



# BRIEFING NOTE CRA-ENG-BN009

## V1-3

# DAB+ ETI STREAMS FROM COMMERCIAL RADIO AUSTRALIA

<b>Modification Record</b>	Created 5/2/2008 RRGM
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## 1 INTRODUCTION

Commercial Radio Australia has collated a selection of test streams to allow receiver manufacturers to test their products will work in the Australian market. These ETI streams will allow the user to recreate a representative DAB+ transmission. The recordings consist of recordings of real on air transmissions, as well as test streams that are used to test specific aspects of receiver performance.

## 2 DISCLAIMER

Commercial Radio Australia (**CRA**) has made recordings of various Ensemble Transport Interface (**ETI**) streams. CRA has made these recordings available to distribute to digital radio receiver manufacturers who are interested in testing potential applications for digital radio receivers. However, CRA and its members do not warrant that these recorded ETI streams (or any related services) are identical or similar to those services that may be provided by broadcasters in the future.

You may request a copy of CRA's recorded ETI stream by sending an email to [mail@commercialradio.com.au](mailto:mail@commercialradio.com.au). If you do so, you will be acknowledging that you have read and understood this warning and that any decisions that you make, in reliance on any recorded ETI stream provided to you, will be made at your own risk.

### 3 SYSTEM REQUIREMENTS

To use the ETI files to test receivers it is necessary to obtain an ETI replayer, and a COFDM modulator. These will generate a radio frequency signal which can be used to test receivers. The ETI replayer and COFDM modulator could be separate pieces of hardware, or could be software functions on the same device.

### 4 ETI FILES

The Ensemble Transport Interface (ETI) is usually presented as a G.703 2.048 Mbit/s signal via a 75 ohm BNC connection. The CRA Test streams are a bit for bit recording of an ETI stream, including all headers and padding bits. The files are typically five to ten minutes long and up to about 150 Megabytes in size. These are zipped down to form smaller files of approximately 50 Megabytes in size for sharing. Some of our files have a 1 kilobyte proprietary header at the start of the file. The files are either ETI (NI) format, without timestamps, or ETI (NA) with timestamps. Our preferred method of distributing these files is sending them by the internet, using a file delivery service provided by [www.yousendit.com](http://www.yousendit.com).

### 5 ETI REPLAYER

In order to convert the ETI file into a 2 Megabit/second ETI stream an ETI replayer is required. This may typically take one of the following forms:

- A PC with a hardware output card with a 2mbit/s G703 BNC output, such as the DABSTOR (<http://vdl.fr/en/products/6/monitoring/30/dabstor>)
- A PC with a USB connected device with a 2 Mbit/sec G703 BNC output such as the Enensys DiviDual. [www.enensys.com](http://www.enensys.com). It is listed as a DMB device.

It should be noticed that there is no difference in the structure between DAB+, DAB and DMB streams. Any ETI replayer can replay any of these. The two examples shown above are units that we have used to generate our files – there are many other products on the market.

### 6 COFDM MODULATOR

An RF COFDM modulator is required to convert the 2 Mbit/sec ETI stream into an RF signal. Typically a COFDM modulator has a 75 Ohm G703 input connector to receive the ETI stream. Once again, it should be noticed that there is no difference in the structure between DAB+, DAB and DMB streams. Any COFDM modulator which can work with any one of these formats will work with them all. UBS Canada sell COFDM modulators [www.uniquesys.com](http://www.uniquesys.com). There are many other products on the market; this is just one product that we use ourselves to generate an RF signal.