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

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

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Korea VDES Research and Development Project’s Demonstration on VDES-based Maritime Services and Other Applications

# 1 SUMMARY

This document introduces Korea’s VDES research and development project’s demonstration on VDES-based maritime services and other applications such as resource coordination. The Korea’s VDES R&D project is sponsored by the Ministry of Oceans and Fisheries of Korea and managed and evaluated by KIMST(the Korea Institute of Marine Science and Technology Promotion) from April 2023 to December 2026.

NSONESOFT Co., Ltd.(NS1) announced the initiation of the Korean VDES R&D project at DTEC 1. At DTEC 3, the results of the R&D project shall be shared with the Committee via a presentation and a video recording of the demonstration on VDES-based maritime services and other applications at the 8th Asia-Pacific Digital@Sea Conference.

## 1.1 Purpose of the document

The purpose of this document is to introduce the results of ‘The Research and Development of Integrated Terrestrial-Satellite VDES System’ promoted by Korea. The Korean VDES R&D team exhibited the demonstration of Korean VDES at the 8th Asia-Pacific Digital@Sea Conference in Busan, the Republic of Korea (September 10th to 11th, 2024), and the video recording of the demonstration and core development progress of the project shall be shared with the Committee.

**1.2 Related documents**

[1] IALA GUIDELINE G.1117 – VHF Dat Exchange System(VDES) Overview

[2] ITU-R M.1371–5 Maritime Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band (AIS)

[3] ITU-R M.2092-1 Technical characteristics for a VHF data exchange system in the VHF maritime mobile band (VDES)

