

ENGINEERING STATEMENT
IN SUPPORT OF PETITION FOR RULEMAKING

TELEVISION STATION KPTV
PORTLAND, OREGON
CHANNEL 21 1000 KW(H), 200 KW(V) 543 M HAAT

1. The instant statement was prepared on behalf of KPTV-KPDX Broadcasting Corporation in support of a Petition for Rulemaking for full-power Digital Television Station KPTV, Portland, Oregon, which is licensed for operation on Channel 12.* It is proposed to amend the Post-Transition Table of DTV Allotments of Section 73.622(i) of the FCC Rules to substitute Channel 21 for Channel 12 at Portland, OR.

2. KPTV is licensed for operation on Channel 12, with a nominal non-directional effective radiated power (ERP) of 24.5 kW and an antenna height above average terrain (HAAT) of 529 m. The instant proposal is for operation on Channel 21 with a nominal non-directional ERP of 1000 kW[†] with an antenna HAAT of 543 m.[‡]

3. The proposed channel substitution is to address the on-going over-the-air reception issues for KPTV and the complaints of poor reception that have been received from viewers of KPTV. As has been well documented in numerous cases before the FCC, digital television service on VHF channels often suffers from poor reception performance. In recognition of the known problems with reception for digital VHF television stations, the FCC issued a *Notice of Proposed Rulemaking* on November 30, 2010[§] to address the VHF reception issues of DTV stations. The FCC stated therein that “... electrical devices tend to emit noise in this [VHF] band that can cause interference, and

* See FCC File No. 0000107787, Facility ID No. 50633.

[†] The allotment is based on the horizontally-polarized ERP, which is 1000 kW. Elliptical polarization with a vertically-polarized ERP of 200 kW is proposed. But this element the transmission proposal plays no role in the prediction of coverage or the interference analysis for FCC allotment and assignment purposes.

[‡] The antenna HAAT for the instant proposal is being revised to 543 m to harmonize with the latest FCC antenna HAAT calculation procedure reflected in the FCC’s *TVStudy* coverage and interference analysis software tool. There is no change in the antenna radiation center height from what is existing and licensed.

[§] See *Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, Notice of Proposed Rulemaking, ET Docket No. 10-235, 25 FCC Red 16498 (2010) (Notice).

reception of VHF signals requires physically larger antennas that are generally not well suited to the mobile applications expected under flexible use, relative to UHF channels.” The Commission went on to say that it recognized “that television broadcasters have had some difficulty in ensuring consistent reception of VHF signals...”

4. As indicated, the FCC recognizes the challenges of indoor and mobile reception for VHF television stations. The longer wavelength of VHF signals is a handicap for penetration of buildings and reception with typical indoor and mobile antennas geared for smaller wavelength signals such as UHF.** The instant proposal to change to a UHF channel is expected to alleviate the VHF reception problems for KPTV in the market.

5. From an overall coverage standpoint, an analysis of the KPTV proposal indicates that it will result in a net gain in service to 39,677 persons within the predicted noise-limited service contour (NLSC). As demonstrated in the Predicted Coverage Comparison Map exhibit, the proposal will result in no service loss within the licensed KPTV predicted NLSC.

6. An analysis of predicted terrain-limited interference-free service based on the FCC’s *TVStudy* service and interference analysis prediction tool indicates that there would likewise be a gain in predicted service as a result of the KPTV proposal. Based on the *TVStudy* analysis, the KPTV licensed Channel 12 facility serves a total terrain-limited interference-free population of 2,806,111. The Channel 21 proposal would provide terrain-limited interference-free service to a population of 2,899,355, which represents a gain in terrain-limited interference-free service of 93,244. See *TVStudy* Analysis exhibits attached hereto.††

7. Furthermore, a study of other over-the-air full-service television services within the predicted gain area conducted according to FCC procedures, indicates that a population of 499 would gain a second over-the-air television service as a result of the proposal. This is demonstrated in the Predicted Coverage Comparison Map with Other Service Analysis exhibit attached hereto.

