

Test Report

Page 1 of 47
Verified code: 326579

Report No.: E20230128179401-5

Customer: Lumi United Technology Co., Ltd

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

Sample Name: Door and Window Sensor P2

Sample Model: DW-S02E

Receive Sample
Test Date: Jan.30,2023

Test Date: Jan.31,2023 ~ Feb.21,2023

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

Test Result: Pass

Prepared by: Chen Xiaolong

Reviewed by:

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GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2023-03-13

APPROVED(03)

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20230128179401-5	Original Issue	2023-02-22

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1. TEST RESULT SUMMARY

Technical Requirements		
CFR 47 FCC Part 15 Subpart C (§15.247) ANSI C63.10-2013 KDB 558074 D01 15.247 measurement guidance v05r02		
Limit / Severity	Item	Result
§15.247(b)(3)	Maximum peak output power	Pass
§15.207 (a)	Conducted Emissions	N/A ¹⁾
§15.247(e)	Power spectral density	Pass
§15.247(a)(2)	6dB bandwidth	Pass
§15.247(d)&§15.205& §15.209	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:

¹⁾Test is not applicable to this Equipment. This EUT is no AC mains power ports.

²⁾The EUT has one antenna. The antenna is PIFA antenna.

³⁾The max gain of antenna is 1dBi, 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 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Door and Window Sensor P2
Model No.: DW-S02E
Adding Model: DW-S02D
Models Difference: DW-S02E&DW-S02D are the same on the board, schematic, hardware version, software version, structure and internal photos are same, only the model name is different.
Trade Name: Aqara
FCC ID: 2AKIT-DW-S02
Power Supply: DC 3V power supplied by battery
Battery Specification: Model:CR123A
Nominal Voltage:3.0Vdc
Rated Capacity: 1400mAh
Frequency Range: 2405MHz-2480MHz
Transmit Power: 7.66dBm
Modulation type: O-QPSK
Antenna Specification: PIFA antenna 1dBi gain (Max.)
Temperature Range: -10°C ~ 50°C
Hardware Version: X0
Software Version: 0.0.0.1
Sample No: E20230128179401-0002, E20230128179401-0004
Note: All the tests were performed on the model DW-S02E.

2.4 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

* is the test frequency

2.5 TEST OPERATION MODE

Mode No.	Description of the modes
1	Threadfixed frequency transmitting

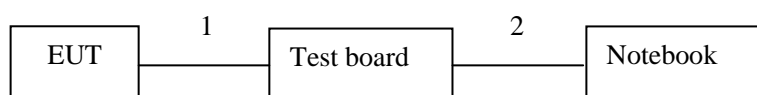
2.6 LOCAL SUPPORTIVE

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

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

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

2.7 CONFIGURATION OF SYSTEM UNDER TEST



Test software:

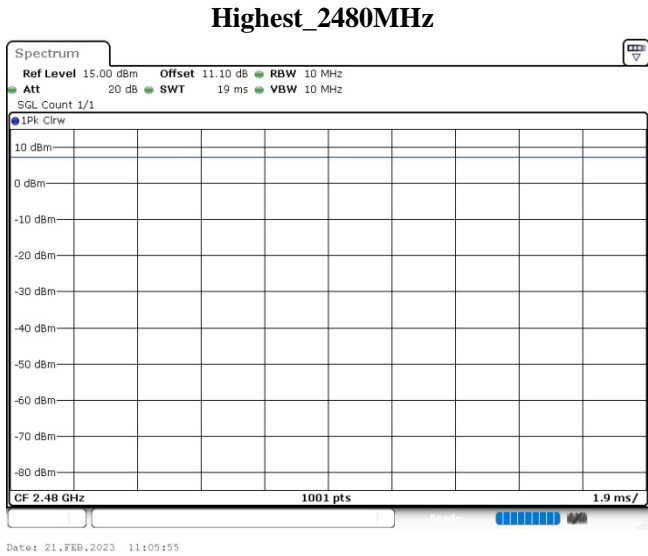
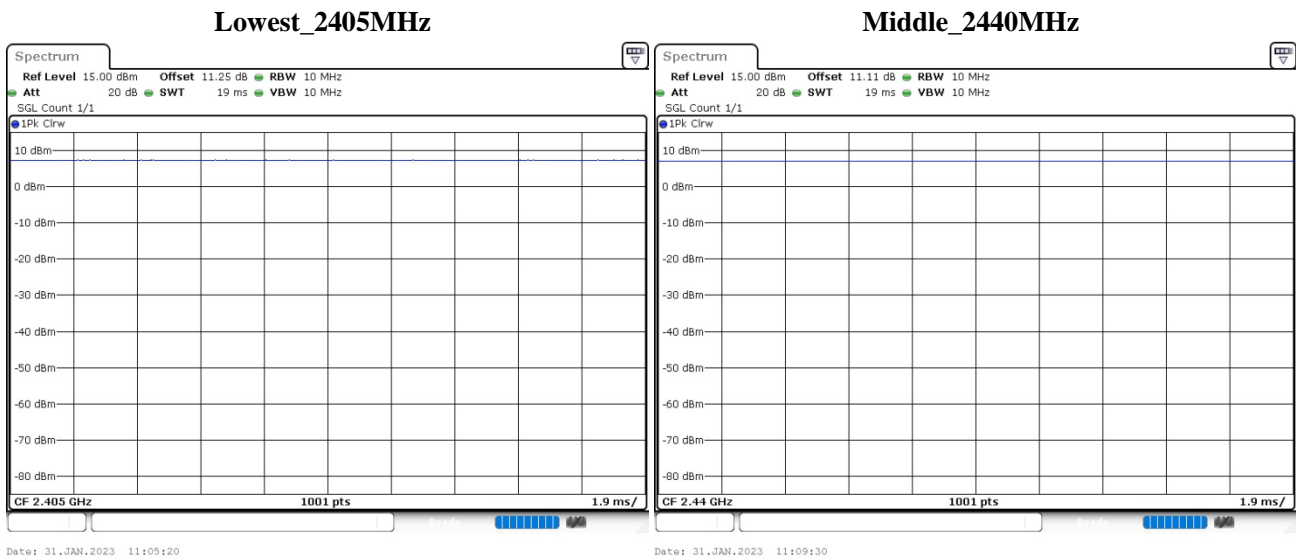
Software version	Test level
QCOM_V1.0	2405MHz: 8 2440MHz: 8 2480MHz: 8

2.8 DUTY CYCLE

Environment: 23.8°C/47%RH/101.0kPa
Tested By: Yang Zhaoyun

Voltage: DC 3V
Date: 2023-01-31 to 2023-02-21

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
Thread	Ant1	2405	1.00	1.00	100
		2440	1.00	1.00	100
		2480	1.00	1.00	100



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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.

Add : Address: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua
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P.C. : 518110

Tel : 0755-61180008

Fax : 0755-61180008

4. ACCREDITATIONS

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

USA A2LA(Certificate #2861.01)

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

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

USA FCC (Registration Number: 759402, Designation Number:CN1198)

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	5.1dB ¹⁾
		30MHz~200MHz	4.5dB ¹⁾
		200MHz~1000MHz	4.4dB ¹⁾
		1GHz~18GHz	5.6dB ¹⁾
		18GHz~26.5GHz	3.7dB ¹⁾
	Vertical	9kHz~30MHz	5.1dB ¹⁾
		30MHz~200MHz	4.4dB ¹⁾
		200MHz~1000MHz	4.5dB ¹⁾
		1GHz~18GHz	5.6dB ¹⁾
		18GHz~26.5GHz	3.7dB ¹⁾
Conduction Emission		150kHz~30MHz	3.4dB ¹⁾

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.8dB
Power spectral density conducted	0.8dB
Occupied channel bandwidth	0.4dB
Unwanted emission, conducted	0.7dB
Humidity	6%
Temperature	2°C

Note:

¹⁾ This uncertainty represents an expanded uncertainty expressed at approximately the 95%.

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

6. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Radiated Spurious Emission&Restricted bands of operation				
Test S/W	EZ	CCS-03A1		
Test Receiver	R&S	ESR7	102444	2023-09-02
Preamplifier	EMEC	EM330	I00426	2023-03-05
Bi-log Antenna	Schwarzbeck	CBL6143A	26039	2024-10-23
Loop Antenna	TESEQ	HLA6121	52599	2023-04-02
Spectrum Analyzer	KEYSIGHT	N9010A	MY52221469	2023-06-29
Horn Antenna	Schwarzbeck	BBHA9120D	02143	2023-10-15
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170-497	2023-10-14
Amplifier	Tonscend	TAP01018048	AP20E8060075	2023-05-05
Amplifier	Tonscend	TAP184050	AP20E806071	2023-05-05
Amplifier	SHIRONG ELECTRONIC	DLNA-1G18G-G40	20200928005	2023-05-08
Test S/W	Tonscend	JS36-RE/2.5.1.5		
6dB Bandwidth&Conducted band edges and Spurious Emission&Power Spectral Density				
Spectrum Analyzer	R&S	FSV30	1321.3008K30-104381-rH	2023-11-17
BT/WIFI System	Tonscend	JS0806		
Maximum Peak Output Power				
Pulse power sensor	Anritsu	MA2411B	1126150	2023-03-01
Power meter	Anritsu	ML2495A	1204003	2023-02-28
Pulse power sensor	Anritsu	MA2411B	1126150	2024-02-12
Power meter	Anritsu	ML2495A	1204003	2024-02-12

Note: The calibration cycle of the above instruments is 12 months except for the Bi-log Antenna which is 24 months.

7. RADIATED SPURIOUS EMISSIONS

7.1 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($\mu\text{V/m}$)	Measurement distance(m)	Quasi-peak(dB $\mu\text{V/m}$)@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

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 $\mu\text{V/m}$).

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

7.2 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 pre measurement 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 pre measurement 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 pre measurement 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 pre measurements 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 pre measurement 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.

