

Report No: CCISE171000607

# **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 (E	EUT)			
Product Name:	LTE mobile phone			
Model No.:	N5702L, G2, G3			
Trade mark:	NUU			
FCC ID:	2ADINN5702L			
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.225			
Date of sample receipt:	09 Oct., 2017			
Date of Test:	09 Oct., to 03 Nov., 2017			
Date of report issue:	06 Nov., 2017			
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 theCCISproduct certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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## 2 Version

Version No.	Date	Description
00	06 Nov., 2017	Original

Tested by:

lang Test Engineer

Date:

06 Nov., 2017

Reviewed by:

han"

Date:

06 Nov., 2017

**Project Engineer** 



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## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
Field strength of the fundamental signal	15.225 (a)	Pass
Spurious emissions	15.225(d) & 15.209	Pass
20dB Bandwidth	15.215(c)	Pass
Frequency tolerance	15.225 (e)	Pass
Conducted Emission	15.207	Pass

Remarks:

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



## **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, Kowlo 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
Operation Frequency:	13.56MHz
Channel numbers:	1
Modulation type:	ASK
Antenna Type:	Internal Antenna
Antenna gain:	1dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-3000mAh
AC adapter with two plugs :	Model: HNEM050200UU Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2000mA
Remark:	Model No.: N5702L, G2, G3 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name.

#### 5.3 Test mode

Transmitting mode:	Keep the EUT in tran	Keep the EUT in transmitting mode with modulation				
Pre-Test Mode:						
	CCIS has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:					
Axis	Axis X Y Z					
Field Strength(dBuV/m)	//m) 56.48 56.77 56.75					
Final Test Mode:						
According to ANSI C63.4 sta (see the test setup photo).	According to ANSI C63.4 standards, the test results are both the "worst case" and "worst setup": Y axis					

## 5.4 Description of Support Units

N/A



## 5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

### 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: <u>https://portal.a2la.org/scopepdf/4346-01.pdf</u>

#### 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 Instrumentslist

Radia	Radiated Emission:						
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
1	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	02-25-2017	02-24-2018	
2	Loop Antenna	Com-power	AL-130	CCS078	02-25-2017	02-24-2018	
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	02-25-2017	02-24-2018	
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	02-25-2017	02-24-2018	
4	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	02-25-2017	02-24-2018	
5	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	02-25-2017	02-24-2018	
6	Spectrum analyzer	Rohde & Schwarz	FSP30	CCIS0023	02-25-2017	02-24-2018	

Cond	Conducted Emission:							
Itom	Toot Equipmont	Cal.Date	Cal.Date					
Item	Test Equipment	Manufacturer	Model No. Inventory No.		(mm-dd-yy)	(mm-dd-yy)		
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	07-22-2017	07-21-2020		
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	02-25-2017	02-24-2018		
3	LISN	CHASE	MN2050D	CCIS0074	02-25-2017	02-24-2018		
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		



## 6 Test results and Measurement Data

## 6.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203				
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.					
E.U.T Antenna:					
	egrated antenna, The typical gain of the antenna is 1dBi.				



