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TEST REPORT

FCC PART 15.247

Report Reference No.....: CTL2507222072-WF03M1

Compiled by:
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Approved by:
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Ivan Xie



Product Name.....: Car Diagnostic Tool

Model/Type reference.....: DS500 BT

List Model(s).....: Refer the page 2

Trade Mark.....: ANCEL

FCC ID.....: 2ASC7DS500BT

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

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

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.....: December 9, 2025

Date of Test Date.....: December 9, 2025-December 31, 2025

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

Result.....: Pass

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TEST REPORT

Test Report No. : CTL2507222072-WF03M1	December 31, 2025 Date of issue
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Equipment under Test : Car Diagnostic Tool

Sample No : CTL250722207013, CTL250826202003

Model /Type : DS500 BT

Listed Models : DS510 BT, DS520 BT, DS530 BT, DS540 BT, DS550 BT,
DS560 BT, DS570 BT, DS580 BT, DS590 BT, DS500 Elite,
DS510 Elite, DS520 Elite, DS530 Elite, DS540 Elite, DS550
Elite, DS560 Elite, DS570 Elite, DS580 Elite, DS590 Elite

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

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

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

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

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 **

[illegible]

Table of Contents**Page**

1. SUMMARY	5
1.1. TEST STANDARDS	5
1.2. TEST DESCRIPTION	5
1.3. TEST FACILITY	6
1.4. STATEMENT OF THE MEASUREMENT UNCERTAINTY	6
2. GENERAL INFORMATION	8
2.1. ENVIRONMENTAL CONDITIONS	8
2.2. GENERAL DESCRIPTION OF EUT	8
2.3. DESCRIPTION OF TEST MODES AND TEST FREQUENCY	9
2.4. EQUIPMENTS USED DURING THE TEST	10
2.5. RELATED SUBMITTAL(S) / GRANT (S)	10
2.6. MODIFICATIONS	11
3. TEST CONDITIONS AND RESULTS	12
3.1. CONDUCTED EMISSIONS TEST	12
3.2. RADIATED EMISSIONS	15
4. TEST SETUP PHOTOS OF THE EUT	19
5. PHOTOS OF THE EUT	19

1. SUMMARY

1.1. TEST STANDARDS

The tests were performed according to following standards:

[47 CFR Part 15, Subpart C 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: 2020](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB 558074 D01 15.247 Meas Guidance v05r02](#) : Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

1.2. Test Description

47 CFR Part 15, Subpart C 15.247		
47 CFR Part 15, Subpart C 15.207	AC Power Conducted Emission	PASS
47 CFR Part 15, Subpart C 15.109/ 15.205/ 15.209	Radiated Emissions	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, Shenzhen 518055 China

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 22/EN 55022 requirements.

1.3.2 Laboratory accreditation

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

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.

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.

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	±3.66dB	(1)
Radiated Emission 30~1000MHz	±4.08dB	(1)
Radiated Emission Above 1GHz	±4.32dB	(1)
20dB Emission Bandwidth	±1.9%	(1)
Carrier Frequency Separation	±1.9%	(1)
Maximum Power Spectral Density Level	±0.98 dB	(1)
Number of Hopping Channel	±1.9%	(1)
Time of Occupancy	±0.11%	(1)
Max Peak Conducted Output Power	±0.98 dB	(1)
Band-edge Spurious Emission	±1.21dB	(1)

Conducted RF Spurious Emission	9kHz-7GHz: $\pm 1.09\text{dB}$ 7GHz-26.5GHz: $\pm 3.27\text{dB}$	(1)
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(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

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:	Car Diagnostic Tool
Model/Type reference:	DS500 BT
Power supply:	Powered by a 3.8V DC battery Type-C Input: DC 5V/2.5A
Test Voltage:	Powered by a 3.8V DC battery Type-C Input: DC 5V/2.5A
Adapter information	Model:FJ-SW1260502500UN Input: 100-240V~ 50/60Hz 0.4A Max Output:5.0V---2.5A, 12.5W
2.4G Wi-Fi	
Supported type:	802.11b/802.11g/802.11n(HT20)/802.11n(HT40)
Modulation:	802.11b: DSSS 802.11g/802.11n(HT20) /802.11n(HT40) : OFDM
Operation frequency:	802.11b/802.11g/802.11n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Channel number:	802.11b/802.11g/802.11n(HT20): 11 802.11n(HT40): 7
Channel separation:	5MHz
Antenna type:	FPC Antenna
Antenna gain:	1.29dBi

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

Note2: Antenna gain provided by the applicant.

