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## SEARCH AND RESCUE SATELLITE AIDED TRACKING

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## Emergency Beacon Testing

### Policy

The U.S. SARSAT Program Steering Group has a formal [Beacon Test Policy](#) which dictates non-distress beacon activation policy for all United States beacon owners. The policy details self-test mode, testing using a "Test Code" beacon, and testing with operational coded beacons. There are no restrictions on any user operating the "Self-Test" mode for their beacon as long as it is done in accordance with manufacturer's instructions. For beacon activation using a "test-coded" beacon or an operational beacon, approval must be validated by a national sponsor (USCG, USAF, or NOAA) and approved by NOAA by submitting a [Request for 406 MHz Beacon Test form](#).

For testing using the beacon's "Self-Test" mode, no approval or coordination is required. 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 - without performing a "live test" by activating the beacon.

The COSPAS-SARSAT (C/S) System is an operational entity, and is not intended 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 unless the test has been validated by a national sponsor and approved by NOAA.

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 Cospas-Sarsat 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 when conducting the self-test. If this happens, contact the manufacturer immediately. You will also want to contact one of the following depending on location: U.S. Coast Guard at 1-855-406-USCG (8724), U.S. Air Force Rescue Coordination Center at 800-851-3051, or Alaska Rescue Coordination Center at 800-420-7230, as you may have inadvertently broadcast a live signal. If not, you may be contacted by the RCC or other rescue agency that received the alert.

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 can present problems. For one, it may "step on" a signal from someone who is really in distress. Second, the newer message could 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 will only be authorized under specific criteria outlined in the Beacon Test Policy.

- [Test Policy Doc.](#)
- [Request form Doc.](#)

**For questions concerning the Beacon Test Policy contact your respective national sponsor:**

**USAF Program POC:** Air Force Rescue Coordination Center, Email: [AFRCC.Console@us.af.mil](mailto:AFRCC.Console@us.af.mil)

**USCG Program POC:** HQ USCG CG-SAR Office of Search and Rescue, Email: [HQS-DG-M-406-TEST-Request@uscg.mil](mailto:HQS-DG-M-406-TEST-Request@uscg.mil)

**NOAA Program POC:** NOAA-SARSAT Program, Email: [beacon.test@noaa.gov](mailto:beacon.test@noaa.gov)

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