

Test report

337762-2TRFWL

Date of issue: April 9, 2018

Applicant:

Phonak Communications AG

Product:

434MHz Receiver in Wireless Microphone (ALD)

Model:

Roger Table Mic II

FCC ID:

KWC-TX29V1

IC Reg. Number:

2262A-TX29V1

Specifications:

◆ **FCC 47 CFR Part 15, Subpart B**

Frequency Hopping Transmitters / Digital Transmission Systems

◆ **RSS-310, Issue 4, July 2015**

Licence-Exempt Radio Apparatus: Category II Equipment

Test location

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Website	www.nemko.com
Site number	FCC: CA2040; IC: 2040A-4 (3 m semi anechoic chamber)

Tested by	Frode Sveinsen, Senior Wireless Engineer
Reviewed by	Andrey Adelberg, Senior Wireless/EMC Specialist
Date	April 9, 2018
Signature of reviewer	

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

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CONTENTS

1	INFORMATION	4
1.1	Applicant information	4
1.2	Tested Item	4
1.3	Testing dates	4
1.4	Description of Tested Device	4
1.5	Test Conditions	5
1.6	Test Engineer(s)	5
1.7	Other Comments	5
2	TEST REPORT SUMMARY	6
2.1	General	6
2.2	Test Summary	7
3	TEST RESULTS	8
3.1	Power Line Conducted Emissions	8
3.2	Radiated Emissions, below 1GHz	10
3.3	Radiated Emissions, above 1GHz	12
4	MEASUREMENT UNCERTAINTY	14
5	TEST SETUPS	15
5.1	Power Line Conducted Emissions Test	15
6	TEST EQUIPMENT USED	16

1 INFORMATION

1.1 Applicant information

Name :	Phonak Communications AG
Address:	Laenggasse 17 CH-3280 Murten Switzerland

1.2 Tested Item

Name:	Phonak
Additional information:	434MHz Receiver for Remote Control
Model name:	Roger Table Mic II
FCC ID:	KWC-TX29V1
Industry Canada Registration Number:	2262A-TX29V1
Serial number:	/
Trademark:	PHONAK
Hardware identity and/or version:	V2
Software identity and/or version:	V1801
Tested to ISSED Radio Standard (RSS):	RSS-310 Issue 4; RSS-Gen Issue 4
Frequency Range:	434.050 MHz
Operating Modes :	RX
Conducted Output Power:	RX Only
Antenna Connector:	None
Number of Antennas:	1
Antenna Diversity Supported:	No
Power Supply:	Internal Battery and External Power Adaptor for Charging and Operation Secondary Battery (3.7V Li-Ion) and USB Adaptor (5.0V _{DC})
Interface:	USB for Charging and SW updates

1.3 Testing dates

Tested in period:	January 22, 2018 to January 26, 2018 and February 12, 2018 to February 16, 2018
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1.4 Description of Tested Device

The tested equipment is a 434 MHz Receiver for the wireless remote control of a 2.4 GHz Table Mic (ALD). This test report covers only the 434 MHz Receiver, the 2.4 GHz Transceiver is covered by Nemko test report no. 337762-1TRFWL.

1.5 Test Conditions

Temperature:	15–30 °C
Relative humidity	20–75 %
Air pressure	860–1060 mbar
Normal test voltage	3.7 V _{DC} (Nominal Voltage)

All tests were performed with the EUT powered from a fully charged battery. For radiated emissions tests the EUT was also powered from a USB charger supplied by the manufacturer. Power Line Conducted emissions Tests were performed with the supplied power adaptor.

Values above are the limit registered during the test period.

1.6 Test Engineer(s)

Frode Sveinsen

1.7 Other Comments

Radiated measurements were performed with a fully charged battery. Measurements below 1 GHz was performed with the EUT charging from a USB power adaptor.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards.

The tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15 Subpart B and Industry Canada RSS-310 Issue 4 / RSS-Gen Issue 4 / RSP-100 Issue 11.

All tests were conducted in accordance with ANSI C63.4-2014.

A description of the test facility is on file with the FCC and Industry Canada.

☒ New Submission

☒ Production Unit

☐ Class II Permissive Change

☐ Pre-production Unit

CYY Equipment Code

☐ Family Listing



THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

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2.2 Test Summary

Name of test	FCC Part 15 Subpart B reference	Industry Canada RSS-310, Issue 4 RSS-GEN, Issue 4 Paragraph #	Result
Power Line Conducted Emission	15.107(a)	3.1 8.8 (RSS-GEN)	Complies
Spurious Emissions (Radiated)	15.109(a)	3.1 7.1 (RSS-GEN)	Complies

3 TEST RESULTS

3.1 Power Line Conducted Emissions

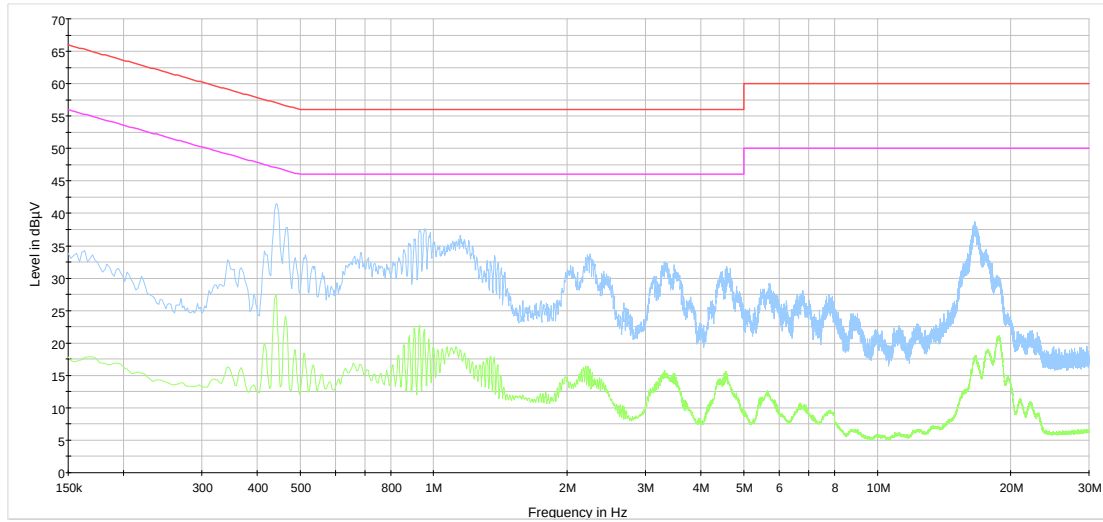
FCC Part 15.207(a)

RSS-GEN Clause 8.8

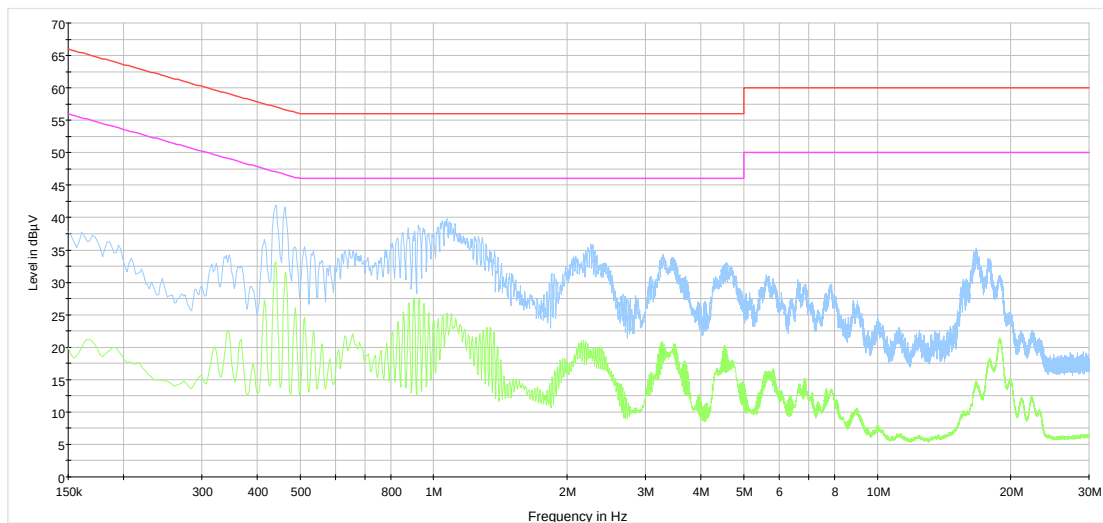
Measurement procedure: ANSI C63.4-2014 using 50 μ H/50 ohms LISN.

