

February 2011
FM Translator K279BG
Anchorage, Alaska Channel 279D
Allocation Study

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules.

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KBRJ 281C1 Anchorage. The proposed site is 8.91 km from the KBRJ transmitter site at a bearing of 99 degrees True. Given the KBRJ antenna's -352 meter HAAT and 55 kW ERP along this radial, KBRJ places a 79.8 dBu contour at the translator transmitter site. The corresponding interfering contour from the translator is $79.8 + 40 = 119.8$ dBu. Given that the transmitting antenna will be installed at a height of 25 meters above ground, and taking into consideration the vertical plane pattern of the Jampro JLLP-3 half-wave-spaced antenna, the attached calculations demonstrate that the interference area will not reach ground level. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KBRJ.

Alaska Educational Radio System, Inc. has requested or will be requesting dismissal of its application BNPFT-20030317JGZ for a new FM translator at Anchorage on Channel 278D. Therefore there is no need to provide interference protection to that facility.

The attached spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

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SEARCH PARAMETERS

FM Database Date: 110204

Channel: 279A 103.7 MHz
 Latitude: 61 6 28
 Longitude: 149 43 55
 Safety Zone: 50 km
 Job Title: K279BG AT TURKS TURN SITE

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Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KFAT	ANCHORAGE		225C2	10.000	61-20-11	24.6	28.05	15
LIC	AK BLH-30916AAK		92.9	270.0	149-30-48		13.05	CLEAR
KMXS	ANCHORAGE		276C1	100.000	61-11-33	316.3	13.09	75
LIC	AK BLH-50131AAE		103.1	31.9	149-54-01		-61.91	SHORT
NEW-T	ANCHORAGE		278D	0.099 DA	61-07-12	278.8	9.01	0
APP	AK BNPFT-30317JGZ		103.5	0.0	149-53-50		0.00	TRANS
NOTE: APPLICANT IS REQUESTING DISMISSAL OF THIS APPLICATION								
KWV-FM	HOMER		278C	100.000	59-41-03	214.2	190.06	165
LIC	AK BLH-810217AI		103.5	351.0	151-37-51		25.06	CLEAR
K279BG	EAGLE RIVER		279D	0.035 DA	61-20-12	24.7	28.10	0
CP	AK BNPFT-80617ABX		103.7	0.0	149-30-45		0.00	TRANS
K279BC	KASILOF		279D	0.250 DA	60-22-44	225.0	113.74	0
LIC	AK BLFT-80303ALM		103.7	0.0	151-11-30		0.00	TRANS
K279BC	KASILOF		280D	0.250	60-22-44	225.0	113.74	0
APP	AK BPFT-10127ABP		103.9	0.0	151-11-30		0.00	TRANS
KBRJ	ANCHORAGE		281C1	55.000	61-07-12	278.9	8.91	75
LIC	AK BLH-851230KC		104.1	19.0	149-53-43		-66.09	SHORT
K282AW	EAGLE RIVER		282D	0.140 DA	61-20-12	24.7	28.10	0
CP MOD	AK BMPFT-00729ACS		104.3	0.0	149-30-45		0.00	TRANS

44444 END OF FM SPACING STUDY FOR CHANNEL 279 44444

Free Space Interference Area Calculator

K279BG Interference Area to KBRJ

Antenna Height: 25 meters AGL
 Contour Level: 119.8 dBu equals 1.0 V/m
 ERP in Watts: 240 Watts