7.3 TEST SETUP

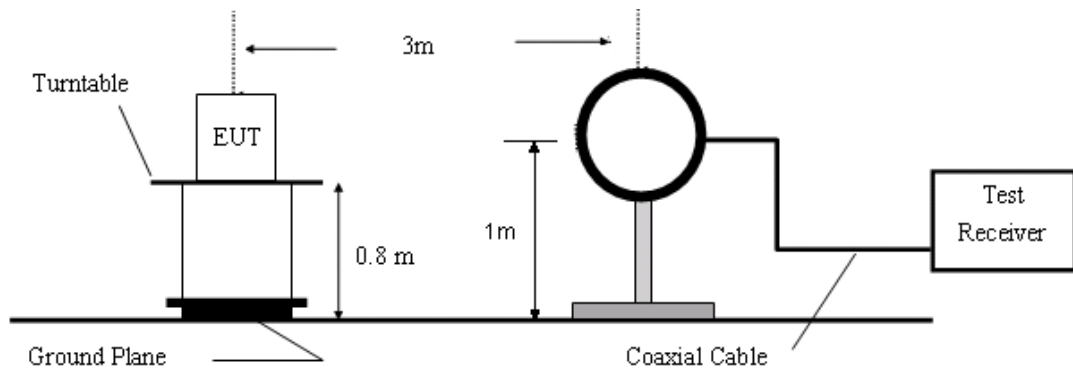


Figure 1. 9kHz to 30MHz radiated emissions test configuration

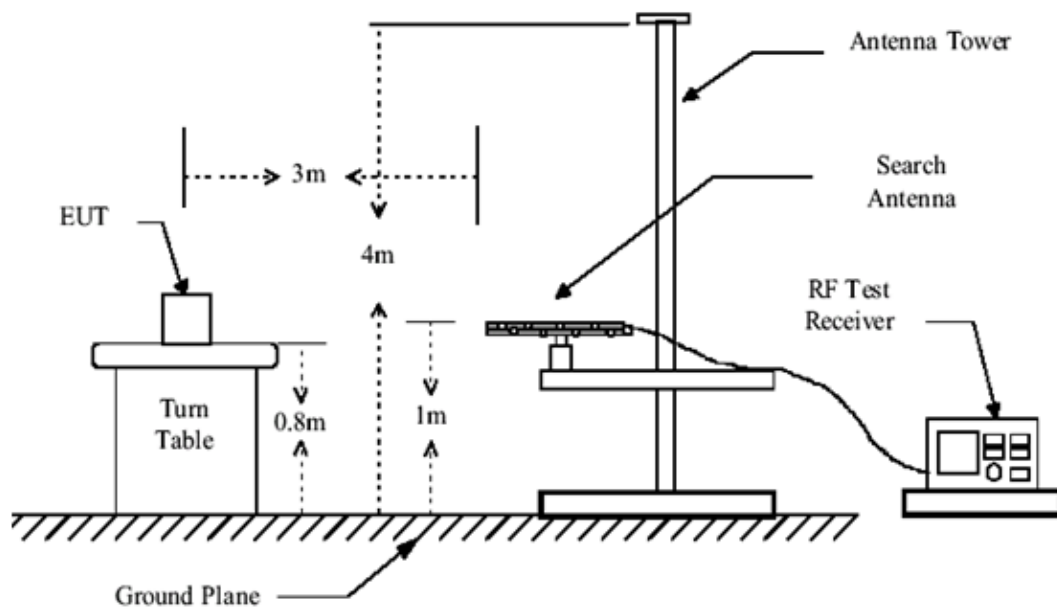


Figure 2. 30MHz to 1GHz radiated emissions test configuration

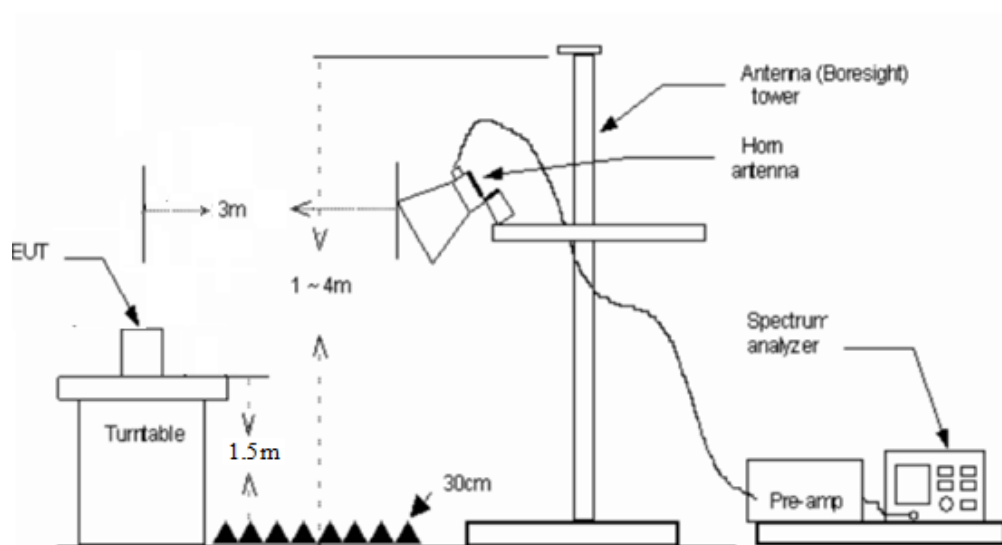


Figure 3. 1GHz-18GHz radiated emissions test configuration

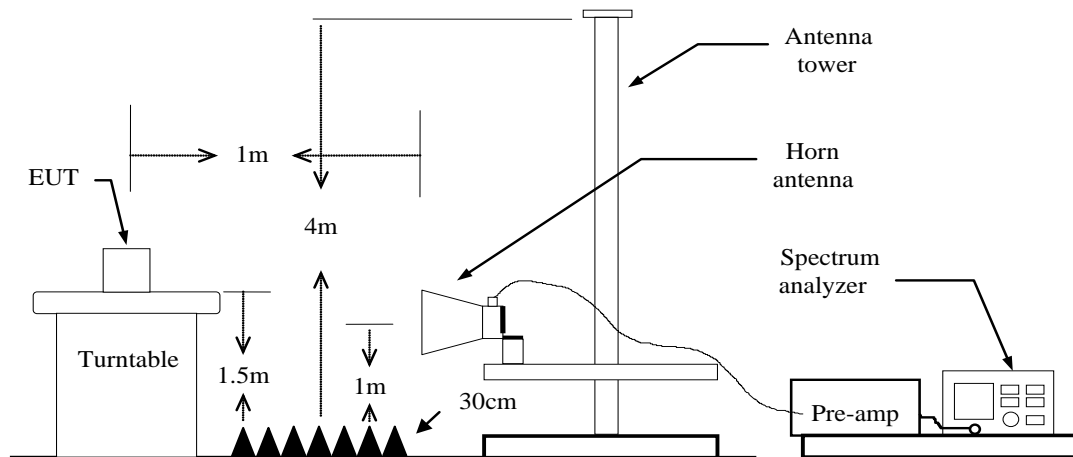


Figure 4. 18GHz-26.5GHz radiated emissions test configuration

7.4 DATA SAMPLE

30MHz to 1GHz

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

1GHz to 18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
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 (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
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

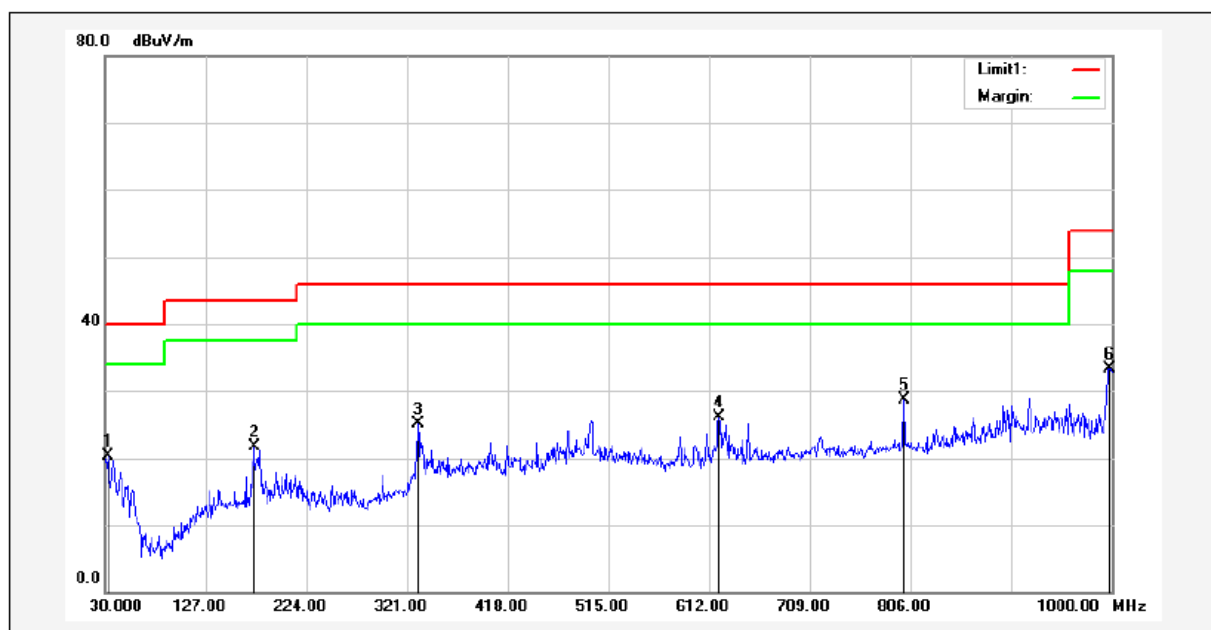
AVG = Average Reading

7.5 TEST RESULTS

Below 1GHz

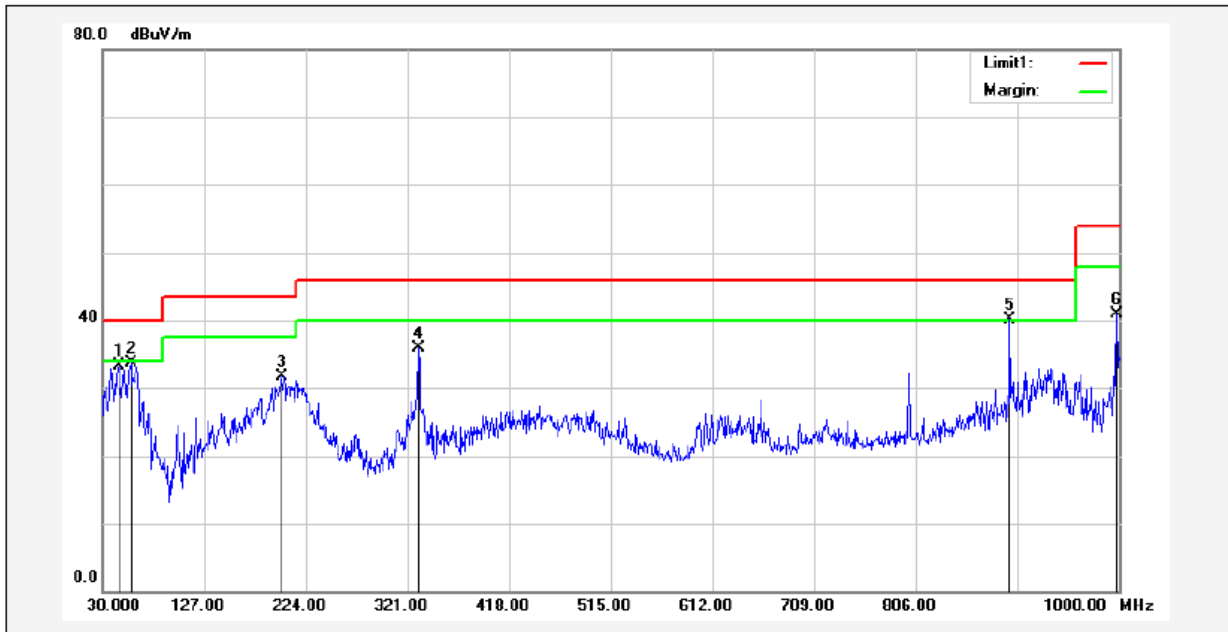
Only the worst mode and channel were recorded in this report. Lowest channel (2405MHz)

