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检测  
TESTING  
CNAS L0446



Page 1 of 52

# Test Report

Verified code: 489858

Report No.: E20220613205901-6

Customer: Lumi United Technology Co., Ltd

Address: B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District,  
Nanshan District, Shenzhen, China

Sample Name: Smart Pet Feeder C1

Sample Model: PETC1-M01

Receive Sample Test Date: Jun.24,2022

Test Date: Jun.28,2022 ~ Aug.18,2022

Reference Document: CFR 47 FCC Part 15 Subpart C  
RADIO FREQUENCY DEVICES:Subpart C—Intentional Radiators

Test Result: Pass

Prepared by: *Huang Lifang*

Reviewed by: *Wu Haoting*

Approved by: *Xiao Liang*

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-08-25

GUANGZHOU GRG METROLOGY & TEST CO., LTD.

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5. Without the agreement of the laboratory, the client is not authorized to use the test results for unapproved propaganda.

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**REPORT ISSUED HISTORY**

<b>Report Version</b>	<b>Report No.</b>	<b>Description</b>	<b>Compile Date</b>
1.0	E20220613205901-6	Original Issue	2022-08-19

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**1. TEST RESULT SUMMARY**

<b>Technical Requirements</b>		
CFR 47 FCC Part 15 Subpart C (§15.247)		
<b>Limit / Severity</b>	<b>Item</b>	<b>Result</b>
§15.247(b)(3)	Maximum peak output power	Pass
§15.207 (a)	Conducted Emissions	Pass
§15.247(e)	Power spectral density	Pass
§15.247(a)(2)	6dB bandwidth	Pass
§15.247(d)	Restricted bands of operation	Pass
§15.247(d)	Conducted band edges and spurious emissions	Pass
§15.247(d) & §15.209 & §15.205	Radiated spurious emissions	Pass
§15.203	Antenna requirement	Pass

Note: The EUT has one antenna. The antenna is internal antenna.

The max gain of antenna is 0 dBi, which accordance 15.203, is considered sufficient to comply with the provisions of this section.

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## 2. GENERAL DESCRIPTION OF EUT

### 2.1 APPLICANT

Name: Lumi United Technology Co., Ltd  
Address: B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China

### 2.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd  
Address: B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China

### 2.3 FACTORY

Factory : Huizhou Dudu Pet Products Co.,Ltd  
Address: Building C,Taiming Industrial Park,Jinglong Village,Zhenlong Town,Huiyang District,Huizhou City.

### 2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Smart Pet Feeder C1  
Model No.: PETC1-M01  
Adding Model: /  
Trade Name: Aqara  
FCC ID: 2AKIT-PETC1M01  
Power Supply: Rated Input:5V  $\overline{\text{---}}$  1A by adapter;  
4.5V dc by battery.  
Frequency Range: 2405MHz-2480MHz  
Transmit Power: 7.92dBm  
Modulation type: O-QPSK  
Antenna Specification: Internal antenna 0dBi gain (Max.)  
Temperature Range: -10 °C~45 °C  
Hardware Version: 35  
Software Version: 0.0.0\_3733  
Sample No: E20220613205901-0005, E20220613205901-0008  
Note: /

## 2.5 CHANNEL LIST

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
11	2405	12	2410	13	2415	14	2420
15	2425	16	2430	17	2435	18	2440
19	2445	20	2450	21	2455	22	2460
23	2465	24	2470	25	2475	26	2480

## 2.6 TEST OPERATION MODE

Test Item	Mode No.	Description of the modes
Radiated Emission	1	Zigbee TX mode

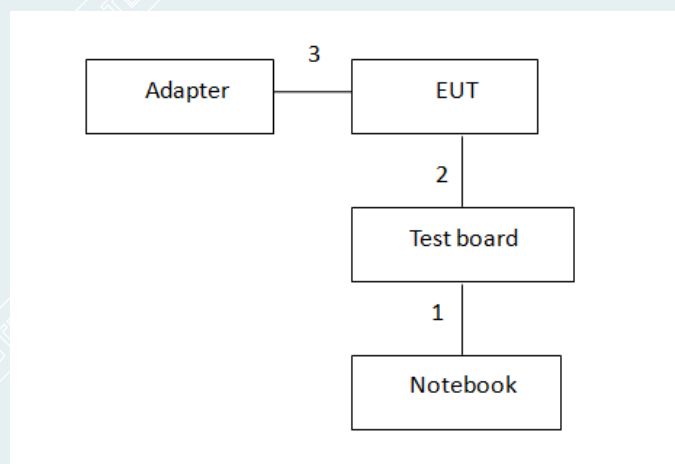
## 2.7 LOCAL SUPPORTIVE

Name of Equipment	Manufacturer	Model	Serial Number	Note
Notebook	LENOVO	TianYi 310-14ISK	MP18DLC6	/
Test board	/	/	/	/
Adapter	/	/	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	USB cable	1	No	0	0.5m
2	DC cable	1	No	0	0.2m
3	USB cable	1	No	0	1.48m

Note :The notebook is just used to produce fixed frequency transmitting.

## 2.8 CONFIGURATION OF SYSTEM UNDER TEST





**Test software:**

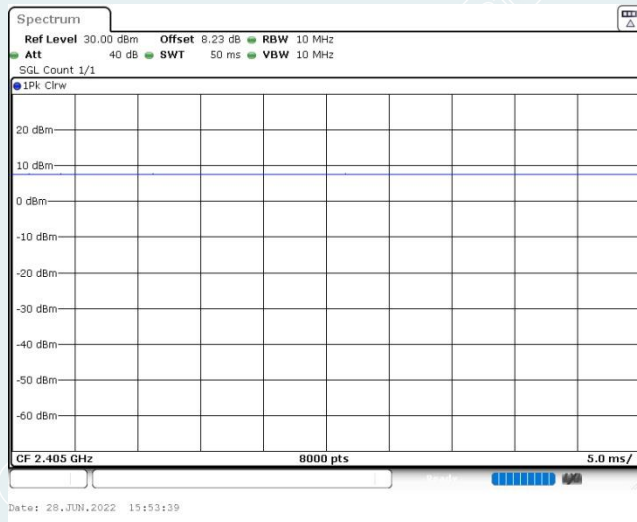
Software version	Test level
QCOM_V1.0	2405MHz: 80 2440MHz: 80 2480MHz: 80

**2.9 DUTY CYCLE**

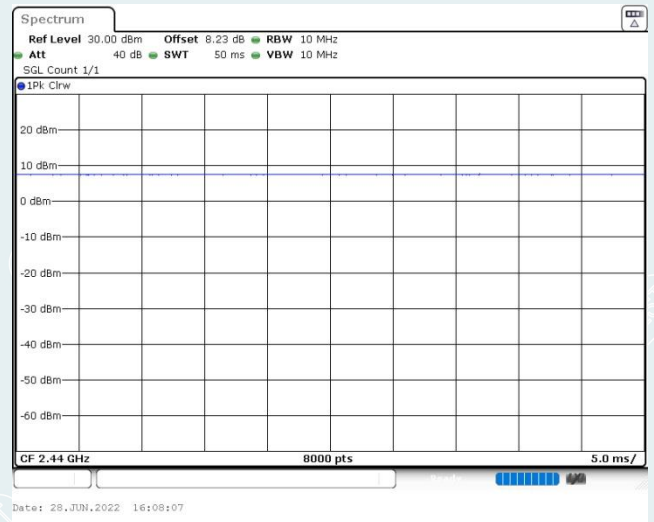
<b>EUT Name</b>	Smart Pet Feeder C1	<b>Model</b>	PETC1-M01
<b>Environmental Conditions</b>	21.3 °C/60%RH/101.0kPa	<b>Test Voltage</b>	AC 120V/60Hz
<b>Tested By</b>	Qin Tingting	<b>Tested Date</b>	2022-06-28 to 2022-07-18

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
Zigbee	Ant1	2405	50	50	100
		2440	50	50	100
		2480	50	50	100

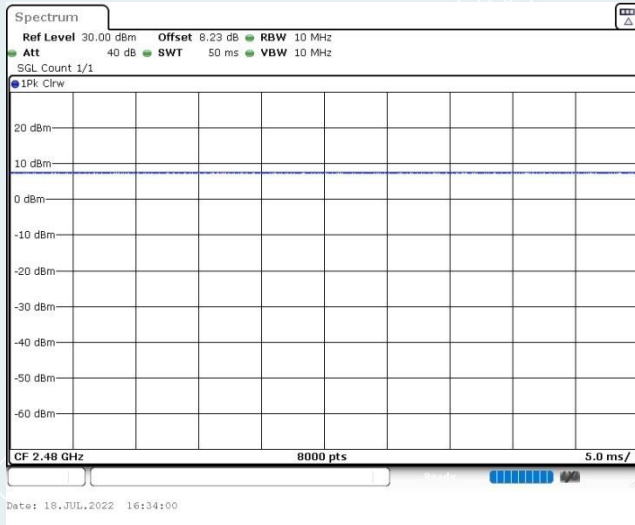
**Zigbee\_2405MHz**



**Zigbee\_2440MHz**



### Zigbee\_2480MHz



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### 3. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

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### 4. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:2017.

**USA** A2LA(Certificate #2861.01)

**China** CNAS(L0446)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

**Canada** ISED (Company Number: 24897, CAB identifier:CN0069)

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Copies of granted accreditation certificates are available for downloading from our web site, <http://www.grgtest.com>

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## 5. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	9kHz~30MHz	4.46dB
		30MHz~200MHz	4.5dB
		200MHz~1000MHz	4.4dB
		1GHz~18GHz	5.6dB
		18GHz~26.5GHz	3.65dB
	Vertical	9kHz~30MHz	4.46dB
		30MHz~200MHz	4.5dB
		200MHz~1000MHz	4.4dB
		1GHz~18GHz	5.6dB
		18GHz~26.5GHz	3.65dB
Conduction Emission		150kHz~30MHz	3.40dB

Measurement	Uncertainty
RF frequency	$6.0 \times 10^{-6}$
RF power conducted	0.78 dB
Occupied channel bandwidth	0.4 dB
Unwanted emission, conducted	0.68 dB
Humidity	6 %
Temperature	2°C

This uncertainty represents an expanded uncertainty factor of  $k=2$ .

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**6. LIST OF USED TEST EQUIPMENT AT GRGT**

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
<b>Radiated Spurious Emission(Below 1GHz)</b>				
Test S/W	EZ	CCS-2ANT	/	/
Test Receiver	R&S	ESR7	102444	2022-09-22
Amplifier	EMEC	EM330	I00426	2023-03-05
Bi-log Antenna	Schwarzbeck	VULB9160	VULB9160-3401	2022-10-27
<b>Radiated Spurious Emission(Above 1GHz)&amp;Restricted bands of operation</b>				
Spectrum Analyzer	KEYSIGHT	N9020B	MY57120179	2022-08-08
Loop Antenna	TESEQ	HLA6121	52599	2023-04-02
Horn Antenna	Schwarzbeck	BBHA 9120D	02143	2022-10-22
Board-Band Horn Antenna	Schwarzbeck	BBHA9170	BBHA 9170-497	2022-10-16
Amplifier	Tonscend	TAP037030	AP20E8060081	2023-05-08
Amplifier	Tonscend	TAP01018048	AP20E8060075	2023-05-05
Amplifier	Tonscend	TAP184050	AP20E806071	2023-05-05
Test S/W	Tonscend	JS32-RE/2.5.2.4		
<b>6dB Bandwidth</b>				
Spectrum Analyzer	R&S	FSV30	104381	2022-12-10
<b>Maximum Peak Output Power</b>				
Pulse power sensor	Agilent	MA2411B	1126150	2023-03-01
Power meter	Anritsu	ML2495A	1204003	2023-02-28
<b>Conducted band edges and Spurious Emission</b>				
Spectrum Analyzer	R&S	FSV30	104381	2022-12-10
<b>Peak Output Spectral Density Measurement</b>				
Spectrum Analyzer	R&S	FSV30	104381	2022-12-10

Note: The calibration interval of the above test instruments is 12 months.

## 7. CONDUCTED EMISSION MEASUREMENT

### 7.1 LIMITS

Frequency range	Limits (dB $\mu$ V)	
	Quasi-peak	Average
150kHz~0.5MHz	66~56	56~46
0.5MHz~5MHz	56	46
5MHz~30MHz	60	50

**NOTE:** (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

### 7.2 TEST PROCEDURES

#### Procedure of Preliminary Test

Test procedures follow ANSI C63.10:2013.

For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

– Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:

1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or

2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;

– All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;

– The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;

– Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.

