Committee Input No. 5100-NFPA 72-2022 [New Section after 26.2]

26.2.10 Intermediary Service Providers

26.2.10.1

Intermediary services that provide supervision of communication paths, signal retransmission to the responsible supervising station, or other elements of fire alarm service required by this code shall be provided by a company that has a listing covering these elements.

26.2.10.2*

All alarm, trouble, and supervisory signals from fire alarm systems received by an intermediary service provider shall be immediately retransmitted electronically to the supervising station responsible for signal dispositioning.

A.26.2.10.2

The term immediately in this context is intended to mean “without unreasonable delay.” Routine internet routing of signals to their destination supervising station should take a maximum of 90 milli-seconds from receipt of a signal until retransmission to the station.

26.2.10.3

An intermediary service provider that supervises communication paths between a fire alarm system installed at a protected property and its own facility shall immediately report loss of a communication path to the responsible supervising station as a trouble signal.

26.2.10.4

An intermediary service provider facility that supports delivery of signals from a protected premises fire alarm system required by this code shall conform to the construction, fire protection, physical security, cybersecurity, emergency lighting, power, communications infrastructure, and service resiliency requirements for intermediary service providers contained in the latest edition of UL 827, Standard for Central-Station Alarm Services.

26.3 Central Station Service Alarm Systems.

26.3.1

System Scope. Alarm systems for central station service shall include the central station physical plant, exterior communications channels, subsidiary stations, intermediary service providers, and alarm and signaling equipment located at the protected premises.

26.3.5 Facilities.

26.3.5.1

The central station building or that portion of a building occupied by a central station shall conform to the construction, fire protection, restricted access, physical security, cybersecurity, emergency lighting, and power, communications infrastructure, and service resiliency requirements facilities requirements of the latest edition of ANSI/UL 827, Standard for Central-Station Alarm Services.

26.3.5.2

Subsidiary station buildings or those portions of buildings occupied by subsidiary stations shall conform to the construction, fire protection restricted access, physical security, cybersecurity, emergency lighting, and power, communications infrastructure, and service resiliency requirements facilities requirements of the latest edition of ANSI/UL 827, Standard for Central-Station Alarm Services.

Submitter Information Verification

Committee: SIG-SSS
Submittal Date: Tue Jul 19 08:46:08 EDT 2022

Committee Statement

Committee Statement: The intent of this committee input is to create a task group to evaluate the existing arrangement of Section 26.6 (Communications Methods) and harmonize all communications methods into the requirements for performance-based technologies to the extent this is possible. This would permit and regulate the use of new and emerging communication technologies while eliminating prescriptive requirements for outdated technologies, which are currently being phased out due to many factors such as regulatory, technology, and reliability changes. If during this assessment, the task group determines that an existing or legacy communication method cannot be moved into the performance-based technology requirements, a separate section will be maintained to regulate this communication technology. The task group will continue to review Public Input 526 for appropriate requirements and text for inclusion in Section 26.7.

Response Message: CI-5100-NFPA 72-2022

Public Input No. 526-NFPA 72-2022 [New Section after 26.2]

Committee Input No. 5191-NFPA 72-2022 [Section No. 26.2.1.3]

26.2.1.3– Signals

26.2.1.3.1 Fire alarm signals received at the supervising station shall be retransmitted to the communications center by one of the following methods:

(1) Signals that are identified by zone at the supervising station shall be retransmitted by zone to the communications center.

(2) Signals that are identified as an individual point or points at the supervising station shall be retransmitted by point or points to the communications center.

(3)* Signals that are received at the supervising station as events shall be retransmitted by event to the communications center.

26.2.1.3.2* Where fire alarm signals are transmitted to the communications center, the signal description shall be prioritized to provide plain language descriptions in the following order of priority:

1) Plain language description of the type of alarm generated at the premise.

2) Plain language that describes the general address and location of the alarm.

3) Plain language that provides further instruction or information for responding personnel.

4) Subsequent zone, node or other identifiers which may only be transmitted where the premise panel is not capable of plain language identifiers useful to responding personnel.

A.26.2.1.3.2 There is a growing need for information that is provided to the communications center to not only be prioritized to facilitate immediate responses, but also to assist with priority dispatching and to enable proper response assignments for the dispatching of appropriate personnel and resources in an environment with rapidly expanding volume of calls for service. To facilitate effective and timely dispatching of resources the language that is conveyed to a communications center needs to be both prioritized and limited to information that is useful to the emergency response and responding personnel. The transmission of zone numbers, node numbers and other program specific information that is only useful to the designers and alarm companies for programing and assignments in the system programs are inefficient and ineffective and have no place in communications for emergency response to the communications center.