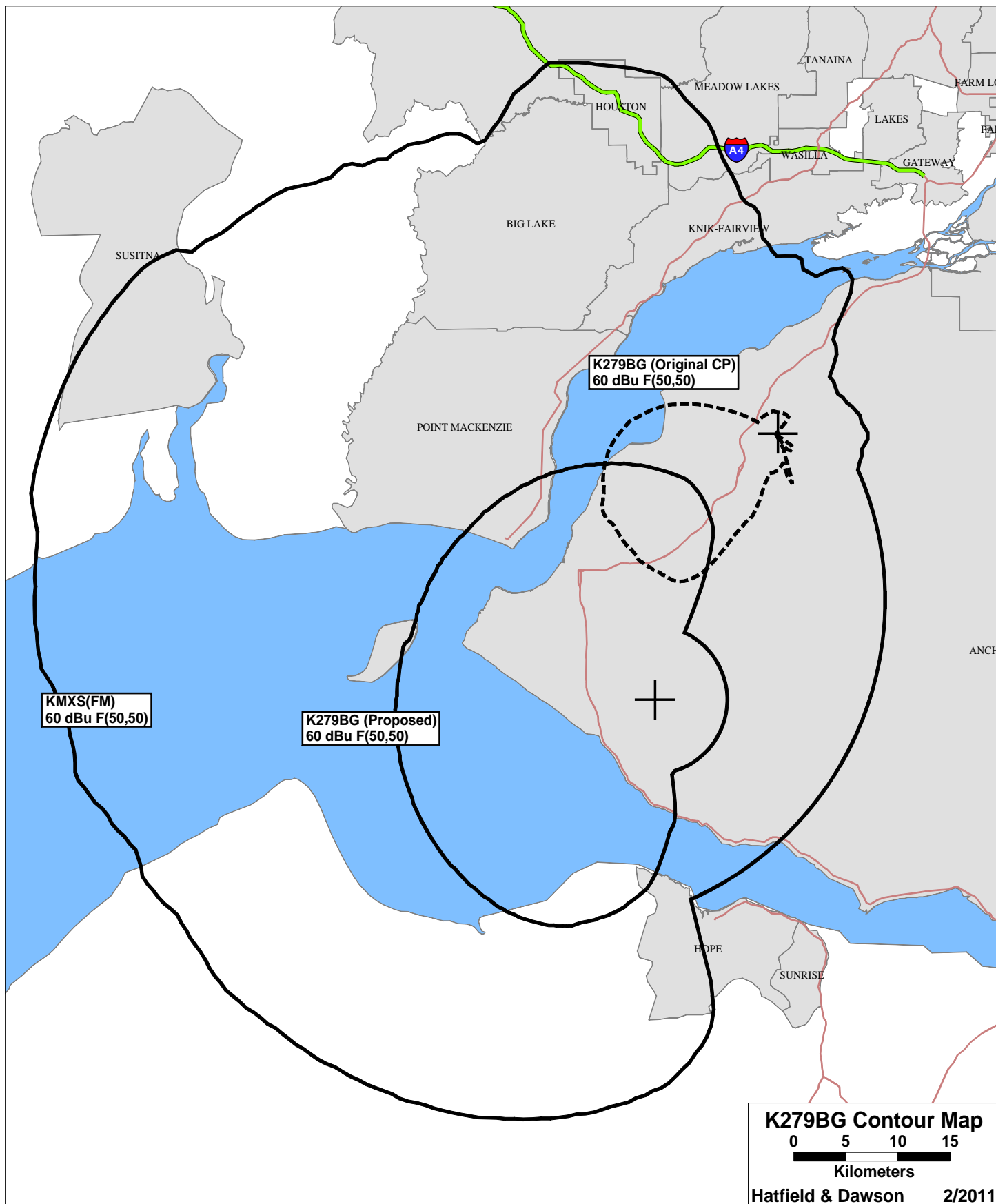
Maximum distance
 to interfering contour is: 364.6 feet equals 111.1 meters

Antenna: JLLP-3- RFR

Depression Angle (degrees)	Jampro JLLP-3- RFR Relative Field	Adjusted ERP (Watts)	Free Space Distance To 119.8 dBu Contour Along the depression angle	Horizontal Distance	Contour AGL (meters)	
-90	0.033	0.3	3.7 meters	0	21.3	(Straight down)
-89	0.037	0.3	4.1	0.1	20.9	
-88	0.040	0.4	4.4	0.2	20.6	
-87	0.040	0.4	4.4	0.2	20.6	
-86	0.043	0.4	4.8	0.3	20.2	
-85	0.047	0.5	5.2	0.5	19.8	
-84	0.050	0.6	5.6	0.6	19.5	
-83	0.050	0.6	5.6	0.7	19.5	
-82	0.053	0.7	5.9	0.8	19.2	
-81	0.057	0.8	6.3	1.0	18.7	
-80	0.060	0.9	6.7	1.2	18.4	
-79	0.063	1.0	7.0	1.3	18.1	
-78	0.070	1.2	7.8	1.6	17.4	
-77	0.073	1.3	8.1	1.8	17.1	
-76	0.076	1.4	8.4	2.0	16.8	
-75	0.082	1.6	9.1	2.4	16.2	
-74	0.085	1.7	9.4	2.6	15.9	
-73	0.088	1.9	9.8	2.9	15.6	
-72	0.094	2.1	10.4	3.2	15.1	
-71	0.097	2.3	10.8	3.5	14.8	
-70	0.103	2.5	11.4	3.9	14.2	
-69	0.105	2.6	11.7	4.2	14.1	
-68	0.107	2.7	11.9	4.5	14.0	
-67	0.113	3.1	12.6	4.9	13.4	
-66	0.114	3.1	12.7	5.2	13.4	
-65	0.116	3.2	12.9	5.4	13.3	
-64	0.120	3.5	13.3	5.8	13.0	
-63	0.121	3.5	13.4	6.1	13.0	
-62	0.121	3.5	13.4	6.3	13.1	
-61	0.121	3.5	13.4	6.5	13.2	
-60	0.124	3.7	13.8	6.9	13.1	
-59	0.123	3.6	13.7	7.0	13.3	
-58	0.124	3.7	13.8	7.3	13.3	
-57	0.122	3.6	13.6	7.4	13.6	
-56	0.122	3.6	13.6	7.6	13.8	
-55	0.119	3.4	13.2	7.6	14.2	
-54	0.117	3.3	13.0	7.6	14.5	
-53	0.112	3.0	12.4	7.5	15.1	
-52	0.109	2.9	12.1	7.5	15.5	
-51	0.102	2.5	11.3	7.1	16.2	
-50	0.097	2.3	10.8	6.9	16.7	
-49	0.088	1.9	9.8	6.4	17.6	

