FCC PART 15.247

TEST REPORT

For

Jiangsu Shushi Technology Co., Ltd.

NO.9 Nanxu Road, RunZhou District, Zhenjiang, Jiangsu, China

FCC ID: 2BAGQ-3RSMR01067Z

Report Type:	**Product Name:**
Original Report	Smart Motion Sensor R1

Report Number:	RKSB250107003-00B
Report Date:	2025-04-14
Reviewed By:	Bard Liu
Approved By:	Kyle Xu
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu Province, China Tel: +86-512-86175000 Fax: +86-512-88934268 www.baclcorp.com.cn

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSB250107003-00B	R1V1	2025-04-14	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Jiangsu Shushi Technology Co., Ltd.
Tested Model:	3RSMR01067Z
Product Name:	Smart Motion Sensor R1
Power Supply:	DC 4.5V from battery
Maximum peak Output Power:	9.11 dBm
RF Function:	Zigbee
Operating Band/Frequency:	2405-2480 MHz
Channel Number:	16
Channel Separation:	5 MHz
Modulation Type	OQPSK
Antenna Type:	PCB Antenna
★Maximum Antenna Gain:	2.0 dBi

Note: The maximum antenna gain was provided by the applicant.

All measurement and test data in this report was gathered from production sample serial number: RKSB250107003-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2025-01-07.)

Objective

This report is prepared for *Jiangsu Shushi Technology Co., Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission's rules.

The tests were performed in order to determine Compliant with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209 and 15.247 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and FCC 558074 D01 15.247 Meas Guidance v05r02.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19 dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	9 kHz~150 kHz	3.8dB
	150 kHz~30 MHz	3.4dB
	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Occupied Bandwidth		0.5kHz
Temperature		1.0℃
Humidity		6%

Test Facility

The Test site used by Bay Area Compliant Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu Province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) is accredited in accordance with ISO/IEC 17025:2017 by NVLAP (Lab code: 600338-0), and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No.: CN5055.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

Channel	Frequency (MHz)	Channel	Frequency (MHz)
11	2405	21	2455
12	2410	22	2460
13	2415	23	2465
14	2420	24	2470
15	2425	25	2475
16	2430	26	2480
17	2435	/	/
18	2440	/	/
19	2445	/	/
20	2450	/	/

EUT was tested with Channel 11, 18, 25 and 26.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

RF test tool: Telink BDT & EMI_Test_Tool

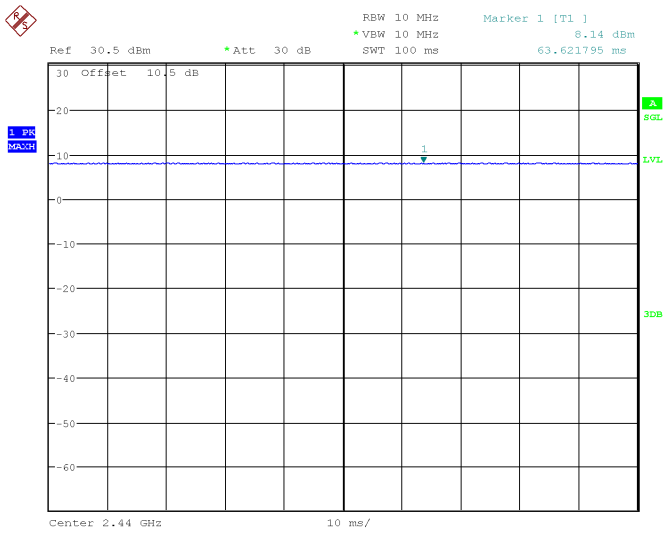
Pre-scan with all the data rates, and the worst case was performed as below:

Frequency(MHz)	★Power Level
2405	10.5
2440	10.5
2475	10.5
2480	-1.4

Note: The power level setting was declared by the applicant.

Duty Cycle:

Middle Channel: 2440MHz



Mode	Duty Cycle(%)	Ton(ms)	Ton+off(ms)	10log(1/x) (dB)
Zigbee	100	100	100	/

Note:
1. “x” means the Duty Cycle.
2. Offset (10.5dB) = Attenuator (10dB)+Cable loss (0.5dB)

Support Equipment List and Details

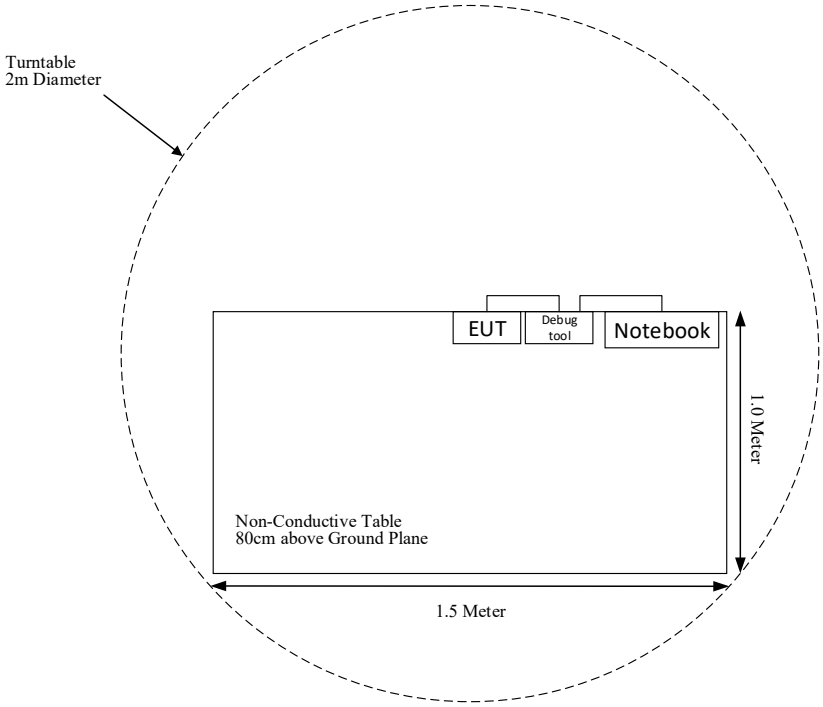
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	Y700P	PF2B7PL5
/	Debug tool	/	/

External I/O Cable

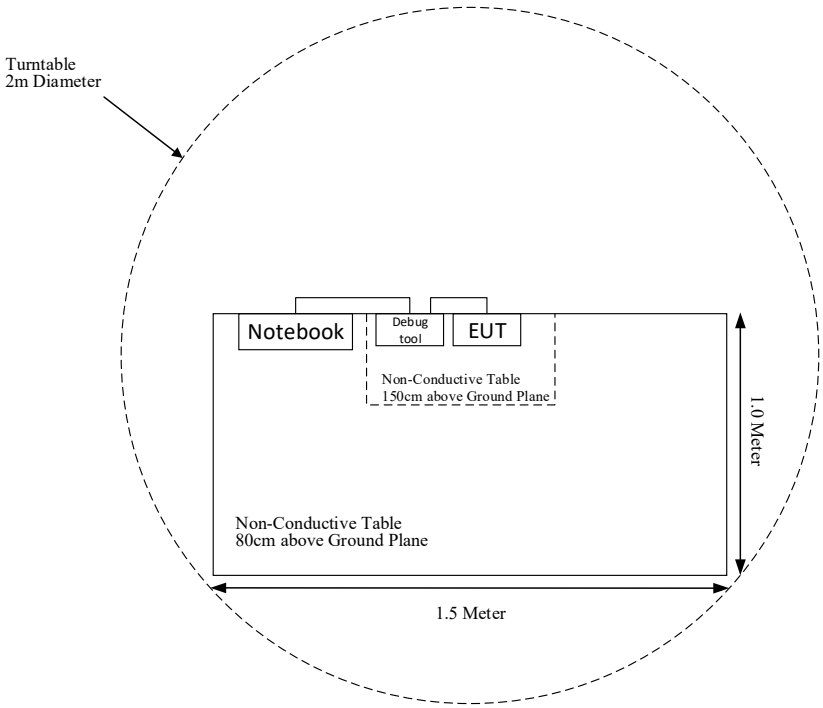
Cable Description	Length (m)	From Port	To Port
Data Cable	0.1	EUT	Debug tool
USB Cable	1.0	Debug tool	Notebook

