



Shenzhen CTL Testing Technology Co., Ltd.
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TEST REPORT

FCC PART 15.247

Report Reference No. : CTL2509082043-WF02

Compiled by:
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Ivan Xie



Product Name : Wi-Fi and Bluetooth wireless remote control device

Model/Type reference : miniDSP KD-1

List Model(s)..... : N/A

Trade Mark..... : miniDSP

FCC ID..... : 2APQC-KD1

Applicant's name : miniDSP Ltd

Address of applicant : Unit 307, Kingsford Industrial Centre, 13 Wang Hoi Road,
Kowloon Bay, Kowloon, Hong Kong

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 : Sep 25, 2025

Date of Test Date..... : Jan 06, 2026-Apr 08, 2026

Date of Issue : Apr 08, 2026

Result..... : **Pass**

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TEST REPORT

Test Report No. :	CTL2509082043-WF02	Apr 08, 2026
		Date of issue

Equipment under Test : Wi-Fi and Bluetooth wireless remote control device

Sample No : CTL250908204002, CTL250908204003, CTL250908204004

Model /Type : miniDSP KD-1

Listed Models : N/A

Applicant : **miniDSP Ltd**

Address : Unit 307, Kingsford Industrial Centre, 13 Wang Hoi Road,
Kowloon Bay, Kowloon, Hong Kong

Manufacturer : **miniDSP Ltd**

Address : Unit 307, Kingsford Industrial Centre, 13 Wang Hoi Road,
Kowloon Bay, Kowloon, Hong Kong

Test result	Pass *
--------------------	---------------

* 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]

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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 C63.10-2020+Cor 1-2023](#): American National Standard for Testing Unlicensed Wireless Devices

1.2. Test Description

FCC PART 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Conducted Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.109/ 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS

1.3. Test Facility

Company Name:	Shenzhen CTL Testing Technology Co., Ltd.
Address 1:	Zone A.1/F..Warehouse 2.Baisha Technology Park, No.3011,Shahexi Road, Nanshan District,Shenzhen.518055,P.R.C.
Address 2:	Fl.A1, Bldg.A3, No.2533 GuanGuang Road, Fenghuang Community Fenghuang Street, Guangming District, Shenzhen, Guangdong, PR.C

1.3.2 Test location

All tests were performed at:

Company Name:	Shenzhen CTL Testing Technology Co., Ltd.
☐ Main location	Zone A.1/F..Warehouse 2.Baisha Technology Park, No.3011,Shahexi Road, Nanshan District,Shenzhen.518055,P.R.C.
☒ Satellite location	Fl.A1, Bldg.A3, No.2533 GuanGuang Road, Fenghuang Community Fenghuang Street, Guangming District, Shenzhen, Guangdong, PR.C

1.3.3 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 CAB identifier: CN0041

Main Company Number :9618B

Satellite Company Number:35187

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 Main Company Number:9618B and Satellite Company Number:35187.

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. Designation No.: CN1216. Test Firm 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
Conducted Emission 0.15~30MHz	±2.94dB	(1)
Magnetic Field Emission 9KHz~30MHz	±3.24dB	(1)
Radiated Emission 30~1000MHz	±3.64dB	(1)
Radiated Emission Above 1GHz	±3.92dB	(1)
DTS Bandwidth	±1.9%	(1)
Maximum Conducted Output Power	± 1.18 dB	(1)
Maximum Power Spectral Density Level	±0.98 dB	(1)
Band-edge	±1.21dB	(1)
Unwanted Emissions In Non-restricted Freq Bands	9kHz-7GHz: ±1.09dB 7GHz-26.5GHz: ±3.27dB	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.0
- (2) Decision rule for Statement of Conformity: The measurement uncertainty is not taken into account but only measured result.

1.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

○	Adapter	Manufacturer :	HUAWEI
		Model No. :	HW-100225C00

2. GENERAL INFORMATION

2.1. Environmental conditions

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

Normal Temperature:	18-28°C
Relative Humidity:	30-60%
Air Pressure:	965-1030hPa

2.2. General Description of EUT

Product Name:	Wi-Fi and Bluetooth wireless remote control device
Model/Type reference:	miniDSP KD-1
Power supply:	DC 5V from AC-DC adapter
Test Voltage:	DC 5V from AC-DC adapter
Wi-Fi 2.4GHz	
Supported type:	IEEE 802.11 b/g/n
Modulation:	IEEE 802.11 b: DSSS IEEE 802.11 g/IEEE 802.11 n(HT20)/IEEE 802.11 n(HT40): OFDM
Operation frequency:	IEEE 802.11 b/IEEE 802.11 g/IEEE 802.11 n(HT20): 2412MHz~2462MHz IEEE 802.11 n(HT40): 2422MHz~2452MHz
Channel number:	IEEE 802.11 b/IEEE 802.11 g/IEEE 802.11 n(HT20): 11 IEEE 802.11 n(HT40): 7
Channel separation:	5MHz
MIMO:	Not Support
Antenna type:	PCB antenna
Antenna gain:	3.26 dBi provided by ☒ Applicant ☐ Manufacturer

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 WIFI only.

Note4: The model miniDSP KD-1 is selected as representative model for full tests

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 11 channels provided to the EUT and Channel 01/03/06/09/11 were selected for WIFI test.

Operation Frequency WIFI :

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

RF Cable List and Details

RF Cable	RF Cable loss	RF Cable loss provided by
RF1.13	0.5dB	☒ Applicant ☐ Manufacturer ☐ Testing Laboratory (CTL)
RG 316	0.8dB	☒ Applicant ☐ Manufacturer ☐ Testing Laboratory (CTL)

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	1/4/7
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	1/7

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	/	2026/01/05	2027/01/04
LISN	ROHDE & SCHWARZ	ESH2-Z5	860014/010	/	2026/01/05	2027/01/04
Limitator	ROHDE & SCHWARZ	ESH3-Z2	100408	/	2026/01/05	2027/01/04
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	/	/	2025/07/02	2026/07/01
ULTRA-BROADBAND ANTENNA	Sunol Sciences Corp.	JB1 Antenna	A061713	/	2025/07/02	2026/07/01
Horn Antenna	Sunol Sciences Corp	DRH-118	A062013		2026/01/05	2027/01/04
Horn Antenna	Ocean Microwave	OBH100400	26999002		2025/07/02	2026/07/01
Amplifier	Agilent	8449B	3008A02306	/	2026/01/05	2027/01/04
Amplifier	Brief&Smart	LNA-4018	2104197	/	2025/07/03	2026/07/02
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	/	2026/01/05	2027/01/04
Spectrum Analyzer	RS	FSP	1164.4391.38	/	2025/07/03	2026/07/02
9kHz-40GHz coaxial line chamber 2	/	Z108-NJ-NJ-9.5 M	21121049	/	2025/07/03	2026/07/02
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	/	2025/07/03	2026/07/02
Power meter	TSTPASS	TSPS2023R	TSCB220016	/	2025/07/03	2026/07/02
Temperature/Humidity Meter	Ji Yu	MC501	/	/	2025/07/03	2026/07/02
Software:						
Name of Software:			Version:			
TST-PASS			V2.0.2			

