

The SGC SG-2020 With ADSP: A User's Report

The buzz around the amateur radio community has been revolving around the HF bands. I am sure this is clearly a result of license restructuring which has made it a lot easier getting on the HF bands. All of the marketing departments at the various manufacturers have been working overtime to get you to buy their products. At the last Dayton Hamvention the hot item was a self-contained backpack QRP HF Yaesu radio stocked with a lot of bells and whistles.

I had originally gone to Dayton hell bent on bringing back one of these 817s. That all changed the moment I walked into the SGC display area and laid my eyes on the SG-2020 with Adaptive Digital Signal Processing.

Before we take off on this HF adventure, let me give you a little information about my background. I have been an avid radio monitoring hobbyist for over 20 years and a licensed amateur radio operator since 1997. While I possess a bachelor's degree in television and radio production I have fed myself by earning a living in the automotive industry. While this is my first product review for *Popular Communications*, my name may be familiar to you from work that has appeared in other publications or my involvement in various Internet reflectors. In other publications I have made the following statement, and I will say it again: I am not a technological wizard, but I am an appliance user. What is important to me when evaluating a piece of equipment are the things that I think will be important to the average Joe on the street. Does the equipment operate as advertised? Is it easy to learn how to operate the equipment? Does it provide a good value for the dollars spent?

Who Is SGC?

For about 30 years SGC has been developing, manufacturing, and selling high-performance single-sideband communications equipment to the marine, military, aviation, and industrial markets. According to their product literature, their equipment is currently being used throughout the world by the United

Nations for inter-communications in developing countries. Many competitive racing vessels, as well as fishing boats, tugs, and commercial craft are equipped with SGC equipment. In fact, they introduced the first mass produced HF SSB rig for the marine industry. It is interesting to note that all SGC equipment in manufactured right here in the good ol' US of A.

SG-2020 Features

The SG-2020 is not just another amateur radio product. It is a commercial-grade transceiver designed for a whole gamut of HF uses including amateur radio.

While not certified by the FCC and FAA as type accepted for these uses, the SG-2020 was designed for aviation use. The radio fits snugly in the standard aviation panel with a width less than 6 inches. The unit's low-power consumption will allow it to work when other electronic gear if the airplane may fail. In addition to aviation use, the SG-2020 is ideal for marine and commercial use.

For our amateur radio use, the SG-2020 will fit the bill for base, mobile, or portable use. For base use, you will find a very functional fold-down foot with rubber end for furniture protection. This foot sets the SG-2020 at just the right angle for desktop usage.

There are 20 user selectable memory channels available for storing your favorite operating frequencies with the ability to scan these memories. Its operating frequency range is 10 through 160 meters, and the receive range is from 1.8 to 29.7 MHz (400 kHz to 1600 kHz with the broadcast filter bypassed.)

While the specifications state that the PEP on the radio is 20 watts, the amplifier has the stress power capability of 40 watts. Therefore, in mid band you will exceed the specified 20 watts. Low-power requirements and current consumption allow this radio to operate under conditions where others wouldn't. While a power source of 12 volts DC would be the norm, the SG-2020 will operate off any DC power source providing nine to 18 volts DC capable of pro-



Here's a look at the compact, yet very potent, SGC SG-2020.

viding up to five amps peak when operating the transmitter at full power. In the receive mode, a power supply with a rating of one ampere should be sufficient. In fact, I am told this unit will even receive with a power source only providing 400 mAh. It is interesting to note that the SG-2020 has an internal self-recovering five AMP fuse.

Other Features

Antenna Coupler — By momentarily depressing the "PBT" push button and then pressing the push-to-talk button on the MIC the CW tone to allow an external automatic antenna coupler to tune. The SG-2020 ADSP will transmit the tone as long as the MIC is depressed.

Modes — As stated earlier, phone or voice communication is only accomplished in either upper or lower side-band. If you are looking to work AM or FM, this is not the radio for you. Your favorite SSB frequencies can be stored in up to 20 memories.

OK, so maybe voice communications isn't your cup of tea. Have no fear, there is a built in iambic keyer that is adjustable from five to 60 words per minute. The bandwidth can be adjusted from 300 Hz all the way down to 100 Hz. There are facilities to operate CW with a paddle, straight key, or even by pressing the PTT switch on the MIC.



The radio can be outfitted in the field either by using your own power source or SGC's "SG-2020 Battery Pack Option" Catalog #05-33 which includes a battery container (05-37) to hold ten "D" cell batteries (batteries not included) and an adjustable carry case strap for hand or shoulder. Also, Check out SGC's new addition to it's family of accessories, a waterproof carrying case for the SGC 2020.

