AN/SSQ-62B/C/D/E Directional Command Activated Sonobuoy System (DICASS) Sonobuoy

The AN/SSQ-62B/C/D/E Directional Command Activated Sonobuoy System (DICASS) sonobuoy is an A-size, expendable, non-repairable, command activated sonobuoy. The DICASS, in conjunction with the monitoring unit(s) signal processing equipment, provides active sonar range, bearing, and Doppler information on a submerged contact. The DICASS sonobuoy is designed to develop and maintain attack criteria. The DICASS is usually employed in multiple sonobuoy patterns, however, they are designed to permit single buoy attack criteria. The flexibility inherent in the monitoring unit's control over the various sonobuoy functions enables optimum sonobuoy employment over a wide range of environmental and target conditions.

The AN/SSQ-62B DICASS may be command activated to change depth, to activate sonar transmissions and to scuttle the sonobuoy. The AN/SSQ-62B DICASS operates on one of four preset sonar channels and one of 31 preset RF channels. These channels are preset by the manufacturer and cannot be changed. Upon deployment, the AN/SSQ-62B DICASS will initially deploy to a depth of 90 feet. Upon receipt of a command signal, the transducer will deploy to a depth of 400 or 1500 feet.

The AN/SSQ-62C DICASS also operates on one of 86 preset sonar channels. The channels are preset prior to flight to one of 86 preset RF channels that correspond with the preset sonar channel. Upon deployment, the AN/SSQ-62C DICASS will initially deploy to a depth of 90 feet. Upon receipt of a command signal, the transducer will deploy to a depth of 400 feet or 1500/2500 feet. The 1500 or 2500 foot depth option must be selected through the EFS during preflight.

The AN/SSQ-62D DICASS has been improved with the replacement of the lithium chemistry battery with a thermal battery. Additionally, the sonobuoy includes the EFS option of selectable depth families. During preflight, either a shallow or deep family of depth option shall be selected. If the shallow family is selected, depth settings of 50, 150, or 300 feet are available. If the deep family is selected, depth settings of 90, 400, and 1500 are available. These depth options provide sufficient flexibility for both littoral and open ocean ASW operations.

The AN/SSQ-62E DICASS includes the following improvements and modifications to the AN/SSQ-62D DICASS design. It incorporates CFS, allowing a suitably equipped ASW aircraft to transmit UHF radio commands to the sonobuoy. These commands select VHF operation (on/off), change RF channel frequency and associated sonar channel frequency, change sonar frequency independently, and change depth setting. These features all provide enhancements for both deep water and littoral ASW environments. Additionally, the AN/SSQ-62E DICASS will include all four available sonar channel frequencies into a single sonobuoy which provides significant logistics savings.

The DICASS, upon self-activation, is able to process UHF command signals transmitted by the monitoring unit. This command activated, active sonobuoy provides range, bearing and Doppler information on active sonar contacts. The monitoring platform is capable of commanding the transducer to deeper depths, activating sonar transmission, including pulse mode and pulse duration changes, and sonobuoy scuttle. Upon receiving a UHF command signal from the monitoring unit and decoding the signal for the proper address codes, the DICASS sonobuoy emits, as selected, either a continuous wave or FM "ping." The transducer array emits pulses, which are omnidirectional on the horizontal plane and beamformed on the vertical plane. The received signal is amplified and filtered prior to transfer to the compass and multiplexer subassembly where a magnetic bearing reference is provided. This signal is then routed through the cable assembly to the surface unit where it is applied to an FM carrier for VHF transmission. The monitoring platform receives the signal for recording,

processing, and analysis.

Sources and Resources

- NAVY TRAINING SYSTEM PLAN FOR THE NAVY CONSOLIDATED SONOBUOYS N88-NTSP-A-50-8910B/A SEPTEMBER 1998
- Sonobuoys from Sparton

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http://www.fas.org/man/dod-101/sys/ship/weaps/an-ssq-62.htm
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