20 April 2023

Summary of the differences between the 2021/1 and 2023/1 editions of the ES-RIS

In October 2022, the CESNI adopted the European Standard for River Information Services (ES-RIS), edition 2023/1 (see resolution 2022-II-2).

In April 2023, the CESNI adopted the document in the annex, which summarises the differences between this edition and the previous one. This summary is for information purposes, enabling anyone familiar with the previous edition (ES-RIS 2021/1, adopted in October 2020) to quickly identify all the amendments introduced by ES-RIS 2023/1.

The summary of the differences is structured as follows:

Annex: Summary of differences between the ES-RIS 2021/1 and the ES-RIS 2023/1

1. Amendments that do not affect the content

1.1 Technical and structural amendments

ES-RIS 2021/1 was the first edition of the ES-RIS (European Standard on River Information Services). It was designed as a juxtaposition of existing standards. The document was a mishmash in terms of pagination, style and all the technical aspects of word processing.

All parts of the ES-RIS now have a consistent format. The parts and annexes have been renumbered. Parts I to IV correspond to the previous classic standards (Inland ECDIS, VTT, ERI and NtS) whereas parts V and VI are “test standards” (Inland ECDIS and VTT).

The entire text has been revised to update internal references and to number the tables, figures and diagrams. Example, when a table appears somewhere in the ES-RIS, it is prefixed by the number of the part or annex in which it is to be found (in Roman numerals for parts I to VI and in Arabic numerals for the annexes) then it is assigned an order number.

1.2 Editorial and terminological amendments

The ES-RIS has been completely proofread several times to detect and correct, in the various languages, terminological inconsistencies or simply typing errors.

An important terminological amendment to be noted is the removal of the term “standard”, when this word is used to refer to part of the ES-RIS itself, and particularly as concerns the title of the parts. Indeed, the ES-RIS is a standard, and not a collection of standards. Each part of the ES-RIS is therefore not a standard per se, but part of the standard, namely the ES-RIS.

1.3 Removal of confusing references

The detailed proofreading exercises revealed that there were numerous references to regulatory texts contained in the ES-RIS 2021/1, which can cause practical problems.

Indeed, to best fulfil its function and to be capable of serving as a reference by different legislations in Europe, the ES-RIS needs to be a self-sustaining document independent of these legislations. And whereas references to other technical standards such as the IMO, IHO or the ITU are not a problem, this is not the case when references are made to other regulatory texts. Indeed, unlike a technical standard, a regulatory text, by its very nature, is limited in scope and may be eliminated or replaced by another text at any time.

To improve this aspect, all references to regulatory texts have been reviewed and, in most cases, eliminated (and replaced by an equivalent text). These eliminations have been carried out on a case-by-case basis and with a view to having no impact on the content of the ES-RIS.

2. Amendments to specifications pertaining to the electronic chart display and information system for inland navigation (Inland ECDIS)

In ES-RIS 2023/1, the Inland ECDIS part has been entirely rewritten and divided into two separate parts.

- Part I deals exclusively with Inland ECDIS requirements. Consequently, several aspects relating to tests and how to confirm these requirements have been relocated to Part V.

- Part V is a new part entitled “Inland ECDIS: operational and performance requirements, test method and required results (test part of the Inland ECDIS)”. Its aim is to spell out the tests to be performed and the results to be achieved to validate the requirements laid down in Part I.

Annexes 1 to 4 have also been updated.

2.1 Amendments of Part I relative to ES-RIS 2021/1

These amendments are more to do with a reorganisation of the requirements than a genuine addition. Indeed, in ES-RIS 2021/1, everything relating to Inland ECDIS was consolidated into one single part, Part I. This part dealt both with Inland ECDIS requirements and requirements for testing that these former requirements had been complied with. In ES-RIS 2023/1, there is a clear demarcation between these two types of requirement: Part I contains all the requirements relating to Inland ECDIS whereas Part V contains the test methods for verifying that the requirements contained in Part I have indeed been applied. The two parts are of course closely related, or more accurately, Part V follows on from Part I, its objective being to test each requirement specified in it.

The table below shows the correspondence at chapter and article level between the content of Parts I of ES-RIS 2021/1 and ES-RIS 2023/1 respectively.