EUT Name:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	23.8°C/58% RH/101.0kPa
Test Engineer:	Huang Xinlong	Test Date:	2023-02-03
Channel	Lowest channel (2405MHz)	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Detector type
1	32.9100	38.38	-18.06	20.32	40.00	-19.68	180	100	QP
2	173.5600	49.27	-27.56	21.71	43.50	-21.79	307	200	QP
3	331.6700	47.92	-22.88	25.04	46.00	-20.96	56	400	QP
4	621.7000	42.28	-16.13	26.15	46.00	-19.85	150	100	QP
5*	800.1800	42.58	-13.92	28.66	46.00	-17.34	95	100	QP
6	998.0600	45.41	-12.04	33.37	54.00	-20.63	211	200	QP

EUT Name:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	23.8°C/58%RH/101.0kPa
Test Engineer:	Huang Xinlong	Test Date:	2023-02-03
Channel	Lowest channel (2405MHz)	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Detector type
1	45.5200	57.36	-24.02	33.34	40.00	-6.66	14	100	QP
2	57.1600	61.86	-28.18	33.68	40.00	-6.32	301	100	QP
3	201.6900	58.30	-26.57	31.73	43.50	-11.77	116	100	QP
4	331.6700	58.73	-22.88	35.85	46.00	-10.15	354	100	QP
5*	896.2100	53.32	-13.16	40.16	46.00	-5.84	120	100	QP
6	998.0600	52.97	-12.04	40.93	54.00	-13.07	116	100	QP

Remark:

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Radiated emissions measured in frequency range from 9kHz 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 120kHz.

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:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	25.0°C/60%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-02-02
Channel	Lowest channel (2405MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1299.7875	65.07	42.31	-22.76	74.00	31.69	100	71	Horizontal
2	1990.1238	62.92	41.74	-21.18	74.00	32.26	100	169	Horizontal
3	2662.9579	61.65	43.23	-18.42	74.00	30.77	100	285	Horizontal
4	3401.3002	64.39	47.14	-17.25	74.00	26.86	200	241	Horizontal
5	4807.726	59.00	46.41	-12.59	74.00	27.59	200	251	Horizontal
6	7213.6517	58.93	55.75	-3.18	74.00	18.25	200	241	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7215.5254	-3.18	46.09	42.91	54.00	11.09	200	330	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1660.0825	65.85	43.30	-22.55	74.00	30.70	200	266	Vertical
2	2654.4568	69.28	51.49	-17.79	74.00	22.51	100	110	Vertical
3	3401.3002	64.82	47.75	-17.07	74.00	26.25	100	161	Vertical
4	4800.225	60.15	47.24	-12.91	74.00	26.76	100	122	Vertical
5	5810.9764	58.67	48.92	-9.75	74.00	25.08	100	73	Vertical
6	7213.6517	56.21	53.88	-2.33	74.00	20.12	200	183	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2666.6815	-17.79	51.68	33.89	54.00	20.11	100	112.3	Vertical
2	5781.9505	-9.75	41.09	31.34	54.00	22.66	177	305.4	Vertical
3	7215.5254	-2.33	42.67	40.34	54.00	13.66	193	217.3	Vertical

EUT Name:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	25.0°C/60%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-02-02
Channel	Middle channel (2440MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1166.5208	66.32	41.72	-24.60	74.00	32.28	100	120	Horizontal
2	1197.5247	64.85	40.87	-23.98	74.00	33.13	100	120	Horizontal
3	1997.8747	63.34	42.17	-21.17	74.00	31.83	100	344	Horizontal
4	2825.2282	60.67	43.79	-16.88	74.00	30.21	100	187	Horizontal
5	4878.9849	58.18	46.54	-11.64	74.00	27.46	200	124	Horizontal
6	7318.6648	57.46	54.44	-3.02	74.00	19.56	200	281	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7320.5655	-3.02	44.97	41.95	54.00	12.05	200	303.9	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1197.7747	68.26	43.28	-24.98	74.00	30.72	200	111	Vertical
2	1798.0998	69.13	46.73	-22.40	74.00	27.27	100	120	Vertical
3	1991.624	66.86	46.13	-20.73	74.00	27.87	100	110	Vertical
4	2666.4583	69.68	52.03	-17.65	74.00	21.97	100	110	Vertical
5	3990.1238	60.30	45.23	-15.07	74.00	28.77	100	25	Vertical
6	7534.3168	54.63	52.35	-2.28	74.00	21.65	200	338	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2663.794	-17.65	54.09	36.44	54.00	17.56	100	118.6	Vertical
2	7503.0052	-2.28	40.78	38.50	54.00	15.50	200	179.5	Vertical

EUT Name:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	24.8°C/57%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-02-20
Channel	Highest channel (2480MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1111.5139	68.29	42.88	-25.41	74.00	31.12	100	143	Horizontal
2	1683.8355	62.53	39.62	-22.91	74.00	34.38	200	259	Horizontal
3	1950.1188	60.51	39.29	-21.22	74.00	34.71	100	113	Horizontal
4	3283.1604	61.47	44.62	-16.85	74.00	29.38	100	110	Horizontal
5	4957.7447	59.61	48.07	-11.54	74.00	25.93	200	129	Horizontal
6	7438.6798	56.63	53.62	-3.01	74.00	20.38	200	257	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	7441.9064	-3.01	42.03	39.02	54.00	14.98	200	16.7	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1118.5148	69.13	46.26	-22.87	74.00	27.74	200	211	Vertical
2	2794.7243	61.91	43.74	-18.17	74.00	30.26	100	172	Vertical
3	4250.7813	57.63	43.27	-14.36	74.00	30.73	100	151	Vertical
4	4959.62	56.27	45.06	-11.21	74.00	28.94	200	111	Vertical
5	6379.1724	54.54	47.43	-7.11	74.00	26.57	100	229	Vertical
6	9778.9724	48.19	52.54	4.35	74.00	21.46	200	238	Vertical

18GHz-26.5GHz:

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:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	24.8°C/57%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-02-20
Channel	Lowest channel (2405MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19327.7	52.66	41.11	-11.55	83.54	42.43	100	48	Horizontal
2	20554.25	51.30	40.85	-10.45	83.54	42.69	100	32	Horizontal
3	22111.025	50.09	40.43	-9.66	83.54	43.11	100	158	Horizontal
4	23750.675	48.31	39.69	-8.62	83.54	43.85	100	16	Horizontal
5	24936.85	47.70	40.34	-7.36	83.54	43.20	100	78	Horizontal
6	26420.95	46.31	39.15	-7.16	83.54	44.39	100	173	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18430.525	53.25	41.05	-12.20	83.54	42.49	100	14	Vertical
2	19769.7	51.39	40.29	-11.10	83.54	43.25	100	297	Vertical
3	21282.7	50.16	40.27	-9.89	83.54	43.27	100	157	Vertical
4	22876.45	48.67	39.98	-8.69	83.54	43.56	100	14	Vertical
5	24328.25	47.86	39.87	-7.99	83.54	43.67	100	172	Vertical
6	25434.525	48.49	41.21	-7.28	83.54	42.33	100	78	Vertical

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

EUT Name:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	24.5°C/59%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-02-04
Channel	Middle channel (2440MHz)	/	/

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18718.675	52.57	40.59	-11.98	83.54	42.95	100	256	Horizontal
2	19648.15	52.20	40.92	-11.28	83.54	42.62	100	191	Horizontal
3	20570.825	50.58	40.15	-10.43	83.54	43.39	100	160	Horizontal
4	22582.35	48.96	39.92	-9.04	83.54	43.62	100	49	Horizontal
5	23749.4	48.91	40.29	-8.62	83.54	43.25	100	64	Horizontal
6	26360.175	46.93	39.69	-7.24	83.54	43.85	100	80	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18592.025	51.62	39.57	-12.05	83.54	43.97	100	204	Vertical
2	19406.75	52.32	40.83	-11.49	83.54	42.71	100	111	Vertical
3	20218.5	51.88	41.13	-10.75	83.54	42.41	100	298	Vertical
4	21349.85	50.17	40.32	-9.85	83.54	43.22	100	189	Vertical
5	24306.15	48.38	40.37	-8.01	83.54	43.17	100	345	Vertical
6	26329.15	46.38	39.21	-7.17	83.54	44.33	100	204	Vertical

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

EUT Name:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Power supply:	DC 3V	Environmental Conditions:	24.8°C/57%RH/101.0kPa
Test Engineer:	Huang Lifang	Test Date:	2023-02-20
Channel	Highest channel (2480MHz)	/	/

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18305.15	52.88	40.55	-12.33	83.54	42.99	100	16	Horizontal
2	20188.75	52.58	41.70	-10.88	83.54	41.84	100	31	Horizontal
3	21270.375	51.17	41.17	-10.00	83.54	42.37	100	143	Horizontal
4	22557.275	48.48	39.40	-9.08	83.54	44.14	100	221	Horizontal
5	24355.875	48.60	40.59	-8.01	83.54	42.95	100	267	Horizontal
6	26279	46.65	39.25	-7.40	83.54	44.29	100	283	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18242.675	51.94	39.58	-12.36	83.54	43.96	100	124	Vertical
2	19310.7	52.79	41.23	-11.56	83.54	42.31	100	31	Vertical
3	20828.375	50.77	40.73	-10.04	83.54	42.81	100	187	Vertical
4	22862.85	49.08	40.38	-8.70	83.54	43.16	100	171	Vertical
5	23724.75	48.10	39.57	-8.53	83.54	43.97	100	344	Vertical
6	25637.25	46.96	39.43	-7.53	83.54	44.11	100	124	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 (dBμV/m), The limits are relaxed.

8. 6dB BANDWIDTH

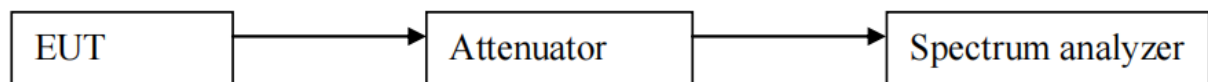
8.1 LIMITS

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.

8.2 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.

