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Revision History

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1. General Information

1.1 Applicant & Manufacturer Information

Applicant : Huawei Technologies Co., Ltd.
Address of Applicant : Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Manufacturer : Huawei Technologies Co., Ltd.
Address of Manufacturer : Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.2 General Description of EUT

Product Name : Smart Phone
Brand Name : HUAWEI
Model No. : HUAWEI MLA-L13

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Link+GPS Link+USB:FOXCONN
+ADP:HW-050200U01 #BYD+Camera
Rear REC

Mode 3. Earphone: Quancheng +BT Link+WiFi
Link+GPS Link+USB:FOXCONN
+ADP:HW-050200U01 #BYD+GSM:850 Link

Mode 4. Earphone: Quancheng +BT Link+WiFi
Link+GPS Link+USB:Luxshareict
+ADP:HW-050200U01 #BYD+3G:B1 Link

Mode 5. Earphone: Quancheng +BT Link+WiFi
Link+GPS Link+USB:Hongin+ADP:H
W-050200U01 #BYD+LTE:B7 Link

Mode 6. Earphone: Quancheng +BT Link+WiFi
Link+GPS Link+USB:
FOXCONN+ADP:HW-050200U01
#BYD+FM(For CE)

Mode 7. Earphone: Quancheng Worst+BT

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Mode 10. Earphone: Quancheng+BT
Link+WiFi Link+GPS Link
+USB:FOXCONN + ADP:HW-

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1.4 Operation Procedure

Test Mode: 1

1. EUTconnected to AC ADAPTER power supply, EUT WiFi and NB connected to the same AP data link. Open BT LINK Speaker, GPS LINK GPS simulator, AUDIO Port access Earphone
2. Turn on the camera Front REC.
3. Start the test.

Test Mode: 2, 8, 10

1. EUTconnected to AC ADAPTER power supply, EUT WiFi and NB connected to the same AP data link. Open BT LINK Speaker, GPS LINK GPS simulator, AUDIO Port access Earphone
2. Turn on the camera Rear REC.
3. Start the test.

Test Mode: 3, 4, 5, 9, 11

1. EUTconnected to AC ADAPTER power supply, EUT WiFi and NB connected to the same AP data link. Open BT LINK Speaker, GPS LINK GPS simulator, AUDIO Port access Earphone
2. EUT inserted a SIM card, open the GSM LINK Phone: 2G: 850 & 3G: B2 & LTE: B7 call
3. Start the test.

Test Mode: 6

1. EUTconnected to AC ADAPTER power supply, EUT WiFi and NB connected to the same AP data link. Open BT LINK Speaker, GPS LINK GPS simulator,
2. FM LINK FM signal generator.
3. Start the test.

