TEST REPORT

Application No.:	HR/2021/10008
Applicant:	HUAWEI DEVICE CO., LTD.
Address of Applicant:	No.2 of Xincheng Road, Songshan Lake Zone, Dongguan, Guangdong 523808, People's Republic of China
Manufacturer:	HUAWEI DEVICE CO., LTD.
Address of Manufacturer:	No.2 of Xincheng Road, Songshan Lake Zone, Dongguan, Guangdong 523808, People's Republic of China
EUT Name:	Smart Watch
Model No.:	TIA-B09
FCC ID:	2ATEYTIA-B09
Trade mark:	HUAWEI
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2020/11/17 (for original report HR/2020/B000402)
Date of Test:	2020/11/17 to 2020/11/24 (for original report HR/2020/B000402)
Date of Issue:	2020/11/24 (for original report HR/2020/B000402) 2021/7/7 (for new report HR/2021/1000802-01)
Test Result:	**Pass***

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

Authorized Signature:

Derek Yang
Wireless Laboratory Manager

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Revision Record				
Version	***Chapter***	***Date***	***Modifier***	***Remark***
01		2021/1/17		Original
02		2021/7/7	James Qin	1.Add test site Information 2.Modify data conversion error of antenna height 3.Update equipment list

Authorized for issue by:		
Prepared By		**(James Qin) / Engineer**
Checked By		**(Jim Huang) / Reviewer**

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2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass

Internal Source	Upper Frequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

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Remark:
This test report (Report No.: HR/2021/1000802-01) is based on the original test report (Report No.: HR/2020/B000402).
Review this report and original report, this report just adding the FCC ID.

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3 Contents

Page

1 COVER PAGE 1

2 TEST SUMMARY 3

3 CONTENTS 5

4 GENERAL INFORMATION 6

4.1 DETAILS OF E.U.T 6
4.2 DESCRIPTION OF SUPPORT UNITS 7
4.3 TEST MODES 7
4.4 MEASUREMENT UNCERTAINTY 7
4.5 TEST LOCATION 8
4.6 TEST FACILITY 8
4.7 DEVIATION FROM STANDARDS 9
4.8 ABNORMALITIES FROM STANDARD CONDITIONS 9

5 EQUIPMENT LIST 10

6 EMISSION TEST RESULTS 11

6.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150KHZ-30MHZ) 11
6.1.1 E.U.T. Operation 11
6.1.2 Test Setup Diagram 11
6.1.3 Measurement Data 11

TEST GRAPH 14

TEST GRAPH 15

6.2 RADIATED EMISSIONS (30MHZ-1GHZ) 16
6.2.1 E.U.T. Operation 16
6.2.2 Test Setup Diagram 16
6.2.3 Measurement Data 16
6.3 RADIATED EMISSIONS (ABOVE 1GHZ) 21
6.3.1 E.U.T. Operation 21
6.3.2 Test Setup Diagram 21
6.3.3 Measurement Data 21

SUSPECTED LIST 24

SUSPECTED LIST 25

7 PHOTOGRAPHS 26

7.1 TEST SETUP 26
7.2 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS) 26

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4 General Information

4.1 Details of E.U.T

EUT Description:	Smart Watch	
Model No.:	TIA-B09	
Trade Mark:	HUAWEI	
Hardware Version:	R2	
Software Version:	1.1.2.5	
Operation Frequency:	2400MHz~2483.5MHz fc = 2402 MHz + N * 2 MHz, where: -fc = “Operating Frequency” in MHz, -N = “Channel Number” with the range from 0 to 39.	
Bluetooth Version:	Bluetooth V5.0 LE	
Modulation Type:	GFSK	
Number of Channel:	40	
Sample Type:	☒ Portable Device, ☐Module	
Antenna Type:	☐ External, ☒ Integrated	
Antenna Gain:	-3.0dBi	
Power Supply:	☐ AC/DC Adapter; ☒ Battery;☐ PoE:; ☐ Other:	
Accessories:	Wired charging base: Model No.: POWER-CA010	
Battery 1# Information:	Battery Model:	HB351731EFW
	Nominal	3.87V
	Rated capacity:	180mAh
	Manufacturer:	Tianjin lishen battery joint-stock.,LTD.
Battery 2# Information:	Battery Model:	HB351731EFW
	Nominal	3.87V
	Rated capacity:	180mAh
	Manufacturer:	Dongguan NVT Technology Co.,Ltd.
Battery 3# Information:	Battery Model:	HB351731EFW
	Nominal	3.87V
	Rated capacity:	180mAh
	Manufacturer:	Huizhou Desay Battery Co.,Ltd.
Battery 4# Information:	Battery Model:	HB351731EFW
	Nominal	3.87V
	Rated capacity:	180mAh
	Manufacturer:	Zhuhai CosMX Power Jinwan Subsidiary Co., Ltd.

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4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Phone	HUAWEI	nova 5z	N/A
Adaptor	HUAWEI	HW-050100U00	N/A

4.3 Test modes

Pretest these modes to find the worst case and show the worse data in the test items:	a:BT idle+EUT1(battery 1#)+USB cable+adaptor b:BT idle+EUT1(battery 2#)+USB cable+adaptor c:BT idle+EUT1(battery 3#)+USB cable+adaptor d:BT idle+EUT1(battery 4#)+USB cable+adaptor e:BT idle+EUT1(battery 1#)+USB cable

4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)
2	Radiated Emission	± 4.8dB (Below 1GHz)
		± 4.8dB (1GHz to 6GHz)
		± 4.5dB (6GHz to 18GHz)
		± 5.02dB (Above 18GHz)

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4.5 Test Location

Lab A:

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057

Lab B:

Company:	SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.
Address:	1/F, Unit D, Building 1, Kanghong Orange Technology Park, No.137, Keyuan 3rd Road, Fengdong New City, Xi'an, Shaanxi China
Post code:	710086
Test engineer:	Ben Huang, Leah Chen

Remark：All tests were performed at Lab B.

