

# EXHIBIT 1

## TECHNICAL CERTIFICATIONS & EXHIBITS

Minor Modification of K219KU, Nehalem, OR  
Cascade Educational Broadcast Service

### OVERVIEW

The applicant proposes a minor modification to licensed translator K219KU, Nehalem, OR, moving it to a location within the city of Nehalem.

### DETAILS

As shown herein, this proposal complies with all overlap requirements to all other broadcast facilities, and qualifies as a minor change. There are no TV6 or 2<sup>nd</sup>-adjacent waiver issues.

### §74.1235 ERP COMPLIANCE

Distance to Contour Report

Field Strength: 60.00 dBuV/m F(50,50)

Primary Terrain: FCC 30 Second US Database

Azimuth (deg)	Distance (km)	HAAT (m)	Max ERP (W)	Prop. ERP (W)
0.0	5.90	-368.7	250	120
30.0	5.90	-89.1	250	120
60.0	5.90	-150.7	250	120
90.0	5.90	-213.7	250	120
120.0	5.90	-310.2	250	120
150.0	5.90	-278.8	250	120
180.0	5.90	-149.0	250	120
210.0	5.90	10.8	250	120
240.0	5.90	12.9	250	120
270.0	5.90	12.0	250	120
300.0	5.90	-22.1	250	120
330.0	5.90	-138.7	250	120

Average HAAT for radials shown: -140.4 m

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### **PROTECTED ZONES**

The translator's 34 dBu F(50-10) contour does not touch Canada.

Facility is okay with respect to AM station towers.

Closest AM Facility is KTIL, NETARTS, OR, L, DAN at 176.6° at a distance of 29.0 km  
Facility is okay with respect to FCC monitoring stations.

### **METHODOLOGY**

All contour calculations were made using the methods and procedures described in 47 CFR §73.313(c). Contours were plotted and areas were calculated using linear interpolation in one-degree increments. FMOver calculations were done using V-Soft FM Commander software, using “HAAT method 0 (zero)”, 51 data points per radial, and the FCC-modified version of the NGDC 30 second terrain database.

# EXHIBIT 1B TECHNICAL CERTIFICATIONS INTERFERENCE PROTECTION

This proposal meets the contour overlap requirements with respect to all other broadcast facilities.

K219KU PROP MOD Cascade Educational Broadcast										
REFERENCE		CH# 219D - 91.7 MHz, Pwr= 0.12 kw, HAAT= -140.4 M, COR= 13 M					DISPLAY DATES			
45 43 03.0 N. 123 53 38.0 W.		Average Protected F(50-50)= 5.9 km Omni-directional					DATA 07-28-22 SEARCH 08-01-22			
CH	CALL	TYPE	ANT	AZI.	DIST	LAT.	Pwr(kw)	INT(km)	PRO(km)	*OUT*
CITY		STATE		<--	FILE #	LNG.	HAAT(M)	COR(M)	LICENSEE	(Overlap in km)
219D	K219KU!	LIC	DCN	189.5	4.90	45 40 26.40	0.028		---	Reference---
Nehalem			OR	9.5	BLFT20060525ACI	123 54 15.50	160	296	Cascade Educational	Broadc
218C0	KOPB-FM	LIC	CN	103.3	91.77	45 31 20.40	73.000	122.7	82.8	0.6
Portland			OR	284.1	BLED20030213AAI	122 44 49.40	470	561	Oregon Public Broadcasting	
220C2	KMUN	LIC	CN	0.5	60.60	46 15 45.30	7.200	76.1	51.2	1.0
Astoria			OR	180.5	BLED20030707AAM	123 53 13.50	332	376	Tillicum Foundation	
216A	KTMK	LIC	CN	184.3	28.01	45 27 58.40	0.140	0.8	20.8	5.2
Tillamook			OR	4.3	BLED20050728AMH	123 55 15.50	356	453	Oregon Public Broadcasting	
272C3	KCRX-FM	LIC	CN	352.5	26.38	45 57 10.10	10.500	0.0	0.0	11.5R
Seaside			OR	172.5	BLH20170920AAQ	123 56 18.40	122	265	Omg FCC Licenses LLC	14.9M
222C	KGON	LIC	CN	104.8	96.61	45 29 19.40	100.000	11.5	79.3	16.6
Portland			OR	285.7	BLH19900820KF	122 41 44.30	386	480	Audacy License, LLC	

Terrain database is FCC NGDC 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
In & Out distances between contours are shown at closest points. Reference Zone= west Zone, Co to 3<sup>rd</sup> adjacent.  
All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.  
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
Incoming contour overlap is ignored.  
"\*"affixed to 'IN' or 'OUT' values = site inside restricted contour.  
« = Station meets FCC minimum distance spacing for its class.

