Prüfbericht-Nr.: *Test report no.:*	**CN21VP2G 001**	**Auftrags-Nr.:** *Order no.*:	**168321010**	**Seite 1 von 22** *Page 1 of 22*
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2021-06-01	
Auftraggeber: *Client:*	**KEE TAT INNOVATIVE TECHNOLOGY HOLDINGS LTD** Dongshan Management District, Qishi Town, Dongguan City, Guangdong Province, China, 523000			
Prüfgegenstand: *Test item:*	Roller Blind			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	C2002 (Trademark: Novelty)			
Auftrags-Inhalt: *Order content*:	Test Report			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109		RSS-247 Issue 2 February 2017 RSS-Gen Issue 5 February 2021 ICES-003 Issue 7 October 2020	

Wareneingangsdatum: *Date of sample receipt:*	2021-06-23	Please refer to Photo Document
Prüfmuster-Nr.: *Test sample no:*	A003070254-011,012	
Prüfzeitraum: *Testing period:*	2021-07-08 – 2021-07-22	
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result*:*	Pass	

geprüft von: *tested by:*	X Signed by: Alex Lan	**genehmigt von:** *authorized by:*	X Signed by: Winnie Hou
Datum: *Date:* 2022-01-01		**Ausstellungsdatum:** *Issue date:* 2022-01-12	
Stellung / *Position:*	Senior Project Engineer	**Stellung** / *Position:*	Technical Certifier
Sonstiges / *Other:*	FCC ID: 2A2WY-C2002 IC: 27625-C2002 HVIN: C2002		
Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:*	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*		

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Test Summary

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER
RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY
RESULT: Pass

5.1.4 6DB BANDWIDTH
RESULT: Pass

5.1.5 99% BANDWIDTH
RESULT: Pass

5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH
RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION
RESULT: Pass

5.1.8 CONDUCTED EMISSION ON AC MAINS
RESULT: Pass

5.1.9 RADIATED EMISSION
RESULT: Pass

Contents

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results of FCC Part 15C & RSS-247

Appendix C: Test Results of FCC Part 15B & ICES-003

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.
No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Registration No.: 694916
ISED wireless device testing laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (TS8997)				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
Signal Analyzer	R&S	FSV 40	101441	2022-08-09
OSP	R&S	OSP 150	101017	2021-12-10
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
Test Software	R&S	WMS32 (V11.00.00)	N/A	N/A
Power Meter	R&S	NRP2	107105	2021-12-10
Wideband Power Sensor	R&S	NRP-Z81	105677	2022-08-09
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2024-06-22
Unwanted Emission Testing (TS9975)				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
EMI Test Receiver	R&S	ESR 7	102021	2022-08-10
Signal Analyzer	R&S	FSV 40	101439	2022-08-09
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2022-08-09
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2022-08-09
Amplifier	R&S	SCU-18F	180070	2022-08-09
Amplifier	R&S	SCU40A	100475	2022-08-09
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-08
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-08
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-08
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-09-13
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

Conducted Emission				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
EMI Test Receiver	R&S	ESR3	102428	2021-08-16
Artificial Mains Network	R&S	ENV216	102333	2021-08-16
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A
Radiated Emission (3m chamber)				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
3m SAC	ETS-Lindgren	SAC3	CT001632-Q1362	2021-08-23
EMI Test Receiver	R&S	ESR7	102111	2021-12-16
Horn Antenna	R&S	HF907	102706	2022-08-07
Preamplifier (1-18GHz)	FIT	SCU-18F	180077	2021-08-16
Trilog-Broadband antenna	SCHWARZBECK	VULB9168	0945	2022-12-12
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Parameter	Uncertainty
Radio Frequency	±1 x 10-7
RF Power (conducted)	±2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	±6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	±6 dB
Radiated Emission (3m SAC), 30MHz to 1000MHz	± 5.34 dB
Radiated Emission (3m SAC), above 1000MHz	± 4.56 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB
Temperature	±1 °C
Humidity	±5 %
Voltage (DC)	±1 %
Voltage (AC, <10kHz)	±2 %

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B & C of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a Roller Blind, which support 433MHz Receiver and Zigbee wireless technology.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	Roller Blind
Type Designation:	C2002
Trademark:	Novelty
FCC ID:	2A2WY-C2002
IC:	27625-C2002
HVIN:	C2002
Operating Voltage:	Battery operated (7.26Vdc) Adapter operated
Testing Voltage:	Fully charged battery AC 120V, 60Hz
Technical Specification of ZIGBEE	
Frequency Range:	2405 MHz to 2480 MHz
Type of Modulation:	O-QPSK
Channel Number:	16 channels
Data Rate:	250kbps
Channel Separation:	5 MHz
Antenna Type:	PCB Antenna
Antenna Gain:	1.0 dBi
Technical Specification of 433MHZ	
Frequency Range:	433.92MHz (Receiver only)

3.3 Independent Operation Modes

The basic operation modes are:

A. On, Zigbee transmitting mode
    1) Low Channel
    2) Middle Channel
    3) High Channel
B. On, Receiving mode
C. On, Zigbee communication
D. On, Rolling mode
E. On, Charging mode
F. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- User Manual
- IC Label and Location Info
- Schematics

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013 & ANSI C63.4: 2014.

Table 3: Test channel and frequency

Mode	Test Channels
ZIGBEE	L: 2405MHz; M: 2445MHz; H: 2480MHz

4.3 Special Accessories and Auxiliary Equipment

Table 4: Auxiliary Equipment Used during Test

Description	Manufacturer	Model	S/N
Laptop	Lenovo	T480	PF-16A6N8
Adapter	HUAWEI	HW-050100C01	N/A
2 channel RF remote	Kee Tat Innovative Technology Holdings Ltd	RS2004	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

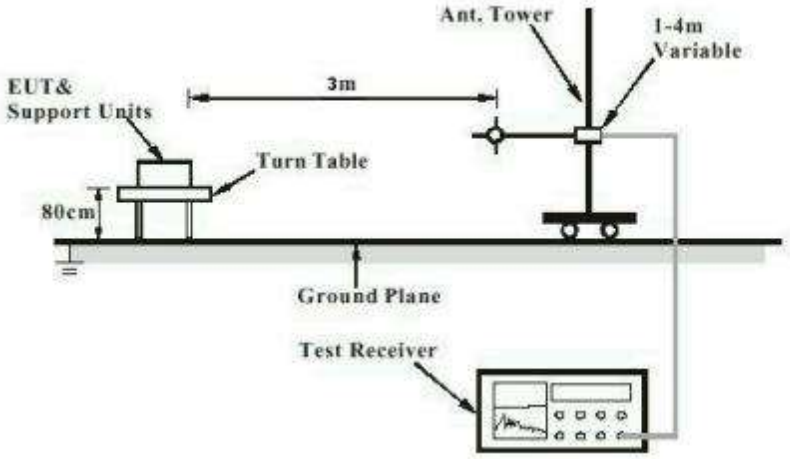


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

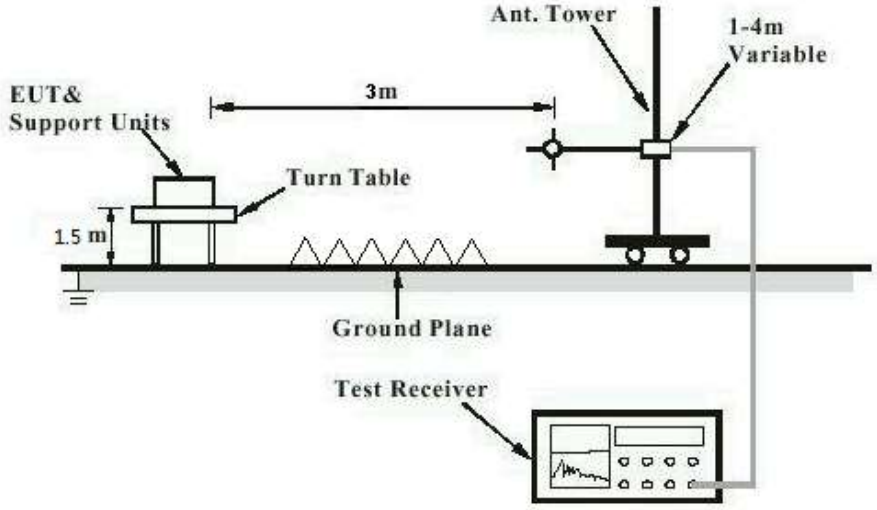


Diagram of Measurement Configuration for Mains Conduction Measurement

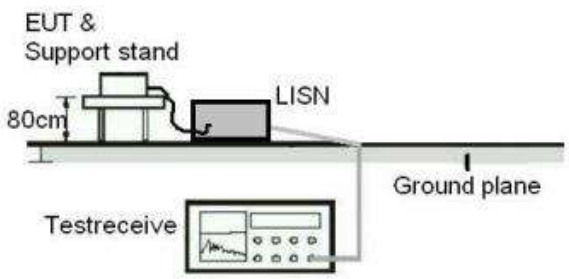
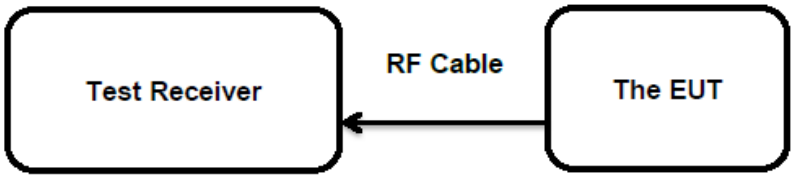


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has a PCB antenna, the directional gain of antenna is 1.0 dBi, permanent attachment and no consideration of replacement.

Therefore, the EUT is considered sufficient to comply with the provision.

