Executive summary

The fire service and other emergency first responders are currently benefiting from enhanced-existing and newly-developed electronic technologies for use with personal protective equipment (PPE) ensembles. In the last decade the rate of technological innovation has accelerated, and events such as those that occurred on 11 September 2001 have stimulated additional consideration of applications of this technology.

Examples of the application of this new technology are relatively commonplace. One such example is the effort toward addressing CBRNE (Chemical, Biological, Radiological, Nuclear, and Explosive) type events. Protective ensembles used by emergency first responders include or will soon include electronics such as communications, GPS and tracking, environmental sensing, physiological sensing, and other components now becoming practical solutions at emergency events.

How these technological components function in a single synergistic operating platform is of critical interest to fire fighter end users. For instance, they are already burdened by the sheer weight of all their personal protective gear, and carrying separate battery power supplies for each of their individual electronic components begs for reasonable logic.

Overall, the broadscale integration and coordination of separate electronic-based equipment used by fire fighters in their personal protective ensembles is lacking. Today’s fire fighters would directly benefit from a standardized platform/framework for their electronic safety equipment (ESE), and working toward this end point is important for the collective emergency response community.

The goal of this project is to develop performance requirements for the compatibility and interoperability of electronic equipment used by fire service and other emergency first responders. The project will achieve this goal through the following objectives:

- Develop an inventory of existing and emerging electronic equipment categorized by key areas of interest to the fire service.
- Document equipment performance requirements relevant to interoperability, including communications, power requirements, etc.
- Develop an action plan toward the development of requirements to meet the needs of emergency responders.
As a result of the information gathered throughout this project, the following outline of recommendations have resulted (with further detail included in the report):

1. Moving Toward ESE Interoperability
   1.1. Supporting an Evolutionary Approach.
   1.2. Related Professional Applications.
2. Establishing Central Concepts for ESE Interoperability
   2.1. Clarify Definition of ESE.
   2.2. Define ESE Interoperability.
   2.3. ESE Categories.
   2.4. Responder Knowledge Base.
   2.5. Interoperability Performance Characteristics.
   2.6. Component Attributes.
3. ESE Interoperability Standardization
   3.2. Define the Fire Service Landscape.
   3.3. Consistency of Requirements.
   3.4. Periodic Re-Evaluation.
4. Intrinsic Safety of ESE
   4.1. Periodic Re-Evaluation.
   4.2. Interoperability.
   4.3. Consistency of Requirements.
   4.4. Defining the Fire Service Landscape.
   4.5. Ongoing Dialogue.