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# EXHIBIT 1C

## TECHNICAL CERTIFICATIONS

### CONTOUR PROTECTION vs KOPB

K219KU PROP MOD  
Cascade Educational Broadcast

FMCommander Single Allocation Study - 08-02-2022 - FCC NGDC 30 Sec  
K219KU's Overlaps (In= -36.86 km, Out= 0.55 km)

K219KU CH 219 D  
Lat= 45 43 03.00, Lng= 123 53 38.00  
0.12 kW -140.4 m HAAT, 13 m COR  
Prot.= 60 dBu, Intef.= 88 dBu

KOPB-FM CH 218 C0 BLED20030213AAI  
Lat= 45 31 20.40, Lng= 122 44 49.40  
73.0 kW 470 m HAAT, 561 m COR  
Prot.= 60 dBu, Intef.= 54 dBu

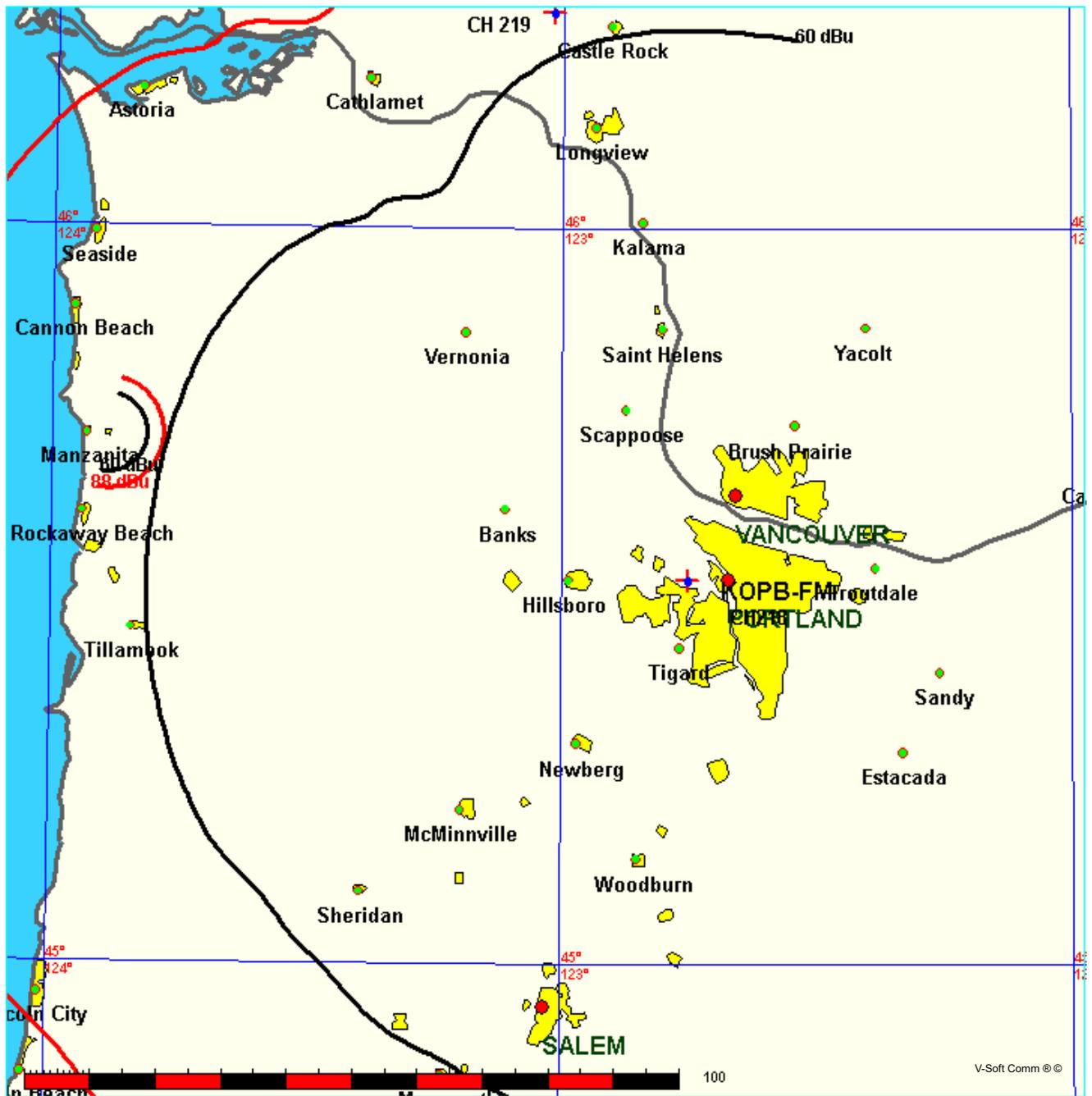


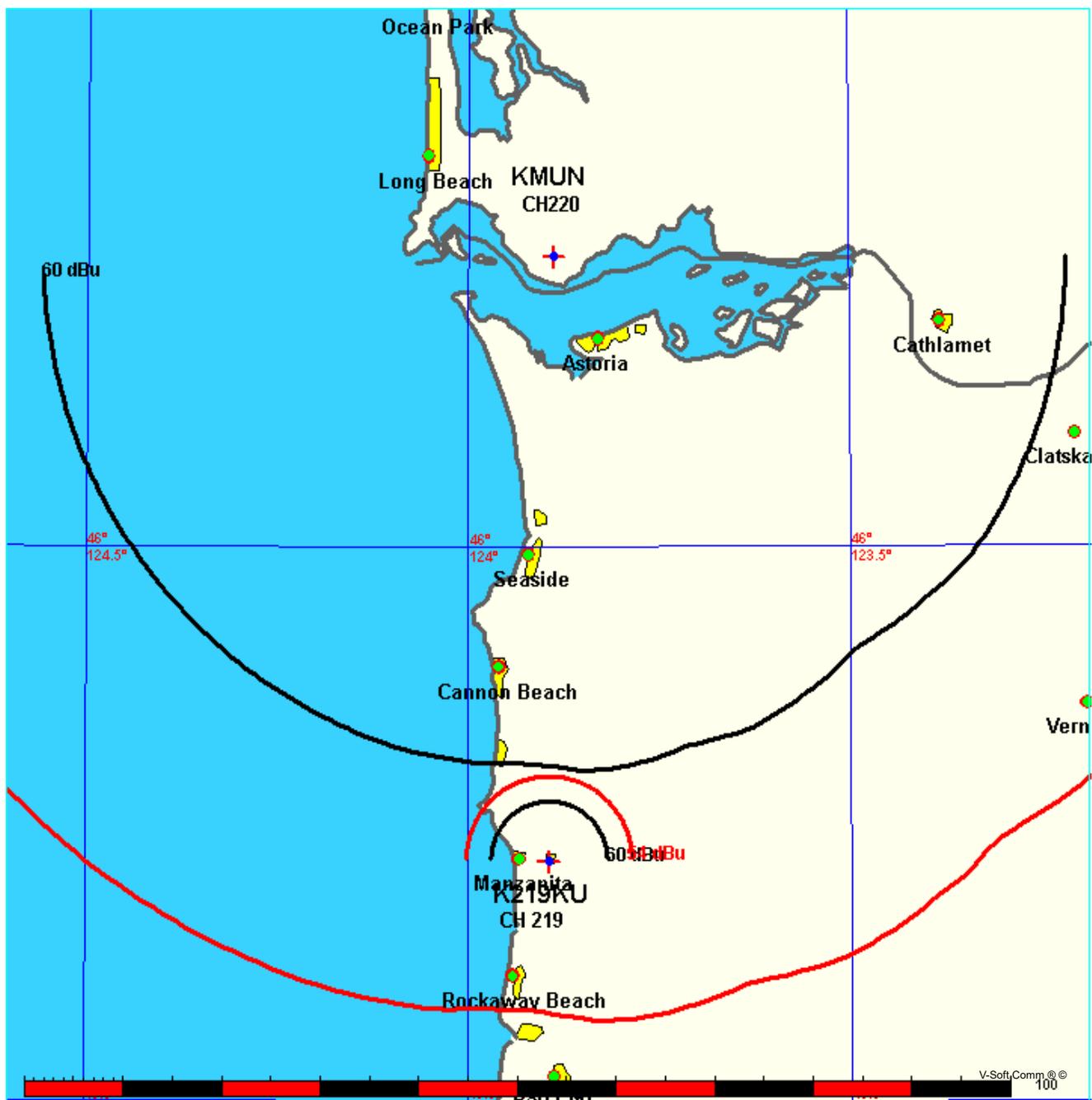
EXHIBIT 1D  
TECHNICAL CERTIFICATIONS  
CONTOUR PROTECTION vs KMUN

K219KU PROP MOD  
Cascade Educational Broadcast

FMCommander Single Allocation Study - 08-02-2022 - FCC NGDC 30 Sec  
K219KU's Overlaps (In= -21.31 km, Out= 0.97 km)

