




TEST REPORT

Report No.: CHTEW19110187 Report verification : 

Project No.: SHT1911025202EW

FCC ID.....: 2ARXZYJCC002-B

Applicant's name: Yunjing Intelligence Technology(Dongguan) Co., Ltd.

Address.....: Room 508, Unit 1, Building 17, No. 4, Xinzhu Rd., Songshan Lake Park, Dongguan, Guangdong

Manufacturer.....: Yunjing Intelligence Technology (Dongguan) Co., Ltd. Dalingshan Branch

Address.....: Room 801-803&903, Building 2, No.11 Nanyi Rd., Dalingshan Lake, Dalingshan Town, Dongguan, Guangdong

Test item description: Narwal Robot Mop & Vacuum with Self-Cleaning Station

Trade Mark: NARWAL

Model/Type reference.....: YJCC002

Listed Model(s): -

Standard: FCC CFR Title 47 Part 15 Subpart C Section 15.249

Date of receipt of test sample.....: Oct.25, 2019

Date of testing.....: Oct.25, 2019 ~ Nov.26, 2019

Date of issue.....: Nov.27, 2019

Result.....: PASS

Compiled by
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Kiki Kong

Approved by
(position+printedname+signature)....: RF Manager Hans Hu

Hans Hu

Testing Laboratory Name: Shenzhen Huatongwei International Inspection Co., Ltd.

Address.....: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

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The test report merely correspond to the test sample.

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1. TEST STANDARDS AND REPORT VERSION

1.1. Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.249](#): Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version information

Revision No.	Date of issue	Description
N/A	2019-11-27	Original

2. TEST DESCRIPTION

Test Item	Section in CFR 47	Result	Test Engineer
Antenna requirement	15.203	PASS	Jianquan Wu
AC Power Line Conducted Emissions	15.207	PASS	Jianquan Wu
20dB Bandwidth	15.215/15.249	PASS	Jianquan Wu
Field strength of the Fundamental signal	15.249(a)	PASS	Jian Li
Spurious Emissions	15.209/15.249(a)	PASS	Quanhai deng
Band edge Emissions	15.205/15.249(d)	PASS	Jian Li

Remark: The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

Applicant:	Yunjing Intelligence Technology(Dongguan) Co., Ltd.
Address:	Room 508, Unit 1, Building 17, No. 4, Xinzhu Rd., Songshan Lake Park, Dongguan, Guangdong
Manufacturer:	Yunjing Intelligence Technology (Dongguan) Co., Ltd. Dalingshan Branch
Address:	Room 801-803&903, Building 2, No.11 Nanyi Rd., Dalingshan Lake, Dalingshan Town, Dongguan, Guangdong

3.2. Product Description

Name of EUT:	Narwal Robot Mop & Vacuum with Self-Cleaning Station
Trade Mark:	NARWAL
Model No.:	YJCC002
Listed Model(s):	-
Market model:	YJCC002-B
Power supply:	AC 120V
Adapter :	Model:GQ65-200325-E2 Input:100-240Va.c.50/60Hz 2.0A Max Output:20Vd.c.3.25A
Hardware Version:	REV:00
Software Version:	REV:00
RF Specification	
Operation frequency:	915MHz ~ 916MHz
Channel number:	5
Modulation Type:	GFSK
Antenna type:	PCB Antenna
Antenna gain:	1 dBi

3.3. EUT operation mode

● Test frequency list

The Lowest frequency and the highest frequency of channel were selected to perform the test, please see the below blue front.

Channel	Frequency (MHz)
00	915.00
01	915.25
02	915.50
03	915.75
04	916.00

● TEST MODE

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit.
For AC power line conducted emissions:
The EUT was set to connect with large package sizes transmission.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data Recorded in the report.

3.4. EUT configuration

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

- - supplied by the manufacturer
- - supplied by the lab

	Manufacturer :	/
	Model No. :	/
	Manufacturer :	/
	Model No. :	/

3.5. Modifications

No modifications were implemented to meet testing criteria.

4. TEST ENVIRONMENT

4.1. Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Phone: 86-755-26748019 Fax: 86-755-26748089

4.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 762235

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 762235.

IC-Registration No.: 5377A

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

4.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

4.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors in calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system according to ISO/IEC 17025. Further more, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Here after the best measurement capability for Shenzhen Huatongwei is reported:

Test Items	Measurement Uncertainty	Notes
Conducted spurious emissions 9kHz~40GHz	0.51 dB	(1)
Conducted Disturbance 150kHz~30MHz	3.02 dB	(1)
Radiated Emissions below 1GHz	4.90 dB	(1)
Radiated Emissions above 1GHz	4.96 dB	(1)
Occupied Bandwidth	15 Hz	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.5. Equipments Used during the Test

● Conducted Emission							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Shielded Room	Albatross projects	HTWE0114	N/A	N/A	2018/09/28	2023/09/27
●	EMI Test Receiver	R&S	HTWE0111	ESCI	101247	2019/10/26	2020/10/25
●	Artificial Mains	SCHWARZBECK	HTWE0113	NNLK 8121	573	2019/10/23	2020/10/22
●	Pulse Limiter	R&S	HTWE0033	ESH3-Z2	100499	2019/10/23	2020/10/22
●	RF Connection Cable	HUBER+SUHNER	HTWE0113-02	ENVIROFLEX_142	EF-NM-BNCM-2M	2019/10/23	2020/10/22
●	Test Software	R&S	N/A	ES-K1	N/A	N/A	N/A

● Radiated emission-6th test site							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0127	SAC-3m-02	C11121	2018/09/30	2021/09/29
●	EMI Test Receiver	R&S	HTWE0099	ESCI	100900	2019/10/26	2020/10/25
●	Loop Antenna	R&S	HTWE0170	HFH2-Z2	100020	2018/04/02	2021/04/01
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0119	VULB9163	546	2017/04/05	2020/04/04
●	Pre-Amplifier	SCHWARZBECK	HTWE0295	BBV 9742	N/A	2019/11/14	2020/11/13
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-01	N/A	N/A	2019/08/21	2020/08/20
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-02	SUCOFLEX 104	501184/4	2019/05/27	2020/05/26
●	Test Software	R&S	N/A	ES-K1	N/A	N/A	N/A

