

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

In the Matter of)
COUNTY OF OAKLAND, MICHIGAN)
Licensee of Private Land Mobile Radio Station)
WPPC814)

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 license of the County of Oakland, Michigan (Oakland County) for Private Land Mobile Radio (PLMR) Station WPPC814 by: 1) reducing the Effective Radiated Power (ERP) of all base station locations and 2) restricting the area of operation of all mobile units and control stations operating above 2.5 watts ERP to more than 30 kilometers from the Canada-United States border. We take this action in furtherance of ensuring compliance with international obligations.

II. BACKGROUND

2. Oakland County is licensed to operate PLMR Station WPPC814 at numerous locations throughout the County. Because Station WPPC814 operates in the 800 MHz band and is located within 140 kilometers of the border with Canada, it is 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. U.S. licensees may operate on band segments designated as primary to licensees in Canada, but only if

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.

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. Oakland County's license, call sign WPPC814, authorizes operation on multiple channels in the 821-821.45 MHz/866-866.45 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 Oakland County's stations and listed the results in Attachment I, Table A2 (for base stations) and Table A5 (for mobile and control stations). The PFD values from each base station exceed the permitted PFD at the border by at least 3 dB on the frequencies identified in Table A3 of Attachment I. The PFD values from mobile units and control stations authorized to operate at 35 watts ERP exceed the PFD at the border by 7 dB when located at the boundary of the County closest to the border with Canada on the frequencies identified in Attachment I, Table A6.

III. DISCUSSION

5. Based on the information before us, we conclude that the license, call sign WPPC814, should be modified by: (1) reducing the ERP of the base station locations to the levels indicated in Attachment I, Table A3 and, (2) restricting the operating area of mobile units and control stations authorized for operation at 35 watts ERP to locations further than 30 kilometers from the Canada border on the frequencies listed in Attachment I, Table A6.⁶ We propose these modifications in order to bring Station WPPC814 into compliance with the PFD limits specified in Arrangement F and the associated Interim Arrangement.

6. In accordance with Section 1.87(a) of the Commission's Rules,⁷ we will refrain from modifying the license, call sign WPPC814, until Oakland County has received notice of this proposed action and has had an opportunity to file a protest. To protest the license modification, Oakland County 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 for bringing Station

³ Letter Amendment at Annex A.

⁴ *Id.* at Annex B, Tables C1 and C2.

⁵ Interim Arrangement at ¶ 2.1(a). License WPPC814 authorizes the County of Oakland to operate on the following channel pairs which are primary to licensees in Canada in Canada Border Region 3 which includes Oakland County, Michigan: 821.1000 MHz/866.1000 MHz, 821.1375 MHz/ 866.1375 MHz, 821.2125 MHz/866.2125 MHz, 821.2500 MHz/866.2500 MHz, and 821.3500 MHz/866.3500 MHz. License WPPC814 also authorizes Oakland County to transmit on the five mutual aid channels which are co-primary to licensees in Canada.

⁶ We propose restricting the operating area of the control stations and mobile units because we believe this is a more practical solution to achieve compliance with the PFD limits than reducing the power of these stations. A control or mobile station operated at the boundary of Oakland County closest to Canada would be limited to, nominally, 7 watts ERP. Consequently, we chose 30 kilometers from the border as the limiting distance because this is the restriction placed on such units operating near the Canada border in the 700 MHz band which has similar propagation characteristics to the 800 MHz band. See Sharing Arrangement Between the Department of Industry Canada and the Federal Communications Commission of the United States of America Concerning the Use of the Frequency Bands 764 to 776 and 794 to 806 MHz by the Land Mobile Service Along the Canada-United States Border (Jun. 2005) at ¶ 7.1(e).

⁷ 47 C.F.R. § 1.87(a).