5.1.2 Maximum Peak Conducted Output Power

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(b)(3)
		RSS-247 Clause 5.4(d)
Basic standard	:	ANSI C63.10: 2013
Limits	:	1.0 Watts
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-07-22
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	23 ℃
Relative humidity	:	51 %
Atmospheric pressure	:	101 kPa

Table 5: Test Result of Maximum Peak Conducted Output Power

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(W)	
Zigbee	2405	11.04	0.0127	< 1.0
	2445	11.20	0.0132	
	2480	11.30	0.0135	
Maximum Measured Value		11.30	0.0135	

Note:
1) The cable loss is taken into account in results.
2) Antenna gain(G): 1.0 dBi,
e.i.r.p.=$P_{(Peak\ power)}$+ G, which is far below the 4 W

5.1.3 Conducted Power Spectral Density

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(e) RSS-247 Clause 5.2(b)
Basic standard	:	ANSI C63.10: 2013
Limits	:	< 8 dBm / 3kHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-07-22
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	23 ℃
Relative humidity	:	51 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

5.1.4 6dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(a)(2) RSS-247 Clause 5.2(a)
Basic standard	:	ANSI C63.10: 2013
Limits	:	> 500 KHz
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-07-22
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	23 ℃
Relative humidity	:	51 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

5.1.5 99% Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	RSS-Gen Clause 6.7
Basic standard	:	ANSI C63.10: 2013
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-07-22
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	23 ℃
Relative humidity	:	51 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d) RSS-247 Clause 5.5
Basic standard	:	ANSI C63.10: 2013
Limits	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-07-22
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	23 °C
Relative humidity	:	51 %
Atmospheric pressure	:	101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix B.

5.1.7 Radiated Spurious Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 3.3
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Section 8.9 & 8.10
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	2021-07-19 ~ 2021-07-21
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	Refer to test result
Relative humidity	:	Refer to test result
Atmospheric pressure	:	101 kPa

Remark:
Testing carried out within frequency range 9kHz to the tenth harmonics. Only the worst-case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

5.1.8 Conducted Emission on AC Mains

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.207(a) & FCC Part 15.107(a) & RSS-Gen & ICES-003
Basic standard	:	ANSI C63.10: 2013 & ANSI C63.4:2014
Frequency range	:	0.15 – 30MHz
Classification	:	Class B
Limits	:	FCC Part 15.207(a) & FCC Part 15.107(a) RSS-Gen Table 4 & ICES-003 Table 1
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2021-07-09
Input voltage	:	AC 120V, 60Hz or Battery operated
Operation mode	:	B, C, D, E
Earthing	:	Not connected
Ambient temperature	:	22 ℃
Relative humidity	:	64 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B & C.

5.1.9 Radiated Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.109(a) & 15.209(a) ICES-003
Basic standard	:	ANSI C63.4:2014
Frequency range	:	Refer to FCC Part15.33
Classification	:	Class B
Limits	:	FCC Part 15.109(a) & 15.209(a) ICES-003 Table 2 & 4
Kind of test site	:	3m Semi-anechoic Chamber

Test Setup

Date of testing	:	2021-07-08 ~ 2021-07-09
Input voltage	:	AC 120V, 60Hz or Battery operated
Operation mode	:	B, C, D, E
Earthing	:	Not connected
Ambient temperature	:	23 ℃
Relative humidity	:	50 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix C.

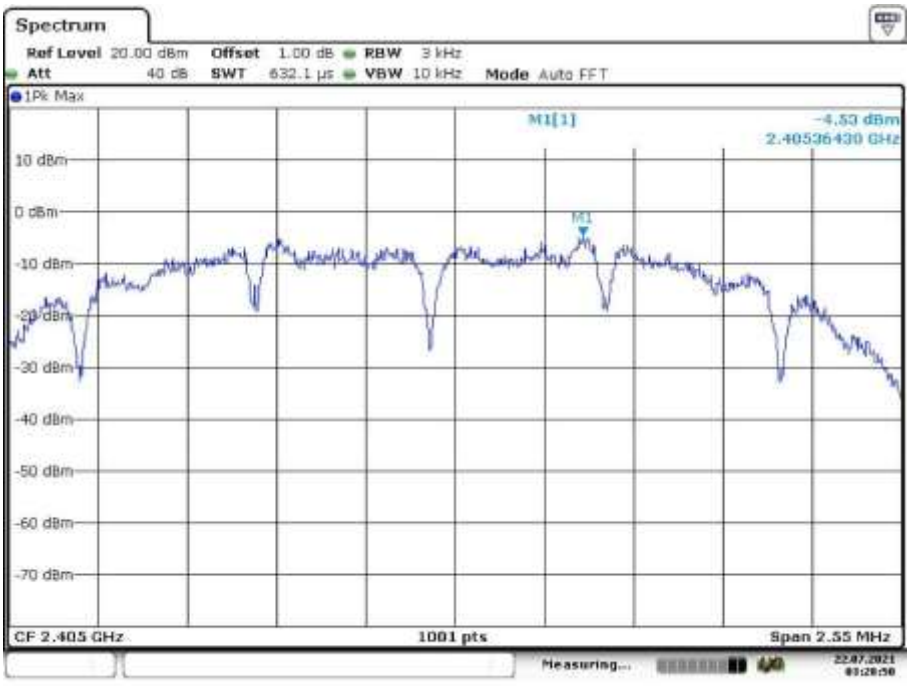
6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

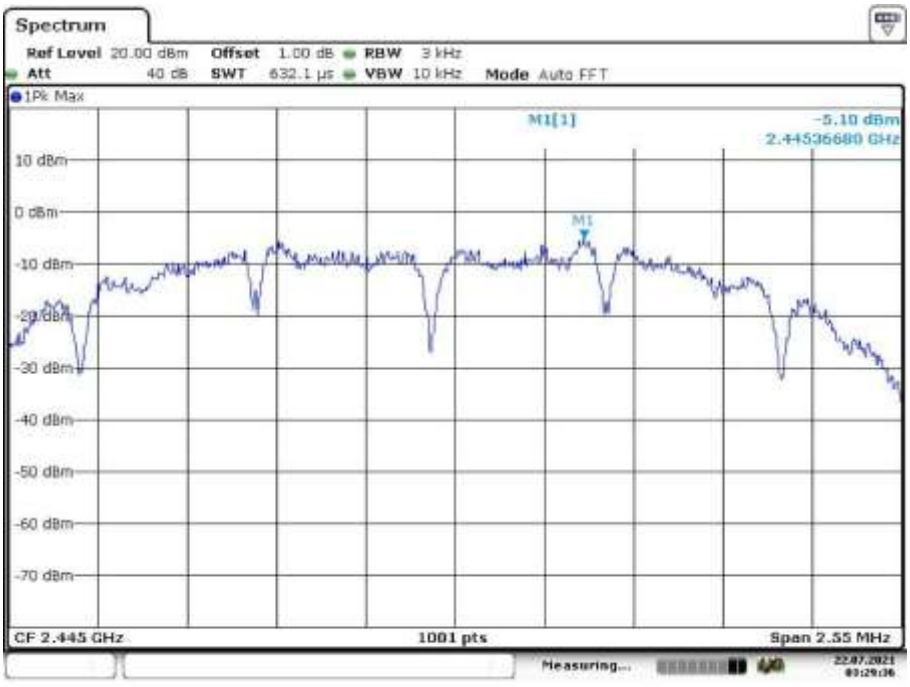
7 List of Tables

Appendix B: Test Results of Zigbee

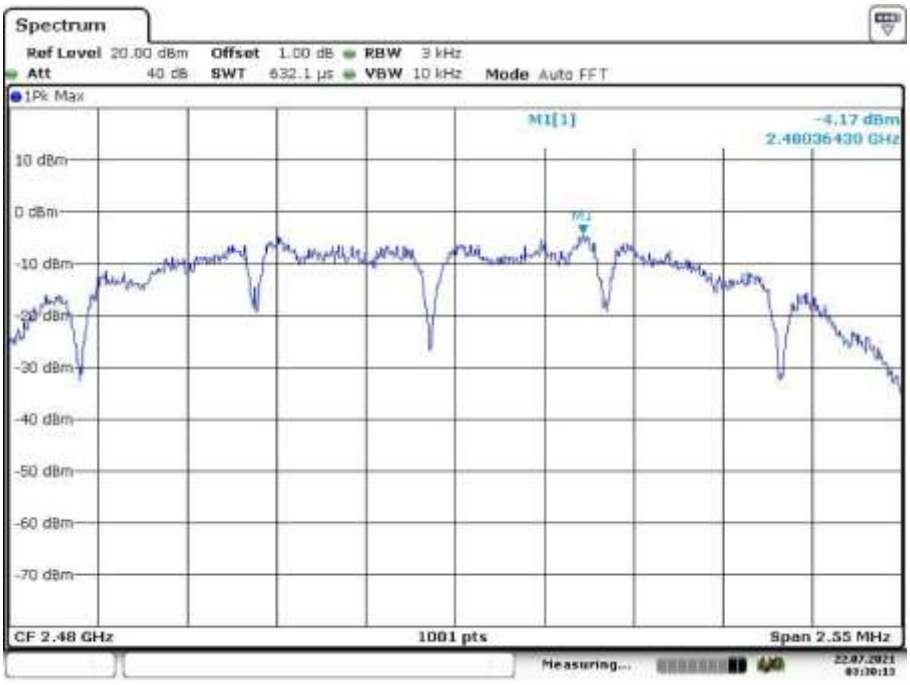
Appendix B.1: Test Results of Conducted Power Spectral Density



Date: 22.JUL.2021 03:28:50



Date: 22.JUL.2021 03:29:36



Date: 22.JUL.2021 03:30:13

Appendix B.2: Test Results of 6dB Bandwidth

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Minimum Emission Bandwidth 6 dB (2405 MHz; 10.000 dBm; 5 MHz)

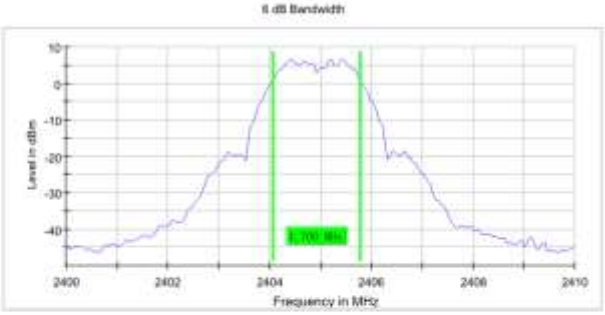
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2405.000000	1.700000	0.500000	---	2404.075000	2405.775000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2405.000000	6.6	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.41000 GHz	2.41000 GHz
Span	10.000 MHz	10.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	200	~ 200
Sweeptime	37.969 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	17 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.05 dB	0.50 dB

