

TEST REPORT

Applicant: Wuhan Ipason Technology Co., Ltd

Address of Applicant: Room 1801, 18/F, Block D1, Hankou North E-Commerce Building, No. 88, Hankou North Avenue, Huangpi District, Wuhan, China

Manufacturer: Wuhan Ipason Technology Co., Ltd

Address of Manufacturer: Room 1801, 18/F, Block D1, Hankou North E-Commerce Building, No. 88, Hankou North Avenue, Huangpi District, Wuhan, China

Factory: Wuhan Ipason Technology Co., Ltd

Address of Factory: IPASON Science Park, Special #1, Qing Wu Road, Huangpi District, Wuhan City, Hubei Province.China

Equipment Under Test (EUT)

Product Name: Microcomputer

Model No.: OB18501, OB18101, OB15401, OB12201, OB12401, OB12001, OB***** (* represent 0-9, a-z, A-Z, or blank, only used to tell different market area and for client internal serial number, will not affect product Safety and EMC performance.)

Trade Mark: IPASON

FCC ID: 2ATY8-OB18501

Applicable standards: FCC CFR Title 47 Part 15 Subpart B

Date of sample receipt: July 04, 2019

Date of Test: July 04-12, 2019

Date of report issued: July 12, 2019

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, 2019	Original

Prepared By:

Bill. Yuan

Date:

July 12, 2019

Project Engineer

Check By:

Robinson
Reviewer

Date:

July 12, 2019

3 Contents

1	COVER PAGE	1
2	VERSION	2
3	CONTENTS	3
4	TEST SUMMARY	4
5	GENERAL INFORMATION	5
5.1	GENERAL DESCRIPTION OF EUT	5
5.2	TEST MODE AND TEST VOLTAGE	5
5.3	DESCRIPTION OF SUPPORT UNITS	6
5.4	DEVIATION FROM STANDARDS	6
5.5	ABNORMALITIES FROM STANDARD CONDITIONS	6
5.6	TEST FACILITY	6
5.7	TEST LOCATION	6
6	TEST INSTRUMENTS LIST	7
7	TEST RESULTS AND MEASUREMENT DATA	9
7.1	RADIATED EMISSION	9
7.2	CONDUCTED EMISSIONS	15
8	TEST SETUP PHOTO	18
9	EUT CONSTRUCTIONAL DETAILS	18

4 Test Summary

Test Item	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission	FCC Part15.107	ANSI C63.4	Class B	PASS
Radiated Emissions #	FCC Part15.109	ANSI C63.4	Class B	PASS

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. # Refer to FCC Part 15.33 (b)(1) conditional testing procedure :

The highest frequency generated or used in the EUT	Test frequency range of Radiated emission
<108MHz	30MHz ~ 1GHz
108MHz ~ 500MHz	30MHz ~ 2GHz
500MHz ~ 1GHz	30MHz ~ 5GHz
>1GHz	30MHz ~ 5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Note: the EUT Internal clock frequency above 108MHz.

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz ~ 200MHz	$\pm 3.8039\text{dB}$	(1)
Radiated Emission	200MHz~1000 MHz	$\pm 3.9679\text{dB}$	(1)
Radiated Emission	1GHz ~ 6GHz	$\pm 4.29\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.44\text{dB}$	(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 General Description of EUT

Product Name:	Microcomputer
Model No.:	OB18501, OB18101, OB15401, OB12201, OB12401, OB12001, OB***** (* represent 0-9, a-z, A-Z, or blank, only used to tell different market area and for client internal serial number, will not affect product Safety and EMC performance.)
Test Model No:	OB18501, OB12201
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The only difference is model name for commercial purpose.	
Serial No.:	PS00094219230089
Test sample(s) ID:	GTS201907000062-1
Sample(s) Status	Normal sample
Power supply:	Adapter Model: ADP-90MD H Input: AC 100-240V, 50/60Hz Output: DC 19V, 4.74A

5.2 Test mode and Test voltage

Test mode:	
Burning Test mode	Keep the EUT in Burning Test mode.
Test voltage	
AC120V 60Hz	