Test Results: Complies

Measurement Data: See attached plots



USB Adaptor (120V 60 Hz), Phase N



USB Adaptor (120V 60 Hz), Phase L1

3.2 Radiated Emissions, below 1GHz

FCC 15.109

ISED RSS-GEN, Issue 4, Clause 8.9

Test Results: Complies

Radiated emission 30–1000 MHz

Measuring distance 3 m.

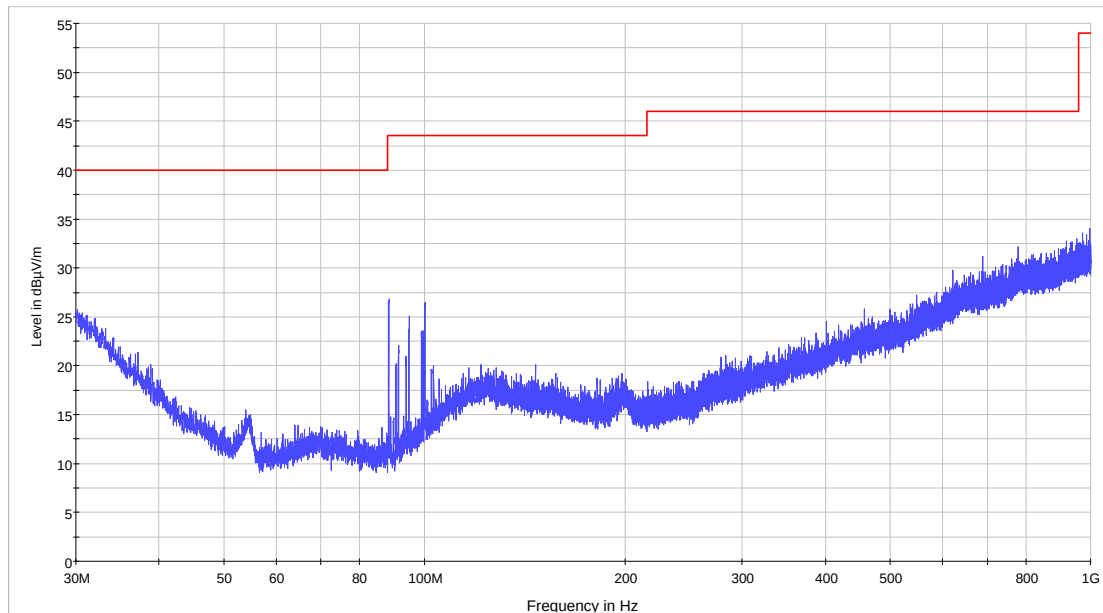
Measured values:

No spurious emissions were detected.

See attached plots.

