Test Report

Verified code: 462949

Report No.: E20221122027601-1

Customer:	Lumi United Technology Co., Ltd
Address:	B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China
Sample Name:	LED Strip T1
Sample Model:	LEDS-K02
Receive Sample Test Date:	Nov.24,2022
Test Date:	Nov.25,2022 ~ Mar.31,2023
Reference Document:	CFR 47 FCC Part 15 Subpart C RADIO FREQUENCY DEVICES:Subpart C—Intentional Radiators
Test Result:	Pass

Prepared by: Reviewed by: Approved by: Xiao Liang

GRG METROLOGY & TEST GROUP CO., LTD

Issued Date: 2023-04-27

GRG METROLOGY & TEST GROUP CO., LTD.
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4. If there is any objection concerning the report, please inform us within 15 days from the date of receiving the report.

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

Report Version	Report No.	Description	Compile Date
1.0	E20221122027601-1	Original Issue	2023-04-07

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1. TEST RESULT SUMMARY

Technical Requirements		
CFR 47 FCC Part 15 Subpart C (§15.247)		
Limit / Severity	**Item**	**Result**
§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 PCB printed antenna.
The max gain of antenna is 0.5dBi.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:	LED Strip T1
Model No.:	LEDS-K02
Adding Model:	LEDS-K01, RLS-K01D, RLS-K02D
Difference descriptions:	Except sales area and packaging are different. The circuit diagram, PCB LAYOUT, hardware version and software version identical are all the same.
Trade Name:	Aqara
FCC ID:	2AKIT-LEDSK02
Power Supply:	DC 24V
Frequency Range:	2405MHz-2475MHz
Transmit Power:	6.59dBm
Modulation type:	O-QPSK
Antenna Specification:	PCB printed antenna with 0.5dBi gain (Max)
Temperature Range:	-10 ℃~40 ℃
Hardware Version:	X1
Software Version:	0.0.0_2224
Sample No:	E20221122027601-0001, E20221122027601-0003
Note:	The model LEDS-K02 is the test sample.

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	/	/

2.5 TEST OPERATION MODE

Mode No.	Description of the modes
1	Zigbee fixed frequency transmitting

2.6 LOCAL SUPPORTIVE

Name of Equipment	Manufacturer	Model	Serial Number	Note
Adapter	Shenzhen Cenwell technology Co., Ltd.	CW2401500RE	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	DC cable	1	No	0	1.5m

2.7 CONFIGURATION OF SYSTEM UNDER TEST

Test software:

Software version	Test level
QCOM_V1.0	80

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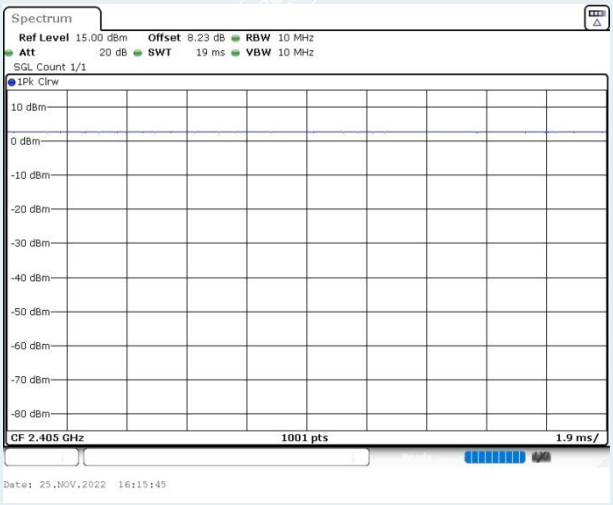
2.8 DUTY CYCLE

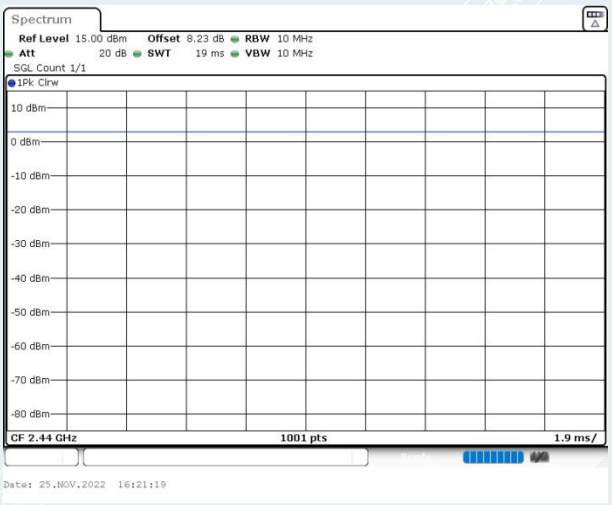
EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0003
Test Engineer:	Yang Zhaoyun	Test Date:	2022-11-25
Environmental Conditions:	23.5℃/46%RH/101.0kPa	/	/

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
Zigbee	Ant1	2405	19.00	19.00	100
		2440	19.00	19.00	100
		2475	19.00	19.00	100

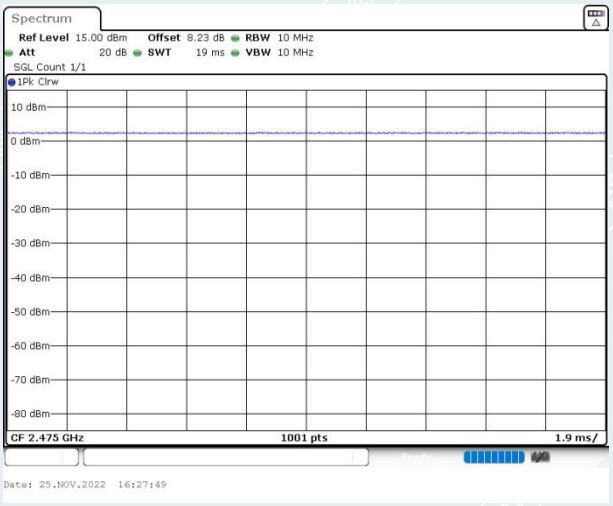
Zigbee_2405MHz



Zigbee_2440MHz



Zigbee_2475MHz



3. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.

Add	:	Address: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China
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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℃

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-2ANT	/	/
Test Receiver	R&S	ESR7	102444	2023-09-02
Preamplifier	EMEC	EM330	I00426	2024-02-06
Bi-log Antenna	Schwarzbeck	CBL6143A	26039	2024-10-23
Spectrum Analyzer	KEYSIGHT	N9010A	MY52221469	2023-06-29
Loop Antenna	TESEQ	HLA6121	52599	2024-02-03
Horn Antenna	Schwarzbeck	BBHA9120D	02143	2023-10-15
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170-497	2023-10-14
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		
6dB Bandwidth				
Spectrum Analyzer	R&S	FSV30	1321.3008K30-104381-rH	2023-11-17
Maximum Peak Output Power				
Pulse power sensor	Agilent	MA2411B	1126150	2024-02-12
Power meter	Anritsu	ML2495A	1204003	2024-02-12
Conducted band edges and Spurious Emission				
Spectrum Analyzer	R&S	FSV30	1321.3008K30-104381-rH	2023-11-17
Peak Output Spectral Density Measurement				
Spectrum Analyzer	R&S	FSV30	1321.3008K30-104381-rH	2023-11-17
Conduction Emission				
EMI TESTRECEIVER	R&S	ESCI	100783	2023-08-28
LISN(EUT)	R&S	ENV216	101543	2023-09-13
Test S/W	EZ	CCS-3A1-CE		

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

7. CONDUCTED EMISSION MEASUREMENT

7.1 LIMITS

Frequency range	Limits (dBμV)	
	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

