TEST REPORT

Applicant:	JOWUA INTERNATIONAL LIMITED TAIWAN BRANCH
Address of Applicant:	9F., No. 156, Sec. 3, Minsheng E. Rd., Songshan Dist., Taipei City 105, Taiwan (R.O.C.)
Manufacturer/Factory:	Tenyu TECH CO., LTD.
Address of Manufacturer/Factory:	1F., No.10, Ln. 36, Ganzhen 2nd St., Tamsui Dist., New Taipei City 251, Taiwan (R.O.C.)

Equipment Under Test (EUT)

Product Name:	USB Hub with LED Light for Tesla
Model No.:	JOWUAHB5
Trade Mark:	JOWUA
FCC ID:	2AX7X-JOWUAHB5
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt:	Oct. 09, 2021
Date of Test:	Oct. 09, 2021- Oct. 14, 2021
Date of report issued:	Oct. 18, 2021
Test Result :	PASS *

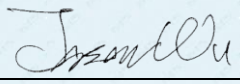
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

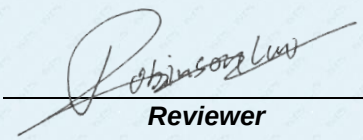
Robinson Luo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*Oct. 18, 2021*	*Original*

Prepared By:  ***Date:*** *Oct. 18, 2021*

Project Engineer

Check By:  ***Date:*** *Oct. 18, 2021*

Reviewer

3 Contents

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 &15.31	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	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(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:	USB Hub with LED Light for Tesla (USB-C & USB-A)
Model No.:	JOWUAHB5
Test sample(s) ID:	GTSL202110000076-1
Sample(s) Status:	Normal sample
Power Supply:	DC 9V

5.2 Test mode and Test voltage

Test mode:	
Fully loaded +data transmission mode	Keep the EUT in Fully loaded +data transmission mode.
Test voltage	
DC 9V from adapter with AC 120V 60Hz	

5.3 Description of Support Units

MANUFACTURER	DESCRIPTION	MODEL	SERIAL NUMBER
Dell	Notebook computer	Inspiron 5488	/
Apple	Adapter	a1719	/
Sony	Disk	32GB	/
Huawei	Mobile phone	mata9	/
Huawei	Mobile phone	P10	/

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**

Designation Number: CN5029

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.

● **IC —Registration No.: 9079A**

CAB identifier: CN0091

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

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.7 Test Location

The test was performed at:

Global United Technology Services Co., Ltd.
Address: No. 123-128, Tower A, 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. 02 2020	July. 01 2025
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. 24 2021	June. 23 2022
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 24 2021	June. 23 2022
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 24 2021	June. 23 2022
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 24 2021	June. 23 2022
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 24 2021	June. 23 2022
9	Coaxial Cable	GTS	N/A	GTS211	June. 24 2021	June. 23 2022
10	Coaxial cable	GTS	N/A	GTS210	June. 24 2021	June. 23 2022
11	Coaxial Cable	GTS	N/A	GTS212	June. 24 2021	June. 23 2022
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 24 2021	June. 23 2022
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 24 2021	June. 23 2022
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 24 2021	June. 23 2022
15	Band filter	Amindeon	82346	GTS219	June. 24 2021	June. 23 2022
16	Power Meter	Anritsu	ML2495A	GTS540	June. 24 2021	June. 23 2022
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 24 2021	June. 23 2022
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 24 2021	June. 23 2022
19	Splitter	Agilent	11636B	GTS237	June. 24 2021	June. 23 2022
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 24 2021	June. 23 2022
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 18 2020	Oct. 17 2021
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 18 2020	Oct. 17 2021
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 18 2020	Oct. 17 2021
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 24 2021	June. 23 2022

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. 24 2021	June. 23 2022
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 24 2021	June. 23 2022
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 24 2021	June. 23 2022
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. 24 2021	June. 23 2022
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 24 2021	June. 23 2022
9	ISN	SCHWARZBECK	NTFM 8158	GTS565	June. 24 2021	June. 23 2022
10	High voltage probe	SCHWARZBECK	TK9420	GTS537	July. 09 2021	July. 08 2022

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. 24 2021	June. 23 2022
2	Barometer	ChangChun	DYM3	GTS255	June. 24 2021	June. 23 2022

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:

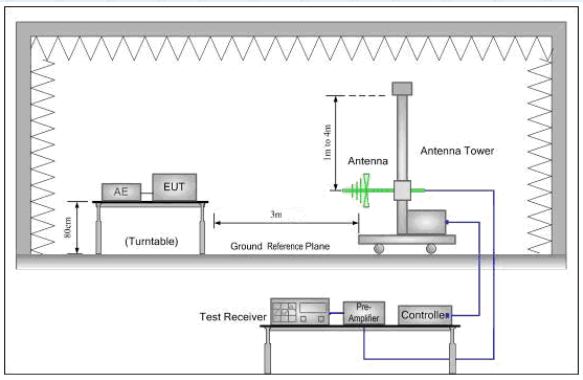
Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:

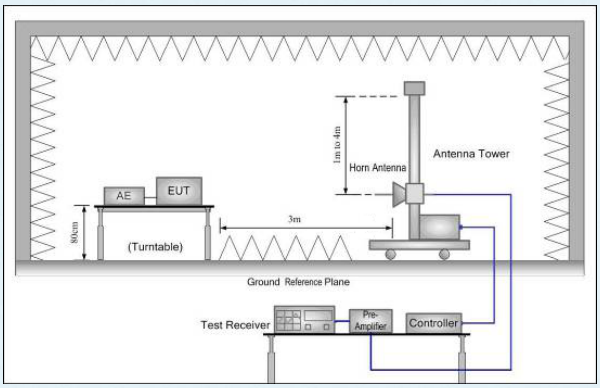
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

Test setup:

For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



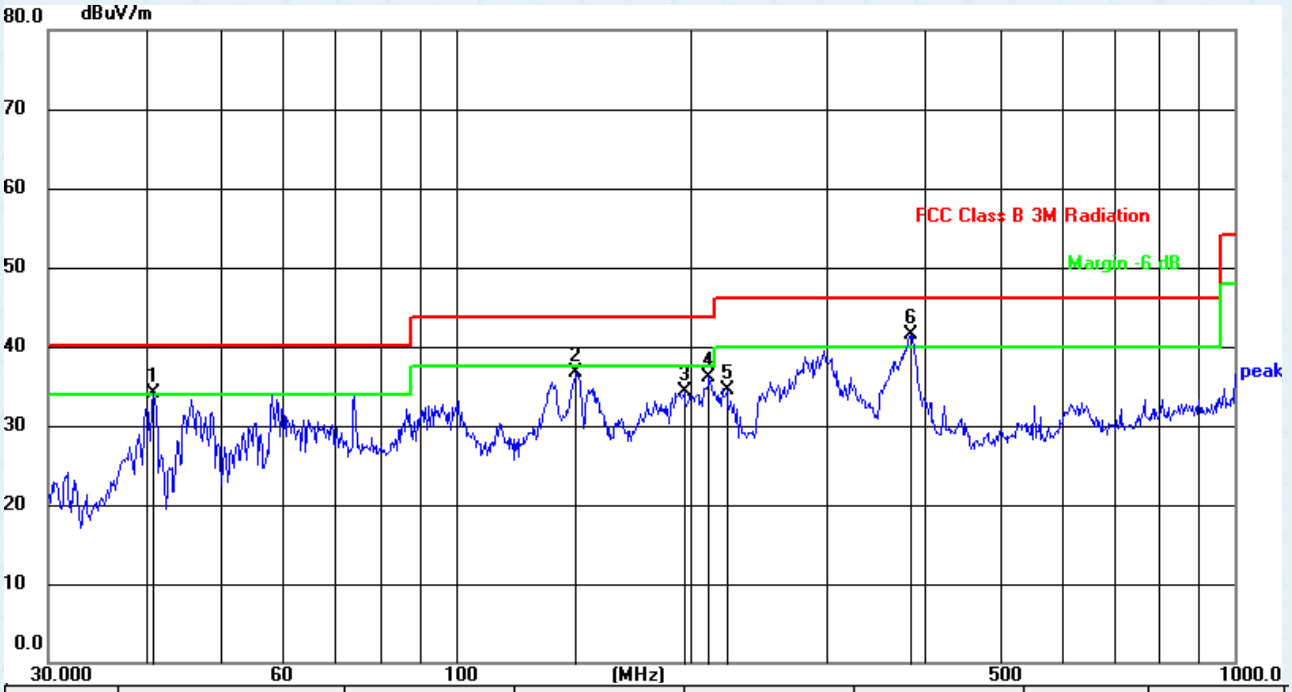
Test environment:	Temp.:	24.8 °C	Humid.:	49%	Press.:	1 012mbar

Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details and only show the worst case.
Test results:	Pass

Measurement Data

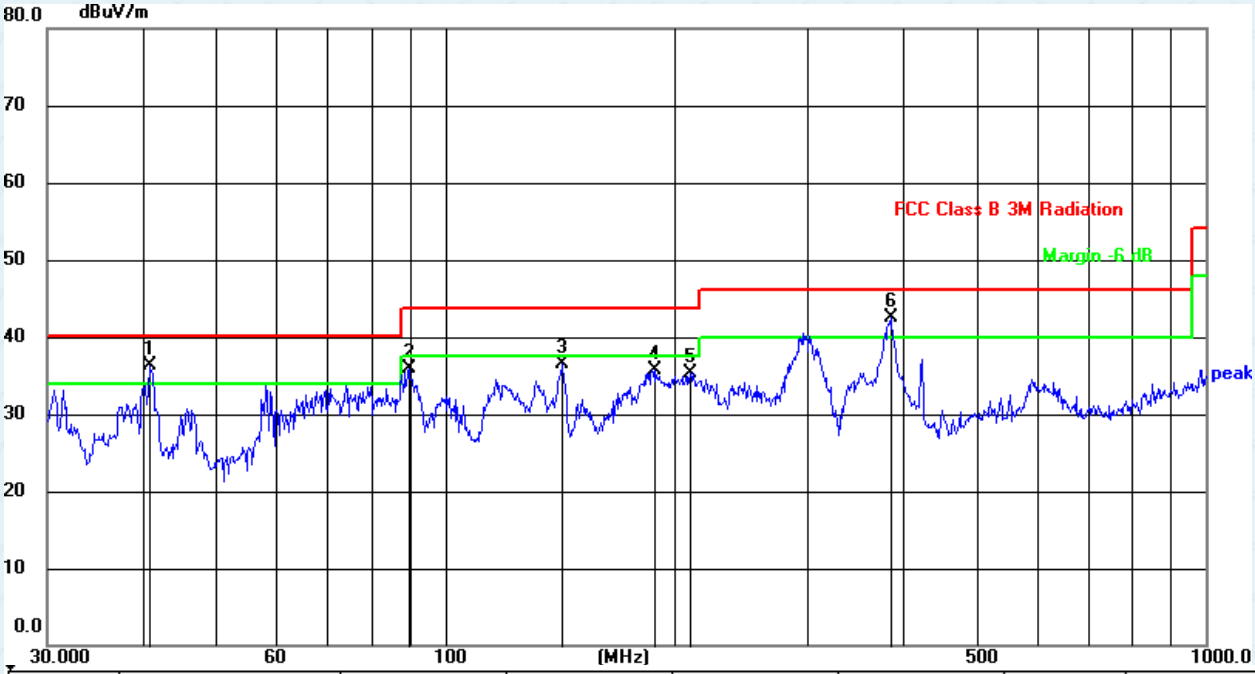
Below 1GHz

Test mode:	Fully loaded +data transmission mode	Antenna Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.8444	54.71	-20.63	34.08	40.00	-5.92	QP
2	142.8240	55.37	-18.73	36.64	43.50	-6.86	QP
3	196.5098	52.72	-18.35	34.37	43.50	-9.13	QP
4	211.5261	54.70	-18.50	36.20	43.50	-7.30	QP
5	222.9500	52.95	-18.45	34.50	46.00	-11.50	QP
6	383.9318	58.33	-16.80	41.53	46.00	-4.47	QP

