# **FCC Test Report**

APPLICANT : Gosuncn Technology Group Co., Ltd.
EQUIPMENT : Automatic Database Diagnostic Monitor

(LTE OBD II Dongle)

BRAND NAME : GOSUNCN

MODEL NAME : GD201

FCC ID : 2APNR-GD201

STANDARD : 47 CFR Part 15 Subpart B

**CLASSIFICATION**: Certification

TEST DATE(S) : Aug. 02, 2021 ~ Aug. 12, 2021

We, Sporton International (Kunshan) 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

Reviewed by: Derreck Chen / Supervisor

Fire Shih

Dogue Cher

Approved by: Eric Shih / Manager

# Sporton International (ShenZhen) Inc.

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen, 518055
People's Republic of China

Sporton International (Shenzhen) Inc.

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# **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC171528	Rev. 01	Initial issue of report	Aug. 23, 2021

Sporton International (Shenzhen) Inc.

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# **SUMMARY OF TEST RESULT**

Report Section	FCC Rule	Description	Limit	Result	Remark
					Under limit
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	12.89 dB at
					0.280 MHz
					Under limit
3.2	15.109 Radiated Emission	Radiated Emission	< 15.109 limits	PASS	8.4 dB at
					58.130 MHz

### Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

### **Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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# 1. General Description

# 1.1. Applicant

Gosuncn Technology Group Co., Ltd.

6F, 2819 KaiChuang Blvd., Science Town, Huangpu District, Guangzhou City, Guangdong, China.

### 1.2. Manufacturer

Gosuncn Technology Group Co., Ltd.

6F, 2819 KaiChuang Blvd., Science Town, Huangpu District, Guangzhou City, Guangdong, China.

# 1.3. Product Feature of Equipment Under Test

	Product Feature	
Equipment	Automatic Database Diagnostic Monitor (LTE OBD II Dongle)	
Brand Name	GOSUNCN	
Model Name	GD201	
FCC ID	2APNR-GD201	
EUT supports Radios application	GSM/LTE Cat M1/Bluetooth LE/GNSS	
IMEI Code	Conduction: 864341050000010	
INIEI Code	Radiation: 864341050000028	
HW Version	GD201_MB_A	
SW Version	MCU_EN_GD201V1.1.1B02	
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

Stan	Standards-related Product Specification			
Tx Frequency	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850MHz ~ 1910MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 26: 814 MHz ~ 849 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz			
Rx Frequency	GSM850: 869 MHz ~ 894 MHz GSM1900: 1930 MHz ~ 1990 MHz LTE Band 2: 1930 MHz ~ 1990 MHz LTE Band 4: 2110 MHz ~ 2155 MHz			

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	LTE Band 5 : 869 MHz ~ 894 MHz
	LTE Band 12 : 729 MHz ~ 746 MHz
	LTE Band 13: 746 MHz ~ 756 MHz
	LTE Band 26: 859 MHz ~ 894 MHz
	Bluetooth: 2400 MHz ~ 2483.5 MHz
	GNSS : 1559 MHz ~ 1610 MHz
	WWAN : Fixed Internal Antenna
Antenna Type	Bluetooth : Fixed Internal Antenna
	GNSS: Fixed Internal Antenna
	GPRS: GMSK
	EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK
Type of Modulation	LTE: QPSK / 16QAM
	Bluetooth LE : GFSK
	GNSS: BPSK

GNSS = GLONASS + GPS

# 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/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International (Shenzhen) Inc.			
Test Site Location	1/F, 2/F, Bldg 5, Shili Shenzhen, 518055 Peop TEL: +86-755-86379589	le's Republic of China	vei Village, Xili, Nanshan,	
	FAX: +86-755-86379595			
	Snorton Site No	ECC Designation No	FCC Test Firm	
Test Site No.	Sporton Site No.	FCC Designation No.	Registration No.	
	CO01-SZ	CN1256	421272	

Test Firm	Sporton International (Shenzhen) Inc.				
	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang				
Test Site Location	Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province				
rest site Location	China 518103				
	TEL: +86-755-33202398				
	FCC	FCC Designation	FCC Test Firm		
Test Site No.	Sporton Site No.	No.	Registration No.		
	03CH05-SZ	CN1256	421272		

Sporton International (Shenzhen) Inc.

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### 1.7. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH05-SZ	AUDIX	E3	6.2009-8-24
2.	CO01-SZ	AUDIX	E3	6.120613b

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# 1.8. Applicable Standards

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

- 47 CFR 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.