WPPC814 into compliance with Arrangement F and the associated Interim Arrangement. We remind Oakland County that the Federal Communications Commission lacks the authority to waive or modify the provisions of international treaties or their associated arrangements. Oakland County's statement must be filed with the Office of the Secretary, Federal Communications Commission, 445 Twelfth Street, S.W., Room TW-A325, Washington, DC 20554.⁸ 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, Oakland County will have waived its right to protest the proposed modifications and will be deemed to have consented to the modifications. The license for WPPC814 will then be modified to (1) reduce the ERP of the WPPC814 base stations to the values shown in Attachment I, Table A3, and (2) restrict the operating area of mobile units and control stations authorized for operation at 35 watts ERP to further than 30 kilometers from the U.S./Canada border on the frequencies listed in Attachment I, Table A6 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 license for Private Land Mobile Radio Service Station WPPC814, held by Oakland, County of, BE MODIFIED to: (1) reduce the ERP of the WPPC814 base stations to the values shown in Attachment I, Table A3, and (2) restrict the operating area of mobile units and control stations authorized for operation at 35 watts ERP to further than 30 kilometers from the U.S./Canada border on the frequencies listed in Attachment I, Table A6.

9. IT IS FURTHER ORDERED that this *Order Proposing Modification* shall be sent by certified mail, return receipt requested, to Oakland, County of, 1200 N. Telegraph, Bldg. 16 East, Pontiac, MI 48341.

⁸ 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.

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

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, mobile unit and control station location authorized under call sign WPPC814. 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

Station WPPC814 is licensed to the County of Oakland, Michigan which is 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.⁹

⁹ 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)
WPPC814	1	42° 38' 41.0"	083° 17' 52.0"	377.8	183	194.8	-90
WPPC814	2	42° 35' 48.1"	083° 10' 01.8"	301.0	183	118.0	-84
WPPC814	3	42° 33' 28.1"	083° 22' 16.8"	341.0	183	158.0	-90
WPPC814	4	42° 39' 16.1"	083° 19' 50.8"	341.0	183	158.0	-90
WPPC814	7	42° 44' 32.0"	083° 23' 31.0"	449.2	183	266.2	-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)
WPPC814	1	866.1000	857.5875	125	50.97	41,100	-80.1
WPPC814	1	866.1375	851.1375	150	51.76	41,100	-79.3
WPPC814	1	866.2125	857.7375	150	51.76	41,100	-79.3
WPPC814	1	866.2500	857.9375	125	50.97	41,100	-80.1
WPPC814	2	866.2125	857.7375	75	48.75	32,056	-80.2
WPPC814	2	866.2500	857.9375	75	48.75	32,056	-80.2
WPPC814	2	866.3500	857.7875	75	48.75	32,056	-80.2
WPPC814	3	866.2125	857.7375	160	52.04	36,600	-78.0
WPPC814	3	866.2500	857.9375	160	52.04	36,600	-78.0
WPPC814	3	866.3500	857.7875	160	52.04	36,600	-78.0
WPPC814	4	866.2125	857.7375	160	52.04	43,400	-79.5
WPPC814	7	866.2125	857.7375	125	50.97	54,300	-82.5

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.¹⁰

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)
WPPC814	1	866.1000	857.5875	-80.1	-90	41.08	12.8
WPPC814	1	866.1375	851.1375*	-79.3	-90	41.08	12.8
WPPC814	1	866.2125	857.7375	-79.3	-90	41.08	12.8
WPPC814	1	866.2500	857.9375	-80.1	-90	41.08	12.8
WPPC814	2	866.2125	857.7375	-80.2	-84	44.92	31.0
WPPC814	2	866.2500	857.9375	-80.2	-84	44.92	31.0
WPPC814	2	866.3500	857.7875	-80.2	-84	44.92	31.0
WPPC814	3	866.2125	857.7375	-78.0	-90	40.07	10.2
WPPC814	3	866.2500	857.9375	-78.0	-90	40.07	10.2
WPPC814	3	866.3500	857.7875	-78.0	-90	40.07	10.2
WPPC814	4	866.2125	857.7375	-79.5	-90	41.55	14.3
WPPC814	7	866.2125	857.7375	-82.5	-90	43.50	22.4

* 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.

¹⁰ 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).

