

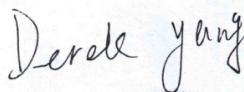
TEST REPORT

Application No:	ZR/2020/B0027
Applicant:	HUAWEI DEVICE CO., LTD
Address of Applicant	NO.2 OF XINCHENG ROAD, SONGSHAN LAKE ZONE, DONGGUAN,523808 GUANGDONG, P.R. CHINA
Manufacturer:	HUAWEI DEVICE CO., LTD
Address of Manufacturer:	NO.2 OF XINCHENG ROAD, SONGSHAN LAKE ZONE, DONGGUAN,523808 GUANGDONG, P.R. CHINA
EUT Description:	Wireless Earphone
Model No.:	T0001 (for earphone), T0001C (for charging case)
FCC ID:	2ATEYT0001 (for earphone), 2ATEYT0001C (for charging case)
Trade Mark:	HUAWEI
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2020/11/17
Date of Test:	2020/11/17 to 2020/11/30
Date of Issue:	2021/4/21

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		2020/11/30		Original
02	Section 3	2021/4/21	James Qin	Updated equipment list

Authorized for issue by:			
Prepared By		 (Leah Chen) / Engineer	
Checked By		 (Daniel Wang) / Reviewer	

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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

Test engineer: Leah Chen, Ken Liu, Andy Yao

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1 General Information

Product Name:	Bluetooth devices		
Model No.(EUT):	T0001		
Trade Mark:	HUAWEI		
Hardware Version:	PCB V6		
Software Version:	1.0.0.69m		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	Bluetooth	2402~2480	2402~2480

Accessory:

Cable No.	Type-C	Model No.	Manufacturer
1	USB Cable	\	\

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1.1 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Huawei	HW-050100U01	REF. No.:SEA2600

1.2 Test Location

All tests were performed at:

Company:	SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.
Address:	Single floor D, building 1, Kanghong orange square science and technology park, No.137 keyuan 3rd road, fengdong new town, Xi 'an city, Shaanxi China
Post code:	710000

No tests were sub-contracted.

1.3 Test Facility

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

• 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.

Test Site No.:	SGS Xian Site No.		FCC Designation No.
	CO01-XA	03CH01-XA	
			CN1271

1.4 Deviation from Standards

None

1.5 Abnormalities from Standard Conditions

None

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2 Emission Test Results

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

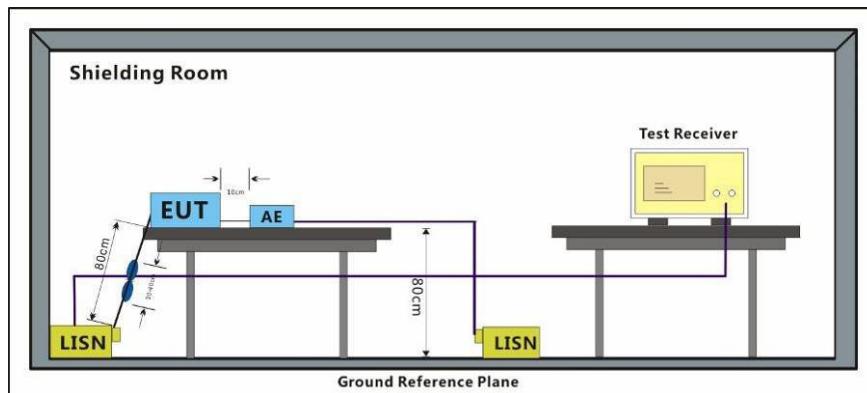
Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan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

2.1.1 E.U.T. Operation

Operating Environment:

Temperature:	18.9 °C	Humidity:	55.1 % RH	Atmospheric Pressure:	1000 mbar
Pretest these modes to find the worst case:	a: EUT + USB cable1 + Adapter				
The worst case for final test:	a: EUT + USB cable1 + Adapter				

