

FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

Microlab Electronics Co.,Ltd.

WIRELESS SURROUD TRANSMITTER

Model Number: Surround 3

FCC ID : OR8-SURROUND3

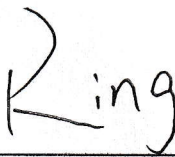
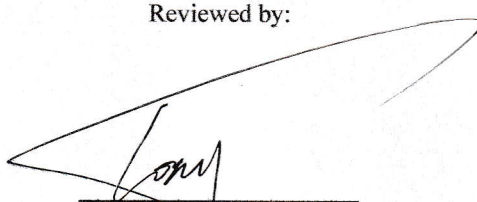


Prepared for:	Microlab Electronics Co.,Ltd.
	South Baozi Rd., Shenzhen Microlab Industrial Park, ShenZhen, China
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
	Tel: 86-769-83081888-808

Report Number:	ESTE-R1905087
Date of Test:	Feb. 22 ~ May. 24, 2019
Date of Report:	May. 25, 2019

TABLE OF CONTENTS

Description	Page
TEST REPORT VERIFICATION.....	3
1. GENERAL INFORMATION.....	4
1.1. Description of Device (EUT)	4
2. SUMMARY OF TEST	5
2.1. Summary of test result.....	5
2.2. Test Facilities	6
2.3. Measurement uncertainty	7
2.4. Assistant equipment used for test	7
2.5. Block Diagram	7
2.6. Test mode	8
2.7. Channel List	8
2.8. Test Equipment.....	9
3. POWER LINE CONDUCTED EMISSIONS	10
3.1. Limit	10
3.2. Test Procedure	10
4. RADIATED EMISSIONS.....	15
4.1. Limit	15
4.2. Block Diagram of Test setup.....	16
4.3. Test Procedure	17
4.4. Test Result.....	17
4.5. Test Data	18
5. 20 DB BANDWIDTH.....	33
5.1. Test Procedure	33
5.2. Test Result.....	33
5.3. Test Data	33
6. BAND EDGE COMPLIANCE	35
6.1. Block Diagram of Test setup.....	35
6.2. Test Procedure	35
6.3. Test Result	35
6.4. Test Data	36
7. ANTENNA REQUIREMENTS	40
7.1. Limit	40
7.2. Result.....	40
8. TESTSETUP PHOTO.....	41
9. PHOTO OF EUT.....	43

Test Report Verification

Applicant:	Microlab Electronics Co.,Ltd.		
Address:	South Baozi Rd., Shenzhen Microlab Industrial Park, ShenZhen, China		
Manufacturer:	Klipsch Group, Inc.		
Address:	3502 Woodview Trace, Indianapolis, IN 46268		
E.U.T:	WIRELESS SURROUD TRANSMITTER		
Model Number:	Surround 3		
Power Supply:	DC 5V From Adapter Input AC 100-240V ~50/60Hz		
Test Voltage:	DC 5V From Adapter Input AC 120V/60Hz DC 5V From Adapter Input AC 240V/60Hz		
Trade Name:	Klipsch	Serial No.:	-----
Date of Receipt:	Feb. 22, 2019	Date of Test:	Feb. 22 ~ May. 24, 2019
Test Specification:	FCC Rules and Regulations Part 15 Subpart C:2018 ANSI C63.10:2013		
Test Result:	<p>The device described above is tested by EST Technology Co., Ltd.. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements.</p> <p style="text-align: right;">This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. Date: May. 25, 2019</p>		
Prepared by:	Reviewed by:	Approved by:	
			
Ring / Assistant	Tony / Engineer	 Iceman/Huy / Manager	
Other Aspects:	None.		
<i>Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested</i>			
<i>This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.</i>			

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name	:	WIRELESS SURROUD TRANSMITTER
FCC ID	:	OR8-SURROUND3
Model Number	:	Surround 3
Operation frequency	:	5740MHz-5840MHz
Number of channel	:	21
Antenna	:	PCB antenna ANT A:2.85dBi gain; ANT B:2.85dBi Note:Two antennae are firing at the same time only.
Modulation	:	GFSK
Sample Type	:	Prototype production

2. SUMMARY OF TEST

2.1. Summary of test result

Description of Test Item	Standard	Results
Power Line Conducted Emissions	FCC Part 15C: 15.207 ANSI C63.10-2013	N/A
Radiated Emission Test	FCC Part 15C: 15.205 FCC Part 15C: 15.209 FCC Part 15C: 15.249 (a)(e) ANSI C63.10-2013	PASS
20 dB Bandwidth Test	FCC Part 15: 15.215 ANSI C63.10-2013	PASS
Band Edge Compliance Test	FCC Part 15C: 15.205 FCC Part 15C: 15.209 FCC Part 15C: 15.249 (a)(e) ANSI C63.10-2013	PASS
Antenna requirement	FCC Part 15: 15.203	PASS
N/A is an abbreviation for Not Applicable.		

2.2. Test Facilities

- EMC Lab : Certificated by CNAS, CHINA
Registration No.: L5288
Date of registration: November 13, 2017
- Certificated by FCC, USA
Designation Number: CN1215
Test Firm Registration Number: 722932
Date of registration: November 21, 2017
- Certificated by A2LA, USA
Registration No.: 4366.01
Date of registration: November 07, 2017
- Certificated by Industry Canada
CAB identifier No.: CN0035
Date of registration: January 04, 2019
- Certificated by VCCI, Japan
Registration No.: R-13663; C-14103
Date of registration: July 25, 2017
This Certificate is valid until: July 24, 2020
- Certificated by TUV Rheinland, Germany
Registration No.: UA 50413872 0001
Date of registration: July 31, 2018
- Certificated by TUV/PS, Shenzhen
Registration No.: SCN1017
Date of registration: January 27, 2011
- Certificated by Intertek ETL SEMKO
Registration No.: 2011-RTL-L2-64
Date of registration: April 28, 2011
- Certificated by Nemko, Hong Kong
Registration No.: 175193
Date of registration: May 4, 2011
- Name of Firm : EST Technology Co., Ltd.
- Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	±3.48dB
Uncertainty for spurious emissions test (30MHz-1GHz)	±4.60 dB(Polarize: H)
	±4.68 dB(Polarize: V)
Uncertainty for spurious emissions test (1GHz to 18GHz)	±4.96dB
Uncertainty for radio frequency	7×10^{-8}
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

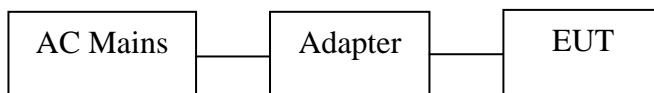
2.4. Assistant equipment used for test

2.4.1. Adapter

M/N	:	HW-050200C3W
Input	:	AC 100-240V~ 50/60Hz, 0.5A
Output	:	DC 5V, 2A

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 or 1.5 meter high above ground. EUT was be set into TX test mode by software.



(EUT: WIRELESS SURROUD TRANSMITTER)

2.6. Test mode

The test software was used to control EUT work in Continuous TX mode, ANT A + ANT B TX simultaneously mode.

Mode	Frequency	
TX	CH 1	5740 MHz
	CH 11	5790 MHz
	CH 21	5840 MHz

2.7. Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	5740	12	5795
2	5745	13	5800
3	5750	14	5805
4	5755	15	5810
5	5760	16	5815
6	5765	17	5820
7	5770	18	5825
8	5775	19	5830
9	5780	20	5835
10	5785	21	5840
11	5790		

2.8. Test Equipment

2.8.1. For conducted emission test

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	CEPREI	June 15,18	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	101260	CEPREI	June 15,18	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101100	CEPREI	June 15,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

2.8.2. For radiated emission test(9 kHz-30MHz)

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	101780	CEPREI	June 15,18	1 Year
Active Loop Antenna	SCHWARZB ECK	FMZB 1519B	1519B-088	N/A	Aug. 01,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

2.8.3. For radiated emission test(30-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	101780	CEPREI	June 15,18	1 Year
Bilog Antenna	Teseq	CBL 6111D	27090	CEPREI	June 15,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

2.8.4. For radiated emission test(above 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZB ECK	BBHA 9120 D	BBHA912 0D1002	CEPREI	June 18,18	1 Year
Horn Antenna	SCHWARZB ECK	BBHA9170	BBHA917 0242	CEPREI	June 18,18	1 Year
Signal Amplifier	SCHWARZB ECK	BBV9718	9718-212	CEPREI	June 15,18	1 Year
Spectrum Analyzer	Rohde &Schwarz	FSV	103173	CEPREI	June 15,18	1 Year
PSA Series Spertrum Analyzer	Agilent	E4447A	MY50180 031	CEPREI	June 15,18	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

3. POWER LINE CONDUCTED EMISSIONS

3.1. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.2. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT was charged from PC's USB port which connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#).. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10:2013 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS30) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

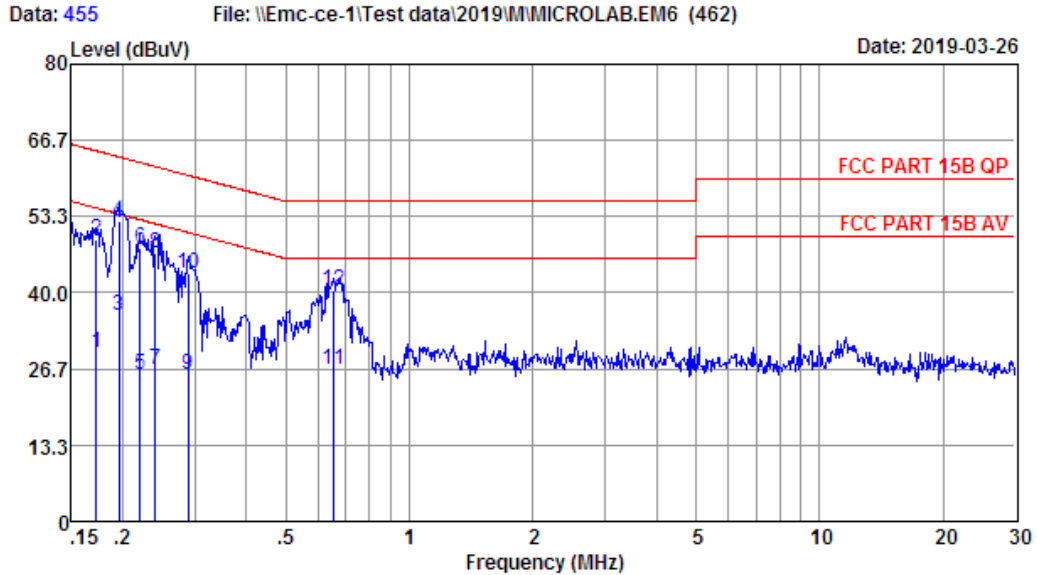
3.3. Test Result

PASS. (All emissions not reported below are too low against the prescribed limits.)

3.4. Test data

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no : 844 Shield Room Data no. : 455
 Env. / Ins. : Temp:24.3°C Humi:50% Press:101.20kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX Mode

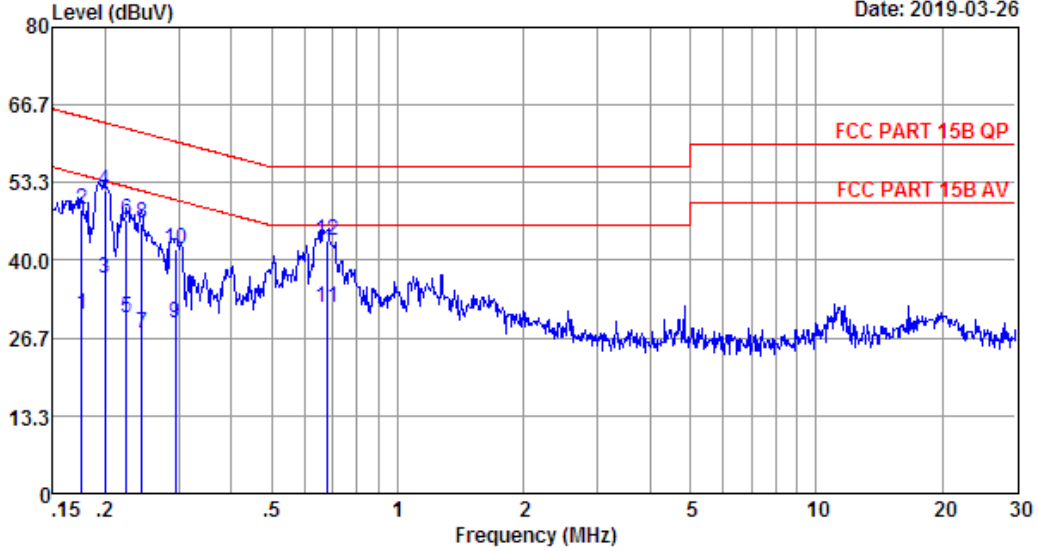
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17	9.59	9.69	10.34	29.62	54.86	25.24	Average
2	0.17	9.59	9.69	30.11	49.39	64.86	15.47	QP
3	0.20	9.60	9.77	16.56	35.93	53.80	17.87	Average
4	0.20	9.60	9.77	33.16	52.53	63.80	11.27	QP
5	0.22	9.61	9.84	6.29	25.74	52.79	27.05	Average
6	0.22	9.61	9.84	28.40	47.85	62.79	14.94	QP
7	0.24	9.61	9.92	7.01	26.54	52.08	25.54	Average
8	0.24	9.61	9.92	27.38	46.91	62.08	15.17	QP
9	0.29	9.61	9.92	6.21	25.74	50.54	24.80	Average
10	0.29	9.61	9.92	23.86	43.39	60.54	17.15	QP
11	0.65	9.63	9.92	7.04	26.59	46.00	19.41	Average
12	0.65	9.63	9.92	20.88	40.43	56.00	15.57	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 457 File: \\Emc-ce-1\Test data\2019\MMICROLAB.EM6 (462) Date: 2019-03-26



