

## **PASS Alarm Signals Can Fail at High Temperatures**

Exposure to high temperature environments may cause the loudness of PASS alarm signals to be reduced. This reduction in loudness could cause the alarm signal to become indistinguishable from background noise at the incident scene. This problem was brought to the attention of the NFPA Technical Committee on Electronic Safety Equipment by the National Institute for Occupational Safety and Health's (NIOSH) Fire Fighter Fatality Investigation and Prevention Program.

NIOSH reported that during the investigation of four fire fighter fatalities that occurred from 2001 to 2004, the PASS alarms were not heard or were barely audible. The PASS had been certified as compliant to NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, 1998 Edition, and involved both stand-alone PASS and SCBA-integrated PASS.

Initial laboratory testing of PASS by the National Institute for Standards and Technology's (NIST) Fire Research Division has shown this sound reduction may begin to occur at temperatures as low as 300° F (150° C) and could affect all PASS. Additional work is required to better characterize the thermal conditions (temperatures and exposure durations) that contribute to alarm signal degradation.

While the NFPA Technical Committee on Electronic Safety Equipment has been working to develop appropriate revisions to NFPA 1982 to address this issue, adequate solutions have not yet been presented. The Committee, in cooperation with NIOSH and NIST, will continue to study the issue and will incorporate revisions into NFPA 1982 as solutions are developed and consensus around addressing the issue is achieved.

PASS has always been a "last resort call for help" for emergency services personnel who are unable to otherwise notify others that they are in distress. Fire fighters should continue to activate and wear PASS whenever in hazardous areas of any incident, but should also be aware that high temperatures could cause degradation of the alarm signal. Incident command should continue to apply all personnel accountability measures at all incidents to assure the safe entrance and exit of personnel from hazardous areas. Direct supervision of operating companies or teams should provide for the safe operating locations of personnel and ensure that members do not "freelance" on the incident scene.

***Emergency services organizations and emergency response personnel should report any PASS malfunctions and other problems with PASS functioning directly to both the certification organization whose certification mark appears on the PASS, and to NIOSH–NPPTL. Be sure to give your contact information so they can respond to you.***

SEI, the Safety Equipment Institute (certification organization), can be reached by email at: [\*\*info@seinet.org\*\*](mailto:info@seinet.org)

NIOSH–NPPTL, the National Institute for Occupational Safety and Health -- National Personal Protection Technical Laboratory, can be reached by email at: [\*\*NPPTL\\_PASS@cdc.gov\*\*](mailto:NPPTL_PASS@cdc.gov)