K219KU CH 219 D  
Lat= 45 43 03.00, Lng= 123 53 38.00  
0.12 kW -140.4 m HAAT, 13 m COR  
Prot.= 60 dBu, Intef.= 54 dBu

KMUN CH 220 C2 BLED20030707AAM  
Lat= 46 15 45.30, Lng= 123 53 13.50  
7.2 kW 332 m HAAT, 376 m COR  
Prot.= 60 dBu, Intef.= 54 dBu



# EXHIBIT 1E

## TECHNICAL CERTIFICATIONS

### ENVIRONMENTAL EFFECTS

This proposal would not have a significant environmental impact, under 47 CFR §1.1307(b). The applicant proposes mounting a 1-bay Bext TFC1k ring-stub "Type 1" antenna on a roof-mounted pipe. The proposed antenna center is 9m AGL, and 7.5m above the uppermost floor of nearby buildings. FM Model predicted a peak exposure of  $138.5\mu\text{w}/\text{cm}^2$  at 1.5m horizontally from the pole. This represents 69% of the Maximum Permissible Exposure (MPE) of  $200\mu\text{W}/\text{cm}^2$  for uncontrolled environments.

No other sources of RF exposure were found in the area. Persons cannot get closer than 7.5m below the antenna without a bucket lift or other specialized equipment. RF warning signs will be posted at appropriate locations. When authorized work at or near the antenna becomes necessary, the licensee will reduce power or cease operations so that persons are not subjected to RF exposures in excess of the FCC guidelines.

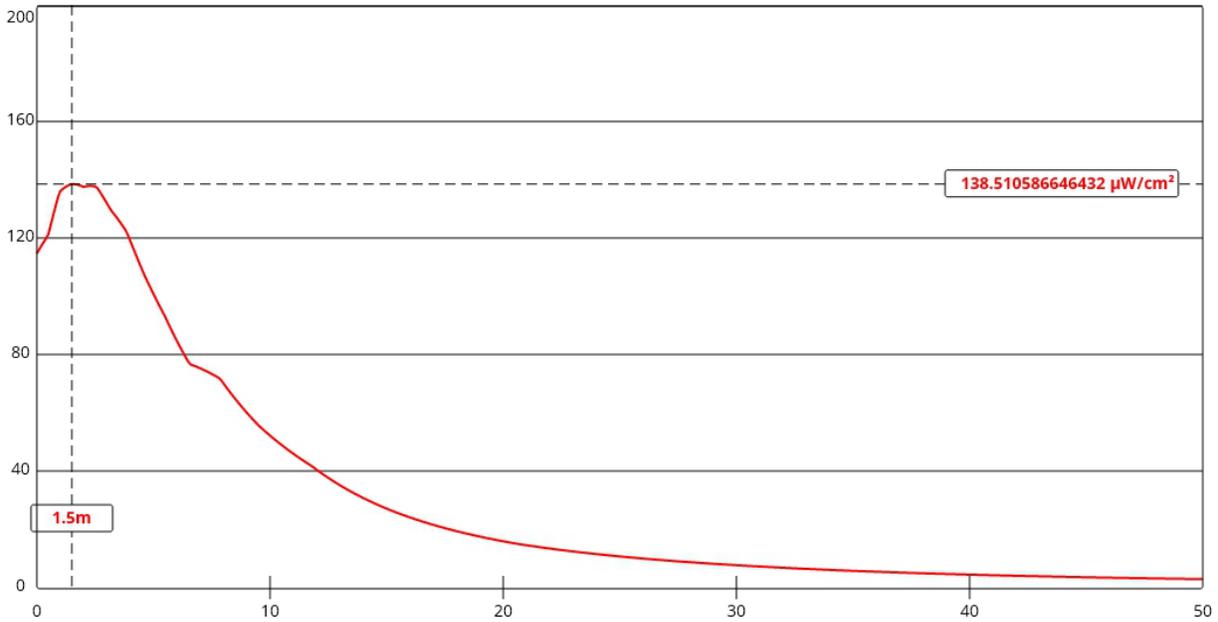
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Channel Selection	Channel 220 (91.9 MHz) ▾		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="7.5"/>	Distance (m)	<input type="text" value="50"/>
ERP-H (W)	<input type="text" value="120"/>	ERP-V (W)	<input type="text" value="100"/>
Num of Elements	<input type="text" value="1"/>	λ	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	

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