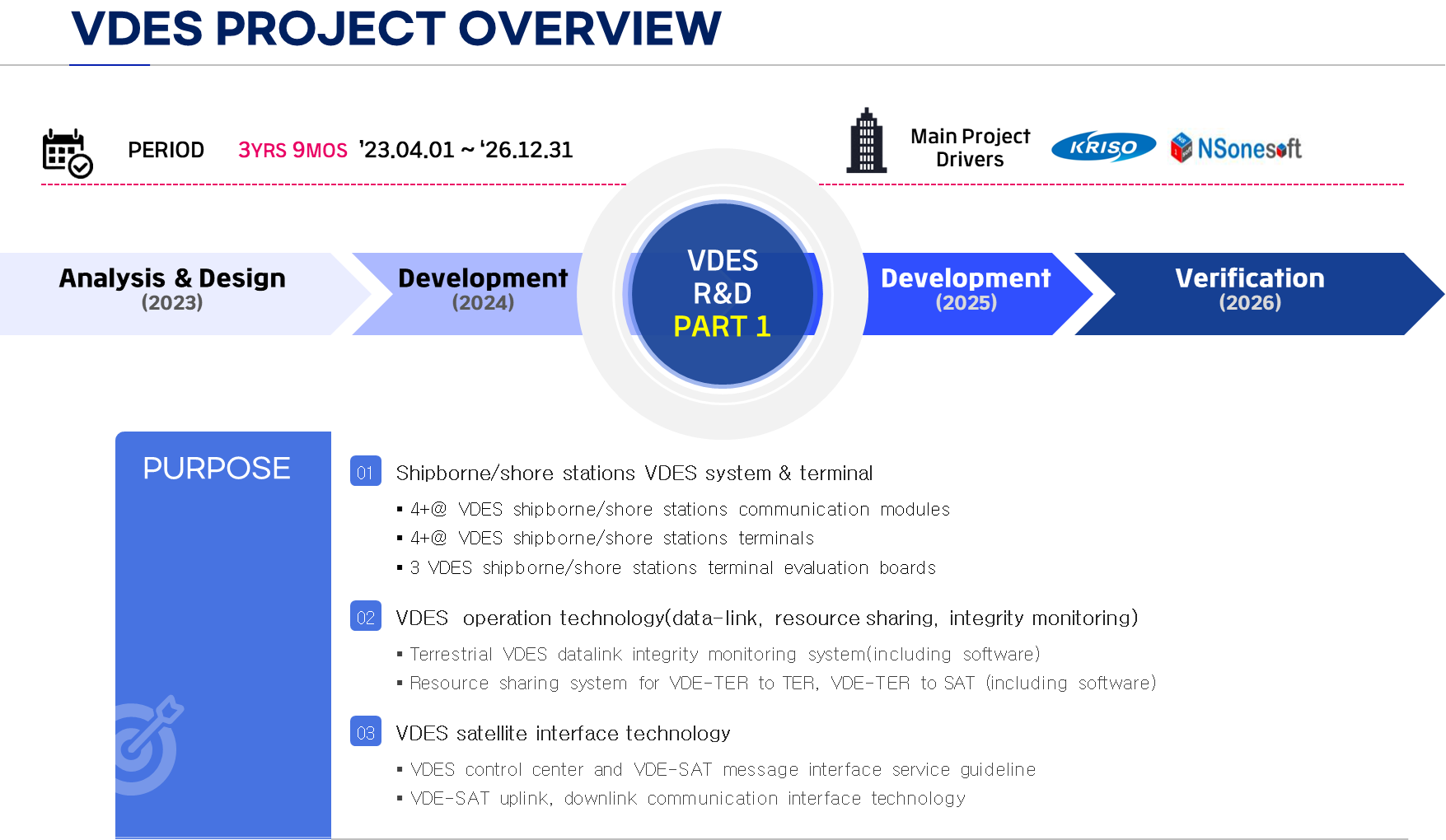
**2 BACKGROUND**

Since the release of "Technical Details and Guidelines for VDES Implementation" at the IALA e-Nav Committee in April 2014, various research has been conducted as VDES’s role in promoting the safety of navigation has become clearer. Accordingly, ITU Recommendation M.2092-1 (2022.02), Technical characteristics for a VHF data exchange system in the VHF maritime mobile band and IALA Guideline G.1117 VDES Overview Edition 3.0(2022.12), were revised.

At the 10th NCSR meeting on May 2023, it was agreed that the work to amend SOLAS to reflect that VDES can replace AIS should be prioritized. It was also agreed that the inclusion of VDES as a new GMDSS compartment needs to be discussed continuously and thoroughly. The revision of SOLAS and related working documents are expected to be approved at the MSC 111(2026, provisional).

Thus to prepare for the infrastructure replacement and reestablishment that will follow the revision of SOLAS, the government of the Republic of Korea decided to invest in the development of domestic VDE-TER and VDE-SAT equipment and operation technologies necessary for the application of maritime services through VDES.

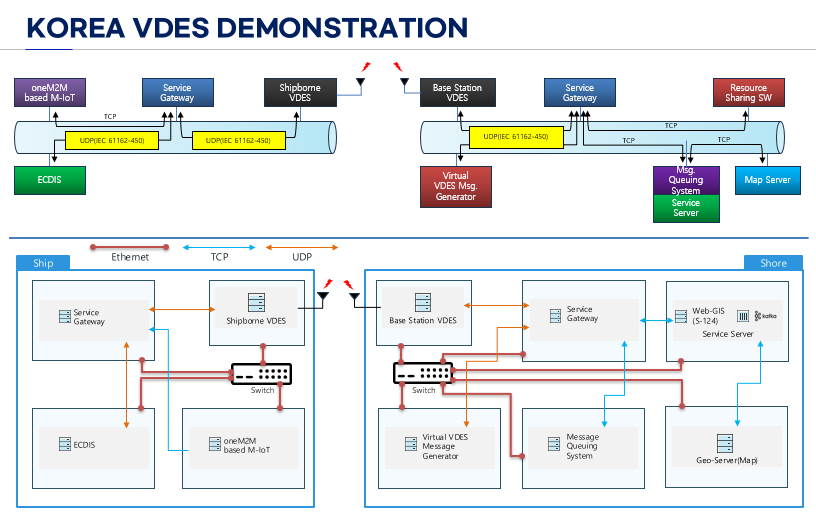
The following is the overview of the Korean VDES R&D project(part 1)



# 3 Korean vdes R&D project demonstration

As of September, 2024 Korean VDES R&D Project resulted in the development of VDES shipborne equipment, VDES base station equipment, VDES service gateway, resource sharing, and coordinating software. Based on the development results, the Korean VDES R&D team executed three consecutive scenarios that demonstrated several VDES-based maritime services at the 8th Asia-Pacific Digital@Sea Conference in Busan.

The basic system configuration for Korean VDES R&D demonstration is as shown below



# 3.1 demonstration SCENARIO – 1) TRANSMISSION OF LIST-risk INFORMATION FROM SHIP TO SHORE

A ship on a pre-established route plan encounters a dangerous situation in which the ship lists due to flooding caused by a hull breach. The related situation information, including a short alarm message and CCTV images via one or more fragmented data sessions, is transmitted to the shore.

# 3.2 demonstration SCENARIO – 2) route exchange between ship and shore

To request the safest route to the nearest port, the ship designates the shore station and sends a chat message as a short data message to alert the shore station that the ship will discharge some of its cargo by unlashing to restore the hull tilt. It also sends its S-421 based pre-planned route information to the shore station via one or more fragmented data sessions.

The shore station designates the ship and sends S-421 based the route-change information via one or more fragmented data sessions, so that the ship can get to the nearest port.

# 3.3 demonstration SCENARIO – 3) navigational warning broadcast service

The shore station broadcasts the S-124 based navigational warning data including the information on the coordinates where the ship discharged the cargo, via one or more fragmented data sessions.

**4 REFERENCES**

[1] IALA GUIDELINE G.1117 – VHF DATA EXCHANGE SYSTEM (VDES) OVERVIEW

[2] ITU-R M.1371–5 Maritime Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band (AIS)

[3] ITU-R M.2092-1 Technical characteristics for a VHF data exchange system in the VHF maritime mobile band (VDES)

**5 ACTION REQUESTED OF THE COMMITTEE**

The Committee is requested to:

1. Review the presentation and the demonstration video recording shown at the DTEC3 committee meeting
2. Consider participation in the expert group for Korea’s VDES research and development project.

* EOF -

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