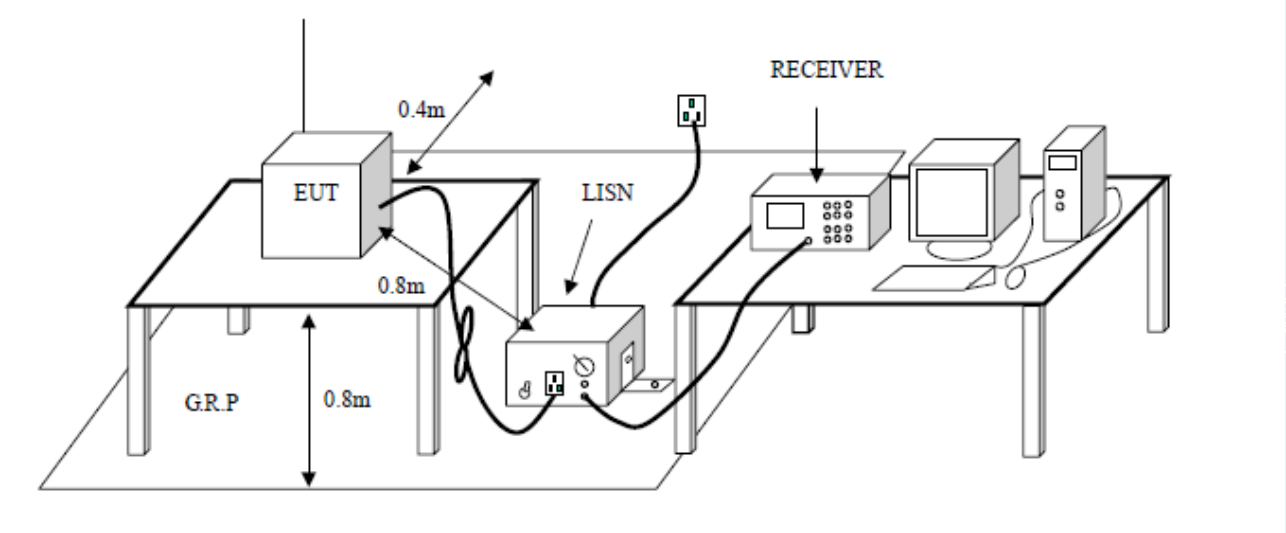
Procedure of Preliminary Test

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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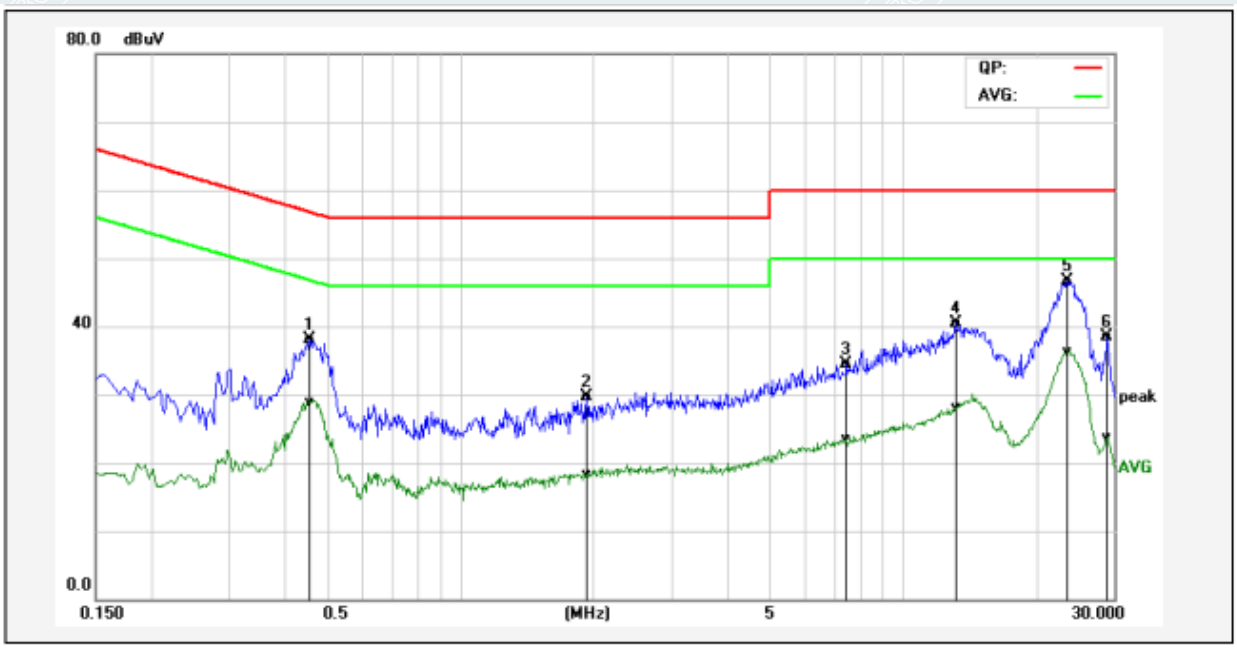
7.5 TEST RESULTS

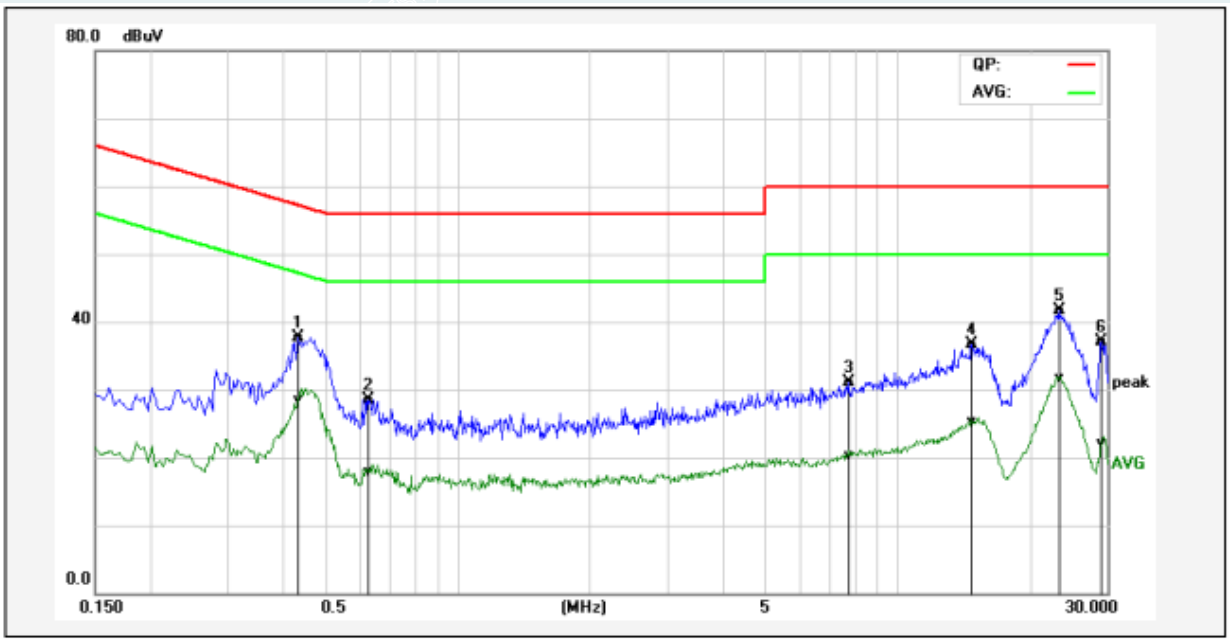
All modes were pretested and only the worst modes and channels were recorded in this report.
(Zigbee 2405MHz)

EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	23.0℃/48%RH/101.0kPa
Test Engineer:	Huang Xinlong	Test Date:	2023-03-10
Channel	Lowest channel (2405MHz)	Line:	L



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	0.4580	28.59	19.35	9.60	38.19	28.95	56.73	46.73	-18.54	-17.78	Pass
2	1.9340	20.05	8.61	9.64	29.69	18.25	56.00	46.00	-26.31	-27.75	Pass
3	7.4700	24.83	13.68	9.75	34.58	23.43	60.00	50.00	-25.42	-26.57	Pass
4	13.1380	30.64	18.21	9.84	40.48	28.05	60.00	50.00	-19.52	-21.95	Pass
5*	23.5419	36.56	26.22	10.04	46.60	36.26	60.00	50.00	-13.40	-13.74	Pass
6	29.0220	28.36	13.64	10.05	38.41	23.69	60.00	50.00	-21.59	-26.31	Pass

EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	23.0℃/48%RH/101.0kPa
Test Engineer:	Huang Xinlong	Test Date:	2023-03-10
Channel	Lowest channel (2405MHz)	Line:	N



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	0.4340	28.19	18.89	9.60	37.79	28.49	57.18	47.18	-19.39	-18.69	Pass
2	0.6300	18.89	8.22	9.61	28.50	17.83	56.00	46.00	-27.50	-28.17	Pass
3	7.7420	21.34	10.53	9.76	31.10	20.29	60.00	50.00	-28.90	-29.71	Pass
4	14.7860	26.82	15.40	9.87	36.69	25.27	60.00	50.00	-23.31	-24.73	Pass
5*	23.3100	31.69	21.76	10.04	41.73	31.80	60.00	50.00	-18.27	-18.20	Pass
6	29.1740	26.96	12.08	10.05	37.01	22.13	60.00	50.00	-22.99	-27.87	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(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

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 (dBμV/m).
The Avg Limit=54+20*log(3/1)=63.54 (dBμV/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 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≥98%, set VBW≤RBW/100 (i.e.,10kHz) but not less than 10 Hz.

