SALT
Subsea Asset Location Technologies Ltd

Pioneers of the SonarBell™
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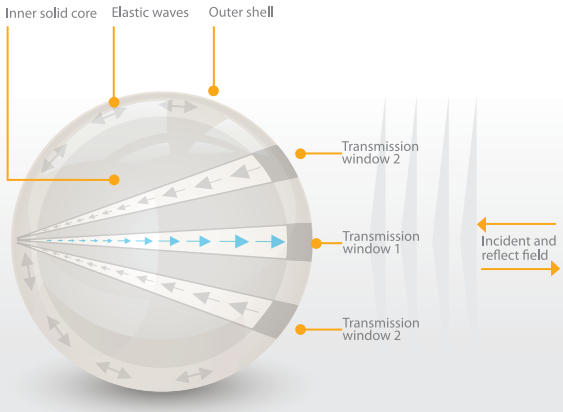
SonarBell™

Asset Location Has Never Been Easier



What is SonarBell™

SonarBell™ operates by focusing and reflecting sound energy, much as a lens or mirror can focus light and just like a lens or mirror, SonarBell™ is a completely passive device.

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

However, unlike other technologies used for asset location SonarBell™ does not suffer from either the "now you see it, now you don't" of corner reflectors nor does it require the battery replacement cycle of transponders.

Exploiting Defence technology for wider benefit

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.

Having spent many years reducing underwater sonar signatures, the scientists at Dstl turned their knowledge on its head to develop a passive device that was "as loud as possible" when exposed to an incoming signal and the SonarBell™ concept was born.

SonarBell™ The Facts

- Inert, stable and completely passive device
- Omni-directional
- No maintenance
- Can have single, multiple or broadband optimised response
- Visible at up to 2km dependant on frequency, size and sonar power
- Anti-fouling can be applied
- Easily deployed and recovered
- Individual calibration available
- SonarBell™ is available in a growing range of sizes from 50 to 200mm diameter

SonarBell™ The Future

SALT is working with sonar manufacturers to deliver passive asset location and identification through the creation of a acoustic "bar code".

Wide Ranging Sonar Compatibility

SonarBell™ technology is compatible with all types of sonar from the 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 ranges.

In order to get maximum detection range SonarBell™ can be tuned to deliver peak response at a single frequency or deliver a broader capability through multiple peaks or broadband response.

Military Applications for SonarBell

The breadth of Military applications is already substantial and continues to grow as SALT undertakes bespoke development and capability demonstration work. Current applications include:

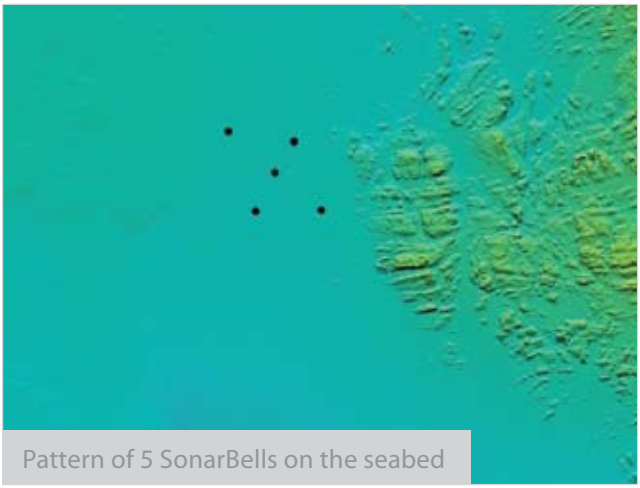
- Mine and asset location (SonarBells™ have a low non-acoustic signature)
- Underwater "Safe Passage" marking
- Ping by ping calibration of Swimmer Detection systems and operator training

Commercial Applicability of the SonarBell™

SonarBell™ changes the economic argument for marking valuable assets significantly.

- Currently an asset must be sufficiently valuable in order for an organisation to accept the on-going overhead of battery replacement associated with transponder marking.
- SonarBell™ allows for long term asset marking without the overhead, thereby rendering economically viable the marking of assets that would otherwise not have been marked.
- Where SonarBell™ is used to replace a transponder then capital expenditure and operating expenditure are both reduced.

Applying SonarBell™ to deliver real world benefit



Pattern of 5 SonarBells on the seabed

SonarBell™ offers a truly unique commercial and military proposition to its users.

Commercial Applications of the SonarBell™

- Fishing for net efficiency and equipment recovery.
- Oil and Gas for marking wellheads, pipes, cables and flexible rises.
- ROV/AUV marking and navigation
- Hydrography, Oceanographic Survey
- Marking mine location
- Riser and pipeline path marking for Oil and Gas Industry
- Alert telecoms and offshore power generation providers of cable exposure.
- And many, many others.....

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