

Paper for Consideration by HSSC

[Revision to IHO Resolutions following the introduction of S-100]

Submitted by:	KHOA
Executive Summary:	It is proposed to revise IHO Resolutions to facilitate the development of S-100 series and implement the Roadmap for the S-100 Implementation Decade (2020 – 2030)
Related Documents:	M-3, Roadmap for the S-100 Implementation Decade(2020-2030), A-2 PRO 2.3
Related Projects:	None

Introduction / Background

The IHO is developing S-100 series and the infrastructure to support the development of data standards required not only for next-generation ENC's but also in hydrographic, maritime and GIS fields. The IHO Council designed the Roadmap for the S-100 Implementation Decade (2020 – 2030) to facilitate new hydrographic data standards such as S-101 ENC's and S-102 Bathymetric Surface in navigation environment.

Analysis/Discussion

Activities being carried out by relevant organizations are as follows:

- a) S-101 ENC's Ed. 1.0.0 was published in 2018 and the Operational Ed. 2.0.0 is scheduled to be released in 2022;
- b) Transition to or production of S-101 ENC's is being prepared;
- c) There has been cooperation among industry partners to promulgate S-100 ECDIS;
- d) Worldwide distribution system of S-100 data is under consideration by IHO subordinate bodies;
- e) Revision to the Resolution MSC.232(82) *Revised Performance Standards for Electronic Chart Display and Information Systems (ECDIS)* is expected; and
- f) IEC 61174:2015 (International Standard for testing ECDIS) will be revised.

In addition to above activities, S-100 was adopted as a data standard for the development of e-Navigation maritime service and is already in use. Despite the fact that S-100 was designated as an official standard for hydrographic data transfer, the IHO Publication M-3 2nd Edition *Resolutions of the IHO* only contains contents on S-57 so it needs to be revised accordingly. Since both S-57 and S-100 will be in use during the transition period, adding phrases on S-100 where only S-57 is stated would be considered desirable.

As for the Resolutions 1/1997 and 1/2018 in PRO 2.3, the request for revision is no longer necessary as the WENDWG will be reporting new *Principles of the WEND for S-1xx products (WEND-100)* to IRCC12 to be held in October 2020.

Having reviewed M-3, ROK would like to propose revising the resolutions as follows:

Resolution	Current resolution	Red-line version of the proposed resolution (PRO2.3, included comments from A2_2020_G_02)
1/1987	1. It is resolved that the IHO Transfer Standard described in S-57 shall be	1. It is resolved that the IHO S-57 Transfer Standard for Hydrographic

	<p>adopted by the IHO for the exchange of digital hydrographic and cartographic data.</p> <p>2. ...Changes to the Standard are coordinated on behalf of the HSSC by an ENC Standards Maintenance Working Group (ENCWG)...</p>	<p>Data including the S-57 based Product Specifications described in S-57 and the IHO S-100 Universal Hydrographic Data Model including the S-100 based Product Specifications shall be adopted by the IHO for the exchange of digital hydrographic and cartographic data.</p> <p>2. ...Changes to S-57 the Standard are coordinated on behalf of the HSSC by the ENC Standards Maintenance Working Group (ENCWG), <u>and changes to S-100 are coordinated on behalf of the HSSC by the S-100 Working Group (S-100WG), and changes to S-100 series are coordinated on behalf of the HSSC/IRCC by their subordinate Sub-committees/Wworking groups-</u></p>
4/2002	a) The HO should ensure that the IHO data (ENC) is always available to any user in the S-57 ENC format.	a) According to the Roadmap for the S-100 Implementation Decade (2020-2030) , the HO should ensure that the IHO data (ENC) is always available to any user in the S-57 <u>and/or S-101</u> ENC format.
1/2007	<p>1. It is resolved that the IHO Data Protection Scheme, as described in Publication S-63, is the IHO recommended security scheme for ENCs.</p> <p>2. It is further resolved that the IHO Secretariat will act as Scheme Administrator for S-63.</p>	<p>1. It is resolved that the IHO Data Protection Scheme, as described in Publication S-63, is the IHO recommended security scheme for S-57 ENCs and the Encryption and Data Protection, as described in Publication S-100, is the IHO recommended security scheme for S-101 ENCs including S-100 series data.</p> <p>2. It is further resolved that the IHO Secretariat will act as Scheme Administrator for S-63 <u>and S-100 series hydrographic data.</u></p>
1/1997	• See M-3 2 nd Edition Resolution 1/1997 as amended.	WENDWG will report the <i>Principles of the WEND for S-1xx products (WEND-100)</i> to IRCC12 for endorsement.
1/2018	• See M-3 2 nd Edition Resolution 1/2018.	WENDWG will report the <i>Principles of the WEND for S-1xx products (WEND-100)</i> to IRCC12 for endorsement.

