

§ 2.1507

This chamber is to be of sufficient size to accommodate the EPIRB under test.

(j) *Drop test facility.* A facility which will permit dropping an EPIRB from a height of 20 m into water is required. The water must be deep enough so that the EPIRB will not touch bottom when dropped.

ENVIRONMENTAL AND OPERATIONAL TEST PROCEDURES

§ 2.1507 Test frequencies.

Testing of an EPIRB for compliance outside a shielded room on a distress frequency is prohibited, since this may interfere with emergency communications. Therefore, all compliance testing outside a shielded room should be conducted on one of the pairs of alternate frequencies specified below:

121.600/243.200 MHz
121.650/243.300 MHz
121.700/243.400 MHz
121.750/243.500 MHz
121.800/243.600 MHz
121.850/243.700 MHz
121.900/243.800 MHz

The above frequencies are to be used for limited testing of EPIRBs for compliance with FCC Rules, subject to the following conditions:

(a) The testing shall not cause harmful interference to authorized communications on these frequencies.

(b) The testing shall be coordinated with the nearest FCC district office.

For simplicity, 121.5 MHz and 243 MHz will be used throughout this test procedure to indicate the alternate test frequency.

§ 2.1509 Environmental and duration tests.

The environmental and operational tests in § 2.1509 (a) through (e) are to be conducted on a single test unit in the order given below. This sequence of tests also includes the electrical tests in §§ 2.1511, 2.1513 and 2.1515 of this part. The test unit is not to be adjusted, nor is the battery to be replaced during these tests, and a log of battery on-time should be maintained. The above tests are to be performed on the same test unit. The tests in § 2.1509 (f) through (i) may be run in any sequence or may be performed on separate test units.

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(a) *Vibration test.*

Step (1) Secure the EPIRB to the vibration table. The EPIRB is not to be operated and should not activate while being vibrated.

Step (2) Subject the EPIRB to sinusoidal motion parallel to one of the three major orthogonal axes under the following conditions:

A. Frequency (Hz)	Peak amplitude (mm)
4–10	2.5
10–15	0.8
15–25	0.4
25–33	0.2

B. The frequency is to be changed either linearly or logarithmically with time between 4 Hz and 33 Hz such that a complete cycle (4 Hz to 33 Hz to 4 Hz) takes approximately 5 minutes.

C. The EPIRB is to be vibrated for at least 30 minutes or six complete cycles.

Step (3) Remount the EPIRB, if necessary, and repeat step 2 for each of the other two major orthogonal axes.

Step (4) Upon completion of the test, perform an exterior mechanical inspection and verify operation by turning the unit on and observing the RF power indicator on the unit or monitoring the transmission with a receiver. Record test results.

(b) *Thermal shock tests.* These tests are to be performed on EPIRBs which are required or intended to float. (1) *Low temperature thermal shock test.*

Step (1) Place the EPIRB in a temperature chamber for at least 3 hours at -20°C or colder. The EPIRB is not to be operated while being cooled.

Step (2) Immediately place the EPIRB in water that has been maintained at $+10^{\circ}\text{C}$ or warmer.

Step (3) After 15 minutes, perform an exterior mechanical inspection and verify operation by turning the unit on and observing the RF power indicator on the unit or monitoring the transmission with a receiver. Record test results.

(2) *High temperature thermal shock test.*

Step (1) Place the EPIRB in a temperature chamber for at least 3 hours at $+55^{\circ}\text{C}$ or warmer. The EPIRB is not to be operated while being heated.

Step (2) Immediately float the EPIRB in water that is maintained at $+25^{\circ}\text{C}$ or colder.

Step (3) After 15 minutes, perform an exterior mechanical inspection and verify operation by turning the unit on and observing the RF power indicator on the unit or monitoring the transmission with a receiver. Record test results.