THE AUSTRALIAN

Our French submarine builder in massive leak scandal

The Indian Navy's first Scorpene submarine in Mumbai last year.

CAMERON STEWART THE AUSTRALIAN 10:31AM August 24, 2016

The French company that won the bid to design Australia's new $50 billion submarine fleet has suffered a massive leak of secret documents, raising fears about the future security of top-secret data on the navy's future fleet.

The stunning leak, which runs to 22,400 pages and has been seen by *The Australian*, details the entire secret combat capability of the six Scorpene-class submarines that French shipbuilder DCNS has designed for the Indian Navy.

A variant of the same French-designed Scorpene is also used by the navies of Malaysia, Chile and, from 2018, Brazil, so news of the Edward Snowden-sized leak — revealed today — will trigger alarm at the highest level in these countries. Marked "Restricted Scorpene India", the DCNS documents detail the most sensitive combat capabilities of India's new $US3 bn ($3.9bn) submarine fleet and would provide an intelligence bonanza if obtained by India's strategic rivals, such as Pakistan or China.

The leak will spark grave concern in Australia and especially in the US where senior navy officials have privately expressed fears about the security of top-secret data entrusted to France.

In April DCNS, which is two-thirds owned by the French government, won the hotly contested bid over Germany and Japan to design 12 new submarines for Australia. Its proposed submarine for Australia — the yet-to-be-built Shortfin Barracuda — was chosen ahead of its rivals because it was considered to be the quietest in the water, making it perfectly suited to intelligence-gathering operations against China and others in the region.

Any stealth advantage for the navy's new submarines would be gravely compromised if data on its planned combat and performance capabilities was leaked in the same manner as the data from the Scorpene. The leaked DCNS data details the secret stealth capabilities of the six new Indian submarines, including what frequencies they gather intelligence at, what levels of noise they make at various speeds and their diving depths, range and endurance — all sensitive information that is highly classified. The data tells the submarine crew where on the boat they can speak safely to avoid detection by the enemy. It also discloses magnetic, electromagnetic and infra-red data as well as the specifications of the submarine's torpedo launch system and the combat system.

It details the speed and conditions needed for using the periscope, the noise specifications of the propeller and the radiated noise levels that occur when the submarine surfaces.

The data seen by *The Australian* includes 4457 pages on the submarine's underwater sensors, 4209 pages on its above-water sensors, 4301 pages on its combat management system, 493 pages on its torpedo launch system and specifications, 6841 pages on the sub's communications system and 2138 on its navigation systems.

The Australian has chosen to redact sensitive information from the documents.

Prime Minister Malcolm Turnbull said it was important to note the submarine DCNS was building for India was a completely different model to the one it will build for Australia and the leaked information was a few years out of date. Nevertheless, any leak of classified information was a concern.

“We have the highest security protections on all of our defence information, whether it is in partnership with other countries or entirely within Australia,” he told the Seven Network today.

“But clearly, it is a reminder that, particularly in this digital world, cyber security is of critical importance.”

Influential senator Nick Xenophon said he would pursue the security breach when parliament returns next week.

Senator Xenophon, who leads a bloc of three senators, said Australia needed serious explanations from DCNS, the federal government and the Defence Department about any implications for Australia.

“This is really quite disastrous to have thousands of pages of your combat system leaked in this way,” the senator told ABC radio.

Sea trials for the first of India’s six Scorpene submarines began in May. The project is running four years behind schedule.

The Indian Navy has boasted that its Scorpene submarines have superior stealth features, which give them a major advantage against other submarines.

The US will be alarmed by the leak of the DCNS data because Australia hopes to install an American combat system — with the latest US stealth technology — in the French Shortfin Barracuda.

If Washington does not feel confident that its “crown jewels’’ of stealth technology can be protected, it may decline to give Australia its state-of-the-art combat system.

DCNS yesterday sought to reassure Australians that the leak of the data on the Indian Scorpene submarine would not happen with its proposed submarine for Australia. The company also implied — but did not say directly — that the leak might have occurred at India’s end, rather than from France. “Uncontrolled technical data is not possible in the Australian arrangements,” the company said. “Multiple and independent controls exist within DCNS to prevent unauthorised access to data and all data movements are encrypted and recorded. In the case of India, where a DCNS design is built by a local company, DCNS is the provider and not the controller of technical data.

“In the case of Australia, and unlike India, DCNS is both the provider and in-country controller of technical data for the full chain of transmission and usage over the life of the submarines.”

However, *The Australian* has been told that the data on the Scorpene was written in France for India in 2011 and is suspected of being removed from France in that same year by a former French Navy officer who was at that time a DCNS subcontractor.

The data is then believed to have been taken to a company in Southeast Asia, possibly to assist in a commercial venture for a regional navy.

It was subsequently passed by a third party to a second company in the region before being sent on a data disk by regular mail to a company in Australia. It is unclear how widely the data has been shared in Asia or whether it has been obtained by foreign intelligence agencies.

The data seen by *The Australian* also includes separate confidential DCNS files on plans to sell French frigates to Chile and the French sale of the Mistral-class amphibious assault ship carrier to Russia. These DCNS projects have no link to India, which adds weight to the probability that the data files were removed from DCNS in France.

