UBIIRSMIMOMAX

Resilient Communications for Public Safety



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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 Public Safety, 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 60 miles (100 kms) and sophisticated compression techniques and Quality of Service (QoS) ensure the criticality of voice traffic is maintained.



QAM64

OAM16

QPSK

12.5 kHz

4 Channels

2 Channels

N/A

5 Channels

3 Channels

1 Channel

2 Channels

1 Channels (with

E&M)

2 Channels (no E&M) 1 Channels (no

E&M)

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

TORNADO FAMILY

Tornado

Our award-winning Ubiik Mimomax Tornado radio is pushing the boundaries of what can be achieved in narrowband channels. Utilizing 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 Optimized Protection Variant and sub 10ms in a standard point-topoint configuration.





Tornado X

Tornado X is a high transmit power addition to our full duplex, MIMO product range. Offering a transmit power which remains stable across all modulations, Tornado X is fully compatible with the Tornado radio allowing for a mix of radios in the network to suit terrain or meet network requirements.

Tornado 1+1

Tornado 1+1 provides automated support for both a warm and hot standby system with the 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.



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, 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 utilized.

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 60 miles, 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 AVAILIBILITY

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	75kHz
QPSK	80 kbps	160 kbps	320 kbps	480 kbps
QAM16	160 kbps	320 kbps	640 kbps	960 kbps
QAM64	240 kbps	480 kbps	960 kbps	1440 kbps
QAM256	320 kbps	640 kbps	1280 kbps	1920 kbps

TORNADO IP LATENCY ONE WAY

Application	12.5 kHz	25 kHz	50 kHz	75kHz
IP (QAM256)	13 ms	6.5 ms	3.7 ms	2.95 ms
IP (QAM 64)	16 ms	8 ms	4.4 ms	3.6 ms
Analog (QAM256)	14 ms	10 ms	8 ms	N/A
Analog (QAM64)	15 ms	10 ms	8 ms	N/A

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 27 miles, 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.





REPLACING UNRELIABLE T1 LINK - RACOM

As one of North America's premier systems integrators for critical communications infrastructure, RACOM focuses on designing, selling and maintaining the communications technologies used in emergency responses. The company needed reliable backhaul from one of their P25 sites to their Network Switching Center – a path which had another communication tower in the middle of the 6-mile path. The site was using a T1 that was often unreliable and was affecting their customers' critical communications.

SOLUTION:

To replace the unreliable T1 line, Mimomax provided RACOM with Tornado radios for 450MHz to resolve interference issues they were experiencing in 900MHz. High data throughput combined with non-line-of-sight ability made the Tornado radio the ideal T1 replacement solution for this scenario.

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.



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About Founded: 2007 Headquarters: Christchurch, New Zealand Regional offices: Phoenix, Arizona

Combining a deep understanding of RF engineering with expertise gained from numerous deployments across the globe, Ubiik Mimomax provides 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 optimize their investment in spectrum.

Contact Us Today

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