

RECOMMENDATION 693*

TECHNICAL CHARACTERISTICS OF VHF EMERGENCY POSITION-INDICATING RADIO BEACONS USING DIGITAL SELECTIVE CALLING (DSC VHF EPIRB)

(1990)

The CCIR,

CONSIDERING

- (a) that the alerting and locating functions are parts of the basic requirements of the GMDSS;
- (b) that chapter IV of the 1988 Amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, permits the carriage of a DSC VHF EPIRB in sea area A1** in lieu of a satellite EPIRB;
- (c) that the characteristics of the digital selective calling system are given in Recommendation 493;
- (d) that the characteristics of a search and rescue radar transponder (SART) for locating purposes are given in Recommendation 628,

UNANIMOUSLY RECOMMENDS

that the technical characteristics of DSC VHF EPIRBs should be in accordance with Annex I to this Recommendation and with Recommendation 493.

ANNEX I

MINIMUM TECHNICAL CHARACTERISTICS OF DSC VHF EPIRBs

1. General

- DSC VHF EPIRBs should be capable of transmitting distress alerts by digital selective calling and of providing a locating or homing facility. To meet the locating requirements of the GMDSS, Regulation IV/8.3.1 of the 1974 SOLAS Convention requires that a SART (see Recommendation 628) be used for this function.
- The EPIRB should be provided with a battery of sufficient capacity to enable it to operate for a period of at least 48 hours.
- The EPIRB should be designed to operate under the following environmental conditions:
 - ambient temperatures of $-20\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$,
 - icing,
 - relative wind speeds up to 100 knots,
 - after stowage at temperatures between $-30\text{ }^{\circ}\text{C}$ and $+65\text{ }^{\circ}\text{C}$.

2. Alerting transmissions

- The alerting signals should be transmitted on the frequency 156.525 MHz using G2B class of emission.
- The frequency tolerance should not exceed 10 parts per million.
- The necessary bandwidth should be less than 16 kHz.
- The emission should be vertically polarized. The antenna should be omnidirectional in the azimuthal plane and sufficiently high to ensure reception of the transmission at the maximum range of the A1 sea area.
- The output power should be at least 100 mW***.

* The Director of the CCIR is requested to bring this Recommendation to the attention of the International Maritime Organization (IMO).

** "Sea area A1" means an area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC alerting is available, as may be defined by a contracting government to the 1974 SOLAS Convention.

*** The output power required to carry a ship-to-shore alert at the maximum range of the A1 sea area should be at least 6 W with an appropriate antenna height above sea level.

3. DSC message format and transmission sequence

- The technical characteristics for the DSC message should be in accordance with the sequence for the “distress call” specified in Recommendation 493.
- The “nature of distress” indication should be “EPIRB emission” (symbol No. 112).
- The “distress coordinates” and “time” information need not be included. In this case the digit 9 repeated 10 times and the digit 8 repeated four times should be included, respectively, as specified in Recommendation 493.
- The “type of subsequent communication” indication should be “no information” (symbol No. 126) which indicates that no subsequent communications will follow.
- The alerting signals should be transmitted in bursts. Each burst should consist of five successive DSC sequences with the $(N + 1)$ th burst of transmission being made with an interval T_n after the (N) th burst as given in Fig. 1, where:

$$T_n = (240 + 10 N) \text{ s } (\pm 5\%) \text{ and}$$

$$N = 0, 1, 2, 3, \dots, \text{ etc.}$$

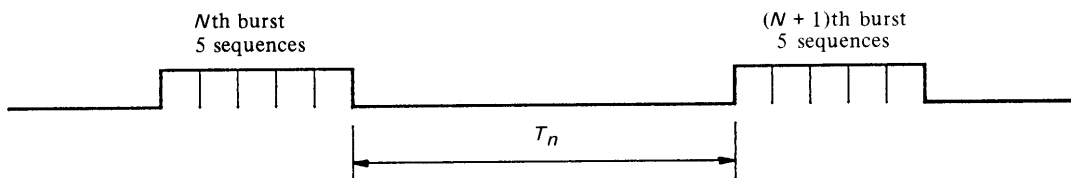


FIGURE 1

D01-sc