Registration
No.788871

TEST REPORT

Report No.:	SRTC2019-9003(R)-0050
Product Name:	Automatic Cleaning Machine
Model Name:	A00000101A01
Applicant:	SoftBank Robotics Corp.
Manufacturer:	SoftBank Robotics Corp.
Specification:	RSS-Gen (Certification) (2019 edition)
IC ID:	25110-A000101A01

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District,

Beijing, China

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1. General information

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).
The test results relate only to individual items of the samples which have been tested.

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
Testing location：	No.80, Zhaojiachang, BeizangCun, Daxing District, Beijing, China.
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Country or Region:	China
Contacted person:	Liu Jia
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1.3 Applicant’s details

Company:	SoftBank Robotics Corp.
Address:	1-9-2 Higashi-shimbashi, Minato-ku, Tokyo, Japan
City:	Tokyo
Country or Region:	Japan
Contacted person:	Huijun Wang
Tel:	+81-3-6889-2450
Email:	huijun.wang@g.softbank.co.jp

1.4 Manufacturer’s details

Company:	SoftBank Robotics Corp.
Address:	1-9-2 Higashi-shimbashi, Minato-ku, Tokyo, Japan
City:	Tokyo
Country or Region:	Japan
Contacted person:	Huijun Wang
Tel:	+81-3-6889-2450
Email:	huijun.wang@g.softbank.co.jp

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1.5 Application details

Date of reception of test sample: 8th Aug. 2019
Date of test: 8th Aug. 2019 to 29th Aug. 2019

1.6 Reference specification

RSS-Gen, 2019 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	Automatic Cleaning Machine
Model Name	A00000101A01
Marketing Name	Whiz
IC ID	25110-A000101A01
Frequency Range	WCDMA: FDD II / FDD IV / FDD V LTE: FDD 2 / FDD 4 / FDD 5 / FDD 7/ FDD 12 / FDD 13 / FDD 26 / FDD 30 / FDD 41 / FDD 66 Lora: 902MHz-928MHz
Carrier Aggregation	UpLink： B7 / B41
Equipment Class	Class A
Antenna Type	Fixed Internal Antenna
Power Supply	Battery
Rated Power Supply Voltage	25.2V
Extreme Temperature	Lowest: -10°C Highest: +45°C
Extreme Voltage	Minimum: 22.5V Maximum: 29V
HW Version	V 1.0.0
SW Version	V 1.0.X

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1.7.2EUT details

Product Name	Model Name	IMEI
Automatic Cleaning Machine	A00000101A01	359260080138735

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Battery

Manufacturer	TOCAD ENERGY Co., Ltd.
Model Number	P00000201A01

AE (Auxiliary Equipment) 2#: Battery

Manufacturer	TOCAD ENERGY Co., Ltd.
Model Number	10BK150AA

Note1: As the information described in these above tables, the relevant tests have been performed in order to verify in which supply would have the worst features. When the EUT exercised with 1# Battery is the worst feature, and record the results in the test report.

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2.Test information

2.1 Summary of the test results

No.	Test case	IC reference	Verdict
1	Radiated emissions	7.3	Pass

Approved By: Mr. Liu Wei Director of the test department	Checked By Mr. Guo Yu Vice director of the test department
Tested By: **Mr. Liu Jian**	**Issued date:** **2019.08.29**

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2.2 Test result

2.2.1RadiatedEmissions

Ambient condition:

Temperature	Relative humidity	Pressure
25.1°C	44.8%	100.9kPa

Test Setup:

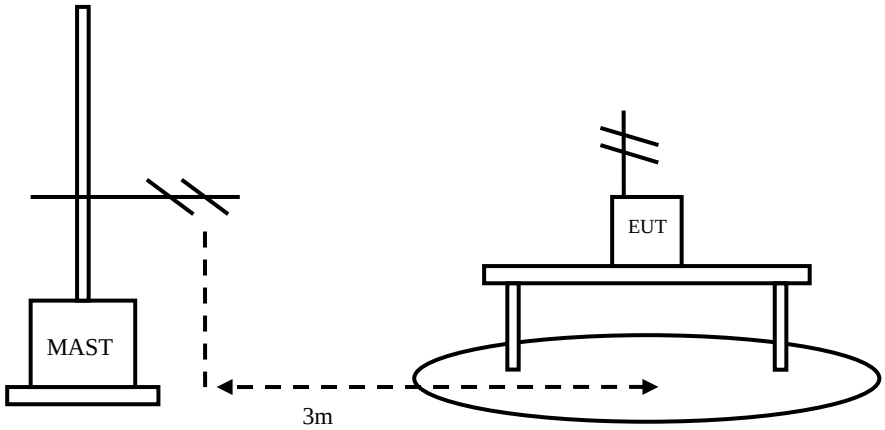

Figure 1

Test Procedure:

EUT:
The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 10 meters for the frequency from 30MHz to 1000MHz and 3 meters for the frequency above 1000MHz.
The EUT should work in idle mode. The test set-up and the test methods are performed according to ANSI C63.4:2014.
Then start the test software EMC32. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna VULB9163.
During the test, the height of receive antenna shall be moved from 1 to4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow:

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1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.
The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing. All test results are performed with max hold at the horizontal and vertical polarity.
RBW=120kHz, VBW=300kHz, when the test frequency: 30MHz<f<1GHz
RBW=1MHz, VBW=3MHz, when the test frequency: f>1GHz
A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.
The measurement results are obtained as described below:
Result= $P_{mea} + A_{Rpl}$

Limit:

Frequency of Emission(MHz)	Limits		Test distance
	Detector	Unit (dBμV/m)	Unit(m)
30～88	Quasi-peak	39	10
88～216	Quasi-peak	43.5	
216～960	Quasi-peak	46.5	
960～1000	Quasi-peak	49.5	
1000～5th harmonic of the highest frequency or 40GHz, whichever is lower	Average Peak	60 80	3

Test result:

Sample calculation: (30.68 dB μ V/m) = (48.78 dB μ V/m) + (-18.1 dB), the corresponding frequency is 57.762000MHz.

EUT

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
57.762000	30.68	39.00	-18.1	48.78	V
64.980000	31.16	39.00	-20.1	51.26	V
107.175000	36.93	43.50	-19.4	56.33	V
121.491000	39.09	43.50	-20.7	59.79	V
125.040000	39.46	43.50	-21.0	60.46	V
150.057500	33.20	43.50	-21.6	54.8	V

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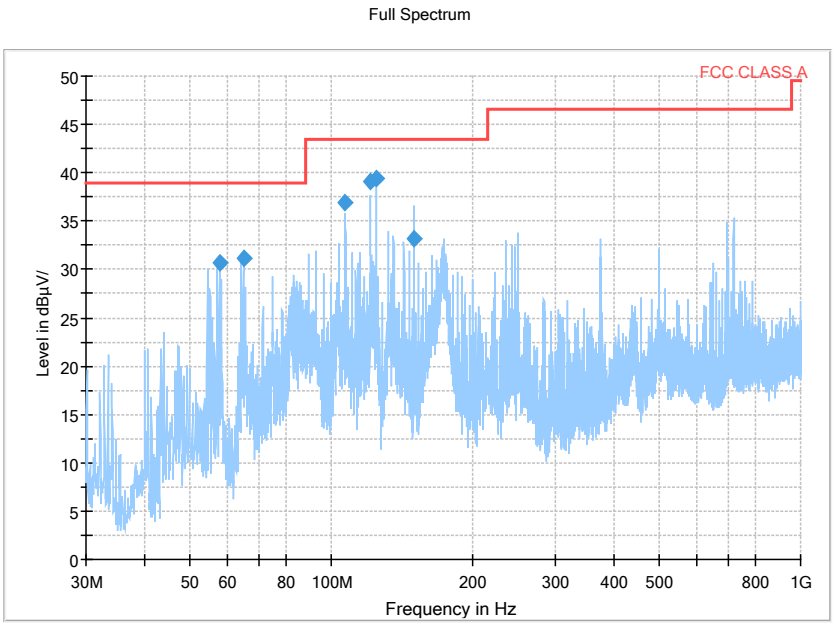
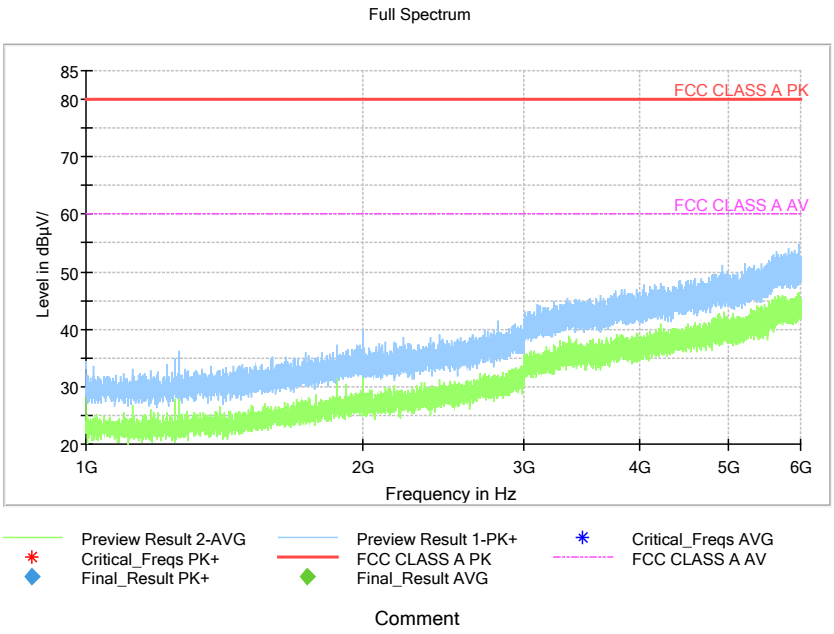
EUT: refer to Pic1, Pic2, Pic3, Pic4



Pic1. Radiated emission(30MHz – 1GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical



Pic2. Radiated emission (1GHz –6GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.

