
MPE REPORT

Report No.: SRTC2021-9004(F)-21091706(I)

Product Name: Virtual wall barrier system

Product Model: P00107101/P00107401

Applicant: SoftBank Robotics Corp.

Manufacturer: SoftBank Robotics Corp.

Specification: FCC Part §2.1091, §2.1093, §1.1307(b), §1.1310 (2019)

FCC ID: 2ATI9-P00107

The State Radio_monitoring_center Testing Center (SRTC)

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1 GENERAL INFORMATION

1.1 Notes of the test report

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1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, P.R.China
City:	Beijing
Country or Region:	P.R.China
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1.3 Applicant's details

Company:	SoftBank Robotics Corp.
Address:	7-1, Kaigan 1-chome, Minato-ku, Tokyo 105-7537, Japan

1.4 Manufacturer's details

Company:	SoftBank Robotics Corp.
Address:	7-1, Kaigan 1-chome, Minato-ku, Tokyo 105-7537, Japan

1.5 Test environment

Date of Receipt of test sample at SRTC:	2021-12-16
Testing Start Date:	2021-12-16
Testing End Date:	2022-01-28

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	22	35

Normal Supply Voltage (V d.c.):	5.2V
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2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Bands	RFID: 902-928MHz
Power Supply	Power bank
Hardware Version	2.0.0
Software Version	1.1.0
IMEI or Sample	#1
Antenna Gain	2dBic


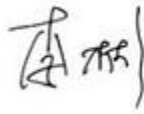

Note : The equipments have two model names:P00107101 and P00107401.The material,internal circuit version, antenna, and RFID module are entirely the same.

3 REFERENCE SPECIFICATION

Specification	Version	Title
2.1091	2019	Radio frequency radiation exposure evaluation: mobile devices.
2.1093	2019	Radio frequency radiation exposure evaluation: portable devices.
1.1307(b)	2019	Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.
1.1310	2019	Radio frequency radiation exposure limits.
KDB447498	October 23, 2015	RF exposure procedures and equipment authorization policies for mobile and portable devices

4 RESULT SUMMARY

No.	Test case	FCC reference
1	MPE Calculation	FCC Part §2.1091, FCC Part §2.1093, FCC Part §1.1307(b) FCC Part §1.1310 KDB 447498

This Test Report Is Issued by: Mr. Peng Zhen 	Checked by: Mr. Li Bin 
Tested by: Ms. Li Jin 	Issued date: 20220128

5 TEST RESULTS

5.1 Average Power Output Test Result

RFID

Frequency(MHz)	Channel No.	Maximum Average power(dBm)	ERP
902.750	Low	23.11	18.11
914.750	Middle	22.74	17.74
927.250	High	22.60	17.60

5.2 Calculation result

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

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

Calculation procedure:

According to §2.1091, §2.1093, §1.1307(b) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²

P = transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Summary of Transmitters

Freq (GHz)	ERP (dBm)	ERP (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
902.750	18.11	64.71	20	0.013	0.6	Pass
914.750	17.74	59.43	20	0.012	0.6	Pass
927.250	17.60	57.54	20	0.011	0.6	Pass

---End of Test Report---