

FCC RF EXPOSURE TEST REPORT

Project Number : EA2111C-048
Test Report Number : TR-W2111-048
Type of Equipment : DERMAROLLER
Model Name : DR-B
FCC ID : 2A3SS-J1202DR
Multiple Model Name : N/A
Applicant : JNL Co.,Ltd.
Address : B Tower-#701-702, Woorim lions valley, 14, Sagimakgol-ro 45beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Manufacturer : JNL Co.,Ltd.
Address : B Tower-#701-702, Woorim lions valley, 14, Sagimakgol-ro 45beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Regulation : FCC CFR 47 Part 1.1310
Total page of Report : 11 Pages
Date of Receipt : 2021-11-23
Date of Issue : 2021-11-30
Test Result : PASS

This test report only contains the result of a single test of the sample supplied for the examination.
 It is not a generally valid assessment of the features of the respective products of the mass-production.

Prepared by Song, In-yong / Senior Engineer



Signature

2021-11-30

Date

Reviewed by Choi, Yeong-min / Technical Manager



Signature

2021-11-30

Date

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Release Control Record

Issue Report No.	Issued Date	Revisions	Effect Section
TR-W2111-048	2021-11-30	Initial Release	All

1. EUT (Equipment Under Test) INFORMATION

1.1 General Description

The JNL Co.,Ltd., Model DR-B (referred to as the EUT in this report) is a DERMAROLLER which is consist of Dermalroller and charging base. The EUT is a roller type beauty device with Electroporation (EP) technology which enables skin care nutrients to effectively permeate deep into the tissues through innovative Multiple Medium Frequency (MF), NNN™ (Need no needle) technology. The product specification described herein was obtained from product data sheet or user's manual.

Kind of Class	DCD- Part 15 Low Power Transmitter Below 1 705 kHz
WPT(Wireless Power Transfer) Frequency	148 kHz
Power Transfer Function	Single fixed power transfer zone, single client
Modulation Types	Load Modulation
Type of Antenna	☐ Integrated Type ☒ Dedicated Type
	Loop Coil Type
Operating Temperature	-0 °C ~ + 50 °C
Normal Test Voltage	DC 5 V (powered by AC/DC adapter or USB)
Maximum Power Consumption	1.2 W
Software Version	V1.0
Hardware Version	REV.0

1.2 Additional Model

None

2. TEST CONDITION

2.1 Equipment Used During Test

The following peripheral devices and/or interface cables were connected during the measurement:

Description		Model No.	FCC ID	Serial No.	Manufacturer.
DERMAROLLER	Cradle	DR-B Cradle	FCC ID: 2A3SS-J1202DR	N/A	JNL Co.,Ltd.
	Client	DR-B Client	N/A	N/A	JNL Co.,Ltd.
AC/DC Adapter		ETA-U90KWK	N/A	N/A	RF Tech (Tianjin) Electronics Co., Ltd.

2.2 Mode of operation during the test

The EUT consists of WPT source and receive-only WPT clients together, so the client device inserted into charging dock of WPT source. Charging base continuously transmitted maximum power for charging client device.

Test Mode	Description
# 1	Only Cradle was operated in standby mode.
# 2	The client was inserted into charging dock on charger and then continuously charged with maximum power.

2.3 Preliminary Testing for Worst case configuration

For making charging receive-only WPT client device, the client device shall be inserted into charging dock of the WPT source, so the EUT was tested at representative operated condition.

2.3.1 Test Channel and Frequency

Test Mode	Measured Frequency
Mode #1	148.4 kHz
Mode #2	147.6 kHz

3. TEST RESULT

3.1 Environmental evaluation and exposure limit

According to FCC §1.1310;

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter

[Table – Limits for Maximum Permissible Exposure (MPE)]

Frequency Range [MHz]	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [mW/cm ²]	Average Time [minutes]
(A) Limits for Occupational / Control Exposures (Note 1)				
0.3 – 3.0	614	1.63	*(100)	6
3.0 – 30	1 842/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 (Note 2)				
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/1 500	30
1,500 – 100,000			1.0	30