Test Mode: 11

1. EUT AUDIO Port pick Earphone.
2. PC data write in Micro SD.
3. Start the test.

Test Mode: 12

1. EUT AUDIO Port pick Earphone.
2. Micro SD write data to PC.
3. Start the test.



1.5 Description of Support Units

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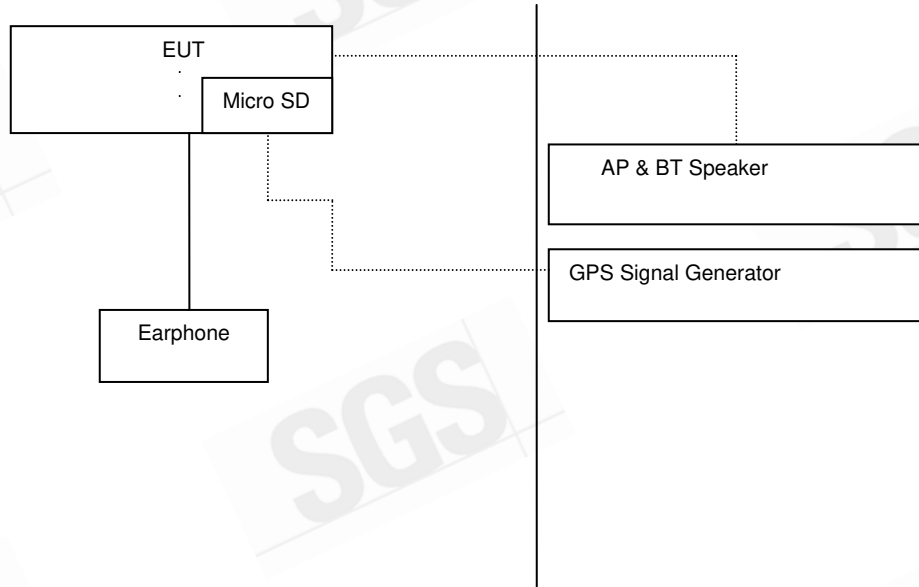
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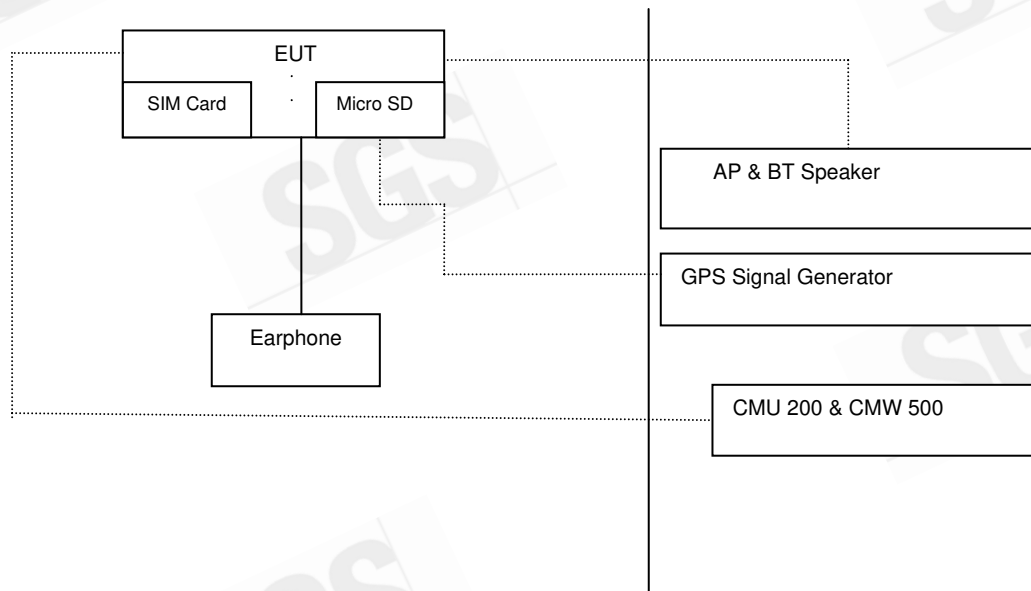


1.8 Test Set-Up Configuration

Mode 1~2



Mode 3~5, 8-11



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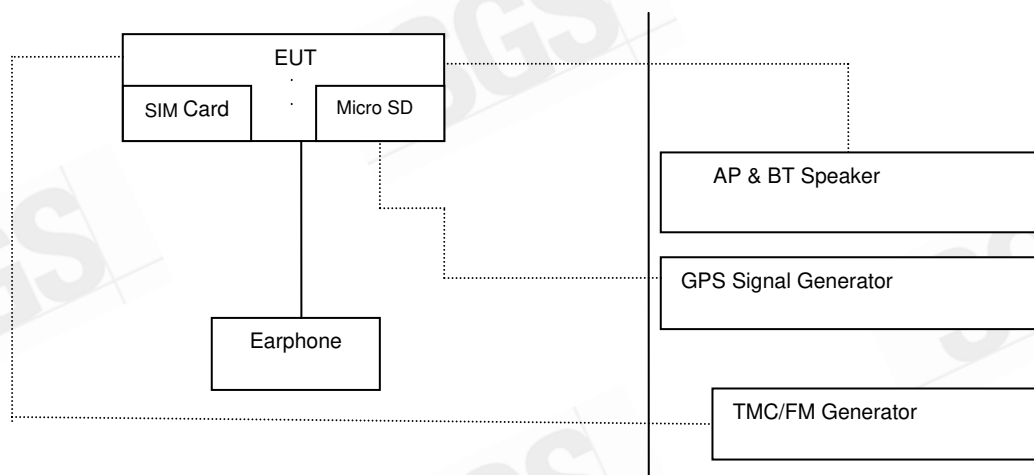
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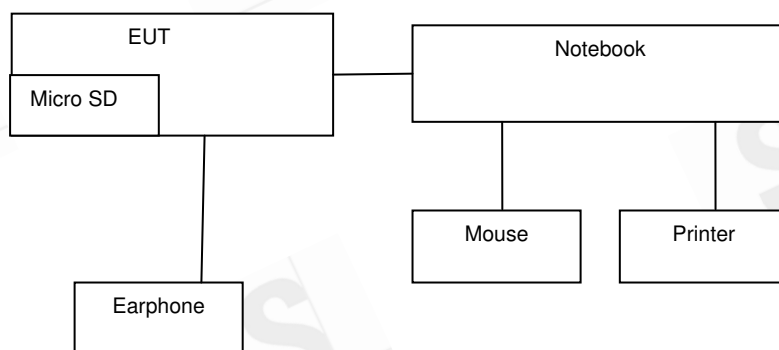
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Mode 6, 7