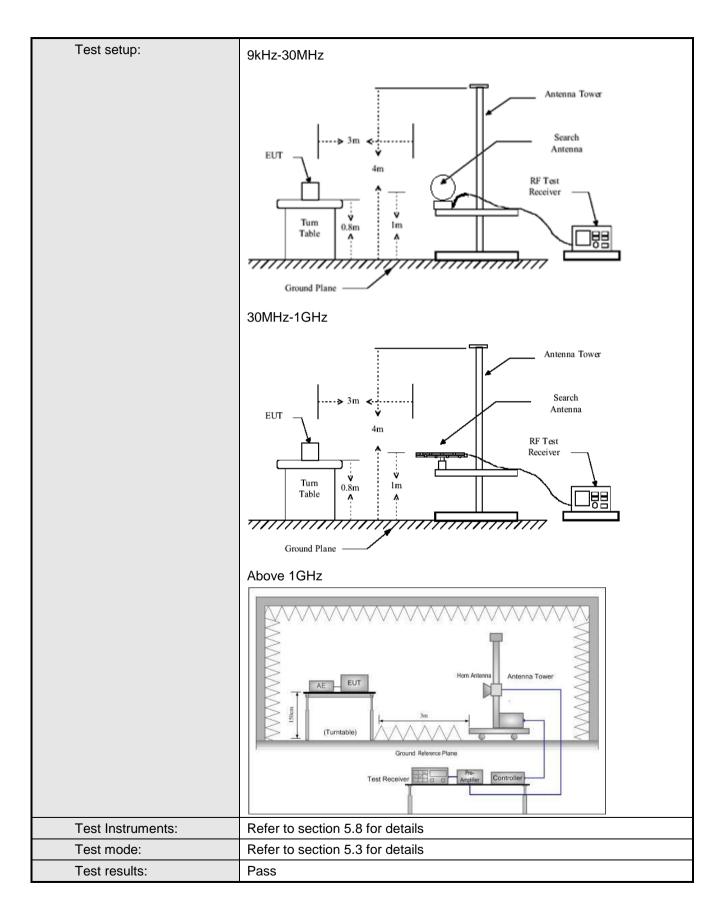


## 6.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.225(a) and 15.209						
Test Method:	ANSI C63.10:2013						
Test Frequency Range:	9 kHz to 1000MHz						
Test site:	Measurement Distance: 3m(Semi-Anechoic Chamber)						
Receiver setup:	Frequency Detector RBW VBW Remark						
	9kHz-150kHz	Quasi-peak	200Hz 600Hz		Quasi-peak Value		
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value		
	30MHz-1GHz	Quasi-peak	120kHz	300KHz	z Quasi-peak Value		
	Above 1GHz	Peak	1MHz	3MHz	Peak Value		
Limit:	Frequen	су	Limit (uV/m 🤅	@30m)	Limit (dBuV/m @3m)		
(Field strength of the	13.553MHz-13	.567MHz	15848		124.0		
fundamental signal)	13.410MHz-13.5 13.567MHz-13		334		90.5		
	13.110MHz-13.4 13.710MHz-14	.010MHz	106		80.5		
	by either making m	rified, the resul neasurements the proper ext	ts shall be extr at a minimum trapolation fac	apolated t of two dist tor or by u	to the specified distance tances on at least one ising the square of an		
Limit:	Frequency (	MHz)	Limit (uV/m	n @3m)	Distance (m)		
(Spurious Emissions)	0.009-0.490		2400/F(kHz)		300		
	0.490-1.705		24000/F(kHz)		30		
	1.705-30		<u> </u>		30		
	30-88	3					
	88-216		150		3		
	216-960 200 3						
					3		
Test Procedure:	<ul> <li>Above 1GHz 500 3</li> <li>a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>b. 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>c. 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>d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>f. 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 sheet.</li> </ul>						