4.6 Test Facility

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

Lab A:

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

Lab B:

• A2LA (Certificate No. 4854.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4854.01.

• FCC –Designation Number: CN1271.

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4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

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5 Equipment List

CE Test System					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Shielding Room	Brilliant-emc	N/A	XAW03-35-01	2019-09-11	2022-09-10
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-01	2020-09-11	2021-09-10
Artificial network	ROHDE&SCHWARZ	ENV216	XAW01-04-01	2020-08-04	2021-08-03
Temperature and humidity meter	MingGao	TH101B	XAW01-01-01	2020-11-06	2021-11-05
Measurement Software	Tonscend	TS+ CE V2.5	XAW02-05-02	NCR	NCR

RE Test System					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Semi-Anechoic Chamber	Brilliant-emc	N/A	XAW03-35-01	2019-09-11	2022-09-10
MXA signal analyzer	Keysight	N9020A	XAW01-06-01	2020-04-02	2021-04-01
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-01	2020-09-11	2021-09-10
Receiving antenna (30MHz-3GHz)	Schwarzbeck	VULB 9163	XAW01-09-01	2019-10-13	2021-10-12
Receiving antenna (1GHz~18GHz)	Schwarzbeck	BBHA 9120D	XAW01-09-02	2019-10-13	2021-10-12
Receiving antenna (15GHz~40GHz)	Schwarzbeck	BBHA 9170	XAW01-09-03	2019-10-13	2021-10-12
Directional antenna rack controller	Max-Full	MF-7802BS	XAW03-03-01	NCR	NCR
High-speed antenna rack controller	Max-Full	MF-7802	XAW03-04-01	NCR	NCR
Filter bank	Tonscend	JS0806-F	XAW03-05-01	NCR	NCR
Filter bank	Tonscend	JS0806s	XAW03-05-02	NCR	NCR
Amplifier	Tonscend	TAP00903040	XAW01-41-01	2020-10-26	2021-10-25
Amplifier	Tonscend	TAP01018048	XAW01-41-02	2020-10-26	2021-10-25
Amplifier	Tonscend	TAP18040048	XAW01-41-03	2020-10-27	2021-10-26
Amplifier	Shanghai Steed	YX28980930	XAW01-41-06	2020-10-26	2021-10-25
Temperature and humidity meter	MingGao	TH101B	XAW01-01-01	2020-11-06	2021-11-05
Measurement Software	Tonscend	TS+ RSE V3.0.0.2	XAW02-05-01	NCR	NCR

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6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

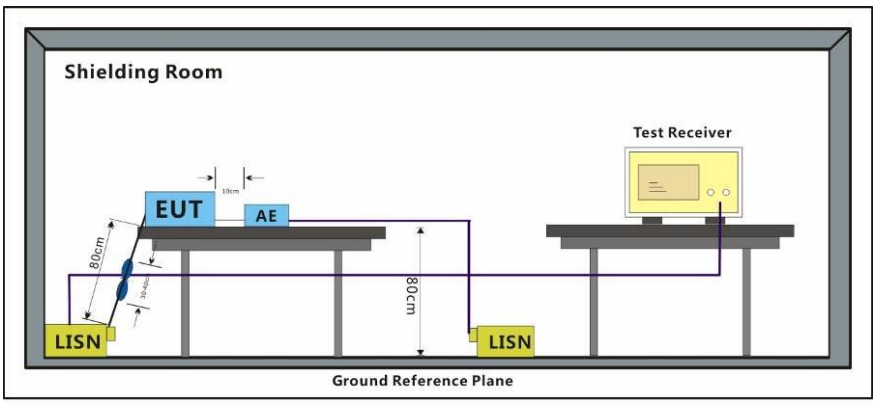
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 20.3 °C Humidity: 58.1 % RH Atmospheric Pressure: 1005 mbar

The worst case for final test: a:BT idle+EUT1(battery 1#)+USB cable+adaptor

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

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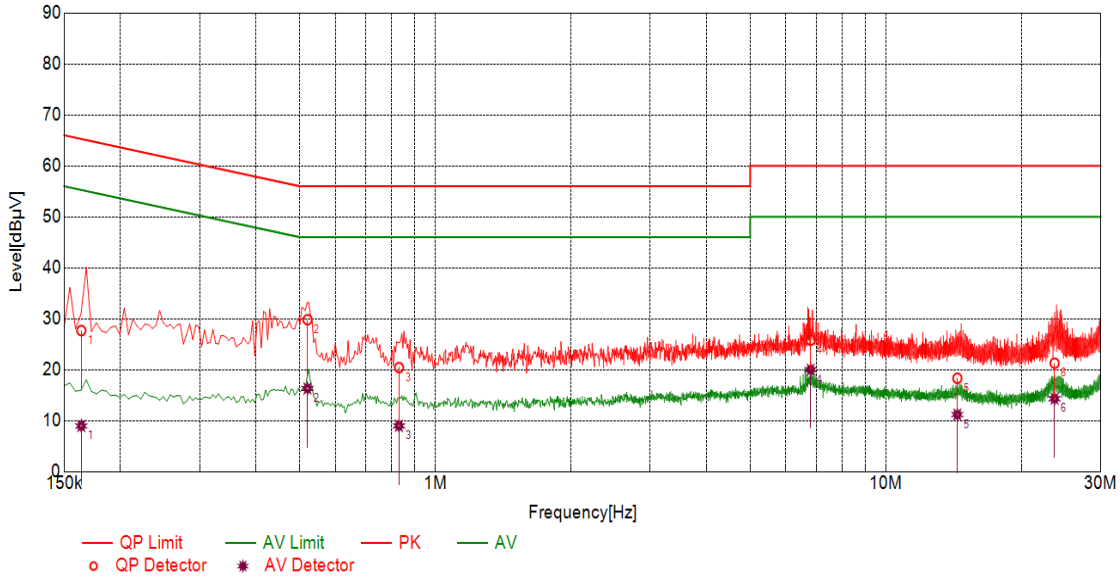
Mode:a; Line:Live Line



