

Report No.: HR/2021/1000802
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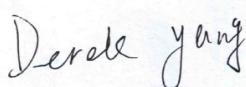
TEST REPORT

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:	2ATEY-TIA-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) 2021/1/17 (for new report HR/2021/1000802)

Test Result:	Pass*
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* 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

Authorized for issue by:			
		(Mike Hu) /Project Engineer	
		(David Chen) /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) is based on the original test report (Report No.: HR/2020/B000402) issued on 2020-11-24.

Review this report and original report, this report just adding the FCC ID.



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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:	<input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module	
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated	
Antenna Gain:	-3.0dBi	
Power Supply:	<input type="checkbox"/> AC/DC Adapter; <input checked="" type="checkbox"/> Battery; <input type="checkbox"/> PoE;; <input type="checkbox"/> 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

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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
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4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)
2	Radiated Emission	± 4.5dB (30MHz-1GHz)
		± 4.8dB (1GHz-6GHz)
3	Temperature test	± 1 °C
4	Humidity test	± 3%



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4.5 Test Location

All tests were performed at:

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518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.6 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **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.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



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5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2020-05-10	2023-05-09
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2020-07-12	2021-07-11
LISN	Rohde & Schwarz	ENV216	SEM007-01	2020-09-25	2021-09-24
LISN	ETS-LINDGREN	3816/2	SEM007-02	2020-03-13	2021-03-12
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2020-03-13	2021-03-12

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2019-03-31	2021-03-30
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2020-07-12	2021-07-11
EMI Test Receiver (9kHz-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2020-03-13	2021-03-12
Trilog-Broadband Antenna(30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2020-06-29	2023-06-28
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2020-03-13	2021-03-12

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-12	2021-07-11
EXA Spectrum Analyzer	Agilent Technologies Inc	N9010A	SEM004-09	2020-03-13	2021-03-12
Horn Antenna(1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2020-03-13	2021-03-12
Pre-Amplifier(0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-27	2021-09-26





General used equipment

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2020-09-27	2021-09-26
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-27	2021-09-26
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-27	2021-09-26
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-03-13	2021-03-12

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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

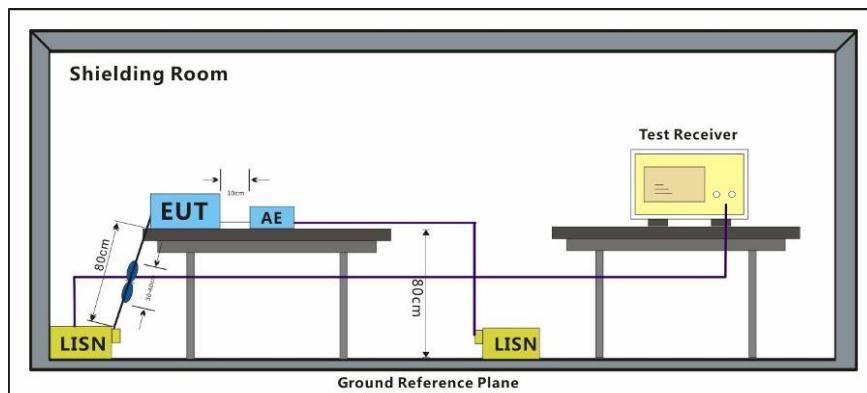
6.1.1 E.U.T. Operation

Operating Environment:

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

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

6.1.2 Test Setup Diagram



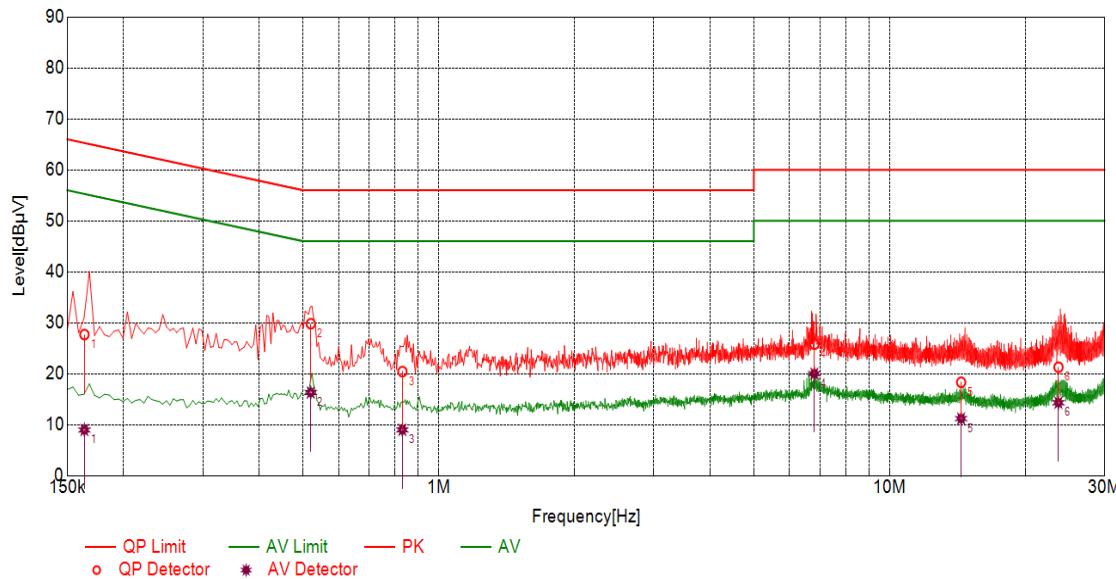
6.1.3 Measurement Data

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

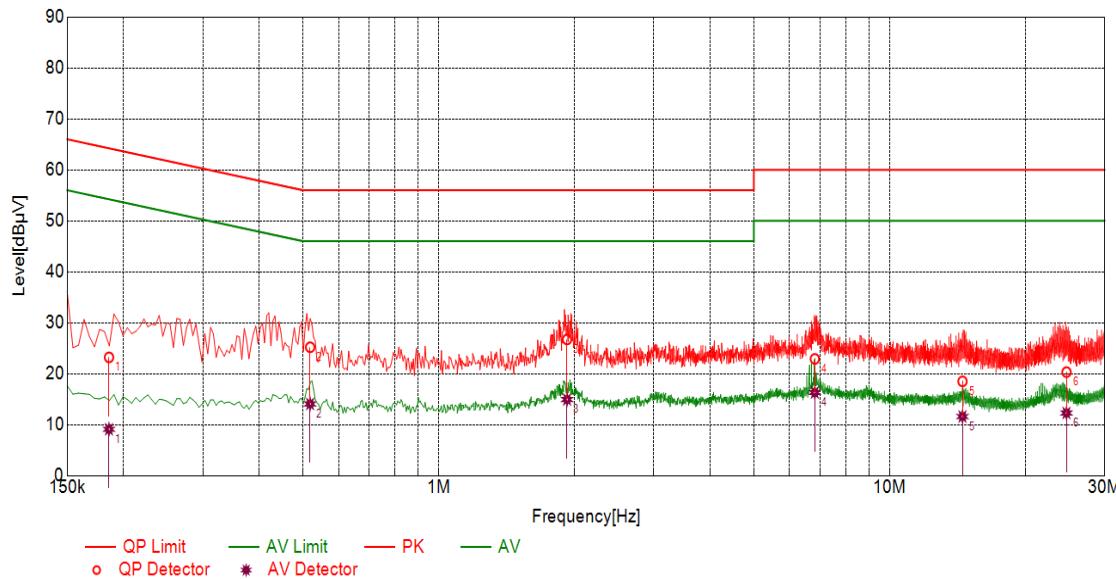
**Test Graph**

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

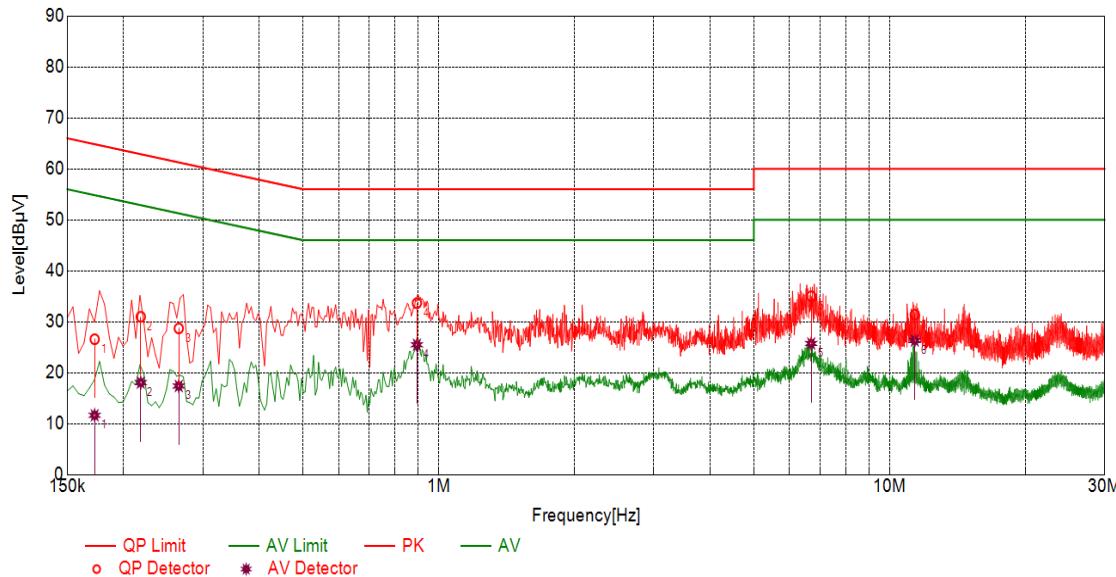
Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Type
1	0.1857	10.10	23.21	64.22	41.01	9.09	54.22	45.13	N
2	0.5186	10.10	25.19	56.00	30.81	14.07	46.00	31.93	N