Note3: This report is for 2.4G Wi-Fi only.

Note4: This report is based on test report CTL2507222072-WF03 with the following modifications.

Description of modify and/or change(s):

1. Add the series model.

2. Add an OBD port.

For the above described modification(s) the following testing are considered to be necessary:.

Modification	Testing	Comments	Result
1	N/A	No additional tests needed	N/A
2	Yes	47 CFR Part 15, Subpart C 15.207, 47 CFR Part 15, Subpart C 15.109/ 15.205/ 15.209	PASS

History of amendment and modifications:

Ref. No. CTL2507222072-WF03, dated October 16, 2025(original test report);

Ref. No. CTL2507222072-WF03M1, dated December 31, 2025(1st modification);

2.3. Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

There are 11 channels provided to the EUT and Channel 01/03/06/09/11 were selected for Wi-Fi test.

Operation Frequency Wi-Fi :

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

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

Data Rate Used:

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
Maximum Conducted Output Power Power Spectral Density 6dB Bandwidth Spurious RF conducted emission Radiated Emission 9kHz~1GHz& Radiated Emission 1GHz~10th Harmonic	11b/DSSS	1 Mbps	1/6/11
	11g/OFDM	6 Mbps	1/6/11
	11n(20MHz)/OFDM	6.5Mbps	1/6/11
	11n(40MHz)/OFDM	13.5Mbps	3/6/9
Band Edge	11b/DSSS	1 Mbps	1/11
	11g/OFDM	6 Mbps	1/11
	11n(20MHz)/OFDM	6.5Mbps	1/11
	11n(40MHz)/OFDM	13.5Mbps	3/9

2.4. Equipments Used during the Test

Conducted Emission						
Test Equipment	Manufacturer	Model No.	Serial No.	Previous calibration	Last Cal.	Cal.Due
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	/	2025/04/29	2026/04/28
LISN	ROHDE & SCHWARZ	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 Emission						
Test Equipment	Manufacturer	Model No.	Serial No.	Previous calibration	Last Cal.	Cal.Due
Active Loop Antenna	Da Ze	ZN30900A	/	/	2024/04/30	2027/04/29
Double cone logarithmic antenna	Schwarzbeck	VULB 9168	824	/	2025/07/26	2026/07/25
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	/	2025/11/24	2026/11/23
Horn Antenna	Ocean Microwave	OBH100400	26999002	/	2024/12/21	2027/12/20
Amplifier	MRT-AP01M06	MRT	S-001	/	2025/05/01	2026/04/30
Amplifier	Agilent	8449B	3008A02306	/	2024/04/30	2026/04/29
Amplifier	Brief&Smart	LNA-4018	2104197	/	2025/04/29	2026/04/28
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	/	2025/04/29	2026/04/28
Spectrum Analyzer	RS	FSP	1164.4391.38	/	2024/04/30	2027/04/29
Software:						
Name of Software:			Version:			
EZ_EMC(Below 1GHz)			V1.1.4.2			
EZ_EMC(Above 1GHz)			V1.1.4.2			

RF Conducted						
Test Equipment	Manufacturer	Model No.	Serial No.	Previous calibration	Last Cal.	Cal.Due
Spectrum Analyzer	Keysight	N9020A	MY53420874	/	2025/04/29	2026/04/28
Temperature/Humidity Meter	Ji Yu	MC501	/	/	2025/05/06	2026/05/05
Software:						
Name of Software:			Version:			
TST-PASS			V2.0.1			