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
Canon	Printer	IP1600	GTS222
YISHE	KEYBOARD	YS-MA75	N/A
YISHE	MOUSE	YS-MA75USB	N/A
PHILIPS	LCD monitor	19PFL3120/T3	AU1A1212002906
CHANG TAI	HDMI cable	E81280-D	N/A
ANPUXINSHIDAI	Ethernet cable	YD/926.2	N/A
SPACE SHUTTLE-C	VGA cable	E101344	N/A

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations: FCC —Registration No.: 381383 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 381383. 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. NVLAP (LAB CODE:600179-0) Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.7 Test Location

The test was 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

6 Test Instruments list

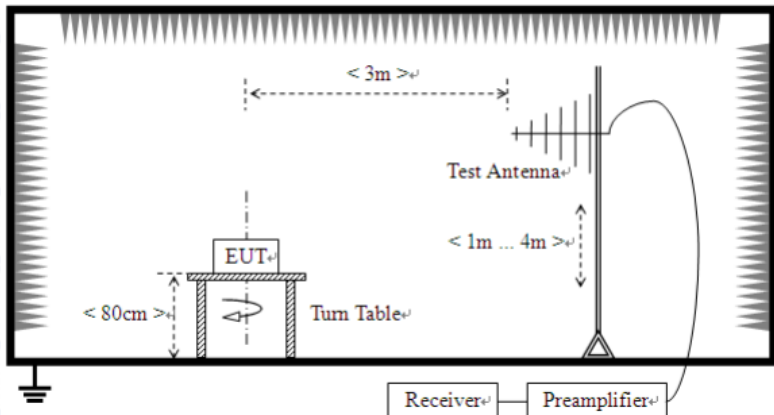
Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 20 2018	Oct. 19 2019
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 20 2018	Oct. 19 2019
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 20 2018	Oct. 19 2019
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

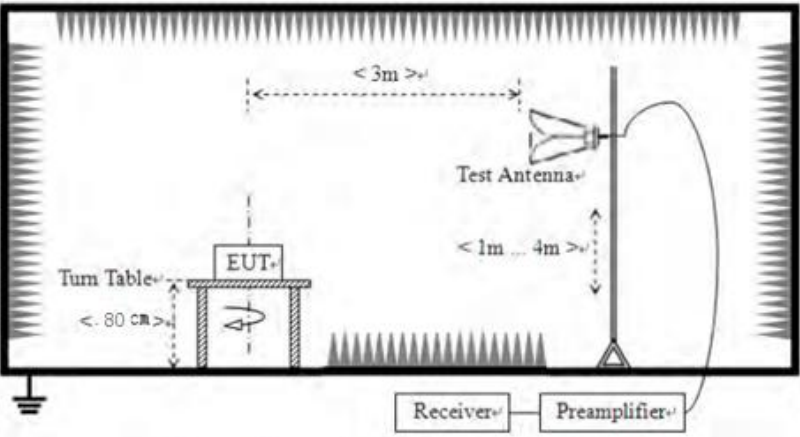
Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 26 2019	June. 25 2020
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 26 2019	June. 25 2020
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. 26 2019	June. 25 2020
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 26 2019	June. 25 2020
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 26 2019	June. 25 2020

