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The Martens MW Loop Antenna.

This commercially available antenna has been used by European DXers for the past few years, and a few of them have now turned up in North America as well. It is a small unbalanced air-core loop (approximately 16" x 10"); it comes with a two MOSFET amplifier, which can be switched out if desired. An unusual provision in the amplifier is the option of regenerative feedback to sharpen selectivity and improve DX signal strength. There is no provision for tilting and rotation is effected by moving the loop around on whatever surface it is placed on. Both the amplifier and the two tuning capacitors (the second is for fine tuning) are placed within the winding, which runs counter to accepted North American loop design. Two IRCA members, George Hakiel and Don Moman own this loop, and thanks to them we have some comments regarding its usefulness.

Sensitivity---George feels that with the regenerative amp, the Martens has more sensitivity than the NRC 4' loop. Also because of the regeneration, tuning is sharper on the Martens loop than on the NRC loop. In fact, the Martens' bandwidth can be narrowed to about 1 kHz, and George has found that at his location, the extra selectivity is very useful for digging out foreign spits. The fine tuning capacitor can give a passband effect in this case.

After initial problems with his Martens loop (due to shorting turns apparently; tightening up the windings with spacers improved matters greatly), Don found that it was quite sensitive, more so than a Radio West loop, but not by an outstanding amount, and that regeneration did help to shave sidebands. However, the Martens was only useable out in the country. In the city, 99% of frequencies were unuseable because of cross-mod from the locals when using the amplifier; due to its small area, it is rather insensitive when the amplifier is not used. This would be a severe limitation for many city DXers. In general, Don has found that the unamplified NRC loop gives a slightly better signal to noise ratio than any amplified units.

Nulling---The NRC loop gives much better nulls than the Martens according to George, especially when the NRC loop is tilted. Tilting the Martens loop does not seem to improve its nulls particularly. Don has found poor nulling ability for the Martens within the confines of the metal and wiring of his basement, yet other loops give reasonable nulls there. Away from the basement however, nulls are quite reasonable.

Direction Finding---George states that the Martens is no match for the NRC loop here, because the Martens is an unbalanced loop.

Miscellaneous---Don felt the loop was quite well constructed overall, and particularly liked the gear reduction drives on the tuning capacitors. George adds these comments: "To make the Martens loop operate at its best, I have found out several things about it. First, one needs something to make it revolve--a large "Lazy Susan" is good. I use a small revolving table, being sure not to touch the loop, because it is sensitive to the touch. Make sure not to use a ground on the receiver--also, try to keep other antennas away from the loop. Sometimes grounding your outside antennas helps the loop null better. This is not always true. Both ways must be tested.

The most important thing that I have found about the loop's nulling ability is the distance and height that it is placed from the receiver. These two items are probably the reason for its rejection by many people. The height of the top of the loop should be 3 to 5 inches below the receiver. The distance from the receiver is variable--sometimes the nulls are better near the receiver, but this varies at different times of the day."

So--an interesting device whose principal selling points are sensitivity and selectivity but which falls down on strong signal handling and nulling. Regenerative loop amplification has not been investigated particularly on MW until now (Mark Connelly's APT-2 amplifier would be a possibility), although longwave loops have been built with regeneration by experimenters. More experimentation in this field is needed, particularly if we are to avoid overloading such amplifiers in our RF loaded urban environments.

Price of the complete Martens loop and other info may be obtained from Jürgen Martens, Adolf Damaschkestr. 32, D-7410 Reutlingen, 11, West Germany. Enclose an IRC or two...

His loop is a German made air-core model, 42x26x10 cm, known as the Martens Mittelwellen Rahmenantenne (would you believe "mediumwave loop antenna"?). The Martens loop owner needs to add a tiltable stand, and the loop doesn't appear to be designed for excellent nulling, though 45 dB with tilting isn't too bad. With the tuning capacitors and amp inside the loop, it runs counter to good design theory on this side of the water. It has a two FT amplifier (though can be used without), which boasts an adjustable feedback system, and allows up to 50 dB gain they claim; more important it can sharpen selectivity considerably, and Ben uses it to boost the selectivity of his receiver. Costs DM 110 (about US\$45). A 10 kw Thailand station has been heard in Europe using this loop with an SPR-4, so something must be right...

---R. West 224" loop tested here against the Martens loop; brief results: Equal signal output to Martens when that loop used without feedback; nulling on the R. West loop somewhat better. But when Martens loop has feedback switched in, it is much more sensitive and selective than the R. West loop.