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Minimum Emission Bandwidth 6 dB (2445 MHz; 10.000 dBm; 5 MHz)

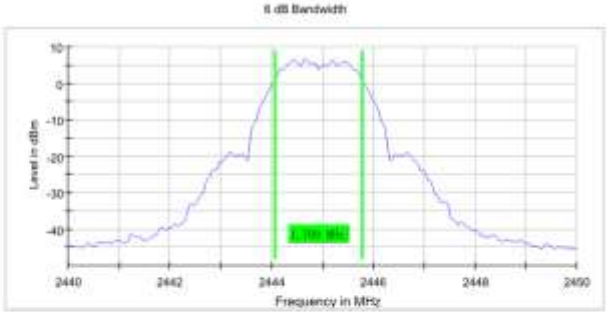
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2445.000000	1.700000	0.500000	---	2444.075000	2445.775000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2445.000000	6.8	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.45000 GHz	2.45000 GHz
Span	10.000 MHz	10.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	200	~ 200
Sweeptime	37.969 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	24 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.39 dB	0.50 dB

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Minimum Emission Bandwidth 6 dB (2480 MHz; 10.000 dBm; 5 MHz)

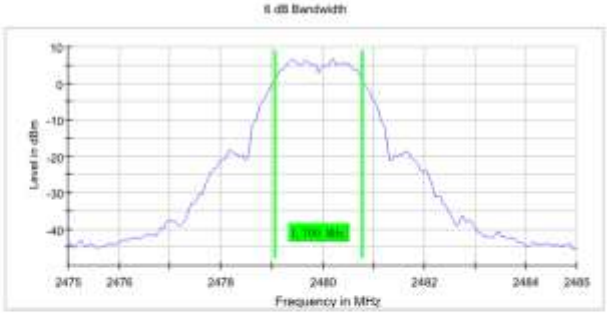
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.700000	0.500000	---	2479.075000	2480.775000

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	6.7	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47500 GHz	2.47500 GHz
Stop Frequency	2.48500 GHz	2.48500 GHz
Span	10.000 MHz	10.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	200	~ 200
Sweeptime	37.969 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	18 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.00 dB	0.50 dB

Appendix B.3: Test Results of 99% Bandwidth

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Occupied Channel Bandwidth 99% (2405 MHz; 10.000 dBm; 5 MHz)

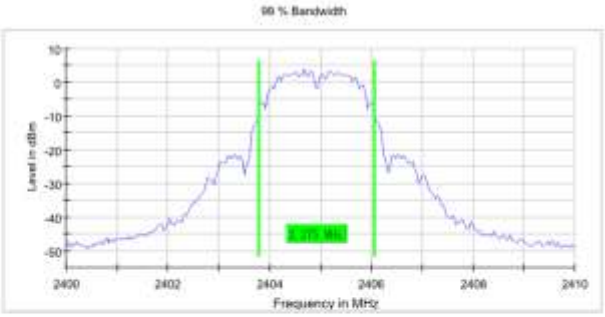
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2405.000000	2.275000	---	---	2403.787500	2406.062500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2405.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.41000 GHz	2.41000 GHz
Span	10.000 MHz	10.000 MHz
RBW	50.000 kHz	>= 50.000 kHz
VBW	200.000 kHz	>= 150.000 kHz
SweepPoints	400	~ 400
Sweeptime	75.781 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	19 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.26 dB	0.30 dB

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Occupied Channel Bandwidth 99% (2445 MHz; 10.000 dBm; 5 MHz)

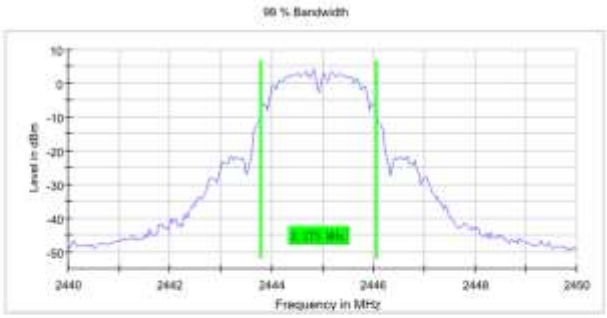
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2445.000000	2.275000	---	---	2443.787500	2446.062500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2445.000000	PASS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.45000 GHz	2.45000 GHz
Span	10.000 MHz	10.000 MHz
RBW	50.000 kHz	>= 50.000 kHz
VBW	200.000 kHz	>= 150.000 kHz
SweepPoints	400	~ 400
Sweeptime	75.781 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	16 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.15 dB	0.30 dB

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Occupied Channel Bandwidth 99% (2480 MHz; 10.000 dBm; 5 MHz)

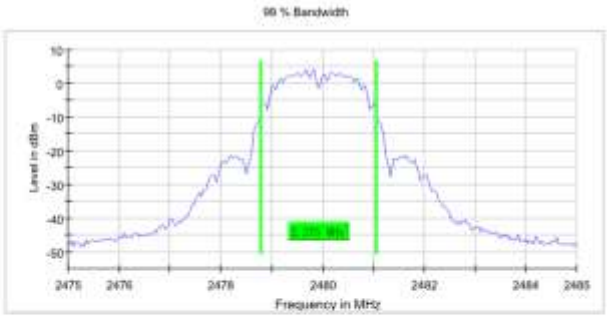
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

99 % Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	2.275000	---	---	2478.787500	2481.062500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

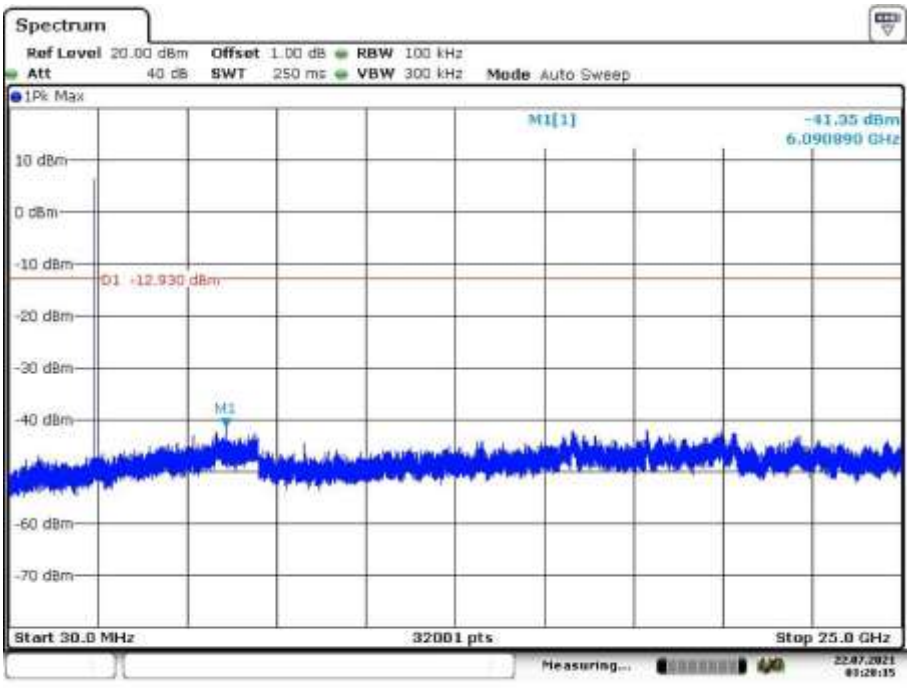


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47500 GHz	2.47500 GHz
Stop Frequency	2.48500 GHz	2.48500 GHz
Span	10.000 MHz	10.000 MHz
RBW	50.000 kHz	>= 50.000 kHz
VBW	200.000 kHz	>= 150.000 kHz
SweepPoints	400	~ 400
Sweeptime	75.781 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	25 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.05 dB	0.30 dB

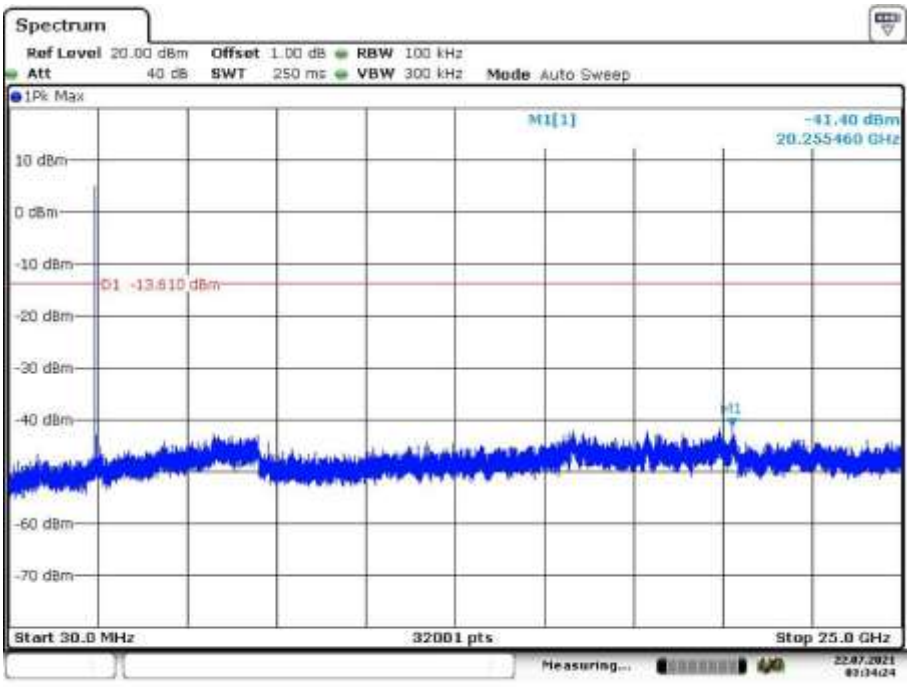
Appendix B.4: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Low Channel:



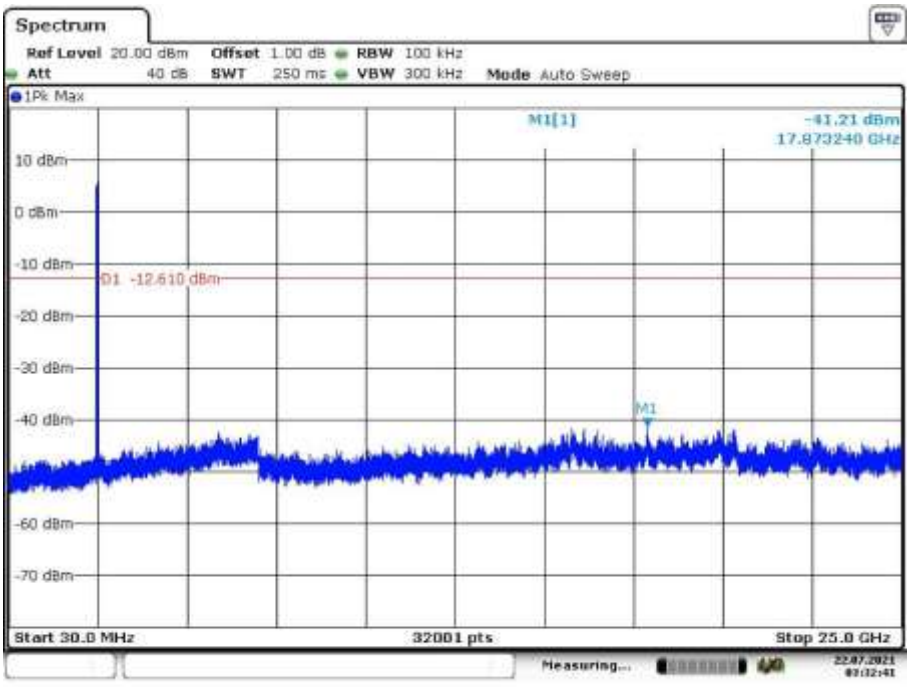
Middle Channel:

Date: 22.JUL.2021 03:35:34

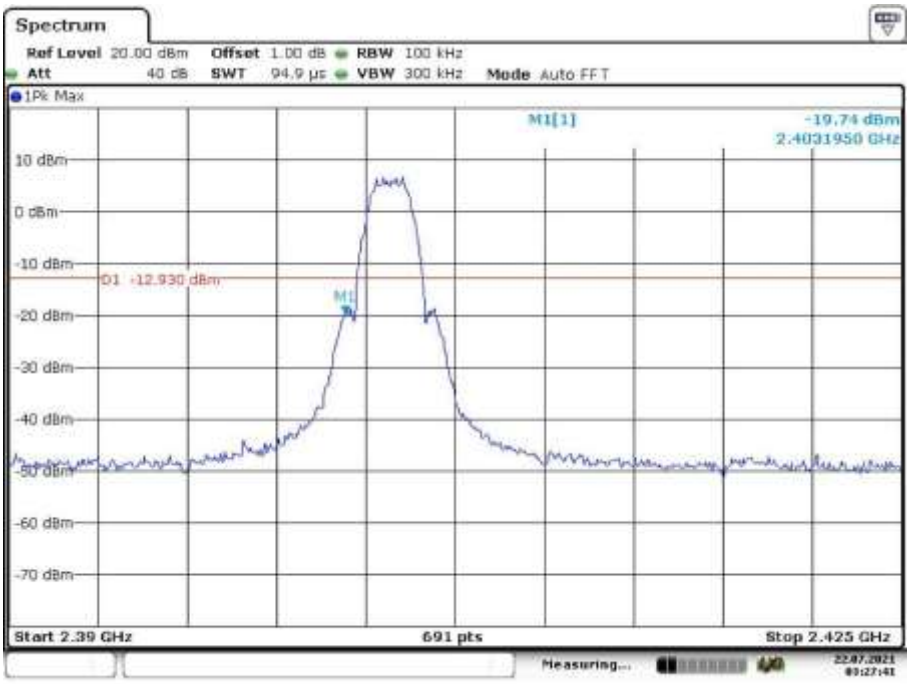


Date: 22.JUL.2021 03:34:24

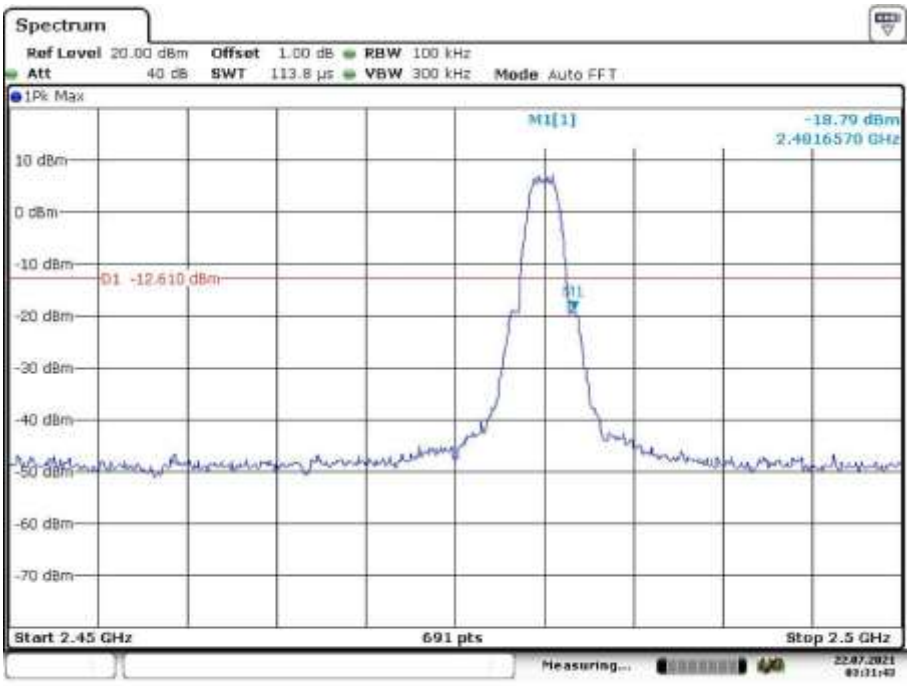
High Channel:



Band Edge, Low Channel:



Band Edge, High Channel:



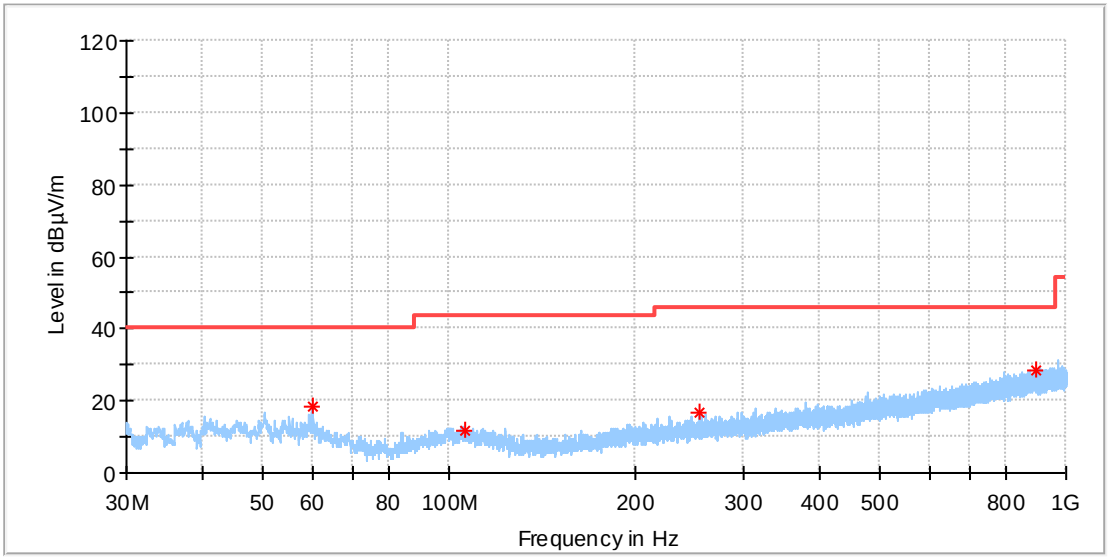
Appendix B.5: Test Results of Radiated Spurious Emissions

Note:
1) This testing was carried out on different modulations, but only the worst case was presented in this report.
2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30 MHz to 1GHz

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

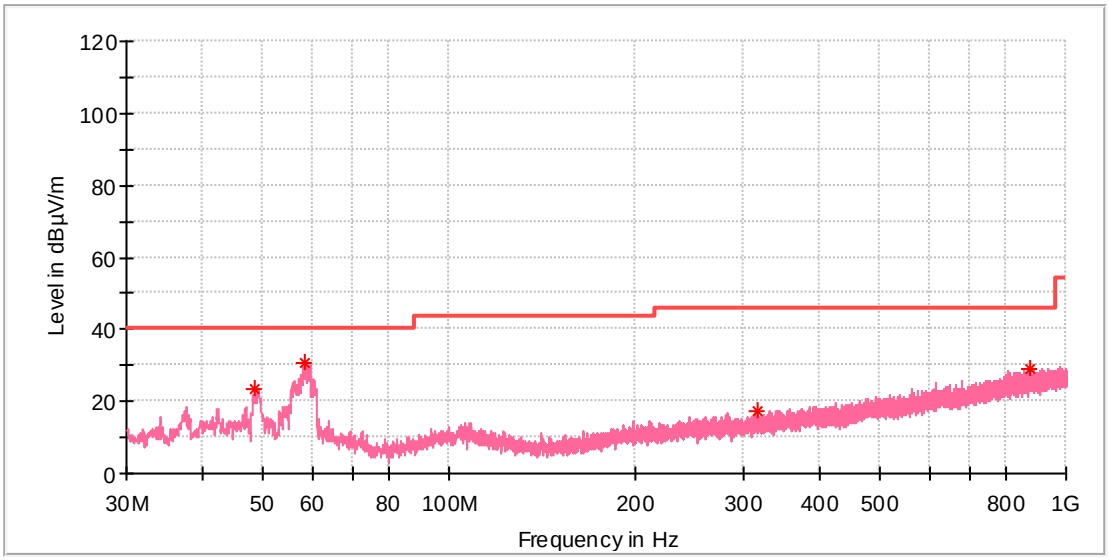


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
59.973000	18.57	40.00	21.43	100.0	H	33.0	-19.0
106.048000	12.00	43.50	31.50	100.0	H	242.0	-18.8
254.894500	16.77	46.00	29.23	100.0	H	66.0	-17.2
894.512500	28.63	46.00	17.37	100.0	H	66.0	-5.0

