

STANDARD INFORMATION

Amendment 1: See updated effective date in blue font

This SUN establishes the Continuing Certification approach for Control Units and Accessories for Fire Alarm Systems

Standard Number: UL 864

Standard Name: Control Units and Accessories for Fire Alarm Systems

Standard Edition and Issue Date: 10th Edition Dated December 1, 2014

Date of Revision: December 1, 2014

Date of Previous Revision of Standard: 9th Edition Revised August 31, 2012

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: No action is required for currently certified products to maintain certification.

This SUN is being presented to assist users of the standard to appreciate the significance of the changes made to the standard that will apply should the product described be modified after December 3, 2018.

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

Overview of Changes:

- Align with national installation standards, guidelines and codes
- Incorporate ANSI/UL 1481, Standard for Safety for Power Supplies for Fire Protective Signaling Systems
- Incorporate ANSI/UL 1711, Standard for Safety for Amplifiers for Fire Protective Signaling Systems
- Update for newer technologies, miscellaneous revisions

Specific details of new/revised requirements are found in table below.

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
1.4(a)		<p>Scope of the standard revised to exclude manual release stations and abort stations. Those products will be included under UL 38 because of the similarity to manual signaling stations.</p> <p>Testing likely will be required.</p>
33.3.4		<p>Revised requirements relative to operation of local service type systems. Minimum 180s time period to sound evacuation signal without automatic deactivation.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
33.3.6(a)		<p>Revised requirements relative to operation of local service type systems. Minimum capability to simultaneously deactivate both audible and visible actuated appliances.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
33.3.9, 36.2.11, 46.3.4		<p>New requirement. Re-annunciation of “silenced” yet active alarm signals at the operator interface every 24 hrs.</p> <p>Testing will be required to confirm compliance.</p>
33.3.10		<p>Systems employing multiple notification circuits or addressable notification appliances shall be capable of arranging multiple notification circuits and addressable notification appliances to activate or deactivate simultaneously, either automatically or by a common manual control.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
33.3.5		<p>New requirement. Re-annunciation of “silenced” yet active supervisory signals at the operator interface every 24 hrs.</p> <p>Testing will be required to confirm compliance.</p>
34.1.3– 34.1.5		<p>Added requirements with respect to transfer of control from one fire/emergency voice alarm control location to another when multiple fire/emergency voice alarm control locations are employed. New requirement regarding annunciation at units not in control when multiple control locations are employed.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>



CLAUSE	VERDICT	COMMENT
34.2.1.1(b) and (d)		Automatic pre-alert tone revised to be 1 – 3 s (from 3 – 10 s). New requirement for minimum operational capability after releasing the microphone with respect to previously initiated recorded messages. Testing will be required to confirm compliance.
34.2.1.3, 34.2.1.4, 34.2.1.5		New requirement. Minimum operation performance added regarding interaction of voice system with suppression system sounding appliances. Testing will likely be required to confirm compliance.
34.2.1.6- 34.2.1.7, 96.30		Low frequency parameters defined for products utilizing <u>optional</u> low-frequency component (520 Hz). Testing required confirming compliance. Revised installation instructions also required.
		Revised requirement. Disconnect function for non-water based suppression releasing service needs to be physical switch activated without using software.
36.1.11- 36.1.13		A review of product operation will likely be required to confirm compliance. The use of a Listed Fire Alarm Accessory switch to disconnect the releasing circuit and signal a supervisory signal to the FACP would require updating the installation instructions for the releasing service equipment. Employing non-Listed switch would require testing of the switch for compliance to UL 864.
36.4.2		Exception added to clarify the NFPA standards which require provision for the manual release to override actuated abort switches. A review of product operation will be required to confirm compliance and testing may additionally be required.
38.1.4		New requirement. Transmitted alarm signals to the supervising station proposed to have minimum capability of actuated device address or zone identification. A review of product operation will be required to confirm compliance and testing may additionally be required. Review to be via overall system configuration.
38.5.2		New Requirement. Minimum monitoring for integrity requirements for co-located or integral proprietary protected premise and supervising station equipment. Applies to a master control unit [A fire alarm control unit that serves the protected premise or portion of the protected premise as a local fire alarm control unit and accepts inputs from other fire alarm control units] co-located at the proprietary supervising station. A review of product operation will be required to confirm compliance and testing may additionally be required. Review to be via overall system configuration.