2.1.2 Test Setup Diagram



2.1.3 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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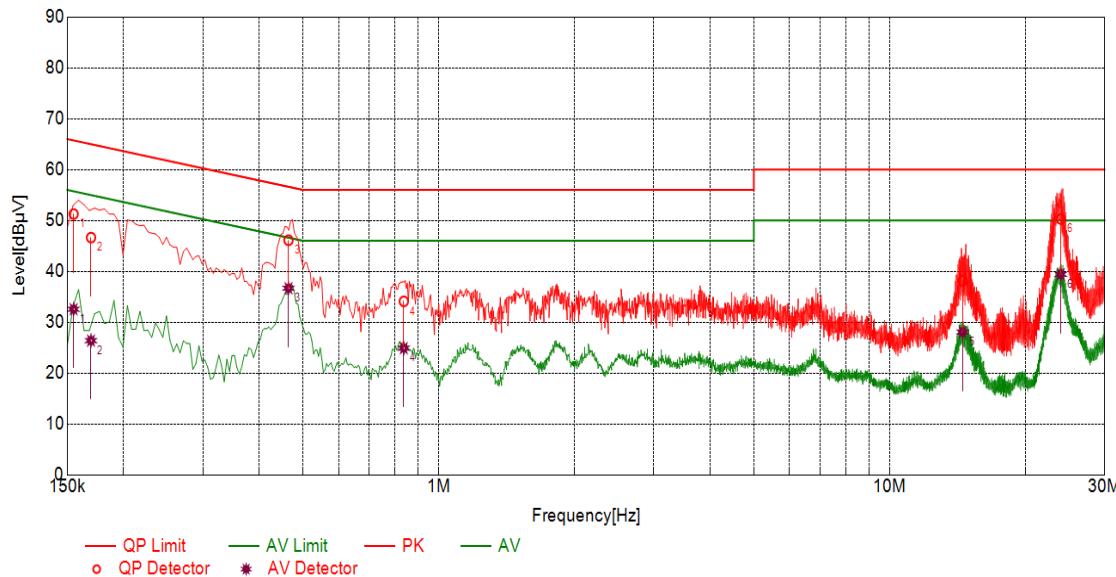
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Mode:a; Line:Live Line

**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]
1	0.1550	10.10	51.26	65.73	14.47	32.54	55.73	23.19
2	0.1694	10.10	46.64	64.99	18.35	26.38	54.99	28.61
3	0.4644	10.10	46.12	56.61	10.49	36.68	46.61	9.93
4	0.8367	10.10	34.10	56.00	21.90	24.89	46.00	21.11
5	14.5160	10.11	38.15	60.00	21.85	28.06	50.00	21.94
6	23.9715	10.11	50.29	60.00	9.71	39.41	50.00	10.59

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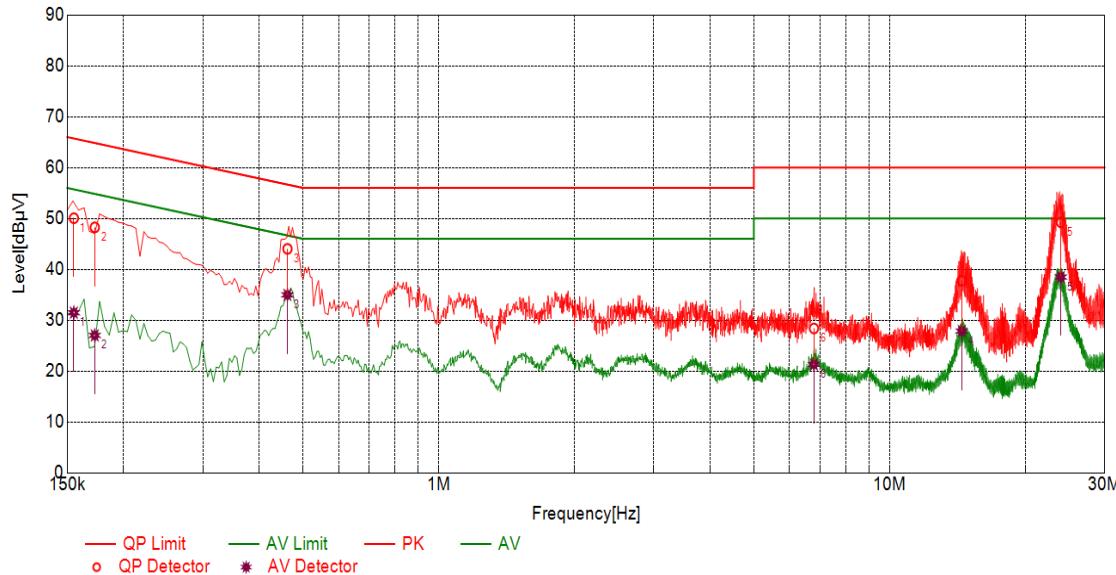
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Mode:a; Line:Neutral Line

