PRODUCT REVIEW: ANTENNA RX NOISE BRIDGE,
Palomar Engineers model RX-100
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With all the new technology "appliance" radios on the ham radio market today it seems to me that the only area left for H.F. experimentation is antennas. Most hams have a SWR meter and perhaps a Wattmeter, but little else to perform tests on the antenna and feedline to learn its characteristics, resonant frequency, etc.

PALOMAR ENGINEERS' R-X Noise Bridge is not a new product - its been around for a long time. Basically, the Noise bridge will tell you if your antenna is resonant or not at any specific frequency between 1 and 100 MHz. If it isn't, the instrument will tell you if it is too long or too short. It works with dipoles (trapped and monoband), verticals, beams, quads, inverted Vees. If it resonates, the R-X Noise Bridge will measure it.

Your SWR bridge will show you a ratio like 2:1 but it won't tell you much more. The noise bridge measures both resistance and reactance and if the antenna is not resonant at the frequency you want, it will tell you how much of the impedance is resistance and how much is reactance. Unlike SWR bridges, the R-X Noise Bridge works with all coaxial feedlines.

The Palomar R-X Noise Bridge is easy to use. Install a 9 Volt battery. You connect your receiver or transciever to the SO-239 connector marked "RCVR" Make sure to turn the VOX off or you may be sorry! Connect your antenna with a short piece of feedline to the connector marked "UNKNOWN". Tune your receiver to the anticipated resonant frequency and turn the Noise Bridge on. A loud "rushing" noise will be heard. There are two controls on the noise bridge - R and X. Adjust these two controls for a sharp drop or null in the noise. You might want to turn off the receiver AGC for this test. The controls interact and should be adjusted alternatively.

The R control is marked from 25 to 250 and the X control is marked 70 to 70 with 0 being at the 12 o'clock position. Figures to the right of center indicate inductive reactance, left indicate capacitive reactance. After tuning for your null, read the two controls. If the noise bridge shows the antenna to be inductive it is too long for this frequency; capacitive means it is too short. If you want to find out the resonant frequency set the X control at 0 and the R control at 50 and tune the receiver for the null.

You can also measure the antenna when its up in the air, but you'll have to do a bit of figuring to take into account the feedline's electrical length. The manual will explain how to do this. You can also use the PALOMAR ENGINEERS' R-X NOISE BRIDGE to cut a piece of coax to exact quarter and half-wave lengths, measure feedline impedance, test baluns for frequency range, ratio and whether or not they are working. The manual outlines all these functions in a clear step-by-step fashion. In fact, the RX-100 comes with manuals in English, Spanish and Japanese. That's a switch!

PALOMAR ENGINEERS also offers a computer program called SmartBridge that makes using the RX-100 a lot easier to use and interpret. I will be reviewing it in the very near future.

I found the Noise bridge very easy to use and versatile as well. One of its uses is to set the controls on your antenna tuner without turning on your transmitter. Connect the "unknown" connector to your tuner. Set the noise bridge controls to X = 0 and R = 50. Tune your receiver to the desired frequency. Adjust the tuner controls for the noise null. Record the tuner readings for future reference.

The PALOMAR ENGINEERS RX-100 NOISE BRIGE is extremely well constructed. The case is cast aluminum, component parts are all very high quality and its obvious that it was built to last. At $80.00 it represents a good investment in a useful antenna measurement instrument that will prove useful time and time again.
