The Sony ICF-2010

by Sheldon T. Hall

Before I tell you about the setup I have for my Sony ICF-2010, let me tell you that my experience really does not support my making suggestions or in any way taking on the role of "guru" in this matter. I've been in and out of SWLing for about 30 years, ever since I built a HeathKit AR-3 receiver I got as a Christmas present, but I've never had much of a radio, or really done much listening, until recently.

When I bought the 2010 I justified the expenditure to my Danish-born wife on the basis that she would be able to hear the occasional broadcast from Denmark, and I was quite chagrinned to discover that the 2010 would barely pick up Radio Danmark's pipsqueak transmitter even with the wire antenna Sony supplies.

Thus, I justified the purchase and construction of a "real" antenna.

My antenna is now the $8.95 Radio Shack SWL antenna kit, erected full length (about 75') between two trees about 65' up. The antenna runs ENE-WSW, which is a little askew (my major interest is Europe) but the trees are too big to move. Worse still, we are on the southwestern slope of a small ridge, so even the 65' altitude of the antenna does not give me a clear shot to the North and East. We can pick up Radio Danmark with it, though.

The antenna is suspended by high-strength nylon twine, the twine running through small sailing-dinghy blocks (pulleys) at both ends, suspended weights being used to tension the antenna yet allow the trees to sway without putting undue stress on the rigging. The blocks are themselves attached to some more twine thrown over the trees by the simple expedient of tying it to a spare auto-battery cable clamp, spinning same at the end of a short length of the twine, David-style, and pretending the trees were Goliath. This was remarkably effective, as the weight cleared the tops of the trees by quite a few feet.

This arrangement has stayed aloft during several good breezes, and has allowed me easily to lower the antenna for modifications and to remove a small branch lodged in it during a storm.

Since the antenna's insulators and the blocks are just within the foliage crowns of the trees, the antenna is quite inconspicuous; it would be more so if I dyed the twine so its whiteness didn't show against the largely grey-green colors of the pines and oaks that march up the ridge.

Although the antenna itself has been the same since I put it up, I've connected it to the radio several different ways, and I think the way I have it now is the best I've tried. I'm quite willing, however, to admit that my knowledge of electronics is fairly

spotty, and my understanding of RF in general and antennas in particular almost nil. To round out my ignorance, I don't have a piece of electronic test equipment to my name, so any claim I make as to "best" must be understood to be entirely subjective.

VERSION 1.0

My listening room is on the opposite side of the house from the electrical service attachment, but only about 20' from the house's main fuse box, and 10' from the washing machine, the outdoor half of our heat-pump/air-conditioner, the cable-TV connection, and the telephone terminal box. I also have three computers, two modems, and a printer in the listening room.

So, brainwashed by all the impedence-matching cautions in the various antenna handbooks, and hoping to subdue any electrical noise loose in the vicinity, I originally used RG-58U coax as a lead-in, connecting the center conductor to the antenna (at the ENE end) and leaving the shield unconnected. The connection was carefully wrapped to prevent the shield from absorbing water. The coax dropped vertically toward the listening room, clearing the gutter and assuming a catenary curve to the window, where it came in through a small hole drilled in the storm window frame.

I've always been told that the antenna is only half of the signal path (the ground being the other), so I have a galvanized iron strap, about 1.5" x .125" and 5' long, driven into the perpetually-damp red Georgia clay just under the listening room window, and I led a solid wire clamped to the strap up to the aluminum storm window frame and attached it. The shield of the coax was also attached to the window frame, and thus to ground.

The coax was attached to a mini-phone-plug in the conventional way and plugged right into the 2010.

The result was a tremendous overload on the 2010, until I put the Antenna Attenuator in the 'local' position, when I got pretty good results, logging numerous out-of-the-way countries and any major broadcaster who happened to be on when I listened in.

Then someone pointed out that this rig had no lightning protection, and that the 2010 is very sensitive to static build-up in outside antenna; too much and the FETs in the front-end go 'poof.'

Another kill-joy told me that antenna impedence really doesn't make much difference for receiving, and that a long-wire is high impedence anyway.

A third well-meaning meddler mentioned that signals arriving here in Atlanta, regardless of their original polarization, were not really polarized any more, the various skips and bounces having thoroughly scrambled the polarization along the way. He suggested that an unshielded leadin might be considered a vertical antenna.

My wife suggested that I invent some arrangement that might let me close the window all the way.

All of which led to ...

VERSION 2.0

I replaced the coax with the unshielded leadin wire from the Radio Shack kit, suitably lengthened with some hook-up wire of about the same diameter. It follows the same path as the coax, and comes in through the coax-sized hole in the storm-window frame; I used a rubber grommet to protect the wire from the sharp edges of the hole.

