



Product Service

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Technical Report No.

713202484

dated

22.02.2021

Client: Stamer Musikanlagen GmbH
Magdeburger Str. 8
66606 St. Wendel

Manufacturer and / or location of manufacturing: see client

Unit under test (UUT): Speaker box SI S210P

Test specification: Sealing test resp. test of degree of protection provided by enclosure to DIN EN 60529/VDE 0470 part 1: 2014

Test scope: Verification of suitability for intended application according the under position 3 detailed test specification

Test result: The units under test were opened. The visual inspection showed no ingress of dust and water. (see notes position 5 - test sequence). The presented unit met the requirements of protection class IP66

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Editor Hari Mountogianakis

Date of issue: 22.02.2021

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Phone: +49 621 395-805

Fax: + 49 621 395-604

E-Mail: haridimos.mountogianakis@tuvsud.com



TÜV SÜD Product Service GmbH

Mannheim Branch
Dudenstraße 28
68167 Mannheim
Germany

Accredited Test Laboratory

Deutsche Akkreditierungsstelle GmbH
(DAkkS):
Reg.Nr. D-PL-11321-02-00



Product Service

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1 Unit under test (UUT)

The units under test were Speaker boxes:

UUT No.	Type	Cover	Serial No.
1	SI S210P	white	Prototype 4 – P4
2		black	Prototype 4 – P4

2 Order

2.1 Date of order, client

Company Stamer Musikanlagen GmbH orders from TÜV SÜD Product Service GmbH with order sheet dated 12.11.2020 order No. 0713202484 and order sheet dated 03.02.2021 order No. 21026160 to test a.m. UUT.

2.2 Receipt of UUT

UUT No.1 was delivered by mail on 26.11.2020.
UUT No.2 was delivered by the client on 10.02.2021.

2.3 Reconsignment of UUT

The samples were taken by the client on 10.02.2021.

3 Test specification

3.1 Degree of protection

3.1.1 IP 6X

- Protected against access to hazardous parts with a wire
- Dust tight

The wire with 1.0 mm diameter shall be pressed with 1 N against every opening of the housing.

The access probe of 1 mm Ø shall not penetrate.

Housing of UUT connected to a vacuum pump with a low air pressure at ≤ 2 kPa (≤ 20 mbar)

Test dust: talcum powder ($< 75 \mu\text{m}$)

Test duration 8 h; flow rate of air volume < 40 -fold per h

No ingress of dust.



3.1.2 IP X6

- Protected against powerful water jets strong high-velocity water

Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.

Distance nozzle to UUT:	2.5 m to 3 m
Water flow rate:	100 l/min \pm 5%
Nozzle opening:	12.5 mm
Test duration:	1 min/m ² , at least 3 min

4 Test equipment

Equipment	Type	Ser. No.	Manufacturer	Calibrated until
Dust chamber 1	DST 2100	38011	Primus & Brandt GmbH	—
Flow rate measuring instrument	FMA 1718	284319-1 (07-10/41-11-001)	Omega	02/2022
Mass flow rate measuring instrument	FMA 1728	278430-1 (07-10/41-11-002)	Omega	02/2022
Test probe	wire: \varnothing 1.0 mm	SD01003 07-10/99-10-001	Primus & Brandt GmbH	07/2022
Force sensing device	M5-10	3484278; 07-10/15-12-001	Mark-10 Corporation	09/2022
Flow meter	DA10A11	007045; 07-10/41-03-001	ABB	01/2022
Hosing nozzle X6	12.5 mm \varnothing	n/a	TÜV SÜD Product Service	n/a
Stopwatch	n/a	381 1140	Testo	06/2021

All measuring equipment is calibrated regularly according the calibration instructions of TÜV SÜD PRODUCT SERVICE GmbH. All calibrations are traced back to national standards.

5 Test sequence

Test date: from 02.12.2020 to 10.02.2021

No.	Test specification	Period	Notes
1	Degree of protection against solid bodies - IP 6X - Dust	02.12.2020 to 03.12.2020	UUT 1: No ingress of dust visible.
	Degree of protection against solid bodies – IP 6X – Test probe Ø 1mm	03.12.2020	UUT 1: No ingress with the test probe Ø 1mm possible.
2	Degree of protection against water - IP X6	10.02.2021	UUT 2: No ingress of water was detected.

