Bundesnetzagentur

Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railways

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SSB SE 028

Interface description for radio equipment in the Automatic Identification System (AIS)

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Notification number under Directive (EU) 2015/1535: xxxx/xxxx/DE

Notified in accordance with Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ L 241, 17.9.2015, p. 1).

This interface description consists of 11

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1 General information

Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 (OJ L 153/62) on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC was transposed in the Federal Republic of Germany by the Act on the making available of radio equipment on the market (Radio Equipment Act – FuAG) of 27 June 2017 (Federal Law Gazette (BGBl.) I No 42, p. 1947), last amended by Article 1 of the Act of 14 May 2024 (BGBl. I No 148).

Pursuant to § 33(1) FuAG, the Federal Network Agency shall provide specific and appropriate specifications of the radio interfaces as regards radio equipment operated in frequency bands for which the conditions of use are not harmonised throughout the Community.

This interface specification (SSB) contains information necessary to enable the manufacturer to carry out the relevant tests in relation to the essential requirements applicable to the relevant radio equipment in accordance with the provisions of FuAG § 4(2) and, where applicable, § 4(3).

Furthermore, radio equipment must be designed in such a way that other basic requirements under § 4(1)(1) and (2) FuAG are observed.

For the commissioning and operation of radio equipment, the provisions concerning frequency assignment, in particular those contained in Part 6 of the Telecommunications Act (TKG) of 23 June 2021 (BGBl. I No 35, p. 1858), last amended on 14 May 2024 by Article 35 of the Act of 6 May 2024 (BGBl. I No 149), remain unaffected.

In addition, maritime and inland waterway regulations must still be observed with regard to radio equipment on ships.

The Federal Network Agency shall order the enactment of the interface specification in its Official Gazette and publish its reference therein; only the German edition is binding.

2 Single Market Clause

Goods lawfully marketed in another Member State of the European Union or in Türkiye, or originating and lawfully marketed in an EFTA State that is a contracting party to the Agreement on the European Economic Area, are deemed to be compatible with this measure. The application of [this measure] is subject to Regulation (EU) 2019/515 of 19 March 2019 on the mutual recognition of goods lawfully marketed in another Member State from 19 April 2020.

3 Scope of application

This interface description outlines the essential requirements pursuant to FuAG § 4(2) concerning radio equipment of the Automatic Identification System (AIS)[1].

Radio equipment within the meaning of this interface specification is to be used for its intended purpose and operated in accordance with the manufacturer's instructions. Directive 2014/53/EU requires manufacturers to provide radio equipment users with appropriate information to enable them to operate the radio equipment as intended and in accordance with the provisions of said Directive. This information shall also include appropriate instructions on cabling and antenna types to be used in conjunction with the radio equipment.

This interface specification replaces SSB SE 014, June 2013 edition, notified under 2013/0428/D.

4 Documentation

The following cited documents are necessary for the application of this document. For dated references, only the referenced edition of the document shall apply. For undated references, the most recent edition of the referenced document (including any amendments) shall apply.

Presumption of conformity may only be based on versions of harmonised European standards that are included in the current list of harmonised standards within the framework of Directive 2014/53/EU and have been published by the European Commission in the Official Journal of the EU.

- Frequency plan in accordance with the Telecommunications Act (TKG) on the distribution of the frequency range from 0 kHz to 3000 GHz among spectrum usages and on the definitions for such use
  Published by the Federal Network Agency
- GASV Ordinance on the determination of further essential requirements for equipment and on the determination of equivalences of national interfaces and device class identifiers in the field of radio equipment and telecommunications terminal equipment (Basic Requirements and Interface Ordinance - GASV) of 8.1.2002, (BGBl. I p. 398 of 11.1.2002), which was last amended by Article 1 of the Ordinance of 31 March 2014 (BGBl. I p. 313)
- Decision 52/2023, General allocation of frequencies for maritime and inland waterway mobile radio applications; Official Gazette of the Federal Network Agency No 10 of 24 May 2023
- Regional Agreement on Inland Waterway Radio, Basel, 6 April 2000 (BGBl. Part II No 30 p. 1213 of 12.10.2000)
- Radio Regulations[2] (VO Funk),
  International Telecommunication Union (ITU), Geneva
  (Règlement des radiocommunications, Union internationale des télécommunications (UIT), Geneva)
- ITU-R M.585 Assignment and use of identities in the maritime mobile service
- ITU-R M.825 Characteristics of a transponder system using digital selective calling techniques for use with vessel traffic services and ship-to-ship identification
- ITU-R M.1084 Interim solutions for improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service
- ITU-R M.1371 Technical characteristics for an automatic identification system using time-division multiple access in the VHF maritime mobile band