Submitter Information Verification

Committee: SIG-SSS
Submittal Date: Tue Jul 19 14:42:37 EDT 2022

Committee Statement

Committee Statement: There is a growing need for information that is provided to the communications center to not only be prioritized to facilitate immediate responses, but also to assist with priority dispatching and to enable proper response assignments for the dispatching of appropriate personnel and resources in an environment with rapidly expanding volume of calls for service. To facilitate effective and timely dispatching of resources the language that is conveyed to a communications center needs to be both prioritized and limited to information that is useful to the emergency response and responding personnel. The transmission of zone numbers, node numbers and other program specific information that is only useful to the designers and alarm companies for programing and assignments in the system programs are inefficient and ineffective and have no place in communications

for emergency response to the communications center.

Response Message: CI-5191-NFPA 72-2022

Committee Input No. 5176-NFPA 72-2022 [Section No. 26.6]

26.6 Communications Methods for Supervising Station Alarm Systems.

26.6.1* Application.

26.6.1.1

Section 26.6 shall apply to the following:

(1) Transmitter located at the protected premises

(2) Transmission channel between the protected premises and the supervising station or subsidiary station

(3) If used, any subsidiary station and its communications channel

(4) Signal receiving, processing, display, and recording equipment at the supervising station

26.6.1.2

The minimum signaling requirement shall be an alarm signal, trouble signal, and supervisory signal, where used.

26.6.2 General.

26.6.2.1 Master Control Unit.

If the protected premises master control unit is neither integral to nor colocated with the supervising station, the communications methods of Section 26.6 shall be used to connect the protected premises to either a subsidiary station, if used, or a supervising station for central station service in accordance with Section 26.3, proprietary station in accordance with Section 26.4, or remote station in accordance with Section 26.5.

26.6.2.2* Alternate Methods.

Nothing in Chapter 26 shall be interpreted as prohibiting the use of listed equipment using alternate communications methods that provide a level of reliability and supervision consistent with the requirements of Chapter 10 and the intended level of protection.

26.6.2.3 Remote Programming of Transmitting Technologies.

Remote programming of protected premises transmission technologies covered by 26.6.3, 26.6.4, and 26.6.5 shall be permitted when all the conditions in 26.6.2.3.1 through 26.6.2.3.8 are met.

26.6.2.3.1

A qualified person in accordance with 14.4.2.6 shall be at the protected premises at all times during the remote programming.

26.6.2.3.2

Before remote programming of protected premises transmission technologies occurs, notifications shall be made in accordance with 14.2.4.1.

26.6.2.3.3

A test plan shall be developed in accordance with 14.2.10.

26.6.2.3.4

A mitigation plan shall be initiated by the responsible party for the alarm system, which assigns an individual, or individuals, who will be charged with contacting the communications center in the event that an actual alarm occurs during the remote programming of the transmitting equipment.

26.6.2.3.5

Where the transmission technology is integral to the control unit, reacceptance testing shall occur in accordance with 14.4.2.5 and item 4, Supervising station alarm systems — transmission equipment, in Table 14.4.3.2 when executive software for the transmission technology is changed.

26.6.2.3.6

Where the transmission technology is integral to the control unit, reacceptance testing shall occur in accordance with 14.4.2.4 and item 4, Supervising station alarm systems — transmission equipment, in Table 14.4.3.2 when site-specific software for the transmission technology is changed.

26.6.2.3.7

Where the transmission technology is not integral to the control unit, testing shall occur in accordance with item 4, Supervising station alarm systems — transmission equipment, in Table 14.4.3.2.

26.6.2.3.8

At the conclusion of testing, notifications shall be in accordance with 14.2.4.2.

26.6.2.4* Equipment.

26.6.2.4.1

Alarm system equipment and installations shall comply with Federal Communications Commission (FCC) rules and regulations, as applicable.

26.6.2.4.2

Equipment shall be installed in compliance with *NFPA 70*.

26.6.2.4.3

The external antennas of all radio transmitting and receiving equipment shall be protected in order to minimize the possibility of damage by static discharge or lightning.

26.6.2.5 Communications Technologies.

The communications methods used to transmit signals to supervising stations shall meet the requirements of 26.6.3 for performance-based technologies, or 26.6.4 or 26.6.5 for prescriptive-based technologies.

26.6.3* Performance-Based Technologies.

26.6.3.1 Conformance.

Communications methods operating on principles different from specific methods covered by this chapter shall be permitted to be installed if they conform to the performance requirements of this section and to all other applicable requirements of this Code.

26.6.3.2 Communications Integrity.

Provision shall be made to monitor the integrity of the transmission technology and its communications path.

26.6.3.3 Single Communications Path.

Unless prohibited by the enforcing authority, governing laws, codes, or standards, where a single communications path is used, the following requirements shall be met:

(1) The path shall be supervised at an interval of not more than 60 minutes.

(2) A failure of the path shall be annunciated at the supervising station within not more than 60 minutes.

(3) The failure to complete a signal transmission shall be annunciated at the protected premises in accordance with Section 10.15.

26.6.3.4 Multiple Communications Paths.

If multiple transmission paths are used, the following requirements shall be met:

(1) Each path shall be supervised within not more than 6 hours.