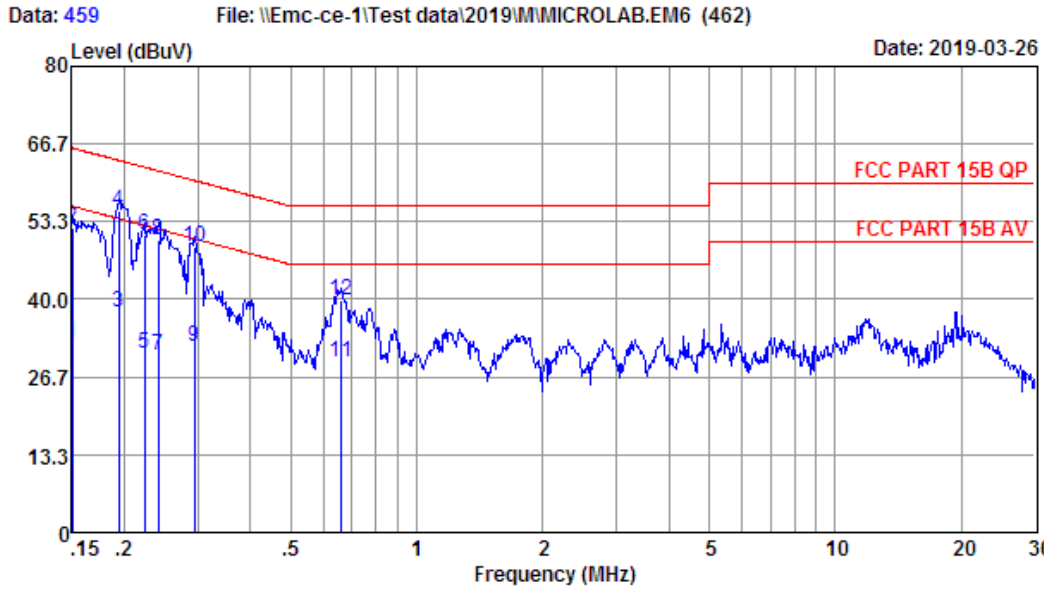
Site no : 844 Shield Room Data no. : 457
 Env. / Ins. : Temp:24.3'C Humi:50% Press:101.20kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.18	9.53	9.77	11.41	30.71	54.68	23.97	Average
2	0.18	9.53	9.77	29.55	48.85	64.68	15.83	QP
3	0.20	9.53	9.77	17.52	36.82	53.62	16.80	Average
4	0.20	9.53	9.77	32.65	51.95	63.62	11.67	QP
5	0.22	9.53	9.84	10.76	30.13	52.66	22.53	Average
6	0.22	9.53	9.84	27.62	46.99	62.66	15.67	QP
7	0.24	9.53	9.92	7.99	27.44	51.95	24.51	Average
8	0.24	9.53	9.92	26.84	46.29	61.95	15.66	QP
9	0.29	9.54	9.92	9.88	29.34	50.41	21.07	Average
10	0.29	9.54	9.92	22.37	41.83	60.41	18.58	QP
11	0.68	9.56	9.92	12.39	31.87	46.00	14.13	Average
12	0.68	9.56	9.92	23.77	43.25	56.00	12.75	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no : 844 Shield Room Data no. : 459
 Env. / Ins. : Temp:24.3'C Humi:50% Press:101.20kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 240V/60Hz
 M/N : Surround 3
 Test Mode : TX Mode

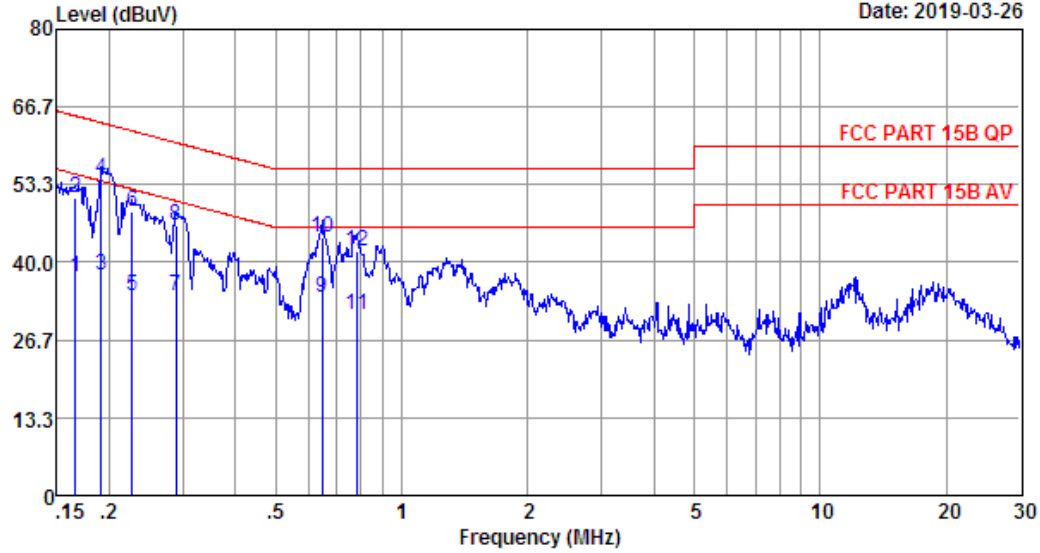
	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15	9.59	9.69	13.34	32.62	56.00	23.38	Average
2	0.15	9.59	9.69	33.07	52.35	66.00	13.65	QP
3	0.19	9.60	9.77	18.56	37.93	53.84	15.91	Average
4	0.19	9.60	9.77	35.76	55.13	63.84	8.71	QP
5	0.22	9.61	9.84	11.29	30.74	52.70	21.96	Average
6	0.22	9.61	9.84	31.66	51.11	62.70	11.59	QP
7	0.24	9.61	9.92	11.01	30.54	52.04	21.50	Average
8	0.24	9.61	9.92	30.74	50.27	62.04	11.77	QP
9	0.29	9.62	9.92	12.40	31.94	50.41	18.47	Average
10	0.29	9.62	9.92	29.33	48.87	60.41	11.54	QP
11	0.66	9.63	9.92	9.69	29.24	46.00	16.76	Average
12	0.66	9.63	9.92	20.30	39.85	56.00	16.15	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

Data: 461 File: \\Emc-ce-1\Test data\2019\MMICROLAB.EM6 (462) Date: 2019-03-26



Site no : 844 Shield Room Data no. : 461
 Env. / Ins. : Temp:24.3'C Humi:50% Press:101.20kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 240V/60Hz
 M/N : Surround 3
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.17	9.50	9.69	18.31	37.50	55.16	17.66	Average
2	0.17	9.50	9.69	31.86	51.05	65.16	14.11	QP
3	0.19	9.53	9.77	18.52	37.82	53.98	16.16	Average
4	0.19	9.53	9.77	35.13	54.43	63.98	9.55	QP
5	0.23	9.53	9.84	14.76	34.13	52.57	18.44	Average
6	0.23	9.53	9.84	29.30	48.67	62.57	13.90	QP
7	0.29	9.54	9.92	14.68	34.14	50.54	16.40	Average
8	0.29	9.54	9.92	26.95	46.41	60.54	14.13	QP
9	0.64	9.56	9.92	14.40	33.88	46.00	12.12	Average
10	0.64	9.56	9.92	24.69	44.17	56.00	11.83	QP
11	0.78	9.56	9.93	11.40	30.89	46.00	15.11	Average
12	0.78	9.56	9.93	22.52	42.01	56.00	13.99	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

4. RADIATED EMISSIONS

4.1. Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

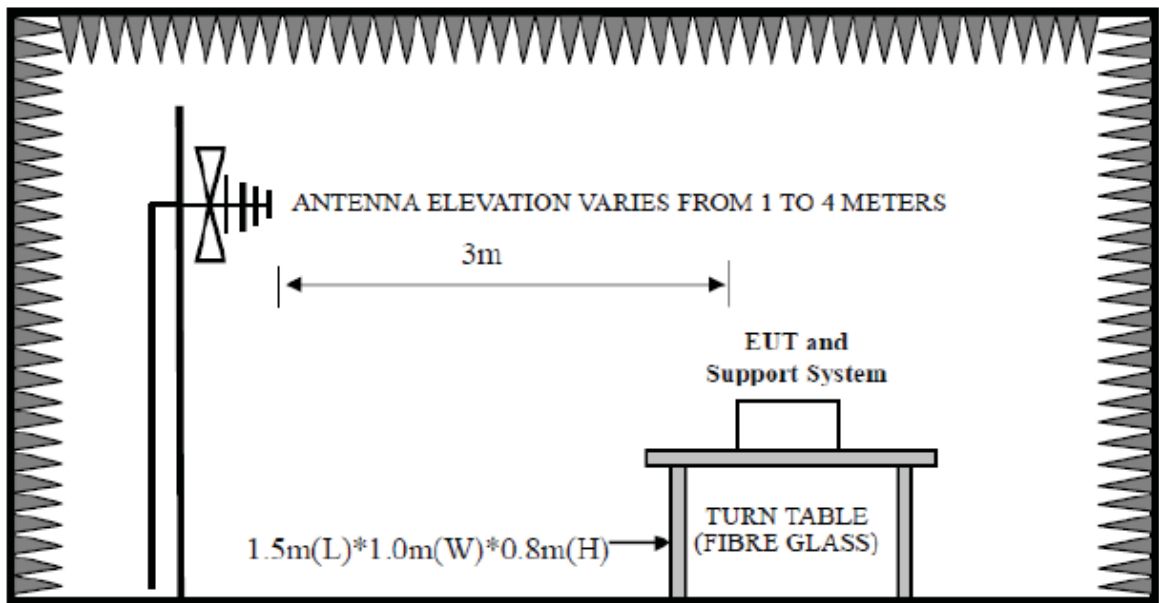
Remark : (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

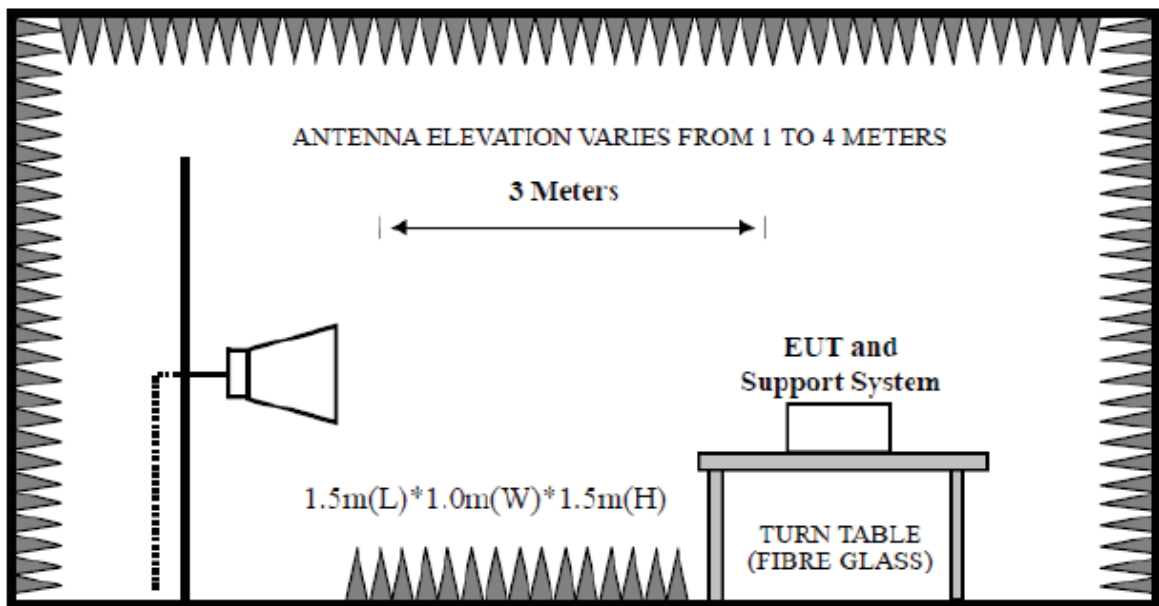
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system

4.2. Block Diagram of Test setup

30~1000MHz



Above 1GHz



4.3. Test Procedure

EUT was placed on a turn table, which is 0.8 meter high above ground for 30~1000MHz test, and which is 1.5 meter high above ground for above 1GHz test. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the EMI test receiver is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measurement above 1GHz

PEAK detector, 1MHz/1MHz for PEAK measurement,
PEAK detector, 1MHz/10Hz for Average measurement

The frequency range from 30MHz to 10th harmonic (40GHz) are checked.

