

FCC SAR Exclusion Report

Product name	: Chirp 2/Chirp+ 2/ECHO+
Applicant	: Deeper, UAB
FCC ID	: 2AHKO-CRP
ISED ID	: 21307-CRP

Test report No. : 201200772 002 Ver 1.0

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

Revision History

Version	Date	Remarks	By
v1.00	17-05-2021	Release version	PvW

Table of Contents

Revision History	2
1 General Description.....	4
1.1 Applicant.....	4
1.2 Manufacturer	4
1.3 Tested Equipment Under Test (EUT)	4
1.4 SAR Measurement Evaluation	5
1.4.1 Maximum Output Power.....	5
1.4.2 SAR Testing Exclusions, Mobile use.....	5
1.5 Summary.....	5

1 General Description

1.1 Applicant

Client name: Deeper, UAB
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Telephone: --
E-mail: Mindaugas.spelveris@deeper.eu
Contact name: Mindaugas Špelveris

1.2 Manufacturer

Manufacturer name: Deeper, UAB
Address: Antakalnio str. Vilnius, Lithuania
Telephone: +37066261439
E-mail: Mindaugas.spelveris@deeper.eu
Contact name: Mindaugas Špelveris

1.3 Tested Equipment Under Test (EUT)

Product name: Chirp+ 2
Brand name: Deeper
Product type: Wireless sonar with GNSS and temperature sensor
Model(s): Chirp+ 2 (GNSS and temperature sensor)
Chirp+ 2 (GNSS, no temperature sensor)
Chirp 2 (no GNSS, only temperature sensor)
Chirp 2 (no GNSS, no temperature sensor)
ECHO+
FCC ID: 2AHKO-CRP
ISED ID: 21307-CRP
Software version: --
Hardware version: --

1.4 SAR Measurement Evaluation

1.4.1 Maximum Output Power

The maximum conducted output power as shown below is taken from Telefication test report no. 201200772 001. 802.11b has the highest output power of the available technologies.

Mode	Output power (dBm)
802.11b	23.9

1.4.2 SAR Testing Exclusions, Mobile use

Calculation method of RF Safety Distance:

$$PD = 10 * \frac{P_{out}(EIRP)}{4\pi r^2}$$

Where:

PD = Power Density in W/m^2

Pout = Output power in mW

R = Distance between observation point and centre of the radiator in cm

Antenna

Technology	802.11b/g/n
Antenna type	Spiral monopole
Antenna gain	-2.3 dBi

Note: antenna gain is declared by the manufacturer.

Calculation results

Technology	Frequency (MHz)	Max power EIRP (mW)	Distance (cm)	Power density (W/m^2)	Limit (W/m^2)
802.11b	2412	114.5	20	2.28	10

1.5 Summary

Since the SAR testing for all device orientations apply SAR test exclusion per KDB 447498, SAR testing for this device is not required.