ES-RIS 2021/1	ES-RIS 2023/1
CHAPTER 1 PERFORMANCE STANDARD FOR INLAND *Article 1.01 General provisions* *Article 1.02 References*	**CHAPTER 1 GENERAL PROVISIONS AND REFERENCES** *Article 1.01 General provisions* *Article 1.02 References*
	CHAPTER 2 GENERAL REQUIREMENTS AND SPECIFICATIONS OF INLAND ECDIS
Article 1.03 Contents, provision and updating of chart information	*Article 2.01 Contents and provision of chart* *Article 2.02 Updating of chart information*
Article 1.04 Presentation of information	*Article 2.03 Presentation of information*
Article 1.05 Operation	*Article 2.04 Operation*
Article 1.06 Connection with other equipment	*Article 2.07 Connection of other equipment*
Article 1.07 Indication and alarms	*Article 2.08 Warning and alarm indicators*
Article 1.08 Fall-back arrangements	*Article 2.09 Fall-back arrangements*
Article 1.09 Power supply in navigation mode	**(removed)**
	Article 2.05 Service functions (new) *Article 2.06 Hardware requirements (new)* *Article 2.10 Quality requirements (new)* *Article 2.11 Changes to certified navigation systems (new)*
CHAPTER 2 DATA STANDARD FOR INLAND ENCs *Article 2.01 Introduction* *Article 2.02 Theoretical data model* *Article 2.03 Data structure* *Article 2.04 Product specifications for inland encs and bathymetric Inland ENCs*	**CHAPTER 4 DATA STANDARD FOR INLAND ENCS** *Article 4.01 Introduction* *Article 4.02 Theoretical data model* *Article 4.03 Data structure* *Article 4.04 Product specifications for inland encs and bathymetric Inland ENCs*
CHAPTER 3 CODES FOR PRODUCERS AND WATERWAYS (IN ADDITION TO IHO–S-62 ENC PRODUCER CODES	**CHAPTER 5 CODES FOR PRODUCERS AND WATERWAYS (IN ADDITION TO IHO–S-62 ENC PRODUCER CODES**

CHAPTER 4 PRESENTATION STANDARD FOR INLAND ECDIS *Article 4.01 Introduction* *Article 4.02 The presentation library for Inland ECDIS*	**CHAPTER 6 PRESENTATION STANDARD FOR INLAND ECDIS** ***Article 6.01 Introduction*** ***Article 6.02 The presentation library for Inland ECDIS***
CHAPTER 5 OPERATIONAL AND PERFORMANCE REQUIREMENTS, METHODS OF TESTING AND REQUIRED TEST RESULTS *Article 5.01 Introduction* *Article 5.02 Operating modes and system configuration* *Article 5.03 Performance requirements* *Article 5.04 Operational functions* *Article 5.05 Service functions* *Article 5.06 Hardware test and required certificates* *Article 5.07 Test of the chart presentation, operation and functionality* *Article 5.08 Test of radar picture presentation and operation in navigation mode* *Article 5.09 Test of alarms and indications* *Article 5.10 Test of fall back arrangements in navigation mode*	**PART V**
CHAPTER 6 MEASURES TO ENSURE SOFTWARE QUALITY *Article 6.01 General requirements* *Article 6.02 Methods of testing and required results* *Article 6.03 Changes to certified navigation systems*	**PART V**
CHAPTER 7 SYSTEM CONFIGURATIONS	**CHAPTER 3 SYSTEM CONFIGURATIONS**
CHAPTER 8 GLOSSARY OF TERMS	**CHAPTER 7 GLOSSARY OF TERMS**

2.2 Description of the content of Part V and differences relative to ES-RIS 2021/1

Part V of ES-RIS 2023/1 is far more detailed than chapters 5 and 6 of Part I of ES-RIS 2021/1 on the tests. However, in terms of the fundamentals, this new part of ES-RIS 2023/1 introduces no new requirements as compared with ES-RIS 2021/1. We are talking about the same requirements, only significantly more detailed so that the tests can be reproduced as accurately as possible between two laboratories or two manufacturers.

In ES-RIS 2021/1, only the test results were provided, with some occasional general instructions for performing the tests or taking measurements. In ES-RIS 2023/1, the entire method is described, step-by-step, to confirm that the desired result has indeed been achieved. Moreover, each test is explicitly tied to a requirement defined in Part I. To make it easier to read, the requirements in Part I are reproduced in the same sequence in Part V.

- Chapters 1 to III define the scope of Part V, the external references used, the abbreviations, and their meaning.

- Chapter 4 of Part V describes how the tests are organised. It also describes all the prerequisites for conducting all the tests provided for in Part V, bearing in mind that certain tests are performed in a laboratory and others aboard the vessel.

- Chapter 5 of Part V describes the applicable tests irrespective of Inland ECDIS mode.

- Chapters 6 and 7 of Part V describe the tests that apply specifically to the Inland ECDIS information and navigation modes respectively.

- Chapter 8 lays down the specifications for the equipment and charts used to perform the tests in Chapters 5 to 7.

- Chapter 9 provides an overview of how the requirements of Part I relate to the tests for confirming them (contained in Part V).

