

TECHNICAL EXHIBIT
APPLICATION FOR LICENSE TO COVER CONSTRUCTION PERMIT
KELLY BROADCASTING SYSTEM CORP.
FM STATION WNIK-FM
ARECIBO, PUERTO RICO
FACILITY ID 33877
CH 293B1 25 KW 115 M

RF EXPOSURE COMPLIANCE WITH FCC GUIDELINES

The antenna installed, a PSIFMR-10C, is different from that specified in the Construction Permit of WNIK-FM, ERI SHPX-10AC. As required in the CP's Special operating condition No. 3, it is shown herein that the antenna installed complies with the FCC Guidelines concerning human exposure to radio frequency (RF) energy.

Based on Section 73.1310 of the FCC Rules, the pertinent maximum permissible exposure (MPE) limit for WNIK-FM is as follows:

Call Sign	Frequency (MHz)	MPE for General Population / Uncontrolled (GP/U) Exposure (uW/cm ²)	MPE for Occupational / Controlled (O/C) Exposure (uW/cm ²)
WNIK-FM	106.5	200	1000

There are no other significant contributors of RF energy at this site. The calculation of RF energy at 2-m above ground was made under the procedures of OET Bulletin No. 65.¹ The formula employed is as follows:

$$S = \frac{(33.4)F^2P}{R^2}$$

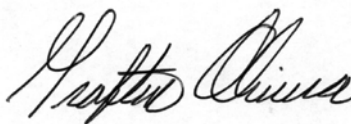
where, S = power density in uW/cm², F = relative field factor at the angle to the calculation point, P = the total effective radiated power relative to a dipole in watts, and R = distance from the antenna radiation center to the calculation point in meters.

¹ Federal Communications Commission OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01, August 1997).

TECHNICAL EXHIBIT, RF EXPOSURE COMPLIANCE (Continued)

The installed antenna, a 10-bay, PSIFMR-10C, full-wavelength antenna is mounted with its radiation center at the 47-meter level on the tower structure. The power density at 2 meters above ground level at the base of the tower, based on a “worst-case” vertical relative field value of 0.213 for any depression angle greater than 9 degrees below horizon (see the included antenna vertical radiation pattern data), a total ERP of 50 kW (H+V) and an antenna center of radiation height above ground level of 47 meters, is 37.4 microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$), or 18.7% of the Commission’s recommended limit for uncontrolled exposure areas ($200 \mu\text{W}/\text{cm}^2$ for the FM band).

The applicant verifies that access to the tower site is restricted, and the site is appropriately marked with RFR warning signs. In addition, procedures will be in effect if workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such procedures include wearing RFR exposure monitors or scheduling work when the station is shut down.



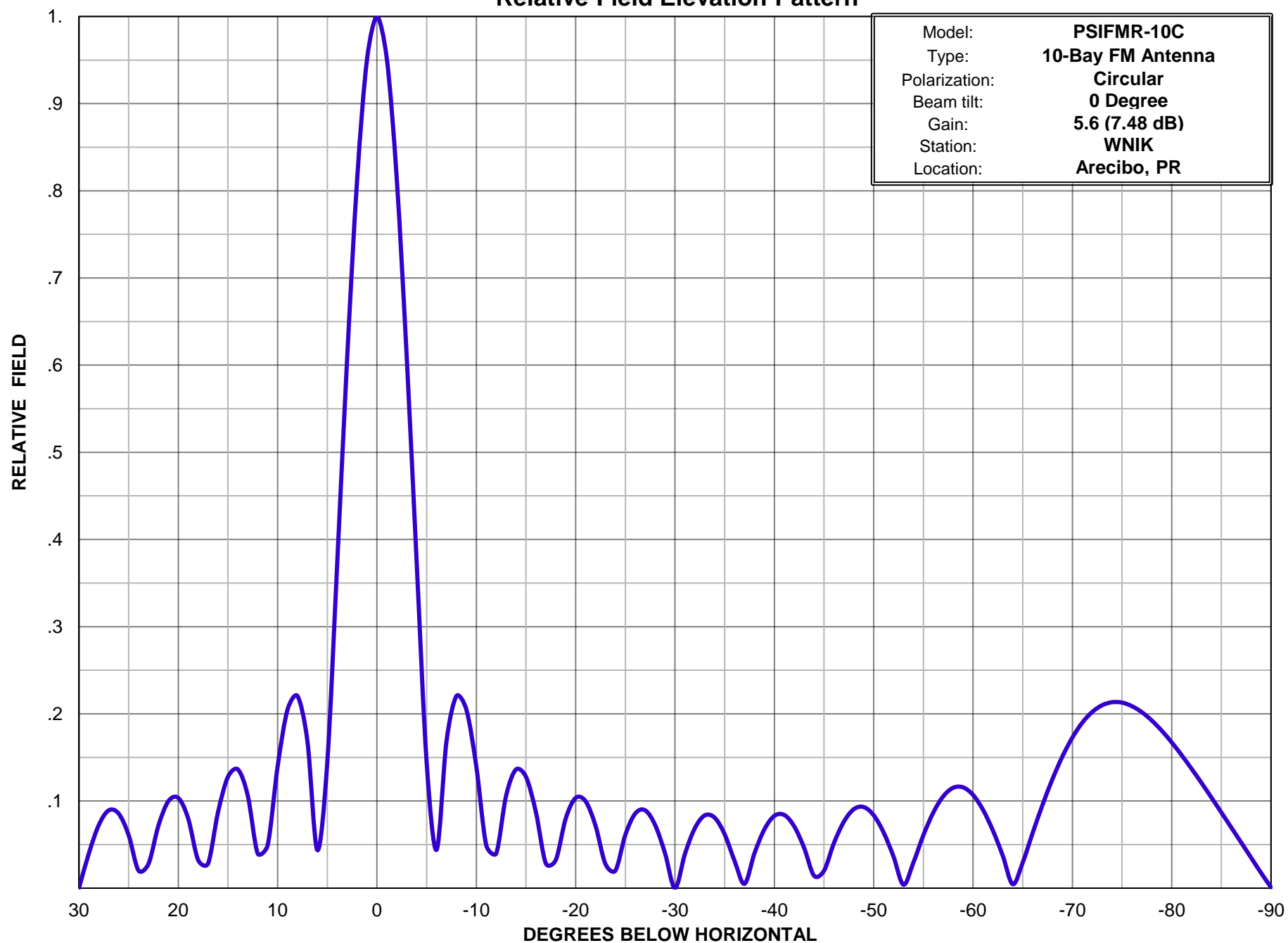
Grafton Olivera, P.E.
Technical Consultant
5119 60th Dr. E
Bradenton, FL 34203
Tel. (787) 399-8788

