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Agenda item [[2]](#footnote-2) n.n

Technical Domain / Task Number 2 …………………………………

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Draft Guidelines on VDES resource sharing and coordination/cooperation

# 1 Summary

Work item of “Develop Guidelines on VDES resource sharing and coordination/cooperation” has been approved by the Council in 2022 for a work of DTEC, as shown in the list of IALA Committee work programme 20223-2027 with the following description:

“Develop a guideline that provides framework of VDES resource sharing and coordination / cooperation for VDES satellites providers, VDES land-stations and VDES users to realize smooth and effective VDES communications on both official and private communications.”

This document provides the first draft of the Guidelines.

## 2 RELATED DOCUMENTS

IALA G1060

ENAV EM1 5.1.3.1, DTEC1 4.1.3.

# 3 Background

WRC 2019 agreed to allocate VHF channels to VDES including for VDES satellite communications. In near future, there will be available several VDES satellites and VDES land stations world-wide.

Maritime Safety Committee (MSC) of International Maritime Organization (IMO), at its 103rd session (MSC103) held in May 2021 agreed a new work item for introduction of VDES into the International Convention of Safety of Life at Sea (SOLAS) and will start the actual consideration from 2023 at the Sub-Committee on Navigation, Communication, Search and Rescue of IMO for two years. This will allow VDES as an alternative of AIS and furthermore as a communication way for maritime safety and e-navigation.

Maritime development of digital transformation (Maritime DX) has been started in maritime sectors (maritime transport and logistics), and standardization activities for digital data exchanges between ships and land-based station has started in the internationally, for example, at International Organization for Standardization (ISO).

In recent years, activities for establishment of VDES communications, that include both terrestrial and satellite communications, has started.

In these circumstances, IALA shall lead the collaboration on VDES communication services for establishment of international cooperation and resource sharing and management on VDES terrestrial and satellite communications.

The development of Guidelines for VDES resource sharing and coordination/cooperation has been added as a work item of DTEC Committee for 2023-2027.

# 4 Discussion

After DTEC1, activities on development for establishment of VDES communication systems both terrestrial and satellite VDES in some regional areas.

International activities for establishment of VDES consortium has been on-going.

International Maritime Organization (IMO) has started its consideration on introduction of VDES in 1974 SOLAS Convention as amended at its Sub-Committee on Navigation, Communication, Search and Rescue (NCSR) since May 2023 and established a correspondence group on VDES, hat outcome will be considered at 11th session of NCSR in June 2024. Use of VDES to be considered in IMO will be limited in use for purposes of safety of ships and marine environmental protection, that may include ship to land (port) communications.

There is an increasing demand of ship-land (company) communication for monitor and control of the ships from land-based stations (company offices/control stations), VDES is one of the expected communication tools for this purpose.

In the above use cases, long-distance communication between ships and land-based stations will become necessary. Therefore, VDES resource sharing and cooperation will be beneficial.

Annex of this document provides the second draft of Guidelines on VDES resource sharing and coordination/cooperation for the consideration of the DTEC Committee.

# 5 Action requested of the Committee

The Committee is requested to consider the annex of this document which provides the basic idea and concept of VDES resource sharing and coordination/cooperation, and

1. continue the task group to develop the guidelines with the coordinator of Japan (Mr. Koichi Yoshida, OPRI Japan; yoshida@rime.jp) for further development of the guidelines; and
2. take actions as appropriate.

ANNEX

Preliminary draft

Guidelines for VDES Resource sharing coordination and cooperation

Draft02:2024-02

# 1 BACKGROUND

VDES communication shall follow ITU-R M.2092-1. IALA G1117 provides many possible usages of VDES. Under these circumstances, it would be beneficial to share and coordinate VDES resources (land-based stions, satellite stations) In order to realize the usages of VDES.

The distance of direct communication of VDES is limited due to the characteristic of VHF radio-communication. Development of VDES systems (ship stations, land stations, satellites) have been started by different developers for various use cases. In order to realize such use cases and extend the communication distance and capability, cooperation and coordination among VDES systems is anticipated.

