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**□** ARM **□** ENG **□** PAP **x** Input

X DTEC **□** VTS **□** Information

Agenda item [[2]](#footnote-2) 5.2

Technical Domain / Task Number 2 6.3.10

Author(s) / Submitter(s) NSONESOFT Co., Ltd.

WORKING DRAFT OF NEW GUIDELINE ON THE VDES SHORE INFRASTRUCTURE

# Summary

Based on the discussion at the DTEC1 meeting, it was proposed that a new guideline for VDES service and infrastructure is needed, to integrate the contents of Recommendation R0124 The AIS Service, and the simultaneous revision of Recommendation R1007 The VHF Data Exchange System for Shore Infrastructure. NSONESOFT Co., Ltd.(“NS1”) of the Republic of Korea has drafted the initial contents of the proposed guideline for further consideration at DTEC3.

## Purpose of the document

The purpose of this document is to propose a working draft of the contents of the new guideline on the VDES Shore Infrastructure and to request participation by DTEC3 WG3 members to discuss and determine the clear role and direction of the guideline.

## Related documents

1. R0124 Ed2.2, The AIS Service, December 2022
2. R1007 Ed3.0, The VHF Data Exchange System(VDES) for Shore Infrastructure, June 2017
3. G1029 Ed1.1, Universal Automatic Identification System(AIS) Technical Issues, December 2002

# Background

At DTEC1, it was proposed that a new guideline for VDES Infrastructure and other VDES guidelines be prepared for publication after DTEC7 in 2026. The proposed guideline on VDES Shore Infrastructure shall integrate and revise the contents of the Recommendation R0124 The AIS Service and simultaneous revision of the Recommendation R1007 The VHF Data Exchange System for Shore Infrastructure.

At The 10th session of the IMO NCSR in May 2023, the NCSR10 established a correspondence group to undertake the finalization of VDES performance standards. The new guideline on the VDES service and infrastructure shall take into account the subsequent conclusions made by the IMO NCSR correspondence group on the VDES ship and the shore service and infrastructure.

# Discussion

The Annex of this document provides the first draft of the contents index for the new Guideline on VDES Service and Infrastructure for the Committee's consideration.

# references

1. R0124 Ed2.2, The AIS Service, December 2022
2. R1007 Ed3.0, The VHF Data Exchange System(VDES) for Shore Infrastructure, June 2017
3. G1029 Ed1.1, Universal Automatic Identification System(AIS) Technical Issues, December 2002

# Action requested of the Committee

The Committee is requested to consider the annex of this document which provides the basic structure of the guideline on VDES Shore infrastructure, and

1. Discuss the clear scope of the guideline, especially in relation to other guidelines to be developed (e.g. shore infrastructure) and recommendations (e.g. R1007, The VDES for Shore Infrastructure)
2. Participate in a task group to develop the guideline with the coordinator of the Republic of Korea (Ms. Hwajin Claire Na, NSONESOFT Co., Ltd.) for further development of the guideline;

**ANNEX**

**Preliminary draft**

**Guideline for The VDES Service and Infrastructure**

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# 1 BACKGROUND

The World Radiocommunication Conference 2015(WRC-15) allocated frequencies for VDE terrestrial (reception and transmission) ASM terrestrial (reception and transmission) and ASM satellite reception.

VDES communication shall follow ITU-R M.2092-1. IALA G1117 provides many possible usages of VDES. The VDES is an emerging communications system which is being coordinated by IALA in consultation with the International Telecommunication Union(ITU), the International Maritime Organization(IMO) and the International Electrotechnical Commission(IEC).

The distance of direct communication of VDES is limited due to the characteristics of VHF radio communication. Development of VDES systems (ship stations, land stations, satellites) has been started by different developers for various use cases. To realize such use cases and extend the communication distance and capability, it is expected that IALA national members and other appropriate authorities shall need to implement the following elements for optimal VDES operation:

1. Establishing a plan to upgrade existing AIS shore infrastructure to VDES shore infrastructure, thereby enhancing digital connectivity
2. Implementing VDES shore infrastructure in case of no existing AIS shore infrastructure
3. Using existing shore infrastructure as much as possible for VDES R-Mode
4. Implementing VDES data integrity monitoring at the VDES link level
5. Expansion of VDES application scope requiring coordination and resource sharing from multiple parties
6. Addressing network security issues

IALA initiated a new task “Develop a Guideline for VDES Shore Infracture and Operation”. The objective of the task is to develop a guideline that provides a framework for VDES shore infrastructure and operation to realize smooth and effective VDES communications on both official and private communications.