2.3 Updating specifications for Inland ENCs (version 2.5)

Annexes 1 to 4 of the ES-RIS (and their appendices) have also been updated to incorporate the most recent edition of the encoding of the inland navigation charts. The bulk of this updating activity was carried out by the IEHG (Inland ENC Harmonisation group). Additional information can be found on their website https://ienc.openecdis.org/

Most of the differences between ES-RIS 2021/1 (edition 2.4 of the Inland ECDIS encoding) and ES-RIS 2023/1 (edition 2.5) are corrections and minor amendments of appendices 1 and 2 of annex 1.

3. Amendments to specifications relating to the vessel tracking and tracing system (VTT)

The amendments to the VTT part of the ES-RIS 2023/1 are essentially to do with the introduction of specifications for two categories of new AIS messages:

- Application-specific AIS messages (AIS ASM) the purpose of which is to enable a third-party application, connected to an AIS station, to send a message to another third-party connected to another AIS station. In this wording, Inland ECDIS is an example of a “third-party application”.

- Aids to navigation messages (AIS AtoN), the purpose of which is to communicate dynamic aids to navigation information via AIS stations (which can be real, synthetic or virtual). An Inland ECDIS device connected to the AIS station is then able to display this information dynamically on an Inland ECDIS chart.

The two message categories are already used in the maritime sector. Their addition in ES-RIS 2023/1 provides technical specifications for these messages, potentially with inland navigation-related specifics.

3.1 Amendments to Part II

No existing requirement in ES-RIS 2021/1 has been amended in ES-RIS 2023/1. As with the other parts and annexes, there have been changes to structure, pagination and terminology (see point 1/ above).

Certain additions have however been made, most of which aim to introduce additional requirements governing the specifications of application-specific AIS messages (AIS ASM) and governing AIS aids to navigation messages (AIS AtoN).

Details of substantive amendments are to be found in Annex 1 in “track changes” mode, here is the list:

- Addition of a reference to the IMO’s[1] circular SN.1/Circ 289, which is a guide to using AIS ASM in maritime navigation;
- Addition of three IALA[2] recommendations, also pertaining to the use of AIS AtoN messages in maritime navigation;
- Definitions have been provided for the following terms; “Inland AIS stations”, “Mobile Inland AIS stations”, “Inland AIS shore station” and “Implementation of RIS”;
- Several removals of references to European directives (in particular directive 2005/44/EC see point 1.3/ above) have prompted the definition of certain terms instead of references. The definitions used are those adopted by the directives, reference to which has been deleted (RIS, VTS, VTT, ERI, Inland ECDIS, the competent authorities for RIS, RIS users, the list of systems for which VTT is likely to be responsible);
- Articles 3.04 and 3.05 been amended to add new types of AIS ASM messages;
- Article 5.01 provides definitions of various types of aids to navigation (AtoN AIS), namely real, synthetic and virtual AtoN AIS.
- Article 5.23 has been amended to provide the specifications of different types of Inland AtoN, including examples of the associated buoys.
    - It should be noted that the VTT part of ES-RIS does not prescribe the specifications for displaying AIS ASM or AIS AtoN messages, but only how these messages are transmitted between two AIS stations. The icons in table II-9 are provided for illustrative purposes.
    - Specifications for displaying AIS ASM or AIS AtoN messages will possibly be added to the Inland ECDIS part of a future edition of the ES-RIS.
- The “MIS” lists (Maritime Identification Digit) in table II-10 exist to standardise the relevant field of the MMSI (Maritime Mobile Service Identifier) used as a radio ID for the AIS stations transmitting AtoN.

3.2 Amendments to Part VI

There has been no change to the content of Part VI. The only amendments are structural and pagination amendments (see point 1/ above).

[1] International Maritime Organisation
[2] International association of lighthouse authorities

3.3 Amendments to annexes 5 to 11

Apart from the renumbering of annexes relating to ES-RIS 2021/1, and a few terminological and pagination adjustments, there has been no change to the content of annexes 5 to 10.

On the other hand, there is a new annex, Annex 11, which provides details of the technical specifications of the AIS ASM that have been added to articles 3.043.05 of Part II. This annex is divided into three parts:

1. A part providing an overview with general information and the list of AIS ASM messages defined in the annex;

2. A second part with details of the AIS ASM sent from mobile AIS stations;

3. A third part with details of the AIS ASM sent from AIS shore stations.

This annex 11 also comes with an appendix (distributed separately) providing reference data for convoy codes in XML format.

4. Amendments to specifications relating to notices to skippers (NtS)

4.1 Amendments to Part III

The amendments to Part III are essentially terminological and editorial. But there are nevertheless some substantive issues:

- Article 4.01; figure III-1 has been improved to make it clearer, with a few minor adjustments so that it corresponds to the XSD file defined in annex 19

- Article 4.02; the coordinates have been amended to adopt the decimal format instead of the format in degrees, minutes and seconds, because coordinates in the decimal format are easier to manipulate in software.