4.4. Test Result

Pass

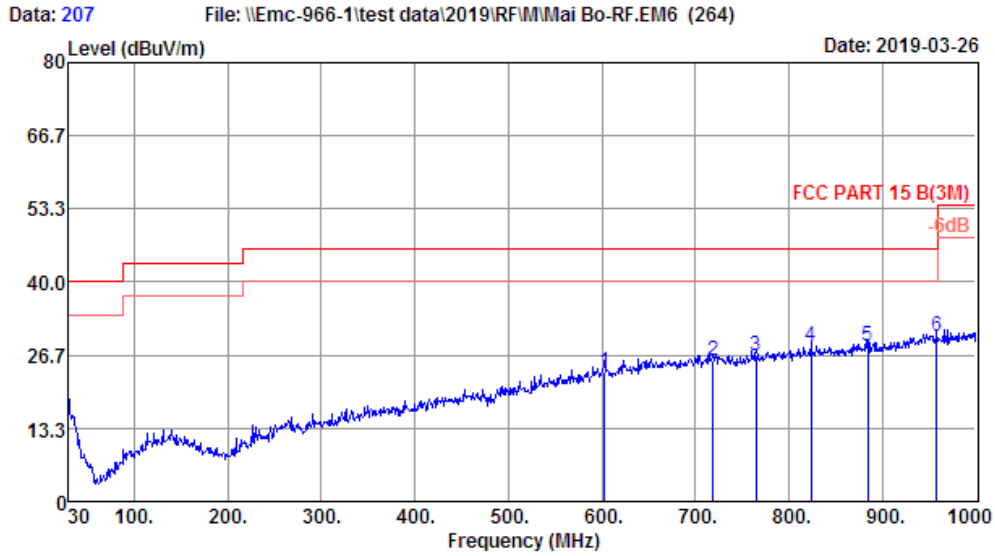
Note: 1、 For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

4.5. Test Data

30 MHz – 1000 MHz

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

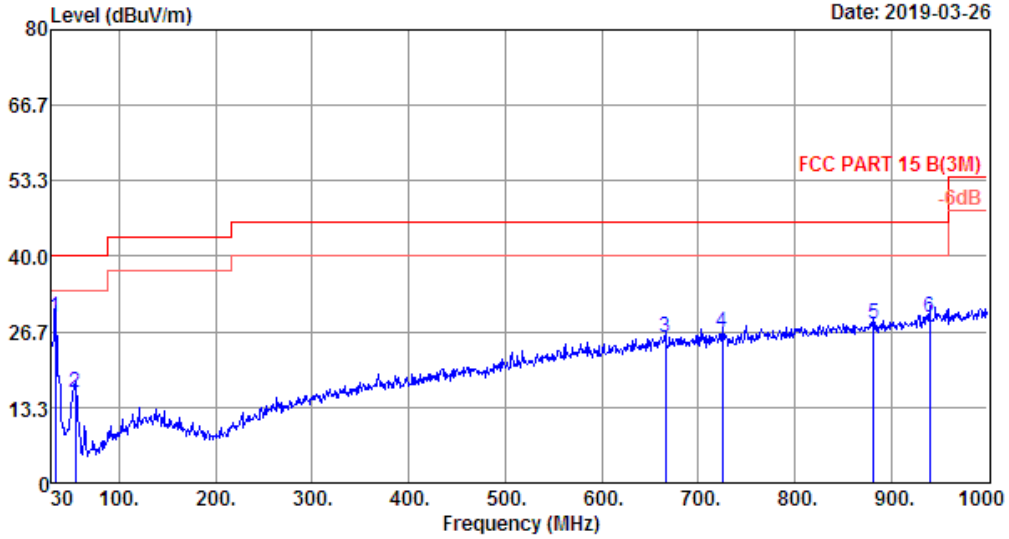


Site no. : 1# 966 Chamber Data no. : 207
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	603.27	20.26	3.21	0.15	23.62	46.00	22.38	QP
2	718.70	21.48	3.70	0.57	25.75	46.00	20.25	QP
3	765.26	22.45	3.72	0.49	26.66	46.00	19.34	QP
4	823.46	23.00	3.92	1.32	28.24	46.00	17.76	QP
5	884.57	23.59	4.06	0.80	28.45	46.00	17.55	QP
6	958.29	24.48	4.70	0.94	30.12	46.00	15.88	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

Data: 208 File: \\Emc-966-1\test data\2019\RF\MM\mai Bo-RF.EM6 (264) Date: 2019-03-26



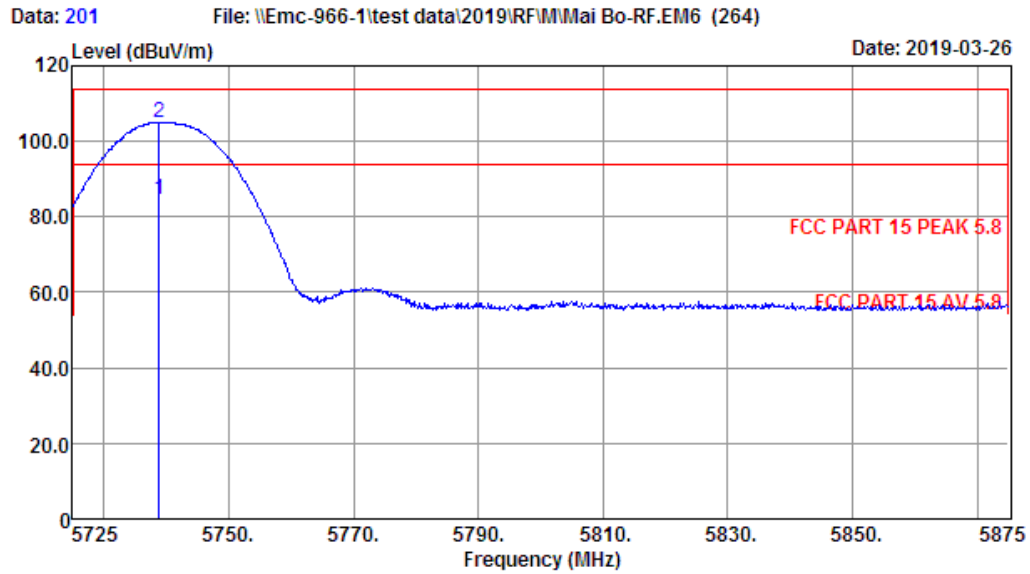
Site no. : 1# 966 Chamber Data no. : 208
 Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	33.88	16.00	0.37	12.82	29.19	40.00	10.81	QP
2	54.25	6.50	0.50	8.91	15.91	40.00	24.09	QP
3	666.32	21.10	3.44	1.15	25.69	46.00	20.31	QP
4	725.49	21.61	3.70	1.16	26.47	46.00	19.53	QP
5	881.66	23.54	4.09	0.38	28.01	46.00	17.99	QP
6	939.86	24.40	4.48	0.27	29.15	46.00	16.85	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no. : 1# 966 Chamber Data no. : 201
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5740MHz

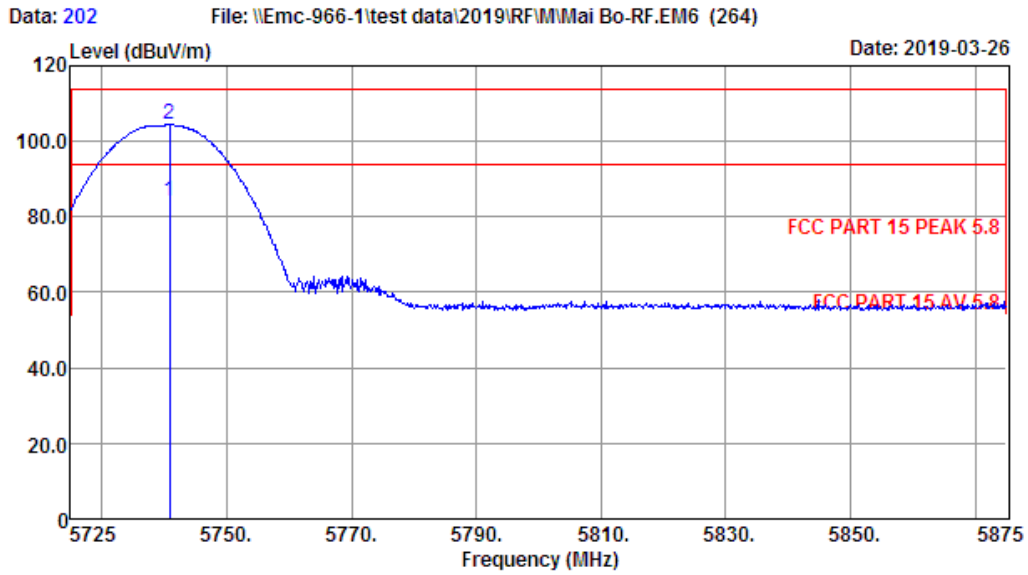
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5738.80	33.24	5.20	35.95	82.24	84.73	94.00	9.27	Average
2	5738.80	33.24	5.20	35.95	102.51	105.00	114.00	9.00	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

RBW is set at 5MHz and VBW is set at 20MHz.
 PK detector is for PK value, RMS detector is for AV value.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no. : 1# 966 Chamber Data no. : 202
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5740MHz

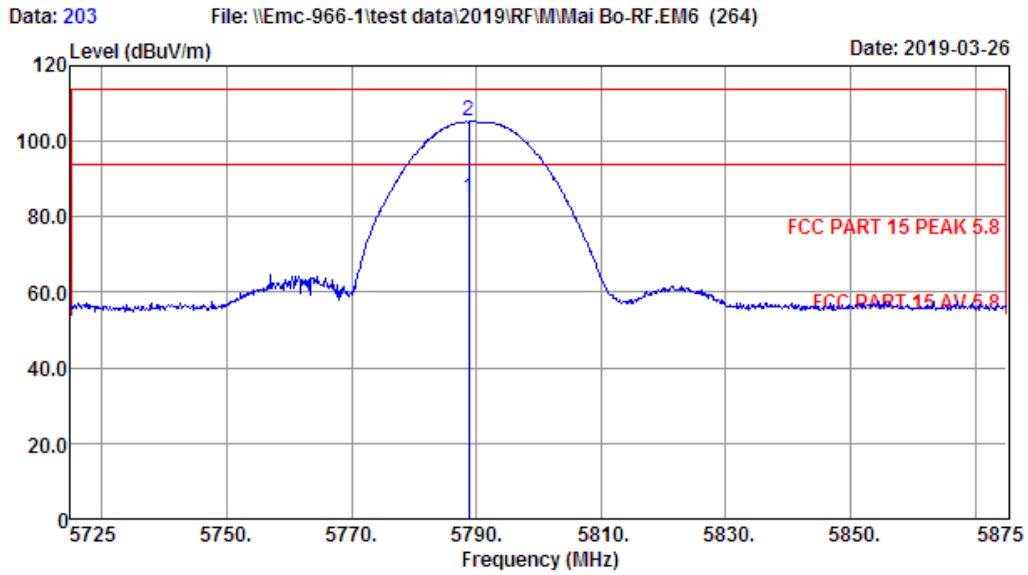
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5740.90	33.24	5.20	35.95	81.51	84.00	94.00	10.00	Average
2	5740.90	33.24	5.20	35.95	101.82	104.31	114.00	9.69	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

RBW is set at 5MHz and VBW is set at 20MHz.
 PK detector is for PK value, RMS detector is for AV value.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



```

Site no.      : 1# 966 Chamber           Data no.   : 203
Dis. / Ant.  : 3m 9120D 1-18G         Ant. pol.  : HORIZONTAL
Limit        : FCC PART 15 PEAK 5.8
Env. / Ins.  : Temp:23.4';Humi:52%;Press:101.52kPa
Engineer     : Viking
EUT          : WIRELESS SURROUD TRANSMITTER
Power        : DC 5V From Adapter Input AC 120V/60Hz
M/N          : Surround 3
Test Mode    : TX 5790MHz
    
```