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

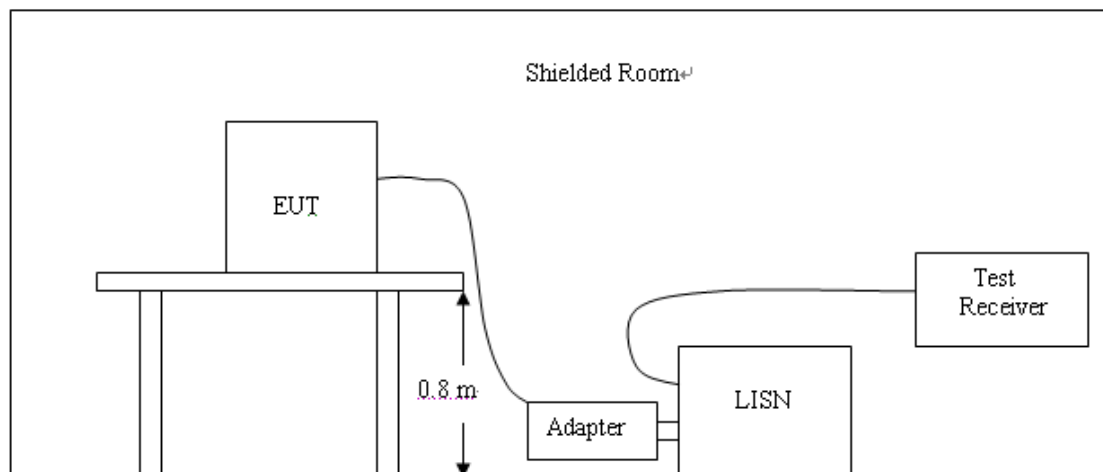
LIMIT

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

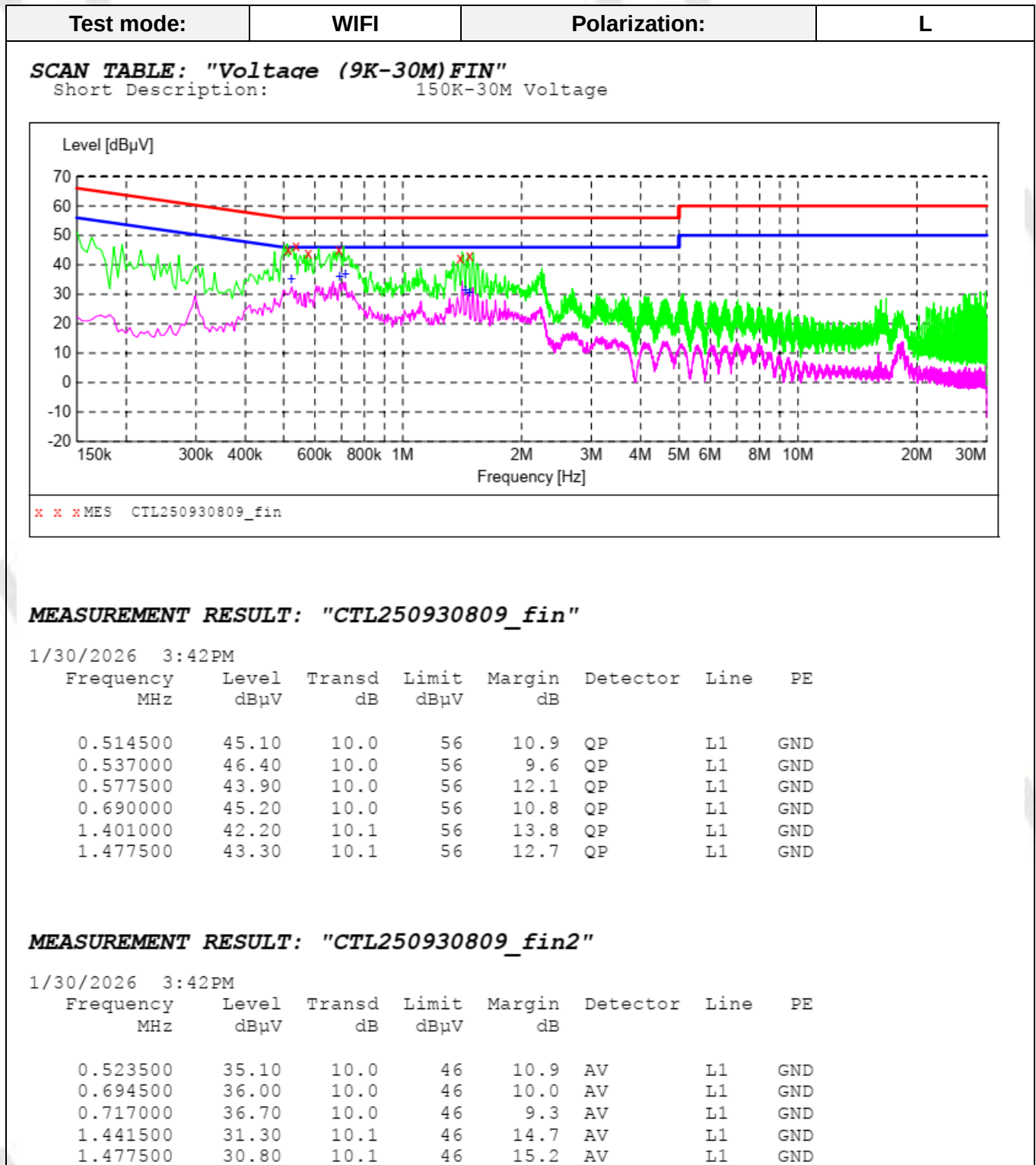
* Decreases with the logarithm of the frequency.

TEST CONFIGURATION

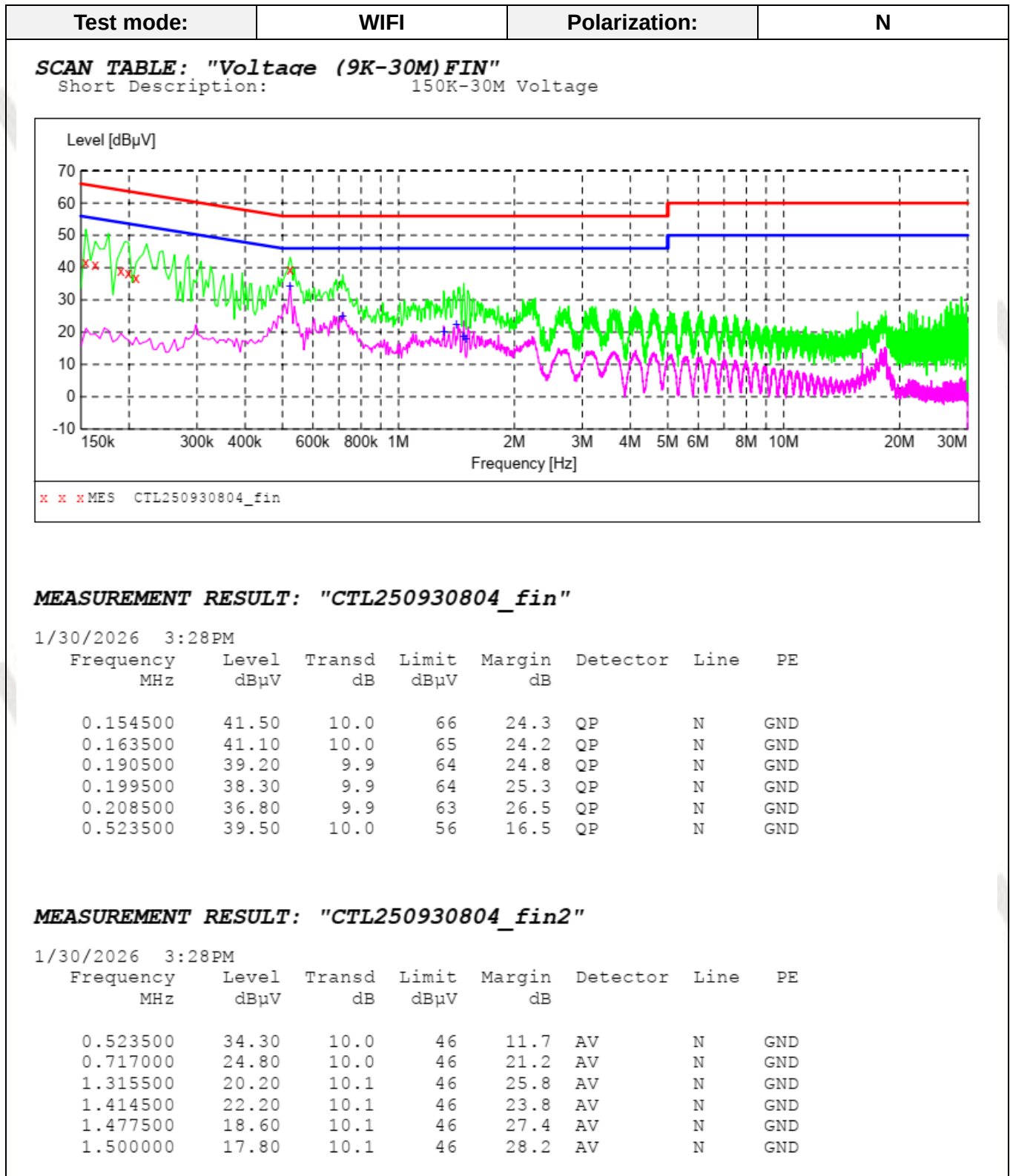


TEST PROCEDURE

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: Level(dBuV/m)=Reading(dBuV)+Factor(dB/m)
 Margin= Limit(dBuV/m)- Level(dBuV/m)



Remark: Level(dBuV/m)=Reading(dBuV)+Factor(dB/m)
Margin= Limit(dBuV/m)- Level(dBuV/m)

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.

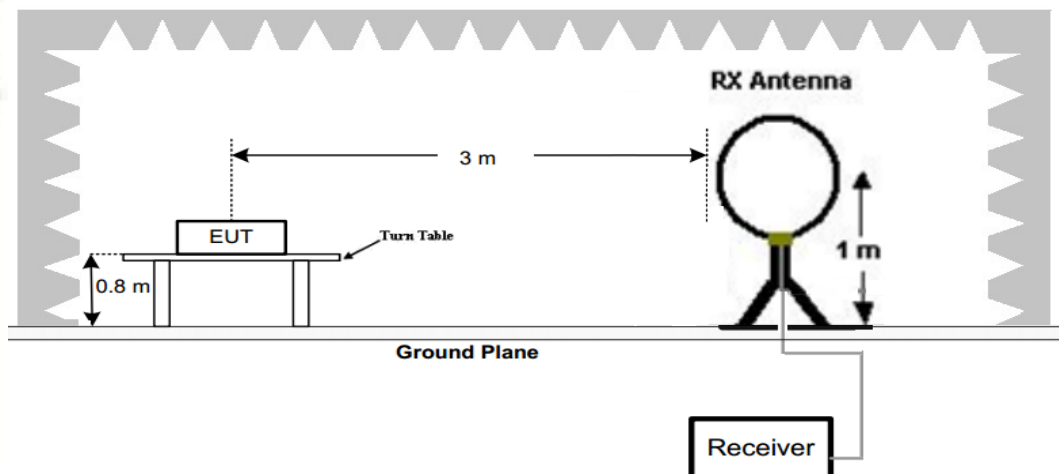
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