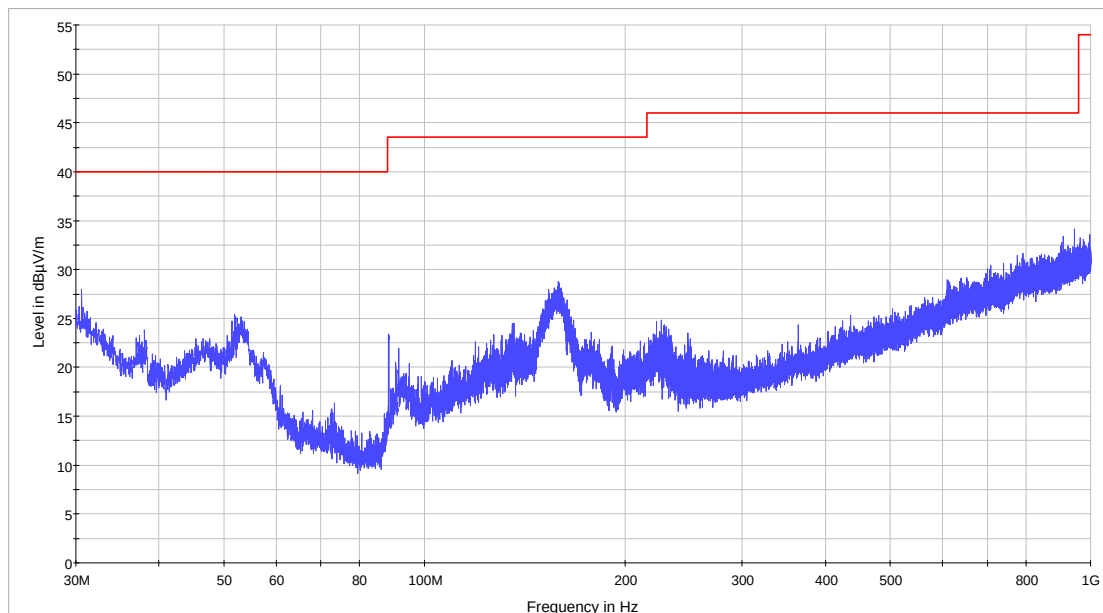
Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 4, clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency (MHz)	Quasi Peak (µV/m)	Quasi Peak (dBµV/m)
30–88	100	40.0
88–216	150	43.5
216–960	200	46.0
Above 960	500	54.0



Phonak Ingvar v2
— FCC Part 15 and ICES - Class B 3m Q-Peak Limit
— Preview Result 1-PK+

Radiated Emissions, 30–1000 MHz, Powered from Battery



Phonak Ingvar v2
— FCC Part 15 and ICES - Class B 3m Q-Peak Limit
— Preview Result 1-PK+

Radiated Emissions, 30–1000 MHz, Connected to USB Adaptor

3.3 Radiated Emissions, above 1GHz

FCC 15.205, 15.209

ISED RSS-GEN, Issue 4, Clause 8.9

Test Results: Complies

Measurement Data:

Radiated Emissions, 1000–2300 MHz

Measuring distance 3 m.

