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Radio West Ferrite Loop Antenna

by Don Moman

This loop uses a 22½ inch collection of ferrite rods for its core, and uses a 2 FET preamp. The stand is 12" high and the base is 8" square. The base rotates smoothly and the core tilts to further null out signals. The arrangement is simple and sturdy. No "top heavy" tendency is noted. (The SM-2 would fall over easily in certain positions when on a wooden desk; it has a magnetic base to clamp on top of a receiver to make it stable--my Drakes have aluminum cabinets however...)

Controls include the usual on/off, tuning and a lo/hi switch to expand the tuning range to cover a wider frequency range before you have to change coils. It uses 3 coils to cover LW, MW and SW. There is considerable overlap on the coils; the SW coil will tune from 6.2 MHz down to 1020 kHz for example. To change coils you loosen 3 screws holding the spade terminals from the coil, unsnap the ferrite core, slide one coil off and another on, put the core back in place, reconnect the terminals and you are now ready to DX. This is inconvenient but is the only economical way to do it. A little practise should get you into the under 30 second category!

Performance---My main antenna here is an 85' random wire about 45' high. We live in a high density RF environment; several 50 kw'ers nearby, so overload is a problem. My oscilloscope shows over 2 volts of RF being gathered by the random wire. The loop's ability to reduce the locals is very helpful. The depth of the null changes with different stations due to reflections, and distortion caused by the fact that my shack is in the basement. Average null depths are from 30 to 50 dB. The best I have gotten is 70 dB.

On longwave, the loop delivers about 20 dB more signal than the random wire, and is also quieter. Good nulls are obtained, usually down to just above the noise level.

On MW the loop still outdoes the random wire, by about 5 to 15 dB depending on the frequency. I recently had the chance to take it out of the city and do some listening in a quieter location. Results were very good; for example I was able to null out the 35 dB over S9 signal from WSM Nashville on 650 to the point where KORL Honolulu was quite readable!

The results on shortwave really impressed me. I had expected it to be marginal, but was pleased to hear almost equal signals on both antennas. Several stations which are just above the noise level were compared and found to be of equal quality on the loop and random wire. Nulls, of course, are nearly non-existent at these frequencies.

Complaints---The tuning dial is quite small, only roughly calibrated and is directly connected to the tuning capacitor. I would have preferred the method used in the Space Magnet: A small vernier dial which likely has about a 6:1 turns ratio would make peaking a station much easier. Also, the well marked 0-100 scale found on these verniers makes for a log scale that could be plotted vs. frequency. I find it very easy to peak the preamp on noise or images when, in fact, you are not peaked on the frequency that your receiver is tuned to.

A slightly more secure hold-down for the ferrite core could be used. The present system is like a large chassis mounted fuse holder. No handle is provided for tilting the loop so one grasps the end of the core to tilt it. At times the bar will work loose making it hard to get the best null. At times, ¼" can make a large difference in the null depth.

Performance vs. SM-2---CIDXer Brian Pimblett has a SM-2, so a comparison test was arranged. Tests were performed in the middle of a field, well away from buildings and wires that might cause noise and/or poor null characteristics. Results were very consistent so I will leave out the raw data and just give the results. On peaks, the Radio West loop was about 5 dB stronger. Nulls were also somewhat sharper and deeper, from 0 to 10 dB deeper than the SM-2. Most locals showed about 50 to 60 dB nulls. Tests were done on the Drake R-7, so all dB reading are from its S-meter; I feel that it is quite an "honest" meter.

Conclusion---The Radio West loop was priced at $145 when I got it, and at that time, was the cheapest multi-band loop when comparably equipped. The Palomar Engineers loop is cheaper if you get just the MW version, but when you add SW and LW the price rises quickly. (ed. note--When considering MW only the SM-2 is still the least expensive). You might build a better loop from plans given by MW clubs. However it would likely be a 4 foot job, and not everyone has room for one of those monsters! A decent preamp for the loop might also prove difficult to build unless you had some electronics background. Therefore, the Radio West loop is an answer for those who would rather buy than build a MW loop. I am pleased with its overall performance.

If you have questions or comments, they are welcome. My address is 6815-12 Ave., Edmonton, Alberta T6K 3J6, Canada.

(Yet another ed. note: Don also mentions that he has a Heath SB-620 panoramic display with all coils for sale at $225 Canadian, shipping extra. As I write this, the Canadian P.O. is once again on strike, so you might have to get in touch with Don at the Calgary convention. If and when the strike is settled, Don's address is above)