

## 🧲 Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCISE180513003

# FCC REPORT

Applicant: Sun Cupid Technology (HK) Ltd.

Address of Applicant: 16/F, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan,

Kowloon, Hong Kong.

**Equipment Under Test (EUT)** 

Product Name: LTE mobile phone

Model No.: N5702L, G2, G3, G3+

Trade mark: NUU

FCC ID: 2ADINN5702L

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 25 May, 2018

Date of Test: 25 May, to 08 Jun., 2018

Date of report issued: 11 Jun., 2018

Test Result: PASS\*

\* In the configuration tested, the EUT complied with the standards specified above.

#### Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## 2 Version

Version No.	Date	Description			
00	11 Jun., 2018	This report was amended on FCC ID:  2ADINN5702L follow FCC Class II  Permissive Change.  The differences between them as below:  Added a model number, Changed the battery and adapter. Base on the differences description, the Conducted Emission and Radiated Emission below 1GHz were re-tested.			

Tested by: Date: 11 Jun., 2018

Test Engineer

Reviewed by: Date: 11 Jun., 2018

Project Engineer



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## 4 Test Summary

Test Items	Section in CFR 47	Result
Antenna requirement	15.203 & 15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass*
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Pass*
Power Spectral Density	15.247 (e)	Pass*
Band Edge	15.247 (d)	Pass*
Spurious Emission	15.205 & 15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.

Pass\*: Please refer to the FCC ID: 2ADINN5702L

N/A: N/A: Not Applicable.





## 5 General Information

## **5.1 Client Information**

Applicant:	Sun Cupid Technology (HK) Ltd.	
Address:	16/F, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong.	
Manufacturer:	Sun Cupid Technology (HK) Ltd.	
Address:	16/F, CEO Tower, 77 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong.	
Factory:	SUNCUPID (ShenZhen) Electronic Ltd	
Address:	Baolong Industrial City, Longgang District, Shenzhen Hi-Tech Road, Building 1, A 7, China.	

## 5.2 General Description of E.U.T.

Product Name:	LTE mobile phone		
Model No.:	N5702L, G2, G3, G3+		
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))		
Channel numbers:	11 for 802.11b/802.11g/802.11(H20) 7 for 802.11n(H40)		
Channel separation:	5MHz		
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)		
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)		
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps		
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps		
Data speed (IEEE 802.11n):	Up to 150Mbps		
Antenna Type:	Internal Antenna		
Antenna gain:	-3.18dBi		
Power supply:	Rechargeable Li-ion Battery DC3.8V-4000mAh		
AC adapter:	Model: HJ-0502000N2-US Input: AC100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 2000mA		
Remark:	Model No.: N5702L, G2, G3, G3+ were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name.		

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Operation Frequency each of channel for 802.11b/g/n(H20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

#### Note:

- 1. For 802.11n-HT40 mode, the channel number is from 3 to 9;
- Channel 1, 6 & 11 selected for 802.11b/g/n-HT20 as Lowest, Middle and Highest channel, Channel; 3, 6 & 9 selected for 802.11n-HT40 as Lowest, Middle and Highest channel, Channel.

#### 5.3 Test environment and test mode

Operating Environment:		
Temperature:	24.0 °C	
Humidity:	54 % RH	
Atmospheric Pressure:	1010 mbar	
Test mode:		

Transmitting mode Ke	eep the EUT in continuous transmitting	with modulation
----------------------	--	-----------------

The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate, the follow list were the worst case.					
Mode Data rate					
802.11b	1Mbps				
802.11g	6Mbps				
802.11n(H20) 6.5Mbps					
802.11n(H40) 13.5Mbps					

## 5.4 Description of Support Units

The EUT has been tested as an independent unit.

