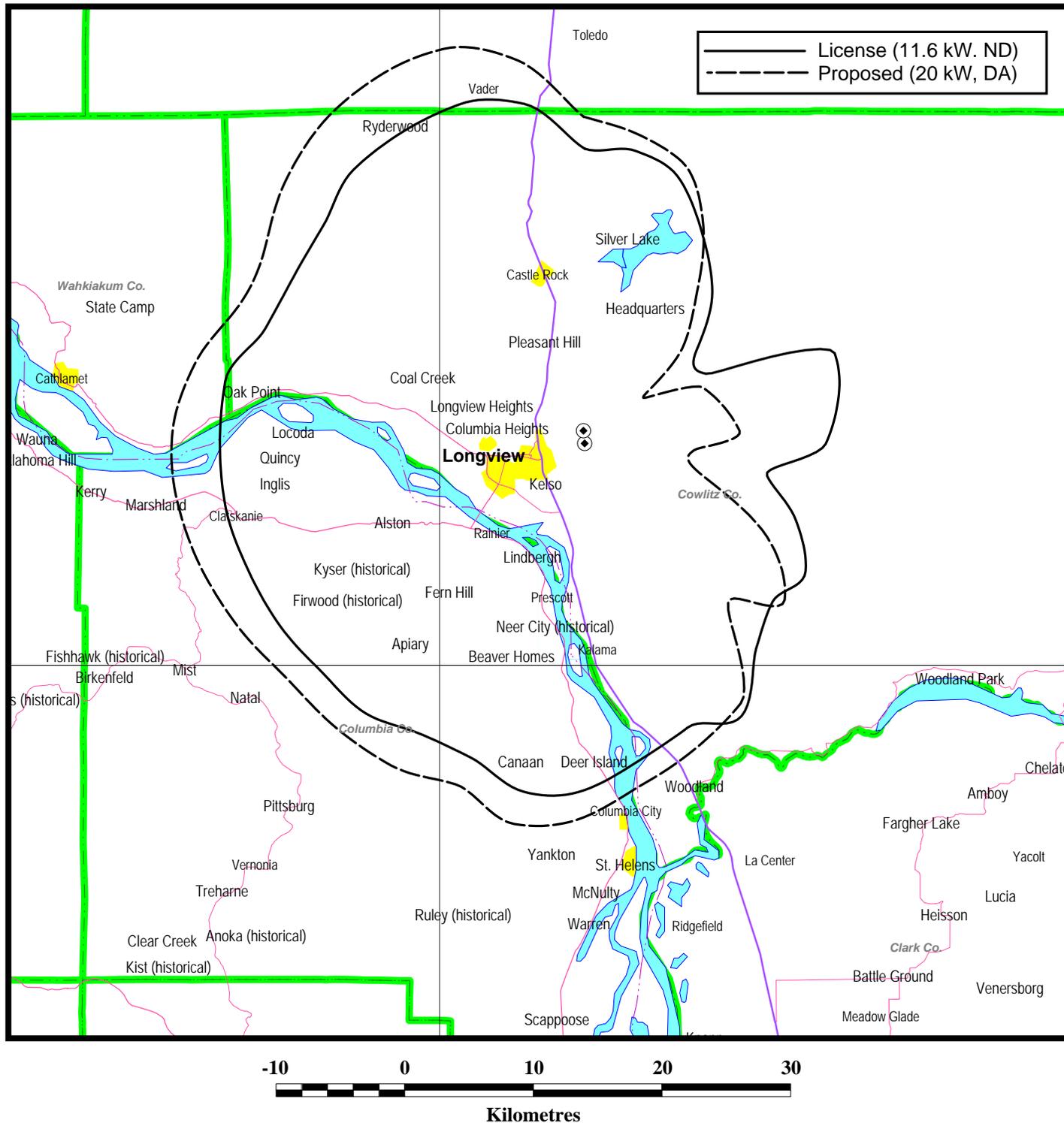
processing analysis will be or already has been provided to the FCC by the tower owner as part of the tower registration process.

