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The Netherlands
Chamber of Commerce
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FCC SAR Exclusion Report

Product name	: PTO-Controller
Applicant	: Zuidberg Frontline Systems B.V.
Contains FCC ID	:SH6MDBT42Q

Test report No. : P000056040 004 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.
The Industry Canada company number for Telefication is: 4173A.

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
V0.5	22-07-2022	Draft	R.T
V1.0	22-07-2022	Initial release	R.T

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1 General Description

1.1 Applicant

Client name:	Zuidberg Frontline Systems B.V.
Address	Buitenveld 5, 8307 DE, Ens, The Netherlands
Telephone:	+31527253550
E-mail:	zwaan@zuidberg.nl
Contact name:	Gerrit de Zwaan

1.2 Manufacturer

Manufacturer name:	Zuidberg Frontline Systems B.V.
Address:	Buitenveld 5, 8307 DE, Ens, The Netherlands
Telephone:	+31527253550
E-mail:	zwaan@zuidberg.nl
Contact name:	Gerrit de Zwaan

1.3 Tested Equipment Under Test (EUT)

Product name:	PTO-Controller
Brand name:	Zuidberg
Product type:	Power Take Off Controller
Variant model(s):	"See Table below"
Software version:	-
Hardware version:	-
Date of receipt	01-07-2022
Tests started:	04-07-2022
Testing ended:	04-07-2022

Overview variants

Type	Product description	Trademark	Type designation
Variant	PTO_CONTROLL ER_UNI_3-PINS	Zuidberg	8002006 0
Variant	PTO_CONTROLL ER_INT_4-PINS	Zuidberg	8002007 0
Main	PTO_CONTROLL ER_UNI_8-PINS	Zuidberg	8002008 0

1.4 Applicable standards

47 CFR § 1.1307 (b)(1)(i)(A)

1.5 Conclusions

The sample of the product showed **NO NON-COMPLIANCES** to the specifications stated in paragraph 1.4 of this report.

The results of the test as stated in this report, are exclusively applicable to the product items as identified in this report. Telefication accepts no responsibility for any properties of product items in this test report, which are not supported by the tests as specified in paragraph 1.4 *"Applicable standards".*

Assessment is performed by:

Name : Raoul Tolud, MSc

Review of assessment methods and report by:

Name : Koray Korcum, M.Sc.

The above conclusions have been verified by the following signatory:

Date : 12-09-2022

Name : Koray Korcum, M.Sc.

Function : Test Engineer

Signature :

2 SAR exclusion Evaluation

2.1 Transmitter specifications

Transmitter 1

Variable (unit)	Value	Symbol
Conducted time-averaged output power (mW)	2.26	**P**
Time-averaged output power ERP (mW)	2.26	$\mathbf{P_{ERP}}$
Operating frequency range (MHz)	2402	**f**
Separation distance (cm)	20	**d**
Separation distance (m)	0.3	**R**

Note: The EUT contains a MDBT42Q-U radio module

2.2 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} = 3060 mW
P or P_{ERP} = 2.26 mW which is less than the calculated P_{th} so the EUT complies with the SAR based exemption requirement.

2.3 Conclusion

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