THE MINISTRY OF AGRICULTURE, LIVESTOCK AND IRRIGATION, DEPARTMENT OF FISHERIES (DOF)

VESSEL MONITORING SYSTEM
Marine Transmission Unit (MTU)
TYPE APPROVAL

Table of Contents

Section 1 - Introduction

Section 1.1 General

The Myanmar Ministry of Agriculture, Livestock and Irrigation, Department of Fisheries (DoF) is responsible for the management of fisheries and enforcement of fisheries law for Myanmar registered vessels. Access to timely and accurate vessel position information is vital to meet these responsibilities.

The DoF's Vessel Monitoring System (DoF VMS) is to be used for monitoring, surveillance and compliance purposes for Myanmar registered fishing vessels.

The DoF VMS is based on the use of DoF approved Enhanced Mobile Transmitting Units (E-MTUs) installed on board fishing vessels to track the vessel through a VMS base station software provider to be appointed and receiving electronic catch reports.

DoF type approval is used by the DoF to regulate the types of E-MTUs available to vessel operators in Myanmar. By applying for type approval, the manufacturer/supplier agrees to the documentation being released to other fisheries authorities wishing to use the DoF type approval process.

Type approval is required for an MTU with electronic reporting compatibility (E-MTU). DoF will require electronic logbook reporting in the near future, therefore operators are required to prepare accordingly by purchasing a type approved E-MTU to prevent additional expenditure/replacement in the future.

This document is aligned with that of other advanced VMS users, particularly the National Marine Fisheries Service of the United States and The Pacific Forum Fisheries Agency (FFA) the European Fisheries Control Agency, Regional Fisheries Management Authorities (Tuna RFMOs).

Section 1.2 Purpose

This document specifies the requirements for the type approval of Vessel Monitoring System transponder units to be utilised by Myanmar fishing vessels for monitoring on the DoF VMS platform. These certification requirements will change and evolve over time through periodic review by the DoF and subsequent version update. Prior to applying for approval, applicants should check that they are using the most up to date version.

DoF seeks to deploy an ''open system,'' whereby the fishing vessel operators may select any VMS transponder type that has satisfied these DoF type approval requirements.

Section 1.3 Guide to rest of document

Section	Purpose
Two	Provides guidance on applying for type approval
Three and Four	Specifications for E-MTU type approval, includes non-functional and functional requirements
Five	Specifications for the E-MTU Type Approval mandatory physical and security requirements
Six	Specifications for the E-MTU Type Approval mandatory installation requirements

Note: the requirements within this document are **mandatory** for type approval.

DoF type approval DOES NOT constitute endorsement or preference for a particular product or service. Advertising by applicants may **NOT** refer to products being 'DoF type approved' or 'approved by DoF'.

Section 1.4 Abbreviations

Abbreviation	Description
DoF	Myanmar Ministry of Agriculture, Livestock and Irrigation, Department of Fisheries
VMS	Vessel Monitoring System (or Systems)
MTU	Mobile Transmitting Unit
E-MTU	Enhanced Mobile Transmitting Unit, with duplex (two way) e-mail and forms capabilities
MCSP	Mobile Communications Service Provider
ALC	Automatic Location Communicator (old terminology not used in this document, analogous to MTU)
OEM	Original Equipment Manufacturer/Manufacturing
E-forms	Electronic forms, such as fish catch reporting or declaration forms
UTC	Universal Coordinated Time (same as Greenwich Mean Time)
GMDSS	Global Maritime Distress and Safety System
SMTP	Simple Mail Transfer Protocol
GPS	Global Positioning System
GMDSS	Global Maritime Distress and Safety System

Section 1.5 Acceptance of International Type Approvals

Where a type approval of any sort has been issued by another fisheries agency, the DoF, at its discretion, may or may not accept part or all of that approval towards the DoF type approval. Regardless of other type approvals the E-MTU is to meet in full the requirements detailed in this document. The procedures for applying for type approval detailed in Section 2 are to be complied with.

Section 1.6 Contacts

Daw Nilar Kywe – Deputy Director DoF
Ministry of Agriculture, Livestock and Irrigation.
Department of Fisheries,
Office No. 36,
Nay Pyi Taw

Section 2 – Applying for Type Approval

Section 2.1 – Applying for Type Approval for Mobile Terminal Units (MTUs) and Electronic-MTUs

2.1.1 Application Form

A DoF type approval application form shall accompany any application for type approval. Application forms can be found at Appendix 1.

2.1.2 What to submit for Type Approval

A supplier of an E-MTU requesting type approval shall begin by certifying that the unit meets the minimum VMS standards as required by this document. Suppliers are to describe in detail the extent to which its unit/s comply with each of the requirements stated within this document.