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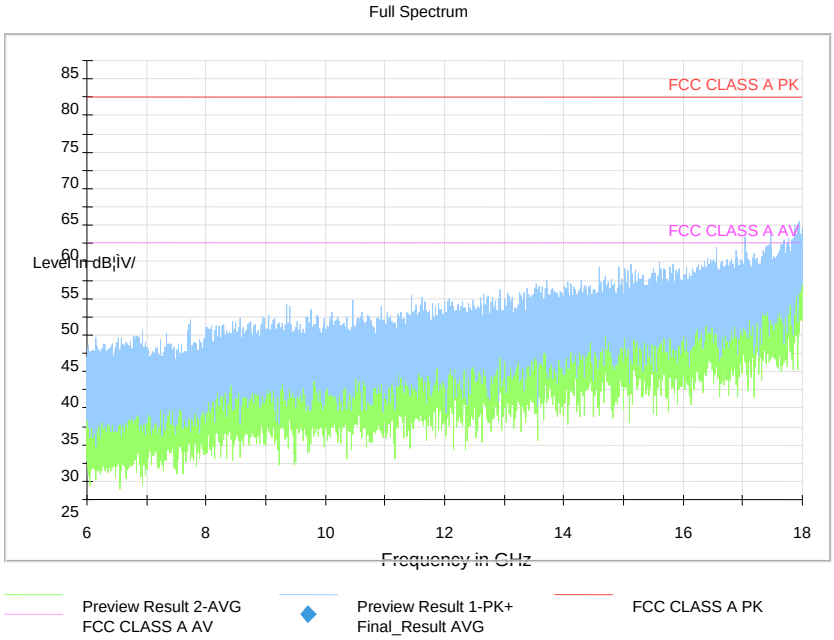
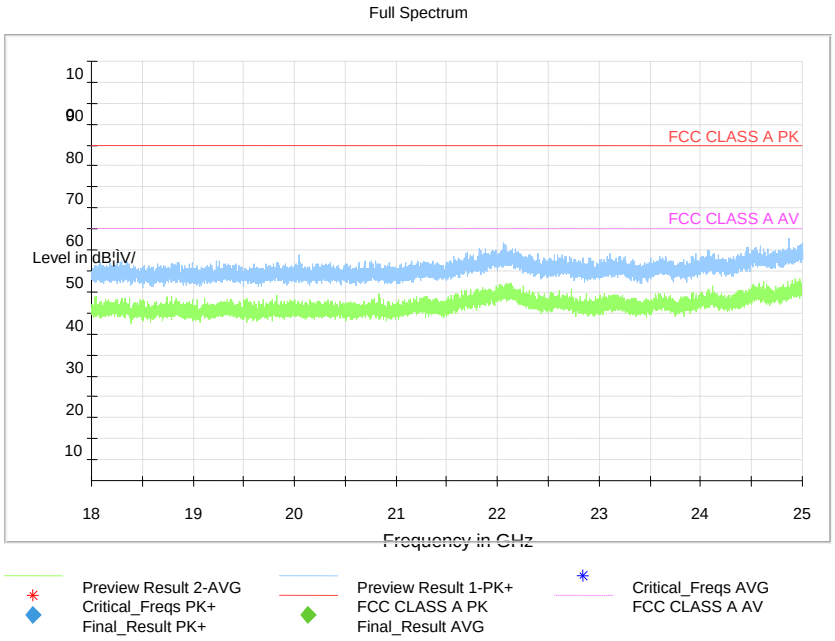


Pic3. Radiated emission (6GHz –18GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic4. Radiated emission (18GHz –25GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.

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2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Due Date	Calibration Date
1	23.18m×16.88m×9.60mSemi-AnechoicChamber	FRANKONIA	-----	5th Sep. 2021	6th Sep. 2016
2	ESW EMI test receiver	R&S	101574	20th Aug. 2020	20th Aug. 2019
3	CMW500 Mobile Station Tester	R&S	160132	20th Aug. 2020	20th Aug. 2019
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	5th Sep. 2021	6th Sep. 2016
5	ESIB7 EMI test receiver	R&S	100280	20th Aug. 2020	20th Aug. 2019
6	VULB9163Ultra log test antenna	Schwarzbeck	886	20th Aug. 2020	20th Aug. 2019
7	ENV216 AMN	R&S	3560.6550.12	20th Aug. 2020	20th Aug. 2019
8	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	20th Aug. 2020	20th Aug. 2019
9	PS2000 Turn Table	FRANKONIA	-----	-----	-----
10	MA260 Antenna Master	FRANKONIA	-----	-----	-----
11	EMC32EMI test software	R&S	-----	-----	-----

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