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| ETSI_logo_Office_Colour_Small | ToR STF CY (TC ERM/TGMARINE) |
| Version: 0.5 |
| Author: Andrea Lorelli – Date:18 10 2018  |
| Last updated by: Youssouf Sakho– Date: 21 December 2018 |
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Terms of Reference - Specialist Task Force

STF CY (TC ERM/TGMARINE)

**“Test Specifications for the Interoperability of Digital Selective Calling (DSC) Marine Radios”**

Summary information

|  |  |
| --- | --- |
| Approval status | Approved by TC ERM/TG Marine (doc ref: XXXX) To be approved by Board#121 (31 January 2019) |
| Funding | **Maximum budget: 20 600 € ETSI FWP**Manpower cost: 17 400 EUR Travel cost: 3 200 EUR |
| Time scale | April 2019 to December 2019 |
| Work Items  | RTS/ERM-TGMARINE-541-2 (TS 101 570-2 V1.2.1),RTS/ERM-TGMARINE-541-3 (TS 101 570-3 V1.2.1),RTS/ERM-TGMARINE-541-5 (TS 101 570-5 V1.2.1),RTS/ERM-TGMARINE-541-6 (TS 101 570-6 V1.1.1) |
| Board priority  | * Standards enablers/facilitators
* Innovation in mature domains
 |

Part I – Reason for proposing the STF

# Rationale

The Global Marine Distress Signaling System (GMDSS), which was made a part of the Safety of Life At Sea (SOLAS) Treaty, addressed the shortcomings of the present distress signalling system by introducing a new international standard, Digital Selective Calling (DSC), for all distress messages.

TC ERM has developed, through its TGMARINE working group, a multipart standard for different classes of DSC marine radio (EN 300 338, parts 1 to 5). In 2017 this set of DSC specifications has been extended with the introduction of EN 300 338-6 related to the new class “M” of DSC devices as introduced in ITU-R M.493-14 for Man Overboard (MOB) and two additional parts for Bridge Alert Management systems (BAM) and remote control are currently under development (EN 300 338-7 and EN 300 338-8). For the first time we have international and European standards that detail the full functionality and user interface for maritime DSC systems.

In 2012 TGMARINE developed a first set of Interoperability Test Specifications for class A/D/E and Handheld class D but these specifications are now outdated since the technology has evolved and a revision is necessary. In addition, the development of a new test specification for class M DSC is required. Avoidance of interoperability problems will significantly enhance the overall efficiency of the DSC system which leads to greater safety.

The possibility of ETSI Interoperability Plugtests™ Events has attracted the interest of suppliers of maritime equipment. Therefore, the availability of updated interoperability test specifications is essential for a successful interoperability event.

Past ETSI experience has shown that an STF, supported by ETSI CTI, is the most effective and cost-efficient way to develop test specifications.

# Objective

The purpose of the work is to assure interoperability of devices produced in compliance with the latest version of EN 300 338 standards. This particular work has the purpose to produce the Test Suite Structure and Test Purposes (TSS&TP) for interoperability testing.

# Relation with ETSI strategy and priorities

This STF will address the interoperability issues related to an established technology and its evolution where interoperability testing has never existed (for DSC class “M” - Man over Board) and interoperability issues have often been noticed.

