

Taking the Icom IC-R75 To The Extreme
(c) Bjarne Mjelde, June 2004 (additions December 2004)
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Admittedly, the headline was perhaps more for triggering the reader's curiosity than being entirely true. But there is some truth in it; first a brief intro for those who do not know me:

I am a MW DX-er who lives at 71N, 29E in the NE part of Norway, near the Russian border. I have made a habit of calling my self "The World's Northernmost DX-er" – so far unchallenged :-). I have been in the radio listening "business" since 1972. Today I own one NRD-525, one MW-modified Icom IC-746Pro, one IF-deck modified EAC R-390A, one Racal RA6790/GM, and the R75 with all Kiwa mods including the 4.2 AM filter.

Hence the headline. This area is extremely quiet RF wise (with one important exception which I will address later). So, I am (probably) not only the world's northernmost DX-er, I am also (probably) the world's northernmost Icom IC-R75 owner.

As you might have guessed, this quasi-review will deal mostly with MW. Over the past week, I have had a few opportunities to test the R75, and compare it to my other receivers. The antenna has been a BOG (beverage-on-ground, lowered from normal height during summer since this is reindeer pasture) of some 450 meters, directed towards 058 degrees (from my perspective, it points towards far east Asia and "far west Europe", i.e. western Norway and the UK.)

With my latitude at almost 71N, you will know that darkness is non-existent here during summer. This would seem to be a bad setting for testing MW performance – however close to midnight the sun's angle above the horizon is so low that quite a few MW signals are able to get through – even from Asia, although only high-powered stations as such (Taiwan-1557, various China Nat'l Radio frequencies). Middle-East and Eastern European stations are also available – but usually at a low signal level.

So, no good for DX – but excellent for testing sensitivity!

General opinions

I will not go into detail as the aspects of the receiver have been covered by other, more skilled reviewers than me. Basically, I like the user interface. So what could be made better? Memories: 99 (or 102, depending on perspective) is at least 300 short. I would want to store all MW frequencies, both the 10 kHz step frequencies and the 9 kHz step frequencies. This would make manual scanning easier. The tropical band DX-er would probably want to store all Indonesian/Papuan frequencies, and maybe all South American frequencies in addition. The NRD-545 for instance has 1000 memory positions, and there is really no reason why any other receiver should have less.

Tuning steps:

Luckily, Icom has implemented an excellent feature here, so the lack of memories is compensated to a degree. I often change tuning steps (especially 9 and 10 but also 1 and 5 kHz), so I miss that the chosen tuning step is not displayed. Often I forget which tuning step I use, or I go directly from MW to a SW frequency, so when I tune the wheel I may go from say 6160 to 6151. One workaround might have been to store tuning steps with the memory setting. If so, I could pick MEM-1 as 1700 with 10 kHz steps, and then I could go downwards from there with the correct steps. MEM-2 could have been 1701 or 1602 with 9 kHz steps etc. Unfortunately, this is not possible.

AGC:

Based on a few hours of listening, I find that the Slow AGC is not as good as the Slow AGC (modified) on the NRD-525 or R-390A. It does not ease out selective fading as well as it should. Fast AGC seems to be ok – but I tend to use Slow AGC for all purposes except if I really need Fast AGC.

AM-Sync:

The Kiwa-modified sync seems to work well for enhancing readability on weak stations (not much difference on strong stations). However, on extremely weak stations it seems to take forever to lock – sometimes it simply won't. Sometimes I can "help it on its way" by adjusting the PBT somewhat.

So then, how does it fare when the going gets tough? Selectivity-wise, I have had few chances to compare it to the other receivers. However, the general picture is that my bandwidths are good. The 6 kHz ("Wide") sounds somewhat wide, but Kiwa informed me that the 6 kHz filter is really more like 7 or 8 kHz. That matches with what I hear. Instead of the Kiwa Premium Filter 3.8 kHz I had Craig install a CFJ455K4 filter instead. This is an excellent filter with a near-perfect combination of fidelity and interference-killing. It is used for SSB wide. The filter bank seems very well balanced for my usage.

