

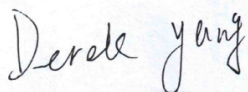
## **TEST REPORT**

**Application No:** ZR/2020/A0038  
**Applicant:** TCL Communication Ltd  
**Address of Applicant:** 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong  
**Manufacturer:** TCL Communication Ltd  
**Address of Manufacturer:** 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong  
**EUT Description:** LTE/WCDMA/GSM mobile phone  
**Model No.:** 5028A  
**Trade Mark:** alcatel  
**FCC ID:** 2ACCJH113  
**Standard(s) :** 47 CFR Part 15, Subpart B  
**Date of Receipt:** 2019-11-12(for original report ZR/2019/B000407)  
**Date of Test:** 2019-11-13 to 2019-11-27(for original report ZR/2019/B000407)  
 2020-11-01 to 2020-11-03(for new report ZR/2020/A003802)  
**Date of Issue:** 2019-12-20(for original report ZR/2019/B000407)  
 2020-11-10(for new report ZR/2020/A003802)

<b>Test Result:</b>	<b>Pass*</b>
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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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<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2020/11/10		Original

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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

Checked By

*David Chen*

David Chen  
Reviewer

Test By

*Daniel Wang*

Daniel Wang  
Project Engineer

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**Remark:**

This test report (Report No.: ZR/2020/A003802) is base on the original test report (Report No.: ZR/2019/B000407) issued on 2019-12-20.

Review this report and original report, this report only add a battery according to the declaration letter from client.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report was performed based on the worst case of the original report with report number ZR/2019/B000407 and other test data in this report are base on the previous report with report number ZR/2019/B000407.

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## 1 General Information

Product Name:	LTE/WCDMA/GSM mobile phone		
Model No.(EUT):	5028A		
Trade Mark:	alcatel		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	WCDMA Band II	1850~1910	1930~1990
	WCDMA Band IV	1710~1755	2110~2155
	WCDMA Band V	824~849	869~894
	LTE Band 2	1850~1910	1930~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869~894
	LTE Band 7	2500~2570	2620~2690
	LTE Band 12	699~716	729~746
	LTE Band 13	777~787	746~756
	LTE Band 17	704~716	734~746
	LTE Band 66	1710~1780	2110~2200
	Wi-Fi 2.4G	2412~2472	2412~2472
Bluetooth	2402~2480	2402~2480	

### Accessory:

	No.	P/N	Remark	Comment
Adaptor	1	CBA0059AGAC5	UC13US; 5.0 V,2000 mA, PUAN;	
	2	CBA0059AGAC7	UC13US; 5.0 V,2000 mA,; CHENGYANG	
USB cable	1	CDA0000024C8	PUAN	
	2	CDA0000024C2	JUWEI	
Headset	1	CCB0046A10C1	JUWEI; alcatel Logo	
	2	CCB0046A10C4	MEIHAO; alcatel Logo	
	3	CCB0046A15C1	JUWEI	Same with CCB0046A10C1, only remove alcatel logo
	4	CCB0046A15C4	MEIHAO	Same with CCB0046A10C4, only remove alcatel logo
Battery	1	CAC3860024C1	TLp038D1; BYD	
	2	CAC3860025C7	TLp038D7; VEKEN;	
	3	CAC3860032CA	TLp038DA;Tianmao	

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## 1.1 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	T430u	REF. No.SEA1800
Mouse	Lenovo	M-U0025-O	REF. No.:SEA2400
Router	NETGEAR	DGN2200	REF. No.SEA2200

## 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
Telephone:	+86 (0) 29 6282 7885
Fax:	+86 (0) 29 6282 7885
E-mail:	ee.xian@sgs.com

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 e: Transfer data between the EUT and the PC+USB cable1

modes to find f: Transfer data between the EUT and the PC+USB cable2

the worst case:

g: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card)  
+earphone1+battery+Cable(worst)+adapter1

h: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card)  
+earphone1+battery+ Cable(worst)+adapter2

i: Telecom Idle+BT+WLAN +GPS Rx+camera (Front) +earphone+battery+  
Cable(worst)+ Cable(worst)+adapter(Worst)

j: Telecom Idle+BT+WLAN +GPS Rx+camera (Back) +earphone+battery+  
Cable(worst)+adapter(Worst)

k: GSM 850+BT+WLAN +GPS Rx+FM+earphone+battery+  
Cable(worst)+adapter(Worst)

l: GSM 1900+BT+WLAN +GPS Rx+ FM+earphone+battery+  
Cable(worst)+adapter(Worst)

m: WCDMA Band II+BT+WLAN +GPS Rx+ FM+earphone+battery+  
Cable(worst)+adapter(Worst)

n: WCDMA Band IV+BT+WLAN +GPS Rx+ FM+earphone+battery+  
Cable(worst)+adapter(Worst)

o: WCDMA Band V+BT+WLAN +GPS Rx+ FM+earphone+battery+  
Cable(worst)+adapter(Worst)

p: LTE band 2+BT+WLAN +GPS Rx+ FM+earphone+battery+  
Cable(worst)+adapter(Worst)

q: LTE band 4+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+  
Cable(worst)+adapter(Worst)

r: LTE band 5+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+

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Cable(worst)+adapter(Worst)

s: LTE band 7+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

t: LTE band 12+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

u: LTE band 13+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

v: LTE band 17+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

w: LTE band 66+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

The worst case for final test:

e: Transfer data between the EUT and the PC+USB cable1

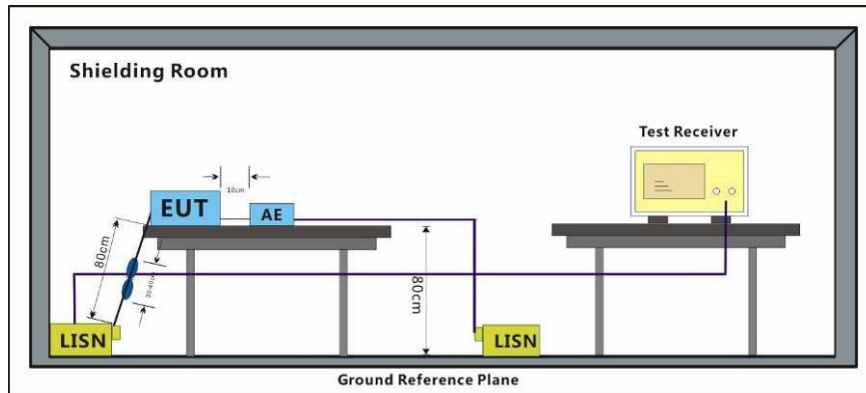
g: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card) +earphone1+battery+Cable1+adapter1

h: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card) +earphone1+battery+ Cable1+adapter2

i: Telecom Idle+BT+WLAN +GPS Rx+camera (Front) +earphone+battery+ Cable1+ Cable1+adapter2

j: Telecom Idle+BT+WLAN +GPS Rx+camera (Back) +earphone+battery+ Cable1+adapter2

### 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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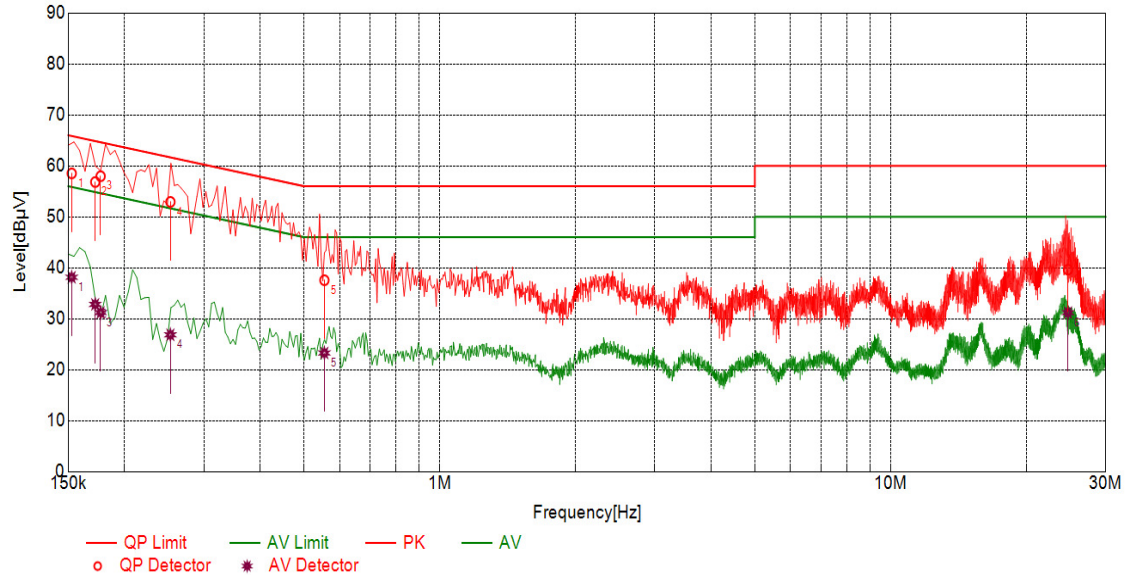
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邮编 710086 [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