8.3 TEST SETUP

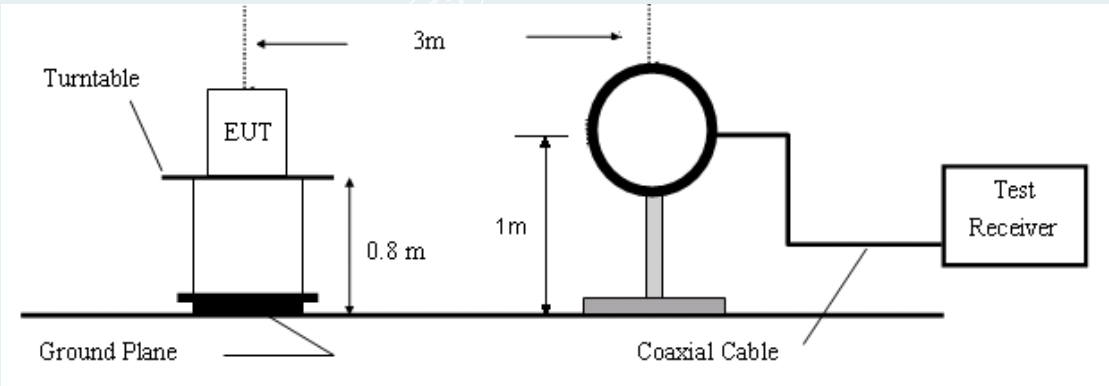


Figure 1. 9kHz to 30MHz radiated emissions test configuration

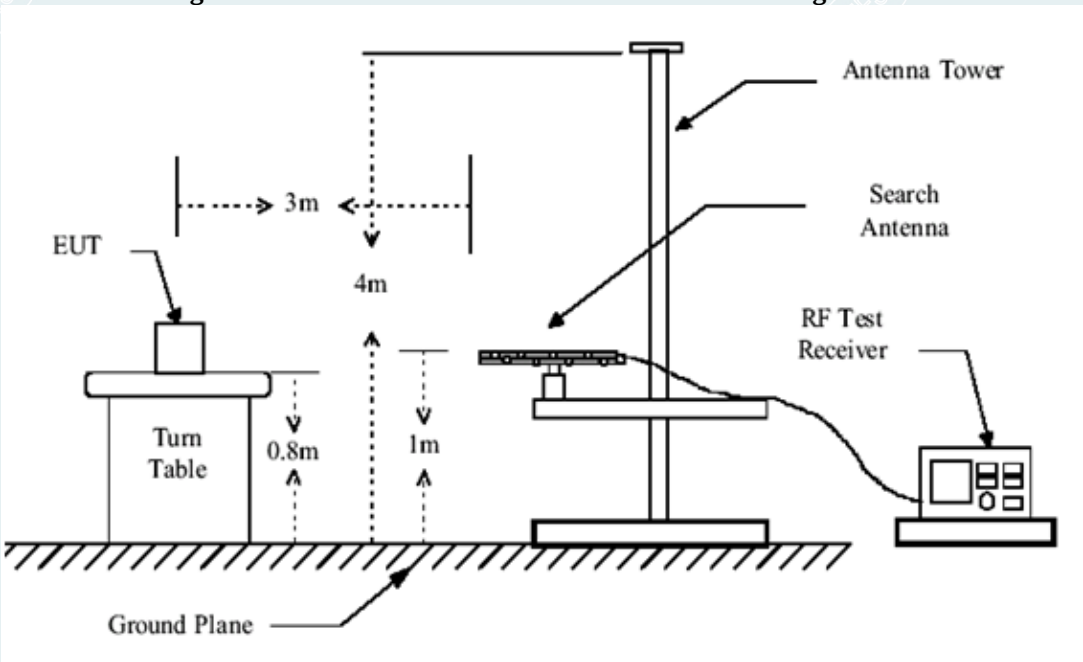


Figure 2. 30MHz to 1GHz radiated emissions test configuration

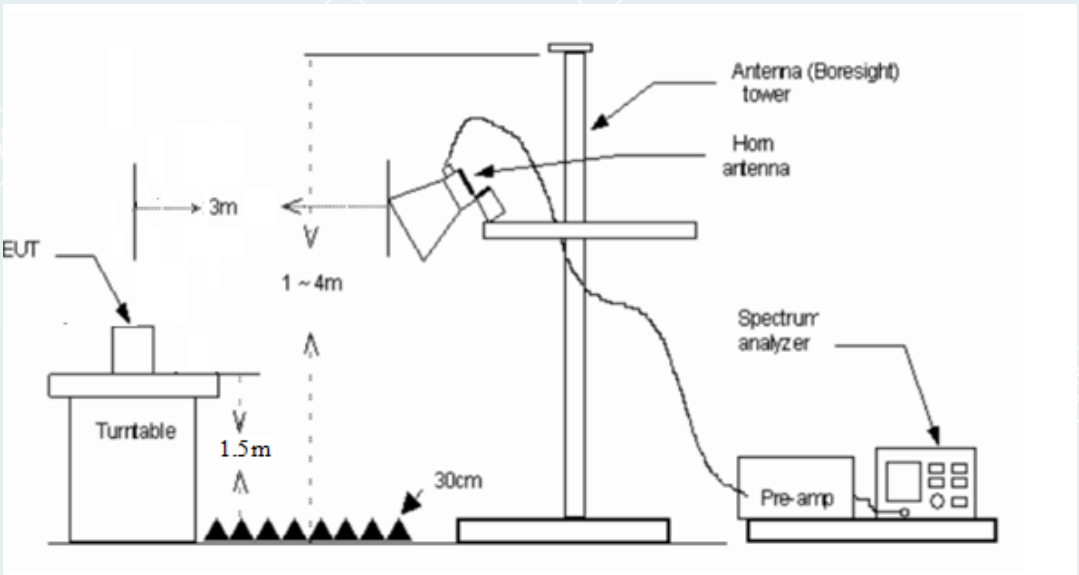


Figure 3. 1GHz-18GHz radiated emissions test configuration

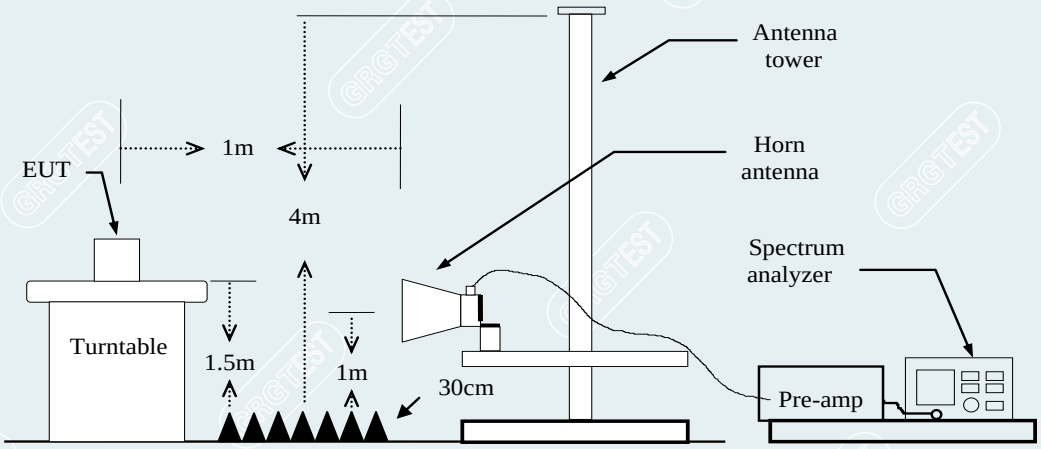


Figure 4. 18GHz-26.5GHz radiated emissions test configuration

8.4 DATA SAMPLE

30MHz to 1GHz

No.	Frequency (MHz)	Reading (dBuV)	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

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBuV) = Uncorrected Analyzer / Receiver reading

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)

QP = Quasi-peak Reading

1GHz to 18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	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/m) = Uncorrected Analyzer / Receiver reading

Result (dBuV/m) = Reading (dBuV/m) + Factor (dB)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)

Peak = Peak Reading

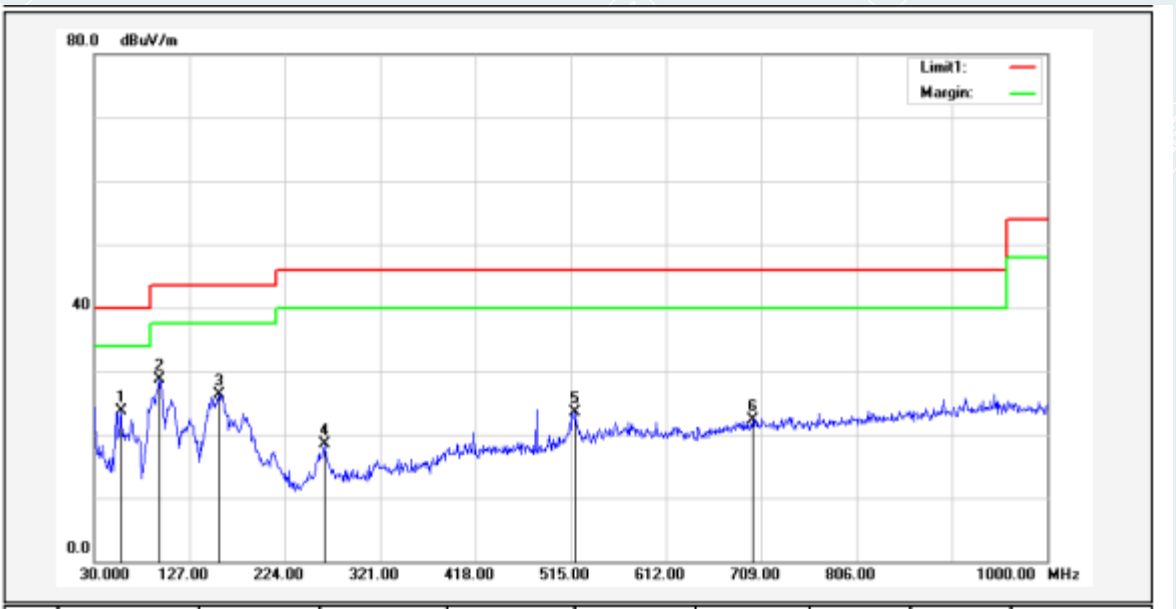
AVG = Average Reading

8.5 TEST RESULTS

Below 1GHz

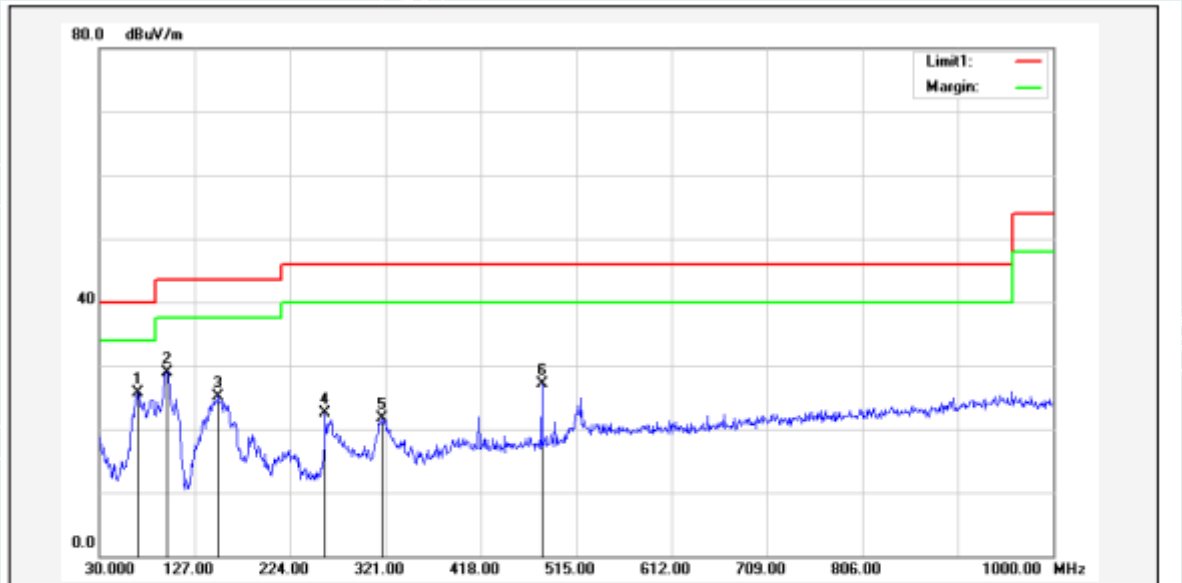
Pretest all case, only the worst mode and channel were recorded in this report. (Zigbee 2405MHz)

EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3℃/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-03-31
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	57.1600	51.90	-28.16	23.74	40.00	-16.26	329	100	QP
2*	95.9600	57.74	-29.07	28.67	43.50	-14.83	57	200	QP
3	157.0700	53.44	-27.12	26.32	43.50	-17.18	124	100	QP
4	264.7400	42.71	-24.12	18.59	46.00	-27.41	24	100	QP
5	519.8500	40.80	-17.25	23.55	46.00	-22.45	228	200	QP
6	700.2700	36.62	-14.35	22.27	46.00	-23.73	0	271	QP

EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3℃/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-03-31
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*	69.7700	56.02	-30.30	25.72	40.00	-14.28	360	326	QP
2	98.8700	57.26	-28.42	28.84	43.50	-14.66	360	312	QP
3	150.2800	51.84	-26.64	25.20	43.50	-18.30	360	171	QP
4	259.8900	46.68	-24.22	22.46	46.00	-23.54	314	100	QP
5	317.1200	44.61	-22.92	21.69	46.00	-24.31	137	100	QP
6	480.0800	45.46	-18.35	27.11	46.00	-18.89	64	200	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.