[1] This interface specification does not apply to SOLAS ships as they fall under the Maritime Equipment Directive.

[2] The Radio Regulations are available in Arabic, Chinese, English, French, Russian and Spanish. In all cases of dispute or doubt, the French text shall prevail.

- EN 60945 Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results
- EN 61097-14 Global maritime distress and safety system (GMDSS) – Part 14: AIS Search and Rescue Transmitter (AIS-SART) - Operational and performance requirements, methods of testing and required test results
- EN 61993-2
  Maritime navigation and radiocommunication equipment and systems -
  Automatic Identification Systems (AIS) –
  Part 2: Class A shipborne equipment of the automatic identification system (AIS) – Operational and performance requirements, methods of test and required test results
- EN 62287-1
  Maritime navigation and radiocommunication equipment and systems -
  Class B shipborne equipment of the Automatic Identification System (AIS) –
  Part 1: Carrier-sense time division multiple access (CSTDMA) techniques
- EN 62287-2 Maritime navigation and radiocommunication equipment and systems – Class B shipborne equipment of the Automatic Identification System (AIS) – Part 2: Self-organising time division multiple access (SOTDMA) techniques
- EN 62320-1
  Maritime navigation and radiocommunication equipment and systems –
  Automatic Identification System (AIS) –
  Part 1: AIS Base Stations – Minimum operational and performance requirements, methods of testing and required test results
- EN 62320-2
  Maritime navigation and radiocommunication equipment and systems –
  Part 2: AIS AtoN Stations – Operational and performance requirements, methods of testing and required test results
- ETSI EN 300 698 Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio telephone transmitters and receivers for the maritime mobile service operating in the VHF bands used on inland waterways;
  Harmonised Standard covering the essential requirements of Articles 3.2 and 3.3(g) of Directive 2014/53/EU
- ETSI EN 301 178 Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands (for non-GMDSS applications only);
  Harmonised Standard covering the essential requirements of Article 3.2 of the Directive 2014/53/EU
- CEPT ECC Decision (19)03 Harmonised use of the channels of the Radio Regulations Appendix 18 (transmitting frequencies in the VHF maritime mobile band)
- CEPT ECC Decision (22)02
  Regulation to operate Autonomous Maritime Radio Devices (AMRD) in CEPT
- CEPT/ERC/REC 74-01
  Unwanted emissions in the spurious domain
- Commission Decision 2000/637/EC of 22 September 2000 on the application of Article 3(3)(e) of Directive 1999/5/EC to radio equipment covered by the regional arrangement concerning the radiotelephone service on inland waterways (Official Journal of the EU, L 269/50 of 21.10.2000)
- Commission Decision 2005/53/EC of 25 January 2005 on the application of Article 3(3)(e) of Directive 1999/5/EC of the European Parliament and of the Council to radio equipment intended to participate in the Automatic Identification System (AIS) (Official Journal of the European Union, L 22/14 of 26.1.2005)

- Commission Regulation (EC) No 415/2007 of 13 March 2007 concerning the technical specifications for vessel tracking and tracing systems referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community
- Commission Implementing Regulation (EU) No 689/2012 of 27 July 2012 amending Regulation (EC) No 415/2007 concerning the technical specifications for vessel tracking and tracing systems referred to in Article 5 of Directive 2005/44/EC of the European Parliament and of the Council on harmonised river information services (RIS) on inland waterways in the Community.

