

REPORT ON EXPOSURE TO ELECTROMAGNETIC FIELDS

No. 2019843STO-307

EQUIPMENT

Equipment: Remote care solution
Type/Model: Hub
Manufacturer: Pink Nectarine Health AB
Tested by request of: Pink Nectarine Health AB

SUMMARY

Based on the assessment in this statement, the equipment is determined to comply with the following requirements without testing:

CFR 47 §1.1307, §1.1310
RSS-102 Issue 5

Date of issue: December 15, 2020

Tested by:



Robert Hietala

Approved by:



Björn Utermöhl

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Revision History

Test report number	Date	Description	Changes
2019843STO-307	December 15, 2020	First release	--

CONTENTS

	Page
1 Client Information	4
2 Equipment	4
2.1 Identification of the equipment	4
3 Test Specifications	5
3.1 Standards	5
3.2 Additions, deviations and exclusions from standards	5
4 Summary	6
5 RF Exposure.....	7
5.1 Limits	7
5.2 Calculations.....	8
5.3 Results, single transmitter	8
5.4 Results, multiple transmitters	8

1 CLIENT INFORMATION

This assessment has been done by request of:

Company	Pink Nectarine Health AB Munkbron 11 111 28 Stockholm Sweden
Name of contact	Tobias Linghammar, +46 70 461 48 27

2 EQUIPMENT

2.1 Identification of the equipment

Equipment:	Remote care solution
Type/Model:	Hub
Brand name:	Nectarine Health
Manufacturer:	Pink Nectarine Health AB
Transmitter frequency range:	Bluetooth Low Energy: 2402 – 2480 MHz Wi-Fi 2.4 GHz: 2412 – 2472 MHz Wi-Fi 5 GHz: 5150 – 5850 MHz
Measured output power to antenna:	Bluetooth low energy ¹ : +4.9 dBm Wi-Fi 2.4 GHz ² : +21.9 dBm Wi-Fi 5 GHz ³ : +19.8 dBm
Declared output power to antenna:	Bluetooth low energy: +6.0 dBm Wi-Fi 2.4 GHz: +22.0 dBm Wi-Fi 5 GHz: +21.0 dBm
Antenna gain:	Bluetooth low energy: +0.4 dBi Wi-Fi 2.4 GHz: -0.5 dBi Wi-Fi 5 GHz: +0.8 dBi
User separation distance:	20 cm
Exposure conditions:	☐ Controlled environment (occupational) ☒ Uncontrolled environment (general population)

¹ Reference for measurement: Intertek Test Report 2019843STO-304

² Reference for measurement: Nore Testing Center Report No NTC1712035FV00

³ Reference for measurement: Testing Centre Technology Report No TCT171018E032

3 TEST SPECIFICATIONS

3.1 Standards

CFR 47: Code of Federal Regulations Title 47: Telecommunications §1.1307, §1.1310
KDB447498 D01 v06

RSS-102: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

3.2 Additions, deviations and exclusions from standards

No additions, deviations or exclusions have been made from standards.

4 SUMMARY

The evaluation has been carried out at the Intertek Semko AB premises in Kista, Sweden.
The results in this report apply only to sample tested:

Test	Result
RF Exposure, single transmitter	PASS
RF Exposure, multiple simultaneous transmitters	PASS

5 RF EXPOSURE

Result, single transmitter:	PASS
Result, multiple transmitter:	PASS

5.1 Limits

Reference: CFR 47 §1.1310 TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

Reference: RSS-102 – Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5

Section 2.5.2,

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

5.2 Calculations

EIRP: $Power\ to\ antenna\ (dBm) + Antenna\ gain\ (dBi) = EIRP\ dBm$

Declared EIRP, Bluetooth Low Energy = +6.0 dBm
Measured EIRP, Bluetooth Low Energy = +5.3 dBm

Declared EIRP, Wi-Fi 2.4 GHz = +22.0 dBm
Measured EIRP, Wi-Fi 2.4 GHz = +21.4 dBm

Declared EIRP, Wi-Fi 5 GHz = +21.0 dBm
Measured EIRP, Wi-Fi 5 GHz = +20.6 dBm

Conversion dBm to mW:

EIRP: $1\ mW * 10^{\left(\frac{EIRP_{dBm}}{10}\right)}$

Bluetooth Low Energy = 4.0 mW
Wi-Fi 2.4 GHz = 158.5 mW
Wi-Fi 5 GHz = 125.9 mW

MPE calculation

A worst-case calculation for power density:

$$S = \frac{dc \times EIRP}{4 \times \pi \times r^2}$$

dc = 1
S = W / m²
r = 20 cm

5.3 Results, single transmitter

Technique	Standard	Reference for limit	Value	Unit	Limit	Result
Bluetooth Low Energy	§1.1310	§1.1310	0.001	mW/cm ²	1.0	PASS
Bluetooth Low Energy	RSS-102	RSS-102	0.004	W	2.7 ¹	PASS
Wi-Fi 2.4 GHz	§1.1310	§1.1310	0.032	mW/cm ²	1.0	PASS
Wi-Fi 2.4 GHz	RSS-102	RSS-102	0.159	W	2.7 ¹	PASS
Wi-Fi 5 GHz	§1.1310	§1.1310	0.025	mW/cm ²	1.0	PASS
Wi-Fi 5 GHz	RSS-102	RSS-102	0.126	W	4.6	PASS

¹ Based on worst-case channel frequency 2440 MHz

² Based on worst-case channel frequency 2412 MHz

³ Based on worst-case channel frequency 5240 MHz

5.4 Results, multiple transmitters

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.

Standard	Reference for limit	Value	Unit	Limit	Result
§1.1310	KDB 447498 D01	0.058	--	≤ 1	PASS
RSS-102	KDB 447498 D01	0.095	--	≤ 1	PASS