# Context of the proposal

## ETSI Members support

|  |  |  |
| --- | --- | --- |
| **ETSI Member** | **Supporting delegate** | **Motivation** |
| ICOM | Pete Hizzey | ICOM supports this work as it will help to validate the functionality of the product standard and help ensure interoperability. |
| Marine Rescue Technologies | Mark Swale | MRT supports this work since it ensures product standards are robust and fit for purpose. |
| Raymarine | Andy Little | Raymarine wishes to support this work as it will help to validate the functionality of the product standard and help ensure interoperability. |
| Thrane & Thrane | Torben Markussen | Thrane & Thrane supports these activities which assist in interoperability and validation of the equipment supporting safety at sea. |
| [Ministry of Economic Affairs](https://portal.etsi.org/webapp/TelDir/QueryOrgaInfo.asp?OrgaId=17) NL | Rudie Sipkes | [Ministry of Economic Affairs](https://portal.etsi.org/webapp/TelDir/QueryOrgaInfo.asp?OrgaId=17) NL is very interested in the effective functionality of maritime radios. To ensure this, a standardized test environment and measurement procedure is needed. |
| Federal Ministry of Economic Affairs and Energy DE | Thomas Klavis | The Federal Network Agency of Germany, responsible for technical standardization, is very interested in the effective functionality of maritime radios. A very important aspect is the compatible cooperation of devices (systems) of different manufacturers. To ensure this, a standardized test environment and measurement procedure is necessary. |
| Yaesu | Paul Bigwood | Yaesu supports the development of test specifications since they help improve interoperability which is of paramount importance for safety of life at sea |

## Market impact

The availability of new and updated test specifications should positively affect the arrival of products in the market place and their level of protocol conformance and interoperability. In order to further promote these interoperability standards, holding an ETSI Plugtests™ (possibly at a relevant maritime trade exhibition in Europe) is strongly encouraged, but is outside the scope of this ToR.

## Tasks for which the STF support is necessary

It is requested that the STF update the test specifications for class A/D/H DSC radio equipment and develop a new test specification for the new class “M” of DSC devices as introduced in ITU-R M.493-14 for Man Overboard (MOB). Experience with the development of other standards has shown that involvement of experts on conformance and interoperability testing of protocols requires highly specialised knowledge in testing methodology. The generation of this kind of specifications requires significant concentrated effort that can be done in this case by experts provided on a funded basis. Hence the involvement of testing experts is needed in order to assure timely completion and high quality of the Test Specifications. The support of an STF is also required in order not to delay the arrival on the European market of up-to-date DSC products for the different classes of devices.

## Related voluntary activities in the TB

ETSI ERM TGMARINE will closely follow the activities of the STF. Members of ERM TGMARINE will review the developed technical specifications and provide feedbacks as necessary.

## Previous funded activities in the same domain

In 2011-2012 STF 429 developed a first set of interoperability test specifications for class A/B/D/H DSC radio equipment.

## Consequences if not agreed

The production of updated and new test specifications as described in the present document is key to the testing and certification activities that should assure the interoperability of maritime DSC radios. Such devices are required to have high levels of interoperability if the safety at sea is to be kept at the highest level. The non-availability of such standards is likely to cause problems of interoperability and therefore safety at sea is likely to be undermined.

Part II - Execution of the work

# Technical Bodies and other stakeholders

## Reference TB

TC ERM and in particular ERM TGMARINE (maritime group) will be responsible for the approval of all the deliverables of this STF.

## Other interested ETSI Technical Bodies

N/A

## Other stakeholders

International Electrotechnical Commission (IEC), Radio Technical Commission for Maritime Services (RTCM), ITU-R, Comité International Radio-Maritime (CIRM), European Maritime Safety Agency (EMSA).

# Base documents and deliverables

## Base documents

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Title** | **Current Status** | **Expected date for stable document** |
| ETSI TS 101 570-2 V1.1.1 | Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios;Part 2: Class AA Test Descriptions | Published |  |
| ETSI TS 101 570-3 V1.1.1 | Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios; Part 3: Class D Test Descriptions | Published |  |
| ETSI TS 101 570-5 V1.1.1 | Interoperability Testing for Maritime Digital Selective Calling (DSC) Radios;Part 5: VHF Class H Test Descriptions | Published |  |
| EN 300 338-1 V1.4.2 | Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service;Part 1: Common requirements | Published |  |
| EN 300 338-2 V1.5.1 | Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service;Part 2: Class AA DSC | In development |  |
| EN 300 338-3 V1.3.1 | Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service;Part 3: Class D DSC | In development |  |
| EN 300 338-5 V1.3.1 | Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 5: Handheld VHF Class H DSC | In development |  |
| EN 300 338-6 V1.2.1 | Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 6: Class M DSC | In development |  |

