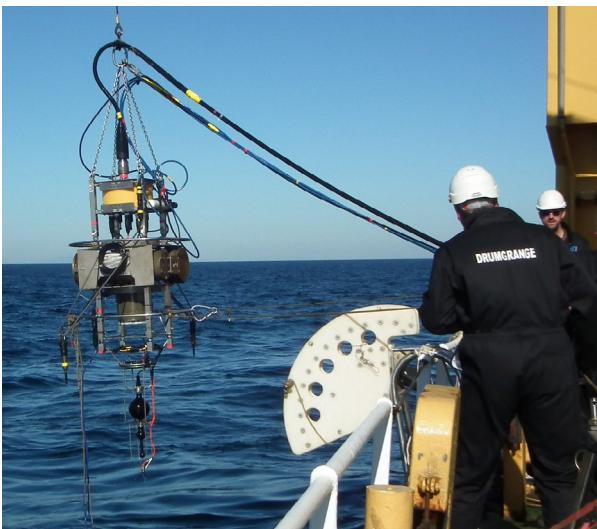
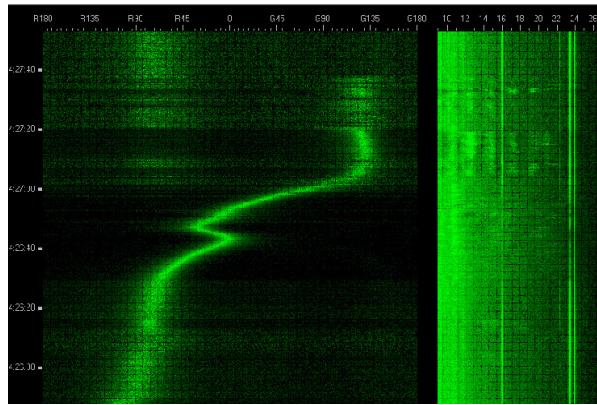


# Sonar Systems

## Active Intercept Sonar

- High-performance wideband intercept sonar processors in service with the Royal Navy
- Can be provided as complete hardware and/or software solutions using single arrays or multi-site architectures, covering low to very high frequencies
- Fully digital solutions, allowing for easy integration within an integrated sonar suite by a third party.



## Sonar Research, Development & Trials

Drumgrange has a highly capable sonar modelling and simulation capability to support algorithm development and system performance modelling using simulated or recorded data. Most recently, the team has been involved in the development of a number of novel signal processing algorithms, helping ensure that threats can be detected and localised more reliably.

We also have specialist facilities to support sonar trials, static or underway calibration and sonar recording for data analysis.

## Sonar Design & Integration

The development, installation and testing of numerous components, and algorithms across a number of sonar types and platforms. This includes:

- Upgrades and novel processing for Submarine Conformal Arrays
- Development of inboard hardware to interface to legacy arrays
- Integration of software within third party systems
- Acoustic communications system development, including new protocol implementation
- Novel Processing and error analysis for Surface Ship and Submarine Towed Arrays
- Performance Assessments of Hull Arrays
- Development of solutions for unmanned vessels
- Novel algorithms for array health monitoring

We have also developed guidance to support operators and data analysts in the applicability of novel signal processing techniques.

Throughout the development process, we aim to engage consistently with the end users to ensure that they are appropriate for the environment and use.



# Key Features

## Generic Intercept Sonar

<b>Surveillance Display</b>	<ul style="list-style-type: none"><li>• Vertically scrolling history presentation</li><li>• Bearing, frequency and amplitude displays vs. time</li><li>• Fast and slow update areas (operator configurable)</li><li>• Optional frequency filters (display in different colours)</li><li>• Cursor readout of all parameters</li><li>• Tote presentation of contact parameters</li></ul>
<b>Classification Display</b>	<ul style="list-style-type: none"><li>• A-scan presentation</li><li>• Amplitude and frequency vs. time</li><li>• Operator selectable update rates</li><li>• Cursor, pause and zoom controls</li><li>• Comb cursor for repetition rate readout</li></ul>
<b>Relay Facility</b>	<ul style="list-style-type: none"><li>• Real-time random access and fast replay</li></ul>
<b>Aural Facilities</b>	<ul style="list-style-type: none"><li>• Baseband and heterodyned operation</li><li>• Wideband and narrowband modes</li><li>• Can be slaved to classification display</li></ul>
<b>Warning Alarms</b>	<ul style="list-style-type: none"><li>• Alarms on selected frequency filters</li><li>• Operator controlled</li></ul>

## Data Logging

- All contacts can be logged to magnetic media
- Operator controlled
- Readout of disk space used

## BITE Reporting

- BITE reporting to LRU
- BITE reports logged to magnetic media

## In-house Sonar System Development Facilities

- Large test tank used for research and system testing
- Acoustic models
- Bespoke algorithm design and software development capabilities
- Sonar stimulators and simulators
- Large workshop space for system development and integration

Throughout the years, we have maintained a track record of successfully providing acoustic metrology and calibration services. Our solutions are fitted to or in development for platforms across the Royal Navy fleet.

