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FROM: **Mike Johnson**

DATE: **February 7, 2003**

Ref: Radiation pattern distortion

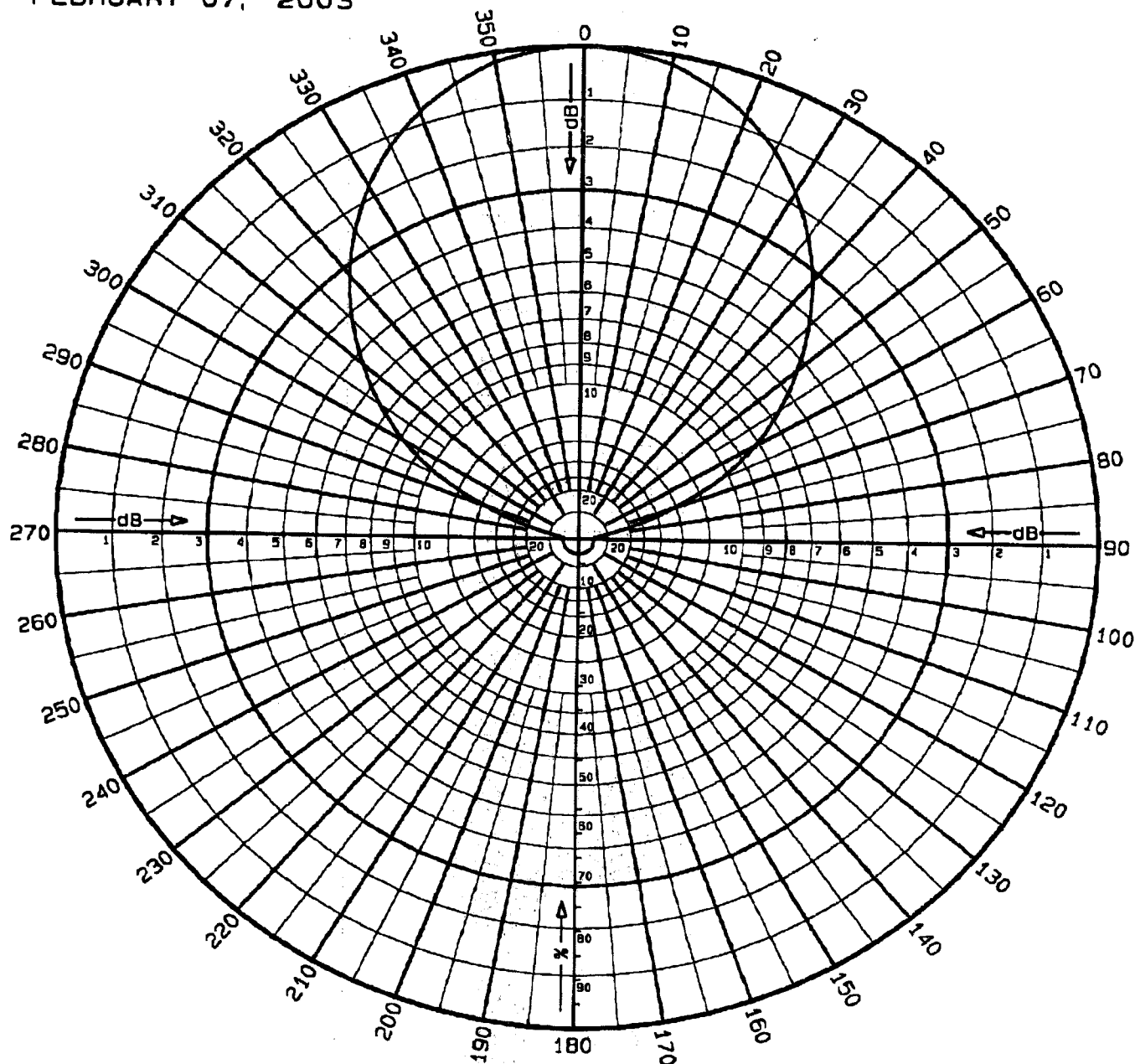
The published radiation patterns for the Kathrein-Scala, CL-FM Log-periodic antennas were measured with the antenna attached to a single 2-3/8" (60mm) outside diameter pipe mast.

The CL-FM log periodic antenna has such a high front-to-back ratio (>25 dB) in it's pattern that the radiation pattern is virtually undistorted by any but the largest of mounting structures (i.e. face mounting to flat plates greater than 1/2 wave length).