3	1.9262	10.10	26.73	56.00	29.27	14.93	46.00	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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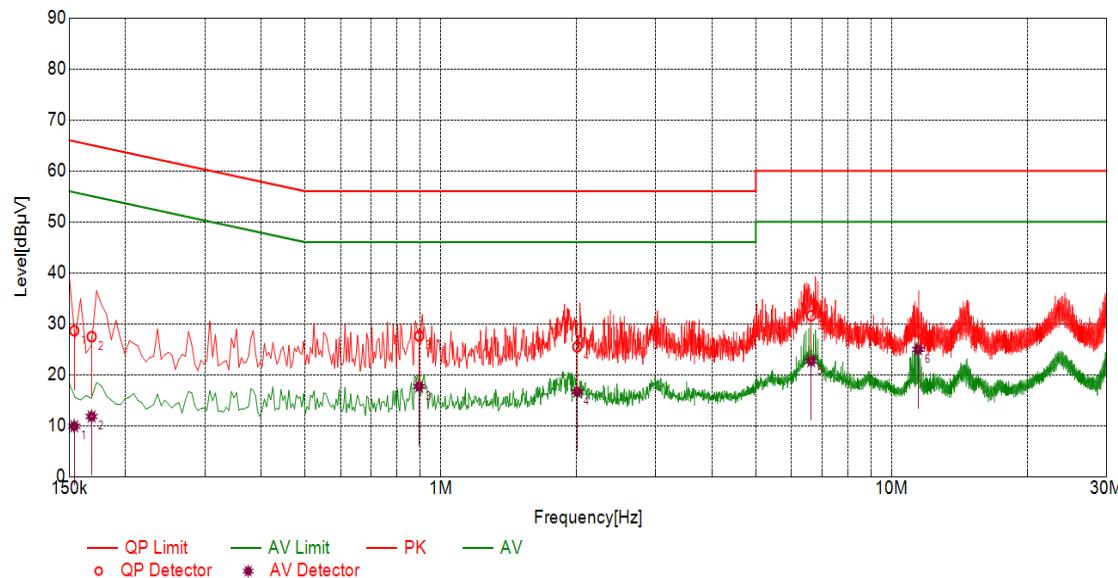
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Mode:a; Line:Neutral Line

**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(dB μ V/m) quasi-peak

88MHz-216MHz 43.5(dB μ V/m) quasi-peak

216MHz-960MHz 46.0(dB μ V/m) quasi-peak

960MHz-1000MHz 54.0(dB μ V/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

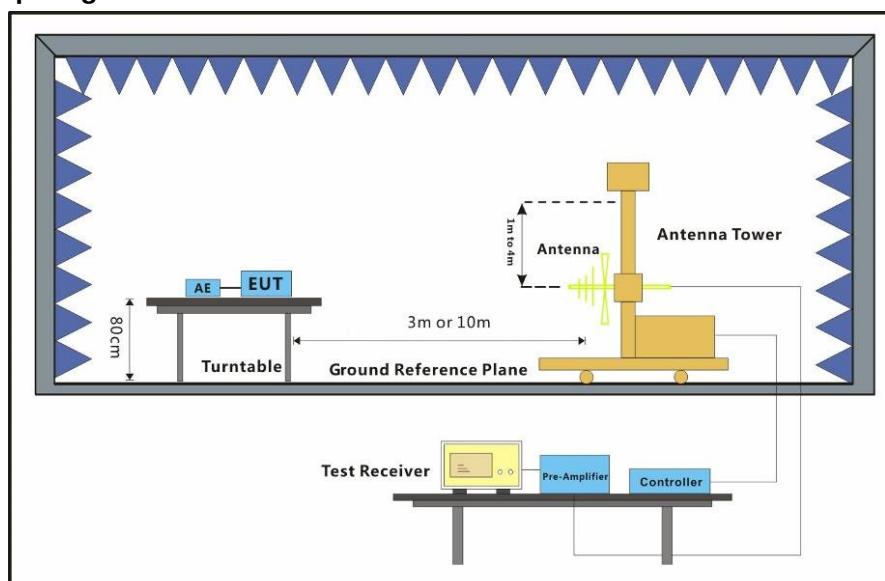
6.2.1 E.U.T. Operation

Operating Environment:

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

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

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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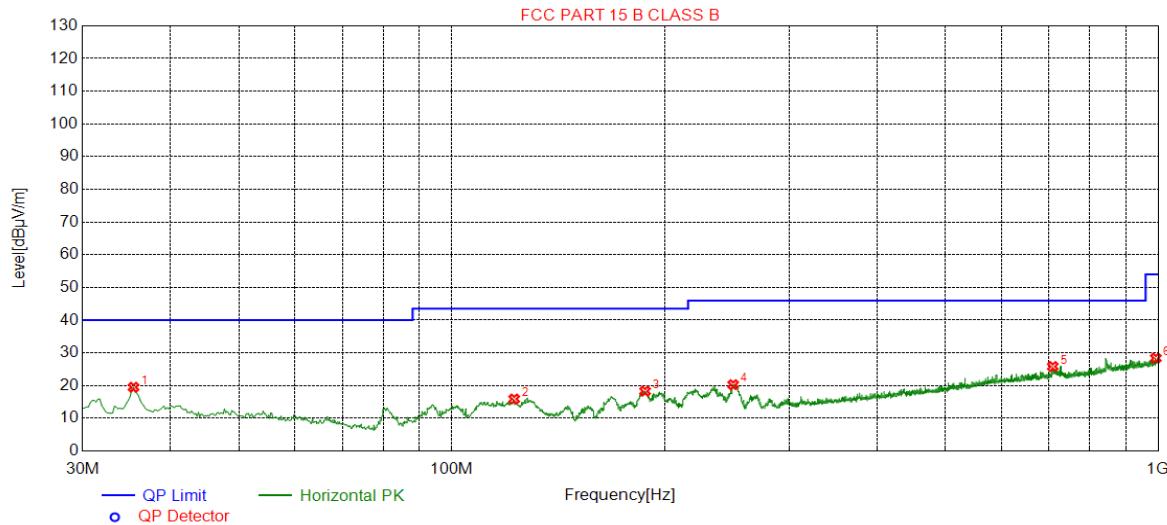
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Mode:a; Polarization:Horizontal



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.4331	19.51	-29.82	40.00	20.49	200	267	Horizontal
2	122.556	15.91	-33.96	43.50	27.59	200	226	Horizontal
3	187.753	18.30	-32.48	43.50	25.20	100	354	Horizontal
4	250.234	20.28	-29.65	46.00	25.72	100	216	Horizontal
5	709.329	25.83	-19.29	46.00	20.17	100	322	Horizontal
6	992.432	28.40	-14.89	54.00	25.60	200	15	Horizontal

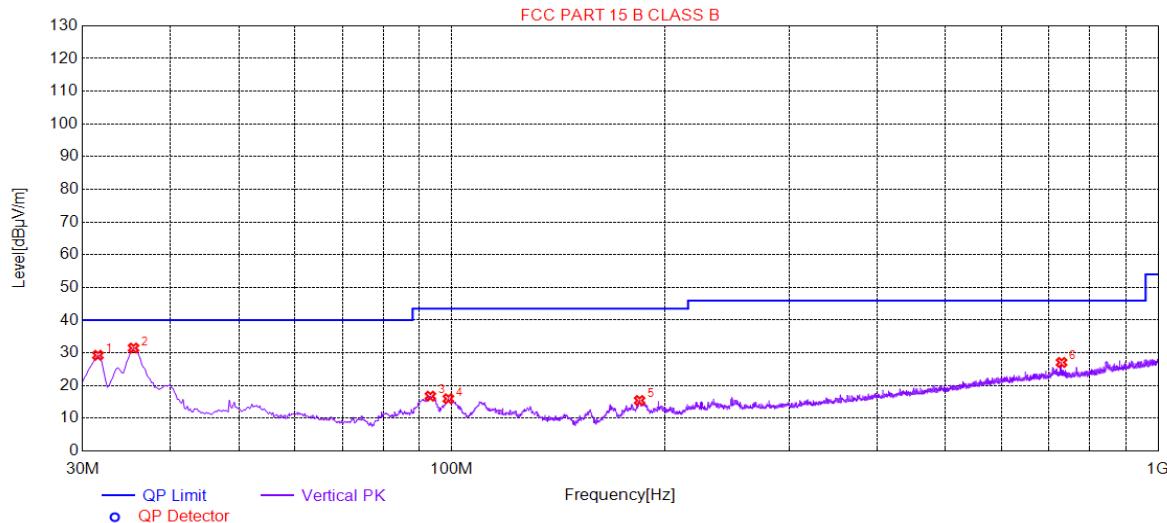
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Mode:a; Polarization:Vertical