Mode: TX/ Zigbee
Lowest Frequency (2405MHz)
Environment: 22.3℃/50%RH/101.0kPa Voltage: AC 120V/60Hz
Tested By:Zhang Zishan Date: 2022-11-28

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1992.124	63.08	41.90	-21.18	74.00	32.10	100	64	Horizontal
2	2657.4572	64.86	46.42	-18.44	74.00	27.58	100	74	Horizontal
3	3990.1238	59.35	43.98	-15.37	74.00	30.02	100	304	Horizontal
4	4807.726	58.71	46.12	-12.59	74.00	27.88	200	295	Horizontal
5	5983.4979	56.57	47.54	-9.03	74.00	26.46	100	139	Horizontal
6	14716.4646	45.34	53.38	8.04	74.00	20.62	100	177	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	14716.4646	8.04	39.4	47.44	54.00	6.56	100	177	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	1164.7706	64.83	40.58	-24.25	74.00	33.42	100	221	Vertical
2	2366.9209	62.50	43.78	-18.72	74.00	30.22	200	173	Vertical
3	2998.9999	62.57	46.22	-16.35	74.00	27.78	100	221	Vertical
4	3997.6247	62.88	47.79	-15.09	74.00	26.21	100	217	Vertical
5	4807.726	57.26	44.38	-12.88	74.00	29.62	200	254	Vertical
6	10431.5539	47.12	53.16	6.04	74.00	20.84	100	276	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	10431.5539	6.04	41.4	47.44	54.00	6.56	100	276	Vertical

Mode: TX/ Zigbee
Middle Frequency (2440MHz)
Environment: 22.3℃/50%RH/101.0kPa Voltage: AC 120V/60Hz
Tested By:Zhang Zishan Date: 2022-11-28

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1040.005	62.17	37.37	-24.80	74.00	36.63	200	266	Horizontal
2	1995.6245	63.18	42.00	-21.18	74.00	32.00	100	306	Horizontal
3	2657.4572	63.29	44.85	-18.44	74.00	29.15	100	345	Horizontal
4	3984.4981	58.76	43.41	-15.35	74.00	30.59	100	328	Horizontal
5	4880.8601	59.92	48.34	-11.58	74.00	25.66	200	279	Horizontal
6	9805.2257	49.56	53.85	4.29	74.00	20.15	200	122	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	4881.1428	-11.58	50.47	38.89	54.00	15.11	200	250.9	Horizontal
2	9805.2257	4.29	43.56	47.85	54.00	6.15	200	122	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	1831.604	65.14	42.20	-22.94	74.00	31.80	100	188	Vertical
2	2656.207	69.77	52.00	-17.77	74.00	22.00	200	219	Vertical
3	2996.4996	61.21	44.81	-16.40	74.00	29.19	100	226	Vertical
4	3982.6228	59.56	44.52	-15.04	74.00	29.48	100	230	Vertical
5	4878.9849	58.05	46.44	-11.61	74.00	27.56	200	249	Vertical
6	14270.1588	46.97	54.37	7.40	74.00	19.63	100	349	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	2655.823	-17.77	56.29	38.52	54.00	15.48	118	219.5	Vertical
2	14270.1588	7.40	39.44	46.84	54.00	7.16	100	349	Vertical

Mode: TX/ Zigbee
Highest Frequency (2475MHz)
Environment: 22.3℃/50%RH/101.0kPa Voltage: AC 120V/60Hz
Tested By:Zhang Zishan Date: 2022-11-28

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1746.0933	65.26	42.32	-22.94	74.00	31.68	100	2	Horizontal
2	1994.3743	66.61	45.44	-21.17	74.00	28.56	100	314	Horizontal
3	2657.7072	63.39	44.95	-18.44	74.00	29.05	100	71	Horizontal
4	3986.3733	60.89	45.53	-15.36	74.00	28.47	100	308	Horizontal
5	4950.2438	59.28	47.73	-11.55	74.00	26.27	200	277	Horizontal
6	14693.9617	46.48	54.50	8.02	74.00	19.50	100	240	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	14693.9617	8.02	38.51	46.53	54.00	7.47	100	240	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	1072.009	61.19	38.51	-22.68	74.00	35.49	200	326	Vertical
2	1746.5933	62.66	40.92	-21.74	74.00	33.08	200	178	Vertical
3	2710.2138	57.24	39.83	-17.41	74.00	34.17	100	344	Vertical
4	3986.3733	56.06	41.00	-15.06	74.00	33.00	100	338	Vertical
5	4950.2438	58.62	47.37	-11.25	74.00	26.63	200	191	Vertical
6	14744.5931	46.35	53.95	7.60	74.00	20.05	100	231	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	14744.5931	7.60	39.12	46.72	54.00	7.28	100	231	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.

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

Mode: TX/ Zigbee
Lowest Frequency (2405MHz)
Environment: 20.2℃/47%RH/101.0kPa Voltage: AC 120V/60Hz
Tested By: Zhang Zishan Date: 2023-03-13

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18537.625	53.74	41.56	-12.18	83.54	41.98	100	236	Horizontal
2	19510.025	51.81	40.40	-11.41	83.54	43.14	100	346	Horizontal
3	20574.225	51.22	40.79	-10.43	83.54	42.75	100	346	Horizontal
4	21081.675	50.40	40.31	-10.09	83.54	43.23	100	108	Horizontal
5	23033.275	49.01	40.37	-8.64	83.54	43.17	100	203	Horizontal
6	25306.175	47.00	39.81	-7.19	83.54	43.73	100	93	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	18532.525	51.83	39.73	-12.10	83.54	43.81	100	299	Vertical
2	20576.775	50.75	40.45	-10.30	83.54	43.09	100	174	Vertical
3	21276.75	49.96	40.07	-9.89	83.54	43.47	100	332	Vertical
4	22224.925	49.04	39.60	-9.44	83.54	43.94	100	96	Vertical
5	24671.65	47.36	39.83	-7.53	83.54	43.71	100	96	Vertical
6	25145.1	47.40	40.35	-7.05	83.54	43.19	100	111	Vertical

Remark:

1 Measuring frequencies from 1GHz to 26.5GHz.
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.

9. 6dB BANDWIDTH

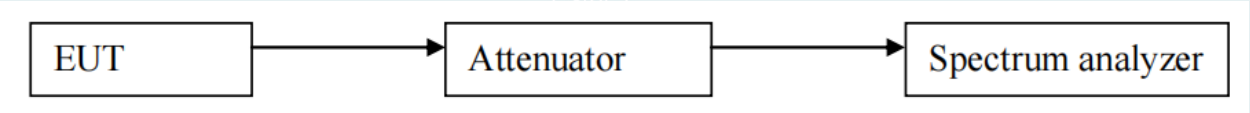
9.1 LIMITS

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) ≥ 3 x 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

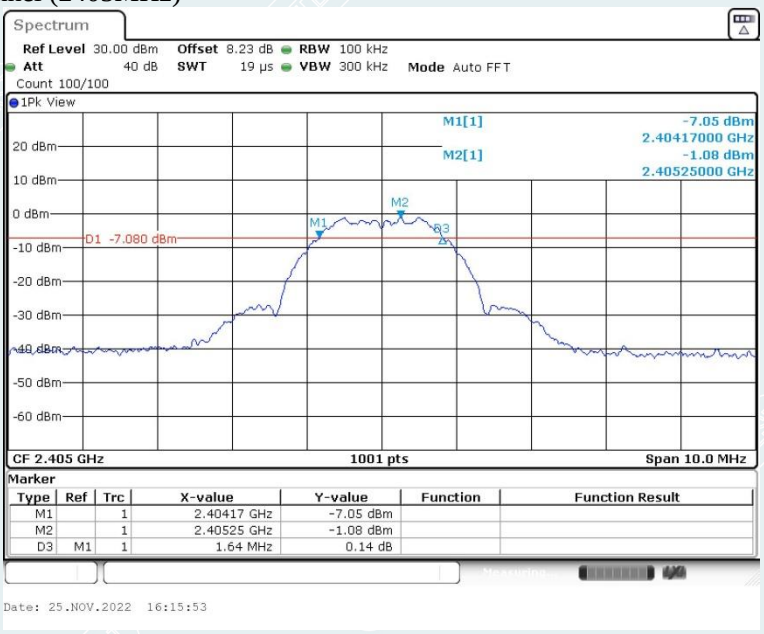


9.4 TEST RESULTS

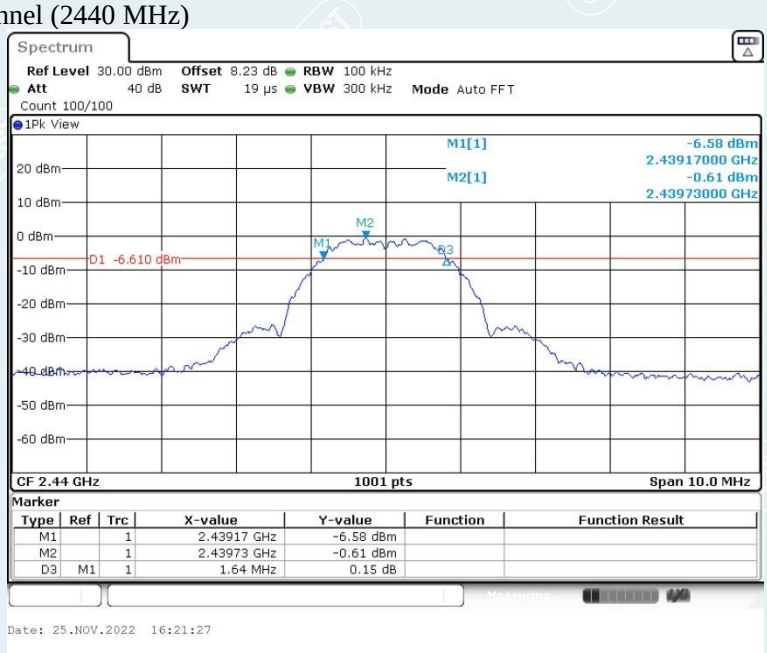
EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0003
Test Engineer:	Yang Zhaoyun	Test Date:	2022-11-25
Environmental Conditions:	23.5℃/46%RH/101.0kPa	/	/

ChName	Frequency (MHz)	Bandwidth [kHz]	Limit[kHz]	Verdict
Lowest	2405	1640	≥500	PASS
Middle	2440	1640		PASS
Highest	2475	1640		PASS

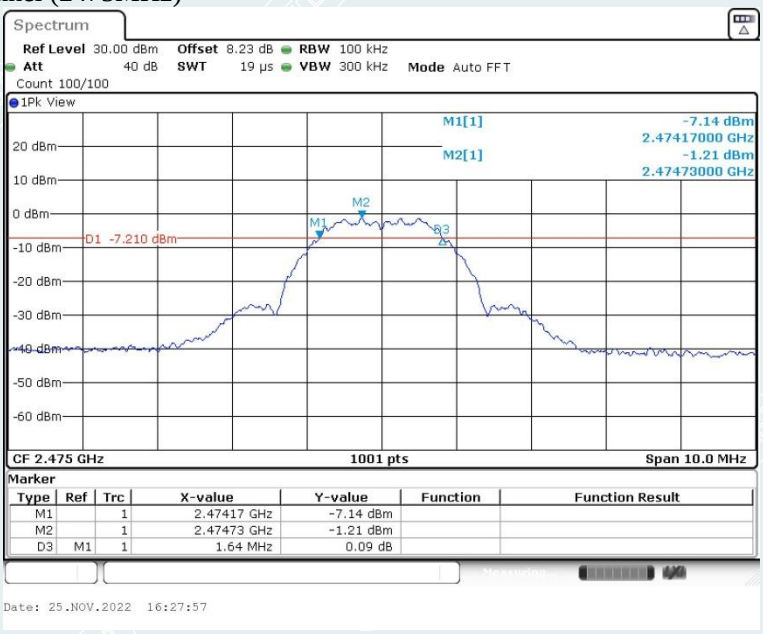
Lowest channel (2405MHz)



Middle channel (2440 MHz)



Highest channel (2475MHz)