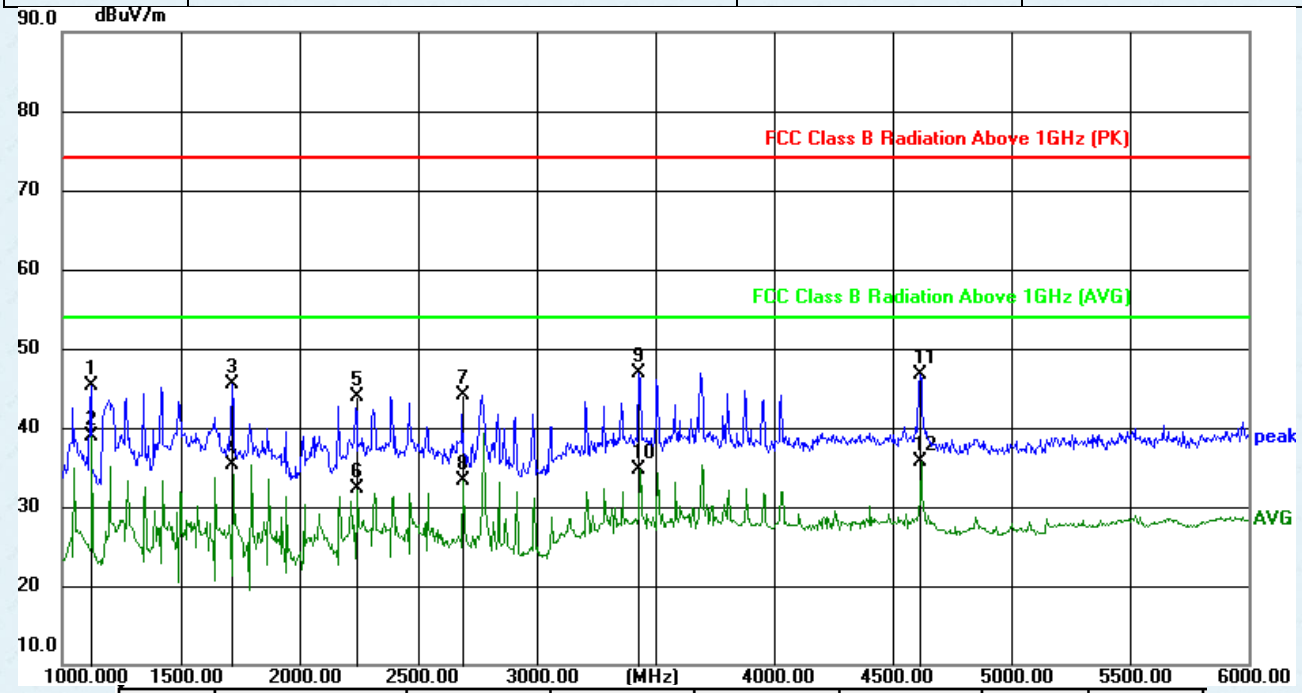
Test mode:	Fully loaded +data transmission mode	Antenna Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.8444	56.87	-20.63	36.24	40.00	-3.76	QP
2	89.5899	55.94	-20.07	35.87	43.50	-7.63	QP
3	142.3240	55.40	-18.93	36.47	43.50	-7.03	QP
4	189.0740	54.12	-18.46	35.66	43.50	-7.84	QP
5	210.0481	53.86	-18.54	35.32	43.50	-8.18	QP
6	385.2803	59.35	-16.77	42.58	46.00	-3.42	QP