Test Graph

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1638	10.10	27.68	65.27	37.59	8.95	55.27	46.32	L
2	0.5203	10.10	29.81	56.00	26.19	16.31	46.00	29.69	L
3	0.8307	10.10	20.41	56.00	35.59	8.98	46.00	37.02	L
4	6.8096	10.10	25.81	60.00	34.19	20.01	50.00	29.99	L
5	14.4095	10.11	18.32	60.00	41.68	11.20	50.00	38.80	L
6	23.6816	10.11	21.28	60.00	38.72	14.31	50.00	35.69	L

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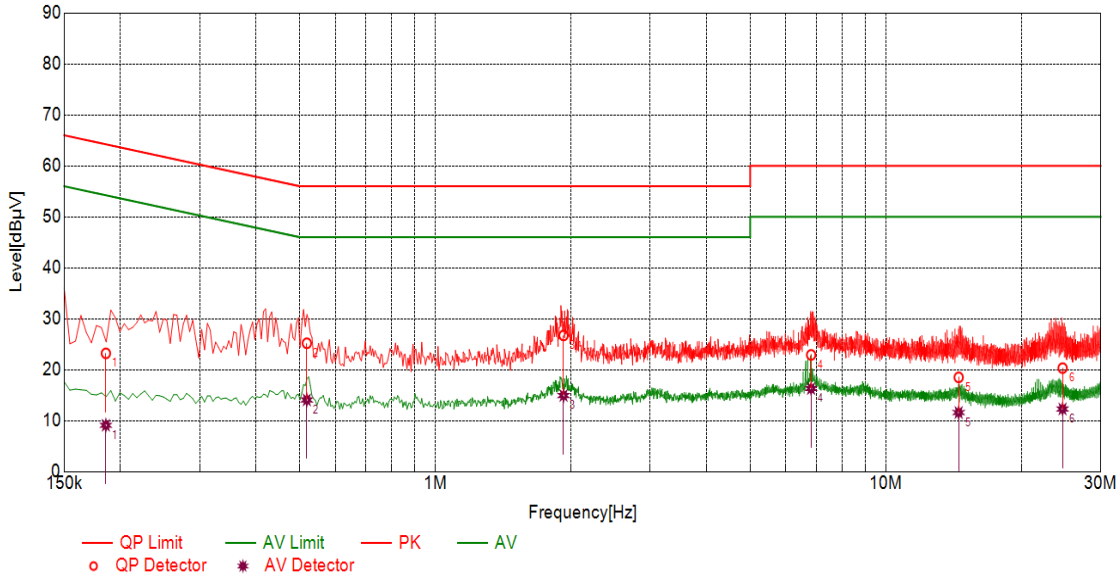
Mode:a; Line:Neutral Line



Test Graph

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1857	10.10	23.21	64.22	41.01	9.09	54.22	45.13	N
2	0.5186	10.10	25.19	56.00	30.81	14.07	46.00	31.93	N
3	1.9262	10.10	26.73	56.00	29.27	14.93	46.00	31.07	N
4	6.8248	10.10	22.91	60.00	37.09	16.30	50.00	33.70	N
5	14.5097	10.11	18.50	60.00	41.50	11.60	50.00	38.40	N
6	24.6751	10.11	20.31	60.00	39.69	12.29	50.00	37.71	N

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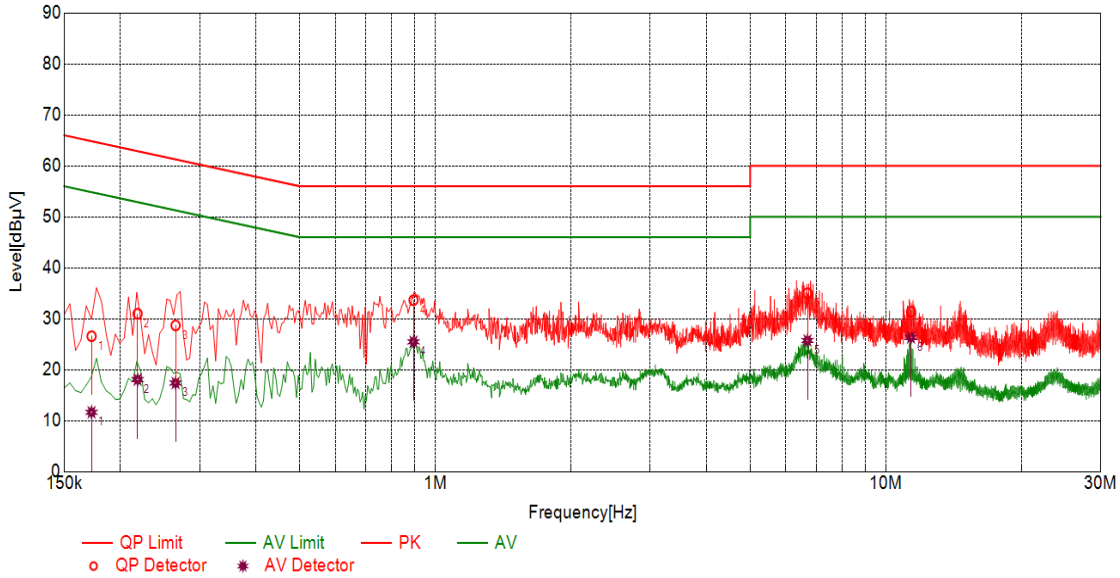
Test on the worst case:

Mode:a; Line:Live Line



Test Graph

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1726	10.10	26.57	64.84	38.27	11.64	54.84	43.20	L
2	0.2184	10.10	30.98	62.88	31.90	18.05	52.88	34.83	L
3	0.2652	10.10	28.69	61.27	32.58	17.39	51.27	33.88	L
4	0.8947	10.10	33.65	56.00	22.35	25.47	46.00	20.53	L
5	6.7010	10.10	35.01	60.00	24.99	25.73	50.00	24.27	L
6	11.3725	10.10	31.39	60.00	28.61	26.32	50.00	23.68	L

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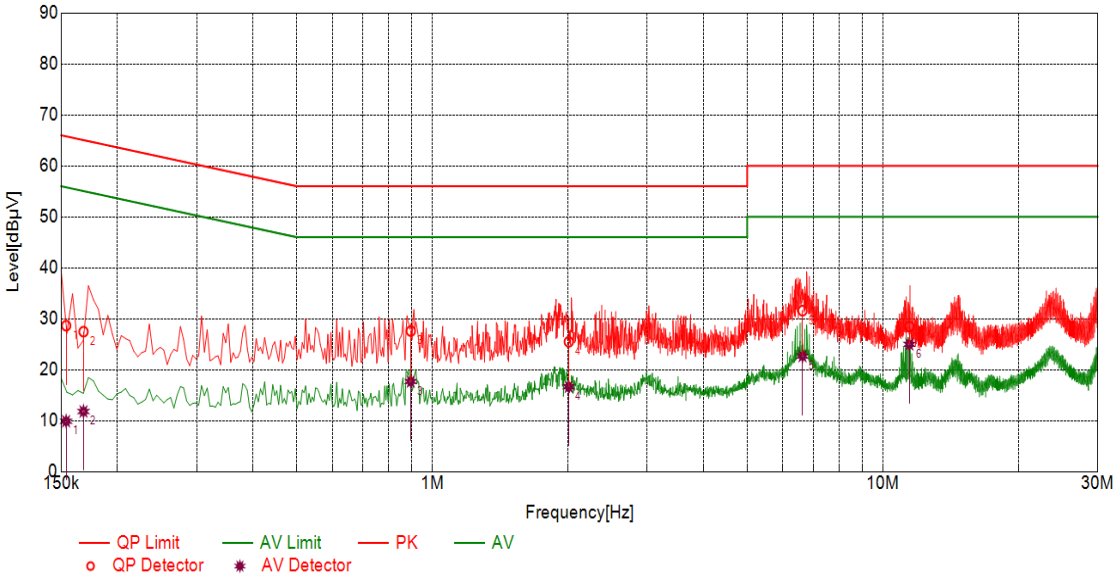
Mode:a; Line:Neutral Line



Test Graph

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1539	10.10	28.64	65.79	37.15	9.89	55.79	45.90	N
2	0.1682	10.10	27.46	65.05	37.59	11.80	55.05	43.25	N
3	0.8958	10.10	27.59	56.00	28.41	17.68	46.00	28.32	N
4	2.0084	10.10	25.48	56.00	30.52	16.66	46.00	29.34	N
5	6.6332	10.10	31.59	60.00	28.41	22.67	50.00	27.33	N
6	11.4565	10.10	28.47	60.00	31.53	24.97	50.00	25.03	N

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6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

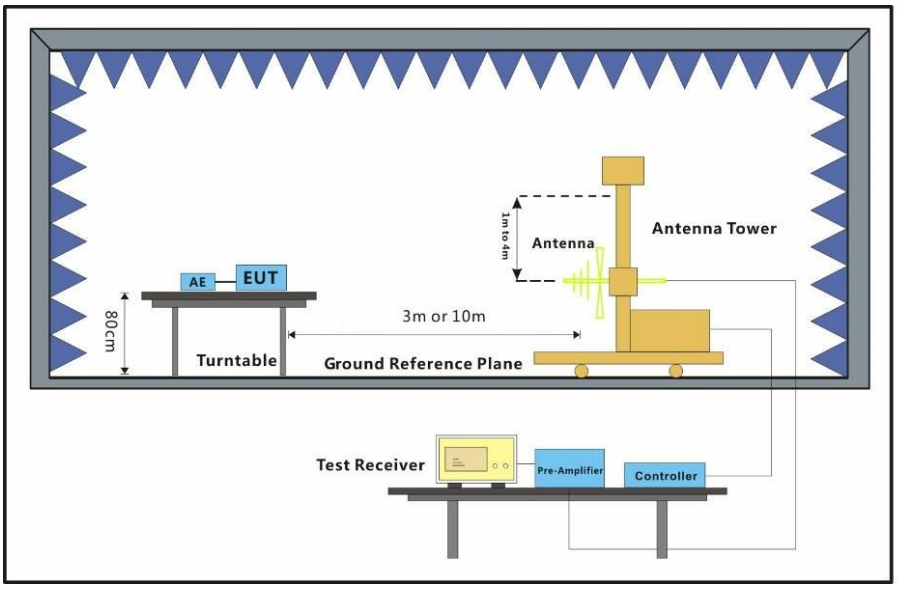
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.4 °C Humidity: 51 % RH Atmospheric Pressure: 1005 mbar

