

NFPA 1982

Standard on Personal Alert Safety Systems (PASS)

2007 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

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Standard on
Personal Alert Safety Systems (PASS)
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This edition of NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, was prepared by the Technical Committee on Electronic Safety Equipment and released by the Technical Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment. It was issued by the Standards Council on December 1, 2006, with an effective date of December 20, 2006, and supersedes all previous editions.

This edition of NFPA 1982 was approved as an American National Standard on December 20, 2006.

Origin and Development of NFPA 1982

The Technical Committee on Protective Equipment for Fire Fighters began work on this standard in 1980 in answer to requests from the fire service to establish requirements for a device that would sound an audible signal for aid if a fire fighter became incapacitated while operating at an emergency. The International Association of Fire Fighters (IAFF) was instrumental in the developmental work that resulted in this standard. Developmental work was completed in the spring of 1982 and submitted to the NFPA for official adoption. The first edition was presented at the Annual Meeting in Kansas City, MO, and released on 9 June 1983.

Between the first and second editions, the name of the technical committee was changed to the Technical Committee on Fire Service Protective Clothing and Equipment, and the Subcommittee on Personal Alert Safety System (PASS) was organized to manage this document. The second edition was presented to the membership of the Association at the 1988 Annual Meeting in Los Angeles, CA, and had an effective date of 28 June 1988.

For the third edition, the Subcommittee on PASS undertook a complete revision of their work, which was completed in December 1991. The document was passed onto the Technical Committee on Fire Service Protective Clothing and Equipment and was presented to the membership of the Association at the 1993 Annual Meeting in Orlando, FL, and was issued with an effective date of 20 August 1993.

In January 1995, the Standards Council reorganized the entire project for fire service protective clothing and equipment. The new project has a Technical Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment and seven technical committees operating within the Project. The former standing Subcommittee on PASS was combined with the Subcommittee on SCBA to form the new Technical Committee on Respiratory Protection and Personal Alarm Equipment, which took over the responsibility for NFPA 1982.

The fourth edition represented a complete revision of the third edition and included PASS that are integrated with SCBA and automatic activation of all PASS. It was presented to the membership of the Association at the 1998 Annual Meeting in Cincinnati, OH, and had an effective date of 5 August 1998.

In October 2002, the NFPA Standards Council established a new committee, the Technical Committee on Electronic Safety Equipment, within the Project structure. This new committee was given the responsibility for addressing all electronics in equipment used by emergency responders and was assigned responsibility for NFPA 1982.

The fifth edition of NFPA 1982 represents a complete revision of the fourth edition. During this revision cycle, the Committee received reports from the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research, regarding their investigations of fire fighter fatalities where there was evidence the PASS alarm signal failed to function or was not heard by other personnel in the area, and in some instances that there was water ingress to the electronic components that diminished or canceled the alarm signal. The National Institute for Standards and Technology (NIST), Building and Fire Research Laboratory, partnered with NIOSH to characterize the performance of PASS devices in the fire-fighting environment. NIST determined that exposure to high temperature environments caused the loudness of the alarm signal to be reduced. This reduction in loudness can cause the alarm signal to become indistinguishable from background noise at an emergency scene. Initial laboratory testing by NIST highlighted that this sound reduction may begin to occur at temperatures as low as 300°F. All PASS devices that were evaluated experienced significant alarm signal degradation at temperatures between 300°F and 500°F. As the PASS cooled, the alarm signal on most of the units returned to pre-exposure sound levels.

NIOSH and others also noted that water ingress did occur or could have occurred in several cases, causing the alarm signal to cease to function with any effectiveness, but that after the PASS electronics dried, the alarm signal would again function.

The Committee addressed these issues and others and developed changes to the requirements for this fifth edition. The more significant changes are the following:

- (1) New water immersion requirements and testing where PASS is exposed to 350°F for 15 minutes and then to water submersion in 1.5 m (4.9 ft) also for 15 minutes for each of six cycles. PASS is examined to determine no water ingress, that all PASS signals must function properly, and that electronic data logging functions operate properly. PASS is then re-immersed in the test water for an additional 5 minutes with the power source compartment(s) open; following those 5 minutes, the PASS is removed from water and wiped dry, and the electronics compartment is opened and examined to determine no water ingress.
- (2) Revised high temperature resistance requirements and added new high temperature functionality requirements and testing procedures where PASS is exposed to 500°F for 5 minutes while mounted in a circulating hot air oven. The PASS alarm signal must function at or above the required 95 dBA sound level for the required duration of the signal, electronic data logging functions must operate properly, and no part of the PASS can show evidence of melting, dripping, or igniting.
- (3) New tumble-vibration requirements and testing in which PASS is “tumbled” in a rotating drum for 3 hours. The PASS alarm signal must function at the required 95 dBA sound level, and electronic data logging functions must operate properly.
- (4) New requirements to prevent muffling of the alarm signal where PASS is mounted on a test subject and evaluated in five positions (face down with arms extended, supine left, supine right, fetal right with knees drawn to chest, fetal left with knees drawn to chest), and the alarm signal must function at or above the required 95 dBA sound level in each of the positions.

In Memoriam, 11 September 2001

We pay tribute to the 343 members of FDNY who gave their lives to save civilian victims on 11 September 2001, at the World Trade Center. They are true American heroes in death, but they were also American heroes in life. We will keep them in our memory and in our hearts. They are the embodiment of courage, bravery, and dedication. May they rest in peace.

For additional information regarding PASS, go to:
www.nfpa.org/pass

Technical Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment (FAE-AAC)

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International Association of Fire Fighters, DC [L]

William M. Lambert, *Secretary*
Mine Safety Appliances Company, PA [M]
Rep. Compressed Gas Association

Leslie Anderson, U.S. Department of Agriculture, MT [E]
Roger L. Barker, North Carolina State University, NC [SE]
Les Boord, U.S. Department of Health and Human Services, PA [E]
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Nicholas J. Curtis, Lion Apparel, Incorporated, OH [M]
Robert A. Freese, Globe Manufacturing Company, NH [M]
Andy Gbur, Intertek, OH [RT]
Bill Grilliot, TFG/Morning Pride Manufacturing LLC, OH [M]
Rep. Fire and Emergency Manufacturers and Services Association Incorporated
Kimberly M. Henry, PBI Performance Products, Incorporated, NC [M]
James S. Johnson, Lawrence Livermore National Laboratory, CA [RT]

Cy Long, Texas Commission on Fire Protection, TX [E]
David G. Matthews, Fire & Industrial (P.P.E.) Limited, United Kingdom [SE]
Rep. International Standards Organization
Jim Minx, Oklahoma State Firefighters Association, OK [C]
Gary L. Neilson, Reno Fire Department, NV [U]
Stephen R. Sanders, Safety Equipment Institute (SEI), VA [RT]
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David Trivette, Tyco/Scott Health & Safety, NC [M]
Rep. International Safety Equipment Association
Robert D. Tutterow, Jr., Charlotte Fire Department, NC [U]
Rep. Fire Industry Equipment Research Organization
Harry P. Winer, U.S. Department of the Navy, MA [RT]

Alternates

Jason L. Allen, Intertek, NY [RT]
(Alt. to A. Gbur)
Eric J. Beck, Mine Safety Appliances Company, PA [M]
(Alt. to W. M. Lambert)
Janice C. Bradley, International Safety Equipment Association, VA [M]
(Alt. to D. Trivette)
Patricia A. Freeman, Globe Manufacturing Company, Incorporated, NH [M]
(Alt. to R. A. Freese)
Patricia A. Gleason, Safety Equipment Institute (SEI), VA [RT]
(Alt. to S. R. Sanders)

Mary I. Grilliot, TFG/Morning Pride Manufacturing LLC, OH [M]
(Alt. to B. Grilliot)
William E. Haskell III, U.S. Department of Health and Human Services, MA [E]
(Alt. to L. Boord)
Steven B. Lumry, Oklahoma City Fire Department, OK [C]
(Alt. to J. Minx)
Andrew P. Perrella, E. I. DuPont Company, DE [M]
(Alt. to K. M. Henry)
Frank P. Taylor, Lion Apparel, Incorporated, VA [M]
(Alt. to N. J. Curtis)

Nonvoting

Donna P. Brehm, Virginia Beach Fire Department, VA [U]
Rep. TC on Emergency Medical Services Protective Clothing and Equipment
Dean W. Cox, Fairfax County Fire and Rescue Department, VA [U]
Rep. TC on Special Operations Protective Clothing and Equipment
Glenn P. Jirka, Miami Township Fire and EMS Division, OH [E]
Rep. TC on Hazardous Materials Protective Clothing and Equipment