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# 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 frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
	Mode 1: GPRS 850 Idle(Middle) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery
AC Conducted	Mode 2: LTE Band 12 Cat M1 Idle(High) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery
Emission	Mode 3: LTE Band 13 Cat M1 Idle(Low) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery
	Mode 4: LTE Band 26 Cat M1 Idle(Middle) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery
	Mode 1: GPRS 850 Idle(Middle) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery
Radiated	Mode 2: LTE Band 12 Cat M1 Idle(High) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery
Emissions	Mode 3: LTE Band 13 Cat M1 Idle(Low) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery
	Mode 4: LTE Band 26 Cat M1 Idle(Middle) + Bluetooth Idle + GNSS Rx + Charging From Adapter + Battery

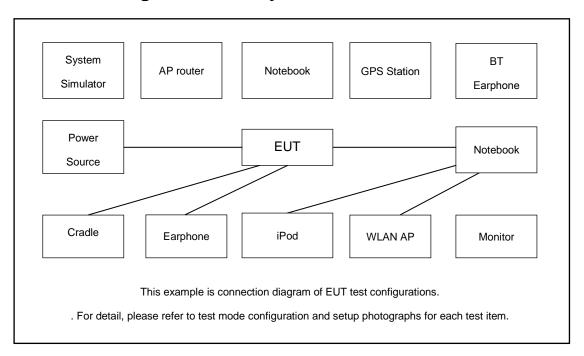
#### Remark:

- 1. The worst case of AC is mode 4; only the test data of this mode is reported.
- 2. The worst case of RE is mode 2; only the test data of this mode is reported.
- 3. Pre-scanned Low/Middle/High channel for GSM 850/ LTE Band 12/13/26, the worst channel was recorded in this report.

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# 2.2. Connection Diagram of Test System



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

# 2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
2.	Notebook	Lenovo	E540	FCC DoC	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m	N/A
3.	IPod	apple	MC69029/A	N/A	N/A	N/A
4.	Mobile phone	Oneplus	N/A	N/A	N/A	N/A
5.	Base Station	Anritsu	MT8820C	Fcc DoC	N/A	Shielded, 1.5m
6.	Base Station(LTE)	Anritsu	CMW 500	N/A	N/A	Unshielded,1.8m
7.	Adapter	Mentech	MAC-120100X-D-16	N/A	N/A	N/A

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# 2.4. EUT Operation Test Setup

The EUT was in GSM or LTE 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 following programs installed in the EUT were programmed during the test.

- 1. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.
- 2. Bluetooth idle with Mobile phone.

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

<sup>\*</sup>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.

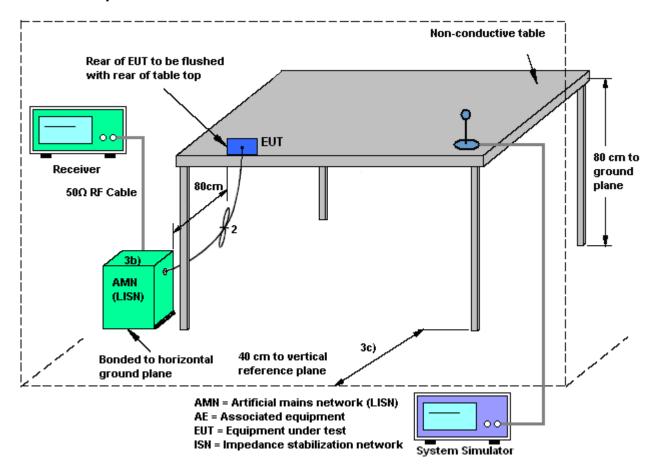
#### 3.1.3 Test Procedure

- 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.

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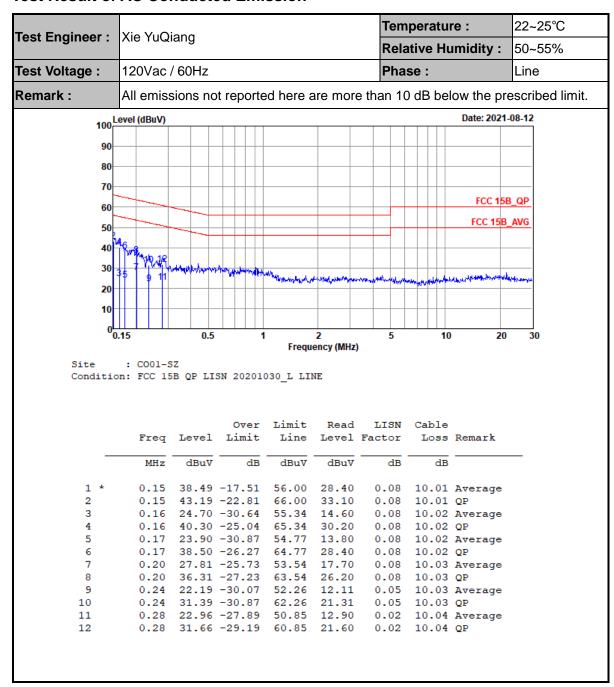
# 3.1.4 Test Setup



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### 3.1.5 Test Result of AC Conducted Emission



