



# FCC Test Report

**APPLICANT** : Planet Avvio LLC  
**EQUIPMENT** : Mobile phone  
**BRAND NAME** : Avvio  
**MODEL NAME** : 301  
**FCC ID** : 2ALTART301X  
**STANDARD** : FCC CFR Title 47 Part 15 Subpart B  
**CLASSIFICATION** : Certification

The product was received on Jul. 16, 2018 and testing was completed on Jul. 24, 2018. We, Sporton International (Shenzhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Shenzhen) Inc., the test report shall not be reproduced except in full.

Approved by: Eric Shih / Manager



**Sporton International (Shenzhen) Inc.**

**1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen City, Guangdong Province 518055, China**



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### REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC871604	Rev. 01	Initial issue of report	Sep. 21, 2018



### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 8.70 dB at 0.650 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 4.80 dB at 298.690 MHz for Quasi-Peak



# 1. General Description

## 1.1. Applicant

Planet Avvio LLC  
9725 NW 117th Ave., Medley, FL 33178, United States

## 1.2. Manufacturer

China Sum Company Limited  
7th Floor, Block B, DaTang Times building, Meilong road, Longhua New District, Shenzhen, China

## 1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile phone
Brand Name	Avvio
Model Name	301
FCC ID	2ALTART301X
EUT supports Radios application	GSM/GPRS/WCDMA/HSPA Bluetooth BR/EDR
IMEI Code	Conduction: NA Radiation: 862433017501255
HW Version	C719MB_V1.0
SW Version	T3_CLARO_Colombia_V0.8_09012018
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



### 1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
<b>Tx Frequency</b>	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz Bluetooth: 2402 MHz ~ 2480 MHz
<b>Rx Frequency</b>	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz Bluetooth: 2402 MHz ~ 2480 MHz FM: 87.5 MHz ~ 108 MHz
<b>Antenna Type</b>	WWAN : PIFA Antenna Bluetooth : Bonding wire Antenna FM: External headset Antenna
<b>Type of Modulation</b>	GSM: GMSK GPRS: GMSK WCDMA : BPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA : QPSK (Uplink) Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK FM

### 1.5. Modification of EUT

No modifications are made to the EUT during all test items.



### 1.6. Test Location

Sporton International (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0).

<b>Test Site</b>	Sporton International (Shenzhen) Inc.		
<b>Test Site Location</b>	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen City, Guangdong Province 518055, China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC designation No.</b>	<b>FCC Test Firm Registration No.</b>
	CO01-SZ	CN5018	337463
<b>Test Site</b>	Sporton International (Shenzhen) Inc.		
<b>Test Site Location</b>	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District, Shenzhen City, Guangdong Province 518055, China TEL: +86-755- 3320-2398		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC designation No.</b>	<b>FCC Test Firm Registration No.</b>
	03CH03-SZ	CN5019	577730

### 1.7. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC CFR Title 47 Part 15 Subpart B
- ANSI C63.4-2014

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.



## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

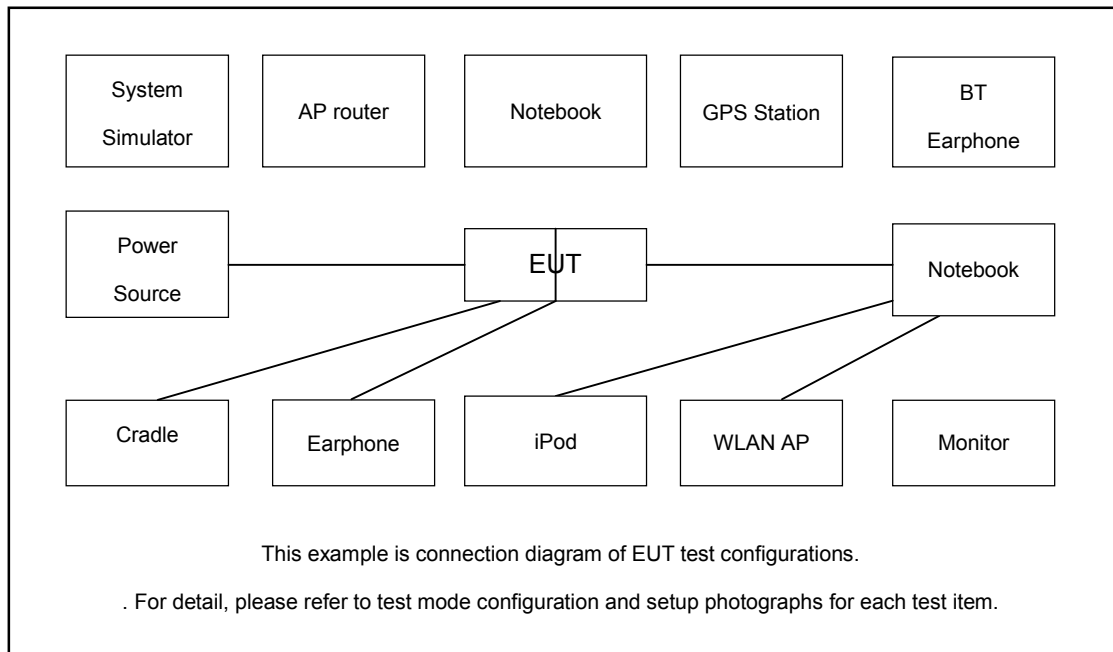
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
AC Conducted Emission	Mode 1: GSM850 Idle + Bluetooth Idle + Earphone + Adapter + Camera Mode 2: GSM1900 Idle + Bluetooth Idle + Earphone + Adapter + MPEG4 Mode 3: WCDMA Band V Idle + Bluetooth Idle + Earphone + USB Cable (Data Link with Notebook) + FM(98MHz) Rx
Radiated Emissions	Mode 1: GSM850 Idle + Bluetooth Idle + Earphone + Adapter + Camera Mode 2: GSM1900 Idle + Bluetooth Idle + Earphone + Adapter + MPEG4 Mode 3: WCDMA Band V Idle + Bluetooth Idle + Earphone + USB Cable (Data Link with Notebook) + FM(98MHz) Rx
<b>Remark:</b>	
<ol style="list-style-type: none"> <li>1. The worst case of AC is mode 3; only the test data of this mode is reported.</li> <li>2. The worst case of RE is mode 3; only the test data of this mode is reported.</li> <li>3. Data Link with Notebook means data application transferred mode between EUT and Notebook.</li> </ol>	



## 2.2.Connection Diagram of Test System





### 2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	FM Station	R&S	SMBV100A	258305	N/A	Unshielded, 1.8 m
3.	WLAN AP	ASUSTek	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,2.7m with Core
4.	Bluetooth Earphone	Samsung	EO-MG900	N/A	N/A	N/A
5.	Notebook	Lenovo	E540	Fcc DoC	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
6.	iPod	Apple	MC525 ZP/A	Fcc DoC	Shielded, 1.0m	N/A
7.	SD Card	Kingston	3300-10000-078	N/A	N/A	N/A
8.	SD Card	N/A	MicroSD HC	Fcc DoC	N/A	N/A
9.	Earphone	Apple	DCAY1V-A9007 ZJW3-000	N/A	Shielded,1.0m	N/A
10.	Earphone	Apple	MC690ZP/A	N/A	Shielded,1.0m	N/A
11.	USB cable	Motorola	SKN6378A	Fcc DoC	Shielded, 1.1 m	N/A

### 2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator’s paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone, and the following programs installed in the EUT were programmed during the test.

1. Data application is transferred between Notebook and EUT via USB cable.
2. Execute “Windows Media Player” to play MPEG4 files.
3. Turn on camera to capture images.



### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

##### 3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

<Class B Limit>

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

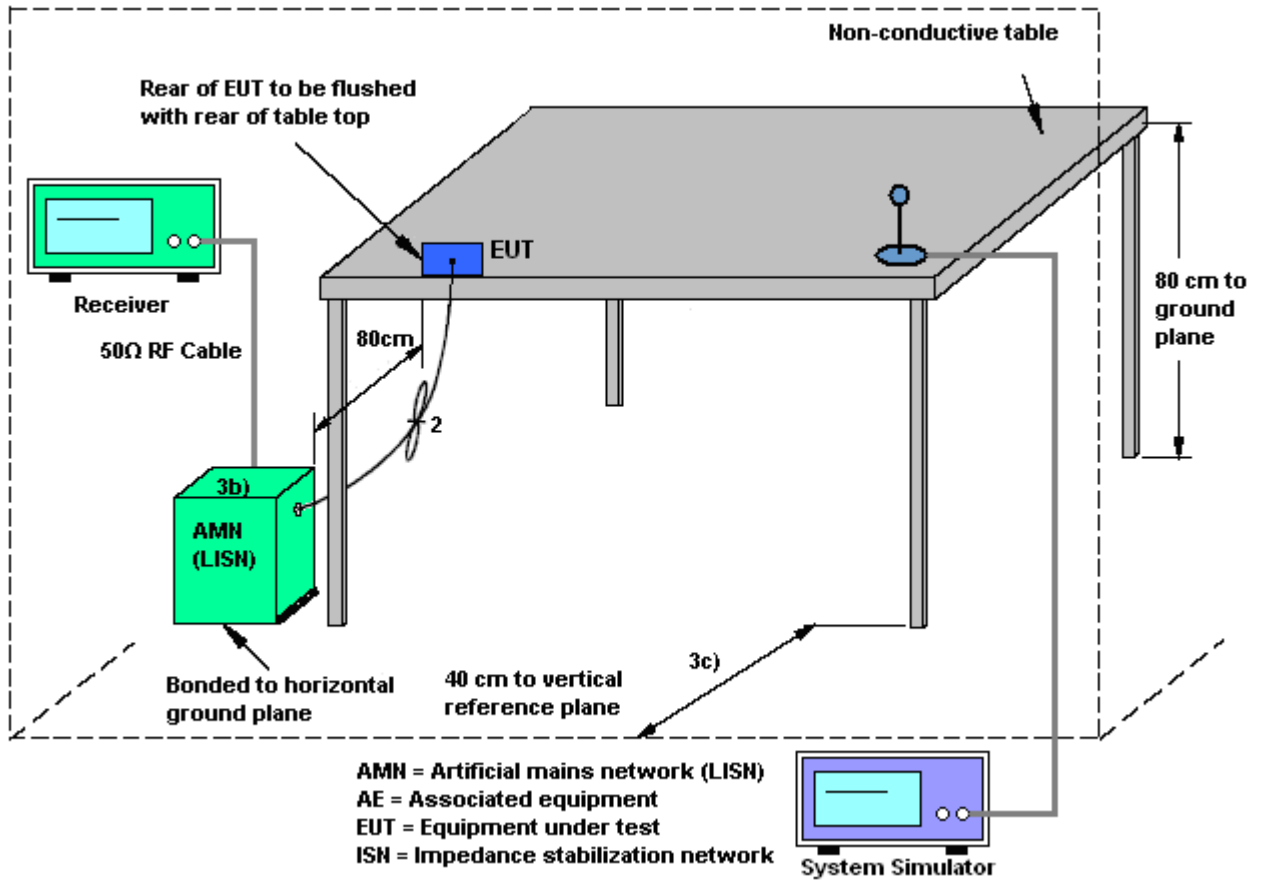
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedure

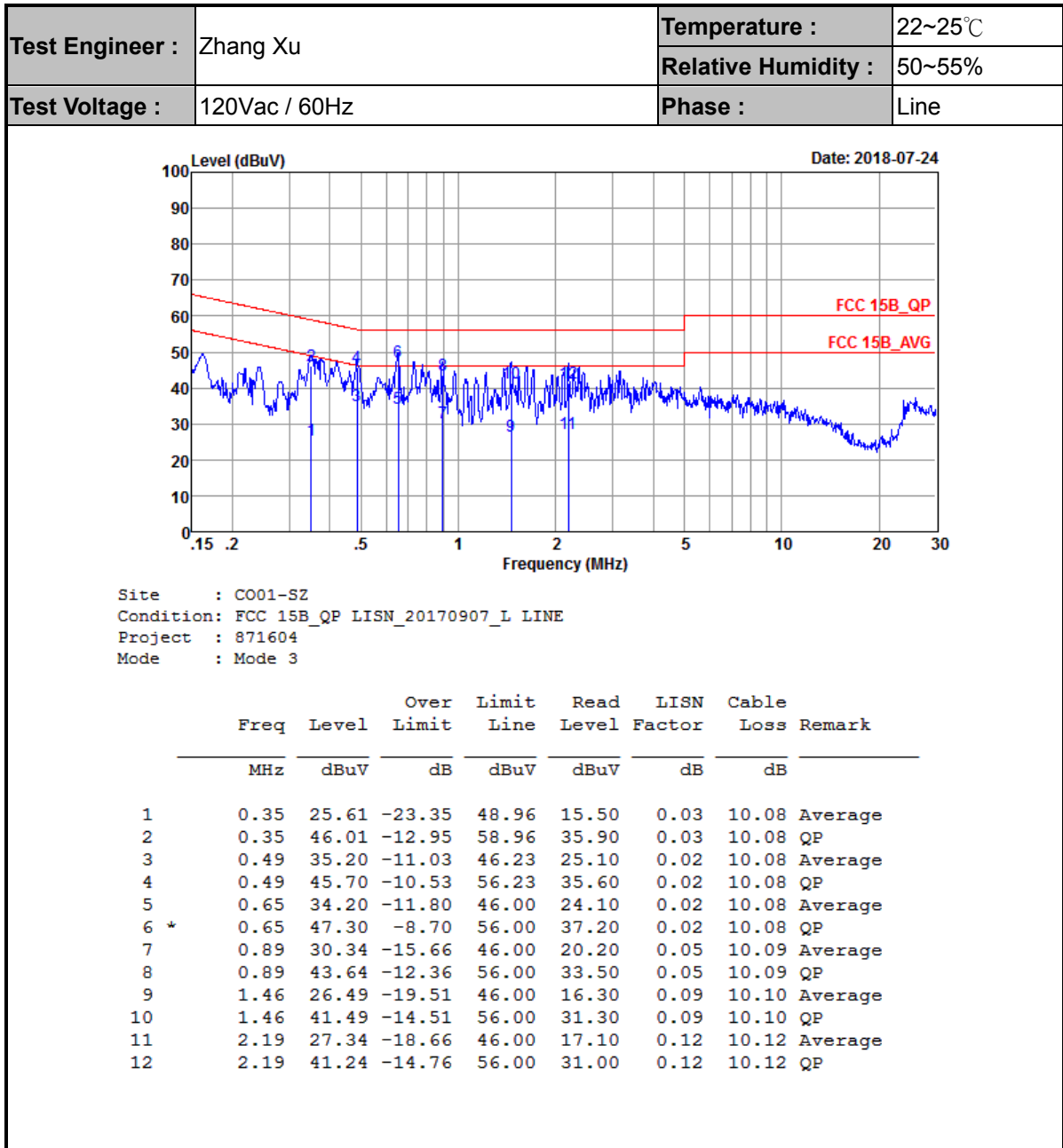
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.1.4 Test Setup



