

FCC Report

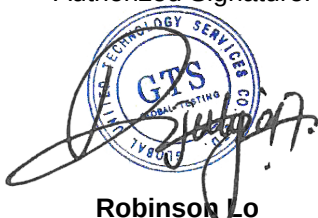
Applicant: Shenzhen YLWD Technology Co.,Ltd
Address of Applicant: RM1002.A.Haisong BLD.RDTairan.FuTian District
Shenzhen,China
Manufacturer/Factory: Shenzhen YLWD Technology Co.,Ltd
**Address of
Manufacturer/Factory:** RM1002.A.Haisong BLD.RDTairan.FuTian District
Shenzhen,China

Equipment Under Test (EUT)

Product Name: mobile phone
Model No.: E4001, E4002, E4003, E4004, E4005, E4501, E4502, E4503,
E4504, E4505, E5001, E5002, E5003, E5004, E5005, E5501,
E5502, E5503, E5504, E5505, E6001, E6002, E6003, E6004,
E6005
Trade mark: MOVIC
FCC ID: 2AKSAMOVIC-E
Applicable standards: FCC CFR Title 47 Part 15 Subpart B:2017
Date of sample receipt: July 03, 2017
Date of Test: July 04-11, 2017
Date of report issue: July 12, 2017
Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Lo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	July 12, 2017	Original

Prepared By:

Edward Pan

Date:

July 12, 2017

Project Engineer

Check By:

Andy Wu

Date:

July 12, 2017

Reviewer

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
5 GENERAL INFORMATION	5
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF EUT	5
5.3 TEST MODE	5
5.4 TEST FACILITY	6
5.5 TEST LOCATION.....	6
5.6 DESCRIPTION OF SUPPORT UNITS	6
5.7 DEVIATION FROM STANDARDS	6
5.8 ABNORMALITIES FROM STANDARD CONDITIONS.....	6
5.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER	6
6 TEST INSTRUMENTS LIST	7
7 TEST RESULTS AND MEASUREMENT DATA.....	8
7.1 CONDUCTED EMISSIONS	8
7.2 RADIATED EMISSION	11
8 TEST SETUP PHOTO	17
9 EUT CONSTRUCTIONAL DETAILS	18

4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	PASS
Radiated Emissions	Part15.109	PASS

PASS: The EUT complies with the essential requirements in the standard.

Remark: Test according to ANSI C63.4:2014

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	$\pm 4.34\text{dB}$	(1)
Radiated Emission	30MHz ~ 1000MHz	$\pm 4.24\text{dB}$	(1)
Radiated Emission	1GHz ~ 26.5GHz	$\pm 4.68\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.45\text{dB}$	(1)

Note (1): The measurement uncertainty is for coverage factor of $k=2$ and a level of confidence of 95%.

5 General Information

5.1 Client Information

5.2 General Description of EUT

Product Name:	mobile phone
Model No.:	E4001, E4002, E4003, E4004, E4005, E4501, E4502, E4503, E4504, E4505, E5001, E5002, E5003, E5004, E5005, E5501, E5502, E5503, E5504, E5505, E6001, E6002, E6003, E6004, E6005
Test Model No.:	E4001
Power supply:	Adapter Model No.: R400-A Input: AC 100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 500mA or DC 3.7V 1400mAh Li-ion Battery

5.3 Test mode

Test mode:	
PC mode	Keep the EUT in exchanging data mode.
Video Playing mode	Keep the EUT in video playing mode.
REC mode	Keep the EUT in video recording mode.