Best regards,

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CL-FM/VRM/50N LOG-PERIODIC ANTENNA
 MAX GAIN: 7.0 dBd
 POWER-x: 5.0
 VERTICAL POLARIZATION
 HORIZONTAL PLANE PATTERN TAKEN WITH
 CL-FM/VRM/50N ANTENNA MOUNTED TO A
 2-3/8" O.D. PIPE MAST

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CL-FM/VRM/50N LOG-PERIODIC ANTENNA
 VERTICAL POLARIZATION/ HORIZONTAL PLANE PATTERN

Azimuth	Relative Field	Relative dB	dBd	Power Gain
0	1.000	0.0	7.0	5.012
5	0.993	-0.1	6.9	4.898
10	0.980	-0.2	6.8	4.786
15	0.952	-0.4	6.6	4.571
20	0.916	-0.8	6.2	4.169
25	0.873	-1.2	5.8	3.802
30	0.817	-1.8	5.2	3.311
35	0.756	-2.4	4.6	2.884
40	0.690	-3.2	3.8	2.399
45	0.618	-4.2	2.8	1.905
50	0.544	-5.3	1.7	1.479
55	0.467	-6.6	0.4	1.096
60	0.390	-8.2	-1.2	0.759
65	0.300	-10.5	-3.5	0.447
70	0.190	-14.4	-7.4	0.182
75	0.110	-19.2	-12.2	0.060
80	0.050	-26.0	-19.0	0.013
85	0.030	-30.5	-23.5	0.004
90	0.030	-30.5	-23.5	0.004
95	0.030	-30.5	-23.5	0.004
100	0.030	-30.5	-23.5	0.004
105	0.030	-30.5	-23.5	0.004
110	0.030	-30.5	-23.5	0.004
115	0.030	-30.5	-23.5	0.004
120	0.030	-30.5	-23.5	0.004
125	0.030	-30.5	-23.5	0.004
130	0.030	-30.5	-23.5	0.004
135	0.030	-30.5	-23.5	0.004
140	0.030	-30.5	-23.5	0.004
145	0.030	-30.5	-23.5	0.004
150	0.030	-30.5	-23.5	0.004
155	0.030	-30.5	-23.5	0.004
160	0.030	-30.5	-23.5	0.004
165	0.030	-30.5	-23.5	0.004
170	0.030	-30.5	-23.5	0.004
175	0.030	-30.5	-23.5	0.004
180	0.030	-30.5	-23.5	0.004
185	0.030	-30.5	-23.5	0.004
190	0.030	-30.5	-23.5	0.004
195	0.030	-30.5	-23.5	0.004
200	0.030	-30.5	-23.5	0.004
205	0.030	-30.5	-23.5	0.004
210	0.030	-30.5	-23.5	0.004
215	0.030	-30.5	-23.5	0.004
220	0.030	-30.5	-23.5	0.004
225	0.030	-30.5	-23.5	0.004
230	0.030	-30.5	-23.5	0.004
235	0.030	-30.5	-23.5	0.004
240	0.030	-30.5	-23.5	0.004
245	0.030	-30.5	-23.5	0.004
250	0.030	-30.5	-23.5	0.004

CL-FM/VRM/50N LOG-PERIODIC ANTENNA
VERTICAL POLARIZATION/ HORIZONTAL PLANE PATTERN

Azimuth	Relative Field	Relative dB	dBd	Power Gain
255	0.030	-30.5	-23.5	0.004
260	0.030	-30.5	-23.5	0.004
265	0.030	-30.5	-23.5	0.004
270	0.030	-30.5	-23.5	0.004
275	0.030	-30.5	-23.5	0.004
280	0.050	-26.0	-19.0	0.013
285	0.110	-19.2	-12.2	0.060
290	0.190	-14.4	-7.4	0.182
295	0.300	-10.5	-3.5	0.447
300	0.390	-8.2	-1.2	0.759
305	0.467	-6.6	0.4	1.096
310	0.544	-5.3	1.7	1.479
315	0.618	-4.2	2.8	1.905
320	0.690	-3.2	3.8	2.399
325	0.756	-2.4	4.6	2.884
330	0.817	-1.8	5.2	3.311
335	0.873	-1.2	5.8	3.802
340	0.916	-0.8	6.2	4.169
345	0.952	-0.4	6.6	4.571
350	0.980	-0.2	6.8	4.786
355	0.993	-0.1	6.9	4.898