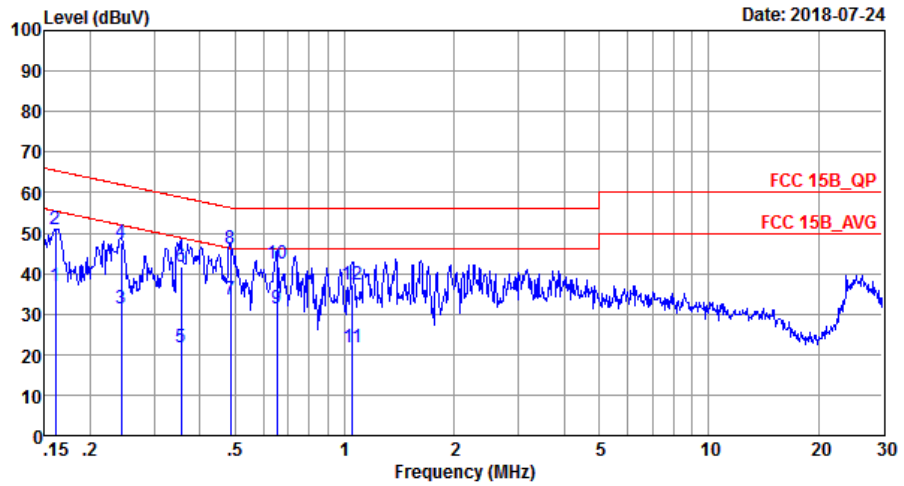


3.1.5 Test Result of AC Conducted Emission





Test Engineer :	Zhang Xu	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : C001-SZ  
 Condition: FCC 15B\_QP LISN\_20170907\_N NEUTRAL  
 Project : 871604  
 Mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	36.89	-18.54	55.43	26.80	0.03	10.06	Average
2	0.16	50.89	-14.54	65.43	40.80	0.03	10.06	QP
3	0.24	31.40	-20.60	52.00	21.30	0.03	10.07	Average
4	0.24	47.60	-14.40	62.00	37.50	0.03	10.07	QP
5	0.36	21.60	-27.23	48.83	11.50	0.02	10.08	Average
6	0.36	41.60	-17.23	58.83	31.50	0.02	10.08	QP
7	0.49	33.40	-12.83	46.23	23.30	0.02	10.08	Average
8 *	0.49	46.10	-10.13	56.23	36.00	0.02	10.08	QP
9	0.65	31.40	-14.60	46.00	21.30	0.02	10.08	Average
10	0.65	42.50	-13.50	56.00	32.40	0.02	10.08	QP
11	1.05	21.94	-24.06	46.00	11.80	0.05	10.09	Average
12	1.05	37.24	-18.76	56.00	27.10	0.05	10.09	QP