Mode 12-13



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1.9 Measurement Procedure

Conducted Emission Testing was performed according to ANSI C63.4:2014 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall.

Exploratory measurements shall be used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, with typical cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation may be performed within the range of likely configurations. For this measurement or series of measurements, the frequency spectrum of interest shall be monitored looking for the emission that has the highest amplitude relative to the limit.

Once that emission is found for each current-carrying conductor of each power cord associated with the EUT (but not the cords associated with non-EUT equipment in the overall system), the one configuration and arrangement and mode of operation that produces the emission closest to the limit across all the measured conductors is recorded.

Radiated Emission Testing was performed according to ANSI C63.4:2014 at the 10m semi-anechoic chamber. The EUT was placed on a 0.8m high table along with the peripherals. The turn table was placed 10m distance from the antenna. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for production of maximum emission.

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For 9kHz to 1GHz Exploratory radiated emissions measurements, follow below procedure:

- a) Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and recorded in tabular or graphical form. Significant emissions are identified using a remote-controlled turntable and antenna positioner and monitoring the spectrum while changing the EUT (turntable) azimuth, antenna polarity, and height. This spectrum exploratory monitoring can also be performed by manually moving the receiving antenna around the EUT to pick up significant emissions. A shielded room may be used for exploratory testing, but care must be taken to account for shielded room reflections that can lead to significant errors in amplitude measurements.
- b) Broadband antennas and a spectrum analyzer or an EMI receiver with a panoramic display are most often used in this type of testing. It is recommended that either a headset or loudspeaker be connected as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT when the exploratory and final testing is performed at an OATS with strong ambient signals. Caution should be taken if either antenna heights between 1 m and 4 m or EUT azimuth is not fully explored. Not fully exploring these parameters during exploratory testing may require complete testing at the OATS or semi-anechoic chamber when the final full spectrum testing is conducted.

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- c) The EUT should be set up in its typical configuration and arrangement and operated in its various modes. For tabletop systems, cables or wires not bundled in the initial setup shall be manipulated within the range of likely arrangements. For floor-standing equipment, the cables or wires should be located in the same manner as the user would install them and no further manipulation is made. For combination EUTs, the tabletop and floor-standing portions of the EUT shall follow the procedures for their respective setups and cable manipulation. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions.
- d) Exploratory radiated emissions testing of handheld and/or body-worn devices shall include rotation of the EUT through three orthogonal axes to determine the orientation (attitude) that maximizes the emissions. This equipment arrangement shall be used in the final measurements of radiated emission from the EUT.
- e) For each mode of operation required to be tested, the frequency spectrum shall be monitored. Variations in antenna height between 1 m and 4 m, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) shall be explored to produce the emission that has the highest amplitude relative to the limit.

For 1GHz to 40GHz Exploratory radiated emissions measurements, follow below procedure: When measuring emissions above 1 GHz, the frequencies of maximum emission shall be determined by manually (or with an articulated antenna positioner) positioning the antenna close to the EUT and then moving the measurement antenna over the surfaces of the EUT while observing a spectral display. It will be advantageous to have prior knowledge of the frequencies of emissions above 1 GHz to help in the search for emissions at those frequencies.

The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Maximum emission levels are then reported.

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1.10 Standards Applicable for Testing

Tests to be carried out under FCC Part 15, Subpart B

Test Standards	Status
FCC Part 15, Subpart B	Applicable
Deviation from Standard	No deviation

1.11 Summary of Results

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2. EMISSION

2.1 Test Results

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2.3.2 Limits of Radiated Emissions for FCC Part 15, Subpart B/CISPR 22

FCC Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30~88	39	40
88~216	43.5	43.5
216~960	46.44	46
Above 960	49.54	54

- Detector Function : Peak , Average

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	Peak	Average	Peak	Average
Above 1000-18000	79.3	59.3	73.9	53.9

CISPR Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30-230	40	30
230-1000	47	37

Note : The lower limit applies at the transition frequency.



