

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of
WASHINGTON, STATE OF; DEPT OF
TRANSPORTATION
Licensee of Private Land Mobile Radio Stations
WPKU987, WPMS956, WPMS961, WPRF275,
WPRH880

ORDER PROPOSING MODIFICATION

Adopted: May 21, 2010

Released: May 21, 2010

By the Deputy Chief, Policy Division, Public Safety and Homeland Security Bureau:

I. INTRODUCTION

1. By this Order Proposing Modification, we initiate a proceeding to modify the licenses of the State of Washington Department of Transportation (Washington DOT) for Private Land Mobile Radio (PLMR) Stations WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 by removing the frequencies listed in Attachment I from all base station and control station locations. We take this action in furtherance of ensuring compliance with international obligations.

II. BACKGROUND

2. Washington DOT is licensed to operate PLMR Stations WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 at multiple fixed locations throughout the State of Washington. Because Stations WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 operate in the 800 MHz band and are located within 140 kilometers of the border with Canada, they are subject to the provisions of a bilateral annex with Canada (Arrangement F) and an associated Interim Arrangement which specify the conditions under which 800 MHz PLMR stations may operate along the common border.

3. Arrangement F and the associated Interim Arrangement divide the 800 MHz band into band segments and assign primary access to these band segments to either licensees in the U.S. or Canada.

1 See Arrangement Between the Dept. of Communications of Canada and the FCC of the United States Concerning the Use Along the US-Canada Border of the Band 806-890 MHz (Jan. 1994) (Arrangement F); see also Arrangement Between the Dept. of Communications of Canada and the FCC of the United States Concerning the Use Along the US-Canada Border of the Bands 821-824 MHz and 866-869 MHz (Sep. 1990) (Interim Arrangement) both as modified by attachment to letter from Robert W. McCaugern, Deputy Director General, Spectrum Engineering to Mr. Bruce Franca, Deputy Chief Engineer, Office of Engineering and Technology, Federal Communications Commission (Dec. 9, 1994) (Letter Amendment).

2 Arrangement F at ¶¶ 3-4. Interim Arrangement at ¶¶ 2-3.

U.S. licensees may operate on band segments designated as primary to licensees in Canada, but only if they satisfy certain signal strength limits at the border.³ These signal strength limits are specified in terms of power flux density (PFD) and vary depending on the height of the transmitting antenna.⁴

4. Washington DOT's licenses, call signs WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 authorize operation on multiple channels in the 821-822.5 MHz/866-867.5 MHz band segment which is primary to licensees in Canada under the Interim Arrangement.⁵ Consequently, we have calculated the PFD at the border from Washington DOT's stations and listed the results in Attachment I, Table A2 (for base stations) and Table A5 (for control stations). Based on our calculations, the PFD values at the border from each base station exceed the permitted PFD levels by more than 8 dB on the frequencies identified in Table A3 of Attachment I. The PFD values from the control stations exceed the PFD at the border by more than 30 dB when located at the boundary of Washington State closest to the border with Canada on the frequencies identified in Attachment I, Table A6.⁶

III. DISCUSSION

5. Based on the information before us, we conclude that the licenses, call signs WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 should be modified by: (1) removing the frequencies listed in Attachment I, Table A3 from the base station locations and (2) removing the frequencies listed in Attachment I, Table A6 from the control station locations.⁷ We propose these modifications in order to bring Stations WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 into compliance with the Arrangement F and the associated Interim Arrangement.

6. In accordance with Section 1.87(a) of the Commission's Rules,⁸ we will refrain from modifying the licenses, call signs WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880, until Washington DOT has received notice of this proposed action and has had an opportunity to file a protest. To protest the license modification, Washington DOT must, within thirty days of the release date of this *Order Proposing Modification*, submit a written statement protesting the proposed modification and proposing an alternate means of bringing Stations WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 into compliance with Arrangement F and the associated Interim Arrangement. We remind Washington DOT that the Federal Communications Commission lacks the authority to waive or modify

³ Letter Amendment at Annex A.

⁴ *Id.* at Annex B, Tables C1 and C2.

⁵ Interim Arrangement at ¶ 2.1(a). License call signs WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 are located in Canada Border Region 4 which includes portions of the State of Washington. The specific frequencies which are primary to licensees in Canada are listed in Attachment I.

⁶ The control stations are authorized to operate anywhere within the State of Washington. *See* licenses call signs WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880.

⁷ Call signs WPKU987 and WPRF275 would be left with one remaining channel pair: 823.0625 MHz/868.0625 MHz; call signs WPMS956 and WPMS961 would be left with one remaining channel pair: 823.0375 MHz/868.0375 MHz; and call sign WPRH880 would be left with two remaining channel pairs: 823.1125 MHz/868.1125 MHz, 823.9875 MHz/868.9875 MHz. These channel pairs are located in a band segment primary to licensees in the U.S. *See* Interim Arrangement at ¶ 2.1(b).