(2) The failure of any path of a multipath system shall be annunciated at the supervising station within not more than 6 hours.

(3) Multiple communications paths shall be arranged so that a single point of failure shall not cause more than a single path to fail.

(4) The failure to complete a signal transmission shall be annunciated at the protected premises in accordance with Section 10.15.

26.6.3.5* Single Technology.

A single technology shall be permitted to be used to create the multiple paths provided that the requirements of 26.6.3.4(1) through 26.6.3.4(4) are met.

26.6.3.6 Spare System Unit Equipment.

An inventory of spare equipment shall be maintained at the supervising station such that any failed piece of equipment can be replaced and the systems unit restored to full operation within 30 minutes of failure.

26.6.3.7 Loading Capacity of System Unit.

26.6.3.7.1

The maximum number of independent fire alarm systems connected to a single system unit shall be limited to 512.

26.6.3.7.2

If duplicate spare system units are maintained at the supervising station and switchover can be achieved in 30 seconds, then the system capacity shall be permitted to be unlimited.

26.6.3.8 End-to-End Communication Time for Alarm.

The maximum duration between the initiation of an alarm signal at the protected premises, transmission of the signal, and subsequent display and recording of the alarm signal at the supervising station shall not exceed 90 seconds.

26.6.3.9 Unique Identifier.

If a transmitter shares a transmission or communications channel with other transmitters, it shall have a unique transmitter identifier.

26.6.3.10 Recording and Display Rate of Subsequent Alarms.

Recording and display of alarms at the supervising station shall be at a rate no slower than one complete signal every 10 seconds.

26.6.3.11 Signal Error Detection and Correction.

26.6.3.11.1

Communication of alarm, supervisory, and trouble signals shall be in accordance with this section to prevent degradation of the signal in transit, which in turn would result in either of the following:

(1) Failure of the signal to be displayed and recorded at the supervising station

(2) Incorrect corrupted signal displayed and recorded at the supervising station

26.6.3.11.2

Reliability of the signal shall be achieved by any of the following:

(1) Signal repetition — multiple transmissions repeating the same signal

(2) Parity check — a mathematically check sum algorithm of a digital message that verifies correlation between transmitted and received message

(3) An equivalent means to 26.6.3.11.1(1) or 26.6.3.11.1(2) that provides a certainty of 99.99 percent that the received message is identical to the transmitted message

26.6.3.12* Sharing Communications Equipment On-Premises.

If the fire alarm transmitter is sharing on-premises communications equipment, the shared equipment shall be listed as communications or information technology equipment.

26.6.3.13 Secondary Power.

26.6.3.13.1* Premises Equipment.

The secondary power capacity for all transmitters and shared equipment necessary for the transmission of alarm, supervisory, trouble, and other signals located at the protected premises shall be a minimum of 24 hours or as permitted by 10.6.7.3.1(2), 26.6.3.13.1.1, or 26.6.3.13.1.2.

26.6.3.13.1.1*

Secondary power capacity for shared equipment shall be permitted to have a capacity of 8 hours where acceptable to the authority having jurisdiction and where a risk analysis is performed to ensure acceptable availability is provided.

26.6.3.13.1.2*

Secondary power capacity for shared and premises equipment used in additional communications paths shall not be required where the first communications path meets the performance requirements of 26.6.3.3.

26.6.3.13.2 Supervising Station.

Secondary power capacity for all equipment necessary for reception of alarm, supervisory, trouble, and other signals located at the supervising station shall comply with 10.6.7.

26.6.3.14 Unique Flaws Not Covered by This Code.

If a communications technology has a unique flaw that could result in the failure to communicate a signal, the implementation of that technology for alarm signaling shall compensate for that flaw so as to eliminate the risk of missing an alarm signal.

~~*Includes every initiating device circuit (e.g., waterflow, alarm, supervisory, guard, burglary, hold-up).~~

~~†Same as system units at the supervising station.~~

~~**26.6.5.1.5.3** –~~

~~The capacity of a system unit shall be permitted to be unlimited if the signal-receiving, processing, display, and recording equipment are duplicated at the supervising station and a switchover is able to be accomplished in not more than 30 seconds, with no loss of signals during this period.~~

~~**26.6.5.1.6** – Adverse Conditions.~~

~~**26.6.5.1.6.1** –~~

~~The occurrence of an adverse condition on the transmission channel between a protected premises and the supervising station that prevents the transmission of any status change signal shall be automatically indicated and recorded at the supervising station.~~

~~**26.6.5.1.6.2** –~~

~~The indication and recording of the adverse condition shall identify the affected portions of the system so that the supervising station operator will be able to determine the location of the adverse condition by trunk or leg facility, or both.~~

26.6.5.1.6.3 –

For two-way RF multiplex systems that are part of a central station alarm system, restoration of service to the affected portions of the system shall be automatically recorded.