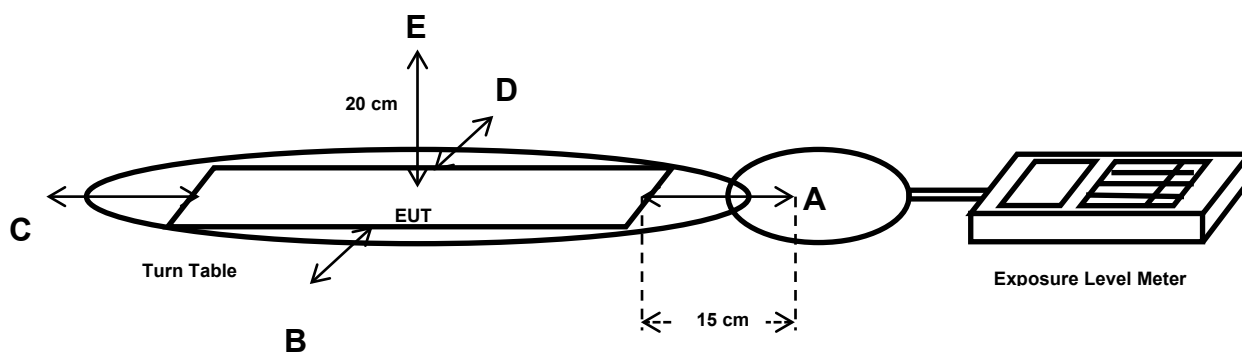
f = frequency in MHz, * = Plane wave equivalent power density

Note 1 Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

3.2 Field Strength Measurements

3.2.1 Procedure

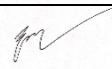


- 1) The RF exposure test was performed in anechoic chamber.
- 2) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm away from the surface from all coils that by design can simultaneously transmit.
- 3) The highest emission level of each points (A, B, C, D, E) were measured.
- 4) The EUT was measured according to the dictates of KDB 680106 D01 v03r01.
- 5) Different probes were used for Electric Field and Magnetic Field measurement and highest emission level was recorded.

3.2.2 Declaration compliance of KDB 680106 D01 V03r01 section5, b)

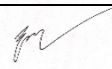
- (1) Power transfer frequency is less than 1 MHz.
 - The device operates at a frequency of 140 kHz to 148.5 kHz
- (2) Output power from each primary coil is less than or equal to 15 watts.
 - Output power from each primary coil is less than 10 watts.
- (3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
 - The transfer system including a charging system with a primary coil is to detect and allow coupling only single pair of coils
- (4) Client device is placed directly in contact with the transmitter.
 - Client devices were placed directly in contact with the transmitter.
- (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
 - The device is classified as mobile device that are not used by the battery.
- (6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.
 - (a) Electric field strength levels of EUT < 50 % of the MPE limit (614 V/m).
3.48 V/m (Max. at 15 cm) < 307 V/m
 - (b) Magnetic field strength levels of EUT < 50 % of the MPE limit (1.63 A/m).
0.05 A/m (Max. at 15 cm) < 0.815 A/m

3.2.3 Electric Field Strength Measurement Data

Date of Test	2021-11-26	Temperature	(20.0 ± 0.2) °C
		Relative humidity	(44.0 ± 0.4) % R.H.
Measurement Distance	15 cm / 20 cm	Test Mode	Mode #1, Mode #2
Test Result	PASS	Tested by	Sang-hyeon Park 

Test Mode	Measured Electric Field Strength [V/m]					Limit [V/m]
	Position A	Position B	Position C	Position D	Position E	
Mode #1: Only Cradle	0.14	0.16	0.08	0.18	0.20	614
Mode #2: Charging Mode with Client	0.45	0.43	0.38	0.41	3.48	614

3.2.4 Magnetic Field Strength Measurement Data

Date of Test	2021-11-26	Temperature	(20.0 ± 0.2) °C
		Relative humidity	(44.0 ± 0.4) % R.H.
Measurement Distance	15 cm / 20 cm	Test Mode	Mode #1, Mode #2
Test Result	PASS	Tested by	Sang-hyeon Park 

Test Mode	Measured Magnetic Field Strength [A/m]					Limit [A/m]
	Position A	Position B	Position C	Position D	Position E	
Mode #1: Only Cradle	0.03	0.03	0.03	0.03	0.03	1.63
Mode #2: Charging Mode with Client	0.03	0.03	0.03	0.03	0.05	1.63

Appendix I. Test Instrumentation

Description	Model No.	Serial No.	Manufacturer.	Due for Cal Date
Exposure Leve Meter	ELT-400	N-0754	NARDA	2022.09.16
Broadband Field Meter	NBM-550	E-1275	NARDA	2022.12.16
Slidacs	DSD-1105	M06-117	DIGITAK POWER	N/A

The measuring equipment utilized to perform the tests documented in this test report has been calibrated in accordance with manufacturer's recommendations, and is traceable to recognized national standards.