Kirk Owen, Plano Fire Department, TX [U]
Rep. TC on Structural and Proximity Fire Fighting Protective Clothing and Equipment
Ray F. Reed, Dallas Fire Rescue, TX [U]
Rep. TC on Respiratory Protection Equipment
Bruce H. Varner, Santa Rosa Fire Department, CA [E]
Rep. TC on Electronic Safety Equipment

Bruce W. Teele, NFPA Staff Liaison

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Committee Scope: This Committee shall have primary responsibility for documents on the design, performance, testing, and certification of protective clothing and protective equipment manufactured for fire and emergency services organizations and personnel, to protect against exposures encountered during emergency incident operations. This Committee shall also have the primary responsibility for documents on the selection, care, and maintenance of such protective clothing and protective equipment by fire and emergency services organizations and personnel.

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Bruce H. Varner, *Chair*
Santa Rosa Fire Department, CA [E]

Steven B. Lumry, *Secretary*
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Rep. Oklahoma State Firefighters Association

Jason L. Allen, Intertek, NY [RT]
Robert J. Athanas, SAFE-IR, Incorporated/FDNY,
NY [U]
Robert J. Bonahoom, Mine Safety Appliances Company,
PA [M]
Nelson P. Bryner, U.S. National Institute of Standards
and Technology, MD [RT]
A. Paul Bull, Fairfax County Fire and Rescue
Department, VA [U]
John P. Campman, Grace Industries, Incorporated,
PA [M]
John G. Casali, Virginia Tech University, VA [SE]
Richard W. Duncanson, City of Middletown Fire
Department, NY [E]
Rep. NFPA Fire Service Section
Michael G. Feely, Boston Fire Department, MA [U]
Wayne C. Haase, Summit Safety, Incorporated, MA [M]

Roy R. Hari, Marion County Fire District #1, OR [E]
William E. Haskell III, NIOSH NPPTL, MA [E]
Karen Lehtonen, Lion Apparel, Incorporated, OH [M]
Michael F. McKenna, Sacramento Metropolitan Fire
District, CA [U]
David E. Mills, Underwriters Laboratories Incorporated,
IL [RT]
Lawrence M. Nyberg, Motorola, Incorporated, IL [M]
Craig Parkulo, Tyco/Scott Health & Safety, NC [M]
Fred H. Rascoe, International Safety Instruments,
Incorporated, GA [M]
Rep. International Safety Equipment Association
Stephen R. Sanders, Safety Equipment Institute (SEI),
VA [RT]
Christina Spoons, Westmont Fire Department, IL [C]
Donald H. J. Turno, Washington Savannah River
Company, SC [U]
Timothy W. Wolf, Scottsdale Fire Department, AZ [C]

Alternates

Donald Aldridge, Lion Apparel, Incorporated, OH [M]
(Alt. to K. Lehtonen)
Francine K. Amon, U.S. National Institute of Standards
and Technology, MD [RT]
(Alt. to N. P. Bryner)
Janice C. Bradley, International Safety Equipment
Association, VA [M]
(Alt. to F. H. Rascoe)
Patricia A. Gleason, Safety Equipment Institute (SEI),
VA [RT]
(Alt. to S. R. Sanders)
John Jarboe, Grace Industries, Incorporated, MD [M]
(Alt. to J. P. Campman)

Richard Katz, Mine Safety Appliances Company, PA [M]
(Alt. to R. J. Bonahoom)
Robert M. Knabbe, SAFE-IR, Incorporated/FDNY,
NY [U]
(Alt. to R. J. Athanas)
Jeff A. Lancaster, Virginia Tech University, VA [SE]
(Alt. to J. G. Casali)
Jeffrey L. Landis, Tyco/Scott Health & Safety, NC [M]
(Alt. to C. Parkulo)
Steven D. Townsend, City of Carrollton Fire
Department, TX [E]
(Alt. to B. H. Varner)

Bruce W. Teele, NFPA Staff Liaison

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

Information on referenced publications can be found in Chapter 2 and Annex B.

Chapter 1 Administration**1.1 Scope.**

1.1.1* This standard shall specify minimum requirements for the design, performance, testing, and certification for all Personal Alert Safety Systems (PASS) for emergency services personnel.