– I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

– Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

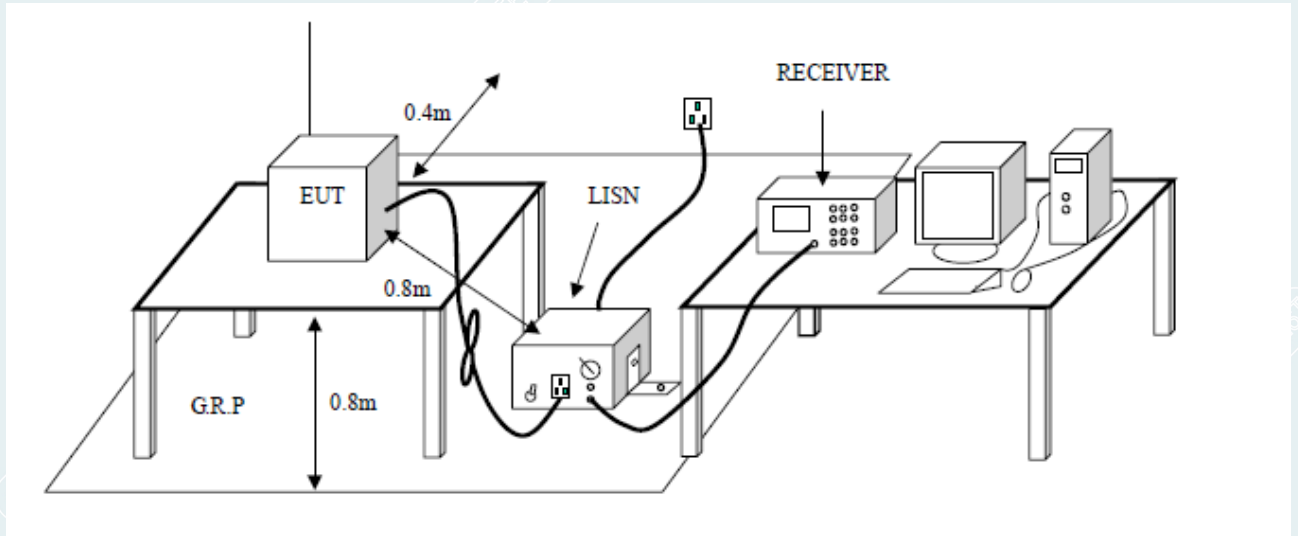
The test mode(s) described in Item 2.6 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.6 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

#### Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

**7.3 TEST SETUP**



**7.4 DATA SAMPLE**

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

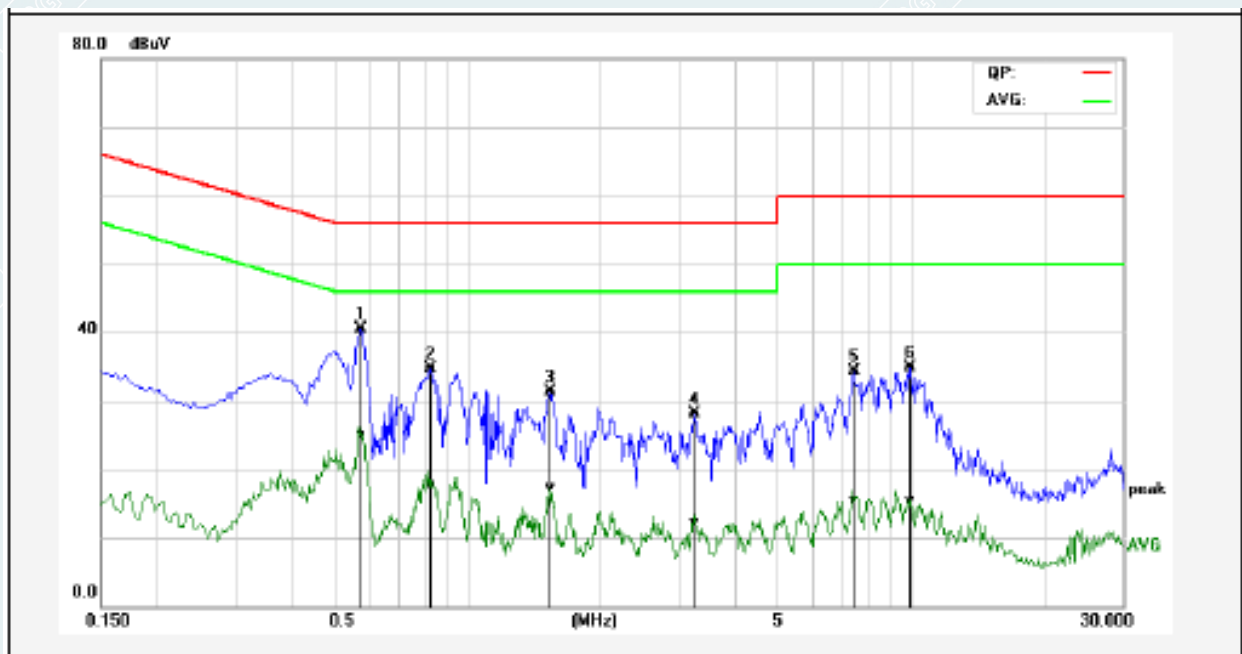
- Factor = Insertion loss of LISN + Cable Loss
- Result = Quasi-peak Reading/ Average Reading + Factor
- Limit = Limit stated in standard
- Margin = Result (dBuV) – Limit (dBuV)

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### 7.5 TEST RESULTS

All models were pretested and only the worst modes and channels were recorded in this report. (Zigbee 2405MHz)

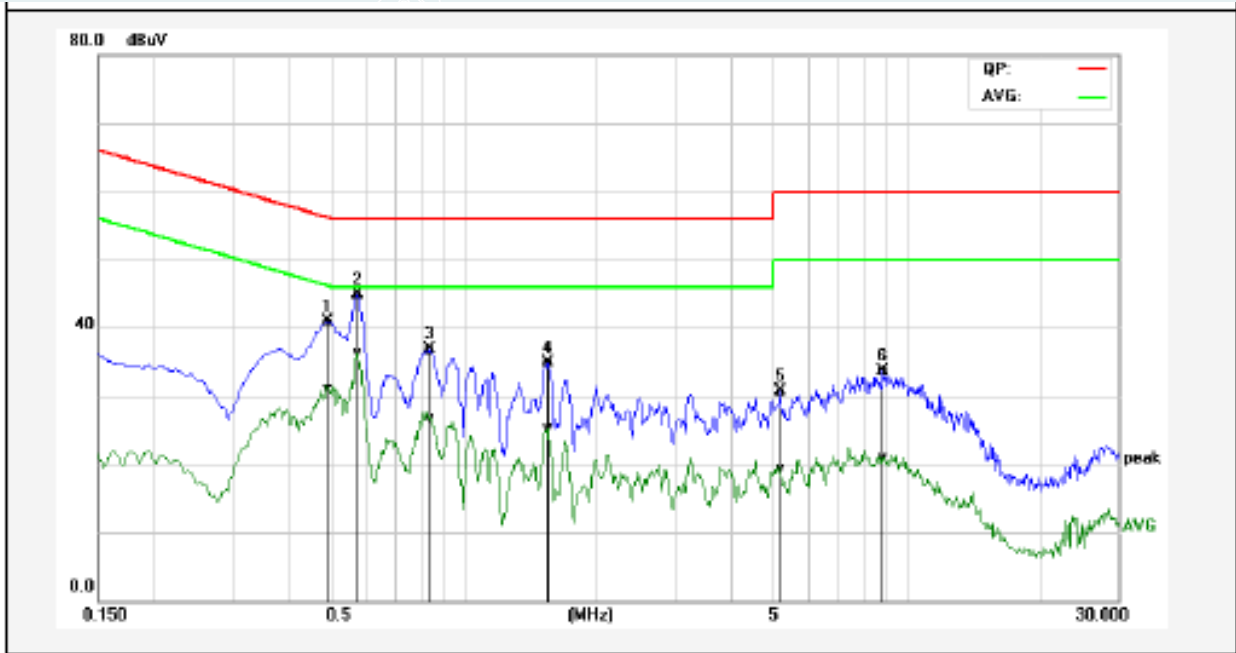
<b>EUT Name</b>	Smart Pet Feeder C1	<b>Model</b>	PETC1-M01
<b>Environmental Conditions</b>	22.5°C/45%RH/101.0kPa	<b>Test Mode</b>	Mode 1
<b>Tested By</b>	Wang Xinyuan	<b>Line</b>	L1
<b>Tested Date</b>	2022-07-18	<b>Test Voltage</b>	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.5740	30.84	15.52	9.57	40.41	25.09	56.00	46.00	-15.59	-20.91	Pass
2	0.8300	25.10	8.18	9.57	34.67	17.75	56.00	46.00	-21.33	-28.25	Pass
3	1.5420	21.65	7.68	9.60	31.25	17.28	56.00	46.00	-24.75	-28.72	Pass
4	3.2700	18.47	2.60	9.63	28.10	12.23	56.00	46.00	-27.90	-33.77	Pass
5	7.4220	24.58	5.74	9.74	34.32	15.48	60.00	50.00	-25.68	-34.52	Pass
6	9.9260	25.06	5.80	9.79	34.85	15.59	60.00	50.00	-25.15	-34.41	Pass



<b>EUT Name</b>	Smart Pet Feeder C1	<b>Model</b>	PETC1-M01
<b>Environmental Conditions</b>	22.5°C/45%RH/101.0kPa	<b>Test Mode</b>	Mode 1
<b>Tested By</b>	Wang Xinyuan	<b>Line</b>	N
<b>Tested Date</b>	2022-07-18	<b>Test Voltage</b>	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.4940	31.18	21.39	9.70	40.88	31.09	56.10	46.10	-15.22	-15.01	Pass
2*	0.5780	35.24	26.68	9.68	44.92	36.36	56.00	46.00	-11.08	-9.64	Pass
3	0.8380	27.16	17.06	9.64	36.80	26.70	56.00	46.00	-19.20	-19.30	Pass
4	1.5460	25.23	15.61	9.62	34.85	25.23	56.00	46.00	-21.15	-20.77	Pass
5	5.1740	20.94	9.64	9.66	30.60	19.30	60.00	50.00	-29.40	-30.70	Pass
6	8.8340	24.02	11.20	9.77	33.79	20.97	60.00	50.00	-26.21	-29.03	Pass

## 8. RADIATED SPURIOUS EMISSIONS

### 8.1 LIMITS

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.

Frequency (MHz)	Quasi-peak( $\mu\text{V}/\text{m}$ )	Measurement distance(m)	Quasi-peak(dB $\mu\text{V}/\text{m}$ )@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30~88	100	3	40
88~216	150	3	43.5
216~960	200	3	46
Above 960	500	3	54

**NOTE:** (1) The lower limit shall apply at the transition frequencies.

(2) Above 18GHz test distance is 1m, so the Peak Limit= $74+20*\log(3/1)=83.54$  (dB $\mu\text{V}/\text{m}$ ).

The Avg Limit= $54+20*\log(3/1)=63.54$  (dB $\mu\text{V}/\text{m}$ ).

### 8.2 TEST PROCEDURES

#### 1) Sequence of testing 9kHz to 30MHz

##### Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

##### Pre measurement:

--- The turntable rotates from 0 ° to 360 °.

--- The antenna height is 1.0 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions.

##### Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 ° to 360 °) and by rotating the elevation axes (0 ° to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest

emissions with QP detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

## 2) Sequence of testing 30MHz to 1GHz

### Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

### Pre measurement:

--- The turntable rotates from 0 ° to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 4 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

### Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 ° to 360 ° and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

## 3) Sequence of testing 1GHz to 18GHz

### Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

**Pre measurement:**

- The turntable rotates from 0 ° to 360 °.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

**Final measurement:**

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 ° to 360 ° and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

**4) Sequence of testing above 18GHz****Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.
- The EUT is placed on a desktop position in the center of the turntable.
- The measurement distance is 1 meter.
- The EUT was set into operation.

**Pre measurement:**

- The antenna is moved spherical over the EUT in different polarisations of the antenna.

**Final measurement:**

- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

**NOTE:**

- (a). The frequency from 9kHz to 150kHz, Set RBW=300Hz (for Peak&AVG), RBW=300Hz (for Peak&AVG).  
the frequency from 150kHz to 30MHz, Set RBW=9kHz, RBW=9kHz, (for QP Detector).
- (b). The frequency from 30MHz to 1GHz, Set RBW=120kHz, RBW=300kHz, (for QP Detector).
- (c). The frequency above 1GHz, for Peak detector: Set RBW=1MHz, RBW=3MHz.
- (d). The frequency above 1GHz, for Avg detector: Set RBW=1MHz, the EUT is configured to transmit with duty cycle  $\geq 98\%$ , set VBW  $\leq$  RBW/100 (i.e., 10kHz) but not less than 10 Hz.