Block Diagram of Test Setup

For Radiated Emissions (Below 1GHz):



For Radiated Emissions (above 1 GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Not Applicable (See the note)
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant
FCC §1.1310 & §2.1091	MAXIMUM PERMISSIBLE EXPOSURE (MPE)	Compliant

Note: The EUT powered by battery.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber 1#)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2024-04-23	2025-04-22
Sunol Sciences	Hybrid Antenna	JB3	A090314-1	2024-11-08	2027-11-07
BACL	Active Loop Antenna	1313-1A	4041511	2024-11-22	2027-11-21
Narda	6dB Attenuator	773-6	10690812-2-1	2024-11-08	2027-11-07
Sonoma Instrument	Amplifier	310N	171205	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-8	008	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-9	009	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-10	010	2024-04-23	2025-04-22
Rohde & Schwarz	Test Software	EMC32	100361	N/A	N/A
Radiated Emission Test (Chamber 2#)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2024-04-25	2025-04-24
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2024-11-03	2027-11-02
ETS-LINDGREN	Horn Antenna	3116	2516	2024-12-12	2027-12-11
A.H.Systems, inc	Amplifier	PAM-0118P	512	2024-04-25	2025-04-24
EM Electronics Corporation	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2024-08-05	2025-08-04
Narda	Attenuator	10dB	10dB-01	2024-04-24	2025-04-23
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-11	011	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-12	012	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-13	013	2024-04-25	2025-04-24
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2024-04-24	2025-04-23
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2025-04-09	2026-04-08
Narda	Attenuator	10dB	010	2025-04-09	2026-04-08
Narda	Attenuator	10dB	010	2024-04-23	2025-04-22
XHFDZ	RG316 Coaxial Cable	SMA-316	XHF-1175	Each time	N/A

Statement of Traceability: Bay Area Compliant Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine Compliant with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has a PCB antenna and the antenna gain is 2.0 dBi, which was permanently attached to the EUT, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliant.

FCC §1.1310 & §2.1091 –MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart §2.1091 and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Mode	Frequency Range (MHz)	Antenna Gain		★Tune-up Conducted Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
Zigbee	2405~2480	2.0	1.58	9.5	8.91	20	0.0028	1.0
SRD	5770~5840.5	3.99	2.51	-5.5	0.28	20	0.0001	1.0

The Zigbee & 5.8G SRD can be transmitting simultaneously, So

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.0028+0.0001=0.0029 < 1.0$$

Note:
1. For the above tune up power were declared by the manufacturer.
2. For 5.8G SRD, this maximum E-Field level is 93.65 dBμV/m at 3m, so the EIRP is -1.55 dBm. The antenna gain is 3.99dBi . The conducted power is -5.54 dBm
3. EIRP (dBm) = Field Strength of Fundamental (dBuV/m)-95.2,
   Conducted Power(dBm)=EIRP(dBm)-antenna gain(dBi)

Result: The device meet FCC MPE at 20 cm distance.

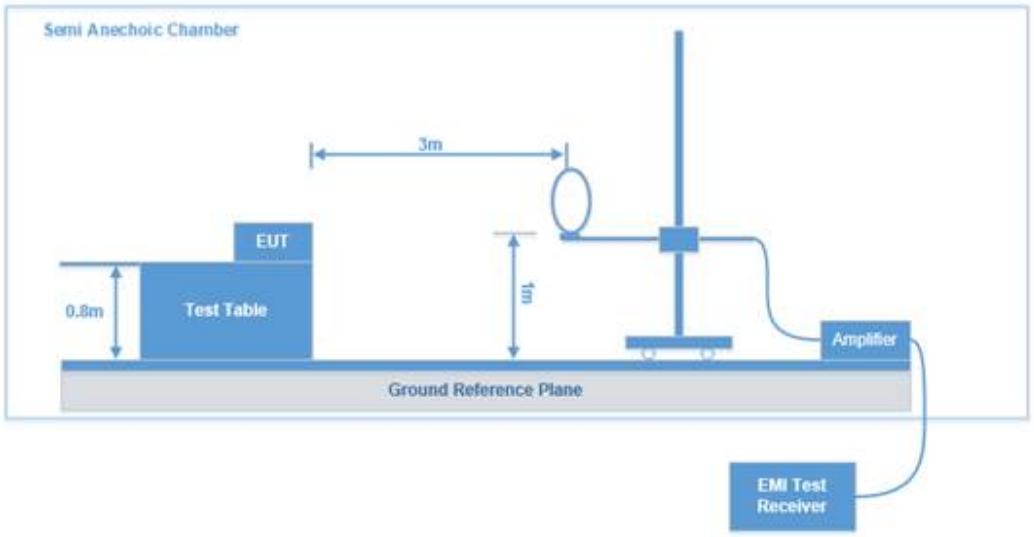
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

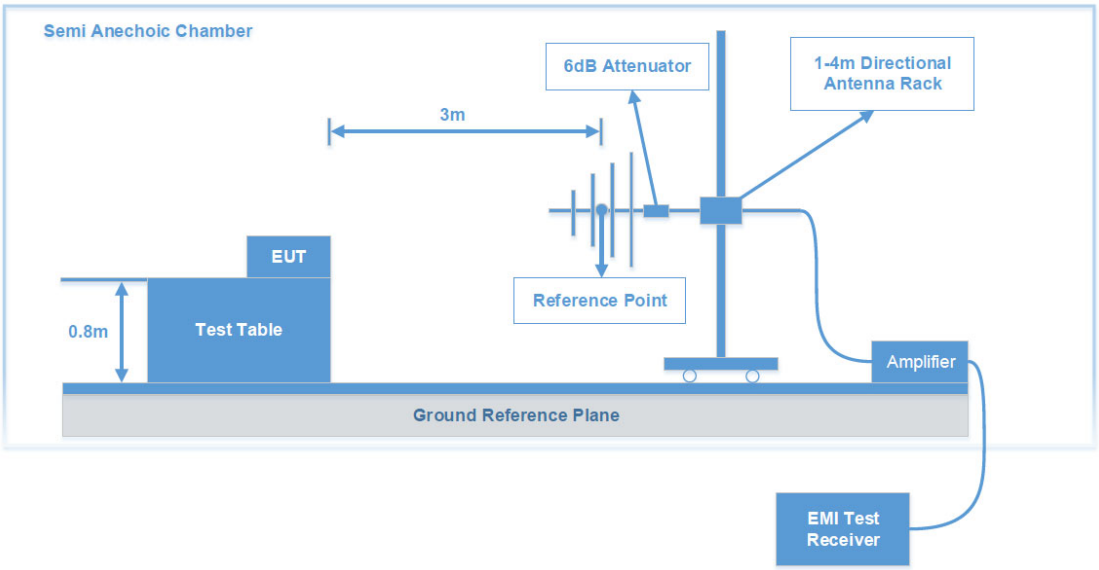
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