● Radiated emission-7th test site							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0122	SAC-3m-01	N/A	2018/09/27	2021/09/26
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2019/10/26	2020/10/25
●	Horn Antenna	SCHWARZBECK	HTWE0126	9120D	1011	2017/04/01	2020/03/31
●	Horn Antenna	SCHWARZBECK	HTWE0103	BBHA9170	25841	2017/03/27	2020/03/26
●	Broadband Horn Antenna	SCHWARZBECK	HTWE0103	BBHA9170	BBHA9170472	2018/10/11	2021/10/11
●	Pre-amplifier	CD	HTWE0071	PAP-0102	12004	2019/11/14	2020/11/13
●	Broadband Pre-amplifier	SCHWARZBECK	HTWE0201	BBV 9718	9718-248	2019/05/23	2020/05/22
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-01	6m 18GHz S Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-02	6m 3GHz RG Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-03	6m 3GHz RG Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-04	6m 3GHz RG Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0121-01	6m 18GHz S Serisa	N/A	2019/05/10	2020/05/09
●	Test Software	Audix	N/A	E3	N/A	N/A	N/A

● RF Conducted Method						
Used	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Signal and spectrum Analyzer	R&S	FSV40	100048	2019/10/26	2020/10/25
●	Spectrum Analyzer	Agilent	N9020A	MY50510187	2019/10/26	2020/10/25
○	Radio communication tester	R&S	CMW500	137688-Lv	2019/10/26	2020/10/25

5. TEST CONDITIONS AND RESULTS

5.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

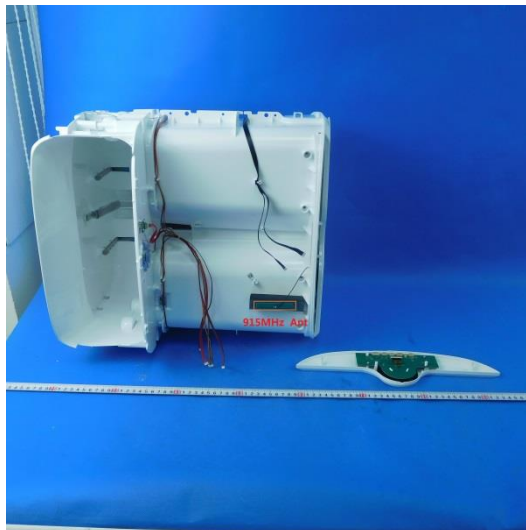
Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

The antenna type is a PCB antenna, the directional gain of the antenna less than 6 dBi, please refer to the below antenna photo.



5.2. AC Power Conducted Emissions

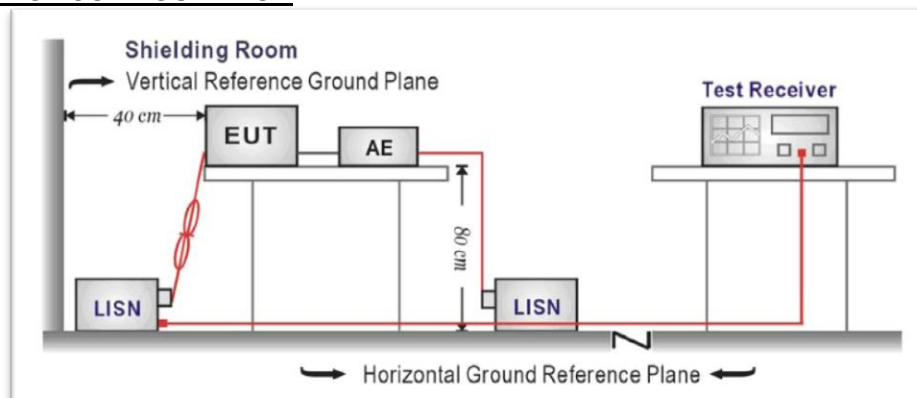
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was setup according to ANSI C63.10:2013
2. The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 10 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 10 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50ohm / 50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST MODE:

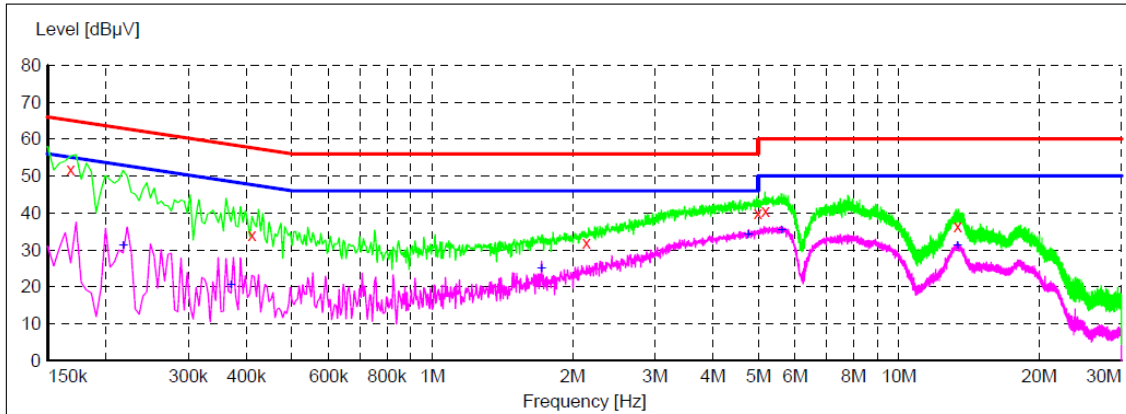
Please refer to the clause 3.3

TEST RESULTS

☒ Passed ☐ Not Applicable

Test Line:

L

**MEASUREMENT RESULT: "GM1911265034_fin"**

11/26/2019 1:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.168000	51.70	10.1	65	13.4	QP	L1	GND
0.411000	34.00	10.1	58	23.6	QP	L1	GND
2.143500	32.00	10.1	56	24.0	QP	L1	GND
4.992000	40.00	10.1	56	16.0	QP	L1	GND
5.181000	40.60	10.2	60	19.4	QP	L1	GND
13.389000	36.30	10.2	60	23.7	QP	L1	GND

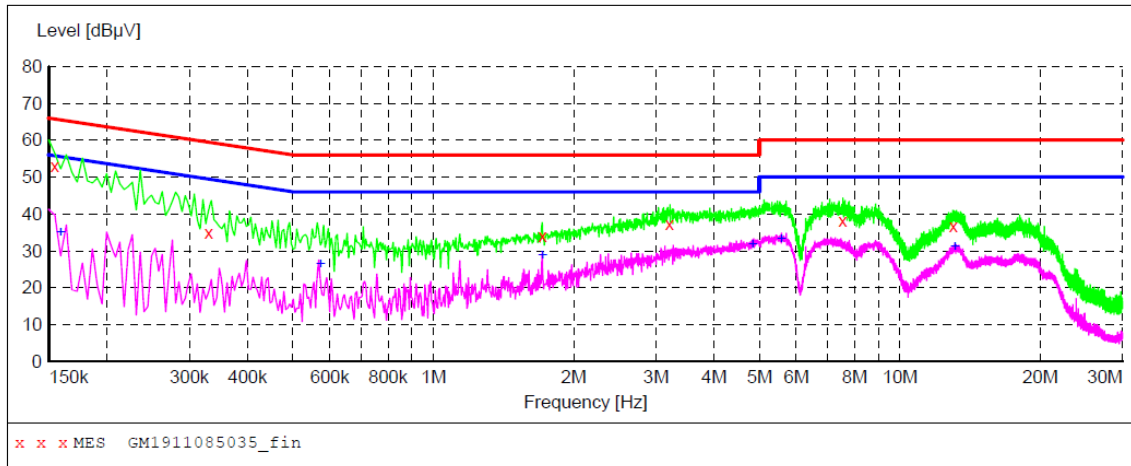
MEASUREMENT RESULT: "GM1911265034_fin2"