DCNS Australia this month signed a deed of agreement with the Defence Department, paving the way for talks over the contract which will guide the design phase of the new submarines. The government plans to

build 12 submarines in Adelaide to replace the six-boat Collins-class fleet from the early 2030s. The Shortfin Barracuda will be a slightly shorter, conventionally powered version of France's new fleet of Barracuda-class nuclear submarines.

Defence Industry Minister Christopher Pyne said his officials believed the leak had "no bearing" on the Australia's submarine program.

"The Future Submarine Program operates under stringent security requirements that govern the manner in which all information and technical data is managed now and into the future," Mr Pyne's office said in a statement.

"The same requirements apply to the protection of all sensitive information and technical data for the Collins class submarines, and have operated successfully for decades."

Restricted data

The secret information the leaked documents reveal:

• The stealth capabilities of the six new Indian Scorpene submarines

• The frequencies at which the subs gather intelligence

• The levels of noise the subs make at various speeds

• Diving depths, range and endurance

• Magnetic, electromagnetic and infra-red data

• Specifications of the submarine's torpedo launch system and the combat system

• Speed and conditions needed for using the periscope

• Propeller's noise specifications

• Radiated noise levels when the submarine surfaces

View the leaked documents below. If you are using a mobile device, you can view the extracts on the desktop version of **theaustralian.com.au**

