TECHNICAL AND COMPLIANCE COMMITTEE
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Pohnpei, Federated States of Micronesia

TRIAL OF VMS-100Si

WCPFC-TCC19-2023-DP02
21September2023

Philippines

Republic of the Philippines
Department of Agriculture
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BAGONG PILIPINAS

Tagapagtaguyod ng Malinis at Masaganang Karagatan

September 21, 2023

MR MAT KERTESZ
Chairman
19th Technical and Compliance Committee

Dear Chairman Kertesz:

The Philippines is thankful for the inclusion of our proposal on the accreditation of the VMS100Si to be discussed in plenary under the agenda 8.8a. Relative hereto, we are respectfully submitting the technical report on the result of the test of the said transceiver conducted by the service provider, SRT Marine Ltd., in coordination with the WCPFC VMS team last October 2022 and submitted to the secretariat on May 2, 2023.

The Philippines is looking forward for a fruitful discussion this TCC19 with member countries and possible resolution on this urgent matter.

Truly yours,

ISIDRO M. VELAYO JR.
Asst. Director for Technical Services, BFAR
Philippines Head of Delegation

SRT Marine Systems plc

TRIAL 2022
VMS-100Si

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1. COMPANY PRESENTATION

This document provides additional reference information relative to the completed formal testing and proposed accreditation of the MTU/ALC **VMS-100Si embedding Iridium and AIS satellite communication channels** from SRT Marine Systems.

About SRT Marine Systems:

SRT is a UK based company founded in 1987 as a specialist radio communications technology development house. During its +30 year history the company has been at the leading edge of radio communication development and innovation across many areas, including satellite and terrestrial systems.

The company has consistently pioneered new core technology innovations and deployed a portfolio of IPR to develop radio communication solutions for companies such as Motorola, Nokia, Saab, Marconi, Transas, Kenwood, Hisense, L3 Communications, JRC, Koden, Raymarine and many others. Technologies have included satellite transceivers, cellular, maritime VHF and advanced trunked professional mobile radio systems. This has included notable industry enabling technology innovations such as linearisation which has been fundamental to the evolution of faster cellular communication through significant optimisation of available radio spectrum.

Today these unique capabilities have been focused on maritime domain awareness and embedded within our sophisticated integrated maritime surveillance and management systems, which are being adopted around the world to provide high resolution, high functioning reliable maritime domain awareness at significantly reduced cost which enables viable mass scale deployment and a meaningful step forward in maritime management as evidenced by the over 300,000 marine transceivers that SRT has manufactured and distributed to customers and partners worldwide.

2. VMS-100Si TEST

2.1 TEST OVERVIEW

- The WCPFC has strict performance criteria which an MTU/ACL must prove that it meets or exceeds.
- This proof is achieved through the undertaking of independent testing agreed by and overseen by WCPFC the results of which are independently validated by Trackwell as appointed by WCPFC for this task.
- The VMS-100Si was fitted to two nominated vessels which would operate as usual over a minimum period of 7 days with tracking data fed to Trackwell for validation.
- The VMS-100Si was configured to operate with iridium mode only.
- The test results of both vessels and VMS-100Si units matched the WCPFC ACL accreditation requirements.

2.2 TRIAL RESULTS

2.2.1 VESSEL DETAILS

VMS-100Si transceivers were installed onboard two active Philippine fishing vessels.