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

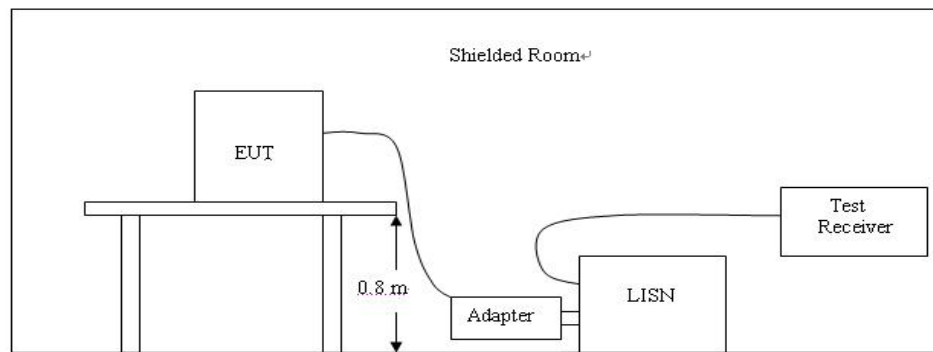
LIMIT

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

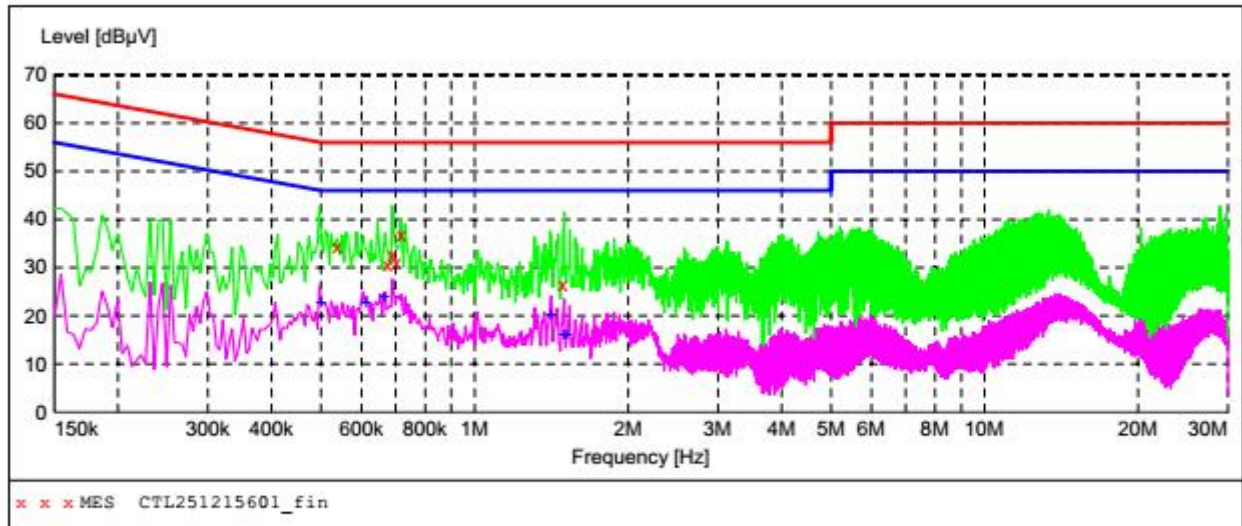
1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a bObsweep Pet Hair Vision Plus Robot Vacuum Cleaner op system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10: 2020.
2. Support equipment, if needed, was placed as per ANSI C63.10: 2020.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10: 2020.
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: 802.11b/802.11g/802.11n(HT20)/802.11n(HT40) mode all have been tested ,only worse case is reported.