** For instance, a half-wave dipole antenna has a length of 2.4 feet at a frequency of 207 MHz (Channel 12). Whereas, a half-wave dipole antenna has a length of 11 inches at 515 MHz (Channel 21).

†† It is noted that the same cell size (1.0 km) and terrain profile point spacing (0.1 km) were employed for the Channel 12 study as were done for the Channel 21 study.

8. An analysis of FOX network gain area was conducted for the instant proposal under the same assumptions as outlined above. The results are depicted in the attached exhibit entitled Predicted Coverage Comparison Map with FOX Network Services Analysis. As indicated therein, the subject proposal will result in a FOX network gain population of 17,584 persons.^{††}

9. The instant proposal for Channel 21 is fully compliant with the interference protection requirements of Section 73.616 of the FCC Rules. The results of the FCC's *TVStudy* interference analysis are attached hereto as an exhibit. It is noted that use of a higher resolution cell size of 1 km with a higher resolution terrain profile point increment of 0.1 km is requested for the *TVStudy* analysis.

10. The proposed facility is compliant with the predicted coverage requirements of Section 73.625(a) of the FCC Rules with respect to the city of license of Portland, Oregon. This is demonstrated in the Predicted Coverage Contours exhibit.

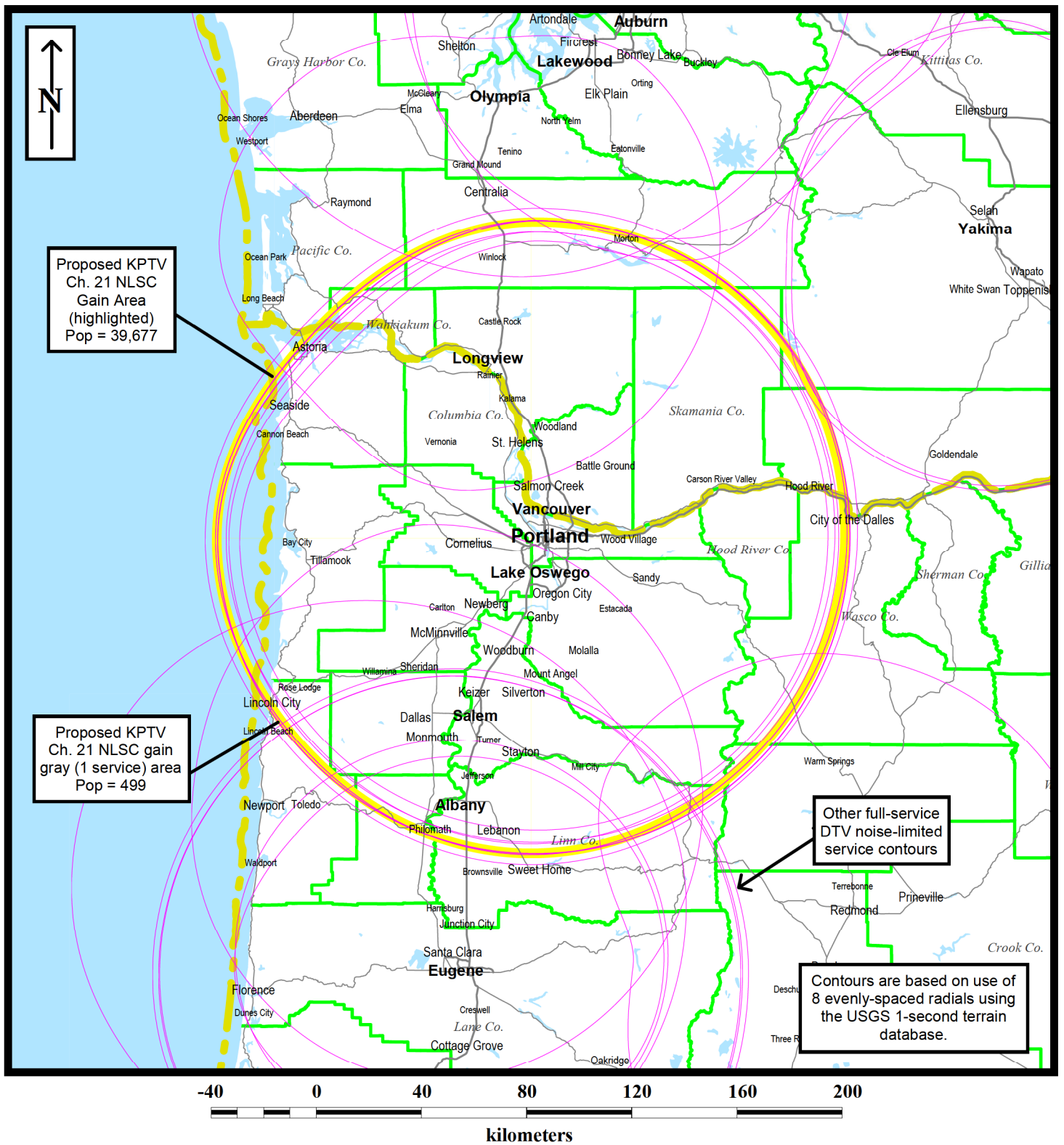


Louis R. du Treil, Jr.

