Certificate No:
TAA0000337

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Public Address and General Alarm System

with type designation(s)
QSC Q-SYS PA/GA system

Issued to
QSC, LLC
Costa Mesa, CA, USA

is found to comply with
DNV rules for classification – Ships
IMO Res. A.694(17) General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids
IMO A.1021(26) Code on alerts and indicators (2009)
LSA Code VII 7.2
IMO MSC Circ 808

Application :

See page 2

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2022-04-28**

This Certificate is valid until **2027-04-27**.
DNV local station: **Long Beach**

Approval Engineer: **Jostein Sund Jensen**

for **DNV**
Digitally Signed By: Lisbeth Iversland
Location: DNV Høvik, Norway
on behalf of

Jan Tore Grimsrud
Head of Section

Product description

The QSC Q-SYS Public Address and General Alarm system can be provided as either:

- PA system only
- Integrated PA and GA system
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When used for PA on passenger vessel or integrated PA and GA on any vessel, the system shall be duplicated. When used for passenger vessels the duplicated parts of the system are to be installed in separate main vertical fire zones.

The QSC Q-SYS Public Address and General Alarm system comprises the following modules [1]:

Equipment type	Model	Description	SW rev.	Environment
QSC Q-SYS Network Paging Stations	PS-1600G	Page station with command keypad and gooseneck microphone	9.4.x	Protected
	PS-1600H	Page station with command keypad and handheld microphone	9.4.x	Protected
Q-SYS Core	Core 3100	Q-SYS Core 3100 Enterprise Core	9.4.x	Protected
	Core 1100	Q-SYS Core 1100 Enterprise Core	9.4.x	Protected
Amplifier	CX-Q8K8	Eight-channel Network Amplifier, max power up to 8000W	9.4.x	Protected
	CX-Q8K4	Four-channel Network Amplifier, max power up to 8000W	9.4.x	Protected
	CX-Q4K8	Eight-channel Network Amplifier, max power up to 4000W	9.4.x	Protected
	CX-Q4K4	Four-channel Network Amplifier, max power up to 4000W	9.4.x	Protected
	CX-Q2K4	Four-channel Network Amplifier, max power up to 2000W	9.4.x	Protected
Network equipment[2]	Moxa EDS-G509	9G-port full Gigabit managed Ethernet switches (TAC TAA000006N)		Protected

SW revision during type approval test: 9.4.1. This TAC covers SW revision: 9.4.x.

Application/Limitation

1. The QSC Q-SYS PAGA system may be used in cargo ships, passenger vessels, high-speed & light craft and mobile offshore units for compliance with the following codes/rules/regulations:
   - SOLAS
   - HSC Code
   - MODU Code
   - DNV Statutory Interpretations, DNV-SI-0364 [July 2021]
2. The network equipment used as part of the Q-SYS PAGA system shall be type approved. This Type approval certificate is only valid together with the type approval certificate(s) for the network equipment.
3. System shall operate on a dedicated IP network/LAN. Interconnection to other networks is subject to separate case-by-case approval.
4. Any PA panel which is not used for emergency PA activation shall have a lower priority than GA.
5. Access panels with functions for activation of Emergency PA and GA are to be installed in locations with access control.
6. Access panels with functions for activation of Emergency PA and GA shall be provided with means to avoid unintended use. This can be either cover for protection of keys, or keys shall be pressed for minimum 2 seconds to activate function. Keys shall be clearly labelled.
7. When used for PA on passenger vessel or integrated PA and GA on any vessel, the system shall be duplicated. When used for passenger vessels the duplicated parts of the system are to be installed in separate main vertical fire zones.
8. The system shall be installed according to the manufacture's documentation.
9. Any Ex-equipment (equipment to be used in areas with explosive atmosphere) listed in this certificate are subject to separate Ex- approvals.

[1] Actual configuration may vary based on requirements for individual installations. Only modules listed in certificate are approved for installation.

[2] The Q-SYS PAGA system may use other DNV type approved network components which complies with the requirements and are configured according to the System Installation Manual for Type Approval Application.

Type Approval documentation

DNV No	Drw No	Description	Rev
53	CMP101727	Report: SOLAS Type Approval Summary Report	0A
52	QSCA0119	Report: PageStation IEC 60945 Radiated Emissions	00
51	CMP101699	Report: Page Station IEC 60945 Vibration Test	0A
50	System Install Manual	System Installation Manual for Type Approval Applications	B
49		Report: Core3100 IEC60945LowTemperatureCore3100DNVWitnessTestReport	
48		Report: Core3100 IEC60945DryHeatCore3100DNVWitnessTestReport	
29	QSCA0114	Report: Core1100_3100_IEC60945_report_addendum_EMC	00
27	QSCA0107	Report: Core 1100/3100_PageStation PS-1600 - IEC60945_report_addendum	00
26	QSCA0109	Report: CX-Q_CX-Qn_CX-P_DPA_PLD_IEC60945_report_addendum	02
25		Test plan	
23		Block diagram	03
9	QSCAP-150504CE	Report: Core3100 - IEC60945 EMC and Environmental	
8	100948987MPK-002C	Report: Pagestation - IEC 60945 - EMC	3.0
7	100948987DET-001f	Report: PageStation - IEC 60945 - Environmental testing	
6	QSCA0068	Report: CX-Q_CX-Qn_CX-P_DPA_PLD - IEC 60945 EMC	1
5	PR096481	Report: CX-Q - IEC 60945_Environment	1

Tests carried out

- Environmental testing: IEC 60945 (2002) incl. Corr.1 (2008)
- Performance testing: Functional tests according to DNV Type Approval programme 848.22

Marking of product

The Manufacturer and Type Designation to be applied to the equipment in a clearly visible location. In addition, the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.

Periodical assessment

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.
The scope of the periodical/renewal assessment is to verify that the production quality conditions stipulated for the type approval are complied with and that no alterations are made to the product design or its components and/or materials without appraisal by the Society.
This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com