



**STATEMENT OF JOHN E. HIDLE, P.E.  
IN SUPPORT OF AN APPLICATION FOR  
A MINOR MODIFICATION OF A  
POST REPACK CONSTRUCTION PERMIT  
FILE # 0000025678  
KATU - PORTLAND, OREGON  
DTV - CH. 24 - 1000 kW - 524 m HAAT**

Prepared for: SINCLAIR PORTLAND LICENSEE, LLC

I am a Consulting Engineer, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission. I am a Licensed Professional Engineer in the Commonwealth of Virginia, License No. 7418, and in the State of New York, License No. 63418.

**GENERAL**

This office has been authorized by SINCLAIR PORTLAND LICENSEE, LLC, licensee of KATU, channel 43, facility ID number 21649, licensed to Portland, Oregon, to prepare this statement, FCC Form 2100, Schedule A, its technical sections, and the associated exhibits in support of an application for a minor modification of its post-reassignment construction permit, File # 0000025678, that authorizes KATU to use channel 24 for its post-reassignment broadcasting. The instant application proposes only to increase KATU's ERP to 1000 kW.

## **OMNI-DIRECTIONAL ANTENNA**

The applicant will install the authorized antenna, a Dielectric model TUM-O4-16/64H-2-R-T elliptically polarized non-directional transmitting antenna with its center of radiation located at a height above ground of 291 meters, and a height above average terrain of 524 meters. The manufacturer's vertical plane elevation radiation pattern, illustrating the antenna's radiation characteristics above and below the horizontal plane is shown and tabulated in Exhibit 2.

## **PREDICTED COVERAGE CONTOURS**

The predicted coverage contours were calculated in accordance with the method described in Section 73.625(b) of the Rules, utilizing the appropriate F(50,90) propagation curves (47 CFR Section 73.699, Figure 9), proposed Effective Radiated Power, and antenna height above average terrain as determined for each profile radial. The average terrain on the eight cardinal radials from 3 kilometers to 16 kilometers from the site, was determined using the NED Three Second US Terrain Database as permitted in the FCC Rules. The antenna site elevation and coordinates were determined from FCC antenna registration data. Exhibit 1 shows the predicted Noise Limited (39.76 dBu) contour, and the principal community (48 dBu) contour. The 48 dBu contour completely encompasses the principal community of license, Portland, Oregon.

## **ALLOCATION CONSIDERATIONS**

### ***Post-Transition DTV Considerations***

A study was performed, using the FCC's software, tv\_study, v. 2.2.3, to determine if the instant application for construction permit is predicted to cause new prohibited interference to post reassignment DTV stations, construction permits, DTV allotments or Class A DTV stations. The study results, shown in Appendix B, indicate that the instant application for construction permit is predicted to cause no new interference exceeding 0.5% to the populations served by any post reassignment DTV station, construction permit, allotment or Class A DTV stations.

### ***International DTV Considerations***

The KATU site is located 307.2 kilometers from the nearest point on the US-Canadian border and more than 1,500 kilometers from the nearest point on the US-Mexican border. The study includes Canadian facilities within the coordination distance, however, none is predicted to be affected by the KATU proposal. (See Appendix B)

## **BLANKETING AND INTERMODULATION INTERFERENCE**

Other broadcast and non-broadcast facilities are either co-located with, or located within 10 km of the proposed KATU site. The applicant does recognize its responsibility to remedy complaints of interference that might result from this proposal in accordance with applicable Rules.

## **RADIO FREQUENCY IMPACT**

The FCC's guidelines and procedures for evaluating environmental effects of radio frequency (RF) emissions are generally based on recommendations by the National Council on Radiation Protection and Measurements (NCRP) in NCRP Report No. 86 (1986) and by the American National Standards Institute and the Institute of Electrical and Electronic Engineers, LLC (IEEE) in ANSI/IEEE C95.1-1992 (IEEE C95.1-1991). The guidelines define a maximum permissible exposure (MPE) level for occupational or "controlled" situations, and for "uncontrolled" environments that apply in all other cases that might affect the general public. The FCC Office of Engineering and Technology's technical bulletin No. 65 entitled, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields" (Edition 97-01, August 1997), provides assistance to determine whether FCC-regulated transmitting facilities, operations or devices comply with guidelines for human exposure to radio frequency electromagnetic fields as adopted by the Commission in 1996. OET Bulletin No. 65 contains the technical information necessary to evaluate compliance with the FCC's policies and guidelines.