The supplier is to also provide complete documentation, including fact sheets, installation guides, operator manuals, user handbooks, the applicable interfacing software, and technical support.

DoF shall:
Review the applications against the specification of this document.

Applicants for type approval should submit requests for type approval, together with printed and soft copies of supporting material to the DoF VMS Manager address provided above.

Consideration will be given to E-MTUs that have passed a comparable type approval process in another fisheries management jurisdiction. If applicable, the applicant should provide the E-MTUs specifications, the details of international VMS requirement specifications, the E-MTUs level of compliance, and appropriate contact details of the qualifying authorities. Applicants are to supply all the required documents, etc for type approval. Applicants are to complete and provide the Type Approval Checklist and submit the completed copies with their application.

E-MTU TYPE APPROVAL – MANDATORY REQUIREMENTS

Sections three and four describe the type approval requirements for E-MTUs. An E-MTU is one that supports two-way e-mail and forms capabilities onboard the vessel. Applicants are to respond to each of the items in sections 3 and 4 of this document. The response should indicate how the applicant complies with the requirements of these sections. Sections that the applicant does not currently comply with are to be responded to by explaining how the applicant will comply with the requirement prior to approval. The terminal may use protocols other than SMTP but translation to SMTP, and support for the SMTP (Internet) addressing scheme is required.

Section 3 – E-MTU Type Approval - Mandatory Non-Functional Requirements

Section 3.1 Prosecution Support

Due to the use of VMS for monitoring and law enforcement, all technical aspects of a supplier's submission are subject to being admitted as evidence in a court of law, if needed. The reliability of all technologies utilised in the E-MTU may be analysed in court for, *inter alia*, testing procedures, error rates, peer review, and general industry acceptance. Further, the supplier may be required to provide technical and expert support for a litigation to support the E-MTU capabilities to establish DoF's case against violators.

If the technologies proposed in your application have previously been subject to such scrutiny in a court of law, the supplier should describe the evidence and any court finding on the reliability of the technology. Additionally, to maintain the integrity of VMS for fisheries management, the supplier will be required to sign a non-disclosure agreement limiting the release of certain information that might compromise the effectiveness of the VMS operations, such as details of anti-tampering safeguards. The supplier shall include a statement confirming its agreement with these conditions.

Section 3.2 MTU Identifiers

	Specify the identifying characteristics of the MTU:
3.2.1	The communications class
3.2.2	The manufacturer
3.2.3	The brand name (where a brand name may vary around the world include all brand names likely to be used in the geographical area)
3.2.4	The model name (where a model name may vary around the world include all brand names likely to be used in the geographical area)
3.2.5	The model number
3.2.6	The software version number and date
3.2.7	The firmware version number and date
3.2.8	The hardware version number and date
3.2.9	The antenna type
3.2.10	The antenna model number and date
3.2.11	The MCSP(s) providing communications services
3.2.12	Monitor or terminal model number and date
3.2.13	Monitor or terminal manufacturer

3.2.14	Monitor or terminal software type, version and manufacturer

Section 3.3 MTU Responsibilities

3.3.1	Manufacturer For the following responsibilities, name the business entities who act on behalf of the manufacturer and supplier applying for type approval. Include the address, phone, contacts, email, and designated geographic territory where applicable.
3.3.2	Label or use MTU for an Original Equipment Manufacturer/ Manufacturing (OEM). This includes re-labelling OEM MTUs or reselling. Reselling includes value added reselling. The MTU that is type approved is the final, value-added product and not the original manufacturer's MTU, if enhancements or modifications have been made. For example, if a transceiver is contained within an enclosure, it is the new enclosure including the transceiver that is being type approved
3.3.3	Distributer (name of authorised distributor in Myanmar)
3.3.4	Sell (name of authorised seller in Myanmar)
3.3.5	Supplier configures the MTU at the warehouse or point of supply
3.3.6	install MTU onboard the vessel
3.3.7	Provide warranty
3.3.8	Provide maintenance and service agreement
3.3.9	Repair
3.3.10	Training

Section 3.4 Customer Service

The E-MTU supplier through its designated entities in Myanmar shall provide customer service that is professional, courteous, and responsive in provision of E-MTU diagnostic and troubleshooting support to its client.

3.4.1	Service level, warranty, and maintenance agreements. Clarify constraints, if any, on the geographic territory, personnel availability, and escalation procedures for problem resolution covered by such services.
3.4.2	Facilities and procedures in place to assist the client in maintaining and repairing their E-MTU, including response and general system turnaround time.
3.4.3	Assistance in the determination and isolation of the cause of communications anomalies.
3.4.4	Assist in the resolution of communications anomalies that are traced to the E-MTU and/or interference from shipboard equipment
3.4.5	All services will be considered to be free of charge to the client unless specifically listed in service or purchase agreements.