5 Technical interface requirements

This interface specification contains the technical interface requirements for radio equipment of the Automatic Identification System (AIS) for the following radio stations or radio equipment:

Table 1: Maritime radio stations: 156.5125 - 156.5375 MHz (K70, emergency and call via DSC)

Table 2: Maritime radio stations and ship radio stations: 156.7625 - 156.7875 MHz, 156.8125 – 156.8375 MHz (K75 and K76)

Table 3: Maritime radio stations and ship radio stations: 161.9625 - 161.9875 MHz, 162.0125 - 162.0375 MHz (AIS 1 and AIS 2)

Table 4: Air radio stations: 161.9625 - 161.9875 MHz, 162,0125 - 162,0375 MHz (AIS 1 and AIS 2)

Table 5: AIS-SART (AIS search and rescue transmitter): 161.9625 - 161.9875 MHz, 162.0125 - 162.0375 MHz (AIS 1 and AIS 2)

Table 1: Maritime radio stations 156.5125 - 156.5375 MHz (K70, emergency and call via DSC)

	No	Parameter	Description *(Description)*	Comments *(Comments)*
Normative part	1	Radio service *(Radiocommunication Service)*	MARITIME MOBILE SERVICE (Emergency and call via DSC)	
	2	Intended use/Application *(Application)*	DSC	Maritime radio
	3	Frequency range *(Frequency band)*	156.5125 - 156.5375 MHz	K70: Data (DSC only)
	4	Channelling *(Channelling)*	25 kHz channel spacing	
	5	Modulation/occupied bandwidth *(Modulation/Occupied bandwidth)*	G2B	Data (DSC)
	6	Direction/distance *(Direction/Separation)*		
	7	Transmission power/power density *(Transmit power/Power density)*	12.5 W Class A, high power level 1 W Class A; low power level 5.0 W Class B ‘SO’, SOTDMA 2.0 W Class B ‘CS’, CSTDMA	
	8	Channel access and assignment regulations *(Channel access and occupation rules)*		
	9	Approval procedure *(Authorisation regime)*	General allocation	Note 1
	10	Additional essential requirements *(Additional essential requirements)*		
	11	Frequency planning assumptions *(Frequency planning assumptions)*		
Informative part	12	Planned changes *(Planned changes)*		
	13	References *(References)*	ITU-R M.585, ITU-R M.825, ITU-R M.1984, ITU-R M.1371, EN 60945, EN 61993-2, EN 62287-1, EN 62287-2, EN 62320-1, EN 62320-2, EN 300 698, EN 301 178, ECC Dec (19)03, ECC Dec (22)02, CEPT/ERC/REC 74-01	
	14	Notification number *(Notification number)*		
	15	Remarks *(Remarks)*		

Note 1:
To be able to use the frequencies, a Ship Station Licence needs to be issued beforehand (assignment of numbers for the maritime or inland waterway radiotelephone service) by the Federal Network Agency (Decision 52/2023).

Table 2: Maritime mobile stations and ship radio stations 156.7625 - 156.7875 MHz, 156.8125 - 156.8375 MHz (K75 and K76)