Mode:e; 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]	Type
1	0.1527	10.10	58.52	65.85	7.33	38.13	55.85	17.72	L
2	0.1722	10.10	56.82	64.85	8.03	32.82	54.85	22.03	L
3	0.1770	10.10	57.97	64.63	6.66	31.21	54.63	23.42	L
4	0.2528	10.10	52.93	61.67	8.74	26.84	51.67	24.83	L
5	0.5550	10.10	37.56	56.00	18.44	23.28	46.00	22.72	L
6	24.7380	10.11	39.63	60.00	20.37	31.20	50.00	18.80	L

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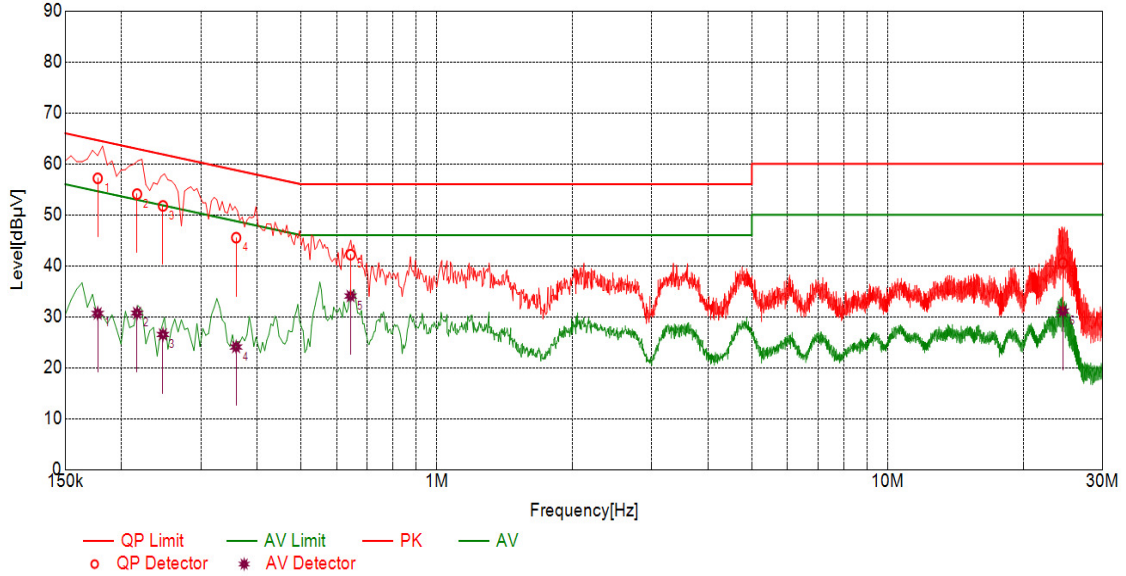
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone:(86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

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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	0.1771	10.10	57.16	64.62	7.46	30.65	54.62	23.97	N
2	0.2165	10.10	54.07	62.95	8.88	30.72	52.95	22.23	N
3	0.2471	10.10	51.75	61.85	10.10	26.51	51.85	25.34	N
4	0.3591	10.10	45.52	58.75	13.23	24.07	48.75	24.68	N
5	0.6443	10.10	42.19	56.00	13.81	34.07	46.00	11.93	N
6	24.4792	10.11	40.52	60.00	19.48	31.11	50.00	18.89	N

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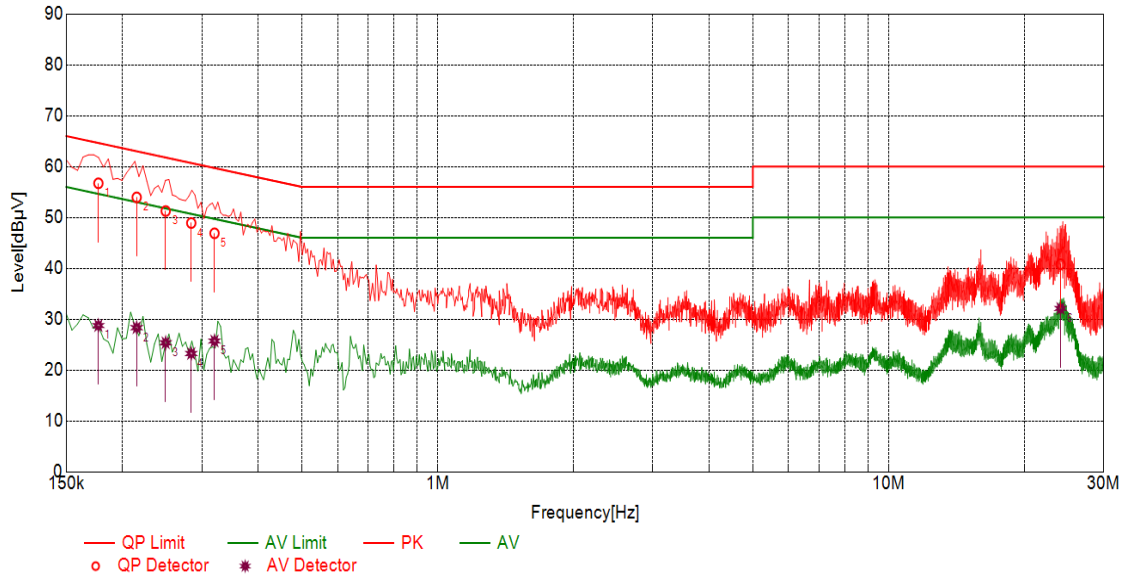
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**Final Data List**

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	0.1768	10.10	56.72	64.63	7.91	28.75	54.63	25.88	L
2	0.2150	10.10	53.95	63.01	9.06	28.33	53.01	24.68	L
3	0.2493	10.10	51.26	61.78	10.52	25.36	51.78	26.42	L
4	0.2841	10.10	48.91	60.70	11.79	23.25	50.70	27.45	L
5	0.3199	10.10	46.89	59.71	12.82	25.71	49.71	24.00	L
6	24.0577	10.11	40.82	60.00	19.18	32.11	50.00	17.89	L

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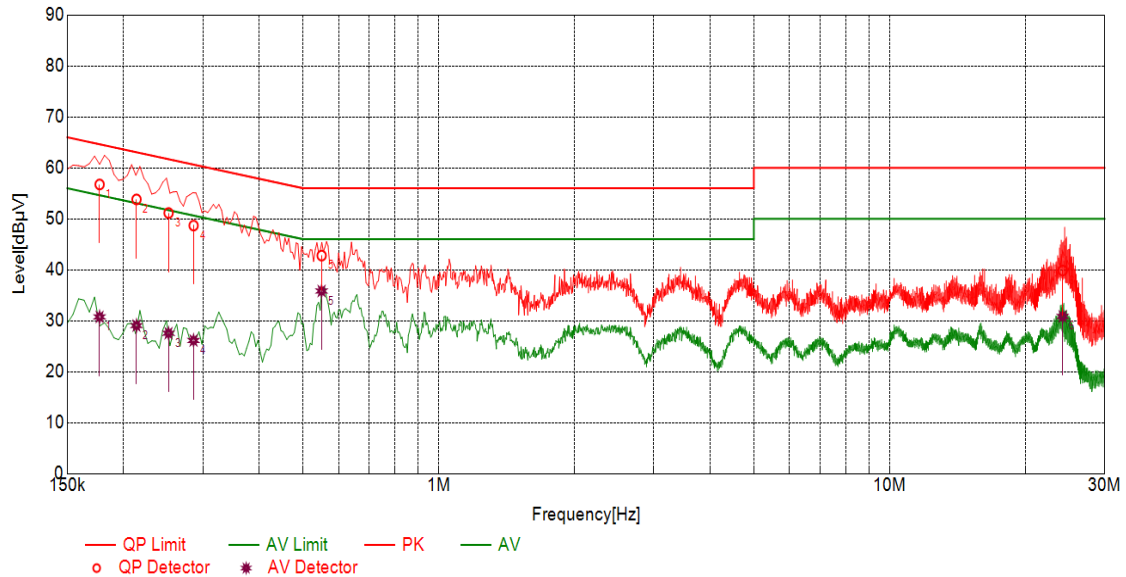
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NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1770	10.10	56.74	64.63	7.89	30.75	54.63	23.88	N
2	0.2137	10.10	53.81	63.06	9.25	29.04	53.06	24.02	N
3	0.2517	10.10	51.14	61.70	10.56	27.54	51.70	24.16	N
4	0.2860	10.10	48.68	60.64	11.96	26.12	50.64	24.52	N
5	0.5499	10.10	42.79	56.00	13.21	35.83	46.00	10.17	N
6	24.2000	10.11	39.86	60.00	20.14	30.85	50.00	19.15	N

