



Shenzhen CTL Testing Technology Co., Ltd.
Tel: +86-755-89486194 E-mail: ctl@ctl-lab.com

TEST REPORT

FCC PART 15.247

Report Reference No. : CTL2509082043-WF01

Compiled by:
(printed name+signature)

Andy Su

Reviewed by:
(printed name+signature)

Happy Guo

Approved by:
(printed name+signature)

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**

Shenzhen CTL Testing Technology Co., Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen CTL Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen CTL Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

TEST REPORT

Test Report No. :	CTL2509082043-WF01	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]

Table of Contents

Page

1. SUMMARY	5
1.1. TEST STANDARDS	5
1.2. TEST DESCRIPTION	5
1.3. TEST FACILITY	6
1.4. EUT CONFIGURATION	6
1.5. STATEMENT OF THE MEASUREMENT UNCERTAINTY	7
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)	11
2.6. MODIFICATIONS	11
3. TEST CONDITIONS AND RESULTS	12
3.1. CONDUCTED EMISSIONS TEST	12
3.2. RADIATED EMISSIONS AND BAND EDGE	15
3.3. MAXIMUM CONDUCTED OUTPUT POWER	29
3.4. POWER SPECTRAL DENSITY	30
3.5. 6dB BANDWIDTH	31
3.6. OUT-OF-BAND EMISSIONS	32
3.7. ANTENNA REQUIREMENT	33
4. TEST SETUP PHOTOS OF THE EUT	34
5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT	36

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

[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

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

Note: N/A= not applicable

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. 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

1.5. 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	$\pm 2.94\text{dB}$	(1)
Magnetic Field Emission 9KHz~30MHz	$\pm 3.24\text{dB}$	(1)
Radiated Emission 30~1000MHz	$\pm 3.64\text{dB}$	(1)
Radiated Emission Above 1GHz	$\pm 3.92\text{dB}$	(1)
DTS Bandwidth	$\pm 1.9\%$	(1)
Maximum Conducted Output Power	$\pm 1.18\text{ dB}$	(1)
Maximum Power Spectral Density Level	$\pm 0.98\text{ dB}$	(1)
Band-edge	$\pm 1.21\text{dB}$	(1)
Unwanted Emissions In Non-restricted Freq Bands	9kHz-7GHz: $\pm 1.09\text{dB}$ 7GHz-26.5GHz: $\pm 3.27\text{dB}$	(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.

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
Bluetooth Low Energy	
Supported type:	Bluetooth Low Energy
Modulation:	GFSK
Operation frequency:	2402MHz~2480MHz
Channel number:	40
Channel separation:	2MHz
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: 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 and receiving mode for testing.

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

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

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)

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-9.5M	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)

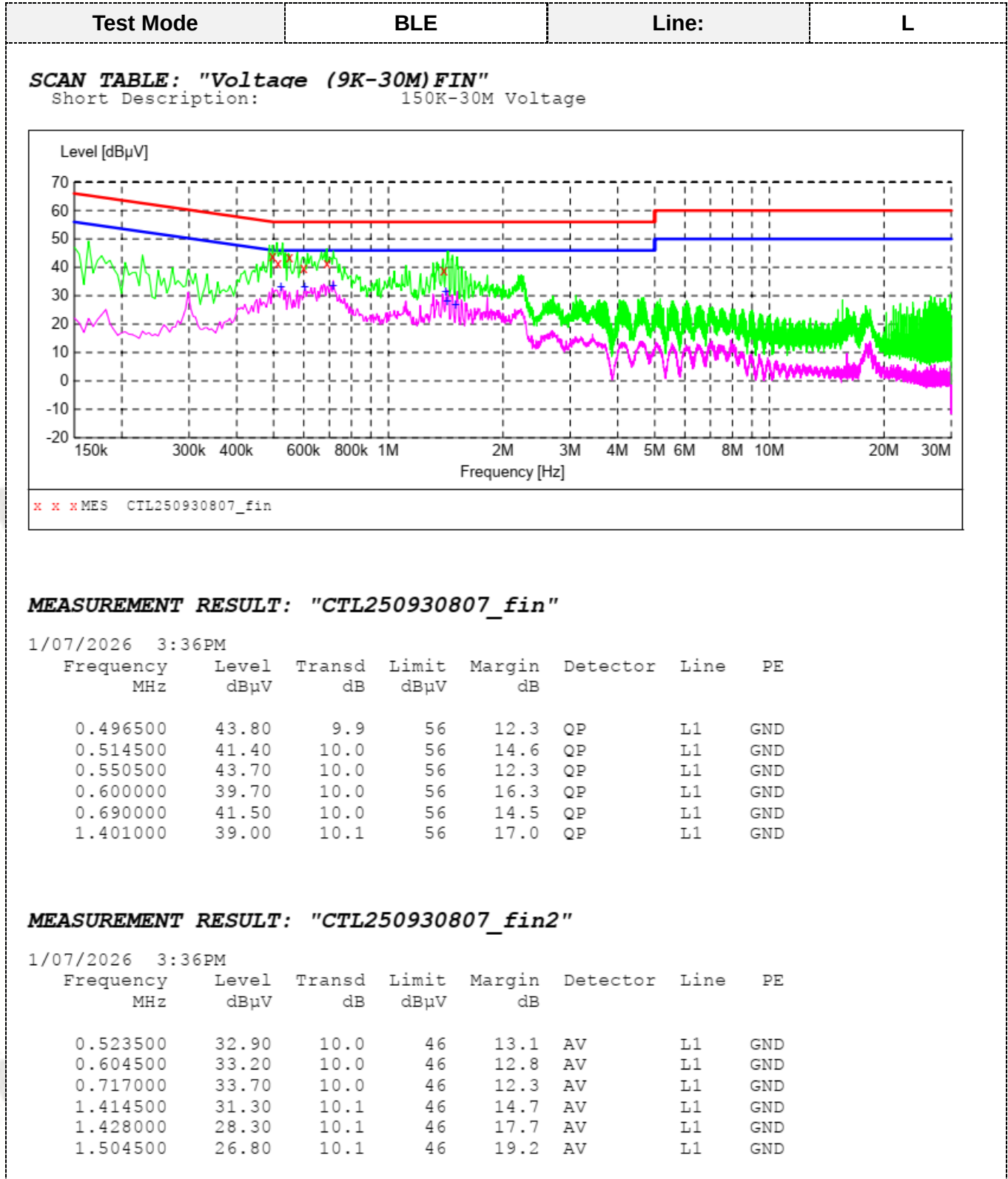
This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

TEST RESULTS

Remark: We have tested low channel, middle channel, high channel, only recorded worst at low channel.



Test Mode

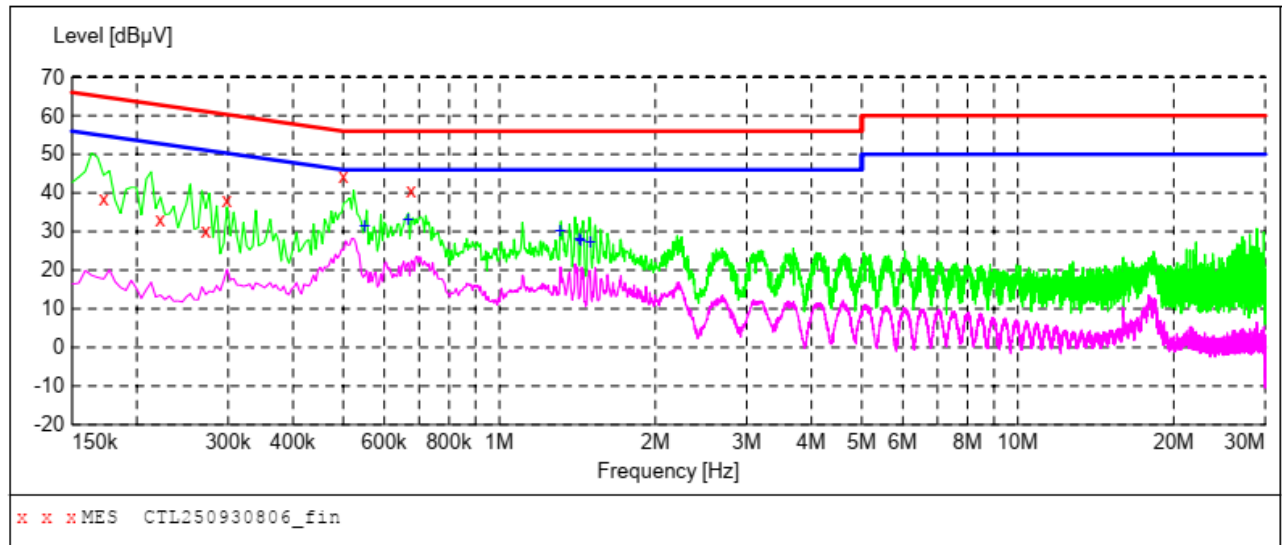
BLE

Line:

N

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

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL250930806_fin"**

1/07/2026 3:33PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.172500	38.40	9.9	65	26.4	QP	N	GND
0.222000	33.20	9.9	63	29.5	QP	N	GND
0.271500	30.40	9.9	61	30.7	QP	N	GND
0.298500	38.00	9.9	60	22.3	QP	N	GND
0.501000	44.20	10.0	56	11.8	QP	N	GND
0.676500	40.50	10.0	56	15.5	QP	N	GND

MEASUREMENT RESULT: "CTL250930806_fin2"

1/07/2026 3:33PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.550500	31.20	10.0	46	14.8	AV	N	GND
0.667500	33.00	10.0	46	13.0	AV	N	GND
1.311000	30.20	10.1	46	15.8	AV	N	GND
1.428000	28.30	10.1	46	17.7	AV	N	GND
1.437000	27.50	10.1	46	18.5	AV	N	GND
1.500000	27.10	10.1	46	18.9	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.

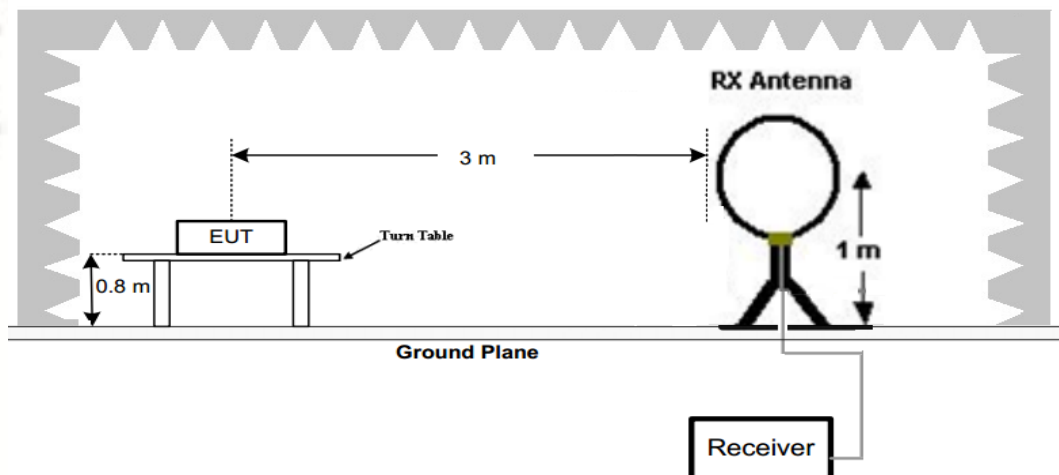
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