### 8.3 TEST SETUP

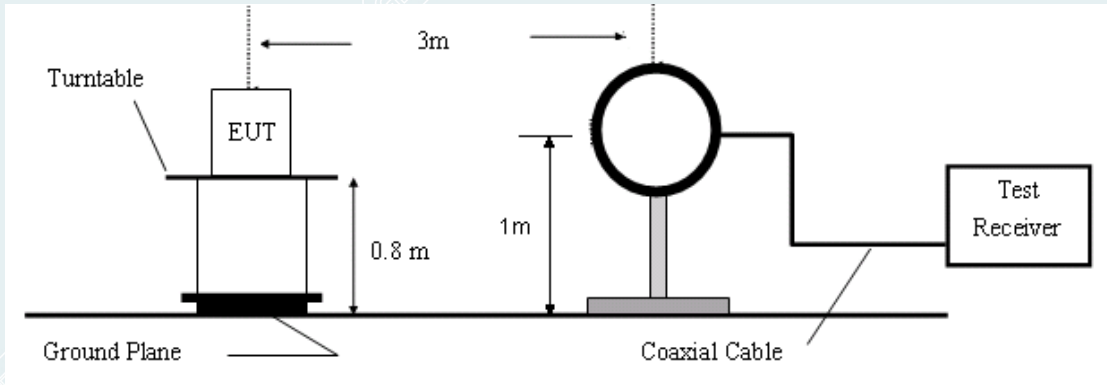


Figure 1. 9kHz to 30MHz radiated emissions test configuration

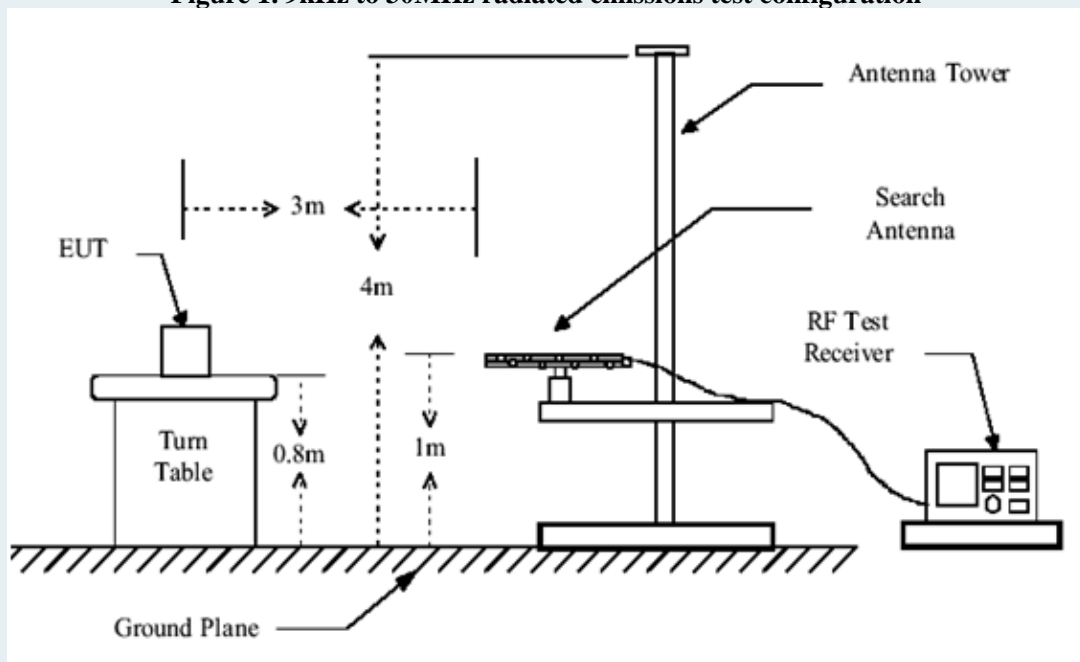


Figure 2. 30MHz to 1GHz radiated emissions test configuration

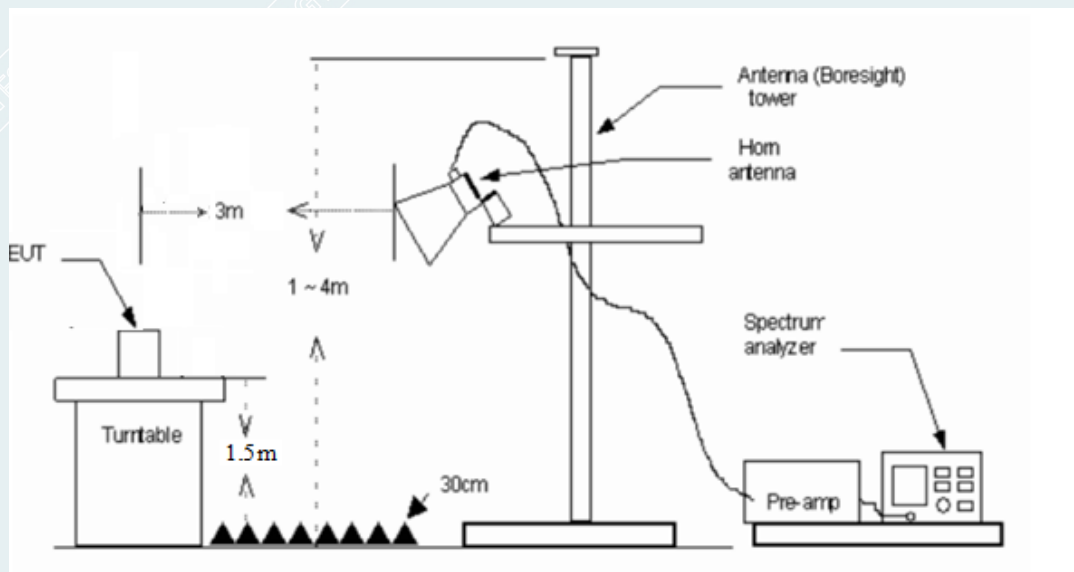


Figure 3. 1GHz-18GHz radiated emissions test configuration

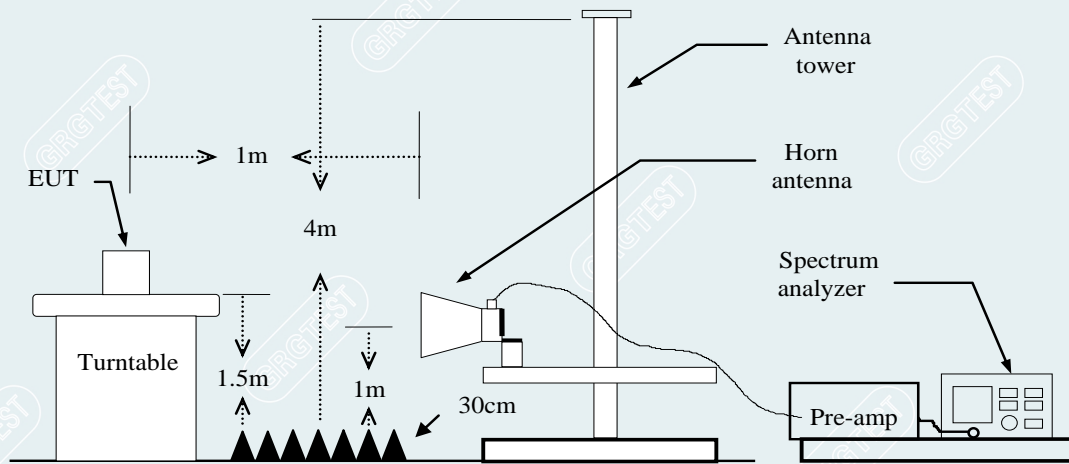


Figure 4. 18GHz-26.5GHz radiated emissions test configuration

8.4 DATA SAMPLE

30MHz to 1GHz

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

1GHz to 18GHz

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	Peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

Above 18GHz

No.	Frequency	Reading	Factor	Level	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		
xxx	xxx	68.86	57.66	-11.20	83.54	25.88	peak	Vertical
xxx	xxx	68.89	-11.20	57.69	63.54	5.85	AVG	Vertical

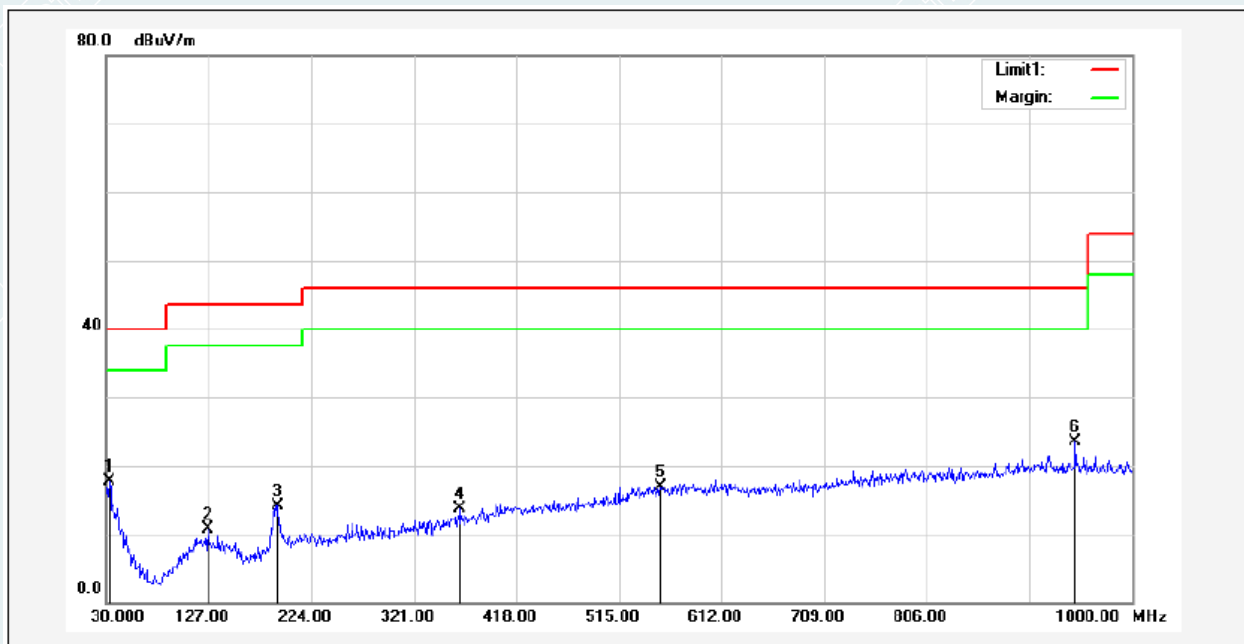
- Frequency (MHz) = Emission frequency in MHz
- Ant.Pol. (H/V) = Antenna polarization
- Reading (dBuV) = Uncorrected Analyzer / Receiver reading
- Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
- Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)
- Limit (dBuV/m) = Limit stated in standard
- Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)
- Peak = Peak Reading
- QP = Quasi-peak Reading
- AVG = Average Reading

### 8.5 TEST RESULTS

#### Below 1GHz

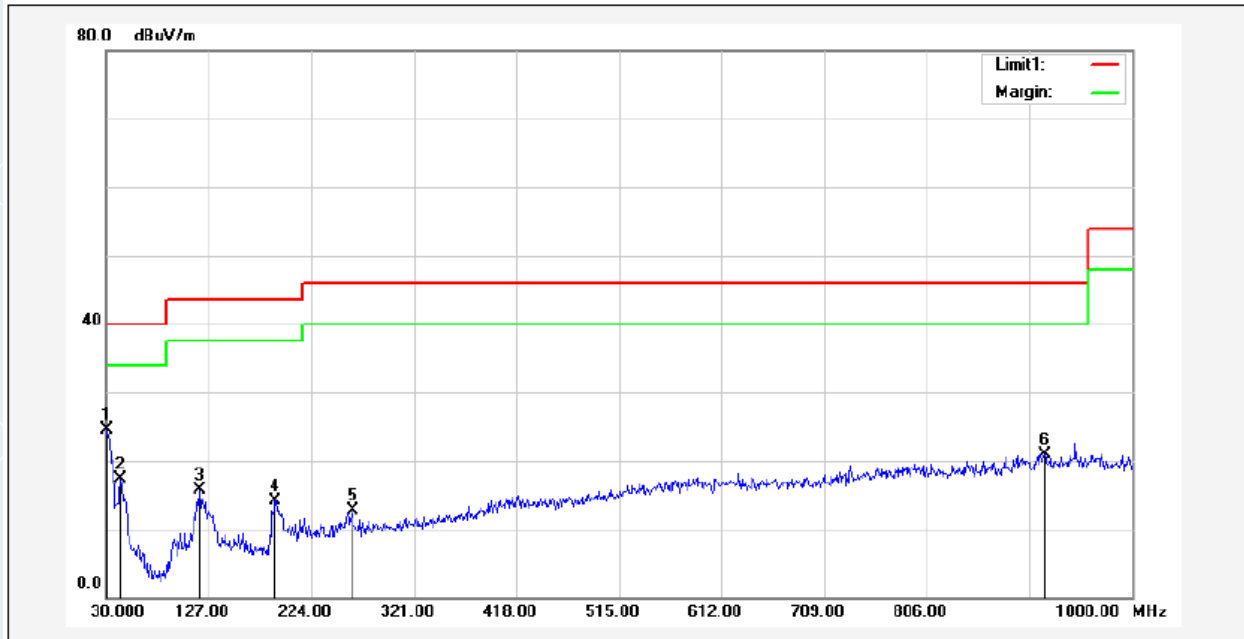
Only the worst mode and channel were recorded in this report. (Zigbee 2405MHz)

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.5°C/47%RH/101.0kPa
Test Engineer:	Tang Shenghui	Test Date:	2022-07-12
Channel	Lowest channel (2405MHz)	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1*	32.9100	35.96	-18.34	17.62	40.00	-22.38	359	398	QP
2	126.0300	37.09	-26.37	10.72	43.50	-32.78	266	300	QP
3	191.9900	42.01	-27.94	14.07	43.50	-29.43	85	100	QP
4	364.6500	36.77	-23.01	13.76	46.00	-32.24	0	275	QP
5	553.8000	35.36	-18.39	16.97	46.00	-29.03	276	400	QP
6	946.6500	39.12	-15.52	23.60	46.00	-22.40	29	100	QP

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.5°C/47%RH/101.0kPa
Test Engineer:	Tang Shenghui	Test Date:	2022-07-12
Channel	Lowest channel (2405MHz)	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1*	30.0000	41.43	-16.91	24.52	40.00	-15.48	185	100	QP
2	43.5800	40.80	-23.48	17.32	40.00	-22.68	106	100	QP
3	118.2700	42.34	-26.60	15.74	43.50	-27.76	6	100	QP
4	190.0500	42.23	-28.08	14.15	43.50	-29.35	54	100	QP
5	262.8000	38.17	-25.43	12.74	46.00	-33.26	185	100	QP
6	917.5500	36.54	-15.57	20.97	46.00	-25.03	359	320	QP

**Remark:**

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Radiated emissions measured in frequency range from 9 kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- 3 Data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.



