



Shenzhen CTL Testing Technology Co., Ltd.
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TEST REPORT

FCC PART 15.247

Report Reference No.....: CTL2503262197-WF02M1

Original Report No.....: CTL2503262197-WF02

Compiled by:
(position+printed name+signature)

Happy Guo
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Tested by:
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(Manager)



Product Name.....: Vehicle fault tester

Model/Type reference.....: FX6000

List Model(s).....: FX6100,DS400 Lite, DS410 Lite, DS420 Lite, DS430 Lite, DS440 Lite, DS450 Lite

Trade Mark.....: Ancel

FCC ID.....: 2ASC7FX6X00

Applicant's name.....: OBDSpace Technology Co.,Ltd

Address of applicant.....: Room D03, Building A, No.973, MinZhi Avenue LongHua district, Shenzhen City, China

Test Firm.....: Shenzhen CTL Testing Technology Co., Ltd.

Address of Test Firm.....: Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

Test specification.....:

Standard.....: FCC Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.

TRF Originator.....: Shenzhen CTL Testing Technology Co., Ltd.

Master TRF.....: Dated 2011-01

Date of receipt of test item.....: Jul. 28, 2025

Date of Test Date.....: Jul. 28, 2025 - Jul. 30, 2025

Date of Issue.....: Jul. 31, 2025

Result.....: Pass

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TEST REPORT

Test Report No. : CTL2503262197-WF02M1	Jul. 31, 2025 Date of issue
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Equipment under Test : Vehicle fault tester

Sample No : CTL2503262197

Model /Type : FX6000

Listed Models : FX6100,DS400 Lite, DS410 Lite, DS420 Lite, DS430 Lite, DS440 Lite, DS450 Lite

Applicant : **OBDSPACE TECHNOLOGY CO.,LTD**

Address : Room D03, Building A, No.973, MinZhi Avenue
LongHua district, Shenzhen City, China

Manufacturer : **OBDSPACE TECHNOLOGY CO.,LTD**

Address : Room D03, Building A, No.973, MinZhi Avenue
LongHua district, Shenzhen City, China

Test result	Pass *
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* In the configuration tested, the EUT complied with the standards specified page 5.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory.

**** Modified History ****

Revisions	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	2025-04-25	CTL2503262197-WF02	Tracy Qi
Version 2.0	1. The keypad has been changed 2. The series models has been added 3. The External Photos of EUT has been added	2025-07-31	CTL2503262194-WF02M1	Tracy Qi

Note: This report data is derived from CTL2503262194-WF02.

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1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

[ANSI C63.10: 2013](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB 558074 D01 v05r02](#): KDB558074 D01 15.247 Meas Guidance v05r02

1.2. Test Description

FCC PART 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.109/ 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.10 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

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

CNAS-Lab Code: L7497

Shenzhen CTL Testing Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 4343.01

Shenzhen CTL Testing Technology Co., Ltd, EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

IC Registration No.: 9618B

CAB identifier: CN0041

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements with Registration No.: 9618B on Jan. 22, 2019.

FCC-Registration No.: 399832

Designation No.: CN1216

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

1.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Measurement Uncertainty	Notes
Transmitter power Radiated	± 2.20 dB	(1)
Radiated Emission 9KHz~30MHz	± 3.66 dB	(1)
Radiated Emission 30~1000MHz	± 4.10 dB	(1)
Radiated Emission Above 1GHz	± 4.32 dB	(1)
DTS Bandwidth	$\pm 1.9\%$	(1)
Maximum Conducted Output Power	± 1.18 dB	(1)

Maximum Power Spectral Density Level	± 0.98 dB	(1)
Band-edge	± 1.21 dB	(1)
Unwanted Emissions In Non-restricted Freq Bands	9kHz-7GHz: ± 1.09 dB 7GHz-26.5GHz: ± 3.27 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

1.5. Auxiliary test equipment information

Manufacturer	Description	Model	Serial Number
Huawei	SuperCharge	HW-100225C00	HC78E2N4121901

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2. General Description of EUT

Product Name:	Vehicle fault tester
Model/Type reference:	FX6000
Power supply:	DC 3.8V from battery
Working voltage:	DC 9-18V
Bluetooth LE	
Supported type:	Bluetooth Low Energy
Modulation:	GFSK
Operation frequency:	2402MHz to 2480MHz
Channel number:	40
Channel separation:	2MHz
Antenna type:	FPC Antenna
Antenna gain:	2.75dBi

Note1: For more details, please refer to the user's manual of the EUT.