The worst case for final test: a:BT idle+EUT1(battery 1#)+USB cable+adaptor

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

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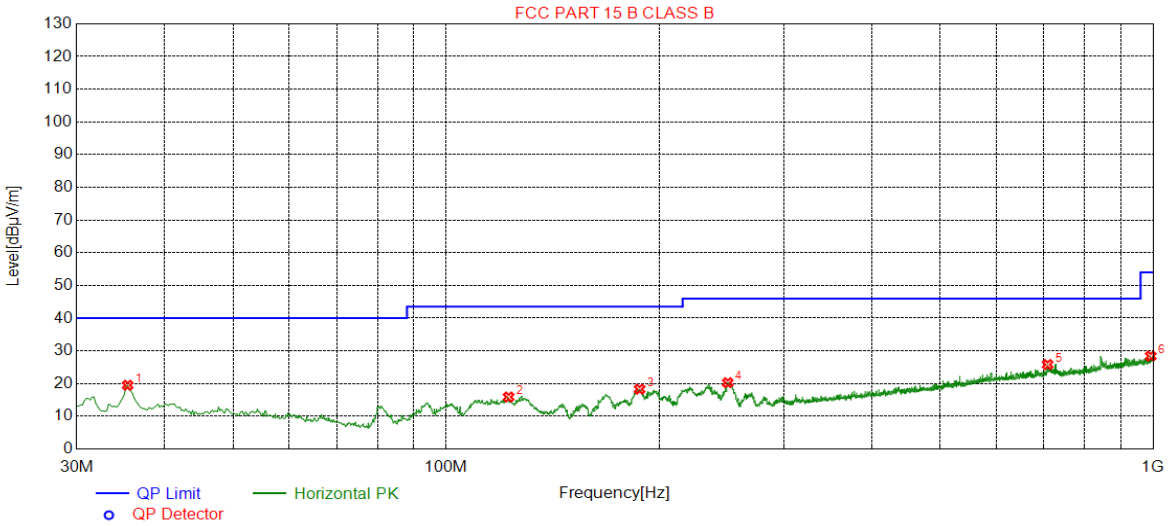
Mode:a; Polarization:Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.4331	19.51	-29.82	40.00	20.49	203	267	Horizontal
2	122.556	15.91	-33.96	43.50	27.59	214	226	Horizontal
3	187.753	18.30	-32.48	43.50	25.20	258	354	Horizontal
4	250.234	20.28	-29.65	46.00	25.72	223	216	Horizontal
5	709.329	25.83	-19.29	46.00	20.17	236	322	Horizontal
6	992.432	28.40	-14.89	54.00	25.60	248	15	Horizontal

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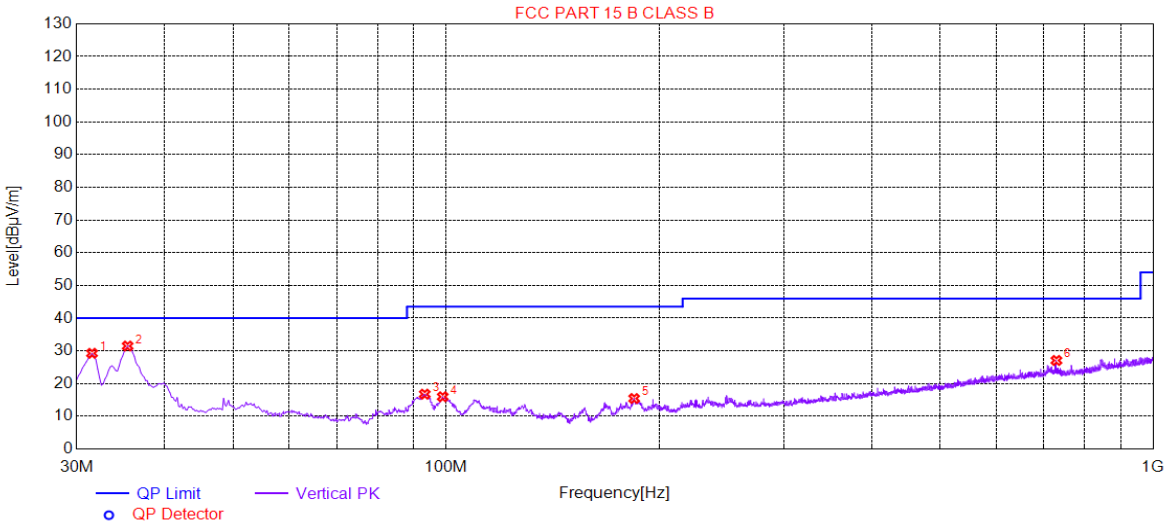
Mode:a; Polarization:Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.5523	29.27	-30.04	40.00	10.73	187	312	Vertical
2	35.4331	31.49	-29.82	40.00	8.51	159	312	Vertical
3	93.2567	16.78	-33.18	43.50	26.72	169	86	Vertical
4	98.8838	15.98	-32.20	43.50	27.52	163	86	Vertical
5	184.454	15.45	-32.83	43.50	28.05	157	350	Vertical
6	729.898	27.08	-18.80	46.00	18.92	184	24	Vertical