11/26/2019 1:29PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.217500	31.10	10.1	53	21.8	AV	L1	GND
0.370500	20.50	10.1	49	28.0	AV	L1	GND
1.716000	24.90	10.1	46	21.1	AV	L1	GND
4.753500	34.10	10.1	46	11.9	AV	L1	GND
5.604000	35.30	10.2	50	14.7	AV	L1	GND
13.362000	31.10	10.2	50	18.9	AV	L1	GND

Test Line:

N

**MEASUREMENT RESULT: "GM1911265035_fin"**

11/26/2019 1:34PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.154500	52.90	10.1	66	12.9	QP	N	GND
0.330000	35.00	10.1	60	24.5	QP	N	GND
1.716000	34.10	10.1	56	21.9	QP	N	GND
3.210000	37.40	10.1	56	18.6	QP	N	GND
7.539000	38.20	10.2	60	21.8	QP	N	GND
13.020000	36.60	10.2	60	23.4	QP	N	GND

MEASUREMENT RESULT: "GM1911265035_fin2"

11/26/2019 1:34PM

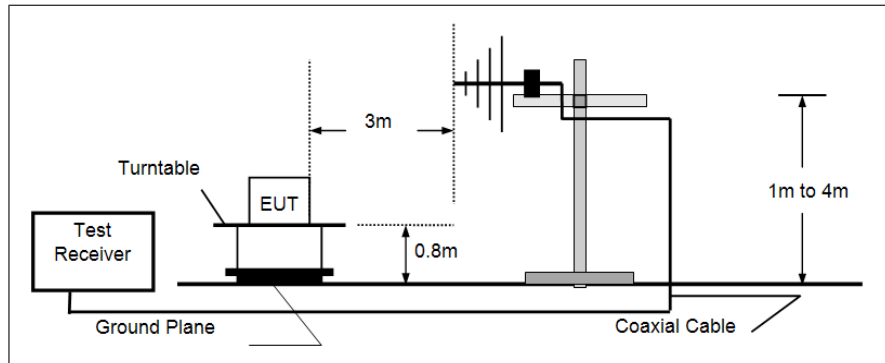
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.159000	34.80	10.1	56	20.7	AV	N	GND
0.573000	26.20	10.1	46	19.8	AV	N	GND
1.716000	28.60	10.1	46	17.4	AV	N	GND
4.830000	31.80	10.1	46	14.2	AV	N	GND
5.568000	33.10	10.2	50	16.9	AV	N	GND
13.123500	31.00	10.2	50	19.0	AV	N	GND

5.3. 20 dB Bandwidth

Limit

Operation frequency range 902MHz~928MHz.

TEST CONFIGURATION



TEST PROCEDURE

1. Set to the maximum power setting and enable the EUT transmit continuously
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. Use the following spectrum analyzer settings:
Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW
Sweep = auto, Detector function = peak, Trace = max hold
6. Measure and record the results in the test report.

TEST MODE:

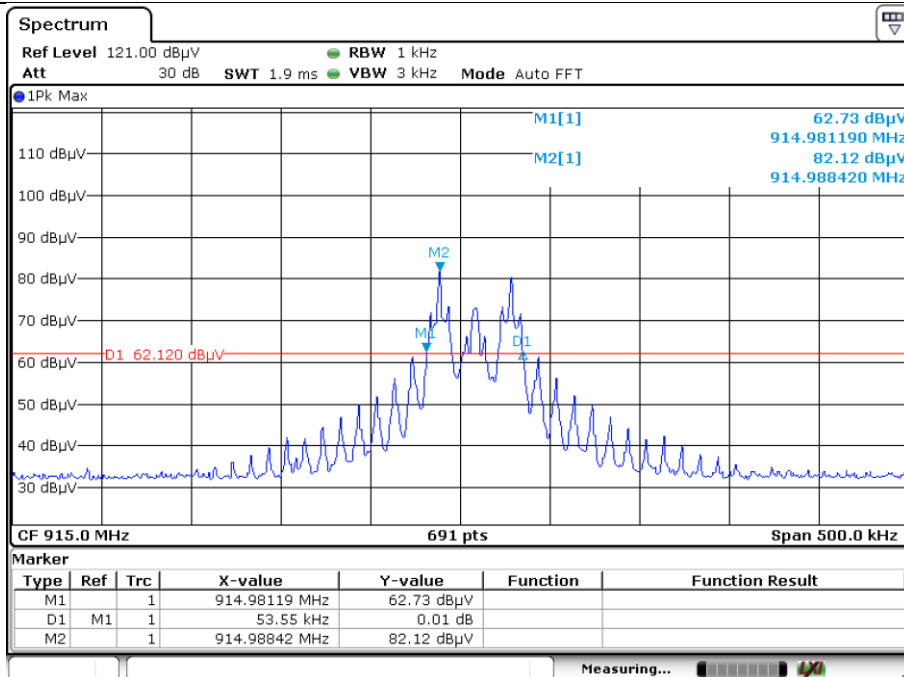
Please refer to the clause 3.3

TEST RESULTS

☒ Passed ☐ Not Applicable

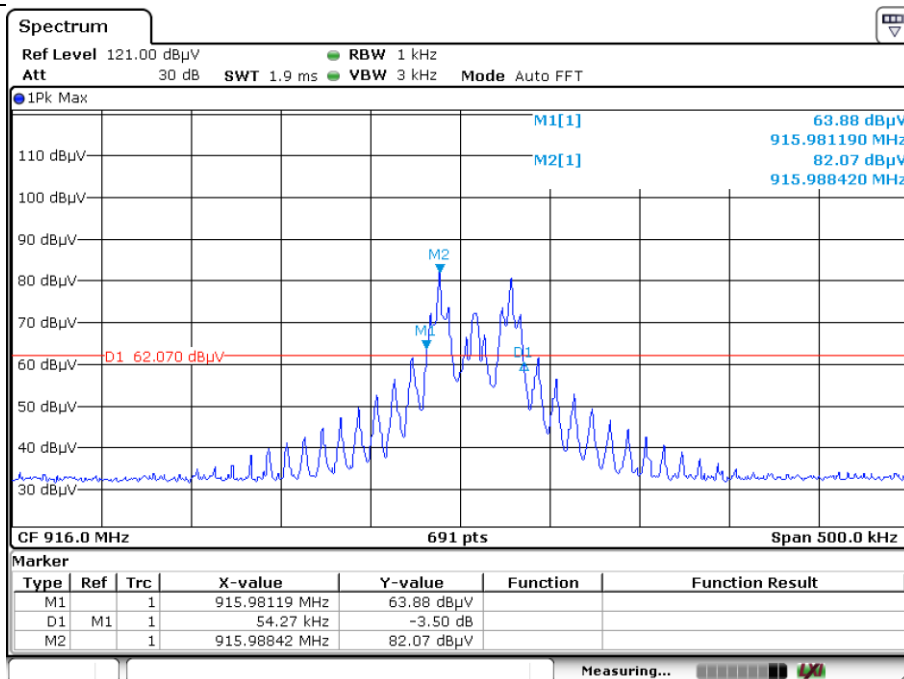
Test Channel	20dB Bandwidth (kHz)	Limit (MHz)	Result
CH00	53.55	-	Pass
CH04	54.27	-	Pass

CH00



Date: 20.NOV.2019 09:41:36

CH04



Date: 20.NOV.2019 09:47:13

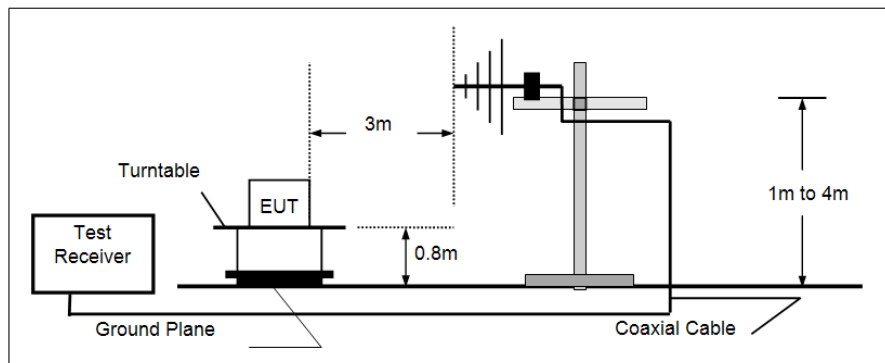
5.4. Radiated field strength of the fundamental signal

LIMIT

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50 (94dBuV/m @3m)	500 (54dBuV/m @3m)
2400-2483.5 MHz	50 (94dBuV/m @3m)	500 (54dBuV/m @3m)
5725-5875 MHz	50 (94dBuV/m @3m)	500 (54dBuV/m @3m)
24.0-24.25 GHz	250 (108dBuV/m @3m)	2500 (68dBuV/m @3m)

Frequencies above 1000 MHz, the field strength limits are based on average limits

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:
 RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
 If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

TEST MODE:

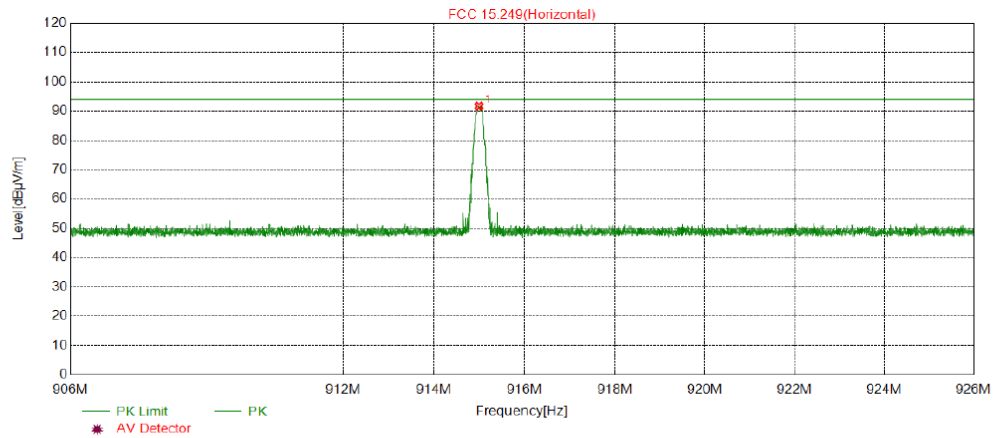
Please refer to the clause 3.3

TEST RESULTS

☒ Passed ☐ Not Applicable

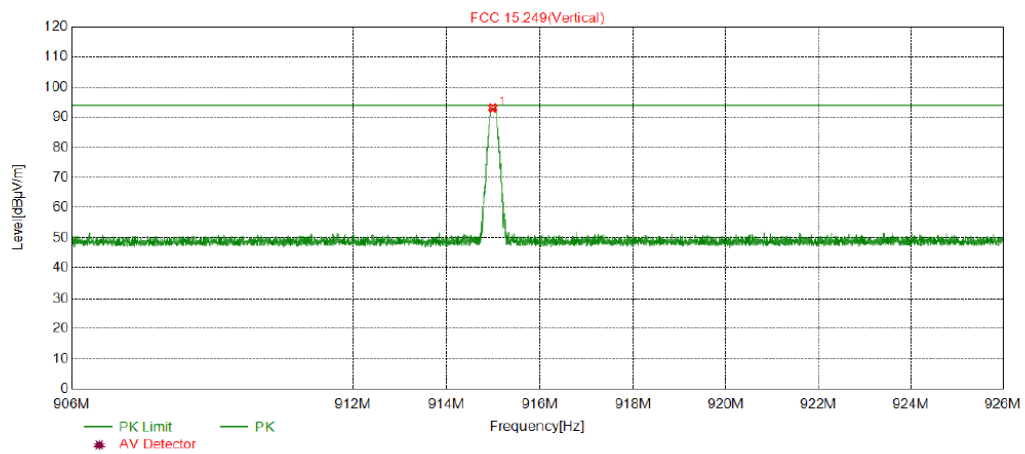
Test channel

CH00



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	914.9925	59.47	32.26	91.73	94.00	2.27	Horizontal	QP