# 2 Purpose of the document

This document provides guidelines on the methodology of implementing VDES shore infrastructure, VDES frequency mode operation, and VDES data transfer network. This document does not provide a regulatory or obligatory framework for the 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*
3. IALA R1007, *The VHF Data Exchange System(VDES) for Shore Infrastructure, June 2017*

# 4 VDES Shore Infrastructure

Introduction to be written

# 4.1 Definitions of shore BASED INFRASTRUCTURE

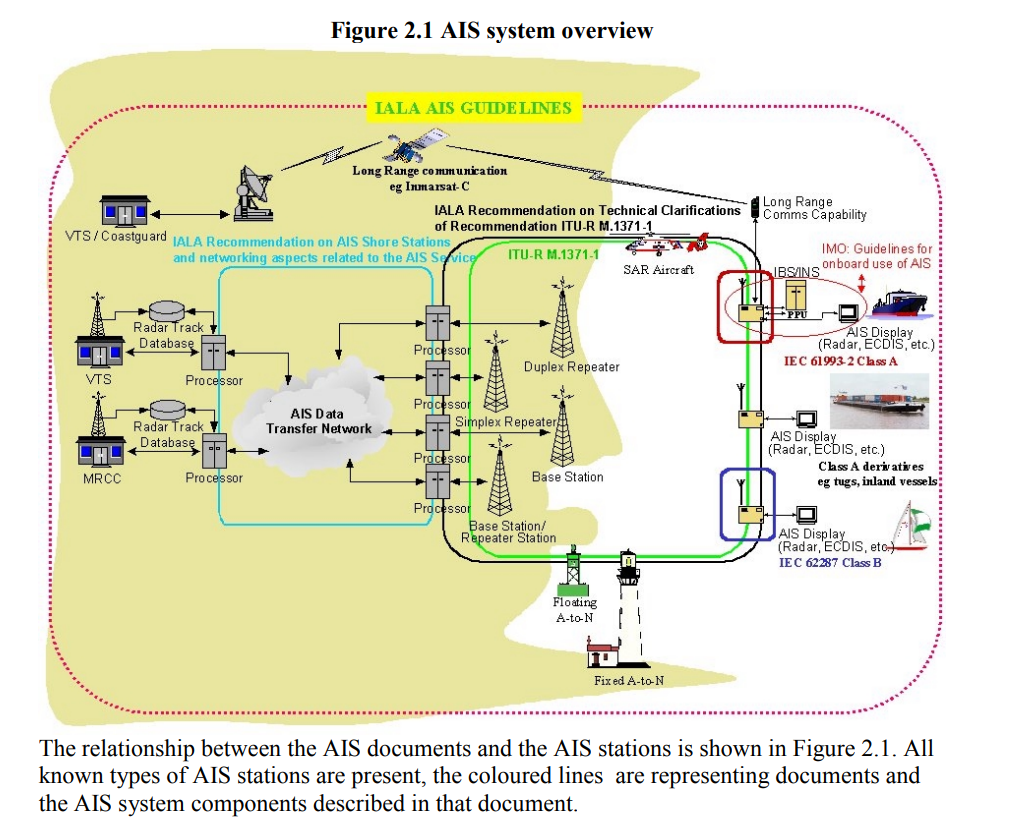
To be written

# 4.1.1 sYSTEM ARCHITECTURE OF SHORE BASED VDES INFRASTRUCTURE

To be written.