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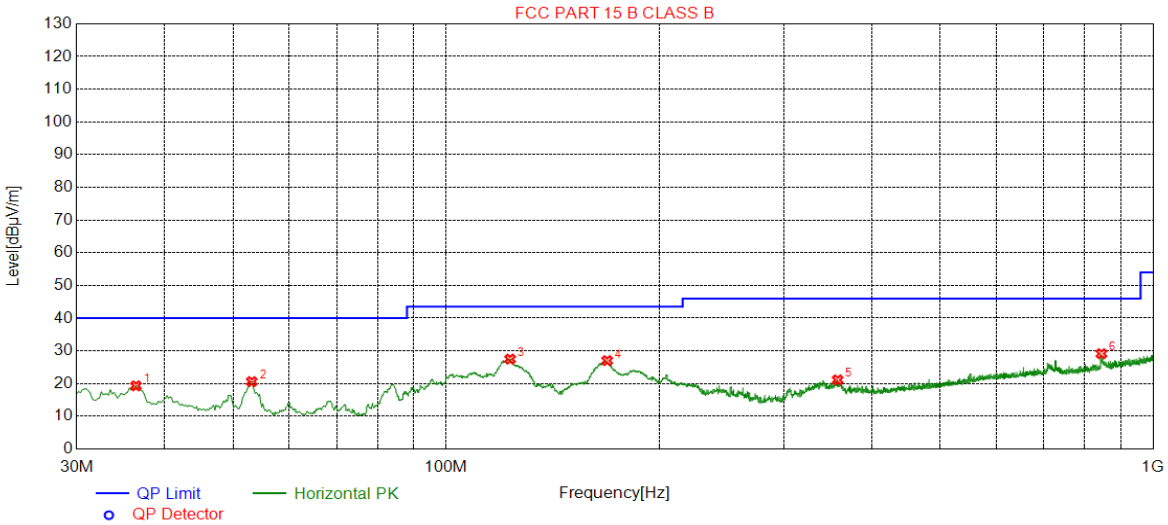
Test on the worst case:

Mode:a; Polarization:Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.4033	19.33	-29.51	40.00	20.67	154	263	Horizontal
2	53.0906	20.62	-30.83	40.00	19.38	240	84	Horizontal
3	123.138	27.50	-34.04	43.50	16.00	249	243	Horizontal
4	168.931	27.03	-34.10	43.50	16.47	192	141	Horizontal
5	357.925	21.14	-26.65	46.00	24.86	173	215	Horizontal
6	845.157	29.15	-16.97	46.00	16.85	221	214	Horizontal

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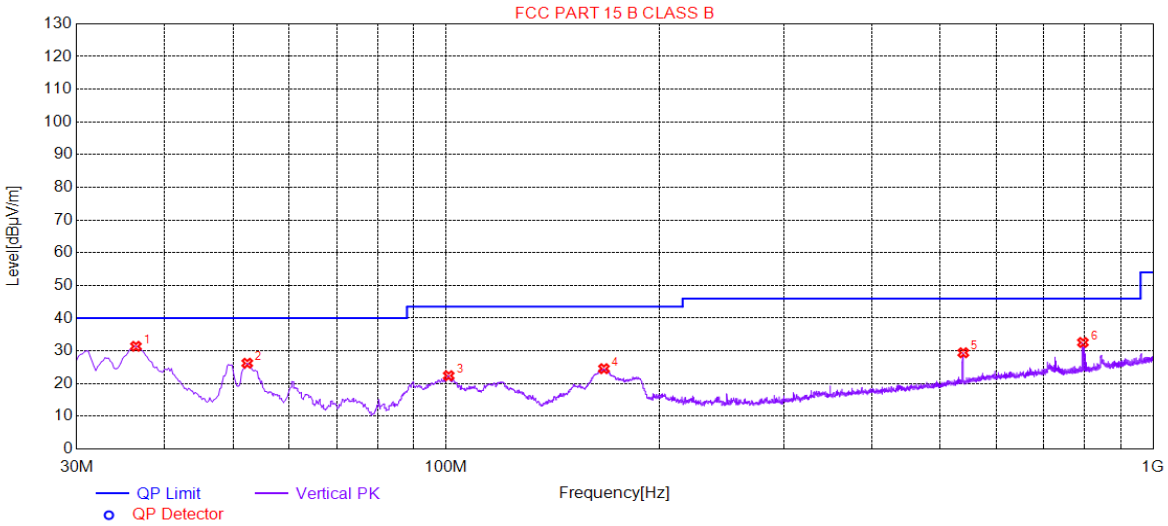
Mode:a; Polarization:Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.4033	31.41	-29.51	40.00	8.59	225	326	Vertical
2	52.3145	26.24	-30.71	40.00	13.76	359	206	Vertical
3	100.824	22.42	-32.00	43.50	21.08	294	113	Vertical
4	167.185	24.57	-34.21	43.50	18.93	135	346	Vertical
5	538.963	29.44	-22.32	46.00	16.56	334	346	Vertical
6	795.677	32.58	-17.84	46.00	13.42	162	100	Vertical

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6.3 Radiated Emissions (above 1GHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	Above 1GHz
Measurement Distance:	3m
Limit:	
Above 1GHz	74(dBμV/m) peak, 54(dBμV/m) average
Detector:	Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

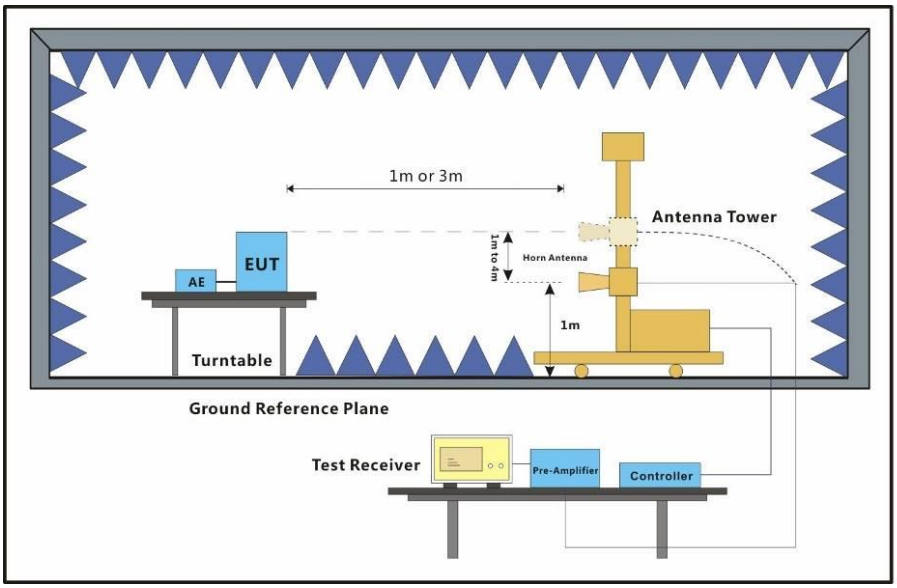
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C Humidity: 56.2 % RH Atmospheric Pressure: 1005 mbar