Note2: Antenna gain provided by the applicant.

2.3. Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.

There are 40 channels provided to the EUT and Channel 00/19/39 were selected for BLE test.

Test Modes	BLE 1M Continuous Transmitting	BLE 2M Continuous Transmitting
1	■	
2		■

Operation Frequency List :

Channel	Frequency (MHz)
00	2402
02	2404
03	2406
⋮	⋮
19	2440
⋮	⋮
37	2476
38	2478
39	2480

Note: The line display in grey were the channel selected for testing

2.4. Equipments Used during the Test

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2025/04/29	2026/04/28
	LISN	R&S	ESH2-Z5	860014/010	2025/04/29	2026/04/28
	Limitator	ROHDE & SCHWARZ	ESH3-Z2	100408	2025/04/29	2026/04/28
Software:						
Name of Software:				Version:		
ES-K1				V1.71		

Radiated Emissions and Band Edge					
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Active Loop Antenna	Da Ze	ZN30900A	/	2024/04/30	2027/04/29
Double cone logarithmic antenna	Schwarzbeck	VULB 9168	824	2023/02/13	2026/02/12
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2024/11/25	2027/11/24
Horn Antenna	Ocean Microwave	OBH1004 00	26999002	2024/12/21	2027/12/20
Amplifier	Agilent	8449B	3008A02306	2025/05/01	2026/04/30
Amplifier	Brief&Smart	LNA-4018	2104197	2024/04/30	2026/04/29
EMI Test Receiver	R&S	ESCI	1166.5950.03	2025/04/29	2026/04/28
Spectrum Analyzer	Keysight	N9020A	MY53420874	2025/04/29	2026/04/28
Test software					
Name of Software			Version		
EZ_EMG(Below 1GHz)			V1.1.4.2		
EZ_EMG(Above 1GHz)			V1.1.4.2		

Maximum Peak Output Power & 20dB Bandwidth & Frequency Separation & Number of hopping frequency & Dwell Time & Out-of-band Emissions					
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Spectrum Analyzer	Keysight	N9020A	MY53420874	2025/04/29	2026/04/28
Temperature/Humidity Meter	Ji Yu	MC501	/	2025/05/06	2026/05/05
Test Software					
Name of Software			Version		
TST-PASS			V2.0		

2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

3. TEST CONDITIONS AND RESULTS

3.1. Conducted Emissions Test

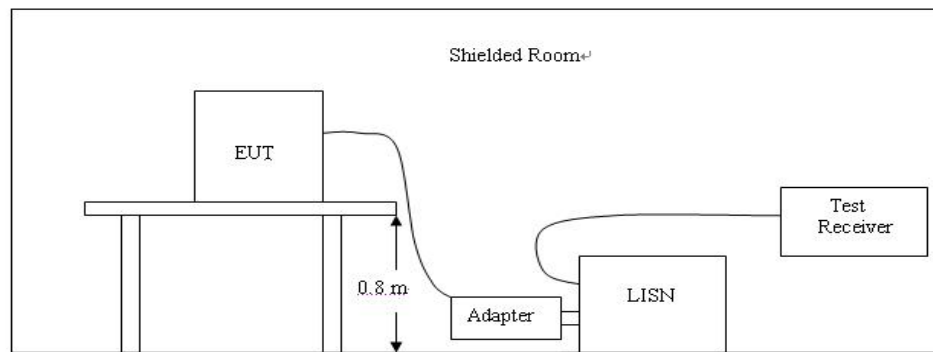
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	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.