2.4. Test of Conducted Emission

2.4.1 Test Equipments

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2.4.4 Measurement Data:

Mode_10_L

Site : Conduction Room
Limit: FCC Class B Conduction(QP)
Mode: Mode 10
Note:

Phase: L1
Power: AC 120V/60Hz

Temperature: 24 °C
Humidity: 62 %

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.5152	40.70	0.18	40.88	56.00	-15.12	QP	
2		0.5152	27.20	0.18	27.38	46.00	-18.62	AVG	
3 *		0.6184	49.70	0.16	49.86	56.00	-6.14	QP	
4		0.6184	35.50	0.16	35.66	46.00	-10.34	AVG	
5		1.0210	39.00	0.15	39.15	56.00	-16.85	QP	
6		1.0210	26.90	0.15	27.05	46.00	-18.95	AVG	
7		1.4708	37.30	0.18	37.48	56.00	-18.52	QP	
8		1.4708	26.10	0.18	26.28	46.00	-19.72	AVG	
9		1.8465	37.10	0.21	37.31	56.00	-18.69	QP	
10		1.8465	25.70	0.21	25.91	46.00	-20.09	AVG	
11		2.6490	36.90	0.22	37.12	56.00	-18.88	QP	
12		2.6490	26.60	0.22	26.82	46.00	-19.18	AVG	

*:Maximum data x:Over limit !:over margin

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Mode_10_N

Site : Conduction Room
Limit: FCC Class B Conduction(QP)
Mode: Mode10
Note:

Phase: N
Power: AC 120V/60Hz

Temperature: 24 °C
Humidity: 62 %

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1500	42.50	0.19	42.69	66.00	-23.31	QP	
2		0.1500	29.40	0.19	29.59	56.00	-26.41	AVG	
3		0.1740	40.50	0.19	40.69	64.77	-24.08	QP	
4		0.1740	25.00	0.19	25.19	54.77	-29.58	AVG	
5		0.2017	41.70	0.19	41.89	63.54	-21.65	QP	
6		0.2017	30.50	0.19	30.69	53.54	-22.85	AVG	
7		0.5165	35.30	0.22	35.52	56.00	-20.48	QP	
8		0.5165	23.50	0.22	23.72	46.00	-22.28	AVG	
9 *		0.6192	45.10	0.20	45.30	56.00	-10.70	QP	
10		0.6192	33.40	0.20	33.60	46.00	-12.40	AVG	
11		2.6546	33.80	0.26	34.06	56.00	-21.94	QP	
12		2.6546	26.80	0.26	27.06	46.00	-18.94	AVG	

*:Maximum data x:Over limit l:over margin

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2.5 Test of Radiated Emission