26.6.5.1.6.4 –

When service is restored to a two-way RF multiplex system, the first status change of any initiating device circuit, any initiating device directly connected to a signaling line circuit, or any combination thereof that occurred at any of the affected premises during the service interruption also shall be recorded.

26.6.5.2 * – One-Way Private Radio Alarm Systems.

26.6.5.2.1 – Independent Receivers.

26.6.5.2.1.1 –

The requirements of 26.6.5.2 for a radio alarm repeater station receiver (RARSR) shall be satisfied if the signals from each radio alarm transmitter (RAT) are received and supervised, in accordance with Chapter 26 , by at least two independently powered, independently operating, and separately located RARSRs or radio alarm supervising station receivers (RASSRs), or by one of each.

26.6.5.2.1.2 –

At least two separate paths shall be provided from a RAT to the ultimate RASSR.

26.6.5.2.1.3 –

Only one path to the RASSR shall be required to be utilized in the event alarms can be transmitted from a RAT to the RASSR and the RAT has the ability to receive a positive acknowledgment that the RASSR has received the signal.

26.6.5.2.2 * – Maximum Operating Time.

The end-to-end operating time parameters allowed for a one-way radio alarm system shall be as follows:

(1) There shall be a 90 percent probability that the time between the initiation of a single alarm signal until it is recorded at the supervising station will not exceed 90 seconds.

(2) There shall be a 99 percent probability that the time between the initiation of a single alarm signal until it is recorded at the supervising station will not exceed 180 seconds.

(3) There shall be a 99.999 percent probability that the time between the initiation of a single alarm signal until it is recorded at the supervising station will not exceed 7.5 minutes (450 seconds), at which time the RAT shall cease transmitting. When any number of subsequent alarm signals occurs at any rate, they shall be recorded at an average rate no slower than one every additional 10 seconds.

(4) In addition to the maximum operating time allowed for alarm signals, the system shall be able to record not less than 12 simultaneous status changes within 90 seconds at the supervising station.

(5) The system shall be supervised to ensure that at least two independent RARSRs or one RARSR and one independent RASSR are receiving signals for each RAT during each 24-hour period.

26.6.5.2.3 – Supervision.

26.6.5.2.3.1 –

Equipment shall be provided at the supervising station for the supervisory and control functions of the supervising or subsidiary station and for the repeater station radio transmitting and receiving equipment.

26.6.5.2.3.2 –

A supervised circuit shall be provided where the radio equipment is remotely located from the system unit and the conditions of 26.6.5.2.3.2(A) through 26.6.5.2.3.2(C) are met.

(A) –

The following conditions shall be supervised at the supervising station:

(1) Failure of ac power supplying the radio equipment

(2) Malfunction of RF receiver

(3) Indication of automatic switchover, if applicable

(B) –

Interconnections between elements of transmitting equipment, including any antennas, shall be supervised either to cause an indication of failure at the protected premises or to transmit a trouble signal to the supervising station.

(C) –

Personnel shall be dispatched to arrive within 12 hours to initiate maintenance after detection of primary power failure.

26.6.5.2.4 – Transmission Channels.

Transmission channels shall comply with 26.6.5.2.4.1 through 26.6.5.2.4.6 .

26.6.5.2.4.1 –

The one-way RF transmission channel shall originate with a RAT at the protected premises and shall terminate at the RF receiving system of an RARSR or RASSR capable of receiving transmissions from such transmitting devices.

26.6.5.2.4.2 –

A receiving network transmission channel shall terminate at an RARSR at one end and with either another RARSR or an RASSR at the other end.

26.6.5.2.4.3 –

Operation of receiving network transmission channels shall conform to the requirements of this Code whether channels are private facilities, such as microwave, or leased facilities furnished by a communications utility company.

26.6.5.2.4.4 –

If private signal transmission facilities are used, the equipment necessary to transmit signals shall also comply with requirements for duplicate equipment or replacement of critical components as described in 26.6.6.3 .

26.6.5.2.4.5 –

The system shall provide information that indicates the quality of the received signal for each RARSR supervising each RAT in accordance with 26.6.5.2 and shall provide information at the supervising station when such signal quality falls below the minimum signal quality levels set forth in 26.6.5.2 .

26.6.5.2.4.6 –

Each RAT shall be installed in such a manner so as to provide a signal quality over at least two independent one-way RF transmission channels, of the minimum quality level specified, that satisfies the performance requirements in 26.6.2.4 and 26.6.6 .

26.6.5.2.5 – System Categories.

One-way radio alarm systems shall be divided into two categories on the basis of the following number of RASSRs present in the system:

(1) A Type 6 system shall have one RASSR and at least two RARSRs.

(2) A Type 7 system shall have more than one RASSR and at least two RARSRs.

(3) In a Type 7 system, when more than one RARSR is out of service and, as a result, any RATs are no longer being supervised, the affected supervising station shall be notified.