Conclusions

Despite the fact that S-100 was designated as an official standard for hydrographic data transfer, the IHO Publication M-3 2nd Edition *Resolutions of the IHO* only contains contents on S-57 so it needs to be revised accordingly.

Recommendations

It is proposed to revise IHO Resolutions to facilitate the development of S-100 series and implement the Roadmap for the S-100 Implementation Decade.

Action Required of [HSSC]

The [HSSC] is invited to:

- a. approve the proposed revision to the Resolutions 1/1987, 4/2002 and 1/2007.
- b. review and include this document in the HSSC report to A-2.

Appendix A. PRO 2.3 – Revision to IHO Resolutions following the Introduction of S-100 (Red-line version)

B. PRO 2.3 – Revision to IHO Resolutions following the Introduction of S-100 (Clean version)

PRO 2.3 – Revision to IHO Resolutions following the Introduction of S-100

Submitted by: Republic of Korea

References:

- A. S-100 Master Plan
- B. Roadmap for the S-100 Implementation Decade (2020 – 2030)
- C. IHO Publication M-3 2nd Edition – *Resolutions of the IHO*

PROPOSAL:

In order to facilitate the development of S-100 series and implement the Roadmap for the S-100 Implementation Decade (2020 – 2030), it is proposed to revise IHO Resolutions 1/1987, 4/2002, and 1/2007 ~~by adding phrases on S-100 and 1/1997 and 1/2018 by taking into account S-100.~~

EXPLANATORY NOTE:

1. The IHO is developing S-100 series and the infrastructure to support the development of data standards required not only for next-generation ENC's but also in hydrographic, maritime and GIS fields. The IHO Council designed the Roadmap for the S-100 Implementation Decade (2020 – 2030) to facilitate new hydrographic data standards such as S-101 ENC's and S-102 Bathymetric Surface to navigation environment.
2. Below are activities being carried out by relevant organizations:
 - a) S-101 ENC's Ed. 1.0.0 was published in 2018 and the Operational Ed. 2.0.0 is scheduled to be released in 2022;
 - b) Transition to or production of S-101 ENC's are being prepared;
 - c) There has been cooperation among industry partners to promulgate S-100 ECDIS;
 - d) Worldwide distribution system of S-100 data is under consideration by IHO subordinate bodies;
 - e) Revision to the Resolution MSC.232(82) – *Revised Performance Standards for Electronic Chart Display and Information Systems (ECDIS)* is expected; and
 - f) IEC 61174:2015 (International Standard for testing ECDIS) will be revised.
3. Furthermore S-100 was adopted as a data standard for the development of e-Navigation maritime service and it is already in use. Despite the fact that S-100 was designated as an official standard for hydrographic data transfer, the IHO Publication M-3 2nd Edition – *Resolutions of the IHO* only contains contents on S-57 so it is required to revise M-3 appropriately. Since both S-57 and S-100 will be in use during the transition period, adding phrases on S-100 where only S-57 is stated would be considered efficient. Having reviewed M-3, the ROK would like to propose revising the Resolutions 1/1987, 4/2002, 1/2007, ~~1/1997 and 1/2018~~ as in Annexes A ~~to D~~.