**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]
1	0.1552	10.10	50.05	65.72	15.67	31.47	55.72	24.25
2	0.1727	10.10	48.26	64.83	16.57	27.01	54.83	27.82
3	0.4619	10.10	44.03	56.66	12.63	34.98	46.66	11.68
4	14.4530	10.11	37.79	60.00	22.21	27.87	50.00	22.13
5	23.9790	10.11	49.26	60.00	10.74	38.48	50.00	11.52
6	6.7952	10.10	28.38	60.00	31.62	21.30	50.00	28.70

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2.2 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

2.1.4 E.U.T. Operation

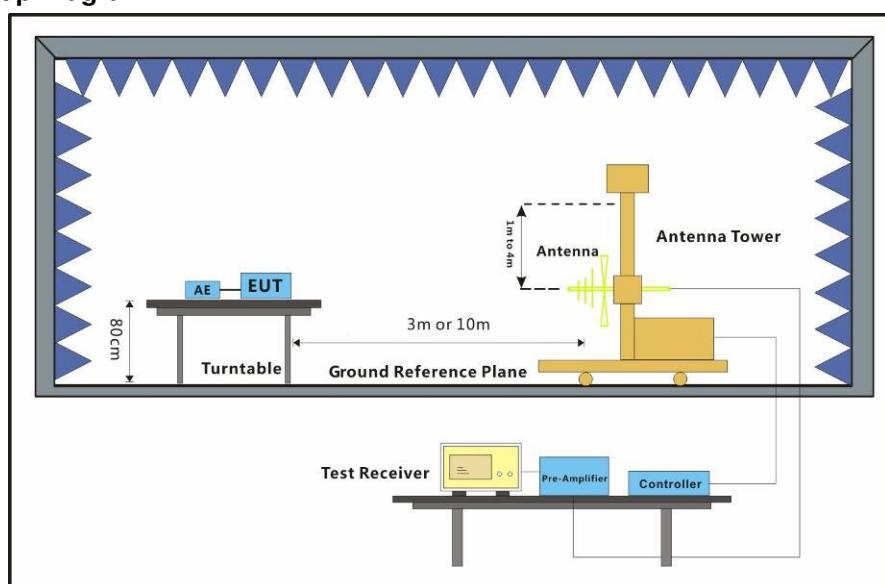
Operating Environment:

Temperature: 25 °C Humidity: 66.5 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:
a: EUT + USB cable1 + Adapter

