My experience with the windrm software

After my experience with the ard9800 I had no activities on this subject except a presentation about the historical background (from ISDN to echolink) and I also listened sometimes on 14.236 for SSTV using my mixw2 software.

By end of May 2006 I heard GW3TLP, VK4GW and DK1OT mentioning, that they are active in dital voice as well on this frequency using the windrm software solution .
We made up a sked for next day.
I was quite busy that day, so I downloaded the software and some helpfiles from N1SU and installed the software on my 800 MHz W2k laptop.
I did some setup, which was easily to find (no time to read any manual that day).
I had a cabling for the usage of mixw software and I checked the windrm basic fuction and the PTT.
Seemed to be ok, so it was less than one hour work.

Next day during the sked I heard VK4GW with S1 and immediately could see his callsign on the windrm window, but signal was too weak for receiving the audio.
Things were better with Idris, GW3TLP. After a minor audio adjustment I could decode his signal without any problems.
After that I tried to transmit, but this failed. After some discussion we assumed the problem would be the soundcard control under w2k and we agreed a sked for next day with a win XP laptop I lend from my XYL Inge, DL1SIK.
(As turned out later, the problem was the audio level from the computer to the TX, but read this later on)

There was a problem with the XP laptop: The laptop had no serial interface.
I installed long time ago a usb to serial adapter, but this software was in conflict with a latter installed GPS programm using also some COM interface. Took me 2 hours to bring the serial interface to work again :((

After installation of the windrm software on 2 laptops now, I made some additional tests:

Sending audio from XP laptop via speaker and microphone to the w2k laptop:
worked quite bad: waterfall showed no flat transfer characteristic, pilot tones were nearly not visible. But after the exchange of speaker and mic by cable it worked wonderful.

Next configuration was:
Sending via the XP laptop to the IC7400 on 28 MHz to a IC7000, its speaker an mic to the w2k laptop.
This worked also very bad: reason was same as above.
Next tests were with a similar configuration as before but the w2k laptop was connected to the IC700 (for RX) via cable as well. This worked ok.

Influence of output power:
Output power was varied from min to max (5 to 100W): ALC was from 100% down to 50%, whatever this means, there is no scale for ALC. There was no influnce on the receiving side. SNR was always at 14.

Influence of level on the receiving laptop:
Receiving is ok even if the waterfall is nearly dark. Very high levels with nearly white waterfall will also not work. So there is only low influence of this

Influence of XP laptop output (transceiver in):
Only wav and output was enabled, other inputs muted. Levels of about 20 to 70% on both sliders gave good audio. No difference could be seen in the receive waterfall, when the level was too high. Most probably the transceiver input goes to limitation.
This seems to be the most critical parameter.

Influence of TX and RX bandwidth: should be 2.5 kHz or more. Take care, if you are using passband tuning; If you clip the lower 300Hz, you will fail as well. Sending a jpg picture with windrm was also ok, but receiving hampal pictures from Idris were a problem:
The picture was stored as correct in the picture folder but was not opened automatically. Opening with (standard MS) viewer showed corrupted data. Same did the firefox. Analyzing this later showed that (linux) conqueror and irfanview could decode the files correctly.

may be continued ....

Something, what is missing (my view)
direct transmit (feed though of mic to line out with a separate TX button; transmitting analog)

Conclusion
Other than the AOR box windrm was easy to install and worked corrctly after solving minor problems.
windrm (and hampal) are for free
Seeing that for transfering files or pictures with the AOR box I will need a computer anyway, and that OFDM format is not compatible with the software solutions windrm hampal and others, I think, that I lost some money, when buying this box.
windrm really is a good programm!

Some other issues
Using a laptop has the disadvantage, that a connection to the line output switches off the speaker. So switching from transmit to reveive needs to unplug the line out conenctor (and vice versa).
I now use a additional USB audio card (the cheapest I could get, 12 Euro). This do the connection to the radio. I have transformers in the audio lines, but most probably, they are not necessary in my environment.
The overall delay from sending mic to receiving speaker was 3 to 4 seconds. I was aware, that there should be a delay, but did not exspected it so long.

Since May 2007 I use drmdv. This codec is less prone to distortion; I copied Idris with S3 signal. But the voice quality is worse than with windrm.

Last change 0706