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

10. MAXIMUM PEAK OUTPUT POWER

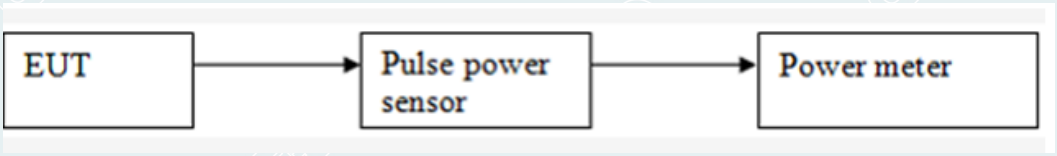
10.1 LIMITS

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:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0003
Test Engineer:	Yang Zhaoyun	Test Date:	2022-11-25
Environmental Conditions:	23.5℃/46%RH/101.0kPa	/	/

Ch Name	Frequency (MHz)	Measured results (dBm)	Limit	Peak/ Average	Result
Lowest	2405	6.59	1W (30dBm)	Peak	Pass
Middle	2440	6.35			Pass
Highest	2475	6.13			Pass

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

11. POWER SPECTRAL DENSITY

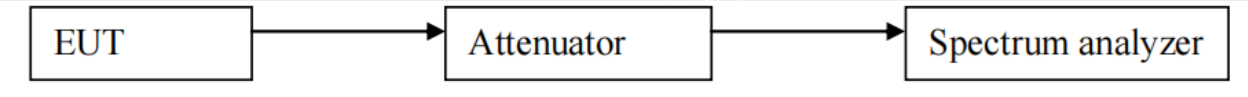
11.1 LIMITS

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 kHz ≤ RBW ≤ 100 kHz.
   d) Set the VBW ≥ [3 × 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

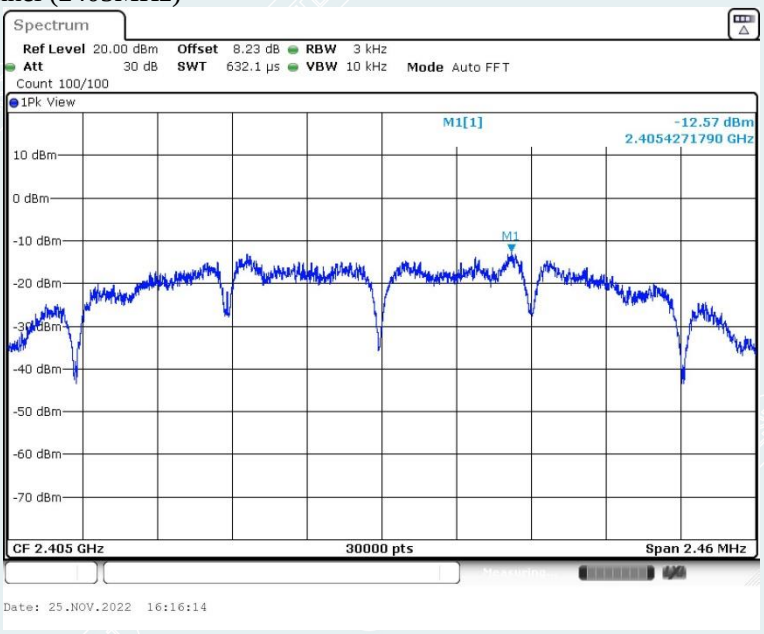


11.4 TEST RESULTS

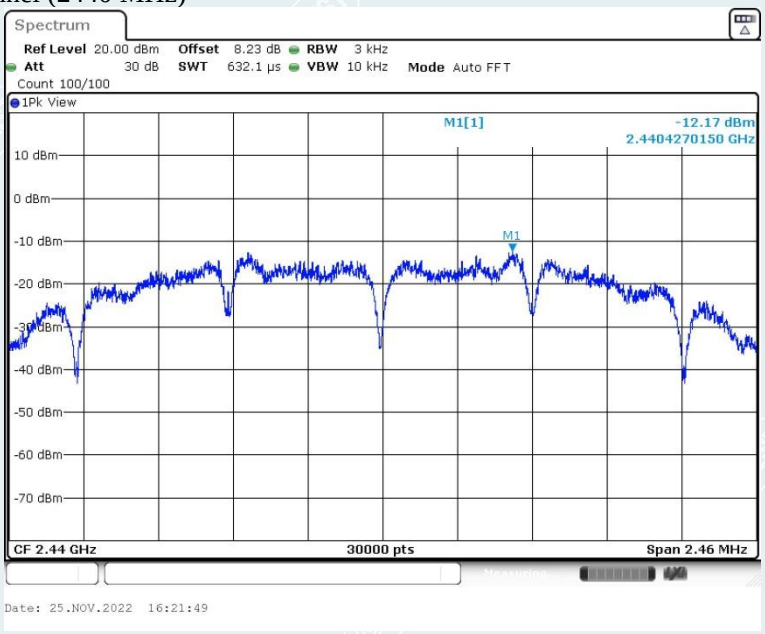
EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0003
Test Engineer:	Yang Zhaoyun	Test Date:	2022-11-25
Environmental Conditions:	23.5℃/46%RH/101.0kPa	/	/

ChName	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	2405	-12.57	8.00	Pass
Middle	2440	-12.17	8.00	Pass
Highest	2475	-12.84	8.00	Pass

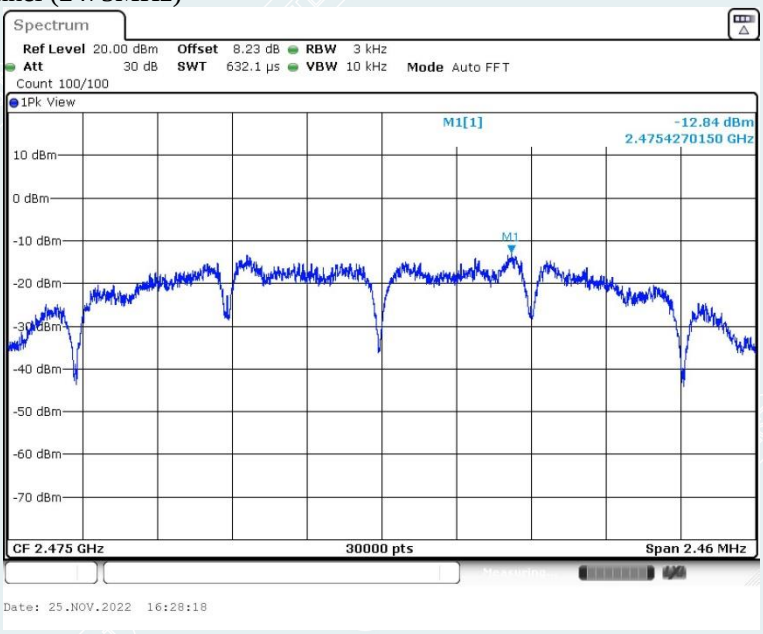
Lowest channel (2405MHz)



Middle channel (2440 MHz)



Highest channel (2475MHz)



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12. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

12.1 LIMITS

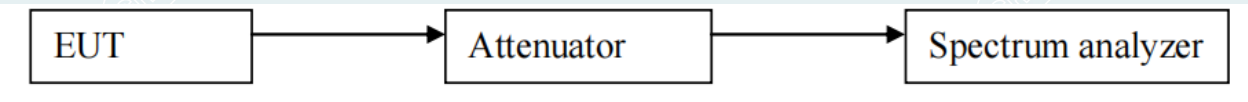
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains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



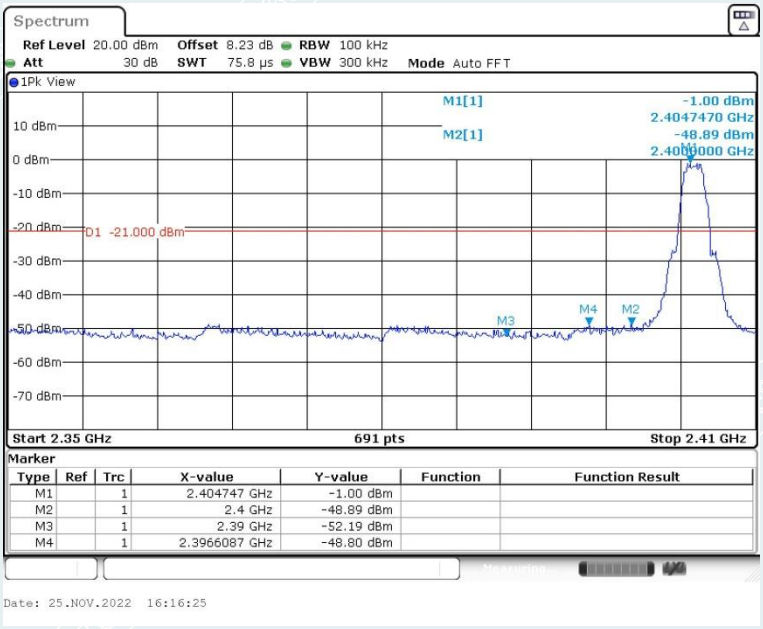
12.4 TEST RESULTS

EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0003
Test Engineer:	Yang Zhaoyun	Test Date:	2022-11-25
Environmental Conditions:	23.5℃/46%RH/101.0kPa	/	/

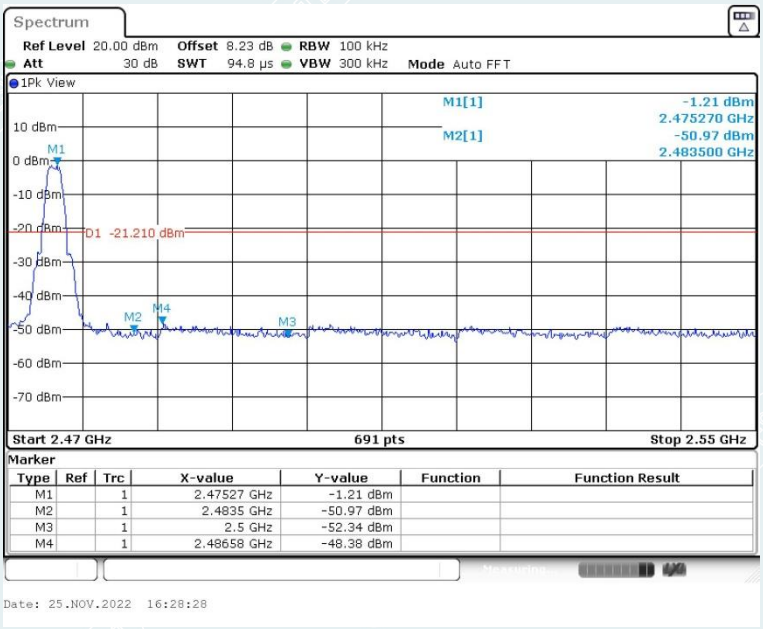
Band edge

Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	Lowest	2405	-1.00	-48.80	≤-21.00	PASS
		Highest	2475	-1.21	-48.38	≤-21.21	PASS

