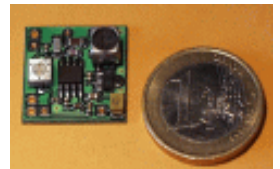# LOW BUDGET DRM RECEPTION WITH A PERSONAL COMPUTER
by Michael Bethge

Digital Radio Mondiale (DRM) is a new digital radio standard for the long-, medium- and shortwave ranges. The standard was formed by a consortium in co-operation with the International Telecommunication Union (ITU). The new system offers the radio stations and new service providers access to the multimedia age with small bit rates for large target areas and long distances.

The test phase of DRM has officially ended on June 16th, 2003, when several international broadcasters started regular DRM programmes on the event of the World Radio Conference (WRC) in Geneva.

At this moment there are is only one consumer receiver with built-in DRM decoder available on the market, the Morphy Richards Digital Radio Model 27024 for about € 200.00. The cheapest possibility to receive/decode DRM transmissions is currently with a modified receiver in combination with a personal computer running with the Windows operating system. A few specialized radio dealers offer to make the necessary modifications on your receiver, like Jürgen Martens in Germany <http://www.wwdxc.de/preisliste_martens.pdf> or Charly Hardt in Germany <http://www.charly-hardt.de>. However, this modification is not really cheap - between € 120.00 and € 150.00. In addition, you need a DRM decoder for your personal computer, which is normally offered by the DRM Consortium for € 60.00 at <http://www.drmrx.org/>.

I have therefore looked for a possibility to receive/decode DRM transmissions without investing that much money. In this case you will have to make the necessary modification to your receiver yourself, which is not too difficult - at least it was not really difficult for my NRD-525. Just have a look at the receiver modifications described at <http://www.drmrx.org/receiver_mods.html> for a number of receivers. You will have to buy a so-called "*universal downmixer from 455 kHz or 10.7 MHz to 12 kHz*", which is available from Sat-Service-Schneider in Germany <http://www.sat-schneider.de/DRM/DRM.htm>, E-Mail: <sat-service@t-online.de>. I received it within 3 days and paid € 31.90 including VAT and postage. On the right please find a picture of this small unit.

After you have built in the downmixer and connected it to your personal computer's sound card (line in jack), you will need a software decoder. After some research in the Internet, I have found a freeware Windows decoder called "Dream", developed by the Darmstadt University of Technology, Germany <http://drm.sourceforge.net>. A compiled version of "Dream" is available at <http://sourceforge.net/projects/drm/files/dream/2.1.1/dream-2.1.1-win32-svn808-df.exe/download> (size: approximately 13 MB). After downloading the installation file, please start the automatic installation of the "Dream" programme by executing "dream-2.1.1-win32-svn808-df.*exe*". After that, the "Dream" programme can just be started with a double mouse click on the desktop icon. If everything is working well, the decoder will soon show the station you have tuned in on the screen, and you will hear the transmitted programme from the loudspeakers connected to your personal computer.

A list of current DRM transmissions can be found at <http://www.wwdxc.de/drm.htm>

If you have any more questions on this subject, please do not hesitate to contact me by E-Mail at <mail@wwdxc.de>.