1.1.2 This standard shall specify the requirements for all new PASS, including but not limited to stand-alone PASS and integrated PASS.

1.1.3 This standard shall not specify requirements for any PASS manufactured to previous editions of this standard.

1.1.4* This standard shall not specify requirements for any accessories that could be attached to the certified product but that are not necessary for the certified product to meet the requirements of this standard.

1.1.5 This standard shall not be construed as addressing all the safety concerns associated with the use of compliant PASS. It shall be the responsibility of the persons and organizations that use compliant PASS to establish safety and health practices and to determine the applicability of regulatory limitations prior to use.

1.1.6 This standard shall not be construed as addressing all the safety concerns, if any, associated with the use of this standard by testing facilities. It shall be the responsibility of the persons and organizations that use this standard to conduct testing of PASS to establish safety and health practices and to determine the applicability of regulatory limitations prior to using this standard for any designing, manufacturing, and testing.

1.1.7 Nothing herein is intended to restrict any jurisdiction or manufacturer from exceeding these minimum requirements.

1.2 Purpose.

1.2.1 The purpose of this standard shall be to establish minimum requirements for PASS that are intended for use by emergency services personnel during emergency operations and that emit a signal to summon aid in the event the user becomes incapacitated or needs assistance.

1.2.2* Controlled laboratory tests used to determine compliance with the performance requirements of this standard shall not be deemed as establishing PASS performance levels for all situations to which fire-fighting or emergency services personnel can be exposed.

1.2.3 This standard shall not be interpreted or used as a detailed manufacturing or purchase specification but shall be permitted to be referenced in purchase specifications as minimum requirements.

1.3 Application.

1.3.1 This standard shall not apply to any PASS manufactured to previous editions of this standard.

1.3.2* This standard shall not apply to any accessories that could be attached to the certified product before or after purchase but that are not necessary for the certified product to meet the requirements of this standard.

1.3.3 This standard shall not apply to the use of PASS, the requirements for which are specified in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

1.4 Units.

1.4.1 In this standard, values for measurement are followed by an equivalent in parentheses, but only the first value stated shall be regarded as the requirement.

1.4.2 Because the equivalent values in parentheses are approximate, they shall not be considered as the requirement.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 1971, *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2007 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2007 edition.

2.3 Other Publications.

2.3.1 ANSI Publications. American National Standards Institute, Inc., 25 West 43rd Street, 4th Floor, New York, NY 10036.

ANSI/UL 913, *Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, III, Division 1, Hazardous (Classified) Locations*, Sixth edition, July 31, 2006.

ANSI B46.1, *Surface Texture*, 1978

ANSI S1.13, *Methods for Measurement of Sound Pressure Level*[®], 2005.

ANSI Y1.1, *Abbreviations for Use on Drawings and Text*, 1972.

ANSI Y14.SM, *Dimensioning and Tolerancing*, 1982.

2.3.2 ASTM Publication. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM B 117, *Standard Practice for Operating Salt Spray (Fog) Apparatus*, 2003.



2.3.3 ISO Publications. International Organization for Standardization, 1, rue de Varembe, Case postale 56, CH-1211 Geneve 20, Switzerland.

ISO 9001, *Quality management systems — Requirements*, 2000.

ISO/IEC 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*, 2004.

ISO/IEC 17021, *Conformity assessment — Requirements for bodies providing audit and certification of management systems*, 2006.

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*, 2005.

ISO 17493, *Clothing and equipment for protection against heat — Test method for convective heat resistance using a hot air circulating oven*, 2000.

ISO Guide 27, *Guidelines for corrective action to be taken by a certification body in the event of misuse of its mark of conformity*, 1983.

ISO Guide 62, *General requirements for bodies operating assessment and certification/registration of quality systems*, 1996.

ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*, 1996.

2.3.4 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections. (Reserved)

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.4* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or

service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.5 Shall. Indicates a mandatory requirement.

3.2.6 Should. Indicates a recommendation or that which is advised but not required.

3.2.7 Standard. A document, the main text of which contains only mandatory provisions using the word “shall” to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix or annex, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.

3.3 General Definitions.

3.3.1 Alarm Signal. An audible warning that is identifiable as an indication that an emergency services person is in need of assistance.

