My experience with the AOR ARD9800

When buying the DV Modem in July 2005 I thought, installing the device would be a 1 hour job. After all, I had worked about 20 hours, lots of mails to the dealer...
After soldering the connection cable and connecting the minimum for the first (analog) qso, I got a very bad report: voice was more or less unreadable.
After some tests I came to the opinion, that the reason for the bad modulation and distortion was RF pickup.
My working conditions may be a little bit exceptional: The 2 El Quad is only 5 m directly above the shack. so there is some RF in the shack.

I build up the following test equipment:
TX: IC7400 (746pro) with 100W max
switching 20A Power supply
2 EL quad fed by 20m RG213
QRG: 28.400MHz

RX: IC706MKII on top of the IC7400
Hf Antenna input open
VHF Antenna input connected
100W on the IC7400 brings S8 Signal on the IC706

I connected the ARD9800 using different methods and checked for results

Standard connection:
same power supply
7400 speaker connected
connection cable : shielded Mic cable: Mic gnd, mic, PTTgnd and PTT connected
Result: Heavy noise and chirp and whistle when not speaking but PTT pressed. Noise louder than voice. Reducing power reduced the noise. Moving the Mic around changed the noise strength also. No 50 Hz hum

Filtering speaker cable:
Using a (existing) Amidon toroid or a splitted Ferrit (*) 5 to 10 turns: helps a lot

Filtering connection cable as above (2 turns)
helps a lot; together with the above good signal
Finally I modified the filtering this way:
some uH Inductor on all 4 wires at both ends of the cable; shield connected to the mic ground on the IC7400 side

Filtering power line (5 to 10 turns):
minor influence

Filtering the Mic input (2 turns)
Some influence (not too much)

separate / common power supply
no influence

connecting general ground and ptt ground on the AOR side of the connecting cable:

no influence

connecting ARD9800 case with IC7400 case by a short (5cm) cable:
minor influence (if any)

Other solution:

The noise and distortion comes up mainly about ½ second after stop talking. Question is, wether the AGC could be switched off.

Other Problem:

I think, that the audio output is not too good compared with the IC7400. The internal speaker is quite small. I use a external passive speaker, nevertheless this is acceptable only with low output levels due to low audio power.
A active PC speaker works well.

Digital Modes

There are not too many stations active in DL. So I had some reproducable with DL3OH on 80m only.
During testing qrm was acceptable, Nevertheless digital audio worked always for short periods only.
In fact the result was not very encouriging.

Conclusion:

RF pickup Problems can be solved by individual filtering.
The dealers help and support was not as exspected (whatever I exspected).
Meanwhile (June 2006) I tested the free windrm software which worked immeddiately after solving some minor problems.
This stops my further ARD9800 activities.

*) splitted ferrit
Dont know the correct term for that: two halfes of a toroid, which were put together; used to put on coax cables.

Last change 060604