

ENGINEERING EXHIBIT

Displacement Application for Modification of Digital Television Translator Station

prepared for

Oregon TV License Company LLC

K46KS-D Roseburg, OR

Facility ID 10105

Ch. 22 (digital) 7 kW

Oregon TV License Company LLC (“*Oregon TV*”) is the licensee of digital television translator station K46KS-D, Channel 46, Roseburg, OR, Facility ID 10105. K46KS-D has received a 120 day notice from a 600 MHz licensee that the wireless licensee intends to commence operations and K46KS-D is predicted to cause interference to the wireless operations. Pursuant to the procedures described in DA 17-584,¹ *Oregon TV* herein seeks a displacement channel for K46KS-D.

The 120 day notice, attached separately, states that wireless operations will commence on October 31, 2017, in advance of the Special Displacement Window. Therefore, *Oregon TV* requests a waiver of the Displacement Freeze.² A request for Special Temporary Authority is being submitted contemporaneously to operate on the proposed displacement channel pending the final outcome of the Special Displacement Window.

As proposed herein, K46KS-D will operate at its existing antenna location and height on Channel 22 in lieu of the licensed Channel 46. The existing tower structure is associated with FCC Antenna Structure Registration number 1236230. The proposed K46KS-D facility will employ a replacement antenna system and no change to the overall structure height is proposed.

¹“*Incentive Auction Task Force and Media Bureau Set Forth Tools Available to LPTV/Translator Stations Displaced Prior to the Special Displacement Window*,” Public Notice, DA 17-584, released June 13, 2017.

²“*Freeze on the Filing of Applications for Digital Replacement Translator Stations and Displacement Applications*,” Public Notice, DA 14-808, released June 11, 2014.

The existing K46KS-D facility is licensed to operate at 11.8 kW effective radiated power (“ERP”) with a directional antenna. As proposed herein, the Channel 22 K46KS-D facility will operate at 7.0 kW ERP with a similar directional antenna pattern and a “full service” out of channel emission mask. A plot of the directional antenna’s azimuthal pattern is supplied in Figure 1. Figure 2 depicts the 51 dBμ coverage contour of the licensed and proposed facilities, demonstrating compliance with §73.3572 for a minor change.

Interference study per OET Bulletin 69³ shows that the proposal complies with the FCC’s interference protection requirements toward all digital television, television translator, LPTV, and Class A stations (existing and post-auction). **FCC processing of this proposal is requested on the basis of a 1 km cell size and 0.1 km terrain increment.** The results, summarized in Table 1, show that any new interference does not exceed the FCC’s interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility.

The nearest FCC monitoring station is 624 km distant at Livermore, CA. This exceeds by a large margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with “quiet” zones specified in §73.1030(a) and (b). There are no authorized nondirectional AM stations within 0.8 kilometers and no authorized directional AM stations within 3 km of the site. The site location is beyond the border areas requiring international coordination.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC’s OET Bulletin Number 65. Based on OET-65 equation (10), and considering 12 percent antenna relative field in downward elevations (pattern data shows

³FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 (“OET-69”). This analysis employed the FCC’s current “TVStudy” software with the default application processing template settings, 1 km cell size, and **0.1 km** terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC’s implementation of TVStudy show excellent correlation.

less than 12 percent relative field at angles 25 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $14.9 \mu\text{W}/\text{cm}^2$, which is 4.3 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

List of Attachments

Figure 1	Antenna Azimuthal Pattern
Figure 2	Coverage Contour Comparison
Table 1	OET Bulletin 69 Interference Study
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	September 14, 2017	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600

