

the irca technical column



The masthead figure this time comes from an ARRL publication via Jim Herkimer. He uses it on his letterhead (most appropriate for an experimenter) and I couldn't resist using it once for the tech column. First off this time, we have an article from

Jim
Results Using a Random Wire Antenna
Phasing Unit by James G. Herkimer

I thought I'd attempt to re-open the book on phasing units. I am very happy with it. I used J.W. Miller Series 9350 molded coils for the inductors, available from Circuit Specialists, P.O. Box 3047, Scottsdale, AZ 85257. I am currently phasing an 85 foot longwire against the baseboard radiant heating system in our home, consisting of two loops of copper tubing encompassing the two floors of the house.

As Mark pointed out, the phasing system is excellent in reducing man-made electrical noise. This has been proven many nights when the loops here were rendered useless by the high noise levels, yet the phased "longwires" provided clear reception.

Here is a brief comparison of nulls vs. the popular Radio West MW-1 ferrite loop:

Station	Longwires	Radio West loop
550--WCR Buffalo	peak 70	peak 50
	null 20	null 30 (non-tilt)
930--WBEN Buffalo	peak 80	peak 80
	null 50	null 60
950--WBFB Rochester	peak 80	tilt 50
	null 40	tilt 75
990--WNYR Rochester	peak 90	null 55
	null 50	tilt 45
1460--WWMG Rochester	peak 70	peak 90
	null 50	null 65
1520--WKBW Buffalo	peak 80	tilt 40
	null 40	peak 80
		null 65
		tilt 65
		peak 80
		null 65
		tilt 60

The receiver used is an R-390A and units are in dB, taken from the S-meter. Of major interest is that I did not use true longwires. Apartment dwellers take note! My location is 17 miles south of Rochester, NY with WJAM's transmitter at 11 miles northwest. A further analysis of what is heard when the above stations are nulled follows.

- WGR-550 I would say that results with the phasing unit are equal to a loop, as at the bottom edge of the band the limitation of my relatively short antennas are obvious.
- WBEN-930 With the loop I can hear CFBC-St. John's, NF underneath. With the phasing unit, WBEN is nearly completely eliminated, leaving CPBC dominating the frequency.
- WNYR-990 This is my second most difficult local to null and I rarely get any kind of a null with the loop. With the phasing unit I can hear WZZD-Philadelphia and CBY-Corner Brook, NF, though not dominating the frequency.

- WBPP-950 With the loop I can hear WMJ-Detroit underneath, with the phasing unit, I can almost totally eliminate WBPP and leave WMJ on top and WJRX-Utica, NY underneath.
- WWMG-1460 With the loop I can hear a pile of weaker stations underneath, and at times some will make it through. With the phasing unit WWMG is nearly completely nulled, leaving WCMB-Harrisburg, PA dominating, and a host of weaker stations underneath. Under certain conditions it is possible to null both WWMG and WCMB.
- WKBW-1520 There isn't much to hear on this frequency, but KOMA will occasionally make it on the loop. With the phasing unit I am currently hearing a Latin, which I suspect is the Cuban reported by Chuck Hurton.

During the daytime I have great difficulty separating stations sharing the same frequency. It seems that the phasing system must separate ground-wave stations from those propagated via the ionosphere.

According to Mark's original article, the minimum length for unamplified "shortwires" is 120 feet. I think that explains why my system seems to fold up at the bottom of the band; I will be trying a pair of 120 foot longwires over the summer.

In conclusion, I think that a phasing system is a worthwhile addition to a DXer's arsenal. The concept of phased Beverages has been around for awhile, but the use of shorter random wires is relatively new, and there is still some room for experimenting along these lines.