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

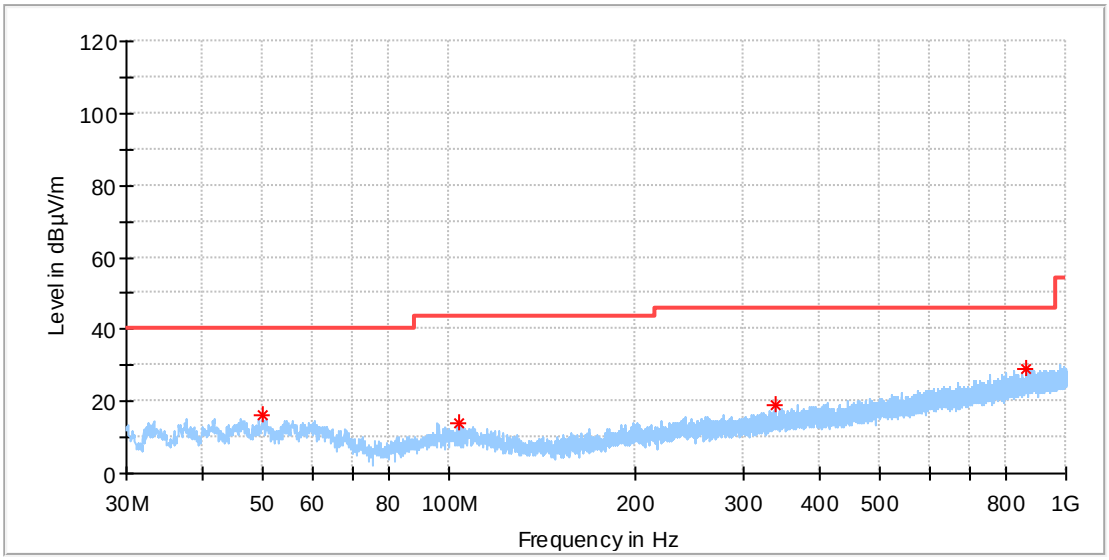


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
48.575500	23.65	40.00	16.35	100.0	V	87.0	-18.4
58.469500	30.89	40.00	9.11	100.0	V	211.0	-18.8
315.956000	17.29	46.00	28.71	100.0	V	95.0	-15.8
873.706000	29.09	46.00	16.91	100.0	V	31.0	-5.2

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

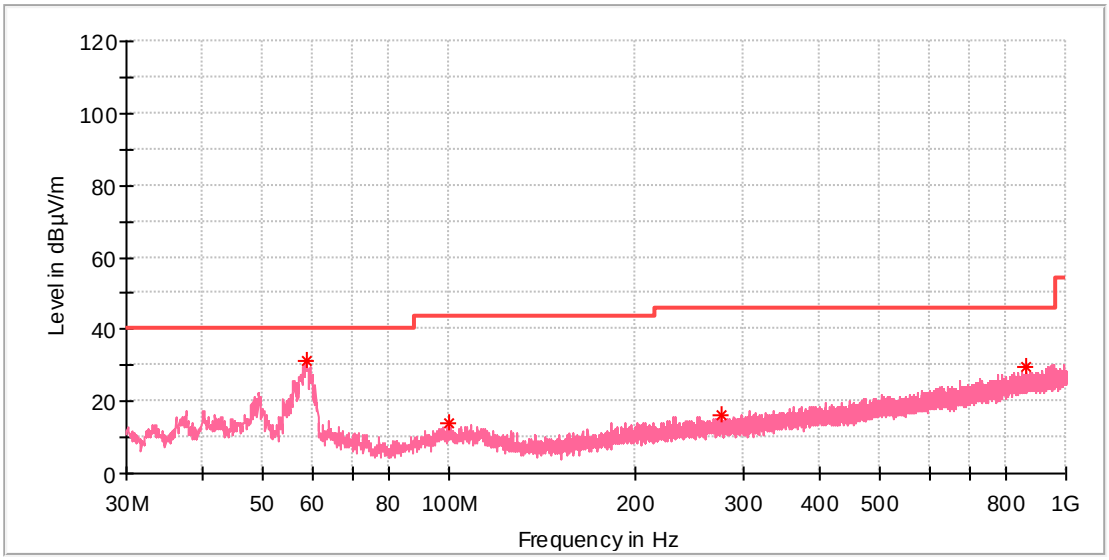


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
49.933500	16.15	40.00	23.85	100.0	H	149.0	-18.3
104.108000	14.19	43.50	29.31	100.0	H	149.0	-18.8
339.333000	18.81	46.00	27.19	100.0	H	275.0	-15.0
858.719500	28.96	46.00	17.04	100.0	H	286.0	-5.4

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



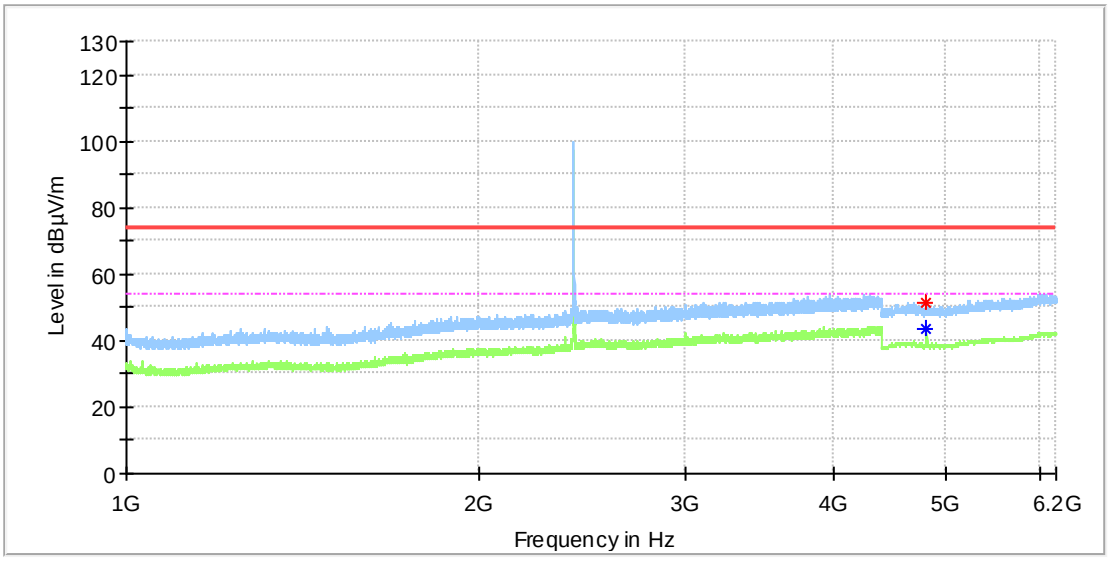
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
58.906000	31.22	40.00	8.78	100.0	V	132.0	-18.9
100.082500	14.15	43.50	29.35	100.0	V	177.0	-19.0
277.010500	16.38	46.00	29.62	100.0	V	7.0	-16.8
864.103000	29.38	46.00	16.62	100.0	V	53.0	-5.3

1GHz-18GHz
Note: The highest waveform in the figure is Zigbee Fundamental.

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

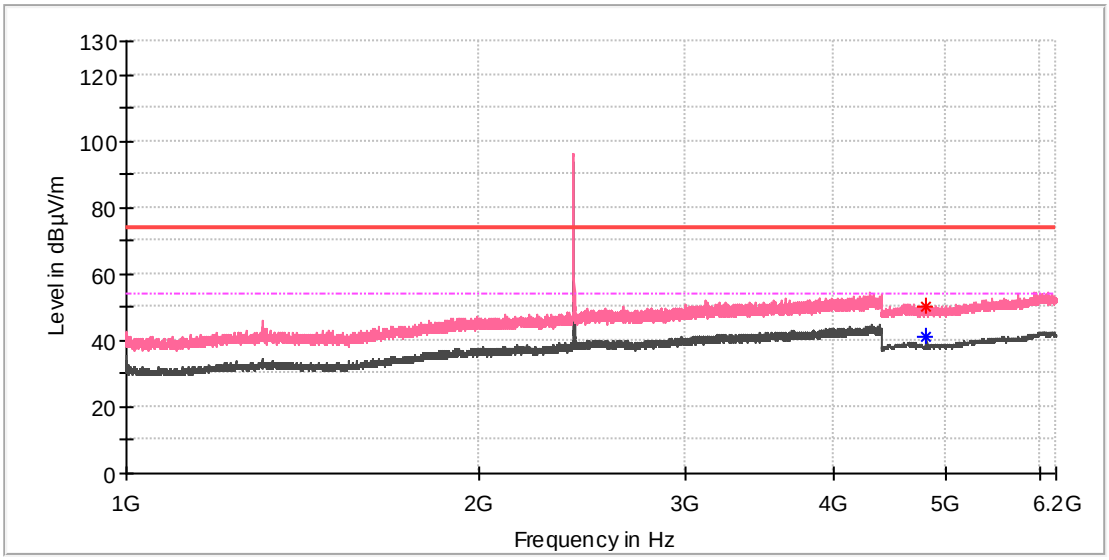


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4810.500000	---	43.48	54.00	10.52	150.0	H	263.0	11.8
4811.000000	51.52	---	74.00	22.48	150.0	H	263.0	11.8