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March 24, 2004

Figure 1



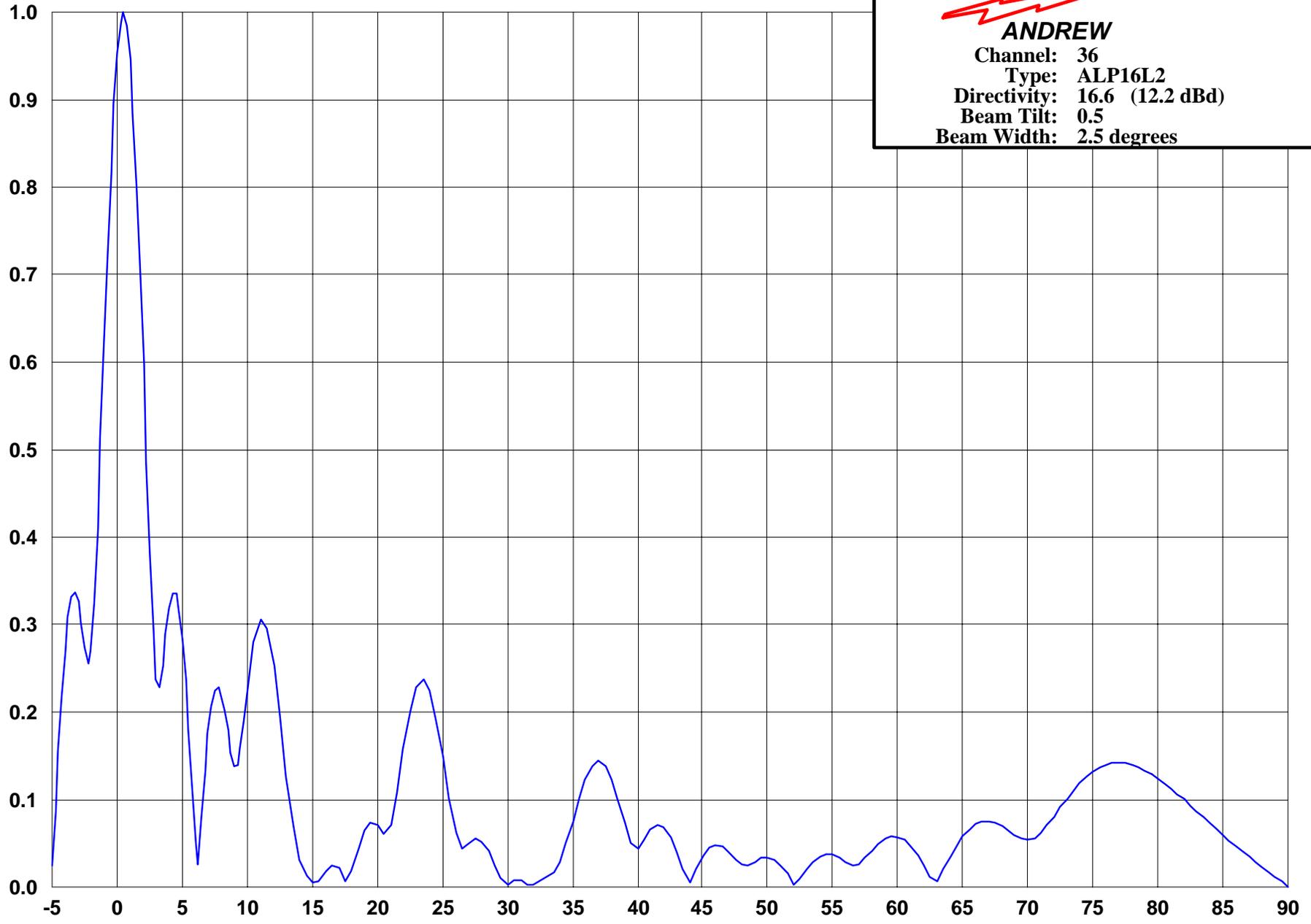
## PREDICTED 74 DBU CONTOURS

TV TRANSLATOR STATION K36DG  
LONGVIEW, WASHINGTON  
CH 36 20 KW (MAX-DA)