Test Mode**Wi-Fi****Line:****L****SCAN TABLE: "Voltage (9K-30M)FIN"**

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL251215601_fin"**

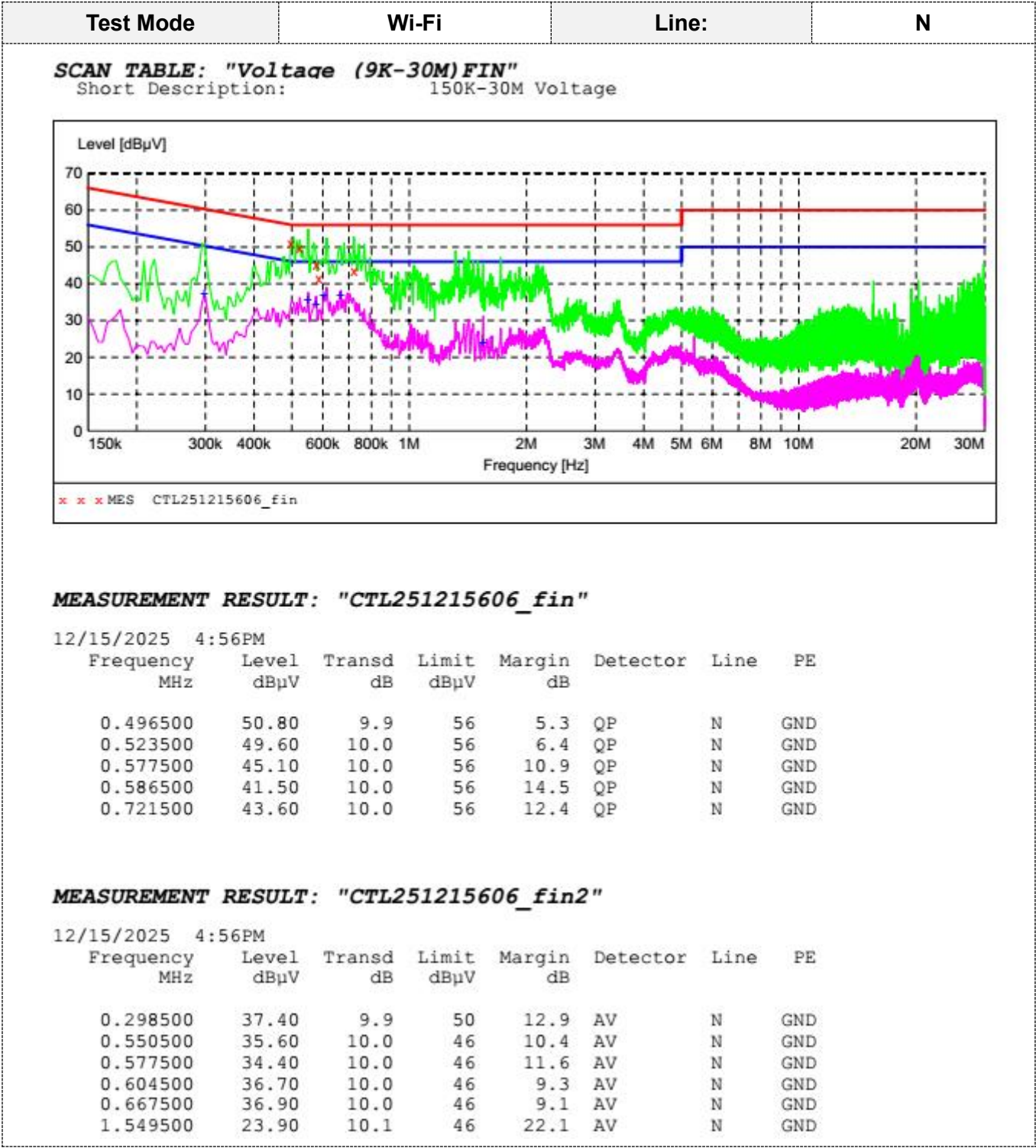
12/15/2025 4:43PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.537000	34.50	10.0	56	21.5	QP	L1	GND
0.676500	30.60	10.0	56	25.4	QP	L1	GND
0.690000	32.80	10.0	56	23.2	QP	L1	GND
0.703500	31.00	10.0	56	25.0	QP	L1	GND
0.717000	36.70	10.0	56	19.3	QP	L1	GND
1.491000	26.60	10.1	56	29.4	QP	L1	GND

MEASUREMENT RESULT: "CTL251215601_fin2"

12/15/2025 4:43PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.501000	22.80	10.0	46	23.2	AV	L1	GND
0.613500	22.70	10.0	46	23.3	AV	L1	GND
0.667500	24.00	10.0	46	22.0	AV	L1	GND
1.414500	20.30	10.1	46	25.7	AV	L1	GND
1.500000	16.20	10.1	46	29.8	AV	L1	GND
1.518000	15.90	10.1	46	30.1	AV	L1	GND



3.2. Radiated Emissions

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.