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020

7 Test Results and Measurement Data

7.1 Radiated Emission

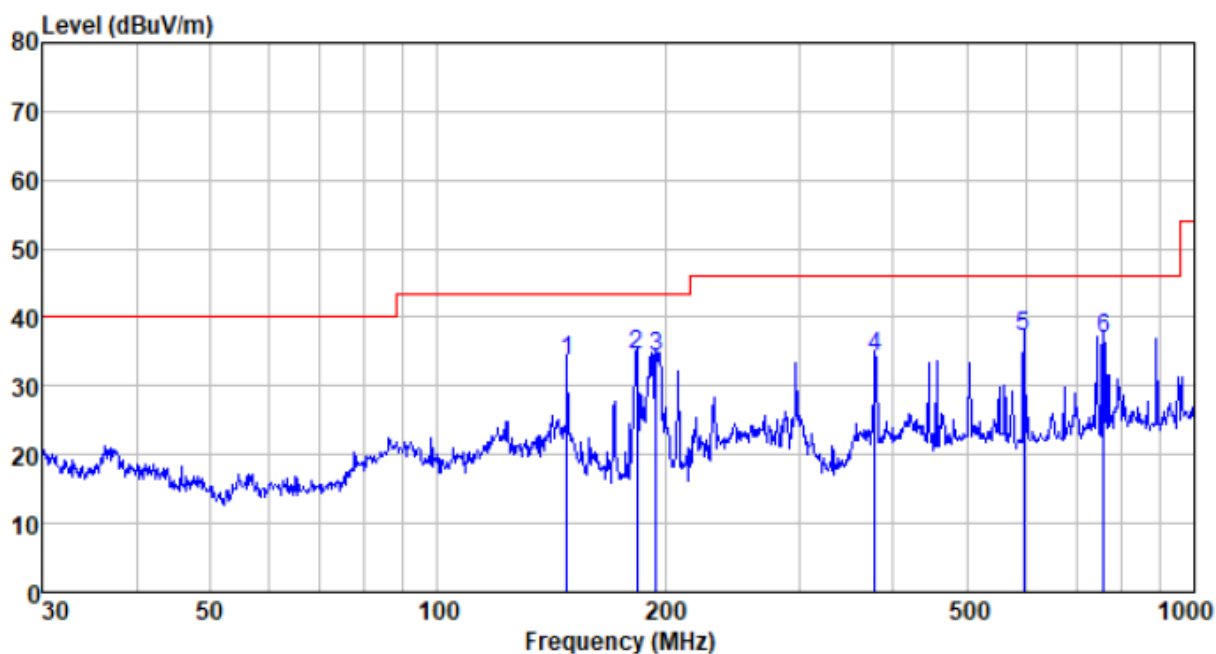
Test Requirement:	FCC Part15 B Section 15.109				
Test Method:	ANSI C63.4:2014				
Test Frequency Range:	30MHz to 6000MHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		Peak	1MHz	10Hz	Average Value
Limit:	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 setup:	Below 1GHz				
					
Test setup:	Above 1GHz				

	
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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 rotatable 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 environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: $\pm 4.50\text{dB}$
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details.
Test results:	Pass

