

Test report No:
 NIE: 70131RAN.002A1

Test report

RF EXPOSURE REPORT ACCORDING TO IEEE Std C95.3-2021

(*) Identification of item tested	Wireless charger for Hearing Aids
(*) Trademark	Phonak
(*) Model and /or type reference	Phonak Life Charger
(*) Other identification of the product	SW version: N/A HW version: 045-3643
(*) Features	Wireless charging at 125KHz
(*) Manufacturer	Sonova AG Laubisruetistrasse 28 8712 - Stäfa - Switzerland
Test method requested, standard	IEEE Std C95.3-2021: "IEEE Recommended Practice for Measurements and Computations of Electric, Magnetic and Electromagnetic Fields With Respect to Such Fields, 0 Hz–300 GHz". FCC 47 CFR Part 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Miguel Lacave Antennas Lab Manager
Date of issue	2022-04-26
Report template No	FDT08_24 (*) "Data provided by the client"



Index

Competences and guarantees	3
General conditions	3
Uncertainty	3
Data provided by the client.....	3
Usage of samples	4
Test sample description	4
Identification of the client.....	4
Testing period and place.....	4
Document history.....	4
Environmental conditions	5
Remarks and comments	5
Testing verdicts.....	5
Summary	5
Appendix A: Test Results.....	6
General description of the device under evaluation	7
Evaluation Results.....	7
WPT Evaluation.....	7
Appendix B: RF Exposure Information	11
FCC RF Exposure evaluation for mobile devices.....	12
Appendix C: Photographs	13

Competences and guarantees

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Uncertainty

Uncertainty (factor $k=2$) was calculated according to the documents:

1. IEEE Std C95.3-2021: "IEEE Recommended Practice for Measurements and Computations of Electric, Magnetic and Electromagnetic Fields With Respect to Such Fields, 0 Hz–300 GHz".
2. DEKRA Testing and Certification, S.A.U. internal documents PODT000 and FAN40.

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested", "Features", "Other identification of the product" and "Test sample description").
2. Intended use distance

DEKRA Testing and Certification, S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by the client.

Sample M/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
70131/006	Wireless charger base	Mozart Wireless Charger Case Go Lite	2101NY04Y	2022-01-28
70131/007	USB-C cable	--	--	2022-01-28
70131/017	Hearing aid (left)	P30-RL	2133N17FK	2022-01-28
70131/018	Hearing aid (right)	P30-RL	2133N17FK	2022-01-28

1. Sample M/01 has undergone the test(s) specified in subclause "Test method requested".

Test sample description

The test sample consists of a wireless charger at 125 kHz with no radio communication functionalities with the client device.

Identification of the client

Company name: Sonova AG

Postal address: Laubisruetistrasse 28 8712 - Stäfa - Switzerland

Contact person: Claudio Zuin

Telephone / e-mail: +41 58 928 01 01 / claudio.zuin@sonova.com

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2022-03-21
Date (finish)	2022-03-30

Document history

Report number	Date	Description
70131RAN.002	2022-04-20	First release
70131RAN.002A1	2022-04-26	Second release: Trademark and Model name have been changed in the cover page. Measurements at 20 cm have been replaced by measurements values at 15 cm. This modification test report cancels and replaces the test report 70131RAN.002

Environmental conditions

Date	Max. Temp. °C	Min. Temp. °C	Max. Hum. %	Min. Hum. %	Limit
From 2022-03-21 to 2022-03-30	24.21	20.57	47.06	37.62	10-40 °C 0-90%

Remarks and comments

- The tests have been performed by the technical personnel: Francisco J. Sánchez.
- The instrumentation utilized to perform the tests covered in this test report is listed in the following table:

	Last Cal. date	Cal. due date	Control N°
1. Narda EHP-200A E and H Field Analyzer	2021/12	2023/12	7860
2. Low Dielectric Tripod Manfrotto H-491009-01	-	-	5261
3. Temperature and humidity logger HW GROUP HWg-STE	2021/04	2022/04	5780

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

Summary

FCC 47 CFR § 2.1091	VERDICT			
	N/A	P	F	NM
Inductive Wireless Power Transmission		P		

Appendix A: Test Results

General description of the device under evaluation

The device under test consists of a wireless charger at 125 kHz with no radio communication functionalities with the client device.

According to the manufacturer, during its normal use, the separation distance between the device and the body of nearby users will be greater than 15 cm.

RF Exposure evaluation for the Inductive Wireless Power Transmission has been conducted through field measurements (see Wireless Charger Evaluation section below).

