

A COMPARISON OF FIVE RECEIVERS

by Glen Kippel

From the dawn of recorded history it has been customary for DXers to debate over which receiver is the "best". As I was servicing Gene Martin's HQ-180C some time ago, the thought occurred that it would be interesting to compare this highly-rated receiver with the SP-600-JX17 and R-388 already in the shack, as well as the RAX-1 and Superadio 7-2880B that were also on hand.

It must be understood that the HQ-180 was freshly aligned and apparently the tube lineup was also optimal, although completely stock. The SP-600 has been slightly modified, mostly through the substitution of high-gain pentodes for the original 6BA8 tubes in the two RF amplifiers and first IF. It also is kept aligned down to a gnat's eyelash. The R-388 has also been aligned well and the tubes seem to be OK.

The RAX-1 is the "dark horse" entry in our competition. It was part of a WW-II RDF system and it's surprisingly sensitive for its size; 21 countries have been heard on it. The G.E. Superadio was included as it is fairly well known and would make a good "yardstick" for comparison.

To compare ECB sensitivity, several weak stations were tuned in in the daytime hours, avoiding the fading which could make it difficult to compare signals. The antenna used was a single-turn loop oriented east-west, except for the Superadio which was using its built-in antenna. Selectivity was set at 1 kHz on the HQ-180, 1.3 kHz on the SP-600 and "2" on the R-388. The S-meter scales were totally different on the respective receivers (where applicable). The HQ-180 scale reads from S0 to S9+40 dB; the SP-600's reads from -20 to +100 dB from one microvolt; and on the R-388 the RF input meter has a 0-100 scale. Because of this, readability is indicated for comparison. The results are shown in Table 1.

The R-388 is shown here to be relatively insensitive, perhaps not coupling well to the loop's impedance. Its rated sensitivity is 7.5 microvolts on ECB; considerably less than the rated sensitivity of the Hammarlunds.

KTHO 590 was in the null of the large loop and since the Superadio used its own built-in ferrite loop, it may not have been nulling the signal well.

Since there were no TP's audible on ECB when selectivity tests were undertaken, a few TP's were tuned in on 90 meters, using a 50-foot wire antenna. The RAX-1 and Superadio were exempt from these tests due to their frequency coverage. The actual selectivity test is the ability to tune in RRI Kupang on 3259 (shown in WRTM to be 1 kW) adjacent to R. Madang on 3260. It was found that the heterodyne could be eliminated on the HQ-180 by using the sideband selector but the slot-filter was considerably easier to tune. The SP-600 has been shown in other situations to null 1-kHz heterodynes more easily on the low side, so perhaps some adjustment could be made to the crystal filter symmetry. The results of these tests are shown in Table 2.

To test skirt selectivity and AGC desensitization, KKFO 1470 was tuned in adjacent to KYOS 1480, which is about four miles away from the receivers. The effects of front-end overload were shown by disconnecting the 50-foot wire and using a 2-foot clip-lead for an antenna. The Superadio was rotated to null KYOS. The effects of the SP-600

modifications are shown here, in that they are designed to make the receiver suitable for small antennas in exurbia but probably wouldn't be of use in the middle of Los Angeles or some other large city. It was found that the best quality was on the HQ-180 with the selectivity on 3 kHz and the lower sideband selected.

Readability was estimated as follows: 25% = poor; 50% = fair; 75% = good; and if 100% of the words were readable it was considered excellent. Table 3 shows the results of this test.

It can be seen that the various receivers each have their good points. The HQ-180 is certainly very sensitive and selective; the SP-600 (as modified) looks to be the most sensitive; and where the R-388 is lacking in these, its SW sensitivity and accurate frequency readout make it useful for tuning SW parallels. It was interesting comparing these receivers and if anyone wants to lend a Frog, Nerd, R-390A, etc. for further comparisons that would be most entertaining.

Table 1.

	SP-600	HQ-180	R-388	RAX-1	7-2880B
590	+60p	S6	0	—	—
KTHO	fair	traces	traces	traces	fair
700	+60p	S6p	0	—	—
KFAM	faint	traces	nothing	carrier	nothing
720	+65	S7	0	—	—
KDWN	good	poor	fair	fair	nothing
760	-6	BFO	0	—	—
KFMB	faint	nothing	nothing	faint	nothing
770	-4	S6	0	—	—
KOB	faint	carrier	nothing	vy faint	nothing

Table 2.

	SP-600	HQ-180	R-388
3245	0	S9p	+2p
R. Gulf	poor-fr	poor	poor
3259	+55p	S8p	?
RRI Kupang	poor/het	poor-fr	het only
3260	+60p	S9p	10p
R. Madang	poor-fr	fair	poor
3335	+65p	+10p	20p
R. E. Sepik	good	good	good

Table 3.

	SP-600	HQ-180	R-388	RAX-1	7-2880B
clip lead	fair-gd	good-exc	fair-exc	poor-fr	
50' wire	poor-good	poor-good	insud-fair	inaud-poor	good-exc