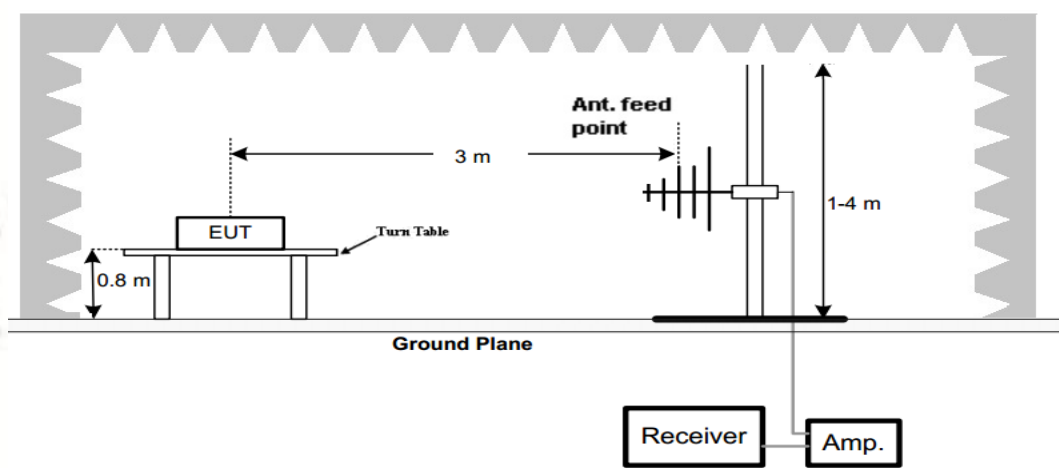
Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150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

TEST CONFIGURATION

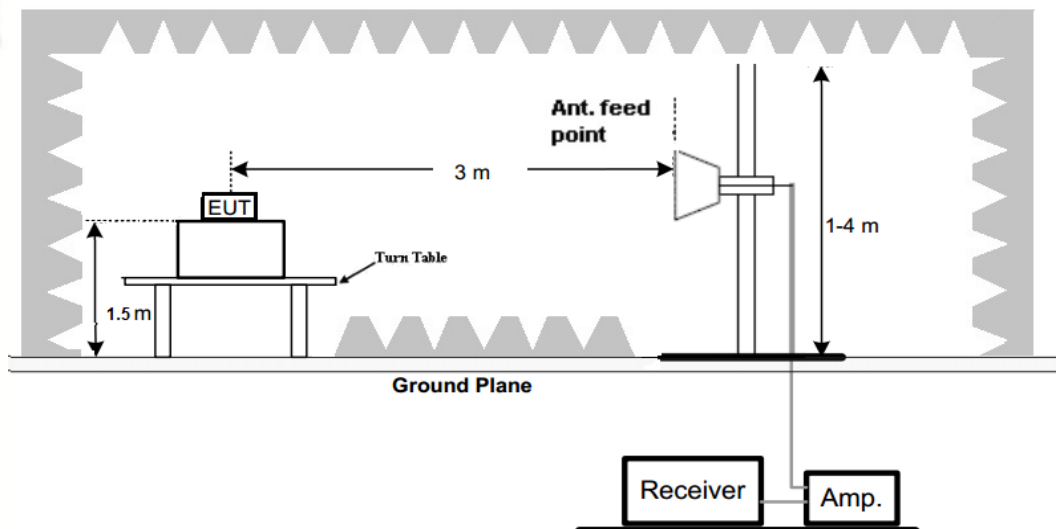
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



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



Test Procedure

- 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 0.1m above ground plane.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measurements have been completed.
- Radiated emission test frequency band from 9KHz to 40GHz.
- The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3
1GHz-18GHz	Horn Antenna	3
18GHz-25GHz	Horn Antenna	1

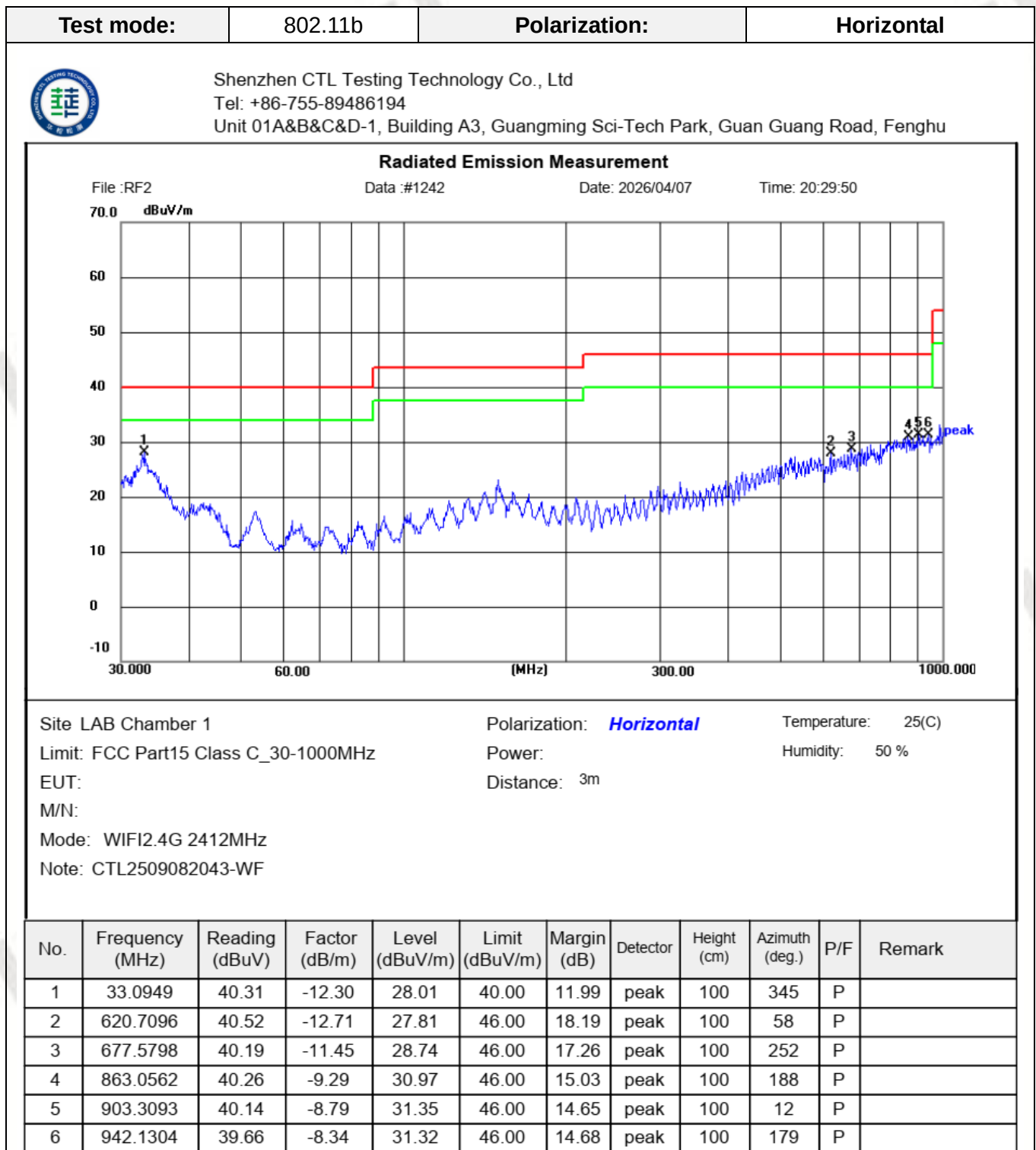
- Setting test receiver/spectrum as following table states:

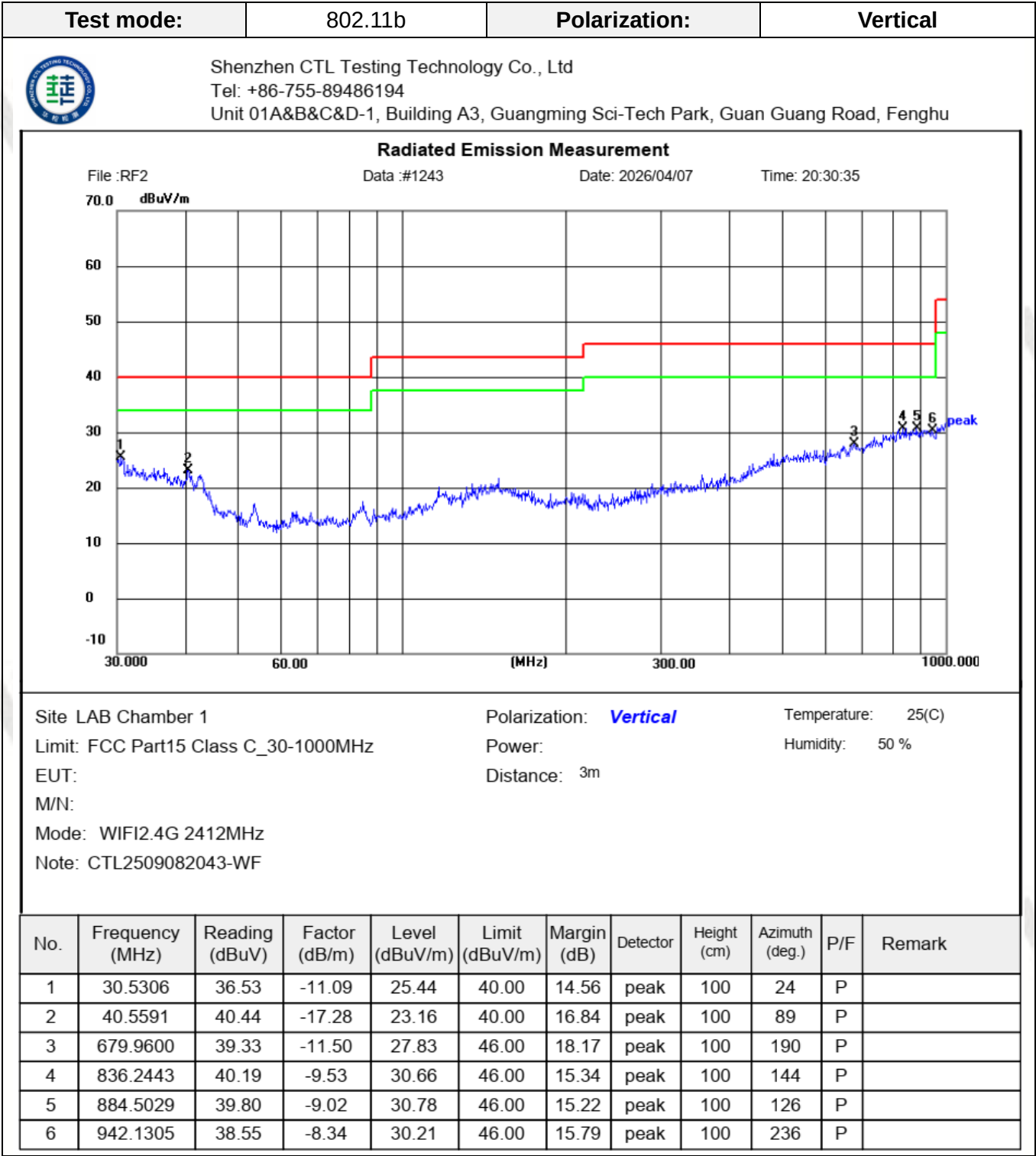
Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz, Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz, Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz, Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

TEST RESULTS

Remark:

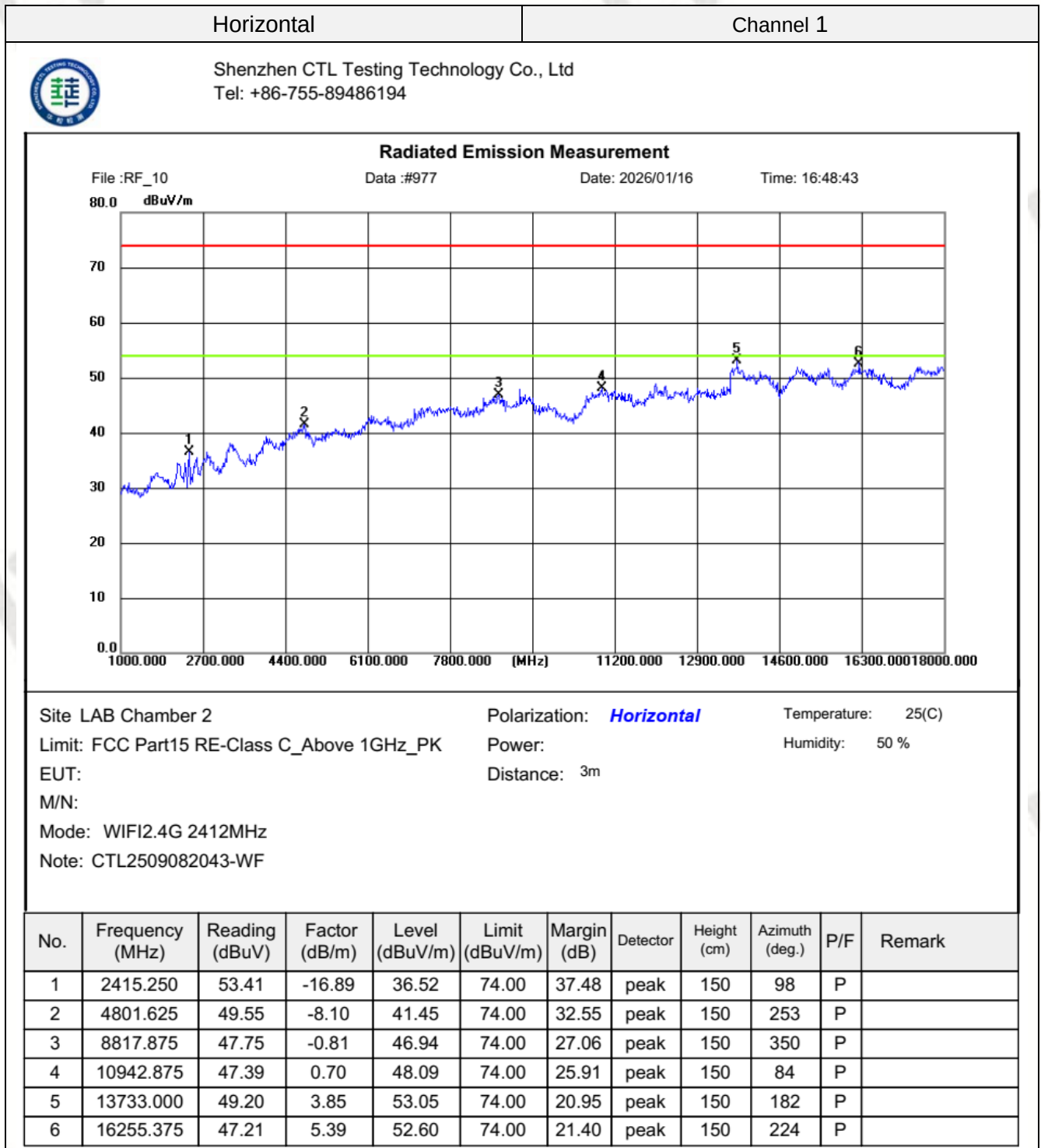
1. All three channels (lowest/middle/highest) of each mode were measured below 1GHz and recorded worst case at 802.11b low channel.
2. All three channels (lowest/middle/highest) of each mode were measured above 1GHz and recorded worst case at 802.11b mode.
3. Radiated emission test from 9 KHz to 10th 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.