3.3.2 Annunciator. The component designed to emit audible signals.

3.3.3 Certification Organization. An independent, third-party organization that determines product compliance with the requirements of this standard with a labeling/listing/follow-up program.

3.3.4 Certification/Certified. A system whereby a certification organization determines that a manufacturer has demonstrated the ability to produce a product that complies with the requirements of this standard, authorizes the manufacturer to use a label on listed products that comply with the requirements of this standard, and establishes a follow-up program conducted by the certification organization as a check on the methods the manufacturer uses to determine continued compliance of labeled and listed products with the requirements of this standard.

3.3.5 Compliance/Compliant. Meeting or exceeding all applicable requirements of this standard.

3.3.6 Compliant Product(s). Clothing or equipment that is certified to the applicable NFPA standard.

3.3.7* Component. Any material, part, or subassembly used in the construction of the compliant product.

3.3.8 Drip. To run or fall in drops or blobs.

3.3.9 Follow-Up Program. The sampling, inspections, tests, or other measures conducted by the certification organization on a periodic basis to determine the continued compliance of labeled and listed products that are being produced by the manufacturer to the requirements of this standard.

3.3.10 Manufacturer. The entity that directs and controls any of the following: compliant product design, compliant product manufacturing, or compliant product quality assurance; or the entity that assumes the liability for the compliant product or provides the warranty for the compliant product.

3.3.11 Melt. A response to heat by a material resulting in evidence of flowing or dripping.

3.3.12 Model. The collective term used to identify a group of elements or items of the same basic design and components from a single manufacturer produced by the same manufacturing and quality assurance procedures that are covered by the same certification.

3.3.13 PASS. Acronym for Personal Alert Safety Systems. See also 3.3.14, Personal Alert Safety Systems (PASS).

3.3.14 Personal Alert Safety Systems (PASS). A device that continually senses for lack of movement of the wearer to automatically activate the alarm signal indicating the wearer is in need of assistance. The device can also be manually activated to trigger the alarm signal.

3.3.14.1 Integrated PASS. A removable or nonremovable PASS that is an integral part of another item or items of protective clothing, protective equipment, or both.

3.3.14.1.1 Nonremovable. An integrated PASS that is not removable and cannot be used independently of the item or items with which it is integrated.

3.3.14.1.2 Removable. An integrated PASS that is removable so that it can be used independently of the item or items with which it is integrated.

3.3.14.2 Stand-Alone PASS. A PASS that is not an integral part of any other item of protective clothing or protective equipment.

3.3.15 Pre-Alarm Signal. An audible warning that is identifiable as an indication that a PASS is about to sound the *alarm signal*.

3.3.16 Product Label. A marking provided by the manufacturer for each compliant product containing compliant statements, certification statements, manufacturer and model information, or similar data. The product label is not the certification organization's label, symbol, or identifying mark; however, the certification organization's label, symbol, or identifying mark is attached to or is part of the product label.

3.3.17 Safety Alert. The procedure by which a manufacturer notifies users, the marketplace, and distributors of potential safety concerns regarding a product.

3.3.18 Sample. (1) The ensemble, element, component, or composite that is conditioned for testing. (See also 3.3.19, *Specimen*.) (2) Ensembles, elements, items, or components that are randomly selected from the manufacturer's production line, from the manufacturer's inventory, or from the open market.

3.3.19 Specimen. The conditioned ensemble, element, item, or component that is tested. Specimens are taken from samples. (See also 3.3.18, *Sample*.)

3.3.20 Surrogate Cylinder. A breathing air cylinder for testing only in which the mass of the breathing air is replaced by a substitute mass.

Chapter 4 Certification

4.1 General.

4.1.1 The certification process for PASS, as being compliant with NFPA 1982, shall include the requirements of Section 4.1, General; Section 4.2, Certification Program; Section 4.3, Inspection and Testing; Section 4.4, Recertification; Section 4.5, Manufacturers' Quality Assurance Program; Section 4.6, Hazards Involving Compliant Product; Section 4.7, Manufacturers' Investigation of Complaints and Returns; and Section 4.8, Manufacturers' Safety Alert and Product Recall Systems.

4.1.2 All PASS that are labeled as being compliant with this standard shall meet or exceed all applicable requirements specified in this standard and shall be certified. Manufacturers

shall not claim compliance with a portion(s) or segment(s) of the requirements of this standard and shall not use the name or identification of this standard, NFPA 1982, in any statements about their respective products unless the product is certified to this standard.