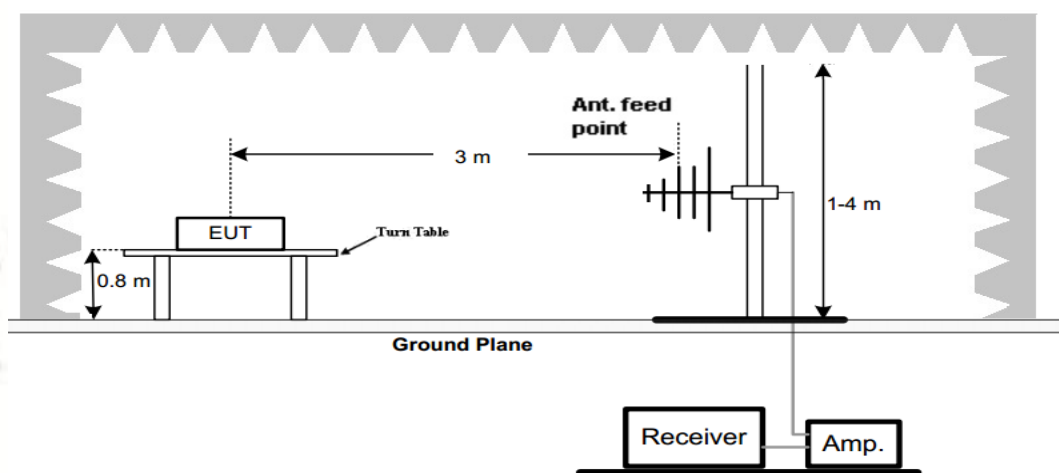
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz})) + 40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz})) + 40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30) + 40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150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

TEST CONFIGURATION

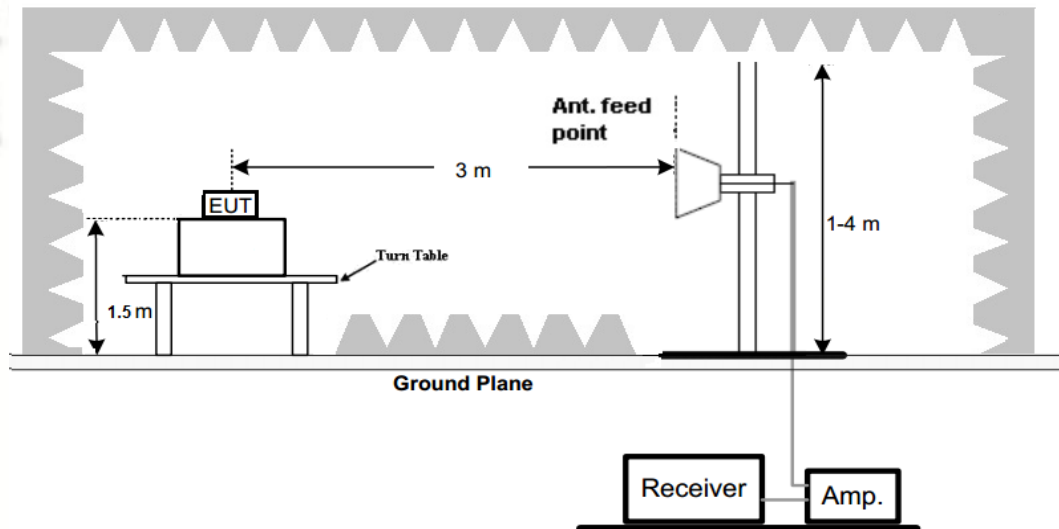
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



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

**Test Procedure**

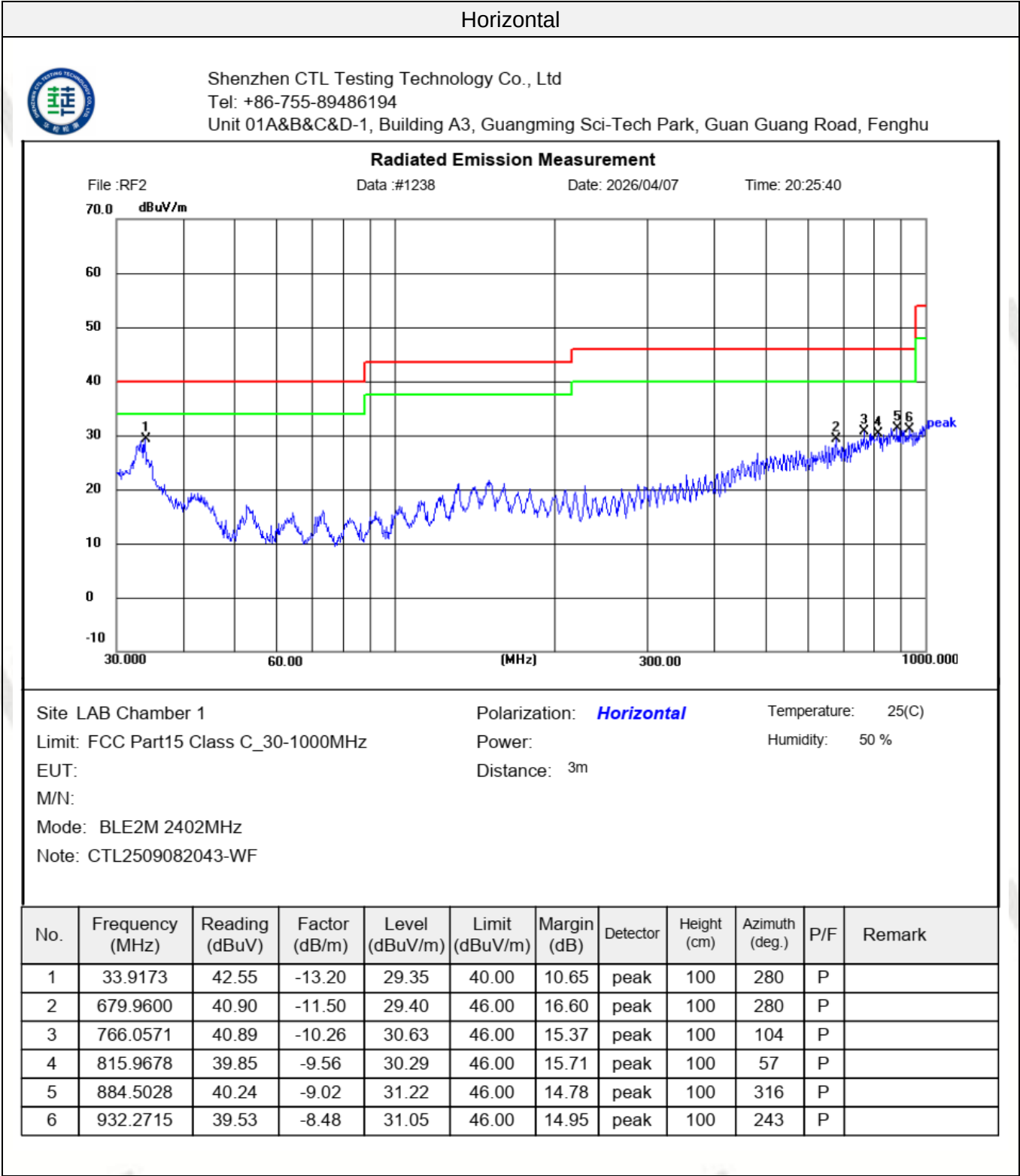
1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 0.1m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
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
6. measurement –X, Y, and Z-plane. The X-plane results were found as the worst case and were
7. shown in this report

TEST RESULTS

Remark:

1. We have tested low channel, middle channel, high channel, only recorded worst at low channel.
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



Vertical



Shenzhen CTL Testing Technology Co., Ltd

Tel: +86-755-89486194

Unit 01A&B&C&D-1, Building A3, Guangming Sci-Tech Park, Guan Guang Road, Fenghu

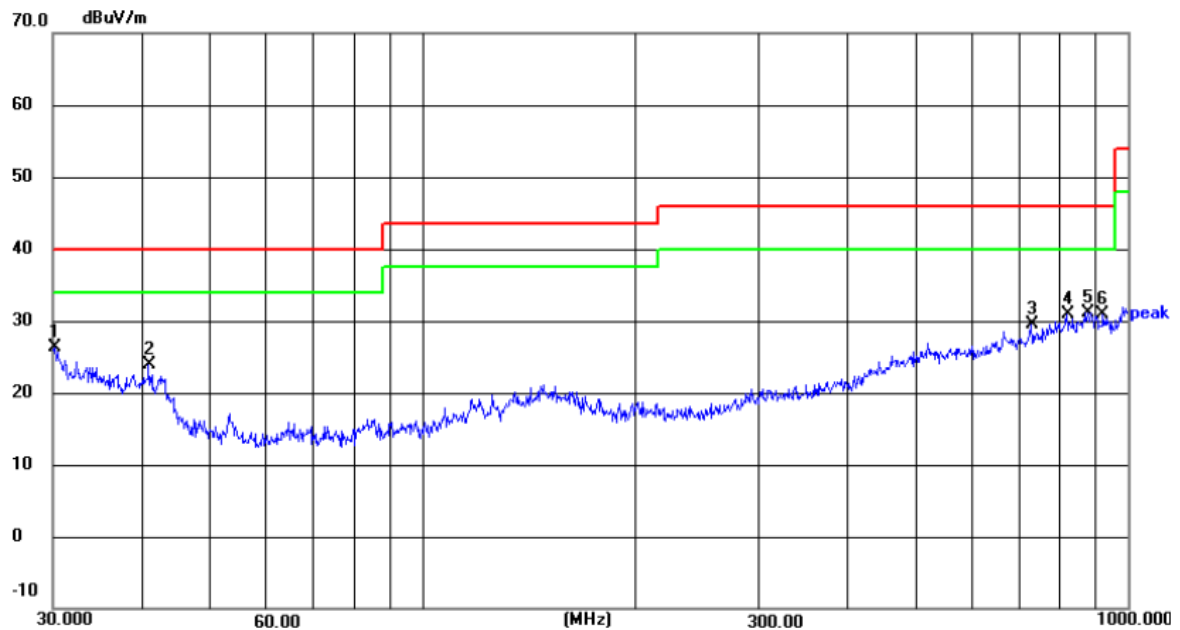
Radiated Emission Measurement

File : RF2

Data : #1239

Date: 2026/04/07

Time: 20:26:25



Site LAB Chamber 1

Polarization: **Vertical**

Temperature: 25(C)

Limit: FCC Part15 Class C_30-1000MHz

Power:

Humidity: 50 %

EUT:

Distance: 3m

M/N:

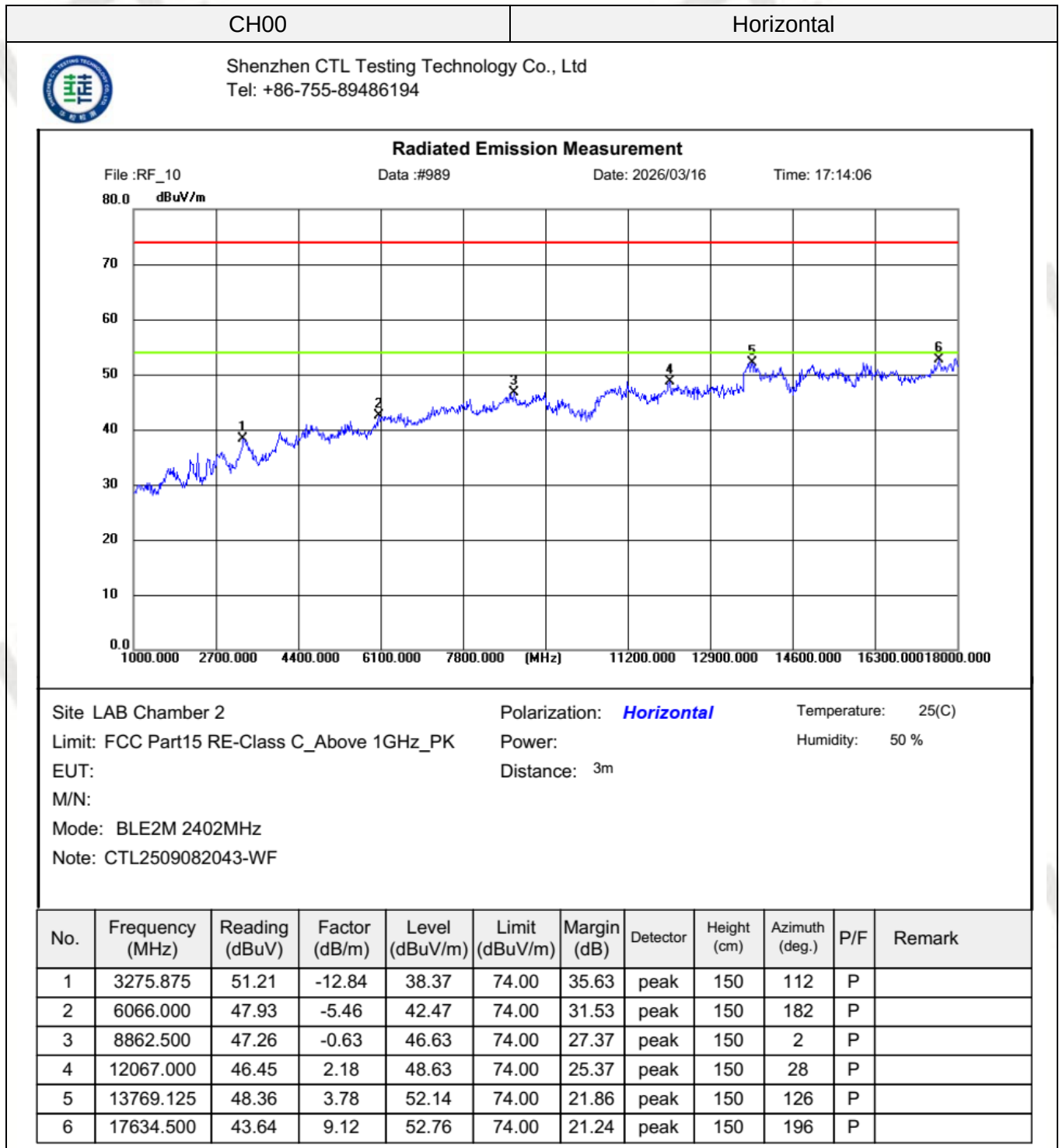
Mode: BLE2M 2402MHz

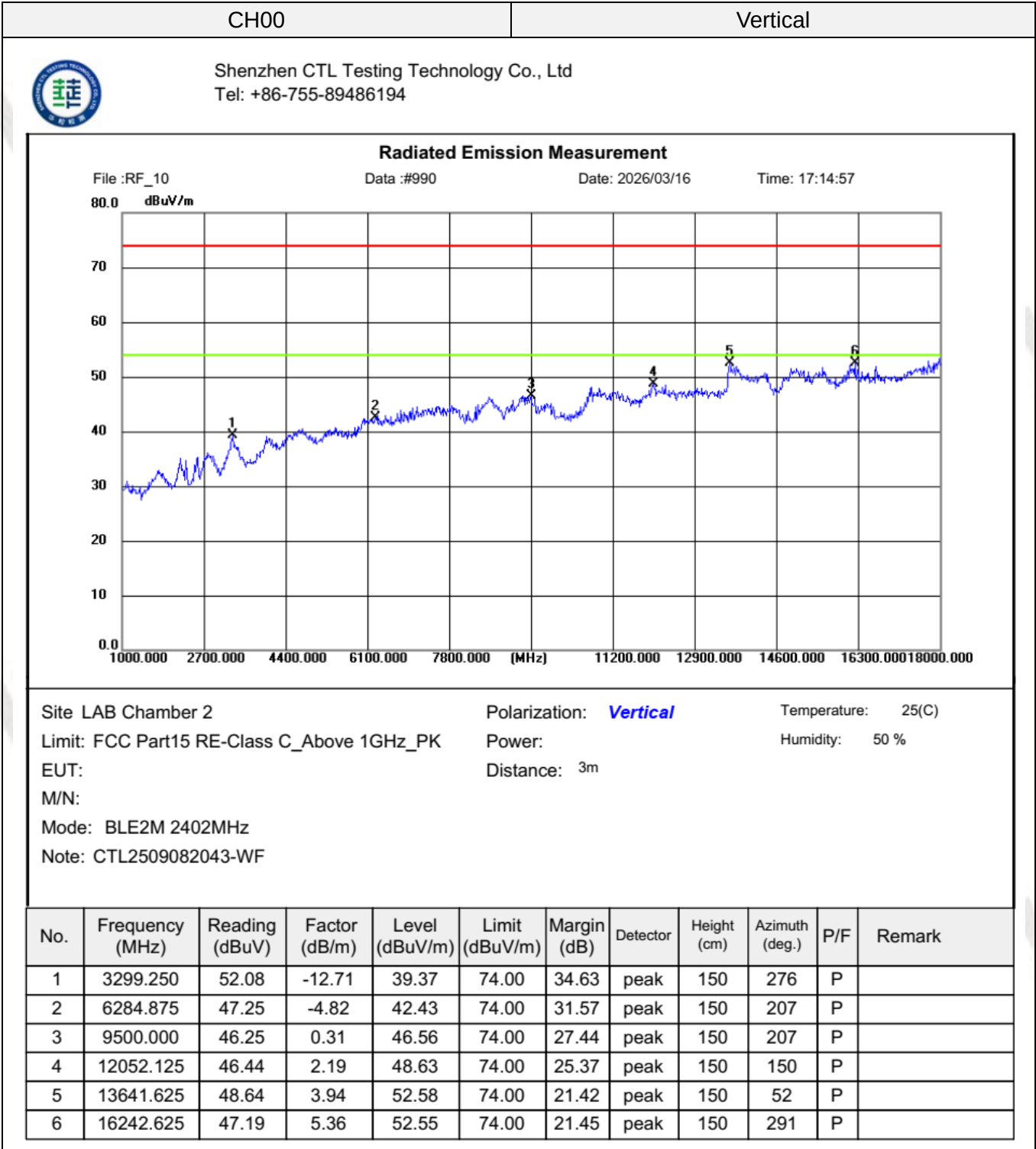
Note: CTL2509082043-WF

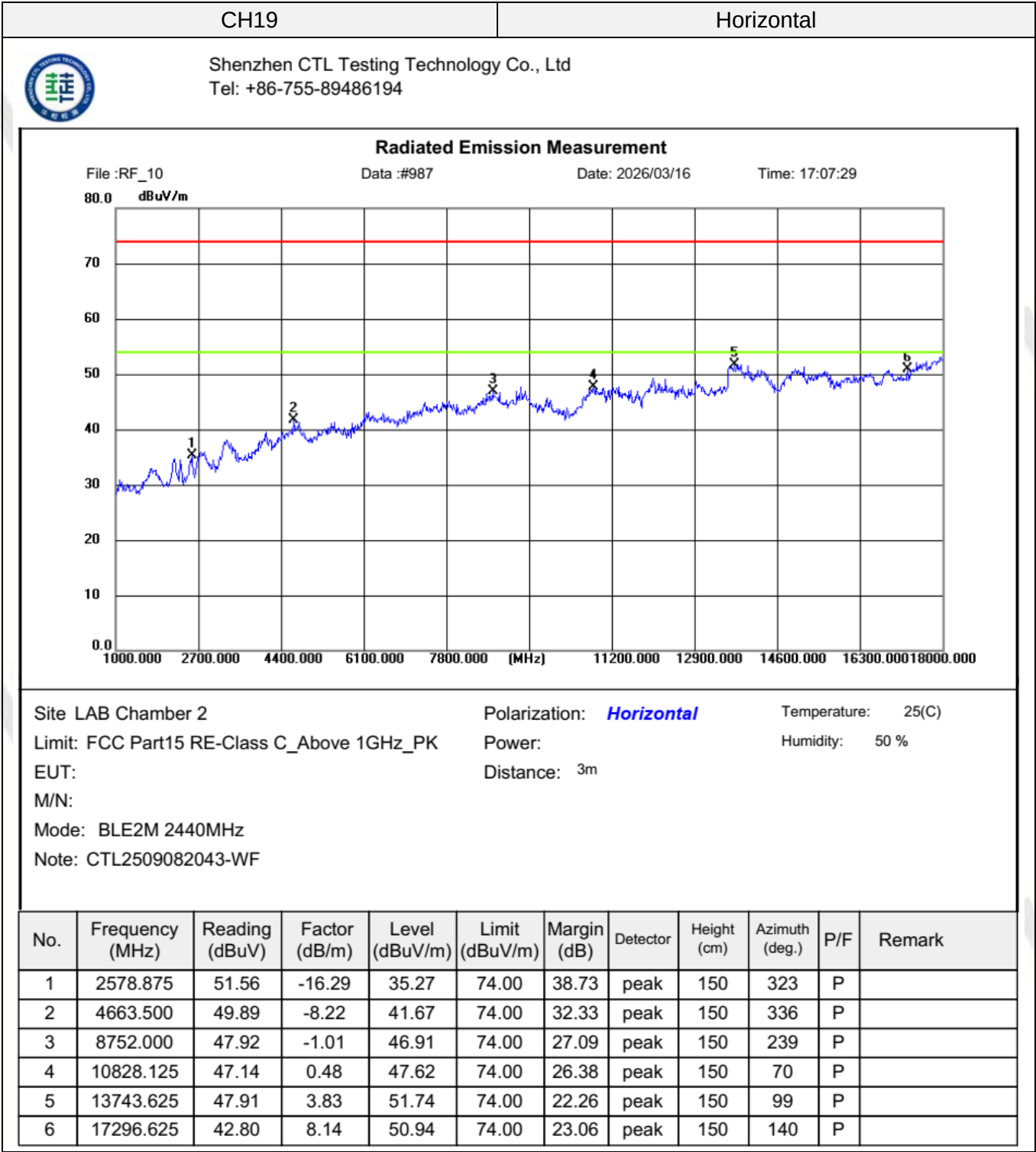
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	30.2111	37.15	-10.78	26.37	40.00	13.63	peak	100	360	P	
2	40.9881	41.42	-17.52	23.90	40.00	16.10	peak	100	329	P	
3	729.3583	40.76	-11.17	29.59	46.00	16.41	peak	100	227	P	
4	818.8341	40.60	-9.67	30.93	46.00	15.07	peak	100	283	P	
5	878.3214	40.18	-9.11	31.07	46.00	14.93	peak	100	117	P	
6	922.5157	39.40	-8.40	31.00	46.00	15.00	peak	100	273	P	

For 1GHz to 18GHz

BLE Mode (above 1GHz)







CH19

Vertical



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

Radiated Emission Measurement

File :RF_10

Data :#988

Date: 2026/03/16

Time: 17:08:19

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:

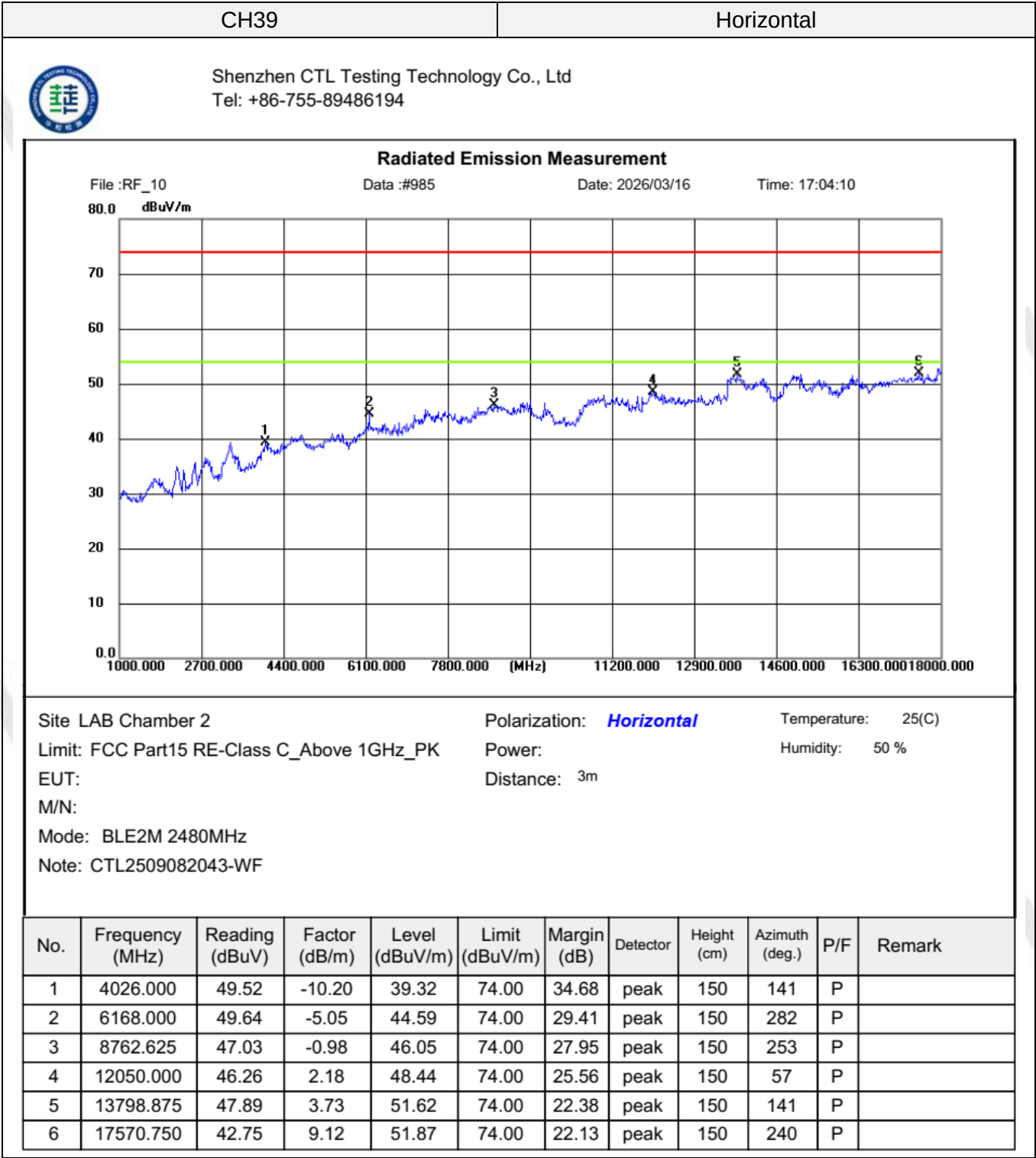
Distance: 3m

M/N:

Mode: BLE2M 2440MHz

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	52.94	-17.15	35.79	74.00	38.21	peak	150	276	P	
2	4682.625	49.00	-8.18	40.82	74.00	33.18	peak	150	360	P	
3	7508.875	48.01	-2.72	45.29	74.00	28.71	peak	150	191	P	
4	9310.875	46.82	0.12	46.94	74.00	27.06	peak	150	262	P	
5	13794.625	48.24	3.75	51.99	74.00	22.01	peak	150	9	P	
6	17417.750	42.19	8.83	51.02	74.00	22.98	peak	150	318	P	



CH39

Vertical



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

Radiated Emission Measurement

File :RF_10

Data :#986

Date: 2026/03/16

Time: 17:05:01



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: BLE2M 2480MHz

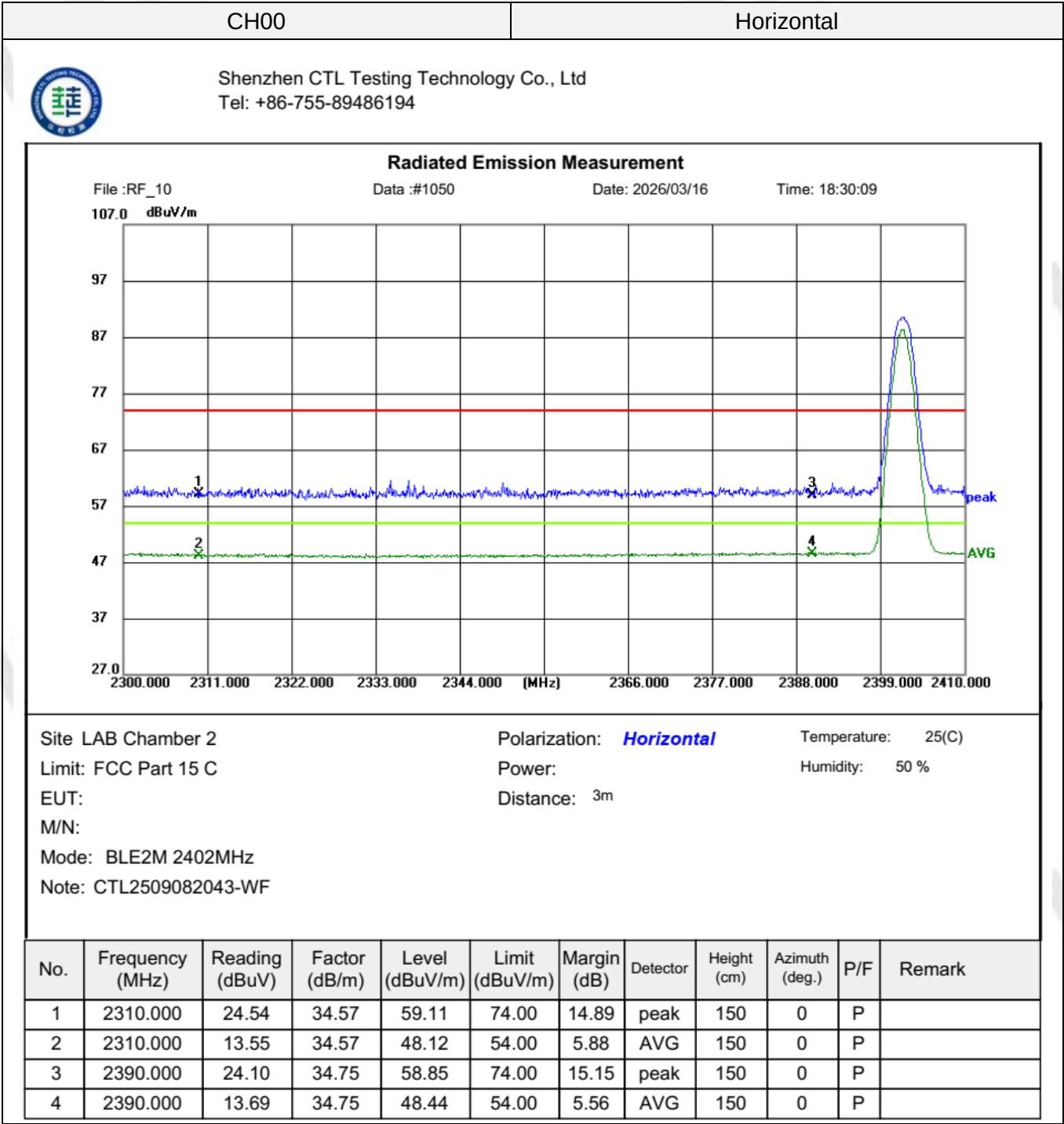
Note: CTL2509082043-WF

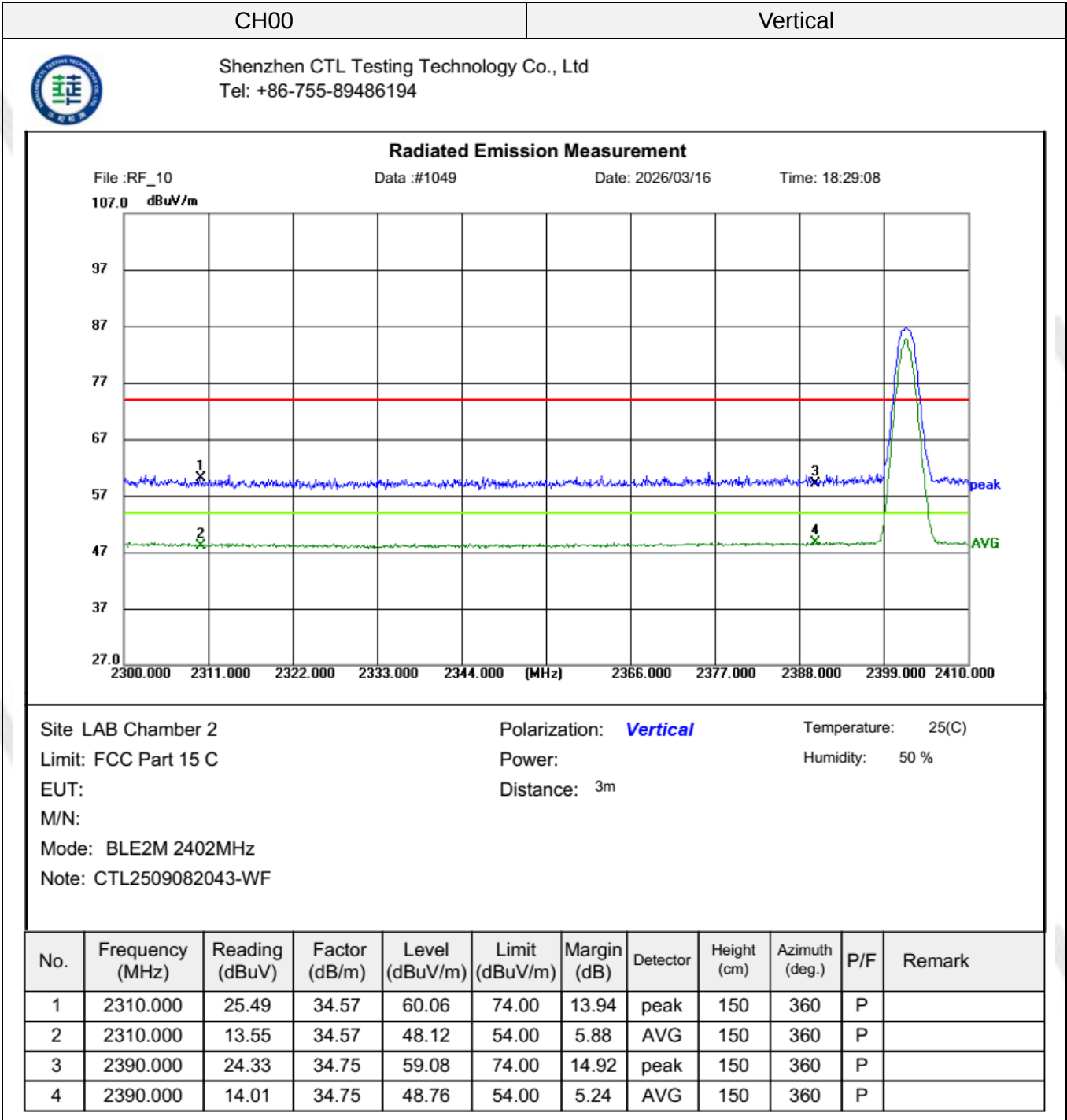
No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	3286.500	50.88	-12.78	38.10	74.00	35.90	peak	150	121	P	
2	6110.625	48.81	-5.31	43.50	74.00	30.50	peak	150	66	P	
3	8667.000	47.90	-1.33	46.57	74.00	27.43	peak	150	150	P	
4	11047.000	46.98	0.80	47.78	74.00	26.22	peak	150	234	P	
5	13769.125	47.88	3.78	51.66	74.00	22.34	peak	150	66	P	
6	16276.625	46.04	5.45	51.49	74.00	22.51	peak	150	108	P	