Section 3.5 Other Information

3.5.1	The E-MTU is to have the durability and reliability necessary to provide acceptable service in a marine environment where the unit may be subjected to saltwater (spray) and high levels of Ultra Violet radiation (UV) in smaller vessels, and in larger vessels where the unit may be maintained in a wheelhouse. The unit, cabling and antenna is to be resistant to moisture, UV and shock associate with the marine environments. The units are to also be able to maintain full functionality with fluctuating power supplies found on board vessels. Refer to Section 8 for further details.
3.5.2	The E-MTU is to comply with any additional requirements by DoF for specific fisheries or applications. These being that the unit shall be able to be turned on and off subject to the written permission granted by the Director General of the DoF. The units are to be able to remain turned on at all other times and continue to transmit at the DoF defined reporting rate.
3.5.3	All personal identifying information provided by vessels owners or other authorised personnel for the purchase or activation of E-MTU, or for the participation in any DoF VMS-approved fishery is to be protected from unauthorised disclosure. Personal identifying information includes, but is not limited to, names, addresses, telephone numbers, passport numbers, credit card numbers, vessel names, state, and local documentation numbers, email addresses, and crew lists.
3.5.4	Any information sent electronically to the DoF is to be transmitted by a secure means that prevents interception, parodying, or viewing by unauthorised individuals. Any release of such information is to be requested and approved in writing by the vessel owner or authorised personnel, or the DoF. Inadvertent or intentional unauthorised release of personally identifying information will be grounds for reconsideration and possible revocation of the type approval for any E-MTU supplied by the offending provider. Any inadvertent or intentional unauthorised release of personal identifying information is to be advised to the DoF as soon as it is discovered.

Note : DoF intends to introduce electronic log reporting in the near future, fishing vessel operators with MTUs not e-log enabled will be required to replace them for compliance if not installed initially.

Section 4 – E-MTU Type Approval Mandatory Functional Requirements

Section 4.1 Messaging

The E-MTU is to provide the following messaging functionality:

4.1.1	Transmit mandatory, automatically generated position, speed and course reports from the integrated GPS.
4.1.2	Onboard visible and/or audible alarms for malfunctioning of the MTU.
4.1.3	Ability to disable non-essential alarms in non-Global Maritime Distress and Safety System (GMDSS) installations.
4.1.4	Ability to provide comprehensive and transparent communications, which function uniformly within the entire geographic coverage area for that communications class.
4.1.5	Two-way communications between MCSP and MTU, such as manual polling.
4.1.6	The ability to send and receive free-form Internet email text messages.
4.1.7	Text messaging from vessel to shore with a minimum supported message length of 1kb.
4.1.8	User interface is to support an 'address book' capability and a function permitting a ''reply'' to a received message without re-entry of the sender's e-mail address.
4.1.9	A confirmation of delivery function is required such that a user can ascertain whether a specific message was successfully transmitted via the satellite system to the MCSP e-mail server(s).
4.1.10	Onward delivery to DoF is to be reliable and make use of features such as SMTP retries and delivery confirmation to ensure a reliable transport path exists for text messages sent from the vessel to DoF
4.1.11	The user interface is to provide the ability to review by date order, or by recipient, messages that were previously sent. The terminal is to support a minimum message history of 20 messages - commonly referred to as an 'Outbox' or 'Sent' messages display.
4.1.12	Text messaging from shore to vessel with a minimum supported message length of 1kb. Attachment support is not required.
4.1.13	The user interface is to provide the ability to review by date order, or by sender, all messages received. The terminal is to support a minimum message history of 20 messages - commonly referred to as an 'Inbox'.
4.1.14	Negative delivery notifications are to be sent to the originator where delivery to the terminal could not be completed for any reason. Such Non-Delivery Notification is to include sufficient information to uniquely identify the message that failed and the cause of failure (i.e., mobile number invalid, mobile switched off etc.).

