



REVIEW

The Tecsun R-919 (That's Chinese for "Grundig Mini 300PE")

By Eric Bryan

You may remember joining me in September 2005 in my pursuit of the poor man's pocket radio. As I continued my exploration of the world of low-cost pocket SW sets, I bought the Tecsun R-919, which is sold stateside by Eton as the Grundig Mini 300PE. This radio was part of the Grundig Mini World 100PE family (there was also a Mini 200).

Opening the box shipped to me from Hong Kong, I found the radio, earbuds, wrist-strap, a thick neoprene holster, and a clip-on wire antenna of a little under 13 feet. The wire has a durable coating/insulation and a wide alligator clip tied to its far end.

One surprise was the unit's finish: The fruity yellow-orange color I chose is actually a rubberized coating covering the plastic cabinet. This is a plus, as other low-cost Tecsun radios' paint jobs tend to wear off. Also, the exposed plastic pieces are molded in the true finish color, unlike the anemic color approximations of the plastics of other low-cost Tecsun units. It looked great.

The R-919 has a vertical layout, so, though it has two feet for standing on, it tumbles easily. It's best for handheld use.

Table 1: FREQUENCY COVERAGE

Specs	"Drifted" Coverage
86.1-108.4 MHz	85.9-108.5 MHz
516.5-1639.5 kHz	512-1634.5 kHz
5825-6425	5795-6395
6945-7525	6910-7490
9255-10100	9200-10050
11510-12310	11460-12255
13195-13920	13140-13865
14980-15975	14920-15910
17375-18160	17390-18095

❖ Coverage

The R-919 is a single conversion analog radio fitted with digital readout (an update of the old frequency counter). It covers MW, FM (stereo via earbuds), and the 49, 41, 31, 25, 22, 19, and 16 meter SW bands. Coverage is listed in Table One.

But the R-919 is drifty on SW, where each band can "slide and stretch" up or down by 20 to 50 kHz. Table One also shows sample coverage after a long bout of drift (MW and FM show a slight alteration, too).

The coverage drifts downward in temperature increases and upward in temperature drops. The top of 41 meters crept to 7545 during a



chilly period. And once, when it topped out at 7510, half an hour in the freezer stretched that to 7600!

Drift lessens or stops when using the radio for awhile in a stable, room-temperature envi-

Table 2: RECEIVED STATIONS (kHz)

Austria	.....	9870
Bulgaria	.....	9700 11700
Canada (CHU)	.....	7335
Croatia (via Julich)	..	9925
Cyprus (BBC relay)	..	9410 9875
Egypt	.....	7260
France	.....	7135
Gabon	.....	15475
Germany	.....	15205
Greece	.....	7475 9420
Holland	.....	9895
India	.....	9425 11620
Israel	.....	9345 15640 17535
Italy	.....	11800 15380
Jordan	.....	11690 11960
Kuwait	.....	11675 15505
Madagascar (Radio Nile)	.....	12060
Mexico	.....	6185
Morocco	.....	15345
Portugal (DW)	.....	11955
Saudi Arabia	.....	13710 15435
S. Africa	.....	7390
Spain	.....	5970 6125 15110 17850
Sri Lanka (RFA)	.....	9350
Tunisia	.....	7190 7275
Turkey	.....	9460 15350
Vatican	.....	7250 7305 9645
? (SW Radio for Zimbabwe)	.....	15145



ronment.

The R-919 has less coverage of 41 meters than the 100PE, which receives stations in the 6800-6900 and 7500-7600 ranges. On the other hand, the 100PE doesn't cover 22 meters.

❖ Controls

Just the basics: volume and tuning dials, a band selector slider, and an on/off button. The other buttons are for clock, alarm (radio only), and sleep function set and activation. (The 100PE has no clock, alarm, or sleep features.)

The tuning dial operates traditionally – up is down, down is up; the volume dial works unconventionally – up is up, down is down.

Setting the clock functions was straightforward. The clock is in the 12-hour format, with PM indicated. The sleep function can be set from one minute, to one hour and 59 minutes. The default setting is 59 minutes. Clock and alarm times must be set with the unit off.

When turned on by the alarm, the radio will run for an hour, then shut itself off unless you turn it off sooner.

For a pocket set, the R-919 has a somewhat "augmented" telescopic antenna. (Eton describes it as "oversized" on their website, <http://www.etoncorp.com>). Rather than collapsing flush into the cabinet, it retracts into a molded extension which protrudes about 2.25 inches. This accommodates the oversized antenna, which can extend to almost 19.75 inches beyond the protrusion. (The 100PE's antenna goes to 14.5 inches.)

The best part of the controls is the tuning



dial. It has the nicest action of any of the inexpensive compact sets I've tried. It has no wobble, looseness, or backlash, with a just-right, tight, smooth, oiled feel.

The tuning dial is of a fairly big diameter, probably twice that of the 100PE. The tuning works well on SW and FM, but is jumpy on MW, where a 1/4 twist of the dial can launch you 40-60 kHz.

