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PURPOSE OF APPLICATION
Journal Broadcast Corporation
Omaha, NE

KQCH presently operates on FM Channel 231C with a nondirectional effective radiated power of 100 kilowatts at 360.9 meters above average terrain combined into a common antenna with KEZO-FM - Omaha, Nebraska. The attached application proposes to modify the KQCH license to reflect the replacement of the station's presently licensed eight bay nondirectional antenna with a new Jampro JBCP-8R eight bay, 1.01 wavelength spaced, circularly polarized nondirectional antenna. This replacement antenna includes 0.75° of electrical beam tilt. Table 1.0 and Figures 1.0(a) and 1.0(b) present the vertical radiation pattern for this replacement antenna, which was mounted with its center of radiation at the same height above ground level (337.8 meters) as the presently licensed antenna. Since this substitution involves the replacement of an omnidirectional antenna with no change in antenna height or effective radiated power, it can be accomplished in the context of a license modification application. Figure 1.1 presents a vertical plan view depicting this modified antenna system.

There are no nondirectional AM broadcast facilities located within 0.8 kilometers of the KQCH transmitter site. Nor are there any AM directional broadcast stations located within 3.2 kilometers of this site. Thus, it is not necessary to demonstrate compliance with Section 73.1692 of the FCC Rules as a part of this application.

Because KQCH shares this antenna with KEZO-FM - Omaha, Nebraska, spurious radiation measurements were conducted to insure that any intermodulation products generated by the combined operation of KQCH and KEZO-FM into this antenna system continue to meet the suppression requirements outlined in Section 73.317(d) of the FCC

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Rules. These measurements were conducted on the combined KQCH/KEZO-FM facilities on December 21, 2007 by Alfred T. Warmus using a Potomac Instruments FIM-71 field strength meter and its associated ANT-71 dipole antenna. The elements for this dipole antenna were adjusted to the length specified in the manufacturer's instruction manual for each frequency which was measured. The meter reading at each frequency was then multiplied by the antenna correction factor specified for that frequency in this instruction manual to determine the measured signal strength (in mV/m) for each frequency.

These measurements were conducted with KQCH and KEZO-FM both operating into this combined antenna with their authorized facilities and were conducted at a distance of 1.75 miles (2.82 kilometers) from the KQCH/KEZO-FM transmitter site. Table 1.2 details the results of these measurements. As shown in this table, these measurements found no observable or measurable harmonics or intermodulation products resulting from the combined operation of KQCH and KEZO-FM into this antenna. Thus, it is obvious that the combined operation of KQCH and KEZO-FM into this replacement antenna system will continue to comply with the suppression requirements outlined in Section 73.317 of the FCC Rules.

The modified KQCH facilities fully comply with the current FCC Standard with regard to human exposure to nonionizing radiation. The predicted power density levels at two meters above ground level for KQCH were calculated using the FCC's "FM Model" computer program. The results of these calculations are shown in Figure 1.3. As can be seen from an examination of this figure, the maximum predicted power density at two meters above ground level for the modified KQCH facilities is $3.96 \mu\text{W}/\text{cm}^2$, which oc-

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curs at a horizontal distance of 98.4 meters from the base of the tower. Since the permitted power density for uncontrolled exposure in the FM band is $200 \mu\text{W}/\text{cm}^2$, this amounts to only 1.98% of the permitted level. Since this value is less than 5% of the permitted level, the modified KQCH facilities are excluded from environmental processing under this standard and need not be considered in conjunction with other co-located or nearby facilities in evaluating uncontrolled exposure compliance with this standard.

KQCH, in conjunction with the other co-located facilities on this tower, will continue to take appropriate steps to insure that workers that must be on this tower will not be exposed to levels of nonionizing radiation that are in excess of the permitted level for controlled exposure. These steps will include the cessation of operation or a reduction in power by one or more of these stations, as appropriate, when work becomes necessary on this tower in areas where the total power density levels are in excess of the permitted level for controlled exposure.