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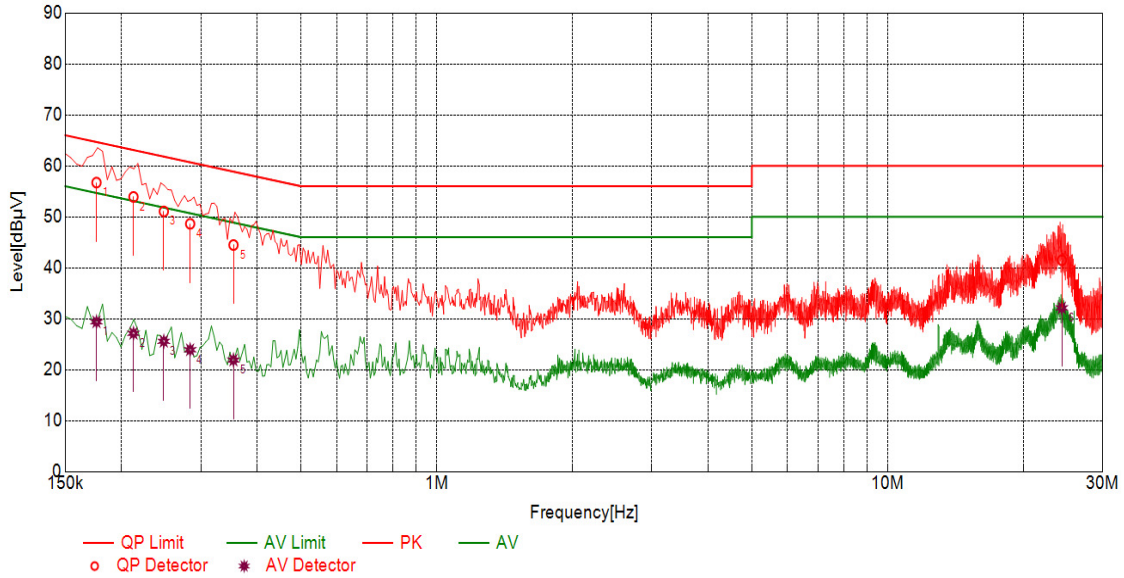
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Mode:h; Line:Live Line



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]	Type
1	0.1760	10.10	56.72	64.67	7.95	29.38	54.67	25.29	L
2	0.2126	10.10	53.90	63.10	9.20	27.13	53.10	25.97	L
3	0.2482	10.10	51.06	61.82	10.76	25.57	51.82	26.25	L
4	0.2839	10.10	48.63	60.70	12.07	23.91	50.70	26.79	L
5	0.3542	10.10	44.47	58.86	14.39	21.89	48.86	26.97	L
6	24.3428	10.11	41.49	60.00	18.51	32.13	50.00	17.87	L

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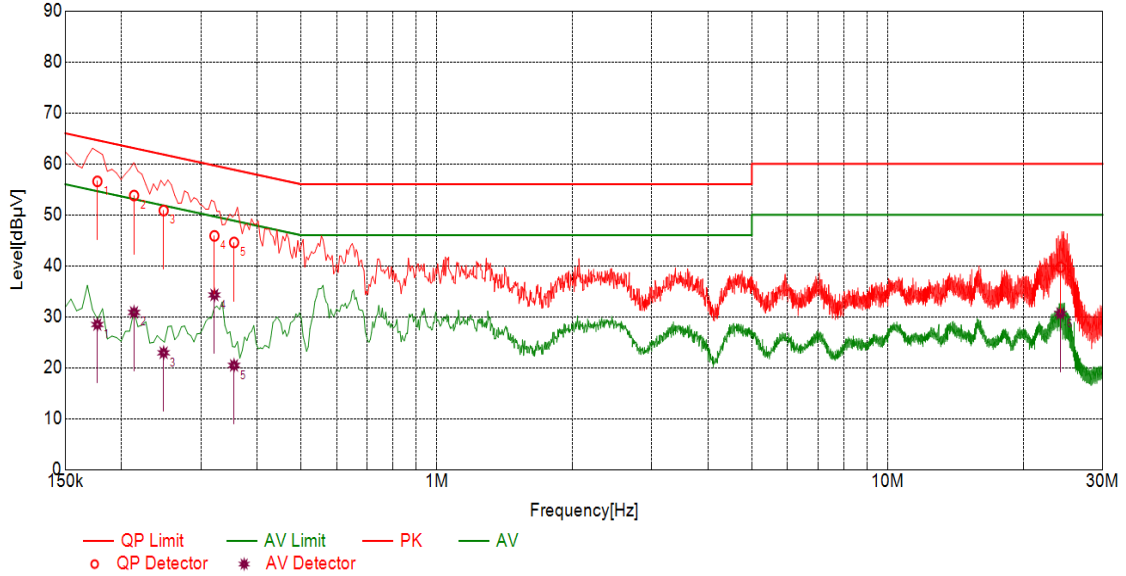
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**Final Data List**

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	0.1768	10.10	56.56	64.64	8.08	28.47	54.64	26.17	N
2	0.2132	10.10	53.78	63.08	9.30	30.85	53.08	22.23	N
3	0.2480	10.10	50.84	61.82	10.98	22.93	51.82	28.89	N
4	0.3214	10.10	45.87	59.67	13.80	34.28	49.67	15.39	N
5	0.3553	10.10	44.58	58.84	14.26	20.45	48.84	28.39	N
6	24.1668	10.11	39.74	60.00	20.26	30.63	50.00	19.37	N

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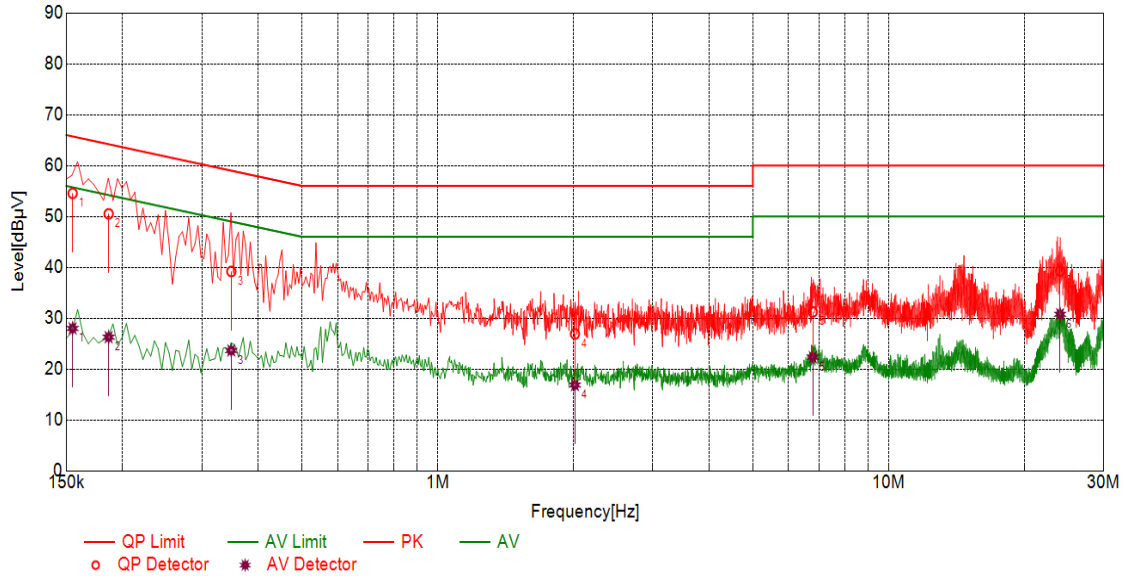
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**Test on the worst case:**