- Article 4.03; an explicit reference to standard ISO 3166-2 alpha 2 has been added to avoid misinterpretation.

- Article 4.23 introduces the inalterability of the ISRS[3] location code in the ERDMS[4]. Indeed, this inalterability is essential for good data quality. This code comprises fields the value of which can be amended (or corrected) over time. The principle established here is that when an ISRS location code is generated it must never be amended even if the fields comprising it are. This principle applies because the fields used to create the ISRS location code are defined as such in the ERDMS, independently of the ISRS location code.

[3] International Ship Reporting Standard
[4] European Reference Data Management System

4.2 Amendments to annexes 17 to 21

The main amendments to annex 17 (NtS message encoding guides for publishers) are:

- A clear distinction has been made between object-related NtS messages and those relating to the network as a whole. A new paragraph “Applicability of NtS messages” has been drafted accordingly.

- The encoding requirement has been tightened up (Annex 17, 4.3) precluding the ability to use “free fields” when there is an existing code for an event. Likewise, the use of the “name” field for objects was clarified (number 9.2, 9.3 and 9.4) with a view to using dedicated kilometre information fields rather than putting this information in the name field. These requirements aim to facilitate the translation of NtS messages and their automated processing by the recipients.

- Requirements aiming to define a “geographical scope” criterion where the NtS message is valid have been introduced in Annex 17, number 4.4.

- The permissible dimensions for a convoy or vessel have been reviewed (Annex 17, number 5.3) to allow use cases that were not previously possible.

- Clarifications to numbers 4.5 and 4.7 have been made concerning the fact that the start and end date (if known) of the validity period are mandatory fields.

- The procedure for updating and cancelling an NtS message is now specified in number 4.8.

- A definition of the fields “from”, “publisher” and “source” is available (number 9.1).

Annex 18 incorporates these basic data items and breaks them down so that they can be used by developers. There is however an item in Annex 17 that has no correspondence, namely the introduction of a mandatory pagination mechanism in the web service. This mechanism aims to avoid a request generating a very lengthy response. Instead, the response will be broken down into small sections that are easier for the network servers to manage. This mechanism is described in detail in Annex 18, number 10.4.2.

Annexes 19 and 20 are computer files (XSD and WSDL), which are the product of annexes 17 and 18, but this time interpretable by machines. The content of the files is now provided in the form of an appendix.

Annex 21 is a translation table of the codes used in the NtS messages. This table has been updated with the new codes. In terms of scope, the list of languages provided in annex 21 has been scaled back to the CESNI working languages. However, as a courtesy to the additional official languages spoken in the countries concerned by European Directive 2005/44/EC (category IV and above waterways connected to the European network) a translation purely for information purposes and with no quality guarantee has also been provided in these languages.

5. Amendments to specifications relating to electronic ship reporting in inland navigation systems (ERI)

5.1 Amendments to Part IV

The main amendments in this part of the ES-RIS are:

- On the one hand, the addition of a fifth type of ERI message, namely “ERIVOY”;
- On the other hand, the introduction of an XSD file unambiguously defining the XML format of ERINOT, PAXLST, ERIRSP and ERIVOY-type messages.

On the second point, the important article is article 1.1 stipulating on the one hand that the two formats (XML and UN/EDIFACT) are equivalent from a functional perspective and on the other hand that the choice of format is defined in the national or international regulations prescribing the notification formalities. Article 1.03 explains the role played by an XSD file.

5.2 Amendments to annexes 12 to 16

In annexes 12 to 16, the notion of “nationality” applied to vessels and means of transport has been defined as being the parent country of the Inspection body that issued the last vessel certificate.

Annex 12 has been slightly amended to allow reference to be made to two possible formats for the ERINOT message, namely the UN/EDIFACT and XML formats. The annex is still based on the UN/EDIFACT format but introduces the XML format in paragraph 4. An appendix has been added corresponding to the XSD file implementing the relevant message in XML format.

Annex 13 has been amended in similar fashion to Annex 12 and according to the same logic.

Annex 14 has been amended to make the ERIRSP message more generic. In ES-RIS 2021/1, the ERIRSP message was presented as being a response message to an ERINOT-type message only. In ES-RIS 2023/1, the ERIRSP message can be used as a response message, including to other types of ERI message.

In addition to the same amendments as for annexes 12 and 13 (introduction of the XML format), annex 14 also contains an explicit description of possible error codes (which was not the case in ES-RIS 2021/1). These error codes are divided into 4 categories, divided in turn into subcategories (between 6 and 23 subcategories).

Apart from the clarification of the notion of “nationality”, Annex 15 has not been amended because the XML format has not been introduced for BERMAN-type messages.

Annex 16 is entirely new and concerns the new “ERIVOY” message type. It should be noted that only the XML format is envisaged for this new type of message.

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