

MARITIME NEWS – 30 NOVEMBER 2016

The U.S. Navy's New Super Stealth Destroyer Is Getting Ready for Combat



Mike Fabey

One of the biggest question marks remaining for the DDG 1000 **USS Zumwalt** is whether its radar and missile systems will work as redesigned ---- and radar manufacturer Raytheon is wasting no time in making sure its sensor meets U.S Navy needs. The ship is slated to test and certify its combat system after it arrives later this year in its homeport of San Diego. But Raytheon officials say the plan is to start activating and operating the radar before its arrival on the West Coast.

"We have set up during the transit processes to turn around the changes and make modifications – especially in software, which is where you primarily will find those things -- and get them installed on the ship so we can keep testing during transit," says Wade Knudson, Raytheon DDG 1000 program manager. The **Zumwalt's** radar system modifications by now are well known – the Navy eliminated the volume-search portion of the proposed Dual-Band Radar, requiring modifications to the Raytheon AN/SPY-3 active-array Multi-Function Radar (MFR) eventually put aboard the **Zumwalt** to restore most of that function.

However, the Navy also has directed that the **Zumwalt** use existing fleet missiles, requiring more modifications to make sure the weapons and sensors can operate together as radars and missiles do on other guided-missile vessels. The heart of a multi-function radar is the management of the radar's resources to direct or redirect its RF energy as well as receive and process signals to predict the courses of enemy missiles, track and illuminate targets and guide weapons fired from its own ship.

The radar is constantly searching, analyzing return reflections, computing bearings and courses, predicting where a target will be based on data and algorithms – and then adjusting or readjusting based on missile trajectory, speed and other attributes. The faster the target, the faster the necessary processing. A radar's resource determines a combat system's effectiveness. A MFR has no trouble handling any single missile threat. The concern is how many missiles does it take to overwhelm a radar's resource management or radar timeline budget, in which case the radar may be unable to properly track incoming threats or guide offensive missiles.

The Navy's worry about the SPY-3 now is whether the modifications needed to restore some of the volume-search functions will cause the sensor to use up its radar timeline budget even more quickly. The SPY-3 implementation already has had an impact on the ship's proposed missile operations. The Navy directed that **Zumwalt** use existing missiles because it was believed it would be cheaper and easier than developing new weapons for the new radar. But the Standard Missile (SM)-2 IIIB slated for DDG-1000 required quite a few changes to make the weapon compatible with the MFR, according to the Navy and Raytheon.

This included implementing a new software package to support the waveform, transmit and receive link messages to the MFR as well as modified missile receivers, transmitters, encoders, decoders and a redesigned digital signal processor. Raytheon and Navy testers have more than radar resources and missile modifications to consider in making sure the combat system works as it is intended to.

The Navy established new requirements for ship-to-missile weapon link frequency, power levels and waveforms for Zumwalt-loaded SMs and Evolved Sea-Sparrow Missiles (ESSMs). But the service also carried over requirements on Aegis-outfitted ships for missiles' pre- and post-launch interfaces and electromagnetic vulnerability requirements, even

though the radar, missiles and even the vertical launchers are different. The DDG-1000 uses the new Mk57 launcher while Aegis ships use the MK41.

DDG 1000 will use a variation of the existing ESSMs and the SM-III A with modification to their respective guidance system software to consummate engagements utilizing "inertial" guidance commands instead of the "command" guidance normally associated with the Aegis Combat System to intercept their targets, Raytheon notes. For their terminal homing commands these missiles will use Interrupted Continuous Wave Illumination (ICWI) -- instead the Continuous Wave Illumination common on other warships -- made possible by the SPY-3. ICWI is currently deployed by the German and Dutch Navies aboard their Trilateral Frigate Programs which also utilize the ESSM and SM-2 Block IIIA missile.

The first actual live firing tests for the modified system and missiles is slated for 2017 aboard the Navy's Self Defense Test Ship. But Raytheon points out the DDG 1000 combat system has been through its paces at the Navy's Wallops Island Engineering Test Facility where missile to radar integration is being tested using actual SPY-3 production hardware, production releases of both the radar and combat system software and Inert Operational Missiles (IOM) representing both the ESSM and SM-2 Block IIIA missiles. IOMs are essentially actual production missile hardware without the energetics which provide the most realistic integration test possible without actually firing the missile.

Source : DefenseSystems/The national Interest.