8.3 TEST SETUP



8.4 TEST RESULTS

Environment: 23.8°C/47%RH/101.0kPa

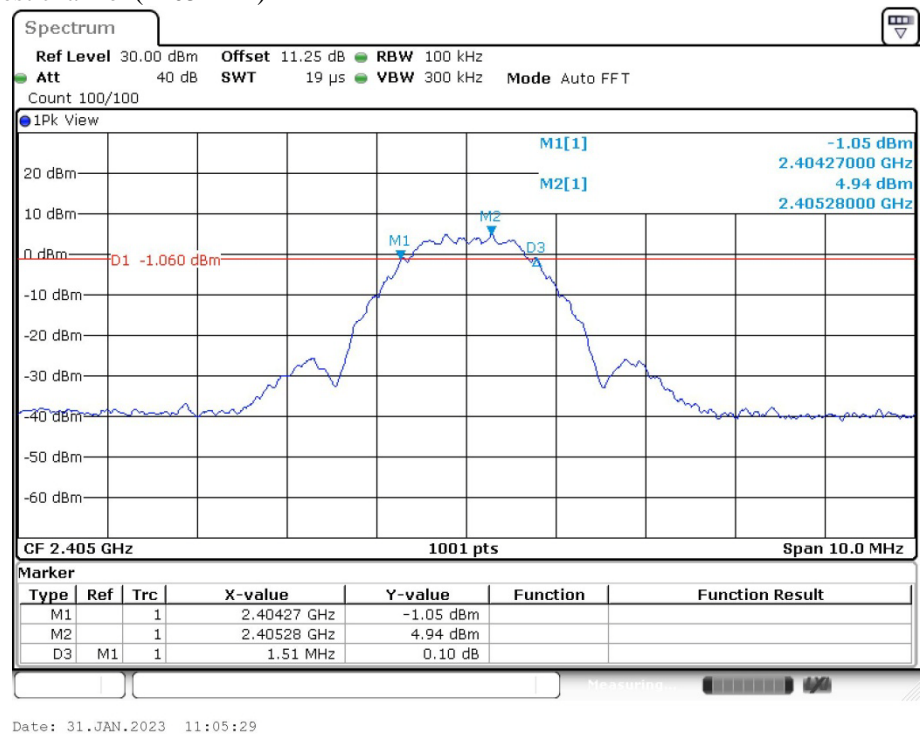
Tested By: Yang Zhaoyun

Voltage: DC 3V

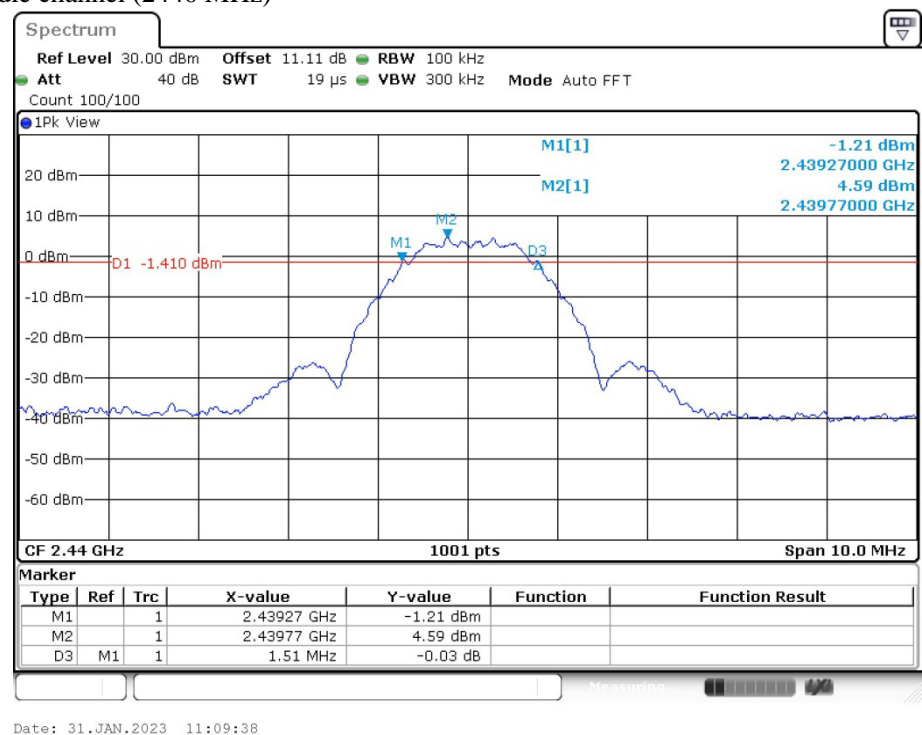
Date: 2023-01-31 to 2023-02-21

Ch Name	Frequency (MHz)	Bandwidth [kHz]	Limit[kHz]	Verdict
Lowest	2405	1510	≥ 500	PASS
Middle	2440	1510		PASS
Highest	2480	1520		PASS

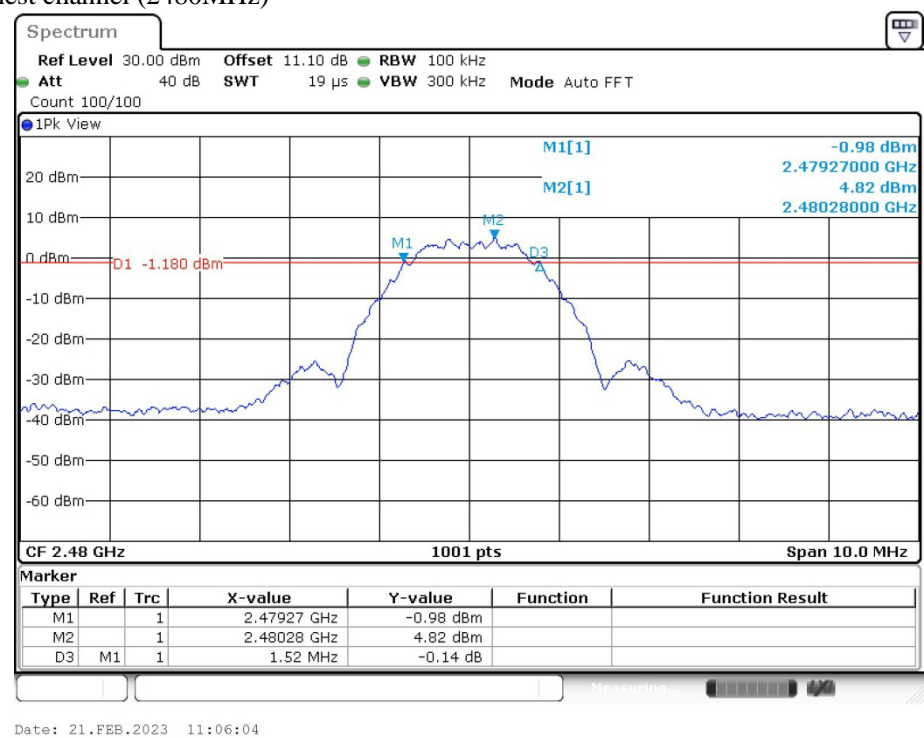
Lowest channel (2405MHz)



Middle channel (2440 MHz)



Highest channel (2480MHz)



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

9. MAXIMUM PEAK OUTPUT POWER

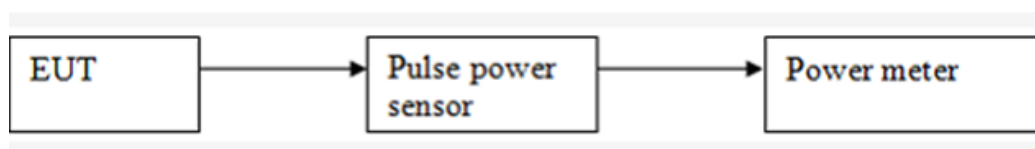
9.1 LIMITS

The maximum Peak output power measurement is 1W

9.2 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.

9.3 TEST SETUP



9.4 TEST RESULTS

Environment: 23.8°C/47%RH/101.0kPa
Tested By: Yang Zhaoyun

Voltage: DC 3V
Date: 2023-01-31 to 2023-02-21

ChName	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/ Average	Result
Lowest	2405	7.66	1W (30dBm)	Peak	Pass
Middle	2440	7.51			Pass
Highest	2480	7.24			Pass

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

10. POWER SPECTRAL DENSITY

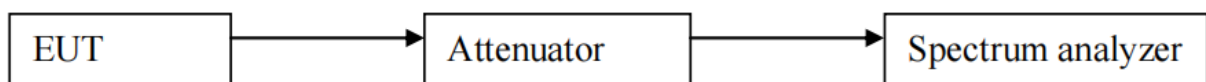
10.1 LIMITS

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.

10.2 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.

