Input paper: [[1]](#footnote-1) ENG8-10.11

Input paper for the following Committee(s): check as appropriate Purpose of paper:

**□** ARM **x** ENG **□** PAP **x** Input

**□** ENAV **□** VTS **□** Information

Agenda item [[2]](#footnote-2) (from agenda) 10 (Action item 44 from ENG7 Report)

Workplan Task Number / Technical Domain 2 …………………………………

Working Group WG2

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Remote Control and Monitoring of AtoN fitted AIS in Turkey

# ıntroduction

This document shall present brief information and examples with regard to controlling and monitoring of AtoN fitted AIS in area of responsible run by General Directorate of Coastal Safety which has authority on safety of navigation over the Turkey territorial waters. Approximately 380 AtoN are fitted AIS and monitored and controlled by Remote Control Centre (RCC) in İstanbul as well as ten regional technical offices. This system called as SOTAS (Remote Monitoring of Aids to navigation) is established in 2009 and since then has kept working properly. In case of any breakdown or damage on AIS-Aton’s , this effect can be realized via remote monitoring system and locations occurred breakdown or damage are intervened by remote control centre or regional technical staff to avoid serious damage to AtoN or associated system. Therefore safety of navigation is not affected by any deterioration arising from AtoN failures.

## Related documents

IALA Guideline 1008 Remote Control and Monitoring Aids to Navigation

A-126 Use of AIS in Marine Aids to Navigation Services

# structure

Thanks to AIS-AtoN and communication interface ( including GSM and ADSL modules) which have installed on every unit on AtoN, required data and informations are transmitted to Remote Central Server via GPRS, DSL (only installed 60 spots) or VDL. When GPRS which have capable of sending data directly to database becomes unreachable just in case any disaster happens , DSL communication service can maintain the communication process and data integrity .In this case communications will be provided by AtoN over VDL on site which have ADSL module. AtoN equipped with SOTAS units which have ADSL module are located in such a way that one’s radio broadcast area is able to intersect with that of another. Therefore all gained data can be transmitted to servers. İf a maintenance, repair or fixing procedure is discussed, units having a ADSL module should be prioritized compared to other units.



Figure 1: AIS coverage areas of SOTAS units which have ADSL modules

Also this system have capability of monitoring vessels fitted with AIS, but at this document, this feature shall not be mentioned because of irrelevant to subject.

# capabılıtes

With the help of developed communication interface and skillful AIS VDL messages as well as ASM messages (Application Specific Messages), following actions and conditions are provided. Besides this actions can be monitored and controlled.

* Monitoring of light situation (ON, OFF state )
* Battery voltage (for battery powered) and monitoring current taken from circuit
* Counter information (for rotating lighthouse)
* Lantern fault alarm
* LED fault alarm
* Off-position alarm (for buoys)
* Protective area warning (for buoys and AtoN at sea)
* Low voltage warning
* High voltage warning
* No mains voltage warning ( for AtoN operating with mains voltage)
* RACON device fault alarm

Alarm levels are separated to colour code such as black, red, yellow in accordance with priority of failure. Thus, RMC user can easily realize the failures of top priority.

If remote controlling is not available or useless, via a laptop with RS232 port an authorised personnel or maintenance personnel can connect the interface and settled the problem

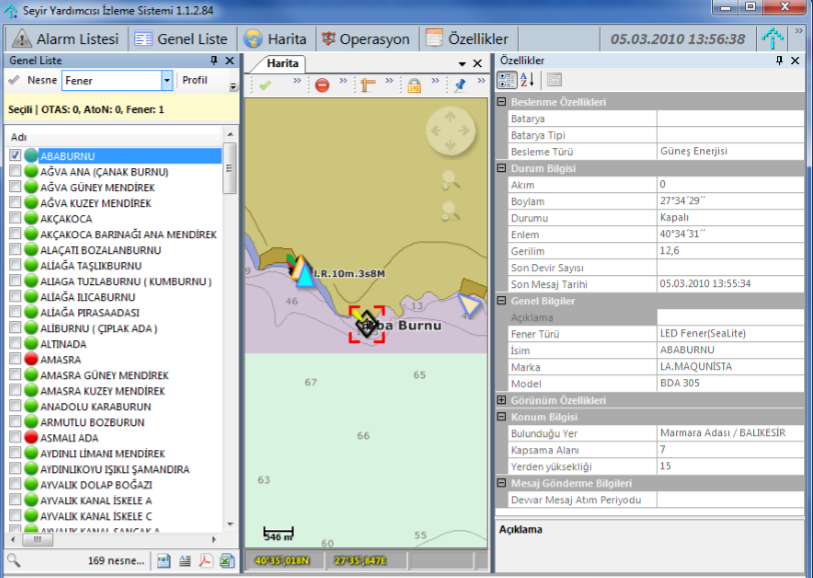


Figure 2: Colour code frame (on left) and Aton condition frame (on right)

There is a SOTAS shell enclosing the AIS-AtoN, communication interface and cables outside and also this shell prevents these components from sun, salt and wind damage. Antennas (GSM, VHF, and GPS) are located carefully as interfering with each other causes data losses. All of the stations have IP65 class protection rate against severe environmental conditions.

