

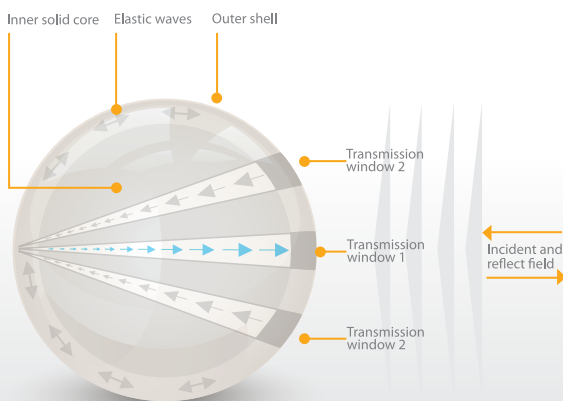
# SonarBell<sup>®</sup>

Providing innovative product solutions for defence applications

## Defence Products



### SonarBell<sup>®</sup> Technology



SonarBell<sup>®</sup> operates by focusing and reflecting acoustic energy, much as a lens or mirror can focus light. Just like a lens or mirror, SonarBell<sup>®</sup> is a completely passive device.

By focusing and re-radiating the sound energy back in the direction from whence it came, a 200mm SonarBell<sup>®</sup> can deliver the same sonar target strength as a 2m diameter metal sphere whilst being relatively light weight, easy to handle and deploy.

However, unlike other technologies used for asset location SonarBell<sup>®</sup> does not suffer from the “now you see it, now you don’t” of corner reflectors or the limitations imposed by battery life on transponders utilisation.

SonarBell<sup>®</sup> works well with all types of Sonar from highly sophisticated hull mounted sonar designed for mine-hunting and side-scan devices at one end of the scale to fish-finders and echo-sounders at the other. It works equally well with AUV/UUV and hand-held sonar for work done at close range.

SonarBell<sup>®</sup> has many properties which make it suitable for military applications. SALT has designed a number of systems for military and security use around these unique features including:

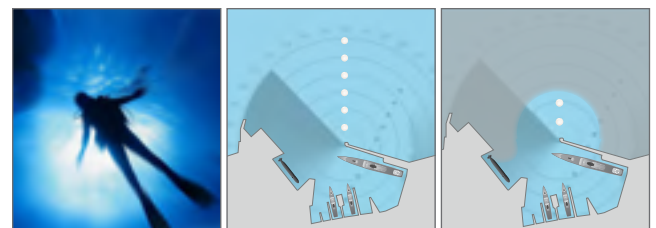
### SonarBell<sup>®</sup> Underwater Mine Marking System - SUMMS

SonarBell<sup>®</sup> is a totally passive device with a very low non-acoustic signature. As such it provides an ideal device for marking mines or other objects for subsequent exploitation or destruction.



### SonarBell<sup>®</sup> Performance And Training System - SPATS

Knowing the effective range of a swimmer detection sonar is vital if interception teams are to be brought to the appropriate state of readiness for the prevailing conditions - allowing you to reduce unnecessary fatigue. Having SonarBell<sup>®</sup> units as range markers provides the difference between knowing you have enough warning to arrange swimmer interception and hoping you have.



## SonarBell® Equipment Tracking System - SETS

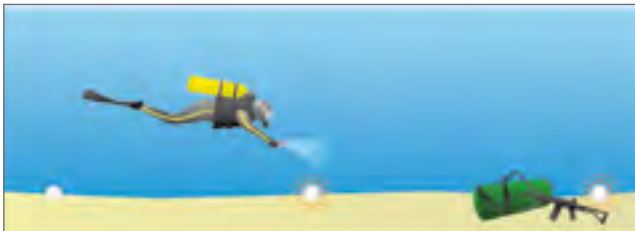
Delivering passive tracking of underwater equipment for in-service position monitoring and asset recovery in the event of power failure or loss of communication.

SonarBell® units supplied can be tailored for different size AUV/ROVs and for the frequency of the surveillance sonar.



## SonarBell® Entry, Exit And Recovery System - SEEARS

SonarBell® are capable of supporting combat swimmers during the entry, exit and recovery operational phases, acting as waypoints between compass bearings and can also be used to mark the location of equipment for recovery during or after operations.



SALT provide a set of SonarBell® units and hand-held sonar tuned for optimal performance.



## ➔ Bespoke Design And Development

SALT has been engaged by a number of organisations to examine how its products might deliver operational advantage. This development brief can cover:

### SonarBell® Design

#### Covering:

- Resonant frequency and target strength
- Spectral response
- Optimal size and performance

#### Application & Solution Design Including:

- Complete acoustic solutions
- SonarBell® / Sonar matching
- Performance modelling
- Operational cost benefit analysis

#### Application Support:

- Mounting techniques
- Safety assessments
- System Calibration

## SonarBell® Technical Evaluation Packages - STEPS

The STEPS package is designed to help you get the most from SonarBell® either as a prospective user of the technology or as a Design Authority developing a solution on behalf of your client.



Subsea Asset Location Technologies (SALT) Ltd is a 'spin out' company from the UK Ministry of Defence's, Defence Science and Technology Laboratory (Dstl) and was formed to make this military derived technology available to a wider market.