CLAUSE	VERDICT	COMMENT
39.2.9(b)		<p>Revised requirement. The exception permitting systems which monitor only fire alarm signals, supervisory signals and their associated trouble signals to annunciate status changes at a rate of not slower than one signal every 30 seconds was deleted.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
41.3.2.9, 41.3.2.12		<p>Revised requirement. Second communication path for DACTs not permitted to be a dial-up telephone path.</p> <p>Public dial-up service now permitted to be primary path.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required. Review to be via overall system configuration.</p>
41.3.2.13, 41.3.2.14		<p>Revised requirement. Supervision time for DAC based technologies reduced from 24 hours for land lines and once a month for cellular telephone service to at least once every 6 hours.</p> <p>Testing likely to confirm compliance with requirements. Review to be via overall system configuration.</p>
41.7.2, 41.7.3, 41.7.3		<p>Revised requirements. Supervision time for single path increased to a minimum of at least once every 60 minutes. Failure to complete a signal transmission within the 60 minutes needs to result in a trouble annunciation at both the protected premises and supervising station.</p> <p>Revised requirement. Supervision time for multiple path performance based technologies reduced from 24 hours to at least once every 6 hours. Failure to complete a signal transmission within the 6 hours for each of the multiple paths needs to result in a trouble annunciation at both the protected premises and supervising station.</p> <p>Revised requirement. A single communication technology is permitted to be used to create multiple paths when supervision of each path meets 41.7.3(b).</p> <p>Testing likely to confirm compliance with requirements. Review to be via overall system configuration.</p>
48.2, 48.4		<p>New requirement. Smoke control systems shall be designed so that loss of primary power for a period of up to 15 minutes shall result in the components automatically performing their function upon restoration of power.</p> <p>Testing likely to confirm compliance with requirements. Review to be via overall system configuration.</p>



CLAUSE	VERDICT	COMMENT
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Sections
51-54,
70.2, 3.88

New sections address operational functionality and standby power (optional) operational requirements for releasing devices intended to support loads in connection with releasing automatic or manual non-extinguishing and non-water based suppression system releasing devices. Examples include a roll type door holder/closer or door unlocking operation.

A review of product operation will be required to confirm compliance. Testing may be needed to determine compliance with 52.4 (door unlocking operation within 10 minutes after loss of primary power).

Revised to incorporate new and revised required class designations and operations for IDCs, NACs, and SLCs to harmonize with changes to NFPA 72. For example: styles B and/or C, Y, and 4 become class B; styles D and E, Z, and 6 become class A; end to end verification (smoke control) becomes class C; and non-supervised becomes Class E.

The revision eliminates some of the previously permitted circuit styles per NFPA 72: Style A for IDC; Styles W and X for NACs; and all but Styles 4, 6 and 7 for SLCs.

56.1.1,
56.1.7-
56.1.13,
56.2.1,
56.3.1,
56.3.3,
56.4.1, ,
96.8
Former
Tables
51.1-51.3
(deleted)

The maximum time duration between the application of a fault and restoration of operations capability was added for those class pathways which require alarm receipt capability during the application of the fault condition. Assessment is to be completed on the system/circuits with maximum number of devices/appliances.

The revisions will require revisions to the installation instructions/manuals. Products only employing an eliminated style will need to be redesigned and subjected to re-testing to confirm compliance.

Old Designation						New Designation
IDC	NAC	SLC	Smoke Control	Releasing Devices	Supplementary	
Style B and C / Class B	Style Y / Class B	Style 4 / Class B				Class B
Style D and E / Class A	Style Z / Class A	Style 6 / Class A				Class A
		Style 7 / Class A				Class X
			End to end verification			Class C
				Fail safe		Class D
					Non-supervised	Class E

A review of the product operation with respect to the alarm receipt capability will be required and testing may additionally be required.



