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FCC SAR Exclusion Report

Product name : R 520 E3 Connect

Applicant : Lukas Hydraulik GmbH

FCC ID : 2A3RJ-E3CR

Test report No. : 210300633 008 Ver 4.00

Laboratory information

Accreditation

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2017. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

Telefication is designated by the FCC as an Accredited Test Firm for compliance testing of equipment subject to Certification under Parts 15 & 18. The Designation number is: NL0001.

Telefication is a Wireless Device Testing laboratory recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

Telefication is a registered Conformity Assessment body (CAB) under the Japan-EC MRA (Agreement on Mutual Recognition between Japan and the European Community). The registration number is: 201.

Documentation

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at Telefication Netherlands.

Testing Location

Test Site	Kiwa Telefication BV
Test Site location	Wilmersdorf 50 7327 AC Apeldoorn The Netherlands Tel. +31 88998 3393
Test Site FCC	NL0001
CABID	NL0001

Revision History

Version	Date	Remarks	By
v1.00	30-06-2021	Release version	R.T
v2.00	22-12-2021	Updated FCC + IC ID	R.T
v3.00	23-03-2022	Updated Clause 1.4 from mobile to portable Clause 1.4.1 updated Wi-Fi output power	R.T
V4.00	01-12-2023	Updated model list	LdG

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1 General Description

1.1 Applicant

Client name:	Lukas Hydraulik GmbH
Address	Weinstrasse 39, 91058 Erlangen, Germany
Telephone:	+49 9131 / 698 - 274
E-mail:	tlittwin@idexcorp.com
Contact name:	Thomas Littwin

1.2 Manufacturer

Manufacturer name:	Hurst Jaws of Life INC
Address:	711 North Post Road, 28150, NC, Shelby, USA
Telephone:	+1 800 537 3646
E-mail:	afinch@idexcorp.com
Contact name:	Adam Finch

1.3 Tested Equipment Under Test (EUT)

Product name:	R520 E3 Connect
Brand name:	HURST Jaws of Life
Product type:	Hydraulic Rescue Tool
FCC ID:	2A3RJ-E3CR
Software version:	-
Hardware version:	-

Overview of variant models

Model overview

OEM/Variant	Description	Trademark	Type Designation
Variant	Hydraulic Rescue Tool	HURST	R 320 E3 Connect
OEM	Hydraulic Rescue Tool	HURST	R 520 E3 Connect
Variant	Hydraulic Rescue Tool	HURST	R 521 E3 Connect
Variant	Hydraulic Rescue Tool	HURST	R 522 E3 Connect
Variant	Hydraulic Rescue Tool	HURST	CR 522 E3 Connect

1.4 Transmitter specifications

Transmitter 1 (WIFI B)

Variable (unit)	Value	Symbol
Conducted time-averaged output power (mW)	70,79	**P**
Time-averaged output power ERP (mW)	70,79	**P_{ERP}**
Operating frequency range (MHz)	2412	**f**
Separation distance (cm)	3.5	**d**
Separation distance (m)	0.035	**R**

Note: The output power of the WIFI B module can found in test report 210300633 006

Transmitter 2 (BT)

Variable (unit)	Value	Symbol
Conducted time-averaged output power (mW)	10	**P**
Time-averaged output power ERP (mW)	10	**P_{ERP}**
Operating frequency range (MHz)	2402	**f**
Separation distance (cm)	3.5	**D**
Separation distance (m)	0.035	**R**

Note: The output power of the BT module can be found in test report test report No. RSHD200218007-00A

1.5 Evaluation calculations

Transmitter 1
Transmitter 1 is evaluated according to method B of KDB 447498 D04 v01

Method B:

$$P_{th}(mW) = \begin{cases} ERP_{20cm}\left(\frac{d}{20cm}\right)^{x} & d \le 20\ cm \\ ERP_{20cm} & 20\ cm < d \le 40\ cm \end{cases}$$

Where:

$$x = -\log_{10}\left(\frac{60}{ERP_{20cm} * \sqrt{f}}\right)$$

$$ERP_{20cm}(mW) = \begin{cases} 2040 * f & 0.3\ GHz \le f < 1.5\ GHz \\ 3060 & 1.5\ GHz \le f \le 6.0\ GHz \end{cases}$$

Filling in the values of d (cm) and f (GHz) as reported in clause 2.1 in the equations above gives the result:
P_{th} = 113 mW
P or P_{ERP} = 70.79 mW which is less than the calculated P_{th} so the EUT complies with the SAR based exemption requirement.

Transmitter 2

Transmitter 2 is evaluated according to method B of KDB 447498 D04 v01

Method B:

$$P_{th}(mW) = \begin{cases} ERP_{20cm}\left(\frac{d}{20cm}\right)^{x} & d \le 20\ cm \\ ERP_{20cm} & 20\ cm < d \le 40\ cm \end{cases}$$

Where:

$$x = -\log_{10}\left(\frac{60}{ERP_{20cm} * \sqrt{f}}\right)$$

$$ERP_{20cm}(mW) = \begin{cases} 2040 * f & 0.3\ GHz \le f < 1.5\ GHz \\ 3060 & 1.5\ GHz \le f \le 6.0\ GHz \end{cases}$$

Filling in the values of d (cm) and f (GHz) as reported in clause 2.1 in the equations above gives the result:
P_{th} = 113 mW
P or P_{ERP} = 10 mW which is less than the calculated P_{th} so the EUT complies with the SAR based exemption requirement.

1.6 Conclusion

Since the EUT does not cause exposure in excess of the general population limit, no additional mitigation actions are required.