**ANDREW**

Channel: 36  
Type: ALP16L2  
Directivity: 16.6 (12.2 dBd)  
Beam Tilt: 0.5  
Beam Width: 2.5 degrees



ANDREW CORPORATION  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

Company:  
Site:  
Proposal Number:

Author:

Date: 3/24/2004

Figure 2

OET-69 INTERFERENCE CAUSED STUDY

CELL SIZE : 2.00  
Using offset in determining thresholds

\*\*\*\*\*  
K21HG 46-10-55 122-57-00 21(-) 2.200 kw 308 m DA 50.0 % 72.4 dBu  
RAINIER ETC. OR  
CP BNPTT20000829ASD  
1.00 0.96 0.86 0.70 0.54 0.40 0.27 0.13 0.05 0.03 0.04 0.05  
0.05 0.04 0.03 0.02 0.06 0.10 0.10 0.10 0.06 0.02 0.03 0.04  
0.05 0.05 0.04 0.03 0.05 0.13 0.27 0.40 0.54 0.70 0.86 0.96  
Ref Az: 175.0

Using DEFAULT vertical antenna pattern  
Area Pop  
within Noise Limited Contour 151.7295 55879  
not affected by terrain losses 151.7295 55879

\*\*\*\*\*  
K36DGP 46-09-52 122-51-13 36(+) 20.000 kw 442 m DA 10.0 % 73.8  
LONGVIEW WA  
AMENDMENT BPTTL20010111ABK  
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76  
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61  
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99  
Ref Az: 260.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -9.00

Interference Area 35.94 Pop 14000(25.1%)

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K36GU 45-44-38 123-56-23 36(-) 0.475 kw 493 m DA 50.0 % 73.8 dBu  
ROCKAWAY & VICINITY OR  
LIC BLTT20030610AAE  
1.00 0.96 0.86 0.70 0.54 0.40 0.27 0.13 0.05 0.03 0.04 0.05  
0.05 0.04 0.03 0.02 0.06 0.10 0.10 0.10 0.06 0.02 0.03 0.04  
0.05 0.05 0.04 0.03 0.05 0.13 0.27 0.40 0.54 0.70 0.86 0.96  
Ref Az: 160.0

Using DEFAULT vertical antenna pattern  
Area Pop  
within Noise Limited Contour 136.8484 2673  
not affected by terrain losses 124.7736 2673

\*\*\*\*\*  
K36DGP 46-09-52 122-51-13 36(+) 20.000 kw 442 m DA 10.0 % 73.8  
LONGVIEW WA  
AMENDMENT BPTTL20010111ABK  
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76  
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61  
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99  
Ref Az: 260.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00

Interference	Area 0	Pop 0
*****		
KORS-2 44-58-59 123-08-39 36(-) 150.000 kw 375 m DA 50.0 % 73.8 dBu		
SALEM OR		
LIC BLTTA20020722ABK		
0.79 0.68 0.86 0.94 0.85 0.70 0.81 1.00 0.92 0.71 0.78 0.92		
0.93 0.86 0.75 0.60 0.44 0.28 0.14 0.05 0.00 0.00 0.00 0.05		
0.14 0.28 0.44 0.60 0.75 0.86 0.93 0.92 0.78 0.72 0.92 1.00		
Ref Az: 0.0		
Using DEFAULT vertical antenna pattern		

	Area	Pop
within Noise Limited Contour	3627.237	303342
not affected by terrain losses	3284.665	283428

*****		
K36DGP 46-09-52 122-51-13 36(+) 20.000 kw 442 m DA 10.0 % 73.8		
LONGVIEW WA		
AMENDMENT BPTTL20010111ABK		
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76		
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61		
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99		
Ref Az: 260.0		
Using DEFAULT vertical antenna pattern		

D/U Baseline: 28.00

Interference	Area 0	Pop 0
*****		
KORS-L 44-58-58 123-08-43 36(-) 10.300 kw 375 m DA 50.0 % 73.8 dBu		
SALEM OR		
CP BPTTL20000609ACE		
1.00 0.99 0.99 0.97 0.94 0.91 0.85 0.78 0.73 0.68 0.66 0.65		
0.65 0.66 0.68 0.69 0.70 0.71 0.72 0.70 0.69 0.67 0.65 0.64		
0.64 0.65 0.66 0.69 0.74 0.79 0.85 0.89 0.93 0.96 0.98 0.99		
Ref Az: 120.0		
Using DEFAULT vertical antenna pattern		