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Tool Chairs	Via V:-01-				Temp	eratur	22~25°C		
Test Engineer :	Xie YuQia	ang				Relat	ive Hu	50~55%	
Test Voltage :	120Vac /		Phas	e :		Neutral			
Remark :	All emissi	ons not	reported	d here a	than 10	dB belo	w the pre	escribed limit	
	Lovel (dDvV)							Date: 202	1 08 12
100	Level (dBuV)							Date. 202	1-00-12
90									
80									
70									
70								FCC 15	SR OP
60		-							
50								FCC 15E	B_AVG
40	404 13								
	11 TT-44-11								
30	35	MANA MANAGEMENT MANAGEMENT AND ADMINISTRATION OF THE PARTY OF THE PART	CANAL SE PROPERTY	Manager de la	ور الاساري وسيدوه	And the ball	· va dameda .	was free free free free free free free fre	ark the grant of
20	) <del>                                      </del>			, leber	11 402-144		77 14 14 14	4441	
10									
0	0.15	0.5	1		2	5	10	20	0 30
0			1		2 ency (MHz)	_	10	20	0 30
Site Conditi	: CO01-S	SZ		Frequ	ency (MHz)	_	10	20	0 30
		SZ		Frequ	ency (MHz)	_	10	20	0 30
	: CO01-S	SZ		Frequ	ency (MHz)	_	10	20	D 30
	: CO01-S	SZ	SN 202010	Frequi	ency (MHz)	)		20	0 30
	: CO01-S	SZ SB QP LI:	SN 202010	Freque 030_N NET Limit	ency (MHz) UTRAL Read	LISN	Cable	20 Remark	0 30
	: CO01-S	SZ SB QP LI:	SN 202010	Freque 030_N NET Limit	ency (MHz) UTRAL Read	)	Cable		0 30
	: CO01-S	SZ SB QP LI:	SN 202010	Freque 030_N NET Limit	ency (MHz) UTRAL Read	LISN Factor	Cable		0 30
Conditi —	: CO01-S ion: FCC 15 Freq	Level	Over Limit	Frequence of Frequ	Read Level dBuV	LISN Factor	Cable Loss	Remark	0 30
	: CO01-S ion: FCC 15 Freq MHz	Level dBuV 38.19	Over Limit dB	Limit Line  dBuV	Read Level dBuV	LISN Factor dB	Cable Loss dB	Remark	0 30
Conditi — 1	: C001-S ion: FCC 15 Freq MHz 0.15 0.15	Level dBuV 38.19 42.69	Over Limit	Limit Line  dBuV 56.00 66.00	Read Level dBuV	LISN Factor dB	Cable Loss  dB  10.01 10.01	Remark	
Conditi - 1 2 3 4	: C001-S Lon: FCC 15 Freq MHz 0.15 0.15 0.16 0.16	Level  dBuV  38.19 42.69 23.49 40.59	Over Limit dB -17.81 -23.31 -31.98 -24.88	Limit Line dBuV 56.00 66.00 55.47 65.47	Read Level dBuV 28.10 32.60 13.40 30.50	LISN Factor dB 0.08 0.08 0.08 0.08 0.08	Cable Loss  dB  10.01 10.01 10.01 10.01	Remark Average QP Average QP	
Conditi - 1 2 3 4 5	: C001-S Lon: FCC 15 Freq MHz 0.15 0.15 0.16 0.16 0.17	Level  dBuV  38.19 42.69 23.49 40.59 23.00	Over Limit dB -17.81 -23.31 -31.98 -24.88 -31.81	Limit Line dBuV 56.00 66.00 55.47 65.47 54.81	Read Level dBuV 28.10 32.60 13.40 30.50 12.90	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08	Cable Loss  dB  10.01 10.01 10.01 10.01 10.02	Remark  Average QP Average QP Average	
Conditi - 1 2 3 4 5 6	: C001-S lon: FCC 15  Freq  MHz  0.15 0.15 0.16 0.16 0.17 0.17	Level  dBuV  38.19 42.69 23.49 40.59 23.00 38.30	Over Limit dB -17.81 -23.31 -31.98 -24.88 -31.81 -26.51	Limit Line dBuV 56.00 66.00 55.47 65.47 54.81 64.81	Read Level  dBuV  28.10 32.60 13.40 30.50 12.90 28.20	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08 0.08	Cable Loss  dB  10.01 10.01 10.01 10.02 10.02	Remark  Average QP Average QP Average QP	
Conditi - 1 2 3 4 5	: C001-S lon: FCC 15  Freq  MHz  0.15 0.15 0.16 0.16 0.17 0.17 0.19	Level  dBuV  38.19 42.69 23.49 40.59 23.00 38.30 28.01	Over Limit ———————————————————————————————————	Limit Line dBuV 56.00 66.00 55.47 65.47 54.81 64.81 54.02	Read Level  dBuV  28.10 32.60 13.40 30.50 12.90 28.20 17.90	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.	Cable Loss  dB  10.01 10.01 10.01 10.02 10.02 10.02	Remark  Average QP Average QP Average QP Average QP Average	