	No	Parameter	Description *(Description)*	Comments *(Comments)*
Normative part	1	Radio service *(Radiocommunication Service)*	MARITIME MOBILE SERVICE	
	2	Intended use/Application *(Application)*	AIS radio equipment	Maritime/inland water-way radiotelephone ser-vice
	3	Frequency range *(Frequency band)*	156.7625 - 156.7875 MHz 156,8125 – 156,8375 MHz	K 75 Satellite detection K 76 Satellite detection
	4	Channelling *(Channelling)*	25 kHz channel spacing	
	5	Modulation/occupied bandwidth *(Modulation/Occupied bandwidth)*	FXB	AIS
	6	Direction/distance *(Direction/Separation)*		
	7	Transmission power/power density *(Transmit power/Power density)*	12.5 W Class A, high power level 1 W Class A; low power level 5.0 W Class B ‘SO’, SOTDMA 2.0 W Class B ‘CS’, CSTDMA	
	8	Channel access and assignment regulations *(Channel access and occupation rules)*		
	9	Approval procedure *(Authorisation regime)*	General allocation	Note 1
	10	Additional essential requirements *(Additional essential requirements)*		
	11	Frequency planning assumptions *(Frequency planning assumptions)*		
Informative part	12	Planned changes *(Planned changes)*		
	13	References *(References)*	ITU-R M.585, ITU-R M.825, ITU-R M.1984, ITU-R M.1371, EN 60945, EN 61993-2, EN 62287-1, EN 62287-2, EN 62320-1, EN 62320-2, EN 300 698, EN 301 178, ECC Dec (19)03, ECC Dec (22)02, CEPT/ERC/REC 74-01	
	14	Notification number *(Notification number)*		
	15	Remarks *(Remarks)*		

Note 1:
To be able to use the frequencies, a Ship Station Licence needs to be issued beforehand (assignment of numbers for the maritime or inland waterway radiotelephone service) by the Federal Network Agency (Decision 52/2023).

Table 3: Maritime mobile stations and ship stations 161.9625 - 161.9875 MHz, 162.0125 - 162.0375 MHz (AIS 1 and AIS 2)

	No	Parameter	Description *(Description)*	Comments *(Comments)*
Normative part	1	Radio service *(Radiocommunication Service)*	MOBILE RADIO SERVICE except for the aeronautical mobile service	
	2	Intended use/Application *(Application)*	AIS radio equipment	Maritime/inland waterway radiotelephone service
	3	Frequency range *(Frequency band)*	161.9625 - 161.9875 MHz 162.0125 - 162.0375 MHz	AIS 1 AIS 2
	4	Channelling *(Channelling)*	25 kHz channel spacing	
	5	Modulation/occupied bandwidth *(Modulation/Occupied bandwidth)*	FXB	AIS
	6	Direction/distance *(Direction/Separation)*		
	7	Transmission power/power density *(Transmit power/Power density)*	12.5 W Class A, high power level 1 W Class A; low power level 5.0 W Class B ‘SO’, SOTDMA 2.0 W Class B ‘CS’, CSTDMA	
	8	Channel access and assignment regulations *(Channel access and occupation rules)*		
	9	Approval procedure *(Authorisation regime)*	General allocation	Note 1
	10	Additional essential requirements *(Additional essential requirements)*		
	11	Frequency planning assumptions *(Frequency planning assumptions)*		
Informative part	12	Planned changes *(Planned changes)*		
	13	References *(References)*	ITU-R M.585, ITU-R M.825, ITU-R M.1984, ITU-R M.1371, EN 60945, EN 61993-2, EN 62287-1, EN 62287-2, EN 62320-1, EN 62320-2, EN 300 698, EN 301 178, ECC Dec (19)03, ECC Dec (22)02, CEPT/ERC/REC 74-01	
	14	Notification number *(Notification number)*		
	15	Remarks *(Remarks)*		

Note 1:
To be able to use the frequencies, a Ship Station Licence needs to be issued beforehand (assignment of numbers for the maritime or inland waterway radiotelephone service) by the Federal Network Agency (Decision 52/2023).

Table 4: Air radio stations: 161.9625 - 161.9875 MHz, 162,0125 - 162,0375 MHz (AIS 1 and AIS 2)