Suspected List

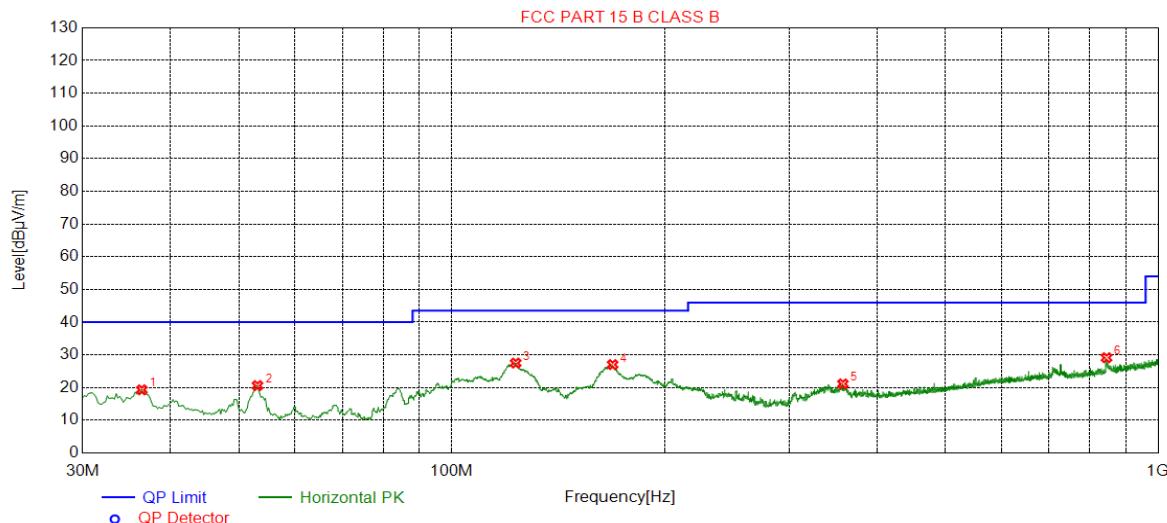
Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.5523	29.27	-30.04	40.00	10.73	100	312	Vertical
2	35.4331	31.49	-29.82	40.00	8.51	100	312	Vertical
3	93.2567	16.78	-33.18	43.50	26.72	100	86	Vertical
4	98.8838	15.98	-32.20	43.50	27.52	100	86	Vertical
5	184.454	15.45	-32.83	43.50	28.05	100	350	Vertical
6	729.898	27.08	-18.80	46.00	18.92	200	24	Vertical

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Test on the worst case:

Mode:a; Polarization:Horizontal

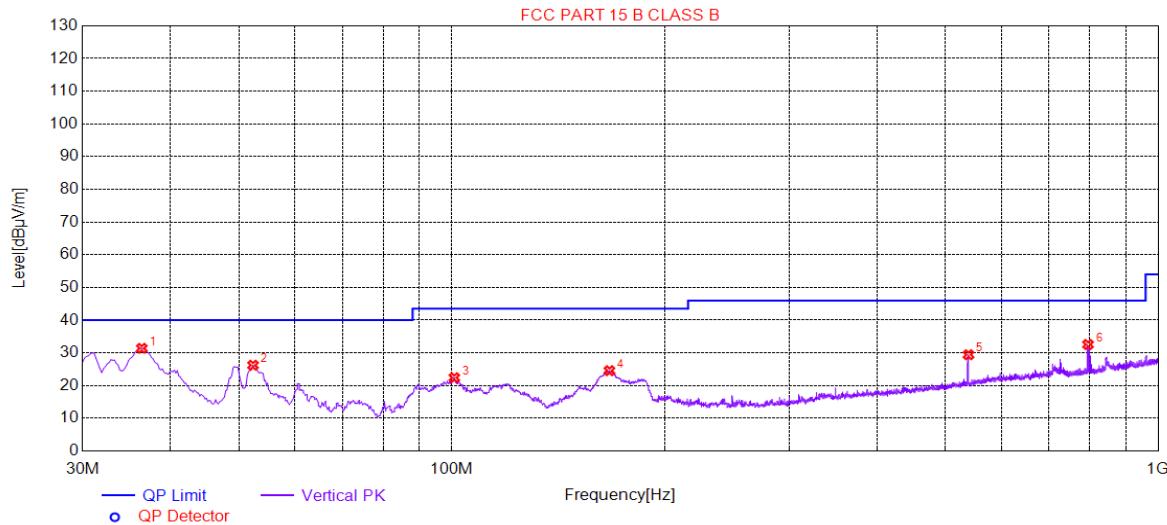
**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.4033	19.33	-29.51	40.00	20.67	200	263	Horizontal
2	53.0906	20.62	-30.83	40.00	19.38	200	84	Horizontal
3	123.138	27.50	-34.04	43.50	16.00	200	243	Horizontal
4	168.931	27.03	-34.10	43.50	16.47	200	141	Horizontal
5	357.925	21.14	-26.65	46.00	24.86	100	215	Horizontal
6	845.157	29.15	-16.97	46.00	16.85	200	214	Horizontal