du Treil, Lundin & Rackley, Inc.
5120 Station Way
Sarasota, FL 34233-3221

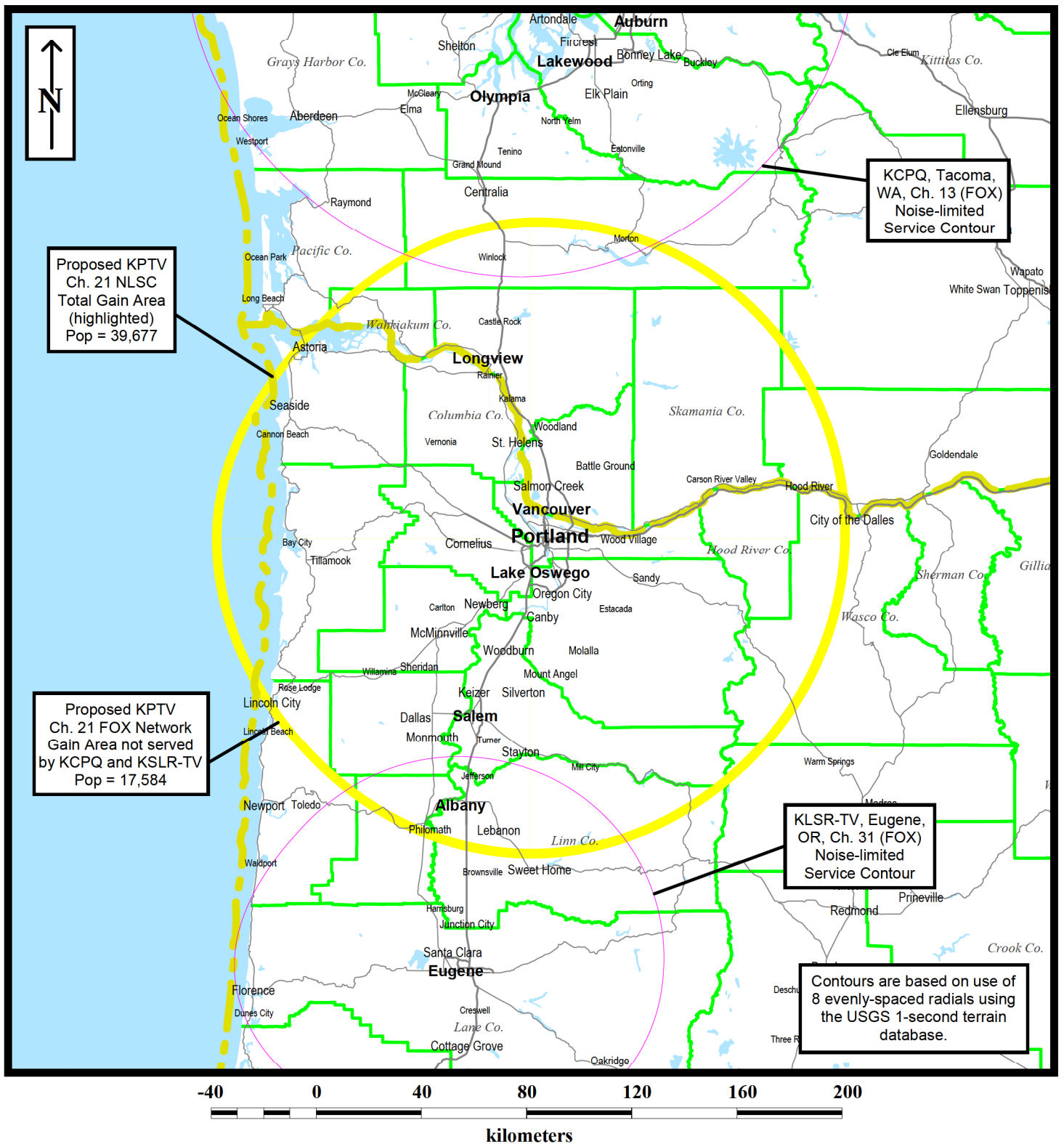
July 1, 2021

^{††} As noted above, there is no loss area for the instant proposal.



PREDICTED COVERAGE COMPARISON MAP WITH OTHER SERVICES ANALYSIS

duTreil, Lundin & Rackley, Inc. Sarasota, Florida



PREDICTED COVERAGE COMPARISON MAP WITH OTHER FOX NETWORK SERVICES ANALYSIS

duTreil, Lundin & Rackley, Inc. Sarasota, Florida

STATIONS CONSIDERED IN OTHER SERVICES ANALYSIS
KPTV, PORTLAND, OR, CHANNEL 21

Call Sign	City	State	Channel	ERP (kW)	HAAT (m)	NLSC (dBu)
KOAC-TV	CORVALLIS	OR	7	18.1	357	36
KEZI	EUGENE	OR	9	21.6	738	36
KOPB-TV	PORTLAND	OR	10	46	524	36
KOAB-TV	BEND	OR	11	90	245	36
KCPQ (Fox)	TACOMA	WA	13	30	610	36
KVAL-TV	EUGENE	OR	13	30.64	441	36
KAPP	YAKIMA	WA	14	160	287	38.7
KNDO	YAKIMA	WA	16	150	266	38.9
KMTR	EUGENE	OR	17	1000	450	39
KCKA	CENTRALIA	WA	19	353	347	39.3
KPXG-TV	SALEM	OR	22	1000	510	39.6
KATU	PORTLAND	OR	24	1000	524	39.8
KOIN	PORTLAND	OR	25	1000	536.3	39.9
KGW	PORTLAND	OR	26	1000	539	40
KVAL-TV	EUGENE	OR	28	1000	441	40.1
KEPB-TV	EUGENE	OR	29	100	403	40.2
KPDX (NextGen)	VANCOUVER	WA	30	741	528	40.3
KLSR-TV (Fox)	EUGENE	OR	31	88	372	40.4
KNMT	PORTLAND	OR	32	777	455	40.5
KRCW-TV (NextGen)	SALEM	OR	33	750	537	40.6
KWPX-TV	BELLEVUE	WA	33	400	716	40.6
KWDK	TACOMA	WA	34	123	695	40.7
Note: Construction permits precede licensed facilities for study purposes.						