Section 4.2 Position Data Formats and Transmission

4.2.1	The MTU is to provide the following position information:
4.2.1.1	Position fixes latitude and longitude, including the hemisphere of each.
4.2.1.2	The position fix precision is to be to the decimal minute hundredths.
4.2.1.3	Accuracy of the reported position is to be within 100 meters.
4.2.2	Communications between MTU and MCSP is to be secure from tampering or interception, including the reading of passwords and data. Therefore, the MTU is to have mechanisms to prevent to the extent possible:
4.2.2.1	Interception during transmission from the MTU to MCSP via either wireless or terrestrial or any other facilities.
4.2.2.2	Impersonation, whereby one MTU is fraudulently identifying itself as another MTU.
4.2.2.3	Modification of MTU identification.
4.2.2.4	Interference with GMDSS or other safety/distress functions.
4.2.2.5	Introduction of viruses that may corrupt the messages, transmission, or the VMS system.
4.2.2.6	MTU to have the capacity to remotely receive and store geofences to enable pre-determined reporting rules
4.2.3	MTU shall provide the ability to meet minimum reporting requirements of one (1) transmission per hour with a minimum of two (2) positions between transmissions at defined intervals.
4.2.4	Provide automatically generated position reporting, for vessels managed individually or grouped by fleet, such that DoF automatically receives position reports at defined intervals transparent to the geographic region.
4.2.5	Have the ability to store 100 position fixes in local, non-volatile memory when the MTU is either unable to transmit to DoF or the MTU is configured to a ''store and retrieve'' mode. These positions are to be either transferred to local storage media or transmitted via MCSP.
4.2.6	Allow for variable reporting intervals between 5 minutes and 24 hours.
4.2.7	The MTU is to be capable of having its poll reporting intervals changed remotely, only by authorised users.
4.2.8	An MTU is to be able to transmit automatically generated position reports, which contain the following:
4.2.8.1	Unique identification of an MTU within the communications class.
4.2.8.2	Date (year/month/day with century in the year) and time (UTC) stamp of the position fix.
4.2.9	In addition to automatically generated position reports, specially identified position reports shall be generated upon:
4.2.9.1	Antenna disconnection
4.2.9.2	Loss of the positioning reference signals.
4.2.9.3	Loss of the mobile communications signals.
4.2.9.4	Security events, power-up, power-down, and other status data.
4.2.9.5	The vessel crossing a predefined geographic boundary.
4.2.9.6	MTU status information such as configuration of programming and reporting intervals.
4.2.9.7	When an MTU is powered up, it is to automatically re-establish its position reporting function without manual intervention.

Section 4.3 Electronic Forms

Pre-formatted messages are required for the collection of validated data for specific fisheries programs (i.e., declaration systems, catch effort reporting). This capability is referred to as Electronic Forms (E-forms). The E-MTU is to support a minimum of 20 Forms, selectable by the user from a menu. Forms is to be updatable over the air. Copies of forms currently used by DoF and the DoF Functional Specification for Electronic Forms will be available upon request.

From time to time DoF will provide all E-MTU approved suppliers with updates defining new forms or modifying existing e-forms. Such notice will be at least 30 (thirty) days prior to the introduction date for the new or changed form. Applicants will be responsible for translating the requirements into E-MTU specific forms definitions and transmitting the same to all VMS terminals supplied to fishing vessels. All forms software provided with the E-MTU is to be capable of supporting the requirements described in this specification.

Additional capabilities beyond those stated here are acceptable, provided that the minimum requirements are satisfied:

4.3.1	A form is defined as: (a) 1–40 characters describing the form, (b) Delivery address (i.e., e-mail or other network identifier), (c) Form number as defined by DoF to uniquely identify the form, (d) Form version number (numeric with one decimal place; i.e., 1.2), and (e) a collection of 1–30 fields and associated logic rules.
4.3.2	Each field (within a form) is defined by the following elements. Except where noted, all elements of the field definition are mandatory: (a) Label (0 to 40 characters, alpha numeric), (b) Context Help Text (0 to 200 characters, alpha numeric), (c)Type (Either; enumeration, numeric, alpha, alphanumeric or Boolean), (d) Default Value, (e) Optional/Mandatory/Hidden/ Logic indicator, (f) Min/Max values (for numeric fields only) in range 0.000 to 999,999, (g) Decimal places (for numeric fields only) 0–3, and (h) Min/Max characters (for alpha/alphanumeric fields only).
4.3.3	Up to 100 code/value/help text pairs (enumerations only) is to be provided, where codes are defined as 1–20 alphanumeric characters, values are 1–80 alphanumeric characters and help text is 0–200 characters. Such fields are typically used to permit a user to select from a range of options (i.e., geographic areas, gear types, fish species).
4.3.4	Codes are used to compress the form data for efficient transmission. Help text would typically be displayed only when the user selects a specific value from the enumeration.
4.3.5	Form Validation: Each field is to be defined as; Optional, Mandatory or Logic Driven. Mandatory fields are to be entered by the user before the form is complete, optional fields that do not require data entry, and logic driven fields have their attributes determined by earlier form selections. Specifically; it is to be possible for selection of an enumeration to change the optional/mandatory setting, min/ max values, or the permitted enumeration values on a later field within the same form.
4.3.6	State Information: The capability to populate a form based on the last