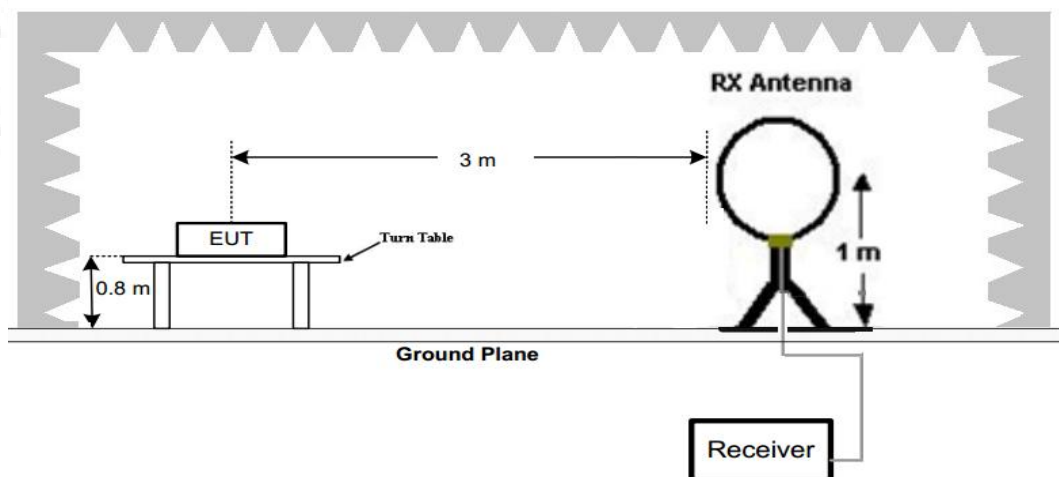
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

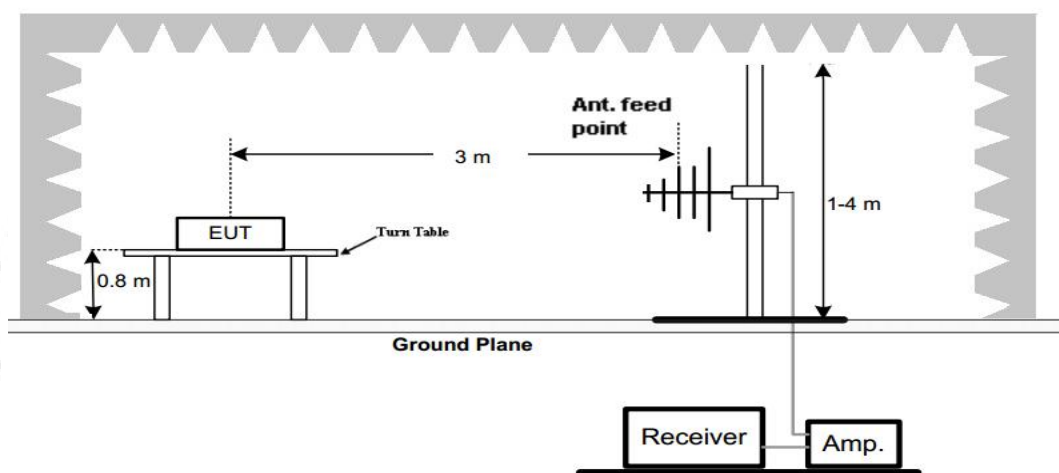
Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz})) + 40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz})) + 40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30) + 40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5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

TEST CONFIGURATION

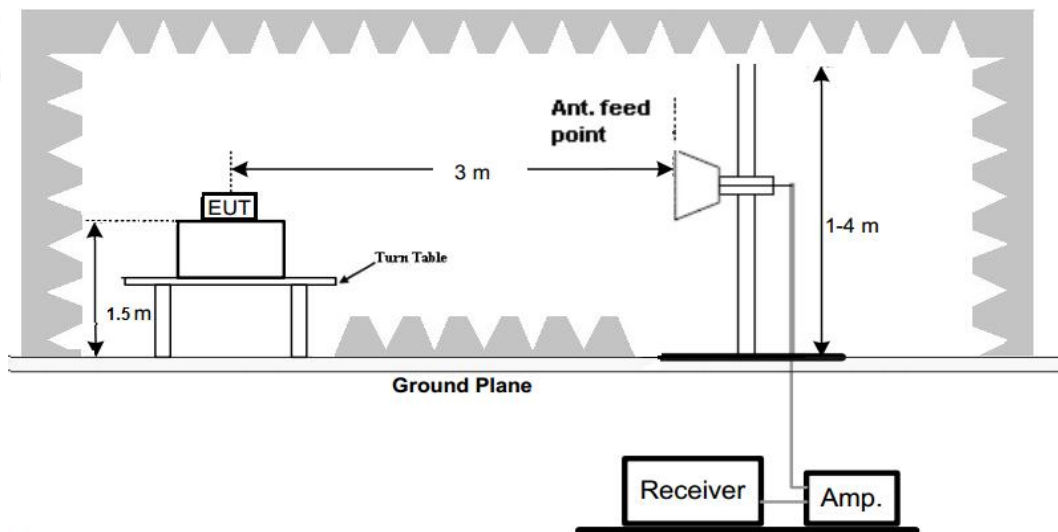
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(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. All three channels (lowest/middle/highest) of each mode were measured below 1GHz and recorded worst case at 802.11b low channel.
2. All three channels (lowest/middle/highest) of each mode were measured above 1GHz and recorded worst case at 802.11b mode.
3. 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