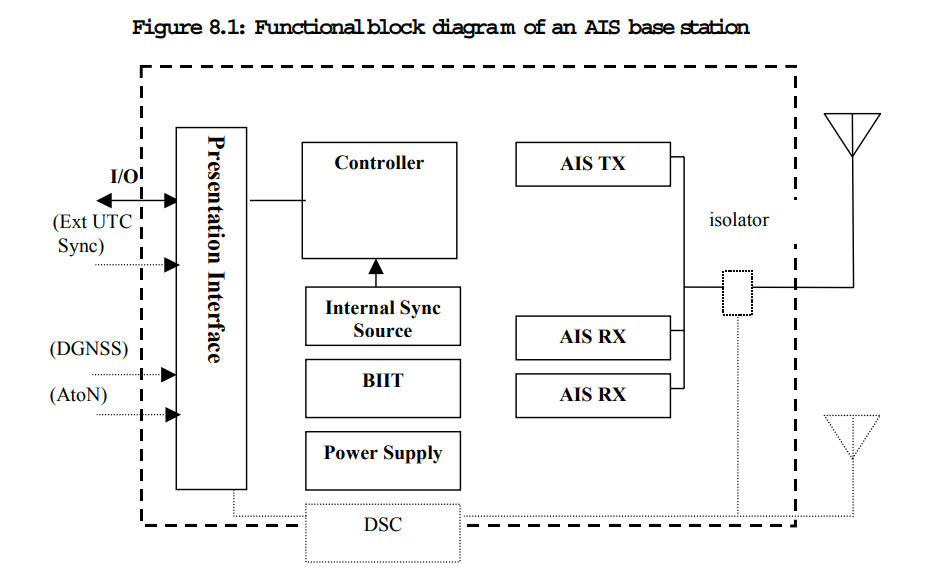
# 4.2 vdes shore stations

To be written



# 4.2.1 Functional block diagram

To be written



# 4.2.2 general requirements for receivers and transmitters

To be written

# 4.2.3 configuration means

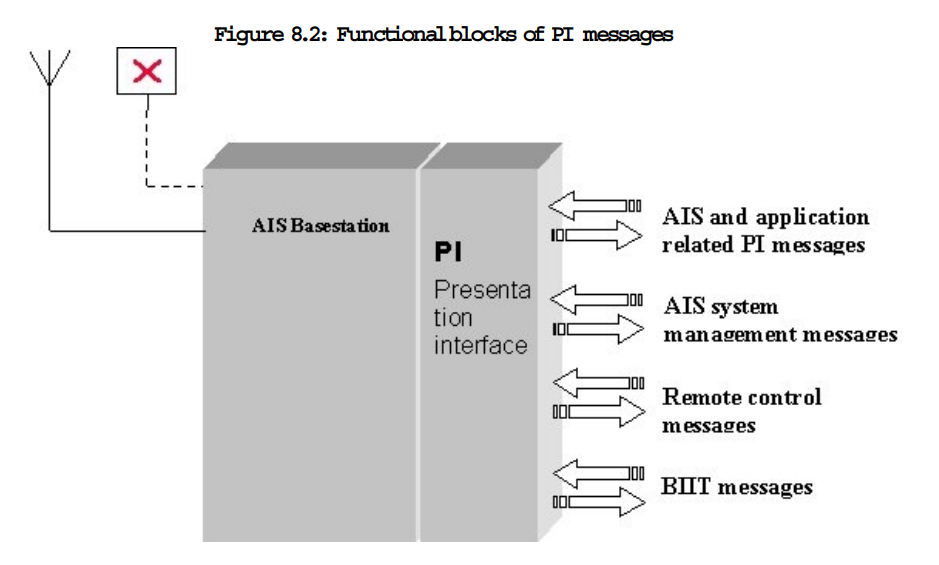
1. Media Access Control

2. Terrestrial Bulletin Board

3. Resource Allocation / Transmission Announcement

# 4.2.4 Functional definitions of the presentation interface

To be written



# 4.2.5 requirement for the internal processing of vdes vdl messages and pi sentences

To be written

# 4.2.6 default base station reporting

To be written

# 4.3 vdes control stations

# 4.3.1 Functional Block Diagram

To be written

# 4.3.2 general requirements for control station

To be written

# 4.3.3 configuration related to service area

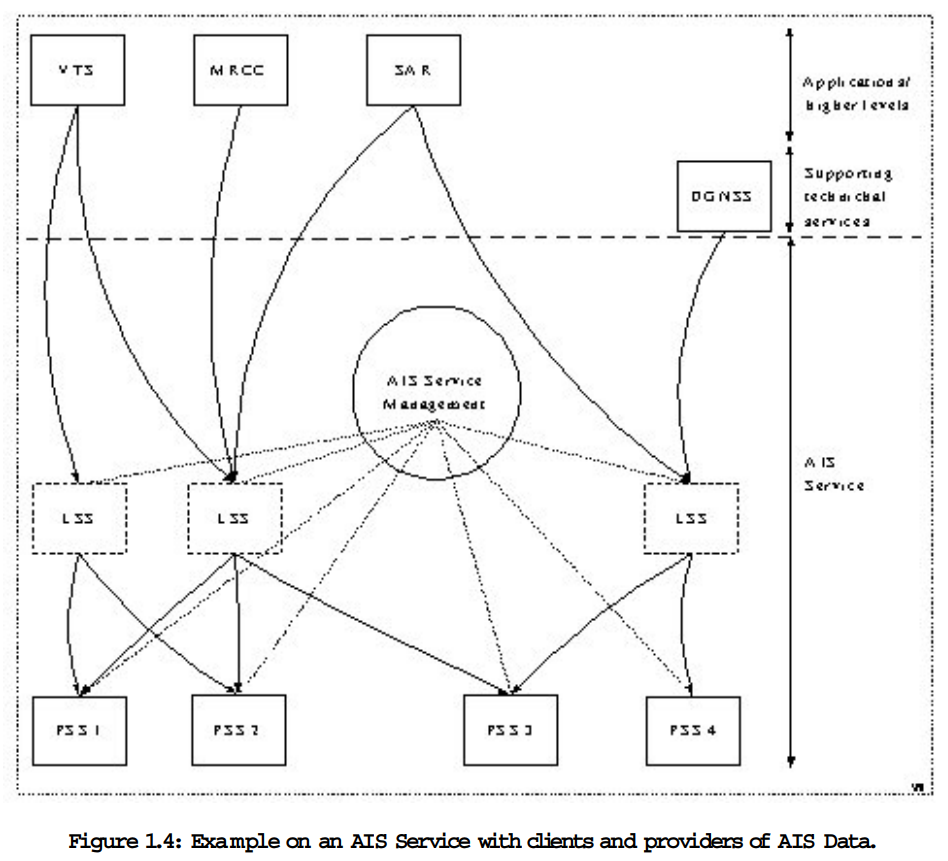
To be written

# 4.3.4 INTEGRITY MONITORING

To be written

# 4.4 vdes service center

To be written, refers to guidelines on VDES services



# 5 vdES mode operation

Introduction to be written. Defines considerations for how to operate by distinguishing between addressing and broadcasting messages in simplex and duplex modes.

# 5.1 DATA MODE OPERATION

To be written. The demonstration of benefits of selective usage of VDL frequency mode.

# 5.2.1 SIMPLEX MODE OPERATION

To be written

* + - 1. Shore to Ship Operation
      2. Ship to Shore Operation
      3. Ship to Ship Operation

# 5.2.2 DUPLEX MODE OPERATION

To be written

* + - 1. Shore to Ship Operation
      2. Ship to Shore Operation
      3. Ship to Ship Operation

# 5.2 RANGE MODE OPERATION

To be written.

# 5.2.1 shore to ship operation

To be written

# 5.2.2 sHIP TO SHORE OPERATION

To be written

# 5.2.3 sHIP TO SHIP OPERATION

To be written

# 5.3 DUPLEX MODE OPERATION

To be written.

# 5.3.1 shore to ship operation

To be written

# 5.3.2 sHIP TO SHORE OPERATION

To be written

