mimo max wireless Update

# MiMOMax Wireless Limited

## *October e-Newsletter 2009*

**Welcome to the second bi-monthly MiMOMax Wireless e-Newsletter, aimed to provide you with interesting, yet relevant, business and technological information on MiMOMax Wireless and their product family.**

**Included in this October e-Newsletter is MiMOMax Wireless' current products and forthcoming products, events, and company updates. Additional news and information can also be found at: www.mimomax.com**

## *Current Products*

### 5khz channel raster

MiMOMax has now developed 5kHz channel raster capability, enabling operational frequencies to be set to any multiple of 5kHz, when previously, MiMOMax only offered only 6.25kHz channel raster capability.

All of the MiMOMax product family is able to function using 5kHz raster capability, therefore, increasing the international markets in which the product family is able to operate within; for example, including countries which utilise 10/20/30kHz and 12.5/25/50kHz channel spacings.

### 2-Channel X.21 Mux Adapter

MiMOMax Wireless is currently offering a 2-Channel X.21 Mux Adapter (Mux). The Mux is a small adapter box, which can either be mounted adjacent to a 19 inch Racj mount, or remotely for the Pole or Wall top Mount as required.

Functionally, the Mux provides 2 x X.21 Interfaces over a single radio channel, each operated at 64kb/s in Full-Duplex Mode. An identical Mux is required at each end of the radio link.

### M-DAP- MiMOMax Data Acceleration Protocols

MiMOMax Wireless Limited has made available an optional suite of Data Acceleration Protocols (M-DAP). M-DAP is a suite of up to four individual protocols, which accelerate the transfer of data across all MiMOMax linking products. In addition to accelerated data transfer, M-DAP also offers a QOS solution that fragments low priory data traffic, to enable low jitter and ultra low latency, for high priority traffic (for example; VoIP). It compresses Ethernet, IP, UDP and RTP headers, to allow additional bytes for the voice payload. This is particularly useful when VoIP steams occupy more bytes than the voice payload. For example, a VoIP packet might ordinarily occupy up to 60 bytes, however, M-DAP can compress this down to an ultra efficient 3 bytes.

**High altitude Panel antenna**

MiMOMax Wireless offers a range of antennas, with the most recent successful development including the wide band (420MHz-470MHz), high altitude Panel Antenna. This high altitude, ruggedized wide band Panel Antenna, has been designed to withstand harsh environments, yet offer a high level of performance, within radio sites where high wind and ice loading (>250km/hr) is probable.

Like all MiMOMax Antennas, the Panel antenna uniquely utilises both vertical and horizontal elements, in a bi-quadrature diversity format. This provides a degree of pattern diversity over direct paths even when only one receiver pair is used (in the full 2x4 MiMO configuration, two antennas are used to feed four MiMO receivers). The Panel antenna also achieves similar gains to other MiMOMax antennas over the entire operating bandwidth.

**4 Wire Audio Network Interface Box**

MiMOMax Wireless has released a new audio interface solution, applicable to all of its product family. The 4 Wire Audio Network Interface Box (4WA NIB), provides up to 6 channels of 4 wire VF with E & M signalling, on a 25kHz channel. Additionally, the 4WA NIB can support site monitoring or inter-site communications via an RS232 Asynchronous Serial connection, with a maximum raw data rate of 192kb/s.

In a 12.5kHz channel, 4 wire NIB can provide up to three x 4 wire audio channels with no inter-site data connection, or 2 x 4 wire audio channels with inter-site connection, both options including E & M signalling. (Note: dependent on Modulation level chosen)

The 4WA NIB utilises a G726 32kbps ADPCM vo-coder, which provides low latency, toll quality, tone transparent audio paths. As a result, this combined MiMOMax 4WA NIB system provides a cost effective, ultra spectrally efficient and low latency audio interface solution.

## *Upcoming Products/Events*

**Programmable Power**
MiMOMax Wireless is about to release programmable RF power capability within CCMS, enabling customers to programme their own RF Transmitter output power, to fit specified requirements. The programmable power range is greater than 20db and includes 10mW to 1W power levels.

**Programmable Frequency Settings**

MiMOMax customers will soon be able to electronically tune their own Transmitter and Receiver frequencies to match desired requirements within the designed equipment band. If a significant frequency shift is required (for example, more than a few channels), internal Duplexers may also be required to be re-tuned.