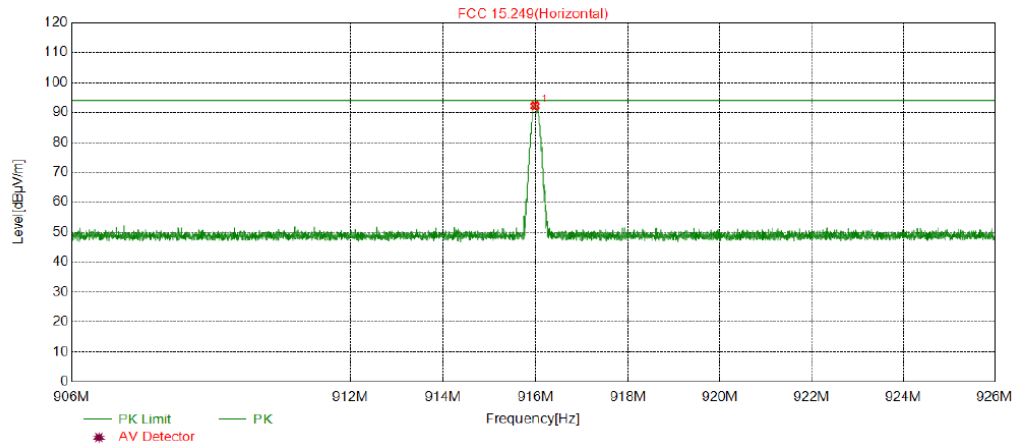


Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	914.9850	60.88	32.26	93.14	94.00	0.86	Vertical	QP

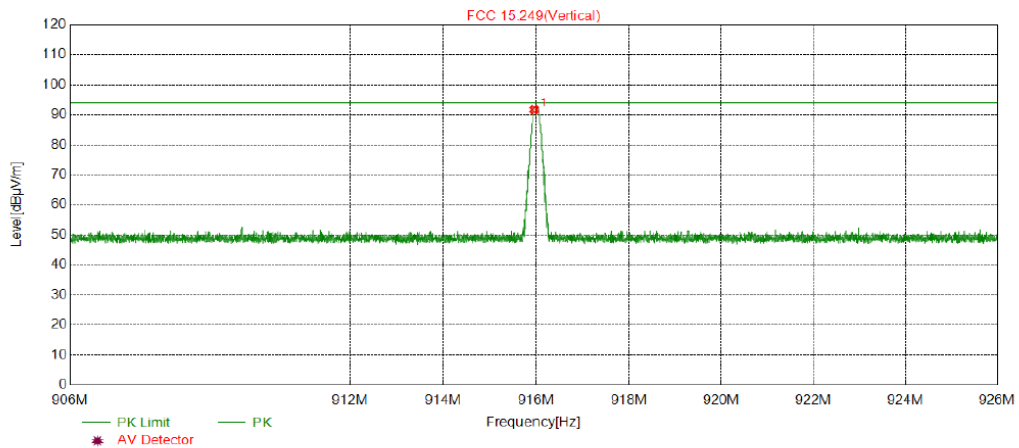
Test channel

CH04



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	915.9850	59.98	32.26	92.24	94.00	1.76	Horizontal	QP



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	915.9550	59.48	32.26	91.74	94.00	2.26	Vertical	QP

5.5. Radiated Spurious Emissions and Bandedge Emission

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

Frequency	Limit (dBuV/m)	Value
0.009 MHz ~0.49 MHz	2400/F(kHz) @300m	Quasi-peak
0.49 MHz ~ 1.705 MHz	24000/F(kHz) @30m	Quasi-peak
1.705 MHz ~30 MHz	30 @30m	Quasi-peak

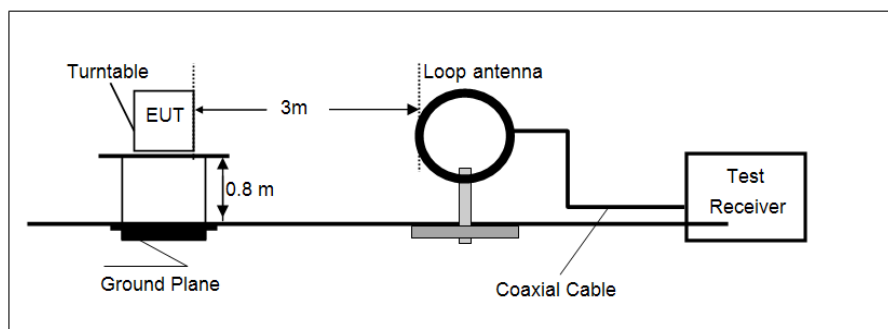
Note: Limit dBuV/m @3m = Limit dBuV/m @300m + 40*log(300/3)= Limit dBuV/m @300m +80,

Limit dBuV/m @3m = Limit dBuV/m @30m +40*log(30/3)= Limit dBuV/m @30m + 40.

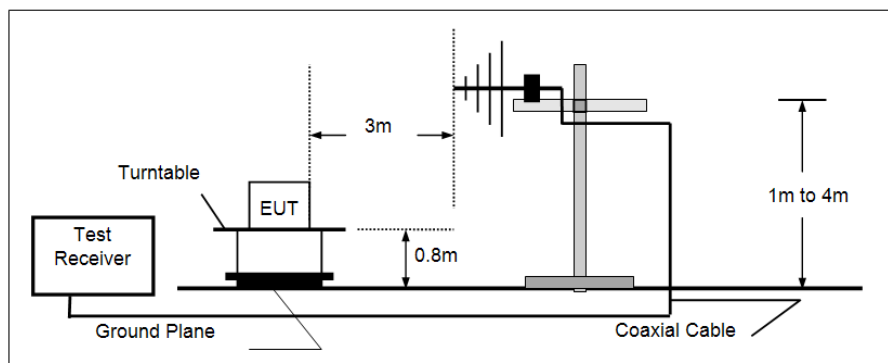
Frequency	Limit (dBuV/m @3m)	Value
30MHz~88MHz	40.00	Quasi-peak
88MHz~216MHz	43.50	Quasi-peak
216MHz~960MHz	46.00	Quasi-peak
960MHz~1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