IALA initiated a new task “Develop a Guideline for VDES resource sharing and coordination/cooperation” proposed by Japan in 2021. The objective of the task is to develop a guideline that provides framework of VDES resource sharing and coordination / cooperation for VDES satellites providers, VDES land-stations and VDES users to realize smooth and effective VDES communications on both official and private communications.

# 2 Purpose of the document

This document provides guidelines on methodology of VDES resource sharing, coordination and cooperation to those who wish to join such international activities as voluntary basis. This document does not provide regulatory or obligatory framework on operation of VDES.

# 3 Related documents

1. ITU-R M.2092-1, *Technical characteristics for a VHF data exchange system in the VHF maritime mobile band, February 2022*
2. IALA G1117, *VHF Data Exchange System (VDES) Overview, December 2022*

# 4 Definitions

For the purpose of this guidelines, definitions in ITU-R M2092-1 and IALA G1117 and following apply:

(to be developed while developing the guidelines)

[resource]

[participants]

…

# 5 PARTICIPATIONS to resource sharing and coordination/cooperatioN

# 5.1 Principlee

Since VDES communication can be used both official communication for safety on sea and marine environment protection and private communication among VDES satellite, ships, vessels, crafts and land-based station, it is also important to protect the freedom and confidentiality of the VDES communication in the resource sharing and coordination/cooperation.

# 5.2 Participation

The resource sharing and coordination/cooperation of VDES communication can be established among those who wish to participate based on the principle in 5.1.

# 6 RESOURCE SHARING and COORDINATION/cooperation

## 6.1 Basic concept

The international coordination and cooperation on VDES resource sharing can be implemented by bodies (governmental organizations, NGOs, private sectors) which operate VDES communications. Such bodies that wish to coordinate and cooperate VDES communication should provide their specifications of the system (e.g., terrestrial stations, satellites) and coordinating methodologies (e.g., roaming or other methods).

Some of the examples of the cooperations will be as follows:

Example 1: A ship joining VDES system A can communicates with a satellite of VDES system A. The contents of the communication are downloaded from the satellite to a land-based station of another VDES system. The contents of the communication are transferred to a land-based station of VDES system A through internet. See Figure 1.

Example 2: A ship joining VDES system A can communicates with a satellite of VDES system B. The contents of the communication are downloaded from the satellite to a land-based station of VDES system B. The contents of the communication are transferred to a land-based station of VDES system A through internet. See Figure 1.