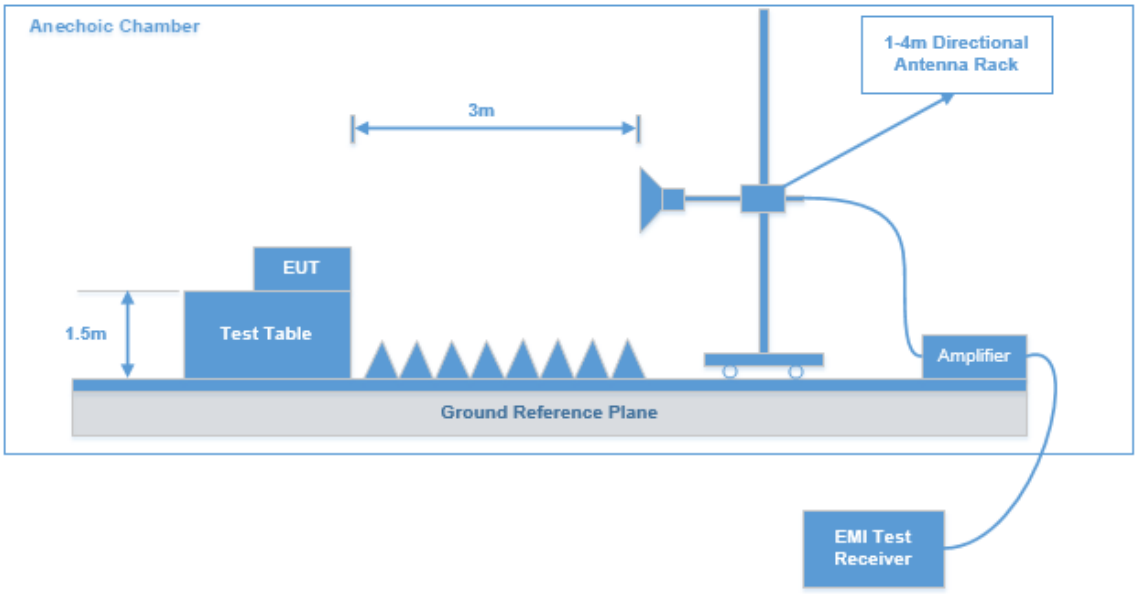
9 kHz - 30 MHz:



30 MHz - 1 GHz:



1 GHz -25 GHz:



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

EMI Test Receiver Setup

The system was investigated from 9 kHz to 25 GHz.

During the radiated emission test, the EMI test receiver setup was set with the following configurations:

Frequency Range	RBW	VBW	IF B/W	Detector
9 kHz – 150 kHz	200 Hz	1 kHz	200 Hz	QP/Average
150 kHz – 30 MHz	9 kHz	30 kHz	9 kHz	QP/ Average
30 MHz – 1000 MHz	100 kHz	300 kHz	/	Peak
	/	/	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	Peak
	1MHz	3 MHz	/	Average

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz-1 GHz, peak and Average detection mode for frequencies above 1 GHz.

For 9 kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude (dBμV/m) = Meter Reading (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

Note: The QuasiPeak (dBμV/m), MaxPeak (dBμV/m), Average (dBμV/m) which shown in the data table are all Corrected Amplitude.

The "**Margin**" column of the following data tables indicates the degree of Compliant with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV/m) - Corrected Amplitude (dBμV/m)

Test Results Summary

According to the recorded data in following table, the EUT is compliant with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

Test Data: See Appendix

FCC §15.247(a) (2) - 6 dB EMISSION BANDWIDTH

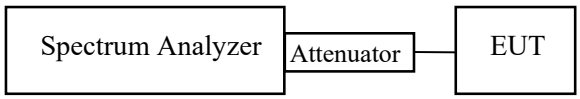
Applicable Standard

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.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.8.1

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Note: Offset (10.5dB) = Attenuator(10dB)+Cable loss(0.5dB)

Test Data: See Appendix

FCC §15.247(b) (3) - MAXIMUM CONDUCTED OUTPUT POWER

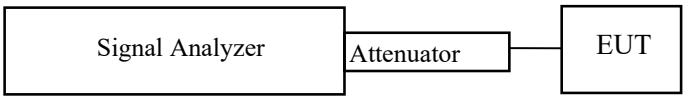
Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, Compliant with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.9.1.3

1. Set the RBW ≥ DTS bandwidth.
2. Set VBW ≥ 3 x RBW.
3. Set span ≥ 3 x RBW
4. Sweep time = auto couple.
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use peak marker function to determine the peak amplitude level.



Note: Offset (10.5dB) = Attenuator(10dB)+Cable loss(0.5dB)

Test Data: See Appendix

FCC §15.247(d) - BAND EDGE

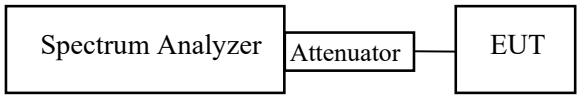
Applicable Standard

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 Compliant 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. 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)).

Test Procedure

According to ANSI C63.10-2013 sub-clause 6.10.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT 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. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



Note: Offset (10.5dB) = Attenuator(10dB)+Cable loss(0.5dB)

Test Data: See Appendix

FCC §15.247(e) - POWER SPECTRAL DENSITY

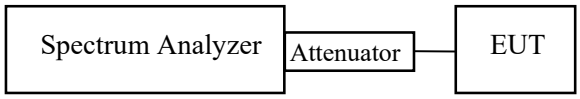
Applicable Standard

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.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.10.2

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate Compliant.
2. Set the RBW to: 3kHz≤ RBW≤100 kHz.
3. Set the VBW ≥ 3×RBW.
4. Set the span to 1.5 times the DTS bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Note: Offset (10.5dB) = Attenuator(10dB)+Cable loss(0.5dB)

Test Data: See Appendix

APPENDIX - TEST DATA

Environmental Conditions & Test Information

Test Item:	Duty Cycle	Spurious Emissions			
		9 kHz-30 MHz	30 MHz ~1GHz	1GHz~18GHz	18GHz~25GHz
Test Date:	2025-04-14	2025-02-28	2025-02-17	2025-02-13	2025-03-10
Temperature:	21.2℃	17.1 ℃	16.1 ℃	16.8℃	18.7℃
Relative Humidity:	52%	47 %	44 %	47 %	51 %
ATM Pressure:	102.7 kPa	101.6 kPa	103.0kPa	101.6 kPa	102.4 kPa
Test Result:	/	Pass	Pass	Pass	Pass
Test Engineer:	Neil Zhou	Jerry Yan	Jerry Yan	Destine Hu	Hugh Wu

Test Item:	6 dB Emission Bandwidth	Maximum Conducted Output Power	Band Edge	Power Spectral Density
Test Date:	2025-02-19	2025-02-19	2025-02-19 to 2025-03-14	2025-02-19
Temperature:	17.5℃	17.5℃	17.5-20.3 ℃	17.5℃
Relative Humidity:	48%	48%	48-51 %	48%
ATM Pressure:	102.1 kPa	102.1 kPa	102.1-103.2 kPa	102.1 kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Neil Zhou	Neil Zhou	Neil Zhou	Neil Zhou

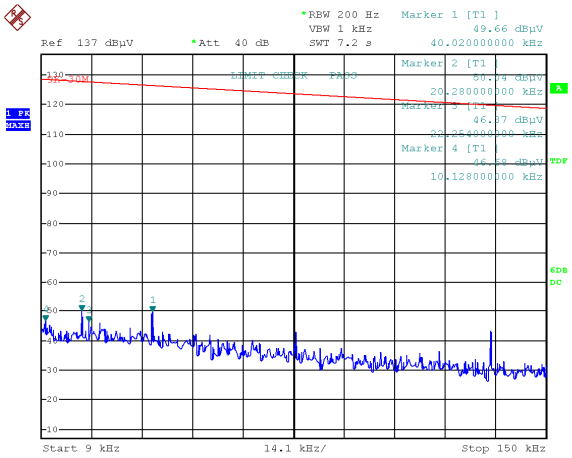
SPURIOUS EMISSIONS

EUT operation mode: Transmitting

After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

9 kHz-30 MHz: (*Transmitting in maximum output power low channel)*
Parallel(worst case)