The Maximum Permitted Exposure (MPE) level for broadcast facilities that operate on a frequency between 30 MHz and 300 MHz is 200 microwatts per centimeter squared ( $\mu\text{W}/\text{cm}^2$ ) for an "uncontrolled" environment, and is 1000 microwatts per centimeter squared ( $\mu\text{W}/\text{cm}^2$ ) for a "controlled" environment. The MPE level for broadcast facilities that operate on a frequency between 300 MHz and 1500 MHz, primarily UHF TV stations, is determined for an "uncontrolled" environment by dividing the operating frequency in MHz by 1.5, and is similarly determined for a "controlled" environment by dividing the operating

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frequency in MHZ by 0.3.

The predicted emissions of KATU must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For KATU, which will operate on television Channel 24 (530-536 MHZ), the MPE is 355.33 microwatts per centimeter squared ( $\mu\text{W}/\text{cm}^2$ ) in an "uncontrolled" environment and 2,016.7  $\mu\text{W}/\text{cm}^2$  in a "controlled" environment. The proposed KATU facility will operate with a maximum ERP of 1000 kW from an elliptically polarized non-directional transmitting antenna with a centerline height of 291 meters above ground level (AGL). Considering a conservative predicted vertical plane relative field factor of 0.300 the KATU facility is predicted to produce a power density at two meters above ground level of 71.98  $\mu\text{W}/\text{cm}^2$ , which is 20.26% of the FCC guideline value for an "uncontrolled" environment, and 4.052% of the FCC's guideline value for "controlled" environments. There are three other full-power DTV facilities, one LPTV DTV facility, two LPFM facilities and six FM stations that are located at the KATU site. The total estimated percentage of the ANSI value at the proposed site, including the cumulative radiation from all authorizations located within the relevant proximity, is 74.68% of the limit applicable to "uncontrolled" environments, and 14.936% of the limit for "controlled" environments. (See Appendix A)

**OCCUPATIONAL SAFETY**

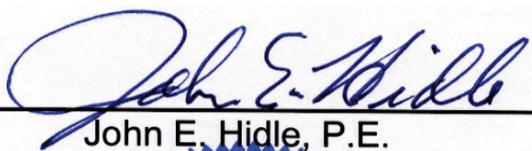
The licensee of KATU is committed to the protection of station personnel and/or tower contractors working in the vicinity of the KATU antenna, and is committed to reducing power or ceasing operation during times of maintenance of the transmission systems, when necessary, to ensure protection to personnel.