	values used is to be available. This provides the user with an easy mechanism to 'modify' or 'update' a prior submission - without unnecessary re-entry of data. The user is to be able to review a minimum of 20 past form submissions and ascertain for each form when the form was transmitted and whether delivery was successfully completed to the vendor's processing centre. In the case of a transmission failure, the user is to be provided with details of the cause and have the opportunity to retry the form submission.
4.3.7	Inclusion of VMS Position Report: In addition to the manually entered fields, the forms package is to permit the inclusion of VMS position report fields such as latitude, longitude, date and time. Such fields are to be obtained from the GPS function of the MTU and transmitted along with the manually entered form data within the same transaction.
4.3.8	Delivery Format for Form Data: It is preferred that form data be transferred from the terminal to DoF using the same transport as for either text messages or VMS position reports (the selected option to be at the election of the E-MTU vendor). Currently supported protocols for transfer are; FTP, SMTP, XML and HTTP Post. The field coding within the data is to follow either CSV or XML formatting rules. For CSV format the form is to contain an identifier and the version number, and then the fields in the order defined on the form. In the CSV format strings that may contain'','' (comma) characters is to be quoted. XML representations is to use the field label to define the XML element that contains each field value.

Section 5 - E-MTU Type Approval - Mandatory Physical and Security Requirements

Section 5.1 General

The MTU is to have the durability and reliability necessary to provide acceptable service in a marine environment where the unit may be subjected to saltwater (spray) in smaller vessels, and in larger vessels where the unit may be maintained in a wheelhouse. The unit, cabling and antenna is to be resistant to moisture, UV radiation and shocks associated with the marine environments.

Section 5.2 Marine Use

All units of the system shall be designed for marine use - that is, components that are exposed to the elements in the normal course of operation shall be suitably rated (IP66 or equivalent) to ensure reliable continuous operation. Components that are housed below decks in the normal course of operation shall be suitably rated to ensure reliable continuous operation.

Section 5.3 Operating Temperatures

The MTU, excluding the user terminal, shall be able to function at specified accuracy between -20 degrees Celsius and +50 degrees Celsius.

Section 5.4 Physical Mounting Requirements

All units in the system shall be provided with suitable mounting instructions and fittings for marine use. Such fixings shall be capable of securing the device to prevent movement when exposed to the vibration, shaking and marine environment typically experienced aboard a deep-sea going vessel, so as to ensure continued reliable operation as required by the VMS.

Section 5.5 E-MTU Terminal

The E-MTU terminal is to be suitable to use in the marine environment. As the exposure to the marine environment can vary depending on application, applicants are to specify the level of exposure to the marine environment recommended for their equipment.

Section 5.6 Security

5.6.1 The E-MTU is to provide robust protection against wilful attempts to compromise the physical security of the housing and is to be tamper-evident, i.e. evidence of attempts to compromise the physical housing should be detectable on inspection. Applicants are to demonstrate how this will be achieved.

5.6.2 It must not be possible for the VMS functions of the unit to be altered via the terminal of the E-MTU or by attaching a computer or terminal to an MTU. Software is to be 'locked down' to reasonably prevent interference with the operation of the unit via the software. Applicants are to demonstrate how this specification will be met.

SECTION 6 – MTU/E-MTU TYPE APPROVAL – INSTALLATION REQUIREMENTS

Section 6.1 General

This section of the document defines minimum standards for the installation of all components of the E-MTU. Applicants is to demonstrate how they meet or exceed these requirements.

The type approval applicant is responsible for managing the sales and installation of units such that the integrity of the system is maintained. Installation shall be carried out by either the E-MTU type approval applicant or the vendors certified installer.

The vessel operator is responsible for ensuring that all components of the E-MTU are operated in a manner that provides continuous reliable operation of the hardware as a part of the VMS. The following subsection provides more detailed instructions for the installation of the main components of an E-MTU.

Section 6.2 Installation guide is part of type approval

Applicants are to provide the installation manual or guide that is applicable to the E-MTU. Recognising the international nature of the operations of DoF, the manual is to be available in enough languages that any installer authorised by the applicant can install the E-MTU with minimum difficulty.

Section 6.3 Mounting the MTU box

In cases where the MTU box is separate from the antennae, the box shall be installed, commissioned and maintained in accordance with the manufacturer's instructions in such a way as to ensure correct operation.   Fixings used shall be capable of securing the device to prevent movement when exposed to the vibration, shaking and marine environment typically experienced aboard a deep-sea going vessel so as to ensure continuous reliable operation of the MTU box as a part of the VMS.

The vessel operator is responsible for ensuring that the MTU box is at all times operating in a manner that provides continuous reliable operation of the MTU as a part of the VMS.

Section 6.4 The E-MTU Terminal

The E-MTU terminal shall be installed, commissioned and maintained in accordance with the manufacturer's instructions in such a way as to ensure correct operation.   Fixings used shall be capable of securing the device to prevent movement when exposed to the vibration, shaking and marine environment typically experienced aboard a deep-sea going vessel so as to ensure continuous reliable operation of the E-MTU terminal as a part of the VMS.