4.1.3 All certification shall be performed by a certification organization that meets at least the requirements specified in Section 4.2, Certification Program, and that is accredited for personal protective equipment in accordance with ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*. The accreditation shall be issued by an accreditation body operating in accordance with ISO/IEC 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.1.4 All individual compliant PASS shall be labeled. All individual compliant PASS shall also have a product label or labels that meet the requirements specified in Section 5.1.

4.1.5 All compliant PASS shall be listed by the certification organization. The listing shall uniquely identify the certified product, for example, by style, model number, or part number.

4.1.6* The certification organization's label, symbol, or identifying mark shall be attached to the product label or shall be part of the product label.

4.1.7 The certification organization shall not certify any PASS to the 1998 edition of this standard on or after the NFPA effective date for the 2007 edition, which is 20 December 2006.

4.1.8 The certification organization shall not permit any manufacturer to label any PASS as compliant with the 1998 edition of this standard on or after 31 August 2007.

4.1.9 The certification organization shall require manufacturers to remove all certification labels and product labels indicating compliance with the 1998 edition of this standard from all PASS that are under the control of the manufacturer on 31 August 2007. The certification organization shall verify this action is taken.

4.2 Certification Program.

4.2.1* The certification organization shall not be owned or controlled by manufacturers or vendors of the product being certified.

4.2.2 The certification organization shall be primarily engaged in certification work and shall not have a monetary interest in the product's ultimate profitability.

4.2.3 The certification organization shall be accredited for personal protective equipment in accordance with ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*. The accreditation shall be issued by an accreditation body operating in accordance with ISO/IEC 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.2.4 The certification organization shall refuse to certify products to this standard that do not comply with all applicable requirements of this standard.

4.2.5* The contractual provisions between the certification organization and the manufacturer shall specify that certification is contingent on compliance with all applicable requirements of this standard.

4.2.5.1 The certification organization shall not offer or confer any conditional, temporary, or partial certifications.

4.2.5.2 Manufacturers shall not be authorized to use any label or reference to the certification organization on products that are not compliant with all applicable requirements of this standard.

4.2.6* The certification organization shall have laboratory facilities and equipment available for conducting proper tests to determine product compliance.

4.2.6.1 The certification organization laboratory facilities shall have in place a program and functioning for calibration of all instruments, and procedures shall be in use to ensure proper control of all testing.

4.2.6.2 The certification organization laboratory facilities shall follow good practice regarding the use of laboratory manuals, form data sheets, documented calibration and calibration routines, performance verification, proficiency testing, and staff qualification and training programs.

4.2.7 The certification organization shall require the manufacturer to establish and maintain a quality assurance program that meets the requirements of Section 4.5, Manufacturers' Quality Assurance Program.

4.2.7.1* The certification organization shall require the manufacturer to have a product recall system as specified in Section 4.8, Manufacturers' Safety Alert and Product Recall Systems, as part of the manufacturer's quality assurance program.

4.2.7.2 The certification organization shall audit the manufacturer's quality assurance program to ensure that the quality assurance program provides continued product compliance with this standard.

4.2.8 The certification organization and the manufacturer shall evaluate any changes affecting the form, fit, or function of the compliant product to determine its continued certification to this standard.

4.2.9* The certification organization shall have a follow-up inspection program of the manufacturer's facilities of the compliant product with at least two random and unannounced visits per 12-month period to verify the product's continued compliance.

4.2.9.1 As part of the follow-up inspection program, the certification organization shall select sample compliant product at random from the manufacturer's production line, from the manufacturer's in-house stock, or from the open market.

4.2.9.2 Sample product shall be evaluated by the certification organization to verify the product's continued compliance in order to assure that the materials, components, and manufacturing quality assurance systems are consistent with the materials, components, and manufacturing quality assurance that were inspected and tested by the certification organization during initial certification and recertification.

4.2.9.3 The certification organization shall be permitted to conduct specific testing to verify the product's continued compliance.

4.2.9.4 For products, components, and materials where prior testing, judgment, and experience of the certification organization have shown results to be in jeopardy of not complying with this standard, the certification organization shall conduct more frequent testing of sample product, components, and materials acquired in accordance with 4.2.9.1 against the applicable requirements of this standard.

