

FAQ on Emergency Beacon Testing

National Oceanic and Atmospheric Administration (NOAA) Satellite and Information Service
National Environmental Satellite, Data, and Information Service (NESDIS)

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Please follow your beacon manufacturer's procedures to conduct the periodic self-test on your beacon, and look for the steady light, series of lights, or audible alert that your manufacturer describes should happen. During the test, the beacon is designed to go through a series of internal checks - including the final step of actually broadcasting a "test" signal to our satellites - and there is a proper method to do all of this without performing a "live test" by activating the beacon.

The Cospas-Sarsat (C/S) System is an operational entity, and is not designed for live testing. Any time a beacon is activated (other than self-test mode), it sends out what is interpreted as a distress signal. This is why live testing of a beacon is not authorized. However, in the self test mode, a signal is still sent to the satellites before getting the light(s) or audible beep(s) that the manufacturer outlined.

Why doesn't the test signal get interpreted as a distress by the satellites or ground stations, and how do you know that your unit worked?

Every beacon has a unique digital code, made up of bits (1's and 0's). In a self test, the beacon alters the code by swapping two designated bits. The ground stations know to ignore the test, and stop the chain of events that normally occur to notify a Rescue Coordination Center (RCC). If the signal is sent without this change, you will not get the proper display or audible notification (contact the manufacturer immediately if so). Also, since every beacon by law is to be registered to you (free of charge), you will probably be contacted by the RCC or other rescue agency that got the alert. That's how you know the test didn't perform correctly.

How does live testing impede the system?

Due to bandwidth of communications to and from the satellites, and due to the storage capacity onboard the satellite, live testing would present problems. For one, it may "step on" a signal from someone who is really in distress. Second, the newer message would push older messages out of storage, meaning that a real distress message sent before yours is now gone from memory in the satellite. Every distress signal received by a Low Earth Orbiting (LEO) satellite is stored for a period of time, to be broadcasted continually down to the Earth as the satellite orbits at 17,000 mph, in a process known as "store and forward." Each ground station along the path of the satellite receives this message and relays it to the associated Mission Control Center (MCC). Then the appropriate RCC for the location or environment (such as a Coast Guard District) receives the alert signal, and launches a rescue team accordingly. So live testing of a beacon would waste valuable resources, and can not be authorized.