TEST CONFIGURATION



TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Remark: All modes were test at , only the worst result of Test mode 2 was reported as below:

Line:**L****Shenzhen CTL Testing Technology Co., Ltd.****Voltage Mains Test FCC PART 15 C**

EUT:

Manufacturer:

Operating Condition: BLE2M 2402MHz

Test Site: /

Operator: Yapeng Jin

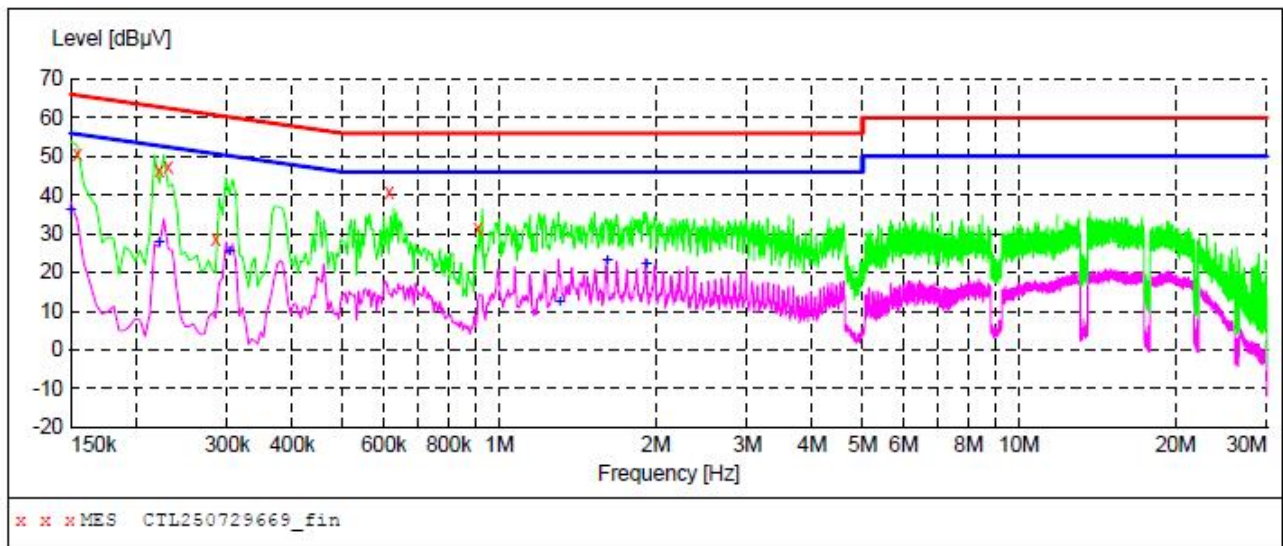
Test Specification: AC 120V/60Hz

Comment: CTL2503262194-WFM1

Start of Test: 7/29/2025 / 7:04:43PM

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL250729669_fin"**

7/29/2025 7:07PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.154500	50.60	10.0	66	15.2	QP	L1	GND
0.222000	46.50	10.0	63	16.2	QP	L1	GND
0.231000	47.10	10.0	62	15.3	QP	L1	GND
0.285000	28.40	10.0	61	32.3	QP	L1	GND
0.613500	40.80	10.0	56	15.2	QP	L1	GND
0.910500	31.40	10.1	56	24.6	QP	L1	GND

MEASUREMENT RESULT: "CTL250729669_fin2"

7/29/2025 7:07PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	35.90	10.0	56	20.1	AV	L1	GND
0.222000	27.90	10.0	53	24.8	AV	L1	GND
0.303000	25.40	10.0	50	24.8	AV	L1	GND
1.306500	12.50	10.1	46	33.5	AV	L1	GND
1.612500	22.80	10.1	46	23.2	AV	L1	GND
1.918500	22.20	10.1	46	23.8	AV	L1	GND

Line:

N

Shenzhen CTL Testing Technology Co., Ltd.

