

KLEIN BROADCAST ENGINEERING, L.L.C.

dedicated to improving the science and technology of radio & television communications

NOVEMBER 2005

EXHIBIT E-10RHS
FCC FORM 349 APPLICATION
FOR MODIFICATION FM TRANSLATOR STATION CONSTRUCTION PERMIT
(a Minor Change)
K275AO
(FCC Facility ID# 139243)
(FCC FILE# BNPFT-20030821AEM)
AGM-NEVADA, L.L.C.
FM CHANNEL 275 / 102.9 MHz.
ALBUQUERQUE, NEW MEXICO

RF RADIATION HAZARD COMPLIANCE STATEMENT

The facilities proposed herein by the applicant, permittee or licensee, in this Engineering Exhibit comply with FCC O.S.T. Bulletin #65 and #65A as revised (1997) and the ANSI C-95.1-1982 RF and ANSI C95.1992 and the NCRP exposure guidelines. The interpolation of the figures from the above referenced document, page 18, supplement "A", shows a WORST case requirement of 3 meters height above ground level requirement for the radiation center of the proposed single bay FM broadcast antenna. Vertical and horizontal effective radiated power of 0.010 kilowatts was used for this study and determination for a combined power of 0.020kW. The radiation center of the FM broadcast antenna system is proposed to be at 33 meters above ground level (AGL), well within the requirement for the antenna as determined from the above referenced documents. The antenna specified for use is an Scala CA2-FM/CP Circular Polarized antenna.

Occupational compliance is certified by the reduction of operating power or the complete cessation of operation during such time maintenance personnel are on the antenna support structure. A transmitter "LOCK OUT" circuit will be installed to prevent accidental turn on of the transmission equipment during the time maintenance personnel are on the antenna support structure. The applicant, permittee or licensee will cooperate with other site users in order to comply with The FCC Guidelines on Human Exposure to Non-Ionizing RF Radiation.

In addition to the preceding the applicant, permittee or licensee, has by computer program, performed additional calculations to predict RF power density at the base of the antenna support structure. This program predicts a maximum power density of 0.4184 microwatts/cm² at a distance of 8.5 meters from the base of the antenna support structure at a height of 2.0 meters above ground level. This is less than one half of one percent of the allowable RF power density for uncontrolled areas under the FCC and ANSI/EPA Guidelines, being limited to: 1.00mW/cm² for controlled areas and 200.0 microwatts/cm² for uncontrolled areas. All other power density was calculated to be below this maximum predicted level for a distance of 0 to 1000 meters distance from the base of the antenna support structure at 2.0 meters above ground level.

The proposed site is located in the Sandia Crest Electronics Communications Site near Albuquerque, New Mexico. There are many other significant sources of radiofrequency radiation in this heavily populated site. The applicant is exempt from further study of the site because of the "safe harbor" provisions of the Commissions Rules, as this proposal would contribute less than ½ of one percent of the uncontrolled area limit or 0.4184 microwatts/cm².

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The computer program employed for the RFR analysis in this engineering exhibit uses either the Near Field or Far Field method for the calculation of power density and was written by the Commission's O.E.T. staff. In this particular case the Far Field Method was used. The formula used by the computer program was derived from the FCC O.S.T. Bulletin #65, as revised to date.

The formula may be stated in the following manner:

$$E(V/m) = 1.6 * 221.72 * \text{SQRT}(\text{ERP}) * (\text{element pattern factor}) * (\text{array factor}) / \text{DIST}$$

$$H(A/m) = 1.6 * 0.588 * \text{SQRT}(\text{ERP}) * (\text{element pattern factor}) * (\text{array factor}) / \text{DIST}$$

Where:

ERP = effective radiated power in kilowatts, relative to a half wave dipole.

DIST = distance in meters from the antenna radiation center to the observation point in meters.