❖ The LCD

The LCD screen displays the clock (only with radio off), shows icons for alarm and sleep functions, identifies the received "band" (FM, MW, SW), and reads out the tuned frequency.

The frequency is given in MHz on FM and SW, and kHz on MW. For SW channels ending in 0 kHz, the zero is dropped (11.960 MHz reads as 11.96). But for channels ending in 5 kHz, a half-sized number 5 appears (for 11.965 MHz, a small 5 shows just to the right of 11.96).

For MW tuning, this 5 appears as .5 kHz,

and on FM as .05 MHz.

The frequency display reads 5 kHz high on all SW bands, .5 kHz high on MW, and .05 MHz high on FM. It's easier to get to your chosen station with this system than with slide rule-style tuning. But the slightly inaccurate readout is frustrating, since being consistently high throughout means it could just as easily have been consistently correct throughout.

This smooth analog tuning with correct digital readout would have been a treat.

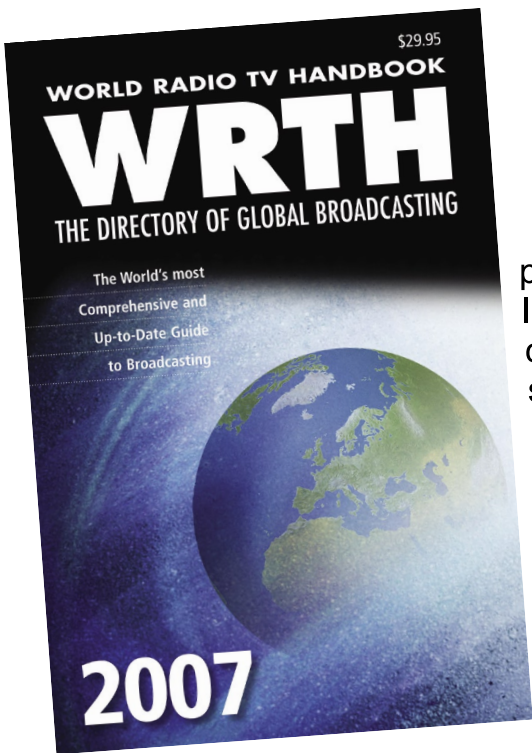
❖ Sensitivity

All the heavy-duty SW relays such as the BBC, Radio Netherlands, Voice of Russia, etc. are easily listenable with the telescope antenna. For weaker signals, I experimented with attaching 21 and 35 foot wires to the built-in antenna (trying both loose coupling and direct connections).

The best SW reception was had by clipping the R-919's included shorter wire to the fully extended telescope antenna and stringing it up randomly. I was happy to pull in the sometimes fairly exotic stations shown in Table Two with this simple, compact arrangement. (Most were audible with just the built-in antenna, too.)

I also heard a ham from New York on 41 meters AM (listening from the Northwest).

Though I had similar reception results with the 100PE (including hearing a ham from Maine on 41 meters AM), the R-919 has an improved 49 meter band. The images which wrack 49 meters on the 100PE aren't there on the R-919. The R-919 is also more sensitive on 49 meters



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than the 100PE.

On SW and MW the R-919's LO (local oscillator) radiates at the radio's 455 kHz IF (intermediate frequency) above the tuned frequency (i.e., tuned to 10000 kHz, it sends a zeroed signal at 10455 kHz). Images are projected 910 (455 x 2) kHz below strong signals. This way, they fall mostly outside SW broadcast bands.

The 100PE is the same except on 49 meters where its LO "transmits" at 455 kHz below the tuned frequency. Its 49 meter images are from strong 60 meter signals plus twice the unit's IF, or 910 kHz.

The 100PE has a ghost of WWV 5000 at 5910, one of a station from 5070 at 5980, and another from a 5085 signal at 5995. The latter two wreak heterodyne havoc with the BBC on 5975 and Cuba on 6000, respectively. It's a relief to be free of those 49 meter messes on the R-919.

As on the 100PE, I could hear the sounds of Radio Thailand's 5890 California relay and gospel stations from 5755 or 5935 in the background at various places up 49 meters. This was eliminated by unclipping the wire antenna.

When Radio Thailand's 5890 relay signal was particularly crushing, I could hear their interval signal of massive ringing bells in the background on 7415. This disappeared when I unhooked the wire.

Because of its vertical orientation and so necessarily small ferrite stick, I didn't expect much from the R-919 on MW. I was surprised when I heard a distant, weak station on 1300 with my local one blasting away on 1330.

Though the telescope antenna is meant only for FM and SW, extending it assists MW reception. And clipping the wire on helps substantially in pulling in weak, distant MW signals.

There are some spurious signals on MW from strong 49 meter transmissions: KAIJ or WWCR on 1615 kHz from 5755 or 5935, WWCR on 1634 kHz from 5810, and Radio Thailand on 1356 from 5890. (With the wire attached, the 100PE has the same spurious signals on MW.)