9kHz-150kHz



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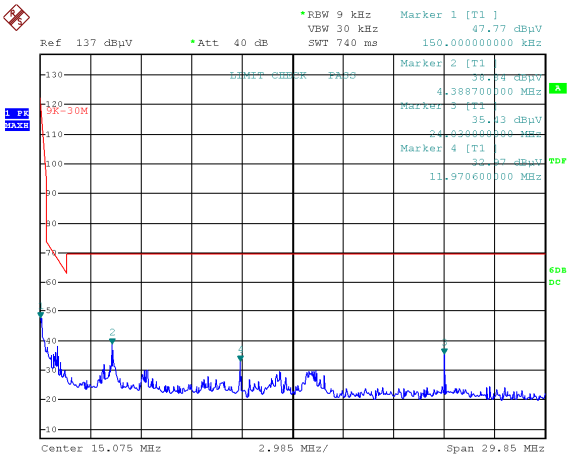
150kHz-30MHz



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Date: 28.FEB.2025 17:47:38

9kHz-150kHz

Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.010128	46.68	PK	-0.51	127.49	80.81
0.020280	50.04	PK	-0.56	121.46	71.42
0.022254	46.37	PK	-0.57	120.66	74.29
0.040020	49.66	PK	-2.21	115.56	65.90

150kHz-30MHz

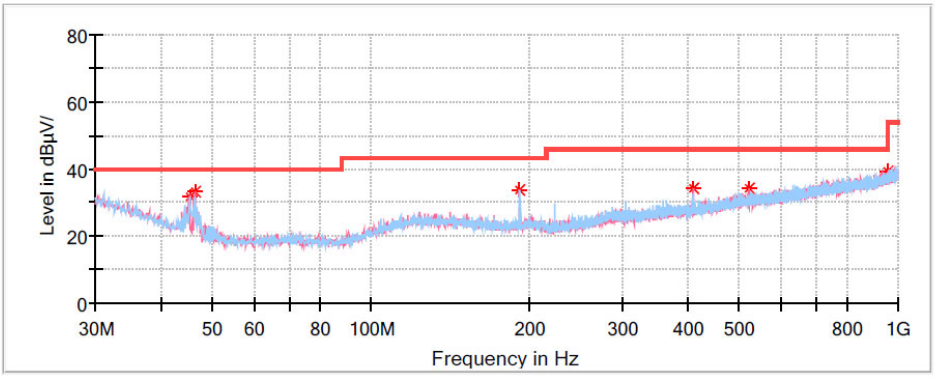
Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.15000	47.77	PK	-11.34	104.08	56.31
4.38870	38.84	PK	-31.97	69.54	30.70
11.97060	32.97	PK	-33.01	69.54	36.57
24.03000	35.43	PK	-32.92	69.54	34.11

30 MHz - 1 GHz:

Low channel （2405MHz）

Common Information

Project No:	RKSB250107003
EUT Model:	3RSMR01067Z
Test Mode:	Transmitting in ZigBee mode low channel
Standard:	FCC Part 15.205 &FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Receiver Setting:	RBW:100 kHz, VBW: 300 kHz, Sweep Time: Auto
Temperature:	16.1℃
Humidity:	44%
Barometric Pressure:	103.0kPa
Test Engineer:	Jerry Yan
Test Date:	2025/2/17



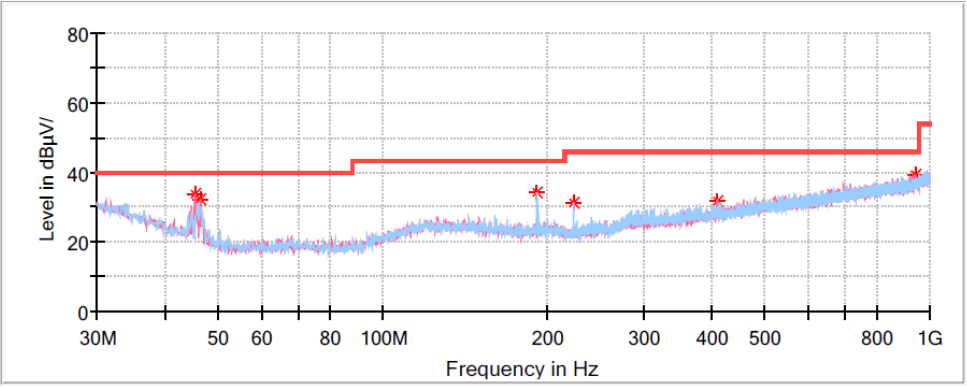
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
45.277500	31.89	40.00	8.11	H	-14.3
46.368750	33.21	40.00	6.79	V	-14.9
191.990000	33.78	43.50	9.72	H	-12.4
408.057500	34.26	46.00	11.74	V	-7.8
521.305000	34.39	46.00	11.61	V	-5.0
957.926250	39.13	46.00	6.87	V	1.6

Middle Channel (2440MHz)

Common Information

Project No:	RKSB250107003
EUT Model:	3RSMR01067Z
Test Mode:	Transmitting in ZigBee mode middle channel
Standard:	FCC Part 15.205 &FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Receiver Setting:	RBW:100 kHz, VBW: 300 kHz, Sweep Time: Auto
Temperature:	16.1℃
Humidity:	44%
Barometric Pressure:	103.0kPa
Test Engineer:	Jerry Yan
Test Date:	2025/2/17



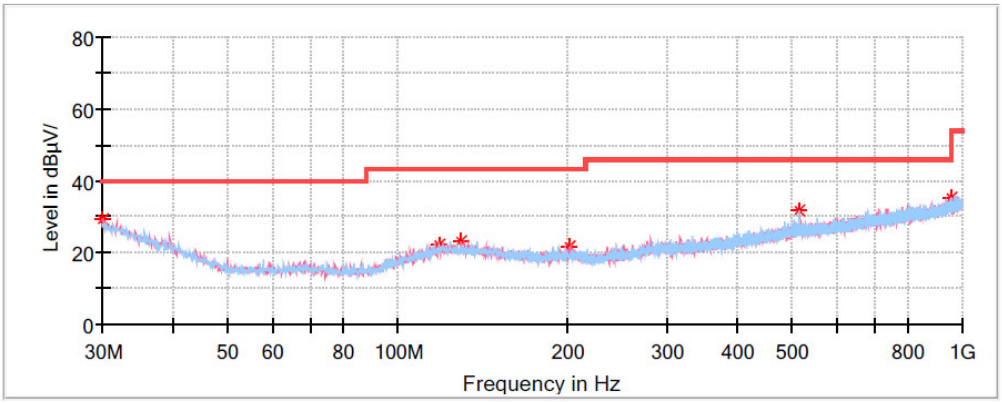
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
45.277500	33.78	40.00	6.22	V	-14.3
46.490000	32.15	40.00	7.85	V	-15.0
191.990000	34.40	43.50	9.10	H	-12.4
224.000000	31.07	46.00	14.93	H	-13.2
408.057500	31.95	46.00	14.05	V	-7.8
944.103750	39.33	46.00	6.67	V	1.3

High channel（2475MHz）

Common Information

Project No:	RKSB250107003
EUT Model:	3RSMR01067Z
Test Mode:	Transmitting in ZigBee mode high channel
Standard:	FCC Part 15.205 &FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Receiver Setting:	RBW:100 kHz, VBW: 300 kHz, Sweep Time: Auto
Temperature:	16.1℃
Humidity:	44%
Barometric Pressure:	103.0kPa
Test Engineer:	Jerry Yan
Test Date:	2025/2/17