6 Photo documentation



1. UUT 1 in the dust chamber before IP 6X



2. UUT 1 in the dust chamber after IP 6X



3. UUT 1 after IP 6X, back side, protective grill removed



4. UUT 1 after IP 6X, front side, protective grill removed



5. Back speaker expanded; no ingress of dust visible



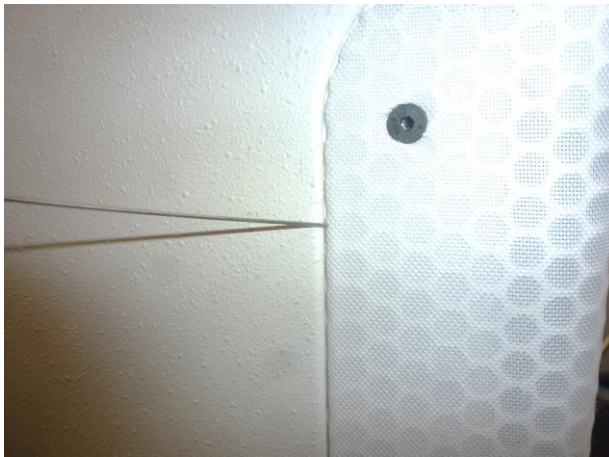
6. Back Speaker no of dust visible



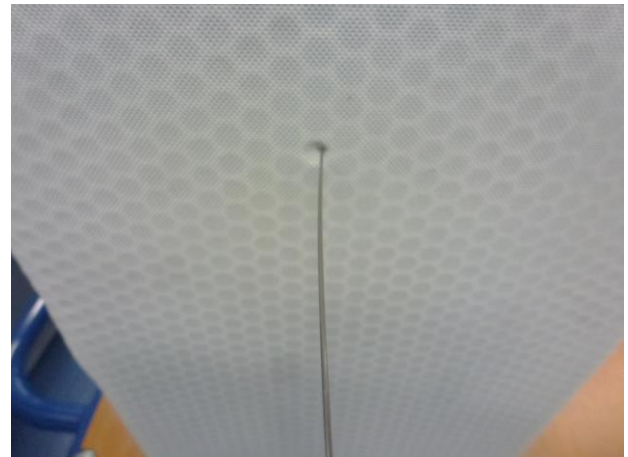
7. Front speaker expanded; no ingress of dust visible



8. Front speaker expanded; no ingress of dust visible



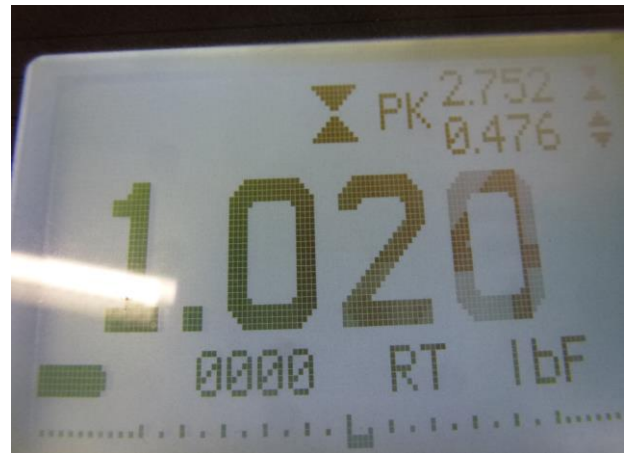
9. UUT 1, no ingress with the Ø 1 mm test probe possible



10. UUT 1, no ingress with the Ø 1 mm test probe possible



11. UUT 1, no ingress with the Ø 1 mm test probe possible



12. Test force 1N



13. UUT 2 during IP X6



14. UUT 2 during IP X6



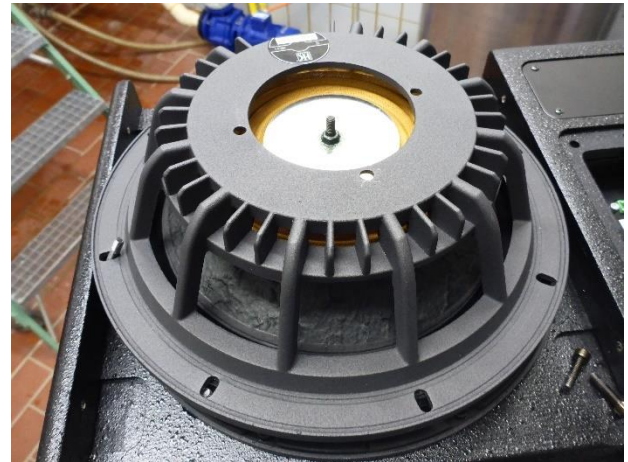
15. Connection Board no ingress of water



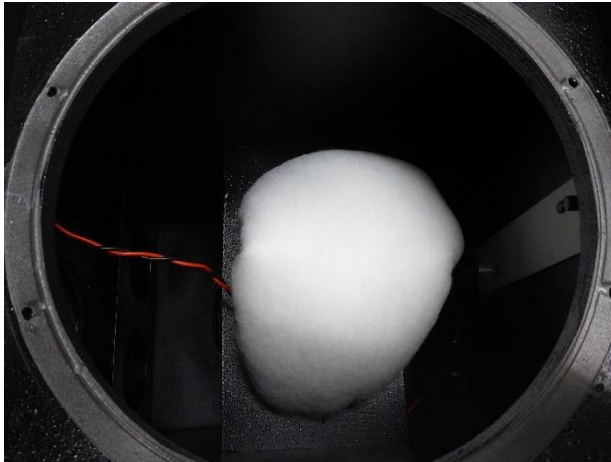
16. Connection Board no ingress of water



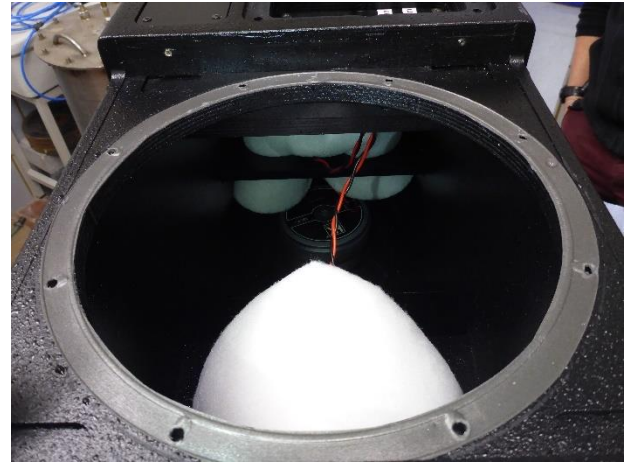
17. Speaker expanded; no ingress of water visible



18. Speaker expanded; no ingress of water visible



19. Speaker expanded; no ingress of water visible



20. Speaker expanded; no ingress of water visible

Verified
Signature



SIGN-ID 475651
22.02.2021

Uwe Marlok

Laboratory Manager

Edited
Signature



SIGN-ID 475536

Haridimos Mountogianakis

Test Engineer