FIGURE 1.0(A)

VERTICAL RADIATION PATTERN



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P.O. Box 292880, Sacramento, California 95829-2880

(916) 383-1177 FAX (916) 383-1182

ELEVATION PATTERN

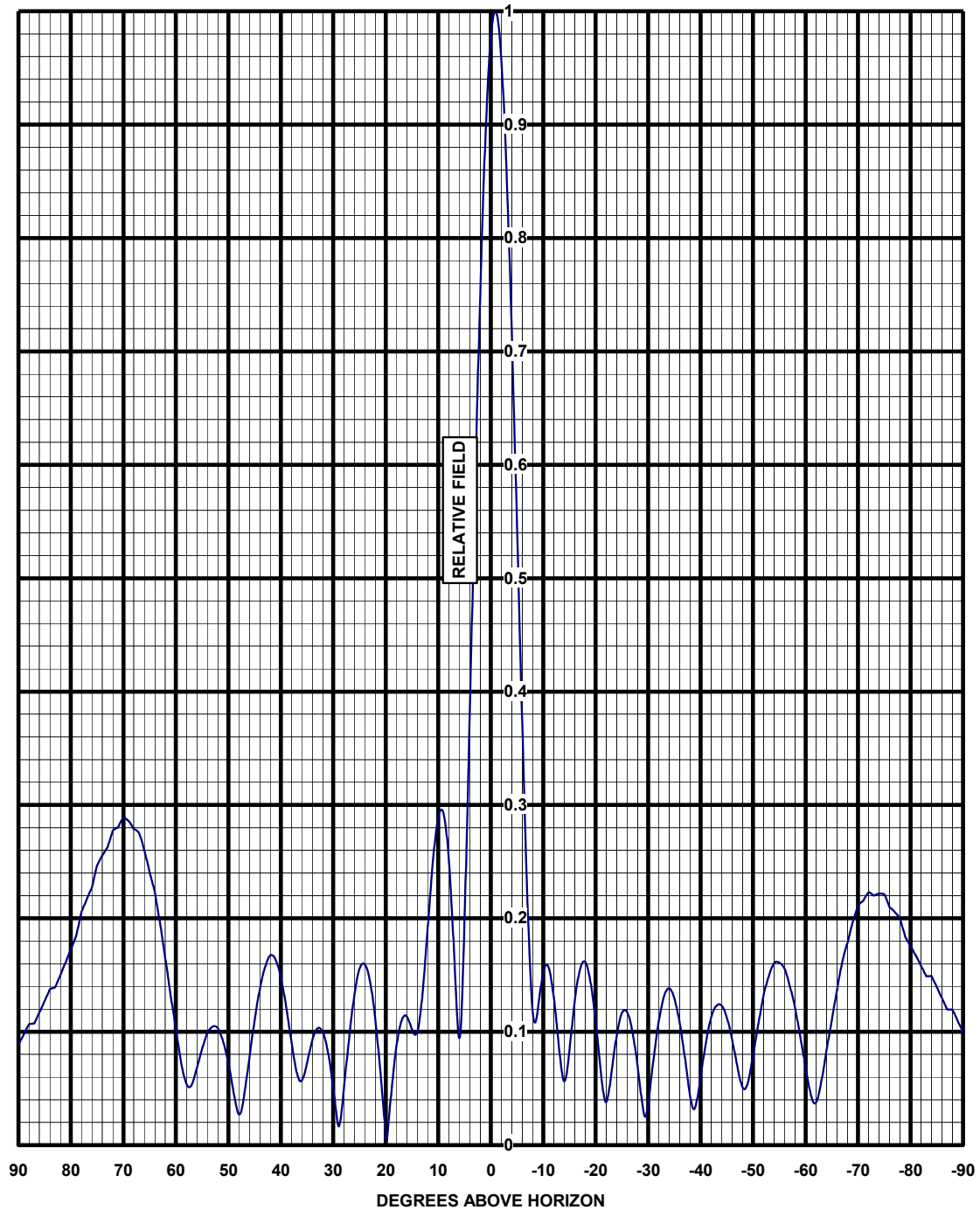


FIGURE 1.0(B)

