FCC SAR Exclusion Report

Product name	: Jlink Pro Plus
Applicant	: JOZ B.V
FCC ID	: 2BGQ2JLINK
ISED ID	: 32602-JLINK

Test report No. : P000394690 003 Ver 2.0

Laboratory information

Accreditation

Kiwa Nederland B.V. 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 L248 and is granted by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

Kiwa Nederland B.V. 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.

Kiwa Nederland B.V. 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 Kiwa Nederland B.V. is: 4173A. The CABID is NL0001.

Kiwa Nederland B.V. 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 Kiwa Nederland B.V.

Testing Location

Test Site	Kiwa Nederland B.V.
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
v0.50	15-10-2024	First draft	TK
v1.00	21-10-2024	Final release	TK
V2.00	20-11-2024	Change in EUT distance	TK

Table of Contents

1 General Description

1.1 Applicant

Client name:	JOZ B.V.
Address:	Industrieweg 5, Westwoud
Country:	The Netherlands
Telephone:	+31 228566500
E-mail:	barath.kumar@joz.nl

1.2 Manufacturer

Manufacturer name:	JOZ B.V.
Address:	Industrieweg 5, Westwoud
Country:	The Netherlands
Telephone:	+31 228566500
E-mail:	barath.kumar@joz.nl

1.3 Tested Equipment Under Test (EUT)

Product name:	Jlink Pro Plus
Brand name:	JOZ B.V.
FCC ID:	2BGQ2JLINK
IC:	32602-JLINK
Product type:	Access point
Model(s):	N.A.
Batch and/or serial No.	20900643
Software version:	3.7.11
Hardware version:	A
Date of receipt	17-04-2024
Tests started:	29-07-2024
Testing ended:	31-07-2024

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. Kiwa Netherland B.V. 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 : Ing. Tom Keltjens

Review of assessment methods and report by:

Name : Paul van Wanrooij, BaSC

The above conclusions have been verified by the following signatory:

Date : 26-11-2024

Name : P. van Wanrooij

Function : Test Engineer

Signature :

2 SAR exclusion Evaluation

2.1 Transmitter specifications

Transmitter 1

Variable (unit)	Value	Symbol
Conducted time-averaged output power (mW)	**38.9**	**P**
Time-averaged output power ERP (mW)	**48.98**	**P_{ERP}**
Operating frequency range (MHz)	**2412**	**f**
Separation distance (cm)	**20**	**d**
Separation distance (m)	**0.2**	**R**

Transmitter 2

Variable (unit)	Value	Symbol
Conducted time-averaged output power (mW)	**2.57**	**P**
Time-averaged output power ERP (mW)	**3.24**	**P_{ERP}**
Operating frequency range (MHz)	**2480**	**f**
Separation distance (cm)	**20**	**d**
Separation distance (m)	**0.2**	**R**

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} = 48.98 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:

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

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

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} = 3.24 mW which is less than the calculated P_{th} so the EUT complies with the SAR based exemption requirement.

Assessment for multiple transmitters capable of transmitting simultaneously
In the case of RF sources operating in the same time averaging period, evaluate if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\frac{P_1}{P_{th1}} + \frac{P_2}{P_{th2}} + \cdots + \frac{P_n}{Pth_n} \leq 1$$

Where P_x is the calculated power and P_{thx} the calculated limit for each transmitter.

$$\frac{48.98}{3060} + \frac{3.24}{3060} = 0.017$$

$$0.017 \leq 1$$

2.3 Conclusion

Since the EUT does not cause exposure in excess of the general population limit (defined in 47 CFR 1.1310 e) (ii)), no additional mitigation actions are required.

<<END OF REPORT>>