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SGC SG-2020 QRP Transceiver

Ham Radio Today is the first magazine to take a sneak preview at

Last spring, the American company SGC Inc announced its acquisition of Index Laboratories, the makers of the Index QRP HF transceiver and subsequently the QRP Plus. Although very popular and well-respected in QRP circles, the Index Plus in many ways became a victim of its own success. The designer, Bruce Franklin, was operating from a small factory unit in Canada. He was having problems in meeting the growing demand, and had no capacity for future product development. For these reasons he eventually decided to hand over control to SGC. This left Bruce free to concentrate on the new design, to be known as the SG-2020, whilst SGC organised the production and marketing.

Delivery of the new SG-2020 was scheduled for September 1997 but then SGC announced the product release would be delayed until January of 1998.

In fact it was not until the beginning of March that the first pre-production unit reached the UK distributors, Waters & Stanton, with a request from the factory that it be returned within a few days together with an assessment report. Whilst this shows determination on the part of SGC to make sure their product fully measures up to its promised performance, it only gave *Ham Radio Today* a day to carry out a sneak preview.

features

Weighing in at nearly 2kg, it's no lightweight but its size is an acceptable 70H x 152W x 178Dmm. Built into a die-cast case and finished in mid grey, it certainly has the appearance of a rugged unit and perhaps reflects the manufacturer's strong presence in the professional market place.

The SG-2020 offers SSB and CW operation on all ham bands from 1.8 to 30MHz and a gen-

eral coverage receiver throughout the range. AM reception would have been nice for broadcast listening, but at least you can switch between USB and LSB anywhere in the range, something you couldn't do on the old Index model. Power is quoted as 20 watts maximum with continuous control down to zero (see later comment), a feature which is a must for any serious QRP transceiver. The microphone supplied is a dynamic fist type, which looks somewhat large when placed beside the transceiver. The built-in speaker provides 1 watt of audio output, and the LED meter serves to indicate signal strength and RF output. All control buttons are of the rubberised type with rubberised surrounds for the main tuning dial, volume and RF controls.

Twenty programmable memories are provided and split frequency operation is possible using the RIT and XIT facilities.

For the CW operator, a built-in iambic keyer is included with full break-in and a speed range of 5 - 60WPM. Current drain on standby is a very modest 430mA from the nominal 13.8V input requirement.

design

The receiver is a single conversion design with a 60MHz IF, the selectivity being achieved by a seven pole ladder filter followed by variable SCAF digital filters that cover the range 2.7kHz down to 100Hz. RF signals from the antenna terminal are fed through switched filters, common to both transmit and receive, and then directly to a double balanced mixer. SGC claim their front-end design has a wide dynamic range and this combined with a single conversion design and low noise synthesiser makes for a very clean receiver. Transmitter design is conventional with RF speech processing and a well-

rated 40 watt PA that easily handles the 20 watt design requirement.

switching on

As time was short, it seemed sensible to try the transceiver on the air and see how it would cope with today's crowded bands and some of the strong signals on 7MHz. The SG-2020 was connected to a multiband dipole at 40ft. The tuning proved to be very smooth and the LCD display with the switchable backlight gives a readout accuracy to 100Hz. Tuning steps are not quoted but appeared to be 10Hz. The recovered receiver audio was clear, with more than adequate output to the internal speaker. By pressing the BW control and rotating the main dial, the bandwidth is variable in 1kHz steps from 2.7kHz to 1kHz and then in 100Hz steps down to 100Hz. This makes adjustment very quick and easy, and in a similar manner pass-band

tuning and band changing can be achieved by pressing the appropriate button and rotating the main dial. There is no RF attenuator, but the RF gain control seems to provide more than adequate attenuation at the mixer and the receiver showed no signs of distress when tuning weak signals on a busy 7MHz band at night. Sensitivity also seemed more than adequate with a lively feel right up to 10 metres - even though there were no signals to be heard other than the noise of passing cars (and the noise blanker handled this!)

Power output is controlled in 1 watt steps from 25 watts down to 1 watt with digital confirmation in the LCD window. Although the minimum power setting in the LCD window is 1 watt, it seems that further rotation of the power control reduces the level down to about 500mW. Running 20 watts SSB on 80

metres the first reply gave an RS 59 and reported excellent audio. This was followed by a contact who reported the audio as being "very natural." There is no external control for microphone gain and one must assume that the RF speech processor is permanently switched in, as there was no obvious way of selecting it and no clue given in the draft instructions. Several QSOs followed on 20 metres with similar success.

On CW, the keying characteristics appeared to be good and the built-in keyer behaved very much like those in many of today's popular rigs. The manufacturers claim full break-in although in truth there is a small delay. The sidetone level is controlled by the receiver AF gain and nicely matched the received audio level. It seems that there is no way to adjust the dot / dash ratios but the factory settings appeared to be perfectly acceptable.

summing up

The first impression was of a transceiver that was simple in design, yet technically advanced. The single conversion and the apparently excellent dynamic range offers a package that almost any QRP operator would be happy with. Indeed, with a beefed-up power output it would probably perform very well as a main base station transceiver.

The introductory price is £599 inc VAT, and at about two-thirds of the price of its predecessor, it certainly offers excellent value for money. It would also seem to offer possibilities for mobile operation. Out thanks go to Waters & Stanton PLC for making it possible to be the very first magazine to get our hands on this lovely little radio. At the time of writing, the importers expect the first production units to arrive in the UK in early April.

SGC SG-2020 QRP Transceiver

this new rig designed specifically for dedicated QRP types

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