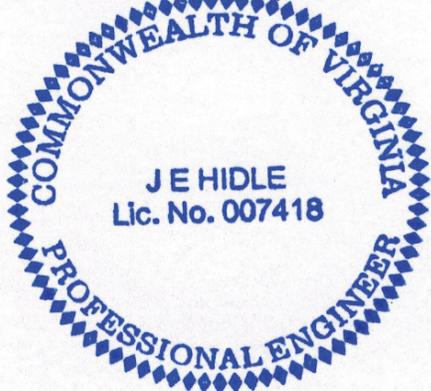
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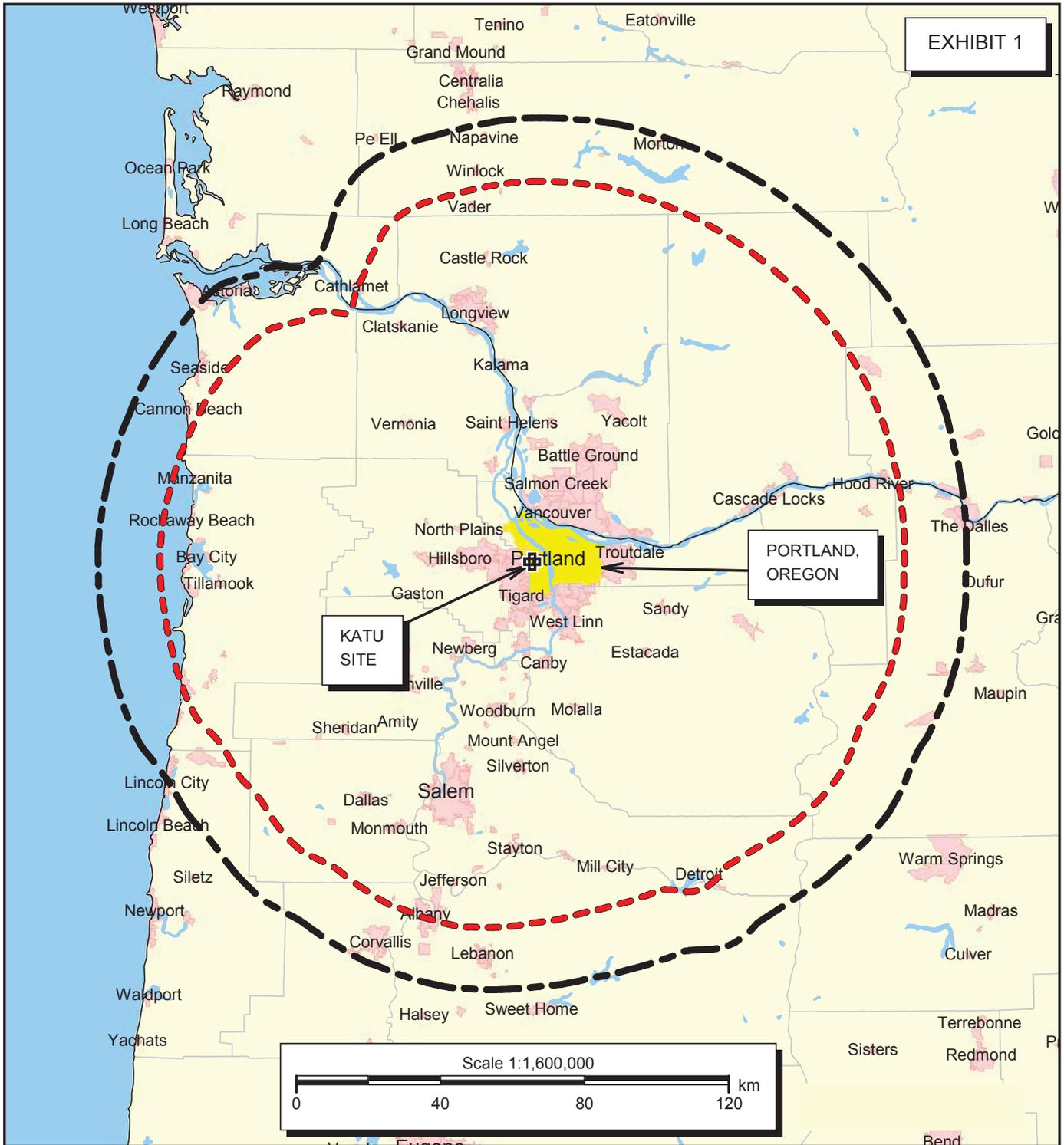
**SUMMARY**

It is submitted that the instant application for minor modification of its post-reassignment channel 24 construction permit to increase KATU's ERP to 1000 kW, as described herein, complies with the Rules, Regulations and relevant Policies of the Federal Communications Commission. This statement, FCC Form 2100, its technical sections, and the attached exhibits were prepared by me or under my direct supervision and are believed to be true and correct to the best of my knowledge and belief.

DATED: October 10, 2017

  
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John E. Hidle, P.E.





# PREDICTED COVERAGE CONTOURS

KATU - PORTLAND, OREGON  
 DTV Channel 24 - 1000 kW ERP - 524 M HAAT  
 OCTOBER, 2017

-----  
 Predicted Noise Limited 39.76 dBu  
 F(50,90) Coverage Contour

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 Predicted Principal Community 48 dBu  
 F(50,90) Coverage Contour