The vessel operator is responsible for ensuring that the E-MTU terminal is at all times operating in a manner that provides continuous reliable operation of the E-MTU terminal as a part of the VMS.

Section 6.5 The Antenna(s)

6.5.1 Mounting.   The antenna(s) shall be installed, commissioned and maintained in accordance with the manufacturer's instructions and in such a manner as to ensure correct operation.   Fixings used shall be capable of securing the device to prevent movement when exposed to the vibration, shaking and marine environment typically experienced aboard a sea going vessel to ensure continuous reliable operation of the E-MTU as a part of the VMS.

The antenna(s) shall not have any other structures obstructing the view of either the GPS or communication satellites in such a manner as to degrade performance. The antenna shall be mounted in a position which shall meet manufacturer's recommendations of minimum distances from any HF, VHF, GPS or other antenna or magnetic compass.

In addition, the antenna shall be mounted, in accordance with the manufacturer's instructions, in a position where no humans will come within such a distance from it whereby they are exposed to dangerous levels of electromagnetic radiation while performing normal ship activities. The vessel operator is responsible for ensuring that the antenna is at all times installed in a manner that provides continuous reliable operation of the E-MTU as a part of the VMS.

6.5.2 The Antenna(s) Cable(s). The antenna(s) cable(s) refers to the cable(s) used to connect the antenna (s) to the E-MTU box. The antenna cable(s) used shall be supplied and/or specified by the manufacturer. The maximum cable length, as specified by the manufacturer, shall not be exceeded. The antenna cable shall be installed in position where it will not be damaged by normal ship activity. This may involve enclosing the cable in a protective conduit. All grounding requirements of the antenna, as specified by the manufacturer, shall be followed.

All connections between the cable, the antenna and the E-MTU shall be suitable for marine use where the connection is to be exposed to the external environment. Connectors used shall be designed for use in a marine environment. The vessel operator is responsible for ensuring that the antenna cable is at all times installed in a manner that provides continuous reliable operation of the VMS.

Section 6.6 The Power Supply

The power supply shall be capable of delivering the required power during transmission without degradation of performance of the E-MTU. The power supply shall be sufficiently stable and noise free to allow continuous error free E-MTU operation.

If the power connection is supplied by the E-MTU manufacturer, it shall be mounted following instructions provided. Fixings used shall be capable of securing the device to prevent movement when exposed to the vibration, shaking and marine environment typically experienced aboard a deep-sea going vessel and suitable for marine use.

Grounding requirements, as specified by the manufacturer of the power supply, is to be followed. The vessel operator is responsible for ensuring that the power supply meets the above requirements in a manner that provides continuous reliable operation of the E-MTU as a part of the VMS and that the power supply is sufficient to meet the needs to other onboard equipment.

Appendix 1 - Application Form

THE MYANMAR MINISTRY OF AGRICULTURE, LIVESTOCK AND IRRIGATION, DEPARTMENT OF FISHERIES (DOF)

Application for Type Approval of: Enhanced Mobile Transmitting Units (E-MTU)

This application form is to be used when applying for the type approval of Enhanced Mobile Transmitting Units (E-MTU) under "The Myanmar Ministry Of Agriculture, Livestock And Irrigation - Department Of Fisheries (DoF) Vessel Monitoring System (VMS) Type Approval" referred to in this document as "the Requirements".

Applicants should approach the DoF before submitting an application to discuss the Requirements. The contact at the DoF is:

Daw Nilar Kywe – Deputy Director DoF
Ministry of Agriculture, Livestock and Irrigation.
Department of Fisheries,
Office No. 36,
Nay Pyi Taw

What to submit for type approval

Full details about the submission for type approval are contained in Section 2 of the Requirements. Applicants are required to submit completed:
Application form Type Approval Checklist (refer to the Requirements)

Application Details

Company	
Company Address	
Contact Name	
Contact Details	Email: Ph. Fax:
Application for Type Approval of: (select as appropriate)	MTU E-MTU MCSP

E-MTU Details

Manufacturer	
Manufacturer Address	
Manufacturer Contact	
Model	
E-MTU	
Software Version	
E-MTU make and model of the terminal	
MCSP(s) supporting E-MTU	

Declaration

I formally submit this application for type approval by The Myanmar Ministry of Agriculture, Livestock And Irrigation - Department Of Fisheries. I attach the prescribed supporting documentation as described in this document and Section 2 of "the Requirements".

I certify that, to the best of my knowledge, the information supplied for the application for type approval is true and correct.