Mode:i; 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]
1	0.1550	10.10	54.54	65.73	11.19	27.99	55.73	27.74
2	0.1863	10.10	50.51	64.20	13.69	26.27	54.20	27.93
3	0.3486	10.10	39.20	59.00	19.80	23.65	49.00	25.35
4	2.0153	10.10	26.91	56.00	29.09	16.87	46.00	29.13
5	6.7898	10.10	31.25	60.00	28.75	22.34	50.00	27.66
6	24.0123	10.11	39.30	60.00	20.70	30.77	50.00	19.23

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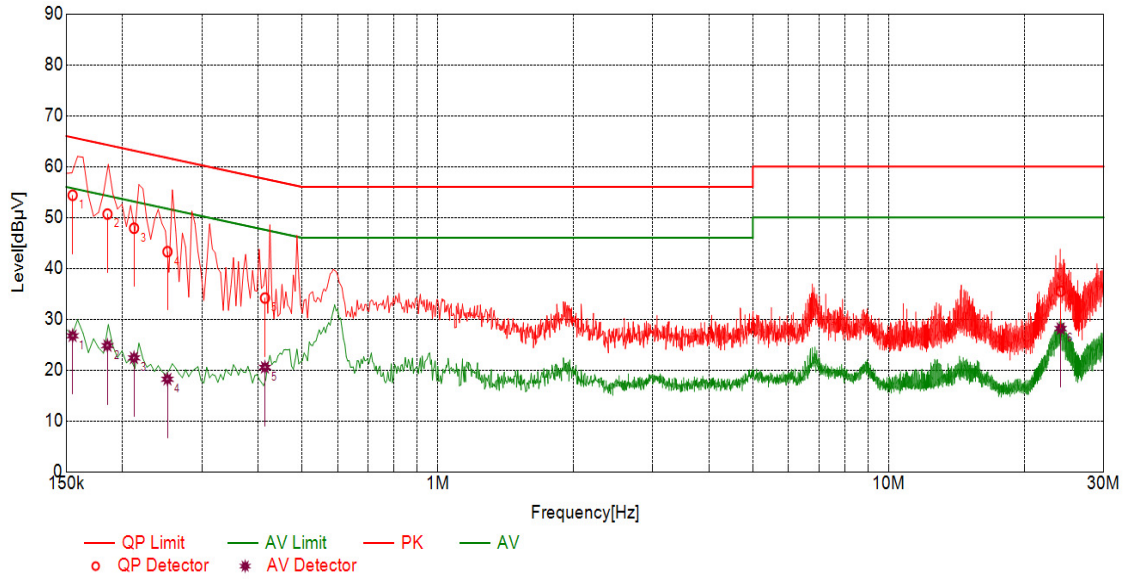
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Mode:i; Line:Neutral Line



**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	0.1550	10.10	54.36	65.73	11.37	26.74	55.73	28.99
2	0.1852	10.10	50.66	64.25	13.59	24.80	54.25	29.45
3	0.2121	10.10	47.89	63.12	15.23	22.40	53.12	30.72
4	0.2516	10.10	43.27	61.71	18.44	18.21	51.71	33.50
5	0.4139	10.10	34.16	57.57	23.41	20.54	47.57	27.03
6	24.0736	10.11	35.50	60.00	24.50	28.16	50.00	21.84

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邮编 710086 sgs.china@sgs.com

## 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(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

### 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:
- e: Transfer data between the EUT and the PC+USB cable1
  - f: Transfer data between the EUT and the PC+USB cable2
  - g: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card) +earphone1+battery+Cable(worst)+adapter1
  - h: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card) +earphone1+battery+ Cable(worst)+adapter2
  - i: Telecom Idle+BT+WLAN +GPS Rx+camera (Front) +earphone+battery+ Cable(worst)+ Cable(worst)+adapter(Worst)
  - j: Telecom Idle+BT+WLAN +GPS Rx+camera (Back) +earphone+battery+ Cable(worst)+adapter(Worst)
  - k: GSM 850+BT+WLAN +GPS Rx+FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - l: GSM 1900+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - m: WCDMA Band II+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - n: WCDMA Band IV+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - o: WCDMA Band V+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - p: LTE band 2+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - q: LTE band 4+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)
  - r: LTE band 5+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+

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Cable(worst)+adapter(Worst)

s: LTE band 7+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

t: LTE band 12+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

u: LTE band 13+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

v: LTE band 17+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

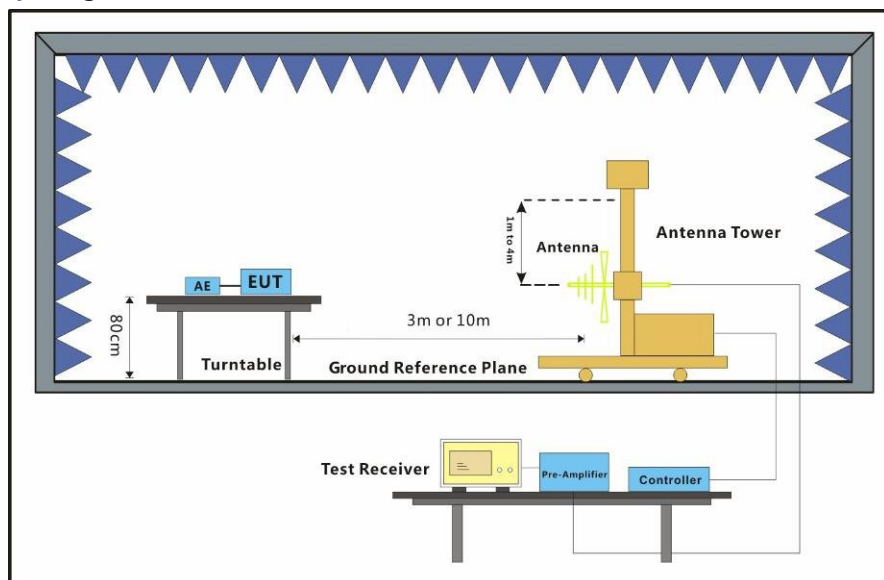
w: LTE band 66+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)

The worst case for final test:

f: Transfer data between the EUT and the PC+USB cable2

h: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card) +earphone1+battery+ Cable1+adapter2

### 2.1.5 Test Setup Diagram



### 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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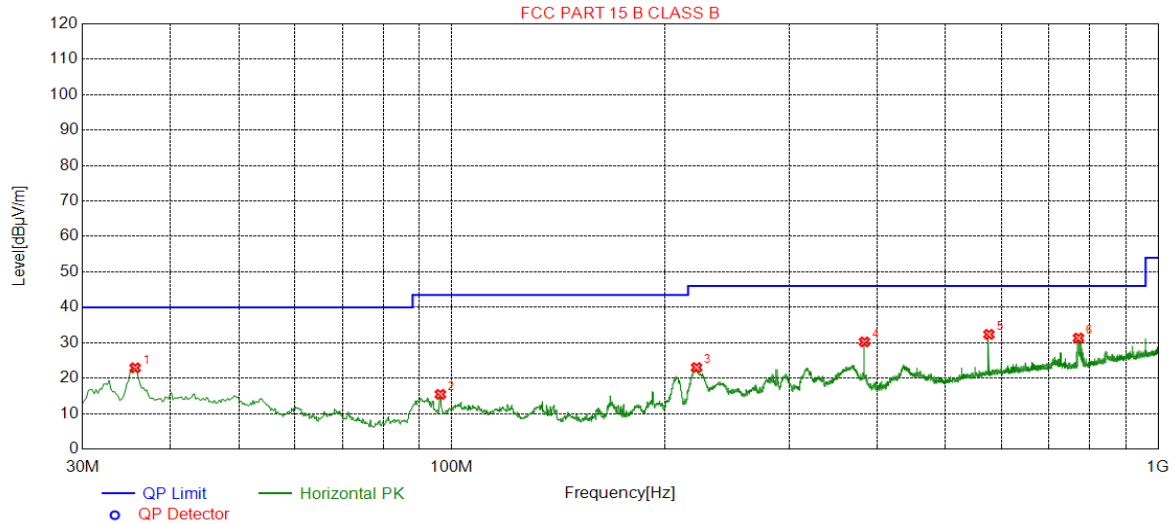
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邮编 710086 [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