Evaluation Results

Following results correspond to maximum measured field values:

Technology	Frequency (MHz)	Max. E-field (V/m)	Max. H-field (A/m)	Max Power Density (W/m ²)	E-field Limit (V/m)	H-field Limit (A/m)	Power Density Limit (W/m ²)	Verdict
Inductive Wireless Power Transmission	0.1248	0.38	0.134	-	614.00	1.63	-	PASS

Table 1: Max H-field and E-field results

WPT Evaluation

According to KDB 680106 D01, for devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310:

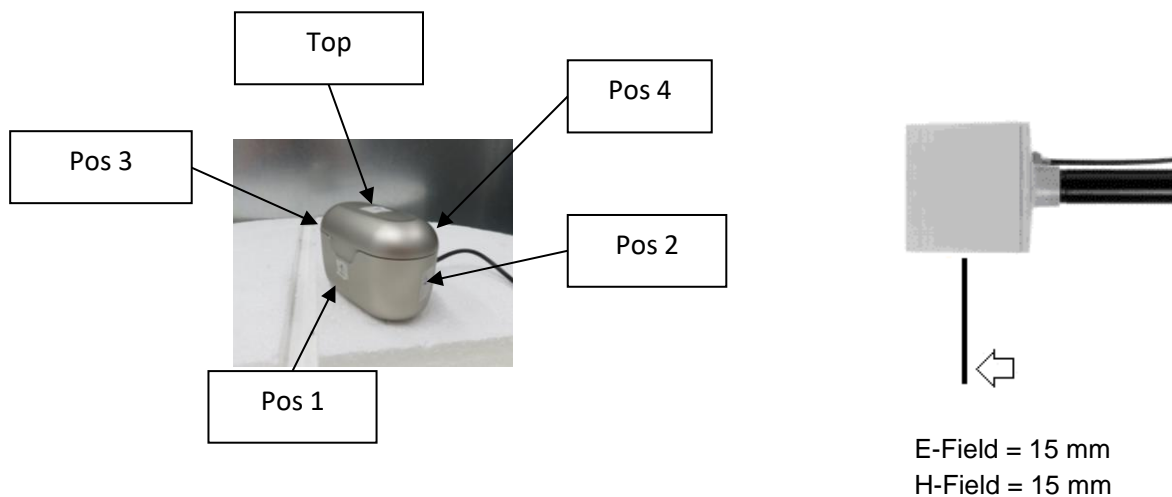


Figure 1: WPT measurement setup

Two testing setups have been measured in order to assess compliance for the device.

- Setup 1 – Charging setup with both hearing aids

For the normal charging setup, measurements at 15 cm distance have been performed for all device sides except for the back side, at different battery charge levels. Measurement at 20 cm has been performed for Top side.

- Setup 2 – Charger:

Measurements at 15 cm distance over the charger without any device charging were performed for all device sides except for the back side of the charger.

- Setup 1 Measurements

Test results for [1% battery charge level]

Test side	Distance to DUT (cm)	Frequency (MHz)	H-Field (A/m)	Limit (A/m)	% Limit	Verdict
Pos 1	15	0.1250	0.037	1.630	2.3	Pass
Pos 2	15	0.1248	0.031	1.630	1.9	Pass
Pos 3	15	0.1250	0.029	1.630	1.8	Pass
Pos 4	15	0.1248	0.030	1.630	1.8	Pass
Top	15	0.1248	0.132	1.630	8.1	Pass
Top	20	0.1248	0.060	1.630	3.7	Pass

Table 1: H-field measurement values

Test side	Distance to DUT (cm)	Frequency (MHz)	E-Field (V/m)	Limit (V/m)	% Limit	Verdict
Pos 1	15	0.1248	0.38	614.00	0.1	Pass
Pos 2	15	0.1248	0.29	614.00	0.0	Pass
Pos 3	15	0.1248	0.17	614.00	0.0	Pass
Pos 4	15	0.1215	0.16	614.00	0.0	Pass
Top	15	0.1248	0.27	614.00	0.0	Pass
Top	20	0.1248	0.13	614.00	0.0	Pass

Table 2: E-field measurement values

Test results for [50% battery charge level]