Applicant:

Signature: _____ _____

Date: _____/_____/_____

Print Name: _____ _____

Print Position: _____ _____

Witness:

Signature: _____ _____

Date: _____/_____/_____

Print Name: _____ _____

Print Position: _____ _____

DoF Use only:

Application Complete?
YES
NO

Received by (name):

Received by (signature):

Received Date:

Appendix 2 – Type Approval Checklist

Section	Evidence Provided? (Y or N)
Section 1	
Section 1.6 Acceptance of Overseas Type Approvals	
Are details of any overseas type approvals applicable to the application provided?	
Section 2	
2.1.1 Application Form – supplied?	
Section 3	
Section 3.1 Prosecution Support, prosecution support declaration provided?	
Section 3.2 MTU Identifiers, have the following identifiers been supplied?	
3.2.1 The communications class	
3.2.2 The manufacturer	
3.2.3 The brand name (where a brand name may vary around the world include all brand names likely to be used in the geographical area)	
3.2.4 The model name (where a model name may vary around the world include all brand names likely to be used in the geographical area)	
3.2.5 The model number	
3.2.6 The software version number and date	
3.2.7 The firmware version number and date	
3.2.8 The hardware version number and date	
3.2.9 The antenna type	
3.2.10 The antenna model number and date	
3.2.11 The MCSP providing communications services	
3.2.12 Monitor or terminal model number and date	
3.2.13 Monitor or terminal manufacturer	
3.2.14 Monitor or terminal software type, version and manufacturer.	
Section 3.3 MTU Responsibilities, have the details for the following responsibilities been provided?	
3.3.1 Manufacturer	
3.3.2 Label or use MTU for an OEM. This includes re-labelling OEM MTUs or reselling. Reselling includes value added reselling. The MTU that is type approved is the final, value-added product and not the original manufacturer's MTU, if enhancements or modifications have been made. For example, if a transceiver is contained within an enclosure, it is the new enclosure including the transceiver that is being type approved	
3.3.3 Distribute	
3.3.4 Sell	
3.3.5 Bench configures the MTU at the warehouse or point of supply	
3.3.6 Install MTU onboard the vessel	
3.3.7 Offer limited warranty	

3.3.8 Offer maintenance and service agreement	
3.3.9 Repair	
3.3.10 Training	
Section 3.4 Customer Service, documentation on customer service supplied?	
Section 3.5 Other Information	
3.5.2 Additional requirements – documentation provided?	
3.5.3 Description of measures against un-authorised disclosure provided?	
3.5.4 Computer attachment, documentation supplied for these criteria?	
Section 4	
Section 4.1 Evidence provided of the following message functionality?	
4.1.1 Transmit mandatory, automatically generated position reports.	
4.1.2 Onboard visible and/or audible alarms for malfunctioning of the MTU.	
4.1.3 Ability to disable non-essential alarms in non-Global Maritime Distress and Safety System (GMDSS) installations.	
4.1.4 Ability to provide comprehensive and transparent communications, which function uniformly within the entire geographic coverage area for that communications class.	
4.1.5 Two-way communications between MCSP and MTU.	
4.1.6 The ability to send and receive free-form Internet email text messages.	
4.1.7 Text messaging, evidence provided for the following sections?	
4.1.8 User interface is to support an 'address book' capability and a function permitting a ''reply'' to a received message without re-entry of the senders e-mail address.	
4.1.9 A confirmation of delivery function is required such that a user can ascertain whether a specific message was successfully transmitted via the satellite system to the MCSP e-mail server(s).	
4.1.10 Onward delivery to DoF is to be reliable and make use of features such as SMTP retries and delivery confirmation to ensure a reliable transport path exists for text messages sent from the vessel to DoF.	
4.1.11 The user interface is to provide the ability to review by date order, or by recipient, messages that were previously sent. The terminal is to support a minimum message history of 20 messages - commonly referred to as an 'Outbox' or 'Sent' messages display.	
4.1.12 Text messaging from shore to vessel with a minimum supported message length of 1kb. Attachment support is not required.	
4.1.13 The user interface is to provide the ability to review by date order, or by sender, all messages received. The terminal is to support a minimum message history of 20 messages - commonly referred to as an 'Inbox'.	
4.1.14 Negative delivery notifications is to be sent to the originator where delivery to the terminal could not be completed for any reason. Such Non-Delivery Notification is to include sufficient information to uniquely identify the message that failed and the cause of failure (i.e., mobile number invalid, mobile switched off etc.).	
4.2.1 Evidence for support of the following position types provided?	

