

# Somerset County Emergency Services Training Academy

402 Roycefield Road, Hillsborough, NJ, 08844 Voice: (908) 725-5070 / Fax: (908) 725-5077

---

**From:** Alan Querec, Chief Instructor SCESTA

January 12<sup>th</sup> 2009

**To:** Joe Gonzalez , CSC Group LLC

**Re:** Field test of the Glo-Jo Helmet Band

Thanks for allowing us to field test your new high visibility illuminated helmet bands. We performed approximately twenty four (24) training evolutions with the eight (8) units you provided. Our field tests began in September 2008 and ended in November 2008, and was conducted with the use of two (2) of our flashover mock-ups. The first mock-up is our Phase 1 Swede and the second mock-up is our Phase 5 Swede. The Phase 1 Swede is a flashover awareness chamber. The temperatures range from 400 to 1500 degrees Fahrenheit above the students. Our phase 5 Swede is a multi level flashover, with survival operations area. This mock-up integrates the use of five (5) trailers with burn capability in two chambers. The temperatures in these areas range from 380 to 1500 degrees Fahrenheit. Once again, field test results involving heat durability, and the visibility of your illuminated helmet band(s) were conducted only within the two (2) aforementioned mock-ups during full duration training evolutions. Of the twenty four (24) training evolutions, twelve (12) of the evolutions emphasized testing heat durability, and twelve (12) of the evolutions were dedicated to testing visibility. Although for testing purposes, an emphasis may have been placed on heat durability and/or visibility, it must be made clear that both heat and smoke conditions existed on all of the training evolutions. "Overall Performance" was noted regardless of our testing emphasis; always in consideration of the constant heat and visibility factors involved.

The established test parameters set forth were to see how your illuminated helmet band(S) would hold up to heat and how visible they were under heavy smoke after continuous exposure within our flashover mock-ups. It should be noted that our test fire areas are very destructive to any firefighting equipment. For example, we have found that a new leather helmet lasts about 20 to 30 burns, or four months before carbon disintegration begins. Our test for heat durability found that the illuminated helmet band(s) held up very well under normal firefighting conditions; this included various exposures of radiant and convective heat. When exposed to constant flashover temperatures, the illuminated bands began to show fatigue after several exposures to the environment. During these instructional evolutions, the units survived twenty five (25) individual "flashover occurrences" before showing major wear problems. The wear problems identified after continuous flashover exposure were: distortion of the units battery pack and loss of elasticity with the band's Nomex elastic portion. It should also be further clarified, that the position of the battery packs on these units during testing were in the horizontal position, or in-line with the band. Lastly, even after the above wear problems were noted, six (6) of the eight (8) units still continued to function.

Our findings with the testing of this device as an accountability tool offering increased visibility, is no doubt a success. We installed your illuminated helmet bands on at least two (2) instructors inside our flashover mock-ups. These instructors controlled the fire and managed the students in various areas of the flashover chamber ie. vents, doors, stairwell, nozzle-man. Accounts among instructional personnel indicated that each instructor was able to remain visible of each other the majority of the time during these flashover evolutions. Students were also questioned at the completion of each evolution, and most indicated that they felt much safer

when they could see where each instructor was. Overall, we feel this visible awareness allowed each mock-up to function with a greater degree of safety.

One key objective we feel was easily achievable with the use of this device, was that the instructor in-charge could easily maintain accountability of his or her instructors while maintaining control of the burn. Not only did accountability and visibility become one; but instructors could be found if needed without any time lag. Even in the heaviest smoke, the visibility of your device was maintained to around thirty inches. This “heavy smoke condition” could be classified as: can’t see your hand in front of your face. In smoke that allowed visibility at the floor, instructors could be seen any where from several feet, to an entire length across the mock-up trailer.

All of our instructors felt the concept of accountability through improved visibility made our flashover training evolution operate more safely. Without the benefits of visibility identification we found students and instructors meld together; often having no point of reference among each other.

With the use of your device we found the consensus to be:

- Our instructors had the added visibility benefits of knowing where additional resources (Other Instructors) could be found if needed.
- The students had the added visibility benefits of knowing who to turn too if they felt unsafe in the flashover environment.
- The instructors and students together felt that the very hostile environment they were challenged with was able to be more easily negotiated; having the added visibility benefit of knowing the location of instructional personnel.

The benefits of this technology can easily transfer to the fire ground. Whether all members of a crew have this device or just the officer, the results of our testing leads to safer operations. Being able to account for personnel with minimal break in visibility during heavy smoke conditions makes interior operations that much more coordinated and safer. One specific feature your device offers is the Aqua / Blue / Green light frequency that it uses. We found it obvious through our applications in smoke that this color of light minimizes distraction as opposed to some red LED lights we have compared it to. In addition we found that your illumination technology does not glare off of smoke or become the focus of unwanted attention; hence it is accommodating to the eye when needed.

In conclusion, we feel the use of your illuminated helmet band can allow for interior operations to be conducted in a much safer manner. When you can see who you are working with, have the confidence of there presence visibly, you can concentrate more on the task at hand. We feel the students are safer when each instructor is visibly accounted for during exercises. The students can then contend with the problems presented within the training evolution and not worry about finding help if need be. Again, thank you for providing your illuminated helmet band(s) for testing.

Alan Querec,

Chief instructor SCESTA