
United States Coast Guard

Office of Navigation Systems



We Help Mariners Get There

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U.S. Coast Guard Headquarters
Washington, DC

**Radio Technical Commission for
Maritime Services Conference**
September 26th, 2012
Orlando, FL

Future AIS...

- ✓ **AIS Past**
- ✓ **AIS Standards**
- ✓ **Where AIS is headed**
- ✓ **Where to find out more**

What started the USCG on AIS?

In 1990, Congress passed the Oil Pollution Act which participation in VTS mandatory and directed the USCG to seek ways to have 'dependent surveillance' of all tankers bound for Valdez, Alaska.

To that end, in 1993 the USCG developed *Automated Dependent Surveillance Shipboard Equipment (ADSSE)*, based on Digital Selective Calling (DSC) protocol.

Congress supports/mandates AIS!

In 1997, Congress...stated that AIS "technology should be the foundation of any future VTS system" and that it "strongly believes that this technology will significantly improve navigational safety, not just in select VTS target ports, but throughout the navigable waters of the U.S", and, that we "continue working with stakeholders..."

H.R. Rep. No. 236, 105th Cong., 1st Sess. (1997)

Public Meeting to establish AIS carriage

September 1998, the USCG conducted a public meeting to solicit comments on the establishment of a new Vessel Traffic Service (VTS) in the Lower Mississippi River area and a potential Automatic Identification System (AIS) carriage requirement for certain vessels operating in the new VTS area.

The primary purpose of the meeting was to discuss which vessels should carry Automatic Identification Systems (AIS) and what performance, technical, testing, and certification standards the systems should meet.

- Ref: 63 FR 49939, Sep. 18, 1998

Towards an AIS-based VTS

In an effort to facilitate vessel transits, enhance good order, promote safe navigation, and improve upon existing operating measures on the waterway. The USCG proposed to establish a Vessel Traffic Service on the Lower Mississippi River and transfer certain vessel traffic management provisions on the river.

By implementing a proposed transition to VTS in a phased manner which would allow for the orderly transition from existing regulations and practices to operating procedures appropriate to an AIS-based VTS.

- Ref: 65 FR 24616, Apr. 24, 2000

Actions pre-9/11 and post-9/11

- *IMO SOLAS Regulation V/19.2.4 adopted 2000*

All ships of 300 gross tonnage or greater & passenger vessels irrespective of size on international voyage; 500 gross tonnage or greater domestically (phased implementation 2002-2008)
- *Marine Transportation & Security Act of 2002*

Commercial self-propelled vessels 65 feet or greater; towing vessels over 26 feet or greater and 600 hp or more; passenger vessels as determined by USCG; and, those the USCG deems necessary for safety.

- **Adds requirements for stations using burst transmissions (AIS-SART)**
- **Adds AIS Search and Rescue Transmitter (AIS-SART) & 'ACTIVE SART' NavStatus**
- **Adds new Message 27 for long-range reporting via a 3rd channel**
- **Harmonizes pollutant category codes in Message 5 with revised IMO MEPC codes**

Recommendation ITU-R M.1371-4
(04/2010)

Technical characteristics for an automatic identification system using time-division multiple access in the VHF maritime mobile band

INTERNATIONAL STANDARD

IEC 61993-2

First edition
2001-12

**Maritime navigation and radiocommunication
equipment and systems –
Automatic identification systems (AIS) –**

**Part 2:
Class A shipborne equipment of the universal
automatic identification system (AIS) –
Operational and performance requirements,
methods of test and required test results**

- **AIS Class A 2nd edition**
- ✓ **completed, publication in 2012**
- ✓ **Includes GNSS output**
- ✓ **Active comparison of internal GNSS and external input, will alarm when data suspect**
- ✓ **Adds a Msg 27 - long range report**
- ✓ **Corrects DSC Msg 22 issues**



INTERNATIONAL STANDARD

IEC 62287-1

First edition
2006-03

- **AIS Class B-SO (self-organizing) in final stages, publication in 2012**
- **In between Class A & B-CS, higher report rate 5-30 sec**
- **Reserves its slots as Class A**

**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**





IEC 62288

Edition 1.0 2008-07

INTERNATIONAL STANDARD

- **2nd edition in the works – completion in 2012**
- **To address other AIS symbols, i.e. AIS Aircraft, Base Stations, Application Specific Messaging, etc.**

Maritime navigation and radiocommunication equipment and systems –
Presentation of navigation-related information on shipborne navigational
displays – General requirements, methods of testing and required test results



Homeland
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RTCM 10900.5
RTCM Paper 163-2011-SC109-STD



RTCM STANDARD 10900.5
FOR
ELECTRONIC CHART SYSTEMS
(ECS)

DEVELOPED BY
RTCM SPECIAL COMMITTEE NO. 109

July 15, 2011

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Web Site: <http://www.rtc.org>

- **RTCM Electronic Chart System Standard (10900.5)**

3 Classes:

A – SOLAS Back-up

B – ECDIS-lite

C – ECS Viewers

.5 Includes some VDR capability

.6 will address: AIS integration

-AIS Application Specific Messaging

-Remote MKD



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IEC 61097-14

Edition 1.0 2010-02

INTERNATIONAL STANDARD

- Starting to see test broadcasts
- As expected, they cost < Radar SART
- Which has prompted the development in AIS MOB and AIS EPIRBS, but, test standards are yet to be formalized

