

FCC RF Test Report

(BLE)

Report No.: JYTSZ-R12-2500091

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 Smart phone

Model No.: S6003L, X6 Plus

Trade Mark: NUU

FCC ID: 2ADINS6003L

Applicable Standards: FCC CFR Title 47 Part 15C (§15.247)

Date of Sample Receipt: 23 Dec., 2024

Date of Test: 24 Dec., 2024 to 10 Jan., 2025

Date of Report Issued: 13 Jan., 2025

Test Result: PASS

Project by:

D. Lin / Gu
Project Engineer

Date:

13 Jan., 2025

Reviewed by:

Victor Wang
Senior Engineer

Date:

13 Jan., 2025

Approved by:

James Wei
Manager

Date:

13 Jan., 2025

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

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1 Version

Version No.	Date	Description
00	13 Jan., 2025	<i>Original</i>

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3 General Information

3.1 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:	Room 502, Block B, Fuan Science & Technology Building, Gaoxin South 1 st Road, Nanshan District, Shenzhen, 518063 China.

3.2 General Description of E.U.T.

Product Name:	LTE Smart phone
Model No.:	S6003L, X6 Plus
Operation Frequency:	2402 MHz - 2480 MHz
Channel Numbers:	40
Channel Separation:	2MHz
Modulation Technology:	GFSK
Data Speed:	1 Mbps (LE 1M PHY), 2 Mbps (LE 2M PHY)
Antenna Type:	Internal Antenna
Antenna Gain:	0dBi (declare by applicant)
Antenna transmit mode:	SISO (1TX, 1RX)
Power Supply:	Rechargeable Li-ion Polymer Battery DC3.8V, 3120mAh
AC Adapter:	Model: A8A-050200U-US1 Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2A
Remark:	Model No.: S6003L, X6 Plus, were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name.
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

3.3 Test Mode and Test Environment

Test Mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation
Remark:	
1. For AC power line conducted emission and radiated spurious emission (below 1GHz), pre-scan all data speed, found 1 Mbps (LE 1M PHY) was worse case mode. The report only reflects the test data of worst mode. 2. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report.	
Operating Environment:	
Temperature:	15°C ~ 35°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.80Vdc, Extreme: Low 3.50Vdc, High 4.35Vdc
Test Engineer:	Real Chen(Radiated measurement)

3.4 Description of Test Auxiliary Equipment

The EUT has been tested as an independent unit.

3.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
Radiated Emission (30MHz ~ 200MHz) (3m SAC)	±4.6 dB
Radiated Emission (200MHz ~ 1000MHz) (3m SAC)	±5.8 dB
Radiated Emission (1GHz ~ 18GHz) (3m FAR)	5.15 dB
Radiated Emission (18GHz ~ 40GHz) (3m FAR)	5.30 dB

Note: All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

3.6 Additions to, Deviations, or Exclusions from the Method

No

3.7 Laboratory Facility

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

● **FCC - Designation No.: CN1211**

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

● **ISED - CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen 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 L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

● **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 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>

3.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTee@lets.com, Website: <http://jyt.lets.com>

3.9 Test Instruments List

Radiated Emission(3m SAC):					
Test Equipment	Manufacturer	Model No.	Manage No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	ETS	9m*6m*6m	WXJ001-1	04-14-2021	04-13-2026
Loop Antenna	Schwarzbeck	FMZB 1519 B	WXJ002-4	01-05-2024	01-04-2025
				12-25-2024	12-24-2024
BiConiLog Antenna	Schwarzbeck	VULB9163	WXJ002	01-09-2024	01-08-2025
				12-25-2024	12-24-2024
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-2	01-05-2024	01-04-2025
				12-25-2024	12-24-2024
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-5	12-28-2023	12-27-2024
				12-25-2024	12-24-2024
Pre-amplifier (30MHz ~ 1GHz)	Schwarzbeck	BBV9743B	WXJ001-2	12-27-2023	12-26-2024
				12-16-2024	12-15-2025
EMI Test Receiver	Rohde & Schwarz	ESRP7	WXJ003-1	12-27-2023	12-26-2024
				12-16-2024	12-15-2025
Coaxial Cable (30MHz ~ 1GHz)	JYTSZ	JYT3M-1G-NN-8M	WXG001-4	01-17-2024	01-16-2025
Test Software	Tonscend	TS+	Version: 3.0.0.1		