Voltage Mains Test FCC PART 15 C

EUT:

Manufacturer:

Operating Condition: BLE2M 2402MHz

Test Site: /

Operator: Yapeng Jin

Test Specification: AC 120V/60Hz

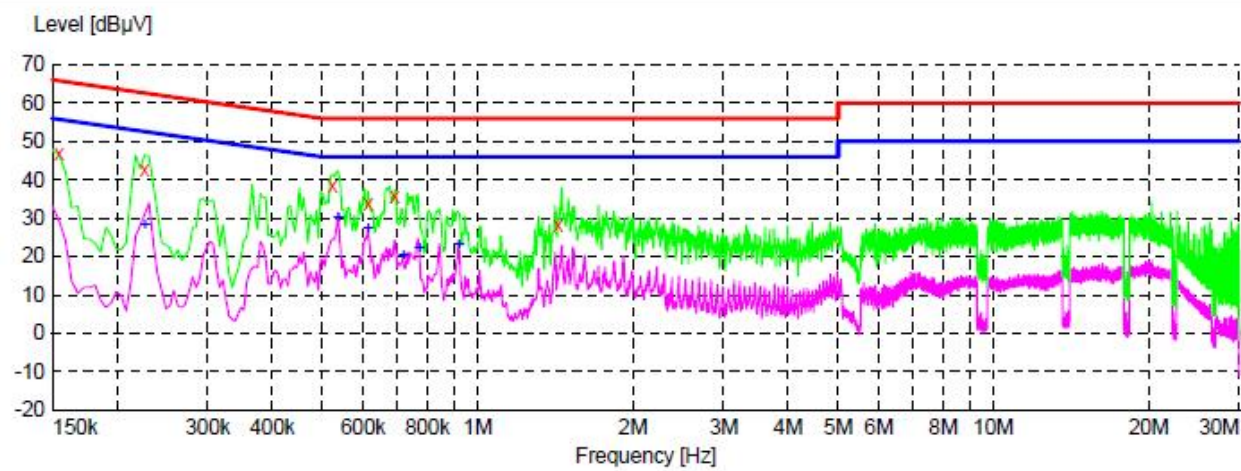
Comment: CTL2503262194-WFM1

Start of Test: 7/29/2025 / 7:14:32PM

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

Level [dBμV]



Frequency [Hz]

***MES CTL250729671_fin

MEASUREMENT RESULT: "CTL250729671_fin"

7/29/2025 7:16PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.154500	47.00	10.0	66	18.8	QP	N	GND
0.226500	42.80	10.0	63	19.8	QP	N	GND
0.523500	38.40	10.0	56	17.6	QP	N	GND
0.613500	33.90	10.0	56	22.1	QP	N	GND
0.690000	35.70	10.0	56	20.3	QP	N	GND
1.432500	28.30	10.1	56	27.7	QP	N	GND

MEASUREMENT RESULT: "CTL250729671_fin2"

7/29/2025 7:16PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.226500	28.10	10.0	53	24.5	AV	N	GND
0.537000	29.90	10.0	46	16.1	AV	N	GND
0.613500	27.10	10.0	46	18.9	AV	N	GND
0.717000	20.00	10.0	46	26.0	AV	N	GND
0.771000	22.00	10.0	46	24.0	AV	N	GND
0.919500	22.90	10.1	46	23.1	AV	N	GND

