

## RECEIVING DRM with an AOR AR5000 without auxiliary hardware

After 40 years of analog shortwaves monitoring and after reading interesting papers about DRM on AOR UK site <http://www.aoruk.com/drm.htm>

I decided it is time to experiment, especially because they are transmissions directed to Canada and US every evening on 9800 kHz origination from Radio Canada international transmitter in Sackville. The complete schedule and frequencies are available

<http://www.drm.org/system/globfieldtrial.htm>

Normal procedure need a converter converting the IF frequency of the radio (10.7MHz or 455kHz) into a 12 kHz signal which will be demodulated by a computer.

Having ordered the converter in Germany but being impatient to experiment I found a solution using the AOR AR5000 receiver.

Increase or decrease the frequency of reception by 12kHz

Select mode USB

Change IF Band with to 30 kHz

With such adjustment you will generate a signal very similar of what you have at the output of the converter

**VERY IMPORTANT** you need to use the demod output signal available on ACC 1 connector in front, you need the 12 kHz bandwidth of the signal, if you use the audio output the band with is limited depending of your adjustment and it will not works. You will need probably to put a buffer (a simple operational amplifier in voltage follower) on the demod output, the line input impedance of the audiocard can load too much the output which is at high impedance.

Also adjust the input gain of your sound card very low, the demod signal is a signal with high level and if don't care you will have to much level and distortion, result NO DECODING, look at the vu meter in the software to adjust your level.

Now to recover the audio, 2 choices available

The software developed by Darmstadt University of Technology DREAM is available free at [http://sourceforge.net/project/showfiles.php?group\\_id=71084&release\\_id=160987](http://sourceforge.net/project/showfiles.php?group_id=71084&release_id=160987)

The software DRM available after purchase at

<http://www.drmrx.org/downloads/bin/software.html>

### DREAM

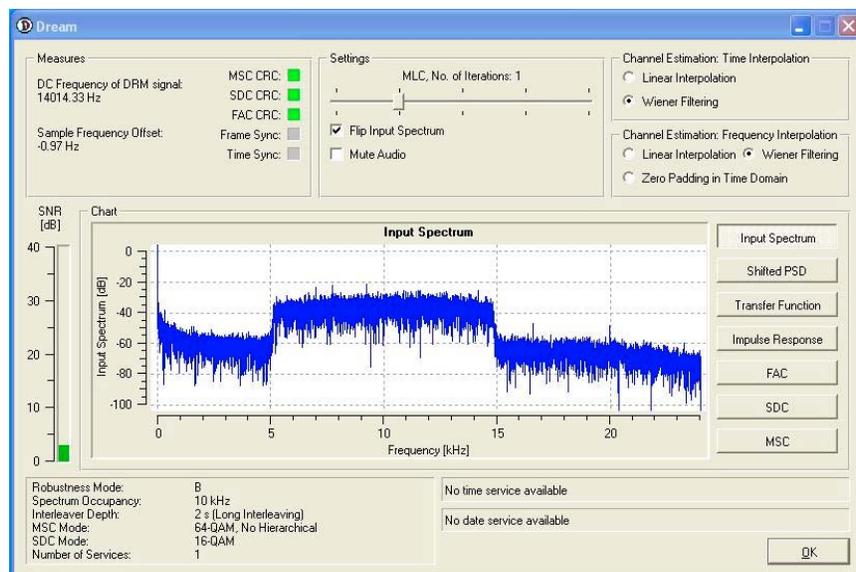
I have excellent result with DREAM with the following setup

Frequency 9810kHz (transmission signal on 9800kHz)

Select mode USB

Change IF Band with to 30 kHz

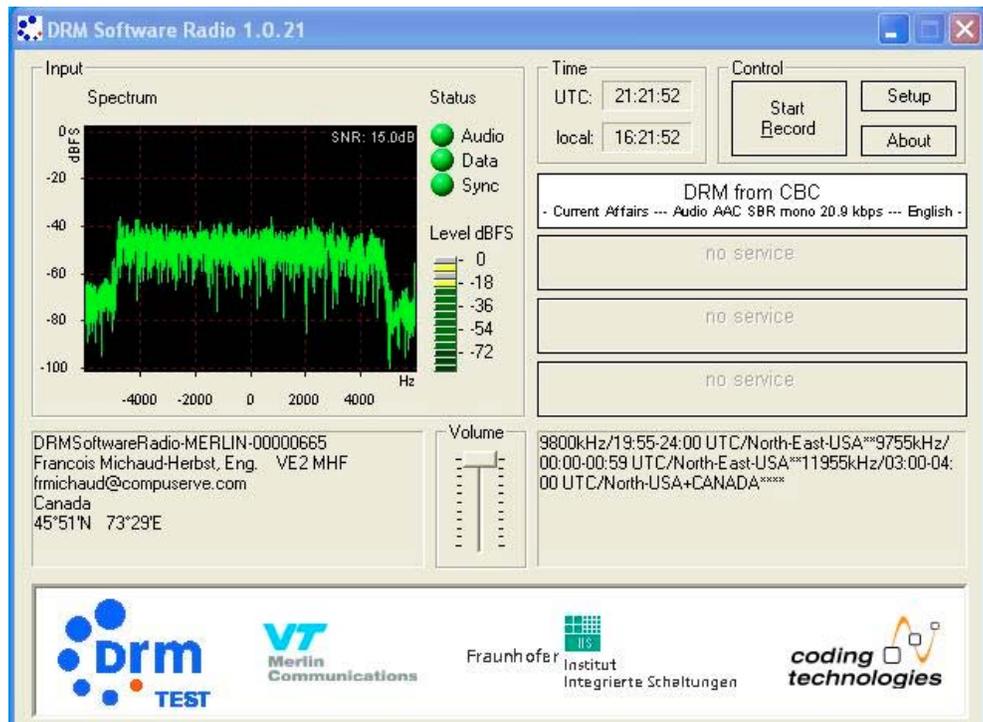
Flip Spectrum



On the window above you can easily see the 10kHz band occupied by the digital signal, in this case I obtain better result using 9810kHz in place of the theoretically value of 9812, the DREAM program adjust himself automatically. It is not perfect it is necessary to have a stable RF signal without fading

## **DRM**

I have excellent result with DRM with the following setup  
Frequency 9788kHz (transmission signal on 9800kHz)  
Select mode USB  
Change IF Band with to 30 kHz



With DRM the decoding is more stable and the sequences of recovered audio longer, adjust the input level to have all the green bars and one or 2 yellows

## **Conclusion**

With such setup it is possible to recover audio, it is not a continuous stream, the system unlocking frequently, but for a start it is encouraging, it is sure that with the proper hardware connected I will have a better result. This paper is just to encourage other to experiment, it is not necessary to spent a fortune to receive DRM

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