## Deliverables

|  |  |  |
| --- | --- | --- |
| **Deliv.** | **Work Item code****Standard number** | **Working title****Scope** |
| D1 | RTS/ERM-TGMARINE-541-2TS 101 570-2 V1.2.1 | Working title:. Test Descriptions for class A DSCScope:. revision to include MoB call handling from ITU-R 493-15 |
| D2 | RTS/ERM-TGMARINE-541-3TS 101 570-3 V1.2.1 | Working title:. Test Descriptions for class D DSCScope:. revision to include MoB call handling from ITU-R 493-15 |
| D3 | RTS/ERM-TGMARINE-541-5TS 101 570-5 V1.2.1 | Working title:. Test Descriptions for class H DSCScope:. Revision of the Interoperability tests for maritime handheld DSC radio equipment (class H). |
| D4 | RTS/ERM-TGMARINE-541-6TS 101 570-6 V1.1.1 | Working title:. Test Descriptions for class M DSCInteroperability tests for maritime DSC radio equipment (class M). |

## Deliverables schedule:

The STF will produce the deliverables according to the following time scale (all Work Items):

* Start of work 01-04-2019
* Early draft 30-06-2019
* Stable draft 30-09-2019
* WG approval 30-10-2019
* TB approval 30-11-2019
* Publication 31-12-2019\*

\* the work is based on the latest versions of EN 300 338 which, in turn, are based on ITU-R 493-15 for which publication is expected in February 2019. However, publication of the deliverables could be delayed if ITU-R 493-15 publication is postponed for any reason.

# Work plan, time scale and resources

## Organization of the work

The test specification documents expected from the STF are listed in the table below:

|  |  |
| --- | --- |
|  | Test Descriptions (TDs) |
| Interoperability Testing for Class A DSC | X |
| Interoperability Testing for Class D DSC | X |
| Interoperability Testing for Class H DSC | X |
| Interoperability Testing for Class M DSC | X |

No steering group will be needed.

## Milestones

Milestone 0 – Start of Work

Milestone 1 – ETSI TS 101 570-x Early Drafts

Early Drafts of Test Descriptions reviewed by ERM TGMARINE. Progress Report approved by TC ERM. (June 2019)

Milestone 2 – ETSI TS 101 570-x Stable Drafts

Stable Drafts of Test Descriptions reviewed by ERM TGMARINE. Progress Report approved by TC ERM. (September 2019)

Milestone 3 – ETSI TS 101 570-x Final Drafts & ERM approval

Final Draft of Test Descriptions reviewed and approved by ERM TGMARINE. Approval for publication of all the deliverables and approval of the STF final report by TC ERM (November 2019).

Milestone 4 – ETSI TS 101 570-x Publication and STF Closure

Publication of the Test Descriptions (December 2019).

## Task description

Task T0 – Project Management

Objectives

Coordination, communication, reporting and leading of activities. This task is under the responsibility of ETSI CTI in conjunction with the STF leader.

Input

N/A

Output

N/A

Interactions

The STF leader will report back to ERM TGMARINE and TC ERM as appropriate.

Resources required

1 800 EUR

Task T1 – Update of class A DSC test description (TS 101 570-2)

Objectives

The goal of this task is to update the class A tests description based on ITU-R M.493-15. The current tests are reviewed and new ones added as appropriate.

Input

The following will be used as baseline for the update of the class A tests description:

* ETSI EN 300 338-1 V1.4.1
* ETSI EN 300 338-2 V1.5.1
* ITU-R M.493-15

Output

* ETSI TS 101 570-2 V1.2.1

Interactions

The STF team will interact with the ERM TGMARINE stakeholders as well as relevant external organisations in order to make sure all the tests are properly developed.