10.3 TEST SETUP



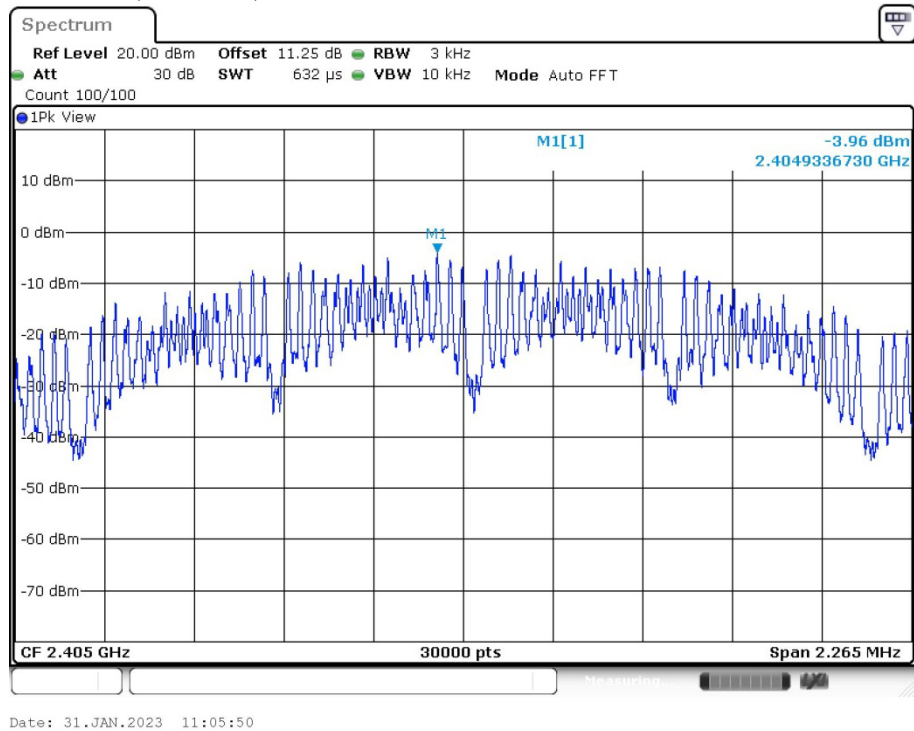
10.4 TEST RESULTS

Environment: 23.8°C/47% RH/101.0kPa
 Tested By: Yang Zhaoyun

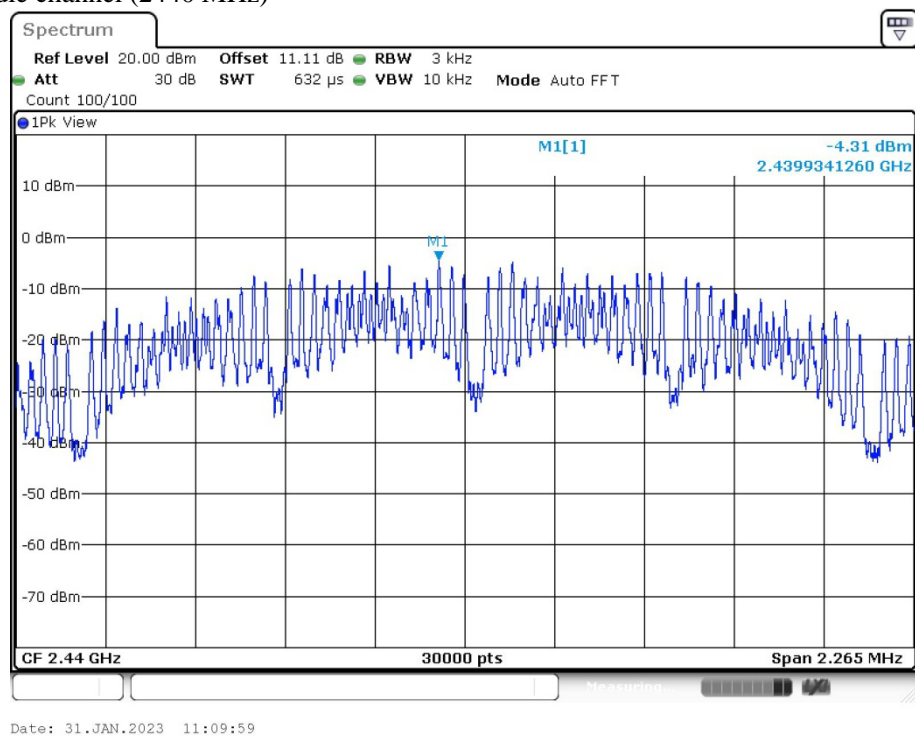
Voltage: DC 3V
 Date: 2023-01-31 to 2023-02-21

Ch Name	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	2405	-3.96	8.00	Pass
Middle	2440	-4.31	8.00	Pass
Highest	2480	-4.21	8.00	Pass

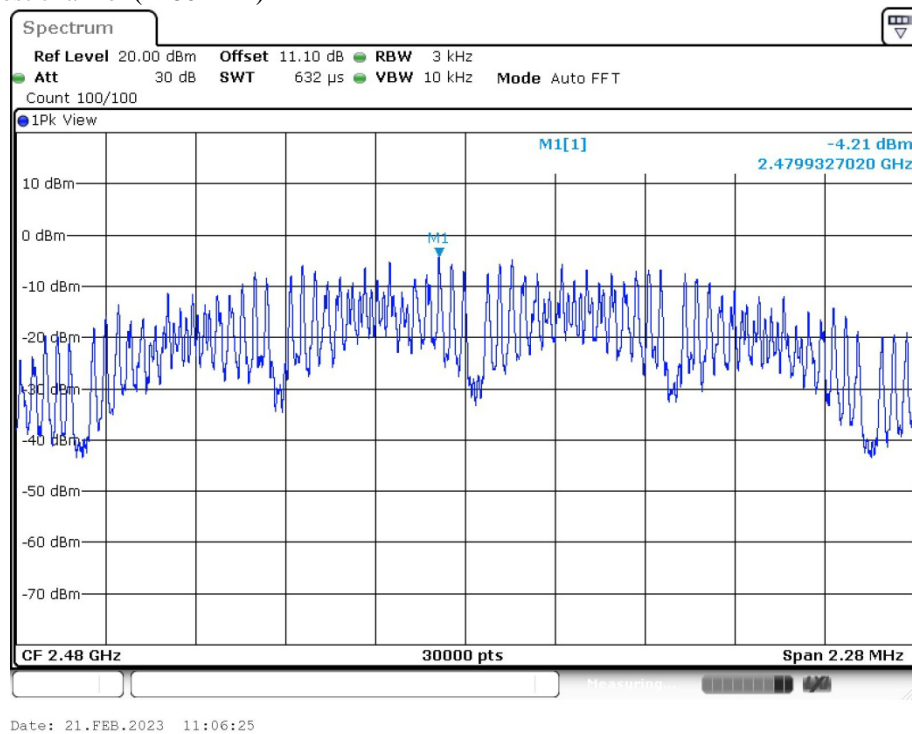
Lowest channel (2405MHz)



Middle channel (2440 MHz)



Highest channel (2480MHz)



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11. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

11.1 LIMITS

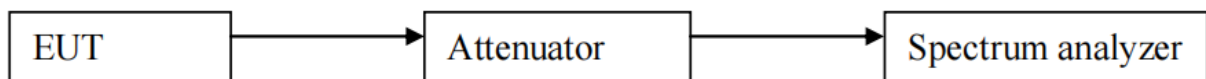
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains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

11.2 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.

11.3 TEST SETUP



11.4 TEST RESULTS

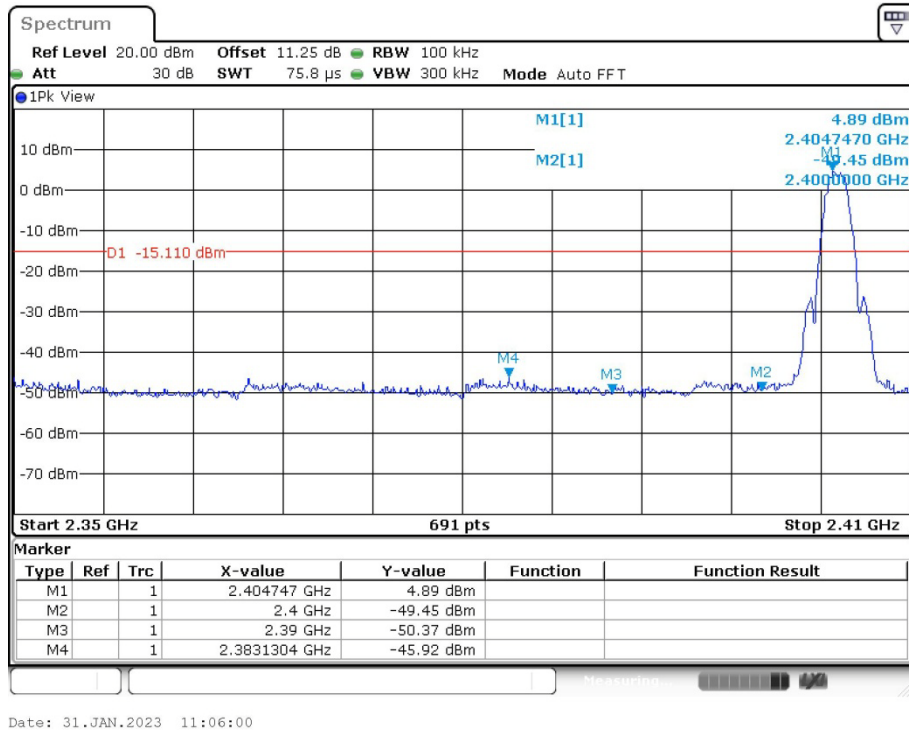
Environment: 23.8°C/47%RH/101.0kPa
 Tested By: Yang Zhaoyun

Voltage: DC 3V
 Date: 2023-01-31 to 2023-02-21

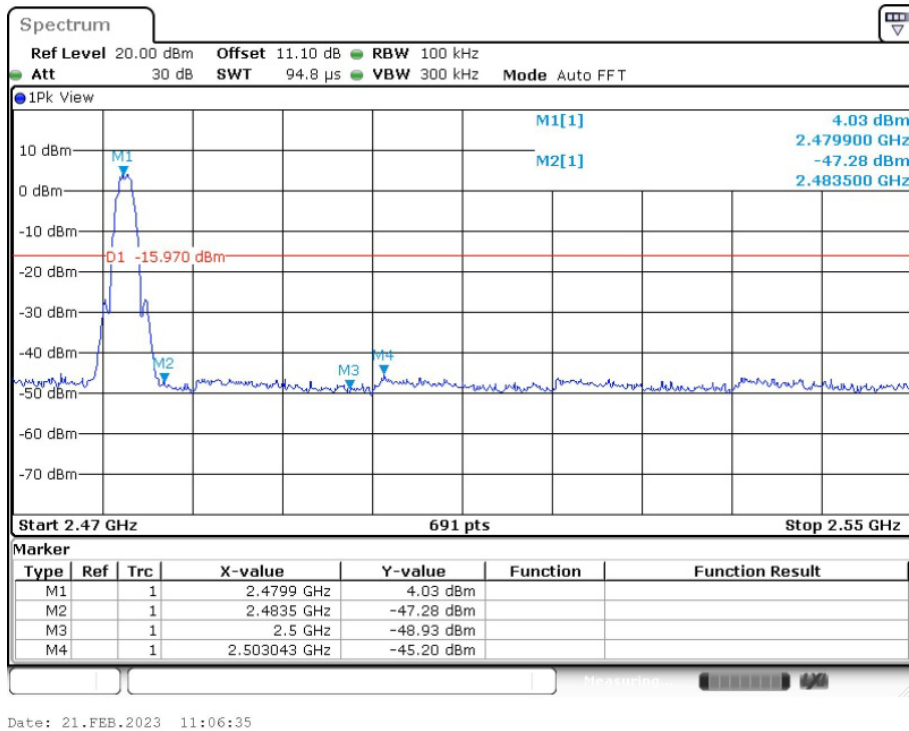
Band edge

Test Mode	Antenna	Ch Name	Frequency [MHz]	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
Thread	Ant1	Lowest	2405	4.89	-45.92	≤-15.11	PASS
		Highest	2480	4.83	-45.20	≤-15.58	PASS

Lowest channel (2405MHz)
2.30GHz-2.41GHz



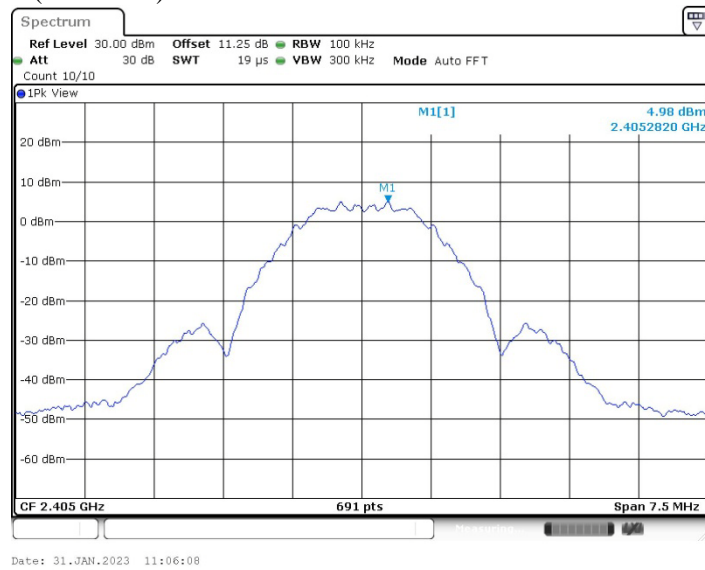
Highest channel (2480MHz)
2.47GHz-2.55GHz