Lowest channel (2405MHz)
2.30GHz-2.41GHz



Highest channel (2475MHz)
2.47GHz-2.55GHz

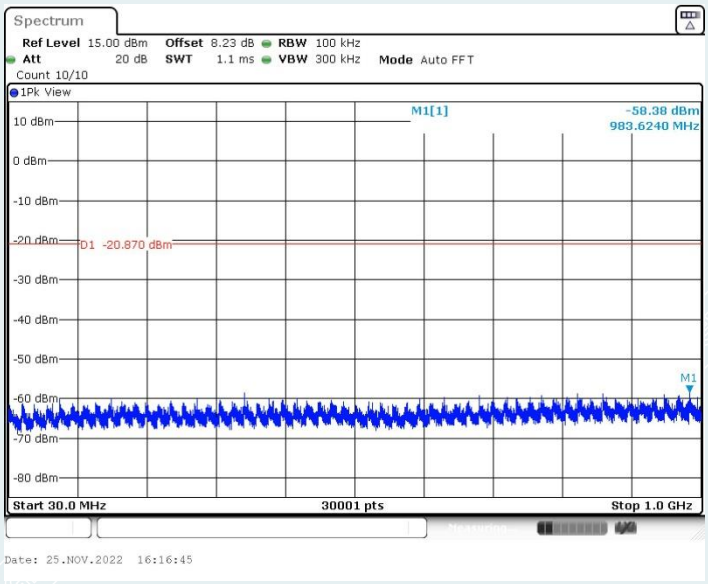


Conducted Spurious Emission

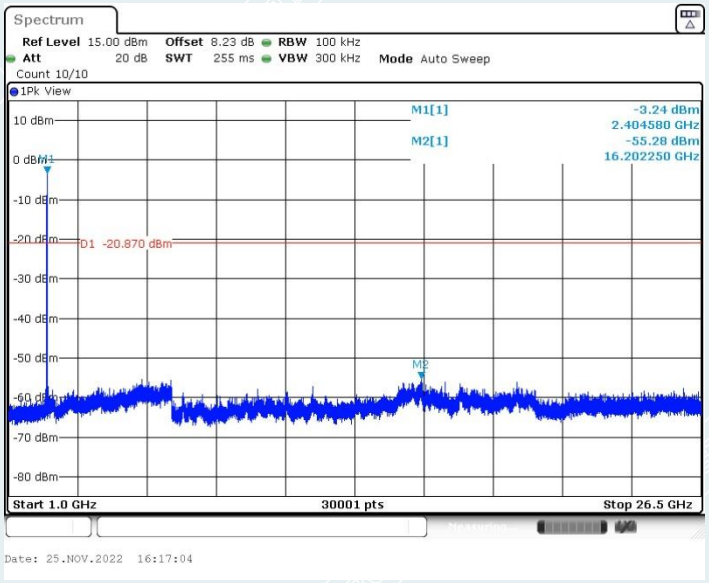
Test Mode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	2405	Reference	-0.87	-0.87	---	PASS
			30~1000	-0.87	-58.38	≤-20.87	PASS
			1000~26500	-0.87	-55.28	≤-20.87	PASS
		2440	Reference	-0.56	-0.56	---	PASS
			30~1000	-0.56	-58.68	≤-20.56	PASS
			1000~26500	-0.56	-55.90	≤-20.56	PASS
		2475	Reference	-1.15	-1.15	---	PASS
			30~1000	-1.15	-58.31	≤-21.15	PASS
			1000~26500	-1.15	-55.31	≤-21.15	PASS

Lowest channel (2405MHz)

0.03GHz-1GHz

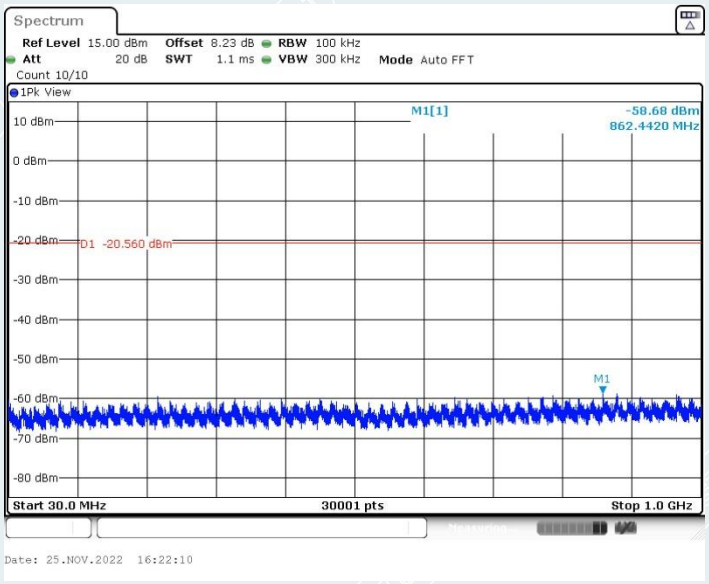


1GHz-26.5GHz

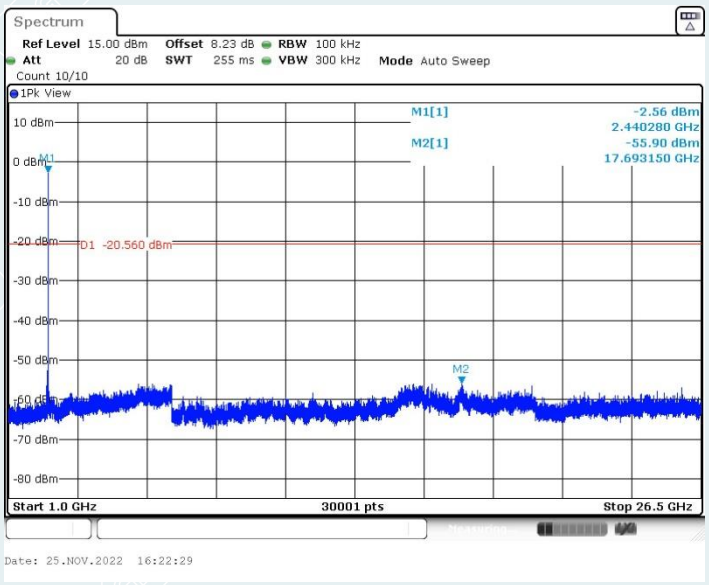


Middle channel (2440MHz)

0.03GHz-1GHz

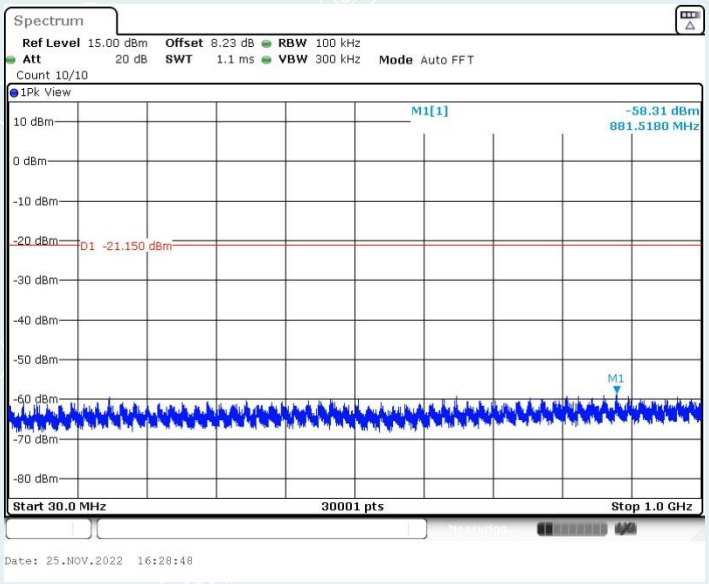


1GHz-26.5GHz

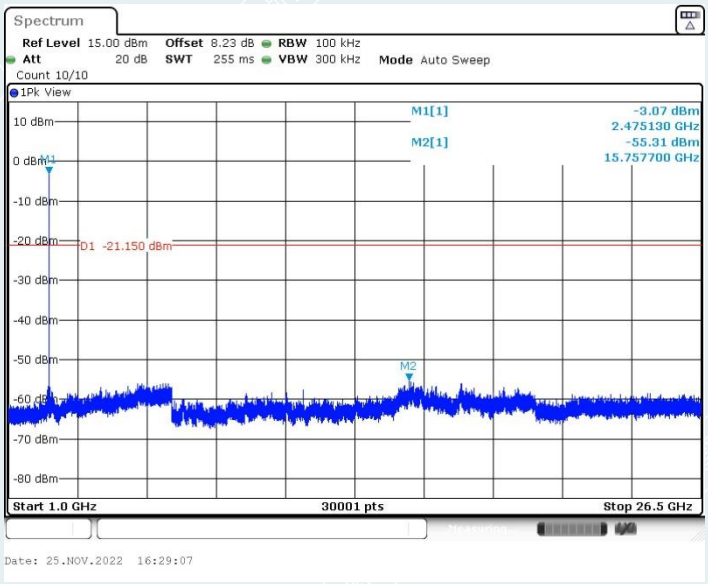


Highest channel (2475MHz)

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)).

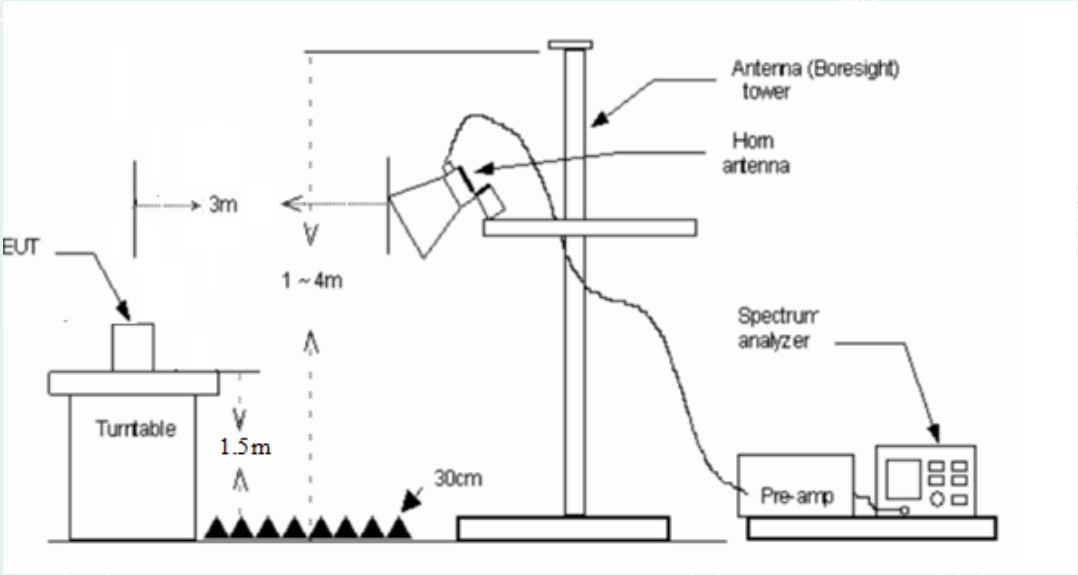
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 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	156.52480 - 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(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

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≥98%,set VBW≤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.