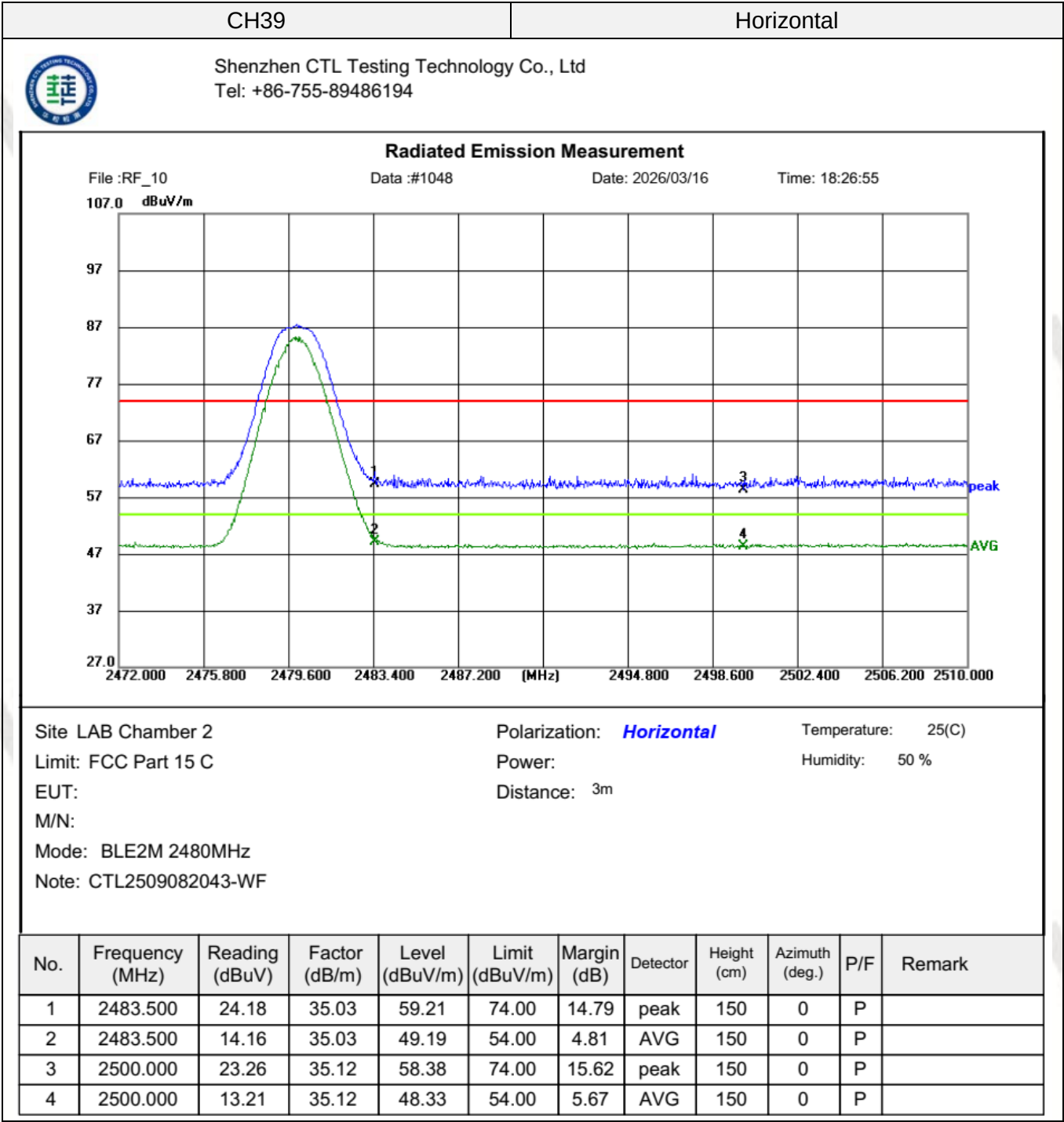
REMARKS:

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 9kHz 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)







CH39

Vertical



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

Radiated Emission Measurement

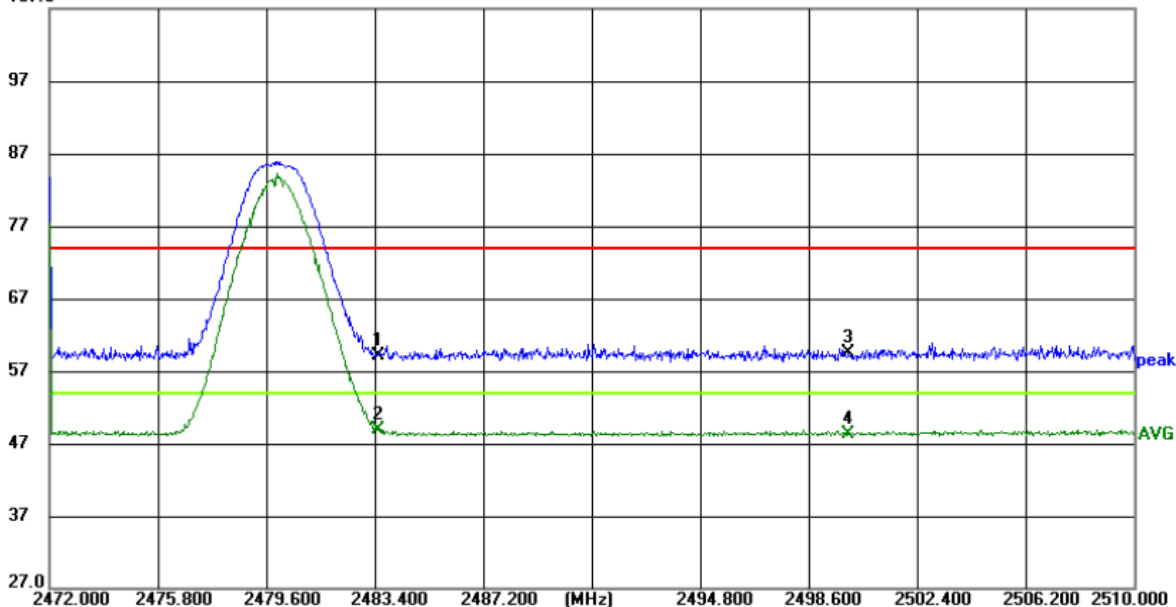
File : RF_10

Data : #1047

Date: 2026/03/16

Time: 18:25:31

107.0 dBuV/m



Site LAB Chamber 2

Limit: FCC Part 15 C

EUT:

M/N:

Mode: BLE2M 2480MHz

Note: CTL2509082043-WF

Polarization: **Vertical**

Power:

Distance: 3m

Temperature: 25(C)

Humidity: 50 %

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	24.12	35.03	59.15	74.00	14.85	peak	150	360	P	
2	2483.500	13.90	35.03	48.93	54.00	5.07	AVG	150	360	P	
3	2500.000	24.37	35.12	59.49	74.00	14.51	peak	150	360	P	
4	2500.000	13.26	35.12	48.38	54.00	5.62	AVG	150	360	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. For fundamental frequency, RBW 3MHz VBW 3MHz Peak detector is for PK Value; RMS detector is for AV value.
6. Other emissions are attenuated 20dB below the limits from 9kHz to 30MHz, so it does not recorded in report.

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 Appendix Test Data for Bluetooth LE Section 3.

3.4. Power Spectral Density

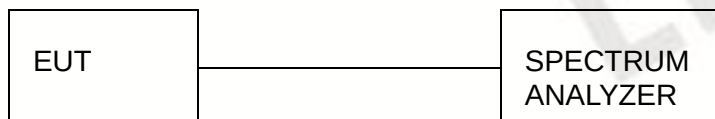
Limit

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 peak 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 = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be 8dBm.

Test Configuration



Test Results

Raw data reference to Appendix Test Data for Bluetooth LE 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 transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

Test Configuration



Test Results

Raw data reference to Appendix Test Data for Bluetooth LE Section 2.

3.6. Out-of-band Emissions

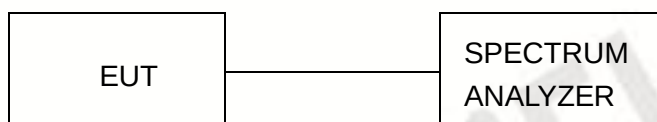
Limit

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 settings are made of the in-band reference level, band edge and out-of-band emissions.

Test Configuration



Test Results

Raw data reference to Appendix Test Data for Bluetooth LE Section 5.

3.7. Antenna Requirement

Standard Applicable

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

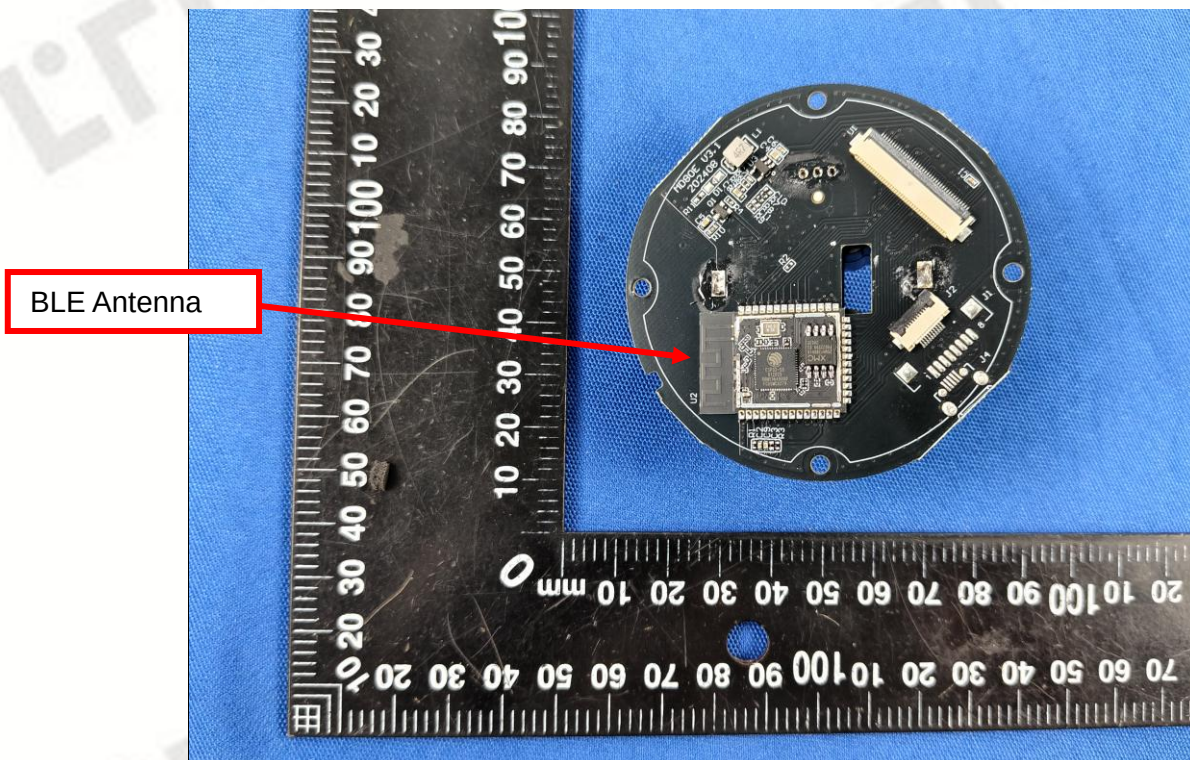
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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(c) (1) (I):