CLAUSE	VERDICT	COMMENT
56.1.14		<p>Revisions governing interconnections between fire alarm systems other than for communication and transmission paths off-premise to supervising station signaling were added. Previously, the interconnections were to be monitored for an open and ground fault conditions. The monitoring for integrity now needs to be consistent with Class A, B or X designations.</p> <p>Retesting will be necessary where the previous assessment did not meet the new Class A, B, and/or X designations.</p>
56.3.2		<p>New requirement now requires that an open, ground or short circuit fault, applied during the activated notification circuit state, not affect the operation of any other alarm notification appliance circuits for more than 200 seconds.</p> <p>Testing will be necessary to confirm compliance.</p>
56.4.4		<p>Added new requirement limiting wire-to-wire fault on pathways connecting addressable devices to not disable the entire pathway. The requirement does not apply to interconnected fire alarm control units.</p> <p>A review of product operation will be required to confirm compliance.</p>
56.5.9		<p>Revised minimum time period from 4 hours to 200 s to identify an inoperative low power radio frequency signaling transmitter.</p> <p>The exceptions in clauses 33.1.2, 38.1.2, and 43.1.3 referring to the former exception in 56.5.9 were deleted for correlation.</p> <p>Testing will be required to determine compliance and the revision to 56.5.9 will likely necessitate redesign of the product.</p>
59.1.8, 96.29		<p>Revisions added to harmonize with new requirements in NFPA 72 regarding maintaining compatibility between interconnected systems after field software updates.</p> <p>Product installation instructions will be required to be revised to reflect the software/firmware revision levels in compatible equipment.</p> <p>Testing may be needed to confirm compatibility where software revisions have been incorporated subsequent to the past testing of interconnected products to re-establish compatibility.</p>
61.1.1 – 61.1.9		<p>Revised requirements relating to operation and monitoring for integrity for ground faults in circuits and products/equipment incorporating non-fire alarm signaling.</p> <p>Alternative methods for compliance, including installation documentation and testing, are provided.</p>



CLAUSE	VERDICT	COMMENT
61.1.10		<p>Revised requirement where emergency control or other non-fire functions such as mass notification signals or signals associated with life safety need now to only have the capability of not interfering with any required operation of the fire alarm system.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
61.1.11		<p>Revised requirements for annunciation of signals in a combination system.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
61.1.16		<p>All equipment which affects the operation of the fire alarm system, other than mass notification systems, shall meet the requirements of this standard.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
61.2		<p>Added interoperability capabilities and requirements with respect to connection to separate mass notification systems.</p> <p>A review of product operation will be required to confirm compliance and testing may additionally be required.</p>
61.3, 69.2.5		<p>Added minimum operation and standby power requirements addressing carbon monoxide (CO) signaling.</p> <p>Testing will be necessary to confirm compliance.</p>
62.9		<p>New requirement added to reflect new requirements in NFPA 72 – 2013 regarding the minimum capability of resetting interconnected systems/equipment arranged to function as a single system.</p> <p>Testing may be required where a review of the installation documentation for the combined systems is unable to confirm that the system can be reset without the need for simultaneous operation of multiple reset switches or the disconnection of wiring.</p>
69.1.3, 96.28		<p>Addition of minimum 20% rechargeable standby power safety margin for products employing a rechargeable standby battery.</p> <p>Revised installation instructions will need to be submitted for review.</p>
95.1.1 (f)		<p>Updated reference to NFPA 92 added (replaces obsolete 92A and 92B references).</p> <p>Revised installation instructions and marking will need to be submitted for review.</p>
97.1		<p>Added new requirement requiring posted simple operating instructions to address the use of the microphone(s) for live voice paging.</p> <p>New simple operating instructions marked on the cabinet front and/or a separate sheet that can be framed and located adjacent to the microphone interface will need to be submitted.</p>



CLAUSE	VERDICT	COMMENT
		Revisions to incorporate the Standard for Power Supplies for Fire Protective Systems, UL 1481 into UL 864.
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Sections 5-29		Adopts the construction requirements in UL 864 for power supplies/battery chargers. A review of the product construction will be required.
Sections 55.1, 55.2 and 55.3		Separate power supplies/battery chargers will now be required to meet the power supplies requirements of UL 864. A review of the product operation will be required and testing may additionally be required.
Sections 56.1, 57, 58, 59		Separate power supplies/battery chargers will now be required to meet the monitoring for integrity requirements of UL 864. A review of the product operation will be required and testing may additionally be required.
67.2		Adds power supply field wiring circuits, which directly supply notification appliance circuits, to the requirements for ratings and compliance with notification appliance circuit compatibility. An example would be a power supply output circuit connected to a control type module on a SLC. When designated, the module switches the power supply circuit to directly power interconnected notification appliances. A review of the product operation will be required and testing may additionally be required.
63		The Electrical Ratings Test in UL 864 will replace the Input Ratings tests in UL 1481. A review of the product operation will be required and testing may additionally be required.
65, 67, 71.4, 81.4, 84,		Adopts the hardware testing requirements (variable voltage, variable ambient, etc.) from UL 864 for power supplies/battery chargers. Deletes the UL 1481 requirement of conducting the variable voltage test as means of confirming no effect on the product as a result of the performance based hardware testing. Now considering "shall operate as intended" in UL 864 with verifying output voltage of the power supply/charger at rated input voltage. Deletes the UL 1481 unique effect of shipping and storage test and the output ripple test. UL 864 clauses which will require a review and possible testing include: 65, 67, 71.4, 81.4, and 84.