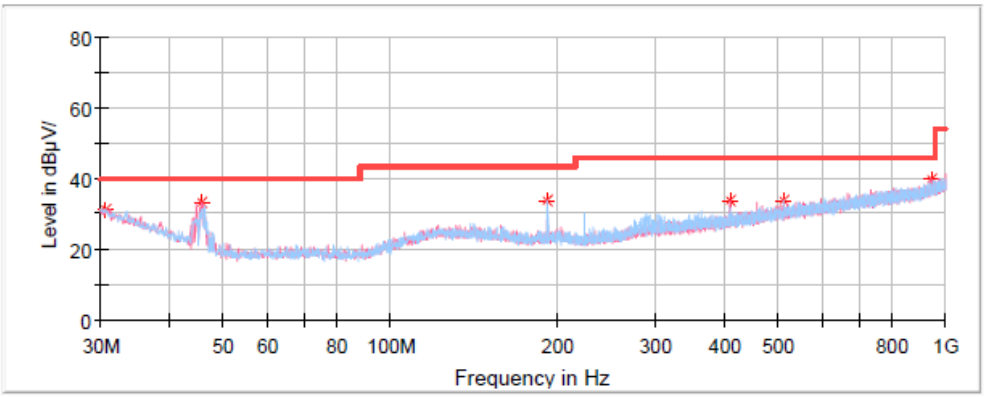
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.000000	29.34	40.00	10.66	V	-4.8
118.391250	22.13	43.50	21.37	H	-11.1
129.303750	23.14	43.50	20.36	V	-11.0
201.447500	21.47	43.50	22.03	V	-12.1
514.272500	31.53	46.00	14.47	H	-5.1
953.197500	35.24	46.00	10.76	H	1.5

Highest channel（2480MHz）

Common Information

Project No:	RKSB250107003
EUT Model:	3RSMR01067Z
Test Mode:	Transmitting in ZigBee mode highest channel（2480MHz）
Standard:	FCC Part 15.205 &FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Receiver Setting:	RBW:100 kHz, VBW: 300 kHz, Sweep Time: Auto
Temperature:	16.1℃
Humidity:	44%
Barometric Pressure:	103.0kPa
Test Engineer:	Jerry Yan
Test Date:	2025/2/17



Critical_Freqs

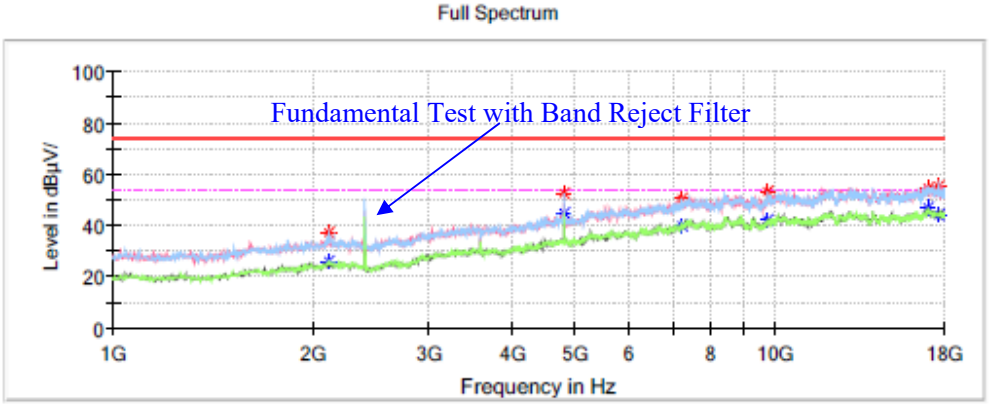
Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.606250	31.40	40.00	8.60	H	-5.1
45.762500	33.23	40.00	6.77	V	-14.5
191.990000	33.96	43.50	9.54	H	-12.4
407.936250	33.59	46.00	12.41	V	-7.8
511.726250	33.60	46.00	12.40	H	-5.2
939.617500	39.56	46.00	6.44	V	1.2

1 GHz - 18 GHz:

2405 MHz

Common Information

Project No.:	RKSB250107003
Test Mode:	ZigBee
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting:	RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer:	Destine Hu



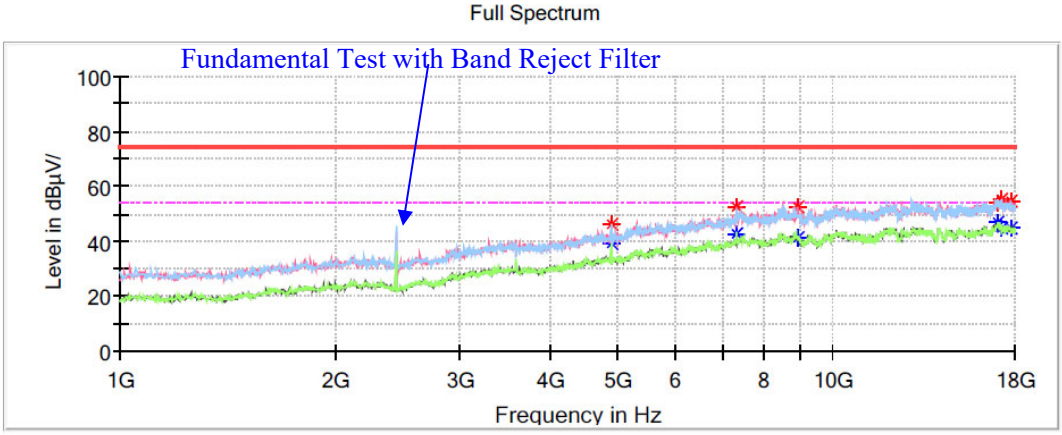
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2122.000000	---	25.98	54.00	28.02	H	-11.4
2122.000000	36.77	---	74.00	37.23	H	-11.4
4808.000000	---	45.01	54.00	8.99	H	-3.1
4808.000000	52.24	---	74.00	21.76	H	-3.1
7211.800000	---	40.17	54.00	13.83	H	3.2
7211.800000	50.30	---	74.00	23.70	H	3.2
9734.600000	---	41.73	54.00	12.27	V	6.2
9734.600000	53.23	---	74.00	20.77	V	6.2
16997.000000	---	46.65	54.00	7.35	H	12.3
16997.000000	54.78	---	74.00	19.22	H	12.3
17615.800000	---	44.33	54.00	9.67	V	11.6
17615.800000	55.40	---	74.00	18.60	V	11.6

2440 MHz

Common Information

Project No.:	RKSB250107003
Test Mode:	ZigBee
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting:	RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer:	Destine Hu



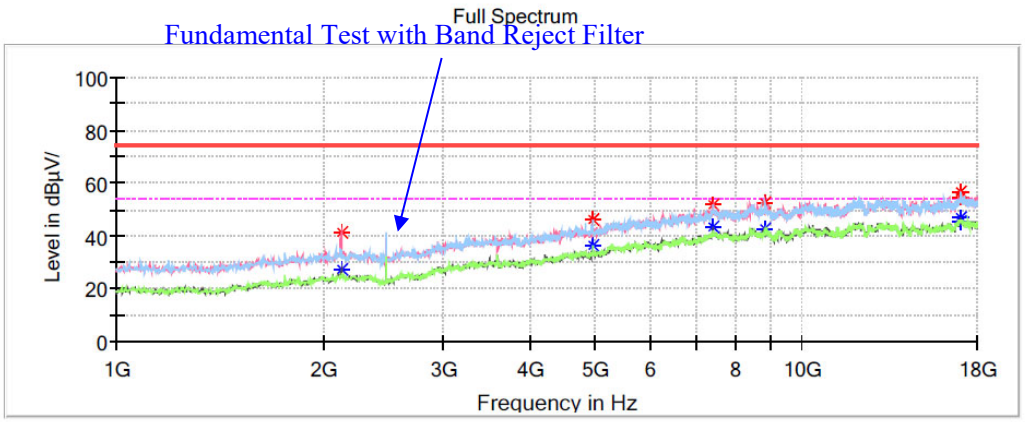
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
4879.400000	---	38.91	54.00	15.09	H	-2.9
4879.400000	46.40	---	74.00	27.60	H	-2.9
7317.200000	---	42.50	54.00	11.50	V	3.4
7317.200000	52.37	---	74.00	21.63	V	3.4
8925.400000	---	40.97	54.00	13.03	H	5.4
8925.400000	52.67	---	74.00	21.33	H	5.4
17031.000000	---	46.86	54.00	7.14	H	12.2
17031.000000	53.98	---	74.00	20.02	H	12.2
17224.800000	55.26	---	74.00	18.74	H	11.9
17224.800000	---	45.06	54.00	8.94	H	11.9
17796.000000	---	44.98	54.00	9.02	V	11.8
17796.000000	54.39	---	74.00	19.61	V	11.8