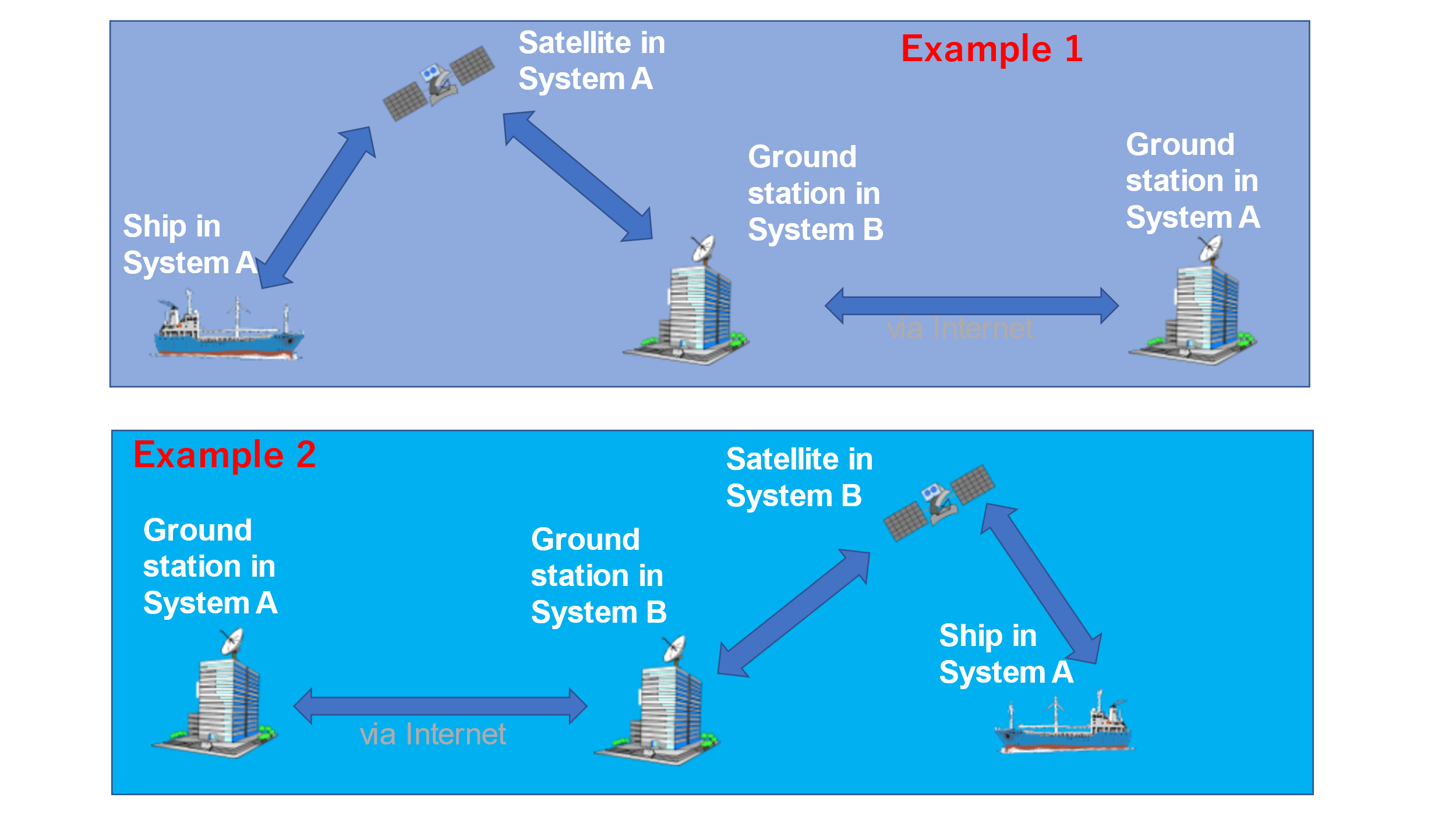


Figure 1 Example of VDES coordination/cooperation1

Following points should be shared among participating bodies for the establishment of managing the resource sharing and coordination/cooperation of VDES communications, in line with IRU-R M2092-1 Annex 6:

1 protocol of communication to be shared;

2 Coverage of land-based stations (control station of communication);

3 specifications of land-based stations (control station of communication);

4 protocols of communication of satellites; and

## 6.2 Technical requirements/specifications for VDES resource sharing and coordination/cooperation

(An additional draft will be submitted to WG3 of DTEC2).

NOTE: For consideration and development of VDES resource sharing and coordination/cooperation, the Guidelines should specify technical methods and procedures of VDES resource sharing that realize the VDES communication exchanges (various usage of VDES based on IALA G1117) among the member of the body. This may include upper layers of protocols of VDES communications based on the ITU-R M2092-1. Such technical consideration and development may require participation of scientists/engineers and take a longer period. However, it also may require a development of onboard satellite system beforehand the implementation of the international cooperation on VDES resource sharing, therefore, the technological methods and procedures of VDES communication for resource sharing should be conducted as soon as possible.

## 6.3 Operational requirements/specifications for VDES resource sharing and coordination/cooperation

(An additional draft may be submitted to WG3 of DTEC2).

NOTE: For consideration and development of VDES resource sharing and coordination/cooperation, the Guidelines should specify operational methods and procedures of VDES resource sharing that realize the VDES communication exchanges (various usage of VDES based on IALA G1117) among the member of the body.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)