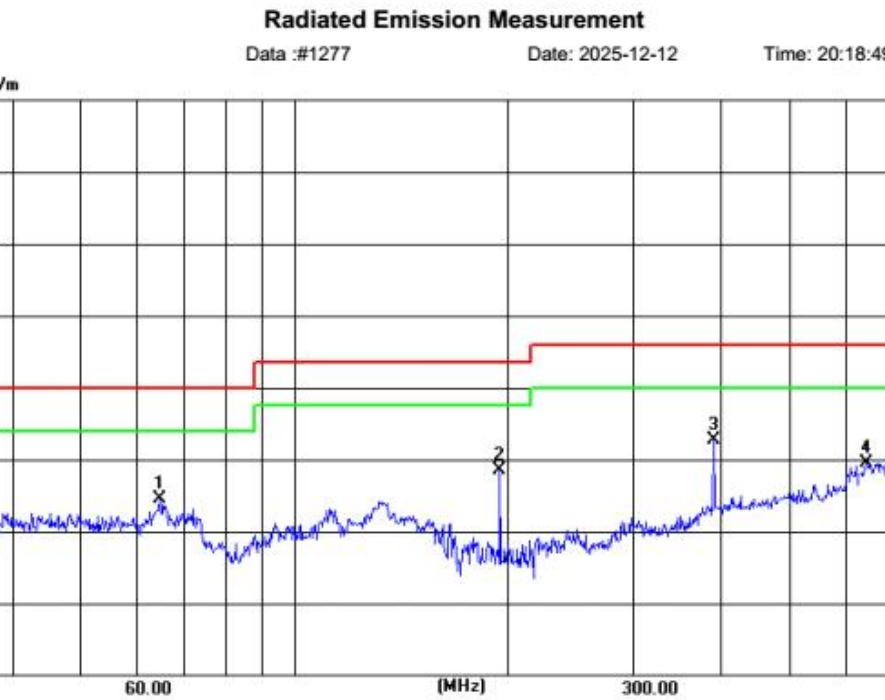
Test mode:
Wi-Fi
Polarization:
Horizontal