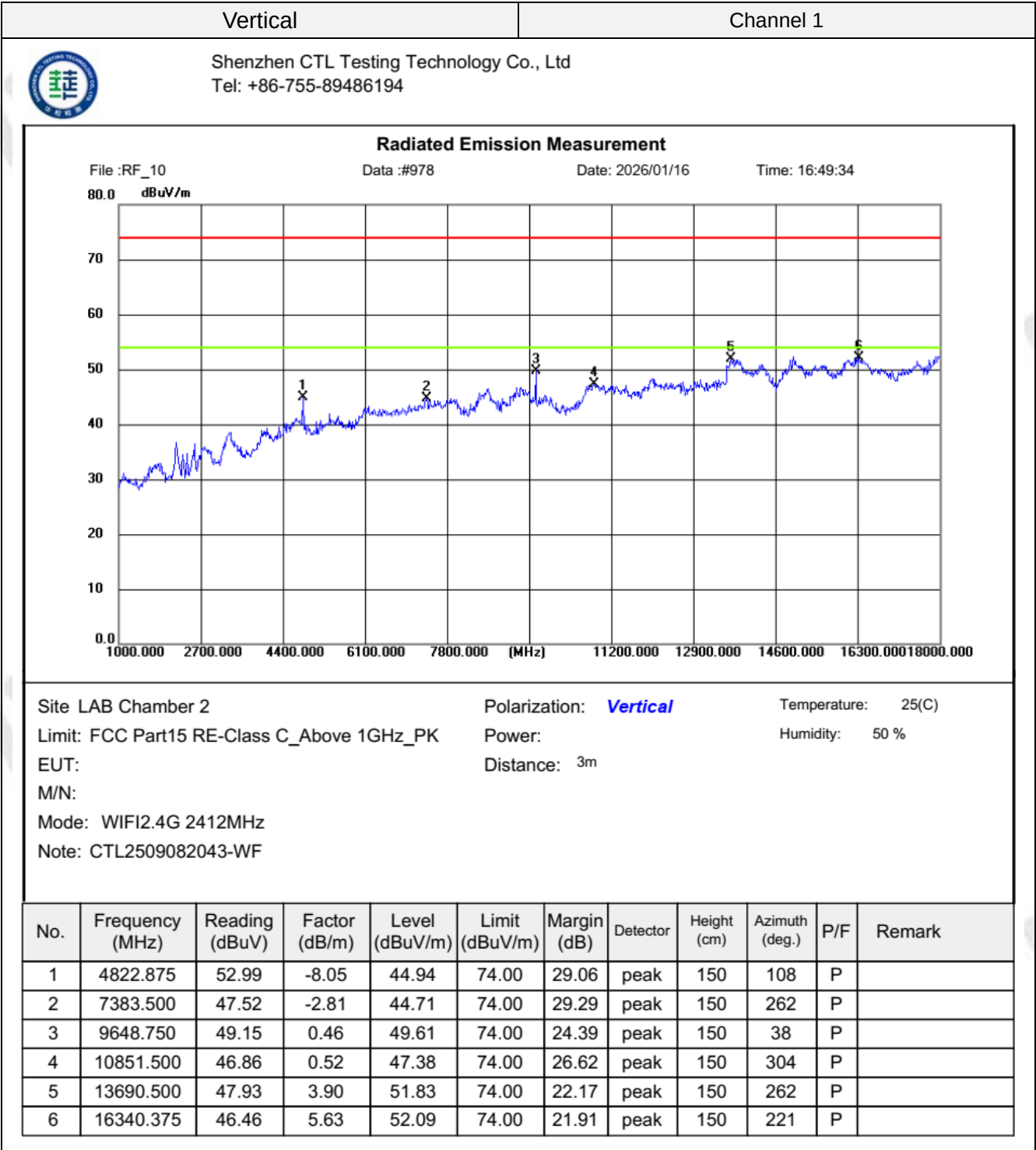
For 30MHz-1GHz

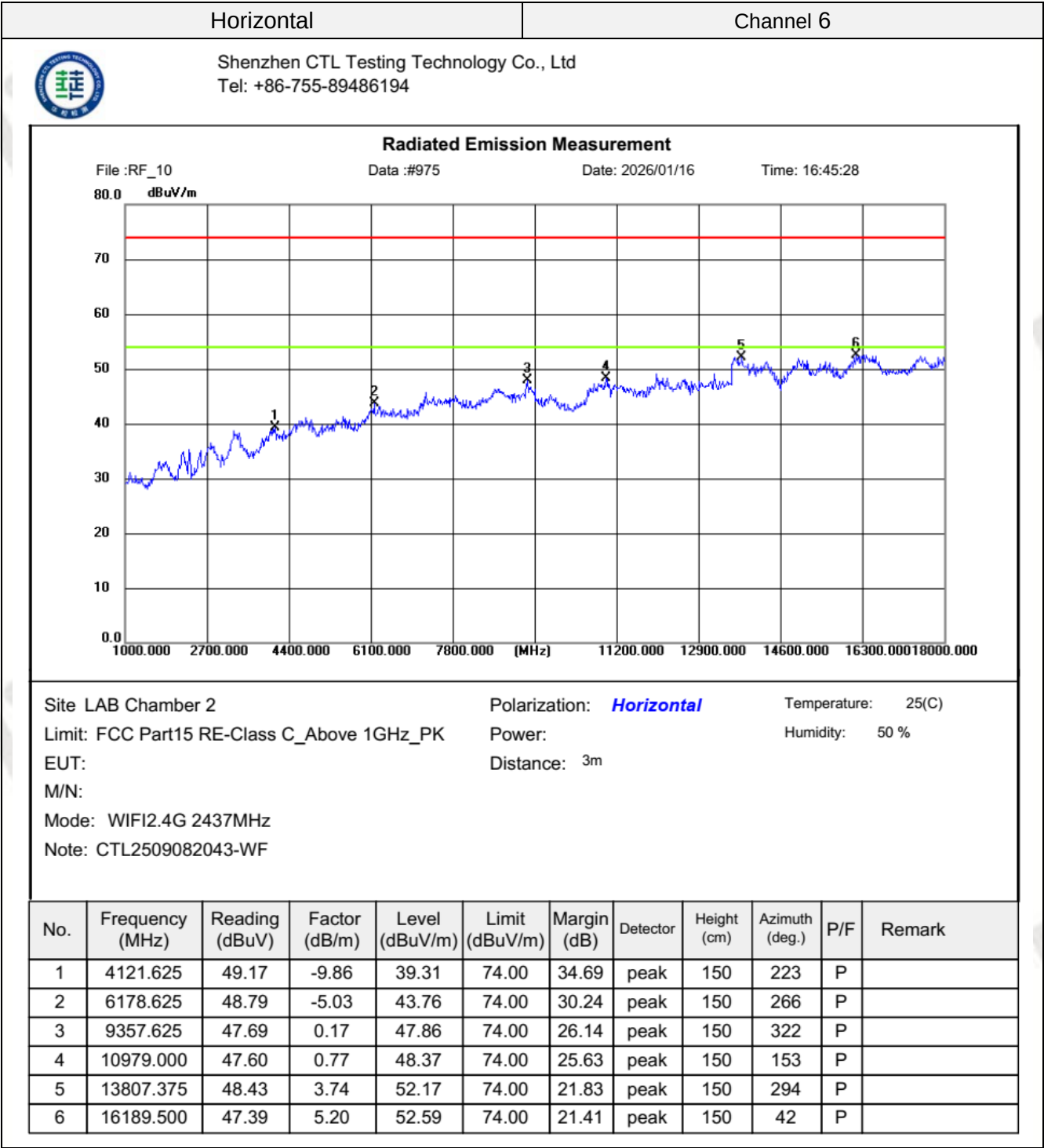


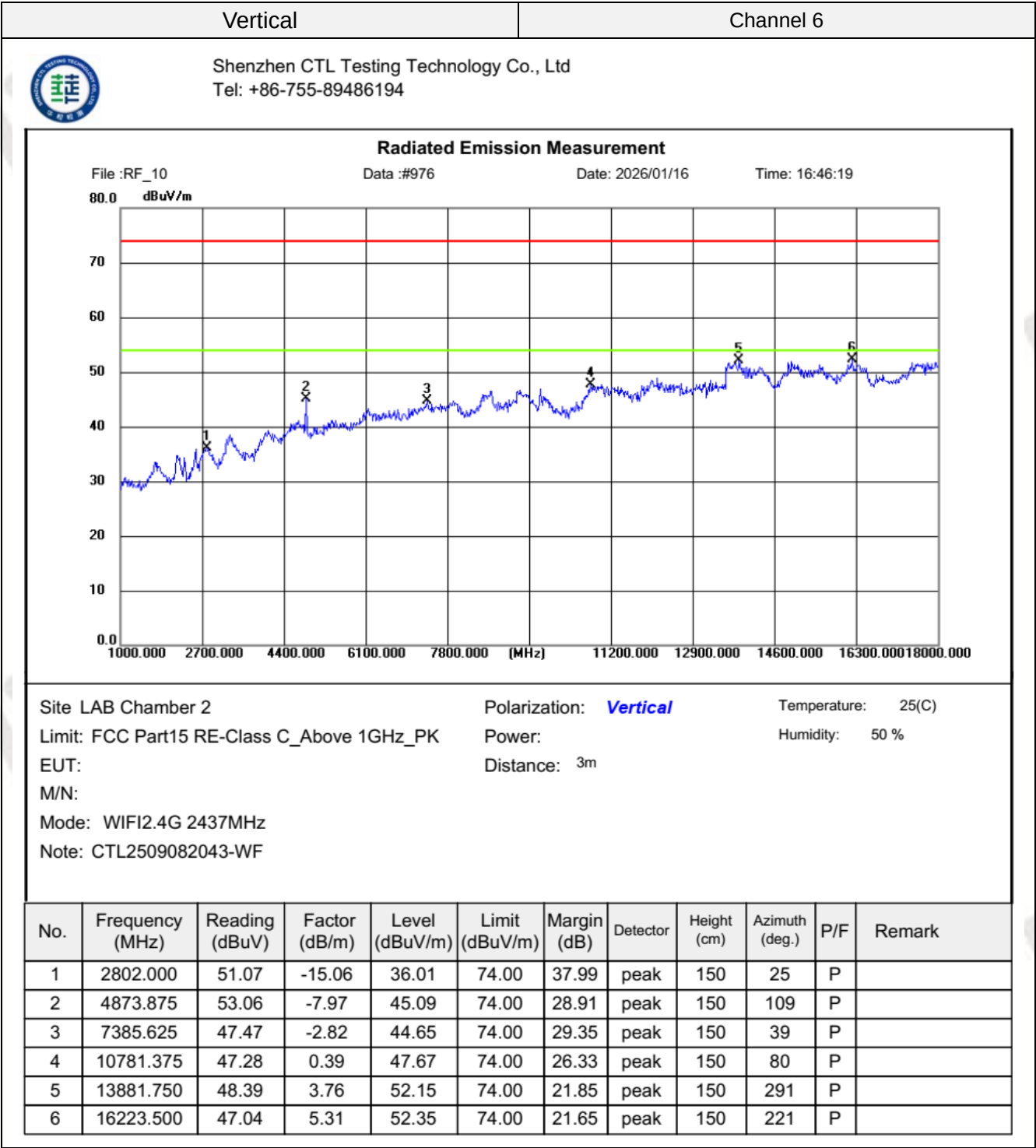
For 1GHz to 25GHz**802.11b Mode (above 1GHz)**