The worst case for final test: a:BT idle+EUT1(battery 1#)+USB cable+adaptor

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

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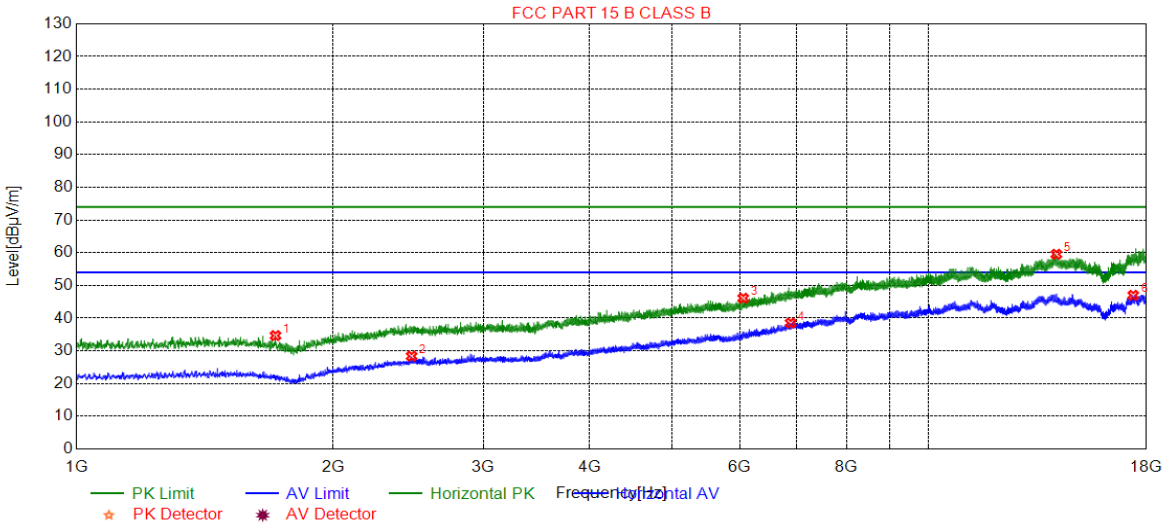
Mode:a; Polarization:Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1711.48	34.68	-31.09	74.00	39.32	178	280	Horizontal
2	2472.27	28.39	-26.03	54.00	25.61	165	167	Horizontal
3	6055.20	46.11	-14.81	74.00	27.89	198	280	Horizontal
4	6883.14	38.52	-11.54	54.00	15.48	174	53	Horizontal
5	14109.3	59.55	2.33	74.00	14.45	152	317	Horizontal
6	17364.1	47.01	0.07	54.00	6.99	192	204	Horizontal

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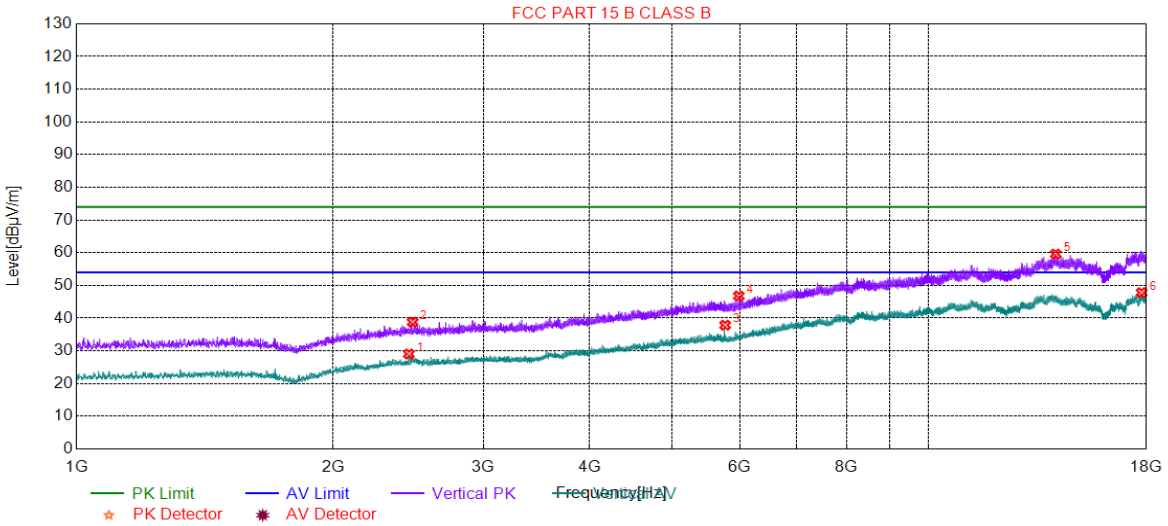
Mode:a; Polarization:Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2454.42	29.05	-26.14	54.00	24.95	177	7	Vertical
2	2479.07	38.79	-25.98	74.00	35.21	185	119	Vertical
3	5767.03	37.86	-15.71	54.00	16.14	169	269	Vertical
4	5984.64	46.79	-15.25	74.00	27.21	168	119	Vertical
5	14083.8	59.61	2.34	74.00	14.39	194	232	Vertical
6	17761.9	47.82	0.82	54.00	6.18	152	82	Vertical