Secret submarine document one

Secret submarine document two

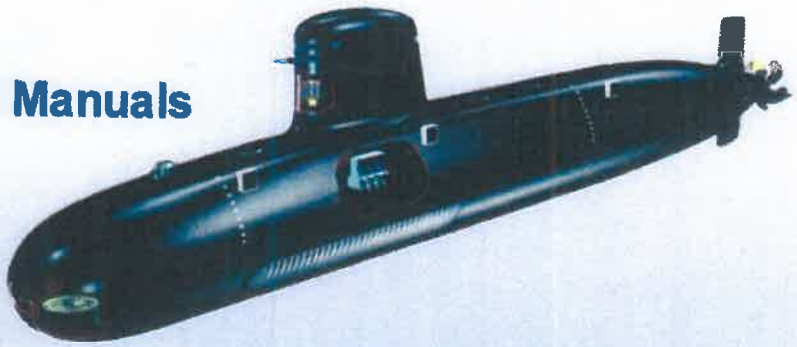
Secret submarine document three

Additional reporting: Jared Owens, AAP

Click on a blue area

Presentation Manual

Technical Manuals



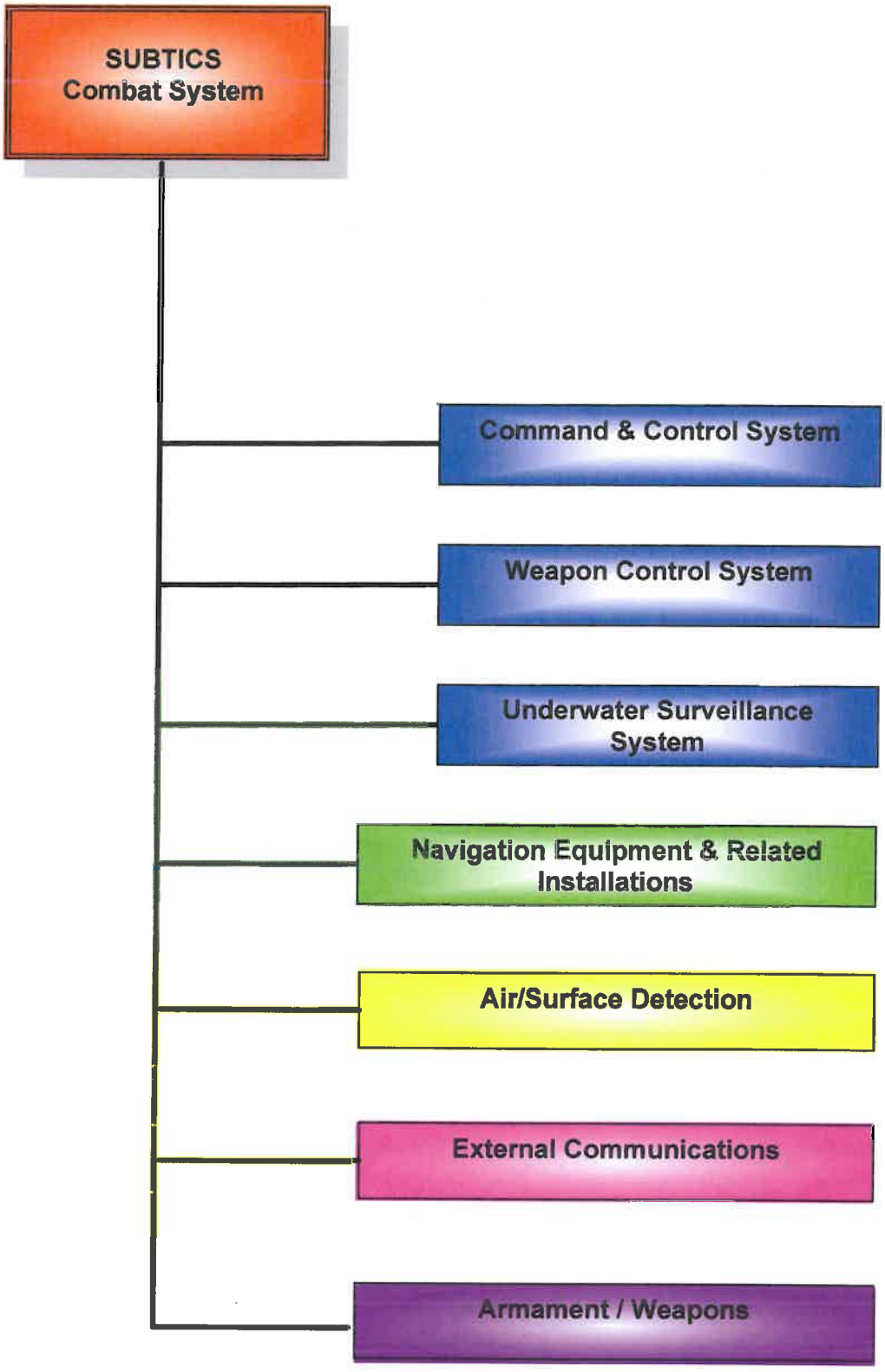


Figure 1-1: Combat System Overview

FIGURE 1.2 – GENERAL VIEW OF THE CYLINDRICAL ARRAY

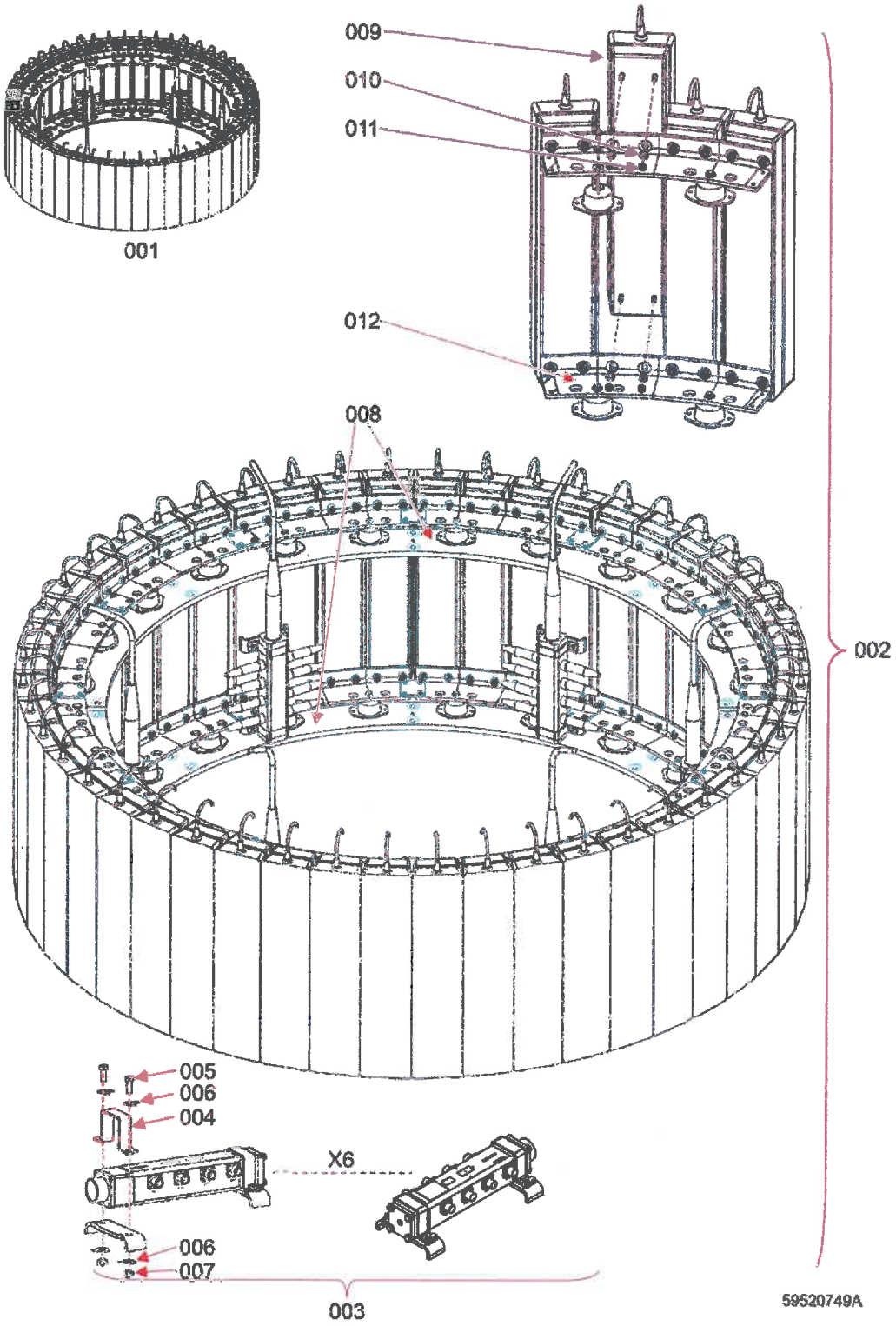


FIGURE 6.1 - CYLINDRICAL ARRAY (CA)

1.2.2 - INSTALLATION CHARACTERISTICS

1.2.2.1 - Mechanical

PARAMETERS	VALUES (TYPICAL)
Total weight in air	2500daN
Total weight in water	1700daN
Support interface	2048mm diameter (1030mm upper/lower flanges)

1.2.2.2 - Electrical

PARAMETERS	VALUES (TYPICAL)
Power supply	16VDC (14.7V to 17.3V)
Power consumption	50W
Current consumption of each stave	27 mA ± 6 mA
Interface	6 connectors RECM 24MT6116 (61 pins) (F6131)

1.2.2.3 - Cooling

Not applicable.

