

No. 89 Firms engaged in testing of navigational equipment and systems

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General Comments

Firms engaged in the testing of navigational equipment and systems are not required to be approved as service suppliers under IACS Unified Requirement Z17. However, it is recommended that the classification society/recognized organization concerned be guided by the following when seeking or approving assistance for the surveyor during initial, annual, periodical or renewal surveys of navigational systems and equipment covered by IMO Records of Equipment for the SOLAS Safety Certificates (Forms P, C and E), i.e. navigational equipment required by SOLAS Reg. V/19.

Firms should be approved for the 'functional level' and not for the 'manufacturer level'. Approval of firms by classification societies does not include the ability to service the equipment down to the 'manufacturer level'.

If a firm is not able to cover all groups of navigational equipment the groups of equipment for which the firm is approved should be listed on any certificate issued.

Process

Item 1: Extent of engagement:

Performing inspection and testing of navigational equipment and systems on board ships for compliance with SOLAS requirements.

The service supplier engagements are divided into 5 groups of services as listed under item 5. Preferably, the service supplier should seek approval for all of these groups in order to be approved as service supplier for navigational equipment and systems. Approval of service suppliers according to a limited number of groups may be considered on a case by case basis.

Item 2: Reference documents:

The service supplier should have access to SOLAS Ch. V and all IMO Performance Standards relevant for each group of services as well as all IEC cross product standards (IEC 60945 and IEC 61162 series). The Ship Safety Equipment is listed in Section 2.1 of Rec.128 and its Performance Standards are listed under item 5.

Where different flag states have their own interpretations or requirements regarding particular equipment or systems, these need to be part of the instructions / procedures, and arrangements for updating the validity of such interpretations / requirements should be in place.

Item 3: Personnel:

The service supplier should provide evidence that the person carrying out the inspection has education from a technical school (a minimum two years' programme of engineering or physical science) or from a nautical institution with relevant seagoing experience as a certified ship's officer. Personnel should be trained in testing navigational equipment and systems, preferably by the manufacturer of the equipment. Personnel should also have

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passed training concerning initial, annual, periodical and renewal surveys and have proficiency in the English language commensurate with the work.

Personnel testing colour calibration on ECDIS should, in addition, have a documented Ishihara colour vision deficiency test or equivalent and have colour vision not worse than would be required for seagoing service as an officer.

Item 4: Procedures and instructions:

The supplier should have documented procedures and instructions for carrying out the testing and examination of navigational equipment and systems. Such procedures and instructions should ensure that the level of performance tests is in compliance with the relevant technical standards.

The procedures should cover all types of equipment within the relevant group for which approval is sought. Dedicated checklists with appropriate pass criteria for each test / inspection should be available.

Item 5: Equipment / publications

The service supplier should, as a minimum, have the applicable publications for the different groups of services.

The supplier should have the major and auxiliary equipment (e.g. multi meter, earth fault finder, NMEA logger, AIS test set, sound generator, sound level meter, etc.) required for correctly performing the testing. A record of the test equipment used should be kept. The record should contain information on manufacturer and type of equipment, and a log of maintenance and calibrations.

	Systems	Publications (As of 2019)
Group 1.	Heading information systems incl. bearing devices	IMO A.382(X) - Magnetic compass IMO A.424(XI) - Gyro compass IMO A.821(19) - Gyro compass for HSC IMO MSC.86(70), Annex 2 - TMHD (fitted before 1 July 2002) IMO MSC.116(73) – THD IMO MSC.166(78) - TMHD
	Rate-of-turn indicators	IMO A.526(13) - R.O.T.I.
Group 2.	Speed and distance measuring equipment (SDME)	IMO A.478(XII) - SDME (fitted before 1 January 1997) IMO A.824(19) - SDME (fitted before 1 July 2002) IMO MSC.96(72) - SDME IMO MSC.334(90) - SDME
	Echo sounding equipment	IMO A.224(VII) - Echo sounder (fitted before 1 January 2001) IMO MSC.74(69), Annex 4 - Echo sounder

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Group 3.	Positioning systems	<p>IMO A.815(19) - World-wide Radio navigation System IMO A.529(13) - Accuracy Standards for Navigation IMO A.818(19) - Loran-C / Chayka IMO A.819(19) - GPS (fitted before 1 July 2003) IMO MSC.112(73) - GPS IMO MSC.53(66) - GLONASS (fitted before 1 July 2003) IMO MSC.113(73) - GLONASS IMO MSC.74(69), Annex 1 - GPS / GLONASS (fitted before 1 July 2003) IMO MSC.115(73) - GPS / GLONASS IMO MSC.114(73) - DGPS / DGLONASS IMO MSC.233(82)-GALILEO IMO MSC.379(93)-BDS IMO MSC.401(95) and IMO MSC.432(98)-Multi-system IMO MSC.449(99) and IMO MSC.452(99)-IRNSS</p>
	Radar systems incl. plotting aids	<p>IMO A.222(VII) - Radar (fitted before 1 September 1984) IMO A.477(XII) - Radar (fitted before 1 July 1999) IMO MSC 64(67), Annex 4 - Radar IMO A.278(VIII) - Symbols for Radar IMO A.422(XI) - ARPA (fitted before 1 January 1997) IMO A.823(19) - ARPA IMO A.820(19) - Radar HSC IMO MSC.192(79)-Radar</p>
	ECDIS, charts and nautical publications	<p>Updated list of available charts and ENC (http://catalogue.ukho.gov.uk/home.asp; http://www.hidrografico.pt/website/ic_enc/viewer.htm) Relevant IMO SLS.14 Circulars related Nautical charts and publications. IMO A.817(19) - ECDIS IMO MSC.64(67), Annex 5 - ECDIS back-up IMO MSC.86(70), Annex 4 - ECDIS RCDS mode IMO MSC.232(82)-ECDIS(fitted after 1 January 2009)</p>
	AIS	<p>IMO MSC.74(69), Annex 3 - AIS IMO SN Circ.217 - Presentation of AIS</p>
Group 4.	Alarm systems	<p>IMO MSC.128(75) - BNWAS IACS BDEAP (SC181) IMO MSC.282(86) – BNWAS</p>
	Indicators	<p>(IMO requirements for rudder, propeller, thrust, pitch and operational mode indicators requirements not yet available)</p>
	Sound reception systems	<p>IMO MSC.86(70), Annex 1</p>

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Group 5.	Heading / Track control systems (HCS / TCS)	IMO A.342(IX) - HCS (fitted before 1 January 1999) IMO MSC.64(67), Annex 3 - HCS IMO A.822(19) - HCS for HSC IMO MSC.74(69), Annex 2 – TCS
	Integrated Bridge Systems (IBS)	IMO MSC.64(67), Annex 1 – IBS
	Integrated Navigational System (INS)	IMO MSC.86(70), Annex 3 - INS

Item 6: Reporting:

The service supplier should confirm by means of a documented report that the equipment has been tested satisfactorily.

Item 7: Review and Verification:

The surveyor should be on board to the extent necessary to control the process.

The surveyor should confirm that no further testing is needed or specify additional testing.

The surveyor should verify the report of the service supplier.

End of Document