INTERFERENCE ANALYSIS FOR KPTV, PORTLAND, OR (PROPOSED CHANNEL 21)

tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: kptv21a01, Model: Longley-Rice

Study build station data: LMS TV 2021-06-30

Proposal: KPTV21A01 D21 DT APP PORTLAND, OR
File number: kptv21a01
Facility ID: 50633
Station data: User record
Record ID: 3908
Country: U.S.
Zone: II

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
Yes	KOXI-CD	D20	DC	LIC	PORTLAND, OR	BLANK0000131008	0.2 km
Yes	KTVZ	D21	DT	LIC	BEND, OR	BLCDT20100122ABM	195.6
Yes	KTBW-TV	D21	DT	LIC	TACOMA, WA	BLANK0000087359	225.1
No	K21JQ-D	D21	DC	LIC	WALLA WALLA, WA	BLDTA20090721ABT	358.4
Yes	KYVE	D21	DT	LIC	YAKIMA, WA	BLEDT20030910ACL	206.1
No	KMCB	D22	DT	CP	COOS BAY, OR	BLANK0000035789	260.7
Yes	KPXG-TV	D22	DT	LIC	SALFEM, OR	BLCDT20110715ACN	0.2

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:

KUFO 970 L DAN D PORTLAND, OR BL3424
KUFO 970 L DAN N PORTLAND, OR BL3424

Record parameters as studied:

Channel: D21
Latitude: 45 31 18.00 N (NAD83)
Longitude: 122 44 57.00 W
Height AMSL: 615.7 m
HAAT: 543.0 m
Peak ERP: 1000 kW
Antenna: Omnidirectional
Elev Pattern: Generic
Elec Tilt: 0.75

Azimuth	ERP	HAAT	Distance
0.0 deg	1000 kW	583.3 m	123.1 km
45.0	1000	589.8	123.6
90.0	1000	553.7	121.3
135.0	1000	529.9	119.8
180.0	1000	544.9	120.8
225.0	1000	513.8	118.8
270.0	1000	554.4	121.4
315.0	1000	472.7	116.1

ERP exceeds maximum

ERP: 1000 kW ERP maximum: 414 kW*

* The proposal is compliant with the largest station in the market criteria. Specifically, the proposed 41 dBu, f(50,90) service contour contains an area of 43,160 sq. km, which is less than the 36 dBu, f(50,90) service contour area of KOPB (Ch. 10), the largest station in the Portland market (47,720 sq. km).

**Proposal 24.46 dBu contour crosses Canadian border, coordination required
Distance to Canadian border: 306.4 km

Distance to Mexican border: 1507.1 km

Conditions at FCC monitoring station: Ferndale WA
Bearing: 2.1 degrees Distance: 382.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 106.6 degrees Distance: 1541.7 km

No land mobile station failures found

Study cell size: 1.00 km (Higher resolution cell size is requested.)
Profile point spacing: 0.10 km (Higher resolution terrain profile point spacing is requested.)

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to BLANK0000131008 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KOXI-CD	D20	DC	LIC	PORTLAND, OR	BLANK0000131008	

INTERFERENCE ANALYSIS FOR KPTV, PORTLAND, OR (PROPOSED CHANNEL 21)

Undesireds:	KPTV21A01 KCKA	D21 D19	DT DT	APP CP	PORTLAND, OR CENTRALIA, WA	kptv21a01 BLANK0000035737	0.2 km 117.2
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	Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	13993.4 2,387,021		12665.2 2,310,831		12665.2 2,310,831		12609.8 2,303,963	0.44 0.30

Undesired	KPTV21A01 D21 DT APP	55.5	Total IX 6,868	Unique IX, before	Unique IX, after 55.5 6,868
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Interference to BLCDT20100122ABM LIC scenario 1

Desired:	Call KTVZ	Chan D21	Svc DT	Status LIC	City, State BEND, OR	File Number BLCDT20100122ABM	Distance
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Undesireds:	KPTV21A01 KYVE	D21 D21	DT DT	APP LIC	PORTLAND, OR YAKIMA, WA	kptv21a01 BLEDT20030910ACL	195.6 km 280.3
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	Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	14945.8 201,836		12453.5 199,604		12452.5 199,604		12373.8 199,543	0.63 0.03

Undesired	KPTV21A01 D21 DT APP	78.7	Total IX 61	Unique IX, before	Unique IX, after 78.7 61
	KYVE D21 DT LIC	1.0	0	1.0 0	1.0 0