Sensitivity is probably the single most important factor for this area with extremely low signal levels. My NRD-525's measure 0.4 to 0.5uV (AM 6 kHz, 30% mod) on MW, and the NRD-545 has been measured to similar values by QST. So then, this was the reference numbers – any less and the R75 would be a disappointment. Based on listening tests only, I can say that with the Preamp 1 set, the R75 matches the NRD-525's. With Preamp 2 set, it resolves audio better than the NRD's (and in fact in many cases better than my R-390A, but the latter is still not properly aligned and trimmed so it is too early to be conclusive on the R75 vs. R-390A comparison). The difference is of course audible only when the signal fades in or out of the noise floor, and when there are no other RF sources available that would increase the noise floor. Also, it seems that the difference is only there when the noise floor is "really low" as it were, i.e. during quiet geomagnetic conditions.

Conclusion: The (full MW Att mod) R-75 is, in combination with the preamps, sensitive enough for my use. Without the use of the preamps, it does lack some sensitivity compared to my other receivers. I don't know if any have made sensitivity measures of the full MW Att modded R-75's. My guess, based on listening and knowing what my other receivers measure, is that the AM, 6 kHz, 30% non-preamp sensitivity is around 1uV. 6dB extra net gain (preamp 1) would bring it down to 0.5uV, and it sounds like that is where it is. Only guesses, of course.

What about strong signal handling then? Well do I need that, in my RF free environment? Actually, yes I do. I have a Loran C station some 14 km away from my QTH, which emits 250kW on 100 kHz. While it doesn't usually affect MW DX if excellent equipment is used, we know that heavy amplification of signals also reduces the IP3 and IP2 of the receivers involved. While the R-75's front-end is far from bulletproof, it seems to cope quite well. I have tested it while fed from a splitter with 10dB amplification AND Preamp 2 connected. It did quite well, although on some frequency ranges usually infected by the Loran C station (such as 550-580 kHz) there was some interference.

A single, weak signal on a frequency is one thing, how does it cope with multiple signals then? This is the point where I feel that the NRD's fare better. 3 or 4 signals of roughly equal strength have a tendency of "mixing" into unintelligible babble, whereas my AGC-modified 525 and the R-390A seem to resolve the individual station's audio better. Maybe this is an AGC issue.

Otherwise, audio is good. Connected to a vintage Tandberg 4 ohm external speaker, audio in AM Wide (6 kHz nominal) is quite good. The hissy audio often heard with the NRD-525 is not there.

Economy: Many have pointed out the low price of the R75. I bought mine from Universal Radio who shipped it to Kiwa – USD 515 including shipping. Kiwa's mods + shipping to Norway added another USD 260. Even after adding Norwegian VAT, it is a bargain compared to any receiver available.

Will I buy another? This question is of course the "ultimate test" of a receiver. It is a bit too early to say. The coming autumn's DX will decide. If it performs as well as it seems in really tough DX situations, the answer is Yes. It seems that the Kiwa mods (especially the MW Att mod and more suitable filters) are necessary, but my preliminary conclusion is that judging from several parameters, the R75 is an excellent receiver for real DX purposes. And quite good for normal program listening as well. It will be interesting to put it side by side with a properly aligned and modified R-390A later on.

If you want to know more about this area and DX in the Arctic, please visit <http://www.kongsfjord.no/>.

Addendum per December 2004.

Will I buy another? Was the question raised above? After having had an autumn full of DX-ing, I have had time to compare the R75 with my other receivers. The answer is no. I will not buy another. It is not because it's not a good radio; it's just that the competition (in my shack) is too tough. It has had to fight a modified R-390A and a modified IC-746Pro. It does well, but not well enough. During demanding DX situations with strong interference, it does seem to have poorer audio recovery than the others. Also, it seems to handle interference somewhat less elegantly than the R-390A and 746Pro (and a modified NRD-525 that is also in my shack). It works best when used in AM mode. In ECSS mode, the audio is too flat in my ears, needing constant twiddling of the PBT controls to maintain fidelity.

Other demanding DX-ers have reached different conclusions, pointing out that narrowing the roofing filter can have impact in certain situations.

It would be fair to say though, that correctly modified (see The Dallas Files on www.kongsfjord.no), the R-390A and the IC-746Pro are perhaps two of the best MW DX-receivers available for any price. In that light, the R75 is an excellent choice for most serious DX-ers, especially given its portability and price tag.