The 1.6 factor found in the ANSI/EPA formula and used above at the beginning of each equation takes into account possible contributions from ground reflections. The element pattern factor in a linearly interpolated relative field value at the appropriate depression angle below the horizon as taken directly from the EPA data. The array factor is computed at the appropriate depression angle using the number of antenna elements, when normalized to 1.0 in the main lobe. This array factor only applies to antenna arrays of point sources where each source has equal power distribution and phase, and are uniformly spaced. The element patterns themselves can be associated with particular antenna designs. As of May 1986 there were six (6) element types identified for FM antennas as listed in the ANSI/EPA data and FCC Bulletin #65. The EPA Type 1 Dipole element is used on the Scala CA2-FM/CP Antenna Type 1 is listed in the EPA data and was used for the calculations contained herein. There were two types listed for television, one for VHF and one for UHF.

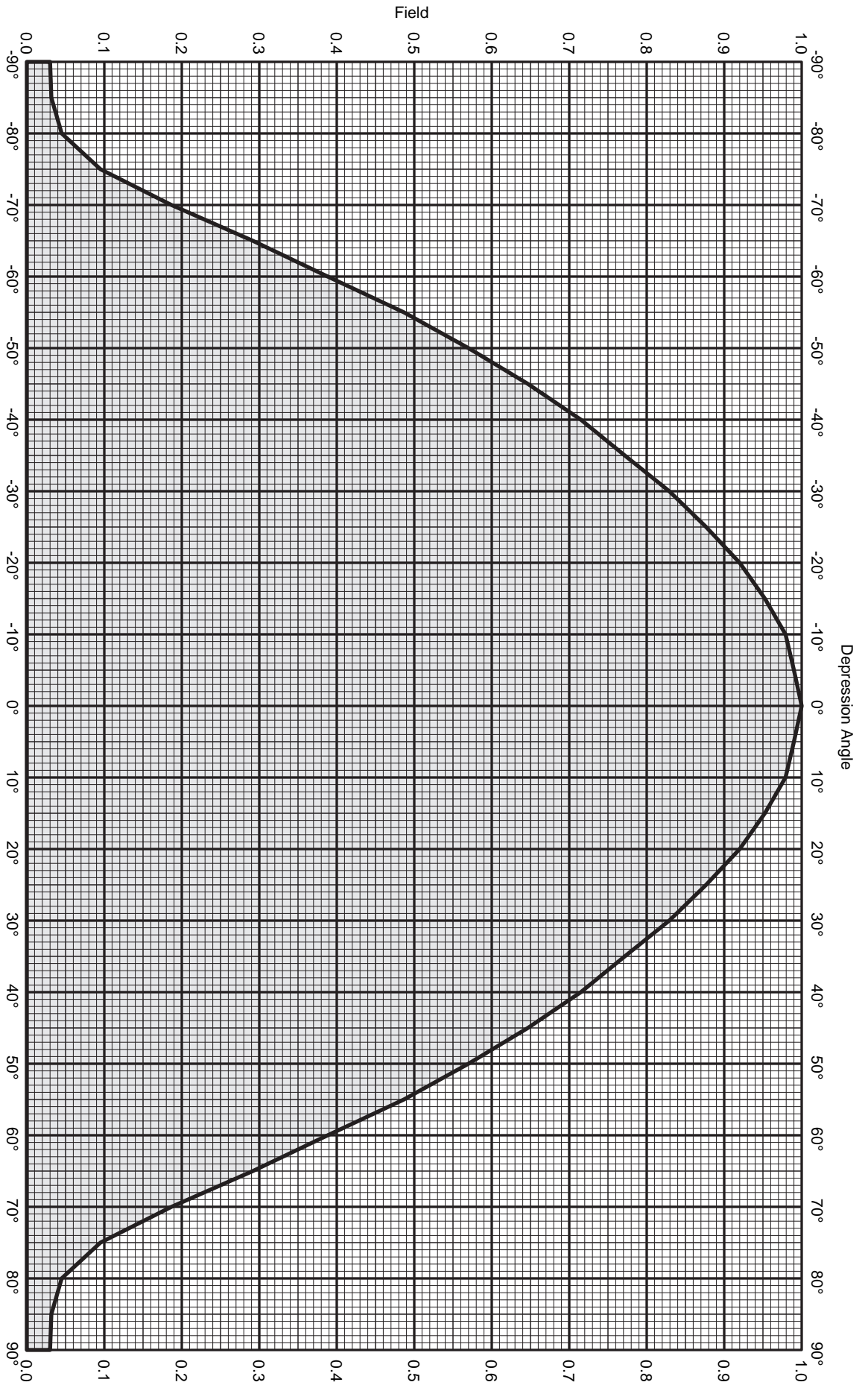
The General Public will not have access to the site because the site access road is fenced off from General Public access. The only access to the site is by locked gate and fence. Only authorized personnel have access to the locked gate. This will prevent General Public access to the actual site.