VERTICAL RADIATION PATTERN



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EXPANDED ELEVATION PATTERN

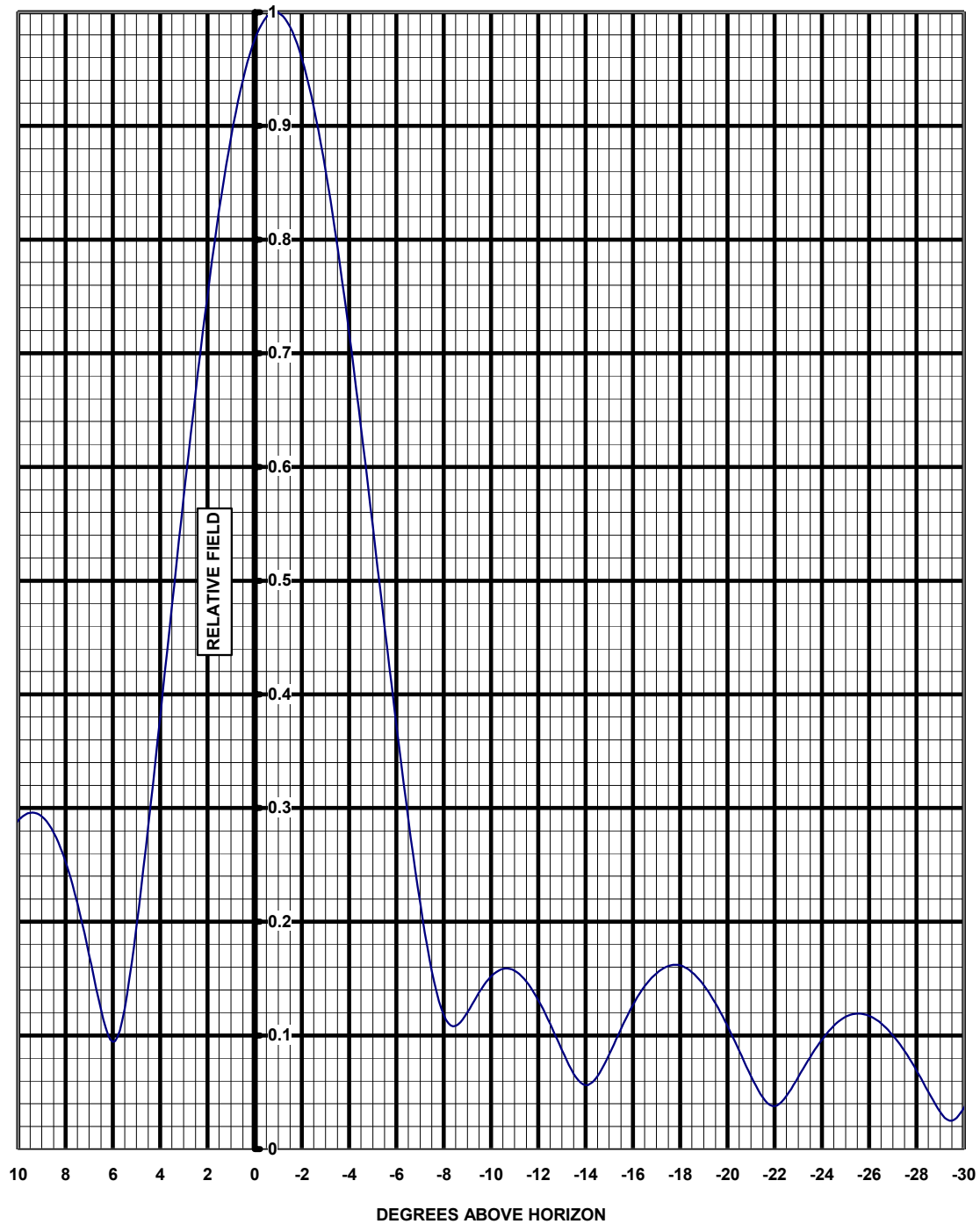


TABLE 1.0

VERTICAL RADIATION PATTERN



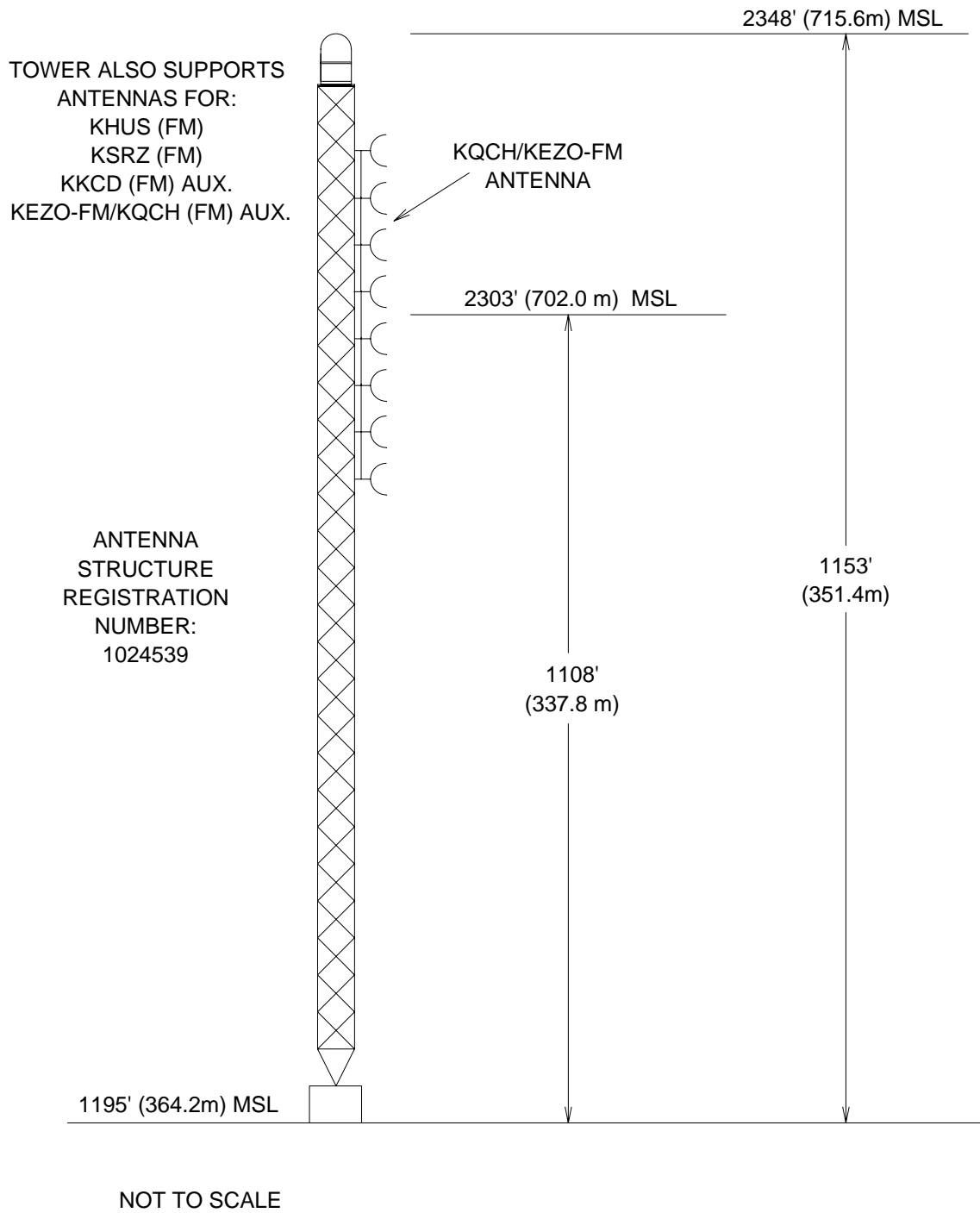
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ELEVATION PATTERN TABULATION

RELATIVE FIELD VS ELEVATION ANGLE

<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>	<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>	<u>ELEVATION ANGLE</u>	<u>RELATIVE FIELD</u>
10	0.289	-26	0.117	-61	0.044
9	0.293	-27	0.100	-62	0.038
8	0.253	-28	0.069	-63	0.056
7	0.171	-29	0.033	-64	0.084
6	0.094	-30	0.036	-65	0.110
5	0.196	-31	0.075	-66	0.137
4	0.380	-32	0.108	-67	0.162
3	0.573	-33	0.131	-68	0.179
2	0.750	-34	0.138	-69	0.197
1	0.890	-35	0.129	-70	0.211
0	0.976	-36	0.108	-71	0.215
-1	0.999	-37	0.077	-72	0.223