Conducted Spurious Emission

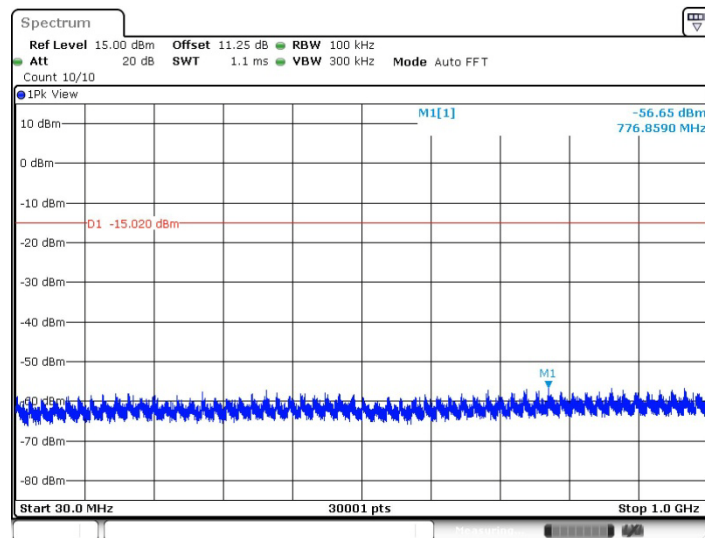
Test Mode	Antenna	Frequency [MHz]	Freq Range [MHz]	Ref Level [dBm]	Result[dBm]	Limit[dBm]	Verdict
Thread	Ant1	2405	Reference	4.98	4.98	---	PASS
			30~1000	4.98	-56.65	≤-15.02	PASS
			1000~26500	4.98	-50.96	≤-15.02	PASS
		2440	Reference	4.65	4.65	---	PASS
			30~1000	4.65	-56.76	≤-15.35	PASS
			1000~26500	4.65	-48.42	≤-15.35	PASS
		2480	Reference	4.83	4.83	---	PASS
			30~1000	4.83	-55.96	≤-15.17	PASS
			1000~26500	4.83	-48.35	≤-15.17	PASS

Lowest channel (2405MHz)



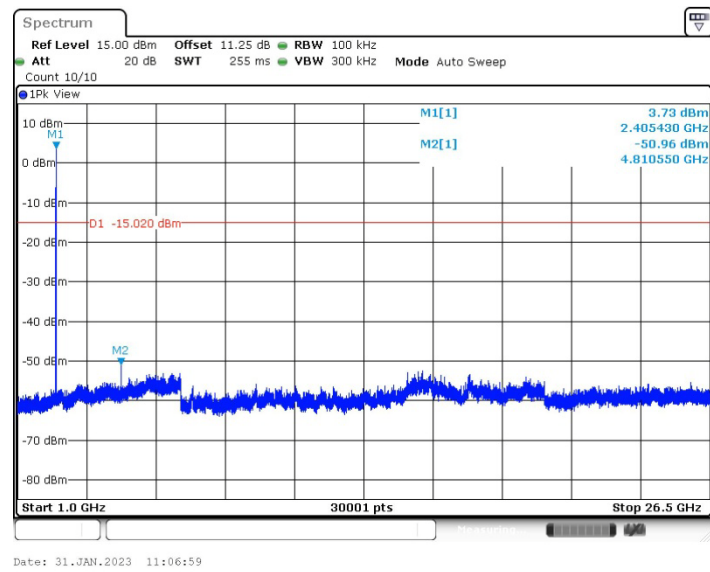
Date: 31.JAN.2023 11:06:08

0.03GHz-1GHz

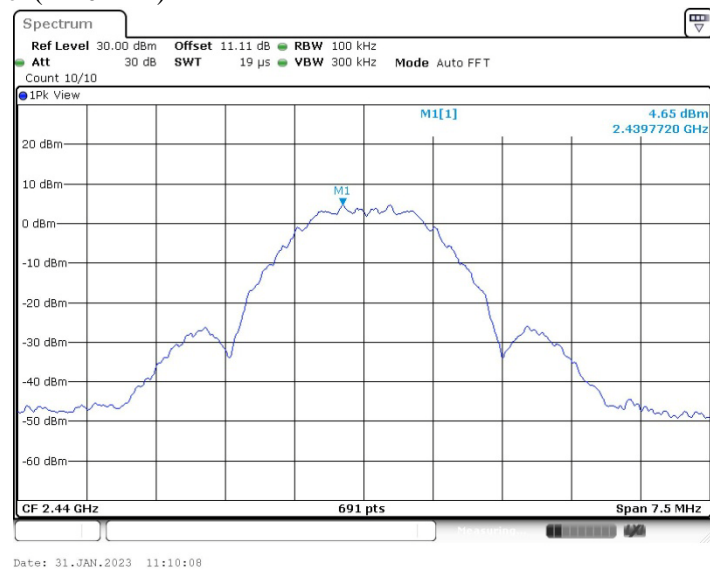


Date: 31.JAN.2023 11:06:20

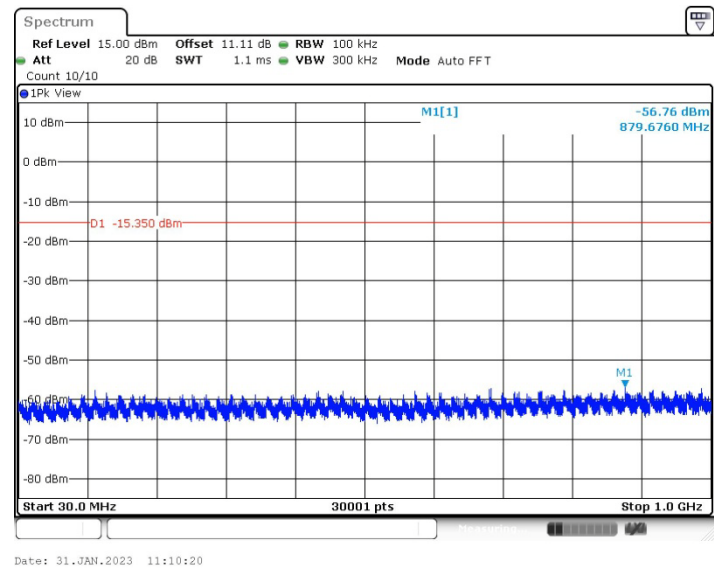
1GHz-26.5GHz



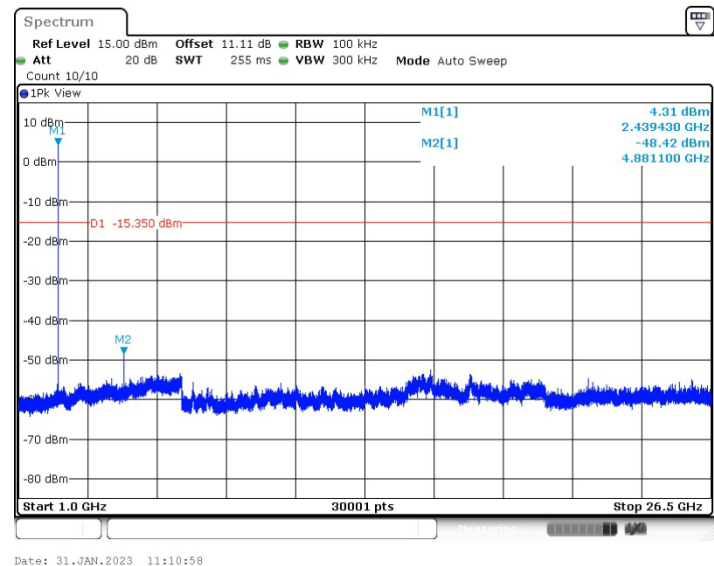
Middle channel (2440MHz)



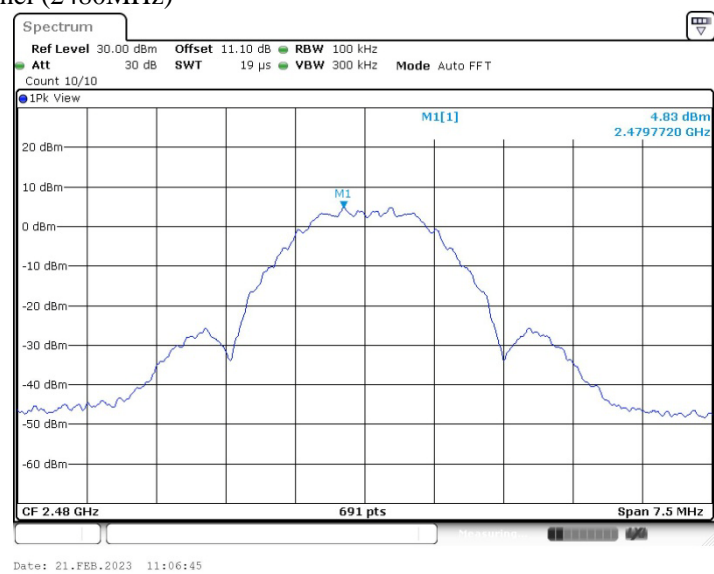
0.03GHz-1GHz



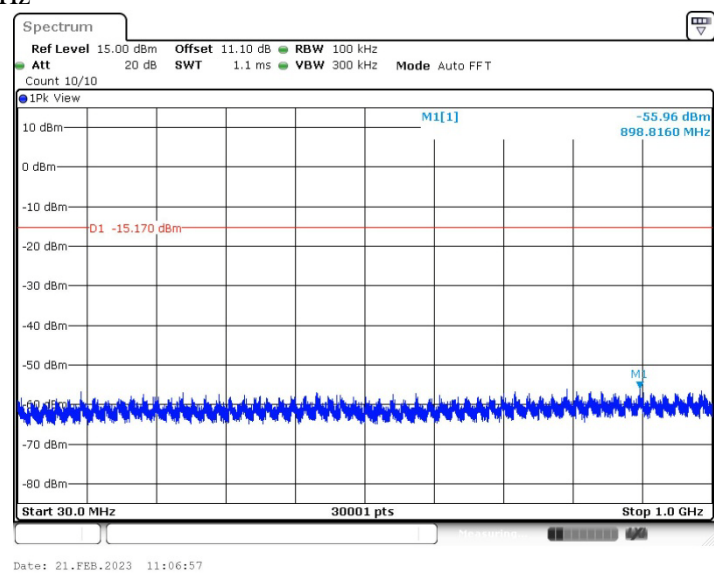
1GHz-26.5GHz



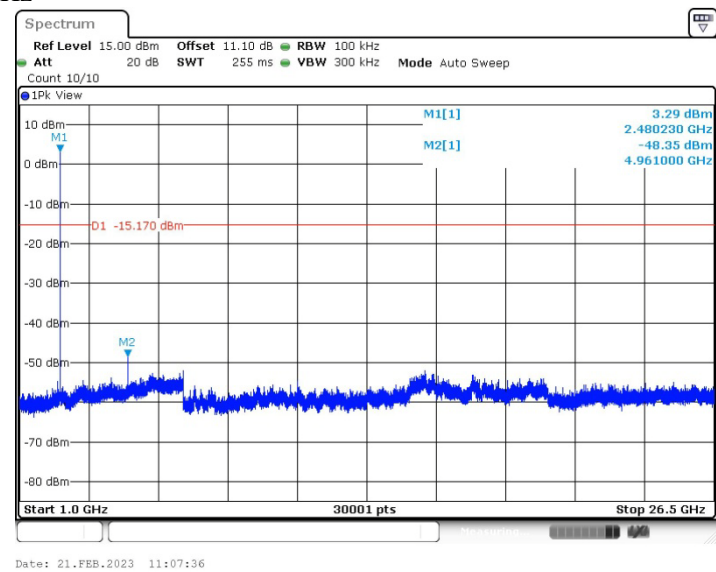
Highest channel (2480MHz)



0.03GHz-1GHz



1GHz-26.5GHz



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

12. RESTRICTED BANDS OF OPERATION

12.1 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)).