Radiated Emission(3m FAR):					
Test Equipment	Manufacturer	Model No.	Manage No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m FAR	YUNYI	9m*6m*6m	WXJ097	06-15-2023	06-14-2028
BiConiLog Antenna	Schwarzbeck	VULB9163	WXJ097-2	07-01-2024	06-30-2025
Biconical Antenna	Schwarzbeck	VUBA9117	WXJ002-1	07-01-2024	06-30-2027
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ097-3	06-16-2024	06-15-2025
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-3	12-28-2023 12-25-2024	12-27-2024 12-24-2025
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-5	12-28-2023 12-25-2024	12-27-2024 12-24-2025
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-6	12-28-2023 12-25-2024	12-27-2024 12-24-2025
Pre-amplifier (30MHz ~ 1GHz)	YUNYI	PAM-310N	WXJ097-5	04-24-2024	04-23-2025
Pre-amplifier (1GHz ~ 18GHz)	YUNYI	PAM-118N	WXJ097-6	04-24-2024	04-23-2025
Pre-amplifier (18GHz ~ 40GHz)	RF System	TRLA-180400G45B	WXJ002-7	12-28-2023 12-25-2024	12-27-2024 12-24-2025
EMI Test Receiver	Rohde & Schwarz	ESCI3	WXJ003	12-27-2023 12-16-2024	12-26-2024 12-15-2025
Spectrum Analyzer	Rohde & Schwarz	FSP 30	WXJ004	12-27-2023 12-16-2024	12-26-2024 12-15-2025
Spectrum Analyzer	KEYSIGHT	N9020B	WXJ081-1	06-11-2024	06-10-2025
Coaxial Cable (30MHz ~ 1GHz)	JYTSZ	JYT3M-1G-NN-13M	WXG097-1	07-30-2024	07-29-2025
Coaxial Cable (1GHz ~ 18GHz)	JYTSZ	JYT3M-18G-NN-8M	WXG097-2	07-30-2024	07-29-2025
Coaxial Cable (18GHz ~ 40GHz)	JYTSZ	JYT3M-40G-SS-8M	WXG097-3	07-30-2024	07-29-2025
High Band Reject Filter Group	Tonscend	JS0806-F	WXJ089	N/A	
Low Band Reject Filter Group	Tonscend	JS0806-F	WXJ097-4	N/A	
Test Software	Tonscend	TS+	Version: 5.0.0		

4 Measurement Setup and Procedure

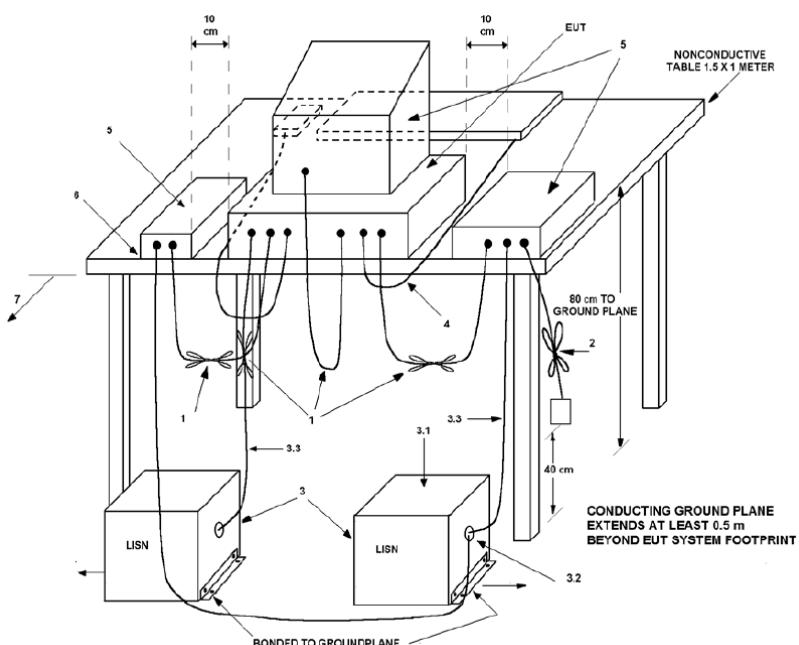
4.1 Test Channel

According to ANSI C63.10-2013 chapter 5.6.1 Table 4 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	20	2442	39	2480