-2	0.959	-38	0.043	-73	0.220
-3	0.861	-39	0.034	-74	0.222
-4	0.718	-40	0.060	-75	0.221
-5	0.548	-41	0.090	-76	0.210
-6	0.373	-42	0.113	-77	0.206
-7	0.217	-43	0.123	-78	0.200
-8	0.118	-44	0.123	-79	0.183
-9	0.120	-45	0.112	-80	0.176
-10	0.152	-46	0.093	-81	0.167
-11	0.157	-47	0.069	-82	0.158
-12	0.131	-48	0.051	-83	0.149
-13	0.087	-49	0.055	-84	0.149
-14	0.056	-50	0.079	-85	0.139
-15	0.083	-51	0.107	-86	0.130
-16	0.127	-52	0.132	-87	0.120
-17	0.155	-53	0.149	-88	0.120
-18	0.162	-54	0.161	-89	0.110
-19	0.144	-55	0.161	-90	0.100
-20	0.109	-56	0.156		
-21	0.064	-57	0.140		
-22	0.038	-58	0.121		
-23	0.064	-59	0.095		
-24	0.096	-60	0.069		
-25	0.116				



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FIG. 1.1
VERTICAL PLAN VIEW
JOURNAL BROADCAST CORPORATION
OMAHA, NE

TABLE 1.2

KEZO-FM/KQCH SPURIOUS AND
HARMONIC MEASUREMENTS
(REPLACEMENT MAIN ANTENNA)