(4) In a Type 6 system, when any RARSR is out of service, a trouble signal shall be annunciated at the supervising station.

26.6.5.2.6 – Loading Capacities.

26.6.5.2.6.1 –

The loading capacities of one-way radio alarm systems shall be based on the overall reliability of the signal-receiving, processing, display, and recording equipment at the supervising or subsidiary station and the capability to transmit signals during adverse conditions of the transmission channels.

26.6.5.2.6.2 –

Loading capacities shall comply with 26.6.5.2.6.2(A) and 26.6.5.2.6.2(B) .

(A) –

Allowable loading capacities shall be in accordance with Table 26.6.5.2.6.2(A) , except as modified by the following:

(1) Each guard's tour transmitter shall reduce the allowable RATs by 15.

(2) Each supervised burglar alarm (open/close) or each suppressed guard's tour transmitter shall reduce the allowable RATs by 5.

Table 26.6.5.2.6.2(A) Loading Capacities of One-Way Radio Alarm Systems

Radio Alarm Repeater Station Receiver (RARSR) System Type Type 6 Type 7 Maximum number of fire alarm service initiating device circuits per RARSR 5,120 5,120 Maximum number of RATs for fire 512 512 Maximum number of all types of initiating device circuits per RARSR in any combination* 10,240 10,240 Maximum number of RATs for all types of fire alarm service per RARSR in any combination* 1,024 1,024 **System Units at the Supervising Station** - - Maximum number of all types of initiating device circuits per system unit* 10,240 10,240 Maximum number of fire-protected buildings and premises per system unit 512 512 Maximum number of fire alarm service initiating device circuits per system unit 5,120 5,120

*Includes every initiating device circuit (e.g., waterflow, fire alarm, supervisory, guard, burglary, hold-up).

(B) –

If the signal-receiving, processing, display, and recording equipment is duplicated at the supervising station and a switchover is able to be accomplished in not more than 30 seconds, with no loss of signals during this period, the capacity of a system unit shall be permitted to be unlimited.

26.6.5.2.7 – Adverse Conditions.

The system shall be supervised to ensure that at least two independent radio alarm repeater station receivers (RARSRs) are receiving signals for each radio alarm transmitter (RAT) during each 24-hour period.

26.6.5.2.7.1 –

The occurrence of a failure to receive a signal by either RARSR shall be automatically indicated and recorded at the supervising station.

26.6.5.2.7.2 –

The indication shall identify which RARSR failed to receive such supervisory signals.

26.6.5.2.7.3 –

Received test signals shall not be required to be indicated at the supervising station.

26.6.5.2.8 – Wireless Mesh Networks (WMN).

A wireless mesh network utilizing listed components satisfies the requirements of 26.6.5.2 .

26.6.6 –

26.6.4 – Digital Communicator Systems. **26. 6.4.1 *** – Digital Alarm Communicator Transmitter (DACT) Used as a Signaling Interface.

26.6.4.1.1 –

The requirements of 26.6.4.2 shall not apply when a DACT is used as a signaling interface from a fire alarm control unit to another listed communications means.

26.6.4.1.2 –

The listed communications means shall meet the requirements of either 26.6.3 or 26.6.5 .

26.6.4.2 – DACT.

26.6.4.2.1 * – Managed Facilities-Based Voice Network.

A DACT shall be connected to a managed facilities-based voice network upstream of any private telephone system at the protected premises.

26.6.4.2.1.1 –

The connections to a managed facilities-based voice network shall be under the control of the subscriber for whom service is being provided by the supervising station alarm system.

26.6.4.2.1.2 –

Special attention shall be required to ensure that this connection is made only to a loop start telephone circuit and not to a ground start telephone circuit.

26.6.4.2.2 – Signal Verification.

All information exchanged between the DACT at the protected premises and the digital alarm communicator receiver (DACR) at the supervising or subsidiary station shall comply with 26.6.4.2.2.1 and 26.6.4.2.2.2 .

26.6.4.2.2.1 –

Information exchanged shall be by digital code or some other approved means.

26.6.4.2.2.2 –

Signal verification shall be by signal repetition, digital parity check, or other approved means.

26.6.4.2.3 * – Requirements for DACTs.

26.6.4.2.3.1 –

A DACT shall be configured so that, when it is required to transmit a signal to the supervising station, it shall seize the telephone line (i.e., going off-hook) at the protected premises and disconnect an outgoing or incoming telephone call and prevent use of the telephone line for outgoing telephone calls until signal transmission has been completed. A DACT shall not be connected to a party line telephone facility.

26.6.4.2.3.2 –

A DACT shall have the means to satisfactorily obtain a dial tone, dial the number(s) of the DACR, obtain verification that the DACR is able to receive signals, transmit the signal, and receive acknowledgment that the DACR has accepted that signal. In no event shall the time from going off-hook to on-hook exceed 90 seconds per attempt.