A lot of 'on the cheap' solutions for the most expensive hull in the navy whose prime weapons are in doubt.

Iran calls U.S. Behavior "Unprofessional"

The U.S. military presence in the Gulf poses the main risk of conflict in the region, an Iranian military official said on Tuesday after Washington said an Iranian vessel had pointed its weapon at a U.S. helicopter in the strategic Strait of Hormuz. Two U.S. defense officials said on Monday that a small vessel operated by Iran's Revolutionary Guard Corps (IRGC) trained its weapon on a Navy MH-60 helicopter on Saturday as it flew within half a mile (0.8 kilometers) of two Iranian vessels in international waters. The defense officials called Iran's behaviour "provocative."

"Everybody knows that the main problem in the Persian Gulf is the U.S. presence," an unidentified official in the Revolutionary Guards was quoted as saying by Tasnim news agency. The official said all international vessels were plying the Strait of Hormuz - through which 40 percent of the world's seaborne oil is shipped - with no difficulty and it was only the Americans who complained by making false cases against Iran.

He further called the U.S. behaviour "improper and unprofessional" but did not address the allegation that the IRGC vessel aimed its guns at the helicopter. Several similar incidents have occurred this year. In September, a U.S. Navy coastal patrol ship changed course after an Iranian fast-attack craft came within 90 meters (295 feet) of it. During his presidential election campaign, Republican Donald Trump vowed that any Iranian vessel that harassed the U.S. Navy in the Gulf would be "shot out of the water" if he were elected. Trump is due to take office on January 20. **Source : The Maritime Executive**

What a surprise!

Iran Navy fleet enters Atlantic Ocean for first time

Iran's Navy Commander Rear Admiral Habibollah Sayyari says an Iranian naval fleet has entered the Atlantic Ocean for the first time after a port call in South Africa. "For the first time, the 44th flotilla of the Iranian Navy, consisting of the **Alvand** destroyer and the **Bushehr** [logistic vessel], succeeded in circling the African continent and have sailed into the Atlantic Ocean," Sayyari said at a press conference in Tehran on Monday. He added that the two vessels are now docked at South Africa's Port of Durban.

The dispatch of the 44th flotilla to the high seas shows the naval forces' might and strength, he said and added that the Iranian Navy has also sent five other fleets carrying the message of peace and friendship to other countries. The 44th fleet embarked on a voyage for the high seas on October 5 to safeguard maritime routes used by the country's vessels and oil tankers against pirates.

It first crossed the Gulf of Aden and then docked at Tanzanian port city of Dar es Salaam on October 29 and remained there for three days. It later sailed through Mozambique's maritime border. The flotilla successfully saved two Iranian ships from three pirate attacks on October 17 in the Gulf of Aden. Elsewhere in the presser, Sayyari said the Iranian naval forces plan to hold massive drills, dubbed Velayat, in the Indian Ocean sometime in the Iranian calendar month of Bahman (January 20, 2017 to February 18).

The top commander added that the naval forces would also stage a specialized drill of submarines in the coming days and noted that Iran's Navy has held 15 manoeuvres since the beginning of the current Iranian calendar year (March 20). He said Iranian naval fleets have travelled to India, Pakistan, Oman, Tanzania, Azerbaijan and South Africa since March 20 and further plan to go to Russia, Kazakhstan, Turkmenistan and the Indian Ocean countries as well as Southeast Asia. Source : Fars News Agency

Quite a fascinating and incredible claim made on 21 November as the Bushehr had a major breakdown and was forced to enter Durban for repairs on the 15th! What really makes it really incredible is that to date both vessels are still in Durban! A photo of Alvand taken in Durban on 29 Nov is shown below.



One day later, however, a slight change was made to the opening text – as follows:

Iran has deployed Alvand and Bushehr destroyers in the Atlantic Ocean as part of its plans to expand naval presence in the international waters.

"For the first time, the 44th flotilla comprised of Alvand and Bushehr destroyers could sail around the African continent and enter the Atlantic Ocean," Iranian Navy Commander Rear Admiral Habibollah Sayyari was quoted as saying by Fars News Agency on Monday.