4.2.10 The certification organization shall have in place a series of procedures, as specified in Section 4.6, Hazards Involving Compliant Product, that address reports of situations in which a compliant product is subsequently found to be hazardous.

4.2.11 The certification organization's operating procedures shall provide a mechanism for the manufacturer to appeal decisions. The procedures shall include the presentation of information from both sides of a controversy to a designated appeals panel.

4.2.12 The certification organization shall be in a position to use legal means to protect the integrity of its name and label. The name and label shall be registered and legally defended.

4.3 Inspection and Testing.

4.3.1 For both initial certification and recertification of compliant products, the certification organization shall conduct both inspection and testing as specified in this section.

4.3.2 All inspections, evaluations, conditioning, and testing for certification or for recertification shall be conducted by a certification organization's testing laboratory that is accredited in accordance with the requirements of ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*.

4.3.2.1 The certification organization's testing laboratory's scope of accreditation to ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*, shall encompass testing of personal protective equipment.

4.3.2.2 The accreditation of a certification organization's testing laboratory shall be issued by an accreditation body operating in accordance with ISO/IEC 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.3.3 A certification organization shall be permitted to utilize conditioning and testing results conducted by a product or component manufacturer for certification or recertification provided the manufacturer's testing laboratory meets the requirements specified in 4.3.3.1 through 4.3.3.5.

4.3.3.1 The manufacturer's testing laboratory shall be accredited in accordance with the requirements of ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*.

4.3.3.2 The manufacturer's testing laboratory's scope of accreditation to ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*, shall encompass testing of personal protective equipment.

4.3.3.3 The accreditation of a manufacturer's testing laboratory shall be issued by an accreditation body operating in accordance with ISO/IEC 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*.

4.3.3.4 The certification organization shall approve the manufacturer's testing laboratory.

4.3.3.5 The certification organization shall determine the level of supervision and witnessing of the conditioning and testing for certification or recertification conducted at the manufacturer's testing laboratory.

4.3.4 Sampling levels for inspection to determine compliance with this standard shall be established by the certification organization and the manufacturer to ensure a reasonable

and acceptable reliability at a reasonable and acceptable confidence level that products certified as being compliant with the standard are compliant.

4.3.5 Inspection by the certification organization shall include a review of all product labels to ensure that all required label attachments, compliance statements, certification statements, and other product information are at least as specified in Section 5.1, Product Labeling Requirements.

4.3.6 Inspection by the certification organization shall include an evaluation of any symbols and pictorial graphic representations used on product labels or in user information, as permitted in 5.1.4, to ensure that the symbols are clearly explained in the product's user information package.

4.3.7 Inspection by the certification organization shall include a review of the user information required by Section 5.2, User Information, to ensure that the information has been developed and is available.

4.3.8 Inspection by the certification organization for determining compliance with the design requirements specified in Chapter 6 shall be performed on whole and complete PASS.

4.3.9* Testing conducted by the certification organization in accordance with the testing requirements of Chapter 8, for determining product compliance with the applicable performance requirements specified in Chapter 7, shall be performed on whole and complete PASS. Where the PASS is an integral part of another item of protective clothing or protective equipment, that item with the PASS incorporated shall be tested as a whole, unless otherwise specified herein.

4.3.10 PASS shall be tested for initial certification to this edition of NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, and shall meet the performance requirements of the test series specified in the test matrix in Table 4.3.10(a) and Table 4.3.10(b) as applicable for the type of PASS being certified.

Table 4.3.10(a) Test Matrix for Stand-Alone PASS and Removable Integrated PASS

Test Order	Specimens 1–3	Specimens 4–6	Specimens 7–9	Specimens 10–12	Specimens 13–15	Specimens 16–18	Specimens 19–21
1	Sound pressure (Section 8.2), specimens 1–3	Shock sensitivity (Section 8.7), specimens 4–6	Electronic temperature stress — elevated (8.3.5), specimens 7–9	Water drainage (Section 8.11), specimens 10–12	Case integrity (Section 8.6), specimens 13–15	Vibration test (Section 8.9), specimens 16–18	Tumble vibration (Section 8.16), specimens 19–21
2	Alarm signal muffle (Section 8.17), specimens 1–3	Impact acceleration — ambient (Section 8.8), specimen 4	Electronic temperature stress — low (8.3.6), specimens 7–9	Corrosion (Section 8.4), specimens 10–12	Retention system (Section 8.10), specimens 13–15		
3	Signal frequencies (Section 8.14), specimens 1–3	Impact acceleration — cold (Section 8.8), specimen 5	Electronic temperature stress — shock (8.3.7), specimens 7–9	Product label durability (Section 8.15), specimens 10–12	High temperature functionality (Section 8.12), specimens 13–15		
4	Heat/flame Test 1 (8.13.5.9), specimen 1	Impact acceleration — elevated (Section 8.8), specimen 6	Product label durability (Section 8.15), specimens 7–9				
5	Heat/flame Test 1 (8.13.5.10), specimen 1		Heat and immersion leakage (Section 8.5), specimens 7–9				
6	Heat/flame Test 1 (8.13.5.11), specimen 1		Product label durability (Section 8.15), specimens 7–9				