26.6.4.2.3.3 * –

A DACT shall have means to reset and retry if the first attempt to complete a signal transmission sequence is unsuccessful. A failure to complete connection shall not prevent subsequent attempts to transmit an alarm where such alarm is generated from any other initiating device circuit or signaling line circuit, or both. Additional attempts shall be made until the signal transmission sequence has been completed, up to a minimum of 5 and a maximum of 10 attempts.

26.6.4.2.3.4 –

If the maximum number of attempts to complete the sequence is reached, an indication of the failure shall be made at the premises.

26.6.4.2.4 – Transmission Channels.

26.6.4.2.4.1 –

A system employing a DACT shall employ a single telephone line (number) and one of the following transmission means:

(1) One-way private radio alarm system

(2) Two-way RF multiplex system

(3) Transmission means complying with 26.6.3

(4) A second telephone line (number), where all of the following are met:

(5) Access to one of the technologies in 26.6.4.2.4.1 (1), 26.6.4.2.4.1 (2), or 26.6.4.2.4.1 (3) is not available at the protected premises.

(6) The authority having jurisdiction approves the arrangement.

(7) The DACT is programmed to call a second DACR line (number) when the signal transmission sequence to the first called line (number) is unsuccessful.

(8) The DACT is capable of selecting the operable means of transmission in the event of failure of the other means.

(9) Each telephone line is tested in accordance with 26.6.4.2.4.2 or at alternating 6-hour intervals.

26.6.4.2.4.2 –

The following requirements shall apply to all combinations listed in 26.6.4.2.4.1 :

(1) The means for supervising each channel shall be in a manner approved for the method of transmission employed.

(2) If a signal has not been processed over the subject channel in the previous 6 hours, a test signal shall be processed.

(3) The failure of either channel shall send a trouble signal on the other channel within 4 minutes.

(4) When one transmission channel has failed, all status change signals shall be sent over the other channel.

(5) The primary channel shall be capable of delivering an indication to the DACT that the message has been received by the supervising station.

(6)* Unless the primary channel is known to have failed, the first attempt to send a status change signal shall use the primary channel.

(7) Simultaneous transmission over both channels shall be permitted.

(8) Failure of telephone lines (numbers) shall be annunciated locally.

26.6.4.2.5 – DACT Transmission Means.

The following requirements shall apply to all DACTs:

(1) A DACT shall be connected to two separate means of transmission at the protected premises so that a single point of failure on one means of transmission shall not affect the second means of transmission.

(2) The DACT shall be capable of selecting the operable means of transmission in the event of failure of the other means.

(3) The primary means of transmission shall be a telephone line (number) connected to a managed facilities-based voice network.

(4)* The first transmission attempt shall utilize the primary means of transmission.

(5) Each DACT shall be programmed to call a second receiver when the signal transmission sequence to the first called line (number) is unsuccessful.

(6) Each transmission means shall automatically initiate and complete a test signal transmission sequence to its associated receiver at least once every 6 hours.

(7) A successful signal transmission sequence of any other type, within the same 6-hour period, shall fulfill the requirement to verify the integrity of the reporting system, provided that signal processing is automated so that 6-hour delinquencies are individually acknowledged by supervising station personnel.

(8)* If a DACT is programmed to call a telephone line (number) that is call forwarded to the line (number) of the DACR, a means shall be implemented to verify the integrity of the call forwarding feature every 4 hours.

26.6.4.3 – Digital Alarm Communicator Receiver (DACR).

26.6.4.3.1 – Equipment.

26.6.4.3.1.1 –

Spare DACRs shall be provided in the supervising or subsidiary station.

26.6.4.3.1.2 –

Spare DACRs shall be online or able to be switched into the place of a failed unit within 30 seconds after detection of failure.

26.6.4.3.1.3 –

One spare DACR shall be permitted to serve as a backup for up to five DACRs in use.

26.6.4.3.1.4 –

The number of incoming telephone lines to a DACR shall be limited to eight lines, unless the signal-receiving, processing, display, and recording equipment at the supervising or subsidiary station is duplicated and a switchover is able to be accomplished in less than 30 seconds with no loss of signal during this period, in which case the number of incoming lines to the unit shall be permitted to be unlimited.

26.6.4.3.2 – Transmission Channels.

26.6.4.3.2.1 * –

The DACR equipment at the supervising or subsidiary station shall be connected to a minimum of two separate incoming telephone lines (numbers).

26.6.4.3.2.2 –

The lines (numbers) shall have the following characteristics:

(1) If the lines (numbers) are in a single hunt group, they shall be individually accessible; otherwise, separate hunt groups shall be required.

(2) The lines (numbers) shall be used for no other purpose than receiving signals from a DACT.

(3) The lines (numbers) shall be unlisted.

26.6.4.3.2.3 –

The failure of any telephone line (number) connected to a DACR due to loss of line voltage shall be annunciated visually and audibly in the supervising station.