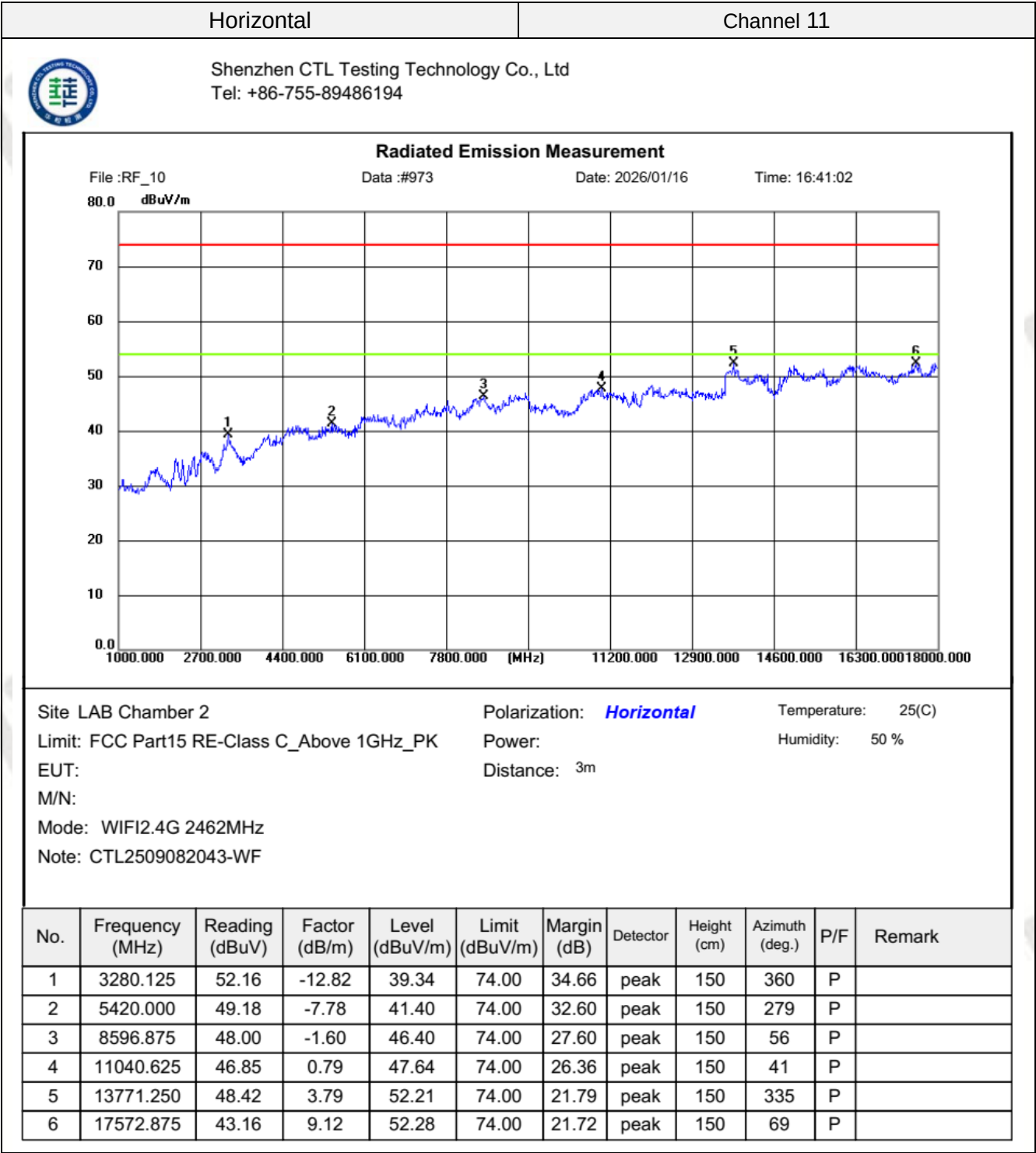
Note: 802.11b/802.11g/802.11n (HT20)/802.11n (HT40) all have been tested, only worse case 802.11b is reported.











Vertical

Channel 11



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

Radiated Emission Measurement

File :RF_10

Data :#974

Date: 2026/01/16

Time: 16:41:53

80.0 dBuV/m



Site LAB Chamber 2

Polarization: **Vertical**

Temperature: 25(C)

Limit: FCC Part15 RE-Class C_Above 1GHz_PK

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N:

Mode: WIFI2.4G 2462MHz

Note: CTL2509082043-WF

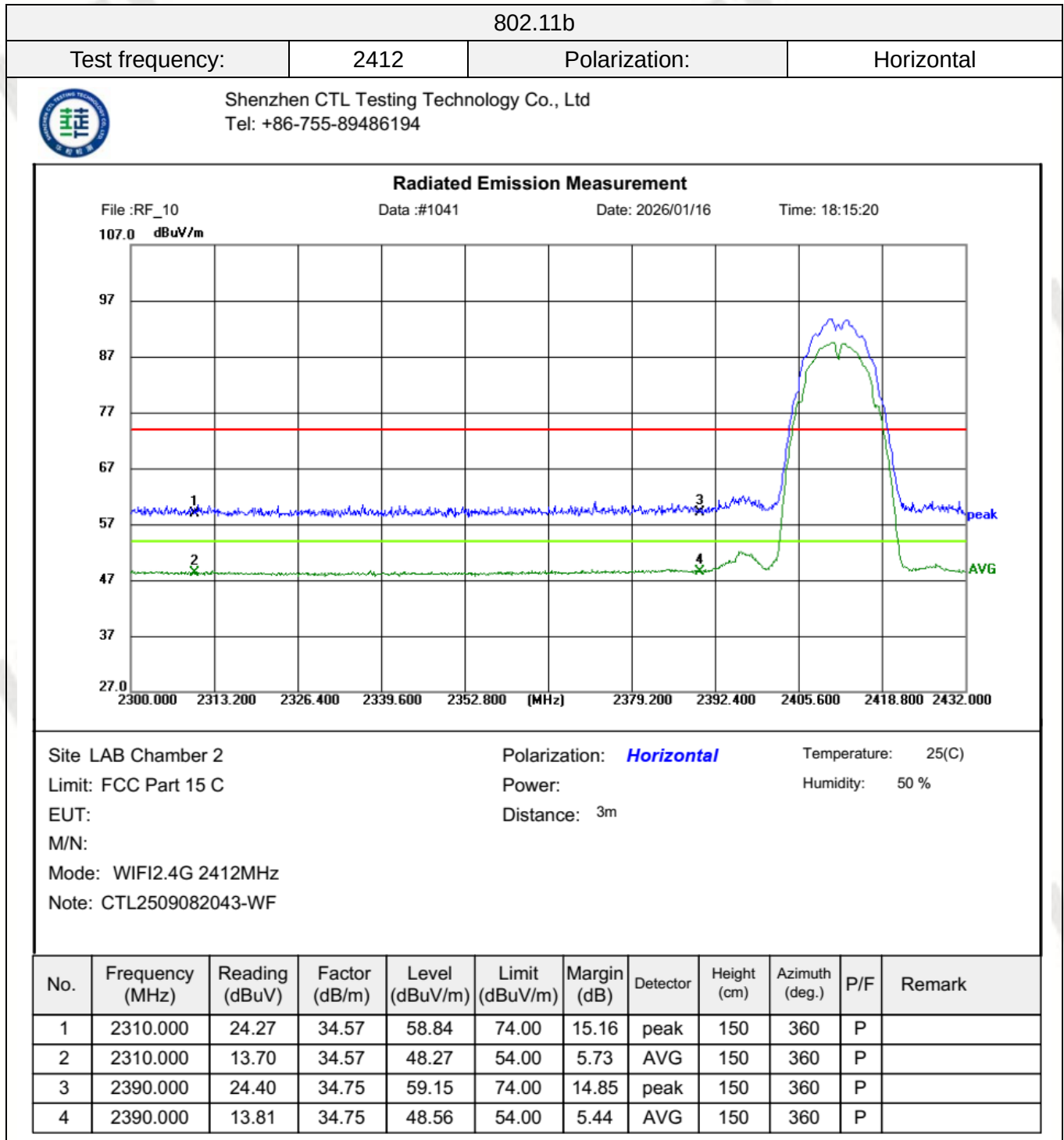
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2338.750	52.46	-17.15	35.31	74.00	38.69	peak	150	235	P	
2	4933.375	50.90	-7.87	43.03	74.00	30.97	peak	150	96	P	
3	8637.250	47.80	-1.43	46.37	74.00	27.63	peak	150	54	P	
4	12058.500	47.30	2.18	49.48	74.00	24.52	peak	150	40	P	
5	13900.875	48.20	3.77	51.97	74.00	22.03	peak	150	12	P	
6	16901.375	45.30	6.67	51.97	74.00	22.03	peak	150	249	P	