CLAUSE	VERDICT	COMMENT
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Sections 5-29		<p>Adopts the construction requirements in UL 864 for amplifiers.</p> <p>A review of the product construction will be required.</p>
Sections 55.1, 55.2 and 55.3		<p>Separate amplifiers powered by commercial power will now be required to meet the power supplies requirements of UL 864.</p> <p>A review of the product operation will be required and testing may additionally be required. Review to be via overall system configuration.</p>
Sections 56.1, 57, 58, 59		<p>Separate amplifiers will now be required to meet the monitoring for integrity requirements of UL 864.</p> <p>A review of the product operation will be required and testing may additionally be required. Review to be via overall system configuration.</p>
64, 65.10, 65.11		<p>Adds the applicable performance requirements for amplifiers with respect to harmonic and crossover distortion and power input/output parameters. Maintains the current total harmonic and crossover distortion limits of 20% and 7% respectively.</p> <p>No action required unless the low voltage required by 65.2(c) is lower than 85% of the input power rating.</p>
71.4, 81.4, 84,		<p>Adopts the hardware testing requirements (variable voltage, variable ambient, etc.) from UL 864 for amplifiers.</p> <p>Deletes the UL 1711 unique radio frequency interference test.</p> <p>UL 864 clauses which will require a review and possible testing include: 71.4, 81.4, and 84.</p>
96.6(o)		<p>Adds the unique installation instruction information requirement for ratings relative to amplifiers.</p> <p>No action required.</p>
<p>The following is a brief summary of the new and revised paragraphs in the 10th Edition of the Standard for Safety for Control Units and Accessories for Fire Alarm Systems, UL 864, which are effective upon publication because no action is required to confirm compliance of currently Listed products.</p>		
5.5, 95.1.20		<p>Revised to clarify that the requirements of UL 2043, Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces, applies to products with non-metallic enclosures.</p> <p>Marking requirements added to identify complying products in the field.</p>



CLAUSE	VERDICT	COMMENT
5.6, 30.1.1.1		Alternative added to address risk of fire and risk of shock requirements through compliance with the Standard for Information Technology Equipment - Safety - Part 1: General Requirements, UL 60950-1, or the Standard for Audio, Video, and Similar Electronic Apparatus-Safety Requirements, UL 60065.
7.2		Expanded exception for HB rated plastic materials when the power source to the enclosure meets the criteria for no risk of fire.
11.2.3.2, 12.6.2.1, 12.6.3.1		Harmonized insulation thickness for leads for field connection with UL 62, UL 66 and UL 758. Insulation is now a minimum of 0.30 in. from previous requirement of 0.31 in.
Table 16.1		Reduces spacings requirements to walls of sheet metal enclosures for power-limited circuits rated 51 – 150 volts. Deletes spacing requirements for rigidly clamped assemblies for class 2/power limited circuits rated 0 – 30 volts.
Table 16.1, 16.1, 81.8		Adds physical separation spacing requirements for voltages 300 – 600 volts and alternative testing requirements in lieu of physical separation requirements.
25.2.1.1		New clause added to clarify that insulating barriers needed to protect trained service personnel also have been required to employ cautionary marking to alert to the danger of high voltage, which may be accessible during servicing.
33.1.5, 33.1.6, 38.5.7, 38.5.8		New requirement added to address optional supplementary off-site logging of fire alarm data which can be useful to preserve information in the face of fire or building failure to facilitate accurate reconstruction of the event. It can also be beneficial to send data off-premises to incident command personnel to enhance situational awareness and response decisions and to maintain safe and efficient operations.
33.2.1		Revised requirement. Alternatively permits the display to identify the point addressable device in lieu of the zone.
33.5.6		New requirement added option to regarding signals from smoke detectors mounted in air distribution systems permitted to be annunciated as alarm signal at the protected premise.
33.3.8		Revised requirement. Unacknowledged alarm signals shall not be interrupted if a fault on an initiating device circuit or a signaling line circuit occurs while there is an alarm condition on that circuit. Exception added for circuits used to interconnect control units.
34.1.2, 34.2.3.1		Revisions to the operational requirements for emergency voice alarm systems regarding the monitoring for integrity of the audio chain and microphone and/or telephone handset cables. Also deleted the minimum operation of the system during a fault of the evacuation tone
34.1.7		New clause includes requirements for systems or equipment arranged to reduce or stop ambient noise.
36.1.6		Revises the requirement that multiple ground faults on a circuit connected to releasing devices should not result in an alarm signal, and subsequently a false release condition.