Table 4.3.10(b) Test Matrix for Nonremovable Integrated PASS

Test Order	Specimens 1-3	Specimens 4-6	Specimens 7-9	Specimens 10-12	Specimens 13-15	Specimens 16-18
1	Sound pressure (Section 8.2), specimens 1-3	Shock sensitivity (Section 8.7), specimens 4-6	Electronic temperature stress — elevated (8.3.5), specimens 7-9	Water drainage (Section 8.11), specimens 10-12	Case integrity (Section 8.6), specimens 13-15	Tumble vibration (Section 8.16), specimens 16-18
2	Alarm signal muffle (Section 8.17), specimens 1-3	Vibration test (Section 8.9), specimens 4-6	Electronic temperature stress — low (8.3.6), specimens 7-9	Corrosion (Section 8.4), specimens 10-12	High temperature functionality (Section 8.12), specimens 13-15	
3	Signal frequencies (Section 8.14), specimens 1-3		Electronic temperature stress — shock (8.3.7), specimens 7-9	Product label durability (Section 8.15), specimens 10-12		
4	Heat/flame test 1 (8.13.5.9), specimen 1		Product label durability (Section 8.15), specimens 7-9			
5	Heat/flame test 1 (8.13.5.10), specimen 1		Heat and immersion leakage (Section 8.5), specimens 7-9			
6	Heat/flame test 1 (8.13.5.11), specimen 1		Product label durability (Section 8.15), specimens 7-9			

4.3.10.1 Where there is more than one test for a single test specimen required by Table 4.3.10(a) or Table 4.3.10(b), the order of testing shall be from top to bottom of the test specimen column as shown in the table.

4.3.10.2 When testing removable integrated PASS, test specimens 1, 2, and 3, as identified in Table 4.3.10(a), shall be in the integrated PASS configuration.

4.3.10.3 When testing specimen PASS in accordance with Section 8.3, Electronic Temperature Stress Test; Section 8.4, Corrosion Resistance Test; Section 8.5, Heat Immersion/Leakage Resistance Test; Section 8.6, Case Integrity Test; Section 8.8, Impact Acceleration Resistance Test; and Section 8.13, Heat and Flame Test, one specimen PASS, instead of all three specimens tested in each test series, shall be selected to be used for evaluation of the requirements of 7.1.2, Pass Alarm Signal. The one specimen PASS that is selected shall be chosen at random from each of the respective series of three specimens for each test.

4.3.11 Any change in the design, construction, or material of a compliant PASS shall necessitate new inspection and testing to verify compliance to all applicable requirements of this standard that the certification organization determines can be affected by

such change. This recertification shall be conducted before labeling the modified PASS as being compliant with this standard.

4.3.12 The certification organization shall not allow any modifications, pretreatment, conditioning, or other such special processes of the PASS or any PASS component, prior to the product's submission for evaluation and testing by the certification organization. The certification organization shall accept, from the manufacturer for evaluation and testing for certification, only PASS or PASS components that are the same in every respect to the actual final product or component. Other than as specifically permitted herein, the certification organization shall not allow the substitution, repair, or modification of any PASS or any PASS component during testing.

4.3.13* All testing and inspection shall be performed utilizing the power source(s) specified on the PASS in accordance with 5.1.7(6).

4.4 Recertification.

4.4.1 After initial certification to this edition of NFPA 1982, compliant PASS shall be tested annually for recertification within 12 months from the previous certification or recertification.

4.4.2 Recertification shall occur each year of the 4 years following initial certification. If there is no revision to this edition