

# **APPLIED INNOVATIVE TECHNOLOGIES, INC.**

*Developing useful and unique products that have lasting performance*

## **NightStar Marine Testing: Tested in compliance to ASTM F1014-02: Test standard for all marine flashlights. Test performed by Aero-Nav Labs**

### **Impact Test**

Impact areas:

- Switch in "on" position     Switch in "off" position
- Lens Cap                       End Cap

( ) Low Impact: NightStar was placed in a cold chamber at -40 F (-40 C) for 2 hours. Immediately following the "cold soak" NightStar was subjected to a 2-lbf.in (1.4 N.m) impact using a 1-lb (0.4 kg) steel ball dropped from a height of 1-ft. (0.3 m) onto the impact target areas listed above.

Results: No physical damage and no electrical malfunction occurred.

( ) High Impact: After the low impact test NightStar was again placed in the cold chamber at -40 F (-40 C) for 2 hours. After the second cold soak, NightStar light was subjected to a 20-lbf.in (2.3 N.m) impact using the 1-lb steel ball dropped from a height of 1.8-ft (0.5 m) onto the impact target areas.

Results: No physical damage and no electrical malfunction occurred.



### **Corrosion Test**

Subjected to 5% salt spray for 200 hours. Chamber temperature was set at 95 F (35 C)

Result: No physical damage occurred.

### **Heat & Humidity Test**

NightStar was placed in a thermal chamber and subjected to dry heat at 150 F (65 C) for 16 hours, followed by 6 hours at 85% relative humidity and 100 F (38 C)

Results: No physical damage occurred and the light operated nominally.

### **Submersion Test**

Submerged in salt water to a depth of 1ft. (0.3m) for 24 hours.

Results: Unaffected and fully operational.

### **Switch Endurance Test**

NightStar's switch was cycled 25,000 times. A cycle consisted of "off" to "on" and back to "off".

Results: No physical damage and no electrical malfunction occurred.

### **Rough Use Test**

NightStar was dropped from a height of 5-ft (1.5 m) onto a vinyl-asbestos tiled concrete floor. The light was dropped twice in a horizontal position with the switch in the "on" position and twice with the switch in the "off" position. The light was also dropped twice in the vertical position upon the lens and twice upon the base. After the drop tests the switch was cycled 25,000 times. A cycle consisted of "off" to "on" to "off".

Results: No physical damage and no electrical malfunction occurred.

### **End Cap Ring Test**

Subjected to a 25-lb load for 1-minute in the vertical direction and 1-minute in the horizontal direction.

Results: No distortion occurred