## 5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty	
Conducted Emission (9kHz ~ 30MHz)	±2.22 dB (k=2)	
Radiated Emission (9kHz ~ 30MHz)	±2.76 dB (k=2)	
Radiated Emission (30MHz ~ 1000MHz)	±4.28 dB (k=2)	
Radiated Emission (1GHz ~ 18GHz)	±5.72 dB (k=2)	
Radiated Emission (18GHz ~ 40GHz)	±2.88 dB (k=2)	

Shenzhen Zhongjian Nanfang Testing Co., Ltd. No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366

Report No: CCISE180513003

## 5.6 Laboratory Facility

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

#### FCC - Registration No.: 727551

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

#### IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

#### CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

#### A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

## 5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

### 5.8 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	03-16-2018	03-15-2019
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-16-2018	03-15-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-16-2018	03-15-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	03-07-2018	03-06-2019
Pre-amplifier	CD	PAP-1G18	11804	03-07-2018	03-06-2019
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-07-2018	03-06-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-07-2018	03-06-2019
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2018	03-06-2019
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2018	03-06-2019
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2018	03-06-2019

Conducted Emission:						
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-07-2018	03-06-2019	
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-07-2018	03-06-2019	
LISN	CHASE	MN2050D	1447	03-19-2018	03-18-2019	
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2017	07-20-2018	
Cable	HP	10503A	N/A	03-07-2018	03-06-2019	
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A	

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## 6 Test results and Measurement Data

## 6.1 Antenna requirement

## Standard requirement:

FCC Part 15 C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

#### E.U.T Antenna:

The WiFi antenna is an External antenna which cannot replace by end-user, the best case gain of the antenna is -3.18 dBi.







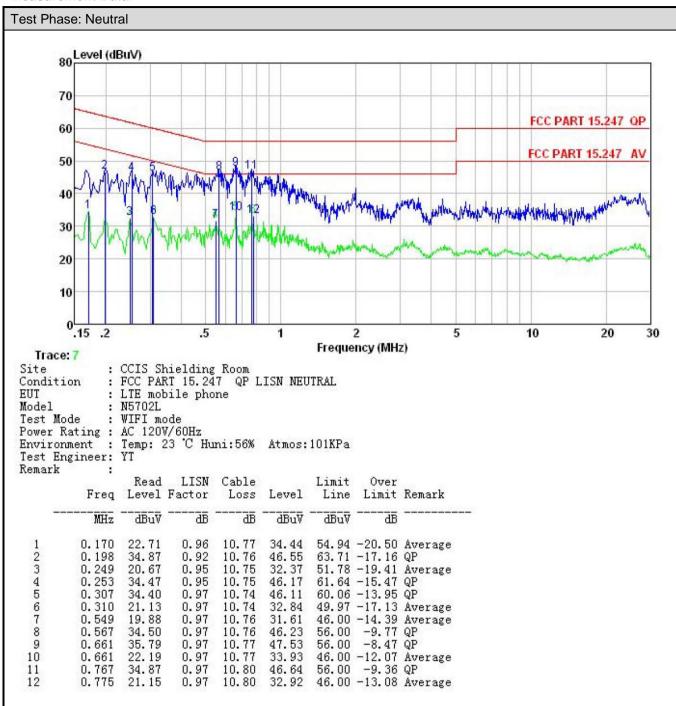
## 6.2 Conducted Emission

1					
Test Requirement:	FCC Part 15 C Section 15.207				
Test Method:	ANSI C63.10: 2013				
Test Frequency Range:	150 kHz to 30 MHz				
Class / Severity:	Class B				
Receiver setup:	RBW=9 kHz, VBW=30 kl	Hz			
Limit:	Frequency range	Limit (d	dBuV)		
	(MHz)	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 logarity of the transfer				
Test procedure	<ol> <li>The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.</li> </ol>				
Test setup:	Reference Plane				
	AUX Equipment  Test table/Insula  Remark E.U.T: Equipment Under LISN: Line Impedence Ste	E.U.T  EMI Receiver	Ilter — AC power		
	Test table height=0.8m				
Test Instruments:	Refer to section 5.8 for d				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				