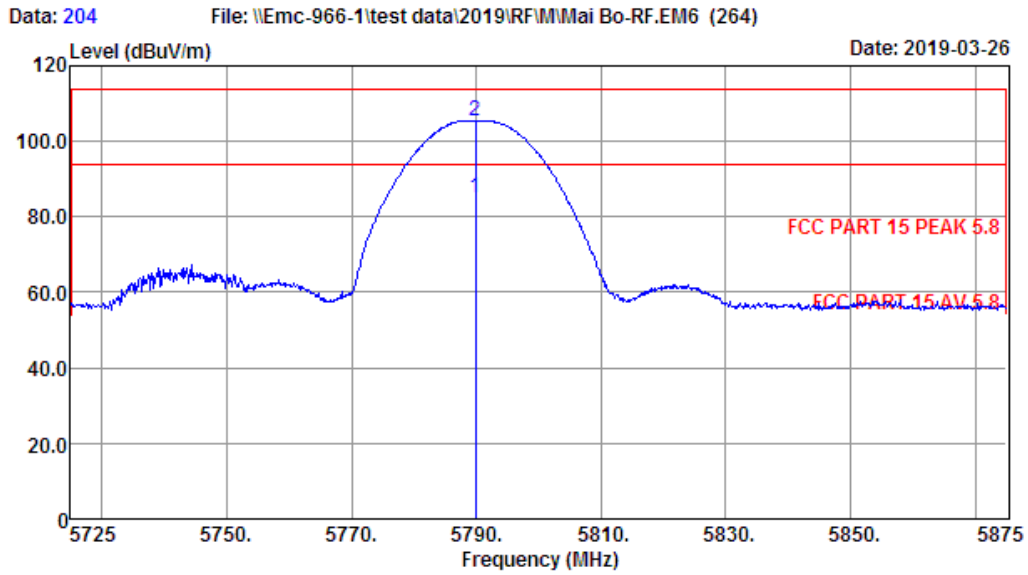
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5788.75	33.29	5.29	35.94	82.18	84.82	94.00	9.18	Average
2	5788.75	33.29	5.29	35.94	102.55	105.19	114.00	8.81	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

RBW is set at 5MHz and VBW is set at 20MHz.
 PK detector is for PK value, RMS detector is for AV value.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878

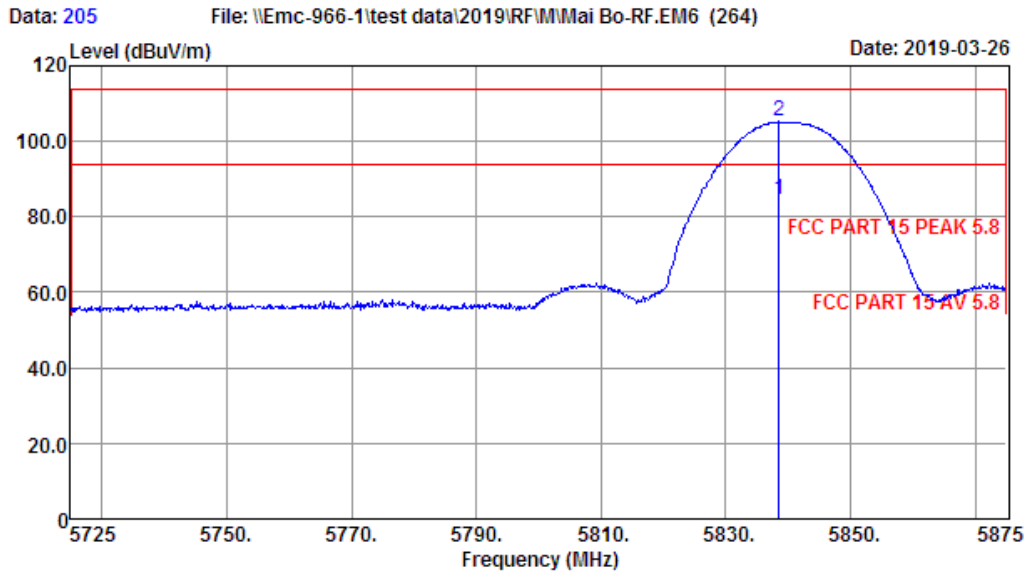


Site no. : 1# 966 Chamber Data no. : 204
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5790MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5789.95	33.29	5.29	35.94	82.54	85.18	94.00	8.82	Average
2	5789.95	33.29	5.29	35.94	102.92	105.56	114.00	8.44	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

RBW is set at 5MHz and VBW is set at 20MHz.
 PK detector is for PK value, RMS detector is for AV value.

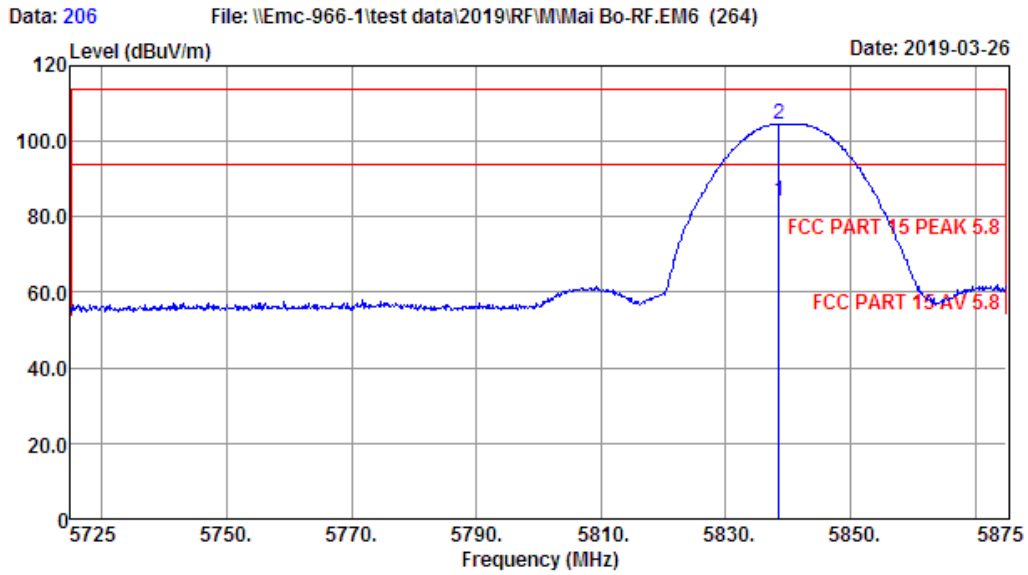


Site no. : 1# 966 Chamber Data no. : 205
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5840MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5838.55	33.34	5.38	35.93	81.84	84.63	94.00	9.37	Average
2	5838.55	33.34	5.38	35.93	102.39	105.18	114.00	8.82	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

RBW is set at 5MHz and VBW is set at 20MHz.
 PK detector is for PK value, RMS detector is for AV value.

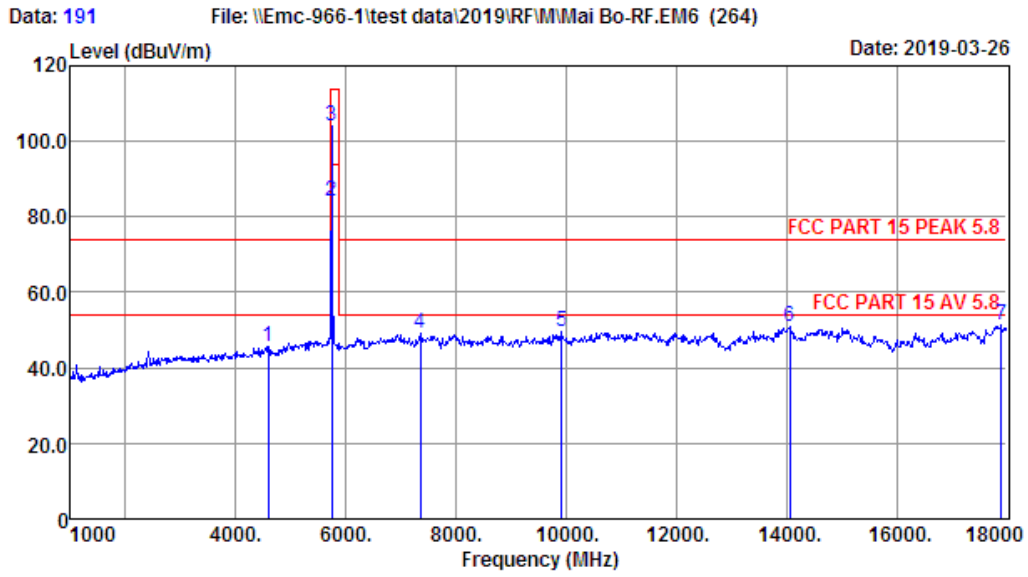


Site no. : 1# 966 Chamber Data no. : 206
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5840MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5838.55	33.34	5.38	35.93	81.46	84.25	94.00	9.75	Average
2	5838.55	33.34	5.38	35.93	101.83	104.62	114.00	9.38	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

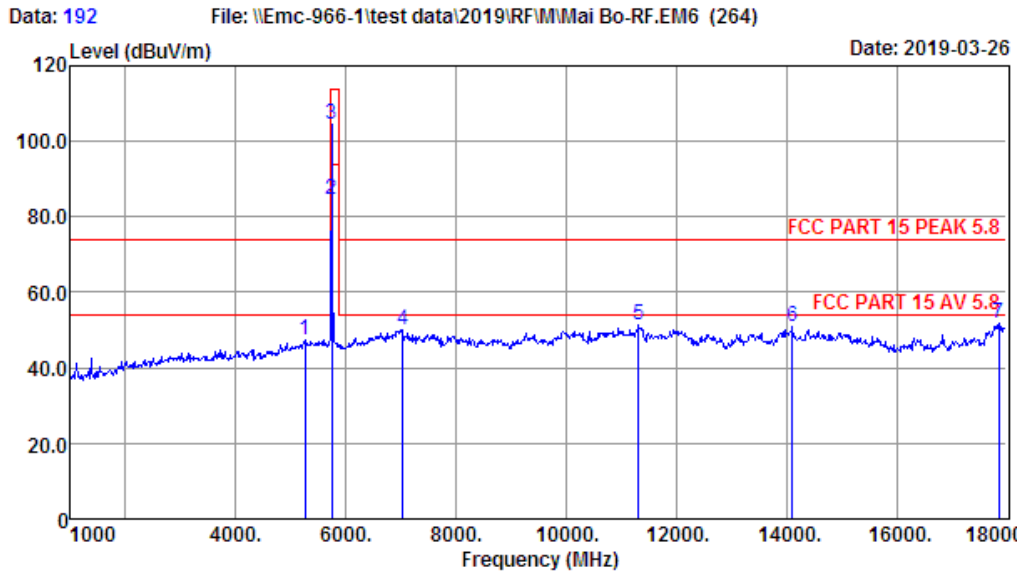
RBW is set at 5MHz and VBW is set at 20MHz.
 PK detector is for PK value, RMS detector is for AV value



Site no. : 1# 966 Chamber Data no. : 191
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5740MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4587.00	31.66	4.66	36.10	45.29	45.51	74.00	28.49	Peak
2	5740.00	33.24	5.20	35.95	81.73	84.22	94.00	9.78	Average
3	5740.00	33.24	5.20	35.95	101.53	104.02	114.00	9.98	Peak
4	7358.00	36.90	6.11	34.79	40.80	49.02	74.00	24.98	Peak
5	9925.00	39.06	8.53	34.98	37.06	49.67	74.00	24.33	Peak
6	14056.00	41.65	10.13	33.66	32.64	50.76	74.00	23.24	Peak
7	17898.00	44.43	12.42	31.82	26.42	51.45	74.00	22.55	Peak

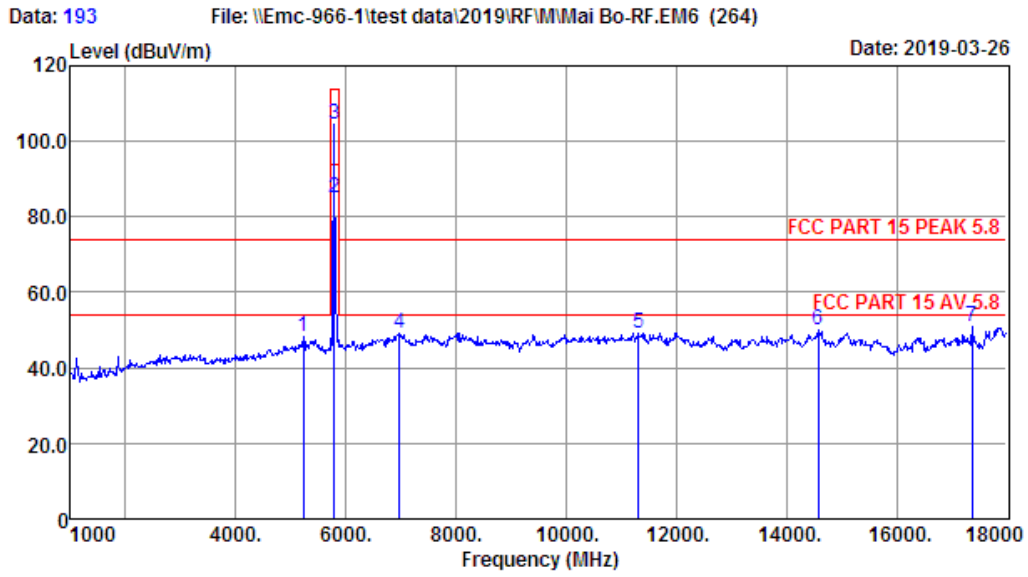
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 192
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5740MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5250.00	32.70	4.94	36.05	45.73	47.32	74.00	26.68	Peak
2	5740.00	33.24	5.20	35.95	81.90	84.39	94.00	9.61	Average
3	5740.00	33.24	5.20	35.95	102.16	104.65	114.00	9.35	Peak
4	7035.00	36.18	5.85	34.53	42.75	50.25	74.00	23.75	Peak
5	11319.00	40.03	8.34	33.95	36.76	51.18	74.00	22.82	Peak
6	14107.00	41.60	10.14	33.63	32.68	50.79	74.00	23.21	Peak
7	17864.00	44.34	12.34	31.85	26.85	51.68	74.00	22.32	Peak

