

Comprehensive Engineering Exhibit

Long Form Application of BNPFT - 20030314BZA

Facility ID No. 138494

This exhibit is for the Long Form application of translator application BNPFT - 20030314BZA. The only modification being sought is a change of location, antenna type, antenna pattern, and radiated power.

Antenna Location

The proposed antenna is to be mounted on an existing tower identified by registration number 1006186. It is also the support tower for several broadcasts. The non-directional antenna will be mounted at 84 meters above ground, to serve as a fill-in translator for station KENI (AM) Facility ID No 12516 Anchorage, AK. Below as **Figure 1** is an overlap and spacing study from which it can be determined that this proposal is within the protected contour of **second** adjacent channel stations KYMG and KLEF.

Concerning interference created; Section 74.1204(d) states that “The provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable.”

We will demonstrate that a lack of population and/or other factors allow this proposal to be compliant with 74.1204. The process commonly called “Living Way”, allows for the use of U/D Analysis, also known as “signal strength ratio methodology” to be utilized. In this instant case the facilities to be protected are **second** adjacent and are to be afforded protection from signals 40 dB stronger than they present in the location of the proposed antenna location.

In **Figure 2** is a map showing the predicted 100.0 dBu signal contour of the protected facility at the proposed translator antenna location. This proposal is only predicted to cause predicted interference to the protected facility by having a signal exceeding 140.0 dBu in a habitable area. Utilizing the line of sight equation shown in **Figure 3** which considers the vertical elevation pattern of the proposed antenna it has been determined that a 140 dBu signal developed by 250 watts, as proposed, emitted by the proposed antenna mounted 84 meters above ground, will not reach ground level. With examination of the images in **Figure 4** it can be determined that no habitable space extends above this height within the confines of this 11 meter area. Thus the provisions of the rules section concerning prohibited overlap will not apply as it has been demonstrated that no actual interference will occur due to a lack of population and other factors as applied in this instant proposal.

Radiation Statement

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation."

The proposed antenna system is a **Scala FMVMP-1 1-** element antenna 84 meters above ground. As this element type is not modeled in any current computer program, for purposes of this analysis the FM Model program has been set to calculate values for a "worst case" type of antenna element array, "Ring Stub", operated with an effective radiated power of 0.250 Kilowatts in the vertical plane. At 2 meters above the surface, at 18.8 meters from the base of the tower, this proposal will contribute worst case, 1.2 microwatts per square centimeter, or 0.12 percent of the allowable ANSI limit for controlled exposure, and 0.60 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

LPFM Preclusion Statement

The instant proposal is not within 39 km of any appendix A market, therefore no LPFM study is required

