SeaShield™
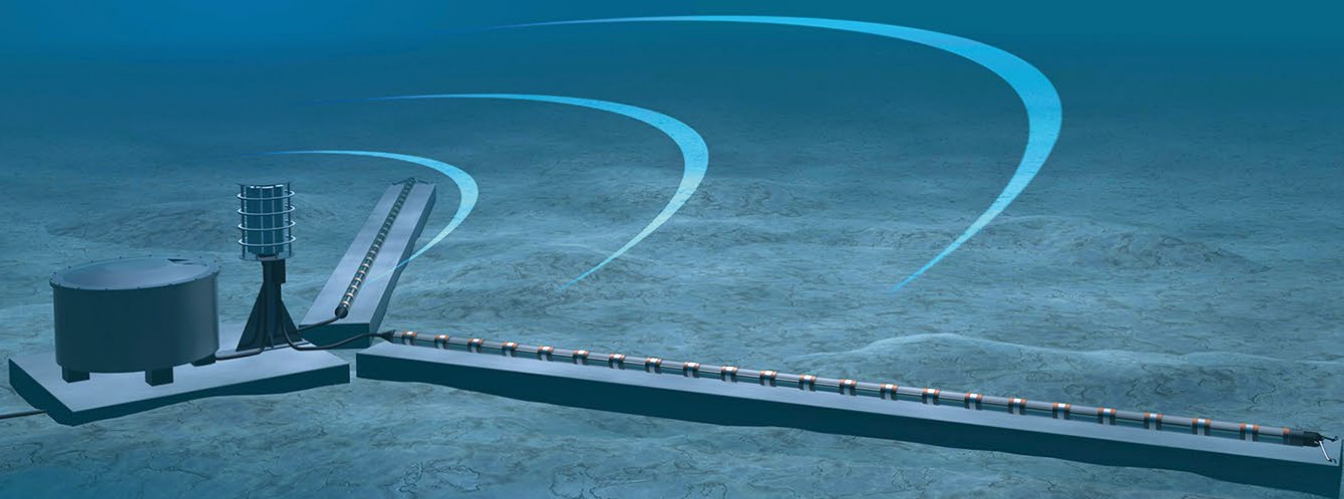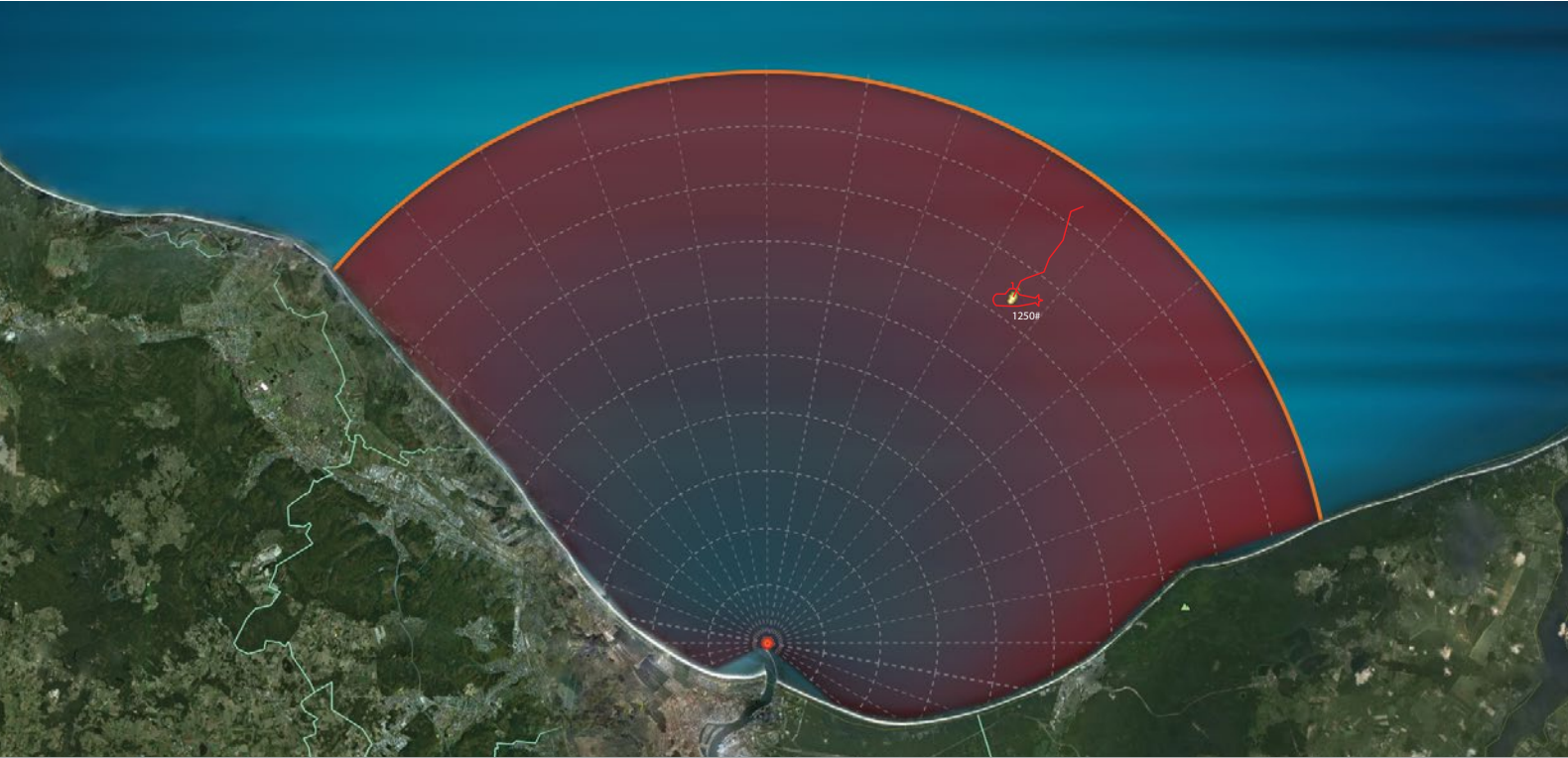
Underwater Coastal Surveillance System