Mode:f; Polarization:Horizontal



**Suspected List**

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.6271	22.91	-29.76	40.00	17.09	200	258	Horizontal
2	96.3613	15.43	-32.65	43.50	28.07	200	88	Horizontal
3	222.0984	23.00	-30.65	46.00	23.00	100	214	Horizontal
4	383.9268	30.24	-25.95	46.00	15.76	100	20	Horizontal
5	576.0252	32.36	-21.31	46.00	13.64	200	49	Horizontal
6	771.2282	31.32	-18.10	46.00	14.68	200	68	Horizontal

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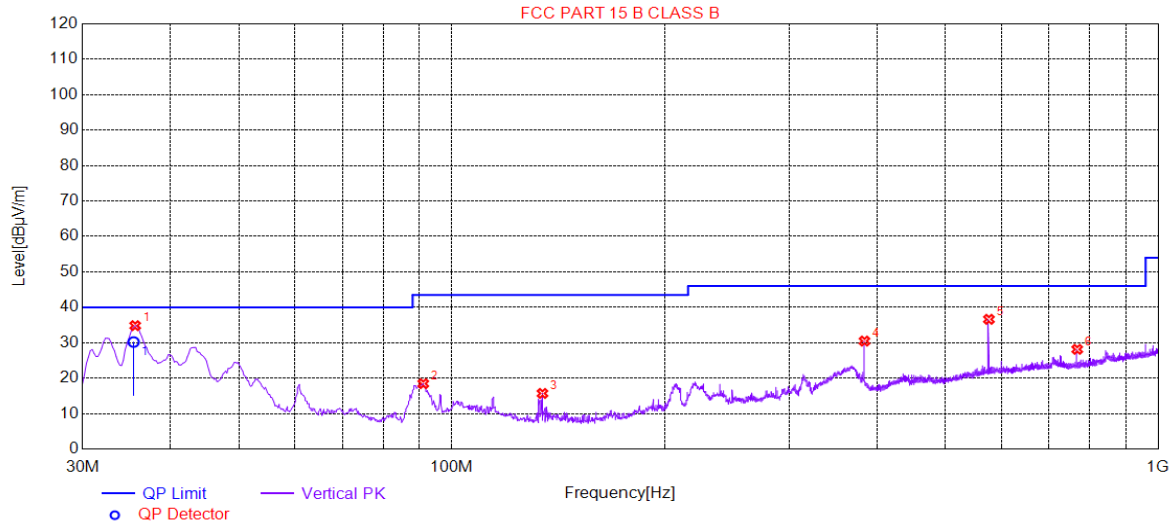
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Mode:f; Polarization:Vertical



**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.6271	34.82	-29.76	40.00	5.18	100	14	Vertical
2	91.1222	18.45	-33.53	43.50	25.05	100	80	Vertical
3	134.3929	15.70	-35.28	43.50	27.80	100	284	Vertical
4	383.9268	30.47	-25.95	46.00	15.53	200	195	Vertical
5	576.0252	36.61	-21.31	46.00	9.39	100	295	Vertical
6	768.1236	28.14	-18.13	46.00	17.86	100	44	Vertical

**Final Data List**

Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.4391	-29.82	30.21	40.00	9.79	121.6	359.5	Vertical

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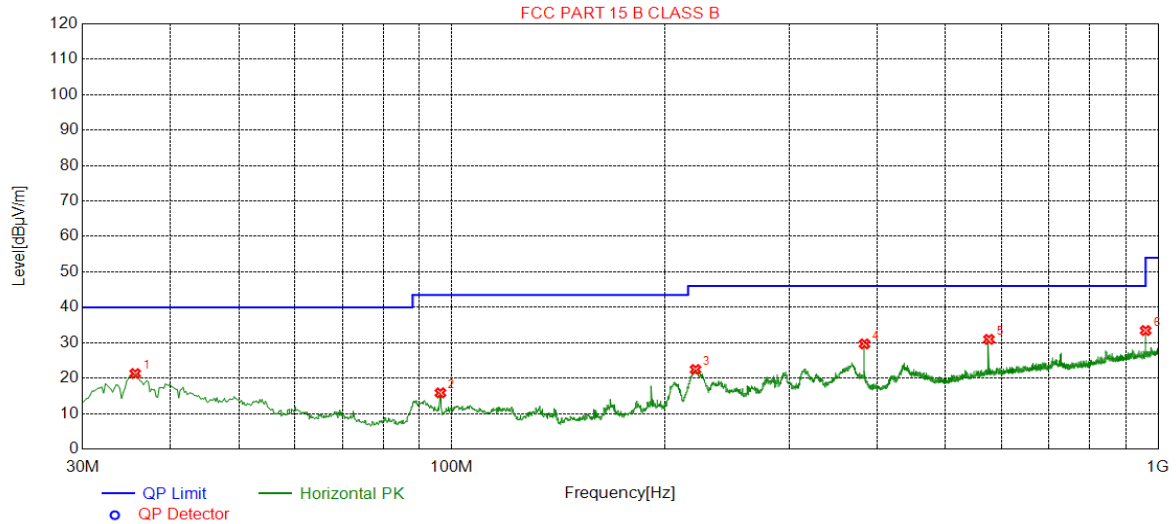
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邮编 710086 sgs.china@sgs.com

Mode:h; Polarization:Horizontal



**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.6271	21.30	-29.76	40.00	18.70	200	256	Horizontal
2	96.3613	15.86	-32.65	43.50	27.64	200	259	Horizontal
3	221.322	22.45	-30.67	46.00	23.55	100	238	Horizontal
4	383.926	29.66	-25.95	46.00	16.34	100	346	Horizontal
5	576.025	30.95	-21.31	46.00	15.05	100	163	Horizontal
6	960.028	33.44	-15.34	54.00	20.56	100	289	Horizontal

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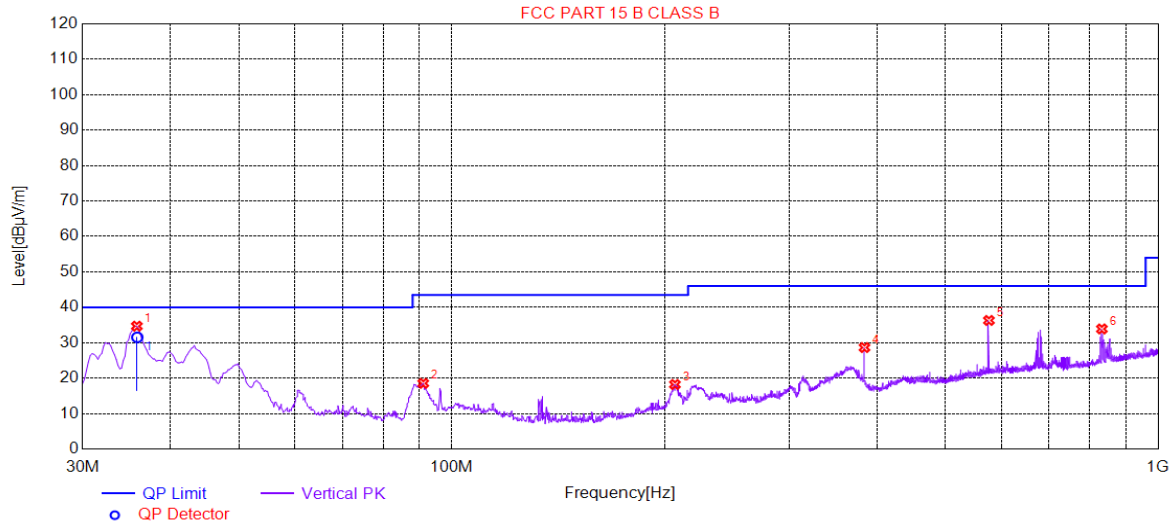
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Mode:h; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.8212	34.67	-29.69	40.00	5.33	100	340	Vertical
2	91.1222	18.54	-33.53	43.50	24.96	200	76	Vertical
3	206.9634	18.22	-31.04	43.50	25.28	100	220	Vertical
4	383.9268	28.64	-25.95	46.00	17.36	200	165	Vertical
5	576.0252	36.29	-21.31	46.00	9.71	100	289	Vertical
6	832.3505	33.89	-17.20	46.00	12.11	200	314	Vertical

**Final Data List**

Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.8642	-29.68	31.52	40.00	8.48	102.1	328.2	Vertical

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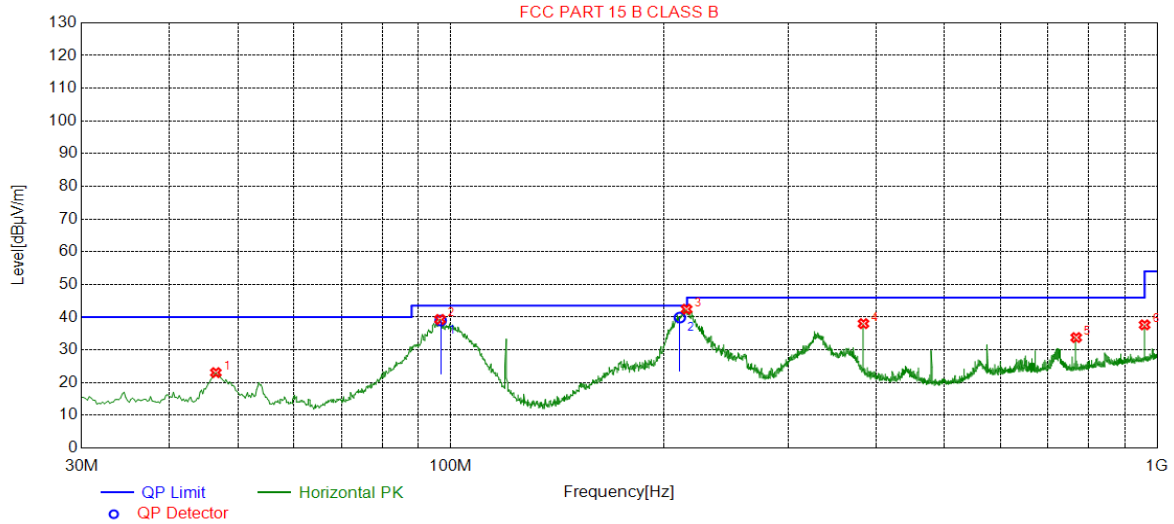
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**Test on the worst case:**

Mode:h; Polarization:Horizontal



**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	46.4933	23.05	-30.41	40.00	16.95	200	98	Horizontal
2	96.5553	39.31	-32.61	43.50	4.19	200	54	Horizontal
3	215.695	42.45	-30.83	43.50	1.05	100	18	Horizontal
4	383.926	38.03	-25.95	46.00	7.97	200	131	Horizontal
5	768.123	33.77	-18.13	46.00	12.23	100	65	Horizontal
6	960.028	37.66	-15.34	54.00	16.34	100	88	Horizontal

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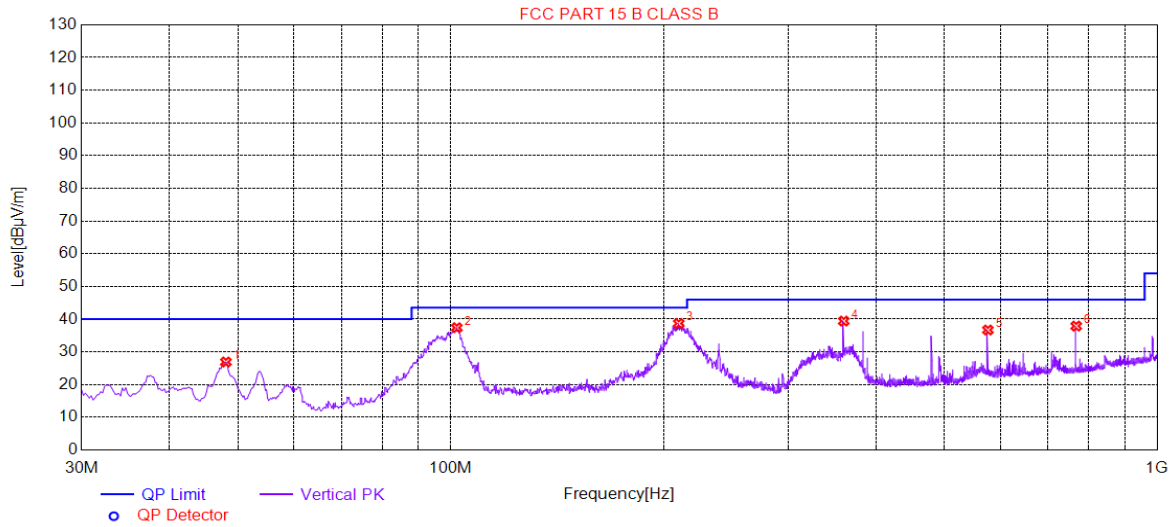
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Mode:h; Polarization:Vertical



**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.0456	26.91	-30.39	40.00	13.09	100	337	Vertical
2	101.988	37.39	-32.00	43.50	6.11	100	158	Vertical
3	210.262	38.69	-30.97	43.50	4.81	100	261	Vertical
4	360.060	39.43	-26.60	46.00	6.57	100	103	Vertical
5	576.025	36.70	-21.31	46.00	9.30	100	115	Vertical
6	768.123	37.90	-18.13	46.00	8.10	100	191	Vertical

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邮编 710086 sgs.china@sgs.com

## 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(dBμV/m) peak, 54(dBμV/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:
- e: Transfer data between the EUT and the PC+USB cable1
  - f: Transfer data between the EUT and the PC+USB cable2
  - g: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card) +earphone1+battery+Cable(worst)+adapter1
  - h: Telecom Idle+BT+WLAN +GPS Rx+playing MP4 (SD card) +earphone1+battery+ Cable(worst)+adapter2
  - i: Telecom Idle+BT+WLAN +GPS Rx+camera (Front) +earphone+battery+ Cable(worst)+ Cable(worst)+adapter(Worst)
  - j: Telecom Idle+BT+WLAN +GPS Rx+camera (Back) +earphone+battery+ Cable(worst)+adapter(Worst)
  - k: GSM 850+BT+WLAN +GPS Rx+FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - l: GSM 1900+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - m: WCDMA Band II+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - n: WCDMA Band IV+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - o: WCDMA Band V+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - p: LTE band 2+BT+WLAN +GPS Rx+ FM+earphone+battery+ Cable(worst)+adapter(Worst)
  - q: LTE band 4+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)
  - r: LTE band 5+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)
  - s: LTE band 7+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+ Cable(worst)+adapter(Worst)
  - t: LTE band 12+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+

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Cable(worst)+adapter(Worst)

u: LTE band 13+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+  
Cable(worst)+adapter(Worst)

v: LTE band 17+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+  
Cable(worst)+adapter(Worst)

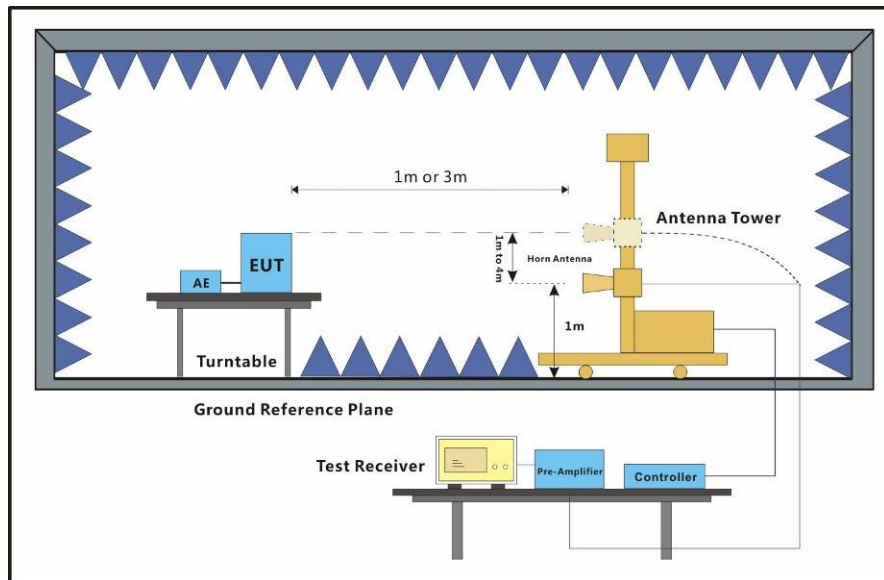
w: LTE band 66+BT+WLAN +GPS Rx+ FM+earphone(worst)+battery(worst)+  
Cable(worst)+adapter(Worst)

The worst case  
for final test:

e: Transfer data between the EUT and the PC+USB cable1

j: Telecom Idle+BT+WLAN +GPS Rx+camera (Back) +earphone+battery+  
Cable1+adapter2