Australia issues request for tender for \$3B OPV project



Photo: Australian Department of Defence

The Australian department of defense announced that it has released a request for tender to three shortlisted designers for the \$3 billion dollar offshore patrol vessel project. Christopher Pyne, minister for defense industry, said the request for tender will see Damen, Fassmer and Luerksen team up with Australian shipbuilders. The 12 new offshore patrol vessels whose construction is on track to start construction in Adelaide in 2018 before moving to Western Australia in 2020, will replace Australia's existing Armidale-class patrol boat fleet.

"We want to ensure the tenderers' responses maximise Australian industry opportunities through a local build using Australian made steel," said Minister Pyne. "This includes how they will transition their existing supply chains to Australian supply chains and how they will integrate local suppliers in their global supply chains." "These Australian-

built vessels will form an important part of the Government's investment to strengthen our maritime surveillance systems," Minister for Defence, Marise Payne said. "Safeguarding Australia's maritime approaches, offshore territories and borders is essential for Australia's national security." **Source : Naval Today**

Algerian Umkhonto production almost complete



Denel Dynamics will complete production of Umkhonto surface-to-air missiles for the Algerian Navy in January 2017. The company on 30 November said deliveries are at an advanced stage, with extensive testing scheduled to take place in early 2017.

"Denel Dynamics is one of 130 global suppliers that equip the frigates with systems ranging from engines, to sensors to weapon systems. The five year programme – named Javelin – comprises the delivery of the Umkhonto Infrared SAM, the on-board fire control equipment and the missile rounds for two Meko A200-AN frigates," the company said, without explicitly naming Algeria as the customer.

"After four years of manufacturing, integration and commissioning we have now reached the final stages of the programme," said Tsepo Monaheng, the CEO of Denel Dynamics. The focus now

shifts to the client country where the life firings will soon take place. ThyssenKrupp Marine Systems GmbH began construction of the first of Algeria's two Meko frigates in August 2012. The first vessel, named **Erradii** and equipped with the Umkhonto, arrived in Algiers on 19 April this year and was commissioned into service.

The second vessel was launched in December 2015 and will be delivered early next year. Denel said the installation, integration and commissioning phases for the second frigate are completed and final sea acceptance trials took place in October 2016. Monaheng said the Umkhonto SAM is now operational in 12 naval vessels across the world – eight of them in the northern hemisphere – and these are the SA Navy's four Valour class frigates, the Finnish navy's four Hamina fast attack craft and two Hameenmaa class minelayers and the Algerian Navy's two Meko A200 class frigates.

"It, again, demonstrates that the South African defence industry can hold its own against the best of the world and that our products and systems are highly competitive," Monaheng said. The Denel Dynamics Umkhonto (Spear) was originally developed with a 12 km range but this was increased to 15 km and Denel has demonstrated it can reach out to 20 km, with a ceiling of 8 000 metres. It reaches speeds of around Mach 2.5. Denel Dynamics is currently working on a longer range version (60 km) as part of an integrated air defence system as well as radar guided and surface target versions. In 2013 Denel Dynamics for the first time fired the weapon from land – the system was originally developed for naval applications.

Once deployed, the 135 kg missile has a reaction time of 2.5 seconds and half-second intervals between missile launches. Umkhonto uses inertial navigation and mid-course guidance from the launch ship or from a land based radar and then switches to its dual-band thermal imaging seeker for a lock on after launch capability. The missile manoeuvres through tail-mounted control fins and thrust vectoring vanes in the motor nozzle. Although it is primarily an anti-missile and anti-aircraft system, its 23 kg pre-fragmented warhead with an active proximity fuse makes it effective against surface targets like ships as well.

The Stockholm International Peace Research Institute (SIPRI) reports that Algeria ordered 100 Umkhonto missiles in 2012. In addition to the Umkhonto missiles, Algeria's Meko frigates are armed with the OTO Melara 127/64 LW (Lightweight) 127 mm naval gun; MSI-Defence 30 mm cannons; Rheinmetall Defence MASS softkill decoy launchers; MU90 torpedoes and Saab/Diehl Defence RBS 15 Mk3 anti-ship missiles. Sensors include the Saab Sea Giraffe AMB (Agile Multi-Beam) 3D surveillance radar; Saab CEROS 200 radar/electro-optical (EO) fire control directors and Thales UMS4132 Kinglip sonar.