Figure 2. Signal Contours

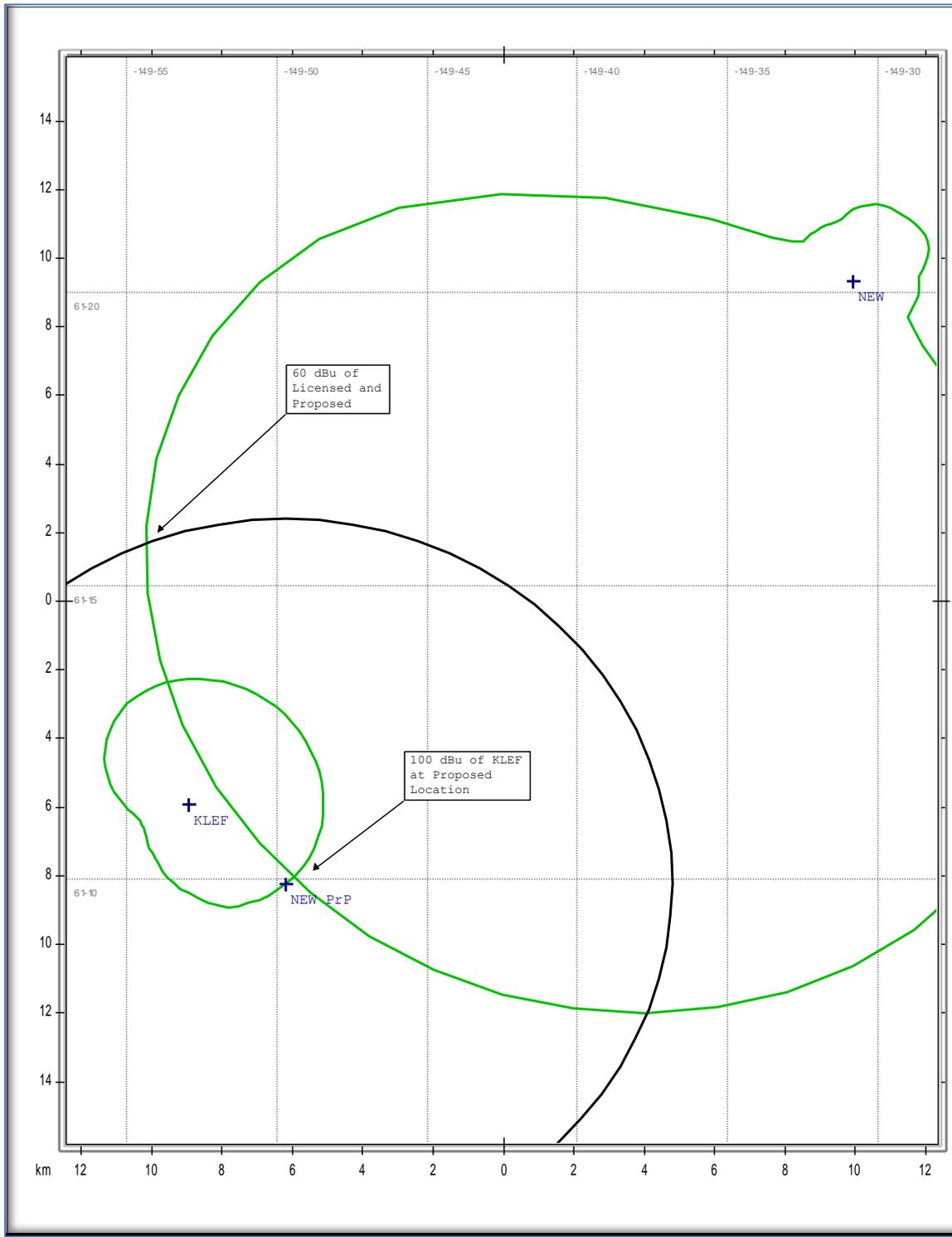


Figure 3. Interference Signal Distance Calculations

<p>Proposed Antenna: Scala FMV</p> <p>Proposed Power: 0.25 kW</p> <p>Antenna Height AGL: 84 meters</p> <p>Interference Contour: 140 dBu f(50:10)</p> <p>Artificial Rcv Antenna Height: 2 meters</p> <p>Distance (Free Space) Equation: $= (10^{((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]) / 20)}) * 1000$</p> <p>Field Strength (dBu) Equation: $= 106.92 - (20 * (\text{LOG}_{10}[\text{DistMeters} / 1000])) + [\text{ERP in dBk}]$</p>								
Depression				Distance				
Angle	Antenna			from Ant.	Distance	Field Strength	Distance	Field Strength
Below	Relative	ERP	ERP	to Interf	from Ant. to	in dBu @	from Ant.	in dBu @
Horizon	Field	in kW	in dBk	Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
0°	1.000	0.250	-6.02	11.09 m	infinite	---	infinite	---
-5°	0.995	0.248	-6.06	11.04 m	940.84 m	101.39 dBu	963.79 m	101.18 dBu
-10°	0.982	0.241	-6.18	10.89 m	472.22 m	107.26 dBu	483.74 m	107.05 dBu
-15°	0.950	0.226	-6.47	10.54 m	316.82 m	110.44 dBu	324.55 m	110.23 dBu
-20°	0.918	0.211	-6.76	10.18 m	239.75 m	112.56 dBu	245.60 m	112.35 dBu
-25°	0.867	0.188	-7.26	9.62 m	194.03 m	113.90 dBu	198.76 m	113.69 dBu
-30°	0.803	0.161	-7.93	8.91 m	164.00 m	114.70 dBu	168.00 m	114.49 dBu
-35°	0.727	0.132	-8.79	8.06 m	142.96 m	115.03 dBu	146.45 m	114.82 dBu
-40°	0.645	0.104	-9.83	7.15 m	127.57 m	114.98 dBu	130.68 m	114.77 dBu
-45°	0.558	0.078	-11.09	6.19 m	115.97 m	114.55 dBu	118.79 m	114.34 dBu
-50°	0.472	0.056	-12.54	5.23 m	107.04 m	113.79 dBu	109.65 m	113.58 dBu
-55°	0.388	0.038	-14.24	4.30 m	100.10 m	112.67 dBu	102.55 m	112.46 dBu
-60°	0.310	0.024	-16.19	3.44 m	94.69 m	111.20 dBu	96.99 m	110.99 dBu
-65°	0.240	0.014	-18.42	2.66 m	90.48 m	109.37 dBu	92.68 m	109.16 dBu
-70°	0.176	0.008	-21.11	1.95 m	87.26 m	106.99 dBu	89.39 m	106.78 dBu
-75°	0.119	0.004	-24.51	1.32 m	84.89 m	103.83 dBu	86.96 m	103.62 dBu
-80°	0.067	0.001	-29.50	0.74 m	83.26 m	99.01 dBu	85.30 m	98.80 dBu
-85°	0.019	0.000	-40.45	0.21 m	82.31 m	88.17 dBu	84.32 m	87.96 dBu
-90°	0.025	0.000	-38.06	0.28 m	82.00 m	90.58 dBu	84.00 m	90.37 dBu

Figure 4. View of Instant Proposal Location