2.5.1 Test Equipments

Below 1GHz

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Above 1GHz

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2.5.2 Operating Environment

Temperature : 18 degree C

Humidity : 71 %RH

Atmospheric Pressure : 996 mBar

2.5.3 Measurement Level Calculation

Correction Factor = Antenna Factor + Cable loss- Amplifier Gain

Measurement Level = Reading Level + Correction Factor

Over (Margin) = Measurement Level – Limit

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2.5.4 Measurement Data

Below 1GHz

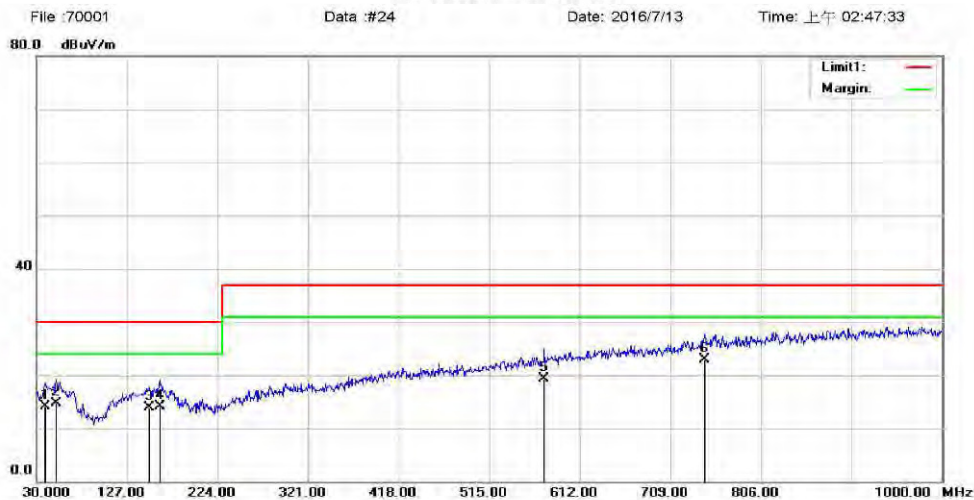
Mode_11_H

Site: SGS 10m Chamber
Limit: CISPR22 Class B 10M Radiation
Mode: Mode_11
Note:

Polarization: **Horizontal**
Power: AC 120V/60Hz
Distance:

Temperature: 18 °C
Humidity: 71 %

Radiated Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		40.0200	25.90	-11.80	14.10	30.00	-15.90	QP	
2		51.1600	26.18	-11.48	14.70	30.00	-15.30	QP	
3		151.0300	25.82	-11.92	13.90	30.00	-16.10	QP	
4		162.1000	25.70	-11.60	14.10	30.00	-15.90	QP	
5		574.0500	24.76	-5.36	19.40	37.00	-17.60	QP	
6	*	746.1600	24.80	-1.90	22.90	37.00	-14.10	QP	

*: Maximum data x: Over limit !: over margin

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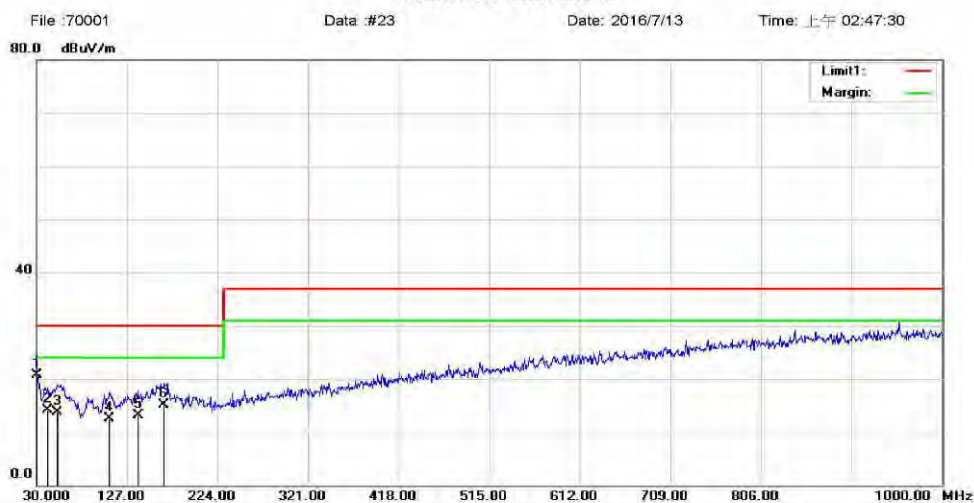
Mode_11_V

Site: SGS 10m Chamber
Limit: CISPR22 Class B 10M Radiation
Mode: Mode_11
Note:

Polarization: **Vertical**
Power: AC 120V/60Hz
Distance:

Temperature: 18 °C
Humidity: 71 %

Radiated Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	30.2200	33.19	-12.49	20.70	30.00	-9.30	QP	
2		41.4000	25.59	-11.39	14.20	30.00	-15.80	QP	
3		52.1900	25.00	-11.20	13.80	30.00	-16.20	QP	
4		108.7300	27.19	-14.69	12.50	30.00	-17.50	QP	
5		138.9200	25.26	-12.06	13.20	30.00	-16.80	QP	
6		166.8900	26.51	-11.31	15.20	30.00	-14.80	QP	