Test side	Distance to DUT (cm)	Frequency (MHz)	H-Field (A/m)	Limit (A/m)	% Limit	Verdict
Pos 1	15	0.1248	0.042	1.630	2.6	Pass
Pos 2	15	0.1248	0.032	1.630	1.9	Pass
Pos 3	15	0.1248	0.032	1.630	1.9	Pass
Pos 4	15	0.1248	0.036	1.630	2.2	Pass
Top	15	0.1248	0.134	1.630	8.2	Pass
Top	20	0.1248	0.061	1.630	3.8	Pass

Table 3: H-field measurement values

Test side	Distance to DUT (cm)	Frequency (MHz)	E-Field (V/m)	Limit (V/m)	% Limit	Verdict
Pos 1	15	0.1248	0.35	614.00	0.1	Pass
Pos 2	15	0.1248	0.35	614.00	0.1	Pass
Pos 3	15	0.1248	0.18	614.00	0.0	Pass
Pos 4	15	0.1245	0.15	614.00	0.0	Pass
Top	15	0.1248	0.24	614.00	0.0	Pass
Top	20	0.1248	0.11	614.00	0.0	Pass

Table 4: E-field measurement values

Test results for [99% battery charge level]

Test side	Distance to DUT (cm)	Frequency (MHz)	H-Field (A/m)	Limit (A/m)	% Limit	Verdict
Pos 1	15	0.1248	0.042	1.630	2.6	Pass
Pos 2	15	0.1248	0.030	1.630	1.8	Pass
Pos 3	15	0.1248	0.029	1.630	1.8	Pass
Pos 4	15	0.1248	0.032	1.630	2.0	Pass
Top	15	0.1248	0.129	1.630	7.9	Pass
Top	20	0.1248	0.059	1.630	3.6	Pass

Table 5: H-field measurement values

Test side	Distance to DUT (cm)	Frequency (MHz)	E-Field (V/m)	Limit (V/m)	% Limit	Verdict
Pos 1	15	0.1248	0.36	614.00	0.1	Pass
Pos 2	15	0.1250	0.28	614.00	0.0	Pass
Pos 3	15	0.1248	0.16	614.00	0.0	Pass
Pos 4	15	0.1250	0.15	614.00	0.0	Pass
Top	15	0.0820	0.27	614.00	0.0	Pass
Top	20	0.0820	0.13	614.00	0.0	Pass

Table 6: E-field measurements values

- Setup 2 Measurements

Test side	Distance to DUT (cm)	Frequency (MHz)	H-Field (A/m)	Limit (A/m)	% Limit	Verdict
Pos 1	15	0.1255	0.019	1.630	1.2	Pass
Pos 2	15	0.1235	0.018	1.630	1.1	Pass
Pos 3	15	0.1285	0.019	1.630	1.2	Pass
Pos 4	15	0.1228	0.020	1.630	1.2	Pass
Top	15	0.1220	0.018	1.630	1.1	Pass

Table 7: H-field measurement values

Test side	Distance to DUT (cm)	Frequency (MHz)	E-Field (V/m)	Limit (V/m)	% Limit	Verdict
Pos 1	15	0.1210	0.15	614.00	0.0	Pass
Pos 2	15	0.1260	0.15	614.00	0.0	Pass
Pos 3	15	0.1250	0.15	614.00	0.0	Pass
Pos 4	15	0.1293	0.15	614.00	0.0	Pass
Top	15	0.1255	0.15	614.00	0.0	Pass

Table 8: E-field measurement values

All H-Field and E-Field values are in compliance to values shown into §1.1310, paragraph (e), “Table 1: limits for Maximum Permissible Exposure (MPE).

Appendix B: RF Exposure Information

FCC RF Exposure evaluation for mobile devices

Devices operating in standalone mobile device exposure conditions may contain a single transmitter or multiple transmitters that do not transmit simultaneously. A minimum test separation distance ≥ 20 cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits. The distance must be at least 20 cm and fully supported by the operating and installation configurations of the transmitter and its antenna(s), according to the source-based time-averaged maximum power requirements of § 2.1091(d)(2). In cases where cable losses or other attenuations are applied to determine compliance, the most conservative operating configurations and exposure conditions must be evaluated. The minimum test separation distance required for a device to comply with mobile device exposure conditions must be clearly identified in the installation and operating instructions, for all installation and exposure conditions, to enable users and installers to comply with RF exposure requirements. For mobile devices that have the potential to operate in portable device exposure conditions, similar to the configurations described in § 2.1091(d)(4), a KDB inquiry is required to determine the SAR test requirements for demonstrating compliance.