The worst case for final test:
a: EUT + USB cable1 + Adapter

2.1.5 Test Setup Diagram



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2.1.6 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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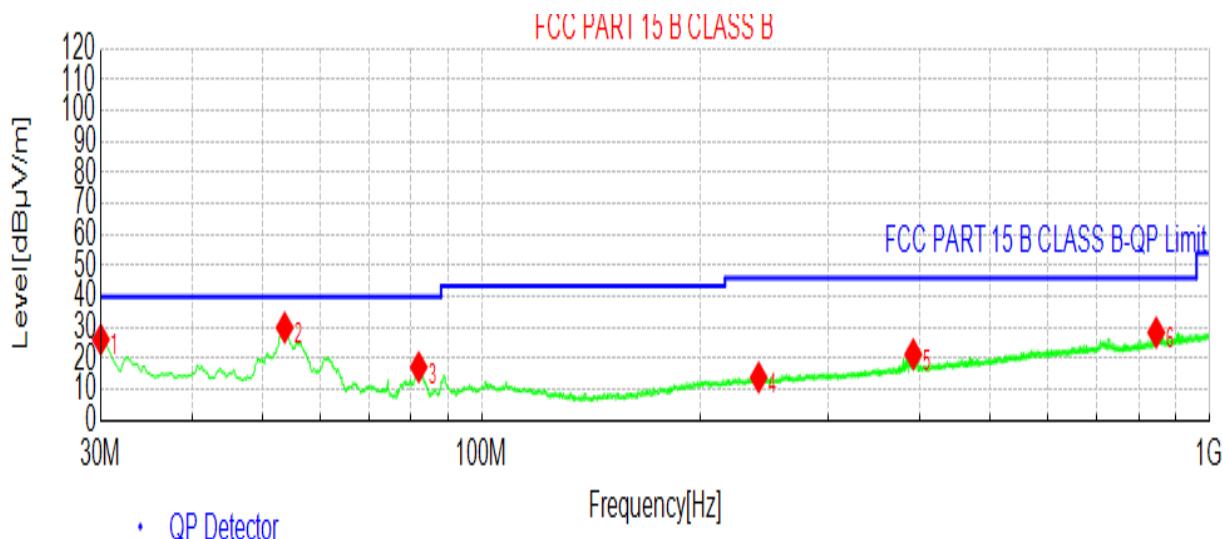
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Mode:a; Polarization:Horizontal

**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	30.0000	26.17	-30.08	40.00	13.83	186	150	Horizontal
2	53.6727	30.05	-30.92	40.00	9.95	194	150	Horizontal
3	82.0024	17.27	-35.67	40.00	22.73	176	350	Horizontal
4	240.338	13.97	-30.06	46.00	32.03	121	130	Horizontal
5	391.882	21.39	-25.71	46.00	24.61	148	10	Horizontal
6	845.157	28.43	-16.97	46.00	17.57	105	350	Horizontal

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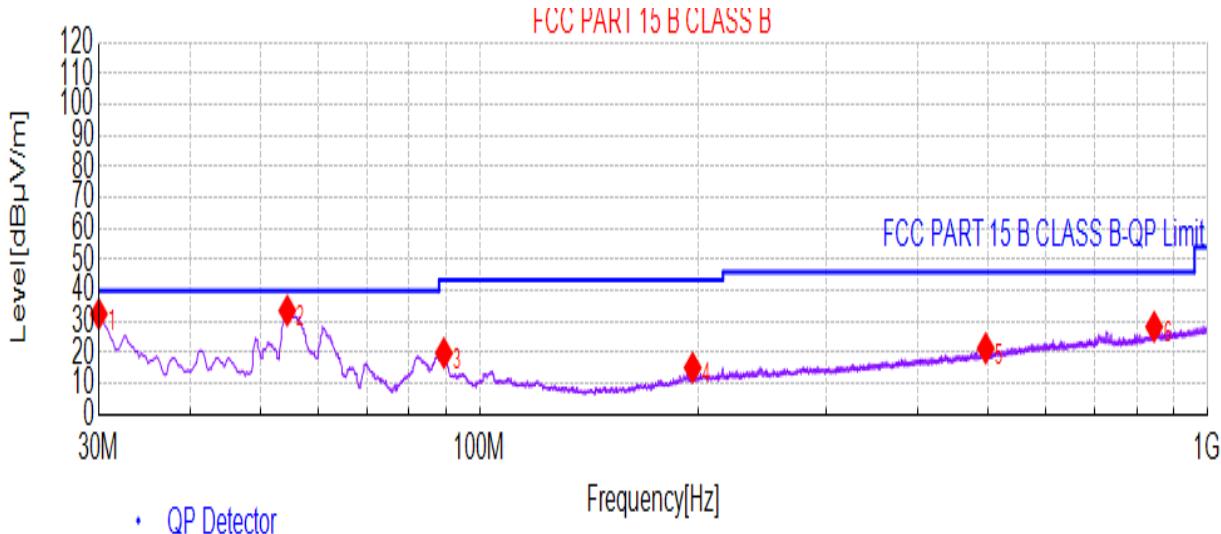
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邮编 710086 sgs.china@sgs.com