Conditi - 1 2 3 4 5 6 7	: CO01-S ion: FCC 15  Freq  MHz  0.15 0.15 0.16 0.16 0.17 0.17 0.19 0.19	Level  dBuV  38.19 42.69 23.49 40.59 23.00 38.30 28.01 36.41	Over Limit dB -17.81 -23.31 -31.98 -24.88 -31.81 -26.51 -26.01 -27.61	Limit Line dBuV 56.00 66.00 55.47 54.81 64.81 54.02 64.02	Read Level  dBuV  28.10 32.60 13.40 30.50 12.90 28.20 17.90 26.30	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08 0.08	Cable Loss  dB  10.01 10.01 10.01 10.02 10.02 10.03 10.03	Remark  Average QP Average QP Average QP Average QP Average	
Conditi - 1 2 3 4 5 6 7 8 9	: CO01-S ion: FCC 15  Freq  MHz  0.15 0.15 0.16 0.16 0.17 0.17 0.19 0.19 0.21 0.21	Level  dBuV  38.19 42.69 23.49 40.59 23.00 38.30 28.01 36.41 27.81 35.41	Over Limit dB -17.81 -23.31 -31.98 -24.88 -31.81 -26.51 -26.01 -27.61 -25.59 -27.99	Limit Line dBuV 56.00 66.00 55.47 65.47 54.81 64.81 54.02 64.02 53.40 63.40	Read Level  dBuV  28.10 32.60 13.40 30.50 12.90 28.20 17.90 26.30 17.70 25.30	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.	Cable Loss  dB  10.01 10.01 10.01 10.02 10.02 10.03 10.03 10.03 10.03	Remark  Average QP Average QP Average QP Average QP Average QP	
Conditi - 1 2 3 4 5 6 7 8 9 10 11 *	: CO01-S ion: FCC 15  Freq  MHz  0.15 0.16 0.16 0.17 0.17 0.19 0.19 0.21 0.21 0.28	Level  dBuV  38.19 42.69 23.49 40.59 23.00 38.30 28.01 36.41 27.81 35.41 37.96	Over Limit dB -17.81 -23.31 -31.98 -24.88 -31.81 -26.51 -26.01 -27.61 -27.61 -27.99 -12.89	Limit Line dBuV 56.00 66.00 55.47 65.47 54.81 64.81 54.02 64.02 53.40 63.40 50.85	Read Level  dBuV  28.10 32.60 13.40 30.50 12.90 28.20 17.90 26.30 17.70 25.30 27.90	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.	Cable Loss  dB  10.01 10.01 10.01 10.02 10.02 10.03 10.03 10.03 10.03	Remark  Average QP Average QP Average QP Average QP Average QP Average	
Conditi - 1 2 3 4 5 6 7 8 9	: CO01-S ion: FCC 15  Freq  MHz  0.15 0.16 0.16 0.17 0.17 0.19 0.19 0.21 0.21 0.28	Level  dBuV  38.19 42.69 23.49 40.59 23.00 38.30 28.01 36.41 27.81 35.41 37.96	Over Limit dB -17.81 -23.31 -31.98 -24.88 -31.81 -26.51 -26.01 -27.61 -25.59 -27.99	Limit Line dBuV 56.00 66.00 55.47 65.47 54.81 64.81 54.02 64.02 53.40 63.40 50.85	Read Level  dBuV  28.10 32.60 13.40 30.50 12.90 28.20 17.90 26.30 17.70 25.30 27.90	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.	Cable Loss  dB  10.01 10.01 10.01 10.02 10.02 10.03 10.03 10.03 10.03	Remark  Average QP Average QP Average QP Average QP Average QP Average	
Conditi - 1 2 3 4 5 6 7 8 9 10 11 *	: CO01-S ion: FCC 15  Freq  MHz  0.15 0.16 0.16 0.17 0.17 0.19 0.19 0.21 0.21 0.28	Level  dBuV  38.19 42.69 23.49 40.59 23.00 38.30 28.01 36.41 27.81 35.41 37.96	Over Limit dB -17.81 -23.31 -31.98 -24.88 -31.81 -26.51 -26.01 -27.61 -27.61 -27.99 -12.89	Limit Line dBuV 56.00 66.00 55.47 65.47 54.81 64.81 54.02 64.02 53.40 63.40 50.85	Read Level  dBuV  28.10 32.60 13.40 30.50 12.90 28.20 17.90 26.30 17.70 25.30 27.90	LISN Factor  dB  0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.	Cable Loss  dB  10.01 10.01 10.01 10.02 10.02 10.03 10.03 10.03 10.03	Remark  Average QP Average QP Average QP Average QP Average QP Average	