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

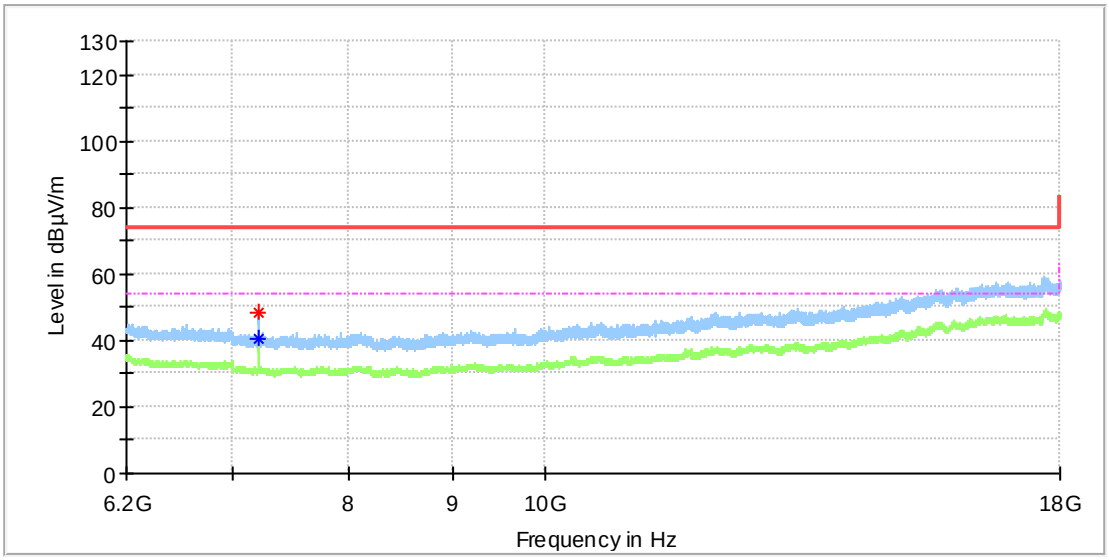


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4809.000000	50.11	---	74.00	23.89	150.0	V	106.0	11.8
4809.000000	---	41.06	54.00	12.94	150.0	V	106.0	11.8

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

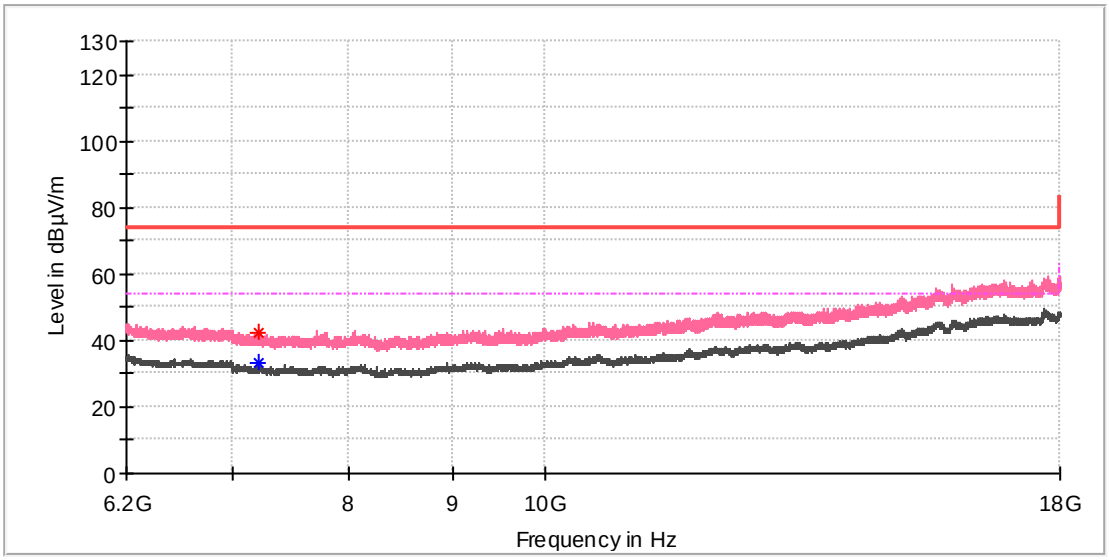


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7212.833333	48.41	---	74.00	25.59	150.0	H	178.0	8.7
7213.325000	---	40.60	54.00	13.40	150.0	H	178.0	8.7

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

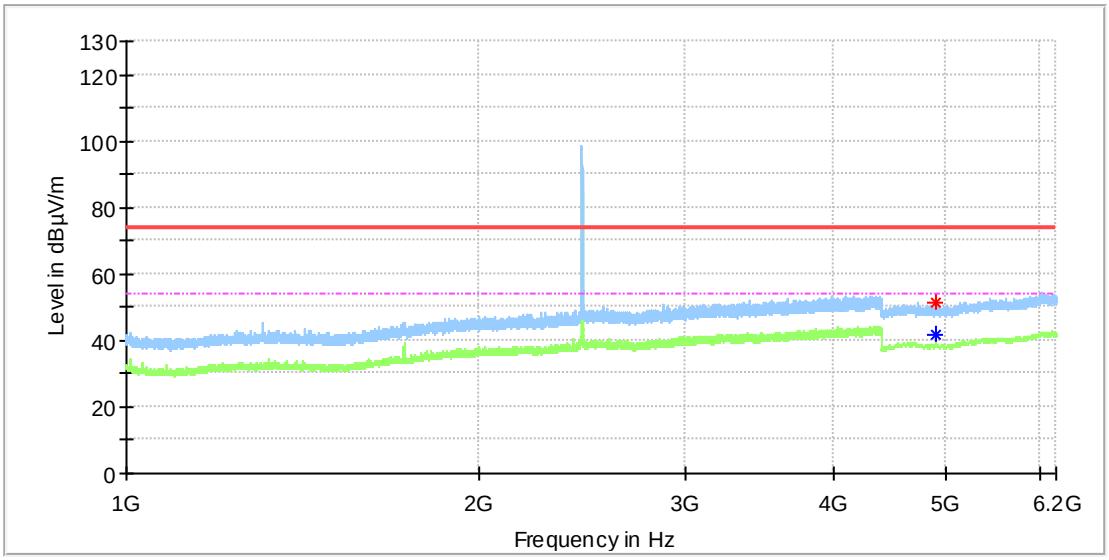


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7213.325000	42.21	---	74.00	31.79	150.0	V	89.0	8.7
7215.783333	---	33.19	54.00	20.81	150.0	V	89.0	8.7

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2445MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

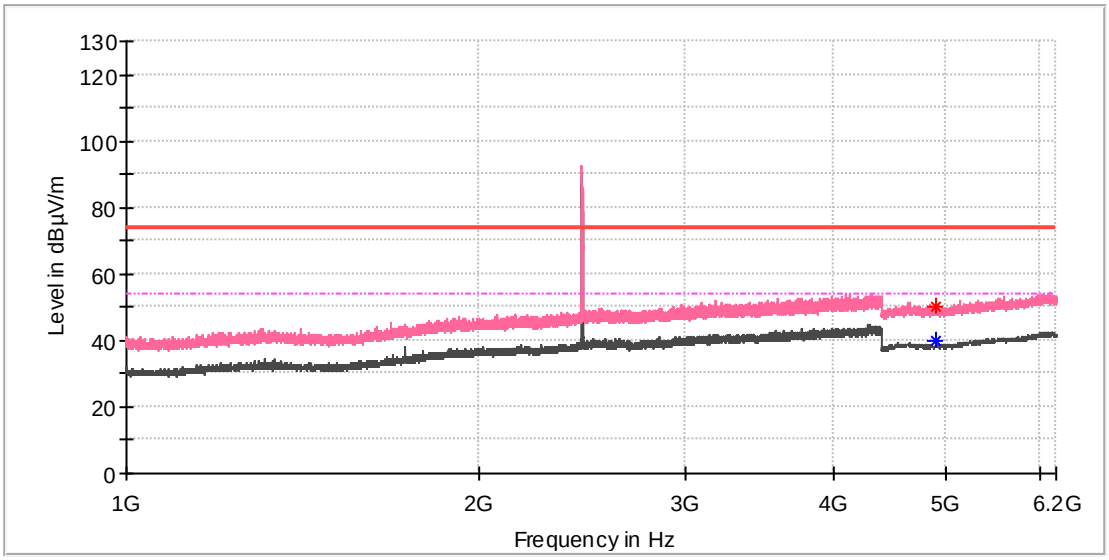


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4888.500000	51.45	---	74.00	22.55	150.0	H	266.0	11.8
4889.000000	---	41.95	54.00	12.05	150.0	H	258.0	11.8

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2445MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

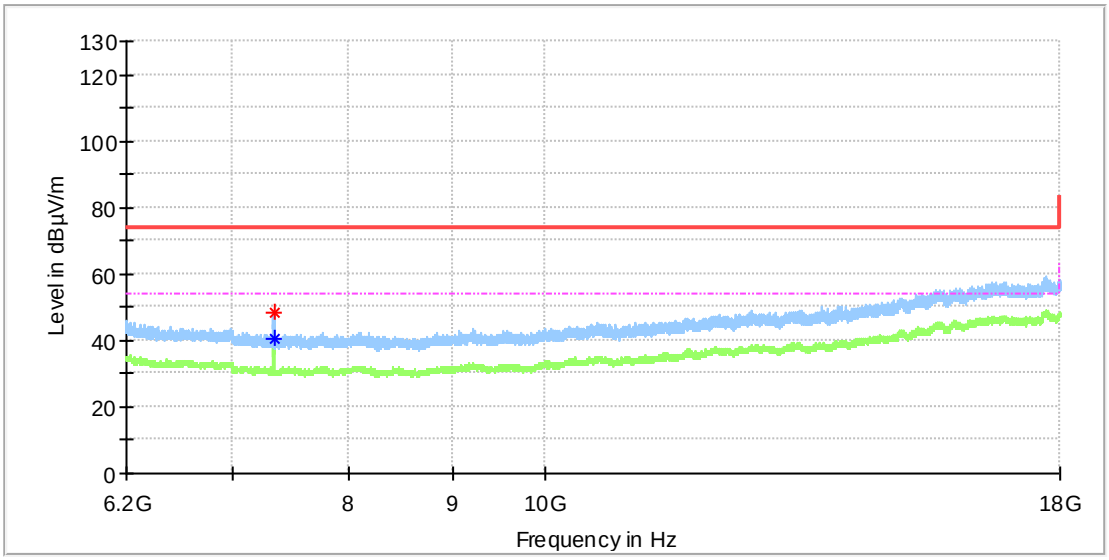


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4891.000000	---	40.11	54.00	13.89	150.0	V	288.0	11.8
4895.500000	50.36	---	74.00	23.64	150.0	V	162.0	11.8