**1GHz-18GHz:**

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	25.9°C/49.7%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2022-06-29
Channel	Lowest channel (2405MHz)	/	/

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1066.0083	58.71	33.88	-24.83	74.00	40.12	200	81	Horizontal
2	1543.818	55.49	33.21	-22.28	74.00	40.79	200	160	Horizontal
3	3258.7823	53.64	36.75	-16.89	74.00	37.25	100	200	Horizontal
4	4809.6012	64.40	51.78	-12.62	74.00	22.22	200	230	Horizontal
5	7217.4022	56.83	52.11	-4.72	74.00	21.89	200	104	Horizontal
6	11618.5773	43.50	48.05	4.55	74.00	25.95	100	74	Horizontal

**AV Final Data List**

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4810.5631	-12.62	58.52	45.90	54.00	8.10	175	231.4	Horizontal
2	7216.1031	-4.72	50.07	45.35	54.00	8.65	176	105.4	Horizontal

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1364.7956	56.50	34.97	-21.53	74.00	39.03	100	154	Vertical
2	1666.3333	55.58	33.37	-22.21	74.00	40.63	100	119	Vertical
3	4811.4764	58.97	46.08	-12.89	74.00	27.92	100	140	Vertical
4	7217.4022	54.49	50.60	-3.89	74.00	23.40	200	230	Vertical
5	11999.2499	43.52	48.46	4.94	74.00	25.54	100	261	Vertical
6	14857.1071	42.44	49.14	6.70	74.00	24.86	100	0	Vertical

**AV Final Data List**

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7216.1031	-3.89	48.62	44.73	54.00	9.27	183	220.2	Vertical

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	25.9°C/49.7%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2022-06-29
Channel	Middle channel (2440MHz)	/	/

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1256.032	56.76	34.75	-22.01	74.00	39.25	100	43	Horizontal
2	1888.111	56.08	35.20	-20.88	74.00	38.80	200	121	Horizontal
3	3005.6257	55.39	37.95	-17.44	74.00	36.05	200	200	Horizontal
4	4880.8601	62.51	50.41	-12.10	74.00	23.59	200	243	Horizontal
5	7318.6648	54.20	48.73	-5.47	74.00	25.27	200	94	Horizontal
6	9403.9255	45.67	46.22	0.55	74.00	27.78	100	311	Horizontal

**AV Final Data List**

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4880.6161	-12.10	55.62	43.52	54.00	10.48	200	194.2	Horizontal
2	7321.08	-5.47	46.97	41.50	54.00	12.50	167	100.2	Horizontal

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1421.5527	57.47	35.75	-21.72	74.00	38.25	100	297	Vertical
2	1755.5944	55.21	33.62	-21.59	74.00	40.38	100	250	Vertical
3	3050.6313	54.89	38.65	-16.24	74.00	35.35	100	360	Vertical
4	4880.8601	58.63	46.58	-12.05	74.00	27.42	200	195	Vertical
5	5902.8629	51.39	41.90	-9.49	74.00	32.10	100	196	Vertical
6	7322.4153	52.26	46.81	-5.45	74.00	27.19	100	178	Vertical

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	25.9°C/49.7%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2022-07-18
Channel	Highest channel (2480MHz)	/	/

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1267.6	56.40	34.34	-22.06	74.00	39.66	100	332	Horizontal
2	2517.8	58.55	40.69	-17.86	74.00	33.31	100	87	Horizontal
3	4959	55.84	44.57	-11.27	74.00	29.43	200	147	Horizontal
4	7191	46.78	42.33	-4.45	74.00	31.67	100	272	Horizontal
5	11355	42.51	46.30	3.79	74.00	27.70	100	355	Horizontal
6	14670	38.28	46.18	7.90	74.00	27.82	200	167	Horizontal

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1101	56.64	34.90	-21.74	74.00	39.10	100	350	Vertical
2	2518	59.16	40.40	-18.76	74.00	33.60	100	50	Vertical
3	4959	55.20	44.24	-10.96	74.00	29.76	200	262	Vertical
4	10404	42.87	45.47	2.60	74.00	28.53	100	283	Vertical
5	14805	39.62	46.87	7.25	74.00	27.13	100	359	Vertical
6	17944.5	34.92	49.01	14.09	74.00	24.99	200	67	Vertical

**18GHz-26.5GHz:**

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	25.9°C/49.7%RH/101.0kPa
Test Engineer:	Zhang Qiang	Test Date:	2022-07-01
Channel	Lowest channel (2405MHz)	/	/

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19204.45	54.76	43.11	-11.65	83.54	40.43	150	214	Horizontal
2	20932.925	53.24	43.09	-10.15	83.54	40.45	150	24	Horizontal
3	22192.625	52.16	42.59	-9.57	83.54	40.95	150	101	Horizontal
4	22859.875	51.01	42.31	-8.70	83.54	41.23	150	232	Horizontal
5	24725.625	49.90	42.36	-7.54	83.54	41.18	150	242	Horizontal
6	25920.3	50.38	42.40	-7.98	83.54	41.14	150	119	Horizontal

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19185.325	54.41	42.74	-11.67	83.54	40.80	150	100	Vertical
2	20972.45	53.14	43.13	-10.01	83.54	40.41	150	214	Vertical
3	22205.375	52.27	42.81	-9.46	83.54	40.73	150	35	Vertical
4	22728.125	51.13	42.32	-8.81	83.54	41.22	150	233	Vertical
5	24230.925	49.90	41.81	-8.09	83.54	41.73	150	196	Vertical
6	25247.525	49.75	42.71	-7.04	83.54	40.83	150	177	Vertical

----- The following blanks -----

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	25.9°C/49.7%RH/101.0kPa
Test Engineer:	Zhang Qiang	Test Date:	2022-07-01
Channel	Middle channel (2440MHz)	/	/

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18937.125	54.64	42.80	-11.84	83.54	40.74	150	232	Horizontal
2	19139.85	54.88	43.18	-11.70	83.54	40.36	150	99	Horizontal
3	21631.625	52.88	43.12	-9.76	83.54	40.42	150	194	Horizontal
4	22879.425	51.47	42.78	-8.69	83.54	40.76	150	251	Horizontal
5	24996.35	50.84	43.54	-7.30	83.54	40.00	150	90	Horizontal
6	26215.25	49.76	42.22	-7.54	83.54	41.32	150	23	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18376.55	54.77	42.52	-12.25	83.54	41.02	150	290	Vertical
2	20490.5	52.81	42.41	-10.40	83.54	41.13	150	224	Vertical
3	21749.35	51.81	42.15	-9.66	83.54	41.39	150	271	Vertical
4	22523.7	51.58	42.44	-9.14	83.54	41.10	150	15	Vertical
5	24417.075	50.31	42.43	-7.88	83.54	41.11	150	157	Vertical
6	25566.7	50.17	42.73	-7.44	83.54	40.81	150	232	Vertical

----- The following blanks -----

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Power supply:	AC 120V/60Hz	Environmental Conditions:	25.9°C/49.7%RH/101.0kPa
Test Engineer:	Zhang Qiang	Test Date:	2022-07-18
Channel	Highest channel (2480MHz)	/	/

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18424.575	54.38	42.11	-12.27	83.54	41.43	150	91	Horizontal
2	19499.825	53.67	42.25	-11.42	83.54	41.29	150	138	Horizontal
3	20741.675	52.72	42.42	-10.30	83.54	41.12	150	233	Horizontal
4	22524.125	52.55	43.41	-9.14	83.54	40.13	150	6	Horizontal
5	22860.725	51.83	43.13	-8.70	83.54	40.41	150	251	Horizontal
6	25228.4	49.92	42.80	-7.12	83.54	40.74	150	299	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18578.85	54.47	42.41	-12.06	83.54	41.13	150	109	Vertical
2	19216.775	55.01	43.37	-11.64	83.54	40.17	150	24	Vertical
3	19974.125	53.49	42.51	-10.98	83.54	41.03	150	308	Vertical
4	21550.45	52.58	42.87	-9.71	83.54	40.67	150	44	Vertical
5	23426.825	50.95	42.34	-8.61	83.54	41.20	150	318	Vertical
6	24924.1	50.55	43.28	-7.27	83.54	40.26	150	109	Vertical

**Remark:**

- 1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2 Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Above 18G test distance is 1m, so the Peak Limit=74+20\*log(3/1)=83.54 (dB $\mu$ V/m), The limits are relaxed.

## 9. 6dB BANDWIDTH

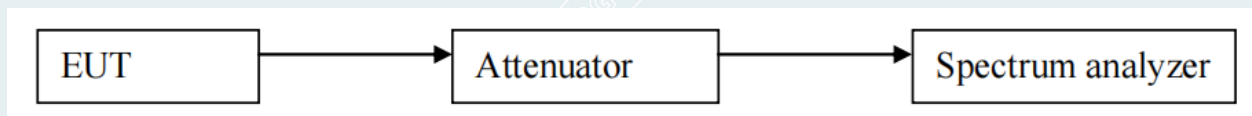
### 9.1 LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### 9.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Set resolution bandwidth (RBW) = 100kHz. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
- 3) Repeat above procedures until all frequencies measured were complete.

### 9.3 TEST SETUP

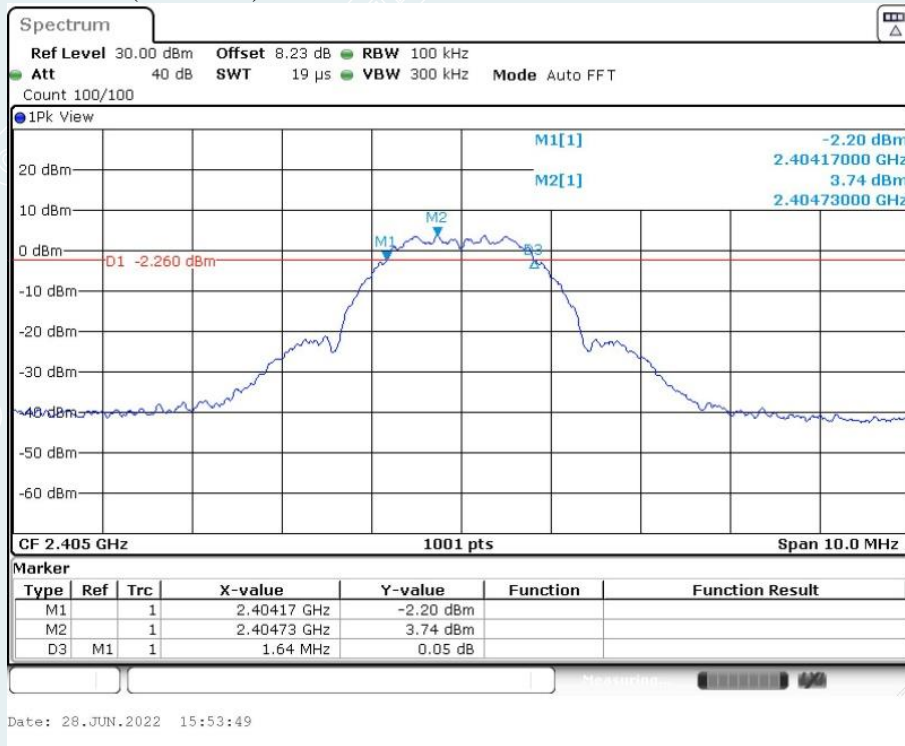


### 9.4 TEST RESULTS

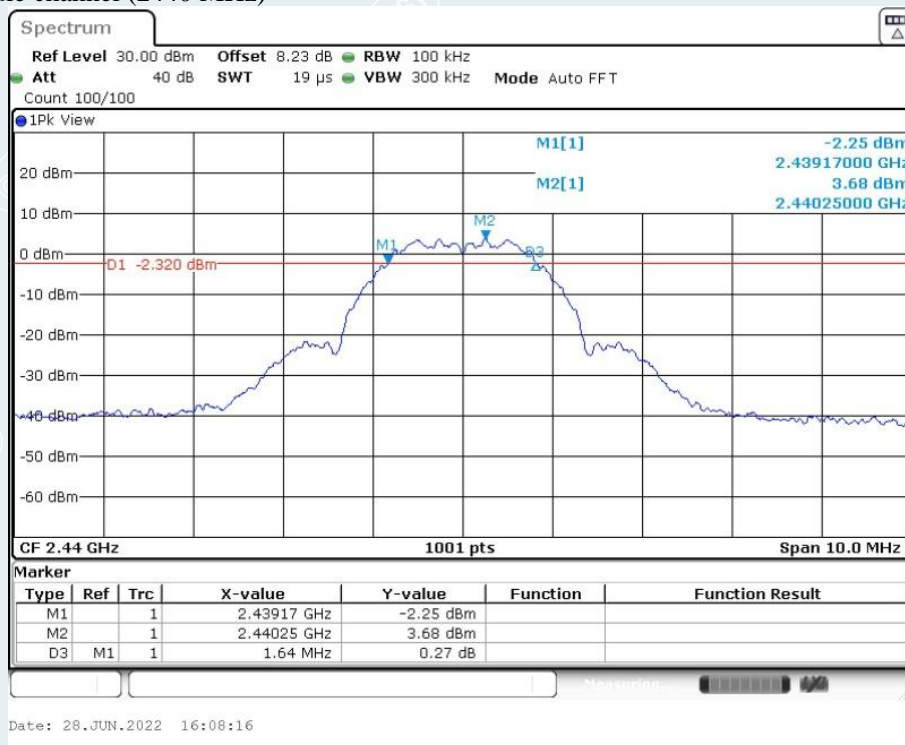
EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0005
Test Engineer:	Qin Tingting	Test Date:	2022-06-28 to 2022-07-18
Environmental Conditions:	21.3 °C/60%RH/101.0kPa	/	/