The applicant, permittee or licensee, will install and post RF Radiation Hazard Warning Signs in and around the site at approximately eye level for additional warning and safety.

The preceding assures compliance with the FCC, ANSI and NCRP requirements. Based on the preceding documents, tables, guidelines and calculations, the proposed operation of the main transmission facility for The Proposed Modification of FM Translator Station K275AO at Albuquerque, New Mexico, is in compliance with the FCC O.S.T. Bulletin #65 and the ANSI C-95.1-1992 and the NCRP RF Exposure Guidelines as amended to date. The applicant, permittee or licensee certifies compliance with the ANSI, NCRP and FCC Human Exposure Guidelines to Non-Ionizing RF Radiation.

Figure Number One attached hereto is an elevation pattern plot of the proposed Scala CA2-FM/CP antenna. Figure Number Two attached hereto is a graph of the calculated RF power density from the facility proposed in the instant application.

EXHIBIT E-10RHS FIGURE #1. ELEVATION PATTERN PLOT & TABULATION



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One CA2-FW/CP Antenna

Gain: 1.0 dBd

Circular Polarization

Vertical plane Pattern



One CA2-FM/CP Antenna

Gain: 1.0 dBd

Circular Polarization

Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.030	-30.46	-29.46	0.00	-45	0.647	-3.79	-2.79	0.53
-89	0.030	-30.36	-29.36	0.00	-44	0.660	-3.60	-2.60	0.55
-88	0.031	-30.27	-29.27	0.00	-43	0.674	-3.43	-2.43	0.57
-87	0.031	-30.17	-29.17	0.00	-42	0.688	-3.25	-2.25	0.60
-86	0.031	-30.08	-29.08	0.00	-41	0.701	-3.08	-2.08	0.62
-85	0.032	-29.99	-28.99	0.00	-40	0.715	-2.91	-1.91	0.64
-84	0.034	-29.29	-28.29	0.00	-39	0.726	-2.78	-1.78	0.66
-83	0.037	-28.64	-27.64	0.00	-38	0.738	-2.64	-1.64	0.69
-82	0.040	-28.03	-27.03	0.00	-37	0.749	-2.51	-1.51	0.71
-81	0.042	-27.47	-26.47	0.00	-36	0.760	-2.38	-1.38	0.73
-80	0.045	-26.94	-25.94	0.00	-35	0.772	-2.25	-1.25	0.75