CLAUSE	VERDICT	COMMENT
36.1.14		Revisions added to clarify that the supervisory signal annunciation is to be at a required operator interface for the releasing service fire alarm control unit.
41.1.5		Communication and transmission circuits are not required to be monitored for ground provided the circuits meet section 41 requirements and are isolated from the fire alarm system or a fault does not affect the required operation of the fire alarm system.
41.3.2.3		Added exception to priority of signaling for DACTs that when all concurrent status changes can be transmitted within 90 seconds, the transmissions are not required to be prioritized.
41.4.7		Revised the time to annunciate a trouble condition for a two-way private radio system from 90s to 200s.
50.11		New requirement added to address the priority of operation between ventilation response from a carbon monoxide abnormal condition and a fire alarm condition.
55.1.1, 55.4.1, 87.1.1, 87.2.1, 87.3.1		Revised requirements intended to expand the use of primary batteries beyond low power radio frequency transmitters.
56.2.1		New requirement exempting detection and annunciation of a ground fault for an initiating device circuit extending not more than 3 feet from a primary battery operated wireless device provided the 3-foot distance does not include an intervening barrier such as a wall or ceiling.
56.3.1		New requirement exempting detection and annunciation of a ground fault for an notification appliance circuit extending not more than 3 feet from a primary battery operated wireless device provided the 3-foot distance does not include an intervening barrier such as a wall or ceiling.
56.5.4		Revised to indicate that the alarm signal from a RF initiating device required to latch is with respect to a fire alarm.
57.6		Revised requirement. Re-annunciation of “silenced” yet active trouble signals no longer includes signaling to the supervising station.
58.1		Revised to indicate that either an audible- or visual-only trouble signal at the operator interface is acceptable for mechanisms that are part of the supervising station equipment.
58.2		Expanded reference material permitted to be used to establish component failure rate prediction.
58.3		Expanded monitoring for integrity requirements to include components associated with controlling the environment within an enclosure.
58.7		Deletes requirement to fault power supply output upon which operation of the stored program relies.



CLAUSE	VERDICT	COMMENT
60.3.1		Revised to indicate that multiple detector operation, as defined in 60.3, does not apply to releasing service applications. See releasing service options for counting (36.6) and cross zone (36.5) operations for multiple detector operation with respect to releasing service.
61.1.13		Revised to indicate that signals from fire extinguisher monitoring devices are now permitted to be annunciated as supervisory signals.
61.1.15		New requirement. Controls used to adjust volume levels of non-emergency or ancillary signals, such as background music or building paging, to allow the fire alarm equipment to meet required audible requirements for fire alarm signaling shall be overridden by the fire alarm system to deliver emergency signals at a preset volume setting.
65.7		Revised to indicate the battery charger no longer required to charge batteries during alarm condition.
Tables 68.1 and 68.2		Aligns component temperature test with UL 2572.
		Alternative added to conducting the Separately Energized Circuit tests for the Overload and Endurance Tests.
72.2.1, 73.2.1		Exceptions added to utilize the component recognition ratings for switches and relays.
		Clarification added to address integral motors used in some smoke control and non-suppression releasing products.
73.1.1		An exception was added to clarify that the digital alarm transmitters used for off-premise signaling are subjected to 6000 cycles of signaling operation rather than 30,000 cycles.
77.4.1		Revised to exclude releasing circuits for suppression systems because of the possible risk of a false release.
80.5		The specified current threshold for the dielectric test was removed. The dielectric test is intended to evaluate the insulation system. A limit should not be specified for dielectric current because there is no trip-out current setting which is absolutely correct for determining failure. The determining criterion for failure is "breakdown". The precise value of dielectric current which flows is unimportant, but what is important is a sudden, dramatic increase in the dielectric current which indicates that insulation breakdown has occurred.
81.4.2, 81.4.4- 81.4.7		Revised to permit repeating the test a total of three times when the burnout of a component occurs. Acceptance is based upon repeatable results.



CLAUSE	VERDICT	COMMENT
85.2.4, 85.4.1, 85.5.1, 85.6.1, 85.7.3		Added alternative test methods for products incorporating spread spectrum type technologies and products which only permit one device at a time to communicate.
96.2, 96.3,		Option added to provide installation wiring diagram required by 96.1 in electronic media.
96.6(f) and (i)		Expanded to include additional communication protocols which are not required to specify maximum current, voltage and frequencies. Also expanded maximum line loss to include line loss attenuation.
CUSTOMERS PLEASE NOTE: This Table and column "Verdict" can be used in determining how your current or future production is or will be in compliance with new/revised requirements.		