2.2.1.1 FB TRINITYS-555 / ID 574004099

Vessel picture

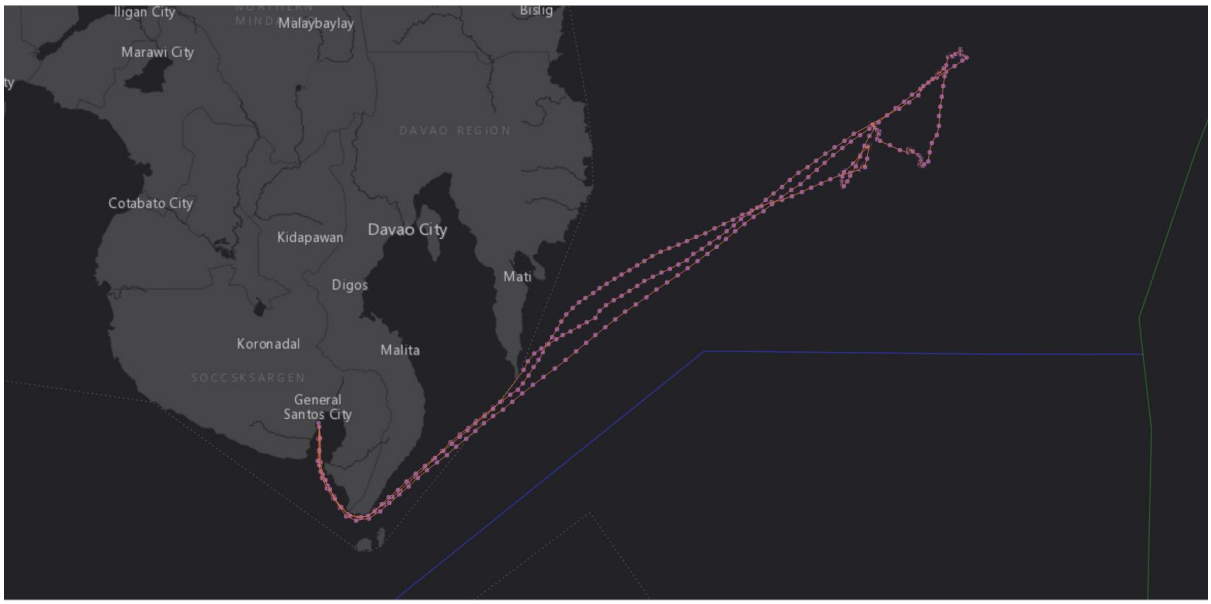
VMS-100Si ALC

GPS/Iridium Antenna

2.2.2 TEST RESULT

PARAMETER	RESULT
TEST PERIOD	07th September 2022 to 10th October 2022
TEST DURATION	34 days
STATUS REPORTS RECEIVED VIA IRIDIUM	
REPORTING RATE	00h30min
NUMBER REPORTS WITH LATENCY +90mins	0 (0.00%)

Vessel Track During Period:



Track for vessel ID 574004099

2.2.2.1 FB TS 2003-A / ID 574004098

Vessel picture

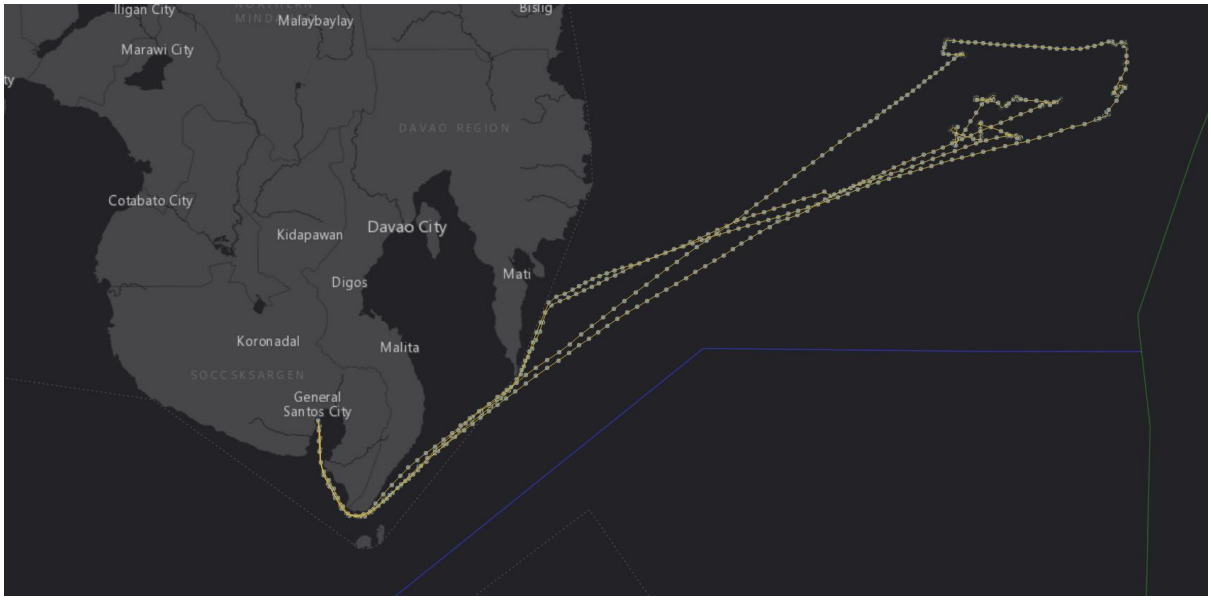
VMS-100Si ALC

GPS/Iridium Antenna

2.2.3 TEST RESULT

PARAMETER	RESULT
TEST PERIOD	02th September 2022 to 10th October 2022
TEST DURATION	39 days
STATUS REPORTS RECEIVED VIA IRIDIUM	
REPORTING RATE	00h30min
NUMBER REPORTS WITH LATENCY +90mins	0 (0.00%)