ChName	Frequency (MHz)	Bandwidth [kHz]	Limit[kHz]	Verdict
Lowest	2405	1640	$\geq 500$	PASS
Middle	2440	1640		PASS
Highest	2480	1640		PASS

Lowest channel (2405MHz)

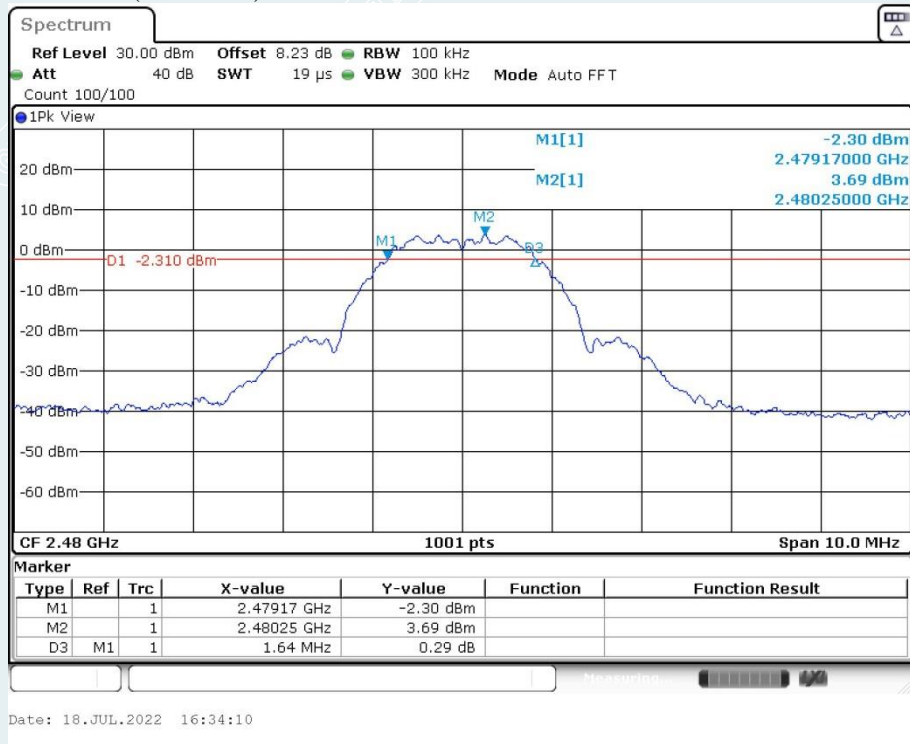


Middle channel (2440 MHz)





Highest channel (2480MHz)



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## 10. MAXIMUM PEAK OUTPUT POWER

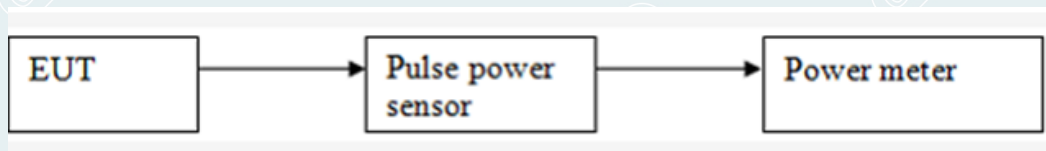
### 10.1 LIMITS

The maximum Peak output power measurement is 1W

### 10.2 TEST PROCEDURES

- 1) According to the test mode, the channel requirements set EUT to continuous transmission mode.
- 2) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

### 10.3 TEST SETUP



### 10.4 TEST RESULTS

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0005
Test Engineer:	Qin Tingting	Test Date:	2022-07-18
Environmental Conditions:	21.3°C/60%RH/101.0kPa	/	/

ChName	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2405	7.92	1W (30dBm)	Peak	Pass
Middle	2440	7.89			Pass
Highest	2480	7.82			Pass

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## 11. POWER SPECTRAL DENSITY

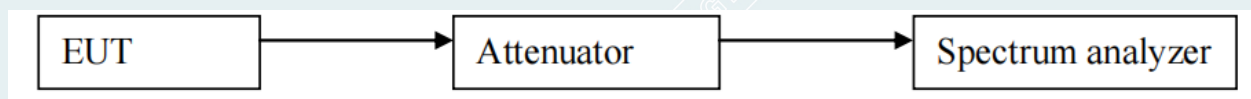
### 11.1 LIMITS

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. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 11.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3) The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:
  - a) Set analyzer center frequency to DTS channel center frequency.
  - b) Set the span to 1.5 times the DTS bandwidth.
  - c) Set the RBW to  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
  - d) Set the VBW  $\geq [3 \times \text{RBW}]$ .
  - e) Detector = peak
  - f) Sweep time = auto couple.
  - g) Trace mode = max hold.
  - h) Allow trace to fully stabilize.
  - i) Use the peak marker function to determine the maximum amplitude level within the RBW.
  - j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- 4) Repeat above procedures until all frequencies measured were complete.

### 11.3 TEST SETUP

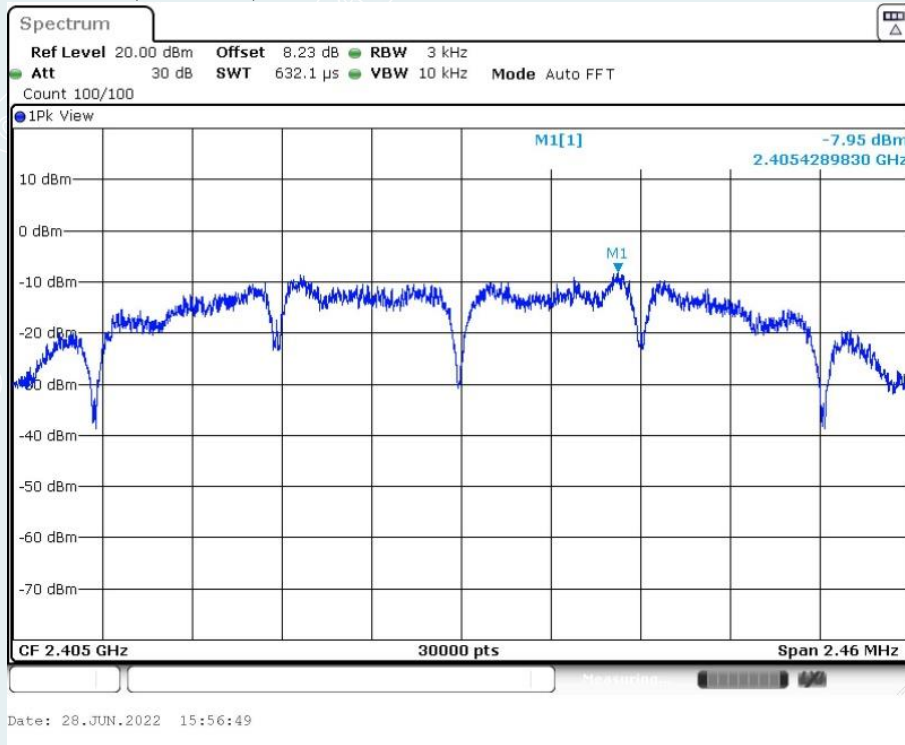


### 11.4 TEST RESULTS

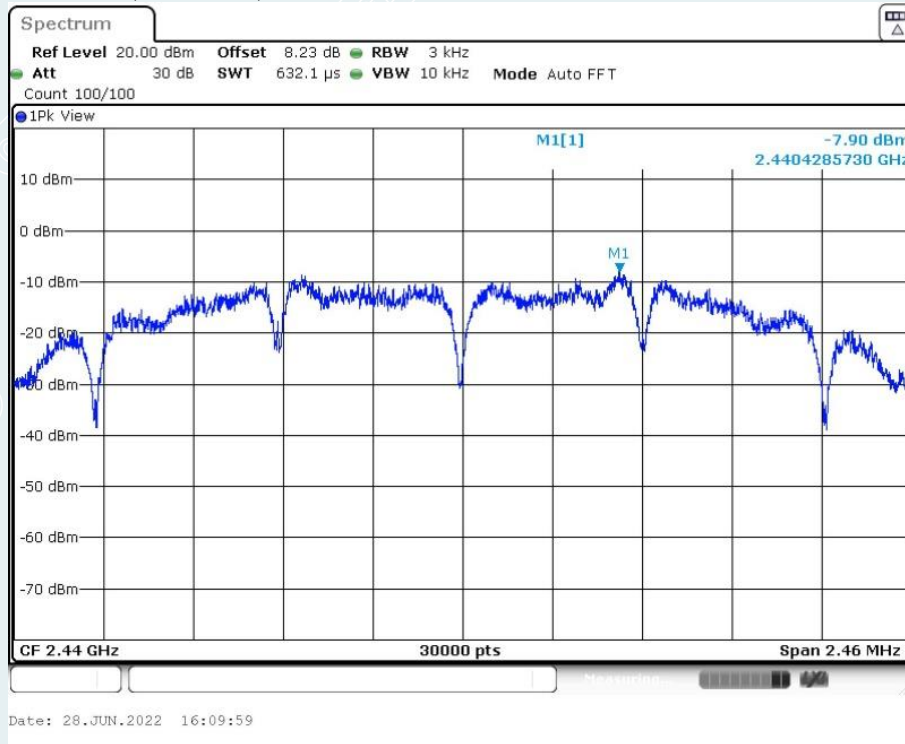
EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0005
Test Engineer:	Qin Tingting	Test Date:	2022-06-28 to 2022-07-18
Environmental Conditions:	21.3°C/60%RH/101.0kPa	/	/

ChName	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	2405	-7.95	8.00	Pass
Middle	2440	-7.90	8.00	Pass
Highest	2480	-8.01	8.00	Pass

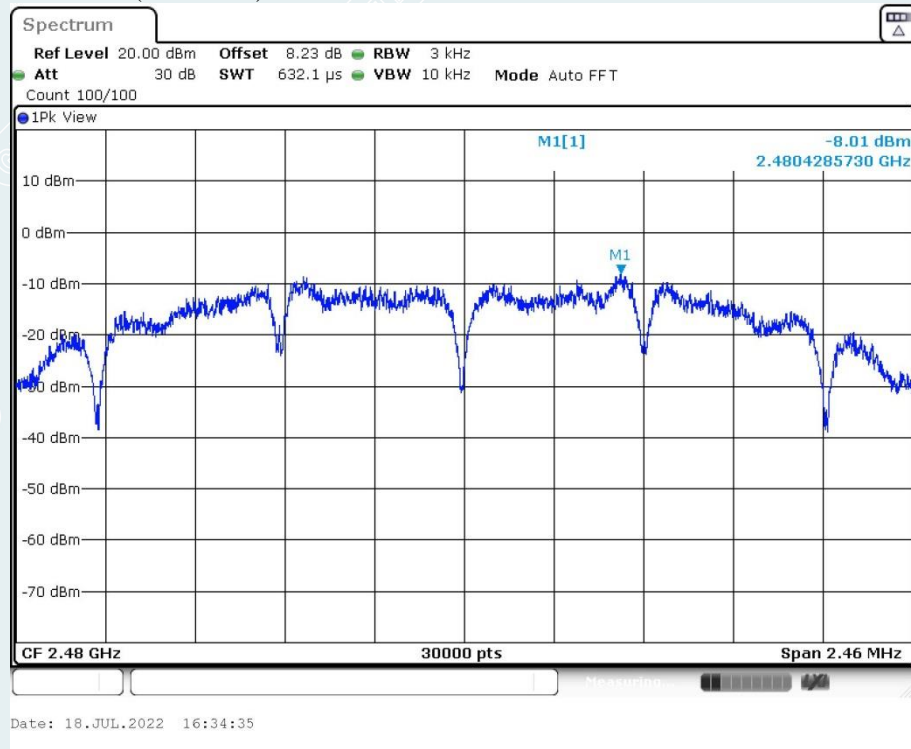
Lowest channel (2405MHz)



Middle channel (2440 MHz)



Highest channel (2480MHz)



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## 12. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

### 12.1 LIMITS

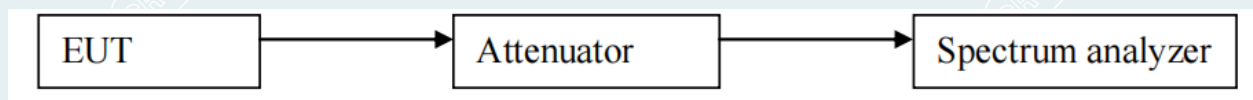
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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.

