UL ® 2560
and the
Tek-CARE ® 500 Wireless Emergency Call System

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Call systems typically consist of a central unit that receives signals from multiple transmitting devices, either installed in patient or resident rooms throughout a facility or worn by a patient or resident. The transmitting devices allow for two-way audio and/or visual communication between a patient or resident and a medical care professional or other authorized party.

Depending on their intended use environment, call systems are evaluated for their safety consistent with the technical requirements of the following product standards:

Applicable UL® Standards

UL 1069, the Standard for Safety of Hospital Signaling and Nurse Call Equipment—This Standard applies to nurse call systems and equipment found in hospitals and other acute care environments. The seventh edition of the standard, published in October 2007, incorporates specifications for wireless nurse call devices.

UL 2560, the Standard for Safety of Emergency Call Systems for Assisted Living and Independent Living Facilities—Introduced in 2011, this standard applies to emergency call systems used in assisted living facilities, independent adult living centers and other non-acute care settings that are within close proximity to healthcare providers.

UL® 2560 Requirements

At a minimum, UL® 2560 emergency call systems must include the following components:

- **Central notification station**—At least one central station at a fixed location that receives all calls processed through the system.

- **Emergency call stations**—At least one permanently fixed emergency call station located in every resident room or living unit.

- **Back-up power**—A backup power supply so that system operation is maintained in the event of a power loss.

UL® 2560 Requirements

Additional requirements include:

- **Call indicators**—All emergency call stations and pendants must have call indicators to confirm that an call has been placed.

- **Origination reporting**—The central station must display the specific location of the emergency call.

- **Timing of call notification**—All emergency calls must be received by the central station within 60 seconds of being initiated.

- **Call cancellation**—Emergency calls can only be cancelled from the device that initiated the call.

- **Pendants**—If included, pendants and wrist bands must comply with the standard's performance requirements. However, these devices are not a substitute for the fixed emergency call station requirement.

- **Repeater/Locators**—Not a required component but if included, must comply with the standard's performance requirements.

- **Low battery power**—Wireless transmitters must report low battery power at least seven days before loss of power.

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Differences Between UL® 2560 and UL® 1069

- **Maximum voltage**—UL 1069 incorporates maximum distribution voltages for equipment accessible to patients or healthcare providers. UL 2560 does not include maximum voltage requirements.

- **Code calls**—UL 1069 has detailed requirements regarding the system's handling of code calls. UL 2560 has no requirements regarding code calls.

- **Call cancellation**—UL 1069 requires that calls on a portable nurse control station must be cancelled by an action separate from simply terminating communication. UL 2560 does not have this requirement.

- **"Orphan call" routing**—UL 1069 requires that call points monitored by a portable nurse control station must also be monitored by a primary nurse control station to prevent the loss of calls due to a portable system fault or out-of-range condition. UL 2560 does not address this issue.

- **Fault condition signaling**—UL 1069 generally sets 90 seconds as the maximum elapsed time between the occurrence of a fault or other adverse condition, and fault restoration or the generation of a fault signal. UL 2560 sets different maximum times for fault restoration of the generation of a fault signal, depending on the origin of the fault or adverse condition, with maximum times as long as 24 hours in the case of wireless call initiation stations.

Differences Between
UL® 2560 and UL® 1069

- **Oxygen safety**—UL 1069 includes requirements covering the safety of electrical equipment operating in oxygen-enriched environments. UL 2560 includes no such requirements.

- **Leakage current testing**—UL 1069 specifies leakage current testing under four separate conditions following humidity testing, with specific maximum leakage currents for each condition. UL 2560 requires leakage current testing only between any exposed surface of any fixed or stationary equipment and earth ground.

- **Device endurance**—UL 1069 requires that all system devices be operational after being dropped 100 times from a height of four feet onto a concrete surface. UL 2560 reduces the number of drops required to 25 for devices intended only for use by patients and/or residents.

- **Clash**—UL 1069 specifies 10 seconds as the maximum time between the reinitiation of a call signal and its reception by a receiver, when the original signal has encountered interference from another call signal (clash). UL 2560 sets the maximum time at 60 seconds.