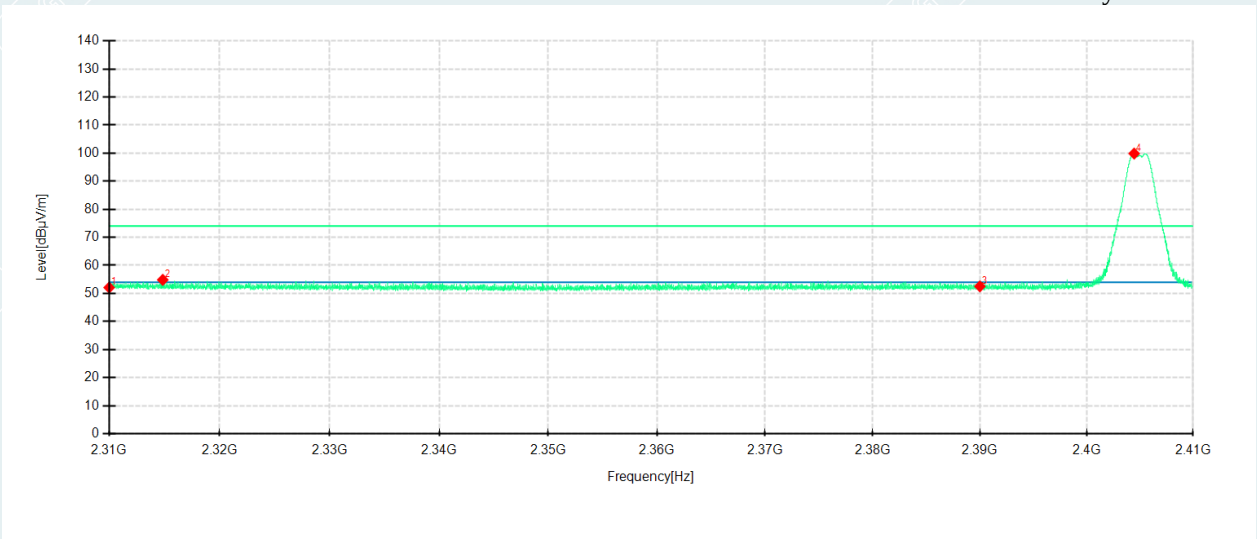
13.3 TEST SETUP



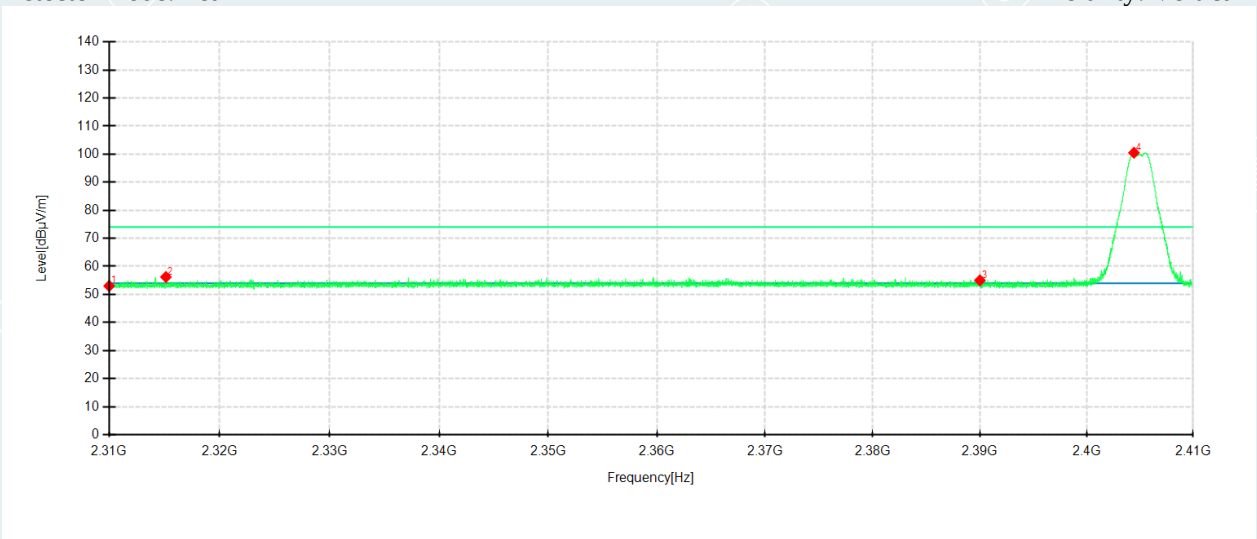
13.4 TEST RESULTS

EUT Name:	LED Strip T1	Test Mode:	Mode 1
Model:	LEDS-K02	Sample No:	E20221122027601-0001
Test Engineer:	Zhang zishan	Test Voltage:	AC 120V/60Hz
Environmental Conditions:	22.3℃/50%RH/101.0kPa	Test Date:	2022-11-28

Lowest Channel
Channel 2405MHz
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	2310.0000	42.74	52.09	9.35	74.00	21.91	200	242	Horizontal	/
2	2314.8505	45.59	54.84	9.25	74.00	19.16	200	323	Horizontal	/
3	2390.0000	43.60	52.53	8.93	74.00	21.47	200	172	Horizontal	
4	2404.4594	90.81	99.86	9.05	74.00	-25.86	100	189	Horizontal	No limit
1	2310.0000	43.08	53.01	9.93	74.00	20.99	100	214	Vertical	/
2	2315.1305	46.25	56.22	9.97	74.00	17.78	200	188	Vertical	/
3	2390.0000	44.94	55.01	10.07	74.00	18.99	200	95	Vertical	/
4	2404.4394	90.57	100.52	9.95	74.00	-26.52	200	188	Vertical	No limit

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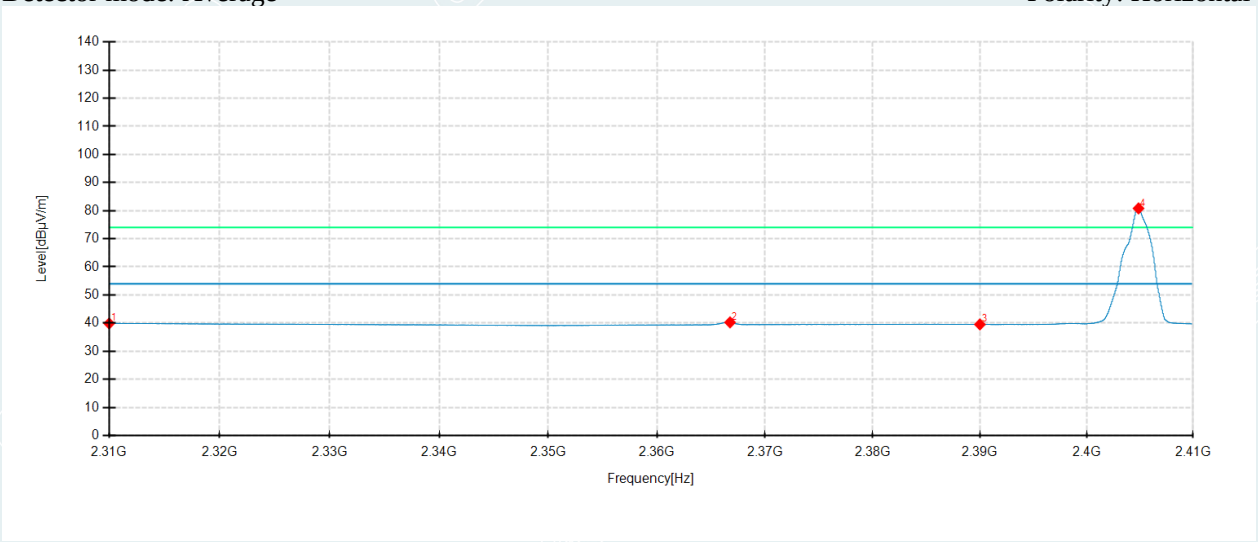
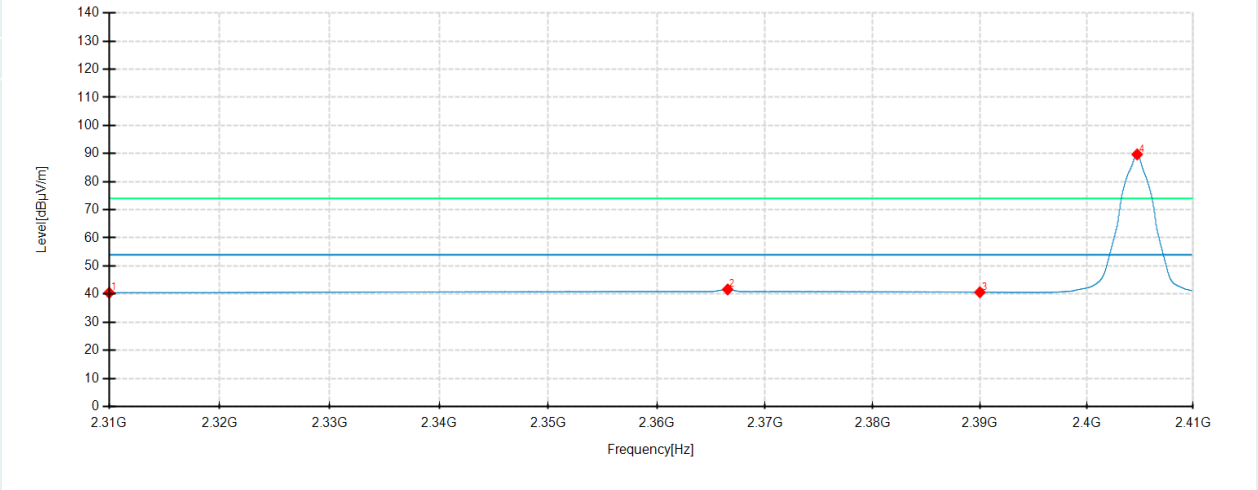
Lowest Channel