Vessel Track During Period:



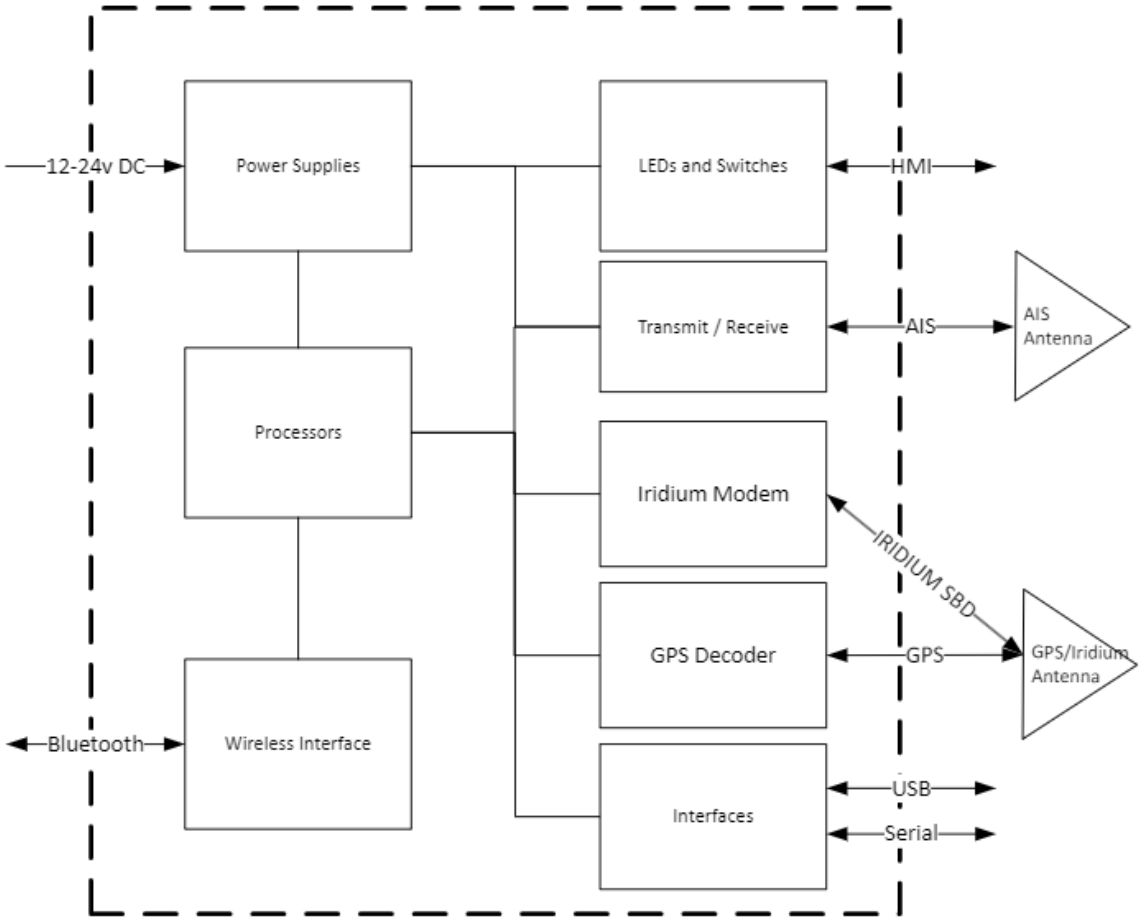
Track for vessel ID 574004098

3. VMS-100 Si TECHNICAL INFORMATION

3.1 VMS-100Si PRODUCT SYSTEM ARCHITECTURE

The below block diagram provides a high-level product architecture of the VMS-100Si, locating and defining the primary functionality blocks and external interfaces.