2475 MHz

Common Information

Project No.:	RKSB250107003
Test Mode:	ZigBee
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting:	RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer:	Destine Hu



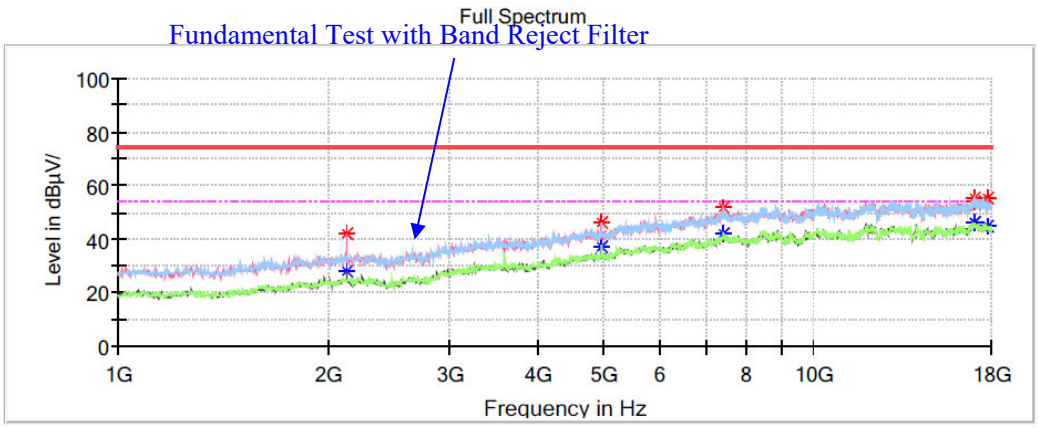
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2125.400000	---	27.36	54.00	26.64	V	-11.3
2125.400000	40.96	---	74.00	33.04	V	-11.3
4947.400000	---	36.65	54.00	17.35	H	-2.6
4947.400000	45.83	---	74.00	28.17	H	-2.6
7422.600000	---	43.27	54.00	10.73	V	3.7
7422.600000	52.05	---	74.00	21.95	V	3.7
8847.200000	---	42.41	54.00	11.59	H	5.4
8847.200000	52.56	---	74.00	21.44	H	5.4
17020.800000	---	46.92	54.00	7.08	V	12.2
17020.800000	54.42	---	74.00	19.58	V	12.2
17075.200000	---	45.23	54.00	8.77	H	12.2
17075.200000	56.63	---	74.00	17.37	H	12.2

2480 MHz

Common Information

Project No.:	RKSB250107003
Test Mode:	ZigBee
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting:	RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer:	Destine Hu



Critical_Freqs

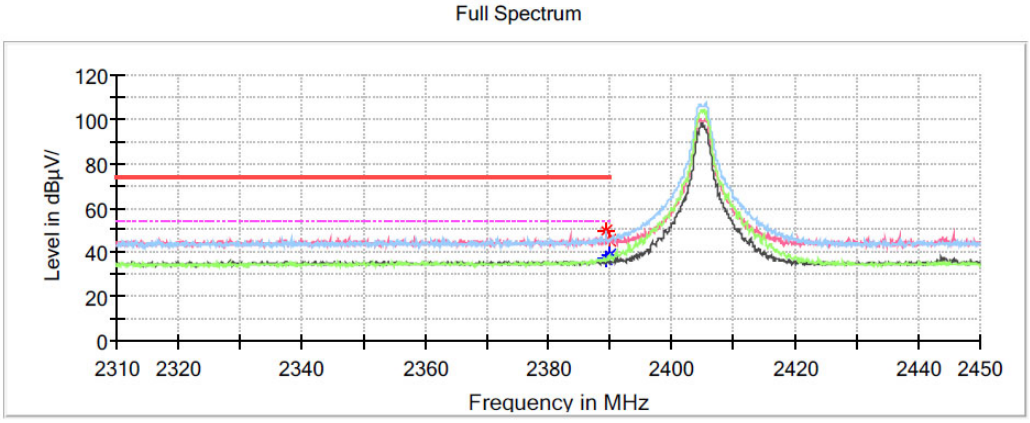
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2128.800000	---	27.94	54.00	26.06	V	-11.3
2128.800000	42.29	---	74.00	31.71	V	-11.3
4961.000000	---	37.14	54.00	16.86	H	-2.6
4961.000000	46.08	---	74.00	27.92	H	-2.6
7436.200000	---	41.83	54.00	12.17	H	3.7
7436.200000	51.56	---	74.00	22.44	H	3.7
17017.400000	---	46.20	54.00	7.80	V	12.3
17017.400000	55.21	---	74.00	18.79	V	12.3
17037.800000	53.58	---	74.00	20.42	V	12.2
17037.800000	---	46.37	54.00	7.63	V	12.2
17809.600000	---	44.67	54.00	9.33	H	11.8
17809.600000	55.18	---	74.00	18.82	H	11.8

Band edge:

2405 MHz

Common Information

Project No.:	RKSB250107003
Test Mode:	ZigBee
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting:	RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer:	Destine Hu



Critical_Freqs

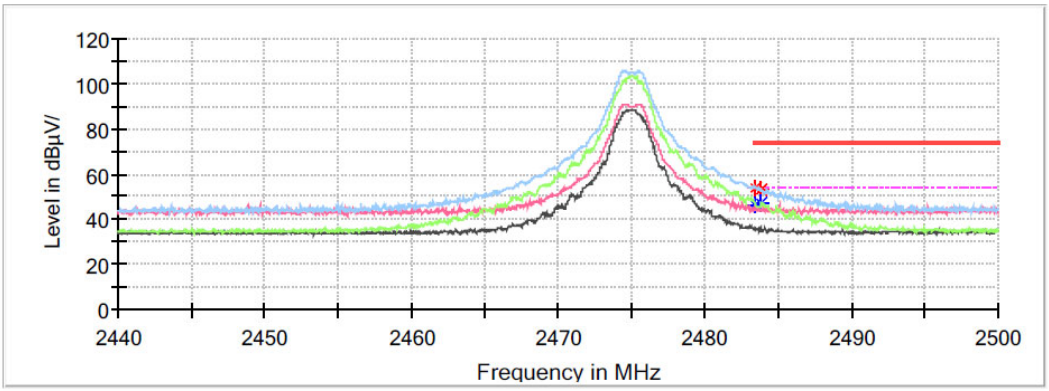
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.296000	49.52	---	74.00	24.48	H	-0.6
2389.296000	---	37.24	54.00	16.76	H	-0.6
2389.856000	45.36	---	74.00	28.64	H	-0.6
2389.856000	---	38.27	54.00	15.73	H	-0.6

2475 MHz

Common Information

Project No.:	RKSB250107003
Test Mode:	ZigBee
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting:	RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer:	Destine Hu