AZIMUTH PATTERN

Type: AL-OC

Numeric	dBd
1.62	2.10

Directivity: 1.62

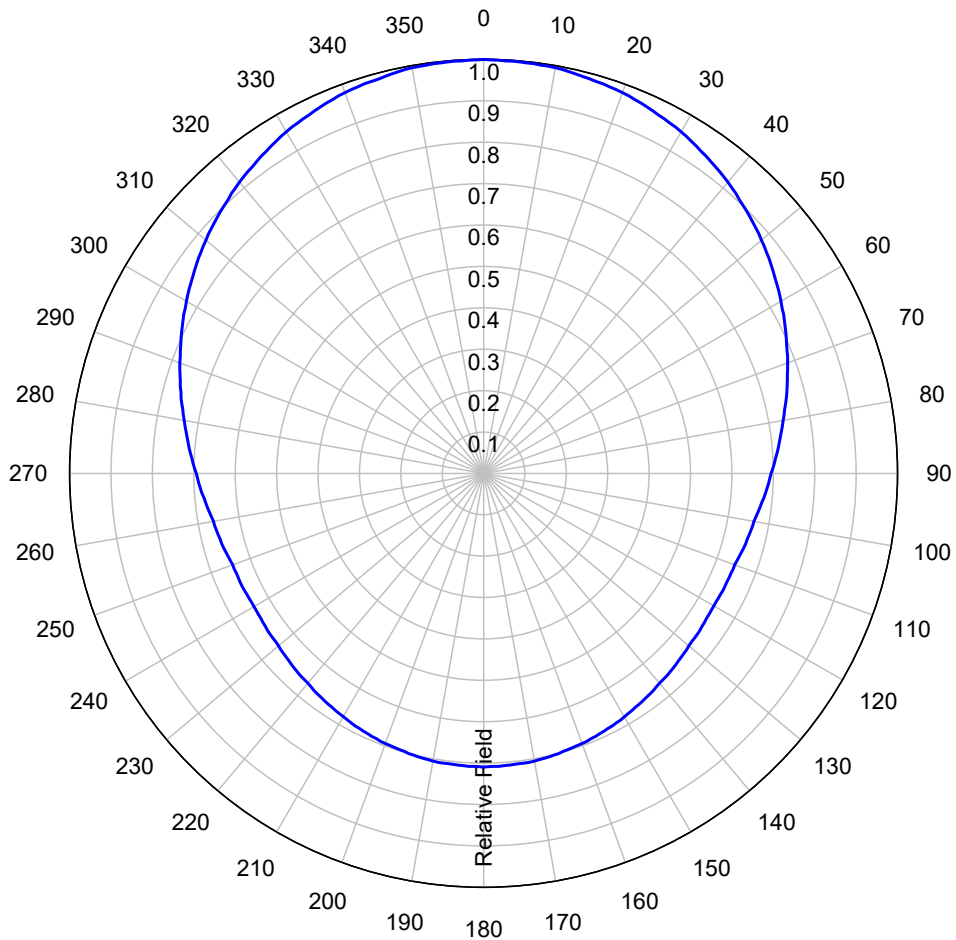
Peak(s) at:

Channel: 22

Location: Roseburg, OR

Polarization: Horizontal

Note: Pattern shape and directivity may vary with channel and mounting configuration.



Preliminary, subject to final design and review.

ELECTRONICS RESEARCH, INC. **ERI**



Figure 1
Antenna Azimuthal Pattern
K46KS-D Roseburg, OR
Facility ID 10105
Ch. 22 (digital) 7 kW

prepared for
Oregon TV License Company LLC

September, 2017



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 2
Coverage Contour Comparison
K46KS-D Roseburg, OR
Facility ID 10105
Ch. 22 (digital) 7 kW