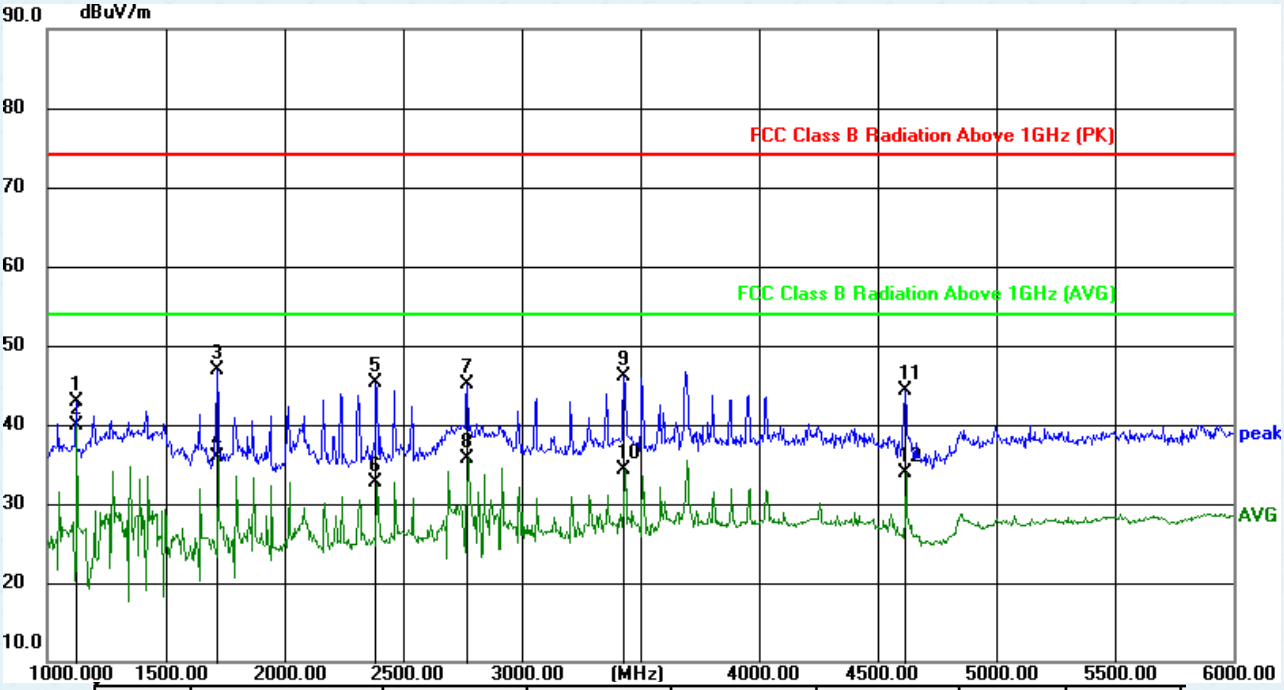
Above 1GHz

Test mode:	Fully loaded +data transmission mode	Antenna Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1120.000	61.82	-16.45	45.37	74.00	-28.63	peak
2	1120.000	55.38	-16.45	38.93	54.00	-15.07	AVG
3	1715.000	61.61	-16.17	45.44	74.00	-28.56	peak
4	1715.000	51.40	-16.17	35.23	54.00	-18.77	AVG
5	2245.000	58.97	-15.06	43.91	74.00	-30.09	peak
6	2245.000	47.26	-15.06	32.20	54.00	-21.80	AVG
7	2690.000	57.34	-13.31	44.03	74.00	-29.97	peak
8	2690.000	46.52	-13.31	33.21	54.00	-20.79	AVG
9	3430.000	58.58	-11.61	46.97	74.00	-27.03	peak
10	3430.000	46.23	-11.61	34.62	54.00	-19.38	AVG
11	4615.000	56.78	-10.16	46.62	74.00	-27.38	peak
12	4615.000	45.88	-10.16	35.72	54.00	-18.28	AVG

Test mode:	Fully loaded +data transmission mode	Antenna Polarity:	Vertical

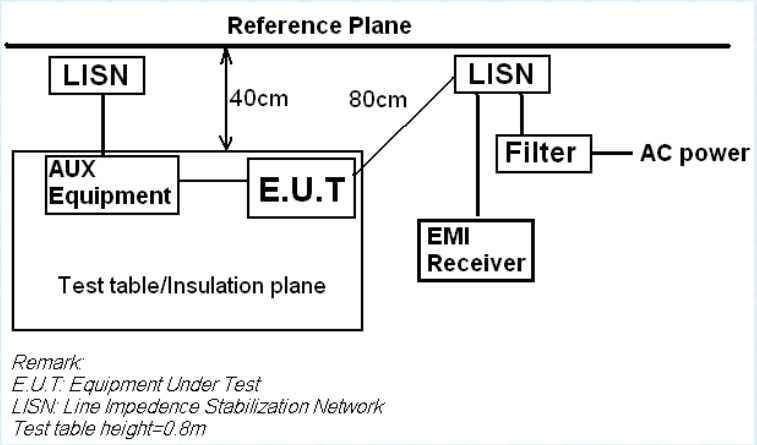


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1120.000	59.45	-16.45	43.00	74.00	-31.00	peak
2	1120.000	56.44	-16.45	39.99	54.00	-14.01	AVG
3	1715.000	63.09	-16.17	46.92	74.00	-27.08	peak
4	1715.000	52.16	-16.17	35.99	54.00	-18.01	AVG
5	2385.000	59.79	-14.51	45.28	74.00	-28.72	peak
6	2385.000	47.18	-14.51	32.67	54.00	-21.33	AVG
7	2770.000	58.04	-12.98	45.06	74.00	-28.94	peak
8	2770.000	48.65	-12.98	35.67	54.00	-18.33	AVG
9	3430.000	57.63	-11.61	46.02	74.00	-27.98	peak
10	3430.000	46.00	-11.61	34.39	54.00	-19.61	AVG
11	4615.000	54.47	-10.16	44.31	74.00	-29.69	peak
12	4615.000	44.11	-10.16	33.95	54.00	-20.05	AVG

