

TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000337
Revision No:
1

This is to certify:

That the Public Address and General Alarm System

with type designation(s)

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 **2022-11-10**

for **DNV**

This Certificate is valid until **2025-08-15**.

DNV local unit: **Long Beach**

Approval Engineer: **Jostein Sund Jensen**

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Frederik Tore Elter
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



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	Compass Safe Distance **
QSC Q-SYS Network Paging Stations	PS-1600G	Page station with command keypad and gooseneck microphone	9.4.x	Protected	620 mm
	PS-1600H	Page station with command keypad and handheld microphone	9.4.x	Protected	620 mm
Q-SYS Core	Core 3100	Q-SYS Core 3100 Enterprise Core	9.4.x	Protected	> 5 m
	Core 1100	Q-SYS Core 1100 Enterprise Core	9.4.x	Protected	> 5 m
	Core 6000 CXR (Dell PowerEdge XR 11)	Q-SYS Core 6000 Enterprise Core	9.4.x	A/A/A/B/*	465 mm
Amplifier	CX-Q8K8	Eight-channel Network Amplifier, max power up to 8000W	9.4.x	Protected	> 5 m
	CX-Q8K4	Four-channel Network Amplifier, max power up to 8000W	9.4.x	Protected	> 5 m
	CX-Q4K8	Eight-channel Network Amplifier, max power up to 4000W	9.4.x	Protected	> 5 m
	CX-Q4K4	Four-channel Network Amplifier, max power up to 4000W	9.4.x	Protected	> 5 m
	CX-Q2K4	Four-channel Network Amplifier, max power up to 2000W	9.4.x	Protected	> 5 m
Network equipment ²	Moxa EDS-G509	9G-port full Gigabit managed Ethernet switches (TAC TAA000006N)		Protected	> 5 m

Environment / Location classes in the table above are either referred to IEC 60945 environmental condition or are denoted in the following sequence: Temperature / Humidity / Vibration / EMC / Enclosure class based on DNV-CG-0339

Where enclosure class is denoted as “*”, required enclosure protection according to the rules to be provided upon installation onboard.

SW revision during type approval test: 9.4.3. This TAC covers SW revision: 9.4.x.

“***” the equipment shall be positioned outside the vicinity of a standard or a steering magnetic compass of > 5000mm if not shown differently

Application/Limitation

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.

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.

Type Approval documentation

DNV No	Drw No	Description	Rev
59	TAA0000348	Type Approval Certificate Dell PowerEdge XR11 and XR12	1
56	22584-10/30	Report: NVLAG, DNV-CG-0339, EMC and environment, Dell PowerEdge XR11 and XR12	Final 05
53	CMP101727 XR11	Report: SOLAS Type Approval Summary Report XR11	0B
52	QSCA0119	Report: PageStation IEC 60945 Radiated Emissions	00
51	CMP101699	Report: Page Station IEC 60945 Vibration Test	0A
50	System Install Manual	Manual: Q-SYS System Installation Manual for Type Approval Application	C
49		Report: Core3100 IEC60945LowTemperatureCore3100DNVWitnessTestReport	
48		Report: Core3100 IEC60945DryHeatCore3100DNVWitnessTestReport	
29	QSCA0114	Report: Core1100_3100_IEC60945_report_addendum_EMCC	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



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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 is 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>