When a device qualifies for the categorical exclusion provision of § 2.1091(c), the minimum test separation distance may be estimated, when applicable, by simple calculations according to plane-wave equivalent conditions, to ensure the transmitter and its antenna(s) can operate in manners that meet or exceed the estimated distance. The source-based time-averaged maximum radiated power, according to the maximum antenna gain, must be applied to calculate the field strength and power density required to establish the minimum test separation distance. When the estimated test separation distance becomes overly conservative and does not support compliance, MPE measurement or computational modeling may be used to determine the required minimum separation distance.

According to §1.1310 Radiofrequency radiation exposure limits, paragraph (e), the limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields are:

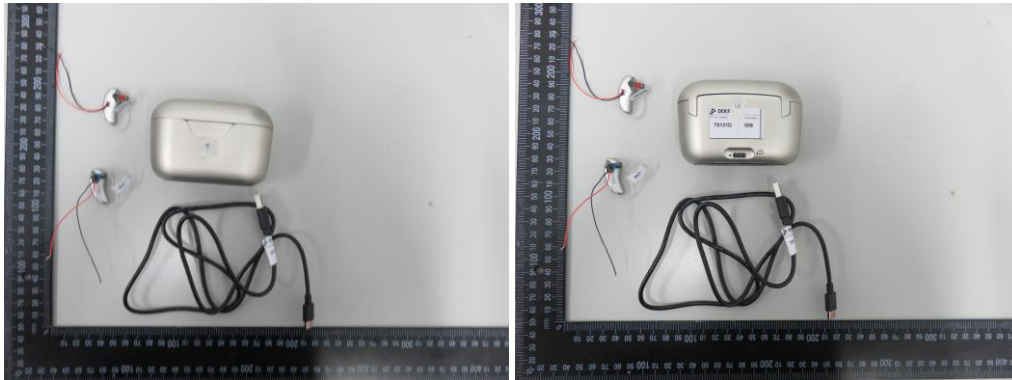
TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3–3.0	614	1.63	* 100	6
3.0–30	1842/f	4.89/f	* 900/f ²	6
30–300	61.4	0.163	1.0	6
300–1,500 .....	.....	.....	f/300	6
1,500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	* 100	30
1.34–30	824/f	2.19/f	* 180/f ²	30
30–300	27.5	0.073	0.2	30
300–1,500 .....	.....	.....	f/1500	30
1,500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

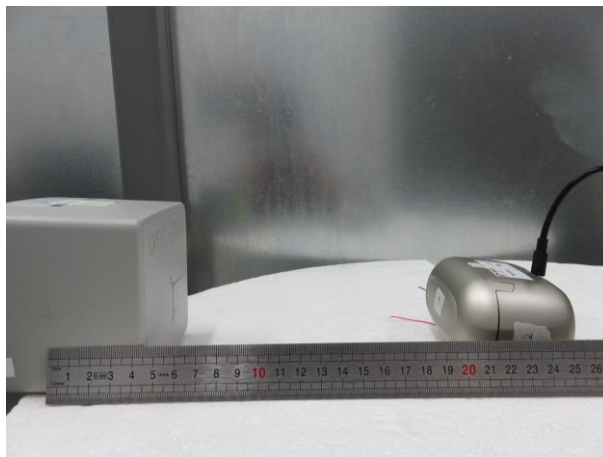
Appendix C: Photographs

Equipment view



H-Field and E-Field measurement for setup1 and setup 2 views

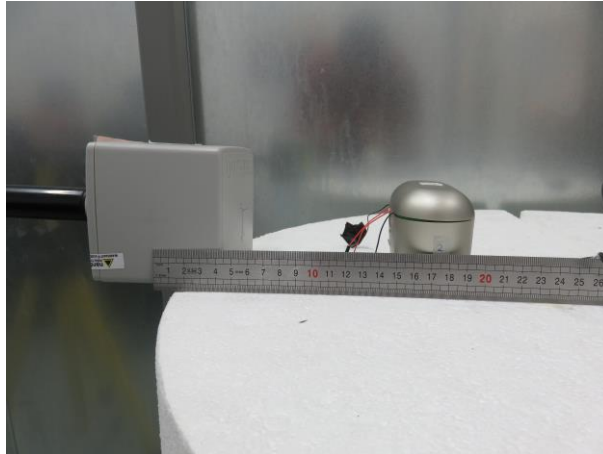
Top – 20 cm



Top – 15 cm



Pos 1 – 15 cm



Pos 2 – 15 cm



Pos 3 – 15 cm



Pos 4 – 15 cm