Note:

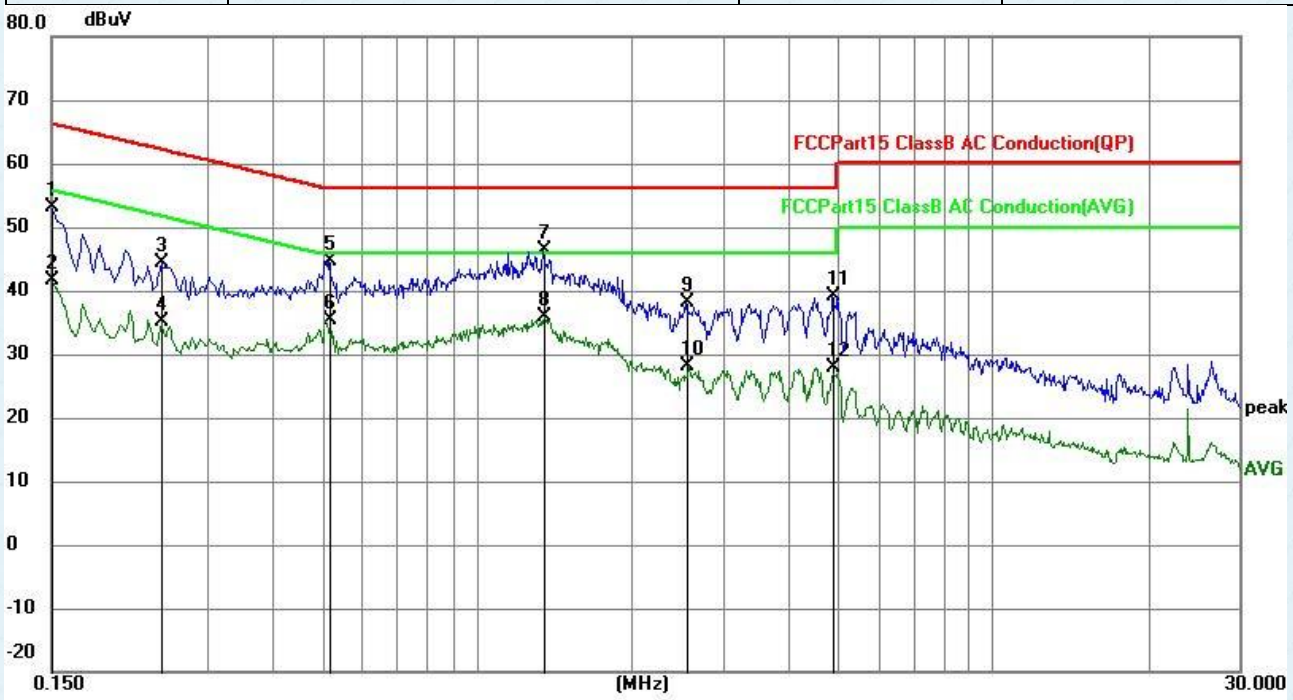
1. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*
2. *Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor*

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><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBµV)</td></tr><tr><td>Quasi-peak</td><td>Average</td></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>
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test environment:	Temp.: 25.2 °C | Humid.: 54% | Press.: 1 012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details and only show the worst case.
Test results:	Pass