Resources required

4 200 EUR

Task T2 – Update of class D DSC test description (TS 101 570-3)

Objectives

The goal of this task is to update the class D tests description based on ITU-R M.493-15. The current tests are reviewed and new ones added as appropriate.

Input

The following will be used as baseline for the update of the class D tests description:

* ETSI EN 300 338-1 V1.4.1
* ETSI EN 300 338-3 V1.3.1
* ITU-R M.493-15

Output

* ETSI TS 101 570-3 V1.2.1

Interactions

The STF team will interact with the ERM TGMARINE stakeholders as well as relevant external organisations in order to make sure all the tests are properly developed.

Resources required

2 400 EUR

**Task T3 - Update of class H DSC test description (TS 101 570-5)**

Objectives

The goal of this task is to update the class H tests description based on ITU-R M.493-15. The current tests are reviewed and new ones added as appropriate.

Input

The following will be used as baseline for the update of the class H tests description:

* ETSI EN 300 338-1 V1.4.1
* ETSI EN 300 338-5 V1.3.1
* ITU-R M.493-15

Output

* ETSI TS 101 570-5 V1.2.1

Interactions

The STF team will interact with the ERM TGMARINE stakeholders as well as relevant external organisations in order to make sure all the tests are properly developed.

Resources required

1 200 EUR

**Task T4 – Development of class M DSC test description (TS 101 570-6)**

Objectives

The goal of this task is to develop test specifications for the new DSC class M (man overboard) based on ITU-R M.493-15.

Input

The following will be used as baseline for the update of the class H tests description:

* ETSI EN 300 338-1 V1.4.1
* ETSI EN 300 338-6 V1.2.1
* ITU-R M.493-15

Output

* ETSI TS 101 570-6 V1.1.1

Interactions

The STF team will interact with the ERM TGMARINE stakeholders as well as relevant external organisations in order to make sure all the tests are properly developed.

Resources required

7 800 EUR

## Milestones

Milestone 1 – Early drafts for test specs available

Early drafts for the test descriptions (RTS/ERM-TGMARINE-541-2,-3,-5 and -6) are available on docbox for TGMARINE review. Progress Report#1 is approved by TC ERM (June 2019).

Milestone 2 – Stable drafts for test specs available

Stable drafts for the test specifications (RTS/ERM-TGMARINE-541-2,-3,-5 and -6) are available on docbox for TGMARINE review. Progress Report#2 is approved by TC ERM (September 2019).

Milestone 3 – All final drafts are available and approved by TGMARINE and TC ERM

All the deliverables are approved by TGMARINE first and then TC ERM and are accepted by the ETSI Secretariat for publication. The STF final report is approved by TC ERM (November 2019).

Milestone 4 - Deliverables published, STF closed

All the deliverables are published by ETSI (December 2019). The STF is closed.

## Task summary

|  |  |  |  |
| --- | --- | --- | --- |
| **N** | **Task / Milestone / Deliverable** | Target date | Estimated cost |
| EUR |
| M0 | Start of work | April 2019 |  |
| T0 | Project Management | April-December 2019 | 1 800 |
| M1 | Early Drafts for test specs availableProgress Report to be approved by TC ERM and TGMARINE | 30 June 2019 |  |
| T1 | Update of class A DSC test description | April-October 2019 | 4 200 |
| T2 | Update of class D DSC test description | April -October 2019 | 2 400 |
| M2 | Stable drafts availableProgress Report to be approved by TC ERM and TGMARINE | 30 September 2019 |  |
| T3 | Update of class H DSC test description | April -October 2019 | 1 200 |
| T4 | Development of class M DSC test description | April -November 2019 | 7 800 |
| M3 | Final Report and all final drafts are available and approved by TGMARINE and TCERM | 30 November 2019 |  |
| M4 | Deliverables published, STF closed | 15 December 2019 |  |
| **Total** | **17 400** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Task Milest.** | **Description** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |
| M0 | *Start of work* |  |  |  |  |  |  |  |  |  |
| T0 | *Project Management* |  |  |  |  |  |  |  |  |  |
| M1 | *Early Drafts for test specs available* |  |  |  |  |  |  |  |  |  |
| T2 | *Update of class A DSC test description* |  |  |  |  |  |  |  |  |  |
| T3 | *Update of class D DSC test description* |  |  |  |  |  |  |  |  |  |
| M2 | *Stable drafts available* |  |  |  |  |  |  |  |  |  |
| T4 | *Update of class H DSC test description* |  |  |  |  |  |  |  |  |  |
| T5 | *Development of class M DSC test description* |  |  |  |  |  |  |  |  |  |
| M3 | *All final drafts are available and approved by TGMARINE/ERM* |  |  |  |  |  |  |  |  |  |
| M4 | *Deliverables published, STF closed* |  |  |  |  |  |  |  |  |  |