prepared for
Oregon TV License Company LLC

September, 2017

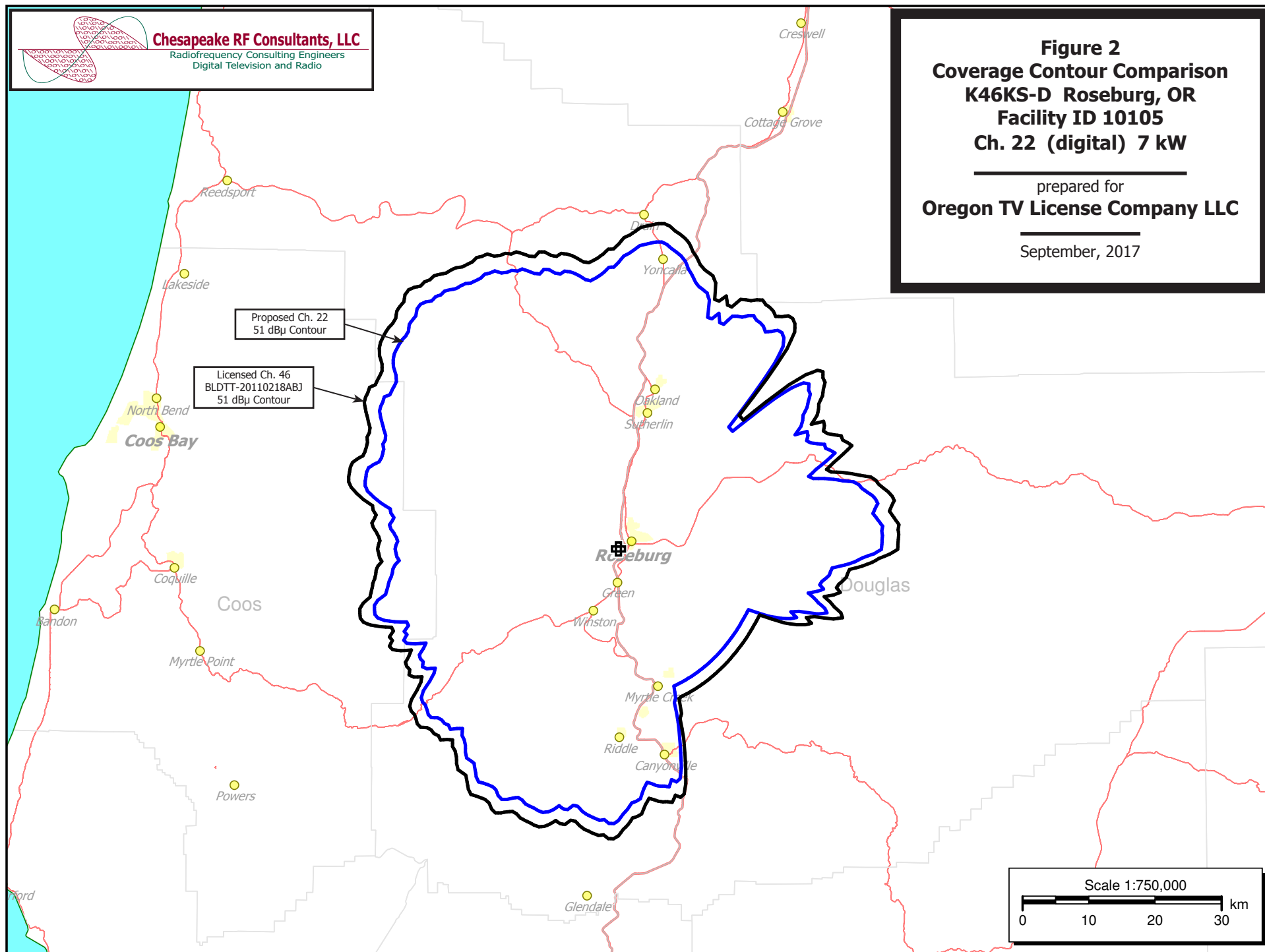
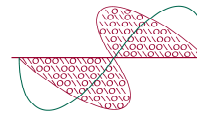


Table 1 K46KS-D OET Bulletin 69 Interference Study (page 1 of 4)



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Digital Television and Radio

tvstudy v2.2.3 (6K70F1)
Database: localhost, Study: K46KS-D Ch-22_7.0kW prop 1.0-0.1, Model: Longley-Rice
Start: 2017.09.14 18:04:57

Study created: 2017.09.14 18:03:31

Study build station data: LMS TV 2017-09-13 (71)