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	30.0000	32.48	-30.08	40.00	7.52	185	220	Vertical
2	54.4489	33.59	-31.04	40.00	6.41	203	10	Vertical
3	89.3759	19.88	-33.86	43.50	23.62	207	300	Vertical
4	196.291	15.16	-31.58	43.50	28.34	290	10	Vertical
5	495.887	21.43	-23.42	46.00	24.57	237	140	Vertical
6	845.157	28.39	-16.97	46.00	17.61	291	290	Vertical

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2.3 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

2.1.7 E.U.T. Operation

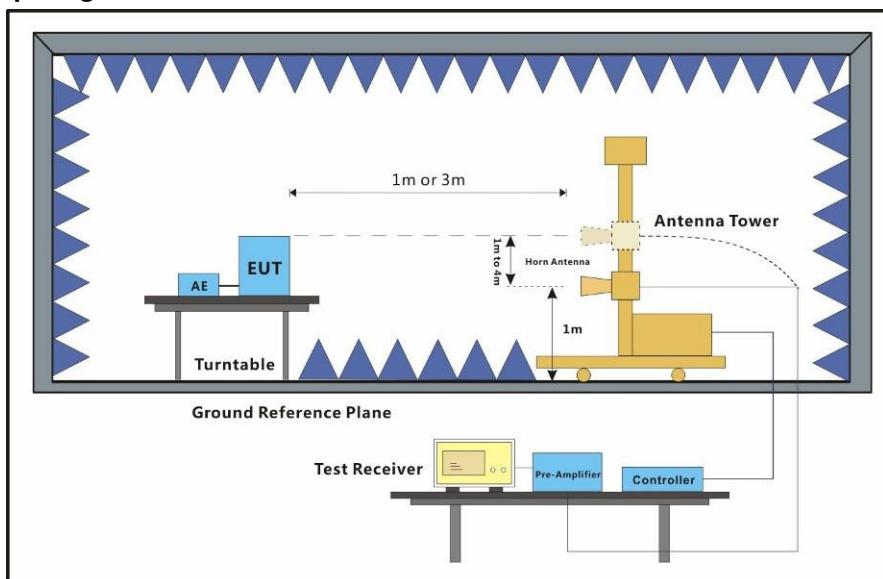
Operating Environment:

Temperature: 21.7 °C Humidity: 56.4 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:
a: EUT + USB cable1 + Adapter

The worst case a: EUT + USB cable1 + Adapter
for final test:

2.1.8 Test Setup Diagram



2.1.9 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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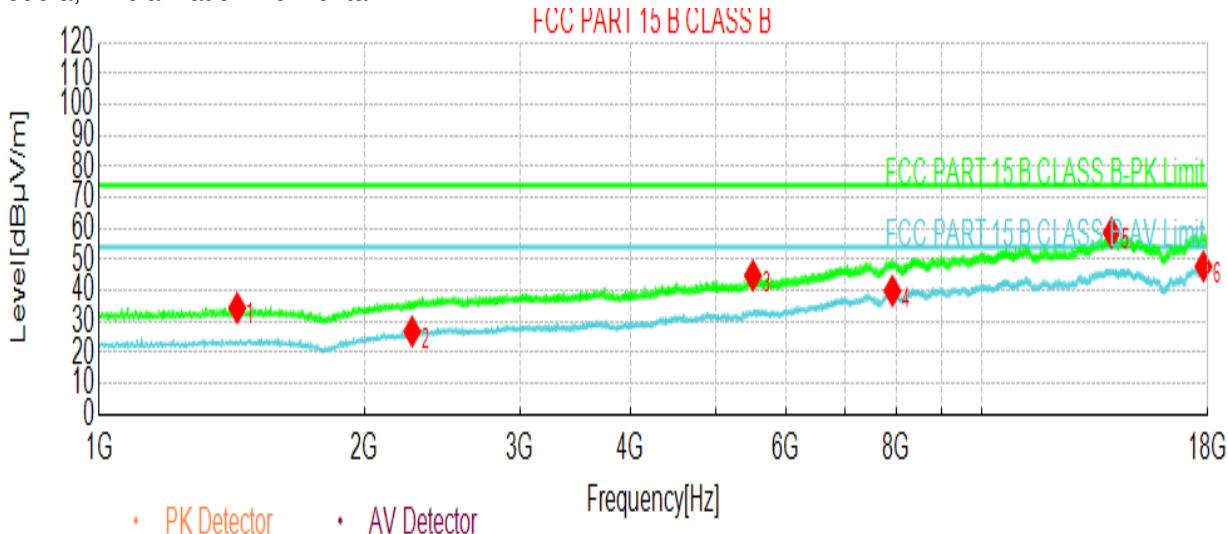
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邮编 710086 sgs.china@sgs.com

