Thales is proud to present the ClearWatch 250 beacon product test results. The ClearWatch 250 is a handheld, global, two-way satellite messaging and personal tracking device that utilizes Iridium’s short burst data (SBD) service to provide location information determined by a GPS receiver, two-way inbound and outbound status, text messaging, and emergency/alert notifications. Thales Engineers tested the ClearWatch 250 functionality for accuracy, battery life, robustness, durability, and simplicity of use.

Summary of Tests Performed

Testing was performed over several days. The Thales ClearSight tracking software generated all position reports and monitoring statistic used in this evaluation. The following tests were performed:

- Position Accuracy based on a reference point
- Battery life under various real life scenarios:
- Thermal Shock
• Mechanical Vibration per MIL-STD 810G, Method 514.6 ANNEX E, minimum integrity exposure

Positional Accuracy

Positional accuracy was assessed by placing the Tracker in a fixed location in clear view of the sky. Over several days, the ClearWatch 250 reported its Longitude and Latitude a total of 169 times to the ClearSight application. The days the tests were performed had different ambient temperatures.

The calculated position accuracy from over 150 transmissions confirmed the datasheet performance of less than 2.5 m Circular Error Probability (CEP).

Battery Life Performance

Battery life performance was assessed by observing the ClearWatch 250 beacon until the battery died. The first test set a reporting period of 60 seconds. The second test set a reporting period of 180 seconds.

With a reporting period set to 60 seconds in the first test, the battery lasted 7 hours and 46 minutes.

The second test was performed by leaving the beacon in a car window overnight and through the day. At the coolest part of the night, the temperature dropped to ~1°C and rose to ~30°C during the day. In this test, the battery lasted for 23 hours and 18 minutes.

The ClearWatch 250 about five hours to fully charge. It uses an LED indicator which flashes to indicate the amount of battery charge remaining. The indicator is easy to use and understand.

Thermal Shock

ClearWatch 250 was subjected to temperature variations between 0° C to 30° C. Positional accuracy remained in the acceptable range after the temperature exposure.

Mechanical Vibration
The ClearWatch 250 was subjected to the MIL-STD 810G Vibration Method 514.6 Annex E Category 24 General minimum integrity exposure per Figure 514.6E-1, one hour per axis. Positional accuracy remained in the acceptable range after the vibration test.

**Conclusion**

The ClearWatch 250 beacon is a robust and durable device. It is accurate in position as specified. It continued to perform effectively after thermal and vibration tests. The battery performed well under normal conditions but did not accurately report to the ClearSight software the remaining time before the battery was completely discharged.

The ClearWatch 250 beacon is a reliable addition to the Thales portfolio of Satcom products. When combined with the ClearSight tracking software, the ClearWatch 250 provides a world class tracking system that allows two way conversation through texting and email. One beacon was used in this testing. A sampling with several devices is required for a more representative report of the devices.