

UBIK  mimomax

Resilient Communications for Emergency Services





Mission-Critical Point-to-Point Communications

For the organizations which keep our people safe and life in our communities running smoothly, access to near real-time communications is of critical importance.

In the world of emergency services, sometimes there are no second chances to save human lives. Speed, coverage and reliability therefore must be engineered into communications networks to ensure critical operations are maintained.

Ubiik Mimomax's Tornado radios are engineered to provide the **five 9's reliability** and **ultra-low latency** required for critical emergency communications and can support IP and Analog traffic. The ability to use lower orders of modulation allows for resilient fade-resistant paths as long as 100 kms and sophisticated compression techniques and Quality of Service (QoS) ensure the criticality of voice traffic is maintained.

POINT TO POINT APPLICATIONS

VOICE BACKHAUL
 ultra-reliable backhaul for P25, DMR, TETRA, or Analog to keep your team connected

REDUNDANCY
 primary mission-critical 1+1 communications network to ensure connectivity in emergencies

TERRAIN CHALLENGES
 ideal solution for hard to reach or non-line of sight paths

LEASED LINES REPLACEMENT
 step away from rising OPEX by swapping Tornado radios for leased lines

LAST MILE
 cost effective, easy installations for isolated locations or network spurs from fiber networks

SIMULCAST
 overlapping coverage and seamless operation with ultra-low latency and stability across the network

		P25	DMR	Analog
Bandwidth/Modulation		Number of Trunked Channels	Number of Trunked Channels	Number of Trunked Channels
50 kHz	QAM256	25 Channels	30 Channels	6 Channels
	QAM64	18 Channels	25 Channels	6 Channels
	QAM16	12 Channels	15 Channels	6 Channels
	QPSK	5 Channels	8 Channels	6 Channels
25 kHz	QAM256	10 Channels	13 Channels	6 Channels
	QAM64	8 Channels	11 Channels	5 Channels
	QAM16	5 Channels	7 Channels	3 Channels
	QPSK	2 Channels	3 Channels	1 Channels (with E&M) 2 Channels (no E&M)
12.5 kHz	QAM256	5 Channels	7 Channels	3 Channels
	QAM64	4 Channels	5 Channels	2 Channels
	QAM16	2 Channels	3 Channels	1 Channels (with E&M) 2 Channels (no E&M)
	QPSK	N/A	1 Channel	1 Channels (no E&M)

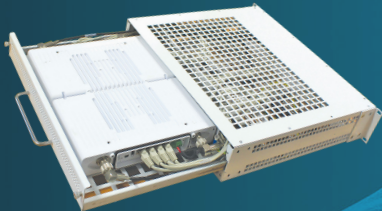
"The (Mimomax) links have proved to be more tolerant to path obstructions & fading than microwave, and this has allowed links to be implemented between sites that would be difficult at microwave frequencies."

RICHARD CERVENY - COMMUNICATION SYSTEMS OFFICER
 FIRE & RESCUE NSW

PRODUCT FAMILY

Tornado

Our award-winning Ubiik Mimomax Tornado radio is pushing the boundaries of what can be achieved in narrowband channels. Utilising MIMO technology, full duplex communications and high order modulation, the Tornado radio can achieve aggregate data rates of up to 1280kbps in a 50kHz channel and latency as low as 3ms with our Optimised Protection Variant and sub 10ms in a standard point-to-point configuration.



Tornado 1+1

Tornado 1+1 provides automated support for both a warm and hot standby system with the Ubiik Mimomax Tornado 1+1. If one radio fails, a second standby radio is automatically switched in to take over, with no loss of data. An ideal product for mission critical links with the highest availability requirements.

4 Wire Audio

The 4 Wire Audio Interface is an external full duplex audio solution communicating directly with the Ubiik Mimomax Tornado radio. Multiple channel configuration options are offered, including E & M signalling and an Asynchronous Serial interface to enable data communications for SCADA. A Simulcast variant is also available.



Point to Point Backhaul Advantages

Our radio is optimised for providing backhaul links between sites in LMR networks with seamless integration into any LMR system. Each link can carry multiple voice channels and have residual bandwidth for maintenance tasks. A high priority queue is available to provide priority to voice and other critical data over the link.

KEY BENEFITS OF OUR TECHNOLOGY

MISSION CRITICAL FOCUS

Designed to meet the most stringent communications requirements for our mission critical customers.

HIGH SPECTRAL EFFICIENCY

Highest spectral efficiency (16b/Hz/s) in narrowband channels, Ubiik Mimomax allows customers to fully optimize their investment in spectrum.