5.4 Test Facility

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

- **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 600491, June 22, 2016.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.6 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC Approval
Apple	PC	A1278	C1MN99ERDTY3	FCC DoC
DELL	KEYBOARD	SK-8115	N/A	FCC DoC
DELL	MOUSE	MOC5UO	N/A	FCC DoC
DELTA	ADAPTER	ADP-60ADT	N/A	FCC DoC

5.7 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna.
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	June.29 2017	June.28 2018
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	June.29 2017	June.28 2018
5	Double-ridged horn antenna	SCHWARZBECK	9120D	GTS208	June.29 2017	June.28 2018
6	Horn Antenna	ETS-LINDGREN	3160-09	GTS218	June.29 2017	June.28 2018
7	RF Amplifier	HP	8347A	GTS204	June.29 2017	June.28 2018
8	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	June.29 2017	June.28 2018
9	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
10	Coaxial Cable	GTS	N/A	GTS211	June.29 2017	June.28 2018
11	Coaxial Cable	GTS	N/A	GTS210	June.29 2017	June.28 2018
12	Coaxial Cable	GTS	N/A	GTS212	June.29 2017	June.28 2018
13	Thermo meter	N/A	N/A	GTS256	June.29 2017	June.28 2018

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June.29 2017	June.28 2018
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June.29 2017	June.28 2018
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June.29 2017	June.28 2018
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June.29 2017	June.28 2018

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	June.29 2017	June.28 2018

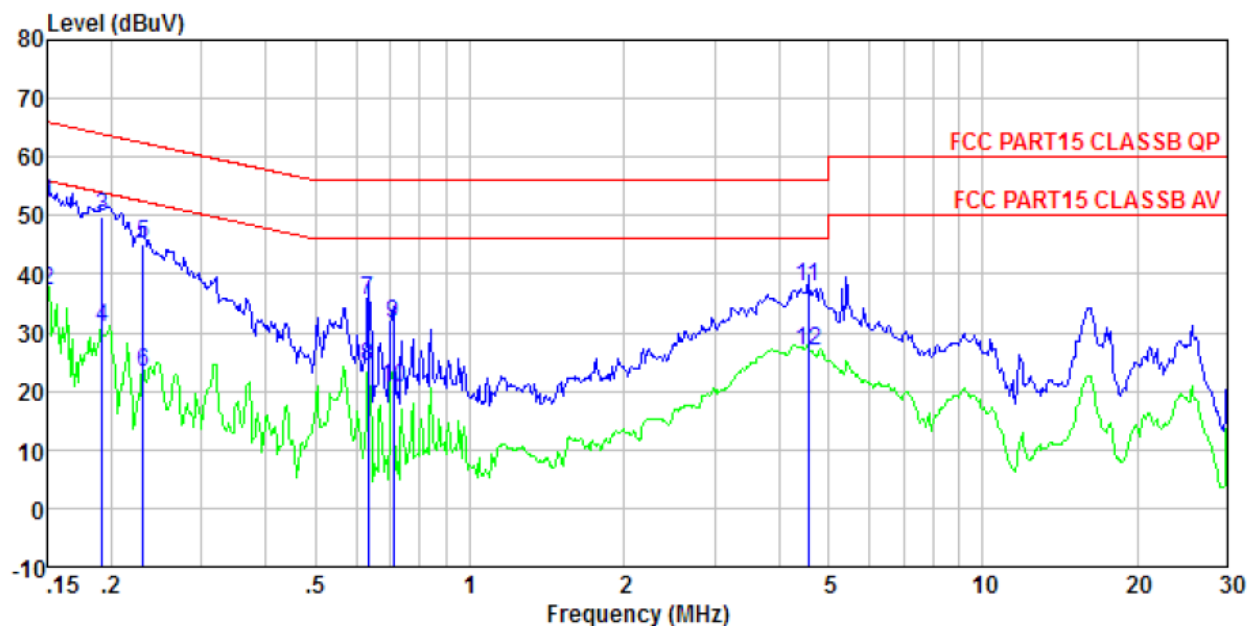
7 Test Results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107		
Test Method:	ANSI C63.4:2014		
Test Frequency Range:	150KHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto		
Limit:	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 setup:	Reference Plane Test table/Insulation plane <i>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</i>		
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2014 on conducted measurement.		
Test Instruments:	Refer to section 6 for details		
Test mode:	Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.		
Test results:	Pass		