Proposal: K46KS-D D22 LD APP ROSEBURG, OR
File number: K46KS-D Ch-22 7.0kW prop
Facility ID: 10105
Station data: User record
Record ID: 1122
Country: U.S.
Zone: II

Build options:
Protect records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	K21LW-D	D21	LD	LIC	GAZELLE, CA	BLD TT20130912ADD	171.3 km
No	KTVZ	D21	DT	LIC	BEND, OR	BLCDT20100122ABM	190.1
No	K21KB-D	D21	LD	LIC	BROOKINGS, OR	BLD TL20120612AAW	142.6
Yes	K21KE-D	D21	LD	LIC	CANYONVILLE, OR	BLD TL20120606AAJ	34.4
No	K21JI-D	D21	LD	LIC	CAVE JUNCTION, ETC., OR	BLD TT20091118ACE	108.1
No	K21FS-D	D21	LD	LIC	EUGENE, OR	BLD TT20101029ACP	114.3
No	K21KO-D	D21	LD	CP	GRANTS PASS, OR	BNP DTL20090825BGL	67.9
No	K21BG-D	D21	LD	LIC	JACKSONVILLE, OR	BLD TT20090521AFG	112.7
No	K21LB-D	D21	LD	CP	LINCOLN CITY, OR	BNP DTL20100324ACD	200.0
No	K21LY-D	D21	LD	LIC	MAPLETON, OR	BLD TT20120615ADJ	101.5
No	K21MB-D	D21	LD	LIC	SCOTTSBURG, OR	BLD TT20120607ADE	61.5
No	KAEF-TV	D22	DT	LIC	ARCATA, CA	BLCDT20071012ASQ	280.0
No	K22LE-D	D22	LD	LIC	CEDARVILLE, CA	BLD TT20120730AKH	320.2
No	K22JS-D	D22	LD	LIC	ASHLAND, OR	BLD TL20140221ACM	140.6
No	K22IQ-D	D22	LD	LIC	CAVE JUNCTION, OR	BLD TT20080714ACE	108.1
Yes	KMCB	D22	DT	LIC	COOS BAY, OR	BLCDT20030717ACA	65.6
Yes	K22HO-D	D22	LD	LIC	COTTAGE GROVE, OR	BLD TT20090330AAP	68.7
No	K22FC-D	D22	DC	LIC	GRANTS PASS, OR	BLD TA20140411AKR	83.7
No	K22IL-D	D22	LD	LIC	PRINEVILLE, ETC., OR	BLD TT20091202ACB	236.8
Yes	KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDT20110715ACN	262.1
No	K22LB-D	D22	LD	LIC	SQUAW VALLEY, OR	BLD TT20120607ADH	121.4
No	K22KC-D	D22	LD	LIC	THE DALLES, OR	BLD TT20111202AFS	330.7
No	K22KC-D	D22	LD	CP	THE DALLES, OR	BDISDTT20060330AGF	330.7
Yes	K22GX-D	D22	LD	LIC	TRI CITY, OR	BLD TT20120607ADL	22.5
No	KHPN-LD	D22	LD	CP	WARRENTON, OR	BLANK0000011217	344.9
No	K13LO	D23	LD	CP	YREKA, ETC., CA	BDISDTT20110812ACR	170.9
Yes	DK21AI	D23	LD	APP	CAMAS VALLEY, OR	BDISDTT20120119AFA	40.4
Yes	K23ME-D	D23	LD	LIC	CAMAS VALLEY, OR	BLD TT20120510ABB	40.4
No	K23KD-D	D23	LD	LIC	COOS BAY, ETC., OR	BLD TT20110524AGT	65.6
No	KEVU-CD	D23	DC	LIC	EUGENE, OR	BLD TA20101029ACH	90.6
No	KEZI	D23	LD	LIC	EUGENE, OR	BLCDT20120620AAA	48.1
No	K23KS-D	D23	LD	CP	GRANTS PASS, OR	BNP DTL20090825BGN	67.9
No	K23EX-D	D23	DC	LIC	MEDFORD, OR	BLD TA20131125BZO	99.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