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2445MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

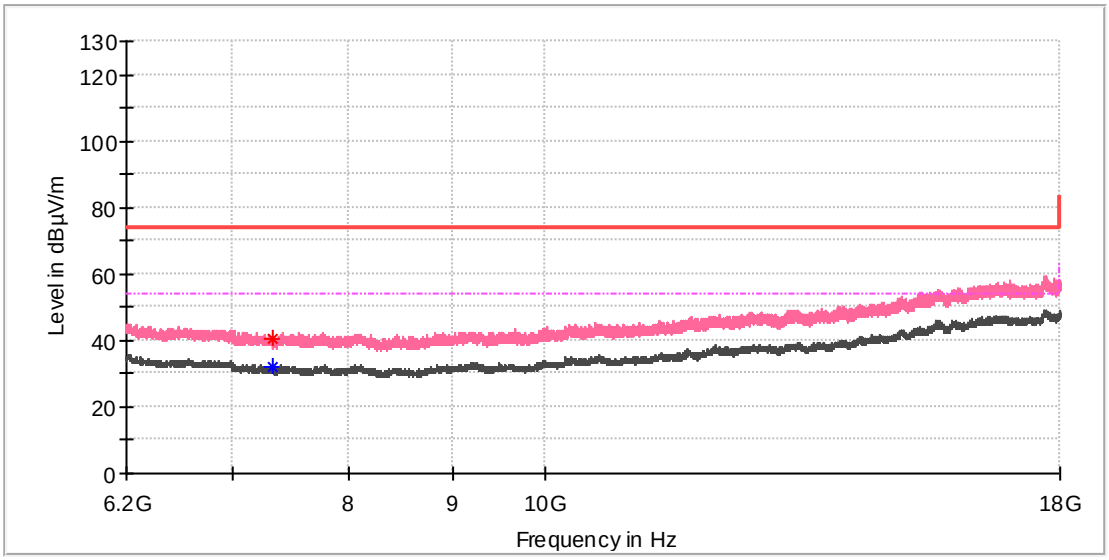


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7336.241667	48.23	---	74.00	25.77	150.0	H	241.0	8.1
7336.241667	---	40.40	54.00	13.60	150.0	H	241.0	8.1

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2445MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

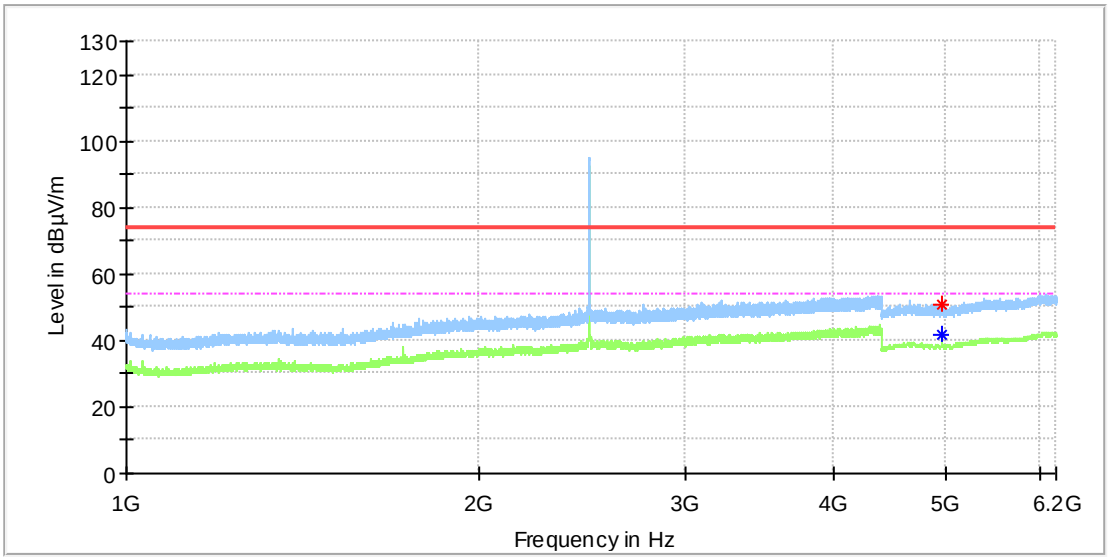


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7333.291667	40.40	---	74.00	33.60	150.0	V	254.0	8.1
7333.291667	---	32.00	54.00	22.00	150.0	V	254.0	8.1

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

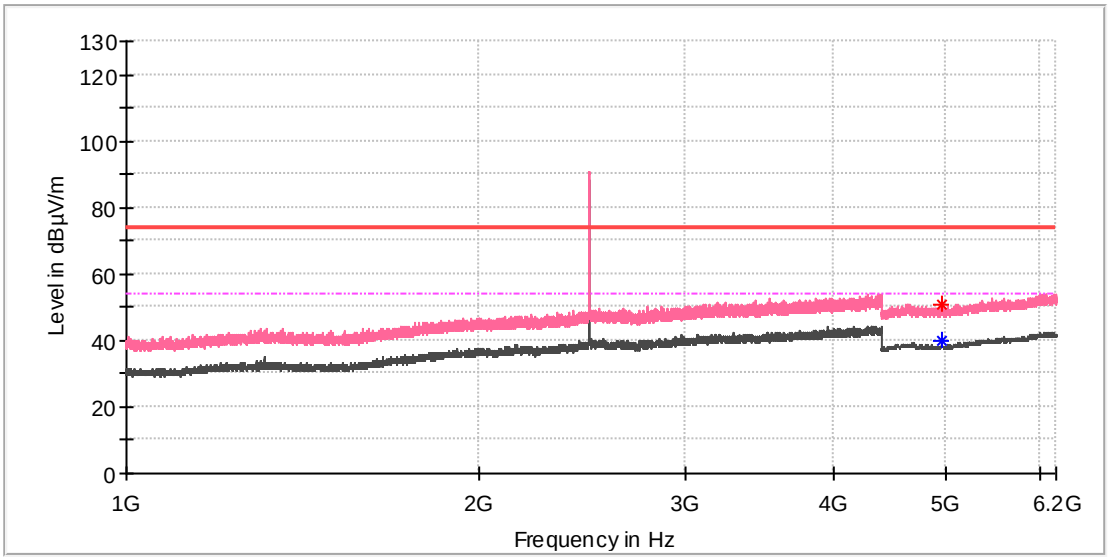


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4959.000000	51.07	---	74.00	22.93	150.0	H	267.0	11.8
4961.000000	---	41.78	54.00	12.22	150.0	H	260.0	11.8

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

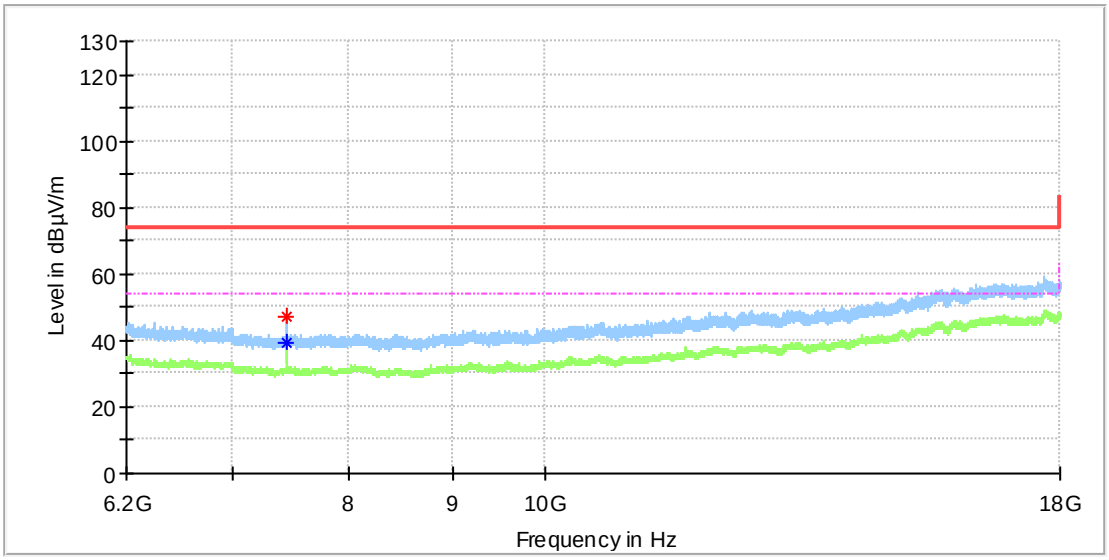


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4958.500000	---	39.91	54.00	14.09	150.0	V	101.0	11.8
4961.000000	50.51	---	74.00	23.49	150.0	V	101.0	11.8