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Mode:a; Polarization:Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.4033	31.41	-29.51	40.00	8.59	100	326	Vertical
2	52.3145	26.24	-30.71	40.00	13.76	100	206	Vertical
3	100.824	22.42	-32.00	43.50	21.08	100	113	Vertical
4	167.185	24.57	-34.21	43.50	18.93	100	346	Vertical
5	538.963	29.44	-22.32	46.00	16.56	100	346	Vertical
6	795.677	32.58	-17.84	46.00	13.42	200	100	Vertical

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6.3 Radiated Emissions (above 1GHz)

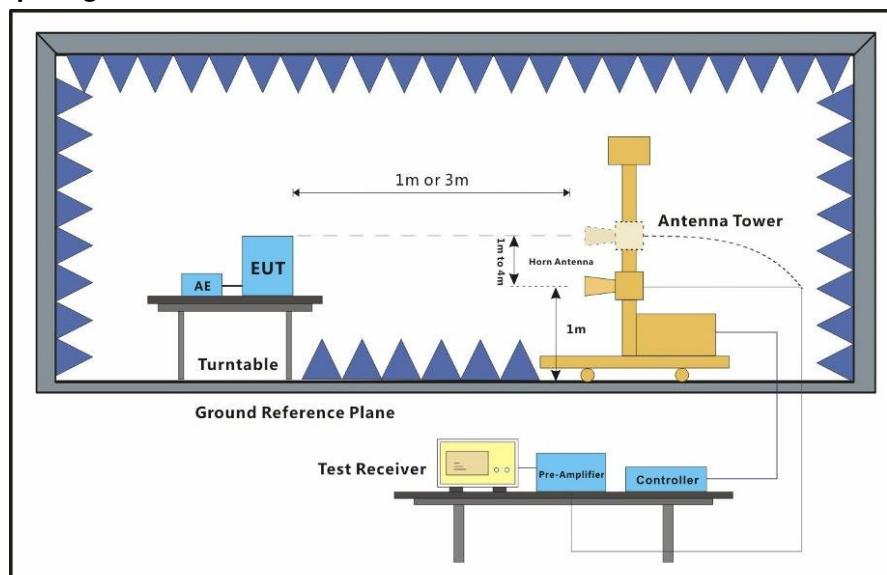
Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014
Frequency Range: Above 1GHz
Measurement Distance: 3m
Limit:
Above 1GHz 74(dB μ V/m) peak, 54(dB μ V/m) average
Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C Humidity: 56.2 % RH Atmospheric Pressure: 1005 mbar
The worst case a:BT idle+EUT1(battery 1#)+USB cable+adaptor
for final test:

6.3.2 Test Setup Diagram



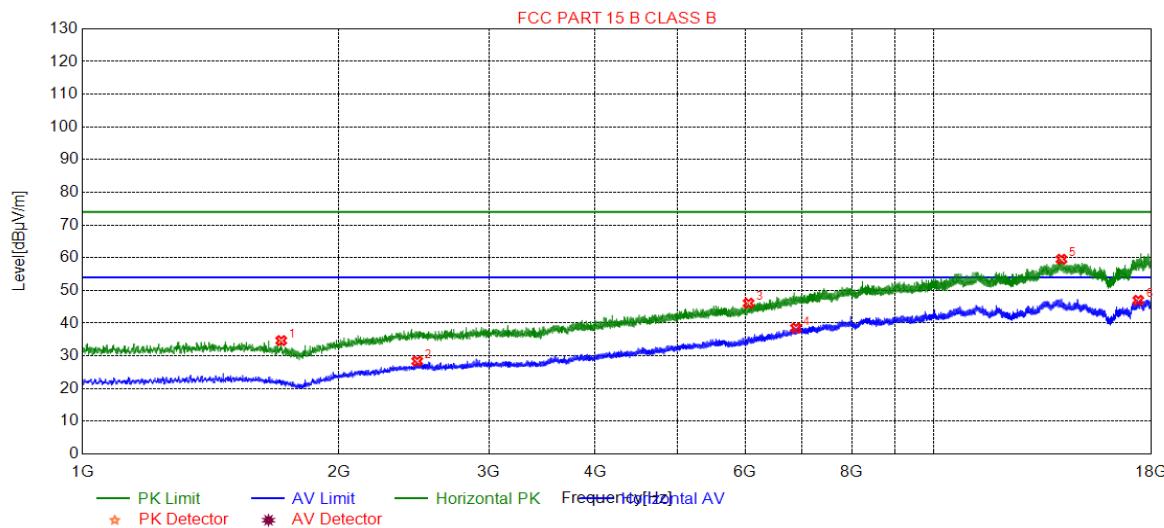
6.3.3 Measurement Data

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



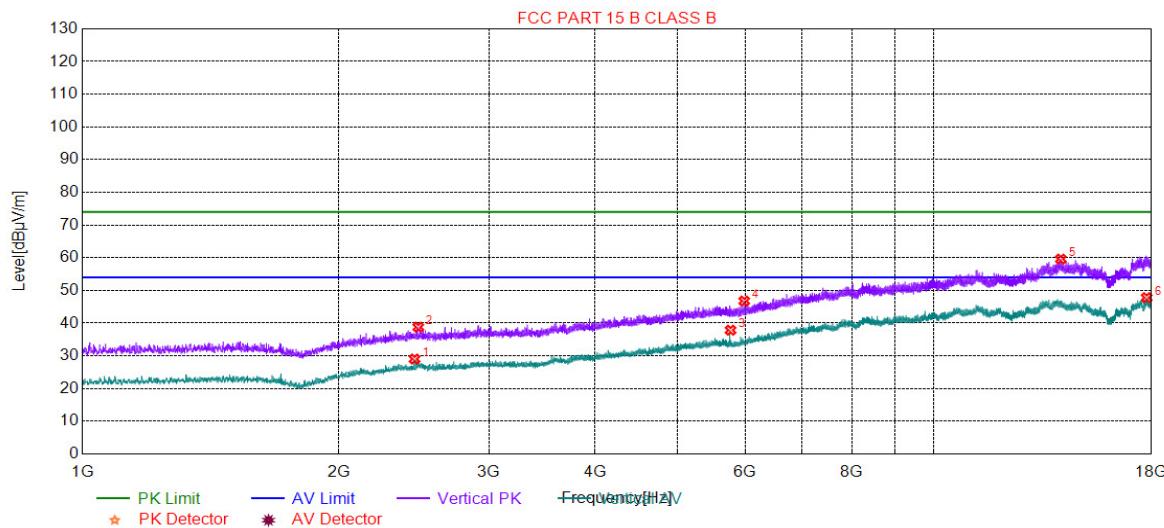
Suspected List

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	100	280	Horizontal
2	2472.27	28.39	-26.03	54.00	25.61	100	167	Horizontal
3	6055.20	46.11	-14.81	74.00	27.89	100	280	Horizontal
4	6883.14	38.52	-11.54	54.00	15.48	100	53	Horizontal
5	14109.3	59.55	2.33	74.00	14.45	100	317	Horizontal
6	17364.1	47.01	0.07	54.00	6.99	100	204	Horizontal

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Mode:a; Polarization:Vertical

**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2454.42	29.05	-26.14	54.00	24.95	100	7	Vertical
2	2479.07	38.79	-25.98	74.00	35.21	100	119	Vertical
3	5767.03	37.86	-15.71	54.00	16.14	100	269	Vertical
4	5984.64	46.79	-15.25	74.00	27.21	100	119	Vertical
5	14083.8	59.61	2.34	74.00	14.39	100	232	Vertical
6	17761.9	47.82	0.82	54.00	6.18	100	82	Vertical