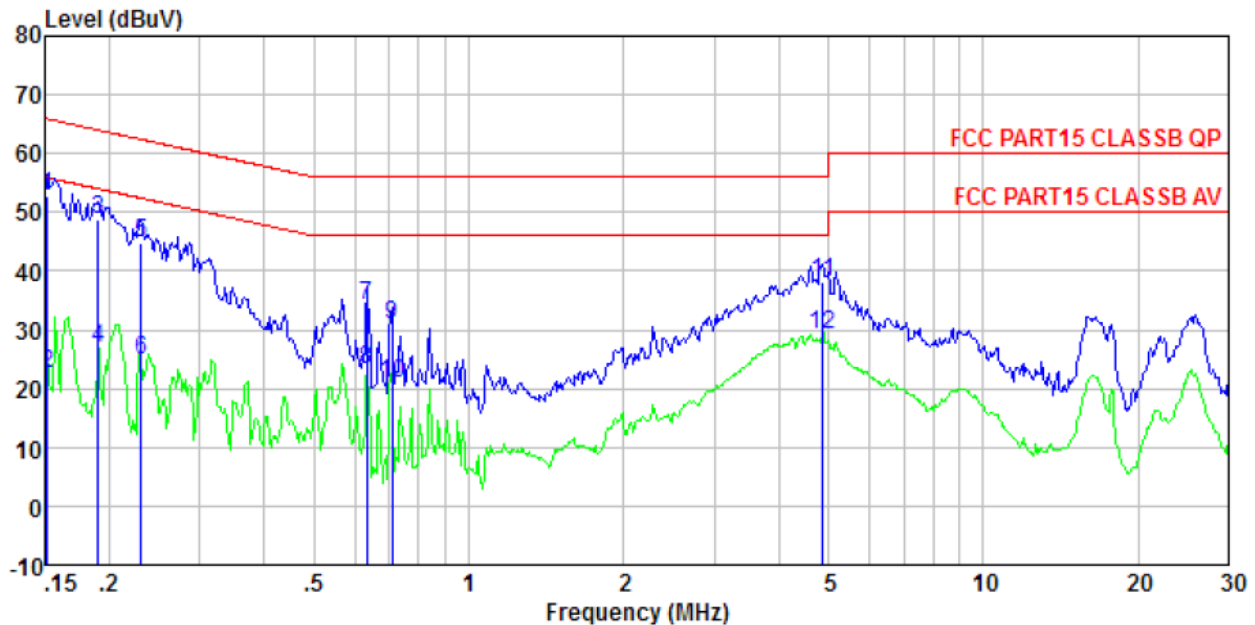
Measurement Data

Line:



	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.150	51.85	52.12	0.15	0.12	66.00	-13.88	QP
2	0.150	36.85	37.12	0.15	0.12	56.00	-18.88	Average
3	0.192	49.62	49.89	0.14	0.13	63.93	-14.04	QP
4	0.192	30.62	30.89	0.14	0.13	53.93	-23.04	Average
5	0.230	44.86	45.10	0.12	0.12	62.44	-17.34	QP
6	0.230	22.86	23.10	0.12	0.12	52.44	-29.34	Average
7	0.634	35.10	35.36	0.13	0.13	56.00	-20.64	QP
8	0.634	24.10	24.36	0.13	0.13	46.00	-21.64	Average
9	0.708	31.14	31.41	0.14	0.13	56.00	-24.59	QP
10	0.708	20.14	20.41	0.14	0.13	46.00	-25.59	Average
11	4.574	37.35	37.71	0.21	0.15	56.00	-18.29	QP
12	4.574	26.35	26.71	0.21	0.15	46.00	-19.29	Average

Neutral:



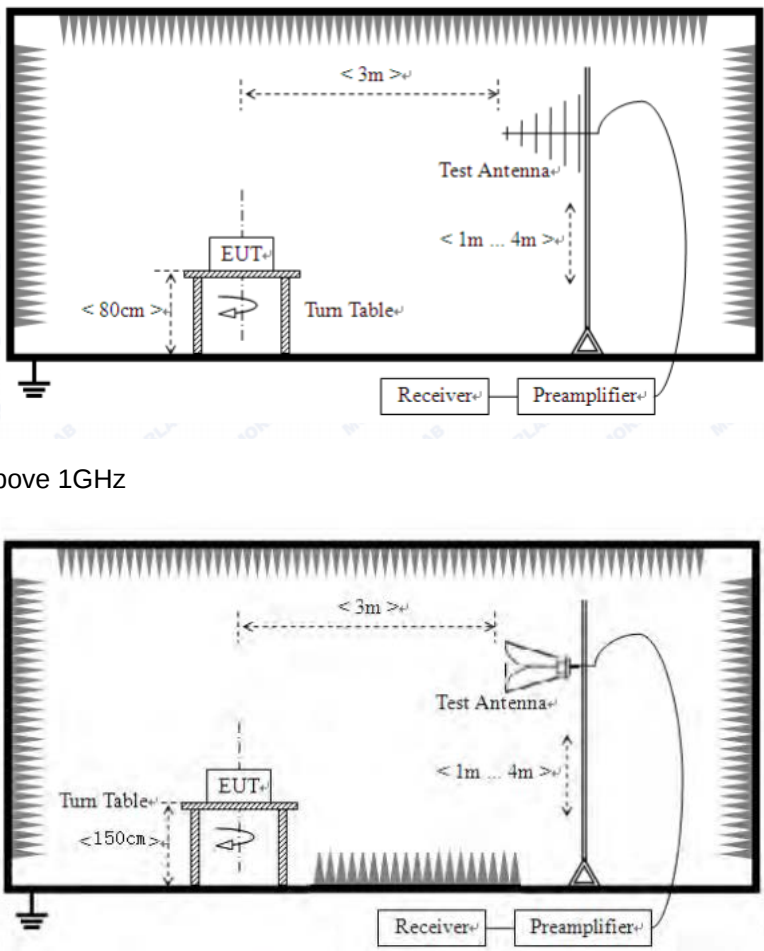
	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.152	52.37	52.64	0.15	0.12	65.91	-13.27	QP
2	0.152	22.37	22.64	0.15	0.12	55.91	-33.27	Average
3	0.190	48.57	48.84	0.14	0.13	64.02	-15.18	QP
4	0.190	26.57	26.84	0.14	0.13	54.02	-27.18	Average
5	0.230	44.70	44.94	0.12	0.12	62.44	-17.50	QP
6	0.230	24.70	24.94	0.12	0.12	52.44	-27.50	Average
7	0.634	33.81	34.07	0.13	0.13	56.00	-21.93	QP
8	0.634	22.81	23.07	0.13	0.13	46.00	-22.93	Average
9	0.708	30.50	30.77	0.14	0.13	56.00	-25.23	QP
10	0.708	20.50	20.77	0.14	0.13	46.00	-25.23	Average
11	4.874	37.93	38.29	0.21	0.15	56.00	-17.71	QP
12	4.874	28.93	29.29	0.21	0.15	46.00	-16.71	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.2 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109																																					
Test Method:	ANSI C63.4:2014																																					
Test Frequency Range:	30MHz to 25GHz																																					
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																																					
Receiver setup:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr><tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr></table>					Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value														
Frequency	Detector	RBW	VBW	Remark																																		
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value																																		
Above 1GHz	Peak	1MHz	3MHz	Peak Value																																		
	Peak	1MHz	10Hz	Average Value																																		
Limit:	<table><tr><td colspan="2">Frequency</td><td>Limit (dBuV/m @3m)</td><td colspan="2">Remark</td></tr><tr><td colspan="2">30MHz-88MHz</td><td>40.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">88MHz-216MHz</td><td>43.50</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">216MHz-960MHz</td><td>46.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">960MHz-1GHz</td><td>54.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2" rowspan="2">Above 1GHz</td><td>54.00</td><td colspan="2">Average Value</td></tr><tr><td>74.00</td><td colspan="2">Peak Value</td></tr></table>					Frequency		Limit (dBuV/m @3m)	Remark		30MHz-88MHz		40.00	Quasi-peak Value		88MHz-216MHz		43.50	Quasi-peak Value		216MHz-960MHz		46.00	Quasi-peak Value		960MHz-1GHz		54.00	Quasi-peak Value		Above 1GHz		54.00	Average Value		74.00	Peak Value	
Frequency		Limit (dBuV/m @3m)	Remark																																			
30MHz-88MHz		40.00	Quasi-peak Value																																			
88MHz-216MHz		43.50	Quasi-peak Value																																			
216MHz-960MHz		46.00	Quasi-peak Value																																			
960MHz-1GHz		54.00	Quasi-peak Value																																			
Above 1GHz		54.00	Average Value																																			
		74.00	Peak Value																																			
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.																																					
Test setup:	Below 1GHz																																					