### 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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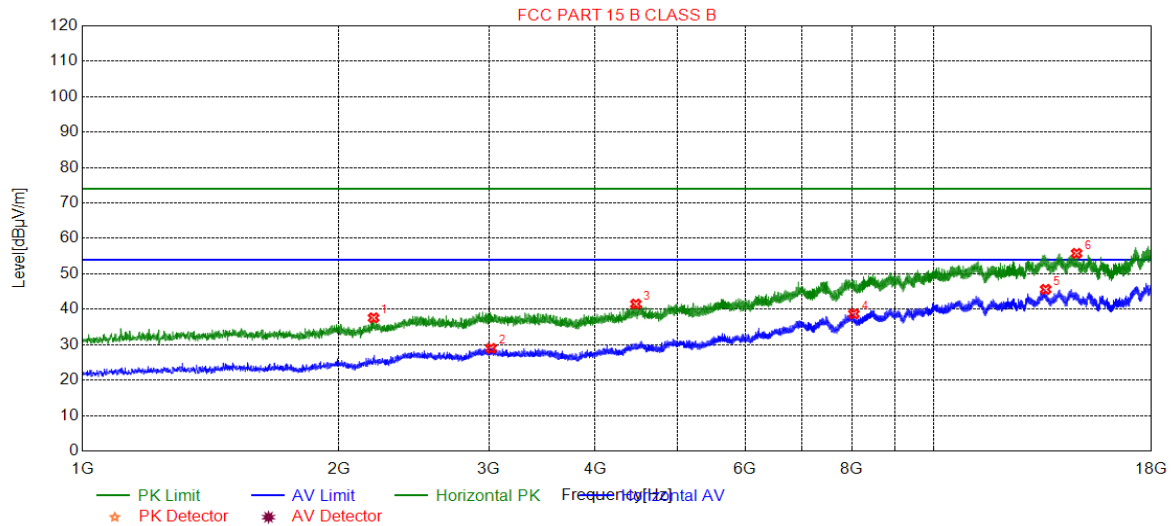
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Mode:e; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2196.8598	37.59	-27.47	74.00	36.41	100	74	Horizontal
2	3018.0009	28.97	-24.40	54.00	25.03	100	225	Horizontal
3	4463.9232	41.49	-20.47	74.00	32.51	100	225	Horizontal
4	8049.4025	38.71	-10.33	54.00	15.29	100	18	Horizontal
5	13519.426	45.62	-0.46	54.00	8.38	100	18	Horizontal
6	14697.584	55.78	-1.16	74.00	18.22	100	175	Horizontal

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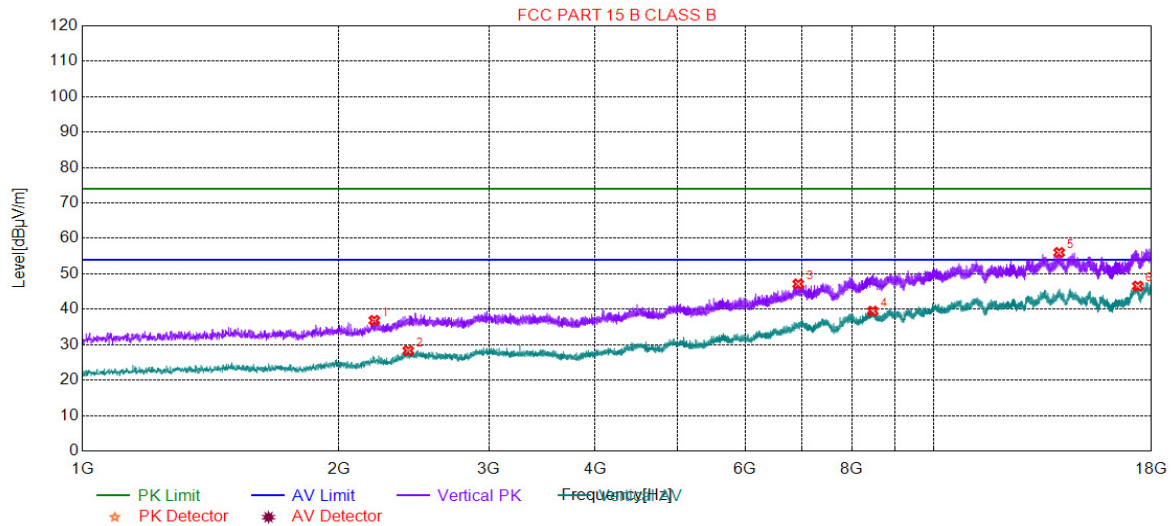
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Mode:e; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2201.1101	36.86	-27.43	74.00	37.14	100	241	Vertical
2	2412.7706	28.32	-25.99	54.00	25.68	100	0	Vertical
3	6924.7962	47.14	-12.91	74.00	26.86	100	0	Vertical
4	8471.0236	39.48	-9.16	54.00	14.52	100	291	Vertical
5	14020.101	56.03	-0.64	74.00	17.97	100	141	Vertical
6	17341.217	46.54	-1.60	54.00	7.46	100	90	Vertical

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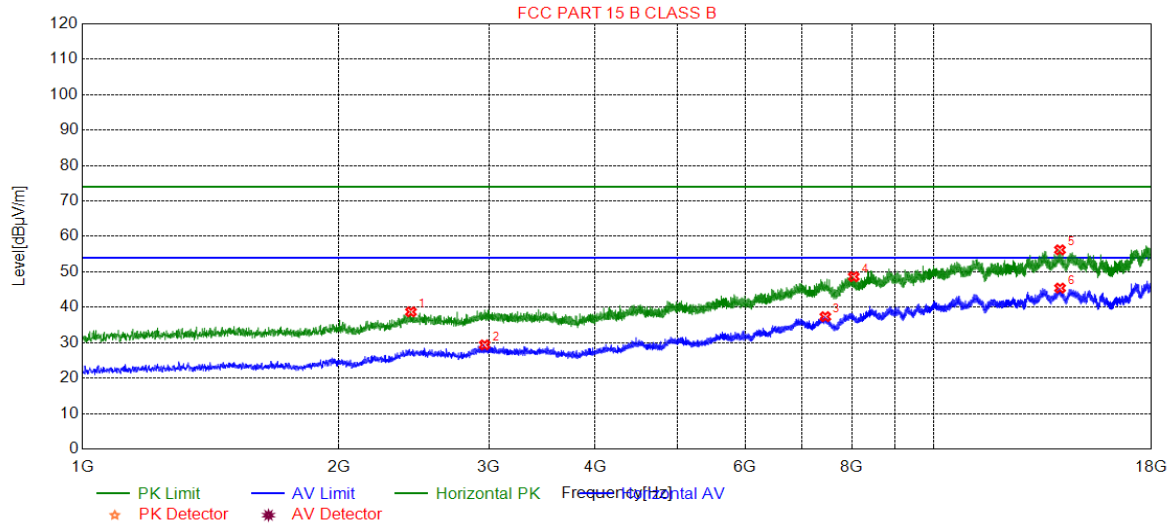
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Mode:j; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2430.6215	38.71	-25.97	74.00	35.29	100	170	Horizontal
2	2966.1483	29.39	-24.54	54.00	24.61	100	120	Horizontal
3	7450.9725	37.35	-12.01	54.00	16.65	100	69	Horizontal
4	8046.0023	48.64	-10.30	74.00	25.36	100	271	Horizontal
5	14050.702	56.21	-0.67	74.00	17.79	100	271	Horizontal
6	14054.102	45.41	-0.67	54.00	8.59	100	360	Horizontal