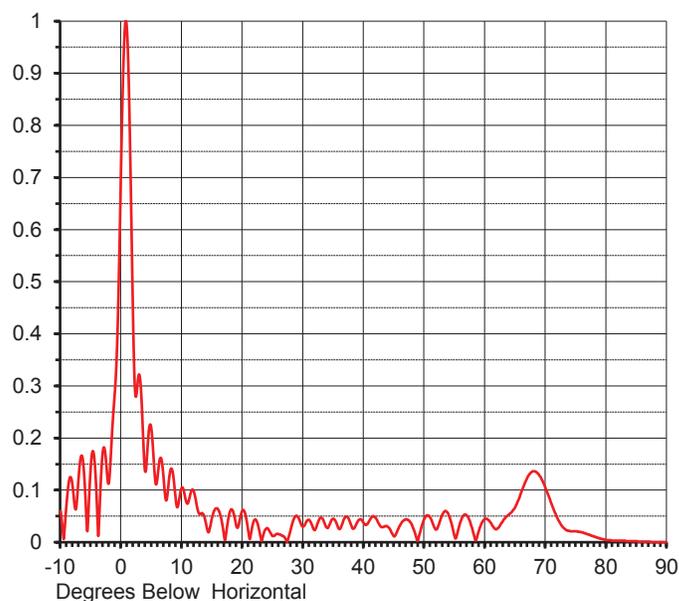
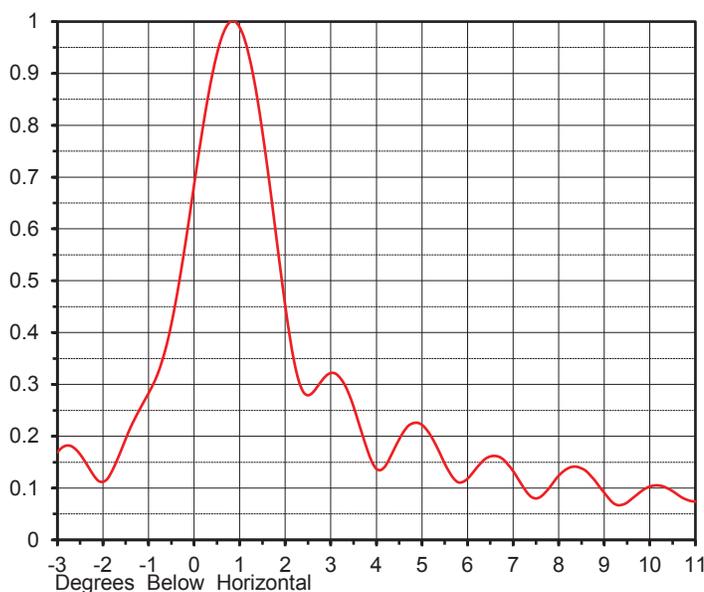


## ELEVATION PATTERN

Proposal No. **C-70671-3**  
 Date **21-Apr-17**  
 Call Letters **KATU**  
 Channel **24**  
 Frequency **533 MHz**  
 Antenna Type **TUM25-O4-16/64H-2-R-T**

RMS Directivity at Main Lobe **28.3 ( 14.52 dB )**  
 RMS Directivity at Horizontal **15.7 ( 11.96 dB )**  
**Calculated**

Beam Tilt **0.75 deg**  
 Pattern Number **16U283075**



Angle	Field								
-10.0	0.060	10.0	0.105	30.0	0.030	50.0	0.045	70.0	0.103
-9.0	0.078	11.0	0.075	31.0	0.043	51.0	0.046	71.0	0.072
-8.0	0.104	12.0	0.096	32.0	0.025	52.0	0.025	72.0	0.044
-7.0	0.130	13.0	0.054	33.0	0.047	53.0	0.054	73.0	0.027
-6.0	0.104	14.0	0.034	34.0	0.027	54.0	0.052	74.0	0.021
-5.0	0.151	15.0	0.049	35.0	0.045	55.0	0.010	75.0	0.021
-4.0	0.065	16.0	0.062	36.0	0.025	56.0	0.041	76.0	0.019
-3.0	0.178	17.0	0.008	37.0	0.049	57.0	0.051	77.0	0.015
-2.0	0.118	18.0	0.061	38.0	0.030	58.0	0.020	78.0	0.011
-1.0	0.300	19.0	0.030	39.0	0.040	59.0	0.023	79.0	0.007
0.0	0.744	20.0	0.061	40.0	0.037	60.0	0.045	80.0	0.004
1.0	0.968	21.0	0.017	41.0	0.043	61.0	0.036	81.0	0.003
2.0	0.392	22.0	0.043	42.0	0.046	62.0	0.026	82.0	0.003
3.0	0.321	23.0	0.009	43.0	0.029	63.0	0.042	83.0	0.003
4.0	0.135	24.0	0.027	44.0	0.029	64.0	0.054	84.0	0.002
5.0	0.213	25.0	0.012	45.0	0.011	65.0	0.068	85.0	0.002
6.0	0.128	26.0	0.015	46.0	0.033	66.0	0.097	86.0	0.001
7.0	0.119	27.0	0.008	47.0	0.044	67.0	0.125	87.0	0.001
8.0	0.132	28.0	0.027	48.0	0.031	68.0	0.136	88.0	0.000
9.0	0.080	29.0	0.050	49.0	0.007	69.0	0.127	89.0	0.000
								90.0	0.000