3.2. Radiated Emissions and Band Edge

Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

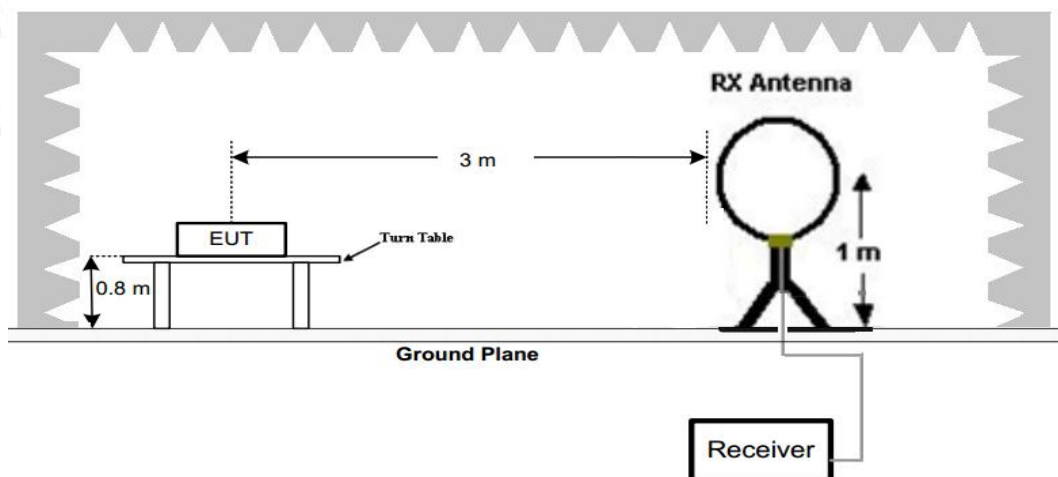
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

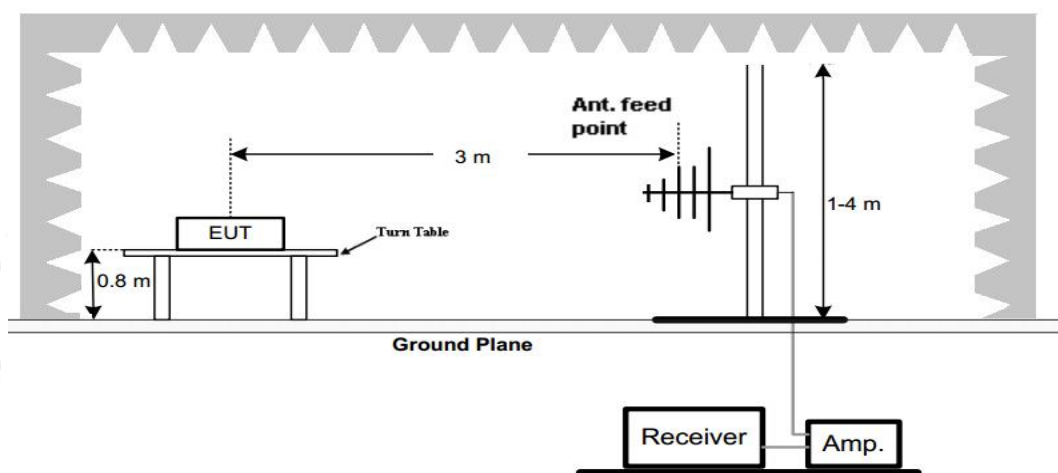
Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

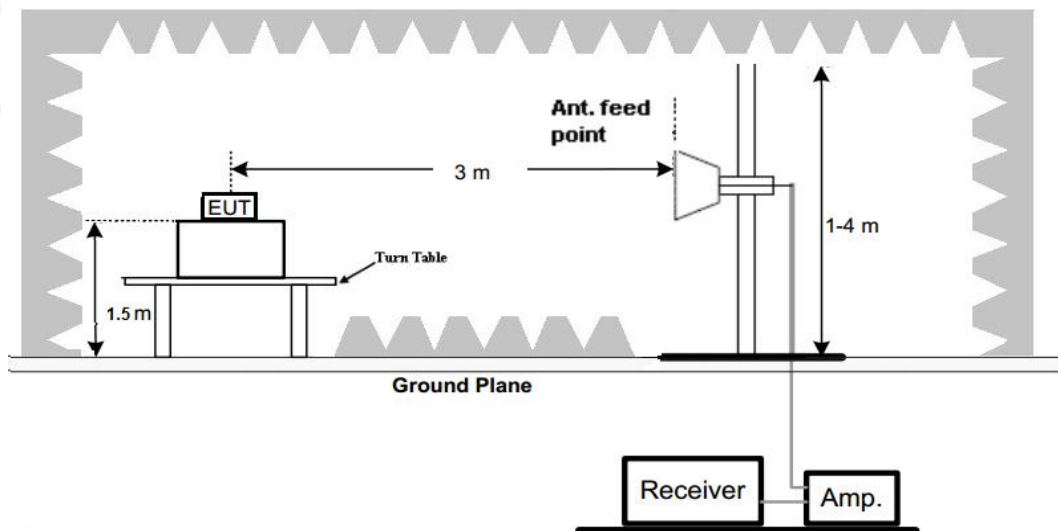
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz

**Test Procedure**

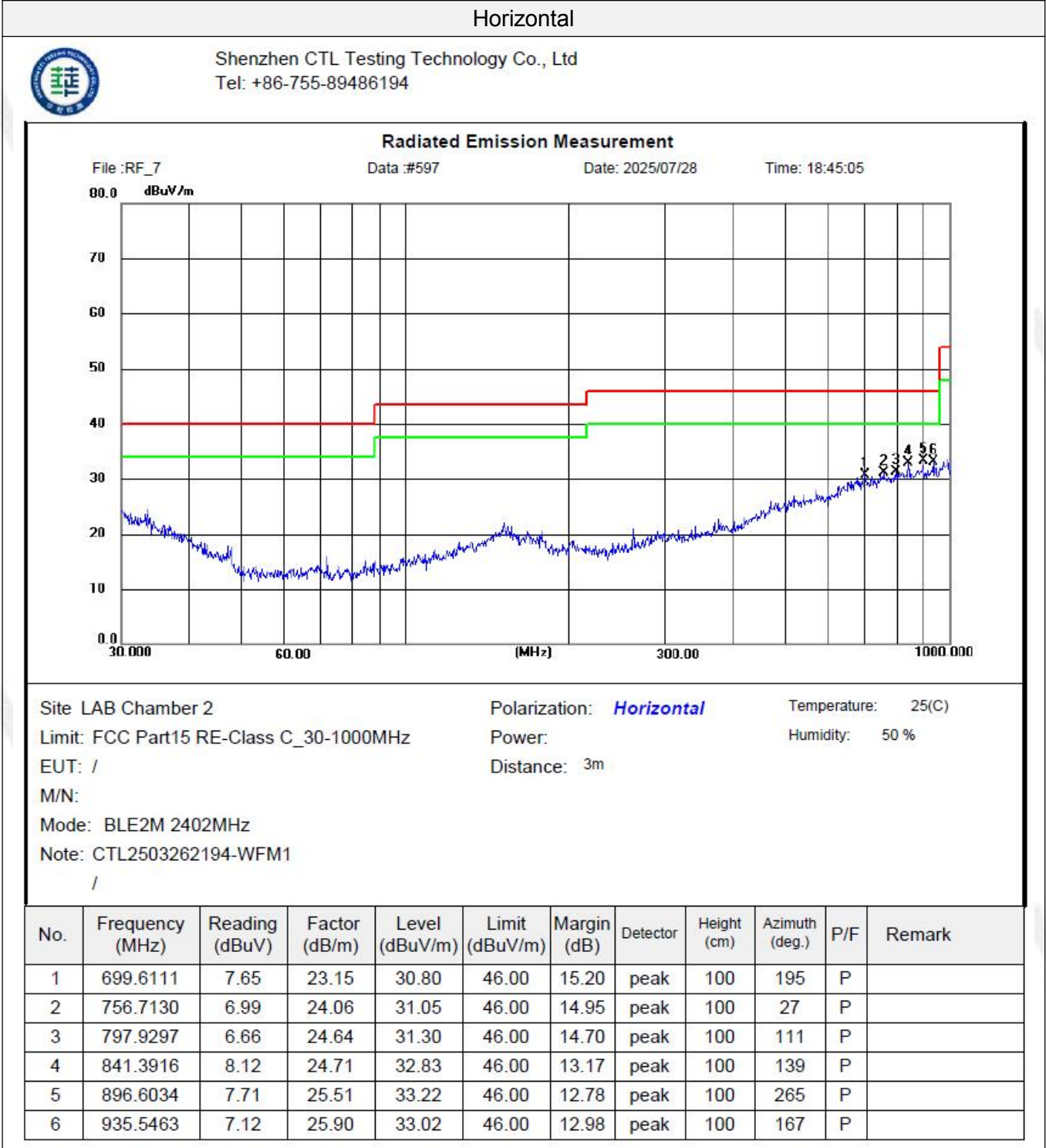
1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