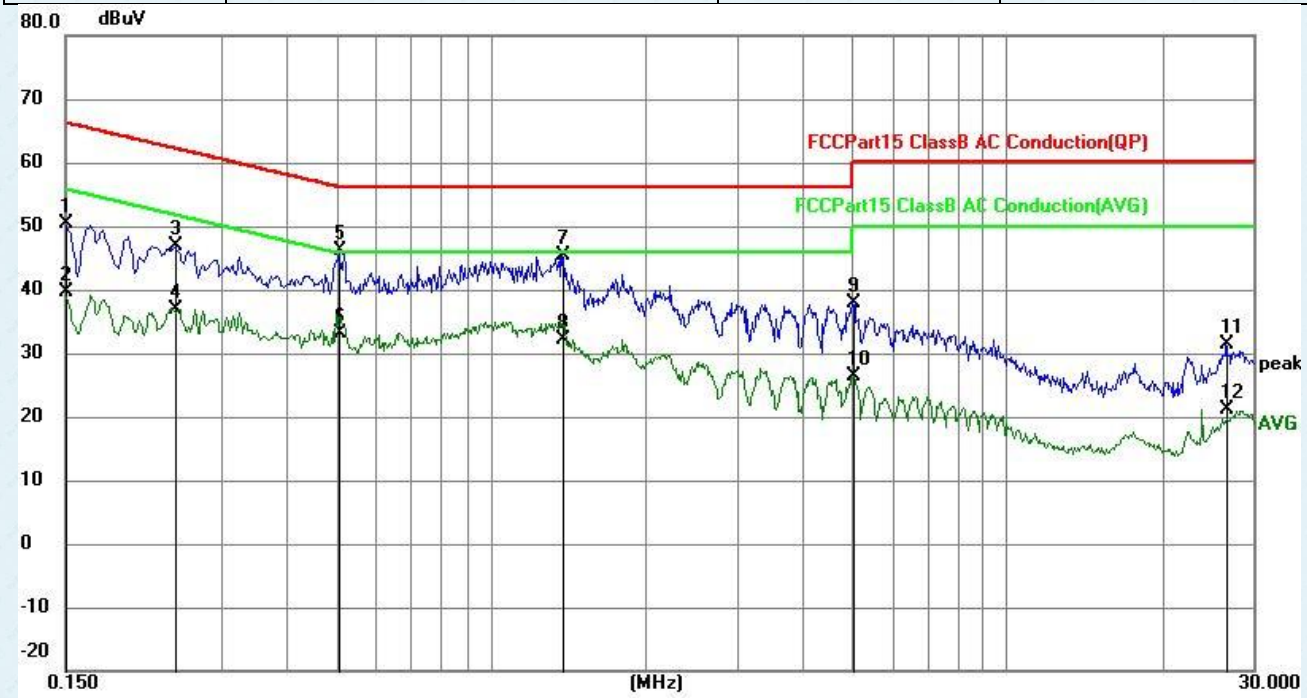
Measurement Data

Test mode:	Fully loaded +data transmission mode	Phase Polarity:	Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	40.54	12.49	53.03	66.00	-12.97	QP
2	0.1500	29.06	12.49	41.55	56.00	-14.45	AVG
3	0.2444	31.88	12.43	44.31	61.95	-17.64	QP
4	0.2444	22.66	12.43	35.09	51.95	-16.86	AVG
5	0.5190	32.29	12.36	44.65	56.00	-11.35	QP
6	0.5190	22.96	12.36	35.32	46.00	-10.68	AVG
7	1.3513	34.06	12.29	46.35	56.00	-9.65	QP
8	1.3513	23.56	12.29	35.85	46.00	-10.15	AVG
9	2.5485	25.89	12.31	38.20	56.00	-17.80	QP
10	2.5485	15.76	12.31	28.07	46.00	-17.93	AVG
11	4.8840	26.68	12.34	39.02	56.00	-16.98	QP
12	4.8840	15.44	12.34	27.78	46.00	-18.22	AVG

Test mode:	Fully loaded +data transmission mode	Phase Polarity:	Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	37.84	12.49	50.33	66.00	-15.67	QP
2	0.1500	27.07	12.49	39.56	56.00	-16.44	AVG
3	0.2444	34.39	12.43	46.82	61.95	-15.13	QP
4	0.2444	24.57	12.43	37.00	51.95	-14.95	AVG
5	0.5100	33.67	12.36	46.03	56.00	-9.97	QP
6	0.5100	20.73	12.36	33.09	46.00	-12.91	AVG
7	1.3784	32.97	12.29	45.26	56.00	-10.74	QP
8	1.3784	19.74	12.29	32.03	46.00	-13.97	AVG
9	5.0100	25.57	12.34	37.91	60.00	-22.09	QP
10	5.0100	13.96	12.34	26.30	50.00	-23.70	AVG
11	26.5740	18.63	12.65	31.28	60.00	-28.72	QP
12	26.5740	8.53	12.65	21.18	50.00	-28.82	AVG

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. 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------