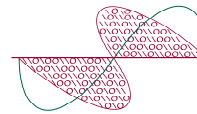
Record parameters as studied:

Channel: D22
Mask: Full Service
Latitude: 43 12 21.50 N (NAD83)
Longitude: 123 21 53.90 W
Height AMSL: 372.0 m
HAAT: 0.0 m
Peak ERP: 7.00 kW
Antenna: ERI AL-OC 0.0 deg
Elev Pattn: Generic
Elec Tilt: 1.75

49.6 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	7.00 kW	154.1 m	44.8 km
45.0	5.63	42.9	29.9
90.0	3.37	155.3	41.1
135.0	2.99	-68.0	23.4
180.0	3.52	172.2	42.4
225.0	2.99	126.3	38.6
270.0	3.37	86.0	35.2
315.0	5.63	209.7	47.0

Table 1 K46KS-D OET Bulletin 69 Interference Study
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Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 110 m

Distance to Canadian border: 558.0 km

Distance to Mexican border: 1287.6 km

Conditions at FCC monitoring station: Livermore CA
Bearing: 166.9 degrees Distance: 624.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 96.6 degrees Distance: 1538.0 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 to BLDTL20120606AAJ LIC, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K21KE-D	D21	LD	LIC	CANYONVILLE, OR	BLDTL20120606AAJ	
Undesireds:	K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	34.4 km
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	3920.4	75,493	3281.9	50,669	3281.9	50,085	0.18 1.15
Undesired			Total IX		Unique IX, before	Unique IX, after	
K46KS-D D22 LD APP		6.0	584		6.0	584	

Interference to BLCDDT20030717ACA LIC, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KMCB	D22	DT	LIC	COOS BAY, OR	BLCDDT20030717ACA	
Undesireds:	K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	65.6 km
	KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDDT20110715ACN	260.9
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	9453.5	69,348	9071.7	67,429	9037.5	66,821	0.06 0.00
Undesired			Total IX		Unique IX, before	Unique IX, after	
K46KS-D D22 LD APP		6.0	0		5.0	0	
KPXG-TV D22 DT LIC		34.2	608		33.2	608	

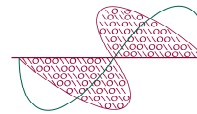
Interference to BLDTT20090330AAP LIC, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K22HO-D	D22	LD	LIC	COTTAGE GROVE, OR	BLDTT20090330AAP	
Undesireds:	K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	68.7 km
	K21FS-D	D21	LD	LIC	EUGENE, OR	BLDTT20101029ACP	46.9
	KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDDT20110715ACN	195.3
	K22KC-D	D22	LD	LIC	THE DALLES, OR	BLDTT20111202AFS	263.3
	KEVU-CD	D23	DC	LIC	EUGENE, OR	BLDTA20101029ACH	25.4
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	1450.8	114,206	1224.2	63,433	1205.0	56,630	0.42 0.01
Undesired			Total IX		Unique IX, before	Unique IX, after	
K46KS-D D22 LD APP		8.1	6		5.1	6	
K21FS-D D21 LD LIC		2.0	590		1.0	227	
KPXG-TV D22 DT LIC		10.1	87		7.1	87	
KEVU-CD D23 DC LIC		8.1	6,483		7.1	6,120	

Interference to BLCDDT20110715ACN LIC, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDDT20110715ACN	
Undesireds:	K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	262.1 km
	KTNW	D22	DT	CP	RICHLAND, WA	BLANK0000025245	287.6
	KEVU-CD	D23	DC	LIC	EUGENE, OR	BLDTA20101029ACH	171.6

Table 1 K46KS-D OET Bulletin 69 Interference Study
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Digital Television and Radio

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
44634.0 3,026,607	35746.1 2,900,244	35654.1 2,879,180	35654.1 2,879,180	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
K46KS-D D22 LD APP	1.0 30		0.0 0
KTNW D22 DT CP	2.0 0	2.0 0	2.0 0
KEVU-CD D23 DC LIC	90.0 21,064	90.0 21,064	89.0 21,034