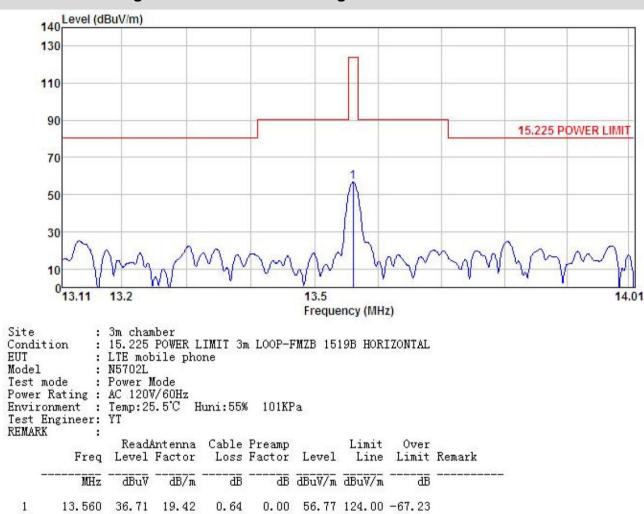








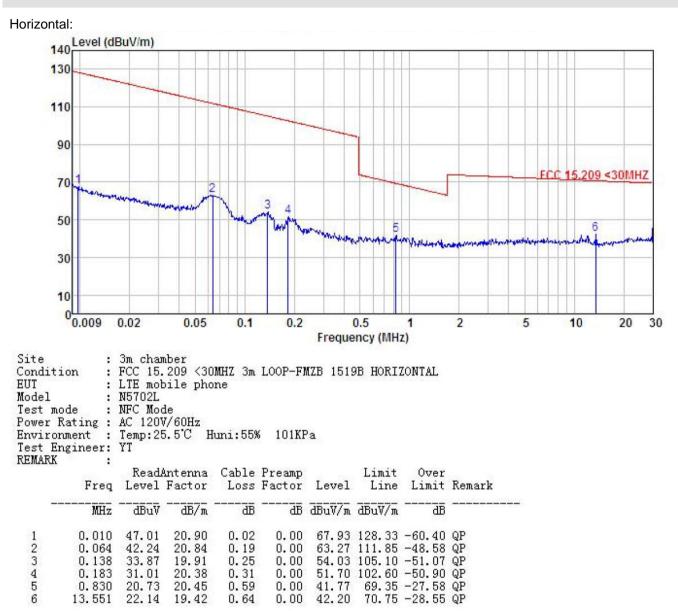
#### **Measurement Data**



#### 6.2.1 Field Strength Of The Fundamental Signal

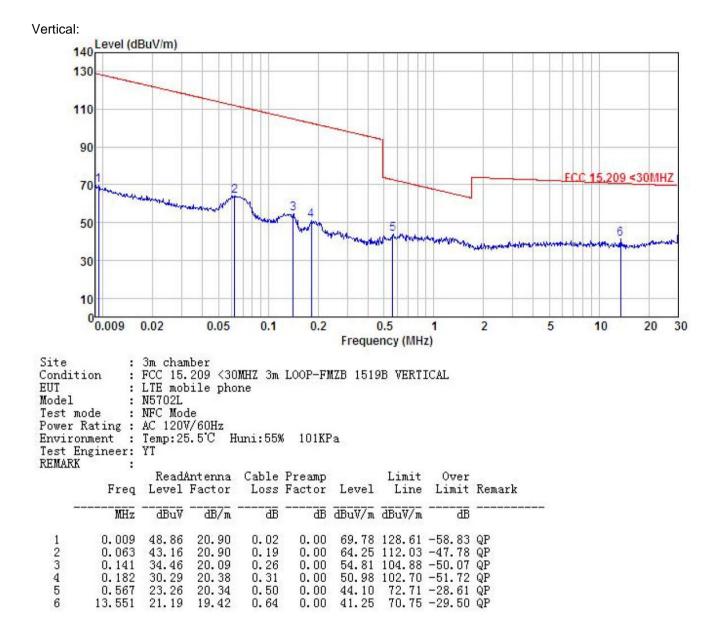


## 6.2.2 Spurious Emissions 9kHz-30MHz:



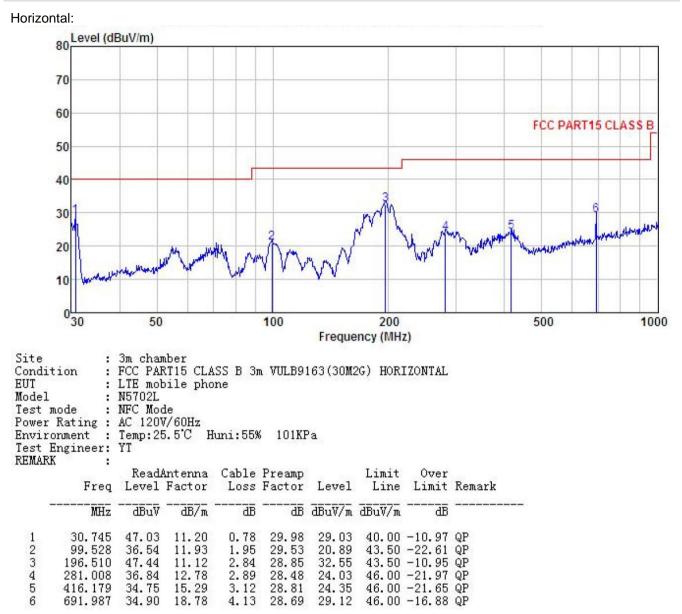






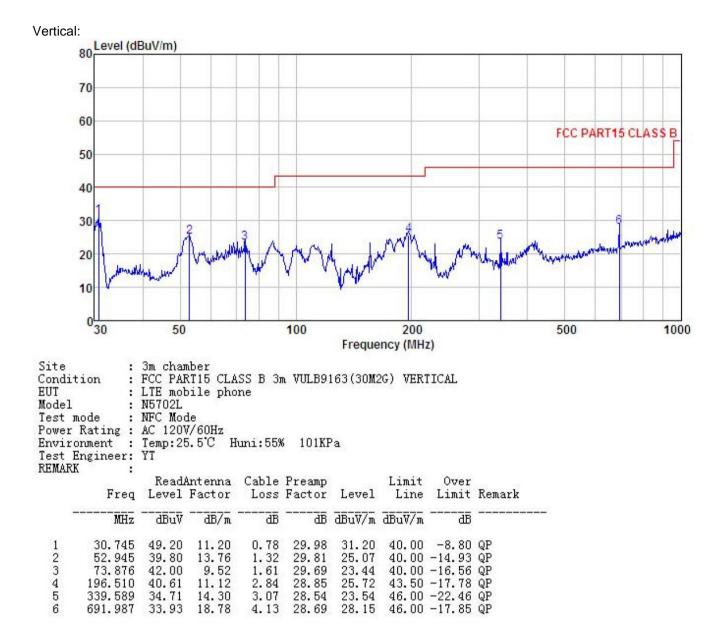


#### 30MHz-1000MHz











## 6.3 20dB Bandwidth

Test Requirement:	FCC Part15 C Section 15.215 (c)			
Test Method:				
	ANSI C63.4:2014			
Receiver setup:	RBW=200Hz, VBW=300Hz, detector: Peak			
Limit:	The fundamental emission be kept within atleast the central 80% of the permitted band			
Test Procedure:	<ol> <li>According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.</li> <li>Set the EUT to proper test channel.</li> <li>Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.</li> <li>Read 20dB bandwidth.</li> </ol>			
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:	Passed			

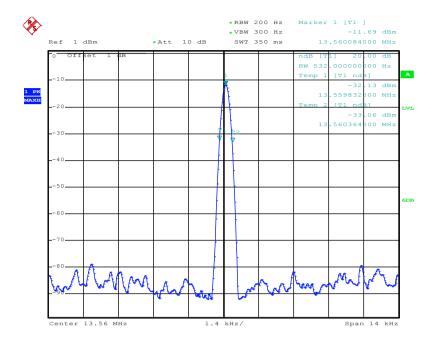
#### Measurement Data

20dB bandwidth (kHz)	Limit (kHz)	Results	
0.532	11.2	Passed	

Note: For 13.56MHz, permitted Band is 14 kHz, so the Limit is 11.2 kHz.



#### Test plot as follows:



Date: 2.NOV.2017 04:10:18



## 6.4 Frequency Tolerance

Test Descionants	FOO Dentar O Dentar Ar 005 (a)			
Test Requirement:	FCC Part15 C Section 15.225 (e)			
Test Method:	ANSI C63.10:2013			
Receiver setup:	RBW=200Hz, VBW=300Hz, span=14kHz, detector: Peak			
Limit:	±0.01% of the operating frequency			
Test mode:	Transmitting mode			
Test Procedure:	Frequency stability V.S. Temperature measurement			
	1. The equipment under test was powered by a fresh battery.			
	<ol> <li>RF output was connected to spectrum analyzer via feed through attenuators.</li> </ol>			
	3. The EUT was placed inside the temperature chamber.			
	4. Set the spectrum analyzer RBW low enough to obtain the desire frequency resolution and measure EUT 20°C operating frequency reference frequency.			
	<ol> <li>Turn EUT off and set the chamber temperature to -20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.</li> </ol>			