### 3.2. Test of Radiated Emission Measurement

#### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B Limit>

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

#### 3.2.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.



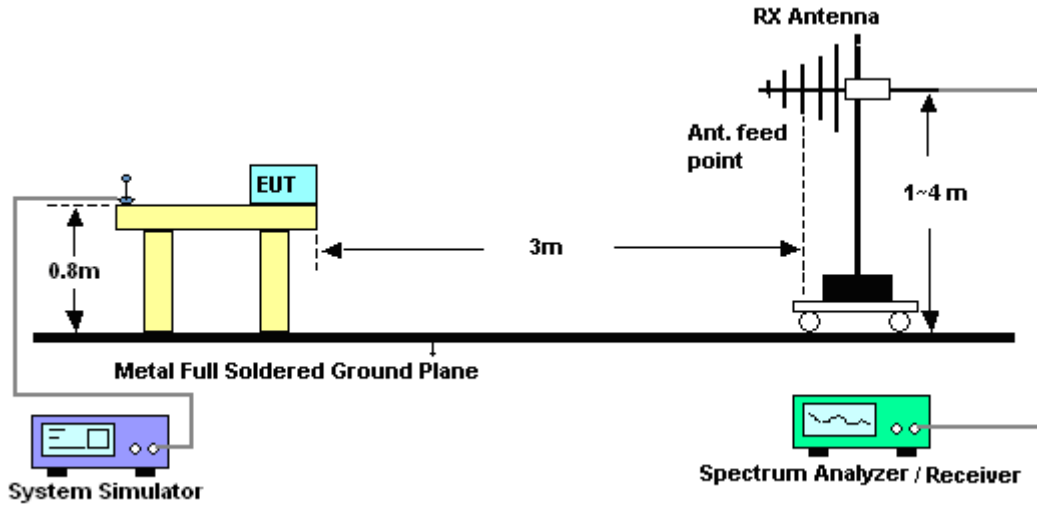
### **3.2.3. Test Procedures**

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

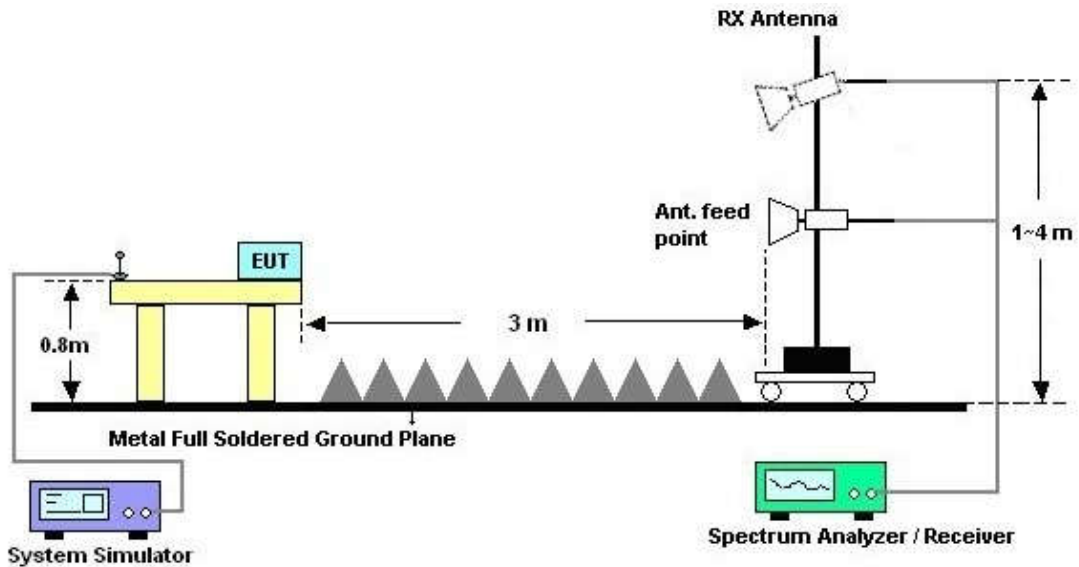


### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



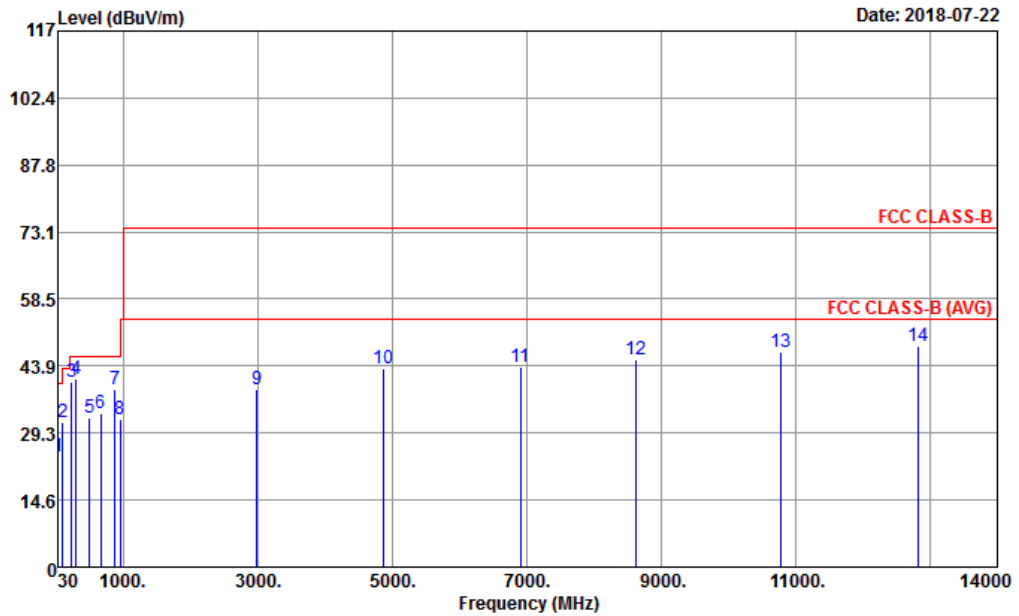
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Engineer :	Leo Liao	Temperature :	24~25°C
		Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Horizontal
Remark :	#2 is system simulator (FM Option) signal which can be ignored. #7 is system simulator signal which can be ignored.		