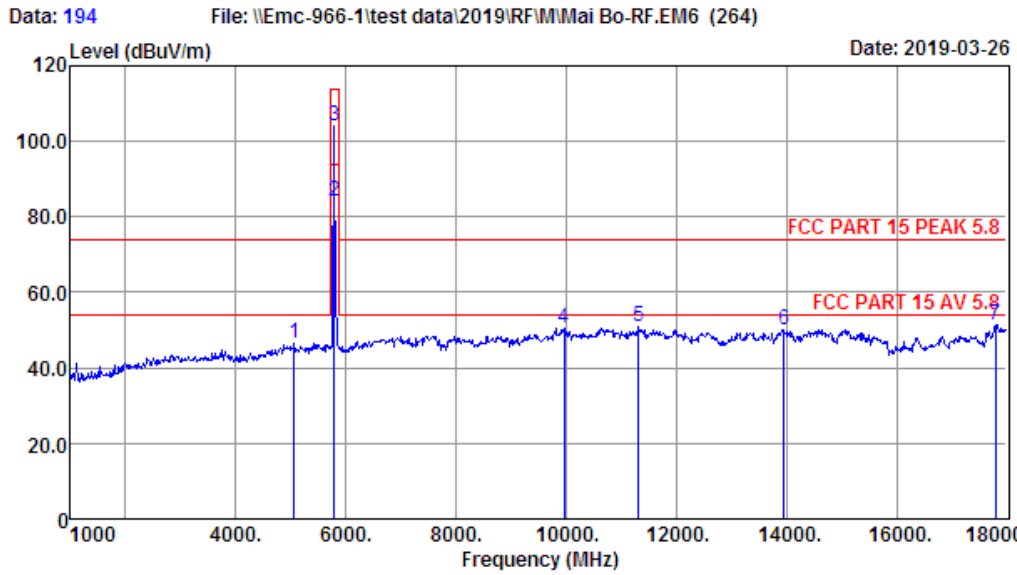
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 193
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5790MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5233.00	32.68	4.93	36.05	46.49	48.05	74.00	25.95	Peak
2	5790.00	33.29	5.29	35.94	82.22	84.86	94.00	9.14	Average
3	5790.00	33.29	5.29	35.94	101.68	104.32	114.00	9.68	Peak
4	6967.00	36.04	5.80	34.52	42.05	49.37	74.00	24.63	Peak
5	11319.00	40.03	8.34	33.95	34.93	49.35	74.00	24.65	Peak
6	14583.00	41.05	10.28	33.35	32.00	49.98	74.00	24.02	Peak
7	17371.00	42.89	11.25	32.39	29.25	51.00	74.00	23.00	Peak

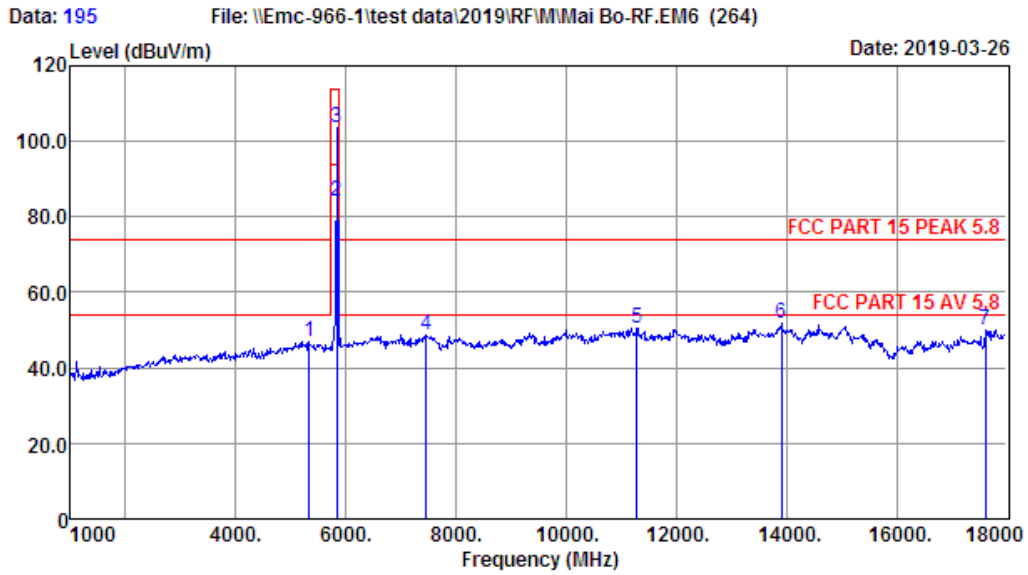
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 194
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5790MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5063.00	32.48	4.84	36.09	45.14	46.37	74.00	27.63	Peak
2	5790.00	33.29	5.29	35.94	81.29	83.93	94.00	10.07	Average
3	5790.00	33.29	5.29	35.94	101.46	104.10	114.00	9.90	Peak
4	9959.00	39.08	8.68	34.99	37.89	50.66	74.00	23.34	Peak
5	11319.00	40.03	8.34	33.95	36.31	50.73	74.00	23.27	Peak
6	13954.00	41.66	10.12	33.69	32.12	50.21	74.00	23.79	Peak
7	17796.00	44.16	12.19	31.93	26.84	51.26	74.00	22.74	Peak

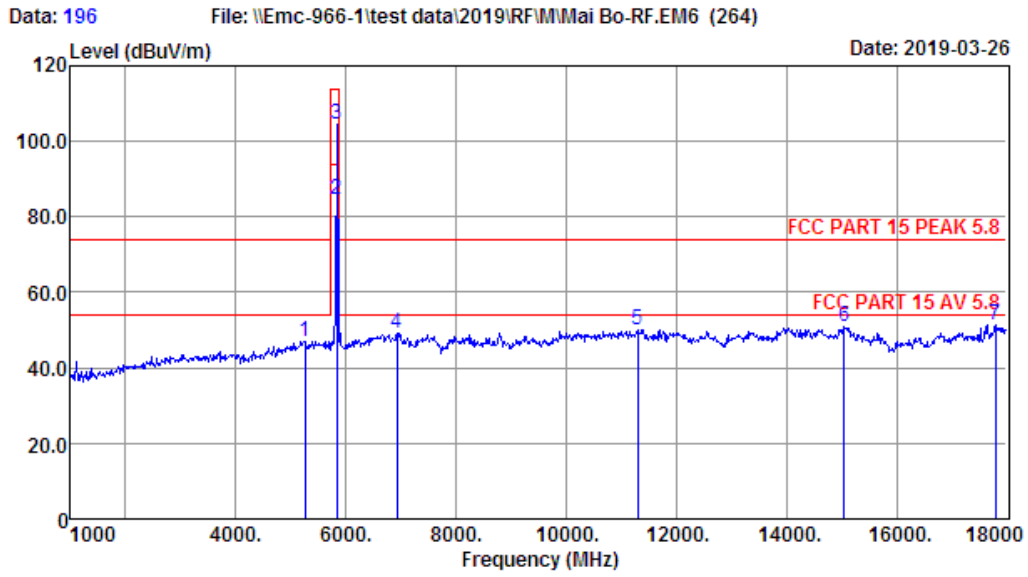
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 195
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5840MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5335.00	32.80	5.00	36.03	45.22	46.99	74.00	27.01	Peak
2	5840.00	33.34	5.38	35.93	81.15	83.94	94.00	10.06	Average
3	5840.00	33.34	5.38	35.93	100.99	103.78	114.00	10.22	Peak
4	7460.00	37.12	6.14	34.87	40.36	48.75	74.00	25.25	Peak
5	11285.00	40.01	8.36	33.98	36.06	50.45	74.00	23.55	Peak
6	13903.00	41.62	10.11	33.68	33.82	51.87	74.00	22.13	Peak
7	17609.00	43.67	11.78	32.12	26.59	49.92	74.00	24.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.



Site no. : 1# 966 Chamber Data no. : 196
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5840MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5250.00	32.70	4.94	36.05	45.31	46.90	74.00	27.10	Peak
2	5840.00	33.34	5.38	35.93	81.80	84.59	94.00	9.41	Average
3	5840.00	33.34	5.38	35.93	101.78	104.57	114.00	9.43	Peak
4	6933.00	35.98	5.79	34.57	41.88	49.08	74.00	24.92	Peak
5	11302.00	40.02	8.35	33.96	35.77	50.18	74.00	23.82	Peak
6	15042.00	40.24	10.79	33.11	33.10	51.02	74.00	22.98	Peak
7	17796.00	44.16	12.19	31.93	27.16	51.58	74.00	22.42	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

FCC ID: OR8-SURROUND3

18000MHz – 40000MHz

Pass

Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

5. 20 DB BANDWIDTH

5.1. Test Procedure

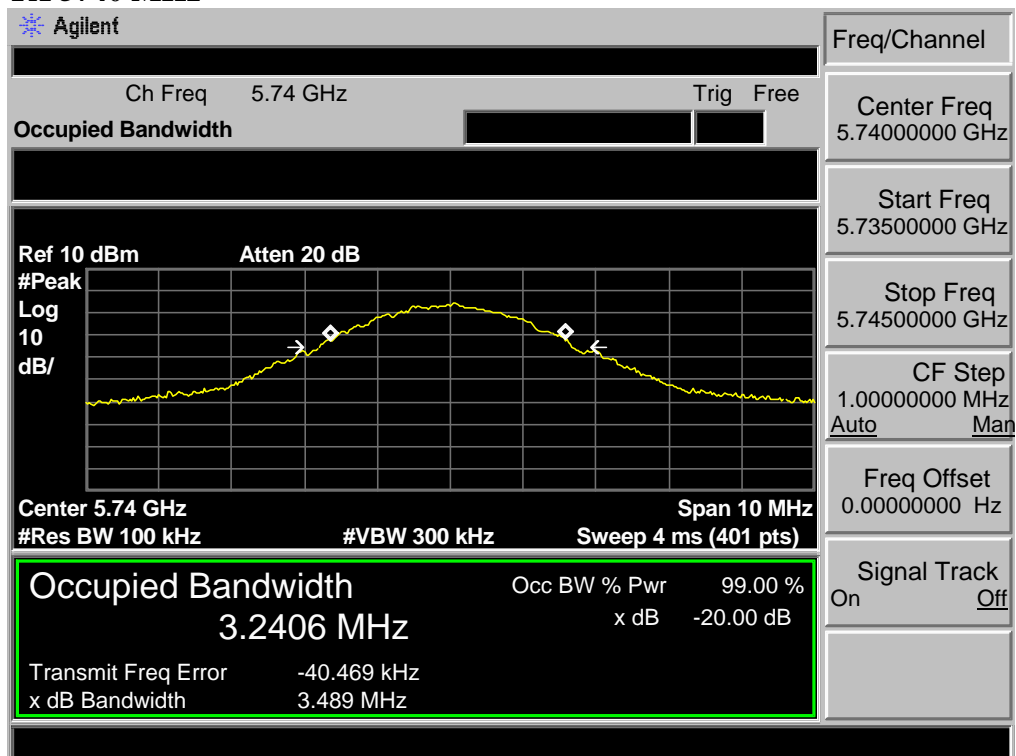
The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