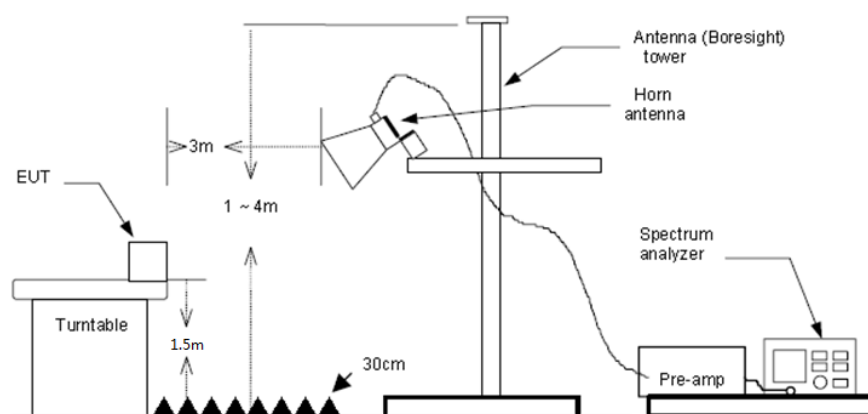
- 9 kHz ~ 30 MHz



- 30 MHz ~ 1 GHz



- Above 1 GHz



TEST PROCEDURE

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1 GHz:
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) From 1 GHz to 10th harmonic:
RBW=1MHz, VBW=3MHz Peak detector for Peak value.
RBW=1MHz, VBW=3MHz RMS detector for Average value.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ Passed ☐ Not Applicable

Note:

- 1) Above 1GHz Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2) The emission levels of other frequencies are very lower than the limit and not show in test report.

Radiated Spurious Emissions

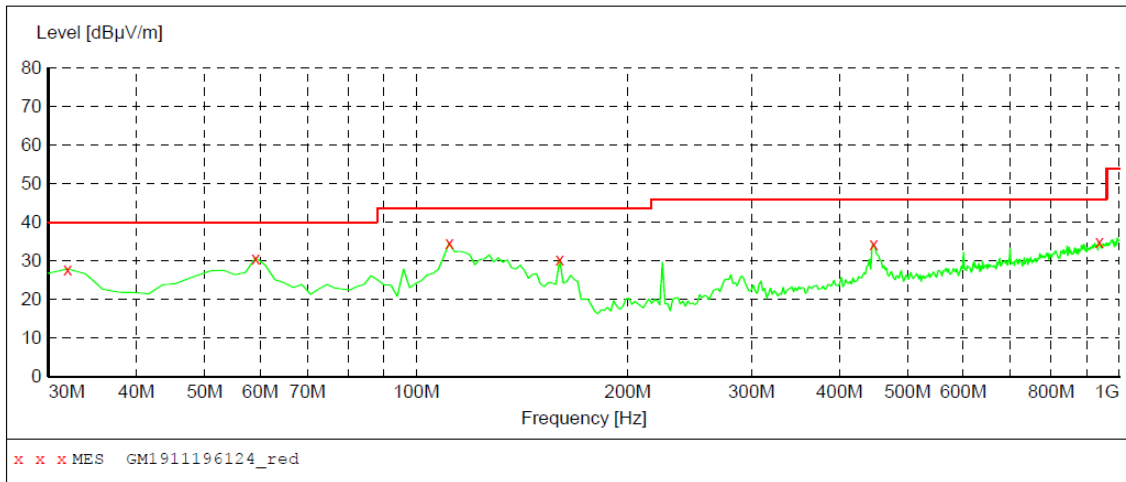
■ 9 kHz ~ 30 MHz

The EUT was pre-scanned the frequency band (9 kHz ~ 30 MHz), found the radiated level lower than the limit, so don't show on the report.

■ 30 MHz ~ 1 GHz

Polarization:

Vertical

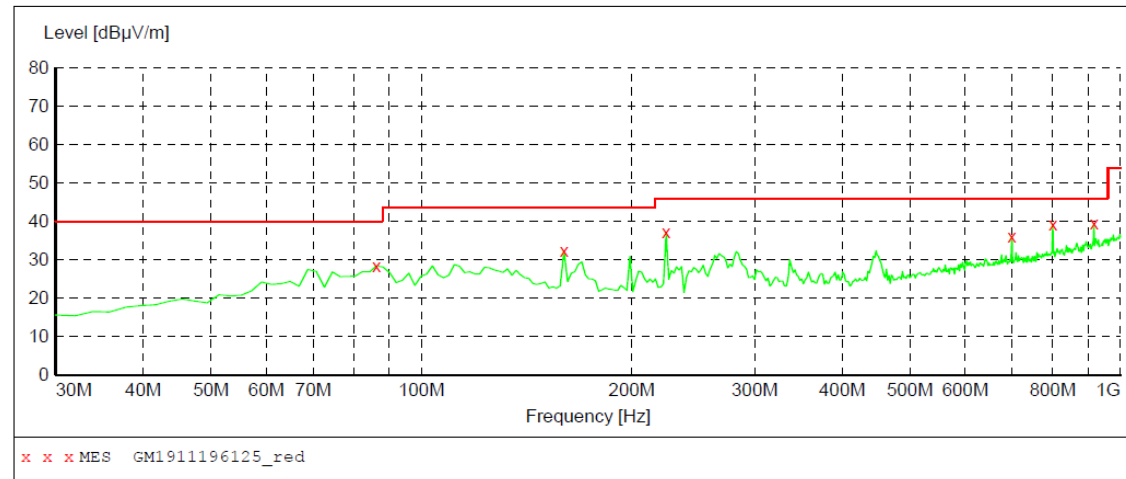
**MEASUREMENT RESULT: "GM1911266124_red"**

11/26/2019 11:44PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	27.90	-12.7	40.0	12.1	QP	100.0	0.00	VERTICAL
59.100000	30.80	-9.1	40.0	9.2	QP	100.0	312.00	VERTICAL
111.480000	34.60	-10.7	43.5	8.9	QP	100.0	121.00	VERTICAL
159.980000	30.30	-12.7	43.5	13.2	QP	100.0	357.00	VERTICAL
447.100000	34.30	-2.5	46.0	11.7	QP	100.0	106.00	VERTICAL
935.980000	34.90	7.9	46.0	11.1	QP	100.0	78.00	VERTICAL

Polarization:

Horizontal

**MEASUREMENT RESULT: "GM1911266125_red"**

11/26/2019 11:48PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
86.260000	28.40	-13.4	40.0	11.6	QP	300.0	85.00	HORIZONTAL
159.980000	32.30	-12.7	43.5	11.2	QP	100.0	72.00	HORIZONTAL
224.000000	37.20	-9.2	46.0	8.8	QP	100.0	33.00	HORIZONTAL
699.300000	36.10	3.6	46.0	9.9	QP	100.0	160.00	HORIZONTAL
800.180000	39.30	5.7	46.0	6.7	QP	100.0	278.00	HORIZONTAL
916.580000	39.50	7.5	46.0	6.5	QP	100.0	353.00	HORIZONTAL