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

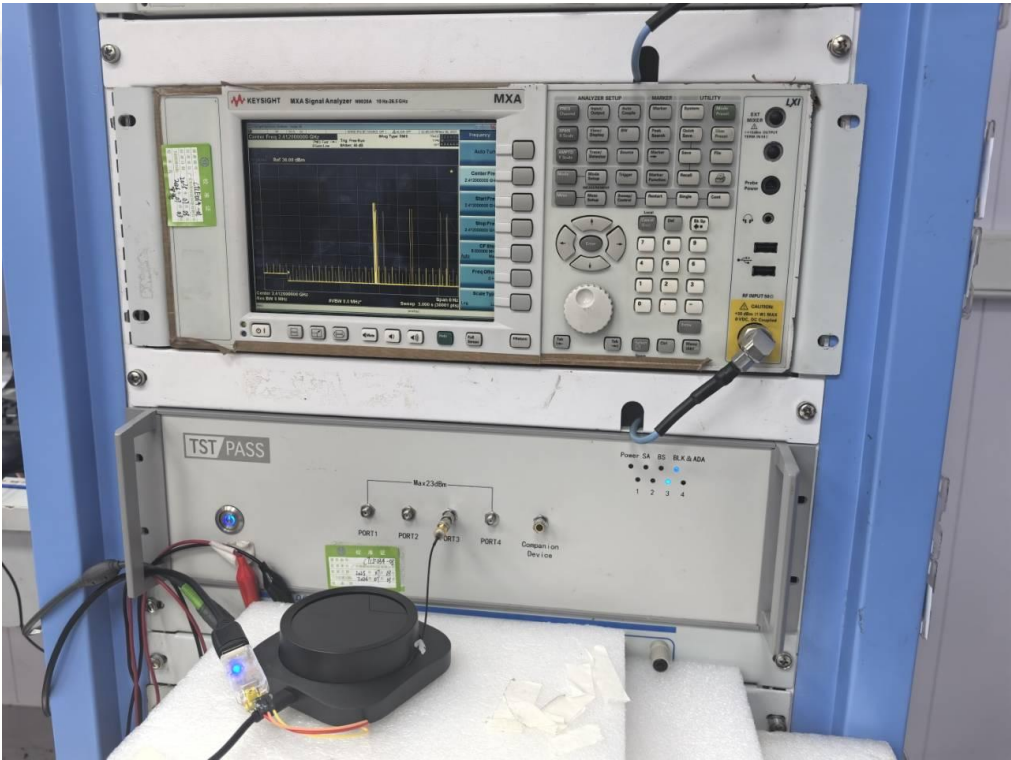
Test Result:

The maximum gain of antenna was 3.26dBi



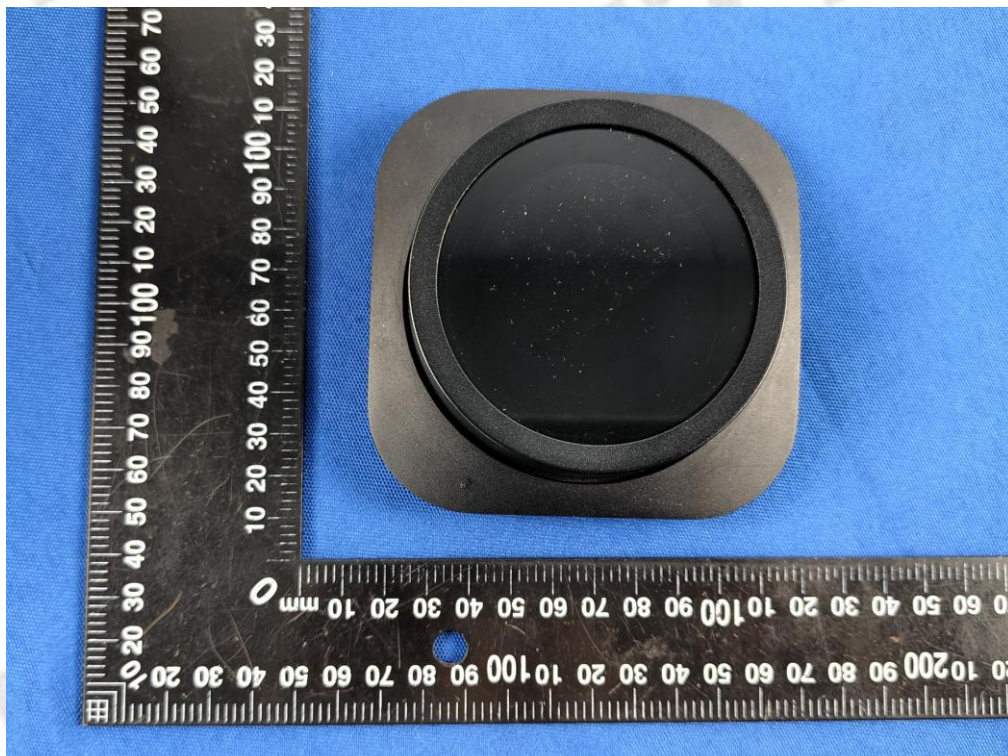
4. Test Setup Photos of the EUT

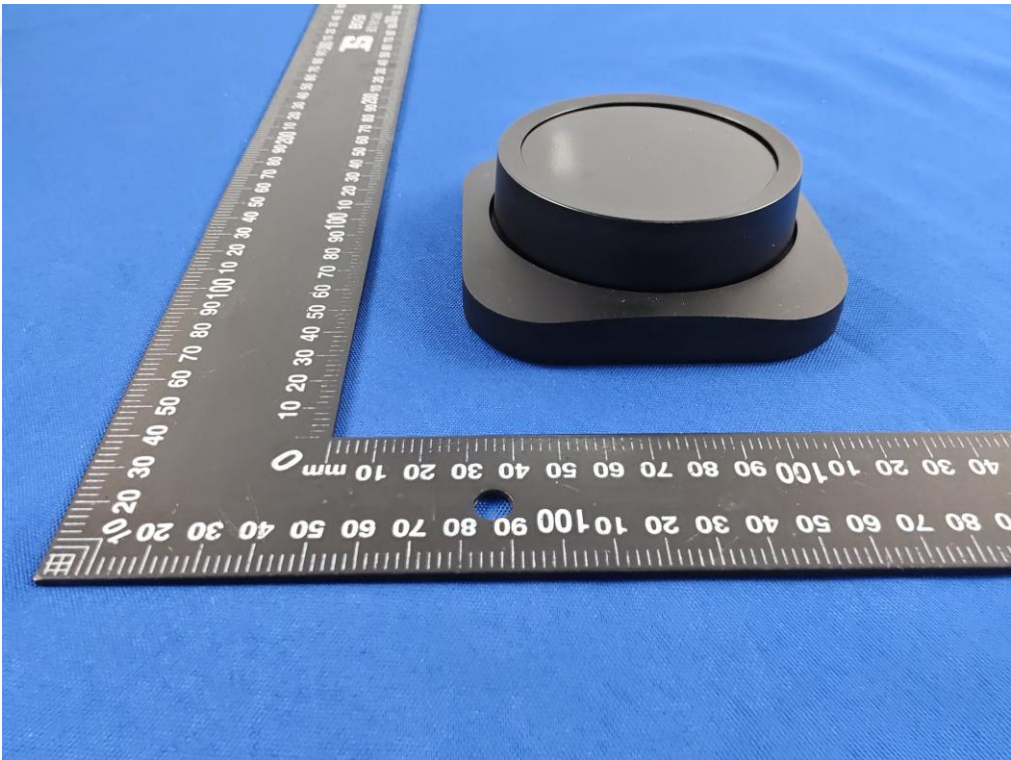
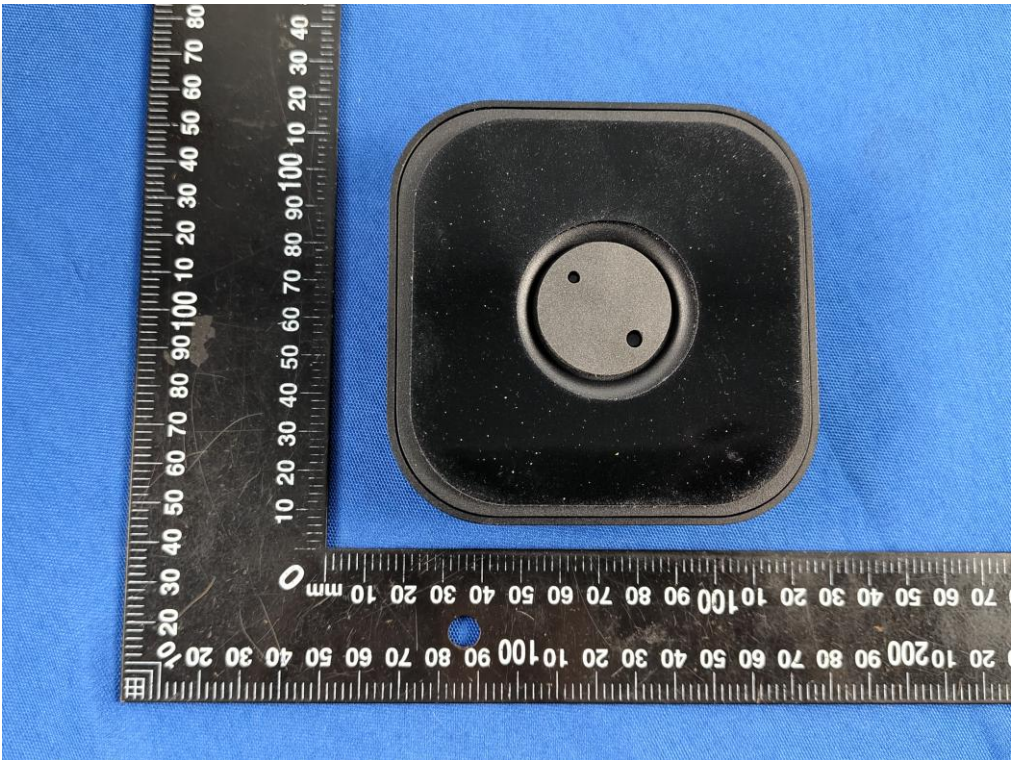