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	1434.37	34.44	-30.34	74.00	39.56	209	244	Horizontal
2	2263.16	26.83	-27.20	54.00	27.17	224	92	Horizontal
3	5504.37	44.91	-16.02	74.00	29.09	239	168	Horizontal
4	7917.64	39.94	-8.66	54.00	14.06	177	244	Horizontal
5	14020.1	58.75	2.26	74.00	15.25	208	206	Horizontal
6	17817.2	47.86	0.59	54.00	6.14	132	130	Horizontal

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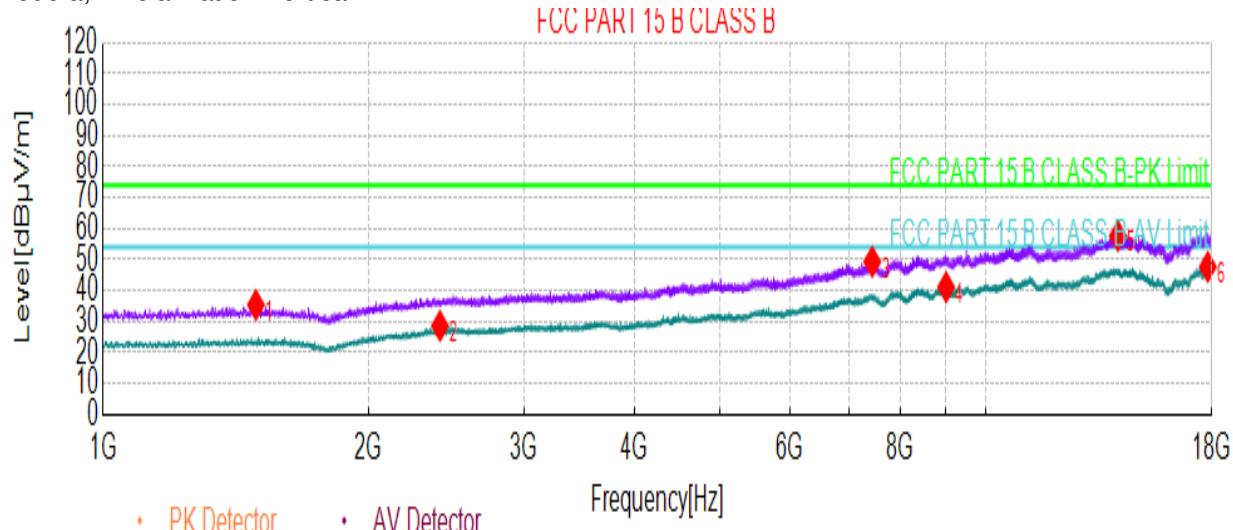
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Mode:a; Polarization:Vertical

**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	1490.47	35.45	-30.42	74.00	38.55	185	77	Vertical
2	2408.52	28.64	-26.44	54.00	25.36	200	192	Vertical
3	7434.82	49.37	-9.89	74.00	24.63	208	77	Vertical
4	9012.50	41.16	-6.72	54.00	12.84	209	307	Vertical
5	14105.9	57.72	2.34	74.00	16.28	287	39	Vertical
6	17831.6	47.71	0.51	54.00	6.29	274	307	Vertical

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3 Equipment List

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
Spectrum Analyzer	Keysight	N9020B	XAW01-11-03	2020-04-15	2021-04-14
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
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+ RE V3.0.0.2	XAW02-05-01	NCR	NCR

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

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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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5 Photographs

5.1 Test Setup

Refer to Appendix A - Photographs of Set-Up for ZR/2020/B0027.

5.2 EUT Constructional Details (EUT Photos)

Refer to Photographs of EUT Constructional Details

- End of the Report -

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