-79	0.055	-25.19	-24.19	0.00	-34	0.783	-2.12	-1.12	0.77
-78	0.065	-23.74	-22.74	0.01	-33	0.795	-2.00	-1.00	0.80
-77	0.075	-22.50	-21.50	0.01	-32	0.806	-1.87	-0.87	0.82
-76	0.085	-21.41	-20.41	0.01	-31	0.818	-1.75	-0.75	0.84
-75	0.095	-20.45	-19.45	0.01	-30	0.829	-1.63	-0.63	0.87
-74	0.113	-18.91	-17.91	0.02	-29	0.839	-1.53	-0.53	0.89
-73	0.132	-17.61	-16.61	0.02	-28	0.848	-1.43	-0.43	0.91
-72	0.150	-16.48	-15.48	0.03	-27	0.858	-1.33	-0.33	0.93
-71	0.168	-15.48	-14.48	0.04	-26	0.867	-1.24	-0.24	0.95
-70	0.187	-14.58	-13.58	0.04	-25	0.877	-1.14	-0.14	0.97
-69	0.208	-13.65	-12.65	0.05	-24	0.885	-1.06	-0.06	0.99
-68	0.229	-12.82	-11.82	0.07	-23	0.894	-0.97	0.03	1.01
-67	0.250	-12.05	-11.05	0.08	-22	0.903	-0.89	0.11	1.03
-66	0.271	-11.35	-10.35	0.09	-21	0.911	-0.81	0.19	1.05
-65	0.292	-10.70	-9.70	0.11	-20	0.920	-0.72	0.28	1.07
-64	0.311	-10.14	-9.14	0.12	-19	0.927	-0.66	0.34	1.08
-63	0.330	-9.62	-8.62	0.14	-18	0.933	-0.60	0.40	1.10
-62	0.350	-9.13	-8.13	0.15	-17	0.939	-0.54	0.46	1.11
-61	0.369	-8.66	-7.66	0.17	-16	0.946	-0.48	0.52	1.13
-60	0.388	-8.22	-7.22	0.19	-15	0.952	-0.42	0.58	1.14
-59	0.408	-7.79	-6.79	0.21	-14	0.958	-0.37	0.63	1.15
-58	0.428	-7.38	-6.38	0.23	-13	0.963	-0.33	0.67	1.17
-57	0.447	-6.99	-5.99	0.25	-12	0.969	-0.28	0.72	1.18
-56	0.467	-6.61	-5.61	0.27	-11	0.974	-0.23	0.77	1.19
-55	0.487	-6.26	-5.26	0.30	-10	0.979	-0.18	0.82	1.21
-54	0.503	-5.96	-4.96	0.32	-9	0.981	-0.16	0.84	1.21
-53	0.520	-5.68	-4.68	0.34	-8	0.984	-0.14	0.86	1.22
-52	0.537	-5.41	-4.41	0.36	-7	0.986	-0.13	0.87	1.22
-51	0.553	-5.14	-4.14	0.39	-6	0.988	-0.11	0.89	1.23
-50	0.570	-4.88	-3.88	0.41	-5	0.990	-0.09	0.91	1.23
-49	0.585	-4.65	-3.65	0.43	-4	0.992	-0.07	0.93	1.24
-48	0.601	-4.43	-3.43	0.45	-3	0.994	-0.05	0.95	1.24
-47	0.616	-4.21	-3.21	0.48	-2	0.996	-0.03	0.97	1.25
-46	0.631	-3.99	-2.99	0.50	-1	0.998	-0.02	0.98	1.25
					0	1.000	0.00	1.00	1.26