Mobile Units and Control Stations

In Table A4 below, we calculate the permitted PFD at the border with Canada for each control station and mobile unit location authorized under call sign WPPC814. The mobile units and control stations are authorized to operate at any location within Oakland County. Below the permitted PFD is calculated when the mobile unit or control station is operating at a randomly chosen location (locations 5, 6 and 8) along the southeast edge of the county (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 and Mobile Units)

Call Sign	Location No.	Lat. (N)	Long. (W)	RCAMSL (meters)	AATE (meters)	EAH (meters)	Permitted PFD at border (dBW/m ²)
WPPC814	5	42° 27' 19.0"	083° 05' 40.0"	195.0	183	12.0	-84
WPPC814	6	42° 27' 19.0"	083° 05' 40.0"	195.0	183	12.0	-84
WPPC814	8	42° 27' 19.0"	083° 05' 40.0"	195.0	183	12.0	-84

The predicted PFD at the border with Canada is listed below in Table A5 for each mobile unit and 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 mobile unit or control station operating at the randomly chosen location in Table A4, above.

Table A5 – Predicted PFD (Mobile Units and 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)
WPPC814	5	MO	821.2125	812.7375	35	45.4	15,255	-77.1
WPPC814	5	MO	821.2500	812.9375	35	45.4	15,255	-77.1
WPPC814	5	MO	821.3500	812.7875	35	45.4	15,255	-77.1
WPPC814	5	MO	821.1375	806.1375	35	45.4	15,255	-77.1
WPPC814	5	MO	821.1000	812.5875	35	45.4	15,255	-77.1
WPPC814	5	MO	866.1000	857.5875	35	45.4	15,255	-77.1
WPPC814	6	FX1	821.1375	806.1375	35	45.4	15,255	-77.1
WPPC814	6	FX1	821.1000	812.5875	35	45.4	15,255	-77.1
WPPC814	8	MO3	866.2125	857.7375	2.5	34.0	15,255	-88.5

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)
WPPC814	8	MO3	866.3500	857.7875	2.5	34.0	15,255	-88.5
WPPC814	8	MO3	866.1500	851.1500	2.5	34.0	15,255	-88.5
WPPC814	8	MO3	866.2375	856.2625	2.5	34.0	15,255	-88.5
WPPC814	8	MO3	821.1500	806.1500	2.5	34.0	15,255	-88.5
WPPC814	8	MO	821.2375	811.2625	2.5	34.0	15,255	-88.5
WPPC814	8	MO	823.0375	808.0375	2.5	34.0	15,255	-88.5
WPPC814	8	MO	821.2125	812.7375	2.5	34.0	15,255	-88.5
WPPC814	8	MO	821.3500	812.7875	2.5	34.0	15,255	-88.5

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.¹¹

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

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)
WPPC814	5	MO	821.2125	812.7375	-77.1	-84	38.5	7.0
WPPC814	5	MO	821.2500	812.9375	-77.1	-84	38.5	7.0
WPPC814	5	MO	821.3500	812.7875	-77.1	-84	38.5	7.0
WPPC814	5	MO	821.1375	806.1375*	-77.1	-84	38.5	7.0
WPPC814	5	MO	821.1000	812.5875	-77.1	-84	38.5	7.0
WPPC814	5	MO	866.1000	857.5875	-77.1	-84	38.5	7.0
WPPC814	6	FX1	821.1375	806.1375*	-77.1	-84	38.5	7.0
WPPC814	6	FX1	821.1000	812.5875	-77.1	-84	38.5	7.0
WPPC814	8	MO3	866.2125	857.7375	-88.5	-84	N/A	N/A

¹¹ *Id.*

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)
WPPC814	8	MO3	866.3500	857.7875	-88.5	-84	N/A	N/A
WPPC814	8	MO3	866.1500	851.1500	-88.5	-84	N/A	N/A
WPPC814	8	MO3	866.2375	856.2625	-88.5	-84	N/A	N/A
WPPC814	8	MO3	821.1500	806.1500*	-88.5	-84	N/A	N/A
WPPC814	8	MO	821.2375	811.2625	-88.5	-84	N/A	N/A
WPPC814	8	MO	823.0375	808.0375*	-88.5	-84	N/A	N/A
WPPC814	8	MO	821.2125	812.7375	-88.5	-84	N/A	N/A
WPPC814	8	MO	821.3500	812.7875	-88.5	-84	N/A	N/A

* Control Stations and mobile units 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.