

Realistic DX-440 vs. Sony ICF-2010  
 (A Medium-Wave DX Evaluation)  
 Mark Connelly - WA1ION - 17 DEC 1991

Two of the most popular portable receivers currently in production are the Sony ICF-2010 (a. k. a. ICF-2001D) and the Realistic DX-440 (a. k. a. Sangean ATS-803A). The intention of this article is to provide a performance comparison, from a medium-wave DX perspective, of these two receivers in not-overly-technical terms.

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1. **Price:** The DX-440 wins here. US Radio Shack stores normally sell this for about \$200, but sale prices of about \$150 occur fairly often. The ICF-2010 costs about twice as much.
  2. **"Stand-alone" sensitivity (using built-in antenna):** The Sony receiver is superior in this regard. Neither receiver comes close to such older models as the GE Superadio, the Realistic 12-655 "TRF", or the Sony ICF-S5W when it comes to AM BCB reception with the built-in antenna. A loop, tuned active whip, tuned longwire system, or a passive booster (e. g. Radio West "Shotgun", Intensitronics "Select-a-Tenna") is mandatory to obtain sufficient sensitivity for real-life DXing with either receiver - but especially for the DX-440.
  3. **Sensitivity with external antenna:** This is an important consideration for the reasons given above. The Realistic DX-440 gives far more gain than the Sony '2010 when a tuned external antenna (Radio West, Palomar, or Space Magnet loop, for instance) is used. Note that the concept of an untuned random wire is not addressed: neither receiver can reliably utilize such an antenna without the distinct possibility of in-band and out-of-band spurious signals. The use of an external antenna naturally leads to the next topic ....
  4. **Dynamic Range (Strong Signal Handling):** The DX-440 wins in this category as well. Its RF gain pot. is more effective in reducing overload / "spurs" than the RF gain control on the Sony when an external antenna is used.
  5. **Frequency Readout Accuracy:** Both sets feature digital readout, of course, but digital readout is not necessarily an ironclad guarantee of accuracy. Some DX-440's are off by about 1 or 2 kHz; all ICF-2010's checked have been within 1 kHz. There may be a "tweak" procedure to correct DX-440 readout error, but I haven't read it yet. Check "your" DX-440 in the store on some local AM stations before you buy it. Use the narrow filter position.
  6. **Selectivity:** On unmodified ("stock") receivers, there's not much difference between the Sony's wide filter position and

the wide filter on the DX-440. Similarly, there isn't much difference between the narrow filters on the two receivers. The narrow filter is, of course, that of greatest interest to DXers. Splits of 4 to 5 kHz from an interfering station aren't usually hard to hear if within 20 dB of the interfering station. Obviously, this is all that's needed for casual shortwave-broadcast listening. And it suffices for much domestic and "easy" foreign MW DXing, as well. "Easy" test frequencies here include Senegal-765, St. Kitts-825, and Antigua-1165. Neither receiver does well with 1 or 2 kHz splits unless they are nearly equal to (or better than) the strength of the adjacent undesired station. In early evening, 890 (WHNC/WLS/LA's) often cannot be sliced from stronger Algeria- 891; by mid-evening - with 890 and 891 comparable in strength-audio can be heard on both frequencies; and later at night - with WLS considerably stronger - 891 just registers a "het". On a "serious" receiver, audio on both 890 and 891 would have been easily obtained at all three listening times. An ICF-2010 I've used a lot has Gerry Thomas's narrow filter modification installed for improved selectivity. It slices splits better than both the stock ICF-2010 and DX-440. I'd suppose that the DX-440 could be similarly modified; perhaps an article about this would be a good idea.

