**Input paper:** DTEC4-6.2.2.6

**Input paper for the following Committee(s):** **Purpose of paper:**

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

**X** DTEC **□** VTS **□** Information

**Agenda item** …………………………………

**Technical domain/ Task number** …………………………………

**Author(s)/Submitter(s)** China MSA

PROPOSED REVISION TO recommendation ITU-R M.2092-1

# Summary

This document is based on WDPR ITU-R M.2092-1, provides proposed amendments to it. The revisions include the additional content on the suppression of ASM satellite messages transmissions in shore based coverage areas, the addition of a bulletin board priority, and improvements in annotations and descriptions. These changes aim to enhance the overall accuracy and consistency of the Recommendation.

## Purpose of the document

To revise and improve ITU-R M.2092-1, update the technical details in the document, and provide a reference for the committee.

## Related documents

[1] IALA Committee Work Program (2023-2027)

[2] ITU-R M.2092-1 Technical characteristics for a VHF data exchange system in the VHF

# Background

The ITU-R M.2092 Recommendation, which defines the air interface standards for VDES, was published in 2022 and has been widely followed. However, with the actual deployment and application of VDES technology, some potential issues have gradually emerged, necessitating revisions and improvements to the original standard to enhance its applicability.

# Discussion

We propose:

* Add a new section to describe the suppression of ASM-SAT message transmissions within shore-based coverage areas;
* Clarify the usage conditions and operating channels for simplex VDE terminals;
* Add a priority field for the bulletin board to facilitate the mapping of service areas;
* Add a new section to limit the uplink data transmission to one DC channel per ship per subframe, with a maximum of 200 fragments per session, and to constrain both downlink and uplink short messages (#14 and #33) to one message per ship or satellite within a 1-minute frame.

The revision of ITU-R M.2092-1 in detail is shown in the annex.

# References

1. ITU-R M.2092-1 Technical characteristics for a VHF data exchange system in the VHF

# Action requested of the Committee

The Committee is requested to:

1. Consider the suggestions in section 3.
2. Take appropriate actions.

Annex

| **Comment Number:**  **Name-#** | **Change Log ID #**[[1]](#footnote-1) | **Annex / Section** | **Section, Table, Figure** | **Type of change** | **Reason for the change, or what you want to accomplish** | **Proposed change to ITU-R M.2092-1, short editorial changes can be include here (large changes should be documented below)** |
| --- | --- | --- | --- | --- | --- | --- |
| China MSA-1 | NA | Annex 3 | 4.5.7 | Tech. Improvement | Due to the transmission of ASM satellite messages within shore-based areas reducing slot transmission efficiency and causing conflicts, mobile stations within shore-based coverage areas should suspend their satellite message transmissions as required by the competent authority. | Modify as shown below. |
| China MSA-2 | NA | Annex 4 | 4.9.4 Table 37  4.13 | Tech. Correction | 4.9.4 Table 37, As all VDE devices are required to monitor channel 2024 and channel 1024 to receive bulletin boards. A terminal with only one VDE receiver cannot function properly and should not support this type of device. | Modify as shown below. |
| China MSA-3 | NA | Annex 4 | 4.9.7 Table 42 | Tech. Improvement | Introduce four levels of priority by utilizing the existing 2-bit padding field in bulletin board, to facilitate the delineation of the service area. | Modify comments below. |
| China MSA-4 | NA | Annex 5 | 3.2 Resource sharing | Tech. Improvement | As for issues on uplink addressing data transmission protocol and message ACK, It is recommended to add the following constraints in Section 3.2 of Annex 5 to ensure the exact match between short messages with acknowledgments and their feedback messages, so as to efficiently utilize the limited ASC channel resources. The following inputs are suggested to consider for the committee. | Modify comments below. |

**Comments:**

The proposed revisions are shown in track changes and highlighted blue in the Attachment.

# China MSA-1

**4.5.7 Control of ASM-SAT transmission**

Under normal circumstances, mobile stations should be allowed to transmit ASM satellite messages using LINK ID 4. However, when an AIS station is within the coverage area of a base station, the decision to allow transmissions shall be made by the competent authority. The "base station coverage area" is defined by Station Type 10 in Message 4 and Message 23 of ITU-R M.1371. When within the coverage area of a base station, mobile stations should suspend transmissions using LINK ID 4.