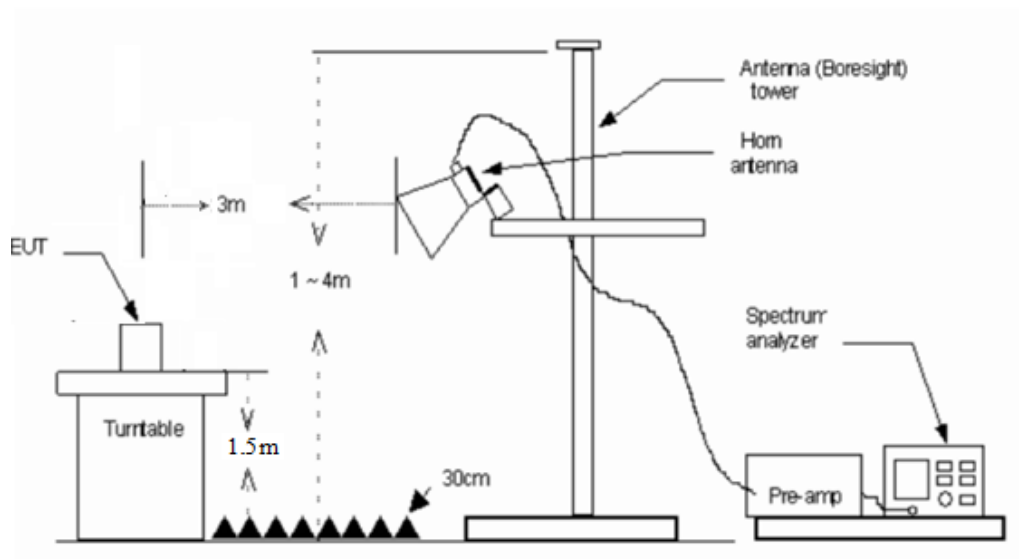
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 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	156.52475 - 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(μV/m)	Measurement distance(m)	Quasi-peak(dBμV/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

12.2 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.

12.3 TEST SETUP



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

12.4 TEST RESULTS

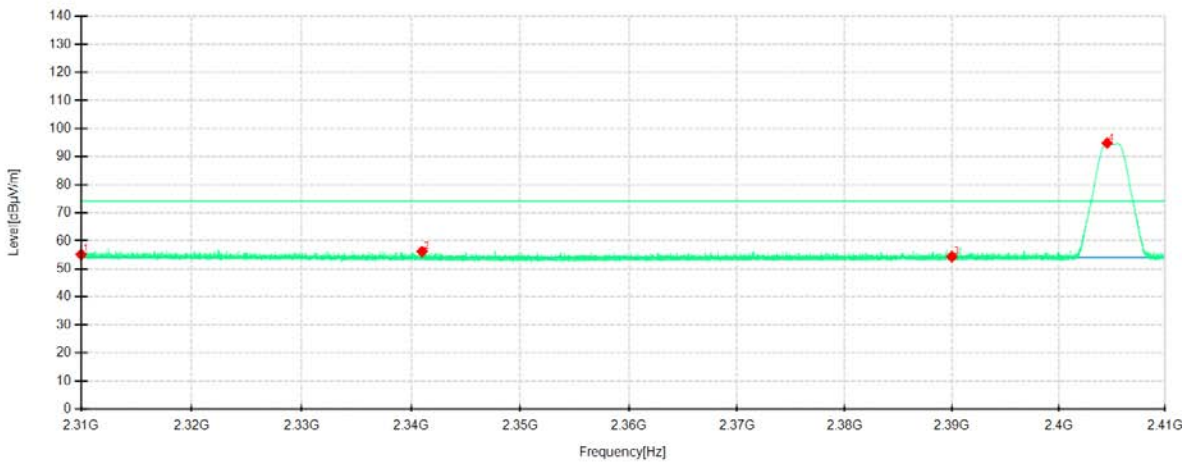
EUT Name:	Door and Window Sensor P2	Test Mode:	Mode 1
Model:	DW-S02E	Sample No:	E20230128179401-0004
Test Engineer:	ZhangZishan	Test Voltage:	DC 3V
Environmental Conditions:	25.0°C/60%RH/101.0kPa	Test Date:	2023-02-02~2023-02-20

Lowest Channel

Frequency: 2405MHz

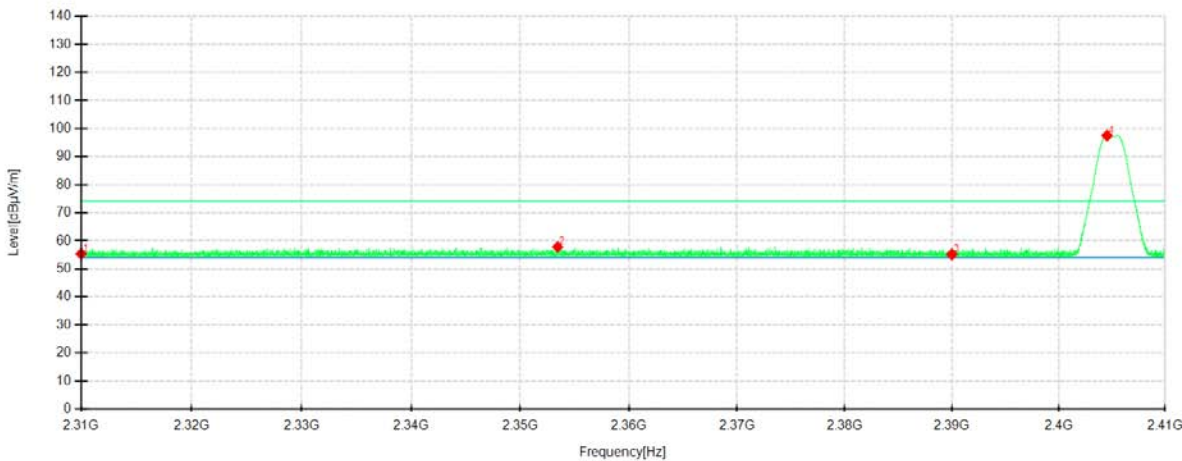
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	45.72	55.07	9.35	74.00	18.93	100	182	Horizontal	/
2	2341.0021	47.46	56.17	8.71	74.00	17.83	100	195	Horizontal	/
3	2390	45.41	54.34	8.93	74.00	19.66	200	167	Horizontal	
4	2404.5596	85.77	94.82	9.05	74.00	-20.82	100	150	Horizontal	No limit
1	2310	45.39	55.32	9.93	74.00	18.68	100	238	Vertical	/
2	2353.4429	47.61	57.82	10.21	74.00	16.18	200	289	Vertical	/
3	2390	45.05	55.12	10.07	74.00	18.88	200	74	Vertical	/
4	2404.5463	87.57	97.52	9.95	74.00	-23.52	100	138	Vertical	No limit

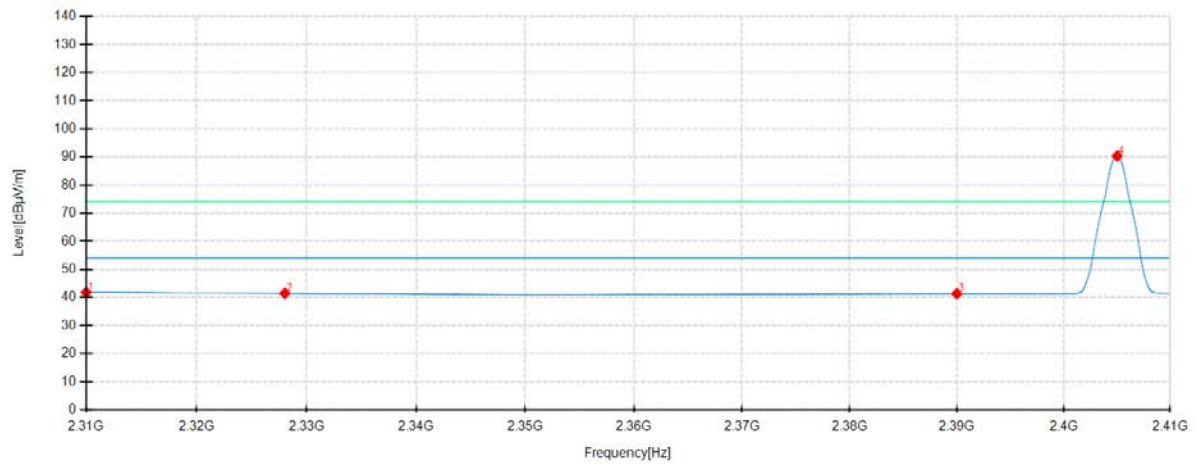
----- The following blanks -----

Lowest Channel

Frequency: 2405MHz

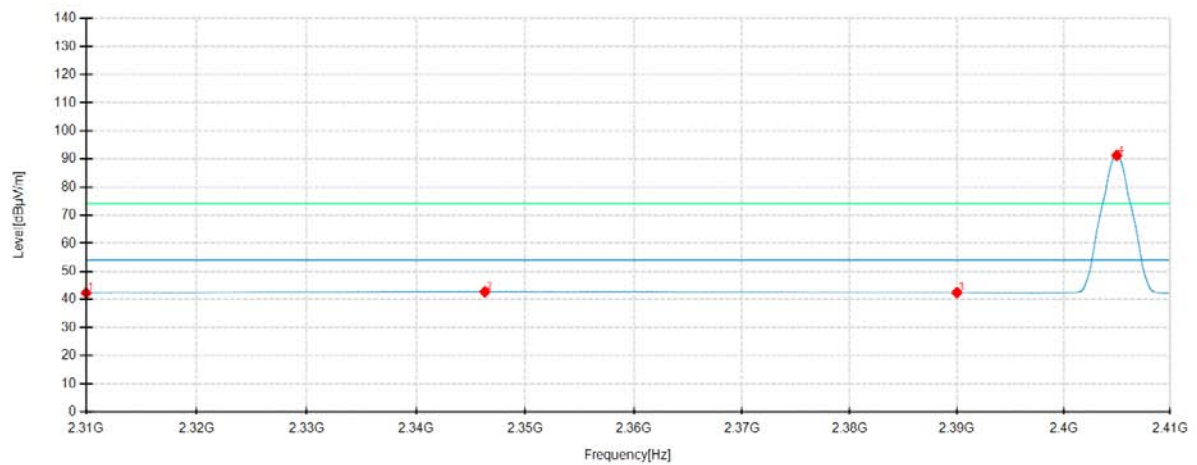
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



