

An RF Microwave Signal Sniffer

... by John A. Jaminet, W3HMS

Often, I like to know immediately if my transverter or amplifier is QRV... 100% ...YES or NO ! In the past, I have found that it's possible to see a signal on a voltmeter from the MON jack on my DB6NT transceivers without in fact having an emitted signal. The fault was my antenna relay!

Thus I made a promise to myself that I would eliminate this circumstance once and for all. The means which I used is simple, effective and quite old in the history of radio. It is a field strength meter which works in the RF field close to the antenna, e.g., a few feet, and it operates without need of batteries, a power supply, or a resonant circuit.

In use, start a few feet from the feed and come closer to the feed. The circuit uses just 4 parts plus a radome. The most important part is the log-periodic antenna (LPD) imprinted on a piece of PCB and available in the USA and in England. The frequency range is 2-11GHz..

I spoke in February 2004 by EMAIL with the inventor/fabricator, Kent, WA5VJB, who told me that his model for 2-11GHz is ideal for an RF sniffer. The LPD is available by mail for US \$5.00 in the USA. Outside the USA, Kent told me he will accept 5 Euros per LPD in an envelope with a brief note indicating the quantity needed, your name, call, address, and of course your cash .. HI !

The circuit is so very simple: the center conductor of a piece of semi-rigid .085 coaxial line connects to a diode with output to a 25 (or so) micro-amp meter. A capacitor of about .001uF is connected between the 2 terminals of the meter and the outer conductor of the cable is connected to the other terminal of the meter. Meters of 50 or 100 microamps should be acceptable but less sensitive.

A simple radome for protection against poor usage of this sniffer is an old plastic peanut can which I emptied myself. This is hard but essential work ... if it is too tough for you, you may mail the peanut cans to me for emptying, HI! There is no attenuation according to my test on my 10GHz beacon where the same radome covers the slot antenna.

The sniffer is so simple to operate: start in front of your parabola at a distance of about 15 feet if you have some power (like 40 watts) or at a few feet with QRP and meander slowly towards your antenna with the polarization like your RF source. With 40 watts, I tend to back into the dish as I can avoid looking into the feed. You will know by meter movement when your signal is strong enough or you will have a clear sign that some work is needed on your MW gear!

There are two sources for the LPD : The UK Microwave Group and WA5VJB. His address is Mr. Kent Britain, WA5VJB, 1626 Vineyard, Grand Prairie, Texas, 75052-1405, USA. (or email him at wa5vjv@flash.net)

If you would like to talk with me on the topic, I am on EMAIL at W3HMS@aol.com.

73 and happy building, John, W3HMS

