



Exploration & Production

GENERAL SPECIFICATION

LOGISTICS AND OPERATIONAL SUPPORT

GS EP LSO 206

Electronic Surveillance Aids

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Contents

1. Scope	3
2. Reference documents.....	3
3. Introduction	4
4. General Description	4
5. Standards.....	5
6. Technical Description	5
6.1 X-BAND radar system	5
6.2 ECDIS system	5
6.3 AIS system.....	6
6.4 Power supply	6
Appendix 1 Definition and acronyms	7



1. Scope

The main purpose of Electronic Surveillance Aids is to protect offshore installations against collision and increase safety of navigation around offshore installations by controlling and assisting in traffic regulation.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
IMO Resolution A422(XI)	Performance standards for Automatic Radar Plotting Aids (ARPAs)
IMO Resolution A.477 (XII)	Performance Standards for Radar
IMO Resolution A.917(22)	Guidelines for the onboard operational use of shipborne automatic identification systems (AIS).
IMO Resolution MSC.74 (69)	Recommendation on Performance standards for Universal Automatic Identification System (AIS)
IMO Resolution A.817 (19)	Performance standards for ECDIS
ISO 9001	Quality Management Systems - requirements

Professional Documents

Reference	Title
Not applicable	

Regulations

Reference	Title
IEC Standard	International Electrotechnical Commission



Codes

Reference	Title
IMO code	International Marine Organisation
IMO SOLAS code	International Convention for the Safety of life at Sea
IMO ISM Code	International Safety Management Code

Other documents

Reference	Title
Not applicable	

Total General Specifications

Reference	Title
GS EP TEL 410	Installation rules

3. Introduction

Each marine terminal either directly managed by an Affiliate or through a contractor on behalf of an affiliate shall be equipped with an Electronic Surveillance Aids system.

An operator competent in the use of marine navigation aids and the use of standard Marine Navigational Communication Phrases shall be in charge of watch and surveillance of traffic in the restricted area around offshore installations.

A competent operator means having STCW certificates and sea going vessel practise with enough practical experience with radar observation and plotting, radio-communication and maritime English, or having at least performed the following courses:

- IMO model course 1.07: radio navigation, operational level,
- IMO model course 1.25: restricted operator's certificate for GMDSS,
- IMO model course 1.27: operational use of Electronic Chart Display and Information System (ECDIS).
- IMO Model course 1.34: Automatic Identification Systems

When several offshore installations are close to each other, a common Navigation Aids System and a common operator can be considered. This common Navigation Aids System shall allow a surveillance range large enough to cover the most distant plant with a sharp resolution.

4. General Description

The Electronic Surveillance Aids System shall include as a minimum the following equipment:

- One Radar – , X-Band, with ARPA functionality, interfaced with AIS and ECDIS



- One AIS transmitter/receiver, interfaced with Radar and ECDIS
- One ECDIS with ENC covering the terminal and field area, interfaced with AIS and Radar.
- One marine VHF radiotelephone system.

All that equipment shall be fitted with audible and visual alarms allowing the indication of an abnormal situation or a danger.

5. Standards

The system shall comply with

- [ISO 9001](#) (defining minimum criteria for the design and installation of electric equipment)
- [IEC Standards](#)
- [IMO code](#)
- [IMO SOLAS code](#)
- [GS EP TEL 410](#)

6. Technical Description

6.1 X-BAND radar system

The X-band radar system (9 Ghz) shall be in accordance with [IMO Resolution A.477 \(XII\)](#). The radar equipment shall provide an indication, in relation to the installation, of the position of other surface craft and obstructions in a manner to determine and display the range and bearing of radar transponders and of other surface craft to assist in detection and collision avoidance.

The shorter wavelengths of the X-band allow for higher resolution imagery from high-resolution imaging radars for target identification and discrimination.

The radar installation is to be equipped with an ARPA system including, or associated with, a collision avoidance system, meeting the requirements of [IMO Resolution A422\(XI\)](#). The ARPA function may be independent or built into the radar equipment.

The system is to be based on the assumption that all floating objects may come onto a collision with the own installation if the object's course is changed by an angle up to 45° while its speed is maintained. A warning shall be given to the operator at a time which shall be adjustable in the range of 6 to 30 minutes, with regards to the object's arrival at the point of danger (TCPA).

6.2 ECDIS system

An Electronic Chart Display and Information System (ECDIS) is a computer-based navigation information system that complies with International Maritime Organization (IMO) regulations and can be used as an alternative to paper nautical charts. IMO refers to similar systems not meeting the regulations as Electronic Chart Systems (ECS).

An ECDIS system displays the information from Electronic Navigational Charts (ENC) and integrates position information from the Global Positioning System (GPS) and other navigational sensors, such as radar and Automatic Identification Systems (AIS).

The ECDIS system shall be in accordance with [IMO Resolution A.817 \(19\)](#).



6.3 AIS system

Automatic Identification Systems (AIS) are designed to be capable of automatically providing information about the own installation to other ships and to coastal authorities.

The AIS system shall be in accordance with [IMO Resolution MSC.74 \(69\)](#), and will be operated in line with [IMO Resolution A.917\(22\)](#).

The [IMO Resolution A.917\(22\)](#) requires that AIS shall:

- provide information - including the ship's identity, type, position, course, speed, navigational status and other safety-related information - automatically to appropriately equipped shore stations, other ships and aircraft;
- receive automatically such information from similarly fitted ships; monitor and track these ships;
- Exchange data with shore-based facilities.

6.4 Power supply

Local distribution panels shall be arranged for all items of electrically electronic surveillance Aids. These panels are to be supplied by two exclusive circuits, one fed from the main source of electrical power and one fed from an emergency source of electrical power.

Each item of electronic surveillance Aids is to be individually connected to its distribution panel. The power supplies to the distribution panels shall be arranged with automatic changeover facilities between the two sources.

Failure of the main power supply to the distribution panels shall initiate an audible and visual alarm.



Appendix 1 Definition and acronyms

AIS	Automatic Identification System
ARPA	Automatic Radar Plotting Aids
ECDIS	Electronic Chart Display and Information System
ENC	Electronic Navigational Charts
ECS	Electronic Chart System
GPS	Global Positioning System
IEC	International Electrotechnical Commission
IMO	International Maritime Organization
STCW	Convention on Standards of Training, Certification and Watchkeeping for Seafarers
TCPA	time to closest point of approach
Tracking	is the process of observing the sequential changes in the position of a target, to establish its motion
VHF	Very High Frequency
X-Band	9 GHz Band