	<ol> <li>Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached</li> </ol>			
	Frequency stability V.S. Voltage measurement			
	1. Set chamber temperature to 20°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.			
	<ol> <li>Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.</li> </ol>			
	Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.			
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:	Passed			



#### **Measurement Data**

Temperature (℃)	Voltage (Vdc)	Frequency Tolerance (MHz)	Frequency Error (%)	Limit (%)
-20	3.80	13.56008	0.001	±0.01
+50	3.80	13.56015	0.001	±0.01
+20	3.50	13.56011	0.001	±0.01
+20	4.20	13.56013	0.001	±0.01



## 6.5 Conducted Emission

Test Requirement:	FCC Part15 B Section 15.207									
Test Method:	ANSI C63.4:2014									
TestFrequencyRange:	150kHz to 30MHz									
Class / Severity:	Class B									
Receiver setup:	RBW=9kHz, VBW=30kHz									
Limit:	Limit (dBu\/)					Frequency range (MHz)		Eraguanay ranga (MHz) Limit (dBµV)		
	. ,	<b>U</b> (	Qu	asi-peak		Average				
		5-0.5	66	<u>6 to 56*</u>	5	6 to 46*				
		0.5-5 5-30		<u>56</u> 60		46 50				
	0.5-306050* Decreases with the logarithm of the frequency.				50					
Test setup:	200.000	Referen								
Test procedure	Image: Lish docs     40cm     80cm     Filter     AC power       Image: Filter docs     Filter docs     Filter docs       Image: Filter docs     Filter docs     Filter docs       Image: Filter docs     Filter docs     Filter docs       Image: Filter docs     Filter docs     Filter docs									
	<ol> <li>The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.).It provide 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: 2003 on conducted measurement.</li> </ol>									
Test environment:	Temp.:	23°C	Humid.:	56%	Press.:	101kPa				
Measurement Record:				!	Uncertai	inty: 3.28dB				
Test Instruments:	Refer to section 5.8 for details									
Test mode:	Refer to section 5.3 for details									
Test results:	Pass									



Measurement Data:

