

# SDRPlay



**PHOTO 1:** The SDRPlay RSP is impressive for what it does, not what it looks like.

**The SDRPlay Receive Spectrum Processor has recently been reduced in price. But just what does this equipment have to offer?**

When the SDRPlay Receive Spectrum Processor (RSP) first appeared, the manufacturers were hoping to be able to reduce the price of future models if there were sufficient sales volumes. True to their word, SDRPlay has been reduced from its original £175 to the current price of just £118.80 including VAT at 20%. The SDRPlay RSP has also benefitted from a control software upgrade that removes the previous spectrum gap and provides continuous coverage from 100kHz through to 2GHz with up to 8MHz of I/Q bandwidth and 12-bit analogue to digital converters (ADC).

## Setting up

The SDRPlay RSP is supplied nicely packaged with just the receiver hardware and no interconnecting leads. The lack of leads is not really a problem as most of us are inundated with USB leads – I'm sure they breed when you keep them in a drawer! The computer connection requires a single USB-A to USB-B lead. This carries the DC power for the SDRPlay RSP as well as the I/Q and receiver control data. Due to the high

data rates you will need to use a USB 2.0 or faster port. The original SDRPlay RSP used an F type connector for the antenna but the new model now uses a more convenient 50Ω SMA connector. Given the very wide frequency range of the SDRPlay, most installations will need some form of external antenna switching so you will need to budget for that.

Before connecting SDRPlay RSP to the PC, there were a few preliminary steps that needed to be completed. The setup process was very well documented using a simple, step-by-step process on the SDRPlay website. The first stage was to make sure my Windows 7 installation was up to date. This was followed by downloading the appropriate SDRPlay RSP drivers. This stage also doubled as product registration as I had to enter my name and SDRPlay RSP serial number before I could download the files.

The next step in the process was to select the SDR receiver software. There are currently three choices, *SDR Sharp*, *HSDR* and *SDR-Console*. These were all available via links on the SDRPlay website. I wanted to use all three packages so I also had to download a plugin for *SDR Sharp* and an EXTIO DLL (Dynamic Link Library) file for *HSDR*. *SDR-Console* has fully integrated SDRPlay RSP support so I just had to install the program. The purpose of the plugin and EXTIO file is to translate the SDR software commands into the appropriate commands for the hardware,

ie change frequency, I/Q bandwidth, etc. As you will see later, the SDRPlay RSP gives the user access to a wide range of hardware adjustments and the plugins provide access to these adjustments via the SDR software. Once each installation completed, I was presented with a page providing links to further help, which included a dedicated SDRPlay forum as well as their Twitter and Facebook links.

When all the software and plugins were installed, I connected the SDRPlay RSP unit. Windows recognised it and installed the appropriate driver so I was ready to start.

## Inside story

The SDRPlay RSP employs two Mirics SDR devices to provide its wide frequency coverage, see **Figure 1**. The first stage uses the Mirics MSi001 tuner chip that was originally designed for use in broadcast radio and TV receivers covering all bands from LF to UHF. This same chip is used in the FUNcube Dongle Pro+ and the CommRadio CR1, so it has a good pedigree. Although the MSi001 is digitally controlled, it is actually an analogue tuner that uses conventional mixing techniques to produce baseband or low IF analogue I/Q outputs. Starting from the antenna input, the range from 0-60MHz is fed via RF switches and filters to the AM port of the MSi001. This 0-60MHz range is split into three filter banks (0-12MHz,