1.2.2.4 - Environmental

PARAMETERS	TYPICAL VALUES
Operating temperature in water	+2°C < T < +32°C
Storage temperature in air	-10°C < T < +40°C
Hydraulic operating pressure	P <= [redacted] Mpa
Maximum pressure	P >= [redacted] Mpa

1.2.3 - OPERATIONAL CHARACTERISTICS

PARAMETERS	POWER	ΔT	TYPICAL VALUES
Transmission frequency			[redacted]
Transmitted pulse length			[redacted]
Impedance (for each stave)	4000W	F = [redacted]kHz	Z = 40Ω ±30%
Bearing arc (horizontal)			[redacted]
Elevation arc (vertical)			[redacted]
Sound level (inside stave acoustic axis) Reference: 1µPa at 1m	4000W	F = [redacted]kHz	≥[redacted]dB
		F = [redacted]kHz	≥[redacted]dB
		F = [redacted]kHz	≥[redacted]dB
Sound level (outside stave acoustic axis) F = [redacted]kHz Reference: 1µPa at 1m	4000W	Θ = ±30°	≥[redacted]dB
		Θ = ±60°	≥[redacted]dB
		Θ = ±70°	≥[redacted]dB
Vertical directivity (at – 3dB)	4000W	F = [redacted]kHz	≥[redacted]