5.2. Test Result

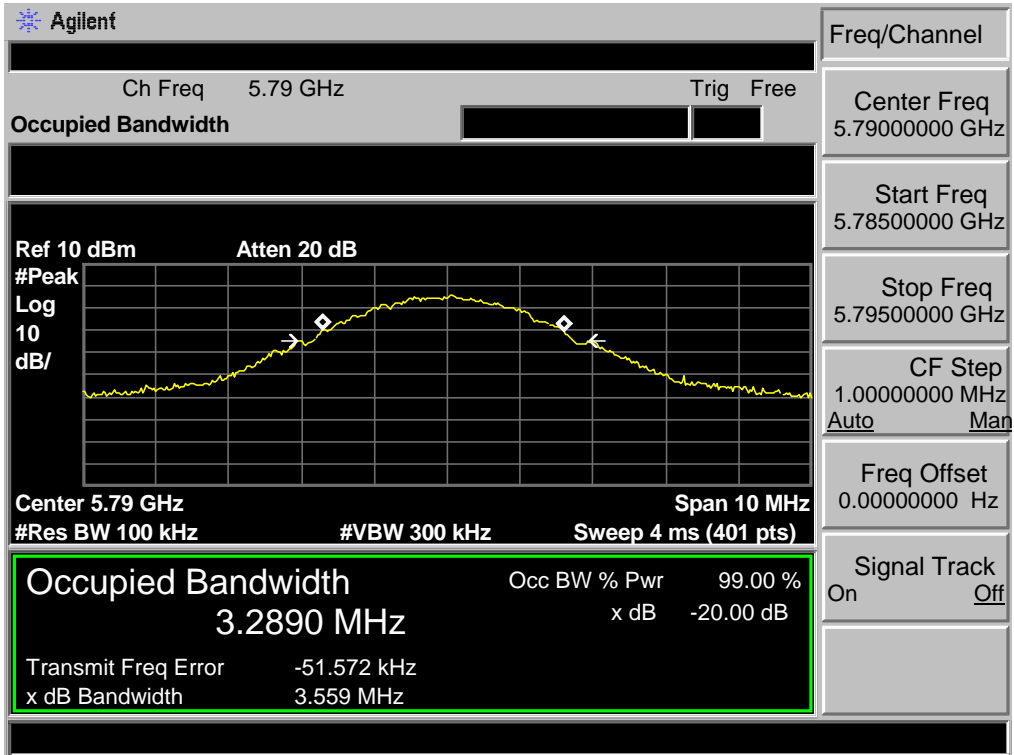
EUT: WIRELESS SURROUD TRANSMITTER				
M/N: Surround 3				
Test date: 2019-03-27		Test site: RF site		Tested by: Viking
Mode	Freq (MHz)	20dB Bandwidth (MHz)	Limit (kHz)	Conclusion
TX	5740	3.489	/	PASS
TX	5790	3.559	/	PASS
TX	5840	3.625	/	PASS

5.3. Test Data

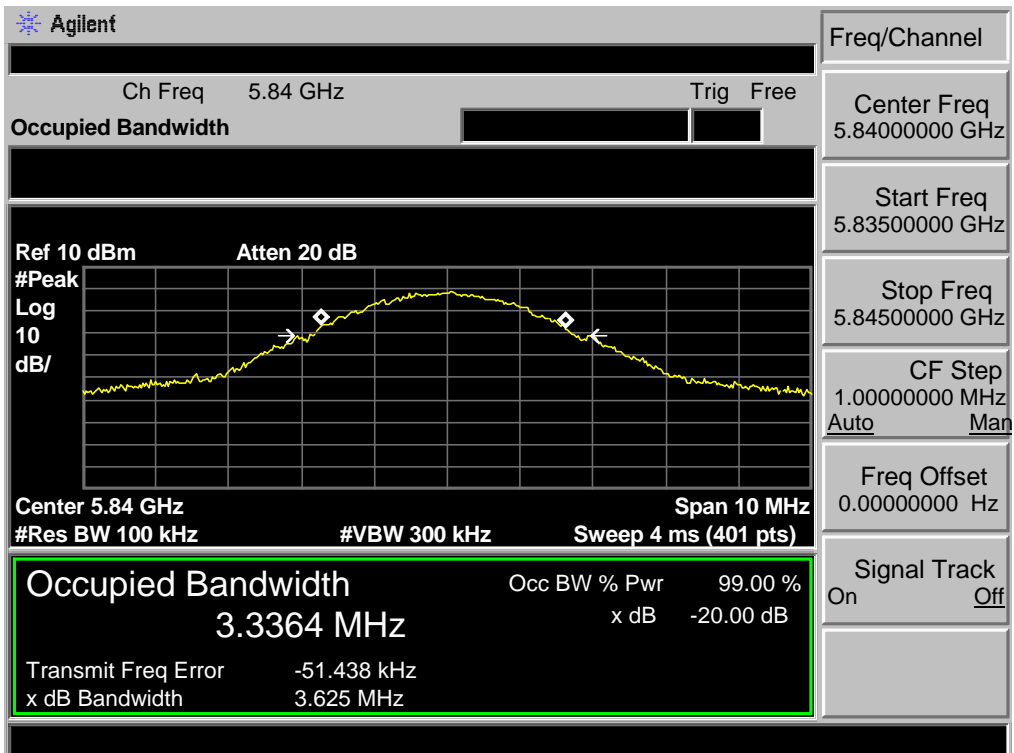
TX 5740 MHz



TX 5790 MHz

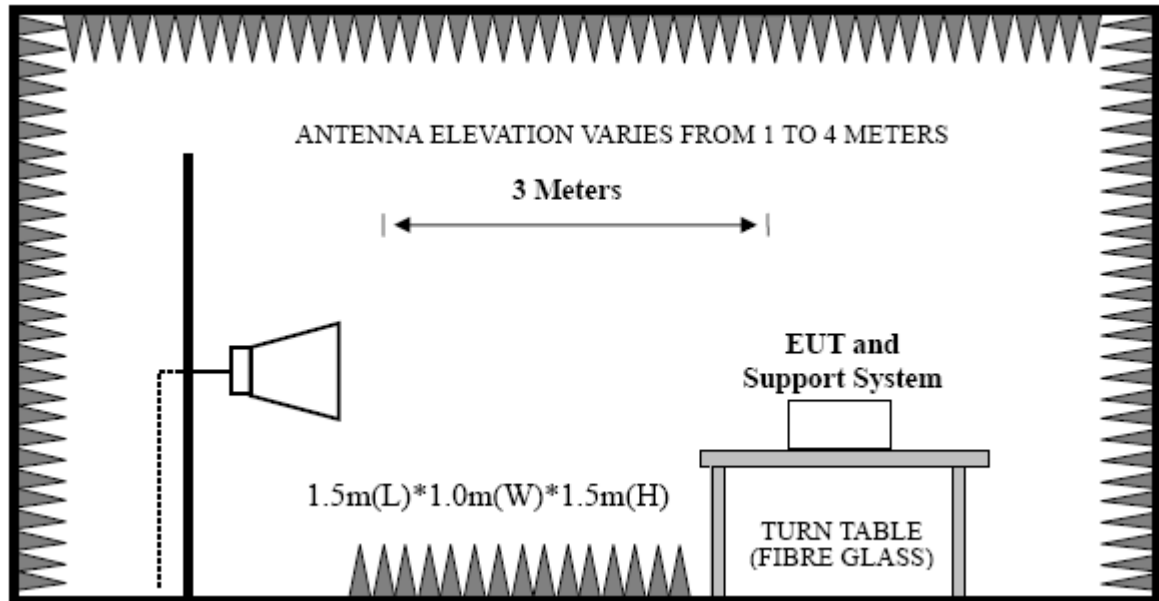


TX 5840 MHz



6. BAND EDGE COMPLIANCE

6.1. Block Diagram of Test setup



6.2. Test Procedure

EUT was placed on a turn table, which is 1.5 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of emissions

Peak : RBW = 1MHz, VBW = 1MHz, Detector=PEAK detector, Sweep time = auto.

AV : RBW = 1MHz, VBW = 10Hz, Detector=PEAK detector, Sweep time = auto .

6.3. Test Result

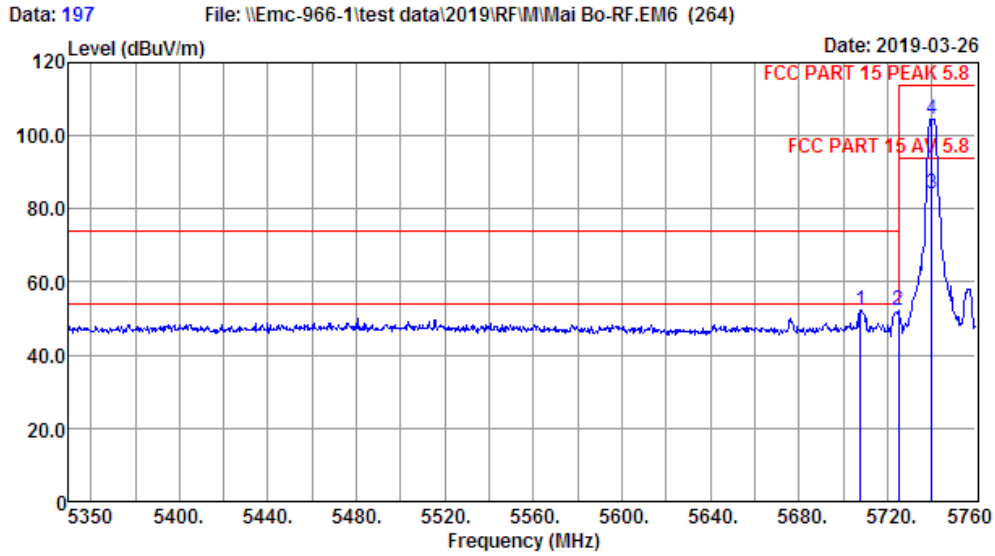
Pass.

Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

6.4. Test Data

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel:+86-769-83081888
Fax:+86-769-83081878



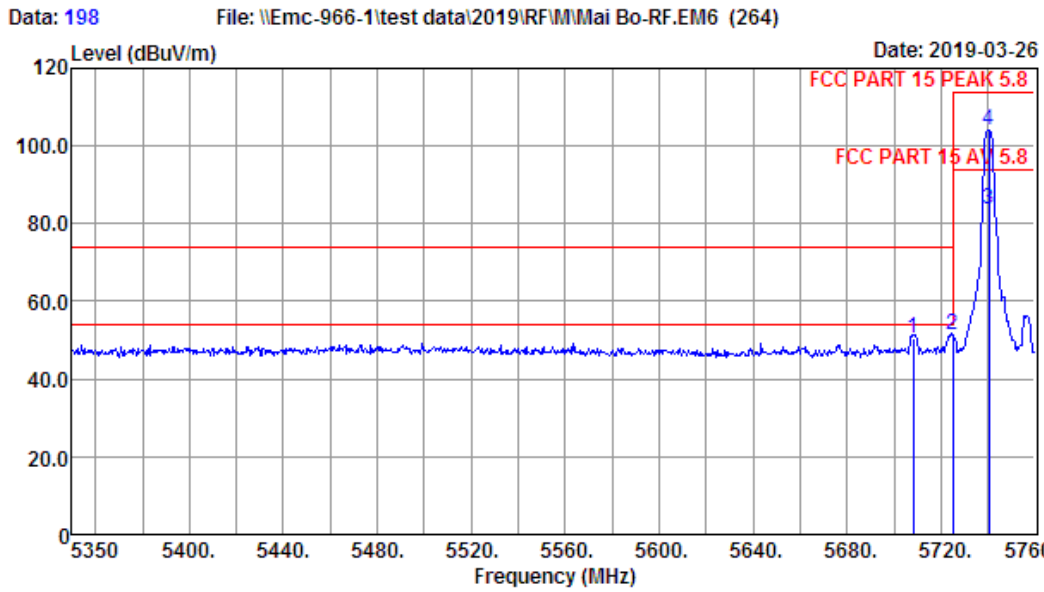
Site no. : 1# 966 Chamber Data no. : 197
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5740MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5707.93	33.21	5.19	35.96	49.92	52.36	74.00	21.64	Peak
2	5725.00	33.22	5.19	35.95	49.86	52.32	74.00	21.68	Peak
3	5739.91	33.24	5.20	35.95	81.52	84.01	94.00	9.99	Average
4	5739.91	33.24	5.20	35.95	102.21	104.70	114.00	9.30	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