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**SUMMARY OF RADIOFREQUENCY  
RADIATION STUDY**  
KATU, Portland, Oregon  
CHANNEL 24, 1000 kW ERP, 524 m HAAT  
OCTOBER, 2017

<u>CALL</u>	<u>SERVICE</u>	<u>CHANNEL</u>	<u>FREQUENCY</u>	<u>POLARIZATION</u>	<u>ANTENNA HEIGHT ** mAGL</u>	<u>ERP (kW)</u>	<u>VERT. RELATIVE FIELD FACTOR</u>	<u>PREDICTED POWER DENSITY (mW/cm<sup>2</sup>)</u>	<u>FCC UNCONTROLLED LIMIT (mW/cm<sup>2</sup>)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
KBVM	FM	202	88.1	H & V	203	3.500	1.000	0.00568	0.200	2.84%
KMHD	FM	206	89.1	H & V	203	7.900	1.000	0.01281	0.200	6.40%
KQAC	FM	210	89.9	H & V	204	5.900	1.000	0.00947	0.200	4.74%
K224DL	FM	224	92.7	H & V	230	0.099	1.000	0.00013	0.200	0.06%
K240CZ	FM	240	95.9	H & V	104	0.019	1.000	0.00012	0.200	0.06%
KUPL	FM	254	98.7	H & V	269	24.000	<note 1>	0.00298	0.200	1.49%
KXL-FM	FM	266	101.1	H & V	269	97.000	<note 1>	0.01206	0.200	6.03%
KINK	FM	270	101.9	H & V	269	99.000	<note 1>	0.01230	0.200	6.15%
KATU	DT	24	533	H & V	289	1000.000	0.300	0.07198	0.355	20.26%
KRCW-LP	DT	5	79	H	181.5	0.300	0.300	0.00003	0.200	0.01%
KRCW-TV	DT	33	587	H	288.6	750.000	0.300	0.02707	0.391	6.92%
KOIN	DT	25	539	H	288.6	734.000	0.300	0.02649	0.359	7.37%
KNMT	DT	32	581	H	221	777.000	0.300	0.04782	0.387	12.35%
<b>TOTAL PERCENTAGE OF ANSI VALUE=</b>										<b>74.68%</b>

note 1: Use of the FM dipole antenna (EPA Type 1) in this instance allows for a worst-case RFR analysis

\*\* The antenna heights indicated above are 2 meters less than the actual antenna heights

so that the predicted power densities consider the 2 meter human height allowance.

This evaluation includes facilities collocated at the site, and facilities located within 315 meters.



## KATU - PORTLAND, OREGON Longley-Rice Interference Analysis

tvstudy v2.2.3 (Dxtpx3)  
Database: localhost, Study: KATU-24 OMNI 1MW 171004, Model: Longley-Rice  
Start: 2017.10.04 19:25:42

Study created: 2017.10.04 19:25:28

Study build station data: LMS TV 2017-10-01 (38)

Proposal: KATU D24 DT CP PORTLAND, OR  
File number: KATU-24 OMNI 1MW 171004  
Facility ID: 21649  
Station data: User record  
Record ID: 1833  
Country: U.S.  
Zone: II

**Search options:**

Non-U.S. records included

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
KUNS-TV	D24	DT	CP	BELLEVUE, WA	BLANK0000027380	237.0 km
KOIN	D25	DT	CP	PORTLAND, OR	BLANK0000028190	0.0

No non-directional AM stations found within 0.8 km

**Directional AM stations within 3.2 km:**

KUFO 970 L DAN D PORTLAND, OR BL  
KUFO 970 L DAN N PORTLAND, OR BL

**Record parameters as studied:**

Channel: D24  
Latitude: 45 30 57.80 N (NAD83)  
Longitude: 122 44 3.10 W  
Height AMSL: 613.8 m  
HAAT: 524.0 m  
Peak ERP: 1000 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 0.8