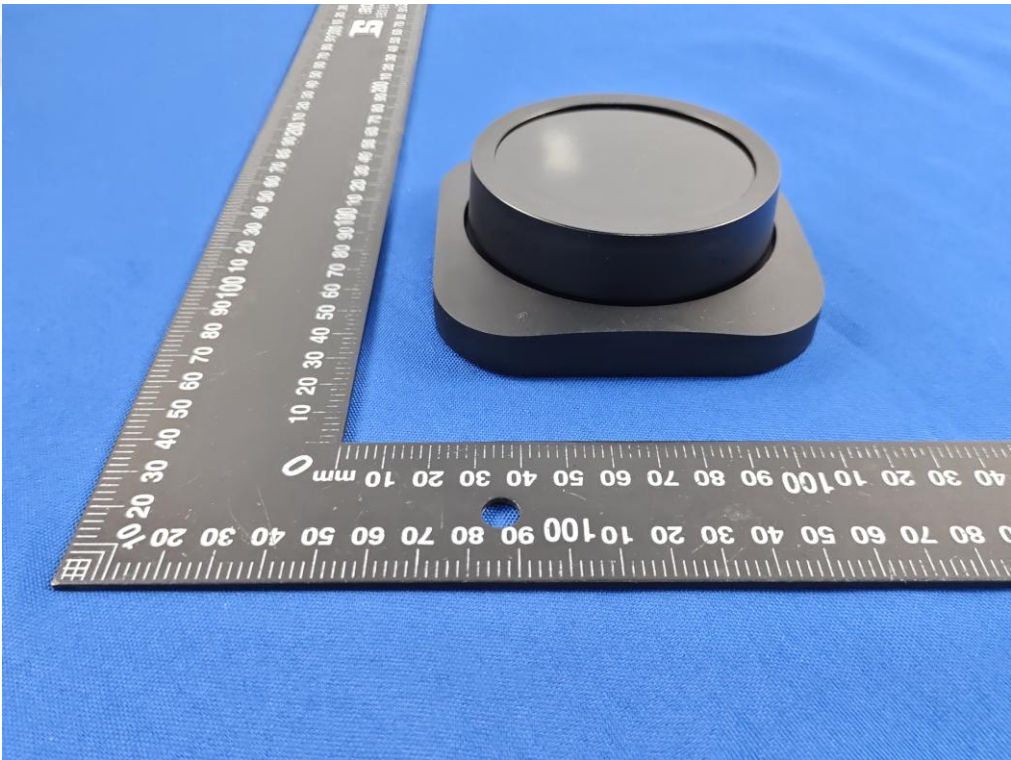
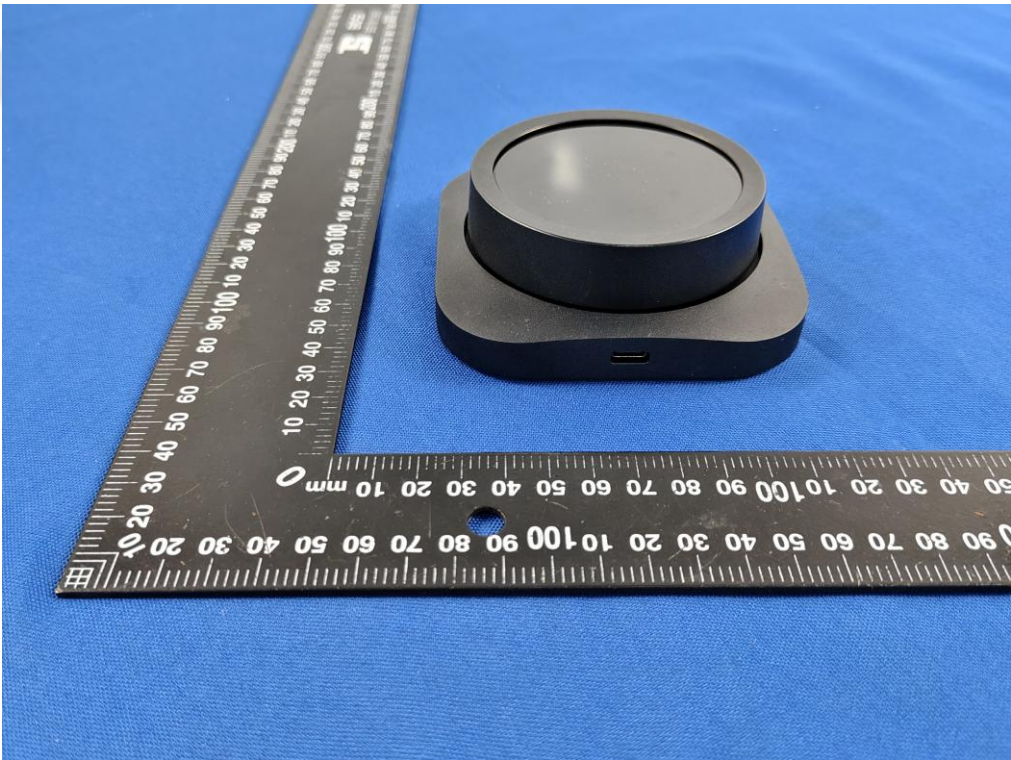


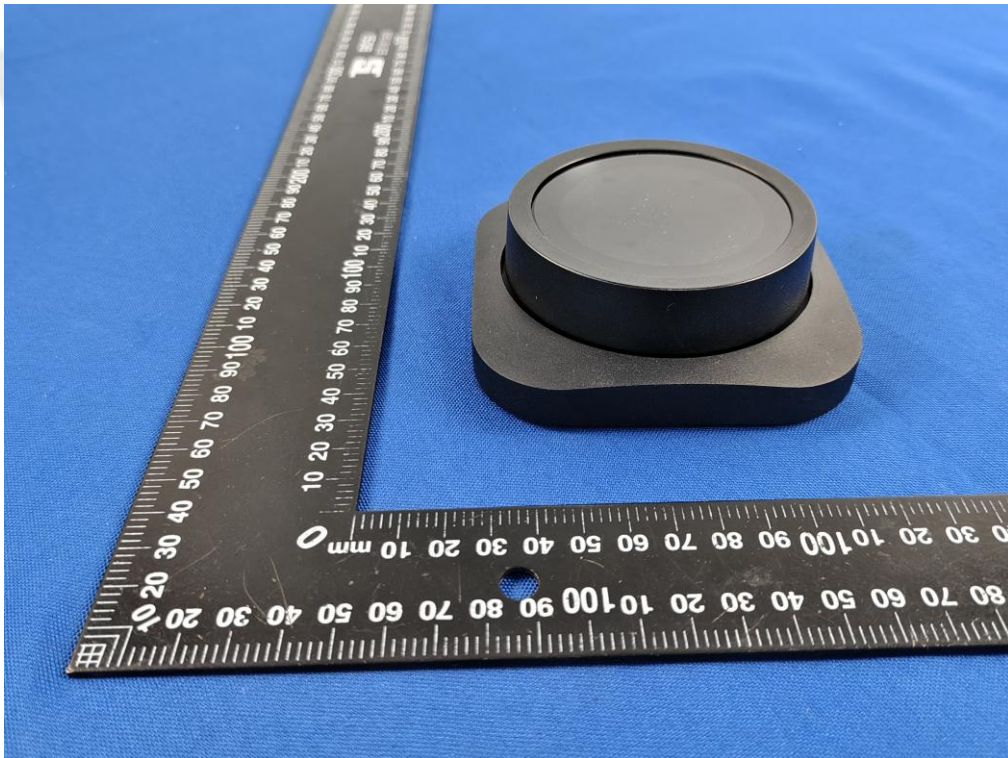
5. External and Internal Photos of the EUT