Such frequency tuning options allows customers more flexibility, in such instances, where a radio may need to be relocated to a new frequency, replace an older radio, or when the customer wants to purchase radios prior to gaining their frequency license.

**M-RAP – Routing Adaptation Protocols**

M-RAP is a suite of protocols that provide dynamic re-routing in the event of a path failure where multiple paths are available. M-RAP would be able to learn the topology of the network and therefore reroute paths as the topology changes (links lost or added). OSPF routing protocol is used to determine which path to take, to achieve this re-routing functionality in a

MiMOMax system. When a radio is “hard coded”, as “the default gateway” into an area, then the area loses communications, even when other radios could potentially act as default gateways. In the event of a communications failure VRRP is used in the MiMOMax radios to dynamically assign a virtual IP address so that the selected radio becomes the default gateway.

OSPF routers only communicate their state with the other routers in that “area”. GRE (Generic Routing Encapsulation) protocol may be used to pipe this monitoring information from the “areas” to a monitoring system in the core of the customer’s network.

**Participation in the Radio Resources Connect Tradeshow**

MiMOMax Wireless will be participating in the RadioComms Connect 2009 tradeshow in Melbourne, Australia. RadioComms Connect is a tradeshow which is aimed to target professional radio communications solution providers and end users, both international and local to the Australasian market.

RadioComms is hosting exhibitors and many expert speakers, including Paul Daigneault, Managing Director of MiMOMax Wireless, who will be presenting in detail, MiMO technology, and how MiMOMax applies MiMO to their products, in order to achieve world leading spectrally efficiency and low latency results.

MiMOMax will also be exhibiting at RadioComms, which will assist to increase many wireless communications opportunities for, not only MiMOMax, but also a multitude of end users within the Australian region.

For more details on Radio Resources Connect Tradeshow, please visit: http://www.radiocomms.com.au/connect/2009. For more information on MiMOMax Wireless, please visit: www.mimomax.com.

## *Company Updates*

**FCC compliance certification**

MiMOMax Wireless’ Link Radio Units have been certified by the Federation of Communications Commission (FCC), for Parts 15 & 90 of the Code of Federal Relations (CFR) 47.

The FCC certification covers both 25kHz and 12.5kHz channel spacing, and the report results for both channel spacings were outstanding. An independent test house was commissioned, and returned a test report showing very good performance in both 25kHz and 12.5kHz channels, with almost total absence of spurious emissions.

Needless to say, the MiMOMax team are extremely pleased with these results, especially as obtaining an FCC endorsement allows them to offer their products to wider range of international markets. Although MiMOMax did not foresee any issues arising, by commissioning an independent product evaluation it is expected to increase customer trust and reinforce the integrity of their product families

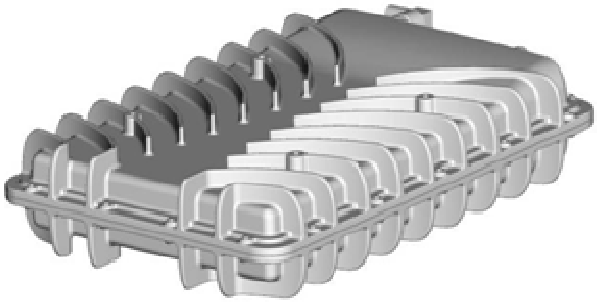
**Industry Canada compliances**

MiMOMax Wireless' product family has been certified by Industry Canada (IC), as a result of the successful submission of a product test report. Testing was undertaken by an independent test house.

Yet again, the MiMOMax team are happy to extend their list of certifications, enabling expansion into new international markets, and further reinforcing product integrity.

In the case of the IC compliance, the MiMOMax team were particularly pleased with the prompt, trouble free completion of the test report and certification issuing.

***About MiMOMax Wireless:*** MiMOMax Wireless utilises MiMO and Space Time Coding technologies to provide high reliability, ultra high spectral efficiency, very low latency linking solutions in narrowband licensed channels to ensure reliable, and interference free operation for mission critical applications.



mimo | max wireless

**MiMOMax Wireless Ltd**
535 Wairakei Rd
Christchurch, New Zealand
Ph +643-358-3399
www.mimomax.com