Measurement Data

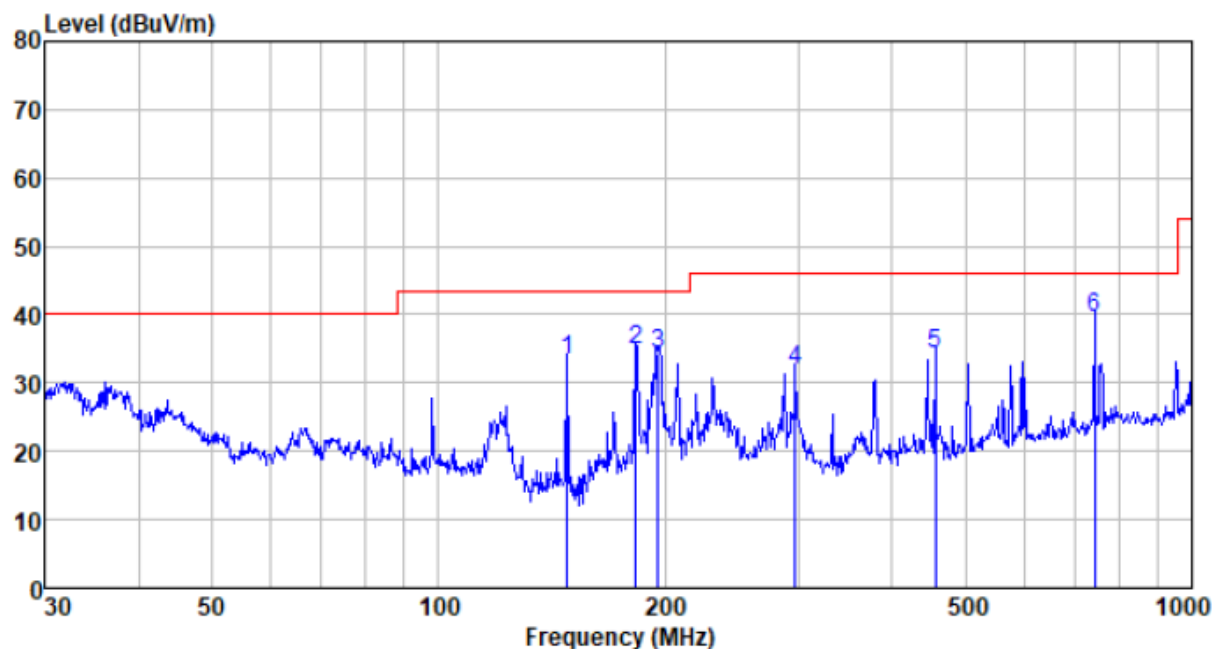
Below 1GHz

Test mode:	Burning Test mode	Antenna Polarity:	Horizontal
------------	-------------------	-------------------	------------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
148.441	61.47	7.57	1.56	37.07	33.53	43.50	-9.97	QP
183.201	60.84	9.23	1.75	37.25	34.57	43.50	-8.93	QP
194.453	59.75	10.13	1.81	37.31	34.38	43.50	-9.12	QP
378.584	53.96	15.00	2.76	37.50	34.22	46.00	-11.78	QP
595.133	51.67	19.39	3.70	37.54	37.22	46.00	-8.78	QP
758.041	49.44	20.66	4.31	37.62	36.79	46.00	-9.21	QP

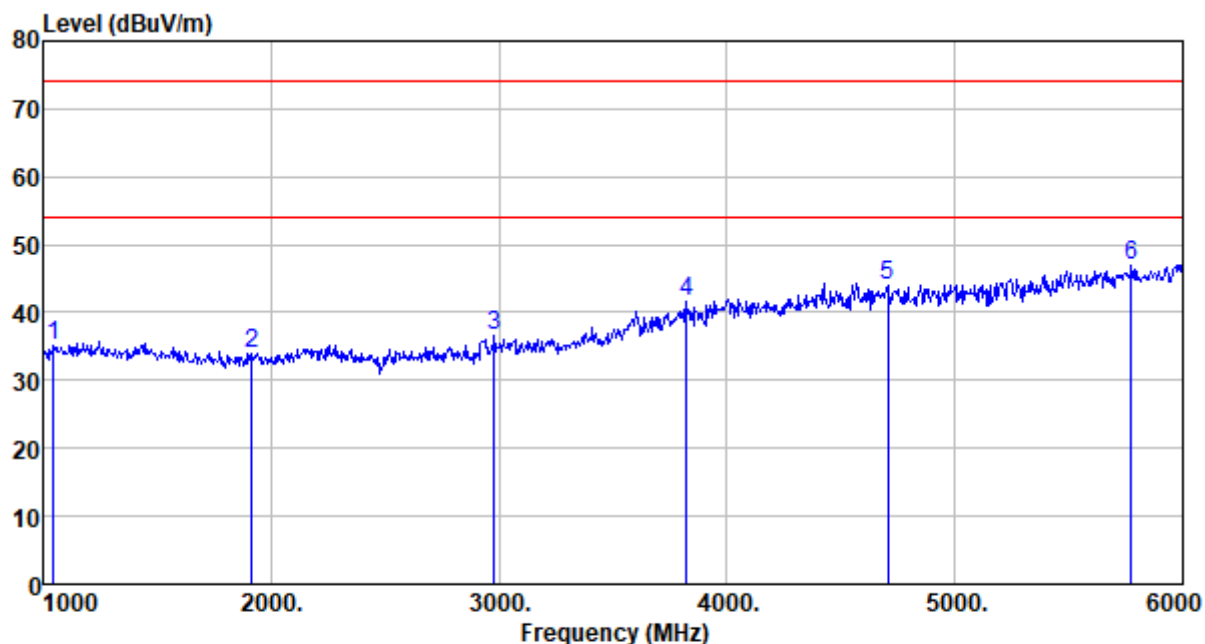
Test mode:	Burning Test mode	Antenna Polarity:	Vertical
------------	-------------------	-------------------	----------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
148.441	61.32	7.57	1.56	37.07	33.38	43.50	-10.12	QP
182.559	61.25	9.15	1.75	37.25	34.90	43.50	-8.60	QP
195.822	59.50	10.17	1.82	37.31	34.18	43.50	-9.32	QP
297.224	53.42	13.53	2.35	37.42	31.88	46.00	-14.12	QP
455.906	52.14	16.48	3.11	37.51	34.22	46.00	-11.78	QP
742.259	52.68	20.41	4.24	37.63	39.70	46.00	-6.30	QP