4.2 Test Setup

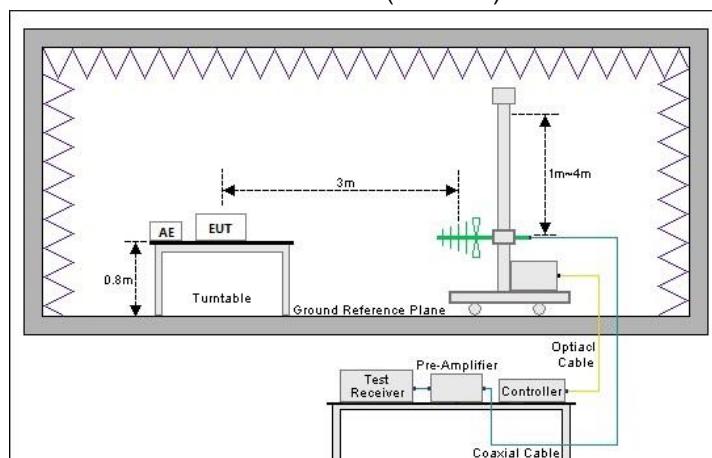
1) Conducted emission measurement:

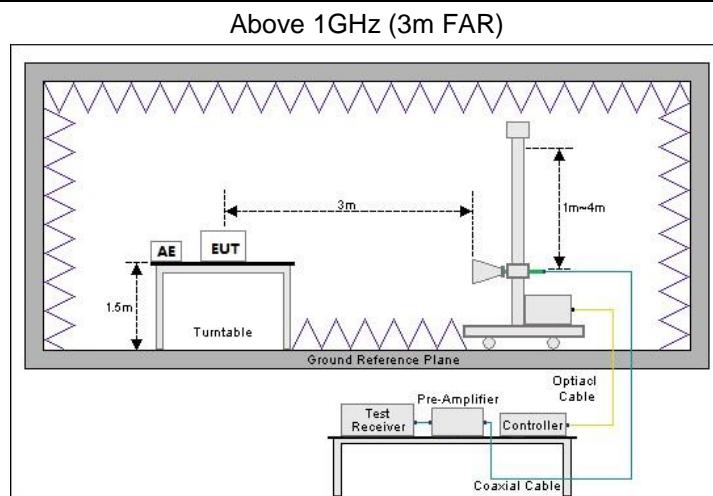


Note: The detailed descriptions please refer to Figure 8 of ANSI C63.4:2014.

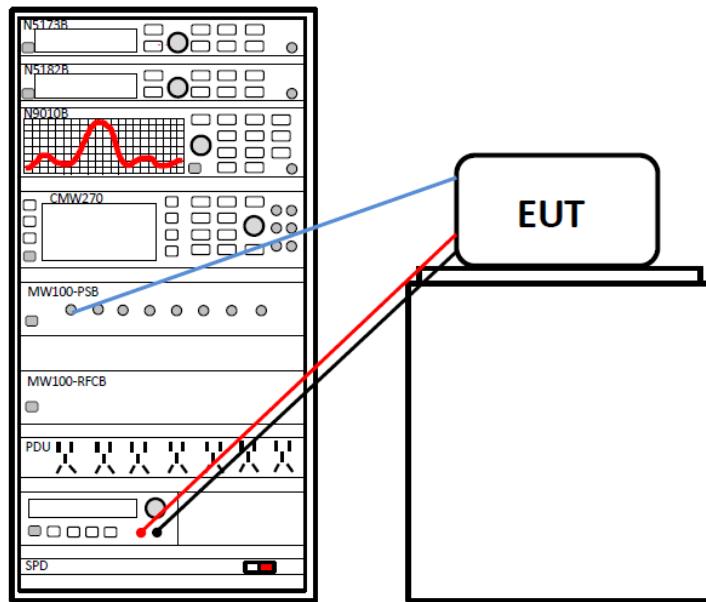
2) Radiated emission measurement:

Below 1GHz (3m SAC)





3) Conducted test method



4.3 Test Procedure

Test method	Test step
Conducted emission	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. 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). 3. 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 C63.10 on conducted measurement.
Radiated emission	<p>For below 1GHz:</p> <ol style="list-style-type: none"> 1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m. 2. EUT works in each mode of operation that needs to be tested , and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data. <p>For above 1GHz:</p> <ol style="list-style-type: none"> 1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m. 2. EUT works in each mode of operation that needs to be tested , and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
Conducted test method	<ol style="list-style-type: none"> 1. The BLE antenna port of EUT was connected to the test port of the test system through an RF cable. 2. The EUT is keeping in continuous transmission mode and tested in all modulation modes. 3. Open the test software, prepare a test plan, and control the system through the software. After the test is completed, the test report is exported through the test software.

5 Test Results

5.1 Summary

5.1.1 Clause and Data Summary

This report was amended on FCC ID: 2ADINS6003L follow FCC Class II Permissive Change. The original report: CCISE200503503, issued by Shenzhen Zhongjian Nanfang Testing Co., Ltd. The differences between them as below: Change the Chipset from MT6761V to MT8766V(Pin to Pin replacement CPU). Update factory address. So need to retest Radiated Emissions in Non-restricted Frequency Bands.