2.1 PHYSICAL DESCRIPTION

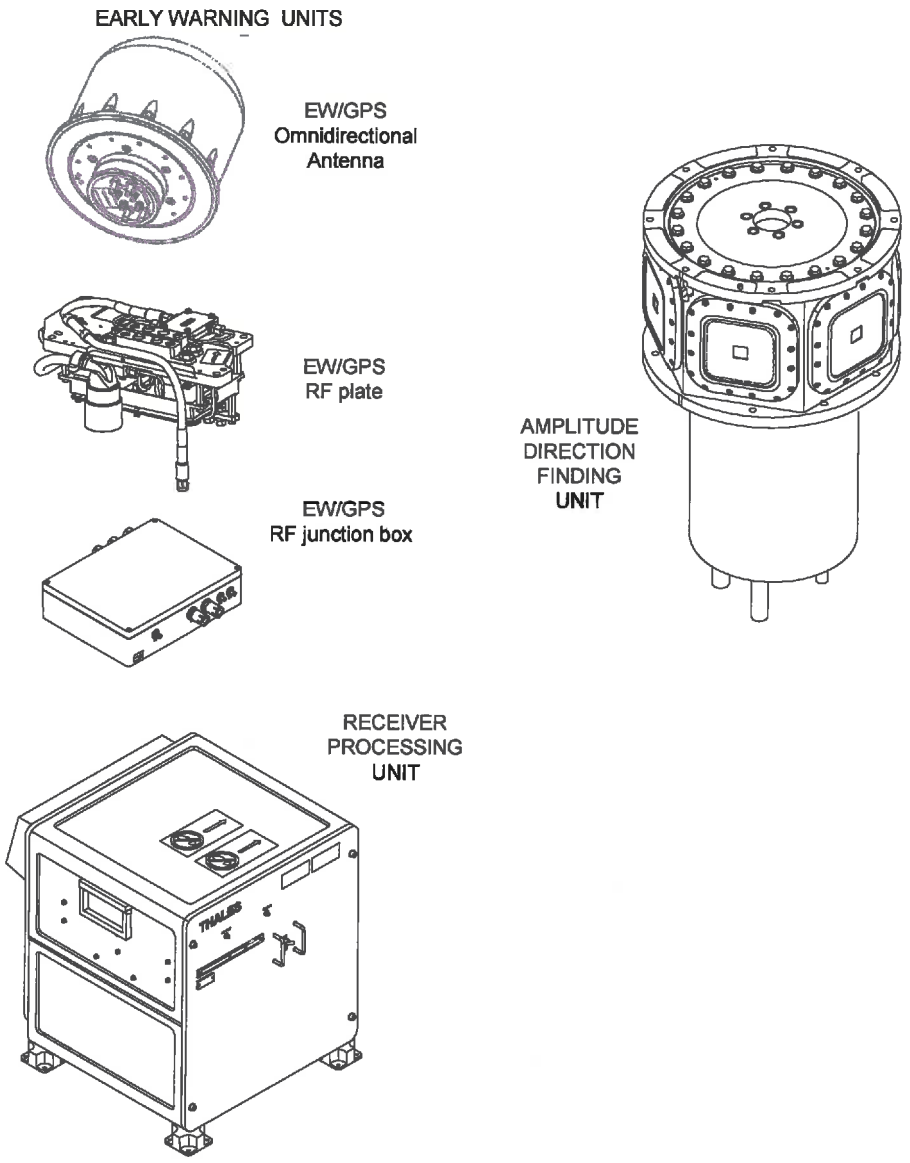


Figure T2-1: RESM Architecture

INDIAN NAVY
SCORPENE
SUBMARINE

OIM-CS-05-A

OPERATING INSTRUCTION MANUAL

COMBAT MANAGEMENT SYSTEM

Status: Final

- The functional status of the Optronic mast equipment: "SOM",
- The functional status of the attack periscope equipment: "APS",
- The functional status of the RESM equipment: "RESM".

Figure 4-19: PMFL – "SYSTEM SYNOPTIC" – "Sensors zone" details

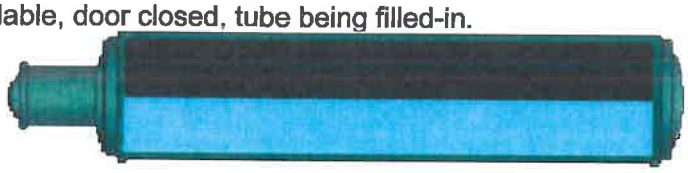
4.1.3.1.2.4 "COMMAND AND WEAPON CONTROL" zone

This zone includes 16 main graphical elements:

- [redacted] objects that represent the launching capability per tube, [redacted] SUT launching capabilities and [redacted] SM39, the synthetic status of which being indicated by the color of the graphical object.
- 1 torpedo firing installation, represented by 6 tubes that display the following information:
  - The tube status and the status of the weapon in the tube, indicated by the tube image.

Tube available, door closed, tube full.

Tube available, door closed, tube being filled-in.



Tube available, door closed, tube empty.

SSTM-CS-08-A
Revision: 01

BAR CODE (TBD)

INDIAN NAVY
SCORPENE SUBMARINE

SSTM-CS-08-A

SUB SYSTEM TECHNICAL MANUAL

EXTERNAL COMMUNICATIONS

Status: Final

2.2.2.3.2 V/UHF Tx - Rx subsystem

This subsystem allows voice communication at periscope depth or when surfaced and consists of:

- one commercial civilian radio maritime radio communication link in the frequency range 150.8 MHz-163.6 MHz in audio (in compliance with GMDSS),
- two V/UHF transceiver integrated in the console RH02531,

The GMDSS functions are realised through the maritime VHF transceiver that has the Digital Selective Calling (DSC) capability with a watch receiver.

This VHF radio maritime equipment complies with GMDSS specifications.

2.2.2.3.2.1 VHF Radio maritime RT 5022 GMDSS

The RT 5022 is a synthesized, microprocessor-controlled VHF transceiver providing a full capability ship-to-ship and ship-to-shore VHF communications link in the 149.3 - 163.75 MHz range.

It is equipped with all international maritime VHF channels, plus a choice of up to 30 private channels.

The unit has built-in DSC (class A) capability, therefore avoiding the need for a separate receiver/modem.