# 5.3.3 sHIP TO SHIP OPERATION

To be written

# 6 vdes dATA TRANSFER NETWORK

Introduction to be written.

# 6.1 Fuctional definitions of vdes data transfer network interface

To be written.

# 6.2 requirement for internal data transfer network

To be written.

# 6.2.1 Data transfer network between vdes shore station and control station

To be written

# 6.2.2 data transfer network between control station and public service center

To be written

# 6.3 requirement for external data transfer network

To be written.

# 6.3.1 Data transfer network between control station and private service sector

To be written

# 6.3.2 data transfer network between control station and vde-sat GROUND CONTROL CENTER

To be written

# 7 RESOURCE SHARING management AND COORDINATION

Introduction to be written. Refers to the developing guideline on resource sharing and coordination.

# 7.1 Functional Definitions of vdes resource sharing

To be written.

# 7.2 vdes resource sharing method

To be written

# 7.2.1 independent operation

To be written

# 7.2.2 dependent operation

To be written

# 7.3 vdes resource sharing for dependent operation example

To be written

# 8 installation, implementation and maintenance

Introduction to be written.

# 8.1 installation

To be written.

# 8.1.1 vdes shore station installation

To be written. Includes both cases for AIS + VDES, AIS-VDES separation.

# 8.1.2 vdes antenna(s) installation

To be written. Refers to SN/Circ.227(page 6)

# 8.1.3 gnss antenna installation

To be written. Refers to SN/Circ.227(page 6)

# 8.1.4 power source

To be written.

# 8.2 implementation and maintenance

To be written.

# 8.2.1 role of authorities

To be written.

# 8.2.2 operator

To be written.

# 8.2.3 protection and security

To be written.

# 8.2.4 failure warning and indication

To be written.

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