Test items	Standard clause	Test data	Result
Antenna Requirement	15.203 15.247 (b)(4)	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.
AC Power Line Conducted Emission	15.207	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.
Conducted Output Power	15.247 (b)(3)	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.
Power Spectral Density	15.247 (e)	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.
Band-edge Emission Conduction Spurious Emission	15.247 (d)	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.
Emissions in Restricted Frequency Bands	15.205 15.247 (d)	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.	Please refer to FCC ID: 2ADINS6003L, report No.: CCISE200503503.
Emissions in Non-restricted Frequency Bands	15.209 15.247(d)	See Section 5.2	Pass
Remark:			
<ol style="list-style-type: none"> 1. Pass: The EUT complies with the essential requirements in the standard. 2. Please refer to report FCC ID: 2ADINS6003L, report No.: CCISE200503503 issue by Shenzhen Zhongjian Nanfang Testing Co., Ltd. 3. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer). 			
Test Method:	ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02		

5.1.2 Test Limit

Test items	Limit		
AC Power Line Conducted Emission	Frequency (MHz)	Limit (dB μ V)	
		Quasi-Peak	Average
		0.15 – 0.5	66 to 56 <small>Note 1</small>
		0.5 – 5	56
Conducted Output Power	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.		
6dB Emission Bandwidth	The minimum 6 dB bandwidth shall be at least 500 kHz.		
99% Occupied Bandwidth	N/A		
Power Spectral Density	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.		
Band-edge Emission	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits. 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. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).		
Conduction Spurious Emission			
Emissions in Restricted Frequency Bands	Frequency (MHz)	Limit (dB μ V/m)	Detector
		@ 3m	
		30 – 88	40.0
		88 – 216	30.0
Emissions in Non-restricted Frequency Bands	Frequency	33.5	Quasi-peak
		216 – 960	36.0
		960 – 1000	44.0
		Note: The more stringent limit applies at transition frequencies.	
Emissions in Non-restricted Frequency Bands	Frequency	Limit (dB μ V/m) @ 3m	Detector
		Average	
		Above 1 GHz	74.0
Note: The measurement bandwidth shall be 1 MHz or greater.			

5.2 Emissions in Non-restricted Frequency Bands

Above 1GHz:

BLE Tx (LE 1M PHY)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4804.00	49.68	-8.00	41.68	74.00	32.32	Vertical
4804.00	49.59	-8.00	41.59	74.00	32.41	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4804.00	39.81	-8.00	31.81	54.00	22.19	Vertical
4804.00	39.85	-8.00	31.85	54.00	22.15	Horizontal
Test channel: Middle channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4884.00	49.96	-7.45	42.51	74.00	31.49	Vertical
4884.00	49.64	-7.45	42.19	74.00	31.81	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4884.00	39.45	-7.45	32.00	54.00	22.00	Vertical
4884.00	39.9	-7.45	32.45	54.00	21.55	Horizontal
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4960.00	49.44	-7.08	42.36	74.00	31.64	Vertical
4960.00	49.85	-7.08	42.77	74.00	31.23	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4960.00	40.26	-7.08	33.18	54.00	20.82	Vertical
4960.00	39.77	-7.08	32.69	54.00	21.31	Horizontal

Remark:

1. Level = Reading + Factor.
2. Test Frequency up to 25GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.

BLE Tx (LE 2M PHY)						
Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4804.00	49.61	-8.00	41.61	74.00	32.39	Vertical
4804.00	49.38	-8.00	41.38	74.00	32.62	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4804.00	39.72	-8.00	31.72	54.00	22.28	Vertical
4804.00	39.4	-8.00	31.40	54.00	22.60	Horizontal
Test channel: Middle channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4884.00	49.91	-7.45	42.46	74.00	31.54	Vertical
4884.00	49.83	-7.45	42.38	74.00	31.62	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4884.00	39.39	-7.45	31.94	54.00	22.06	Vertical
4884.00	39.41	-7.45	31.96	54.00	22.04	Horizontal
Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4960.00	49.7	-7.08	42.62	74.00	31.38	Vertical
4960.00	49.16	-7.08	42.08	74.00	31.92	Horizontal
Detector: Average Value						
Frequency (MHz)	Read Level (dB μ V)	Factor (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Polarization
4960.00	40.19	-7.08	33.11	54.00	20.89	Vertical
4960.00	40.18	-7.08	33.10	54.00	20.90	Horizontal

Remark:

1. Level = Reading + Factor.
2. Test Frequency up to 25GHz, and the emission levels of other frequencies are lower than the limit 20dB, not show in test report.

-----End of report-----