### Note:

- 1. Level(dB $\mu$ V) = Read Level(dB $\mu$ V) + LISN Factor(dB) + Cable Loss(dB)
- 2. Over Limit(dB) = Level(dB $\mu$ V) Limit Line(dB $\mu$ V)

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# 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	Field Strength	Measurement Distance		
(MHz)	(microvolts/meter)	(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.

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#### 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
- 10. Exploratory radiated emissions testing of handheld and/or body-worn devices shall include rotation of the EUT through three orthogonal axes (X/Y/Z Plane) to determine the orientation (attitude) that maximizes the emissions.

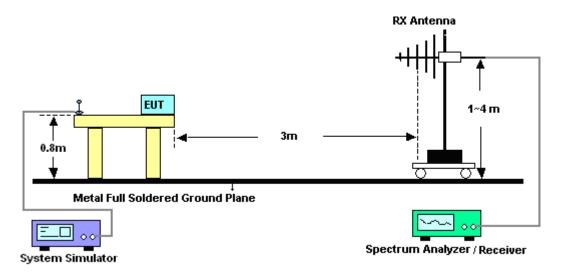
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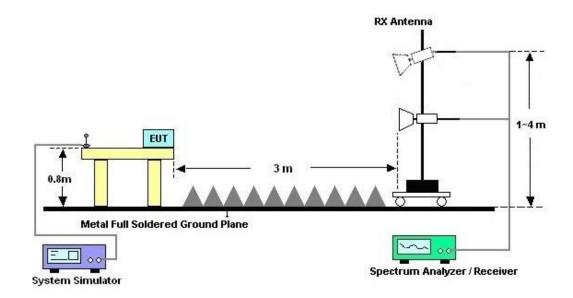
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# 3.2.4. Test Setup of Radiated Emission

### For radiated emissions from 30MHz to 1GHz



### For radiated emissions above 1GHz

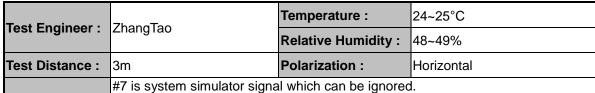


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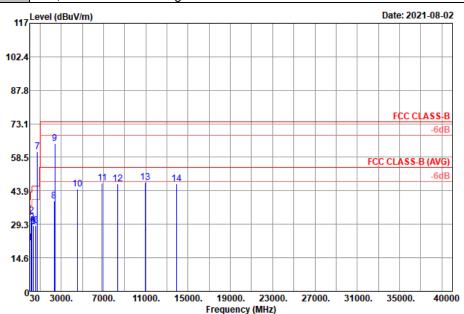
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### 3.2.5. Test Result of Radiated Emission



Remark: #9 is RF signals which come from Bluetooth Access Point used to connect the

EUT, and which can be ignored.



Site : 03CH05-SZ

Condition : FCC CLASS-B 3m VULB9168-01001 HORIZONTAL

	Freq	Level	Over Limit	Limit Line		Antenna Factor		Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	59.10	21.06	-18.94	40.00	34.31	19.64	2.23	35.12			Peak
2	191.02	32.98	-10.52	43.50	48.55	16.82	2.71	35.10	100	125	Peak
3	269.59	29.96	-16.04	46.00	43.08	18.86	2.98	34.96			Peak
4	353.01	28.62	-17.38	46.00	39.35	20.93	3.23	34.89			Peak
5	391.81	28.48	-17.52	46.00	38.04	21.96	3.30	34.82			Peak
6	613.94	28.82	-17.18	46.00	33.47	25.96	3.89	34.50			Peak
7 *	741.00	61.06			63.89	27.68	3.91	34.42			Peak
8	2324.00	39.47	-34.53	74.00	54.19	27.95	7.72	50.39			Peak
9	2402.00	64.53			79.37	27.79	7.81	50.44			Peak
10	4542.00	44.54	-29.46	74.00	53.23	30.77	10.13	49.59			Peak
11	6876.00	47.31	-26.69	74.00	50.60	34.93	11.66	49.88			Peak
12	8340.00	46.98	-27.02	74.00	46.75	37.16	12.87	49.80			Peak
13	10976.00	47.60	-26.40	74.00	40.16	40.57	14.89	48.02	100	332	Peak
14	13946.00	46.87	-27.13	74.00	39.09	40.88	14.52	47.62			Peak