DSIT's SeaShield™

>> A Powerful Underwater Coastal Surveillance System

Designed to serve as a long range underwater warning system against the threat of submarines and smaller submersibles, the SeaShield is installed along critical coastlines, maritime borders and at harbor entrances. Its combined active and passive sonar arrays provide a real-time situational picture of the underwater protected area.

>> System Overview

The SeaShield monitors long stretches of coastline, harbors and ports, naval bases and other strategic areas against the danger of hostile submarines and smaller submersibles. The SeaShield is comprised of an active transmit array, large passive receive arrays and an electronic unit installed on the sea bed. The system's two long receive array strings are composed of multiple hydrophones that pick up the signals returning from underwater objects.

The SeaShield supports automatic classification that distinguishes between submarines and other underwater objects.

An automatic alert siren is sounded the moment that a submarine or mini-sub is detected and classified.

The underwater threat is continuously tracked by the system and its exact position data is displayed on the screen.

>> The SeaShield™ Operational Concept

The SeaShield™ Underwater Coastal Surveillance System is designed to enable navies to monitor the underwater surroundings along their coastlines. This translates to better security for the navy's own ships and vessels. In case of alert the navy is capable of sending its special Anti-Submarine Warfare (ASW) responders to the exact location of the unidentified submarine. Several SeaShield systems can be deployed in-line to operate together as a long submarine barrier. Unlike traditional ASW operations that involve search patrols performed by ships, helicopters and Maritime Patrol Aircraft (MPA), the SeaShield is a fixed system that is constantly on the hunt for submarines.

Control &
Disply Unit

Processing
Unit

Junction Box

Transmit
Array

Electronic Unit

Receive Arrays

Land | Sea

>> SeaShield Features:

Superior Performance

>> Long range detection

>> Covers the entire water column 0 to 300 meters and beyond (Subject to bathythermal conditions)

>> Provides sufficient time for ASW responders

>> Tailored to detect both submarines and mini-submarines

User Friendly Displays

>> Windows-based software with intuitive displays and menus

>> Multiple display formats

>> Comprehensive target data

>> Zoom windows with special signal processing

>> Supports exclusion zones

Automatic Features

>> Automatic detection
>> Automatic tracking
>> Automatic classification
>> Automatic alert

Additional Functions

>> Range prediction – ray-path and detection contours

>> Built in training simulator (TS)

>> BIT – Built in Test application

Robust System for Long Term Operation

>> Built to operate 24/7/365 in all weather and water conditions

>> Built-in redundancy

Ease of Integration

>> Open software architecture supports easy integration with any sensor

>> Can be incorporated into any C&C system

The SeaShield™ Main Units	Display Formats
>> Underwater Electronic Unit	>> Active Search – Range vs. Bearing or PPI
>> Two Receive Arrays	>> Active Classify – TDI (Doppler)
>> Transmit Array	>> Active Classify – A Scan (amplitude vs. range)
>> Processor Unit	>> Range Prediction – Sound Velocity profile; Ray-path, Detection contours
>> Control and Display Unit	>> Active-scan to scan integration
>> Junction Box	>> Overlay of 2 active receivers ED + CP

Transmit Array

>> Cylindrical Array with 6 – 24 staves, depending on frequency
>> Power handling per stave – 1KW

Transmit / Receive Parameters

Source Level	Max 228dB	
Search Receiver	Energy detector (ED) , Coherent processor (CP)	
Audio, Active	>> Directional	
	>> Slaved to cursor	
	>> Slaved to auto tracker	

Receive Arrays

>> Line array with 64 hydrophones spaced at half a wavelength
>> Array length – 32 m
>> Hydrophones installed in PU hose, oil filled

Built In Test (BIT)

>> Constant monitoring of all modules
>> Automatic alert in case of failure

>> About DSIT

DSIT Solutions Ltd., a subsidiary of Acorn Energy (NASDAQ: ACFN), develops and produces sonar applications and Command and Control systems for the defense, commercial, energy and homeland security markets. The company employs a world-class multi-disciplinary team of professionals that are skilled in the latest sonar and Real-Time technologies. DSIT products include: Mobile Acoustic Range (MAR), Underwater Acoustic Signal Analysis (UASA), and a wide variety of Sonar Simulators and Trainers.