SGC SG-211 Automatic Antenna Tuner

The SG-211 has finally solved one of the annoying issues with remote automatic antenna tuners: *dc power*. With most automatic antenna tuners you have to string a dc power cable to wherever the tuner is located. Not so with the SG-211, because this little tuner is *battery powered*.

The SG-211 ships with a AA alkaline battery pack already installed in the case. SGC claims that the batteries will last for years of normal use. Obviously, I wasn't able to put this claim to the test!

Another interesting feature of the SG-211 is that it is designed to accommodate balanced feedlines (such as 450-Ω ladder line) and long-wire antennas. The SG-211 will also work with unbalanced feed lines (coaxial cable) if you wire up an SO-239 connector as an adaptor.

Installation and Use

Since you don't have to worry about supplying power to the SG-211, installing the tuner is as simple as it gets. Should you ever need to refresh your memory, you'll find clear instructions printed on the case itself. There are no buttons or adjustments of any kind. Attach the coax, attach the antenna, apply RF and the SG-211 tunes.

The SG-211 has a frequency range of 1-60 MHz, so it is compatible with popular MF/HF/6-meter rigs. It is important to point out, however, that the SG-211 is designed to handle only 60 W PEP or 20 W continuous duty. This means that you have to be careful when using the SG-211 with 100-W transceivers.

My first on-air test was with radioteletype (a 100% duty cycle mode) using a 70-foot ladder-line fed dipole antenna. Taking care to keep my transceiver output below 20 W, I keyed the rig on 160 meters and listened as the '211's relays chattered away. The LED on the front of the '211 flashed several times, then the tuner fell silent and the LED held steady—the SG-211 had found an acceptable match resulting in a 1.5:1 SWR.

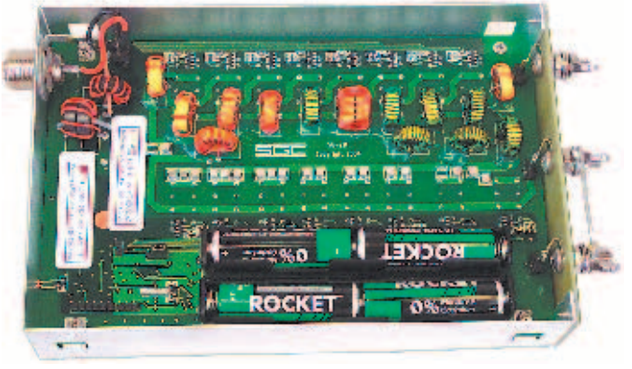
The SG-211 found a match on every band, 160-6 meters, although some complex impedances seemed to be more challenging for the little tuner than others. In this initial test, I was able to trigger the SG-211 into its tuning mode with my RF output reduced all the way down to 1 W.

In subsequent tests on SSB and CW, I found that it was best to tune the SG-211 using the mode I intended to operate. For instance, I once tuned the SG-211 using RTTY, then switched to SSB. To my dismay, the SG-211 entered the tune mode again as soon as I began talking. On the other hand, if I used SSB to trigger the tuner from the beginning (by saying "hellooooo," etc), the SG-211 was less prone to jump to the tune mode when I was transmitting normal speech.

ARRL Lab Testing

With a 50-Ω load on the bench, the RF loss in the SG-211 averaged 15% on 160-6 meters. Using a 3-Ω load, the Lab measured loss of about 30% on 40 and 20 meters, and about 20% on 10 and 6 meters.

Finally, with an 800-Ω load, the loss was measured at 30% on 160, 80 and 20 meters, and about 20% for 40 meters. The loss caused by this severe mismatch on 6 and 10 meters was 65%.



Interior view of the SG-211 antenna tuner.

Conclusion

The SG-211 is an important innovation in automatic antenna tuners. The tuner is bound to appeal to portable operating enthusiasts, but I think it also has excellent potential for hams who must enjoy their avocation from apartments, condos and other antenna-restricted settings. You can toss the SG-211 into a small attic, or outside a window, with a wire antenna and get on the air right away. Just remember that the SG-211 is not weatherproof, so you'll need to provide a waterproof enclosure if the tuner is going to be outdoors around the clock.

And what about the RF power limitation? In my tests, I was making just as many contacts with 60-W PEP SSB as I was at 100 W. Using 20 W for RTTY and PSK31 certainly was a serious step down from 100 W, but I only noticed the difference when propagation was marginal, or when the band was crowded.

Manufacturer: SGC, 13737 SE 26th St, Bellevue, WA 98005; tel 425-746-6310; **www.sgcworld.com**. *$179.95.*

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