ACTIONS REQUIRED OF THE ASSEMBLY:

4. The Assembly is invited to:

- a) approve the proposed revisions to the Resolutions 1/1987, 4/2002, and 1/2007; ~~and~~
~~—revise the Resolutions 1/1997 and 1/2018 by taking into account S-100.~~

Annex A

IHO TRANSFER STANDARD FOR DIGITAL HYDROGRAPHIC DATA	1/1987 as amended	IHO A-1	A3.7
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1 It is resolved that the [IHO S-57 Transfer Standard for Hydrographic Data including the S-57 based Product Specifications and the IHO S-100 Universal Hydrographic Data Model including the S-100 based Product Specifications](#) ~~IHO Transfer Standard described in S-57 and S-100~~ shall be adopted by the IHO for the exchange of digital hydrographic and cartographic data.

2 It is further resolved that the IHO Secretariat, through the HSSC (Hydrographic Services and Standards Committee), keep the contents of the Standards under review in response to changing requirements and practical experience. Changes to S-57 are coordinated on behalf of the HSSC by ~~the~~ ENC Standards Maintenance Working Group (ENCWG), changes to S-100 are coordinated on behalf of the HSSC by the S-100 Working Group (S-100WG), and changes to S-100 series are coordinated on behalf of the HSSC/IRCC by their subordinate ~~Sub-committees/W~~orking ~~g~~roups. National Hydrographic Offices which wish to propose changes to the Standard should address their comments to the IHO Secretariat. Other users of the Standard, for example equipment manufacturers, should be advised to address their comments to their national Hydrographic Office.

Annex B

ENC/SENC DISTRIBUTION OPTION	4/2002 as amended	43/2003	A3.11
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It is resolved that SENC distribution can be accepted as an option, in addition to direct ENC distribution, providing that the following principles be adhered to:

- a) According to the Roadmap for the S-100 Implementation Decade (2020 – 2030), the HO should ensure that the IHO data (ENC) is always available to any user in the S-57 [and/or](#) S-101 ENC format.
- b) As an option Hydrographic Offices may allow the distribution of their HO data (ENC) in a SENC format.
- c) Distributors who are to supply the SENC service must operate under the regulations of the issuing authority. The onshore ENC to SENC conversion must be performed using type approved software.
- d) The SENC update mechanism should not be inferior to the ENC - ECDIS update mechanism.
- e) The distributor of SENC data should maintain a registry of its users.
- f) The copyright of the ENC data should be maintained.

Annex C

IHO DATA PROTECTION SCHEME	1/2007 as amended	IHO A-1	A3.12
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1 It is resolved that the IHO Data Protection Scheme, as described in Publication S-63, is the IHO recommended security scheme for S-57 ENC's and the Encryption and Data Protection, as described in [Publication S-100](#), is the IHO recommended security scheme for S-101 ENC's including S-100 series data.

2 It is further resolved that the IHO Secretariat will act as Scheme Administrator for S-63 and S-100 series hydrographic data.

Annex D

PRINCIPLES OF THE WORLDWIDE ELECTRONIC NAVIGATIONAL CHART DATABASE (WEND) & ITS ANNEX (Guidance for Establishment of ENC	1/1997 as amended	IHC-18 & 40/2014³ & 36 Rev1/2017⁴	K2.19
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~~* This resolution is currently undergoing revision by the Worldwide ENC Database Working Group so it is proposed to revise it taking into account S-100 series.~~

ELIMINATION OF OVERLAPPING ENC DATA IN AREAS OF DEMONSTRABLE RISK TO THE	1/2018	19/2018	
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Appendix B

PRO 2.3 – Revision to IHO Resolutions following the Introduction of S-100

Submitted by: Republic of Korea

References:

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- B. Roadmap for the S-100 Implementation Decade (2020 – 2030)
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EXPLANATORY NOTE:

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2. Below are activities being carried out by relevant organizations:
 - a) S-101 ENCs Ed. 1.0.0 was published in 2018 and the Operational Ed. 2.0.0 is scheduled to be released in 2022;
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 - c) There has been cooperation among industry partners to promulgate S-100 ECDIS;
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ACTIONS REQUIRED OF THE ASSEMBLY:

4. The Assembly is invited to:
 - a) approve the proposed revisions to the Resolutions 1/1987, 4/2002, and 1/2007

Annex A

IHO TRANSFER STANDARD FOR DIGITAL HYDROGRAPHIC DATA	1/1987 as amended	IHO A-1	A3.7
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IHO DATA PROTECTION SCHEME	1/2007 as amended	IHO A-1	A3.12
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