**39.8 dBu contour:**

Azimuth	ERP	HAAT	Distance
0.0 deg	1000 kW	590.6 m	122.9 km
45.0	1000	585.0	122.6
90.0	1000	550.0	120.4
135.0	1000	538.2	119.7
180.0	1000	516.6	118.3
225.0	1000	526.7	119.0
270.0	1000	547.9	120.3
315.0	1000	434.0	112.2

Database HAAT does not agree with computed HAAT

Database HAAT: 524 m Computed HAAT: 536 m

**ERP exceeds maximum**

ERP: 1000 kW ERP maximum: 428 kW

\*\*Proposal service area extends beyond baseline plus 1.0%

Proposal service area population is more than 95.0% of baseline

# Appendix B - Interference Analysis

## KATU - Portland, Oregon

### Channel 24 - 1000 kW - Page 2

Distance to Canadian border: 307.2 km

Distance to Mexican border: 1506.2 km

Conditions at FCC monitoring station: Ferndale WA  
 Bearing: 2.0 degrees Distance: 382.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
 Bearing: 106.6 degrees Distance: 1540.4 km

Study cell size: 2.00 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%

#### Interference to BLANK0000027380 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KUNS-TV	D24	DT	CP	BELLEVUE, WA	BLANK0000027380	
Undesireds:	KATU	D24	DT	BL	PORTLAND, OR	DTVBL21649	237.0 km
	KATU	D24	DT	CP	PORTLAND, OR	KATU-24 OMNI 1MW 17100	237.0
	KIRO-TV	D23	DT	CP	SEATTLE, WA	BLANK0000025164	0.3
	KING-TV	D25	DT	CP	SEATTLE, WA	BLANK0000028075	0.2
	CHNU-DT	D24	DT	LIC	FRASER VALLEY, BC	BLANKCANADA61	159.4

	Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
	20384.9	4,021,329	19348.9	4,008,578	19116.6
			4,000,203	19084.5	3,998,130
					0.17
					0.05

Undesired	Total IX	Unique IX, before	Unique IX, after
KATU D24 DT BL	60.2	4,868	52.2
KATU D24 DT CP	92.3	6,941	84.2
KIRO-TV D23 DT CP	76.1	2,663	56.1
KING-TV D25 DT CP	92.1	1,178	76.1
CHNU-DT D24 DT LIC	27.9	541	24.0

#### Interference to BLANK0000028190 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KOIN	D25	DT	CP	PORTLAND, OR	BLANK0000028190	
Undesireds:	KATU	D24	DT	BL	PORTLAND, OR	DTVBL21649	0.0 km
	KATU	D24	DT	CP	PORTLAND, OR	KATU-24 OMNI 1MW 17100	0.0
	KING-TV	D25	DT	CP	SEATTLE, WA	BLANK0000028075	237.0

	Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
	42551.5	2,983,520	31400.2	2,858,481	31115.6
			2,852,885	31127.7	2,852,921
					-0.04
					-0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
KATU D24 DT BL	12.0	36	12.0
KATU D24 DT CP	0.0	0	0.0
KING-TV D25 DT CP	272.5	5,560	272.5

#### Interference to proposal, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KATU	D24	DT	CP	PORTLAND, OR	KATU-24 OMNI 1MW 17100	
Undesireds:	KEVU-CD	D23	DC	LIC	EUGENE, OR	BLDTA20101029ACH	171.1 km
	KUNS-TV	D24	DT	CP	BELLEVUE, WA	BLANK0000027380	237.0

**Appendix B - Interference Analysis**  
**KATU - Portland, Oregon**  
**Channel 24 - 1000 kW - Page 3**

Service area		Terrain-limited		IX-free		Percent IX	
44943.6	3,030,547	32867.3	2,881,993	32506.6	2,871,190	1.10	0.37
Undesired		Total IX		Unique IX		Prcnt Unique IX	
KEVU-CD D23 DC LIC		35.8	4,166	35.8	4,166	0.11	0.14
KUNS-TV D24 DT CP		324.9	6,637	324.9	6,637	0.99	0.23