26.6.4.3.2.4 * –

The loading capacity for a hunt group shall be capable of demonstrating a 90 percent probability of immediately answering an incoming call or be in accordance with Table 26.6.4.3.2.4 and the following:

(1) Table 26.6.4.3.2.4 shall be based on an average distribution of calls and an average connected time of 30 seconds for a message.

(2) The loading figures in Table 26.6.4.3.2.4 shall presume that the lines are in a hunt group (i.e., DACT is able to access any line not in use).

(3) A single-line DACR shall not be allowed for any of the configurations shown in Table 26.6.4.3.2.4 .

Table 26.6.4.3.2.4 Loading Capacities for Hunt Groups

System Loading at the Supervising Station Number of Lines in Hunt Group 1 2 3 4 5–8 **With DACR lines processed in parallel** Number of initiating circuits NA 5,000 10,000 20,000 20,000 Number of DACTs NA 500 1,500 3,000 3,000 **With DACR lines processed serially (put on hold, then answered one at a time)** Number of initiating circuits NA 3,000 5,000 6,000 6,000 Number of DACTs NA 300 800 1,000 1,000

NA: Not allowed.

26.6.4.3.2.5 –

Each supervised burglar alarm (open/close) or each suppressed guard's tour transmitter shall reduce the allowable DACTs as follows:

(1) Up to a four-line hunt group, by 10

(2) Up to a five-line hunt group, by 7

(3) Up to a six-line hunt group, by 6

(4) Up to a seven-line hunt group, by 5

(5) Up to an eight-line hunt group, by 4

26.6.4.3.2.6 –

Each guard's tour transmitter shall reduce the allowable DACTs as follows:

(1) Up to a four-line hunt group, by 30

(2) Up to a five-line hunt group, by 21

(3) Up to a six-line hunt group, by 18

(4) Up to a seven-line hunt group, by 15

(5) Up to an eight-line hunt group, by 12

26.6.4.3.2.7 –

A signal shall be received on each individual incoming DACR line at least once every 6 hours.

26.6.4.3.2.8 –

The failure to receive a test signal from the protected premises shall be treated as a trouble signal.

26.6.5 – Radio Systems.

26.6.5.1 – Two-Way Radio Frequency (RF) Multiplex Systems.

26.6.5.1.1 – Maximum Operating Time.

The maximum end-to-end operating time parameters allowed for a two-way RF multiplex system shall be as follows:

(1) The maximum allowable time lapse from the initiation of a single alarm signal until it is recorded at the supervising station shall not exceed 90 seconds. When any number of subsequent alarm signals occur at any rate, they shall be recorded at a rate no slower than one every additional 10 seconds.

(2) The maximum allowable time lapse from the occurrence of an adverse condition in any transmission channel until recording of the adverse condition is started shall not exceed 200 seconds for Type 4 and Type 5 systems. The requirements of 26.6.5.1.4 shall apply.

(3) In addition to the maximum operating time allowed for alarm signals, the requirements of one of the following shall be met:

(4) A system unit that has more than 500 initiating device circuits shall be able to record not less than 50 simultaneous status changes within 90 seconds.

(5) A system unit that has fewer than 500 initiating device circuits shall be able to record not less than 10 percent of the total number of simultaneous status changes within 90 seconds.

26.6.5.1.2 – Supervisory and Control Functions.

Facilities shall be provided at the supervising station for the following supervisory and control functions of the supervising or subsidiary station and the repeater station radio transmitting and receiving equipment, which shall be accomplished via a supervised circuit where the radio equipment is remotely located from the system unit:

(1) RF transmitter in use (radiating)

(2) Failure of ac power supplying the radio equipment

(3) RF receiver malfunction

(4) Indication of automatic switchover

(5) Independent deactivation of either RF transmitter controlled from the supervising station

26.6.5.1.3 – Transmission Channel.

26.6.5.1.3.1 –

The RF multiplex transmission channel shall terminate in an RF transmitter/receiver at the protected premises and in a system unit at the supervising or subsidiary station.

26.6.5.1.3.2 –

Operation of the transmission channel shall conform to the requirements of this Code whether channels are private facilities, such as microwave, or leased facilities furnished by a communications utility company.

26.6.5.1.3.3 –

If private signal transmission facilities are used, the equipment necessary to transmit signals shall also comply with requirements for duplicate equipment or replacement of critical components, as described in 26.6.6.3 .

26.6.5.1.4 * – Categories.

Two-way RF multiplex systems shall be divided into Type 4 or Type 5 classifications based on their ability to perform under adverse conditions.

26.6.5.1.4.1 –

A Type 4 system shall have two or more control sites configured as follows:

(1) Each site shall have an RF receiver interconnected to the supervising or subsidiary station by a separate channel.

(2) The RF transmitter/receiver located at the protected premises shall be within transmission range of at least two RF receiving sites.

