

Kenwood D710 and AvMap Geosat 5 Blu

Amateur radio, APRS and satnav converge!



APRS UPDATE. The Kenwood D710 is the follow on from the D700 that Kenwood designed over eight years ago. Like the D700, it's a dual band radio with up to 50W on 2m and now 50W on 70cm. The receiver covers 118 – 524 and 800 – 1300MHz. With a built in TNC it is 'out of the box' APRS ready. The radio itself was reviewed in the November 2007 issue of RadCom, although the APRS side of the radio wasn't dealt with in depth.

For those not familiar with APRS (Automatic Packet Reporting System) it was originally developed by Bob Bruninga, WB4APR, as a method of exchanging local tactical information. This not only includes positional information but the ability to send messages, bulletins, announcements and alerts. This information is relayed by a number of 'digipeaters' (a station that relays APRS packets) and 'lgates' that not only relay the packet over RF but uploads it to the APRS network on the internet. If you have a look on <http://aprs.fi/> you can see how active APRS is in your area.

The radio comes in two parts, the main unit and a remote head. With modern cars this makes it a lot easier to find somewhere to place the radio where you can see it. The backlight of the display can be programmed to orange or green. Another really nice feature is the display changes colour when you receive a message over APRS.

APRS. The programmable memories have been increased from 200 on the D700 to 1000 on the D710, allowing for split frequencies, tone, CTCSS & DCS and can be individually name tagged and grouped if needed. It also has six Programmable Memories (PM) that store virtually all the settings of the radio, which are recalled with two button presses. If there is more than one licensed operator in your family, you could easily program your APRS callsign under one and theirs under another. With a two button press you can swap between them depending on who is driving the car that day. The radio comes with a DTMF microphone that can be used for Echolink or APRS messaging and is backlit for night time use.

For me, the main feature of this radio is the APRS. Set the left hand side to 144.800 (UK APRS frequency) and use the right hand side for QSOs. If you are mobile, connect a compatible GPS unit into the side of the head unit and you have the ability to send you position, speed and altitude over APRS. You can also program it to send out the frequency you are on so others will know where to find you. There is even a 'tune' button that takes you to the frequency of other D710 users or local repeaters. The radio can hold 100 messages and remember 100 stations, recalling their direction and distance. If it's another mobile station, you can see course,

speed and altitude; if it is a weather station you get a display showing, rainfall, temperature, wind direction, wind speed, air pressure and humidity. For home use you can even plug in certain weather stations and send weather data over APRS.

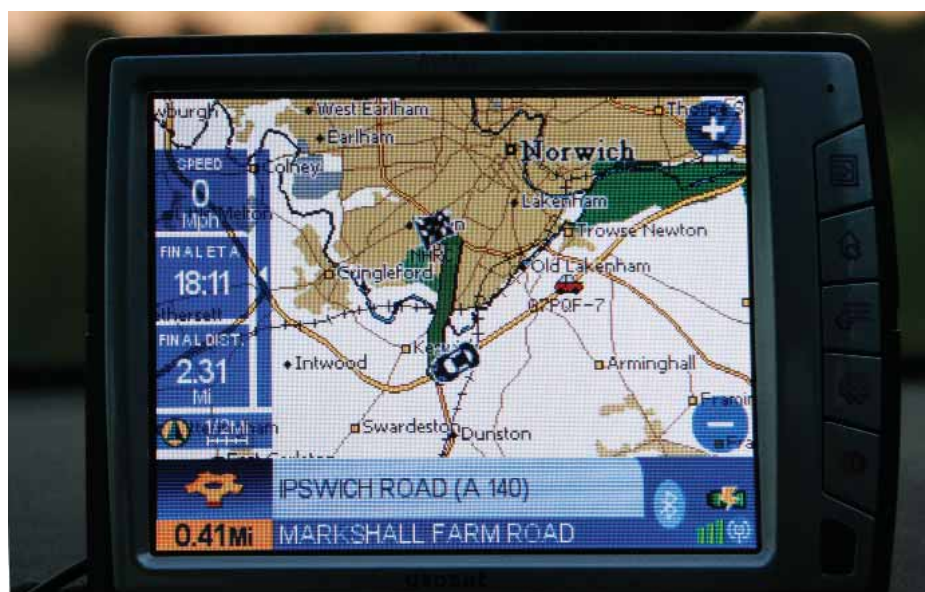
Because Kenwood designed the radio with upgradeable software (latest firmware 2.0), they have introduced smart beaconing. Before, you would beacon at a fixed rate, whether you were standing still or doing 60mph. With smart beaconing, it will now send out your position based on your speed. It can be programmed so that it will only beacon every 15 minutes if you are stationary and every minute if you are doing 60.

PROGRAMMING. The D700 was very versatile but Kenwood have gone up a level with the D710. The radio is a good dual band radio, but if you want a two way APRS mobile solution I don't think you will be disappointed. The radio is so versatile there can be a lot to program but, with the aid of a PC, this can be done in the comfort of your own home. If you are not feeling brave you can always find someone else at your local club who has already done all this and I'm sure they will either let you have their settings file or even program it for you.

The only thing missing with the D710 was a map display that you can get on some of the more expensive GPS units. This is where the AvMap Ltd Geosat 5 Blu sat nav unit comes into its own. It's a car navigation system that will display APRS stations on the screen at the same time, coupled with hands free Bluetooth.

IN USE. After opening the box, I was presented with the main unit, a mounting bracket that fitted on the window, two manuals, a CD and four leads. This meant a quick read of the manual and 5 minutes to decide where the bracket should go. As I'm left handed, the middle of the car is always a good choice; for right handed people the right would seem the best idea. The bracket took a little fiddling about to get it positioned just perfectly but, once done, it was within easy view and reach, thanks to the extending bracket.

Then it was back to the manual to find out how to set it up with the Kenwood D710. Nothing in the manual, maybe the other



manual? No, that's for the Bluetooth functions. I looked back in the box in case I had missed a piece of paper and the only thing I could see was the CD. Bingo! There was an APRS manual in PDF on the CD. For those already familiar with the D710, a cable is supplied to connect the two together. The four pole connector for this lead goes to the AvMap TMC socket and the three pole connector to the side of the Kenwood's D710 head unit.

BUTTON PRESSING. On the Avmap, press the menu key (top right button) then tap on 'Settings', select 'User Preferences' and scroll to the second page using the next key. Select 'Interface' and choose APRS 4800 and select OK. To display APRS icons on the screen you need to go back to the 'setting' screen this time tap on 'Map Icons'. Scroll right until you get to 'Contact - 3/3' and make sure 'Contacts' has a red square beside it, if not just tap on it. On the Kenwood go to Menu 602, set Baud rate to 4800, Input to GPS and Output to 'WAYPOINT' then use Menu 603 and set the Waypoint format to 'Kenwood', Name to '9-Char' and output to 'ALL'. More detailed instructions are supplied on the CD. The AvMap can also be used with the D700 and D7 (you just don't get the Kenwood icons on the AvMap).

The AvMap not only receives information from the radio but works as a GPS unit for the radio as well. In total it took me about an hour to install.

To plot a route, press the middle right hand button and choose Address, POI, Contact (this includes APRS stations) or Home. Under address you can choose between address, postcode, Lat / Lon, city centre, Intersections or recently found. Press 'Go' and a bar comes up saying 'calculating' and you're ready to go. I've done about 2000 miles with it and it's

taken me straight there and home again with no trouble. The voice guidance coupled with the nice 5" screen made it very easy to use. Road turns on the map are highlighted in red and the display zooms in and out depending on what speed you are doing or what junctions are ahead. It comes preloaded with masses of Points of Interests (POIs) from banks to petrol stations, trains and many more. In fact, if it hadn't got a 5 inch screen I would say there were too many but you can always choose which ones to display in the setup menus. You can also add you own Points of Interest like speed cameras - a database is available from www.pocketgpsworld.com. The AvMap will even make a loud noise to warn you you're getting close to one. Options are available for changing routing, display brightness, which way the map should point and if it should zoom in and out automatically.

So what about the APRS functions? Every APRS beacon the radio hears is sent to the AvMap so that it can be displayed on the screen, not just as a marker but as an icon of a car, house, digipeater, weather station, etc. If the car moves, it is then updated. You can not only plot a route to an address, POI or home but you can also plot a route to a moving car on APRS and the unit will

recalculate the route as the car moves. If there is a local event that is being announced on APRS you can plot a route to that too. Add a repeater POI database and that will show up on the screen too. Down the left hand side of the screen there are three boxes that show your speed, final ETA and Final Distance. These can be easily changed to show anything from your altitude to the speed of someone else on APRS (maybe the car you are following). In fact, you have a choice of 22 different display settings! I had a little trouble uploading a POI file of 2m repeaters but after I found that the icon needed to be in 16 colours it wasn't a problem. Pairing my phone to the unit with Bluetooth was painless and the unit has a built speaker and microphone, which is very sensitive so you don't need to talk loud.

You may think the cost of the package is expensive (around £390 for the radio and £353 for the AvMap unit) but it does combine an excellent dual band radio, a GPS car navigation with a map display all with a nice 5 inch screen. I reviewed this radio before Christmas and I know what I rather hope was under the Christmas tree this year! My thanks to Kenwood Electronics UK for the loan of the radio and to Martin Lynch & Sons for the loan of the AvMap.