One CA2-FM/CP Antenna

Gain: 1.0 dBd

Circular Polarization

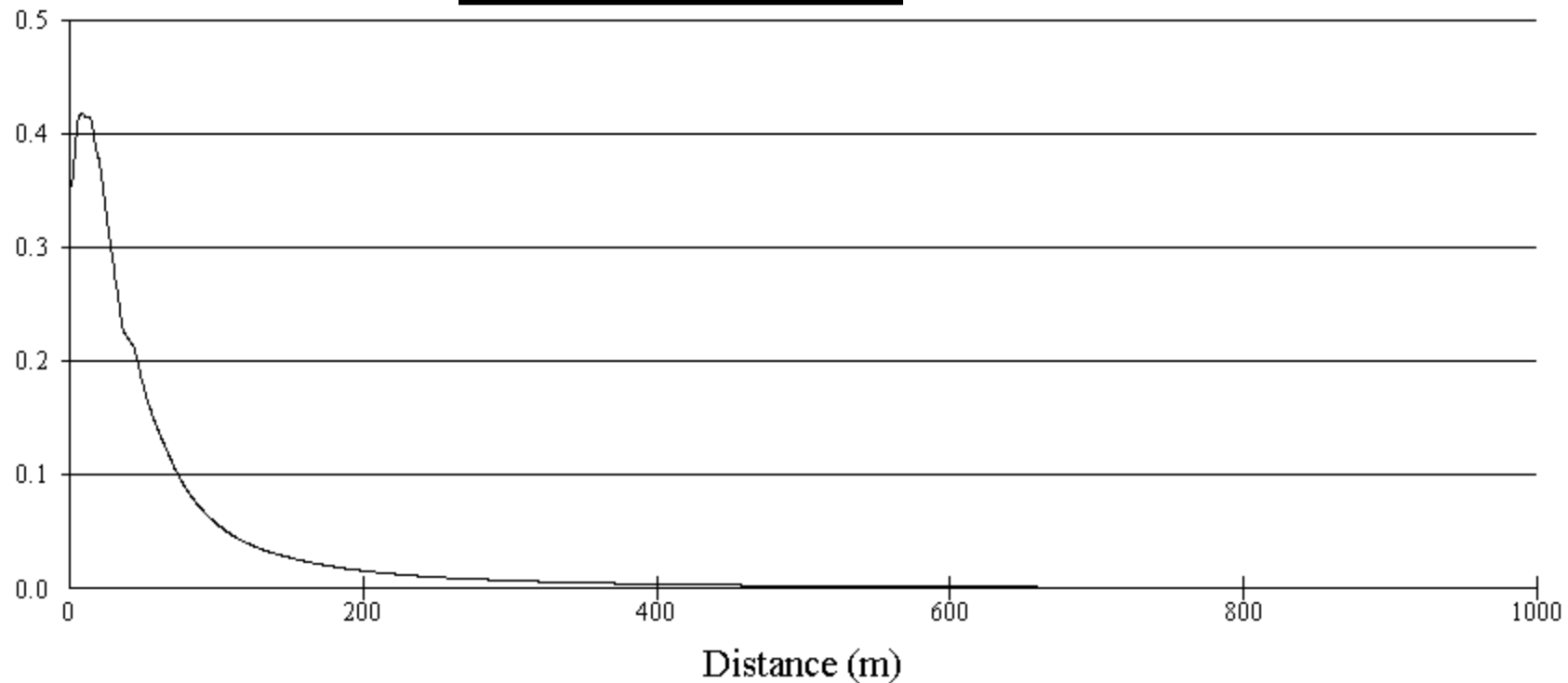
Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	1.00	1.26	45	0.647	-3.79	-2.79	0.53
1	0.998	-0.02	0.98	1.25	46	0.631	-3.99	-2.99	0.50
2	0.996	-0.03	0.97	1.25	47	0.616	-4.21	-3.21	0.48
3	0.994	-0.05	0.95	1.24	48	0.601	-4.43	-3.43	0.45
4	0.992	-0.07	0.93	1.24	49	0.585	-4.65	-3.65	0.43
5	0.990	-0.09	0.91	1.23	50	0.570	-4.88	-3.88	0.41
6	0.988	-0.11	0.89	1.23	51	0.553	-5.14	-4.14	0.39
7	0.986	-0.13	0.87	1.22	52	0.537	-5.41	-4.41	0.36
8	0.984	-0.14	0.86	1.22	53	0.520	-5.68	-4.68	0.34
9	0.981	-0.16	0.84	1.21	54	0.503	-5.96	-4.96	0.32
10	0.979	-0.18	0.82	1.21	55	0.487	-6.26	-5.26	0.30
11	0.974	-0.23	0.77	1.19	56	0.467	-6.61	-5.61	0.27
12	0.969	-0.28	0.72	1.18	57	0.447	-6.99	-5.99	0.25
13	0.963	-0.33	0.67	1.17	58	0.428	-7.38	-6.38	0.23
14	0.958	-0.37	0.63	1.15	59	0.408	-7.79	-6.79	0.21
15	0.952	-0.42	0.58	1.14	60	0.388	-8.22	-7.22	0.19
16	0.946	-0.48	0.52	1.13	61	0.369	-8.66	-7.66	0.17
17	0.939	-0.54	0.46	1.11	62	0.350	-9.13	-8.13	0.15
18	0.933	-0.60	0.40	1.10	63	0.330	-9.62	-8.62	0.14
19	0.927	-0.66	0.34	1.08	64	0.311	-10.14	-9.14	0.12
20	0.920	-0.72	0.28	1.07	65	0.292	-10.70	-9.70	0.11
21	0.911	-0.81	0.19	1.05	66	0.271	-11.35	-10.35	0.09
22	0.903	-0.89	0.11	1.03	67	0.250	-12.05	-11.05	0.08
23	0.894	-0.97	0.03	1.01	68	0.229	-12.82	-11.82	0.07
24	0.885	-1.06	-0.06	0.99	69	0.208	-13.65	-12.65	0.05
25	0.877	-1.14	-0.14	0.97	70	0.187	-14.58	-13.58	0.04
26	0.867	-1.24	-0.24	0.95	71	0.168	-15.48	-14.48	0.04
27	0.858	-1.33	-0.33	0.93	72	0.150	-16.48	-15.48	0.03