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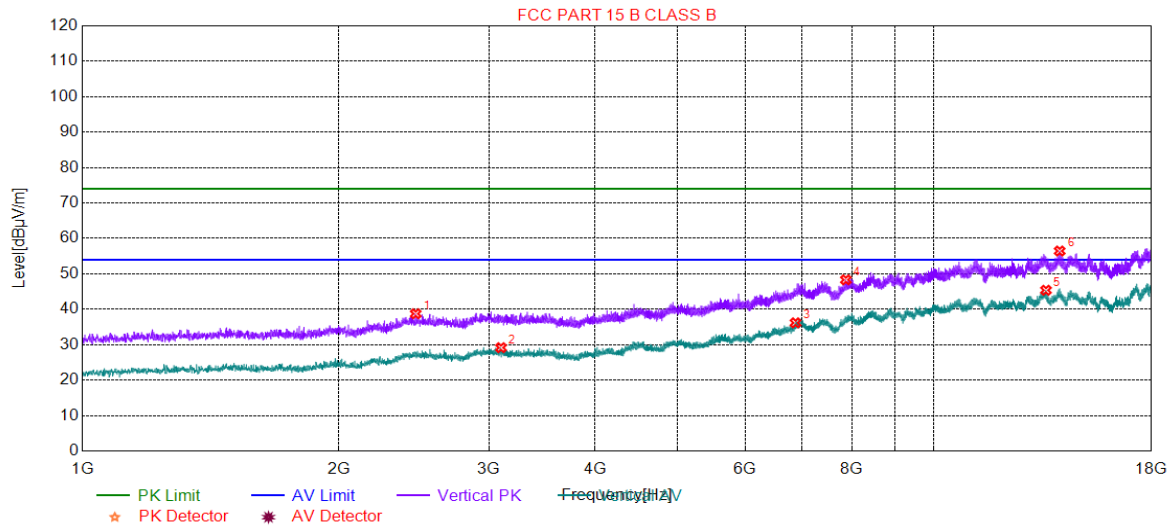
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Mode:j; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2462.0731	38.74	-25.94	74.00	35.26	100	142	Vertical
2	3100.4550	29.17	-24.45	54.00	24.83	100	243	Vertical
3	6874.6437	36.18	-13.32	54.00	17.82	100	142	Vertical
4	7876.8438	48.32	-10.79	74.00	25.68	100	342	Vertical
5	13529.626	45.38	-0.60	54.00	8.62	100	0	Vertical
6	14040.502	56.45	-0.66	74.00	17.55	100	243	Vertical

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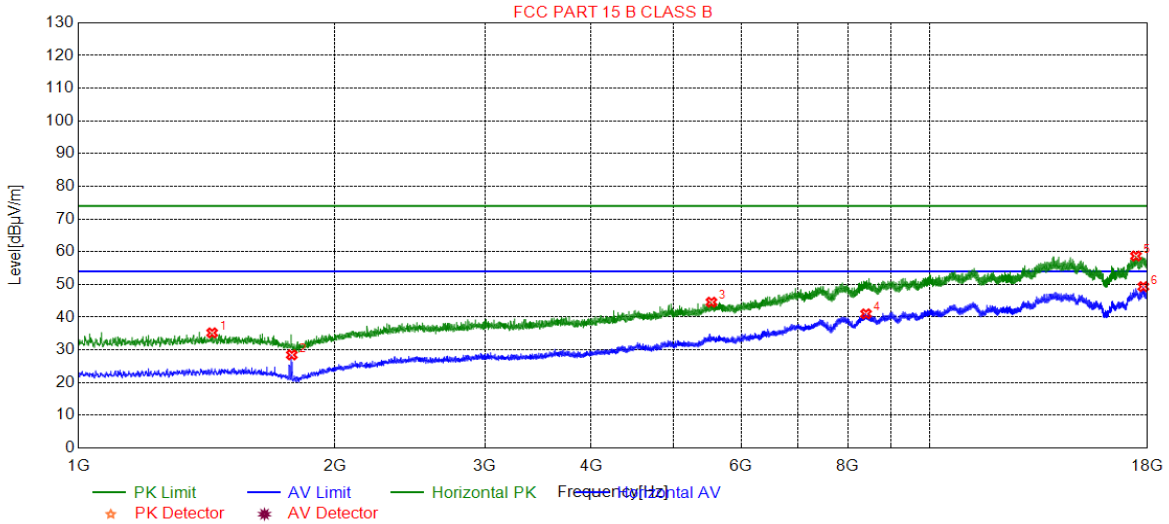
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**Test on the worst case:**

Mode:e; Polarization:Horizontal



**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1435.22	35.21	-30.34	74.00	38.79	100	154	Horizontal
2	1780.33	28.47	-32.12	54.00	25.53	200	206	Horizontal
3	5536.67	44.60	-15.97	74.00	29.40	100	344	Horizontal
4	8408.12	41.02	-7.77	54.00	12.98	100	41	Horizontal
5	17446.6	58.70	0.96	74.00	15.30	200	92	Horizontal
6	17795.1	49.34	0.71	54.00	4.66	100	79	Horizontal

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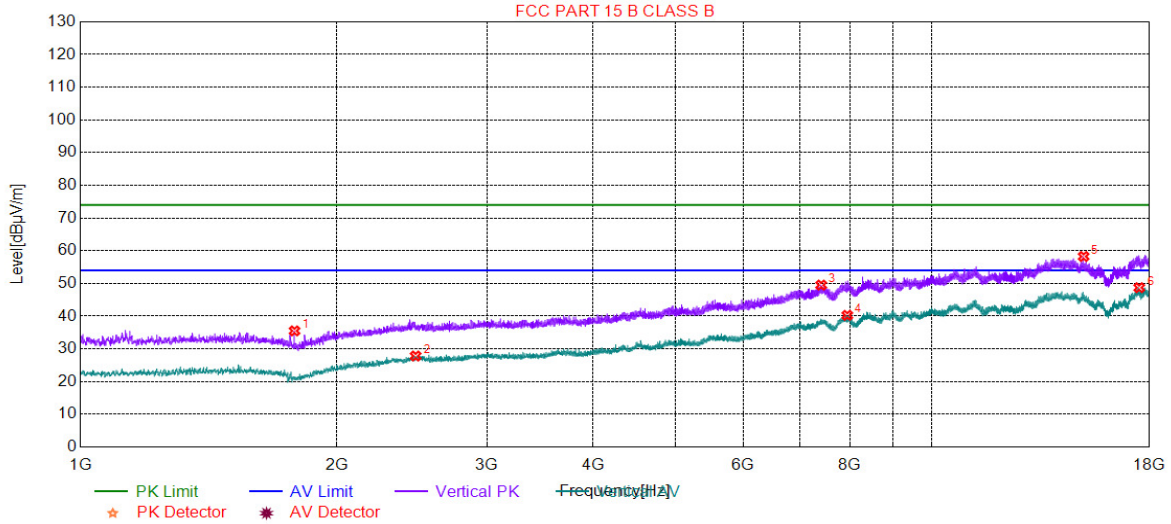
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Mode:e; Polarization:Vertical



**Suspected List**

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1783.73	35.51	-32.17	74.00	38.49	100	117	Vertical
2	2474.82	27.82	-26.01	54.00	26.18	200	280	Vertical
3	7408.47	49.51	-9.96	74.00	24.49	100	193	Vertical
4	7949.94	40.26	-8.44	54.00	13.74	200	280	Vertical
5	15059.7	58.26	1.72	74.00	15.74	100	155	Vertical
6	17504.4	48.72	1.61	54.00	5.28	200	91	Vertical

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### 3 Equipment List

Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date	Cal.Due date
				(yyyy-mm-dd)	(yyyy-mm-dd)
Semi-Anechoic Chamber	Brilliant-emc	966	XAW03-35-01	NCR	NCR
MXA signal analyzer	Keysight	N9020A	XAW01-06-01	2020/4/2	2021/4/2
Radio communication analyzer	ROHDE&SCHWARZ	CMW 500	XAW01-03-02	2020/4/2	2021/4/2
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-01	2020/9/7	2021/9/6
Receiving antenna	Rosenberger	VULB 9163	XAW01-09-01	2019/10/13	2021/10/12
Receiving antenna	Rosenberger	BBHA 9120D	XAW01-09-02	2019/10/13	2021/10/12
Receiving antenna	Rosenberger	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	2019/11/18	2020/11/18
Amplifier	Tonscend	TAP01018048	XAW01-41-02	2019/11/18	2020/11/18
Amplifier	Tonscend	TAP18040048	XAW01-41-03	2019/12/3	2020/12/3
Amplifier	Brilliant-emc	YX28980930	XAW01-41-06	2019/11/18	2020/11/18
Artificial network	ROHDE&SCHWARZ	ENV216	XAW01-19-02	2020/9/16	2021/9/15

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## 4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.4dB (150kHz to 30MHz)
2	Radiated Emission	± 4.8dB (30MHz-1GHz)
		± 5.2dB (1GHz-6GHz)
		± 5.5dB (6GHz-18GHz)
		± 5.02dB (18GHz-40GHz)

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## 5 Photographs

### 5.1 Test Setup

Refer to Appendix A - Photographs of Set-Up for ZR/2020/A0038

### 5.2 EUT Constructional Details (EUT Photos)

Refer to Photographs of EUT Constructional Details

- End of the Report -

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