-48	0.079	1.5	8.8	5.9	18.5
-47	0.069	1.1	7.7	5.2	19.4
-46	0.058	0.8	6.4	4.5	20.4
-45	0.046	0.5	5.1	3.6	21.4
-44	0.033	0.3	3.7	2.6	22.5
-43	0.018	0.1	2.0	1.5	23.6
-42	0.003	0.0	0.3	0.2	24.8
-41	0.014	0.0	1.6	1.2	24.0
-40	0.031	0.2	3.4	2.6	22.8
-39	0.050	0.6	5.6	4.3	21.5
-38	0.070	1.2	7.8	6.1	20.2
-37	0.093	2.1	10.3	8.3	18.8
-36	0.115	3.2	12.8	10.3	17.5
-35	0.139	4.6	15.4	12.7	16.1
-34	0.166	6.6	18.4	15.3	14.7
-33	0.192	8.8	21.3	17.9	13.4
-32	0.219	11.5	24.3	20.6	12.1
-31	0.251	15.1	27.9	23.9	10.6
-30	0.280	18.8	31.1	26.9	9.4
-29	0.310	23.1	34.5	30.1	8.3
-28	0.342	28.1	38.0	33.6	7.2
-27	0.369	32.7	41.0	36.5	6.4
-26	0.402	38.8	44.7	40.2	5.4
-25	0.435	45.4	48.3	43.8	4.6
-24	0.463	51.4	51.5	47.0	4.1
-23	0.496	59.0	55.1	50.7	3.5
-22	0.530	67.4	58.9	54.6	2.9
-21	0.558	74.7	62.0	57.9	2.8
-20	0.592	84.1	65.8	61.8	2.5
-19	0.626	94.1	69.6	65.8	2.4
-18	0.660	104.5	73.3	69.8	2.3
-17	0.686	112.9	76.2	72.9	2.7
-16	0.719	124.1	79.9	76.8	3.0
-15	0.744	132.8	82.7	79.9	3.6
-14	0.776	144.5	86.2	83.7	4.1
-13	0.807	156.3	89.7	87.4	4.8
-12	0.828	164.5	92.0	90.0	5.9
-11	0.857	176.3	95.2	93.5	6.8
-10	0.881	186.3	97.9	96.4	8.0
-9	0.903	195.7	100.4	99.1	9.3
-8	0.922	204.0	102.5	101.5	10.7
-7	0.940	212.1	104.5	103.7	12.3
-6	0.956	219.3	106.2	105.7	13.9
-5	0.969	225.4	107.7	107.3	15.6
-4	0.980	230.5	108.9	108.6	17.4
-3	0.989	234.7	109.9	109.8	19.2
-2	0.995	237.6	110.6	110.5	21.1
-1	0.999	239.5	111.0	111.0	23.1
0	1.000	240.0	111.1	111.1	25.0

(Horizontal)



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FM Translator K279BG
Anchorage, Alaska Channel 279D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 279D (103.7 MHz) with an effective radiated power of 240 Watts. Operation is proposed with an antenna to be mounted on an existing tower adjacent to Turks Turn Street.