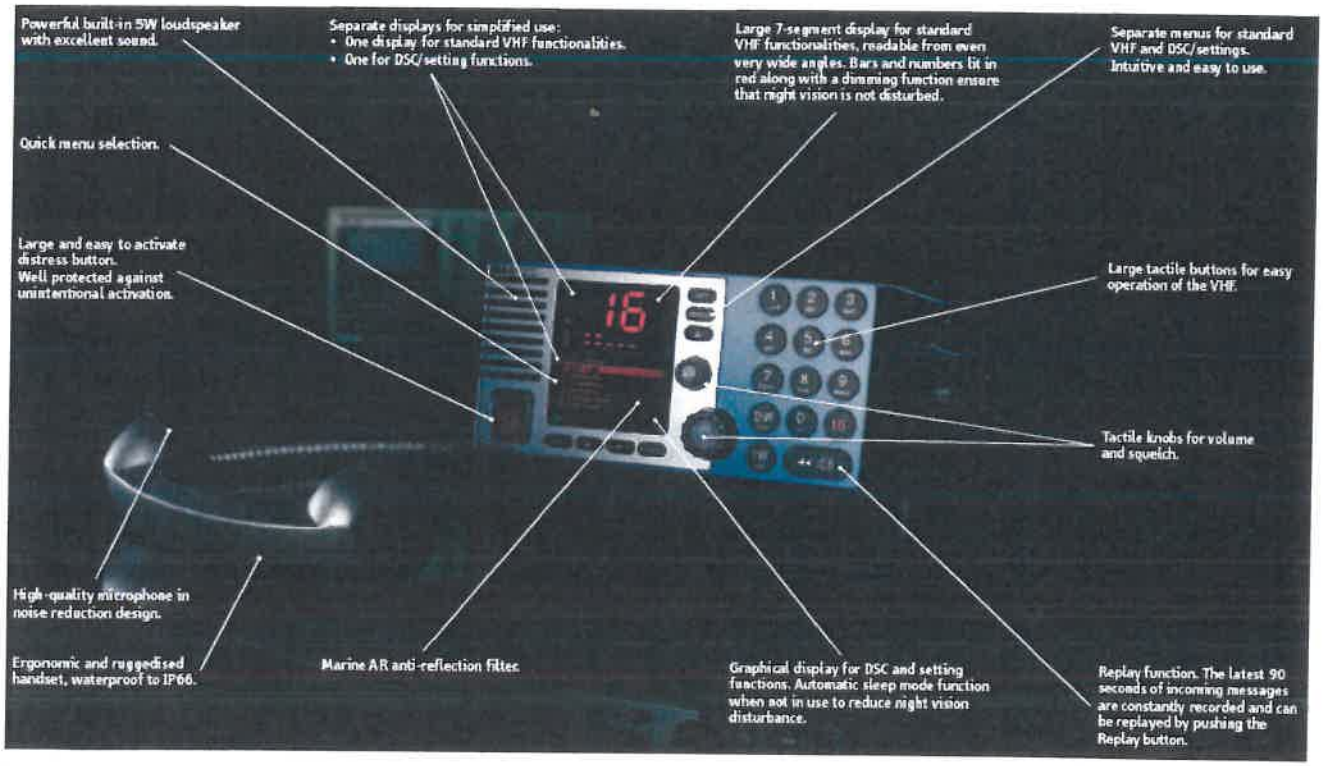


Figure 2-26: VHF Radio maritime transceiver RT 5022

1.1.1.2 Acoustic signature and noise level

1.1.1.2.1 Cavitation appearance

The following requirements have been taken into account concerning steady-state cavitation appearance:

- periscopic depth ≥ [redacted] knots, attack periscope raised, with sea state not more than 1
- 40 m. (safety depth) ≥ [redacted] knots
- 60 m ≥ [redacted] knots
- [redacted] m ≥ [redacted] knots

1.1.1.2.2 Airborne noise levels in compartments

The airborne noise levels (consistent with Naval Standards STANAG 1186) are expressed in dB (A).

	Spaces	Silent run 4 knots	Cruising run 8 knots	Snorkel run 6 knots
Space where intelligible speech is necessary	Torpedo room	[redacted]	[redacted]	[redacted]
Spaces where comfort of personnel in their quarters is normally considered to be an important factor	Accommodation (berth, wardroom)	[redacted]	[redacted]	[redacted]
Spaces where it is essential to maintain especially quiet conditions	Control room (CR) Radio room (RR)	[redacted]	[redacted]	[redacted] (CR) [redacted] (RR[1])
Spaces or areas where a higher noise level is expected and where deafness avoidance is important	Diesel engine room	[redacted]	[redacted]	[redacted]
High noise level areas where intelligible speech communication is necessary	Galley (in service)	[redacted]	[redacted]	[redacted]

The acoustic insulation of the radio room will be done carefully to avoid a too high noise level in snorting condition.

---

[1] *door closed*

1.1.1.2.4 Radiated noises

The following diagrams indicate the radiated noise levels, measured in 1/3 of octave (reference 1 $(\mu Pa)^2$ / Hz at one meter), for silent patrol (4 knots, [redacted] m), attack (8 knots, [redacted] m) and snorting ([redacted] and [redacted] knots) conditions.

These levels are given for frequencies varying from 25 Hz (minimum frequency possible to measure) to 10 kHz (maximum significant frequency).

For each situation, two levels are defined:

- a maximum level which is a guaranteed one: every measurement proceeded during the acceptance trials will be below,
- an objective level: it corresponds to the mean level. This objective level is more realistic but at the same time perfectible. It is 5dB below the guaranteed level.

The following figures are guaranteed ones:

	25Hz	100Hz	10 kHz
Submerged speed (4 kts)	[redacted] dB	[redacted] dB	[redacted] dB
Submerged speed (8 kts)	[redacted] dB	[redacted] dB	[redacted] dB
Snorting (8 kts)	[redacted] dB	[redacted] dB	[redacted] dB

IN BROAD BAND (1/3 OF OCTAVE) FROM 25 HZ TO 10 KHZ

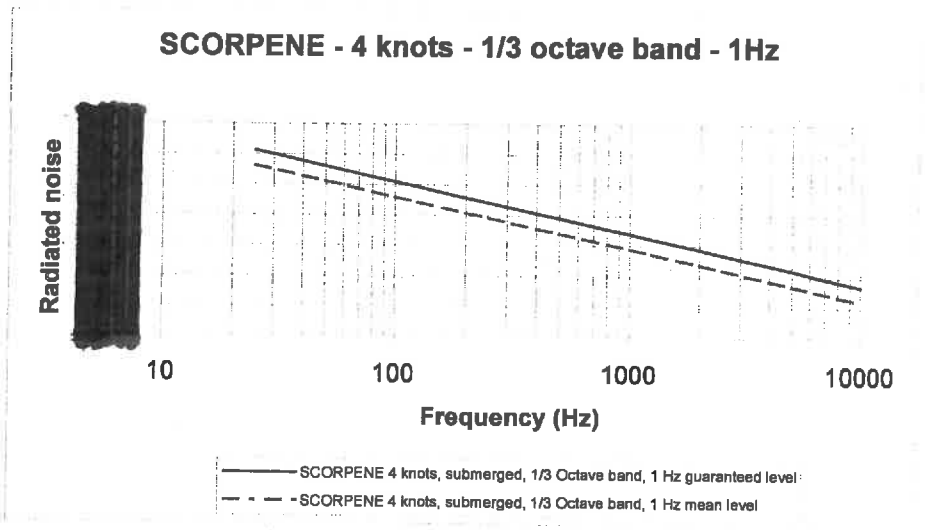


Fig. 1. 1: SCORPENE submarine radiated noise levels (submerged at 4 knots)