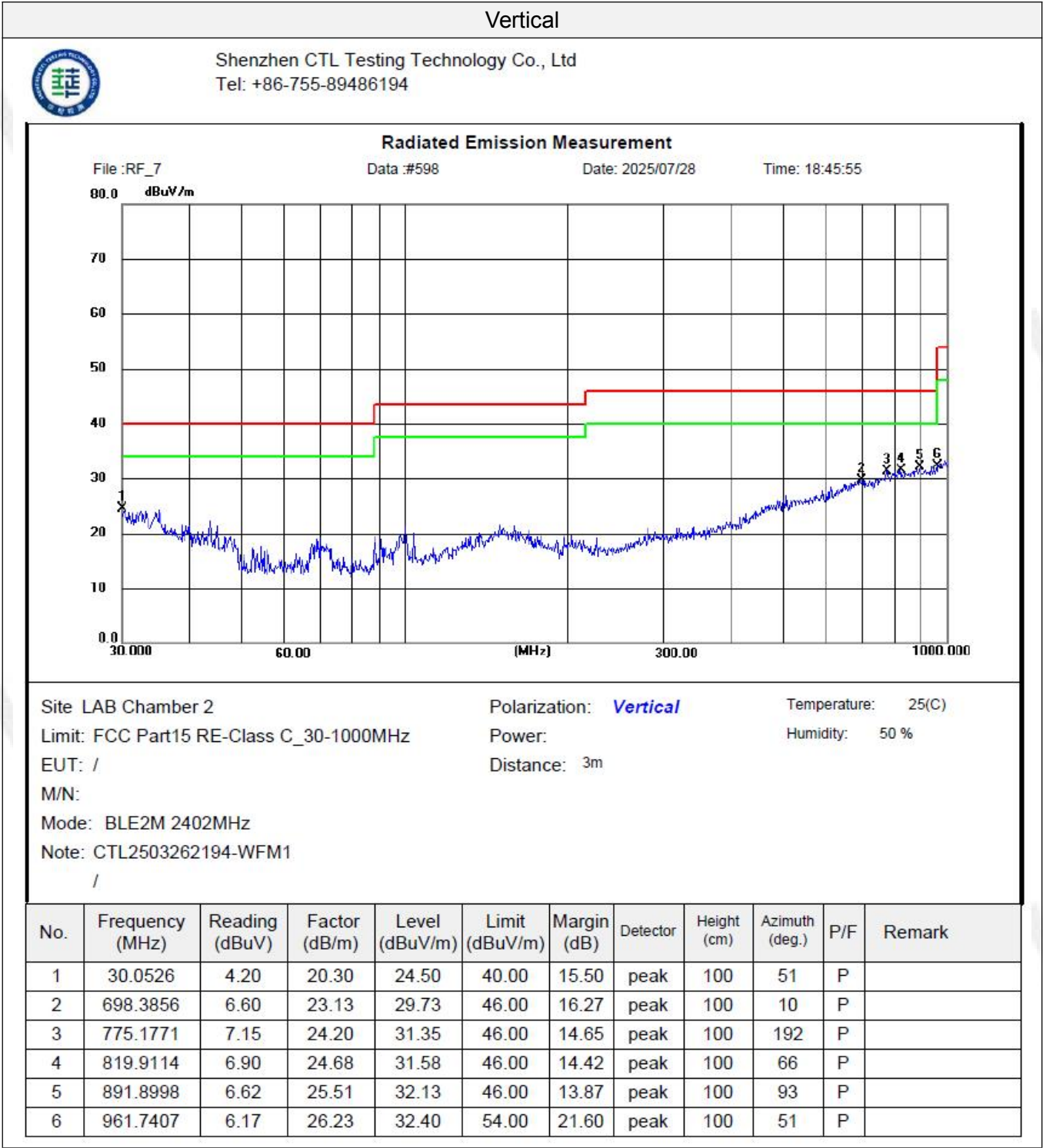
TEST RESULTS

Remark:

1. We have tested low channel, middle channel, high channel of all modes.
2. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, Found the emission level are attenuated 20dB below the limits from 9 kHz to 30MHz, so it does not recorded in report.

For 30MHz-1GHz





3.3. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203:

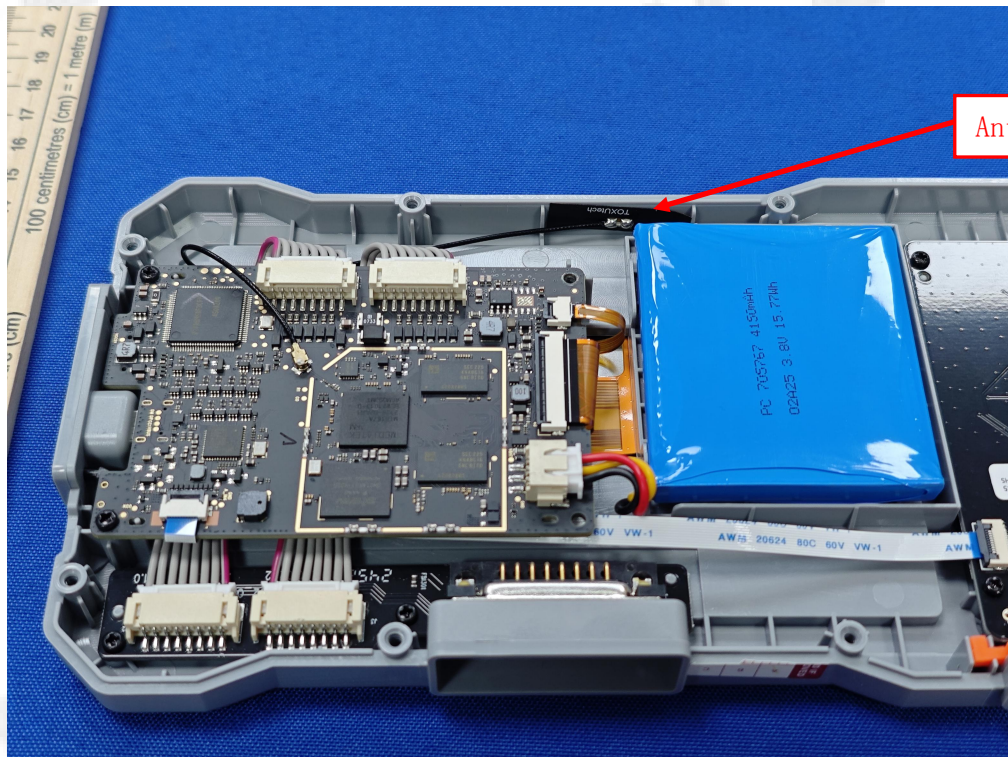
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit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

FCC CFR Title 47 Part 15 Subpart C Section 15.247(b) (4):

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Result:

The maximum gain of antenna was 2.75dBi.



4. Test Setup Photos of the EUT

Reference to the test report No. CTL2503262197-WF01.

5. Photos of the EUT

Reference to the test report No. CTL2503262197-WF01.

***** End of Report *****