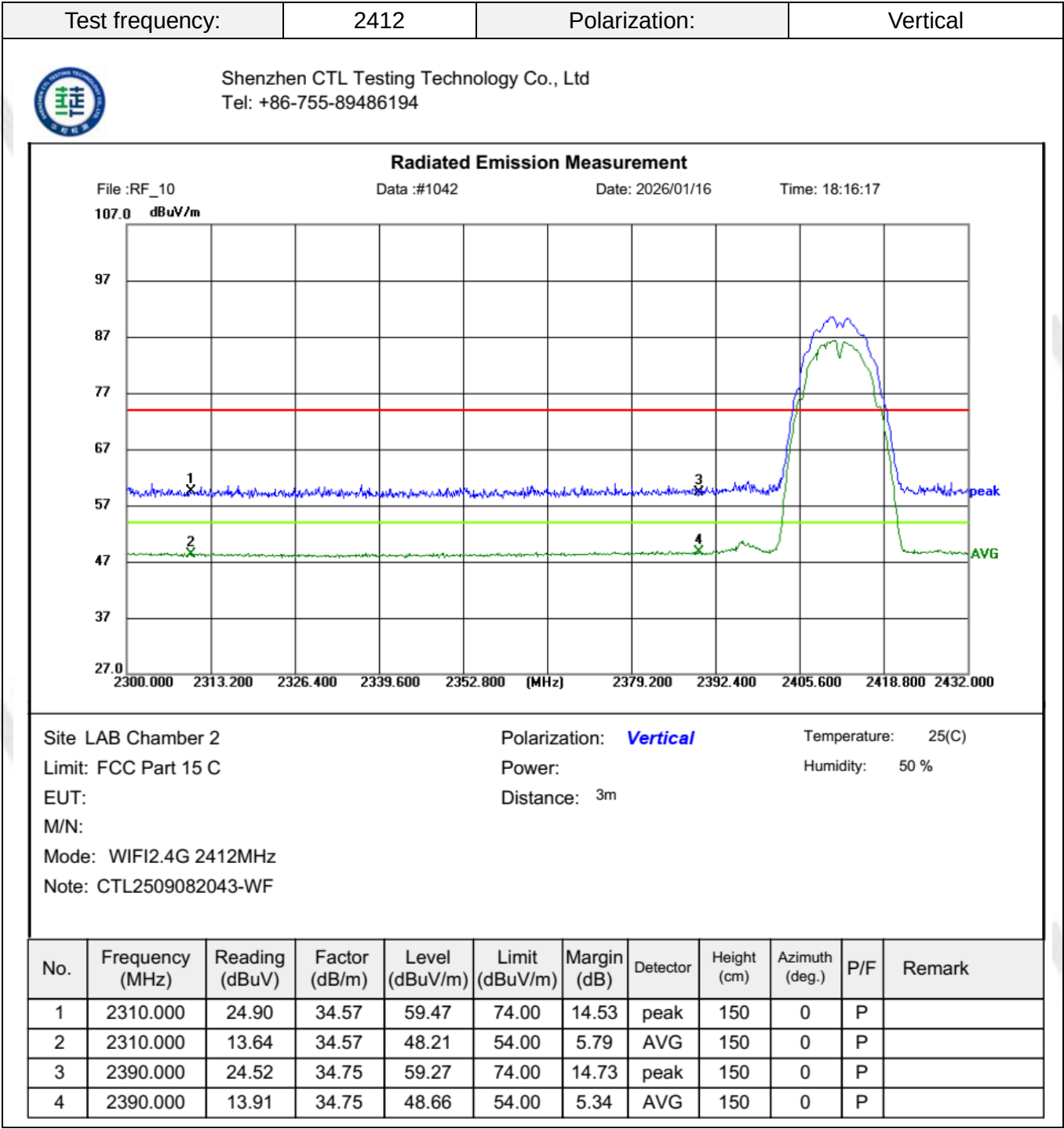
REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Average detector is for AV value.
5. Other emissions are attenuated 20dB below the limits from 9 kHz to 30MHz, so it does not recorded in report.
6. 18GHz-26GHz not recorded for no spurious point have a margin of less than 6 dB with respect to the limits.

Results of Band Edges Test (Radiated)

Note: 802.11b/802.11g/802.11n (H20) /802.11n (H40) all have been tested, only worse case 802.11b is reported





Test frequency:

2462

Polarization:

Horizontal



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

Radiated Emission Measurement

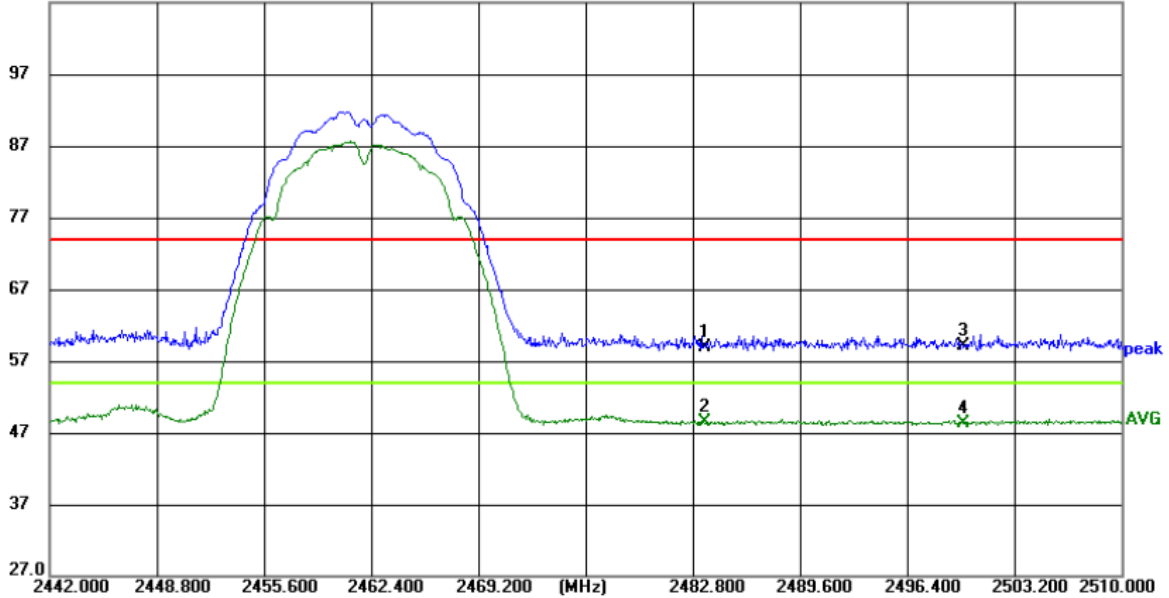
File :RF_10

Data :#1039

Date: 2026/01/16

Time: 18:11:31

107.0 dBuV/m



Site LAB Chamber 2

Limit: FCC Part 15 C

EUT:

M/N:

Mode: WIFI2.4G 2462MHz

Note: CTL2509082043-WF

Polarization: **Horizontal**

Temperature: 25(C)

Power:

Humidity: 50 %

Distance: 3m

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	2483.500	23.97	35.03	59.00	74.00	15.00	peak	150	360	P	
2	2483.500	13.50	35.03	48.53	54.00	5.47	AVG	150	360	P	
3	2500.000	24.07	35.12	59.19	74.00	14.81	peak	150	360	P	
4	2500.000	13.22	35.12	48.34	54.00	5.66	AVG	150	360	P	

Test frequency:

2462

Polarization:

Vertical



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Radiated Emission Measurement

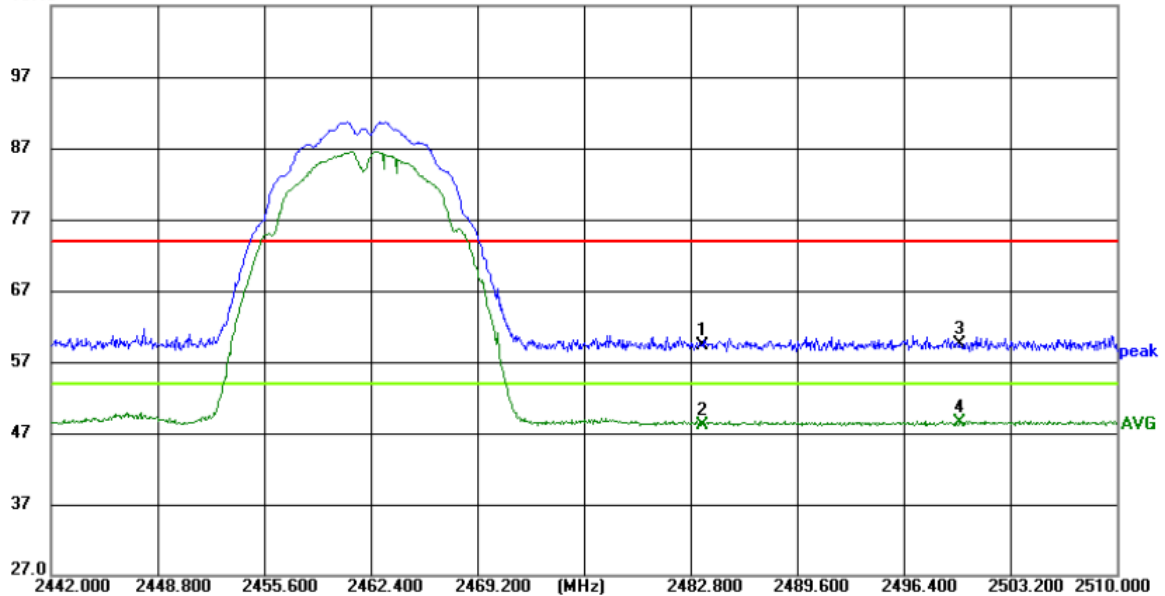
File :RF_10

Data :#1040

Date: 2026/01/16

Time: 18:12:30

107.0 dBuV/m



Site LAB Chamber 2

Polarization: **Vertical**

Temperature: 25(C)

Limit: FCC Part 15 C

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N:

Mode: WIFI2.4G 2462MHz

Note: CTL2509082043-WF

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	2483.500	24.23	35.03	59.26	74.00	14.74	peak	150	0	P	
2	2483.500	13.13	35.03	48.16	54.00	5.84	AVG	150	0	P	
3	2500.000	24.46	35.12	59.58	74.00	14.42	peak	150	0	P	
4	2500.000	13.47	35.12	48.59	54.00	5.41	AVG	150	0	P	

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Average detector is for AV value.