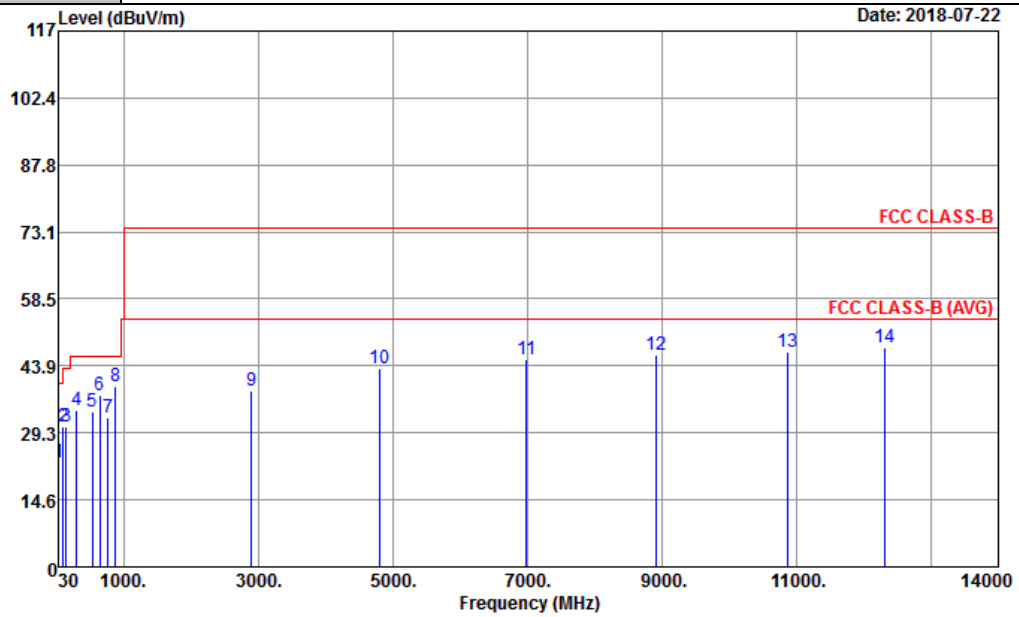


Site : 03CH03-SZ  
 Condition : FCC CLASS-B 3m LF47611\_CBL6111D\_6 HORIZONTAL  
 Project : 871604  
 Mode : Mode 3  
 IMEI : 862433017501255

