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Best Practices for Wireless Device Deployment in Healthcare Environments

In the rapidly advancing landscape of the digital era, healthcare remains a dynamic industry in constant evolution. Technological advancements that have revolutionized patient care over the years include medical telemetry systems with the integration of the Internet of Medical Things (IoMT,) Real Time Location Systems (RTLS), advanced Electronic Health Record systems (EHRs), and more."

Real-Time Location Systems (RTLS)

A Real-Time Location System (RTLS) is a technology that tracks and monitors the location of objects, people, or assets within a specified area, using various tracking technologies to identify the exact location of tagged items or individuals. The collected location data is then processed and displayed on a central system, allowing users to monitor and manage the movement and whereabouts of the tracked objects or personnel in real-time.

In healthcare settings, RTLS systems are not typically considered part of the hospital's medical telemetry system. However, advancements in IoT and integration capabilities are leading to increased convergence between these systems. Medical telemetry systems primarily focus on monitoring and transmitting physiological data from patients, such as vital signs for analysis and decision making. These systems regularly involve wearable sensors, monitors, and data transmission devices.

On the other hand, medical RTLS systems are designed to track the location of medical equipment, supplies, patients, and personnel to improve operational efficiency, asset management, and patient flow.

RTLS can relate to and complement medical telemetry through asset tracking, patient tracking, and workflow optimization.

An RTLS system consists of several key components that work together to enable location tracking and management. These components typically include:

- **Tags/Beacons/Transmitters**
- **Receivers/Nodes/Access Points**
- **Network Infrastructure**
- **Software/Applications**

Tips for Deploying Wireless Devices on the Ceiling in Healthcare Environments

Read below for considerations when deploying wireless devices on the ceiling in healthcare environments:

The installation method should aim to eliminate the need for a hole in the ceiling for cable egress. By code, holes are not permitted in the ceiling throughout most of the hospital, particularly and including patient areas. By avoiding the necessity of creating an opening in the ceiling, avoids the extra cost and time to seal the hole. Overall, by streamlining cable egress without compromising functionality, an enhanced installation method offers a more efficient and visually pleasing solution for deploying wireless devices on ceiling grid structures.

The installation method must adhere rigorously to stringent healthcare facility codes and standards for ceiling mounted equipment. Compliance with these regulations ensures the safety, reliability, and functionality of the installed equipment within the healthcare environment.

The installation approach should offer a designated secure storage area above the ceiling for surplus cable service loops and connectivity components for each wireless device. Installation should provide full access to wireless network devices and cabling components for maintenance or upgrades after initial installation. The goal is to have access to these components without lifting the ceiling tile which would eliminate the need for infection control procedures.

Additionally, physical security is critical in eliminating tampering of the wireless device and associated cabling after installation. A polished, professional finish for the installation should be considered to meet aesthetic standards while also delivering superior wireless performance.

Oberon Healthcare-Ready RTLS Infrastructure Solutions

In the dynamic landscape of healthcare, efficient and accurate tracking of assets, patients, and personnel within healthcare facilities is paramount. Therefore, the successful implementation of RTLS systems relies heavily on the effective installation of the edge devices such as the RTLS nodes, receivers, and access points.

This is where Oberon can help, revolutionizing RTLS device deployment that optimizes performance, security and critical post-installation support. Oberon brings a wealth of expertise and experience to the table, specializing in the design, deployment, and maintenance of wireless infrastructure solutions tailored to the unique needs of healthcare environments.

With a deep understanding of healthcare environments, compliance and best practices, Oberon offers wireless installation mounting solutions designed specifically for integration of edge components into healthcare environments, facilitating compliance with healthcare regulations and procedures.

Oberon® Wi-Tile® Ceiling Enclosures 1047 Series: A Modern Approach to Ceiling Mounting Equipment

Model 1047-DOME:

- The 1047-DOME enclosure is a 2' x 2' ceiling tile enclosure offering an ABS Hemisphere Dome Door
- This sophisticated modern design enables the installation of wireless devices, including RTLS nodes, receivers, and access points, which require antennas to be positioned beneath the ceiling while also ensuring physical protection
- The ABS plastic dome has little to no effect on the wireless signal
- Solid back-box fills opening behind AP in the ceiling creating an effective fire-resistant, smoke and dust barrier simplifying ICRA compliance
- Firestop grommet to properly seal cable egress in the backbox
- UL listed for low voltage applications. Designed to meet NEC300-22 and 300-23 for plenum installations. OSHPD approved, OPM-0110-13
- Constructed to be compliant with City of Chicago Environmental Air (CCEA) plenum requirements

Features:

- Mounts device flush to the ceiling, with a DOME for optimal wireless coverage
- Attractive, textured, powder-coat finish blends seamlessly with most 2' x 2' ceiling structures
- Larger back-box designed for securing most vendors' network edge devices
- Lockable drop-down doors permit easy access to equipment and cabling WITHOUT the need to open the above ceiling space.
- The lockable doors are interchangeable simplifying migration to next generation devices
- Enclosure back-box is an effective dust barrier to simplify ICRA procedure compliance

Looking for more Oberon Healthcare-Ready solutions? Visit us at oberonwireless.com for more information and essential planning for your healthcare solutions!

Need a customized solution? Contact us at sales@oberonwireless.com or 877-867-2312.

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