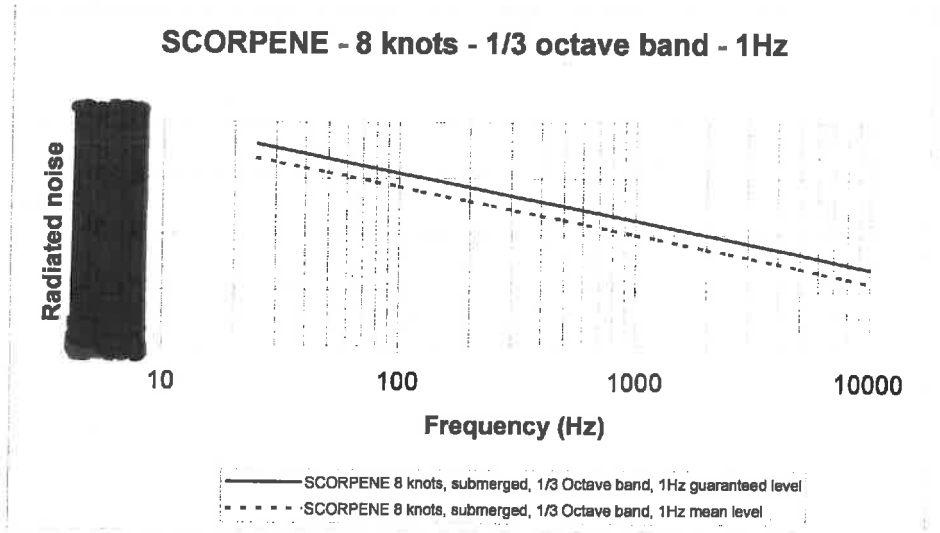


Fig. 1. 2: SCORPENE submarine radiated noise levels (submerged at 8 knots)

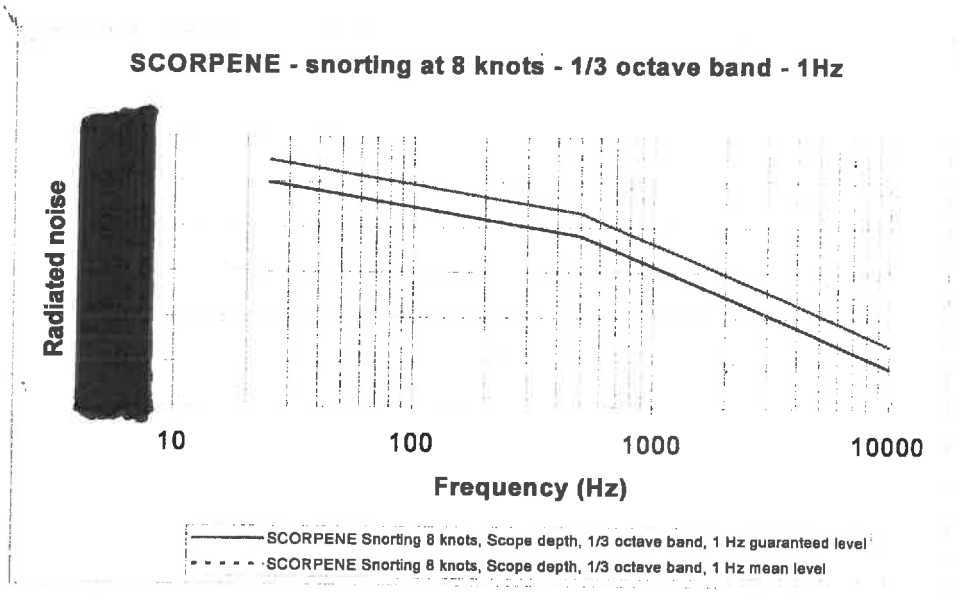


Fig. 1. 3: SCORPENE submarine radiated noise levels (snorting at 8 knots)

Remark: The radiated noise levels in snorting situation at [redacted] knots are the same as for [redacted] knots. When snorting, the main noise source is the Diesel system; the auxiliaries [redacted] and hydrodynamic contribution [redacted].