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



**AIS is strong and here
forever....but, the future is for
VHF Data Exchange (VDE)**

**RTCM SC123 is leading the way
in making it possible**

They will take us from 1G to 4G



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AIS

- [AIS Overview - What is AIS?](#)
- [How AIS Works](#)
- [What AIS Broadcasts](#)
- [AIS Messages](#)
- [Types of AIS](#)
- [AIS Carriage Requirements](#)
- [AIS References](#)
- [AIS Notices](#)
- [AIS Frequently Asked Questions](#)
- [Ask a Question or Report an AIS Problem](#)

Primary Mission Areas:

- [Global Positioning System](#)
- [Differential GPS](#)
- [Nationwide DGPS](#)
- [LORAN C](#)
- [Inland River Vessel Movement Center](#)
- [Civil GPS Service Interface Committee](#)
- [Automatic Identification System](#)

FREQUENTLY ASKED QUESTIONS

1. [What is AIS?](#)
2. [How do I program my AIS?](#)
3. [What is the AIS rule and are there alternatives to the rule for small businesses?](#)
4. [How much does an AIS cost?](#)
5. [How does AIS help to increase security?](#)
6. [When must AIS be in operation?](#)
7. [Does the installation of the AIS require additional equipment in order for the AIS to operate properly?](#)
8. [Will it be necessary to have electronic navigational charts for use with the AIS?](#)
9. [If a fishing vessel has a Vessel Monitoring System \(VMS\), is that an acceptable substitute for the AIS?](#)
10. [Why have some AIS units stopped broadcasting valid position reports?](#)
11. [Why am I unable to see an AIS vessels' name or other static information \(dimensions, call sign, etc.\)?](#)
12. [Why do I sometimes see more than one vessel with the same MMSI or vessel name \(i.e. NAUT\)?](#)
13. [I just purchased and installed an AIS Class B, will AIS Class A user 'see' me?](#)
14. [Do AIS Class B devices meet current USCG AIS carriage requirements?](#)
15. [Is the USCG considering expanding AIS carriage to other vessels or outside of VTS areas?](#)
16. [How can I get a copy of an AIS presentation I saw \(or heard about it\) that was given at..](#)
17. [Where can I get AIS data?](#)
18. [What is a MMSI and where can I get one for my AIS?](#)

1. What is AIS? Per 47 CFR §80.5, AIS is a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information.



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***** UPDATED 6-6-2011: Warning for Fukushima, Japan ***** In response to the situation at the Fukushima Nuclear Power Plant in Japan, the U.S. Coast Guard recommends, as a precaution, that vessels avoid transiting within 20 kilometers/10.8 nautical miles of the Fukushima Nuclear Power Plant (37°25.5'N, 141°02.0'E)...[read the entire notice.](#)

Automatic Identification System (AIS)

- What is AIS?
- How AIS Works
- Types of AIS
- AIS Messages
 - Class A Position Report
 - Class A Static & Voyage Data
 - Class B Reports
- Nationwide AIS (NAIS)
- Carriage Requirements
- Reference Information
- Frequently Asked Questions

Primary Mission Areas:

- Global Positioning System
- Differential GPS
- Nationwide DGPS
- Long Range Identification and Tracking
- Civil GPS Service Interface Committee
- Automatic Identification System
- Nationwide AIS (NAIS)
- Electronic Navigation & Charting
- Maritime Telecommunications
- LORAN C (archive)

Services & Reporting:

- Receive Free LNM Updates
- Receive Free GPS Status Messages

CONTACT US - U.S. COAST GUARD NAVIGATION CENTER

You can contact us during our normal business days and hours (8:00AM to 4:30PM EST) at the address or telephone number at the bottom of all our web pages or via this page,

To sign-up for free navigation notices and updates, go here: [LNM, GPS, NANU, CGSIC](#)
To report a system outage, discrepancy or problem, go here: [ATON, GPS, DGPS, NAIS, LRIT](#)
For our Frequently Asked Questions (FAQs) go here: [AIS, GPS, DGPS, LRIT, NavRules](#)
For other inquires visit these external links or use the submission form that follows:

- Recreational Boating Safety (regulations, alerts, recalls, links, and more...)
- Coast Guard Academy, recruiting, lighthouses, or history
- The National Pollution Funds Center
- Other USCG Centers of Excellence: [Vessel Documentation](#), [Vessel Movement](#), [Marine Safety](#)

Subject *	AIS
Category *	Please select category ==>
Name *	Please select category ==>
Phone Number *	AIS Aids to Navigation
Email Address *	AIS Class A Device
	AIS Class B Device
	AIS Display
	AIS Pilot Plug
	AIS Reception/Transmission
	AIS Search & Rescue Transmitter
	Application Specific Messages
	Comment/suggestion - no reply requested
	Comment/suggestion - reply requested
	Enforcement
	Installation, Set-up or Programming
	Integration (to other equipment)
	Purchasing
	Standards
	Other

Enter Text:

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United States Coast Guard

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