



MASS Highlights

- . Base receiver
- . Visual location of impact
- . Self contained
- . 5-7 buoys
- . Portable
- . Buoys detect impact

The Mobile Acoustic Scoring System is a free floating buoy system that has been developed to allow vessels to undertake self-conducted gunfire training exercises around the world.

The buoy system consists of a set of operation buoys, which report acoustic event data, buoy position (GPS location) and precise time (to 150 microseconds). The precise time of the acoustic event is sent via a spread spectrum radio, to a base station receiver typically located on the ship from which the shells were fired.

The base station receives and processes the data, then calculates and displays where the shell landed relative to a chosen target point. This data provides real time feedback accuracy of the gunfire.



MASS

Mobile Acoustic Scoring System

System Components

Vessel base station comprising of personal computer and radio transceiver
 Vessel based radio repeater
 Buoy operating array, typically 5 units, minimum 3
 Each buoy equipped with GPS, radio, hydrophone and radar reflector

Vessel Based Component Specifications

Base Station

Personal Computer	Size	30 cm X 23 cm X 7 cm
	Features	Provides acoustic event location data in numerical and graphical form. Map overlays are optional.
Radio	Size	23 cm X 10 cm X 5 cm plus 30 cm omni-directional antenna.
	Features	900 MHz spread spectrum radio, 1 watt RF power. Powered from vessel, 110/220 VAC

Repeater

Size	Approximately 38 cm X 38 cm X 15 cm plus 30 cm omni-directional antenna
Operating Time	48 Hours
Weight	Approximately 9 kg
Features	Mast mounted at a minimum of 15 meters height. Self contained in environmentally sealed enclosure +12 V rechargeable battery, 900 MHz spread spectrum radio, 1 watt RF power.

Buoy System Specifications

RF range	At least 20000 m line of sight, maximum depending on conditions, 900 MHz spread spectrum radio, 1 watt RF power
Buoy GPS self location accuracy	Less than 10 m 99% of locations Less than 2 m for 1 standard deviation
Buoy accuracy for reported time of arrival of acoustic event	150 microsec (equivalent to spatial resolution of 23 cm)
Acoustic event detection range	At least 5000 m
Buoy acoustic projector range	Maximum 2000 m
Active operating time	48 hours with fully charged battery pack
Flotation collar	Diameter: 61 cm, depth 20 cm Materials: ionomer foam; colour: yellow
Hull	Diameter: 15 cm, length 120 cm Materials: stainless steel. Weight: 36 kg
Antenna mast	Diameter: maximum 5 cm. Length: 390 cm Materials: glass-reinforced plastic. Colour: white. Weight: 3.1 kg
Hydrophone	Diameter: 14 cm and suspension cable Length: 6.6 M Materials: piezoelectric ceramic. Colour: black. Weight: 10.5 kg



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