So, right out of the box you can be operating SSB phone or CW within minutes. But, maybe that isn't your bag either. Well, with an optional HF data modem, such as the SG-7200, you can operate many data modes such as packet, RTTY, WEFAX, PSK-31, and NAVTEX. The bandwidth is adjustable from 2.7 kHz to 100 Hz.

The SG-2020's Fit And Feel

Even before you unpack the SG-2020 you will notice that the box it comes in may be somewhat different from what you are used to seeing. No, there are no fancy promotional graphics on the box, but what you will see on the inside cover is a quick-start operating guide.

The installation and operations manual is about 90 pages of spiral-bound material printed on 8 x 11-inch paper. The print is rather large and easy to read. Information is straightforward and laid out in an easy-to-understand format.



A look inside the SG-2020.

SG-2020 ADSP Specifications as Claimed by the Manufacturer

General:

General Operating Modes: USB, LSB and CW

Frequency Range: 1.8-29.7 MHz—Full Frequency Coverage

Dimensions: 7.25 L x 6 W x 2.75 H (18.5cm x 15cm x 7cm)

Approximate Weight: 2.5 lbs. (1kg)

Receiver:

Pass band tuning sensitivity: Better than .3uV for 6db S/N

Intermodulation: +18dBm 3rd order intercept

Tunable A.F. bandpass: 100-2700 Hz

Total consumption in Receive: Typical 400mA

Transmitter:

Transmitter power: Adjustable from 0-20W PEP output

RF Speech Processor: VOGAD baseband processing and RF clipping

DC Voltage: 10-18 VDC

Add. Current Consumption: <150mA

Tone Rejection: Better than -57dB

Dynamic Noise Rejection: Better than -18dB

Operation for both modes: On/Off

For additional specifications, consult SG-2020 and SG-2020ADSP manuals available for download at www.sgc-world.com

Once you pull the radio out of the box you will most certainly notice that this is no ordinary amateur radio. It clearly looks and feels like a piece of commercial or military-grade communications equipment.

The front panel is uncluttered with a minimal number of push buttons and the display is easy to read. There is an LED bargraph Signal Strength Meter above the tuning knob. The tuning knob is adequate considering the small size of the radio, a far superior knob compared to the knob you will find on the Yaesu FT-817. However, both myself and several my associates have agreed that there should be some type of indentation included on the knob for easier tuning capability. By holding down the FAST button while rotating the tuning knob, the tuning rate will be set to one of four values; .1kHz, .5kHz, 1.9kHz, or 10kHz. The normal tuning rate is 1 KHz in 10Hz steps. While it would have been nice to have a keypad for direct entry of frequencies, it would require space on the front panel to do so.

To change from one band to another, use the memory channels. It comes pre-programmed with 20 memories that cover most ham bands. These can be changed to whatever frequency on any band that you choose.

- Note: Each button has more than one function. Various functions are accessed by the use of the command (CMD) button and various combinations of keystrokes. You are going to have to keep the operation manual handy until you learn these or better yet, type up a cheat sheet for yourself.

At only 4.4 lbs. this 2.75 inch high by 6 inch wide by 7 inches long HF box is not only perfect for vehicular installations, but it will fit nicely in various types of bags or packs for portable

field use. In fact, SGC manufactures a great container that will hold 10 “D” cell batteries with an adjustable strap for hand or shoulder use. However, this option does not come cheap as it carries a hefty price of \$550 — yes, that is just for the battery case! When I questioned Mathew Gary at SGC about the prices of the accessories, I was told it was due to high production and design costs as well as costs associated with low production demand.

SGC manufactures many interesting options and accessories that are worth looking at, but again, keep in mind that they come at a high price. Visit their web site at ww.sgcworld.com or call at 1-800-259-7331.

Warranty Information

The SG-2020 comes with a 90-day parts and labor warranty with an option to extend that out to three years for an additional \$139.95. At \$795, the MSRP on this unit falls in line with the Yaesu FT-817.

Whether you are a QRPer or just someone looking for portability, the SG-2020 will provide you with years of rock-solid enjoyment. I have used this unit for over a month now in several different locations, including the Long Island Mobile Amateur Radio Club’s Field Day site. Reception is right on the money and the audio quality coming from the five-watt speaker is crisp and clearly audible. While I did have a little trouble getting through some of the field day pile-ups, on a normal day I was able to maintain QSOs worldwide. While it may not be all things to all people, this unit is has a simple learning curve, easy to operate, and solidly built. ■

*(Reprinted with permission from CQ Communications.
Article from Popular Communications, May 2002)*