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# China MSA-2

**4.9.4** **Resource request/transmission announcement**

Table 37

**Resource request / transmission announcement**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field no.** | **Value**  **(dec)** | **Size**  **(bytes)** | **Function** | **Content** |
| 1 | 90 | 1 | Type |  |
| 2 | 0 to 216-1 | 2 | Length | Total packet size in bytes. |
| 3 | 0 to 232-1 | 4 | Original source ID | The unique identifier of the transmitting station, as described in § 2.4, Annex 1. |
| 4 | 0 to 232-1 | 4 | Node source ID | Unique identifier of the current node transmitting the message, as described in § 2.4, Annex 1. |
| 5 | 0 to 232-1 | 4 | Node destination ID | Unique identifier of the current node receiving the message, as described in § 2.4, Annex 1.  Set to 0 for shore-originated broadcast. |
| 6 | 0 to 232-1 | 4 | Original destination ID | The unique identifier of the receiving station, as described in § 2.4, Annex 1.  Set to 0 for shore-originated broadcast. |
| 7 | 0-255 | 1 | Priority | Set to 0. Reserved for future use. |
| 8 | 0 to 232-1 | 4 | Terminal capabilities | This field is a 32-bit bitmask with each bit set to indicate capabilities/restrictions of a unit:  Bit 0: All bandwidths and modulation schemes as per ~~VDE v1.0 supported~~2092-1.  ~~Bit 1: Unit has only 1 VDE receiver.~~  Bits ~~2~~1 to 31: Reserved for future use. Should be set to zero. |
| Note: The Resource request message will be transmitted on the RAC by ships and ASC by shore stations.  The four maritime mobile service identity (MMSI) numbers could allow for multiple hops of data messages between many stations. This functionality is reserved for future use. The original source and original destination IDs are the end points of the communication while the node source and node destination IDs are the immediate stations communicating with each other during the current hop. | | | | |

# China MSA-3

**4.9.7 Bulletin board start fragment message**

Table 42

**Control station service area**

| **Name** | **Field size  (bits)** | **Content** |
| --- | --- | --- |
| Longitude of point 1 | 18 | Longitude of area to which the assignment applies; upper right corner (North-East); in 1/10 min (±180°, East = positive, West = negative) |
| Latitude of point 1 | 17 | Latitude of area to which the assignment applies; upper right corner (North-East); in 1/10 min  (±90°, North = positive, South = negative) |
| Longitude of point 2 | 18 | Longitude of area to which the assignment applies; lower left corner (South-West); in 1/10 min (±180°, East = positive, West = negative) |
| Latitude of point 2 | 17 | Latitude of area to which the assignment applies; lower left corner (South-West); in 1/10 min (±90°, North = positive, South = negative) |
| ~~Padding~~  Priority | 2 | ~~Padding bits for byte alignment. Set to zero.~~  0 :very high  1 ;high  2 :medium  3 :low |

# China MSA-4

**3.2 RESOURCE MANAGEMENT**

Within a subframe, for each ship, the uplink data transmission is allocated no more than one DC channel.

Since message #13 can only provide ACK/NACK feedback for 200 fragments, it is recommended that the data size sent by a ship per session should not exceed 200 fragments. After the allocated time slot ends, the satellite will use message #13 to provide feedback on the reception status of all the fragments.

Regarding the downlink short message (including ACK) #14, an additional constraint is imposed at the satellite: within a 1min frame, the satellite can send at most one downlink short message (including ACK) #14 per ship .

Regarding the uplink short message (including ACK) #33, an additional restriction is imposed at the ship : within a 1min frame, the ship can send at most one uplink short message (including ACK) #33 per satellite.

The receiver of the short message (including ACK) can send the feedback message #36 or #34 within the 1min frame after receiving the short message.

1. The latest version of the change log and M.2092-1 will be located on the IALA file share under the sub-folder:

   Committees/ENAV/WG3/Revision of M2092-1   
    [↑](#footnote-ref-1)