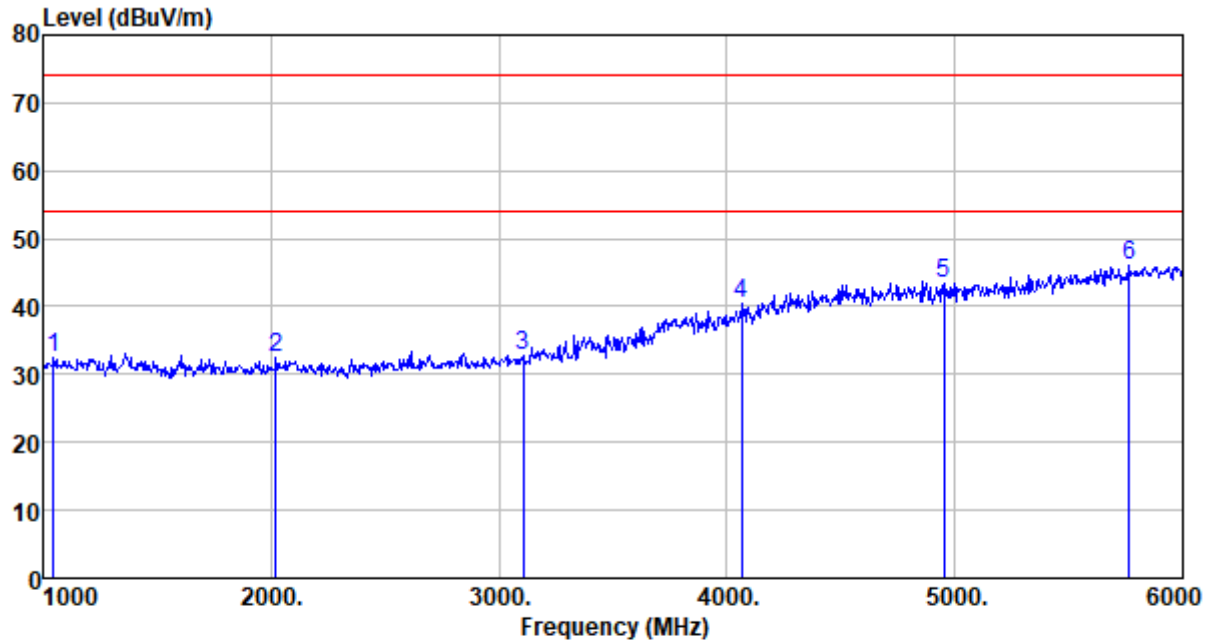
Above 1GHz

Test mode:	Burning Test mode	Antenna Polarity:	Horizontal
------------	-------------------	-------------------	------------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1045.000	41.83	24.41	4.39	35.58	35.05	74.00	-38.95	Peak
1915.000	38.75	26.25	5.59	36.62	33.97	74.00	-40.03	Peak
2980.000	38.14	28.56	7.20	37.39	36.51	74.00	-37.49	Peak
3825.000	41.41	29.15	8.47	37.48	41.55	74.00	-32.45	Peak
4705.000	40.96	31.17	9.28	37.57	43.84	74.00	-30.16	Peak
5775.000	41.20	32.26	10.12	36.73	46.85	74.00	-27.15	Peak