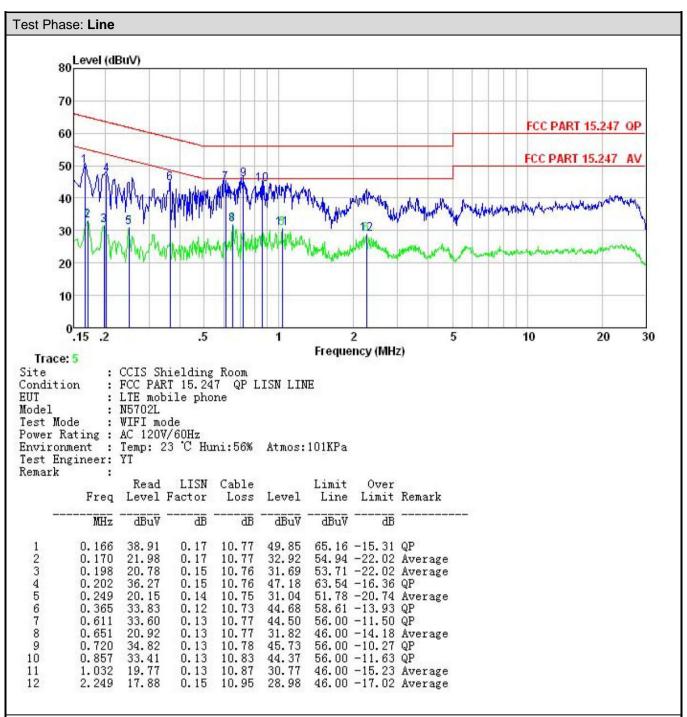
#### **Measurement Data:**



#### Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.





#### Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss.





## **6.3 Conducted Output Power**

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)			
Test Method:	ANSI C63.10:2013 and KDB 558074			
Limit:	30dBm			
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane			
Test Instruments:	Refer to section 5.8 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: 2ADINN5702L			





## 6.4 Occupy Bandwidth

I				
Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)			
Test Method:	ANSI C63.10:2013 and KDB 558074			
Limit:	>500kHz			
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane			
Test Instruments:	Refer to section 5.8 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: 2ADINN5702L			





## 6.5 Power Spectral Density

Test Requirement:	FCC Part 15 C Section 15.247 (e)		
Test Method:	ANSI C63.10:2013 and KDB 558074		
Limit:	8dBm		
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Refer to the FCC ID: 2ADINN5702L		





## 6.6 Band Edge

#### 6.6.1 Conducted Emission Method

0.0.1 Conducted Linission	wethou			
Test Requirement:	FCC Part 15 C Section 15.247 (d)			
Test Method:	ANSI C63.10:2013 and KDB 558074			
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.			
Test setup:				
Test Instruments:	Refer to section 5.8 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: 2ADINN5702L			





#### 6.6.2 Radiated Emission Method

o.o.z Radiated Emission We	Radiated Emission Method						
Test Requirement:	FCC Part 15 C Section 15.209 and 15.205						
Test Method:	ANSI C63.10: 2013 and KDB 558074						
Test Frequency Range:	2.3GHz to 2.5GHz						
Test Distance:	3m						
Receiver setup:	Frequency	Detector	RBW	VBW		Remark	
	Above 1GHz	Peak RMS	1MHz 1MHz	3MHz 3MHz		Peak Value Average Value	
Limit:	Frequency		Limit (dBuV/m @3			Remark	
	Above 1GF	łz 🖳	54.00 74.00		Average Value		
	<ol> <li>The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degree to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antentower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>If the emission level of the EUT in peak mode was 10dB lower that the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quarpeak or average method as specified and then reported in a data</li> </ol>			e-receiving -height antenna neters above eld strength. na are set to I to its worst 1 meter to 4 to 360 degrees ction and ldB lower than the peak values ns that did not ng peak, quasi-			
Test setup:	190m	(Turntable)	3m  Ground Reference Plane	n Antenna	Antenna Towe		
Test Instruments:	Refer to section 5.8 for details						
Test mode:	Refer to section 5.3 for details						
	Refer to the FCC ID: 2ADINN5702L						



## 6.7 Spurious Emission

## 6.7.1 Conducted Emission Method

0.7.1 Oonducted Ennis	metriod				
Test Requirement:	FCC Part 15 C Section 15.247 (d)				
Test Method:	ANSI C63.10:2013 and KDB 558074				
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.				
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane				
Test Instruments:	Refer to section 5.8 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Refer to the FCC ID: 2ADINN5702L				
Test lesuits.	INCIGITO THE FOOTD. ZADININGFOZE				