### 12.2 TEST PROCEDURES

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

- 1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- 2) Set the spectrum analyzer: RBW=100kHz; VBW=300kHz, Span=10MHz to 26.5GHz; Sweep=auto; Detector Function=Peak. Trace=Max, hold.
- 3) Measure and record the results in the test report.
- 4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 5) Measurements are made from 30MHz to 26.5GHz with the transmitter set to the lowest, middle, and highest channels.

### 12.3 TEST SETUP



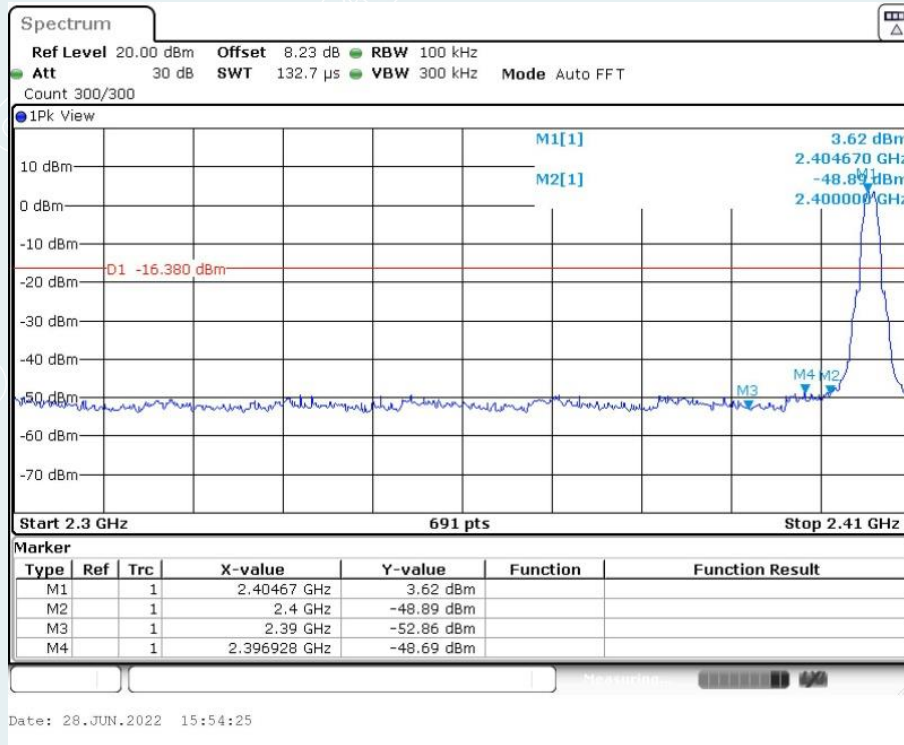
### 12.4 TEST RESULTS

EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0005
Test Engineer:	Qin Tingting	Test Date:	2022-06-28 to 2022-07-18
Environmental Conditions:	21.3°C/60%RH/101.0kPa	/	/

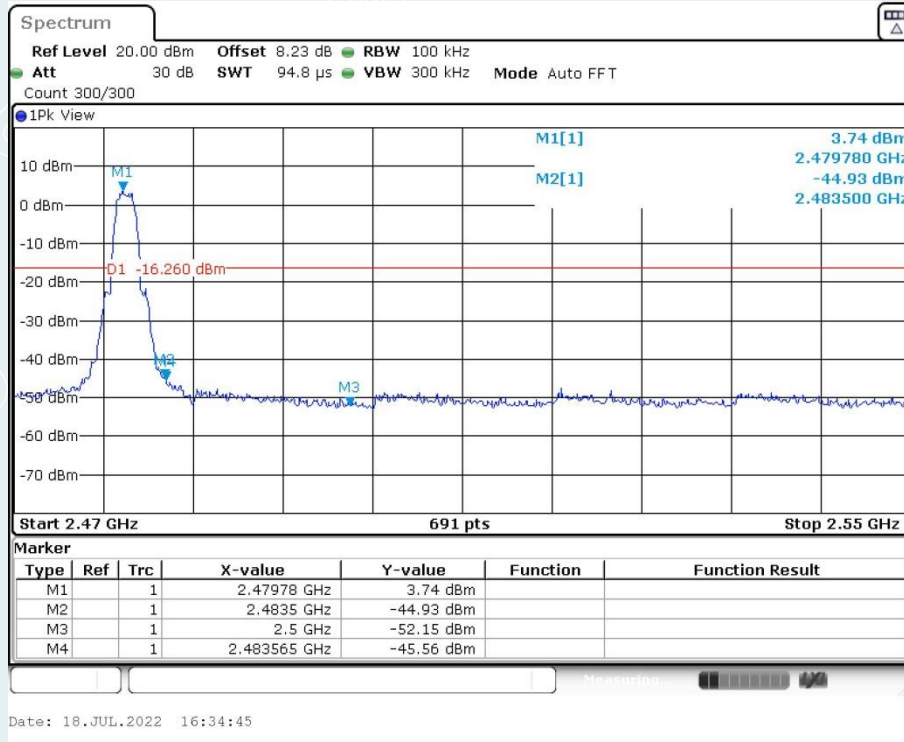
#### Band edge

TestMode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	Lowest	2405	3.62	-48.69	≤-16.38	PASS
		Highest	2480	3.74	-45.56	≤-16.26	PASS

Lowest channel (2405MHz)  
2.30GHz-2.41GHz



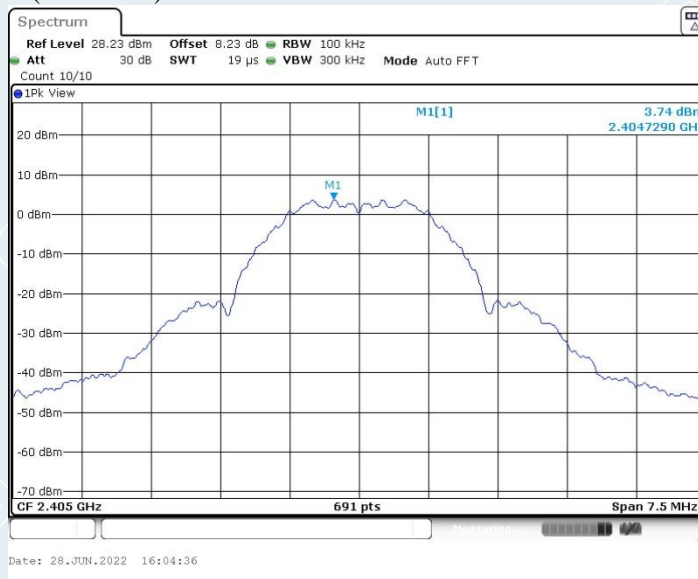
Highest channel (2480MHz)  
2.47GHz-2.55GHz



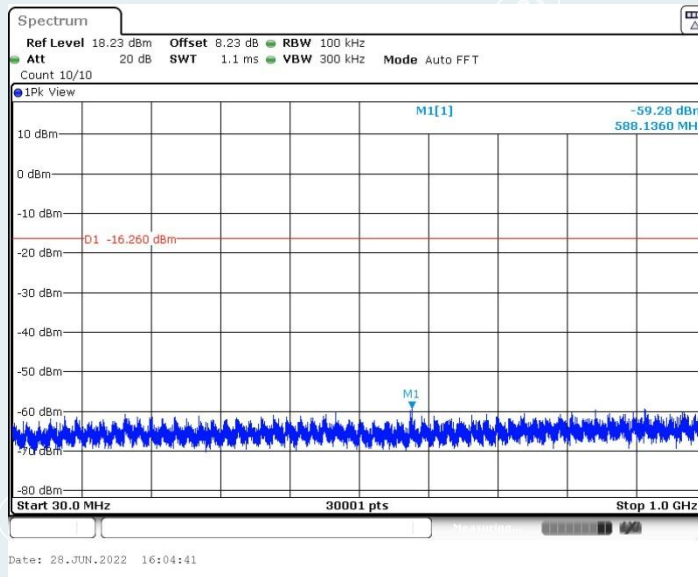
Conducted Spurious Emission

TestMode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	2405	Reference	3.74	3.74	---	PASS
			30~1000	3.74	-59.28	≤-16.26	PASS
			1000~26500	3.74	-52.03	≤-16.26	PASS
		2440	Reference	3.74	3.74	---	PASS
			30~1000	3.74	-59.38	≤-16.26	PASS
			1000~26500	3.74	-51.83	≤-16.26	PASS
		2480	Reference	3.71	3.71	---	PASS
			30~1000	3.71	-58.16	≤-16.29	PASS
			1000~26500	3.71	-52.68	≤-16.29	PASS

Lowest channel (2405MHz)

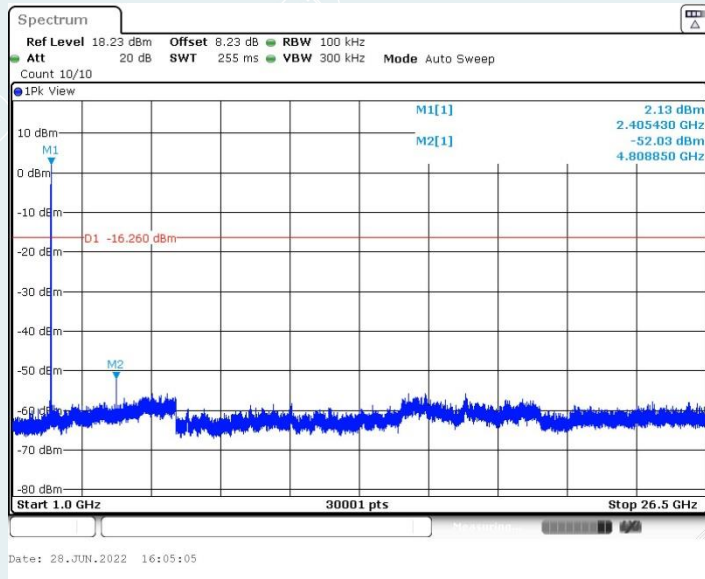


0.03GHz-1GHz





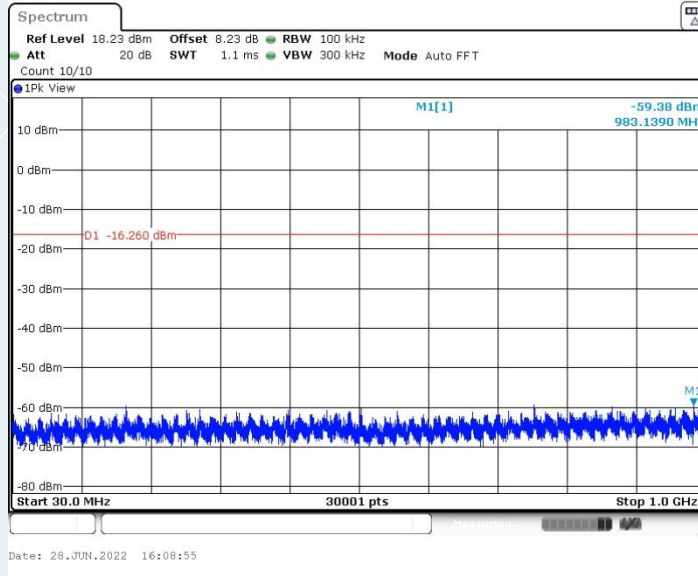
### 1GHz-26.5GHz



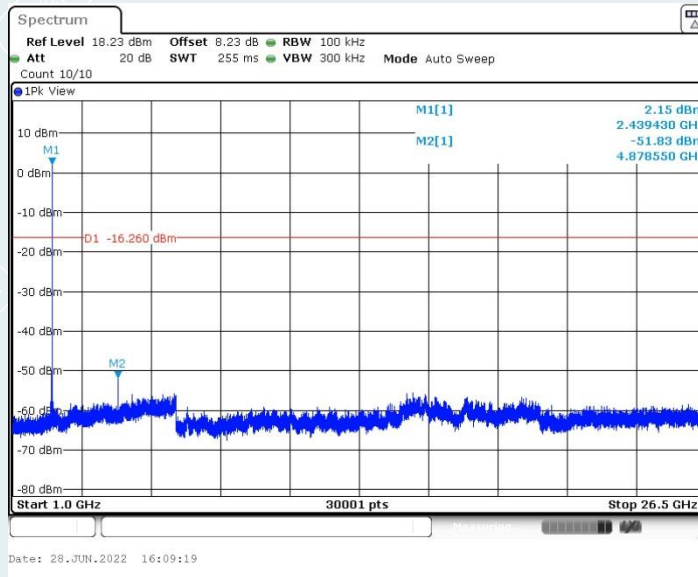
### Middle channel (2440MHz)