Test mode:	Burning Test mode	Antenna Polarity:	Vertical
------------	-------------------	-------------------	----------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1045.000	39.15	24.41	4.39	35.58	32.37	74.00	-41.63	Peak
2020.000	37.10	26.45	5.74	36.72	32.57	74.00	-41.43	Peak
3105.000	34.30	28.54	7.38	37.41	32.81	74.00	-41.19	Peak
4065.000	39.36	29.76	8.79	37.51	40.40	74.00	-33.60	Peak
4950.000	40.01	31.61	9.47	37.60	43.49	74.00	-30.51	Peak
5765.000	40.48	32.24	10.11	36.74	46.09	74.00	-27.91	Peak

Note:

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

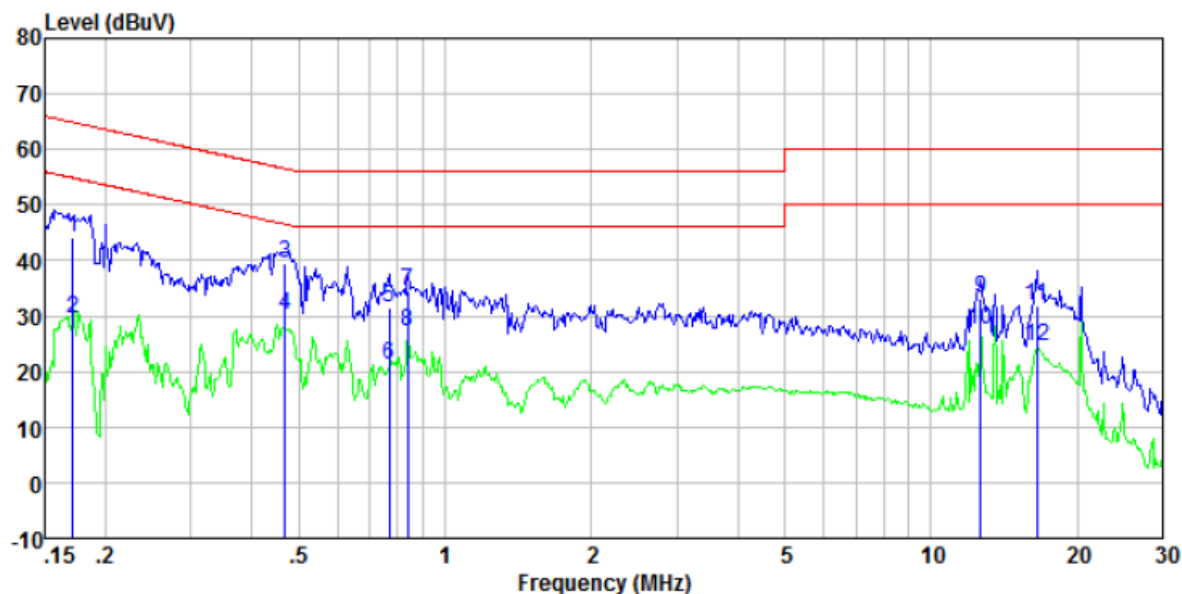
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

7.2 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																		
Limit:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>0.5-30</td><td>60</td><td>50</td></tr></table>					Frequency range (MHz)	Limit (dBμV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	0.5-30	60	50
Frequency range (MHz)	Limit (dBμV)																		
	Quasi-peak	Average																	
0.15-0.5	66 to 56*	56 to 46*																	
0.5-5	56	46																	
0.5-30	60	50																	
Test setup:	Reference Plane 40cm 80cm LISN LISN Filter AC power AUX Equipment E.U.T Test table/Insulation plane EMI Receiver <i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m																		
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.). The provide 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 refers 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 environment:	Temp.:	25 °C	Humid.:	52%	Press.: 1 012mbar														
Test Instruments:	Refer to section 6 for details																		
Test mode:	Refer to section 5.2 for details.																		
Test results:	Pass																		

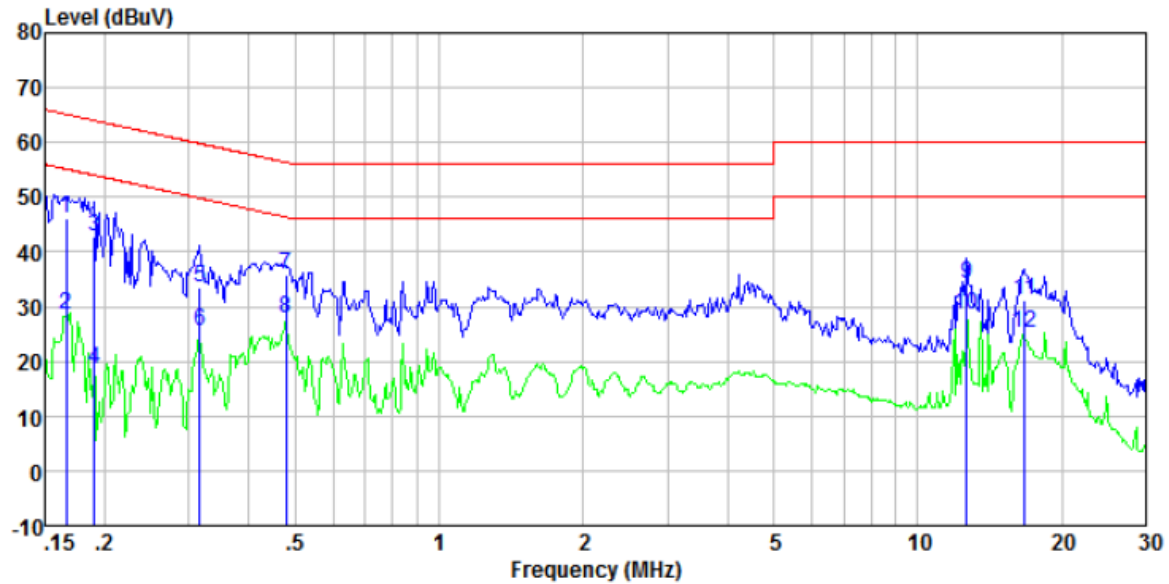
Measurement Data

Test mode:	Burning Test mode	Phase Polarity:	Line
------------	-------------------	-----------------	------



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.17	43.51	0.40	0.09	44.00	64.90	-20.90	QP
0.17	29.18	0.40	0.09	29.67	54.90	-25.23	Average
0.47	39.10	0.33	0.11	39.54	56.54	-17.00	QP
0.47	29.78	0.33	0.11	30.22	46.54	-16.32	Average
0.77	31.13	0.24	0.13	31.50	56.00	-24.50	QP
0.77	20.70	0.24	0.13	21.07	46.00	-24.93	Average
0.84	34.28	0.23	0.14	34.65	56.00	-21.35	QP
0.84	26.68	0.23	0.14	27.05	46.00	-18.95	Average
12.65	32.75	0.20	0.21	33.16	60.00	-26.84	QP
12.65	27.22	0.20	0.21	27.63	50.00	-22.37	Average
16.49	31.53	0.23	0.22	31.98	60.00	-28.02	QP
16.49	24.23	0.23	0.22	24.68	50.00	-25.32	Average

Test mode:	Burning Test mode	Phase Polarity:	Neutral
------------	-------------------	-----------------	---------



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.17	45.56	0.40	0.08	46.04	65.16	-19.12	QP
0.17	28.00	0.40	0.08	28.48	55.16	-26.68	Average
0.19	42.21	0.40	0.10	42.71	64.02	-21.31	QP
0.19	18.11	0.40	0.10	18.61	54.02	-35.41	Average
0.32	32.98	0.39	0.10	33.47	59.80	-26.33	QP
0.32	25.07	0.39	0.10	25.56	49.80	-24.24	Average
0.48	35.35	0.32	0.11	35.78	56.36	-20.58	QP
0.48	27.28	0.32	0.11	27.71	46.36	-18.65	Average
12.65	33.91	0.20	0.21	34.32	60.00	-25.68	QP
12.65	28.24	0.20	0.21	28.65	50.00	-21.35	Average
16.75	30.69	0.24	0.22	31.15	60.00	-28.85	QP
16.75	24.74	0.24	0.22	25.20	50.00	-24.80	Average

Notes:

- The following Quasi-Peak and Average measurements were performed on the EUT:
- Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----