■ Above 1 GHz

Test channel					CH00			
Polarization:					Vertical			
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	1830.250	42.46	-5.81	36.65	74.00	37.35	Vertical	PK
2	2807.875	33.77	1.96	35.73	74.00	38.27	Vertical	PK
3	5186.125	32.92	8.96	41.88	74.00	32.12	Vertical	PK
4	7446.250	31.76	15.39	47.15	74.00	26.85	Vertical	PK
Polarization:					Horizontal			
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	1829.125	39.99	-5.81	34.18	74.00	39.82	Horizontal	PK
2	3164.500	35.42	0.66	36.08	74.00	37.92	Horizontal	PK
3	8022.250	31.25	16.22	47.47	74.00	26.53	Horizontal	PK
4	9476.875	31.91	17.86	49.77	74.00	24.23	Horizontal	PK

Test channel					CH04			
Polarization:					Vertical			
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	1831.375	42.39	-5.81	36.58	74.00	37.42	Vertical	PK
2	2815.750	33.88	1.83	35.71	74.00	38.29	Vertical	PK
3	5996.125	30.99	10.44	41.43	74.00	32.57	Vertical	PK
4	8058.250	31.43	16.28	47.71	74.00	26.29	Vertical	PK
Polarization:					Horizontal			
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	1518.625	36.92	-5.75	31.17	74.00	42.83	Horizontal	PK
2	1831.375	40.75	-5.81	34.94	74.00	39.06	Horizontal	PK
3	3187.000	35.07	0.77	35.84	74.00	38.16	Horizontal	PK
4	7179.625	30.76	14.88	45.64	74.00	28.36	Horizontal	PK
5	8056.000	32.75	16.27	49.02	74.00	24.98	Horizontal	PK

Remark:

1. Final Level = Receiver Read level + Factor
2. The peak level is lower than average limit(54dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

Bandedge Emission

Test channel				CH00				
Polarization:				Vertical				
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	902.0000	16.44	32.20	48.64	74.00	25.36	Vertical	PK
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	902.0000	9.77	32.20	41.97	54.00	12.03	Vertical	AV
Polarization:				Horizontal				
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	902.0000	16.17	32.20	48.37	74.00	25.63	Horizontal	PK
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	902.0000	10.14	32.20	42.34	54.00	11.66	Horizontal	AV

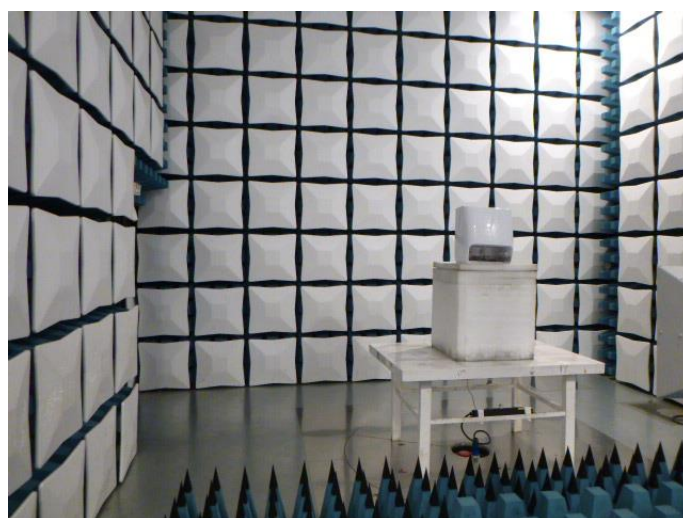
Test channel				CH04				
Polarization:				Vertical				
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	928.0000	16.55	32.31	48.86	74.00	25.14	Vertical	PK
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	928.0000	9.96	32.31	42.27	54.00	11.73	Vertical	AV
Polarization:				Horizontal				
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	928.0000	16.42	32.31	48.73	74.00	25.27	Horizontal	PK
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	928.0000	10.03	32.31	42.34	54.00	11.66	Horizontal	AV

Remark:

1. Final Level = Receiver Read level + Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

6. TEST SETUP PHOTOS OF THE EUT

Radiated Emissions





AC Power Conducted Emissions

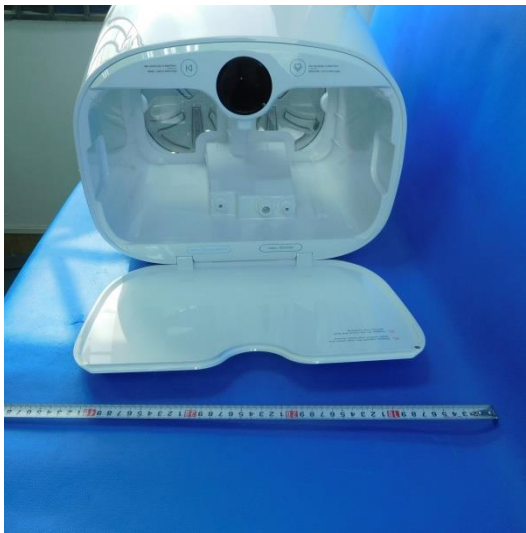


7. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

External Photos

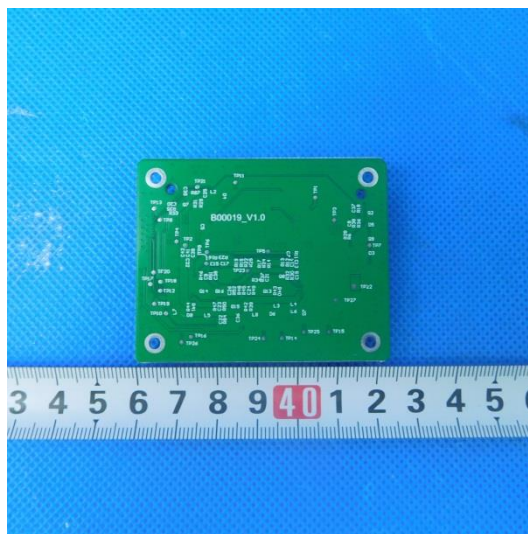
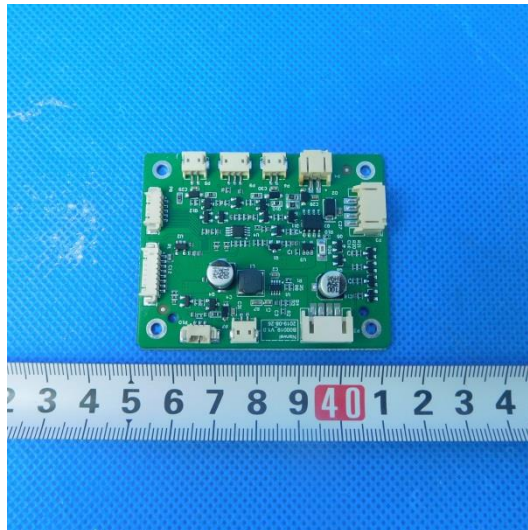