⁸ 47 C.F.R. § 1.87(a).

the provisions of international treaties or their associated arrangements. Washington DOT's statement must be filed with the Office of the Secretary, Federal Communications Commission, 445 Twelfth Street, S.W., Room TW-A325, Washington, DC 20554.⁹ In addition, please provide an electronic copy of the statement to Brian Marengo, Policy Division, Public Safety and Homeland Security Bureau, at Brian.Marengo@fcc.gov.

7. If no timely protest is filed, Washington DOT will have waived its right to protest the proposed modifications and will be deemed to have consented to the modifications. The licenses for Stations WPKU987, WPMS956, WPMS961 and WPRH880 will then be modified to remove the frequencies in Attachment I, Table A3 from the base station locations and remove the frequencies listed in Attachment I, Table A6 from the control station locations in compliance with Arrangement F and the associated Interim Arrangement as detailed in Attachment I.

V. ORDERING CLAUSES

8. ACCORDINGLY, IT IS PROPOSED, pursuant to Sections 4(i) and 316 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 316, and Section 1.87 of the Commission's rules, 47 C.F.R. § 1.87 that the licenses for Private Land Mobile Radio Service Stations WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880, held by Washington, State of, Department of Transportation, BE MODIFIED by: (1) removing the frequencies listed in Attachment I, Table A3 from the base station locations and (2) removing the frequencies listed in Attachment I, Table A6 from the control station locations.

9. IT IS FURTHER ORDERED that this *Order Proposing Modification* shall be sent by certified mail, return receipt requested, to Washington, State of, Department of Transportation, ATTN ITS Communications & Wireless Tech., 7345 Linderson Way, SW, Olympia, WA 98504.

10. This action is taken under delegated authority pursuant to Sections 0.191 and 0.392 of the Commission's Rules, 47 C.F.R. §§ 0.191, 0.392.

FEDERAL COMMUNICATIONS COMMISSION

Michael J. Wilhelm
Deputy Chief, Policy Division
Public Safety and Homeland Security Bureau

⁹ Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission. All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

Attachment I

Maximum Permitted PFD at Border on Canada Primary Spectrum Under Arrangement F and the Interim Arrangement

Below we calculate the PFD at the border with Canada from each base station and control station location authorized under call signs WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880. We then compare the predicted PFD value with the maximum permitted PFD under Arrangement F and the associated Interim Arrangement for operation on Canada primary spectrum.

Formula for Calculating PFD

The following formula, based on free-space propagation, predicts PFD at the border with Canada.

$$S_{(\text{dBW}/\text{m}^2)} = P_{\text{dBm}} - 20\text{Log}(d) - 38.8$$

⇒ S is the PFD in dBW/m²

⇒ P is the ERP in dBm

⇒ d is the distance to the border in meters.

Maximum Permitted PFD

Stations WPKU987, WPMS956, WPMS961, WPRF275 and WPRH880 are licensed to the State of Washington Department of Transportation and are located in Sharing Zone I under Arrangement F and the associated Interim Arrangement.

The PFD limits for Sharing Zone I are based on the Effective Antenna Height (EAH) of the transmitting antenna. The EAH is calculated by subtracting the Assumed Average Terrain Elevation (AATE) listed in Table A3 of the Interim Arrangement from the antenna radiation center above mean sea level (RCAMSL).

$$\text{EAH} = \text{RCAMSL} - \text{AATE}$$

Using the EAH value, the maximum permitted PFD at the border with Canada for operation on Canada primary spectrum is listed in Table C1 of the Letter Amendment.¹⁰

¹⁰ See *supra* note 1.

Base Station Locations

In Table A1 below, we list the maximum permitted PFD values, at the border, for operation on frequencies primary to licensees in Canada for each base station location.

Table A1 – Maximum Permitted PFD (Base Stations)

Call Sign	Location No.	Lat. (N)	Long. (W)	RCAMSL (meters)	AATE (meters)	EAH (meters)	Permitted PFD at border (dBW/m ²)
WPKU987	1	48° 33' 55.5"	120° 41' 11.4"	2130	914	1216	-104
--	--	--	--	--	--	--	--
WPMS956	1	48° 17' 02.6"	117° 34' 18.8"	1784	914	870	-101
--	--	--	--	--	--	--	--
WPMS961	1	48° 54' 31.7"	117° 52' 11.0"	1575	914	661	-101
--	--	--	--	--	--	--	--
WPRF275	1	48° 22' 18.6"	119° 03' 41.1"	2083	914	1169	-104
--	--	--	--	--	--	--	--
WPRH880	1	48° 29' 59.7"	117° 17' 58.8"	1109	914	195	-90

The predicted PFD at the border with Canada is listed below in Table A2 for each base station location authorized on a frequency primary to licensees in Canada. The predicted value is based on the free-space formula listed above.