4.2.1.1 Position fixes latitude and longitude, including the hemisphere of each.	
4.2.1.2 The position fix precision is to be to the decimal minute hundredths.	
4.2.1.3 Accuracy of the reported position is to be within 100 meters	
4.2.2 Evidence provided of mechanisms to prevent the following?	
4.2.2.1 Interception during transmission from the MTU to MCSP via either wireless or terrestrial facilities.	
4.2.2.2 Impersonation, whereby one MTU is fraudulently identifying itself as another MTU.	
4.2.2.3 Modification of MTU identification.	
4.2.2.4 Interference with GMDSS or other safety/distress functions.	
4.2.2.5 Introduction of viruses that may corrupt the messages, transmission, or the VMS system.	
4.2.2.6 Method of remote uploading and updating geofence on MTU (satellite/GSM)	
4.2.3 Evidence supplied of ability to report at a minimum frequency of 1 transmission per hour with a minimum of 2 position at defined time intervals	
4.2.4 Evidence supplied of automatically generated position reports to DoF provided?	
4.2.5 Evidence supplied of ability to store 100 position fixes provided?	
4.2.6 Evidence supplied of reporting intervals between 5 minutes and 24 hours?	
4.2.7 Evidence of remotely changing poll interval only by authorised user?	
4.2.8 Evidence provided that automatically generated position reports contain the following?	
4.2.8.1 Unique identification of an MTU within the communications class.	
4.2.8.2 Date (year/month/day with century in the year) and time (UTC) stamp of the position fix.	
4.2.9 Evidence supplied of generated position reports in response to the following?	
4.2.9.1 Antenna disconnection	
4.2.9.2 Loss of the positioning reference signals.	
4.2.9.3 Loss of the mobile communications signals.	
4.2.9.4 Security events, power-up, power-down, and other status data.	
4.2.9.5 The vessel crossing a predefined geographic boundary.	
4.2.9.6 MTU status information such as configuration of programming and reporting intervals.	
4.2.9.7 When an MTU is powered up, it is to automatically re-establish its position reporting function without manual intervention.	
4.3 Evidence provided that E-MTU supports 20 plus user selectable E-forms?	
Evidence provided that E-forms are updateable over the air?	
Evidence provided that the following minimum requirements are satisfied?	
4.3.1 A form is defined as: (a) 1–40 characters describing the form, (b) Delivery address (i.e., e-mail or other network identifier), (c) Form	

number as defined by DoF to uniquely identify the form, (d) Form version number (numeric with one decimal place; i.e., 1.2), and (e) a collection of 1–30 fields and associated logic rules.	
4.3.2 Each field (within a form) is defined by the following elements. Except where noted, all elements of the field definition are mandatory: (a) Label (0 to 40 characters, alpha numeric), (b) Context Help Text (0 to 200 characters, alpha numeric), (c)Type (Either; enumeration, numeric, alpha, alphanumeric or Boolean), (d) Default Value, (e) Optional/Mandatory/Hidden/ Logic indicator, (f) Min/Max values (for numeric fields only) in range 0.000 to 999,999, (g) Decimal places (for numeric fields only) 0–3, and (h) Min/Max characters (for alpha/alphanumeric fields only).	
4.3.3 Up to 100 code/value/help text pairs (enumerations only) is to be provided, where codes are defined as 1– 20 alphanumeric characters, values are 1–80 alphanumeric characters and help text is 0–200 characters. Such fields are typically used to permit a user to select from a range of options (i.e., geographic areas, gear types, fish species). Codes are used to compress the form data for efficient transmission. Help text would typically be displayed only when the user selects a specific value from the enumeration.	
4.3.4 Codes are used to compress forms to ensure efficient transmission.	
4.3.5 Form Validation	
4.3.6 Ability to populate forms based on last values entered and easy mechanism to modify or update the contents prior to submission.	
4.3.7 Form also able to include position and date-time information which are to be taken from the GPS function on the MTU.	
4.3.8 Delivery format specified and in line with FTP, SMTP, XML or HTTP Post.	
Section 5	
5.1 Ability to withstand exposure to marine conditions	
5.2 Relevant components are IP66 or equivalent rated.	
5.3 Ability to remain operation and function at the specified accuracy between -20 and +50 degrees Celsius	
5.4 Suitable mounting accessories provided with mounting instructions.	
5.5 E_MTU terminal is to be suitable for normal functions in the marine environment. Applicant to specify level of exposure to the marine environment recommended for their equipment.	
5.6.1 Demonstrated tamper resistance and tamper evident?	
5.6.2 Evidence supplied that it is not reasonably possible to interfere with the normal operation of the unit via the terminal?	
Section 6	
Section 6.2 Installation guide is part of type approval, installation guide provided?	
Section 6.3 Mounting the MTU box, evidence provided that fixing for MTU are suitable for a marine environment?	
Section 6.4 The E-MTU Terminal, evidence provided that fixing for E-MTU are suitable for a marine environment?	
Section 6.5 The Antenna(s)	

6.5.1 Mounting, evidence supplied that the antennae and mountings meet these criteria?	
6.5.2 The Antenna(s) Cable(s), evidence supplied that the antennae cables meet these criteria?	
Section 6.6 The Power Supply, evidence supplied that the power supplies meet these criteria?	