

LOW-FREQUENCY ACTIVE TOWED SONAR (LFATS)

LFATS is a full-feature, long-range, low-frequency variable depth sonar

Developed for active sonar operation against modern diesel electric submarines, LFATS has demonstrated consistent detection performance in shallow and deep water. LFATS also provides a passive mode and includes a full set of passive tools and features.

COMPACT SIZE

LFATS is a small, lightweight, air-transportable, ruggedized system designed specifically for easy installation on small vessels.

CONFIGURABLE

LFATS can operate in a stand-alone configuration or be easily integrated into the ship's combat system.

TACTICAL BISTATIC AND MULTISTATIC CAPABILITY

A robust infrastructure permits interoperability with the HELRAS helicopter dipping sonar and all key sonobuoys.

HIGHLY MANEUVERABLE

Own-ship noise reduction processing algorithms, coupled with compact twin line receivers, enable short-scope towing for efficient maneuvering, fast deployment and unencumbered operation in shallow water.

COMPACT WINCH AND HANDLING SYSTEM

An ultrastable structure assures safe, reliable operation in heavy seas and permits manual or console-controlled deployment, retrieval and depth-keeping.

FULL 360° COVERAGE

A dual parallel array configuration and advanced signal processing achieve instantaneous, unambiguous left/right target discrimination.

SPACE-SAVING TRANSMITTER TOW-BODY CONFIGURATION

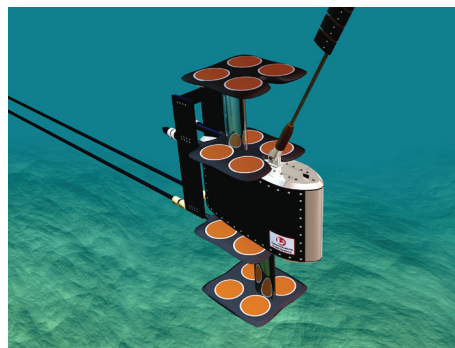
Innovative technology achieves omnidirectional, large aperture acoustic performance in a compact, sleek tow-body assembly.

REVERBERATION SUPPRESSION

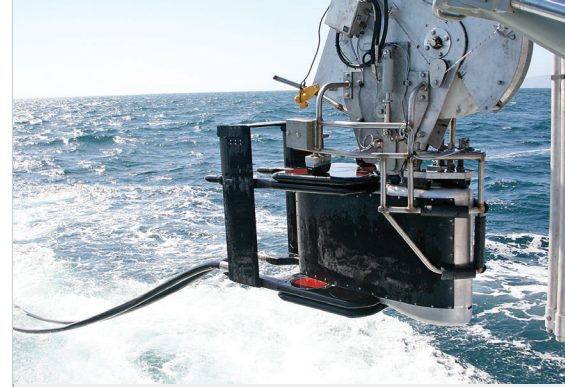
The unique transmitter design enables forward, aft, port and starboard directional transmission. This capability diverts energy concentration away from shorelines and landmasses, minimizing reverberation and optimizing target detection.

SONAR PERFORMANCE PREDICTION

A key ingredient to mission planning, LFATS computes and displays system detection capability based on modeled or measured environmental data.



**UNIQUE EXTENSION/RETRACTION
MECHANISM TRANSFORMS COMPACT
TOW-BODY CONFIGURATION TO A
LARGE-APERTURE MULTIDIRECTIONAL
TRANSMITTER**



Key Features

- > Wide-area search
- > Target detection, localization and classification
- > Tracking and attack
- > Embedded training

Sonar Processing

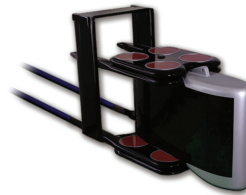
- > Active processing: State-of-the-art signal processing offers a comprehensive range of single- and multi-pulse, FM and CW processing for detection and tracking. Target detection, localization and classification
- > Passive processing: LFATS features full 100-to-2,000 Hz continuous wideband coverage. Broadband, DEMON and narrowband analyzers, torpedo alert and extended tracking functions constitute a suite of passive tools to track and analyze targets.
- > Playback mode: Playback is seamlessly integrated into passive and active operation, enabling postanalysis of pre-recorded mission data and is a key component to operator training.
- > Built-in test: Power-up, continuous background and operator-initiated test modes combine to boost system availability and accelerate operational readiness.

SPECIFICATIONS	
Operating Modes	Active, passive, test, playback, multi-static
Source Level	219 dB Omnidirectional, 222 dB Sector Steered
Projector Elements	16 in 4 staves
Transmission	Omnidirectional or by sector
Operating Depth	15-to-300 m
Survival Speed	30 knots
Size	Winch & Handling Subsystem: 180 in. x 138 in. x 84 in. (4.5 m x 3.5 m x 2.2 m)
	Sonar Operator Console: 60 in. x 26 in. x 68 in. (1.52 m x 0.66 m x 1.73 m)
	Transmit Power Amplifier: 42 in. x 28 in. x 68 in. (1.07 m x 0.71 m x 1.73 m)
Weight	Winch & Handling: 3,954 kg (8,717 lb.)
	Towed Subsystem: 678 kg (1,495 lb.)
	Ship Electronics: 928 kg (2,045 lb.)
Platforms	Frigates, corvettes, small patrol boats
Receive Array	Configuration: Twin-line
	Number of channels: 48 per line
	Length: 26.5 m (86.9 ft.)
	Array directivity: >18 dB @ 1,380 Hz

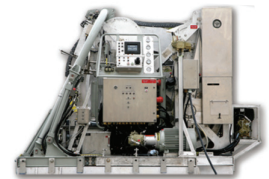
LFATS PROCESSING	
Active	
Active Band	1,200-to-1,00 Hz
Processing	CW, FM, wavetrain, multi-pulse matched filtering
Pulse Lengths	Range-dependent, .039 to 10 sec. max.
FM Bandwidth	50, 100 and 300 Hz
Tracking	20 auto and operator-initiated
Displays	PPI, bearing range, Doppler range, FM A-scan, geographic overlay
Range Scale	5, 10, 20, 40, and 80 kyd
Passive	
Passive Band	Continuous 100-to-2,000 Hz
Processing	Broadband, narrowband, ALI, DEMON and tracking
Displays	BTR, BFI, NALI, DEMON and LOFAR
Tracking	20 auto and operator-initiated
Common	
Own-ship noise reduction, doppler nullification, directional audio	

DISPLAYS AND OPERATOR INTERFACES

- > State-of-the-art workstation-based operator machine interface: Trackball, point-and-click control, pull-down menu function and parameter selection allows easy access to key information.
- > Displays: A strategic balance of multifunction displays, built on a modern OpenGL framework, offer flexible search, classification and geographic formats. Ground-stabilized, high-resolution color monitors capture details in the real-time processed sonar data.
- > Built-in operator aids: To simplify operation, LFATS provides recommended mode/parameter settings, automated range-of-day estimation and data history recall.
- > COTS hardware: LFATS incorporates a modular, expandable open architecture to accommodate future technology.



TOWED SUBSYSTEM



WINCH AND HANDLING SYSTEM

SHIP ELECTRONICS



TRANSMIT POWER AMPLIFIER



SONAR OPERATOR CONSOLE

L3HarrisL3Harris_LFATS

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