



6.17* SPECIAL REQUIREMENTS FOR LOW-POWER RADIO (WIRELESS) SYSTEMS

6.17.1* Listing Requirements. Compliance with Section 6.17 shall require the use of low-power radio equipment specifically listed for the purpose.

6.17.2 Power Supplies. A primary battery (dry cell) shall be permitted to be used as the sole power source of a low-power radio transmitter where all of the following conditions are met:

1. Each transmitter shall serve only one device and shall be individually identified at the receiver/fire alarm control unit.
2. The battery shall be capable of operating the low-power radio transmitter for not less than 1 year before the battery depletion threshold is reached.
3. A battery depletion signal shall be transmitted before the battery has been depleted to a level below that required to support alarm transmission after 7 additional days of non-alarm operation. This signal shall be distinctive from alarm, supervisory, tamper and trouble signals; shall visibly identify the affected low-power radio transmitter; and, when silenced, shall automatically re-sound at least once every 4 hours.
4. Catastrophic (open or short) battery failure shall cause a trouble signal identifying the affected low-power radio transmitter at its receiver /fire alarm control unit. When silenced, the trouble signal shall automatically re-sound at least once every 4 hours.
5. Any mode of failure of a primary battery in a low-power radio transmitter shall not affect any other low-power radio transmitter.

6.17.3 ALARM SIGNALS

6.17.3.1* When actuated, each low-power radio transmitter shall automatically transmit an alarm signal.

6.17.3.2 Each low-power radio transmitter shall automatically repeat alarm transmission at intervals not exceeding 60 seconds until the initiating device is returned to its non alarm condition.

6.17.3.3 Fire alarm signals shall have priority over all other wireless signals.

6.17.3.4 The maximum allowable response delay from activation of an initiating device to receipt and display by the receiver/fire alarm control unit shall be 10 seconds.

6.17.3.5 An alarm signal from a low-power radio transmitter shall latch at its receiver/fire alarm control unit until manually reset and shall identify the particular initiating device in alarm.

6.17.4 MONITORING FOR INTEGRITY

6.17.4.1 The low-power radio transmitter shall be specifically listed as using a transmission method that is highly resistant to misinterpretation of simultaneous transmissions and to interference (e.g. impulse noise and adjacent channel interference).

6.17.4.2 The occurrence of any single fault that disables transmission between any low-power radio transmitter and the receiver/fire alarm control unit shall cause a latching trouble signal within 200 seconds.

Exception: When Federal Communications Commission (FCC) regulations prevent meeting the 200-second requirement, the time period for a low-power radio transmitter with only a single, connected alarm-initiating device shall be permitted to be increased to four times the minimum time interval permitted for a 1-second transmission up to the following:

- **Four hours maximum for a transmitter serving a single initiating device**
- **Four hours maximum for a retransmission device (repeater) where disabling of the repeater or its transmission does not prevent the receipt of signals at the receiver/fire alarm control unit from any initiating device transmitter**

6.17.4.3 A single fault on the signaling channel shall not cause an alarm signal.

6.17.4.4 The periodic transmission required to comply with 23.17.4.2 from a low-power radio transmitter shall ensure successful alarm transmission capability.



6.17.4.5 Removal of a low-power radio transmitter from its installed location shall cause immediate transmission of a **23.17.4.5 cont.**

distinctive supervisory signal that indicates its removal and individually identifies the affected device.

Exception: This requirement shall not apply to dwelling unit fire warning systems.

6.17.4.6 Reception of any unwanted (interfering) transmission by a retransmission device (repeater) or by the main receiver/control unit, for a continuous period of 20 seconds or more, shall cause an audible and visible trouble indication at the main receiver/control unit. This indication shall identify the specific trouble condition as an interfering signal.

6.17.5 Output Signals from Receiver/Control. When the receiver/control is used to actuate remote appliances, such as notification appliances and relays, by wireless means, the remote appliances shall meet the following requirements:

1. Power supplies shall comply with Chapter 4 or the requirements of 6.17.2.
2. All supervision requirements of Chapter 4, Chapter 6 or 6.17.4 shall apply.
3. The maximum allowable response delay from activation of an initiating device to activation of required alarm functions shall be 10 seconds.
4. Each receiver/control shall automatically repeat alarm transmission at intervals not exceeding 60 seconds or until confirmation that the output appliance has received the alarm signal.
5. The appliances shall continue to operate (latch-in) until manually reset at the receiver/control.

NFPA 2010 – CHAPTER 6 NOW BECOMES CHAPTER 23

Change to Low Power Radio Systems:

23.18.4.2 The occurrence of any single fault that disables transmission between any low-power radio transmitter and the receiver/fire alarm control unit shall cause a latching trouble signal within 200 seconds.