Table A2 – Predicted PFD (Base Stations)

Call Sign	Location No.	Current Frequency (MHz)	Replacement Frequency (MHz)	ERP (watts)	P _{dBm} (ERP in dBm)	d (Distance to Border in meters)	S _(dBW/m²) (Predicted PFD at Border)
WPKU987	1	866.0625	857.3625	250	54	48,338	-78.5
WPKU987	1	866.5875	856.0625	5	37	48,338	-95.5
WPKU987	1	867.0875	852.0875	5	37	48,338	-95.5
--	--	--	--	--	--	--	--
WPMS956	1	866.6125	858.0375	100	50	79,693	-86.8
WPMS956	1	867.0375	852.0375	100	50	79,693	-86.8
--	--	--	--	--	--	--	--
WPMS961	1	866.6125	858.0375	200	53	10,196	-66.0

Call Sign	Location No.	Current Frequency (MHz)	Replacement Frequency (MHz)	ERP (watts)	P _{dBm} (ERP in dBm)	d (Distance to Border in meters)	S _(dBW/m²) (Predicted PFD at Border)
WPMS961	1	867.0375	852.0375	200	53	10,196	-66.0
--	--	--	--	--	--	--	--
WPRF275	1	866.0625	857.3625	200	53	69,869	-82.7
WPRF275	1	866.5875	856.0625	200	53	69,869	-82.7
WPRF275	1	867.0875	852.0875	200	53	69,869	-82.7
--	--	--	--	--	--	--	--
WPRH880	1	867.2500	856.9125	200	53	55,604	-80.7

In Table A3 below, we compare the predicted PFD to the maximum permitted PFD at the border and calculate the ERP at which compliance would be achieved for each base station location licensed on a frequency primary to licensees in Canada.¹¹

Table A3 – Predicted PFD vs. Maximum Permitted PFD (Base Stations)

Call Sign	Location No.	Current Frequency (MHz)	Replacement Frequency (MHz)	Predicted PFD at Border from Table A2 (dBW/m ²)	Max. PFD at Border from Table A1 (dBW/m ²)	Max. ERP to comply with PFD Limit (dBm)	Max. ERP to comply with PFD limit (watts)
WPKU987	1	866.0625	857.3625	-78.5	-104	28.5	0.7
WPKU987	1	866.5875	856.0625	-95.5	-104	28.5	0.7
WPKU987	1	867.0875	852.0875*	-95.5	-104	28.5	0.7
--	--	--	--	--	--	--	--
WPMS956	1	866.6125	858.0375	-86.8	-101	35.8	3.8
WPMS956	1	867.0375	852.0375	-86.8	-101	35.8	3.8
--	--	--	--	--	--	--	--
WPMS961	1	866.6125	858.0375	-66.0	-101	18.0	0.06
WPMS961	1	867.0375	852.0375	-66.0	-101	18.0	0.06

¹¹ The PFD limitation applies to both currently licensed frequencies and 800 MHz rebanding replacement frequencies. See *Improving Public Safety Communications in the 800 MHz Band, Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd 14969, 15077 ¶ 201 (2004).

Call Sign	Location No.	Current Frequency (MHz)	Replacement Frequency (MHz)	Predicted PFD at Border from Table A2 (dBW/m ²)	Max. PFD at Border from Table A1 (dBW/m ²)	Max. ERP to comply with PFD Limit (dBm)	Max. ERP to comply with PFD limit (watts)
--	--	--	--	--	--	--	--
WPRF275	1	866.0625	857.3625	-82.7	-104	31.7	1.5
WPRF275	1	866.5875	856.0625	-82.7	-104	31.7	1.5
WPRF275	1	867.0875	852.0875*	-82.7	-104	31.7	1.5
--	--	--	--	--	--	--	--
WPRH880	1	867.2500	856.9125	-80.7	-90	43.7	23.4

* Base stations retuning to a replacement frequency which is primary to licensees in the U.S. must satisfy the ERP and antenna height limits specified in Annex A of Arrangement F when operation begins on the replacement frequency.

Control Stations

In Table A4 below, we calculate the permitted PFD at the border with Canada for each control station location authorized under call sign WPKU987. The control stations are authorized to operate at any location within the State of Washington. Below the permitted PFD is calculated when the control station is operating at a randomly chosen location along the northern edge of the state (nearest the border with Canada).

For each calculation, the antenna height above ground is assumed to be 2 meters and the EAH is determined based on the ground elevation at the randomly chosen location.