The proposed antenna support structure will not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

RF Exposure Calculations

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . . For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation of K279BG will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

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

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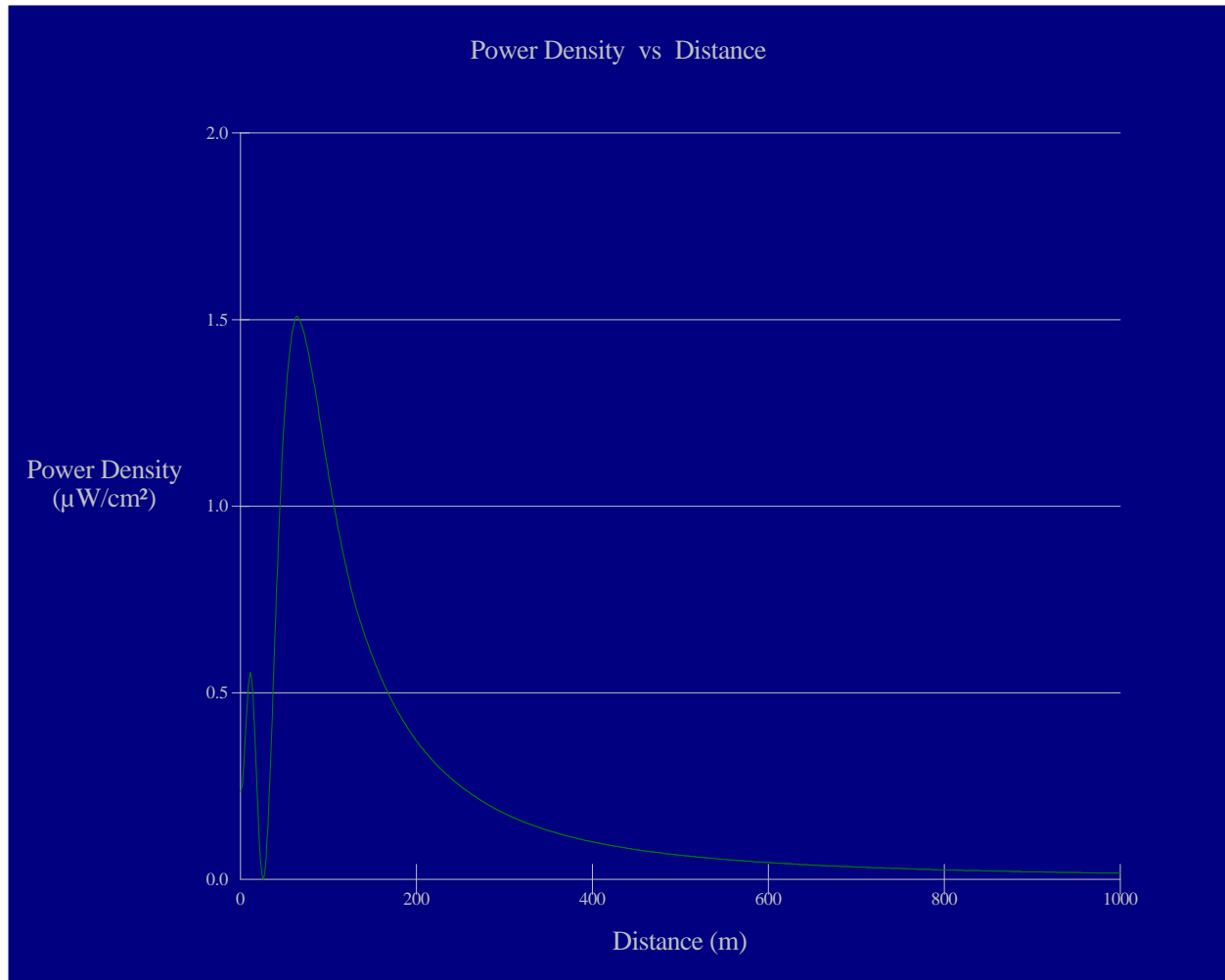
tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the K279BG antenna system have been made using the appropriate element pattern for the Jampro "double V" antenna to be used. The highest calculated ground level power density from K279BG occurs at a distance of 64 meters from the base of the antenna support structure. At this point the power density is calculated to be $1.5 \mu\text{W}/\text{cm}^2$, which is 0.8% of $200 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K279BG alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of non-ionizing radiation at this site is required in this application.

Public access to the site is restricted and the antenna tower is posted with warning signs. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

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

K279BG Anchorage

Antenna Type: Jampro JLLP-3 RFR

No. of Elements: 3

Element Spacing: 0.5 wavelength

Distance: 1000 meters

Horizontal ERP: 0.240 kW

Vertical ERP: 0.240 kW

Antenna Height: 25 meters AGL

Maximum Calculated Power Density is 1.5 : W/cm^2 at 64 meters from the antenna structure.

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