Shenzhen CTL Testing Technology Co., Ltd
 Tel: +86-755-89486194

Radiated Emission Measurement

File :RF_9
Data :#1277
Date: 2025-12-12
Time: 20:18:49



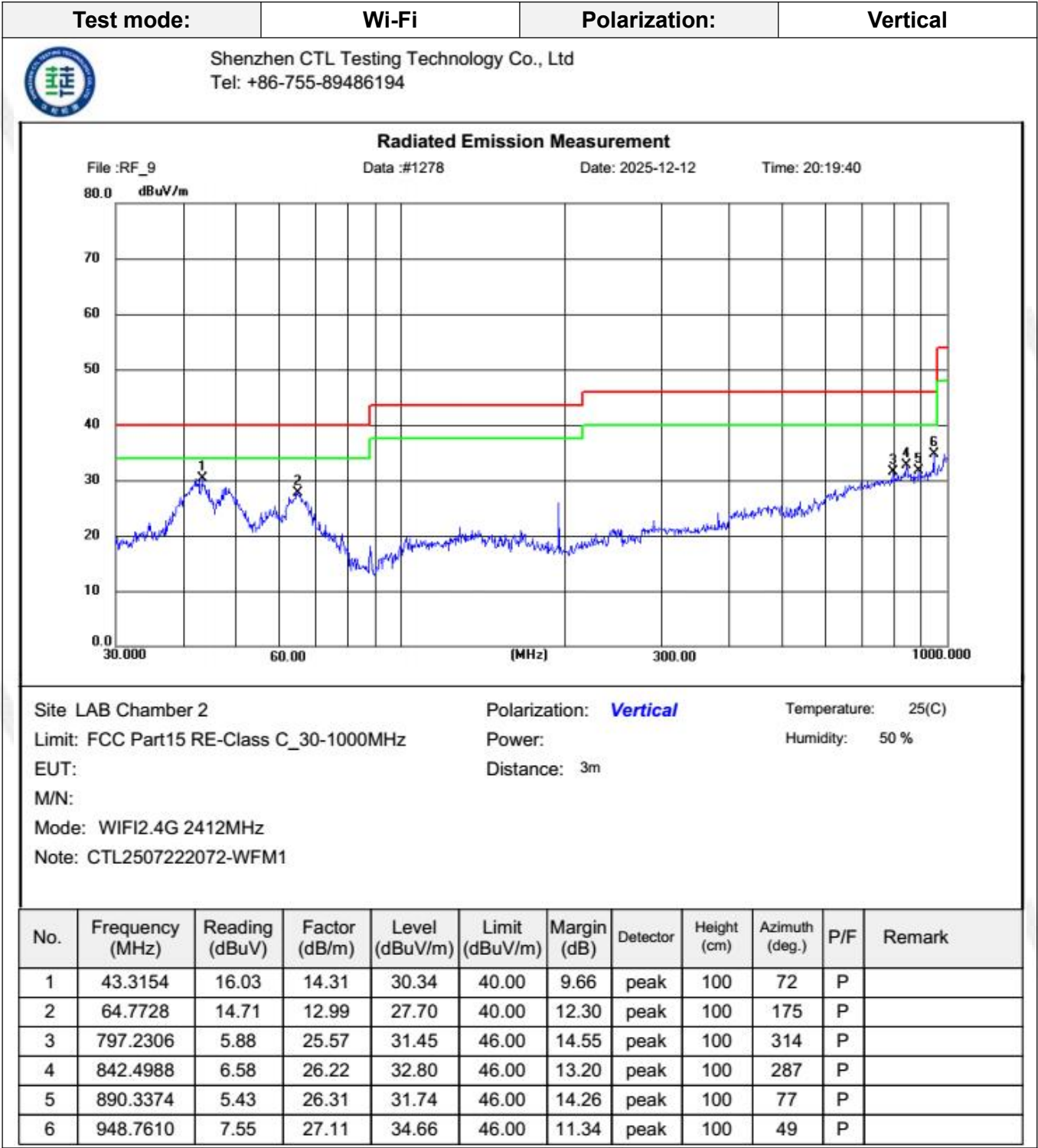
The graph displays the radiated emission measurement results. The y-axis represents the field strength in dBuV/m, ranging from 0.0 to 80.0. The x-axis represents the frequency in MHz, ranging from 30.000 to 1000.000. A blue line shows the measured noise floor, which is generally below 20 dBuV/m. A green line indicates the limit, which is 40 dBuV/m for frequencies below 100 MHz and 46 dBuV/m for frequencies above 100 MHz. A red line shows the measured emission, which is generally below the limit. Six specific peaks are marked with 'X' and numbered 1 through 6, corresponding to the data in the table below.

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	64.4612	11.60	12.99	24.59	40.00	15.41	peak	100	87	P	
2	195.0510	17.03	11.48	28.51	43.50	14.99	peak	100	37	P	
3	390.0380	15.65	16.97	32.62	46.00	13.38	peak	100	179	P	
4	641.7350	6.83	22.76	29.59	46.00	16.41	peak	100	79	P	
5	855.1484	7.74	26.34	34.08	46.00	11.92	peak	100	314	P	
6	948.7610	10.04	27.11	37.15	46.00	8.85	peak	100	276	P	

Site LAB Chamber 2
 Limit: FCC Part15 RE-Class C_30-1000MHz
 EUT:
 M/N:
 Mode: WIFI2.4G 2412MHz
 Note: CTL2507222072-WFM1

Polarization: **Horizontal**
 Power:
 Distance: 3m

Temperature: 25(C)
 Humidity: 50 %



4. Test Setup Photos of the EUT

Reference to the test report No.CTL2507222072-WF01M1.

5. Photos of the EUT

Reference to the test report No.CTL2507222072-WF01M1.

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