#### 6.7.2 Radiated Emission Method

6.7.2	Radiated Emission Method								
	Test Requirement:	FCC Part 15 C Section 15.209 and 15.205							
	Test Method:	ANSI C63.10:2013							
	Test Frequency Range:	9kHz to 25GHz							
	Test Distance:	3m							
	Receiver setup:	Frequency Detector RBW			VI	BW	Remark		
	•	30MHz-1GHz	Quasi-p	eak	120KHz	300KHz		Quasi-peak Value	
		Above 1GHz	Peak				MHz Peak Value		
	1 toute.		RMS		1MHz t (dBuV/m @3r		ИHz	Average Value	
	Limit:	Frequency 30MHz-88MH	7	LIIIIII	40.0	11)	Oı	Remark uasi-peak Value	
		88MHz-216MH			43.5		Quasi-peak Value		
		216MHz-960MI			46.0			uasi-peak Value	
		960MHz-1GH			54.0			uasi-peak Value	
		Above 1GHz			54.0		I	Average Value	
	Test Procedure:				74.0 e top of a rota			Peak Value	
		<ol> <li>1GHz)/1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data</li> </ol>							
	Test setup:	Below 1GHz  EUT  Turn Table  Ground P	0.8m	4m			_		





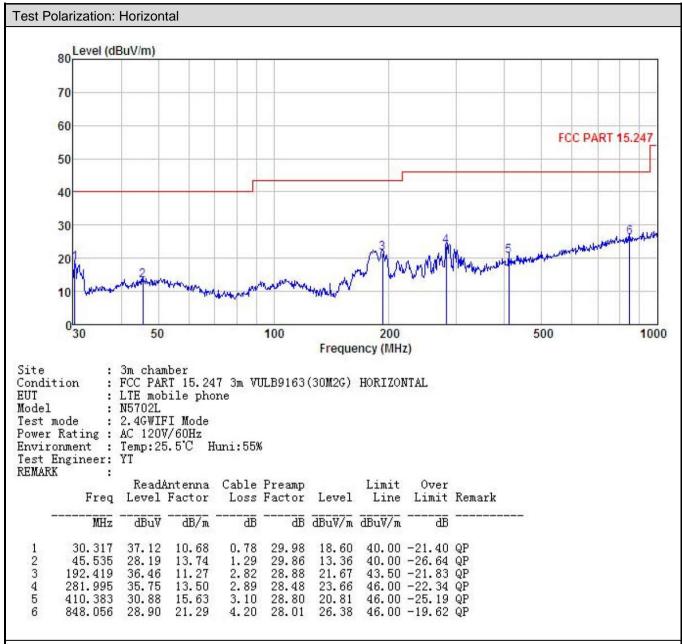
	Above 1GHz		
	Horn Anlenna Antenna Tower  Ground Reference Plane  Test Receiver  Test Receiver  Test Receiver  Test Receiver		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		
Remark:	<ol> <li>Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.</li> <li>9 kHz to 30MHz is too low, so only shows the data of above 30MHz in this report.</li> </ol>		





#### Measurement Data (worst case):

#### **Below 1GHz:**



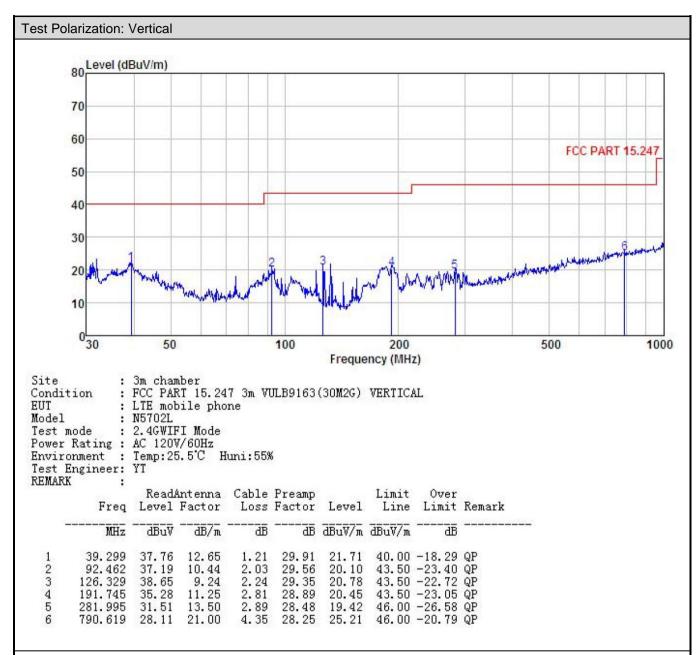
#### Remark:

<sup>1.</sup> Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

<sup>2.</sup> The emission levels of other frequencies are very lower than the limit and not show in test report.







#### Remark:

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



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#### **Above 1GHz**

Refer to the FCC ID: 2ADINN5702L