Figure 3: SOTAS shell, antennas and SOTAS unit with lantern

With the help of developed software centre, the whole data obtained by SOTAS units via DSL, GPRS or VDL links are gathered on RCS’s (Remote Central Server) and turned into useful informations. This informations can be used by the users having different level access authorization. All process, command and inquiry made by users are recorded on servers.

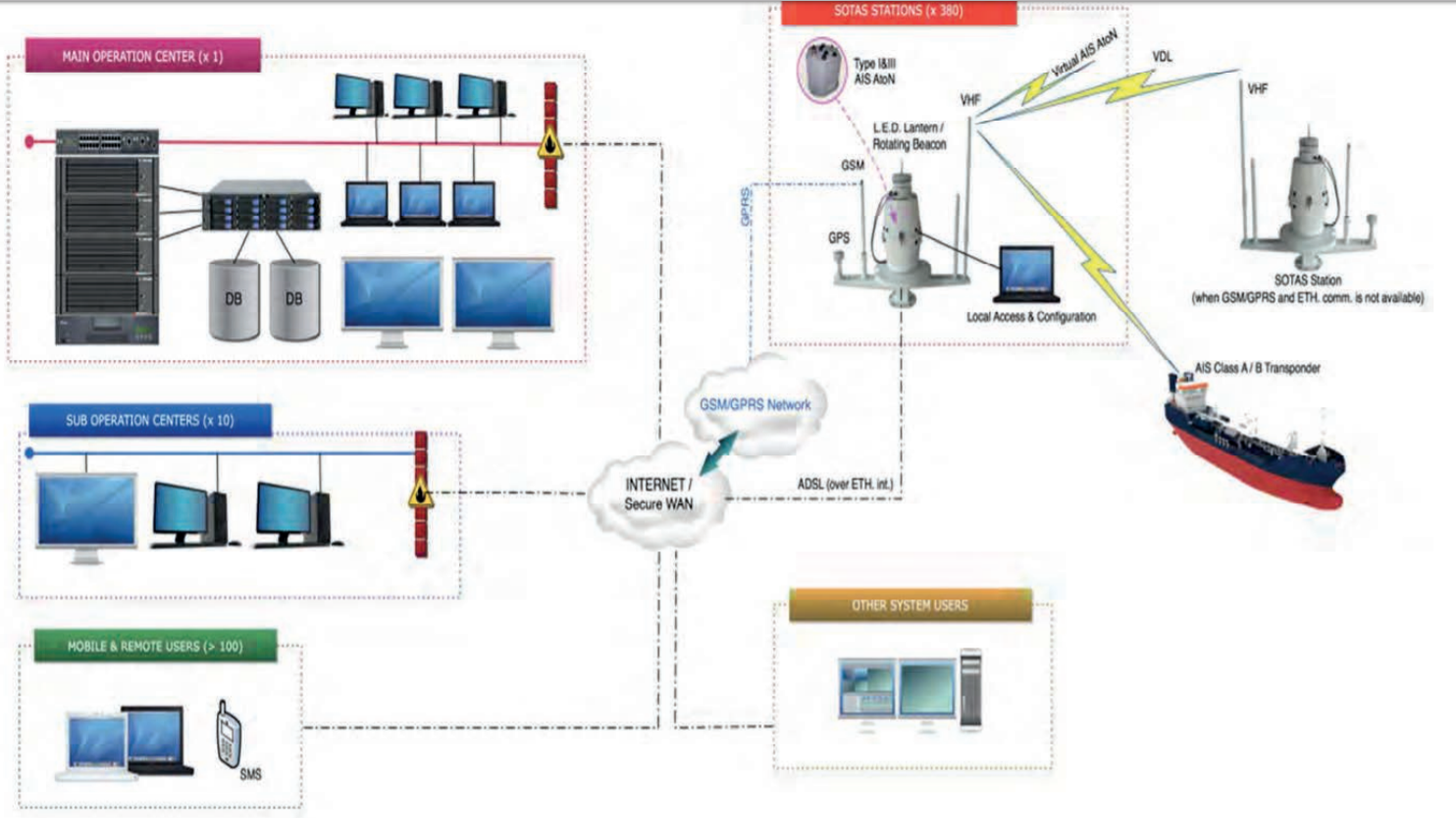


Figure 4: SOTAS System Architecture

# Action requested of the Committee

The committee is requested to if this document can consider as example for related documents.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Input papers should be assigned to a work task as listed in the Committee work plan which is available in input papers. Leave open if uncertain but consider how the paper is to be processed if not relevant to a work task [↑](#footnote-ref-2)