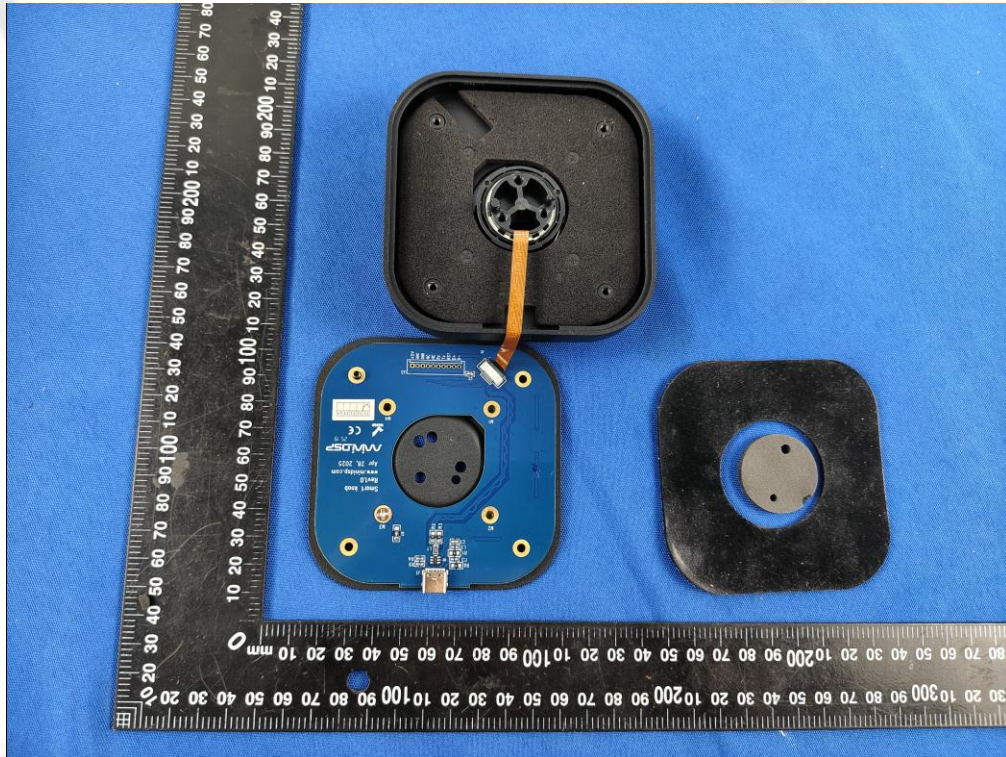
External Photos of EUT



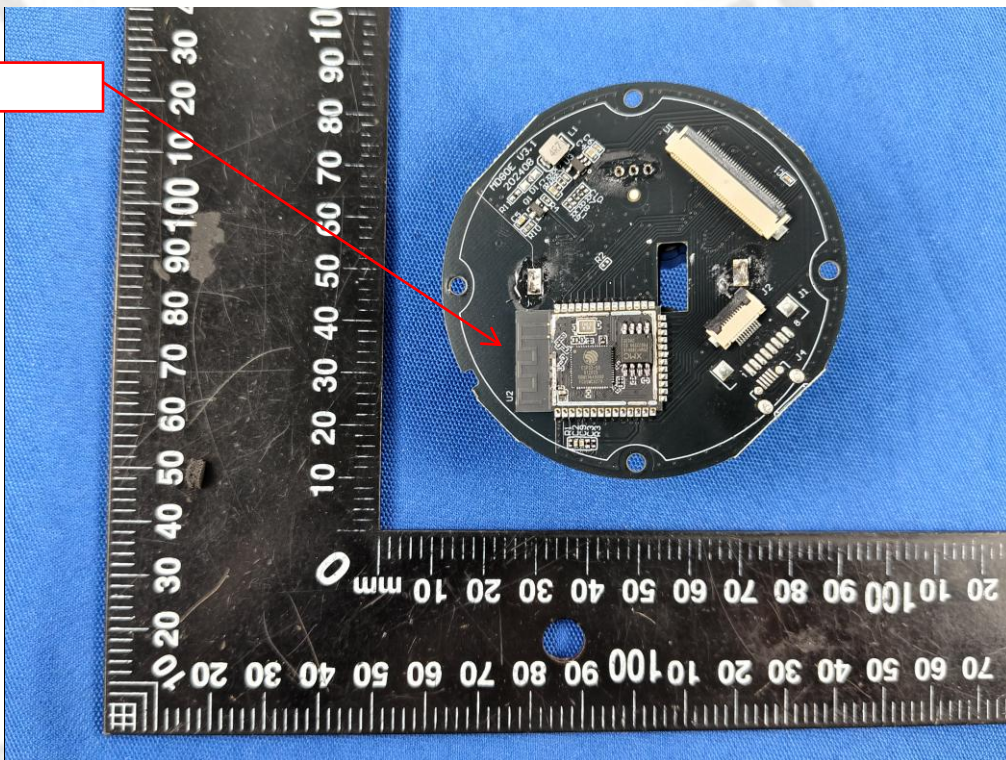


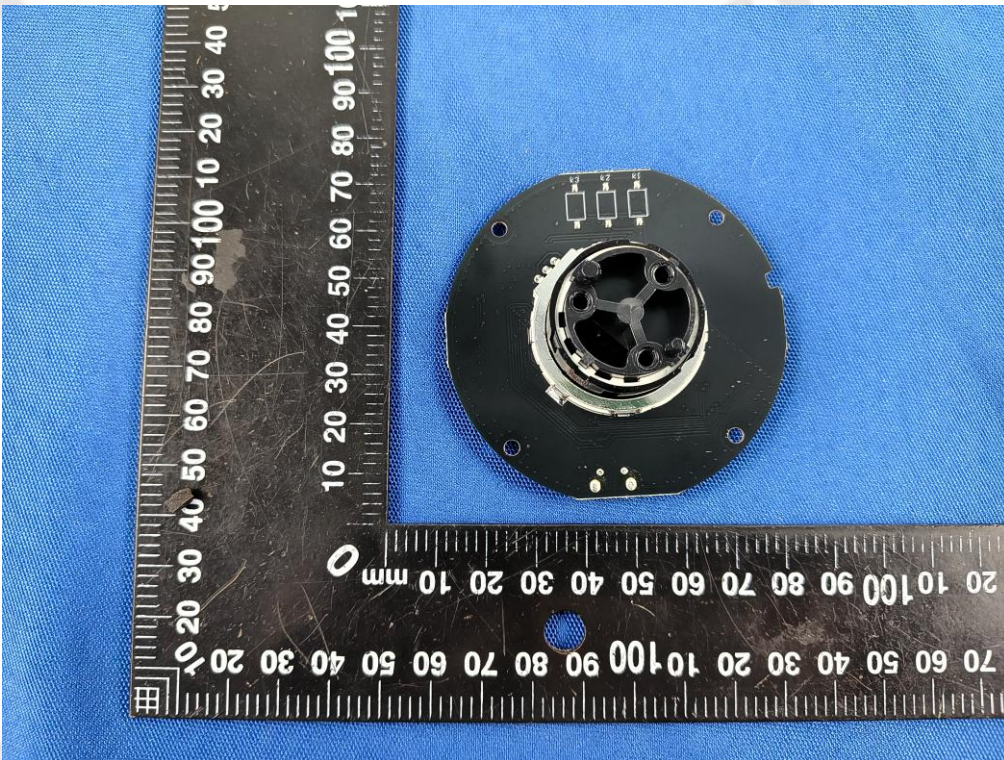
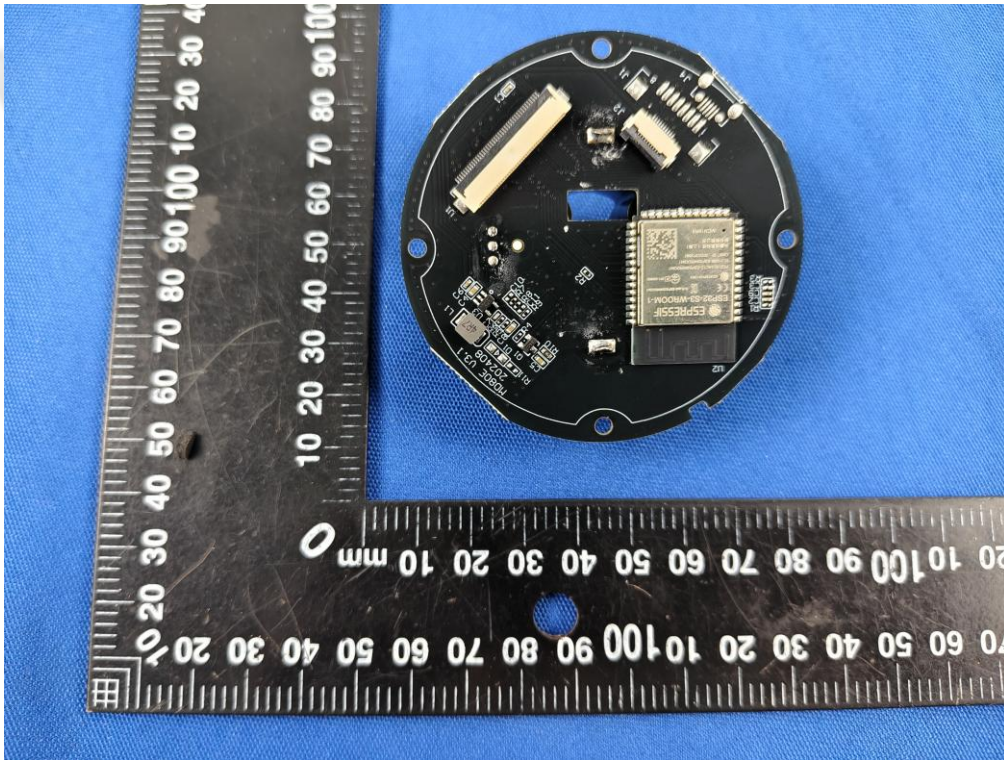


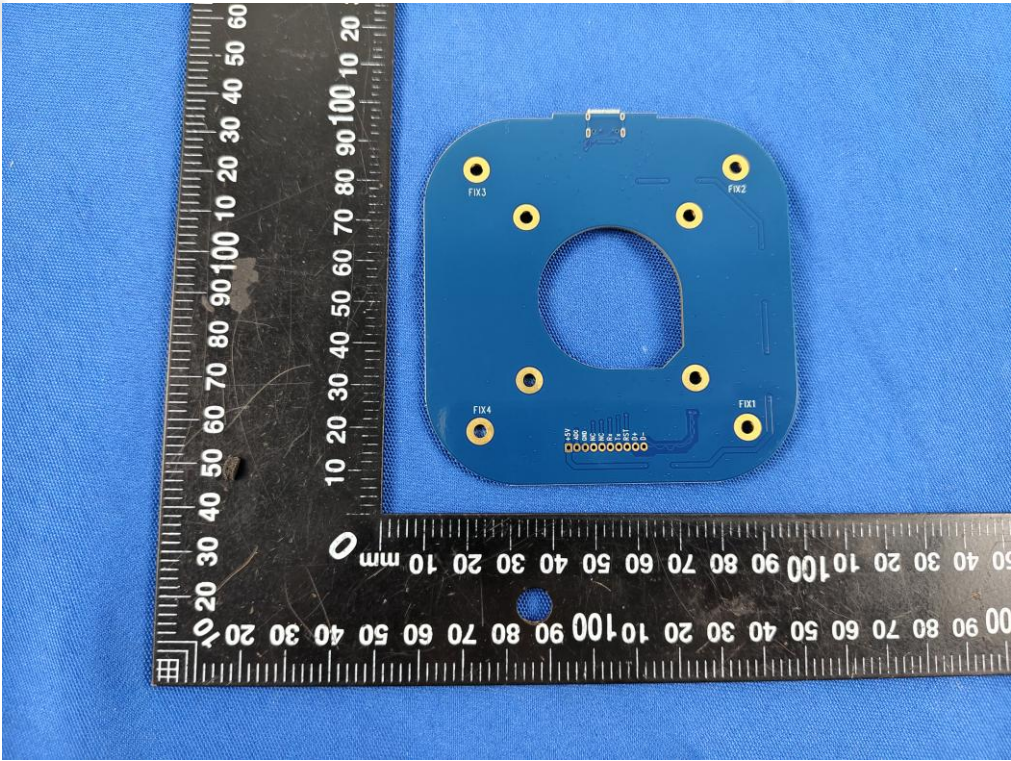
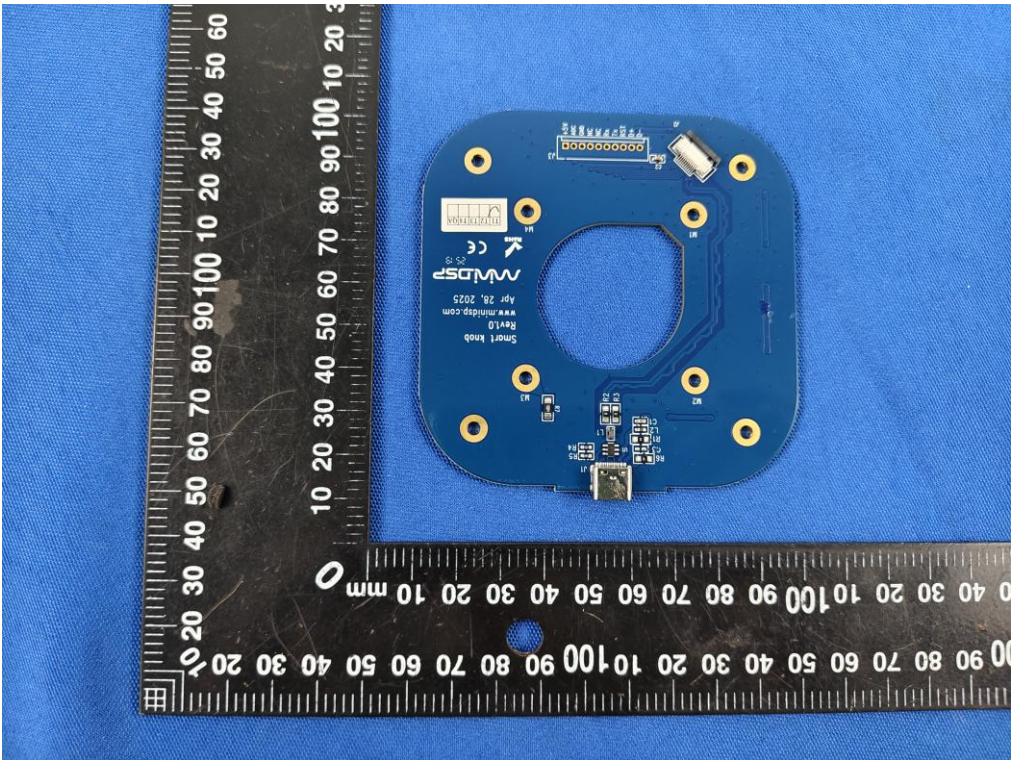


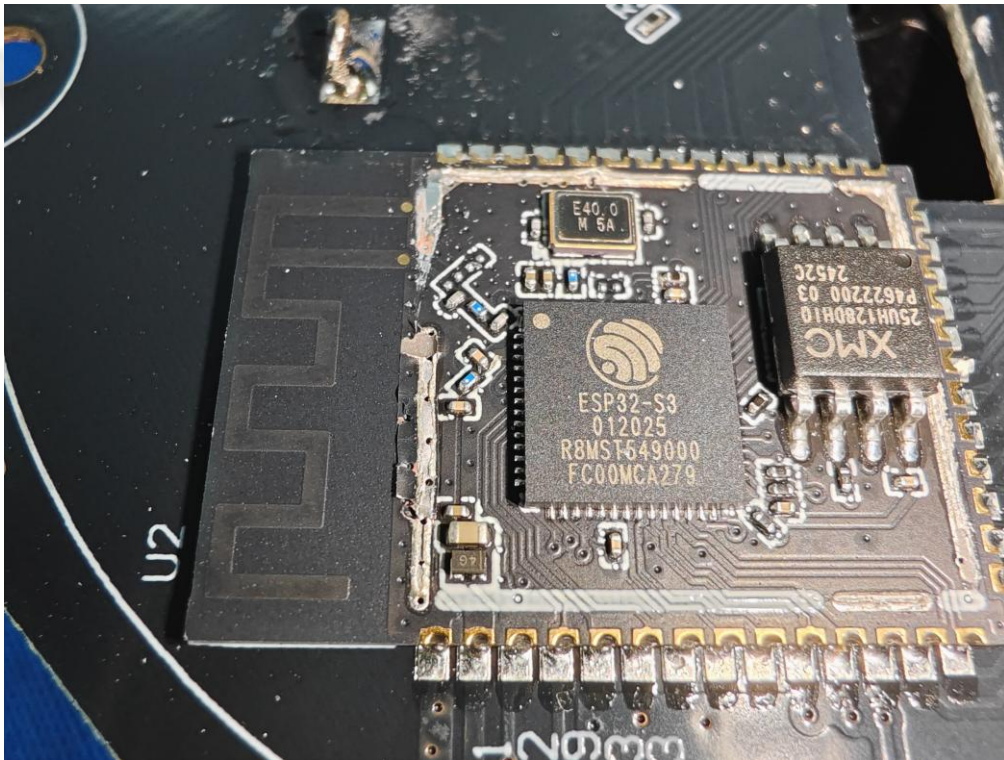
Internal Photos of EUT

ANTENNA









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