Considerations for Avoiding a Rare Frequency Interference with a Wireless Timekeeping Solution

Introduction

Automated, accurate timekeeping throughout a facility, campus or building can ensure a more optimized flow of occupants, huge savings in maintenance cost and a reliable time source for regulation and compliance needs.

When a wireless system controller is used to synchronize time, a wireless master clock retrieves a time signal from GPS satellites or Network Time Protocol (NTP) and sends a signal to each wireless clock in a facility via a radio frequency. Regardless of the clock's location, it will receive a signal and synchronize with the system controller.

The result is that all of the clocks are precisely synchronized, and can be scheduled to adjust times during particular events, such as Daylight Saving Time, twice per year.

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Interference: Is it a Problem?

Because a wireless system controller manages a facility's clocks using a radio signal, the possibility of interference should always be examined. While different timekeeping systems use different radio frequencies – and other wireless technologies share these frequencies – vendors with an established, quality system should offer solutions that significantly reduce the chances of harmful interference.

In the very rare instances when interference happens, it is often on the fringes of a coverage area where the timekeeping transmitter signal is weaker and another signal overwhelms it. In this case, the systems in that area are not receiving the timekeeping signal from the controller and therefore do not turn on and off at correct times. For example, school bells may fail to ring.

More than a decade ago, some hospitals and clinics were experiencing interference with radio signals because medical equipment was using similar frequencies. Consequently, the FCC required telemetry equipment to be moved off common radio frequencies. Most, if not all, timekeeping system vendors should offer a solution that is not on the same frequency as medical equipment which completely avoids the problem of interference.

Mitigation Solutions to Look For

When considering a wireless timekeeping system, consider one that can adjust the timing of its broadcasting signal to mitigate the chance of interference problems. For example, rather than broadcast a signal every 30 seconds as is typical, some systems can be easily adjusted to broadcast less frequently.

Other techniques for mitigating interference include a night mode, during which timekeeping signals are only transmitted at night when the potential for interference is lower. This may be a good option for some facilities, but it does decrease the accuracy of the clocks, as they will not get synchronization updates during the daytime hours.

Advanced systems have a "quiet mode" option that broadcasts a signal at times during the day when there is less of an opportunity for interference, but frequently enough to keep all clocks synchronized. The system transmits at 2 a.m./p.m., 8 a.m./p.m. and then again from 12 a.m. until 6 a.m. This not only decreases the chance for interference and keeps time precise, but can extend the life of the transmitter.

The Good News: Interference is a Rare Issue

Advancements in transmitting technology and frequency flexibility have nearly eliminated the problem of interference within a facility. That said, it is important for any company to know on which frequencies their current systems run and to discuss any possible overlap with their timekeeping vendor. An advanced wireless timekeeping system should have options and solutions for mitigating interference with other systems in a facility.

FCC License Considerations

A premium provider of a wireless timekeeping system should offer options for FCC licenses, such as securing your own or obtaining it through the vendor. Both have pros and cons: with your own FCC license, you may have certain restrictions removed, such as power or antenna height limitations. On the other hand, a facility generally can get its system up and running faster by allowing the vendor to add it to an existing, shared license.

In the end, many facilities choose to secure the license through a vendor, which allows them to avoid the complex submission process and the need to renew every ten years. By allowing the system provider to handle licensing – and some will not charge a fee for obtaining or renewing it – you can also rely on the provider to handle the regulatory responsibilities of the system licensing.

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