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Took Cuellings	7ho::	Temperature : Relative Humidity : Polarization :			24~	24~25°C 48~49% Vertical					
Test Engineer :	ZhangTao				: 48~						
Test Distance :	3m				Ver						
Remark :		signa	ls whi	ch com				ss Point used to connect t			
	117 Level (dB						Date	e: 2021-08	-02		
	102.4										
	87.8										
	73.1								F	-60	
	7 1										
	58.5								FCC CL	ASS-B (AV	<del></del>
	43.9	11. 10	12 13	14						-60	IB .
	4 1										
	29.3										
	14.6										
	030 3000	0. 7000	D. 1100	0. 1500				00. 310	00. 350	000. 40	0000
Site		0. 7000		00. 1500		00. 2300 ncy (MHz)		00. 310	00. 350	000. 40	0000
Site Cond	:		5-SZ		Freque	ncy (MHz)		00. 310	00. 350	000. 40	0000
	:	03 <i>C</i> H05	5-SZ		Freque	ncy (MHz)		00. 310	00. 350	000. 40	0000
	:	03 <i>C</i> H05	5-SZ		Freque	ncy (MHz)		00. 310	00. 350	000. 40	0000
	:	03 <i>C</i> H05	5-SZ 4SS-B 3	m VULBS	Freque 9168-010	ncy (MHz)	TICAL				
	ition :	03 <i>C</i> H05	5-SZ 4SS-B3 Over	m VULB9	Freque 9168-010 Read	ncy (MHz) 001 VER <sup>-</sup> Antenna	TI <i>CA</i> L Cable	Preamp			
	ition :	03CH05 FCC CL/	5-SZ ASS-B3 Over Limit	m VULBS	Freque 9168-010 Read/ Level	OO1 VER	TICAL Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	ition :	03CH05 FCC CL/	5-SZ ASS-B3 Over Limit	m VULB9	Freque 9168-010 Read	ncy (MHz) 001 VER <sup>-</sup> Antenna	TICAL Cable Loss	Preamp Factor		T/Pos	Remark
Cond	Freq MHz	Level dBuV/m 31.60	5-SZ ASS-B 3 Over Limit dB -8.40	Limit Line dBuV/m	Read/Level dBuV	OO1 VER Antenna Factor dB/m 19.75	Cable Loss dB	Preamp Factor dB	A/Pos cm	T/Pos deg 269	Remark —————————
2 Cond	Freq MHz 58.13 120.21	Level dBuV/m 31.60 30.17	0ver Limit dB -8.40	Limit Line dBuV/m 40.00 43.50	Read/ Level dBuV 44.77 45.73	Antenna Factor dB/m 19.75 17.10	Cable Loss  dB 2.20 2.50	Preamp Factor dB 35.12 35.16	A/Pos	T/Pos deg 269	Remark ————————————————————————————————————
Cond	Freq MHz 58.13 120.21 164.83	Level 31.60 30.17 33.34	Over Limit dB -8.40 -13.33 -10.16	Limit Line dBuV/m 40.00 43.50 43.50	Read/ Level dBuV 44.77 45.73 46.53	Antenna Factor dB/m 19.75 17.10 19.30	Cable Loss  dB 2.20 2.50 2.61	Preamp Factor dB 35.12 35.16 35.10	A/Pos cm	T/Pos deg 269	Remark Peak Peak Peak
2 3	Freq MHz 58.13 120.21	Level  31.60 30.17 33.34 35.41	Over Limit dB -8.40 -13.33 -10.16 -10.59	Limit Line dBuV/m 40.00 43.50	Read/ Level dBuV 44.77 45.73	Antenna Factor dB/m 19.75 17.10 19.30	Cable Loss  dB 2.20 2.50	Preamp Factor dB 35.12 35.16 35.10 34.96	A/Pos cm 100	T/Pos  deg  269	Remark ————————————————————————————————————
2 3 4	Freq MHz 58.13 120.21 164.83 268.62	Level  31.60 30.17 33.34 35.41 29.94	Over Limit dB -8.40 -13.33 -10.16 -10.59	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00	Read/ Level dBuV 44.77 45.73 46.53 48.57	001 VER	Cable Loss dB 2.20 2.50 2.61 2.98	Preamp Factor dB 35.12 35.16 35.10 34.96 34.90	A/Pos	T/Pos  deg  269	Remark Peak Peak Peak Peak Peak
Cond  1 2 3 4 5	Freq MHz 58.13 120.21 164.83 268.62 340.40 481.05	Level 4BuV/m 31.60 30.17 33.34 35.41 29.94 29.56	Over Limit dB -8.40 -13.33 -10.16 -10.59 -16.06	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00	Read/ Level dBuV 44.77 45.73 46.53 48.57 40.85	001 VER Antenna Factor  19.75 17.10 19.30 18.82 20.77	Cable Loss dB 2.20 2.50 2.61 2.98 3.22	Preamp Factor dB 35.12 35.16 35.10 34.96 34.90 34.70	A/Pos	T/Pos  deg  269	Remark  Peak Peak Peak Peak Peak Peak
Cond  1 2 3 4 5 6	Freq MHz 58.13 120.21 164.83 268.62 340.40 481.05	Level dBuV/m 31.60 30.17 33.34 35.41 29.94 29.56 61.92	Over Limit dB -8.40 -13.33 -10.16 -10.59 -16.06 -16.44	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00	Read/ Level dBuV 44.77 45.73 46.53 48.57 40.85 37.30	001 VER  Antenna Factor  19.75 17.10 19.30 18.82 20.77 23.55	Cable Loss  dB  2.20 2.50 2.61 2.98 3.22 3.41	Preamp Factor dB 35.12 35.16 35.10 34.96 34.90 34.70 34.42	A/Pos	T/Pos  deg 269	Remark  Peak Peak Peak Peak Peak Peak Peak Pe
