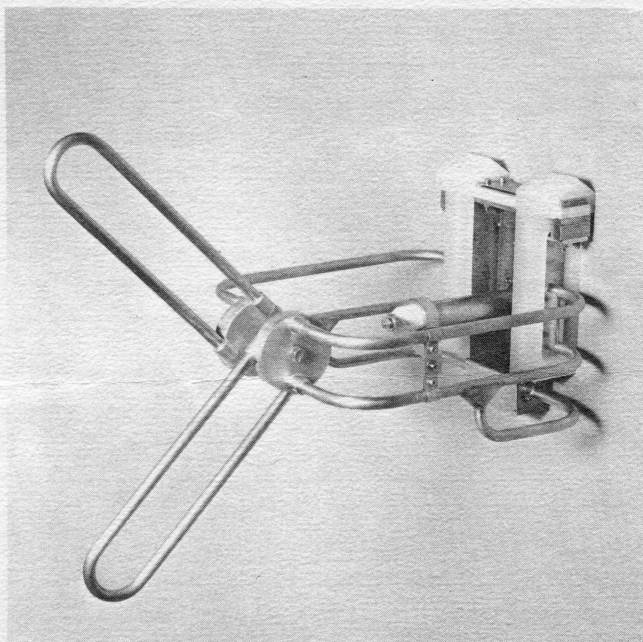


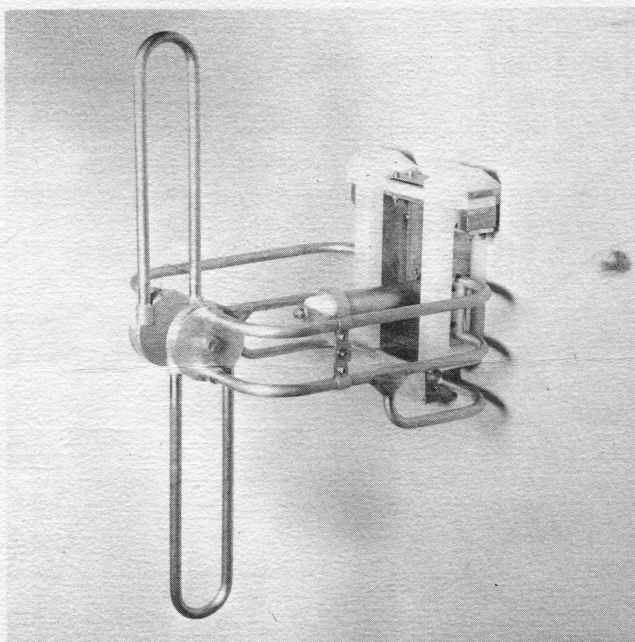
The Shively Circularly Polarized FM Antenna

ADJUSTABLE RATIO

LIGHT WINDLOAD



1-2 RATIO



1-1 RATIO

Type 6710

Features

- * True Circular Polarization, not Diagonal
- * Adjustable Amount of Vertical Radiation
- * Wind Loading Comparable to Horizontal Only Antennas
- * Broadband Low Q Impedance Characteristics
- * Grounded Elements for Lightning Protection
- * Built In Adjustable Matching Transformer
- * Provision for Future Power Increase
- * Stainless Steel Construction
- * 5 kw. Conservative Rating per Element
- * Replaceable De-Icers
- * Standard Four Bolt Mounting
- * Teflon End Seal Insulator

Applications

The Shively Circularly Polarized FM antenna offers the FM broadcaster an immediate inexpensive way to obtain the benefits of circular polarization without incurring any penalty of obsolescence. In most instances there is some excess transmitting capacity available which with the Shively antenna can be used for vertical radiation. Then in the future when power increases are sought, the Shively antenna can still be used with a change in the angle of the arms. This is particularly practical because the Shively antenna probably will not increase the present wind loading.



SHIVELY LABORATORIES, INC.

RAYMOND, MAINE 04071

Electrical and Mechanical Description

This antenna was designed by Shively Laboratories - antenna specialists - to provide FM broadcasters with a reliable outstanding engineering design which can produce a desired radiation in both vertical and horizontal polarizations.

The antenna consists essentially of a single 3 1/8" transmission line with individual bays separated approximately ten feet from each other. Each element is constructed of stainless steel and arranged to be mounted to the feed line with four bolts. The configuration is such that the windloading offered is very much less than the amount offered by separate vertical and horizontal elements. Eight bays or less are end fed, and ten bays or more are center fed.

The price of the antenna includes the matching transformer and mounting brackets for constant section towers, or face mounts for towers up to 3 feet in width. For other installations where the tower is tapered or other complications exist, brackets are available at slight extra cost.

Gain

The matter of gain in a circularly polarized antenna may be confusing. With reference to the gain table, the gain figure is total power gain with respect to a half wave dipole. Whatever amount is radiated in the vertical plane is subtracted from the horizontal polarization with the total remaining constant. Thus, for a six element antenna and a ten kilowatt transmitter, if all the radiation were in the horizontal plane, the radiation would be 66 kw. But if the antenna were adjusted

for a ratio of one to one, then there would be a radiation of 33 kw. in the horizontal plane and 33 kw. in the vertical plane, which totals 66 kw. If the antenna were adjusted for a ratio of two horizontal to one vertical, then there would be 44 kw. in the horizontal plane and 22 kw. in the vertical plane, again totaling 66 kw. This variable feature allows any amount of transmitter power to be added to the total radiation in the vertical plane without disturbing the present horizontal radiation.

No. of Bays	Maximum Gain		Power Rating KW	88 mHz			98 mHz			108 mHz		
	Power	DB		Length ft.	Weight lbs.	Wind-load lbs.	Length ft.	Weight lbs.	Wind-load lbs.	Length ft.	Weight lbs.	Wind-load lbs.
1	0.95	0	5	3	80	55	3	80	55	3	80	55
2	2.0	3.0	10	14.2	131	286	13	128	275	12	125	264
3	3.1	4.9	15	24.2	188	440	23	182	418	21	176	396
4	4.3	6.3	20	36.6	246	599	33	236	561	30.1	227	528
5	5.4	7.3	25	47.8	305	759	43	290	704	39.4	278	660
6	6.6	8.2	30	59	362	913	53	344	847	48.5	329	792
7	7.7	8.9	35	70.2	419	1067	63	398	990	57.6	380	924
8	8.8	9.5	40	81.4	476	1221	73	452	1133	66.7	431	1056
10	11.0	10.4	40	103.8	593	1540	93	560	1419	84	536	1331
12	13.2	11.2	40	126.2	707	1848	113	668	1705	103	638	1595
14	15.4	11.9	40	148.6	824	2167	133	776	1991	121.3	740	1859
16	17.6	12.4	40	171	938	2475	153	884	2277	139.5	842	2134

Windload calculated on the basis of the 50/33 psf EIA Standard.

The figures above include the adjustable transformer but do not include the mounts or the deicer cable.



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