	Area	Pop
within Noise Limited Contour	1585.365	213329
not affected by terrain losses	1496.617	211434

*****		
K36DGP 46-09-52 122-51-13 36(+) 20.000 kw 442 m DA 10.0 % 73.8		
LONGVIEW WA		
AMENDMENT BPTTL20010111ABK		
1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76		
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61		
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99		
Ref Az: 260.0		
Using DEFAULT vertical antenna pattern		

D/U Baseline: 28.00

Interference	Area 0	Pop 0
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KSTW 47-36-55 122-18-28 36(N) 850.000 kw 311.3 m DA 90.0 % 40.8 dBu  
TACOMA WA 24019 3014 DTVSERVICE: 3014000 NTSCSERVICE: 2951000  
CP MOD BMPCDT20020923AAT

0.75 0.89 0.97 1.00 0.97 0.89 0.75 0.56 0.39 0.37 0.48 0.60  
0.64 0.60 0.48 0.37 0.39 0.56 0.75 0.89 0.97 1.00 0.97 0.89  
0.75 0.56 0.39 0.37 0.48 0.60 0.64 0.60 0.48 0.37 0.39 0.56

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	22352.06	2995665
not affected by terrain losses	20579.62	2969807

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K36DGP 46-09-52 122-51-13 36(+) 20.000 kw 442 m DA 10.0 % 73.8  
LONGVIEW WA  
AMENDMENT BPTTL20010111ABK

1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76  
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61  
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99

Ref Az: 260.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00

	Area	Pop
<b>Interference</b>	<b>40.10</b>	<b>859( 0.03%)</b>

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DKSTW 47-36-56 122-18-29 36(0) 1000.000 kw 399 m DA 90.0 % 40.8 dBu  
TACOMA WA 24019 3014 DTVSERVICE: 3014000 NTSCSERVICE: 2951000  
DTVALT DTV ALLOTMENT

1.00 0.97 0.92 0.88 0.83 0.82 0.84 0.85 0.87 0.89 0.89 0.89  
0.89 0.89 0.90 0.92 0.95 0.97 0.99 0.95 0.90 0.86 0.81 0.79  
0.78 0.77 0.76 0.76 0.76 0.76 0.77 0.77 0.79 0.84 0.90 0.96

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	31922.94	3108296
not affected by terrain losses	28261.89	3056384

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K36DGP 46-09-52 122-51-13 36(+) 20.000 kw 442 m DA 10.0 % 73.8  
LONGVIEW WA  
AMENDMENT BPTTL20010111ABK

1.00 0.99 0.95 0.93 0.93 0.96 0.99 1.00 0.98 0.92 0.85 0.76  
0.68 0.61 0.51 0.40 0.30 0.25 0.24 0.25 0.30 0.40 0.51 0.61  
0.68 0.76 0.85 0.92 0.98 1.00 0.99 0.96 0.93 0.93 0.95 0.99

Ref Az: 260.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00

	Area	Pop
<b>Interference</b>	<b>92.23</b>	<b>2989( 0.10%)</b>

Summary of Calculations

Facility	Channel	Type	Baseline	Permissible	IX	%Base
K21HG, RAINIER ETC., O	21	TV	55879	0.5	14000	25.05 <sup>1</sup>
K36GU, ROCKAWAY & VICIN	36	TV	2673	0.5	0	0.00
KORS-2, SALEM, OR	36	TV	303342	0.5	0	0.00
KORS-L, SALEM, OR	36	TV	213329	0.5	0	0.00
KSTW, TACOMA, WA	36	DTV	3014000	0.5	859	0.03
DKSTW, TACOMA, WA	36	DTV	3014000	0.5	2989	0.10

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<sup>1</sup> As indicated elsewhere in this application K21HG has agreed to accept any interference caused by K36DG to its operation.