The leadin is terminated at a barrier strip (also from Radio Shack), as is the ground wire, and a 2.2 megOhm resistor connects the leadin to ground to drain off static electricity.

Since the barrier strip is between the storm window and the sash, and since this is all (reputedly) high-impedence stuff, I used three feet of 300 Ohm TV twin lead from the barrier-strip antenna and ground connections to the radio. The twin-lead is thin enough that I can close the sash.

The twin-lead ends at the high-impedence side of a 300 Ohm to 75 Ohm television balun coil, whose 75 Ohm side is a mini-phone-plug that plugs right into the 2010. The balun is marked Sony, so I suppose it came with one of their small TV sets. They probably have these at Radio Shack, too.

I'd like to think that the balun provides both impedence matching and static-electricity isolation services. It doesn't seem to decrease the signal level.

Compared to version 1.0, this setup seems provide slightly more signal with no more noise than before, allowing me to run the 2010's RF gain control at half-mast most of the time, lopping off much of the noise and some of the QRM, yet letting the broadcast signals through.

I'm sure this whole setup flies right in the teeth of all that is sacred in Antennadom, but I'm quite pleased with it. I think the signal strength is more than enough, the noise level is low on most bands, and I can just sit back and listen. I've logged stations on all continents except Antartica, including domestic services in the USSR and Africa, and some real low-wattage peashooters in South America.

As is so often the case, I think I'm the limit, not the hardware.

-Shel Hall [76701,103]
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Here are the specs on the Sony, adapted from a file I found on a local BBS:

Sony ICF-2010 Specifications

Circuit system: FM: Superheterodyne
 AIR/AM: Dual conversion superhet
 Quartz controlled PLL frequency synthesis.

Frequency range: AIR116-136 MHz
  FM 76-108 MHz
  AM 150.0-29999.9 kHz

Aerials: AIR/FM/SW External Telescopic
MW/LWBuilt-in ferrite/coil
External terminal for AIR/FM
External terminal for AM

Audio: 380 mW at 10% harmonic distortion.

Output: Built-in speaker
  Disconnected when earphone plugged in
   Recording output jack (minijack)
  Level: 0.775 mV (-60 dB)
  Impedance: 1 kohm
   Earphone output (minijack):
  Impedence: 8 ohms.
  Stereo output on FM
  Mono output on other bands
  "Walkman"-type headphone compatible

Power Requirements: Radio 4.5V (Three D size batteries)
Computer/clock 3V (2 AA size)
Supplied ac power adapter for radio (4.5V) operation.

Features:

* AM has 5 modes: Wide, Narrow, Sync, USB, LSB/CW. Sync is the synchronised operation which has been mentioned before. There are two advantages using this:

(1) It can generate a carrier for weak signals subject to fading, this carrier is synchronized to the original carrier and improves reception for weak signals (really does work!).

(2) It can eliminate interference from adjacent stations. This can be achieved by tuning to either the USB or LSB of the station being received, whichever is not being subject to the interference. Wide/Narrow I think uses IF filters to change the bandwidth of the tuned signal. Useful in crowded bands for weak signals.

* Tuning achieved through rotary manual tuning knob, direct digital entry,

memory recall and scanning. AM has a 0.1 and 1 kHz resolution for manual tuning. FM has a 0.05 MHz resolution and AIR has a 0.025 MHz resolution. In addition for scanning, other scanning intervals are defined. There is also a 9 kHz / 10 kHz switchable scanning interval for the MW band. The manual tuning knob can also be electronically locked.

* Scanning has too many features to list like band skipping, station skipping defined frequencies scanning, two scan types, memory scanning functions and so on.

* 32 memory presets possible which stores all characteristics of the station including both the mode and frequency.

* Timer: Sleep timer as well 4 programmable prioritised timers which can be programmed to 0, 15, 30, 60 minutes of operation (0 min disables the timer). The station must be stored in any of the 32 memory locations.

* Other features:

  DX/Local switch and RF gain control.
  12/24 hour clock
  Battery check
  Signal strength indicator
  Sync indicator (USB, LSB)
  Tone selector (High, Low, News)
  Volume control, of course!
  Display light

* Accesories:
  Supplied:
AC power adapter
Single earphone
Shoulder strap
SW long-wire aerial
2 External aerial connectors
Wave handbook
Memo sheet and info sheet

  Optional:
Car battery cord DCC-127A
Connecting cord RK-69A
VHF aerial AN-3
LW/MW/SW wide range aerial AN-1

Price: approx $290 - $310 (mail order) - $395 list.