

WBT Inquiry  
Submission No: 30

# WIRELESS BROADBAND INQUIRY

## SUBMISSION

By

**BALTECH Pty Ltd**

# BALTECH

PTY LTD

24/05/02

To  
Brendan Egan  
Inquiry Secretary  
Wireless Broadband technologies

Dear Sir

BALTECH Pty Ltd is most interested in the Wireless Broadband inquiry into the current use and potential use of wireless technologies to provide Broadband communications in Australia. Our focus is primarily on the remote, rural and regional areas that currently are unable to receive broadband services or even reasonable dial up Internet access.

We have been developing, with the assistance of our partner company Baltel 2010 Pty Ltd, a new radio frequency (RF) modulation capability that is based on Orthogonal Frequency Division Multiplexing (OFDM) techniques.

Our R&D direction shows clearly that this OFDM waveform has the effect of increasing the amount of error free "Effective Data Throughput" (EDT) over H.F., and VHF links.

For instance in the H.F. arena the military can only expect 300Bits Per Sec EDT over a good 3 KHz H.F. channel. Our technology will increase this EDT to 9600Bps or more. With access to a broader H.F. channel bandwidth (ie 6KHz-8KHz+) and the use of smart antenna technologies, we could increase this figure many times.

In the military and commercial VHF arena EDT rates vary from 1200BPS to 4800BPS over 12 & 25 KHz channels.

**But** with access to wider VHF bandwidth we will be able to deliver very high EDT rates. For instance with access to a redundant 5MHz VHF broadcast channel we will be able to deliver a 10Mbits per sec or more EDT rate; and again with the use of smart antenna technologies, we could increase this figure.

**Benefits:**

- Better Internet performance
- Video conferencing
- e learning
- e commerce
- Voice and Data
- Telemedicine
- Virtualpresence
- Virtual medicine

Of course the OFDM solution is just as apt for narrow VHF channels such as 100 KHz channels, where potentially 100Kbsec or more is achievable.

**Costs:**

To fully develop the VHF/H.F. modulation technology for rural, remote and regional wireless broadband communications will require \$1.3 Million over 2-3 years. Access to existing broadcast VHF/H.F. infrastructure would be required, there will be some costs associated with this.

**Other Costs:**

Funding will be required to complete the development of the smart antenna technologies. Funding will also be required to develop the upgrade modules to modify existing customer VHF/H.F. transceivers and antennas and/or develop new low cost customer receive and transmit equipment and associated customer antenna arrays.

**Other Parties:**

BALTECH Pty Ltd is in discussions with Ericsson Australia re the potential for this technology to impact on and in a wide range of communications and telecommunications sectors both locally and globally.

BALTECH Pty Ltd and the Victoria University of Technology's School of Electrical Engineering, Communications and Informatics Department have agreed to work together on VHF, H.F. and UHF OFDM outcomes.

BALTECH Pty Ltd has had discussions with the Australian National University's Bush LAN team and we believe a close collaboration between the two groups and a signal processing group out of South Australia will effectively deliver the Broadband communications capability to rural and remote communities throughout Australia.

BALTECH Pty Ltd is part of the BITS program through Information City Victoria (ICV). Our head office is in the ICV regional Ballarat facility located within the GreenHill Enterprise Centre at the University of Ballarats Technology Park.

BALTECH Pty Ltd would welcome the opportunity to meet with the committee to discuss the impact of our technology development direction. The technology outcomes will have great commercial and export potential.

Yours Sincerely

Peter Moon  
M.D. BALTECH Pty Ltd