2 3 4 5 6 7 8 9	Freq  MHz  58.13 120.21 164.83 268.62 340.40 481.05 741.00 2184.00 2402.00	Level 31.60 30.17 33.34 35.41 29.94 29.56 61.92 38.69 64.89	Over Limit  -8.40 -13.33 -10.16 -10.59 -16.06 -16.44 -35.31	Limit Line dBuV/m 40.00 43.50 46.00 46.00 74.00	Read/Level dBuV 44.77 45.73 46.53 48.57 40.85 37.30 64.75 53.44 79.73	Antenna Factor dB/m 19.75 17.10 19.30 18.82 20.77 23.75 27.68 28.00 27.79	Cable Loss	Preamp Factor dB 35.12 35.16 35.10 34.96 34.90 34.70 34.42 50.31 50.44	A/Pos  cm  100	T/Pos  deg 269	Remark Peak Peak Peak Peak Peak Peak Peak Pea
Cond  1 2 3 4 5 6 7 8 9 10	Freq  MHz  58.13 120.21 164.83 268.62 340.40 481.05 741.00 2184.00 2402.00 4606.00	Level 31.60 30.17 33.34 35.41 29.94 29.56 61.92 38.69 64.89 44.86	Over Limit  -8.40 -13.33 -10.16 -16.06 -16.44 -35.31	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00 74.00	Read/Level dBuV 44.77 45.73 46.53 48.57 40.85 37.30 64.75 53.44 79.73 53.33	Antenna Factor 19.75 17.10 19.30 18.82 20.77 23.75 27.68 28.00 27.79 30.92	Cable Loss	Preamp Factor dB 35.12 35.16 35.10 34.96 34.90 34.42 50.31 50.44 49.58	A/Pos	T/Pos  deg 269	Remark  Peak Peak Peak Peak Peak Peak Peak Pe
Cond  1 2 3 4 5 6 7 8 9 10 11	Freq  MHz  58.13 120.21 164.83 268.62 340.40 481.05 741.00 2184.00 2402.00 4606.00 6922.00	Level 31.60 30.17 33.34 35.41 29.94 29.56 61.92 38.69 64.89 44.86 48.22	Over Limit  -8.40 -13.33 -10.16 -10.59 -16.06 -16.44 -35.31 -29.14 -25.78	Limit Line dBuV/m 40.00 43.50 46.00 46.00 74.00 74.00 74.00	Read/Level dBuV 44.77 45.73 46.53 48.57 40.83 64.75 53.44 79.73 53.33 51.49	Antenna Factor 19.75 17.10 19.30 18.82 20.77 23.55 27.68 28.00 27.79 30.92 35.03	Cable Loss  dB  2.20 2.50 2.61 2.98 3.22 3.41 3.91 7.56 7.81 10.19 11.70	Preamp Factor dB 35.12 35.16 35.10 34.96 34.90 34.42 50.31 50.44 49.58 50.00	A/Pos  cm 100 100	T/Pos  deg  269 215	Remark Peak Peak Peak Peak Peak Peak Peak Pea
Cond  1 2 3 4 5 6 7 8 9 10 11	Freq  MHz  58.13 120.21 164.83 268.62 340.40 481.05 * 741.00 2184.00 2402.00 4606.00 6922.00 7922.00	Level 31.60 30.17 33.34 35.41 29.94 29.96 61.92 38.69 64.89 44.86 48.22 46.42	Over Limit  -8.40 -13.33 -10.16 -10.59 -16.06 -16.44 -35.31 -29.14 -25.78 -27.58	Limit Line dBuV/m 40.00 43.50 46.00 46.00 74.00 74.00 74.00 74.00	Read/ Level dBuV 44.77 45.73 46.53 48.57 40.85 37.30 64.75 53.44 79.73 53.33 51.49 46.71	Antenna Factor 19.75 17.10 19.30 18.82 20.77 23.55 27.68 28.60 27.79 30.92 35.03 37.34	Cable Loss  dB  2.20 2.50 2.61 2.98 3.22 3.41 3.91 7.56 7.81 10.19 11.70 12.45	Preamp Factor dB 35.12 35.16 35.10 34.90 34.70 34.42 50.31 50.44 49.58 50.00 50.08	A/Pos  100 100 100	T/Pos  deg  269 215	Remark Peak Peak Peak Peak Peak Peak Peak Pea
Cond  1 2 3 4 5 6 7 8 9 10 11	Freq  MHz  58.13 120.21 164.83 268.62 340.40 481.05 741.00 2184.00 2402.00 4606.00 6922.00	Level  31.60 30.17 33.34 35.41 29.94 29.56 61.92 38.69 64.89 44.86 48.22 46.42 46.89	Over Limit  -8.40 -13.33 -10.16 -10.59 -16.06 -16.44 -35.31 -29.14 -25.78 -27.58 -27.11	Limit Line dBuV/m 40.00 43.50 43.50 46.00 46.00 74.00 74.00 74.00 74.00 74.00	Read/Level  dBuV  44.77 45.73 46.53 48.57 40.85 37.30 64.75 53.44 79.73 53.33 51.49 46.71 39.74	19.75 17.10 19.30 18.82 20.77 23.55 27.68 28.60 27.79 30.92 35.03 37.34 40.51	Cable Loss  dB  2.20 2.50 2.61 2.98 3.22 3.41 3.91 7.56 7.81 10.19 11.70 12.45 14.69	Preamp Factor dB 35.12 35.16 35.10 34.96 34.70 34.42 50.31 50.44 49.58 50.00 50.08 48.05	A/Pos  cm 100 100	T/Pos  deg  269 215	Remark Peak Peak Peak Peak Peak Peak Peak Pea