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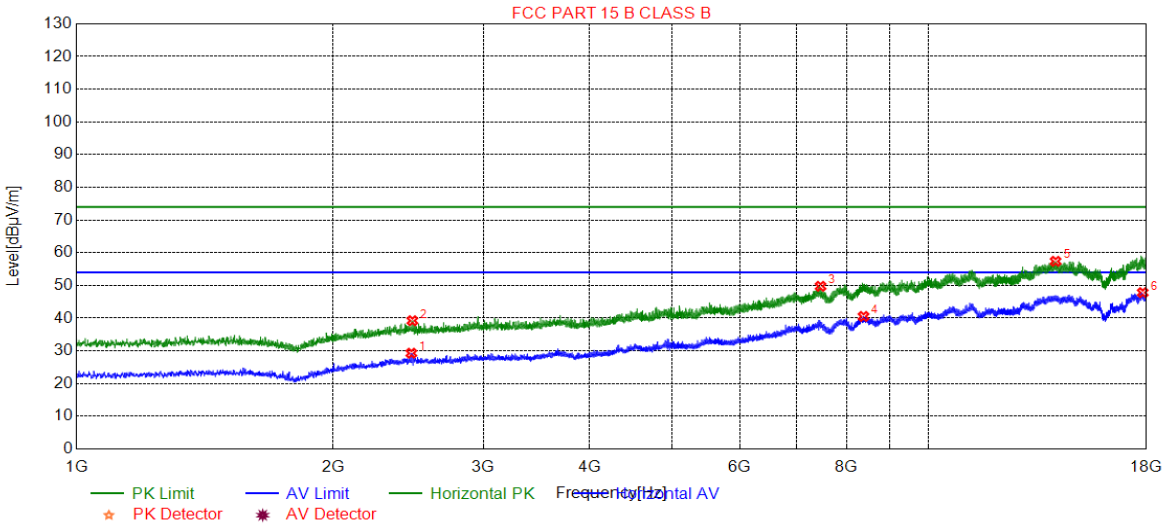
Test on the worst case:

Mode:a; Polarization:Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2470.57	29.30	-26.04	54.00	24.70	251	344	Horizontal
2	2477.37	39.23	-25.99	74.00	34.77	246	268	Horizontal
3	7462.87	49.75	-9.82	74.00	24.25	296	306	Horizontal
4	8380.91	40.54	-7.78	54.00	13.46	224	40	Horizontal
5	14080.4	57.39	2.34	74.00	16.61	218	306	Horizontal
6	17817.2	47.81	0.59	54.00	6.19	261	40	Horizontal

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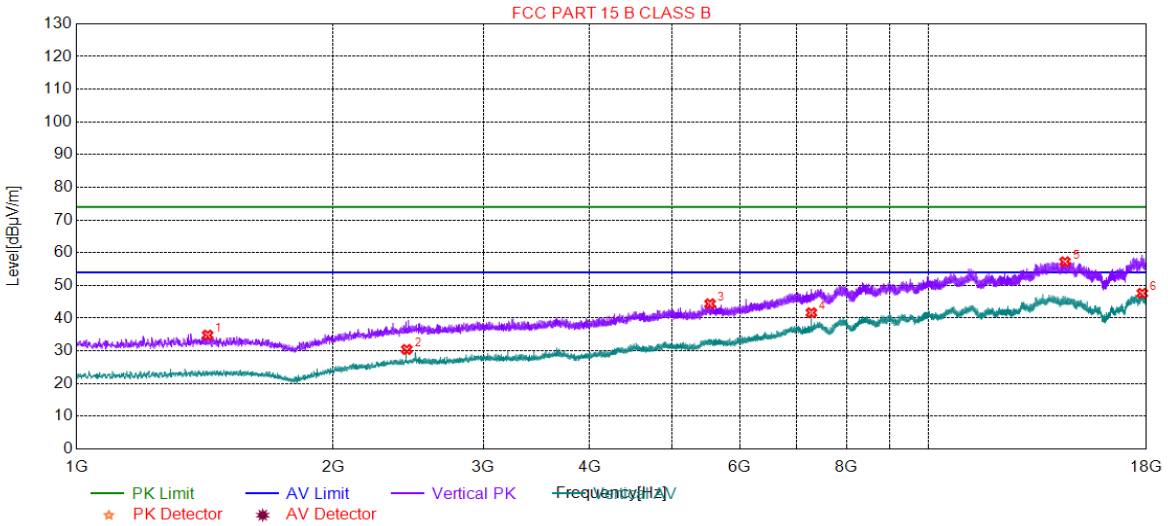
Mode:a; Polarization:Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1425.02	34.83	-30.33	74.00	39.17	332	168	Vertical
2	2439.97	30.44	-26.23	54.00	23.56	216	130	Vertical
3	5535.82	44.41	-15.97	74.00	29.59	225	320	Vertical
4	7279.26	41.68	-10.41	54.00	12.32	339	244	Vertical
5	14442.5	57.26	1.79	74.00	16.74	210	91	Vertical
6	17795.9	47.61	0.70	54.00	6.39	158	244	Vertical

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7 Photographs

7.1 Test Setup

Refer to Appendix A - Photographs of Set-Up for HR/2021/10008.

7.2 EUT Constructional Details (EUT Photos)

Refer to Photographs of EUT Constructional Details

- End of the Report -

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