7. **Tuning Ease:** Both receivers can be tuned by keypad frequency entry. There's little difference in difficulty in that procedure between the two. Both receivers can also be tuned continuously with a knob, simulating the feel of older analog receivers. The Sony ICF-2010 does knob-tuning better: it is less likely to skip over groups of stations / chunks of frequencies when tuned at a moderate rate of speed. You've got to tune the DX-440 knob quite slowly to avoid such "lurching".
8. **Features:** The Sony ICF-2010 has its famous synchronous detector circuit. Use of this can really smooth out rough auroral flutter and cut down the audio garbling typically resulting from the beating ("subaudible heterodyning") caused when there are 3 or more channel occupants of comparable strength. But the sync-detector often reduces the audio-to-background noise ratio, so it's a very application-specific benefit. I would attribute only a fairly small number of (otherwise-unattainable) MW DX loggings to my use of the sync-detector. More often, it raises the entertainment-listening quality of a station already perfectly-readable by DXer standards.
9. **Miscellaneous:** On at least some DX-440's, a whining noise can be present if the LOCK OUT/IN switch is not set to the IN position. Setting the switch to IN locks out the receiver's controls; doing so must shut off some digital pulse train that gives rise to the whine. This whine varies considerably from one receiver to the next: on some it's barely noticeable, on others it's quite annoying. The effect is noticed mostly on very weak signals near the noise floor. Garbling / inter-modulation of the audio is the result. Of course, switching to LOCK IN during low-signal work can be done, but this slows down operation, because you eventually have to go to LOCK OUT if you want to change frequency. I would not rate this problem disastrous, however. As in the case of frequency-accuracy unit-to-unit variation, testing a receiver in the store prior to purchase is advisable - provided that the background noise from lighting, computers, etc. is not severe enough to mask the problem.

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Overall value: The Realistic DX-440, especially if available for the \$150 sale price, is a better overall value for the DXer whose main interest is medium-wave. The minor drawbacks mentioned previously should be kept in mind. Balanced against these are the several advantages, most notably, better sensitivity with an external antenna and lower price. For either receiver to be up to the tasks of serious MW DX, a high-Q-tuned, good gain, external antenna is required and a tighter "narrow" filter is highly recommended.  
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"Show time":

I've used my Sony ICF-2010 on many trips: it's been to Newfoundland, California, (El Paso) Texas, and on innumerable "quickie" beach DXpeditions in the Boston and Cape Cod areas. I'm thoroughly familiar with its strengths and weaknesses. I felt that a reasonable check-out of the DX-440 would have to include a real-life DX session at the beach similar to what I've done with the '2010 so many times.

On 14 DEC 1991, I took the DX-440 out on one of my "mini-DXpeditions" in place of the usual ICF-2010. Just before sunset, I parked at the waterfront in Scituate, MA in view of the old Hatherly Road WRUL/WNYW/WYFR shortwave transmitter site. (At this now-silent site, only a few tall wooden masts and the old brick transmitter building remain.) My DXpedition antenna set-up this time was the homebrew RTL-1 (varactor-tuned) loop placed on the car roof and controlled by the MWT-2 Option 5 regenerative tuner-preamp.-controller. (See my previous articles on these units.) Band conditions were in a continuing state of mediocrity with a lot of short-skip, but the DX-440 did fine in pulling out TA's on 693, 711, 765, 774, 836, 891, 981, 999, 1044, 1053, 1062, 1098, 1107, 1179, 1197, 1349, 1367, and 1566. Many of these had perfectly readable audio. I feel that only in a few cases would the ICF-2010 have done better - and that's only because of the Gerry Thomas filter modification that was done to it. I don't think that a stock ICF-2010, even with its synchronous detector activated, would have resulted in any more loggings. Nothing short of the upper echelon receivers (such as the R390A, HQ-180A, NRD-525, R71A) would have garnered appreciably more readable DX stations.  
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Final note:

A new Realistic model (DX-390) and a new Sony model (ICF-SW77) have been released in addition to the still-available DX-440 and ICF-2010. It is not known if the newer models will eventually replace the older ones or if they are just intended to be additionally-available units. Reviews of these newer models from a medium-wave DX perspective (complete with comparisons to their predecessors) could be of great value. The best analyses would come from a blend of laboratory testing of key parameters such as third-order intercept and of actual DXing under demanding conditions.  
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