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	24.18	-15.82	40.00	31.02	25.20	0.56	32.60	---	---	Peak
2	98.87	31.59			45.75	16.72	1.02	31.90	---	---	Peak
3	236.61	40.34	-5.66	46.00	53.40	17.24	1.61	31.91	---	---	Peak
4	298.69	41.20	-4.80	46.00	52.00	19.39	1.82	32.01	100	105	QP
5	499.48	32.64	-13.36	46.00	37.96	23.69	2.39	31.40	---	---	Peak
6	666.32	33.67	-12.33	46.00	37.27	25.20	2.80	31.60	---	---	Peak
7	881.66	38.68			40.29	26.69	3.28	31.58	---	---	Peak
8	960.00	32.42	-13.58	46.00	32.95	27.21	3.41	31.15	---	---	Peak
9	2994.00	38.66	-35.34	74.00	62.21	28.56	6.55	58.66	---	---	Peak
10	4868.00	43.27	-30.73	74.00	61.83	31.17	8.60	58.33	---	---	Peak
11	6904.00	43.71	-30.29	74.00	58.13	34.73	10.05	59.20	---	---	Peak
12	8620.00	45.40	-28.60	74.00	56.61	37.64	10.84	59.69	---	---	Peak
13	10786.00	46.78	-27.22	74.00	54.75	40.35	11.79	60.11	---	---	Peak
14	12812.00	48.12	-25.88	74.00	54.51	40.53	12.58	59.50	200	150	Peak



Test Engineer :	Leo Liao	Temperature :	24~25°C
		Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Vertical
Remark :	#2 is system simulator (FM option) signal which can be ignored. #8 is system simulator signal which can be ignored.		



Site : 03CH03-SZ  
 Condition : FCC CLASS-B 3m LF47611\_CBL6111D\_6 VERTICAL  
 Project : 871604  
 Mode : Mode 3  
 IMEI : 862433017501255

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	22.76	-17.24	40.00	29.60	25.20	0.56	32.60	---	---	Peak
2	98.87	30.75			44.91	16.72	1.02	31.90	---	---	Peak
3	143.49	30.73	-12.77	43.50	44.60	17.07	1.25	32.19	---	---	Peak
4	299.66	34.14	-11.86	46.00	44.92	19.40	1.82	32.00	---	---	Peak
5	540.22	33.83	-12.17	46.00	38.05	24.75	2.51	31.48	---	---	Peak
6	644.98	37.57	-8.43	46.00	41.24	25.17	2.76	31.60	100	200	Peak
7	763.32	32.75	-13.25	46.00	35.53	25.95	3.01	31.74	---	---	Peak
8	881.66	39.41			41.02	26.69	3.28	31.58	---	---	Peak
9	2898.00	38.32	-35.68	74.00	62.48	28.35	6.13	58.64	---	---	Peak
10	4812.00	43.25	-30.75	74.00	61.90	31.10	8.59	58.34	---	---	Peak
11	6986.00	45.44	-28.56	74.00	59.54	35.04	10.08	59.22	---	---	Peak
12	8924.00	46.15	-27.85	74.00	57.02	38.00	10.91	59.78	---	---	Peak
13	10878.00	46.81	-27.19	74.00	54.47	40.45	11.81	59.92	---	---	Peak
14	12310.00	47.86	-26.14	74.00	55.21	39.95	12.36	59.66	100	205	Peak



### 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 19, 2018	Jul. 22, 2018	Apr. 18, 2019	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 19, 2018	Jul. 22, 2018	Apr. 18, 2019	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Apr. 19, 2018	Jul. 22, 2018	Apr. 18, 2019	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Mar. 29, 2018	Jul. 22, 2018	Mar. 28, 2019	Radiation (03CH03-SZ)
LF Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 19, 2017	Jul. 22, 2018	Oct. 18, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00101 800-30-10P-R	1943528	1GHz~18GHz	Oct. 19, 2017	Jul. 22, 2018	Oct. 18, 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	61601000198 5	N/A	NCR	Jul. 22, 2018	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jul. 22, 2018	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jul. 22, 2018	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 26, 2017	Jul. 24, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Dec. 26, 2017	Jul. 24, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Nov. 01, 2017	Jul. 24, 2018	Oct. 31, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000089 1	100Vac~250Vac	Jul. 18, 2018	Jul. 24, 2018	Jul. 17, 2019	Conduction (CO01-SZ)

NCR: No Calibration Required



## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.6 dB
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0 dB
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.8 dB
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