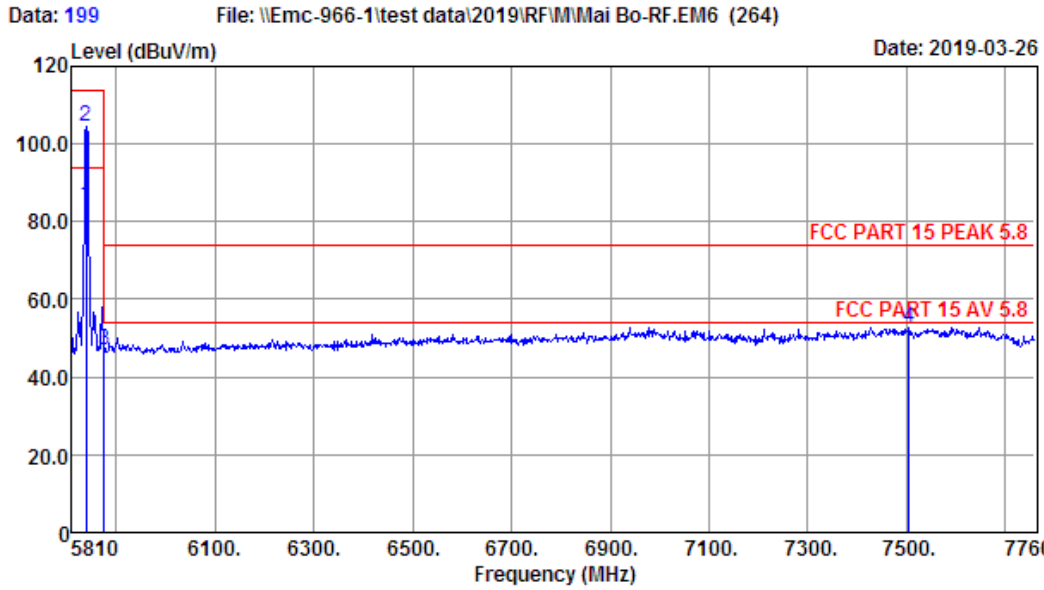
Site no. : 1# 966 Chamber Data no. : 198
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5740MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5708.34	33.21	5.19	35.96	48.09	50.53	74.00	23.47	Peak
2	5725.00	33.22	5.19	35.95	48.84	51.30	74.00	22.70	Peak
3	5740.32	33.24	5.20	35.95	81.23	83.72	94.00	10.28	Average
4	5740.32	33.24	5.20	35.95	101.69	104.18	114.00	9.82	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



```

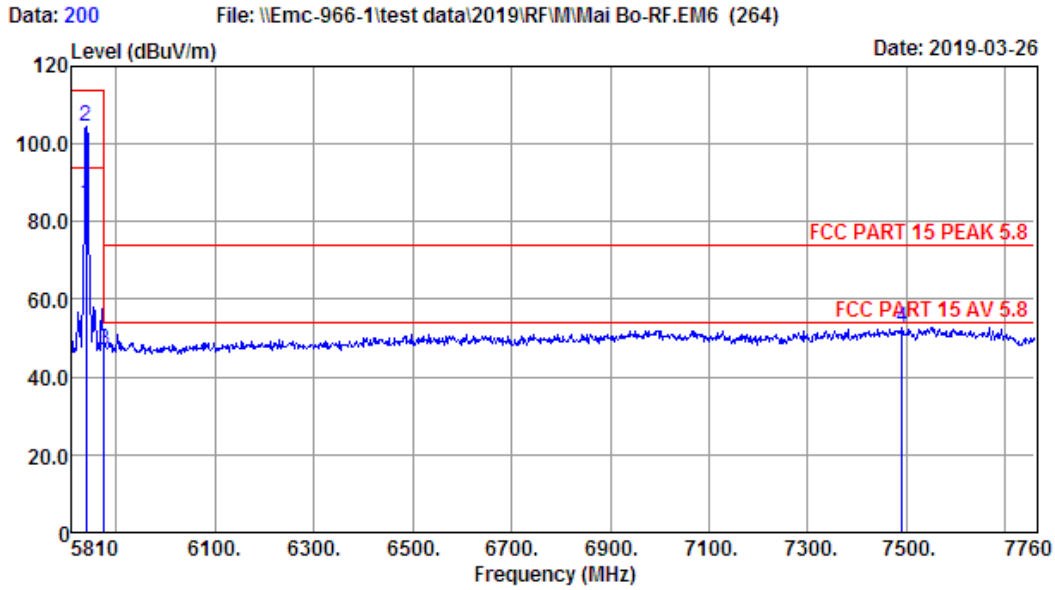
Site no.       : 1# 966 Chamber           Data no.   : 199
Dis. / Ant.   : 3m 9120D 1-18G          Ant. pol.  : HORIZONTAL
Limit         : FCC PART 15 PEAK 5.8
Env. / Ins.   : Temp:23.4';Humi:52%;Press:101.52kPa
Engineer      : Viking
EUT           : WIRELESS SURROUD TRANSMITTER
Power         : DC 5V From Adapter Input AC 120V/60Hz
M/N           : Surround 3
Test Mode     : TX 5840MHz
    
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5839.25	33.34	5.38	35.93	81.54	84.33	94.00	9.67	Average
2	5839.25	33.34	5.38	35.93	101.74	104.53	114.00	9.47	Peak
3	5875.00	33.38	5.44	35.92	44.00	46.90	74.00	27.10	Peak
4	7504.55	37.22	6.15	34.90	44.37	52.84	74.00	21.16	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan, Guangdong, China
Tel: +86-769-83081888
Fax: +86-769-83081878



Site no. : 1# 966 Chamber Data no. : 200
 Dis. / Ant. : 3m 9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCC PART 15 PEAK 5.8