28	0.848	-1.43	-0.43	0.91	73	0.132	-17.61	-16.61	0.02
29	0.839	-1.53	-0.53	0.89	74	0.113	-18.91	-17.91	0.02
30	0.829	-1.63	-0.63	0.87	75	0.095	-20.45	-19.45	0.01
31	0.818	-1.75	-0.75	0.84	76	0.085	-21.41	-20.41	0.01
32	0.806	-1.87	-0.87	0.82	77	0.075	-22.50	-21.50	0.01
33	0.795	-2.00	-1.00	0.80	78	0.065	-23.74	-22.74	0.01
34	0.783	-2.12	-1.12	0.77	79	0.055	-25.19	-24.19	0.00
35	0.772	-2.25	-1.25	0.75	80	0.045	-26.94	-25.94	0.00
36	0.760	-2.38	-1.38	0.73	81	0.042	-27.47	-26.47	0.00
37	0.749	-2.51	-1.51	0.71	82	0.040	-28.03	-27.03	0.00
38	0.738	-2.64	-1.64	0.69	83	0.037	-28.64	-27.64	0.00
39	0.726	-2.78	-1.78	0.66	84	0.034	-29.29	-28.29	0.00
40	0.715	-2.91	-1.91	0.64	85	0.032	-29.99	-28.99	0.00
41	0.701	-3.08	-2.08	0.62	86	0.031	-30.08	-29.08	0.00
42	0.688	-3.25	-2.25	0.60	87	0.031	-30.17	-29.17	0.00
43	0.674	-3.43	-2.43	0.57	88	0.031	-30.27	-29.27	0.00
44	0.660	-3.60	-2.60	0.55	89	0.030	-30.36	-29.36	0.00
					90	0.030	-30.46	-29.46	0.00

Power Density vs Distance

EXHIBIT E-10RHS FIGURE #2.

Power Density
($\mu\text{W}/\text{cm}^2$)



Office of Engineering and Technology

Distance (m):	1000	Antenna Type:	Phelps-Dodge "Ring Stub" or Dipole (EP, ▾)
Horizontal ERP (W):	10	Number of Elements:	1
Vertical ERP (W):	10	Element Spacing:	1
Antenna Height (m):	33		

Maximum RFR Power Density = 0.4184 $\mu\text{W}/\text{cm}^2$ at a distance of 8.5 meters from the base of the antenna support structure, at 2 meters above ground level.

Antenna Manufacturer & Model: Kathrein/Scala CA2-FM/CP (dipole & corner reflector with circular polarization)