	 Above 1GHz
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 4.5dB
Test Instruments:	Refer to section 6 for details
Test mode:	Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.
Test results:	Pass

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

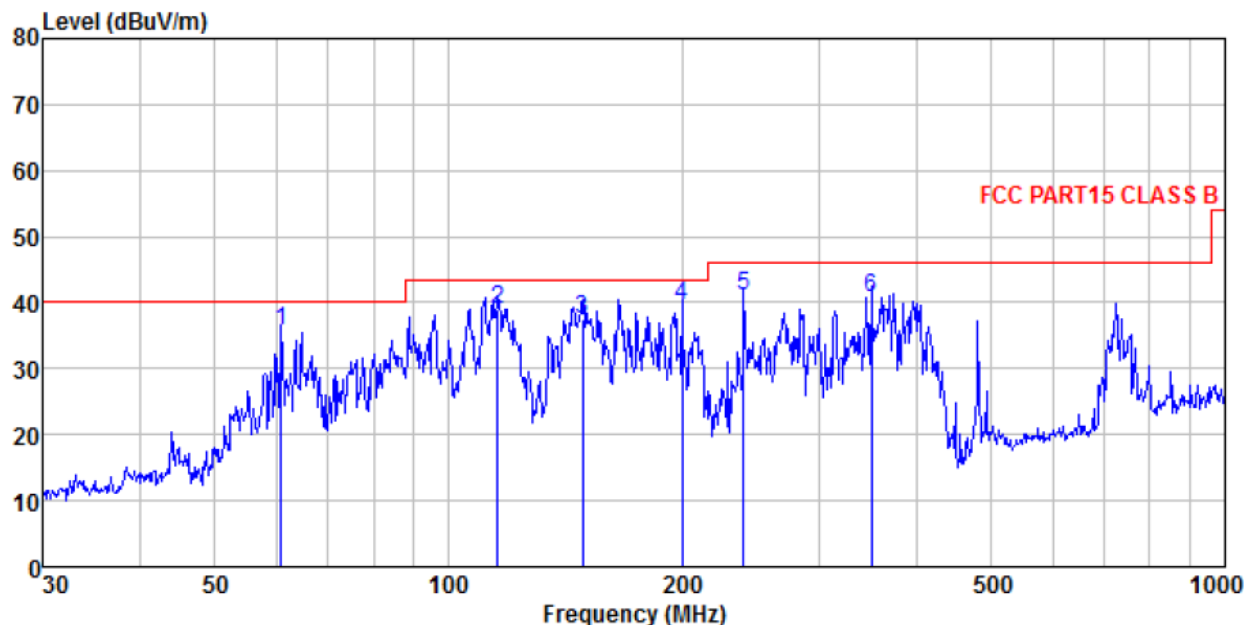
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

For above 1GHz test, 1GHz to 25GHz all have been tested, only worse case 1GHz to 6GHz is reported, from 6GHz to 25GHz, no emission is found