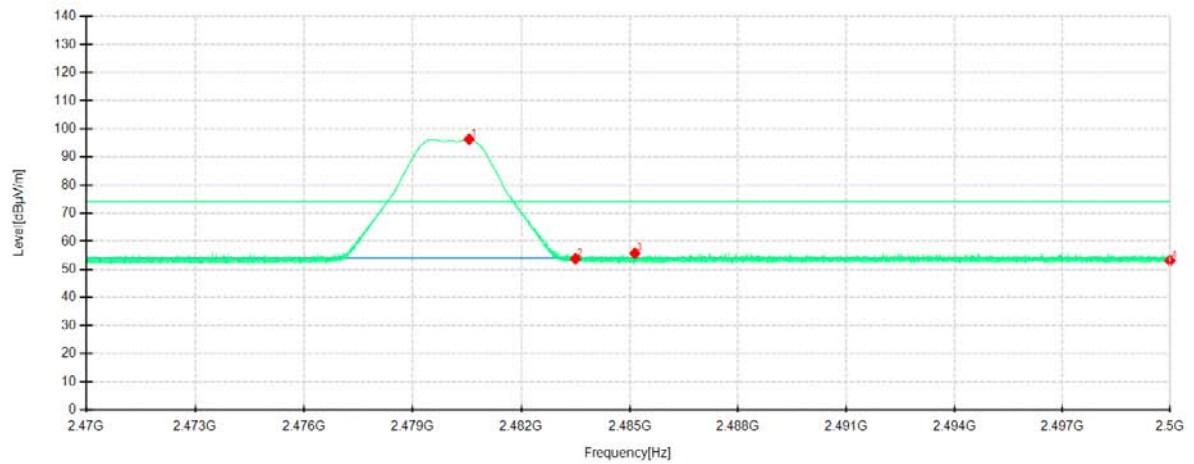
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310	32.48	41.83	9.35	54.00	12.17	200	169	Horizontal	/
2	2328.0212	32.56	41.53	8.97	54.00	12.47	100	225	Horizontal	/
3	2390	32.45	41.38	8.93	54.00	12.62	100	148	Horizontal	/
4	2405.033	81.29	90.34	9.05	54.00	-36.34	100	181	Horizontal	No limit
1	2310	32.43	42.36	9.93	54.00	11.64	100	192	Vertical	/
2	2346.2958	32.54	42.74	10.20	54.00	11.26	200	343	Vertical	/
3	2390	32.40	42.47	10.07	54.00	11.53	100	148	Vertical	/
4	2404.993	81.31	91.25	9.94	54.00	-37.25	100	181	Vertical	No limit

Highest Channel

Frequency: 2480MHz

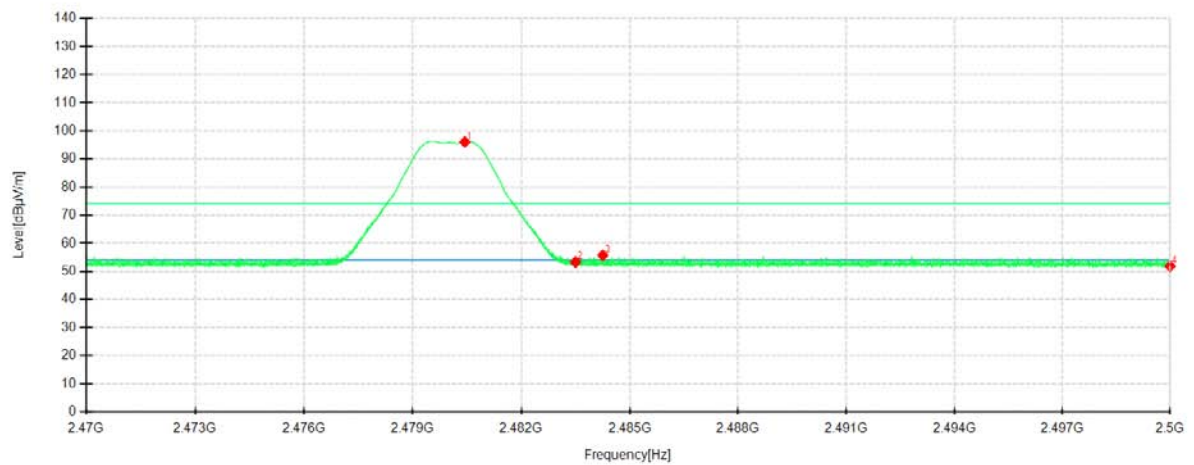
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



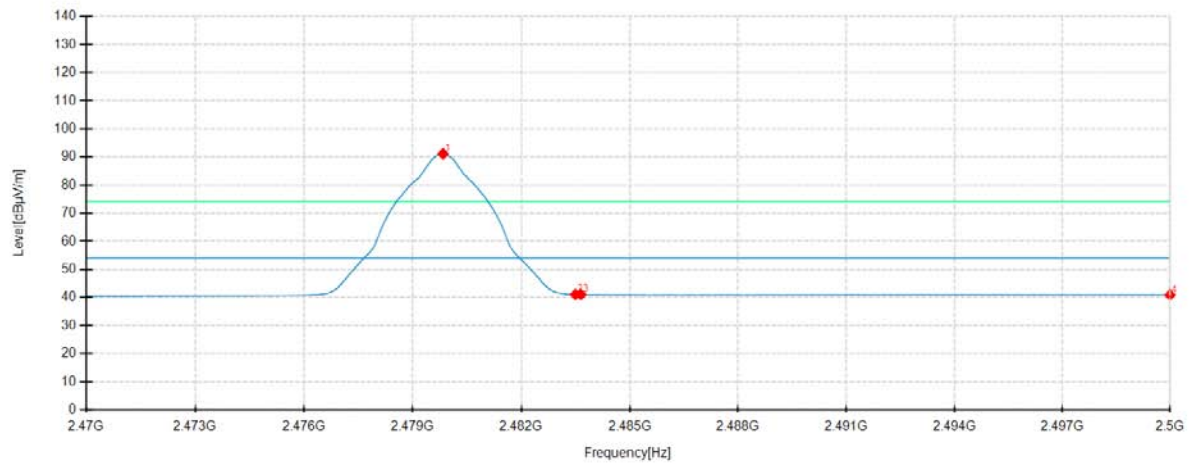
No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2480.5607	86.46	96.32	9.86	74.00	-22.32	100	246	Horizontal	No limit
2	2483.5	43.85	53.77	9.92	74.00	20.23	200	344	Horizontal	/
3	2485.143	45.73	55.68	9.95	74.00	18.32	200	91	Horizontal	/
4	2500	42.87	53.12	10.25	74.00	20.88	200	158	Horizontal	/
1	2480.4407	86.80	96.07	9.27	74.00	-22.07	200	220	Vertical	No limit
2	2483.5	44.00	53.28	9.28	74.00	20.72	200	87	Vertical	/
3	2484.255	46.40	55.68	9.28	74.00	18.32	200	55	Vertical	/
4	2500	42.53	51.88	9.35	74.00	22.12	200	1	Vertical	/

Highest Channel

Frequency: 2480MHz

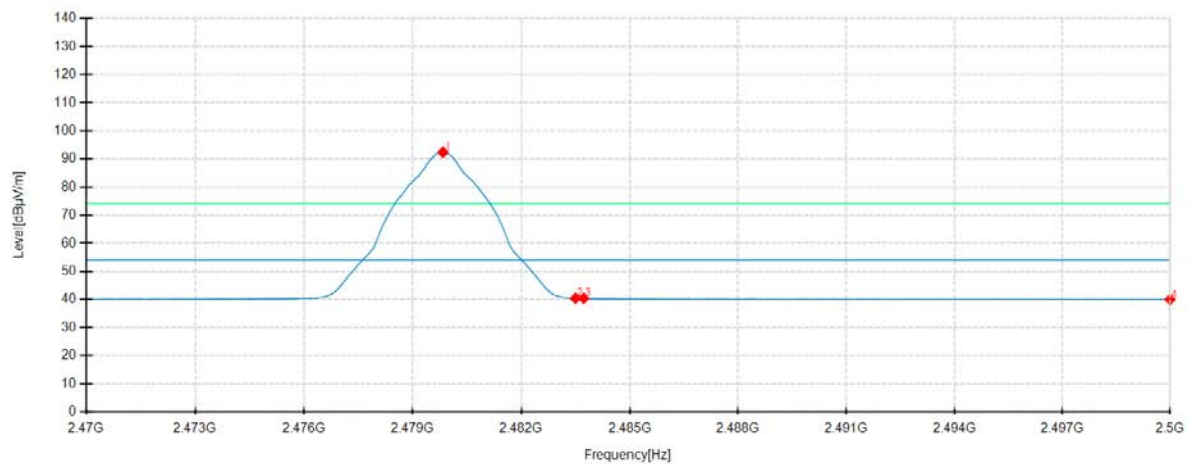
Detector mode: Average

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	2479.8407	81.26	91.11	9.85	54.00	-37.11	100	193	Horizontal	No limit
2	2483.5	31.16	41.08	9.92	54.00	12.92	100	205	Horizontal	/
3	2483.6509	31.14	41.06	9.92	54.00	12.94	100	205	Horizontal	/
4	2500	30.66	40.91	10.25	54.00	13.09	200	344	Horizontal	/
1	2479.8387	83.11	92.38	9.27	54.00	-38.38	100	196	Vertical	No limit
2	2483.5	31.15	40.43	9.28	54.00	13.57	100	208	Vertical	/
3	2483.7269	31.13	40.41	9.28	54.00	13.59	100	208	Vertical	/
4	2500	30.66	40.01	9.35	54.00	13.99	100	342	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 E20230128179401-13-Test photo.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E20230128179401-14-EUT photo.

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