0.03GHz-1GHz



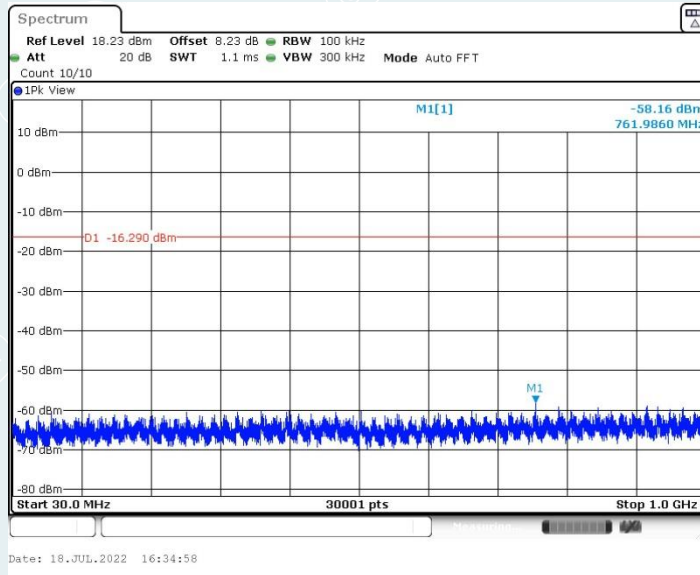
1GHz-26.5GHz



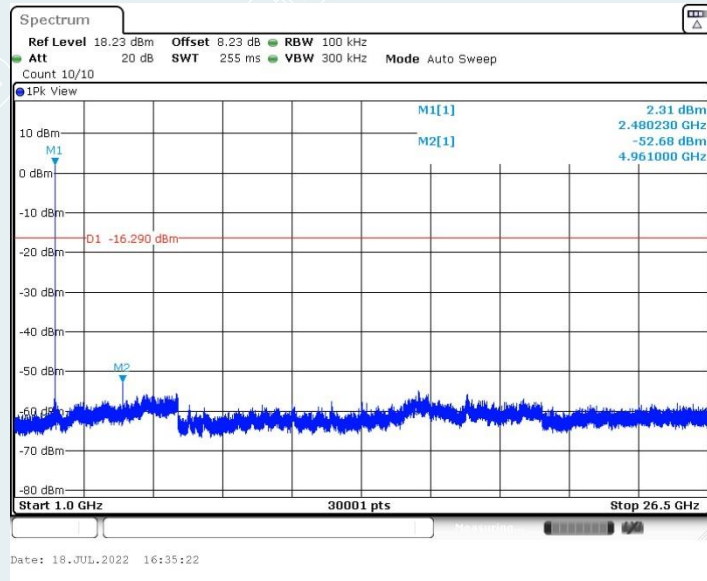
### Highest channel (2480MHz)



### 0.03GHz-1GHz



1GHz-26.5GHz



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### 13. RESTRICTED BANDS OF OPERATION

#### 13.1 LIMITS

Section 15.247(d) 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) (see §15.205(c)).

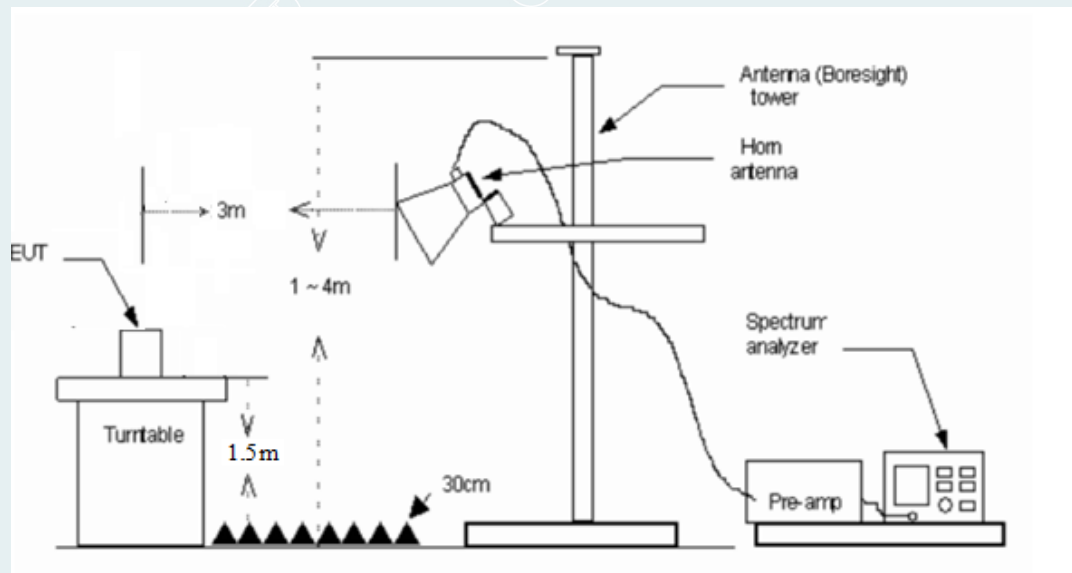
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52480 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

Frequency (MHz)	Quasi-peak( $\mu$ V/m)	Measurement distance(m)	Quasi-peak(dB $\mu$ V/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

### 13.2 TEST PROCEDURES

- 1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
- 2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - a) For Peak detector: Set RBW=1MHz, RBW=3MHz, Sweep=AUTO.
  - b) For Avg detector: Set RBW=1MHz, Sweep=AUTO, the EUT is configured to transmit with duty cycle $\geq$ 98%,set VBW $\leq$ RBW/100 (i.e.,10kHz) but not less than 10 Hz.
- 5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

### 13.3 TEST SETUP



### 13.4 TEST RESULTS

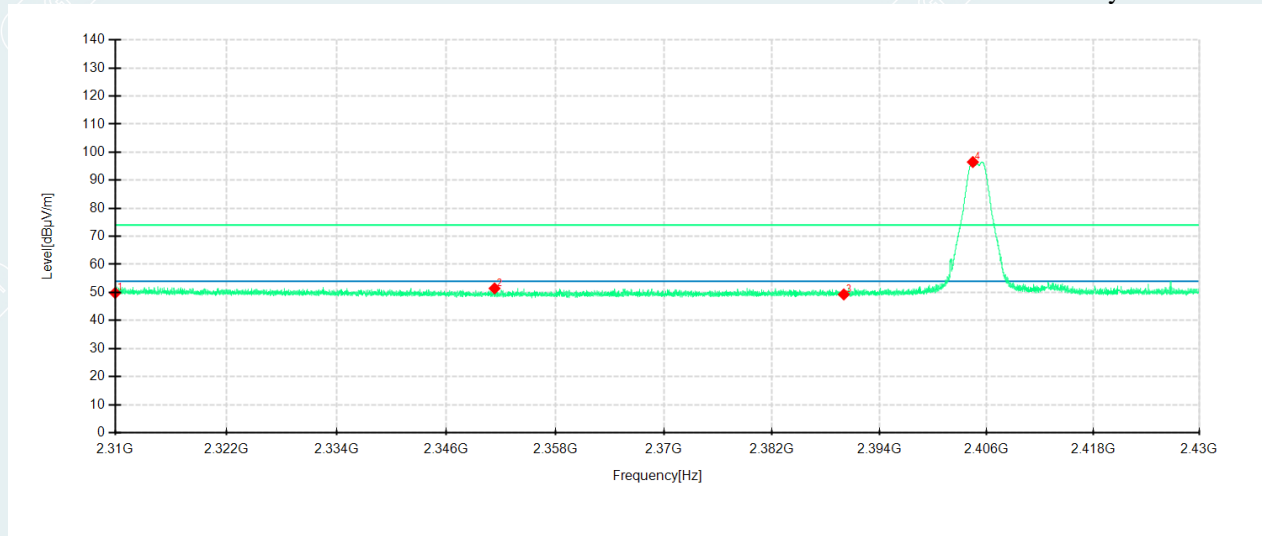
EUT Name:	Smart Pet Feeder C1	Test Mode:	Mode 1
Model:	PETC1-M01	Sample No:	E20220613205901-0008
Test Engineer:	Zhang Qiang	Test Date:	2022-06-29 to 2022-07-18
Environmental Conditions:	25.9°C/49.7%RH/101.0kPa	/	/

#### Lowest Channel

Channel 2405MHz

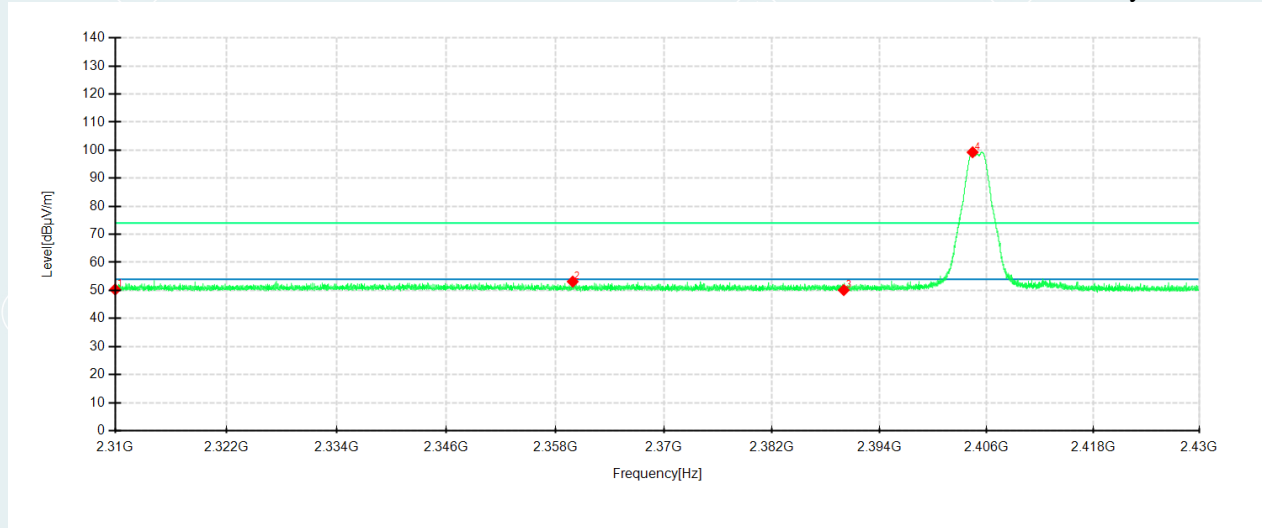
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	45.87	49.80	3.93	74.00	24.20	200	253	Horizontal	/
2	2351.316	48.47	51.43	2.96	74.00	22.57	100	180	Horizontal	/
3	2390	46.15	49.28	3.13	74.00	24.72	200	359	Horizontal	
4	2404.452	93.26	96.48	3.22	74.00	-22.48	200	348	Horizontal	No limit
1	2310	45.82	50.33	4.51	74.00	23.67	200	75	Vertical	/
2	2359.92	48.59	53.15	4.56	74.00	20.85	200	19	Vertical	/
3	2390	45.85	50.12	4.27	74.00	23.88	200	218	Vertical	/
4	2404.428	95.14	99.27	4.13	74.00	-25.27	100	267	Vertical	No limit

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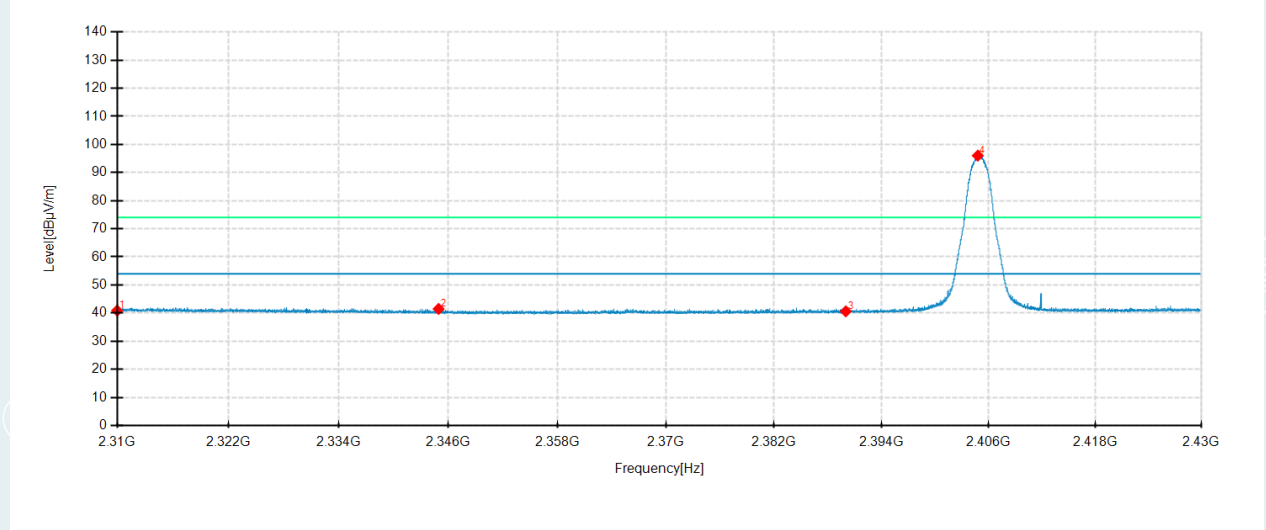


