Input paper: [[1]](#footnote-1) ENAV22-9.2.10

Input paper for the following Committee(s): check as appropriate Purpose of paper:

**□** ARM ✓ ENG **□** PAP ✓ Input

✓ ENAV **□** VTS **□** Information

Agenda item [[2]](#footnote-2) 9

Technical Domain / Task Number 2 Radionavigation Services / Digital Communications

Author(s) / Submitter(s) Drs A. Grant & J. Šafář

VDES R-mode – Development Status Update

# Summary

VDES R-Mode was discussed at the ENAV WG3 (Telecommunications) intersessional meeting and VDES Seminar held in China, July 2018. The intersessional considered the potential for VDES R-Mode and produced a number of next steps. A summary of the meeting is provided in ENAV22-9.0.3

It was clear from this meeting that there are a number of potential approaches that could be considered for R-Mode. ENAV WG3 identified early on that it requires the support and guidance of the ENG WG3 Radionavigation Services (formally ENAV WG5 PNT). There is a clear overlap of areas of interest here and it is expected that both WGs will need to work closely to help support and develop this interesting and novel approach.

As a direct action from this meeting, Dr Safar was tasked to liaise with ENG WG3 Radionavigation Services (formally ENAV WG5 PNT) to consider its view of the proposed system requirements and presumably next steps, given that the PNT WG had prepared the original R-Mode roadmap (ENAV18-14.2.18).

As the ENG Committee is not planned to meet until after the ENAV Committee, Dr Safar has liaised with the WG3 Radionavigation Services Chairman, Dr Grant, to consider a starting point. A way forward is required that will enable the two WGs to communicate and work together without being overwhelmed by liaison notes, if possible. ENG WG3 can use this input paper as a means of considering the system requirements when it next meets.

## Purpose of the document

This document aims to provide an overview of the current positon regarding VDES R-Mode.

## Related documents

* Results of Discussion on VDES R-mode (ENAV22-9.2.5) - July2018-Yiwu\_W-05\_VDES-R-Mode-Discussion.docx)
* R-Mode roadmap (ENAV18-14.2.18)
* R-Mode mindmap (ENAV18-14.2.19, ENAV18-14.2.20)

# Background

Drs Safar and Grant have reviewed the related documents and can report that, to their knowledge, the work of ENAV WG3 is the most developed version of VDES system requirements at this point in time.

The R-Mode Roadmap was developed at an intersessional held in February 2016 and at that stage focused mainly on marine radiobeacon and AIS as potential R-Mode options. It was noted at the time that there was a lack of AIS expertise in the room and therefore more consideration on AIS would be needed. While VDES is noted on the mindmap diagram, consideration should be given to the tasks and questions raised to confirm they remain valid and encompass all required technical areas.

It would be useful for the R-Mode Roadmap to be updated once the system requirements are collated as it is now out of date. This would be a task that requires input from both WGs.

When considering the developed R-Mode VDES system requirements, it should be noted that members of ENAV WG3 are leading the way in this area and therefore are the most knowledgeable. It is noted that Dalian Maritime University has worked on AIS ranging previously and that The General Lighthouse Authorities of the UK and Ireland have prepared a review of VDES R-Mode, which includes propagation considerations and network topography impacts. Work from other organisations and bodies is expected to influence this work, including that of the R-Mode Baltic Sea project, which is known to be working in this area. Representatives of the organisations mentioned and Baltic Sea project team contributed to the WG3 intersessional.

# Discussion

Therefore, it is proposed that:

* ENAV WG3 continue to work from the proposed system requirements developed at the intersessional, but consider also the tasks and questions highlighted within the R-Mode roadmap mind map.
* ENG WG3 consider the summary document from the VDES intersessional, and any further output from ENAV22, when it meets at ENG08 and provides comments back if required.

It is also proposed that the R&RNAV report on AIS/VDES R-mode development [1] is submitted as an input document to accompany this update as a reference.

Finally, there is a need for both WGs to liaise and exchange ideas with ease and without restriction. Therefore, there is a need for both the ENAV and ENG Committees to consider the most appropriate way forward.

# References

1. J. Safar, ‘AIS/VDES R-mode Development’, GLA, R&RNAV, Technical Report RPT-29-JSa-18, v.1.1, Aug. 2018.

# Action requested of the Committee

The ENAV Committee is requested to:

1. Continue to work from the proposed system requirements developed at the intersessional, but consider also the tasks and questions highlighted within the R-Mode roadmap mind map.
2. To consider the R-Mode Baltic Sea – Baseline and Priorities document when available.
3. ENAV Committee Chair/Vice Chair and WG Chair, working with their ENG counterparts, to consider how best for the two WGs to work together.

The ENG Committee is requested to:

1. Consider the system requirements as highlighted in the VDES intersessional report, consolidate any comments and provide them to ENAV WG3.
2. ENG Committee Chair/Vice Chair and WG Chair, working with their ENAV counterparts, to consider how best for the two WGs to work together.

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