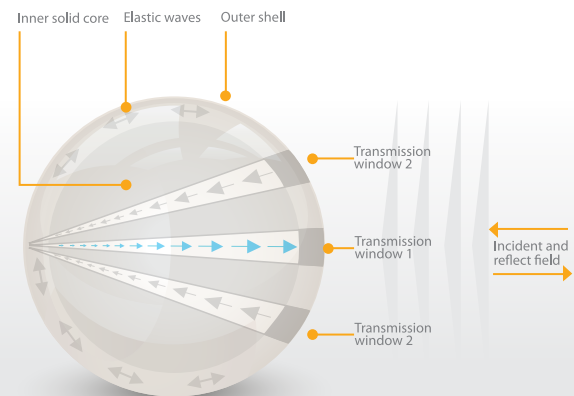


# SonarBell<sup>®</sup>

## What is SonarBell<sup>®</sup>

## Asset Location Has Never Been Easier



SonarBell<sup>®</sup> operates by focusing and reflecting sound energy, much as a lens or mirror can focus light and 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 and easy to handle.

However, unlike other technologies used for asset location SonarBell<sup>®</sup> 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<sup>®</sup> concept was born.

### SonarBell<sup>®</sup> 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<sup>®</sup> is available in a range of sizes from 50 - 200mm diameter

### SonarBell<sup>®</sup> The Future

**SALT is working with sonar manufacturers to deliver passive asset location and identification through the creation of an 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 (SonarBell® units have a low non-acoustic signature)
- Underwater "Safe Passage" marking
- Ping by ping calibration of Swimmer Detection systems and operator training

## ➔ Commercial Applicability of 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



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



## ➔ Commercial Applications of SonarBell®

- Fishing for net efficiency and equipment recovery
- ROV/AUV marking and navigation
- Hydrography, Oceanographic Survey
- Marking mine location
- Wellhead riser and pipeline path marking for Oil and Gas Industry
- Alert telecoms and offshore power generation providers of cable exposure