	No	Parameter	Description *(Description)*	Comments *(Comments)*
Normative part	1	Radio service *(Radiocommunication Service)*	MOBILE RADIO SERVICE except for the aeronautical mobile service	
	2	Intended use/Application *(Application)*	AIS radio equipment	Maritime/inland waterway radiotelephone service
	3	Frequency range *(Frequency band)*	161.9625 - 161.9875 MHz, 162.0125 - 162.0375 MHz	AIS 1 AIS 2
	4	Channelling *(Channelling)*	25 kHz channel spacing	
	5	Modulation/occupied bandwidth *(Modulation/Occupied bandwidth)*	FXB	AIS
	6	Direction/distance *(Direction/Separation)*		
	7	Transmission power/power density *(Transmit power/Power density)*	1.0 W Class A; SOTDMA 1.0 W Class B ‘CS’, CSTDMA 1.0 W Class B ‘SO’, SOTDMA	
	8	Channel access and assignment regulations *(Channel access and occupation rules)*		
	9	Approval procedure *(Authorisation regime)*	General allocation	Note 1
	10	Additional essential requirements *(Additional essential requirements)*		
	11	Frequency planning assumptions *(Frequency planning assumptions)*		
Informative part	12	Planned changes *(Planned changes)*		
	13	References *(References)*	ITU-R M.585, ITU-R M.825, ITU-R M.1984, ITU-R M.1371, EN 60945, EN 61993-2, EN 62287-1, EN 62287-2, EN 62320-1, EN 62320-2, EN 300 698, EN 301 178, ECC Dec (19)03, ECC Dec (22)02, CEPT/ERC/REC 74-01	
	14	Notification number *(Notification number)*		
	15	Remarks *(Remarks)*		

Note 1:
The use of frequencies from the mobile maritime radio service and radiotelephone service on inland waterways by aviation personnel in aircraft requires the prior allocation of a maritime or inland waterway radio number for the relevant aircraft by the Federal Network Agency. Further frequency usage conditions are included in Decision 52/2023.

Table 5: AIS-SART: 161.9625 - 161.9875 MHz, 162.0125 - 162.0375 MHz (AIS 1 and AIS 2)

	No	Parameter	Description *(Description)*	Comments *(Comments)*
Normative part	1	Radio service *(Radiocommunication Service)*	MOBILE RADIO SERVICE except for the aeronautical mobile service	
	2	Intended use/Application *(Application)*	AIS radio equipment	Maritime/inland water-way radiotelephone ser-vice
	3	Frequency range *(Frequency band)*	161.9625 - 161.9875 MHz, 162.0125 - 162.0375 MHz	AIS 1 AIS 2
	4	Channelling *(Channelling)*	25 kHz channel spacing	
	5	Modulation/occupied bandwidth *(Modulation/Occupied bandwidth)*	FXB	AIS
	6	Direction/distance *(Direction/Separation)*		
	7	Transmission power/power density *(Transmit power/Power density)*	1.0 W Radiated Power (EIRP)	
	8	Channel access and assignment regulations *(Channel access and occupation rules)*		
	9	Approval procedure *(Authorisation regime)*	General allocation	Note 1
	10	Additional essential requirements *(Additional essential requirements)*		
	11	Frequency planning assumptions *(Frequency planning assumptions)*		
Informative part	12	Planned changes *(Planned changes)*		
	13	References *(References)*	ITU-R M.585, ITU-R M.825, ITU-R M.1984, ITU-R M.1371, EN 60945, EN 61097-14, EN 61993-2, EN 62287-1, EN 62287-2, EN 62320-1, EN 62320-2, EN 300 698, EN 301 178, ECC Dec (19)03, ECC Dec (22)02, CEPT/ERC/REC 74-01	
	14	Notification number *(Notification number)*		
	15	Remarks *(Remarks)*		

Note 1:
a) To be able to use the frequencies, a Ship Station Licence needs to be issued beforehand (assignment of numbers for the maritime or inland waterway radiotelephone service) by the Federal Network Agency (Decision 52/2023).

b) The AIS-SART radio equipment shall be encoded in accordance with ITU-R M.585 Appendix 2, Section 2. Valid encodings:

AIS-SART $9_1 7_2 0_3 X_4 X_5 Y_6 Y_7 Y_8 Y_9$

The digits X_4 and X_5 identify the manufacturer of the radio equipment; the digits $Y_6 Y_7 Y_8 Y_9$ mark the serial number.