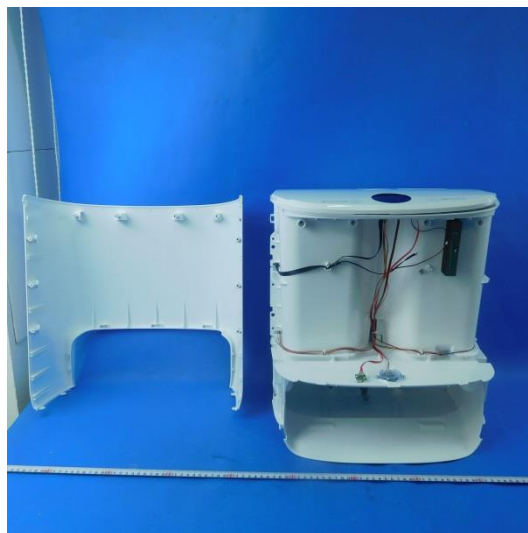


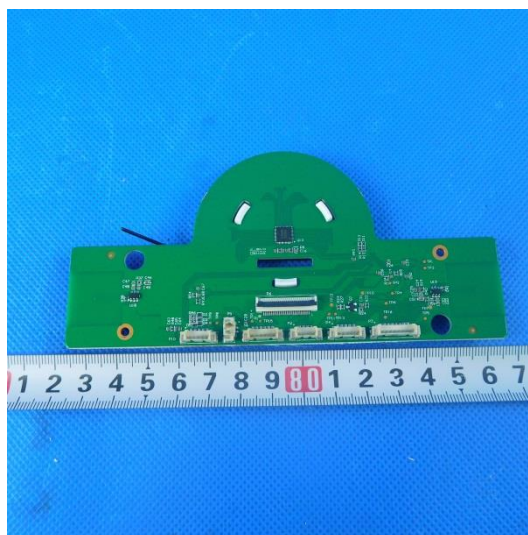
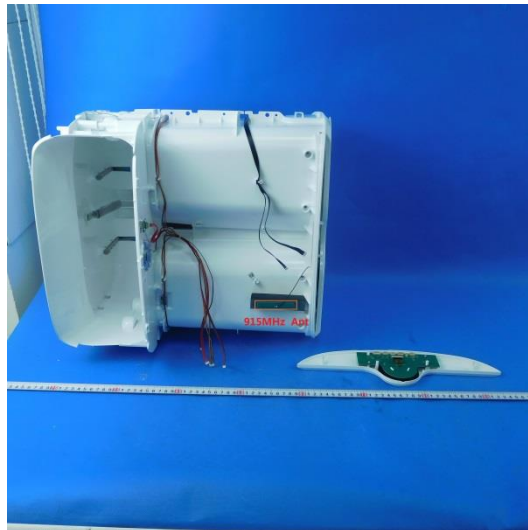


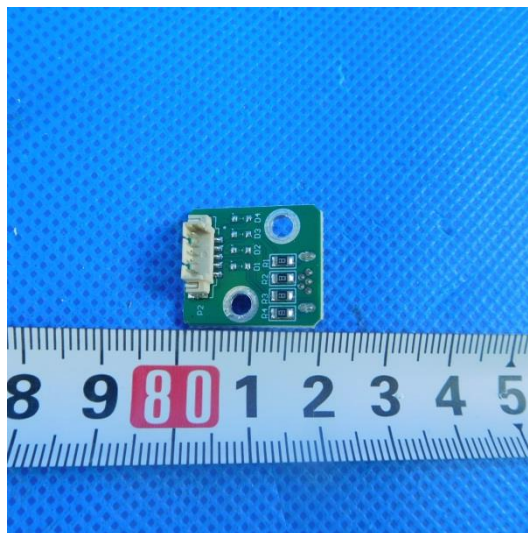
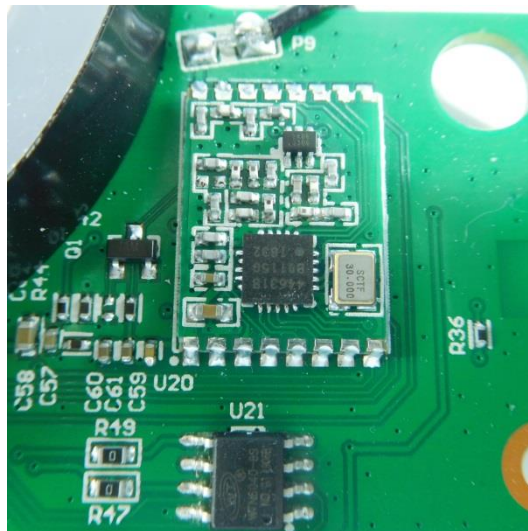
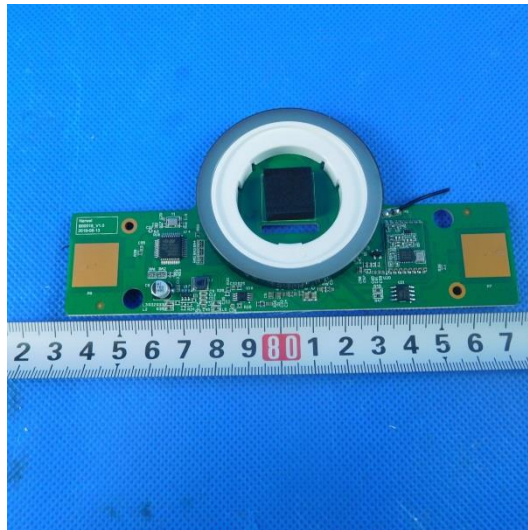
Internal Photos

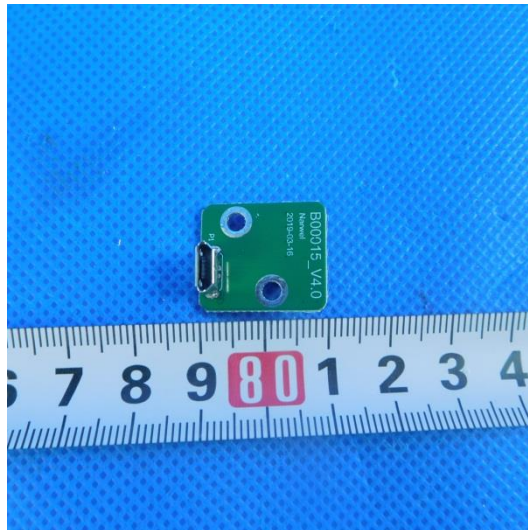












-----End of Report-----