Measurement Data

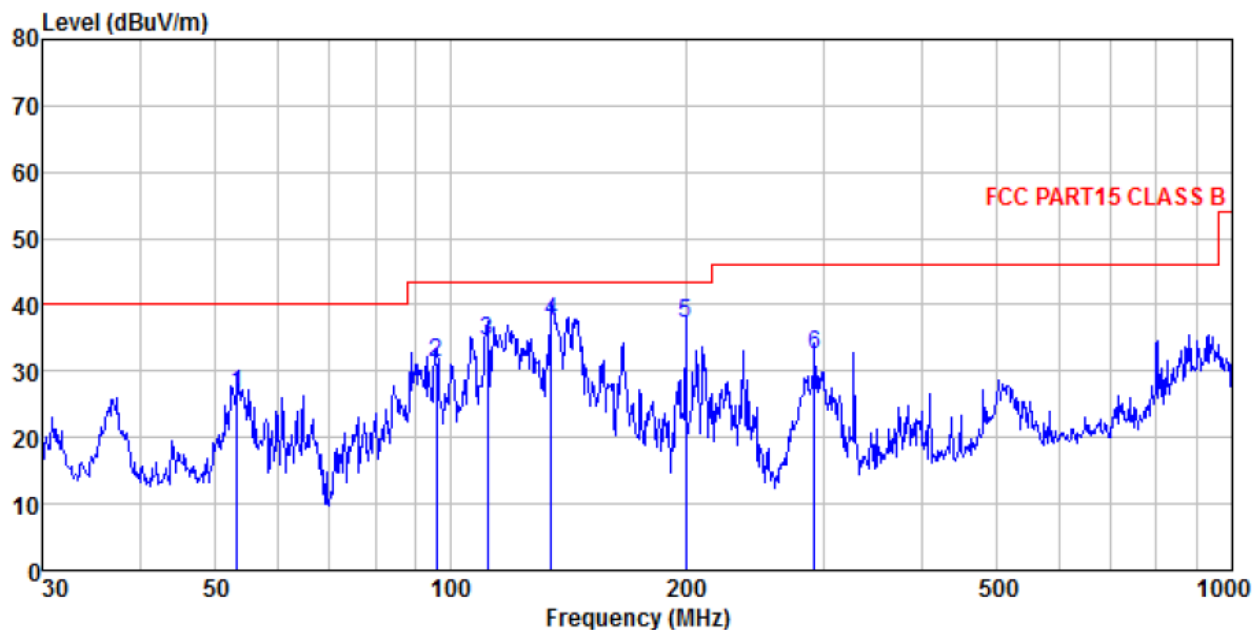
Below 1GHz

Horizontal:



	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	60.918	50.26	14.43	0.87	29.91	35.65	40.00
2	115.726	54.05	13.21	1.33	29.60	38.99	43.50
3	148.963	55.01	10.26	1.56	29.41	37.42	43.50
4	199.986	54.34	12.57	1.84	29.20	39.55	43.50
5	239.987	54.47	14.09	2.07	29.56	41.07	46.00
6	350.477	51.47	16.27	2.62	29.73	40.63	46.00

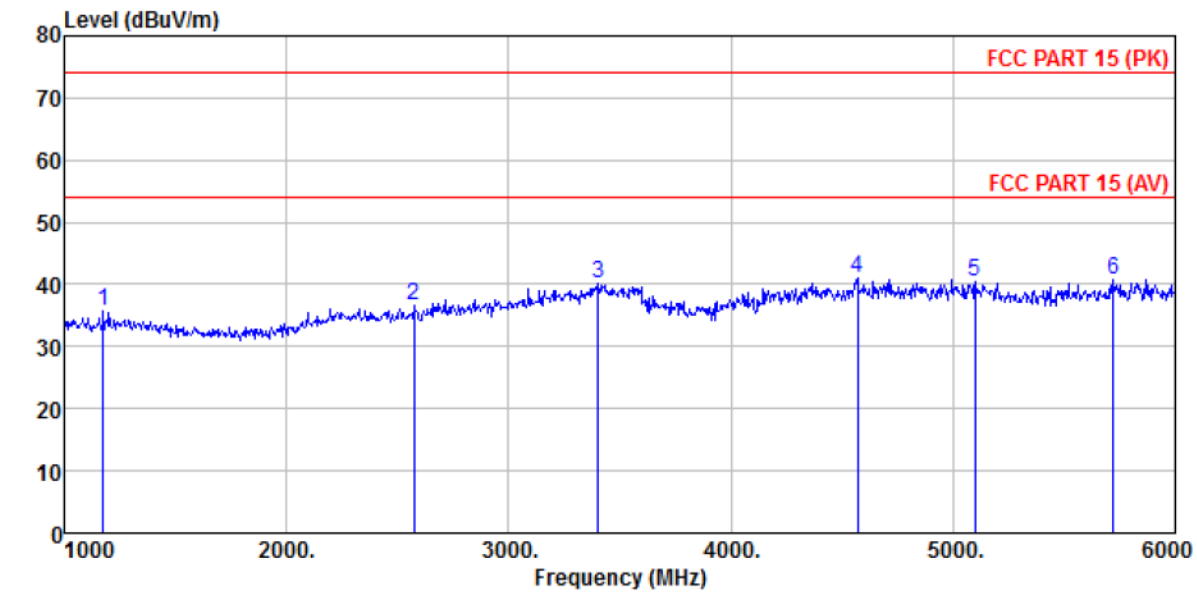
Vertical:



	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	53.318	40.68	15.10	0.80	29.97	26.61	40.00
2	95.762	44.96	14.90	1.16	29.72	31.30	43.50
3	111.347	48.74	14.04	1.29	29.62	34.45	43.50
4	134.559	54.87	10.56	1.47	29.49	37.41	43.50
5	199.986	52.12	12.57	1.84	29.20	37.33	43.50
6	292.058	45.11	14.89	2.32	29.95	32.37	46.00

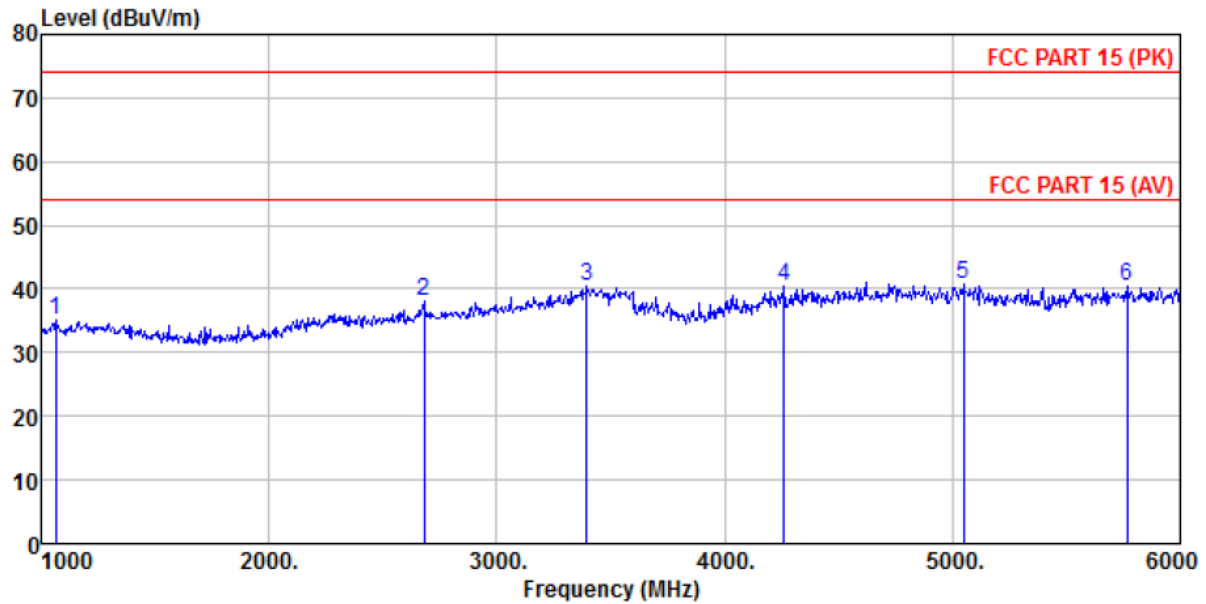
Above 1GHz

Horizontal:



	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1175.000	39.09	25.20	4.45	33.04	35.70	74.00	-38.30	Peak
2	2575.000	37.20	27.71	5.56	33.80	36.67	74.00	-37.33	Peak
3	3405.000	37.72	28.64	6.78	32.87	40.27	74.00	-33.73	Peak
4	4570.000	33.04	31.47	8.40	31.97	40.94	74.00	-33.06	Peak
5	5100.000	31.78	32.03	8.92	32.23	40.50	74.00	-33.50	Peak
6	5720.000	30.77	32.53	9.81	32.29	40.82	74.00	-33.18	Peak