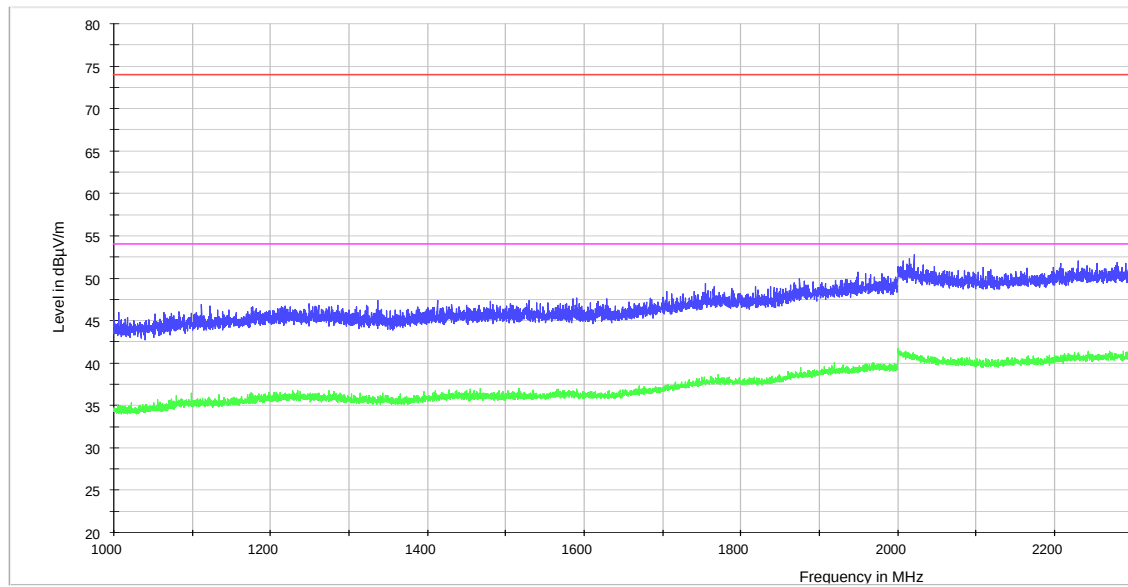
Measured values:

No spurious emissions were detected.

See attached plots.

Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 4, clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency (MHz)	AV (dBµV/m)	Peak (dBµV/m)
Above 1 GHz	54.0	74.0



Phonak Ingvar v2
FCC Part 15 and ICES- Class B 3m Peak Limit
FCC Part 15 and ICES- Class B 3m Average Limit
Preview Result 1-PK+
Preview Result 2-AVG

Radiated Emissions, 1–3 GHz

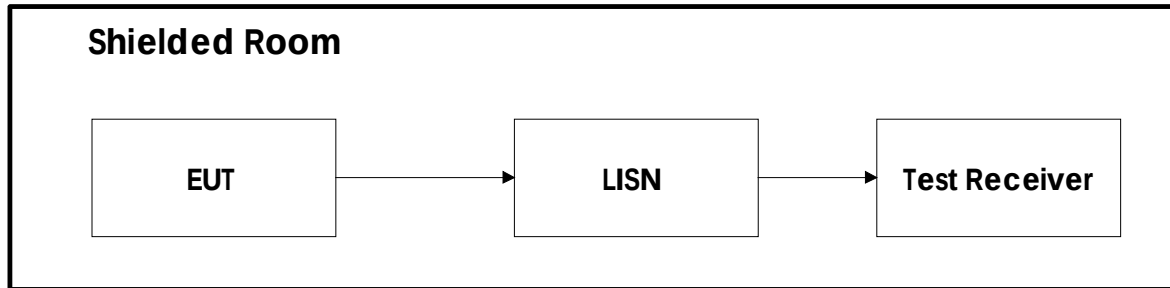
4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		Uncertainty
Spurious Emissions, Radiated	< 1 GHz	±2.5 dB
	> 1 GHz	±2.2 dB
Power Line Conducted Emissions		+2.9 / -4.1 dB
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

5 Test Setups

5.1 Power Line Conducted Emissions Test



Test Set-Up 5

6 Test Equipment Used

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Testhouse.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	ESU 26	Receiver/spectrum analyzer	Rohde & Schwarz	FA002043	2018.01	2019.01
2	JB3	Hybrid Antenna	Sunol	FA002108		
3	Model 3117	Horn Antenna with Preamplifier	EMCO	FA002840		
4	ENV216	LISN	Rohde & Schwarz	FA002023	2017.05	2018.05

Note: COU – calibrate on use; N/A – Not Applicable

The software listed below has been used for one or more tests.

No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC 32	9.26.01	Software for EMC Measurements of Power-Line Conducted Tests

Revision history

Version	Date	Comment	Sign
1.0	2018.04.05	First edition	FS