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

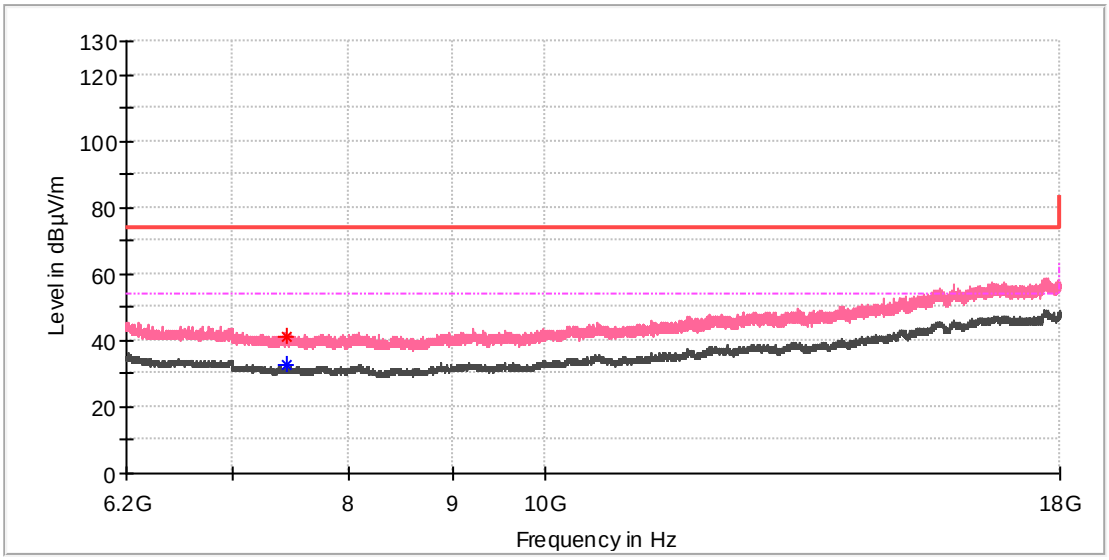


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7438.016667	---	39.53	54.00	14.47	150.0	H	233.0	8.4
7438.016667	47.03	---	74.00	26.97	150.0	H	233.0	8.4

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



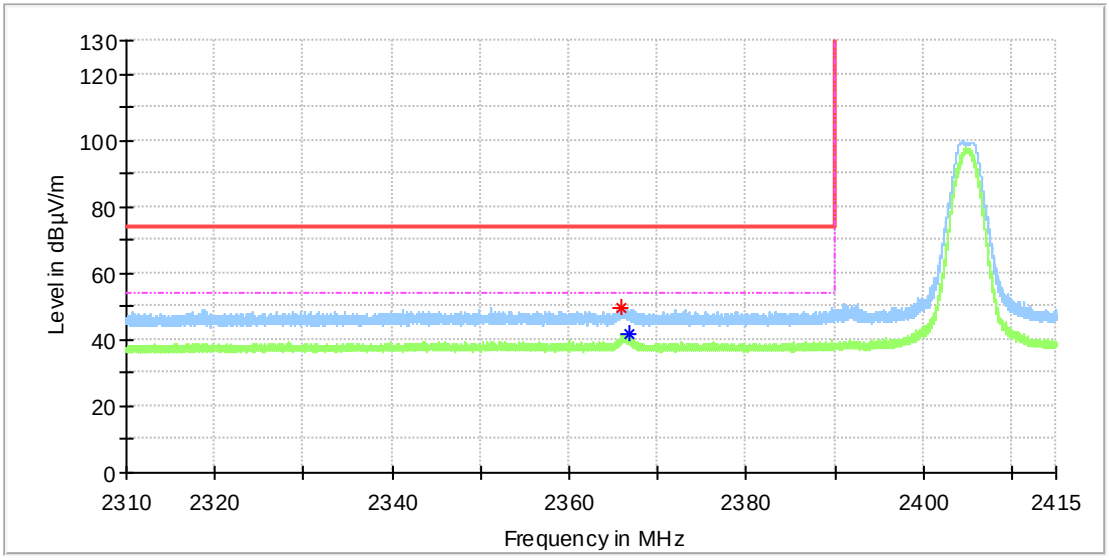
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7441.458333	41.30	---	74.00	32.70	150.0	V	177.0	8.4
7441.458333	---	32.53	54.00	21.47	150.0	V	177.0	8.4

Appendix B.6: Test Results of Radiated Emissions in Restricted Bands

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

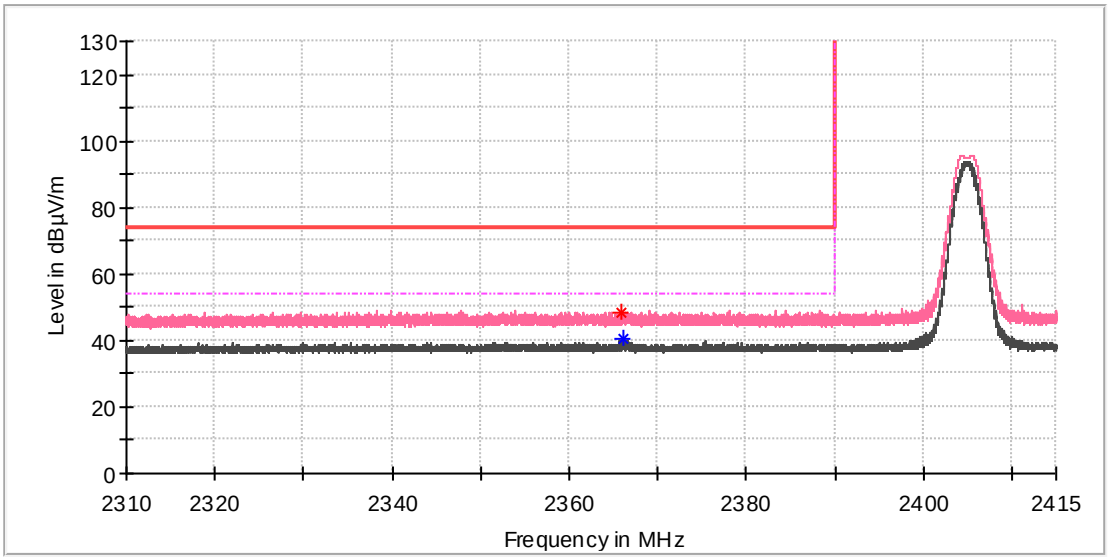


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2365.875750	49.84	---	74.00	24.16	150.0	H	228.0	6.9
2366.710500	---	42.01	54.00	11.99	150.0	H	169.0	6.9

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2405MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

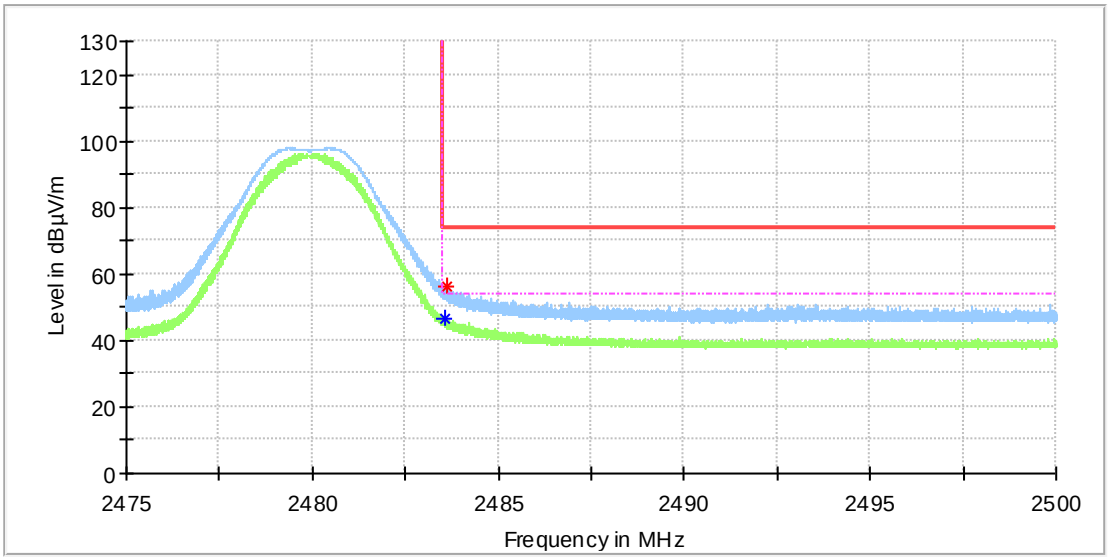


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2365.954500	48.35	---	74.00	25.65	150.0	V	117.0	6.9
2366.217000	---	40.24	54.00	13.76	150.0	V	117.0	6.9

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



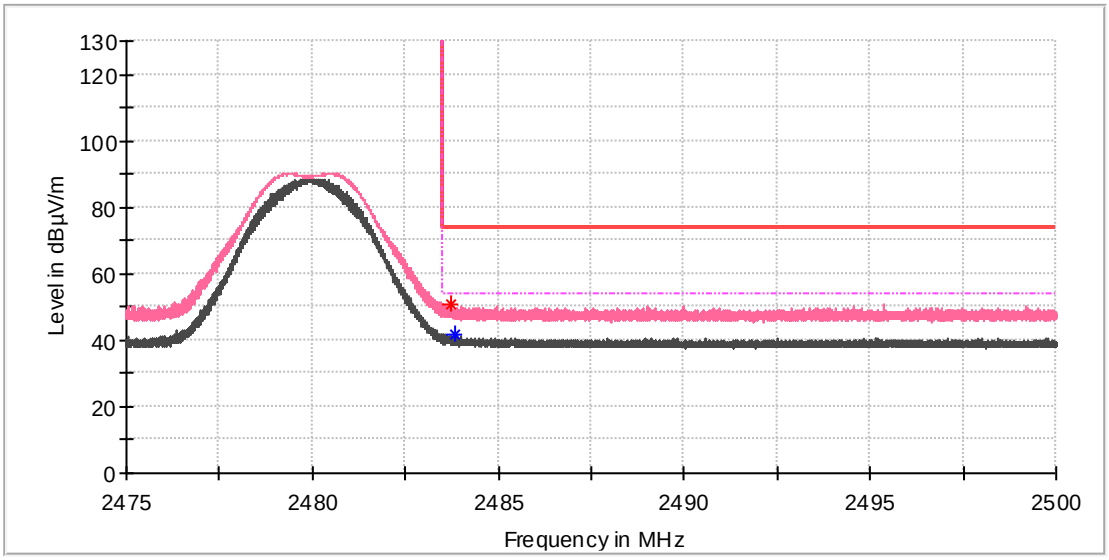
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.547500	---	46.81	54.00	7.19	100.0	H	341.0	7.4
2483.641250	56.10	---	74.00	17.90	100.0	H	341.0	7.4

Test Report

EUT Information

EUT Name:	Roller Blind
Model:	C2002
Test Mode:	2480MHz
Test Voltage::	Battery
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.705000	50.68	---	74.00	23.32	150.0	V	116.0	7.4
2483.852500	---	41.59	54.00	12.41	150.0	V	19.0	7.4