All transceiver processors and message handling and processing are integrated within the tamper proof VMS-100Si case.



3.2 IRIDIUM TECHNICAL SPECIFICATIONS

the VMS-100Si enclosure includes:

- One Iridium modem type 9603 (https://www.iridium.com/products/iridium-9603/)

Outside, the following antenna is used to transmit messages:

- One Iridium/GPS antenna from Alliscom type GCRGI-CADADNMJAS (https://www.iridium.com/products/alliscom-iridium-gps-antenna-gcrgi/)

GPS/Iridium (passive) antenna

3.3 CONNECTOR USAGE

Wifi and Bluetooth connections are used to provide flexible wireless connectivity to ERS devices which enable electronic catch reporting. The USB connector is used to power and charge the ERS devices.

NMEA0183 connector is used to connect the VMS-100Si to the Iridium antenna.

When the VMS-100Si is using only the Iridium channel, the VHF antenna is not installed and therefore not connected.

4. WCPFC COMPLIANCE

WCPFC has clearly defined ALC performance and functionality standards for which all ALC units must be tested and validated against in accordance with the defined WCPFC process.

CMM 2014-02 – Annex 1 Draft Minimum Standards for Automatic Location Communicators (ALCs) used in the Commission Vessel Monitoring System	VMS-100Si features
The ALC shall automatically and independently of any intervention on the vessel communicate the following data: *(i) ALC static unique identifier;* *(ii) the current geographical position (latitude and longitude) of the vessel; and (iii) the date and time (expressed in Universal Time Constant [UTC]) of the fixing of the position of the vessel in para 1 (ii) above.*	Each VMS-100Si is identified by a MMSI number used as the ALC Unique Identifier which is unique and allocated by both BFAR and the National Telecommunication agency of Philippines as part of the licensing process. Each message is sent with: • ALC Unique Identifier • Current accurate Lat/Long position • UTC date and time
The data referred to in paras 1 (ii) and 1 (iii) shall be obtained from a satellite-based positioning system	VMS-100Si is compatible with GPS, GLONASS and GALILEO positioning networks
ALCs fitted to fishing vessels must be capable of transmitting data referred to in para 1, hourly	Configurable for ½ hourly or hourly reporting rate is ensured via Iridium satellite communication.
The data referred to para 1 shall be received by the Commission within 90 minutes of being generated by the ALC, under normal operating conditions	All data are transmitted with no greater latency than 90min as requested
ALCs fitted to fishing vessels must be protected so as to preserve the security and integrity of data referred to in para 1.	All accesses are password protected, all data are encrypted, and password protected
Storage of information within the ALC must be safe, secure and integrated under normal operating conditions	All data are continuously stored in the internal memory of the VMS-100Si, encrypted and password protected.
It must not be reasonably possible for anyone other than the monitoring authority to alter any of that authority's data stored in the ALC, including the frequency of position reporting to that authority	All actions are logged by the VMS-100Si and can be audited by Fisheries inspectors locally and are sent back to Fisheries National Datacentre regularly.

Any features built into the ALC or terminal software to assist with servicing shall not allow unauthorized access to any areas of the ALC that could potentially compromise the operation of the VMS	All accesses are password protected, all data are encrypted, and password protected. No changes to ALC software and or configuration is possible unless by authorized authorities with the appropriate equipment and security passcodes
ALCs shall be installed on vessels in accordance with their manufacturer's specifications and applicable standards	Only trained and certified installers can install a VMS-100Si. A strict process is followed and endorsed by BFAR to instal the VMS-100Si with detailed installation information tracked and recorded electronically.
Under normal satellite navigation operating conditions, positions derived from the data forwarded must be accurate to within 100 square metres Distance Root Mean Squared (DRMS), (i.e. 98% of the positions must be within this range).	VMS-100Si GPS accuracy is certified by a TÜV test and is compliant with WCPFC minimum requirements.
The ALC and/or forwarding service provider must be able to support the ability for data to be sent to multiple independent destinations	SRT Fusion Centre is operating 24/7 redundant servers disseminating in different format data to required providers.
The satellite navigation decoder and transmitter shall be fully integrated and housed in the same tamper-proof physical enclosure	All hardware and software are built inside the VMS-100Si and are tamper-proofed by different physical and software seals. Iridium modem and satellite position decoder are fully integrated in the same enclosure