Full Spectrum



Critical_Freqs

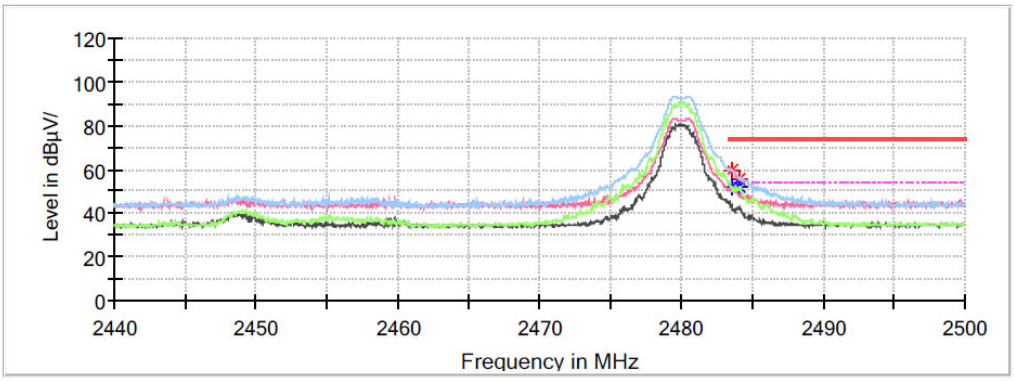
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.512000	53.68	---	74.00	20.32	H	-0.3
2483.512000	---	45.99	54.00	8.01	H	-0.3
2483.896000	52.76	---	74.00	21.24	H	-0.3
2483.896000	---	47.02	54.00	6.98	H	-0.3

2480 MHz

Common Information

Project No.:	RKSB250107003
Test Mode:	ZigBee
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Receiver Setting:	RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
Test Engineer:	Destine Hu

Full Spectrum

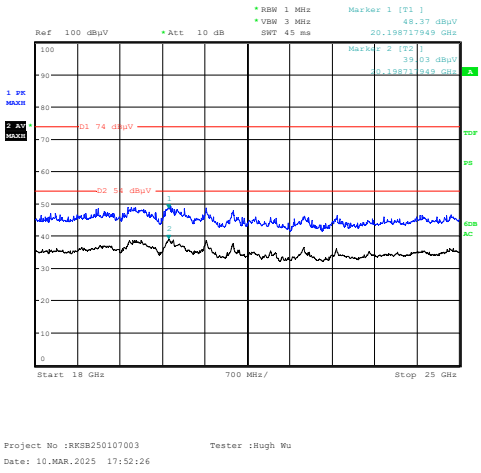


Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.536000	59.95	---	74.00	14.05	H	-0.3
2483.536000	---	51.85	54.00	2.15	H	-0.3
2484.088000	55.59	---	74.00	18.41	H	-0.3
2484.088000	---	52.35	54.00	1.65	H	-0.3

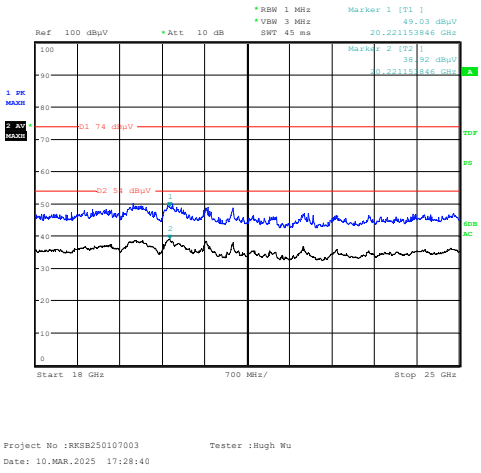
18GHz-25GHz: *Transmitting in maximum output power mode low channel*

Horizontal



Project No :RKSB250107003 Tester :Hugh Wu
Date: 10.MAR.2025 17:52:26

Vertical



Project No :RKSB250107003 Tester :Hugh Wu
Date: 10.MAR.2025 17:28:40

Frequency (GHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
20.20	---	39.03	54	14.97	H	12.46
20.20	48.37	---	74	25.63	H	12.46
20.22	---	38.92	54	15.08	V	12.48
20.22	49.03	---	74	24.97	V	12.48

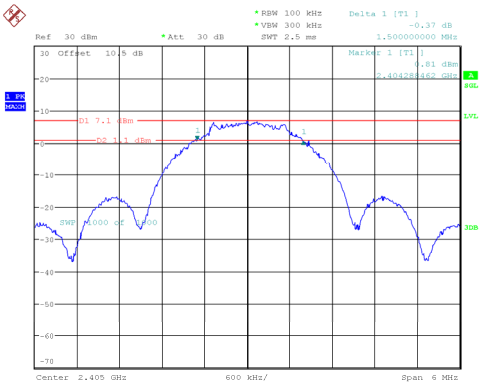
6 dB EMISSION BANDWIDTH

Test Result: Compliant.

EUT operation mode: Transmitting

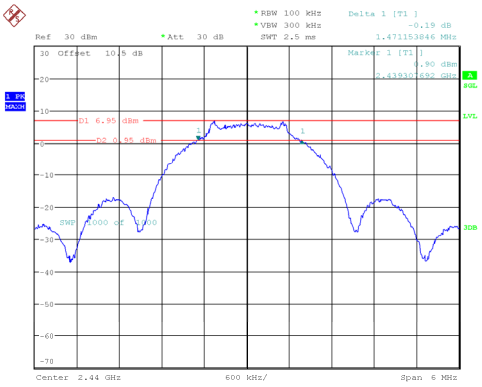
Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
2405	1.500	≥0.5
2440	1.471	≥0.5
2475	1.462	≥0.5
2480	1.471	≥0.5

2405 MHz



ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 14:10:03

2440 MHz



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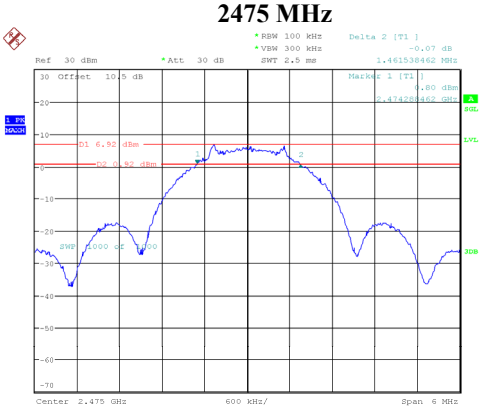
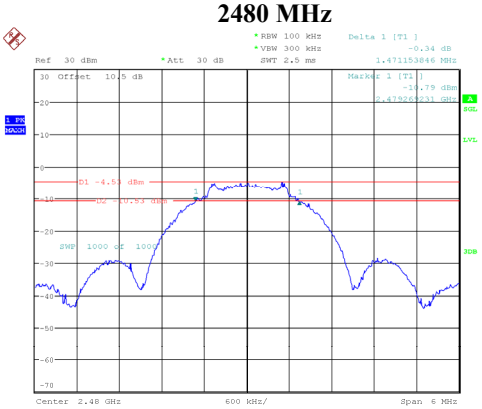
Date: 19.FEB.2025 14:12:17

2475 MHz



ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 14:15:00

2480 MHz



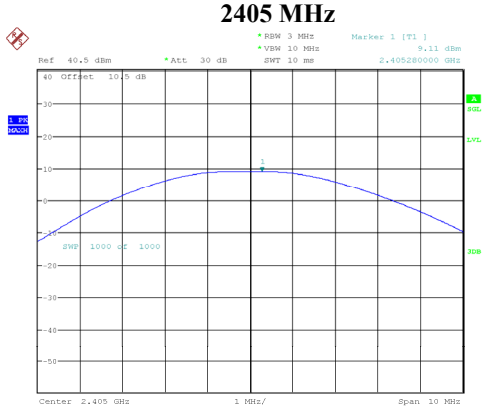
ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 14:23:00