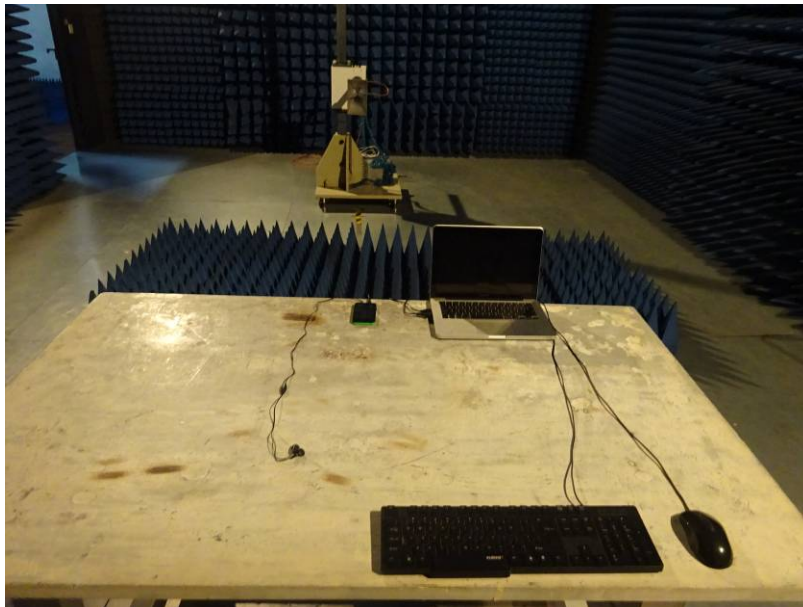
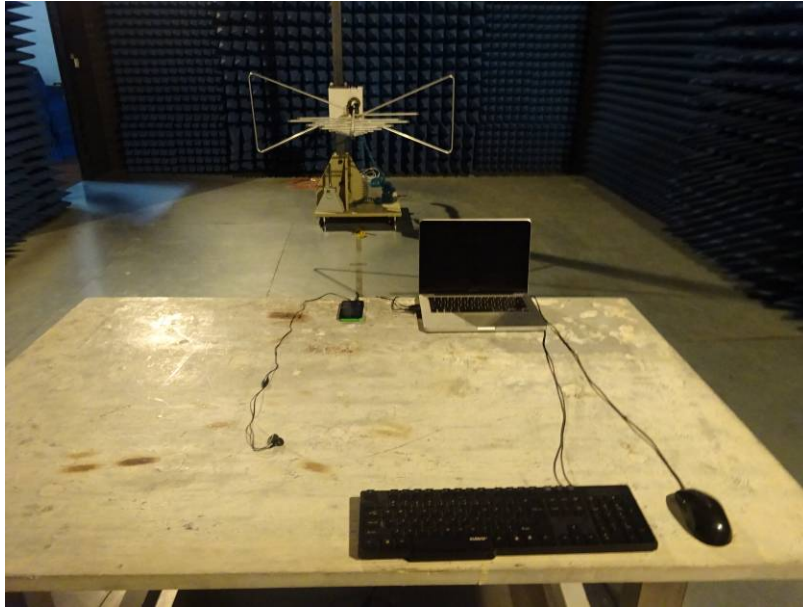
Vertical:



	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1065.000	38.98	24.66	4.35	32.87	35.12	74.00	-38.88 Peak
2	2680.000	37.89	28.08	5.65	33.68	37.94	74.00	-36.06 Peak
3	3395.000	38.04	28.60	6.76	32.87	40.53	74.00	-33.47 Peak
4	4260.000	33.57	30.50	8.11	31.88	40.30	74.00	-33.70 Peak
5	5050.000	32.22	32.00	8.83	32.21	40.84	74.00	-33.16 Peak
6	5765.000	30.35	32.59	9.88	32.27	40.55	74.00	-33.45 Peak

8 Test Setup Photo

Radiated Emission



Conducted Emission



9 EUT Constructional Details

Reference to the test report No. GTS201707000142F01

----- end-----