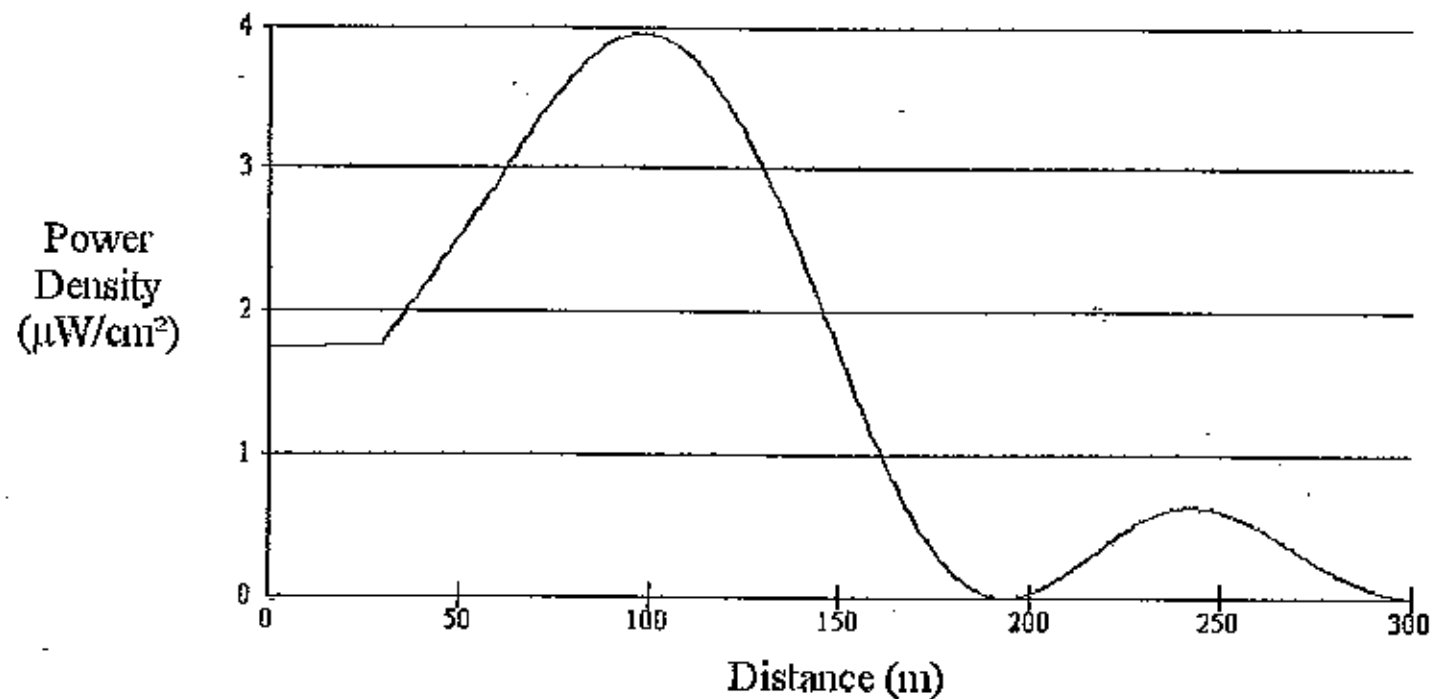
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<u>Frequency (MHz)</u>	<u>Product</u>	<u>Field Strength (mV/m)</u>	<u>Suppression (dB)</u>	<u>Required Suppression (dB)</u>
88.7	Intermodulation Product	None Observed		80.0
90.5	Intermodulation Product	None Observed		80.0
92.3	KEZO-FM Fundamental	72.0	---	---
94.1	KQCH Fundamental	79.8	---	---
95.9	Intermodulation Product	None Observed		80.0
97.7	Intermodulation Product	None Observed		80.0
182.8	Intermodulation Product	None Observed		80.0
184.6	KEZO-FM Second Harmonic	None Observed		80.0
186.4	Intermodulation Product	None Observed		80.0
188.2	KQCH Second Harmonic	None Observed		80.0
190.0	Intermodulation Product	None Observed		80.0

Note:

A scan of the entire spectrum from 45 MHz to 225 MHz found no other spurious products which can be attributed to the combined operation of KQCH and KEZO-FM into this antenna.

Power Density vs Distance



Office of Engineering and Technology

Distance (m):	300	Antenna Type:	Vertical Dipole
Horizontal ERP (W):	100000	Number of Elements:	1
Vertical ERP (W):	100000	Element Spacing:	300
Antenna Height (m):	37.5		

FIG. 1.3

KQCH POWER DENSITY CALCULATIONS
(REPLACEMENT MAIN ANTENNA)

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