MAXIMUM CONDUCTED OUTPUT POWER

EUT operation mode: Transmitting

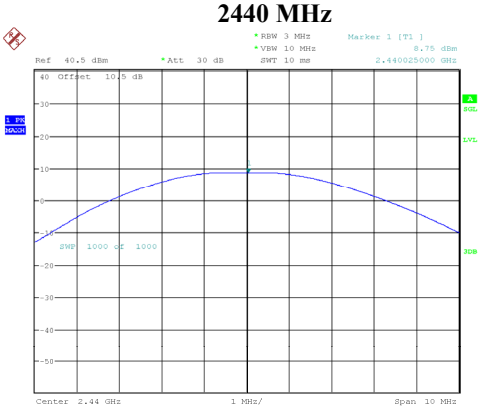
Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Limit (dBm)	Result
2405	9.11	30	Pass
2440	8.75	30	Pass
2475	8.61	30	Pass
2480	-2.60	30	Pass

2405 MHz



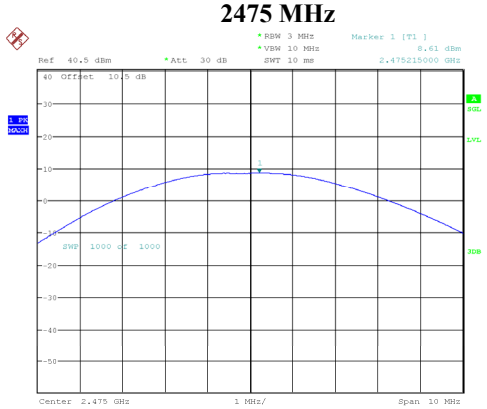
ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 15:45:58

2440 MHz



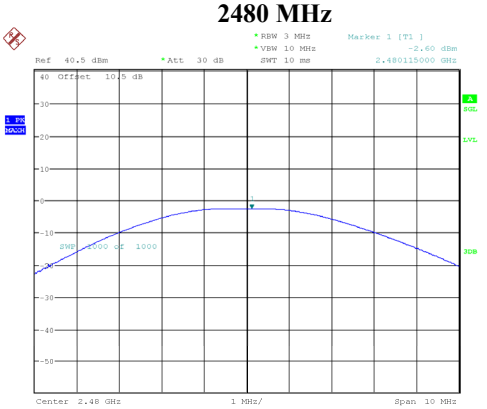
ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 15:47:29

2475 MHz



ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 15:49:14

2480 MHz



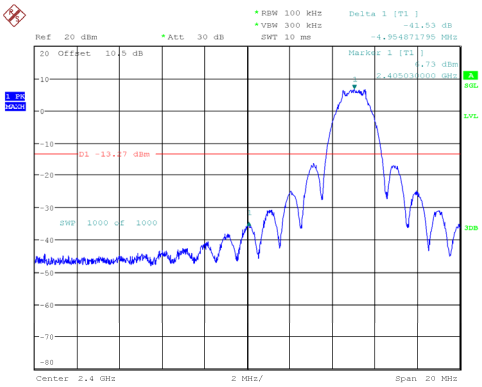
ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 15:50:54

BAND EDGE

EUT operation mode: Transmitting

Test Result: Compliant.

2405 MHz



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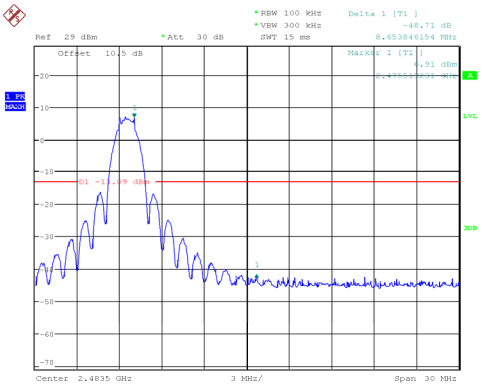
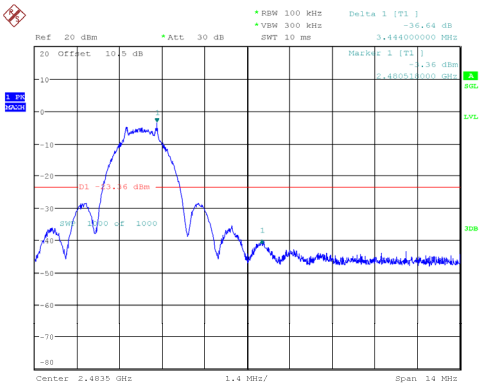
Date: 19.FEB.2025 15:43:19

2475 MHz



ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 14.MAR.2025 11:31:56

2480 MHz



ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 15:39:30

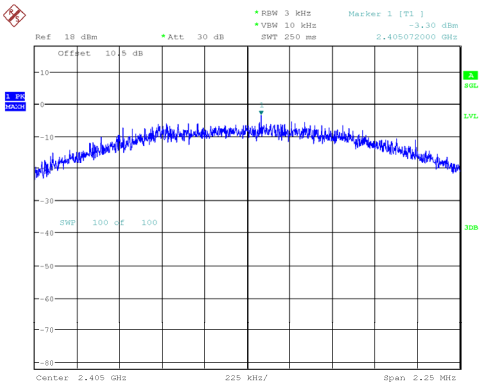
POWER SPECTRAL DENSITY

EUT operation mode: Transmitting

Test Result: Compliant.

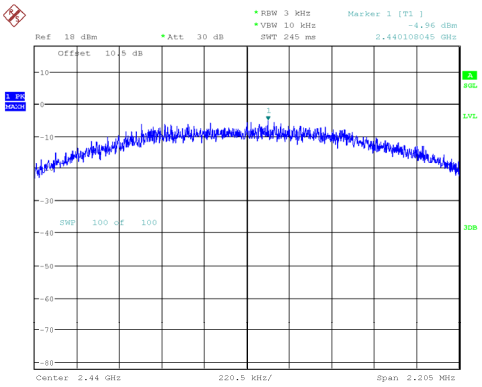
Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
2405	-3.30	≤8
2440	-4.96	≤8
2475	-4.29	≤8
2480	-14.68	≤8

2405 MHz



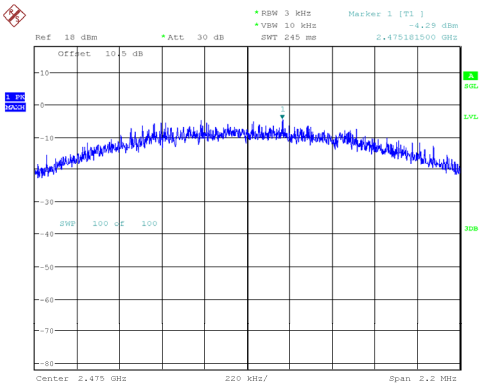
ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 16:12:14

2440 MHz



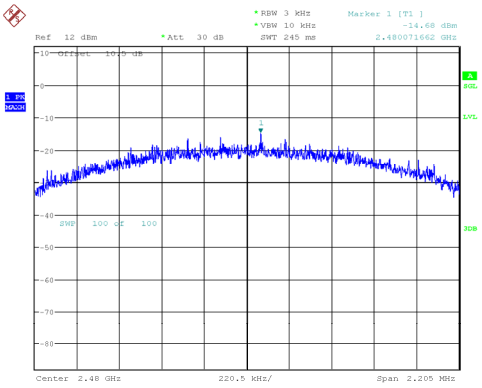
ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 16:10:14

2475 MHz



ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 16:08:22

2480 MHz



ProjectNo.:RKSB250107003 Tester:Neil Zhou
Date: 19.FEB.2025 16:03:39

EUT PHOTOGRAPHS

Please refer to the attachment EXHIBIT A - EUT EXTERNAL PHOTOGRAPHS and EXHIBIT B - EUT INTERNAL PHOTOGRAPHS.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment EXHIBIT C - TEST SETUP PHOTOGRAPHS.

Declarations

1. The laboratory is not responsible for the authenticity of any information provided by the applicant. Information from the applicant that may affect test results is marked with "★".

2. The test data was only valid for the test sample(s).

3. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95.45% confidence interval.

******* END OF REPORT *******