(3) The system shall contain two RF transmitters that are one of the following:

(4) Located at one site with the capability of interrogating all of the RF transmitters/receivers on the premises

(5) Dispersed with all of the RF transmitters/receivers on the premises having the capability to be interrogated by two different RF transmitters

(6) Each RF transmitter shall maintain a status that allows immediate use at all times. Facilities shall be provided in the supervising or subsidiary station to operate any off-line RF transmitter at least once every 8 hours.

(7) Any failure of one of the RF receivers shall in no way interfere with the operation of the system from the other RF receiver. Failure of any receiver shall be annunciated at the supervising station.

(8) A physically separate channel shall be required between each RF transmitter or RF receiver site, or both, and the system unit.

26.6.5.1.4.2 –

A Type 5 system shall have a single control site configured as follows:

(1) A minimum of one RF receiving site

(2) A minimum of one RF transmitting site

26.6.5.1.5 – Loading Capacities.

26.6.5.1.5.1 –

The loading capacities of two-way RF multiplex systems shall be based on the overall reliability of the signal receiving, processing, display, and recording equipment at the supervising or subsidiary station and the capability to transmit signals during adverse conditions of the transmission channels.

26.6.5.1.5.2 –

Allowable loading capacities shall comply with Table 26.6.5.1.5.2 .

Table 26.6.5.1.5.2 Loading Capacities for Two-Way RF Multiplex Systems

Trunks System Type Type 4 Type 5 Maximum number of alarm service initiating device circuits per primary trunk facility 5,120 1,280 Maximum number of leg facilities for alarm service per primary trunk facility 512 128 Maximum number of leg facilities for all types of alarm service per secondary trunk facility* 128 128 Maximum number of all types of initiating device circuits per primary trunk facility in any combination 10,240 2,560 Maximum number of leg facilities for types of alarm service per primary trunk facility in any combination* 1,024 256 **System Units at the Supervising Station** -- Maximum number of all types of initiating device circuits per system unit* 10,240 10,240 Maximum number of protected buildings and premises per system

unit 512 512 Maximum number of alarm service initiating device circuits per system 5,120 5,120 **Systems Emitting from Subsidiary Station†** — —

Display and Recording Requirements for All Transmission Technologies.

26.6.6.1* –

Any status changes, including the initiation or restoration to normal of a trouble condition, that occur in an initiating device or in any interconnecting circuits or equipment, including the local protected premises controls from the location of the initiating device(s) to the supervising station, shall be presented in a form to expedite prompt operator interpretation.

26.6.6.2 –

Status change signals shall provide the following information:

(1) Identification of the type of signal to show whether it is an alarm, supervisory, delinquency, or trouble signal

(2) Identification of the signal to differentiate between an initiation of an alarm, a supervisory, a delinquency, or a trouble signal and a clearing from one or more of these conditions

(3) Identification of the site of origin of each status change signal

(4)* Identification of specific types of signals that dictate a different response

26.6.6.3* –

If duplicate equipment for signal receiving, processing, display, and recording is not provided for supervising stations other than proprietary station systems, the installed equipment shall be designed so that any critical assembly is able to be replaced from on-premises spares.

26.6.6.4* –

The system shall be able to be restored to service within 30 minutes.

26.6.6.5* –

Any method of recording and display or indication of change of status signals shall be permitted, provided that the status signals are not test signals required by 26.6.4.2.5 at a DACR and all of the following conditions are met:

(1) Each change of status signal requiring action to be taken by the operator shall result in an audible signal and not less than two independent methods of identifying the type, condition, and location of the status change.

(2) Each change of status signal shall be automatically recorded. The record shall provide the type of signal, condition, and location, as required by 26.6.6.1 , in addition to the time and date the signal was received.

(3) Failure of an operator to acknowledge or act upon a change of status signal shall not prevent subsequent alarm signals from being received, indicated or displayed, and recorded.

(4) Change of status signals requiring action to be taken by the operator shall be displayed or indicated in a manner that clearly differentiates them from those that have been acted upon and acknowledged.

(5) Each incoming signal to a DACR shall cause an audible signal that persists until manually acknowledged.

26.6.7 Testing and Maintenance Requirements for All Transmission Technologies.

Testing and maintenance of communications methods shall be in accordance with the requirements of Chapter 14 .

Submitter Information Verification

Committee: SIG-SSS
Submittal Date: Tue Jul 19 13:23:23 EDT 2022

Committee Statement

Committee Statement: The deletion of 26.6.4 and 26.6.5 is to eliminate confusion by obsoleting older legacy technologies that do not comply with generic performance criteria. A task group will be formed to harmonize all technologies into performance based section, including currently useable features of one-way private radio and DACTS.

If during this assessment, the task group determines that an existing or legacy communication method cannot be moved into the performance-based technology requirements, a separate section will be maintained to regulate the existing communication technology.

This Committee Input is generated to solicit public comments on the reorganization of Section 26.6.

Response Message: CI-5176-NFPA 72-2022