 Env. / Ins. : Temp:23.4';Humi:52%;Press:101.52kPa
 Engineer : Viking
 EUT : WIRELESS SURROUD TRANSMITTER
 Power : DC 5V From Adapter Input AC 120V/60Hz
 M/N : Surround 3
 Test Mode : TX 5840MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5839.25	33.34	5.38	35.93	81.92	84.71	94.00	9.29	Average
2	5839.25	33.34	5.38	35.93	101.75	104.54	114.00	9.46	Peak
3	5875.00	33.38	5.44	35.92	44.21	47.11	74.00	26.89	Peak
4	7490.90	37.20	6.15	34.89	44.20	52.66	74.00	21.34	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

7. ANTENNA REQUIREMENTS

7.1. Limit

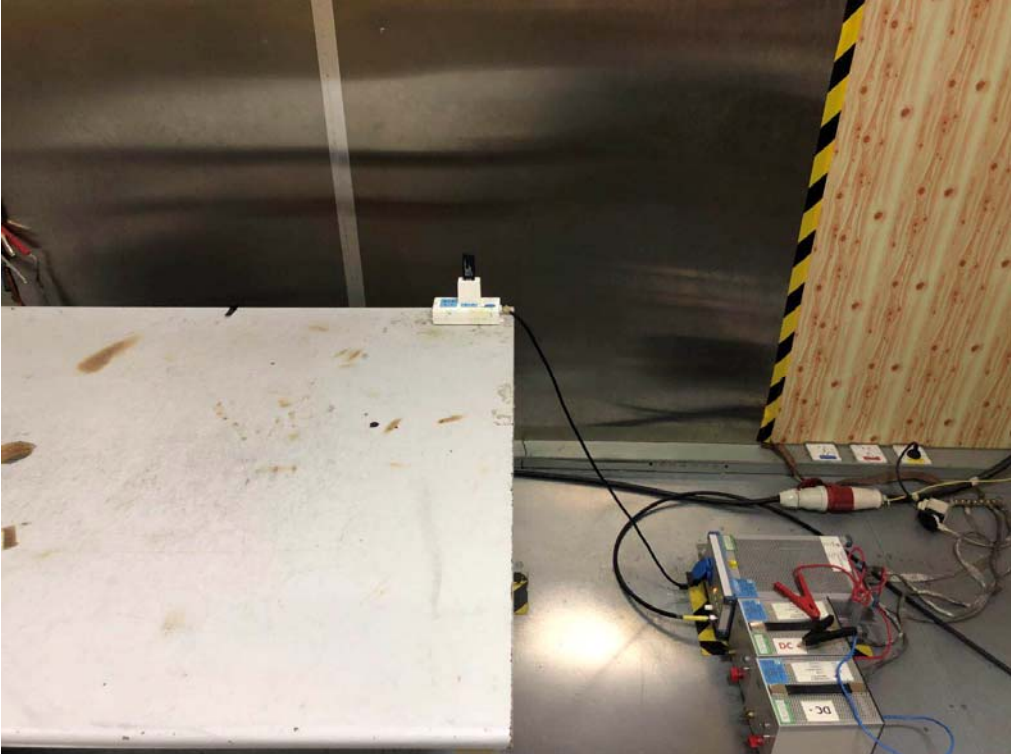
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.249 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

7.2. Result

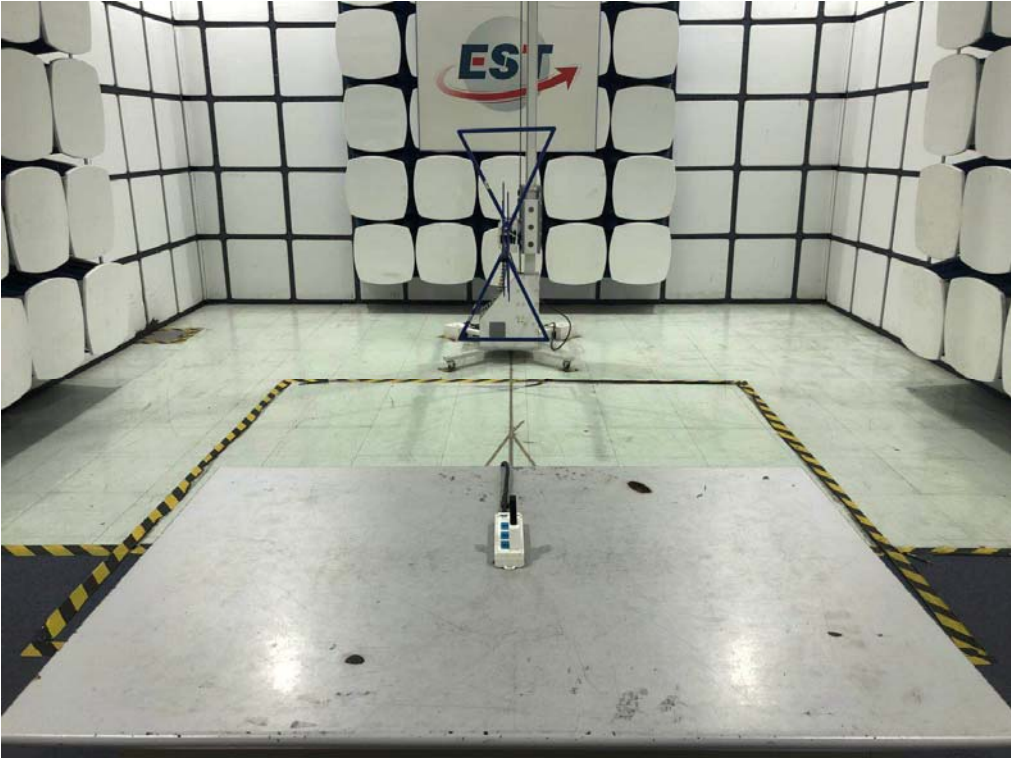
The antennas used for this product are PCB Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 2.85dBi.

8. TESTSETUP PHOTO

Conducted Test



Radiated Test (30-1000 MHz)



Radiated Test (Above 1GHz)



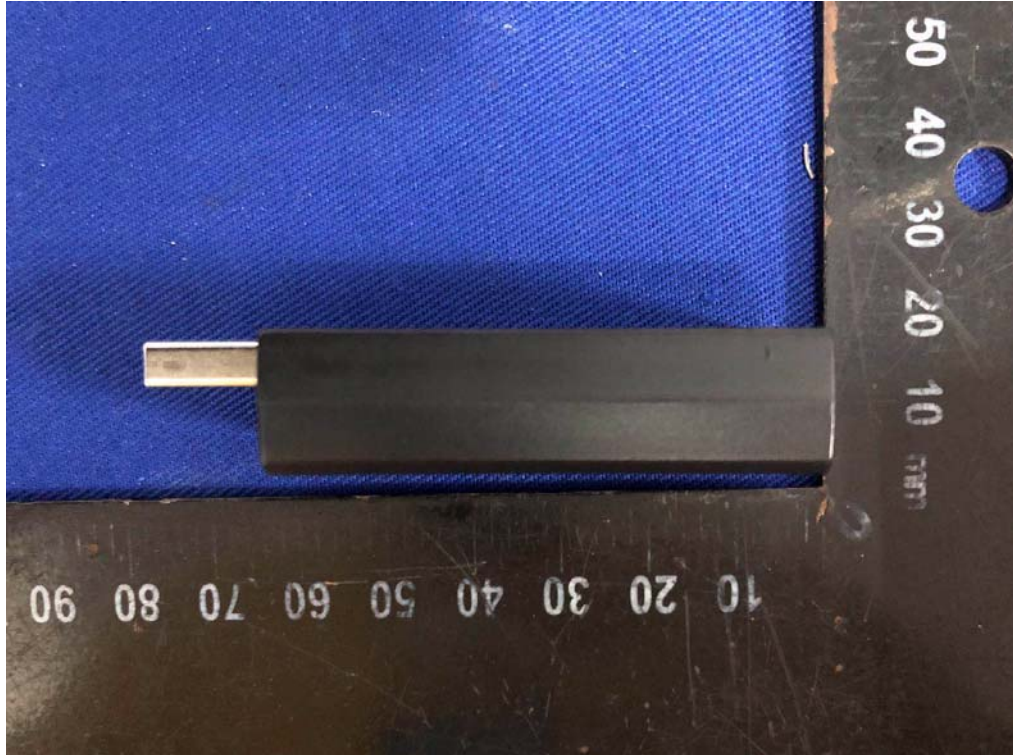
9. PHOTO OF EUT

External Photos

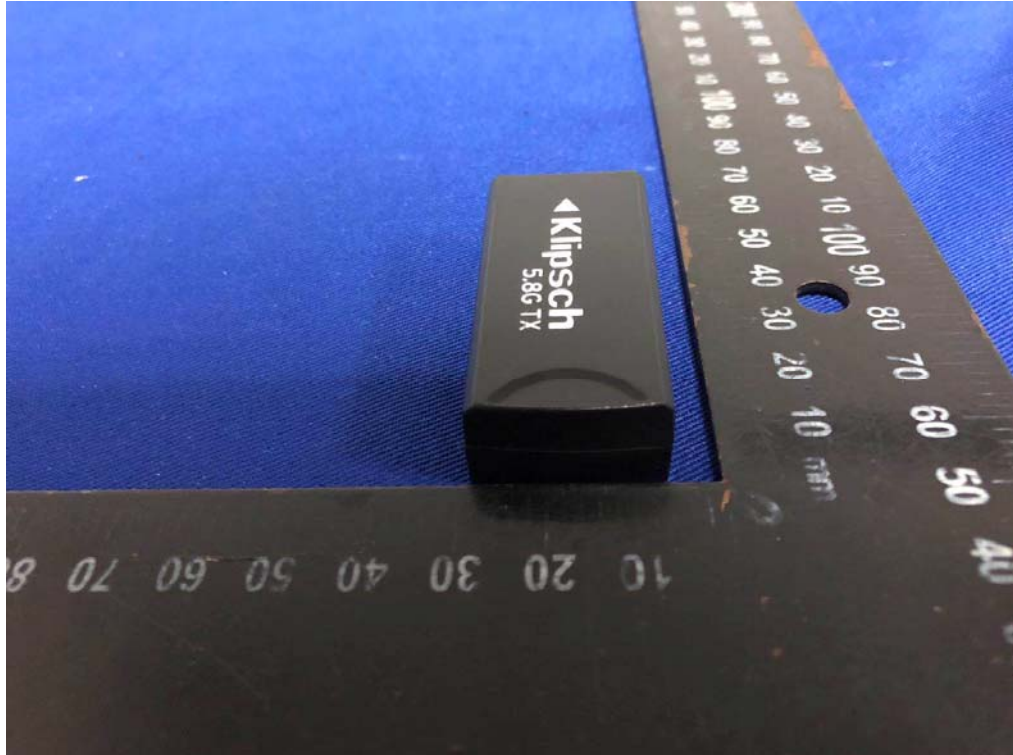
M/N: Surround 3



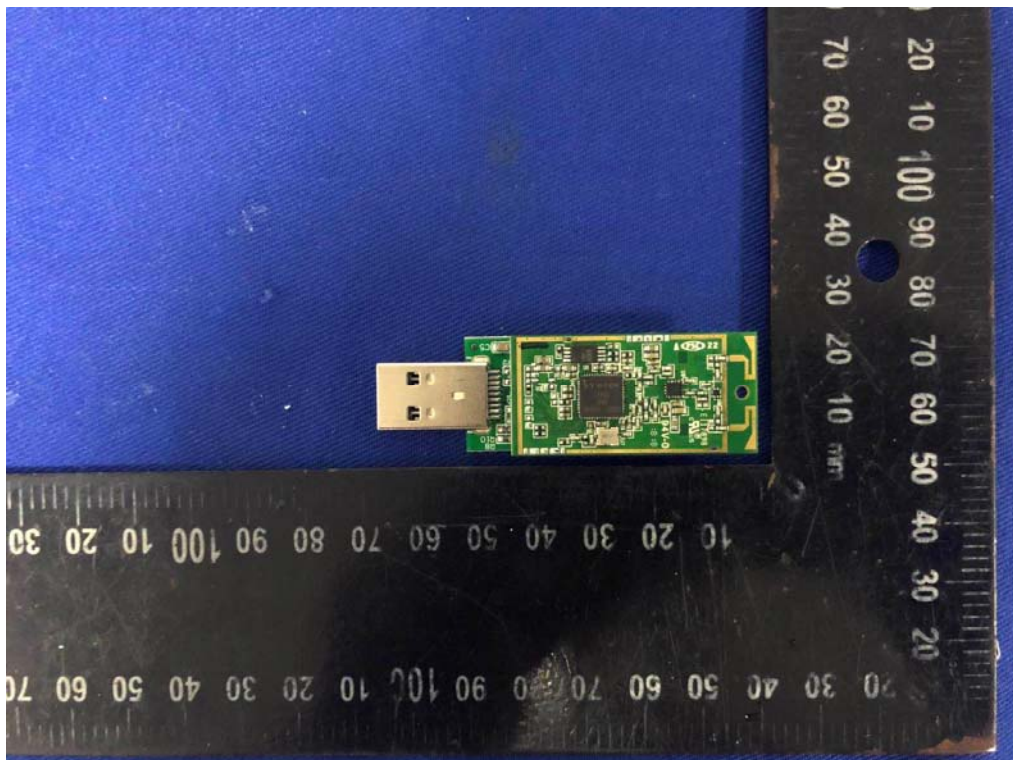
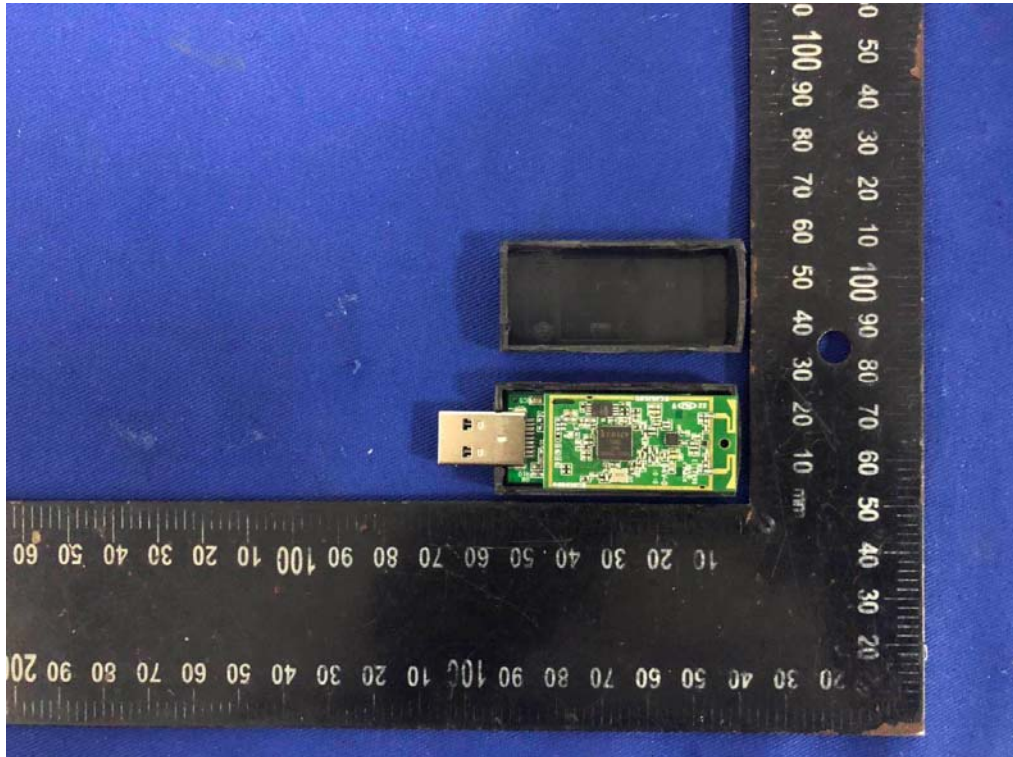
External Photos
M/N:Surround 3



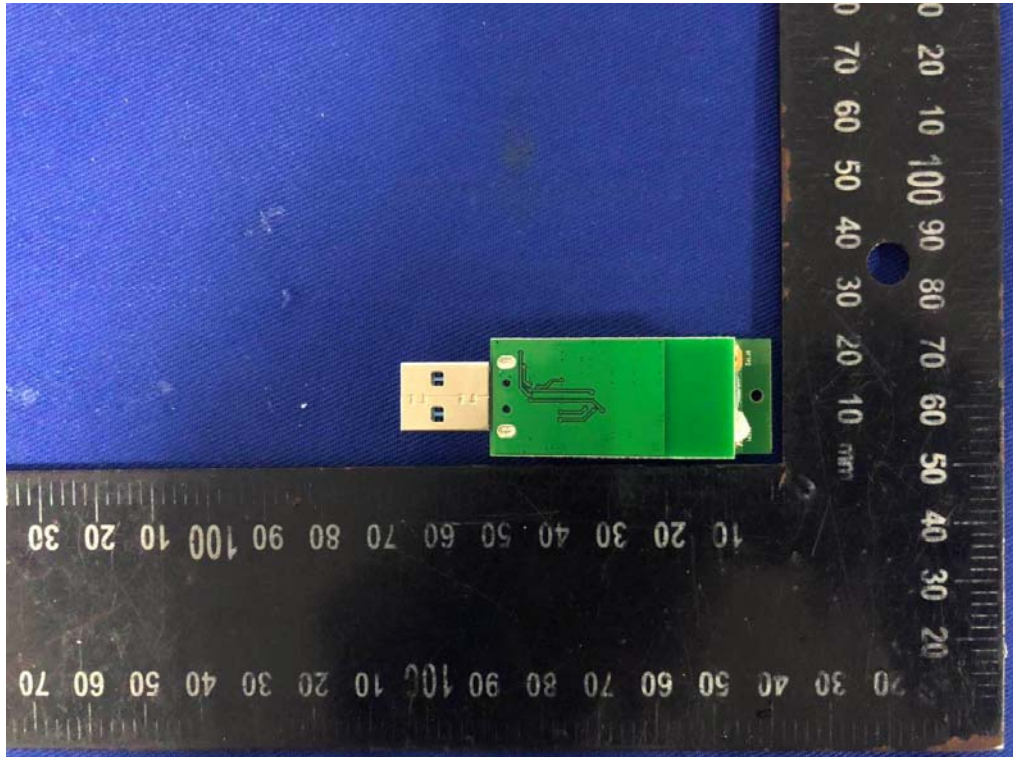
External Photos
M/N: Surround 3



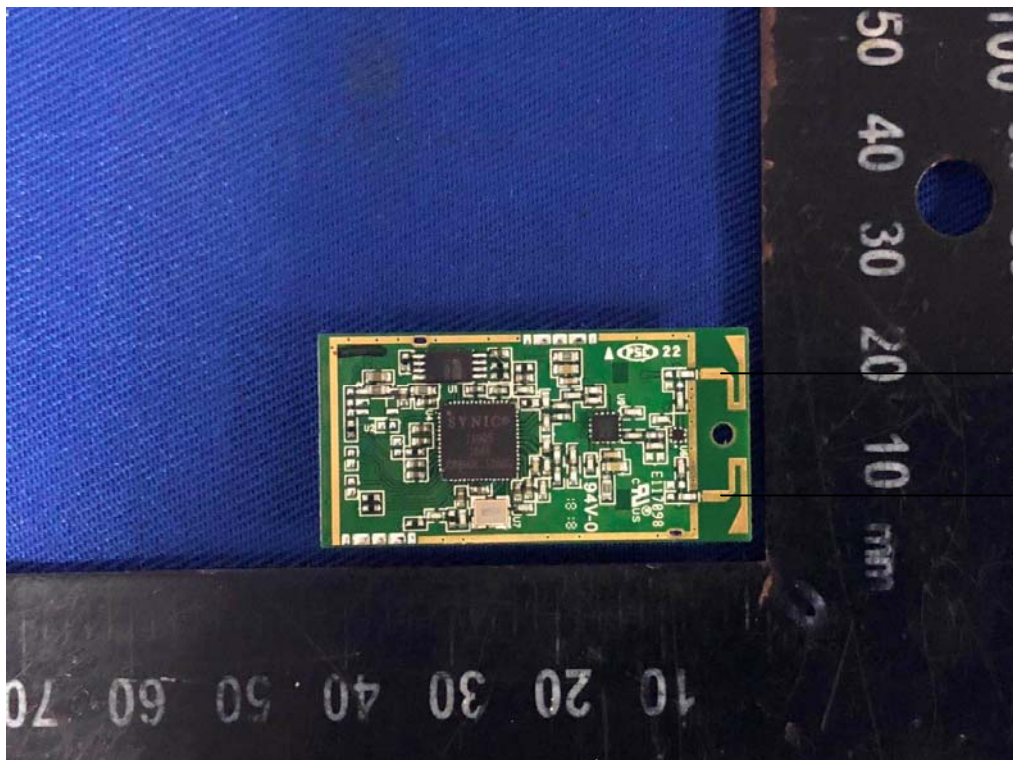
Internal Photos
M/N: Surround 3



Internal Photos
M/N: Surround 3



Internal Photos
M/N: Surround 3



Antenna A

Antenna B