

## SOLUTION BRIEF: Public Safety

Advanced wireless connectivity systems are key to public safety



**PUBLIC  
SAFETY  
SYSTEM**

*Below: The JMA Wireless remote unit for the public safety market is available as a single, dual or tri-band option.*



## Empowering Mission Critical Communication

Minutes matter in the world of first responders. The lack of instantaneous mobile communication can impede their mission to protect citizens every day. A robust wireless network is critical to successfully execute this mission.

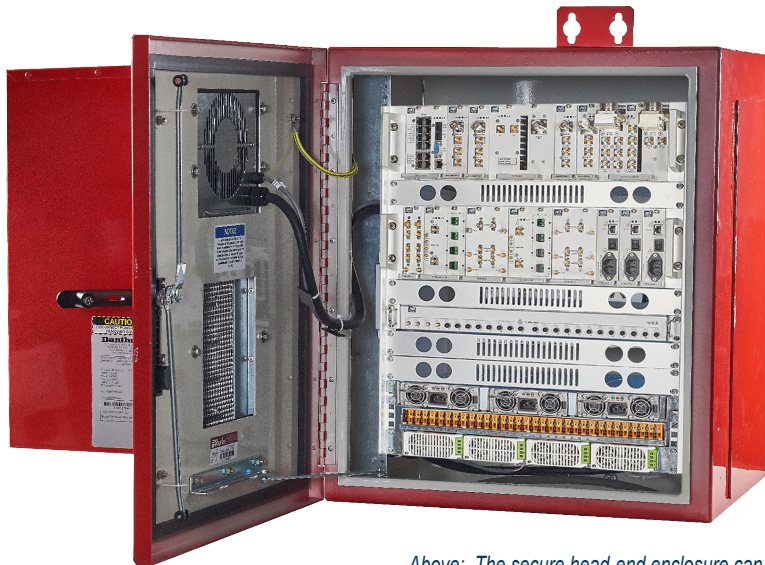
### Critical Communications Bring Extensive Network Challenges

Supplying powerful mobile communications to the public safety market often presents a set of challenges unlike those in any other industry. A wireless network for first responders must be built to meet certain stringent codes from the National Fire Protection Association (NFPA). The NFPA deals with more than 300 consensus codes and standards intended to eliminate death, injury, property and economic loss due to fire, electrical, and related hazards. In-building wireless communication requirements are included. In addition, the International Fire Code (IFC) has other requirements for new as well as existing structures.

Even though these codes exist they are subject to each authority's interpretation. Ultimately, the jurisdiction determines exactly how the requirements need to be enforced, which often results in the need for extensive customization. Unfortunately, these custom solutions are not very cost-efficient.

Customization may be required for other reasons too. For example, neighboring municipalities often use different UHF and VHF bands, which results in interference. To resolve interference issues, filtering is required. Filtering is the top customization item.

The near-far effect is another critical issue that must be managed in public safety wireless networks. With the near-far effect, a mobile unit can block another mobile unit from using a channel or communicating with a base station due to its relatively close proximity to an antenna while other units that are further away also are trying to use the same antenna for communication. It is critical to keep all mobile



*Above: The secure head-end enclosure can be mounted on a wall or H-frame. Also, an optional pole mount is available.*

devices as close to the same power level as possible at the receiver base station in order to save on interference and on battery life.

An outdoor wireless system is susceptible to signal disruptions due to exposure to polluted air, dirt and the development of corrosion or dust. This leads to an issue known as PIM (passive intermodulation), which can degrade signal performance. PIM distortion occurs in passive components such as antennas, cables, connectors, or duplexers with two or more high-power input signals.

#### **JMA Wireless Solution Raises the Public Safety Bar**

JMA Wireless offers an end-to-end public safety solution that offers capabilities unmatched in the industry. It not only is compliant with NFPA and IFC regulations, but it can be easily customized to meet the various requirements of almost any jurisdiction. This offering interfaces seamlessly with an existing commercial DAS (distributed antenna system) to make it one of the most cost-efficient solutions as well. There is no need to rip and replace.

The remote units are NEMA 4 and IP 66 rated. They come in single, dual and tri-band configurations, readily supporting all key public safety bands (700/800/900) and offer the option to support LTE (PS700 and PS800), SMR900 and paging. In addition, they support UHF/VHF with 150Mhz and 450Mhz. The near-far effect is eliminated thanks to automatic gain control (ACG) uniquely addressed at both the remote unit and the master unit.

Unlike competitive offerings, the solution includes notch filters that are directly integrated into the RF path, resulting

in less than 0.1 dB loss. Other solutions in the market have on average a three – four dB loss. These notch filters supply unmatched output power and noise figure performance. In addition, there is no need to test for PIM.

Also, the FUZE™ solution from JMA Wireless now includes a public safety mounting platform that combines DAS, IP connected devices and digital electricity in one deployment option. With FUZE, only a single conduit is used to protect the fiber and powering infrastructure, which not only streamlines deployments, but also ensures critical communications. The fully integrated FUZE mounting kit optimizes connectivity from head-end locations to remote sites. Its digital electricity feature conveniently powers remote locations up to one mile away. Plus, the use of FUZE allows for centralized battery back-up, which enables critical reliability and reduced installation costs. Its ability to combine multiple technologies into a single installation further reduces the total cost of ownership.

#### **Prepared for the Future**

As market needs evolve, new technologies are introduced to answer them. For example, IoT (internet of things) sensor technologies will provide better intelligence to central safety monitoring centers and offer the ability to deliver edge gateways along with a wide range of monitors and controls. The JMA Wireless end-to-end offering not only uniquely meets today's public safety needs, but it provides an integrated solution for IoT and other future technologies. Whether thinking of today's market needs or what the future may present, think JMA Wireless.

#### **About JMA Wireless**

*JMA Wireless is the leading global innovator in mobile wireless connectivity solutions that ensure infrastructure reliability, streamline service operations, and maximize wireless performance. Employing powerful, patented innovations, their solutions portfolio is proven to lower the cost of operations while ensuring lifetime quality levels in equipment and unrivaled performance for coverage and high-speed mobile data. JMA Wireless solutions cover macro infrastructure, outdoor and indoor distributed antenna systems and small cell solutions. JMA Wireless corporate headquarters are located in Liverpool, NY, with manufacturing, R&D, and sales operations in over 20 locations worldwide. For more information see [jmawireless.com](http://jmawireless.com).*

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