Interference to BLANK0000087359 LIC scenario 1

Desired:	Call KTBW-TV	Chan D21	Svc DT	Status LIC	City, State TACOMA, WA	File Number BLANK0000087359	Distance
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Undesireds:	KPTV21A01 KYVE	D21 D21	DT DT	APP LIC	PORTLAND, OR YAKIMA, WA	kptv21a01 BLEDT20030910ACL	225.1 km 206.6
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	Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	25256.4 4,203,211		22671.7 4,113,746		22669.7 4,113,746		22538.7 4,096,554	0.58 0.42
	18.3 0		0.0 0		0.0 0		0.0 0	0.00 0.00 (in Canada)

Undesired	KPTV21A01 D21 DT APP	131.0	Total IX 17,192	Unique IX, before	Unique IX, after 131.0 17,192
	KYVE D21 DT LIC	2.0	0	2.0 0	2.0 0

Interference to BLEDT20030910ACL LIC scenario 1

Desired:	Call KYVE	Chan D21	Svc DT	Status LIC	City, State YAKIMA, WA	File Number BLEDT20030910ACL	Distance
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Undesireds:	KPTV21A01 KTVZ KTBW-TV K21JQ-D KTNW	D21 D21 D21 D21 D22	DT DT DT DC DT	APP LIC LIC LIC LIC	PORTLAND, OR BEND, OR TACOMA, WA WALLA WALLA, WA RICHLAND, WA	kptv21a01 BLCDT20100122ABM BLANK0000087359 BLDTA20090721ABT BLANK0000063716	206.1 km 280.3 206.6 189.3 116.3
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	Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	17791.7 302,108		12885.7 260,240		12372.5 259,874		12353.4 259,874	0.15 0.00

Undesired	KPTV21A01 D21 DT APP	41.4	Total IX 14	Unique IX, before	Unique IX, after 19.1 0
	KTVZ D21 DT LIC	50.7	19	13.2 0	12.2 0
	KTBW-TV D21 DT LIC	9.1	133	4.1 133	4.1 133
	K21JQ-D D21 DC LIC	486.9	233	405.7 203	397.6 200
	KTNW D22 DT LIC	79.2	30	6.1 0	6.1 0

Interference to BLCDT20110715ACN LIC scenario 1

Desired:	Call KPXG-TV	Chan D22	Svc DT	Status LIC	City, State SALEM, OR	File Number BLCDT20110715ACN	Distance
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Undesireds:	KPTV21A01 KMCB KTNW	D21 D22 D22	DT DT DT	APP CP LIC	PORTLAND, OR COOS BAY, OR RICHLAND, WA	kptv21a01 BLANK0000035789 BLANK0000063716	0.2 km 260.9 287.6
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	Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	44634.0 3,026,607		35746.1 2,900,244		35710.8 2,900,244		35704.7 2,900,224	0.02 0.00

Undesired	KPTV21A01 D21 DT APP	6.1	Total IX 20	Unique IX, before	Unique IX, after 6.1 20
	KTNW D22 DT LIC	35.4	0	35.4 0	35.4 0

INTERFERENCE ANALYSIS FOR KPTV, PORTLAND, OR (PROPOSED CHANNEL 21)

Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KPTV21A01	D21	DT	APP	PORTLAND, OR	kptv21a01	
Undesireds:	KTVZ	D21	DT	LIC	BEND, OR	BLCDT20100122ABM	195.6 km
	KTBW-TV	D21	DT	LIC	TACOMA, WA	BLANK0000087359	225.1
	K21JQ-D	D21	DC	LIC	WALLA WALLA, WA	BLDTA20090721ABT	358.4
	KYVE	D21	DT	LIC	YAKIMA, WA	BLEDT20030910ACL	206.1
	KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDT20110715ACN	0.2

	Service area		Terrain-limited		IX-free		Percent IX
45737.1	3,041,506	36275.0	2,906,418	35971.2	2,899,355	0.84	0.24

Undesired				Total IX		Unique IX	Prcnt Unique IX
KTVZ D21 DT LIC		49.6		10	43.5	10	0.12 0.00
KTBW-TV D21 DT LIC		242.1		6,838	241.0	6,838	0.66 0.24
K21JQ-D D21 DC LIC		10.1		0	4.0	0	0.01 0.00
KYVE D21 DT LIC		2.0		0	1.0	0	0.00 0.00
KPXG-TV D22 DT LIC		7.1		215	7.1	215	0.02 0.01

INTERFERENCE ANALYSIS FOR KPTV, PORTLAND, OR (LICENSED CHANNEL 12)(SERVICE ANALYSIS ONLY)

tvstudy v2.2.5 (4uoc83)

Database: localhost, Study: BLANK0000107781, Model: Longley-Rice

Study build station data: LMS TV 2021-06-30

Proposal: KPTV D12 DT LIC PORTLAND, OR
File number: BLANK0000107781
Facility ID: 50633
Station data: LMS TV 2021-06-30
Record ID: 25076f91721da74c01722979580f095d
Country: U.S.
Zone: II

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KOAB-TV	D11	DT	LIC	BEND, OR	BLEDT20060823AAP	195.5 km
No	KSTW	D11	DT	LIC	TACOMA, WA	BLCDT20091117AAX	235.1
No	KUID-TV	D12	DT	LIC	MOSCOW, ID	BLEDT20060804AFK	463.5
Yes	KDRV	D12	DT	LIC	MEDFORD, OR	BLCDT20090303ACL	316.9
Yes	KVAL-TV	D13	DT	LIC	EUGENE, OR	BLCDT20090612AGY	171.4
No	KCPQ	D13	DT	LIC	TACOMA, WA	BLANK0000126148	225.2
No	KCPQ	D13	DT	APP	TACOMA, WA	BLANK0000133653	235.2

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:

KUFO 970 L DAN D PORTLAND, OR BL3424
KUFO 970 L DAN N PORTLAND, OR BL3424

Record parameters as studied:

Channel: D12
Latitude: 45 31 18.00 N (NAD83)
Longitude: 122 44 57.00 W
Height AMSL: 615.7 m
HAAT: 529.0 m
Peak ERP: 24.5 kW
Antenna: Omnidirectional
Elev Pattnr: Generic
Elec Tilt: 0.80

36.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	24.5 kW	583.3 m	119.6 km
45.0	24.5	589.8	120.0
90.0	24.5	553.7	117.6
135.0	24.5	529.9	116.2
180.0	24.5	544.9	117.0
225.0	24.5	513.8	115.3
270.0	24.5	554.4	117.6
315.0	24.5	472.7	113.1

Database HAAT does not agree with computed HAAT
Database HAAT: 529 m Computed HAAT: 543 m

Proposal 21.00 dBu contour does not cross Canadian border
Distance to Canadian border: 306.4 km

Distance to Mexican border: 1507.1 km

Conditions at FCC monitoring station: Ferndale WA
Bearing: 2.1 degrees Distance: 382.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 106.6 degrees Distance: 1541.7 km

Study cell size: 1.00 km
Profile point spacing: 0.10 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

INTERFERENCE ANALYSIS FOR KPTV, PORTLAND, OR (LICENSED CHANNEL 12)(SERVICE ANALYSIS ONLY)

Interference to proposal scenario 1
1.11% interference received

Desired:	Call KPTV	Chan D12	Svc DT	Status LIC	City, State PORTLAND, OR	File Number BLANK0000107781	Distance
Undesireds:	KDRV KVAL-TV	D12 D13	DT DT	LIC LIC	MEDFORD, OR EUGENE, OR	BLCDT20090303ACL BLCDT20090612AGY	316.9 km 171.4
Service area		Terrain-limited		IX-free		Percent IX	
43034.8	2,999,478	34751.2	2,837,651	34508.8	2,806,111	0.70	1.11
Undesired				Total IX		Unique IX	
KDRV D12 DT LIC		143.4	5,643	92.4	1,458	0.27	0.05
KVAL-TV D13 DT LIC		150.0	30,082	99.0	25,897	0.28	0.91