BETTER COVERAGE

Where microwave and satellite can struggle with terrain and weather events, our narrowband radios can perform even in near or non-line of sight and poor weather conditions.

ULTRA-LOW LATENCY

In a standard point-to-point link, Tornado radio latency is sub 10ms but for ultra-critical applications, latency as low as sub 3ms can be achieved depending on the interface and radio variant utilised.

EASY TO DEPLOY

Engineered for plug'n'play deployment to save time and cost during deployment.

LONGER RANGE

Low frequency narrowband radios can cover hops as long as 100 kilometers, resulting in fewer hops required and an overall reduction in cost.

LAST MILE CONNECTIVITY

Our high-capacity radios offer a cost-effective alternative to last mile fiber or microwave links to remote sites across difficult terrain.

LICENSED FOR HIGH AVAILABILITY

Operates in licensed spectrum (in 400MHz, 700MHz, 800MHz, and 900MHz) to ensure customers' communications links offer the dedicated availability required.

RAW AGGREGATE DATA THROUGHPUT

Modulation	12.5 kHz	25 kHz	50 kHz
QPSK	80 kbps	160 kbps	320 kbps
QAM16	160 kbps	320 kbps	640 kbps
QAM64	240 kbps	480 kbps	960 kbps
QAM256	320 kbps	640 kbps	1280 kbps

TORNADO IP LATENCY ONE WAY

Application	12.5 kHz	25 kHz	50 kHz
IP (QAM256)	13 ms	6.5 ms	3.7 ms
IP (QAM 64)	16 ms	8 ms	4.4 ms
Analog (QAM256)	14 ms	10 ms	8 ms
Analog (QAM64)	15 ms	10 ms	8 ms

UBIIK MIMOMAX CUSTOMER EXPERIENCES

NATIONWIDE BACKHAUL NETWORK - NEW ZEALAND POLICE

With 10,000 officers to connect in the field, fast and resilient communications systems are mission critical for New Zealand Police. A recent communications expansion and upgrade project saw the deployment of Mimomax Tornado 50kHz radios in their Analog Land Mobile Radio network at sites spread across the country.

SOLUTION:

With some links as long as 45 kilometers, hilly terrain and some non-line-of-sight paths to manage, the project required careful path planning prior to deployment to ensure high availability for the network. The Mimomax Tornado radios provided the desired combination of very low audio latency and high spectral efficiency. In addition, a wider power supply voltage range offered less complexity at installation sites and a requirement for fewer spares to be held.



COST-EFFECTIVE COASTAL NETWORK - SURF LIFESAVING AU

With 12,000 beaches to patrol and 100 million annual beach visits to keep a watchful eye over, maintaining a reliable, secure communications network is at the heart of Surf Life Saving's service. Requiring full coverage with no congestion and the ability to withstand weather events, for Surf Life Saving Australia the challenge was to find a communications solution to upgrade their digital voice communications along difficult coastal terrain.

SOLUTION:

Achieving longer paths in a single link, the Mimomax solution was both cost-effective and quick to deploy through the use of existing infrastructure. Sophisticated compression techniques specifically designed for digital radio voice streams combined with MIMO (Multiple Input, Multiple Output) technology offered high data throughput compared to other narrowband linking solutions while ultra-low latency also ensured near real-time communications.



RESILIENT RURAL REMOTE CONNECTIVITY - FIRE & RESCUE NSW

Fire & Rescue New South Wales in Australia required voice backhaul between 45 radio sites located in remote parts of southern NSW. With environments ranging from the highest communications site on the Australian continent to flat sites located in remote Western NSW, FRNSW required a resilient communications solution which would connect these remote sites to the Communication Centers in Sydney and Newcastle.

SOLUTION:

Involving some longer links and, at times, harsh weather, the Mimomax solution required extensive RF engineering for some of the sites. Heated antennas were used at some sites which experienced snowfall through winters. An additional point of difference for the Mimomax solution was that the radio links were designed to act as both routers and multicast units, offering value for money and less equipment in the network.



About

Founded: 2007

Headquarters: Christchurch, New Zealand

Regional offices: Phoenix, Arizona and Portland, Oregon

Combining a deep understanding of RF engineering with expertise gained from numerous deployments across the globe, Ubiik Mimomax provides utility customers with cost-effective, wireless communications solutions to support grid modernization. Advanced communications technology coupled with sophisticated RF network design ensures our customers not only gain visibility right to the edge of the grid but also optimise their investment in spectrum.

Contact Us Today

NZ Office

540 Wairakei Road, Burnside,
Christchurch 8053
New Zealand

Phone: +64 3 357 3160

Email: sales@mimomax.com
ubiikmimomax.com