Algeria also ordered six AgustaWestland Super Lynx 300 maritime helicopters for the vessels and these are being fitted with Thales Compact FLASH dipping sonars, MU90 torpedoes and Denel Dynamics Mokopa missiles. 100 Mokopas were ordered in 2012, according to SIPRI. Algeria also received 50 Raptor II guided weapons from Denel Dynamics in 2008, according to SIPRI. The Raptor II has several guidance options, such as GPS/INS for fire-and-forget attacks, or low-light TV or infrared, and the target can be changed in flight. As the weapon's communications pod is mounted on the launch aircraft or on a second aircraft, the weapon can be controlled from up to 200 kilometres away. The 1 200

kilogramme weapon is fitted with a 600 kilogramme penetration or fragmentation warhead and has a circular error probability of three metres. Rocket motors gives the weapon a range of 130+ kilometres. It has been integrated on the Mirage III, Mirage F1, Mirage V, Cheetah and Sukhoi Su-24 aircraft. **Source : defenceWeb**

Leidos begins operational testing for Sea Hunter drone

Leidos has begun operational testing for its Sea Hunter demonstration vessel following a series of completed performance trials. The testing supports the company's joint project with the U.S. Defense Advanced Research Project Agency, known as the Anti-Submarine Warfare Continuous Trail Unmanned Vessel program, or ACTUV. The program aims to develop automated maritime platforms capable of tracking quiet diesel electric submarines.

"Sea Hunter is at the forefront of new autonomy technologies for the U.S. military," Leidos Advanced Solutions Group president Mike Chagnon said in a press release. "The operational testing is designed to showcase the unprecedented capabilities that this type of unmanned vessel could offer our military forces."

The Sea Hunter was christened at a ceremony in April 2016 after a number of trials demonstrated the vessel's unmanned capabilities.

Industry researchers also showcased the Remote Supervisory Control Station, which allows operators to perform missions with the vehicle from a distance. The new set of trials will test the ship's sensors, mission control hardware and software, and autonomy system. Tests are set to continue through fall 2017 as part of a 2-year program funded by DARPA and the Office of Naval Research. **Source : Space War**



BAE Shouldn't Get to Build U.K.'s New Frigate, Review Says

BAE Systems Plc's Scottish dockyards should be excluded from the lead role on a new class of Royal Navy frigate in order to encourage competition and pare costs while maintaining Britain's naval capabilities, according to a state-backed review of U.K. shipbuilding capacity. Europe's biggest defense company should retain responsibility for the Type 26 frigate but not its successor, the Type 31, John Parker, who led the study, said in a letter to Defence Secretary Michael Fallon. He added that there is "no precedent for building two first-of-class Royal Navy frigates in one location."

Provided that work is shared between U.K. yards and regions, including commercial manufacturers, BAE should still be able to compete for combat systems, design and support contracts, the report said. A modular design like that of two new aircraft carriers, with sections built around Britain and assembled at a lead dockyard, would help deliver the right balance, it said.

Parker, chairman of miner Anglo American Plc and a board member at Airbus Group SE, was appointed after a spending review last year capped an order for Type 26 vessels at eight, canceling five, and called for a more affordable model to be built instead. The report recommends that the Type 31 be built to favor export customers and that the ship be designated the "e" to reflect that. The new frigate should also enter service as early as possible in the 2020s to fill Royal Navy capability gaps, and the Ministry of Defence should meanwhile look at using commercial vessels to meet low-threat tasks such as mine-sweeping, Parker said.

BAE's surface-vessel naval capabilities are focused on the River Clyde in Glasgow, Scotland, while Babcock International Group Plc has a major yard at Rosyth near Edinburgh and a smaller site at Appledore in Devon, southwest England. Among commercial yards, the Cammell Laird site near Liverpool recently built the polar research vessel Sir David Attenborough and should also be taken into account, the study said.

BAE said in a statement that it's confident of playing a "prominent role in the delivery of future U.K. warships" and has submitted two design proposals for the Type 31. The Type 26 order and a deal for five offshore-patrol vessels will safeguard the Clyde dockyards into the 2030s, it added.

Adoption of the Parker plan could still offer "significant work" on the Type 31 for BAE, as well as a more definitive budgeting process, Sandy Morris, an analyst at Jefferies International in London, said in a note. At the same time

there's a risk that the Type 26 program could be held up, since a final contract hasn't yet been agreed. Shares of BAE fell as much as 1.4 percent and were trading 0.3 percent lower at 601.50 pence as of 4 p.m. in London. Fallon said he welcomed Parker's findings, while describing his recommendations as "ambitious." The MoD plans to publish a full response and implementation plan next spring. **Source : Bloomberg News**

EU Extends Somali Counter-Piracy Patrols Through 2018



ESPS Relampago patrols the waters off Somalia as part of EUNAVFOR Somalia Operation Atalanta.