- **Markings and instructions**— UL 1069 is generally more stringent regarding required markings and installation and operation instructions, except for UL 2560-certified system devices powered directly from high voltage sources.

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Additional UL® 2560 Requirements

- **Back-up power testing**—A fundamental emergency call system configuration must incorporate a back-up power supply so that system operation is continuously maintained. UL 2560 includes a number of specific tests to assess the operation of back-up power systems. Back-up power for UL 1069 is optional and testing for back-up power is required only when back-up power is provided.

- **Call signals**—UL 2560 requires that signals originating from a call station or wireless pendant be sent every time the call station or pendant is activated, even if the call system has not been reset.

- **Audible indicators**—UL 2560 requires that all audible signals achieve at least a 60 decibel level. UL 1069 has no sound level requirements for audible signals.

- **Submersion testing**—UL 2560 specifies both water spray and submersion testing of system signaling units to assess operation following their use in a shower or bath. UL 1069 does not include a submersion test.

Central Notification Station:

The **Tek-BRIDGE® server** processes and displays transmitter call information from the system's receiver. Many programmable options are available to customize a facility's system.

The NC501ES Tek-BRIDGE® server includes pre-installed Tek-CARE®500 software, plus central monitoring, reporting, and text messaging capabilities. (UL® 2560 listed systems require software v.7283 or higher.)

NC501ES Tek-BRIDGE® server

Tek-CARE®500 System Components

Central Notification Station:

The **Receiver** collects signals from the transmitters, repeater/locators in the field and then transfers that information to the Tek-BRIDGE®.

NC510UL Receiver

The NC510UL Receiver is connected directly to the Tek-BRIDGE® via the supplied cable. The receiver transfers information received from the transmitters in the field to the Tek-BRIDGE®.

NC501ES Tek-BRIDGE® server

Central Notification Station:

The **Uninterruptible Power Supply** provides uninterrupted power for the Tek-BRIDGE® and Receiver in the event of utility power failures, brownouts and blackouts.

NC510UL Receiver

NC501ES Tek-BRIDGE® server

When power is interrupted, the PK250B immediately cuts in to provide power until an emergency generator is activated or power is restored. Battery backup for the Tek-BRIDGE® is rated for 10 minutes.

PK250B Uninterruptible Power Supply

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Tek-CARE®500 System Components

Repeater/Locators are strategically placed throughout the facility to collect and re-transmit signals from transmitters and other repeater/locators to the receiver. Repeater/Locators also provide general location information.

NC510UL Receiver

NC511UL Repeater/Locator

IH511 Weatherproof Housing

NC501ES Tek-BRIDGE® server

Repeater/locators operate on AC power, and include internal battery backup for power outages.

PK250B Uninterruptible Power Supply

TC500 UL® 2560 Listed Transmitters

**SF529UL
Check-In/Assistance
Station**

**SF530UL
Room Station**

**SF531UL
Emergency
Switch**

**SF527UL Wireless Module
with SF337C Waterproof
Emergency Switch**

**SF503UL &
SF504UL
Pendants**

**SF515UL
Motion Detector**

**SF525UL &
SF525/2UL
Universal Contact
Transmitters**

**SF520UL
Door/Window
Egress
Transmitter**

TekTone®
SOUND & SIGNAL
43 YEARS

SF502ES
Wall Transmitter

SF501ES &
SF501/2ES
Pendants

SF505ES
Smoke Detector

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UL® 2560 Capacity

In order for Repeater/Locators to comply with the UL® 2560 standard's supervision and alarm transmission requirements, this device/repeater matrix must be followed.

End Devices	Maximum Repeaters
150	397
250	386
350	375
500	360

End Devices	Maximum Repeaters
1000	313
2000	238
3000	184

This concludes the
Tek-CARE®500 Wireless Emergency Call System Presentation.

Training videos are available at
www.youtube.com/user/TekToneNurseCall

Support literature is available at
www.tektone.com/tekcare500.php