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Wireless FAQ

Describe the state of wireless headset technology for fireground communication. How mature is this technology?

The technology has been around for years. Though it has been utilized in other industries, it has not been applied to the fire service until recently. The technology allows the first responder to be virtually un-tethered, giving the engineer and other crew member's mobility around the truck.

Open license technologies are the most commonly used in the wireless industry but it is often found to not be appropriate or reliable enough for the fire and rescue industry. But there is now a wireless headset that operates on an interference free band that utilizes a recognized protocol standard.

When is it right for a department to switch to wireless communications?

The right time for a department to switch to wireless is when their budget allows them to purchase new headsets, when specing a new truck, when the department needs the engineer to be wireless from the apparatus or when there is a need for the chief to be wireless on the ground.

When is it wrong for a department to switch?

There is never a wrong time to switch to the enhanced capabilities of a wireless system, as long as the department's budget allows for new communications equipment.

What is the cost difference between wired and wireless communication?

With a new installation, one driver and one engineer configuration (no interior or pump panel module), the difference is approximately \$264. In addition, there are significant savings in cable and installation costs.

Do wireless communication headsets have durability or longevity issues different from wired sets?

No. They do not have different durability or longevity issues. In fact, the wireless headset uses the same form factor as the wired headset. The headset's durability and ease of use has already been tested and proven over the years. Also, comm cords and connectors are no longer an issue with wireless headsets. And there are no problems with slamming the cords in the door.

The battery will need to be replaced every few years with a wireless headset. But other than that, there are no differences between the wireless and wired headsets except for the enhanced capabilities that a wireless headset provides the user.

How will the reconfiguration of the 700-mhz band effect the wireless microphones?

There is no effect whatsoever because the wireless system is licensed by FCC.

Is background noise any different with wireless and wired communication?

No, the wireless headset is voice activated much like the wired headset. It has built-in noise gating to prevent background noise from breaking through. Transmission is digital audio which is even better than CD quality.

Will solid objects, such as walls, floors, apparatus, block the wireless signal?

Solid objects will exhibit some attenuation to the wireless signal depending on the nature of the object (material, thickness, geometry, etc.). Also, site topography and conditions may impact the range. However, the wireless system provides more than sufficient range for the intended use through carefully calculated RF power levels, antenna design, antenna diversity, and the very nature of the chosen protocol and operating frequencies. The wireless system has been tested under various site conditions and proven to provide excellent performance around the fire apparatus under said site conditions.

Are the units weather resistant (rain, wind, mud, etc.)?

The wireless headsets are weather resistant within reasonable limits. They are protected against rain (not submersible), and they were subjected to environmental testing for humidity, salt fogging, shock and vibration per MIL-STD-810F. All electronics inside are conformally coated for added weather protection.

Do they help to overcome background radio noise identified from the Digital Problem Working Group?

No. This is a problem with the digital radio, not the wireless headset.

Are they affected by any other radio spectrum interference?

No. The wireless system was subjected to RF immunity testing between 30MHz and 18GHz at 50V/m field strength and did not experience any degradation of

performance throughout the entire specified spectrum. It also employs the principal of co-existence with similar devices operating in the vicinity.

What is their reliability to maintain connectivity?

The wireless system is very robust in terms of maintaining connectivity within the operating range boundary. It employs dual antenna spatial diversity on both ends (the fixed and portable parts). It is also capable of automatically restoring connectivity when lost due to exceeding the operating range.

Is there some sort of warning if connectivity is lost?

The headset will sound a non-intrusive warning beep once every 15 seconds when on the fringes of the operating range and prior to losing the link completely.

What developments do you foresee for wireless communication in the next five to 10 years?

In the next five to 10 years, the wireless communication system will see expanded uses in the fire and rescue industry. As first responders adapt to the new technology, they will demand the ease of use of the system in other areas of their departments. Honestly, we actually don't know all of the future uses of this technology but over time, customers will drive product innovations.

Bluetooth vs. Firecom Wireless Technology

Bluetooth protocol operates in the license-free ISM band at 2.4-2.4835 GHz. The industrial, scientific and medical (ISM) radio bands were originally reserved internationally for the use of RF electromagnetic fields for industrial, scientific and medical purposes other than communications.

Because communication devices using the ISM bands accept the inevitable interference from ISM equipment, these bands are typically given over to uses intended for unlicensed operation, since **unlicensed operation typically needs to be tolerant of interference from other devices.**

Firecom's wireless solution is a high capacity wireless access mass market technology, available in most countries of the world. Firecom has a **protected spectrum** and unique instant dynamic channel selection processes that provides the coexistence of high quality real time (speech, streaming etc.).

Firecom's system has a protected spectrum, where as Bluetooth has to compete for bandwidth.



Interference Free Band Vs Open License

Firecom system 1500 ft. open field 3000 ft. diameter

Other systems 300 ft. open field 600 ft. diameter

Firecom has over three times the range and almost 15 times the coverage of Bluetooth™

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