## Working methods and travel cost

The STF (Specialist Task Force) is under the monitoring and responsibility of TC ERM TGMARINE, working together with and under quality control of the ETSI CTI (Centre for Testing and Interoperability). The work will be partially performed remotely, at the contractor’s premises, and partially in common sessions in the ETSI premises, to ensure coordination.

The following preliminary assumptions can be made for the location of the work:

* Task T0: Project Management: 100% ETSI Premises (CTI + STF Leader),
* Task T1: Update of class A DSC test description: 90% remote, 10% ETSI (cost included in contracts)
* Task T2: Update of class D DSC test description: 90% remote, 10% ETSI (cost included in contracts)
* Task T3: Update of class H DSC test description: 90% remote, 10% ETSI (cost included in contracts)
* Task T4: Development of class M DSC test description: 90% remote, 10% ETSI (cost included in contracts)

Travel cost for working sessions (Tasks 1 to 4) will be included in the contract compensation (manpower cost). Presentation of results to the reference TB will be reimbursed as real cost from the travel budget.

# Expertise required

## Team structure

Up to 3 service providers to ensure the following mix of skills:

* knowledge of DSC radio equipment
* Knowledge of DSC standards (e.g. EN 300 338 series and ITU-R M.493-xx)
* knowledge of and experience in testing (Interoperability and conformance)
* Knowledge and experience in writing test specifications

Part III: Financial conditions

# Maximum budget

## Manpower cost

Maximum budget **17 400 €**

## Travel cost

|  |  |
| --- | --- |
| **Expected travels** | **Cost estimate** |
| Presentation of reports and results to TC ERM and ERM TGMARINE (3 travels) | 2 400 |
| Coordination meeting with CTI (1 travel) | 800 |
| **Total cost** | 3 200 |

## Other Costs

N/A

Part IV: STF performance evaluation criteria

# Key Performance Indicators

During the activity, the STF Leader will collect the relevant information, as necessary to measure the performance indicators. The result will be presented in the final report.

Contribution from ETSI Members to STF work

* Delegates attending meetings/events related to STF (number of participants/duration)
* Direct contribution of delegates (e.g. number of documents/comments/e-mail)

Contribution from STF experts to ETSI work

* Contributions presented to ERM TGMARINE (number, type, comments received)

Quality of deliverables

* Approval of deliverables according to schedule presented in the ToR and the corresponding WI schedules
* Respect of time scale, with reference to start/end dates in the approved ToR
* Quality review by ERM TGMARINE
* Quality review by the ETSI Secretariat

# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.1 | 05-10-2018 | Andrea Lorelli | First draft |  |
| 0.2 | 16-10-2018 | Andrea Lorelli | Final draft | Reviewed by CTI/TGMARINE |
| 0.3 | 17-10-2018 | Andrea Lorelli | Final draft | Reviewed by TGMARINE |
| 0.4 | 18-10-2018 | Andrea Lorelli | Final draft | Approved by TGMARINE |
| 0.5 | 21-10-2018 | Youssouf Sakho | Final draft | Consistency check |
| 0.6 | 18-02-2019 | Youssouf Sakho | Board Approved | Updates before CL publication |