Table A4 – Maximum Permitted PFD (Control Stations)

Call Sign	Location No.	Lat. (N)	Long. (W)	RCAMSL (meters)	AATE (meters)	EAH (meters)	Permitted PFD at border (dBW/m ²)
WPKU987	2	48° 55' 00.0"	120° 00' 00.0"	1998.0	914	1084	-104
--	--	--	--	--	--	--	--
WPMS956	2	48° 55' 00.0"	120° 00' 00.0"	1998.0	914	1084	-104
--	--	--	--	--	--	--	--
WPMS961	2	48° 55' 00.0"	120° 00' 00.0"	1998.0	914	1084	-104
--	--	--	--	--	--	--	--
WPRF275	2	48° 55' 00.0"	120° 00' 00.0"	1998.0	914	1084	-104
--	--	--	--	--	--	--	--

WPRH880	2	48° 55' 00.0"	120° 00' 00.0"	1998.0	914	1084	-104
---------	---	---------------	----------------	--------	-----	------	------

The predicted PFD at the border with Canada is listed below in Table A5 for each control station location authorized on a frequency primary to licensees in Canada.

The predicted PFD is calculated using the free-space propagation formula noted above and based upon a control station operating at the randomly chosen location in Table A4, above.¹²

Table A5 – Predicted PFD (Control Stations)

Call Sign	Location No.	Station Class	Current Frequency (MHz)	Replacement Frequency (MHz)	ERP (watts)	P _{dBm} (ERP in dBm)	d (Distance to Border in meters)	S _(dBW/m²) (Predicted PFD at Border)
WPKU987	2	FX1	821.0625	812.3625	50	47	9,211	-71.1
WPKU987	2	FX1	821.5875	811.0625	50	47	9,211	-71.1
WPKU987	2	FX1	822.0875	807.0875	50	47	9,211	-71.1
--	--	--	--	--	--	--	--	--
WPMS956	2	FX1	821.6125	813.0875	50	47	9,211	-71.1
WPMS956	2	FX1	822.0375	807.0375	50	47	9,211	-71.1
--	--	--	--	--	--	--	--	--
WPMS961	2	FX1	821.6125	813.0875	50	47	9,211	-71.1
--	--	--	--	--	--	--	--	--
WPRF275	3	FX1	821.0625	812.3625	40	46	9,211	-72.1
WPRF275	3	FX1	821.5875	811.0625	40	46	9,211	-72.1
WPRF275	3	FX1	822.0875	807.0875	40	46	9,211	-72.1
--	--	--	--	--	--	--	--	--
WPRH880	3	FX1	822.2500	811.9125	50	47	9,211	-71.1

¹² The PFD limitation applies to both currently licensed frequencies and 800 MHz rebanding replacement frequencies. See *Improving Public Safety Communications in the 800 MHz Band, Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd 14969, 15077 ¶ 201 (2004).

In Table A6 below, we compare the predicted PFD to the maximum permitted PFD at the border and calculate the ERP at which compliance would be achieved for mobile units and control stations which exceed the permitted PFD and are licensed on a frequency primary to licensees in Canada.¹³

Table A6 – Maximum Permitted PFD vs. Predicted PFD (Control Stations)

Call Sign	Location No.	Station Class	Current Frequency (MHz)	Replacement Frequency (MHz)	Predicted PFD at Border from Table A2 (dBW/m ²)	Permitted PFD at Border from Table A1 (dBW/m ²)	ERP needed to comply with PFD Limit (dBm)	ERP needed to comply with PFD limit (watts)
WPKU987	2	FX1	821.0625	812.3625	-71.1	-104	14.1	0.03
WPKU987	2	FX1	821.5875	811.0625	-71.1	-104	14.1	0.03
WPKU987	2	FX1	822.0875	807.0875*	-71.1	-104	14.1	0.03
--	--	--	--	--	--	--	--	--
WPMS956	2	FX1	821.6125	813.0875	-71.1	-104	14.1	0.03
WPMS956	2	FX1	822.0375	807.0375	-71.1	-104	14.1	0.03
--	--	--	--	--	--	--	--	--
WPMS961	2	FX1	821.6125	813.0875	-71.1	-104	14.1	0.03
--	--	--	--	--	--	--	--	--
WPRF275	2	FX1	821.0625	812.3625	-72.1	-104	14.1	0.03
WPRF275	2	FX1	821.5875	811.0625	-72.1	-104	14.1	0.03
WPRF275	2	FX1	822.0875	807.0875*	-72.1	-104	14.1	0.03
--	--	--	--	--	--	--	--	--
WPRH880	3	FX1	822.2500	811.9125	-72.1	-104	14.1	0.03

* Control Stations retuning to a replacement frequency which is primary to licensees in the U.S. no longer need to comply with the PFD limits when operation begins on the replacement channel.

¹³ *Id.*