**Lowest Channel**

Channel 2405MHz

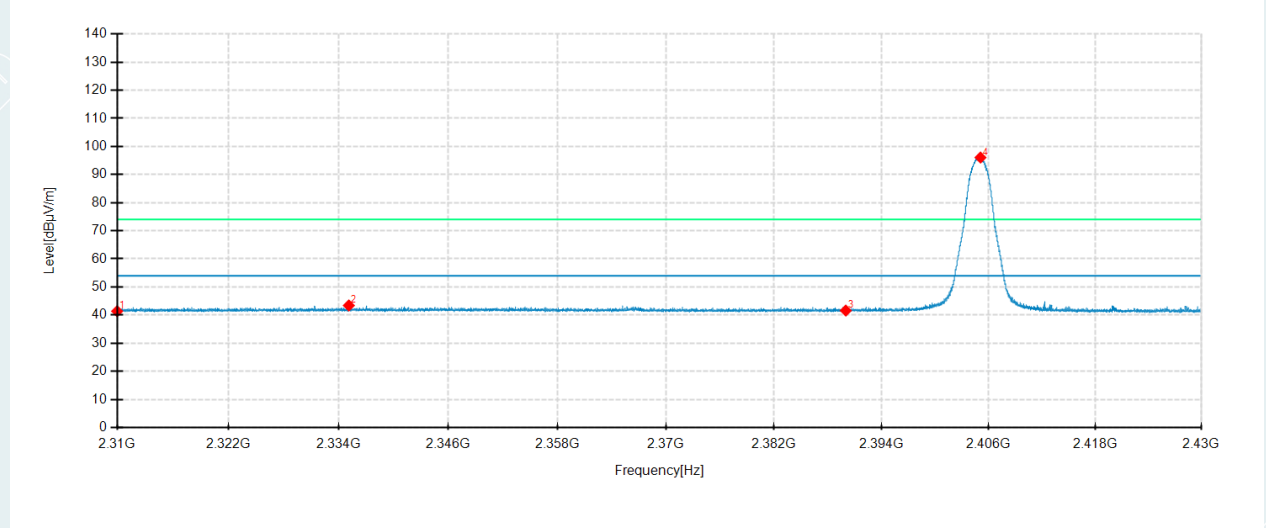
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



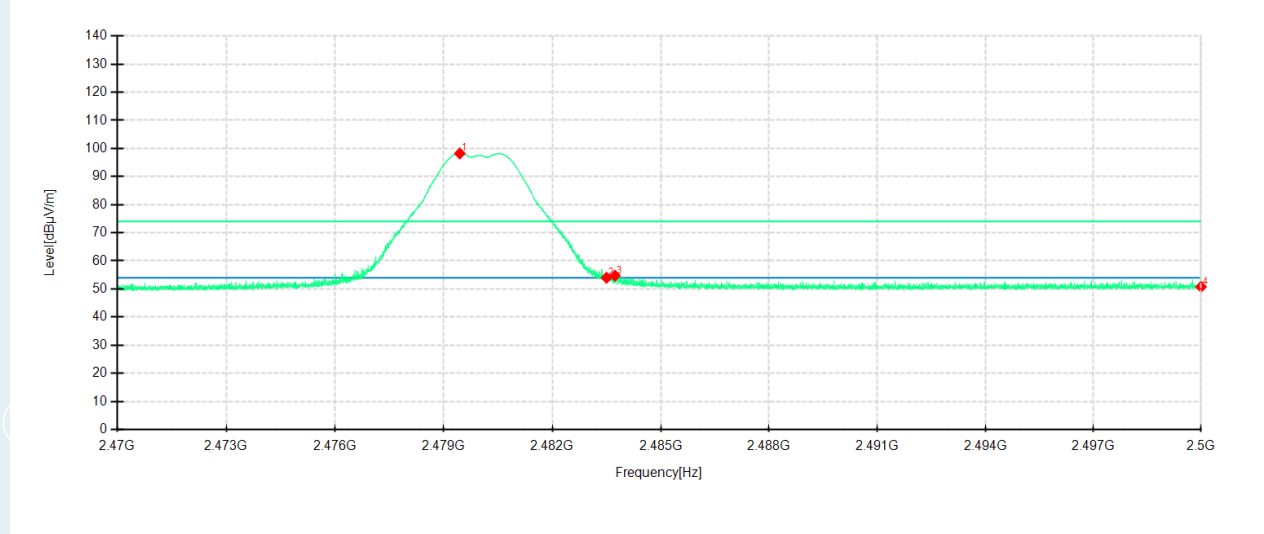
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBµV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	36.96	40.89	3.93	54.00	13.11	100	256	Horizontal	/
2	2344.956	38.41	41.48	3.07	54.00	12.52	100	80	Horizontal	/
3	2390	37.49	40.62	3.13	54.00	13.38	100	256	Horizontal	/
4	2404.788	92.80	96.03	3.23	54.00	-42.03	100	162	Horizontal	No limit
1	2310	36.86	41.37	4.51	54.00	12.63	200	175	Vertical	/
2	2335.14	38.81	43.41	4.60	54.00	10.59	200	175	Vertical	/
3	2390	37.33	41.60	4.27	54.00	12.40	100	104	Vertical	/
4	2405.088	91.95	96.07	4.12	54.00	-42.07	200	79	Vertical	No limit

**Highest Channel**

Channel 2480MHz

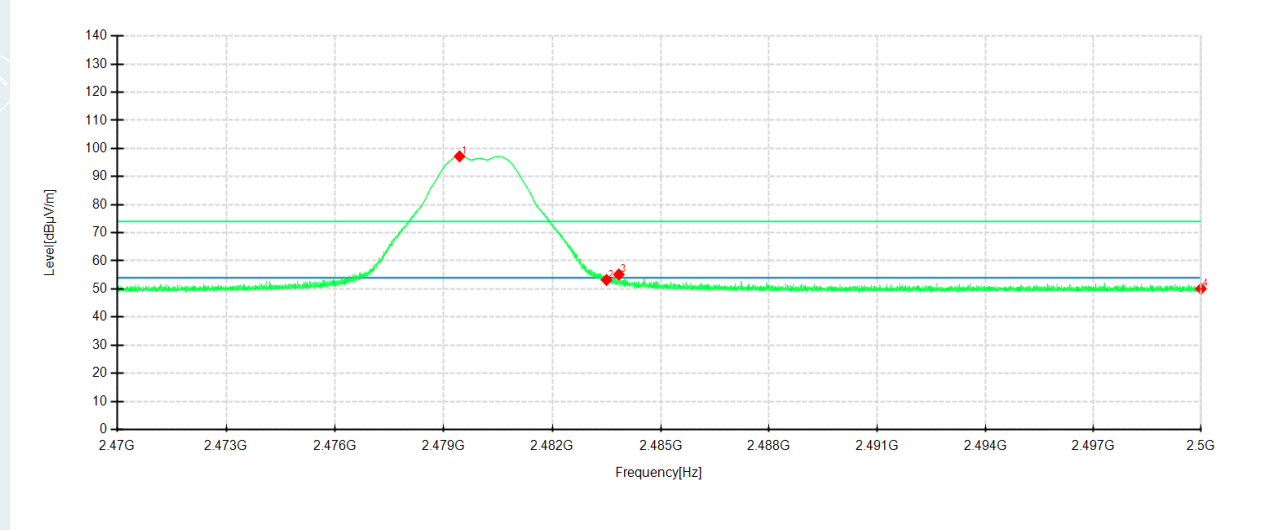
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



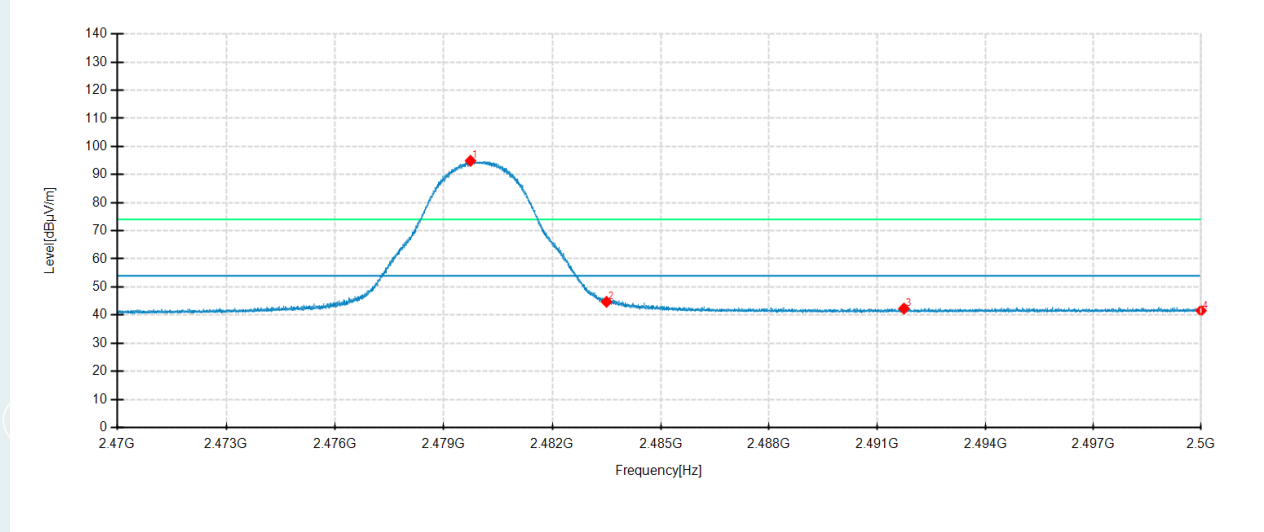
No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBµV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2479.444	93.96	98.21	4.25	74.00	-24.21	100	92	Horizontal	No limit
2	2483.5	49.66	53.99	4.33	74.00	20.01	200	104	Horizontal	/
3	2483.734	50.40	54.73	4.33	74.00	19.27	100	87	Horizontal	/
4	2500	46.11	50.76	4.65	74.00	23.24	100	256	Horizontal	/
1	2479.438	93.51	97.19	3.68	74.00	-23.19	100	160	Vertical	No limit
2	2483.5	49.53	53.22	3.69	74.00	20.78	200	174	Vertical	/
3	2483.842	51.47	55.16	3.69	74.00	18.84	200	255	Vertical	/
4	2500	46.32	50.07	3.75	74.00	23.93	100	166	Vertical	/

**Highest Channel**

Channel 2480MHz

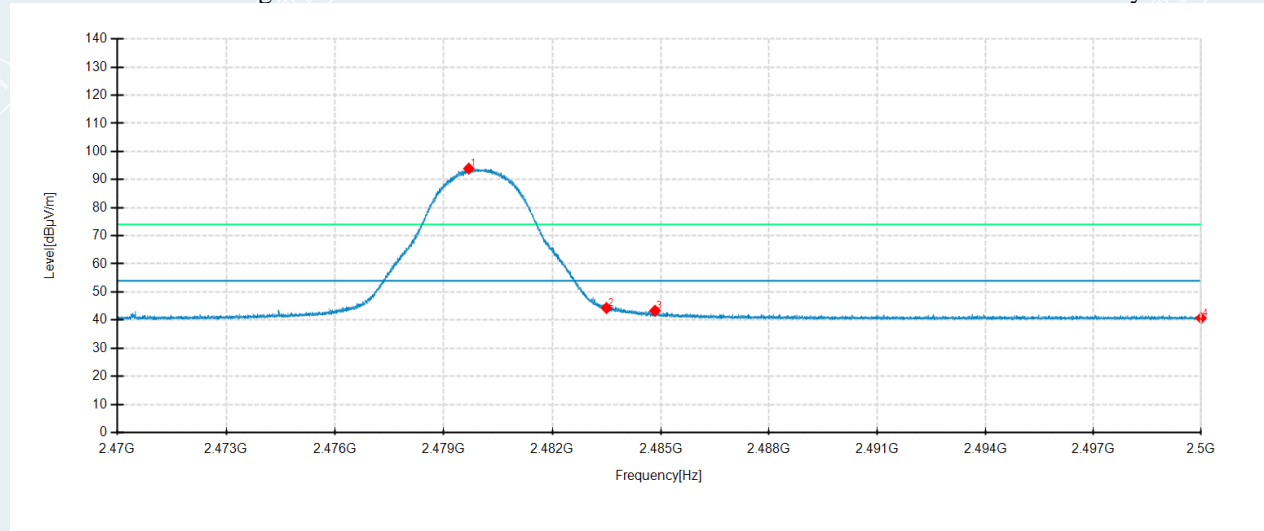
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBµV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2479.741	90.63	94.88	4.25	54.00	-40.88	100	88	Horizontal	No limit
2	2483.5	40.38	44.71	4.33	54.00	9.29	100	88	Horizontal	/
3	2491.741	37.81	42.30	4.49	54.00	11.70	200	228	Horizontal	/
4	2500	36.93	41.58	4.65	54.00	12.42	100	256	Horizontal	/
1	2479.693	90.21	93.89	3.68	54.00	-39.89	100	161	Vertical	No limit
2	2483.5	40.58	44.27	3.69	54.00	9.73	100	167	Vertical	/
3	2484.841	39.62	43.32	3.70	54.00	10.68	200	256	Vertical	/
4	2500	36.94	40.69	3.75	54.00	13.31	200	256	Vertical	/

Remark: Max field strength in 3m distance. No any other emission which falls in restricted bands can be detected and be reported.

**APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM**

Please refer to the attached document E20220613205901-11-Test photo.

**APPENDIX B. PHOTOGRAPH OF THE EUT**

Please refer to the attached document E20220613205901-12-EUT photo.

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