

**August 2011
New FM Channel 299C2
Prineville, Oregon
RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 299C2 (107.7 MHz) with an effective radiated power of 2.4 kilowatts. Operation is proposed with a 2-bay omnidirectional antenna which will be mounted on an existing tower with ASR #1267995.

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\text{mW} / \text{cm}^2) = \frac{33.40981 \times \text{AdjERP}(\text{Watts})}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed Prineville 299C2 antenna system assume a Type 6 element pattern, which is the element pattern for the Shively 6810 series antenna proposed for use. The highest calculated ground level power density occurs at a distance of 21 meters from the base of the antenna support structure. At this point the power density is calculated to be 20.5 $\mu\text{W}/\text{cm}^2$.

Calculations of the power density produced by Prineville 299C2 and the other stations at this transmitter site are summarized in the following table:

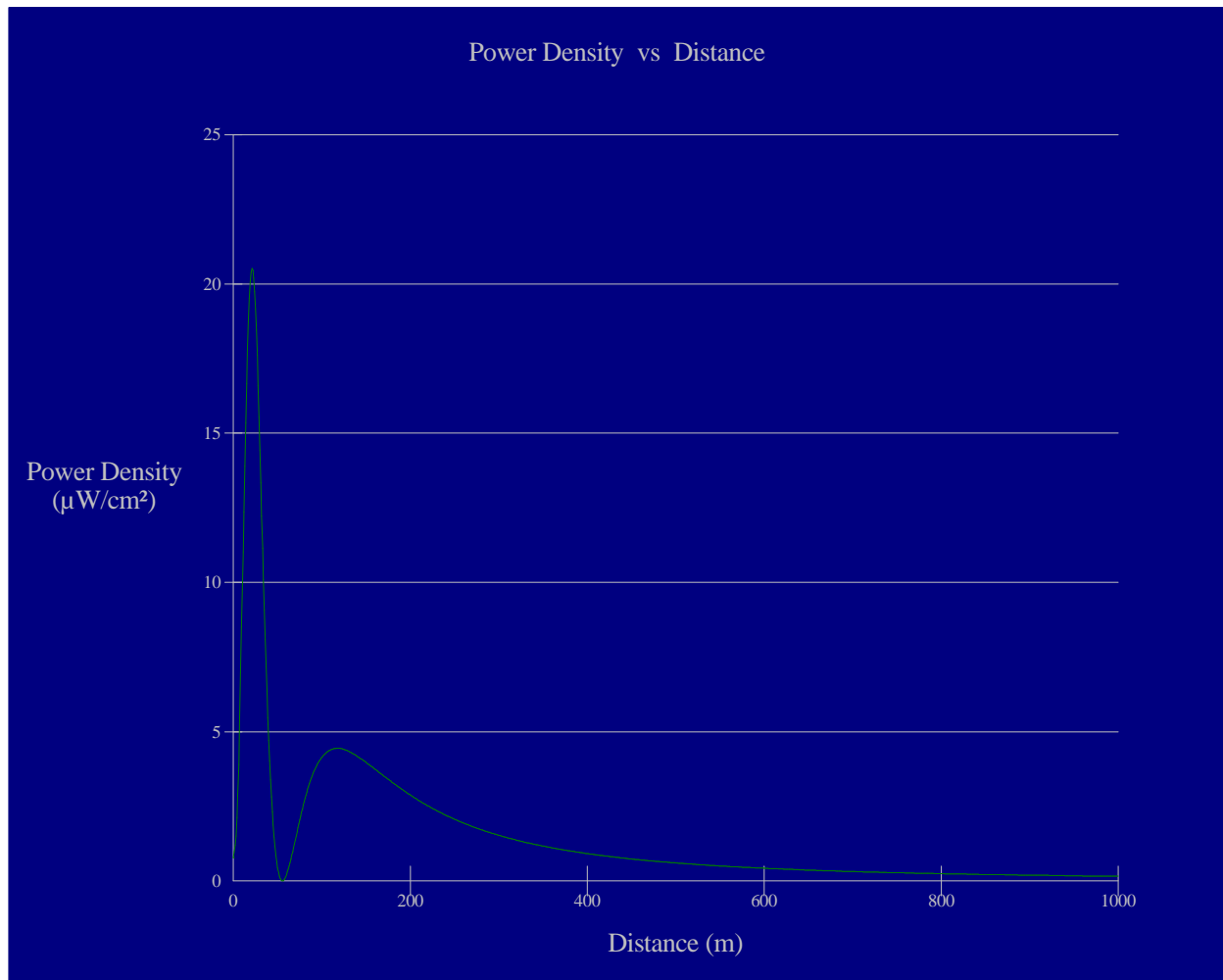
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Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pop FCC Limit	% of Limit
New 299C2 Prineville	2.4 kW avg SHI 6810-2 full wavelength	FMModel	34 m	20.5 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	10.3%
K291BL CP	0.075 kW avg V only ring stub assumed	FMModel	15 m	14.1 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	7.1%
K06PA-D CP	0.300 kW avg Scala CL-26	0.390	10 m	23.8 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	11.9%
K08KN	0.120 kW peak antenna unknown	1.000 assumed	25 m	3.8 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	1.9%
K29CI	25 kW peak Bogner B16UQ	0.200	31 m	19.9 $\mu\text{W}/\text{cm}^2$	373 $\mu\text{W}/\text{cm}^2$	5.3%
K31CR-D	15 kW avg Bogner B16UQ	0.200	31 m	23.8 $\mu\text{W}/\text{cm}^2$	381 $\mu\text{W}/\text{cm}^2$	6.2%
K36KT-D	15 kW avg And ALP-8M1-OC- 36	0.263	37 m	28.3 $\mu\text{W}/\text{cm}^2$	401 $\mu\text{W}/\text{cm}^2$	7.1%
KUBN-LP Ch 43 CP	32.7 kW peak And ALP8L1-HSW	0.263	21 m	104.7 $\mu\text{W}/\text{cm}^2$	429 $\mu\text{W}/\text{cm}^2$	24.4%
Ch 50 Lic	11.7 kW peak ALP8L1	0.263	21 m	37.4 $\mu\text{W}/\text{cm}^2$	457 $\mu\text{W}/\text{cm}^2$	or 8.2%
K49KT-D	5 kW avg antenna unknown	0.200	24 m	13.8 $\mu\text{W}/\text{cm}^2$	453 $\mu\text{W}/\text{cm}^2$	3.0%

(For TV translators, the relative field value indicated is the maximum value which occurs at 45 degrees or more below the horizontal, based on the manufacturer's vertical plane pattern. The resulting adjusted ERP value is assumed to be radiated straight down to a point 2 meters above ground level at the base of the tower.)

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of Prineville 299C2 and the present operation of the other stations authorized at this site (were their maxima to coincide, which they do not) is 77% of the FCC standard for uncontrolled environments.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

New FM 299C2 Prineville

Antenna Type: Shively 6810 series

No. of Elements: 2

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: 2.4 kW

Vertical ERP: 2.4 kW

Antenna Height: 34 meters AGL

Maximum Calculated Power Density is 20.5 : W/cm² at 21 meters from the antenna structure.

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