These were greatly reduced by unclipping the wire, and eliminated by also collapsing the telescope antenna.

Like most small SW radios, while holding it and receiving via the built-in antenna, your body assists reception. The Grundig 300PE manual even states, "Holding the radio while listening to shortwave will improve signal strengths." Medium strength and weaker signals flag or disappear after setting down the set. This is eradicated when the wire is clipped on. The telescope antenna is adequate to bring in more powerful stations when the radio isn't being held.

❖ Selectivity

The R-919 has no trouble picking out signals spaced 10 kHz apart from each other. A signal with one of comparable or lesser strength 5 kHz away can be plucked and listened to, with a little skill and patience.

I was able to listen to a good signal over the telescope antenna from

AIR India on 9425 while there was another of comparable strength on 9430.

❖ Audio

The R-919's small speaker sounds a bit more full and powerful than the 100PE's. On a strong Radio Netherlands, Radio Japan, VOA, or BBC etc. signal, the speaker is loud and vivid enough for listening to while working in the kitchen or lying in the bath.

Sound, including FM stereo, is good through the earbuds. Substituting the higher quality earbuds from a DE1103 produced excellent FM stereo and extra richness and clarity on SW and MW.

❖ Alarm & SW Drift

Since the R-919 isn't a PLL tuned receiver with memories, the radio-alarm can only come on at the presently tuned frequency. But on SW, that's not quite what it seems:

At bedtime I tuned the R-919 to 7160 (7165 on this unit), and shut it off. Instead of the World Service the next morning I got a blast of static. The radio had come on at 7200.

I tried it again the following night. I tuned to 6195 for the BBC, and in the morning was greeted with hiss on 6235, 40 kHz off again. Yet another try for 6195 gave me 6225 in the morning, 30 kHz off.

Giving MW a shot, I tuned to 1090, and in the morning it came on at 1090 perfectly. The alarm also worked on FM, where tuning to 88.5 had it coming on at 88.5 exactly.

❖ Overall

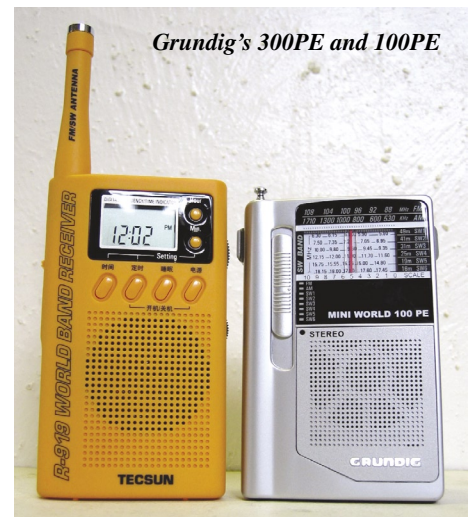
The R-919's biggest drawbacks are SW drift and limited coverage of 41 meters. Since it's mostly a handheld, hands-on radio, SW drift shouldn't be a deal-breaker.

The ergonomics are nice, especially the tuning. Analog tuning with digital readout is the ideal marriage for bandscanning. It's much easier to use than muted, press-and-pause, button-only digital tuning.

A press-on backlight and exactly-right LCD frequency readout would have been grand.

Other than the "clipped" 41 meter band, the R-919/300PE is an improvement on the 100PE.

For sitting on the porch or in an easy chair,



with the wire clipped on and the other end clamped to a tree branch or curtain, the R-919 is ideal for scanning and listening on most of the major SW broadcast bands.

Because of its durable coating, simplicity of operation, and the bright colors in which it's available (Eton also offers the radio in blue, red, "bronze," and "pearl"), the R-919/300PE would be a good first SW radio for kids.

❖ Where to Buy

I bought my R-919 from eBay seller Liypn for \$17.90 (it's now \$18.90, yellow or black only color options), plus \$11.90 shipping (7-10 days' delivery to the US), which includes a one year manufacturer's warranty from date of shipment. For under \$30 Tecsun gives you everything in the box you need except batteries to hear SW stations such as those listed in Table Two, depending on your location.

Eton advertises the Mini 300PE for \$30, which includes holster, earbuds, batteries, one year warranty, and their excellent customer support service. (Their website www.etoncorp.com and manual make no mention of a wire antenna.)

(For a similarly-priced and -performing but PLL-tuned pocket SW radio, see the Kaito KA105 at Radios4You.com.)

Thanks to Liypn for supplying the R-919 specs in Table Three, which he acquired from Tecsun.

TABLE 3: SPECIFICATIONS

Sensitivity:
FM < 10 μ V
MW < 1 mV/m
SW < 50 μ V
Selectivity:
> 20 dB
Speaker:
Two inch, 16 ohm, .5 W
Earphone:
32 ohm
Power Source:
Two AA cells, 3 VDC
Dimensions:
Approx. 6.6 x 2.5 x .9 inches