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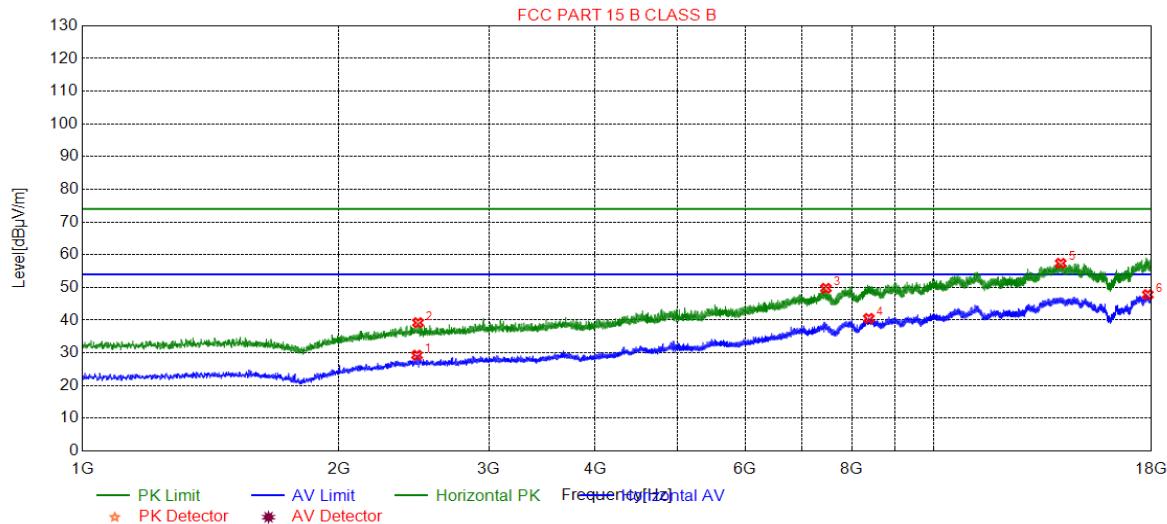
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Test on the worst case:

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	100	344	Horizontal
2	2477.37	39.23	-25.99	74.00	34.77	100	268	Horizontal
3	7462.87	49.75	-9.82	74.00	24.25	100	306	Horizontal
4	8380.91	40.54	-7.78	54.00	13.46	100	40	Horizontal
5	14080.4	57.39	2.34	74.00	16.61	100	306	Horizontal
6	17817.2	47.81	0.59	54.00	6.19	100	40	Horizontal

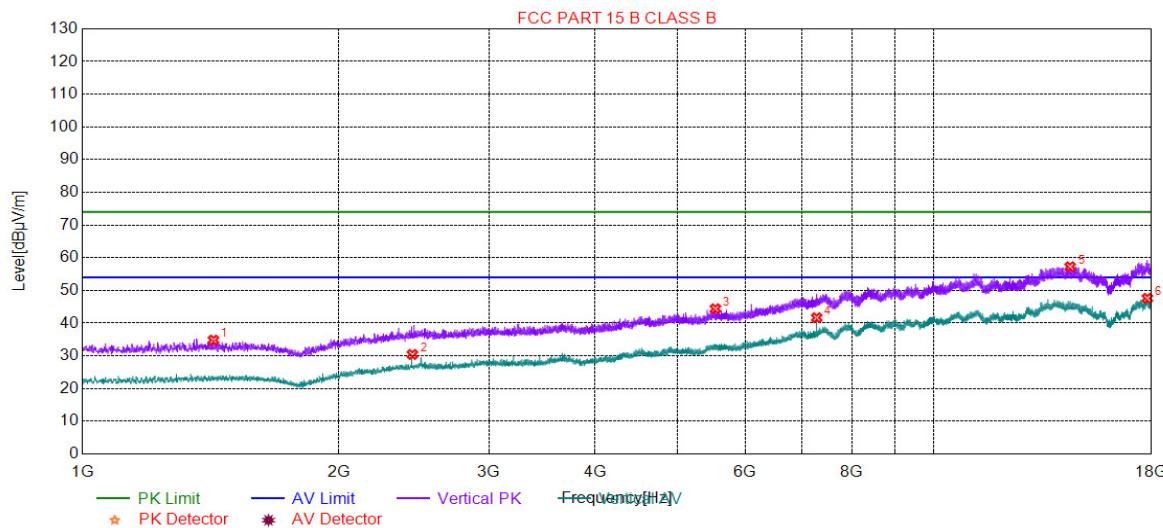
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Mode:a; Polarization:Vertical



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [-dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1425.02	34.83	-30.33	74.00	39.17	100	168	Vertical
2	2439.97	30.44	-26.23	54.00	23.56	100	130	Vertical
3	5535.82	44.41	-15.97	74.00	29.59	100	320	Vertical
4	7279.26	41.68	-10.41	54.00	12.32	100	244	Vertical
5	14442.5	57.26	1.79	74.00	16.74	100	91	Vertical
6	17795.9	47.61	0.70	54.00	6.39	100	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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