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Above 1GHz

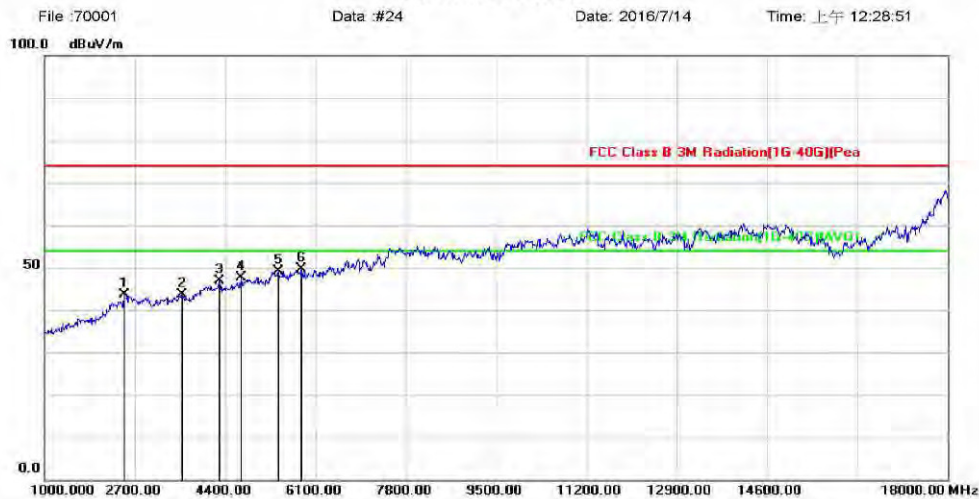
Mode_11_H

Site: SGS 966 Chamber A
Limit: FCC Class B 3M Radiation(1G-40G)(Pea
Mode: Mode_11
Note:

Polarization: **Horizontal**
Power: AC 120V/60Hz
Distance:

Temperature: 21 °C
Humidity: 72 %

Radiated Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2496.000	59.27	-15.58	43.69	74.00	-30.31	peak	
2		3584.000	57.59	-13.85	43.74	74.00	-30.26	peak	
3		4298.000	58.72	-11.72	47.00	74.00	-27.00	peak	
4		4706.000	58.41	-10.84	47.57	74.00	-26.43	peak	
5		5403.000	57.81	-8.80	49.01	74.00	-24.99	peak	
6 *		5845.000	57.52	-7.90	49.62	74.00	-24.38	peak	

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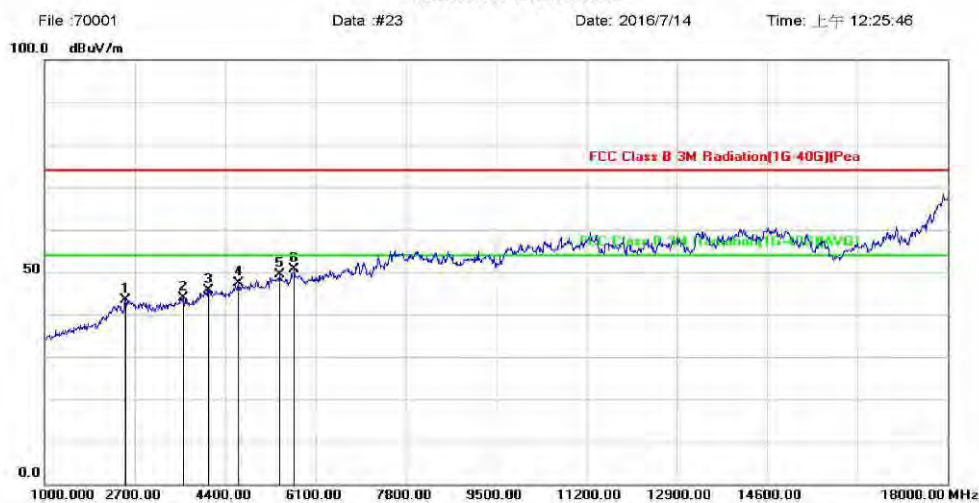
Mode_11_V

Site: SGS 966 Chamber A
Limit: FCC Class B 3M Radiation(1G-40G)(Pea
Mode: Mode_11
Note:

Polarization: **Vertical**
Power: AC 120V/60Hz
Distance:

Temperature: 21 °C
Humidity: 72 %

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		2530.000	57.75	-14.32	43.43	74.00	-30.57	peak	
2		3618.000	57.70	-13.71	43.99	74.00	-30.01	peak	
3		4094.000	57.77	-12.03	45.74	74.00	-28.26	peak	
4		4655.000	58.38	-10.98	47.40	74.00	-26.60	peak	
5		5420.000	58.04	-8.74	49.30	74.00	-24.70	peak	
6 *		5709.000	58.86	-8.14	50.72	74.00	-23.28	peak	

*:Maximum data x:Over limit !:over margin

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