The European Union's naval mission will keep patrolling for pirates off the coast of Somalia for another two years, to guard against any resurgence of attacks, the bloc said on Monday. The number of raids and kidnappings has fallen – though maritime officials have warned that the risk is still, underlined by two attempted attacks last month. NATO said last week it had ended its own mission off the Horn of Africa, as it shifts resources to deterring Russia in the Black Sea and people smugglers in the Mediterranean.

But the EU said it would extend the EUNAVFOR Somalia Operation Atalanta until the end of 2018, allowing it to keep guarding U.N. aid deliveries. The mission, which was due to shut down at the end of 2016, typically uses 1,200 personnel, four to six warships and two or three patrolling aircraft provided by EU member states. More than 40 percent of the world's seaborne oil supplies pass through the Gulf of Aden and Arabian Sea, a major shipping lane also used to move exports and commodities such as food between Asia and Europe. **Source : Thomson Reuters**

Pirates Hijack Merchant Vessel off Cotonou?

A merchant vessel is believed to have been hijacked by pirates some 72 nautical miles off the coast of Cotonou, Benin, according to data provided by Maritime Domain Awareness for Trade – Gulf of Guinea (MDAT-GoG). The event, described as "suspicious," occurred in the night of November 27 while the vessel was travelling south. The ship changed direction to head back into port and has been drifting since the evening hours of November 28.

"We have strong reason to believe that it is under piracy attack and pirates have taken control of the vessel," MDAT-GoG said, adding that agent and port control have been notified, however, there were no further information about the incident available. MDAT-GoG noted that the owner of the vessel received the SSAS and tried to establish a contact, but without results. The vessel's AIS, as well as other means of communication, have been switched off.

Source : World Maritime News

For all their joint planning etc in a area well known for piracy, the lack of armed reaction seems remarkable!

READER COMMENT

1. *Unfortunately we have learned the wrong lessons from GB from time to time, for example extremely long bureaucratic procurement systems which do not necessarily result in better outcomes and definitely bring increases in cost. Then the Dockyard Unions who not only make local build nonsensical, but especially prevents export and more often than not leave their own members without work.*
2. *Perhaps some of the readers may like to look at this link below regarding Britain's latest aircraft carriers.*

https://www.youtube.com/watch?v=t0jgZKV4N_A

3. Landing ships: *This humble one-time 'brown job' begs to differ: If we are going to conduct any sort of force projection operation we need the full-length flight deck to put at least two platoons ashore by helicopter in a single lift (I was an infanteer once, and am going nowhere with less than that; and we cannot in all circumstances guarantee a friendly reception). That means an LHD. If we are not going to do force projection work, we do not need any landing platforms at all, but rather support ships that can handle some SF work.*

Not to get into a long debate but we are a traditionally underfunded service and part of a Defence Force. With no threat from our landward neighbours on either coast we can hardly claim to need an amphibious capability when we cannot even cover the costs of maintaining present and projected vessels. The need to transfer equipment for peacekeeping tasks is not a naval one. The one hull capable of carrying vehicles was not available or appropriate (too big a draught!) on the only four occasions we needed her. 'Nice to have in case' hulls are not affordable in any navy today.

On the Japanese: *I once said in the hearing of a senior Japanese Navy officer that their LPHs (built before they started on those enormous DDHs) were actually helicopter carriers with the potential to become small aircraft carriers. The answer was that I was wrong, because there was no lift from the vehicle deck below the flight deck to the flight deck, only a vehicle ramp, so helicopters could only be carried on the flight deck, limiting their numbers and what one could do with them.*

The Osumi class are more LSD than LPH as they have very limited helicopter capability and are not designed for amphibious ops but rather for landing of support capability. Only the stern section of the upper deck is strengthened for medium lift choppers. There is a small elevator forward for the delivering of vehicles to the upper deck.

I asked how long it would take to cut out the ramp, throw it over the side and install a lift. That brought a grin and the answer "Oh, about a week or so".

I would think that it would be pointless to replace the stern ramp with an elevator as that removes the flight deck. Modifying ships is a very exact art with many pitfalls as many of us have learned through experience.

AGS