1 General Characteristics

THALES
P75 PROJECT
Building Specification
Platform Technical Specification – 1. General Characteristics
TH 0106304 – Rev. 2.0

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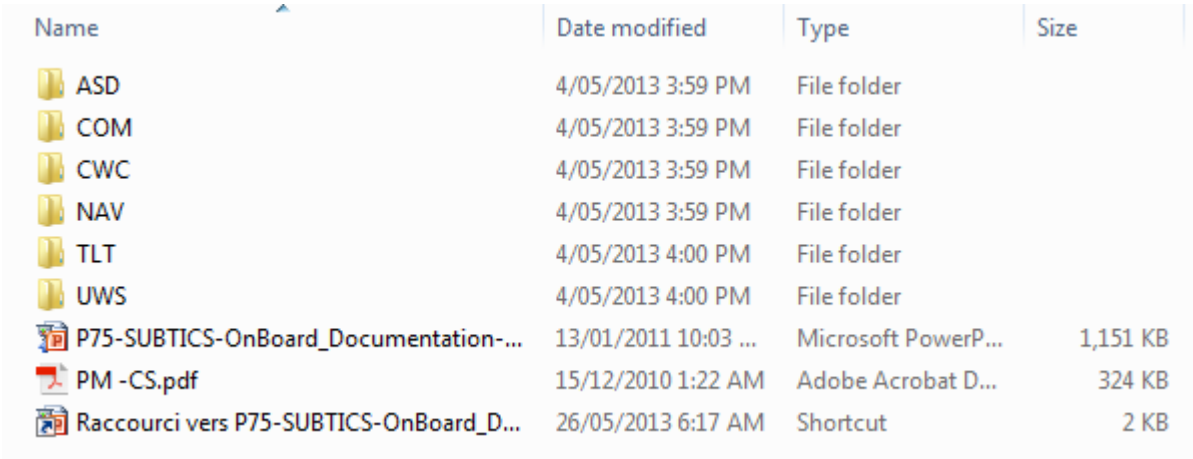

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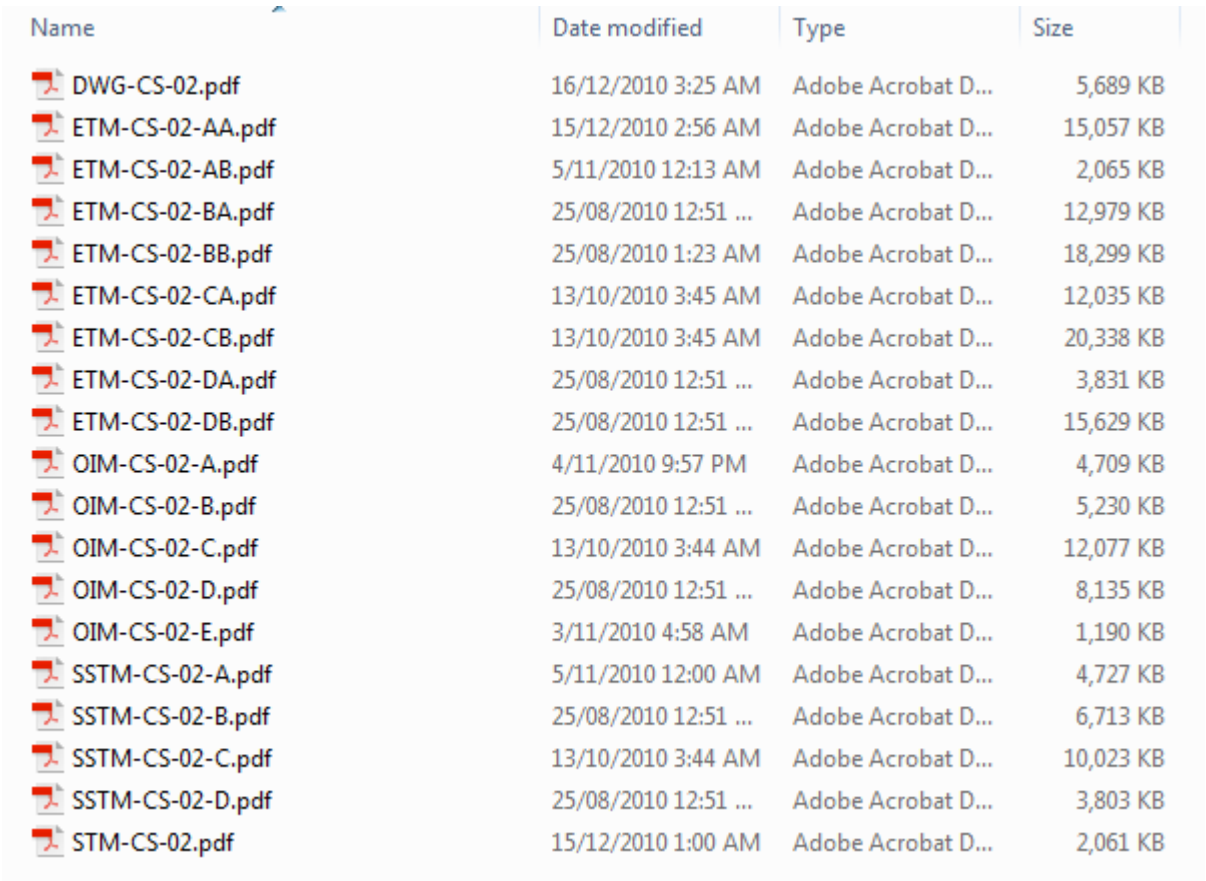

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INDIAN NAVY
SCORPENE SUBMARINE

ETM-CS-08-AB

P-75 Project

MDL training – Command and Weapon Control - CWC

STRENGTH at sea

DCNS