3.3. Maximum Conducted Output Power

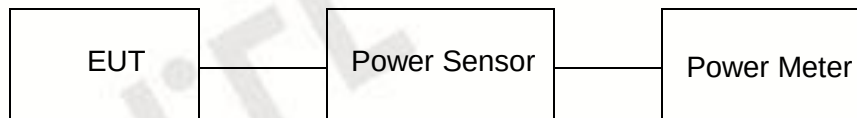
Limit

The Maximum Peak Output Power Measurement is 30dBm.

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum.

Test Configuration



Test Results

Raw data reference to CTL2509082043-WF02_4G_WIFI_Appendix section 3.

3.4. Power Spectral Density

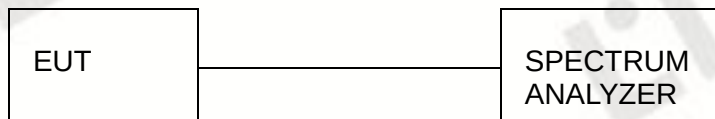
Limit

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.

Test Procedure

1. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW ≥ 3 kHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = Average.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum power level.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
10. The resulting PSD level must be 8dBm.

Test Configuration



Test Results

Raw data reference to CTL2509082043-WF02_4G_WIFI_Appendix section 4.

3.5. 6dB Bandwidth

Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

Test Procedure

The steps for the first option are as follows:

Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.

Set the VBW $\geq$ $[3 \times \text{RBW}]$.

Detector = peak.

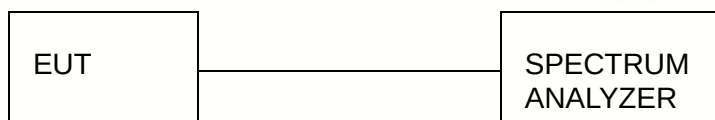
Trace mode = max-hold.

Sweep = No faster than coupled (auto) time.

Allow the trace to stabilize.

Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-6dB down amplitude”. If a marker is below this “-6dB down amplitude” value, then it shall be as close as possible to this value.

Test Configuration



Test Results

Raw data reference to CTL2509082043-WF02_4G_WIFI_Appendix section 2.

3.6. Out-of-band Emissions

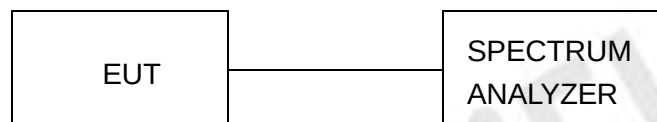
Limit

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.

Test Procedure

Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector , and max hold. Measurements utilizing these setting are made of the in-band reference level, bandedge and out-of-band emissions.

Test Configuration



Test Results

Raw data reference to CTL2509082043-WF02_4G_WIFI_Appendix section 5.

3.7. Antenna Requirement

Standard Applicable

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

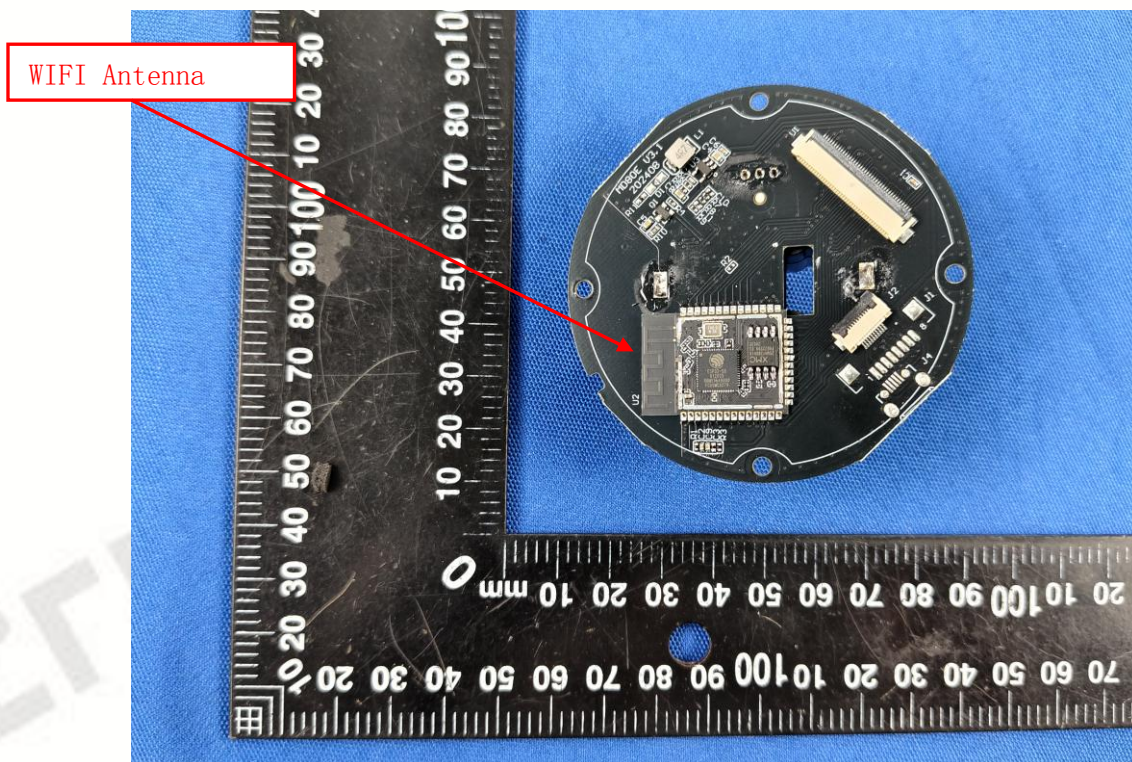
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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.

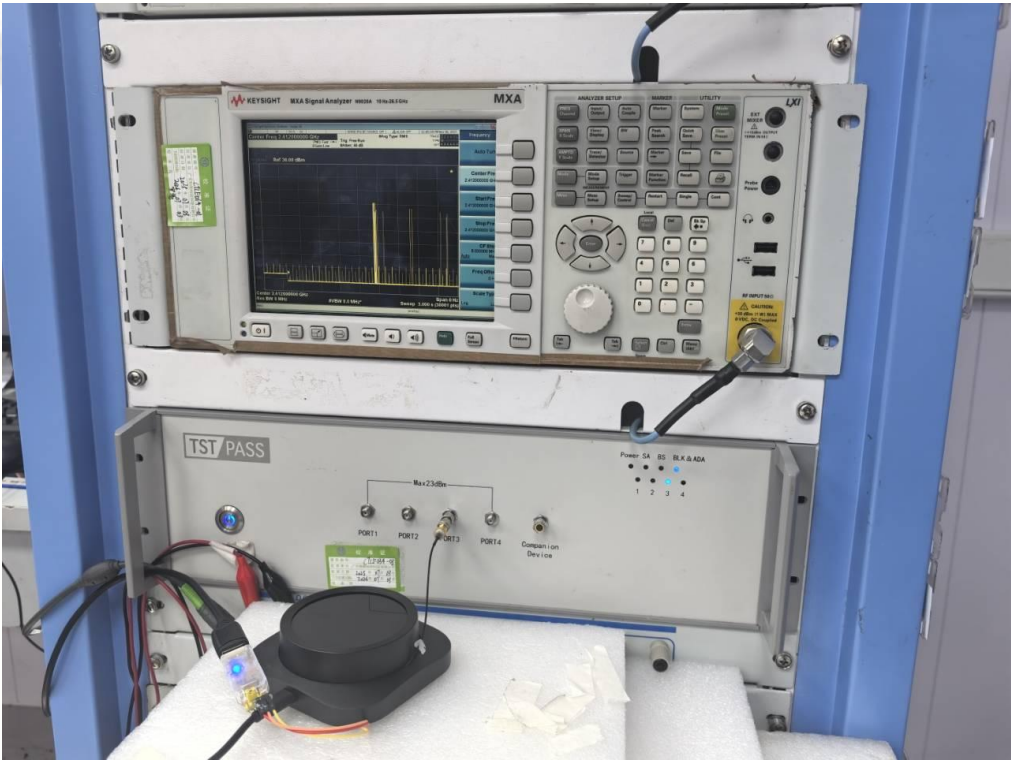
Antenna Connected Construction

The maximum gain of antenna was 3.26dBi



4. Test Setup Photos of the EUT





Photos of the EUT

Reference to the test report No.CTL2509082043-WF01.

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