

HIDAR SONOBUOY PASSIVE SEARCH SONOBUOY TYPE SSQ 955 AND VARIANTS

Features

- High performance passive directional sonobuoy for littoral and deep water operations
- G-size
- Designed for high noise environments and multistatic operations
- Dual mode
- Autonomous Function Select
- Variants for Sound Pressure Level, GPS and coastal surveillance capabilities

The Ultra SSQ 955 HIDAR sonobuoy combines the world's best DIFAR sensor with an all-digital electronics design in a lightweight G-size package. This combination takes full advantage of digital signal processing to offer a buoy that outputs distortion-free acoustic data with a high dynamic range with superb linearity across an extended acoustic spectrum.

The buoy is ideal for use in high ambient noise conditions, e.g. in coastal environments, heavy rain, or near interfering shipping. The fully digital design also offers fast recovery in transient overload conditions and eliminates composite telemetry distortion when overloaded, making it well suited to acting as a low frequency active receiver for multi-static operations.

The SSQ 955 offers considerable benefits to maritime patrol aircraft, especially those with limited space and weight available. Its small, lightweight size is ideal for helicopter operations and larger unmanned air systems.

Variants available are:

- SSQ 955A – Calibrated buoy for Sound Pressure Level measurement
- SSQ 955B – Global Positioning System (GPS)
- SSQ 955C – Coastal Surveillance buoy with low salinity and shallow hydrophone depth settings for ice-edge or estuarine operations



Passive Search Sonobuoy Type SSQ 955

The SSQ 955 is designed for internal carriage and release from maritime patrol aircraft and maritime helicopters. All buoy settings are therefore simple and manual to choose and set through the AFS selector. The buoy can also be hand-launched or fired from autonomous launchers on naval vessels.

After release from the aircraft, a parachute limits the rate of descent to approximately 30 m/s. On water entry, a surface float is deployed, containing a VHF transmitter for acoustic data telemetry. Omni-directional and directional acoustic sensor signals are transmitted to an airborne or ship-based acoustic processor for passive detection of narrowband, broadband and transient submarine acoustic emissions. The buoy will also detect low frequency active emissions and echoes in a multi-static or active adjunct role.

In the 'HIDAR' or 'H' mode, digitised acoustic data is transmitted with 14-bit precision, using a frame format compatible with SSQ 981 Barra. RF spectrum shaping allows operation on adjacent RF channels. The digitally synthesised 'Standard' or 'S' mode is fully compatible with existing DIFAR processors but offers all the advantages of in-buoy digital processing, and extended dynamic range and bandwidth.

Safety mechanisms are included to prevent actuation or deployment until the parachute has deployed normally and the buoy has entered the water. These safety features protect operators from inadvertent activation, especially in emergency situations, such as aircraft ditching.

Specification HIDAR SSQ 955

Description
Directional passive sonobuoy

Dimensions

'G' size
Length: 419.1mm (16.5in)
Diameter: 123.825mm (4.875in)
Weight: 5.6kg (12.3lbs)

Deployment

Platform speed: 50kts to 375kts

Platform altitude: 55m to 9144m (180ft to 30,000ft)

Operating Depth

AFS Programmable Settings:

SSQ 955 A/B	30m	140m	300m
SSQ 955C	15m	30m	60m

Time to full stabilisation:	100s	180s	240s
Alternate depth settings:	15m	30m	60m

Operating Life

AFS Programmable 1, 2, 3, 4, 5 and 6 hours. (Scuttles at end of life)

RF Channel

Programmable Channels 1 to 99 (136MHz to 173.5MHz, 375kHz spacing)

Telemetry Mode

AFS Programmable
'HIDAR': Coherent Gaussian FSK at 224kbps
'Standard': FM (conventional DIFAR compatible format)

VHF Radiated RF Power

1 Watt nominal

Acoustic Frequency Range (HIDAR mode)

Directional sonics telemetry: 5Hz to 2000Hz
Extended Omni (transient detection): up to 4000Hz

Acoustic Sensitivity (HIDAR mode)

1 MSB \equiv 154.3 dB re 1 μ Pa
1 LSB (of 14) \equiv 76 dB re 1 μ Pa

Acoustic Frequency Range (Standard mode)

Telemetry: 5Hz to 3375Hz
Full specification: 5Hz to 2900Hz

Improved bearing accuracy: 5Hz to 2400Hz

FM Deviation Acoustic Sensitivity (Standard mode)

Omni-directional: 122 dB re 1 μ Pa RMS sinusoid \rightarrow 25 kHz peak

Directional: 122 dB re 1 μ Pa RMS bore sight sinusoid \rightarrow 40kHz peak

Systematic Bearing Accuracy

\pm 6° (5Hz to 2400Hz)
 \pm 10° (2400Hz to 2900Hz)

Temperature Range

Seawater operating: - 2°C to + 35°C
Un-packaged non-operating: - 20°C to + 55°C
Packaged: - 50°C to + 70°C

Seawater Salinity

SSQ 955A/B: 1.5% to 3.6% by weight
SSQ 955C: 0.0% to 3.6% by weight

Storage Life

Packaged: 7 Years
Un-packaged: 90 Days



making a difference

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