### Note:

- 1. Level( $dB\mu V/m$ ) = Read Level( $dB\mu V$ ) + Antenna Factor(dB/m) + Cable Loss(dB) Preamp Factor(dB)
- 2. Over Limit(dB) = Level(dB $\mu$ V/m) Limit Line(dB $\mu$ V/m)

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# 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Mar. 07, 2021	Aug. 12, 2021	Mar. 06, 2022	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2 LISN	00103912	9kHz~30MHz	Dec. 25, 2020	Aug. 12, 2021	Dec. 24, 2021	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 15, 2020	Aug. 12, 2021	Oct. 14, 2021	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000089 1	100Vac~250Vac	Jul. 20, 2021	Aug. 12, 2021	Jul. 19, 2022	Conduction (CO01-SZ)
EMI Test Receiver	R&S	ESR7	102261	9kHz~7GHz	Apr. 30, 2021	Aug. 02, 2021	Apr. 29, 2022	Radiation (03CH05-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY59071191	10Hz~44GHz	Apr. 28, 2021	Aug. 02, 2021	Apr. 27, 2022	Radiation (03CH05-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2020	Aug. 02, 2021	Jun. 21, 2022	Radiation (03CH05-SZ)
Log-periodic Antenna	SCHWARZBE CK	VULB 9168	01001	20MHz~1.5GHz	Mar.15, 2021	Aug. 02, 2021	Mar. 14, 2022	Radiation (03CH05-SZ)
Double Ridge Horn Antenna	SCHWARZBE CK	BBHA9120D	9120D-2206	1GHz~18GHz	Apr. 21, 2021	Aug. 02, 2021	Apr. 20, 2022	Radiation (03CH05-SZ)
Horn Antenna	SCHWARZBE CK	BBHA9170	00983	15GHz~40GHz	Apr. 14. 2021	Aug. 02, 2021	Apr. 13, 2022	Radiation (03CH05-SZ)
Amplifier	EM Electronics	EM330	060756	0.01Hz ~3000MHz	Mar. 12, 2021	Aug. 02, 2021	Mar. 11, 2022	Radiation (03CH05-SZ)
HF Amplifier	EM Electronics	EM01G18GA	060781	1GHz~18GHz	Apr. 17, 2021	Aug. 02, 2021	Apr. 16, 2022	Radiation (03CH05-SZ)
HF Amplifier	EM Electronics	EM18G40G	060778	18GHz~40GHz	Apr. 17, 2021	Aug. 02, 2021	Apr. 16, 2022	Radiation (03CH05SZ)
Amplifier	Keysight	83017A	MY53270357	500MHz~26.5G Hz	Apr. 17, 2021	Aug. 02, 2021	Apr. 16, 2022	Radiation (03CH05-SZ)
AC Power Source	APC	AFV-S-600	F119050013	N/A	NCR	Aug. 02, 2021	NCR	Radiation (03CH05-SZ)

NCR: No Calibration Required

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# 5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence	2.2dB
of 95% (U = 2Uc(y))	2.205

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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	4.2dB
of 95% (U = 2Uc(y))	4.2ub

### <u>Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)</u>

Measuring Uncertainty for a Level of Confidence	5.1dB
of 95% (U = 2Uc(y))	3.1 <b>u</b> b

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence	4.1dB
of 95% (U = 2Uc(y))	4.100

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