Interference to BLCDDT20110715ACN LIC, scenario 2

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDDT20110715ACN	
Undesireds: K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	262.1 km
KTNW	D22	DT	BL	RICHLAND, WA	DTVBL71023	287.6
KEVU-CD	D23	DC	LIC	EUGENE, OR	BLDTA20101029ACH	171.6

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
44634.0 3,026,607	35746.1 2,900,244	35653.1 2,879,180	35653.1 2,879,180	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
K46KS-D D22 LD APP	1.0 30		0.0 0
KTNW D22 DT BL	3.0 0	3.0 0	3.0 0
KEVU-CD D23 DC LIC	90.0 21,064	90.0 21,064	89.0 21,034

Interference to BLDDTT20120607ADL LIC, scenario 1

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: K22GX-D	D22	LD	LIC	TRI CITY, OR	BLDDTT20120607ADL	
Undesireds: K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	22.5 km
K21KE-D	D21	LD	LIC	CANYONVILLE, OR	BLDDL20120606AAJ	12.7
KMCB	D22	DT	LIC	COOS BAY, OR	BLCDDT20030717ACA	76.4
KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDDT20110715ACN	284.2
DK21AI	D23	LD	APP	CAMAS VALLEY, OR	BDISDTT20120119AFA	34.1
K23ME-D	D23	LD	LIC	CAMAS VALLEY, OR	BLDDTT20120510ABB	34.1

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
3488.3 26,215	3015.9 22,486	3003.9 22,486	2989.8 22,486	0.47 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
K46KS-D D22 LD APP	17.1 0		14.1 0
K21KE-D D21 LD LIC	6.0 0	6.0 0	6.0 0
KMCB D22 DT LIC	3.0 0	3.0 0	1.0 0
KPXG-TV D22 DT LIC	1.0 0	0.0 0	0.0 0
DK21AI D23 LD APP	3.0 0	0.0 0	0.0 0
K23ME-D D23 LD LIC	3.0 0	0.0 0	0.0 0

Interference to BDISDTT20120119AFA APP, scenario 1

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: DK21AI	D23	LD	APP	CAMAS VALLEY, OR	BDISDTT20120119AFA	
Undesireds: K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	40.4 km
K23ME-D	D23	LD	LIC	CAMAS VALLEY, OR	BLDDTT20120510ABB	0.0
K23KD-D	D23	LD	LIC	COOS BAY, ETC., OR	BLDDTT20110524AGT	52.3
K24FH-D	D24	LD	LIC	GLIDE, ETC., OR	BLDDTT20091125AAS	70.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
2198.6 66,813	1910.1 34,153	1518.0 28,171	1518.0 28,171	0.00 0.00

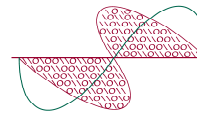
Undesired	Total IX	Unique IX, before	Unique IX, after
K46KS-D D22 LD APP	5.0 725		0.0 0
K23ME-D D23 LD LIC	392.1 5,982	386.1 5,982	381.1 5,257
K23KD-D D23 LD LIC	5.0 0	0.0 0	0.0 0
K24FH-D D24 LD LIC	1.0 0	0.0 0	0.0 0

Interference to BLDDTT20120510ABB LIC, scenario 1

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired: K23ME-D	D23	LD	LIC	CAMAS VALLEY, OR	BLDDTT20120510ABB	
Undesireds: K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	40.4 km
DK21AI	D23	LD	APP	CAMAS VALLEY, OR	BDISDTT20120119AFA	0.0
K23KD-D	D23	LD	LIC	COOS BAY, ETC., OR	BLDDTT20110524AGT	52.3
K24FH-D	D24	LD	LIC	GLIDE, ETC., OR	BLDDTT20091125AAS	70.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
2198.6 66,813	1910.1 34,153	1518.0 28,171	1518.0 28,171	0.00 0.00

Table 1 K46KS-D OET Bulletin 69 Interference Study
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Chesapeake RF Consultants, LLC
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Digital Television and Radio

Undesired		Total IX	Unique IX, before	Unique IX, after
K46KS-D D22 LD APP	5.0	725		0.0 0
DK21AI D23 LD APP	392.1	5,982	386.1 5,982	381.1 5,257
K23KD-D D23 LD LIC	5.0	0	0.0 0	0.0 0
K24FH-D D24 LD LIC	1.0	0	0.0 0	0.0 0

Interference to proposal, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K46KS-D	D22	LD	APP	ROSEBURG, OR	K46KS-D Ch-22 7.0kW pr	
Undesireds:	K21KE-D	D21	LD	LIC	CANYONVILLE, OR	BLDTL20120606AAJ	34.4 km
	KMCB	D22	DT	LIC	COOS BAY, OR	BLCDT20030717ACA	65.6
	KPXG-TV	D22	DT	LIC	SALEM, OR	BLCDT20110715ACN	262.1
	K22KC-D	D22	LD	LIC	THE DALLES, OR	BLDTT20111202AFS	330.7
	K22GX-D	D22	LD	LIC	TRI CITY, OR	BLDTT20120607ADL	22.5
	DK21AI	D23	LD	APP	CAMAS VALLEY, OR	BDISDTT20120119AFA	40.4
	K23ME-D	D23	LD	LIC	CAMAS VALLEY, OR	BLDTT20120510ABB	40.4
	KEZI	D23	LD	LIC	EUGENE, OR	BLCDT20120620AAA	48.1

Service area	Terrain-limited	IX-free	Percent IX
4645.9 93,000	3991.2 78,984	3921.3 78,839	1.75 0.18

Undesired		Total IX	Unique IX	Prct Unique IX
K21KE-D D21 LD LIC	7.0	1	2.0 1	0.05 0.00
KMCB D22 DT LIC	1.0	0	0.0 0	0.00 0.00
KPXG-TV D22 DT LIC	13.0	0	5.0 0	0.13 0.00
K22GX-D D22 LD LIC	53.0	136	39.0 136	0.98 0.17
DK21AI D23 LD APP	15.0	8	0.0 0	0.00 0.00
K23ME-D D23 LD LIC	15.0	8	0.0 0	0.00 0.00
KEZI D23 LD LIC	1.0	0	0.0 0	0.00 0.00

Channel and Facility Information

Section	Question	Response
Proposed Community of License	Facility ID	10105
	State	Oregon
	City	ROSEBURG
	LPT Channel	22

Antenna Location Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1236260
Coordinates (NAD83)	Latitude	43° 12' 21.5" N+
	Longitude	123° 21' 53.9" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	20.0 meters
	Support Structure Height	15.2 meters
	Ground Elevation (AMSL)	355.0 meters
Antenna Data	Height of Radiation Center Above Ground Level	17 meters
	Height of Radiation Center Above Mean Sea Level	372.0 meters
	Effective Radiated Power	7.0 kW

Antenna
Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	No
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	ERI
	Model	AL8OC-22-H
	Rotation	0 degrees
	Electrical Beam Tilt	1.75
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Horizontal
Elevation Radiation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	
	Out-of-Channel Emission Mask:	Full Service

Directional Antenna Relative Field Values (Pre-rotated Pattern)

Degree	V _A (Authorized Value)	Degree	V _A (Authorized Value)	Degree	V _A (Authorized Value)	Degree	V _A (Authorized Value)
0	1.000	90	0.694	180	0.709	270	0.694
10	0.995	100	0.663	190	0.705	280	0.734
20	0.979	110	0.645	200	0.694	290	0.781
30	0.953	120	0.641	210	0.678	300	0.829
40	0.918	130	0.647	220	0.661	310	0.876
50	0.876	140	0.661	230	0.647	320	0.918
60	0.829	150	0.679	240	0.641	330	0.953
70	0.781	160	0.694	250	0.645	340	0.979
80	0.734	170	0.705	260	0.663	350	0.995

Additional Azimuths

Degree	V _A
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