June 14, 2022



Propagation Systems, Inc.

Relative Field Elevation Pattern



Propagation Systems Inc.

Relative Field Tabulation Elevation Pattern

Antenna Model: PSIFMR-10C

Gain: 5.6 (7.48 dBd)

Station: WNIK

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90	0.001	-60.00	-50	0.084	-21.55	-10	0.140	-17.11
-89	0.017	-35.18	-49	0.093	-20.63	-9	0.205	-13.77
-88	0.035	-29.16	-48	0.091	-20.86	-8	0.220	-13.13
-87	0.052	-25.63	-47	0.076	-22.36	-7	0.169	-15.46
-86	0.070	-23.15	-46	0.052	-25.74	-6	0.044	-27.14
-85	0.087	-21.23	-45	0.020	-33.98	-5	0.144	-16.82
-84	0.104	-19.66	-44	0.014	-36.93	-4	0.373	-8.57
-83	0.121	-18.36	-43	0.046	-26.70	-3	0.608	-4.32
-82	0.137	-17.27	-42	0.071	-22.99	-2	0.812	-1.81
-81	0.153	-16.33	-41	0.084	-21.52	-1	0.951	-0.44
-80	0.167	-15.53	-40	0.083	-21.63	0	1.000	0.00
-79	0.181	-14.87	-39	0.067	-23.42	1	0.951	-0.44
-78	0.192	-14.32	-38	0.040	-27.96	2	0.812	-1.80
-77	0.202	-13.90	-37	0.005	-46.02	3	0.608	-4.32
-76	0.209	-13.61	-36	0.031	-30.11	4	0.373	-8.56
-75	0.213	-13.44	-35	0.062	-24.18	5	0.145	-16.80
-74	0.213	-13.42	-34	0.081	-21.86	6	0.044	-27.20
-73	0.210	-13.56	-33	0.083	-21.57	7	0.168	-15.47
-72	0.202	-13.89	-32	0.069	-23.25	8	0.220	-13.13
-71	0.190	-14.43	-31	0.039	-28.12	9	0.205	-13.76
-70	0.173	-15.25	-30	0.001	-60.00	10	0.140	-17.10
-69	0.151	-16.42	-29	0.040	-27.96	11	0.049	-26.13
-68	0.125	-18.05	-28	0.072	-22.80	12	0.040	-28.06
-67	0.096	-20.39	-27	0.089	-20.99	13	0.106	-19.50
-66	0.063	-23.99	-26	0.086	-21.35	14	0.136	-17.32
-65	0.029	-30.68	-25	0.061	-24.28	15	0.128	-17.87
-64	0.005	-46.85	-24	0.020	-33.91	16	0.087	-21.18
-63	0.037	-28.61	-23	0.028	-31.14	17	0.028	-30.95
-62	0.066	-23.58	-22	0.072	-22.89	18	0.032	-29.82
-61	0.090	-20.92	-21	0.100	-20.03	19	0.080	-21.97
-60	0.107	-19.41	-20	0.103	-19.70	20	0.103	-19.70
-59	0.116	-18.74	-19	0.080	-21.95	21	0.100	-20.03
-58	0.115	-18.77	-18	0.032	-29.82	22	0.072	-22.89
-57	0.105	-19.55	-17	0.028	-30.95	23	0.028	-31.09
-56	0.087	-21.24	-16	0.087	-21.20	24	0.020	-33.91
-55	0.061	-24.35	-15	0.128	-17.87	25	0.061	-24.31
-54	0.029	-30.63	-14	0.136	-17.32	26	0.085	-21.37
-53	0.004	-48.09	-13	0.106	-19.49	27	0.089	-20.99
-52	0.036	-28.82	-12	0.040	-28.02	28	0.072	-22.80
-51	0.064	-23.88	-11	0.049	-26.15	29	0.040	-27.96