

**The Theory (in a nutshell).**

**DVB-T or "Digital Video Broadcasting — Terrestrial"**

This is a European-based standard for the broadcast transmission of digital terrestrial television (first published in 1997) and first broadcast in the UK in 1998. This system transmits compressed digital audio, digital video and other data in an MPEG transport stream, using Coded Orthogonal Frequency Division Multiplexing (COFDM or OFDM) modulation. DVB-T in Australia commenced on 1 January 2001, Complete changeover was achieved by 10 December 2013.

The number of programs carried are 1 to 4 depending on whether SD (Standard Definition) and/or HD (High Definition) and either MPEG-2 or MPEG-4 (H.264) encoding is used.

COFDM works by splitting the digital data stream into a large number of slower digital streams, each of which digitally modulates a set of closely spaced adjacent sub-carrier frequencies. In the case of DVB-T, there are two choices for the number of carriers known as 2K-mode(1,705) or 8K-mode (6,817). These are actually 1,705 or 6,817 sub-carriers that are approximately 4 kHz or 1 kHz apart.

DVB-T offers three different modulation schemes (QPSK, 16QAM, 64QAM).

DVB-T has been adopted for digital television broadcasting by many countries, using mainly VHF 7 MHz and UHF 8 MHz channels however some countries use 6 MHz channels.

DVB-T delivers data in a series of discrete blocks at the symbol rate. It allows the receiver to cope with strong multi-path situations. Within a geographical area, DVB-T allows single-frequency network (SFN) operation, where two or more Tx's carrying the **same** data operate on the same frequency.

Small "gap fillers" Tx's may be used to enhance indoor coverage for DVB-T

Two different MPEG-TSs can be transmitted at the same time, using a technique called *Hierarchical Transmission*. It may be used to transmit, for example a standard definition SD signal and a high definition HD signal on the same carrier. Generally, the SD signal is more robust than the HD one. At the receiver, depending on the quality of the received signal, the de-mux may be able to decode the HD stream or, if signal strength lacks, it can switch to the SD. In this way, all receivers that are in proximity

of the transmission site can lock the HD signal, whereas more distant Rx's may still be able to receive and decode an SD signal.

By altering the various parameters of the transmission it is possible for network operators to find the right balance between the robustness of the DVB-T transmission and its capacity.

### **The Practical Demonstration**

I chose a USB receiver. Plug in the receiver and run **dmesg**. This will identify the USB. If the driver is not installed, search for it on the web and install it with **sudo apt-get install**.

Then install Me-Tv **sudo apt-get install me-tv**.

Then install **sudo apt-get install dvb-apps**.

This will provide you with the Australian Channels

Make sure your USB is plugged-in, reboot, select Me-Tv from your menu and you should be under way.

### **dvb-t Channel Frequencies**

7	177500 kHz
sbs	184500 kHz
9	191500 kHz
10	219500 kHz
abc	226500 kHz

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