Channel 2405MHz

Detector mode: Average Polarity: Horizontal

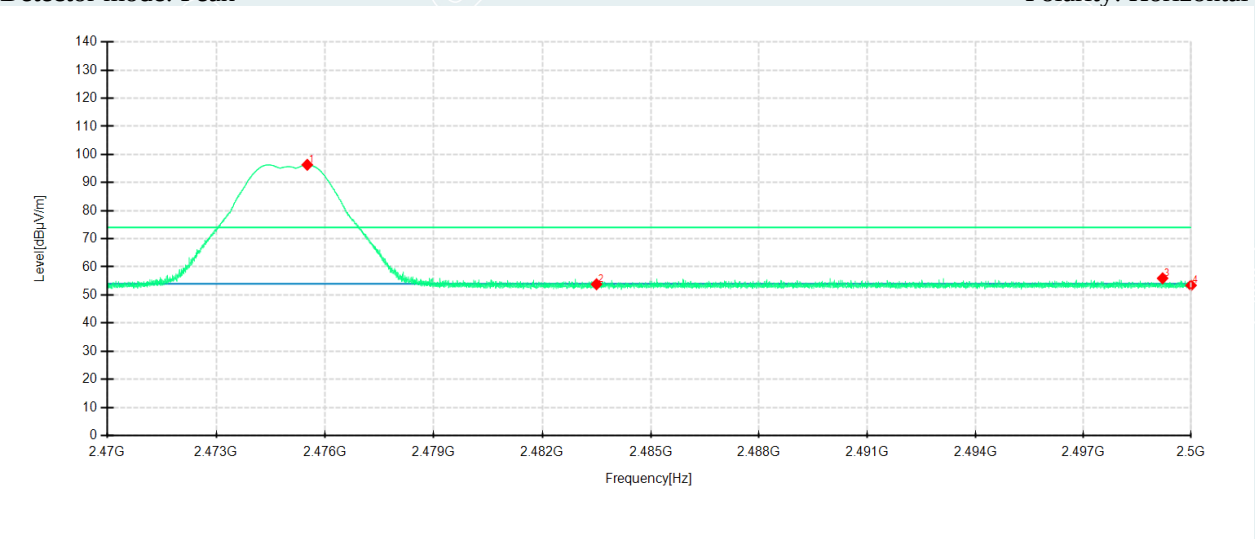


Detector mode: Average Polarity: Vertical

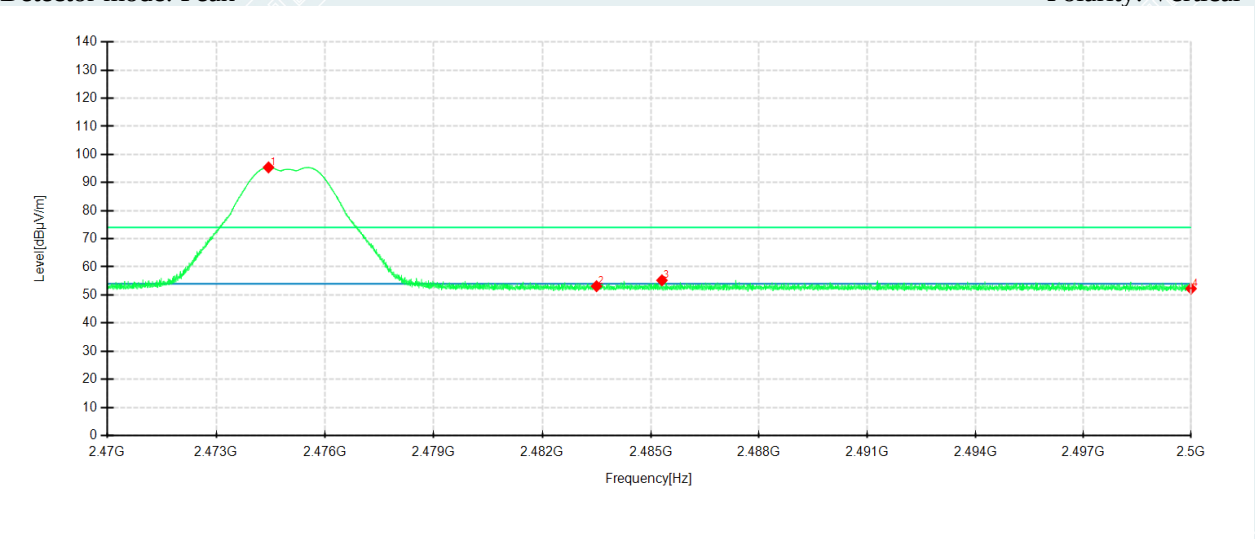


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2310.0000	30.51	39.86	9.35	54.00	14.14	200	172	Horizontal	/
2	2366.7657	31.56	40.25	8.69	54.00	13.75	100	186	Horizontal	/
3	2390.0000	30.59	39.52	8.93	54.00	14.48	100	136	Horizontal	/
4	2404.8695	71.75	80.80	9.05	54.00	-26.80	100	95	Horizontal	No limit
1	2310.0000	30.51	40.44	9.93	54.00	13.56	200	76	Vertical	/
2	2366.5457	31.49	41.64	10.15	54.00	12.36	200	186	Vertical	/
3	2390.0000	30.58	40.65	10.07	54.00	13.35	100	172	Vertical	/
4	2404.7395	79.75	89.69	9.94	54.00	-35.69	100	261	Vertical	No limit

Highest Channel
Channel 2475MHz
Detector mode: Peak Polarity: Horizontal

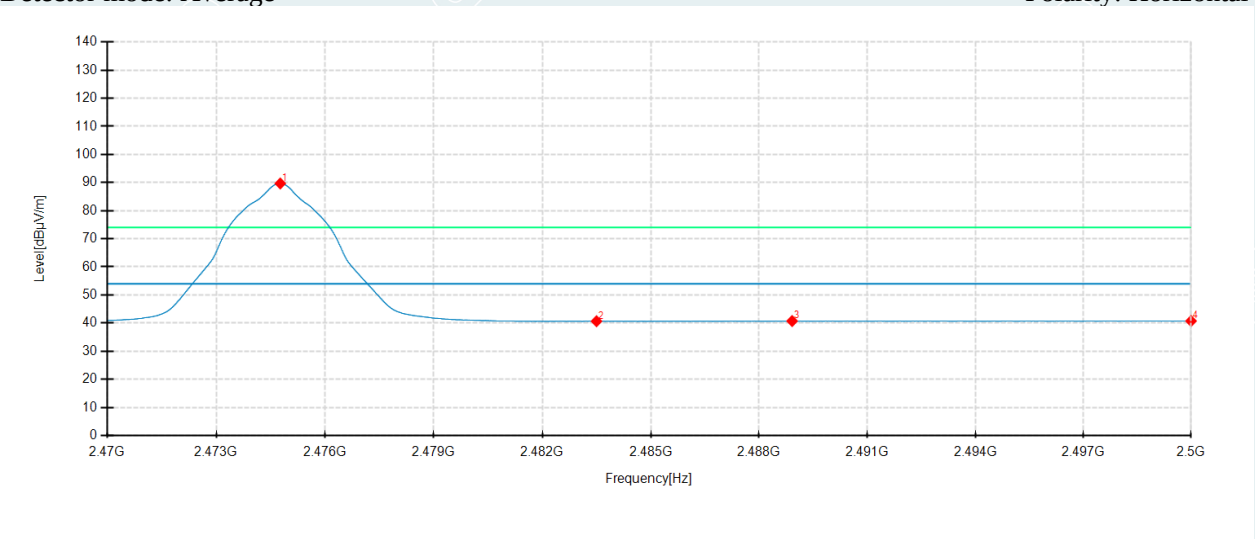


Detector mode: Peak Polarity: Vertical

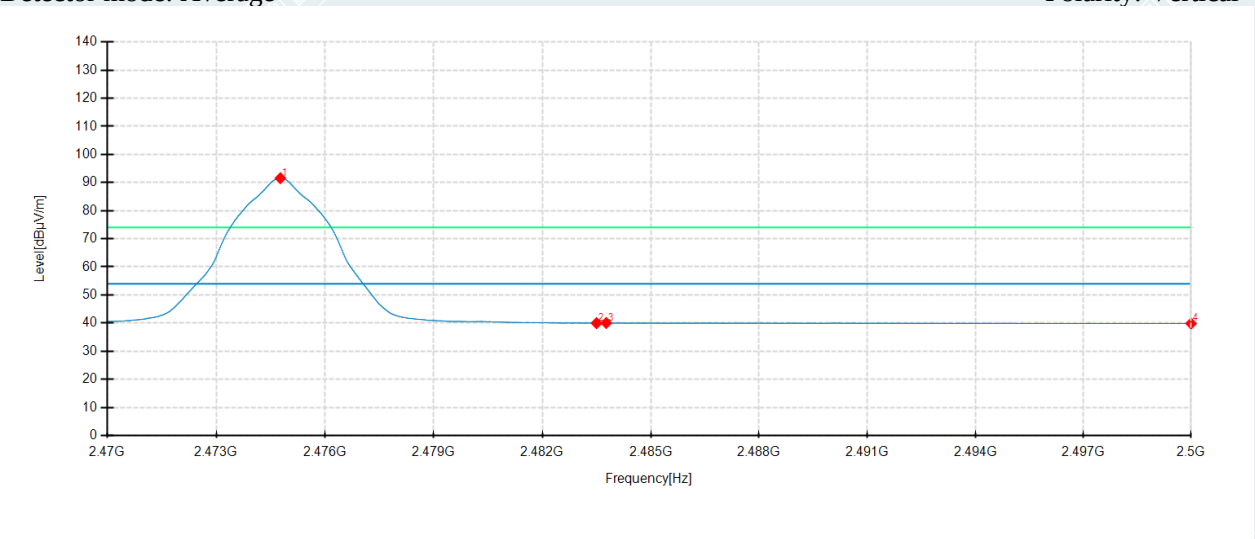


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2475.5116	86.56	96.32	9.76	74.00	-22.32	100	189	Horizontal	No limit
2	2483.5000	43.89	53.81	9.92	74.00	20.19	100	189	Horizontal	/
3	2499.2079	45.70	55.94	10.24	74.00	18.06	200	172	Horizontal	/
4	2500.0000	43.16	53.41	10.25	74.00	20.59	100	67	Horizontal	/
1	2474.4434	86.15	95.39	9.24	74.00	-21.39	100	262	Vertical	No limit
2	2483.5000	43.84	53.12	9.28	74.00	20.88	200	189	Vertical	/
3	2485.3105	45.92	55.21	9.29	74.00	18.79	100	242	Vertical	/
4	2500.0000	42.91	52.26	9.35	74.00	21.74	100	233	Vertical	/

Highest Channel
Channel 2475MHz
Detector mode: Average Polarity: Horizontal



Detector mode: Average Polarity: Vertical



No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole	Comment
1	2474.7675	79.94	89.68	9.74	54.00	-35.68	100	187	Horizontal	No limit
2	2483.5000	30.74	40.66	9.92	54.00	13.34	100	159	Horizontal	/
3	2488.9169	30.70	40.72	10.02	54.00	13.28	100	187	Horizontal	/
4	2500.0000	30.49	40.74	10.25	54.00	13.26	100	187	Horizontal	/
1	2474.7705	82.32	91.56	9.24	54.00	-37.56	100	262	Vertical	No limit
2	2483.5000	30.69	39.97	9.28	54.00	14.03	100	293	Vertical	/
3	2483.7684	30.76	40.04	9.28	54.00	13.96	100	293	Vertical	/
4	2500.0000	30.48	39.83	9.35	54.00	14.17	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 E20221122027601-Test Photo-FCC+IC.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E20221122027601-EUT Photo-FCC+IC.

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