FCC PART 15.247

TEST REPORT

For

Suzhou EICCOMM Technology CO., Ltd.

Room 304, Building 4, Zhuyuan Road 209, GAOXIN District, Suzhou, Jiangsu Province, China

FCC ID: 2AXD8TURING-P

Report Type:	**Product Name:**
Original Report	Bluetooth Module

Report Number: RKSA240902005-00A

Report Date: 2024-09-30

Reviewed By: Bard Liu

Approved By: Oscar Ye

Prepared By: 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

TABLE OF CONTENTS

REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSA240902005-00A	R1V1	2024-09-30	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Suzhou EICCOMM Technology CO., Ltd.
Product Name	Bluetooth Module
Tested Model	Turing-P
Power Supply	DC 3.3 V
RF Function:	BLE
Maximum Peak Output Power:	6.02 dBm
Operating Band/Frequency:	2402-2480 MHz
Channel Number:	40
Channel Separation:	2 MHz
Modulation Type:	GFSK
★Maximum Antenna Gain:	-0.8 dBi

Note: The Maximum Antenna Gain was declared by the manufacturer.

All measurement and test data in this report was gathered from production sample serial number: RKSA240902005-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-09-02.)

Objective

This report is prepared for *Suzhou EICCOMM Technology CO., Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions' rules.

The tests were performed in order to determine Compliant with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 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		3.19dB
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 Compliance 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 List for BLE mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470
7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454	/	/
13	2428	27	2456	/	/

EUT was tested with channel 0, 19 and 39.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

RF test software: QSPR

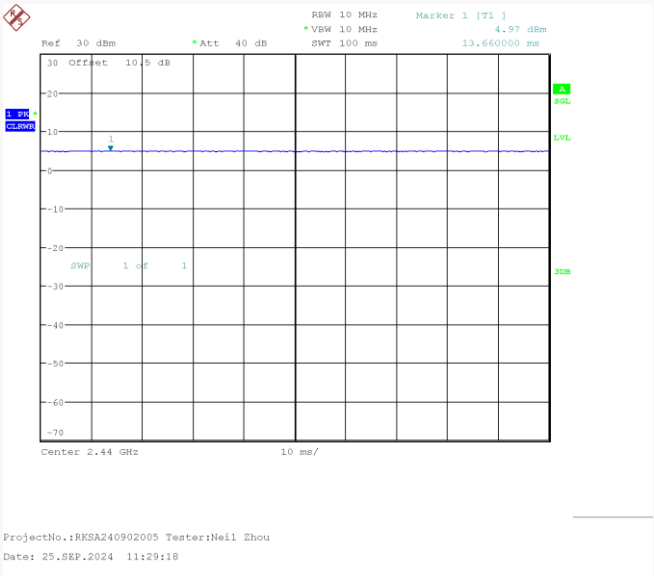
Pre-scan with all the data rates, and the worst case was performed as below:

Mode	Data Rate	★Power Level
BLE(1Mbps)	1Mbps	Default

Note: The power level was declared by the applicant.

Duty Cycle:

BLE(1Mbps) Mode Middle Channel



Mode	Duty Cycle (%)	T_{on}(ms)	T_{on+off}(ms)	10log(1/x)
BLE (1Mbps)	100	100	100	0

Note: "x" means the Duty Cycle.

Support Equipment List and Details

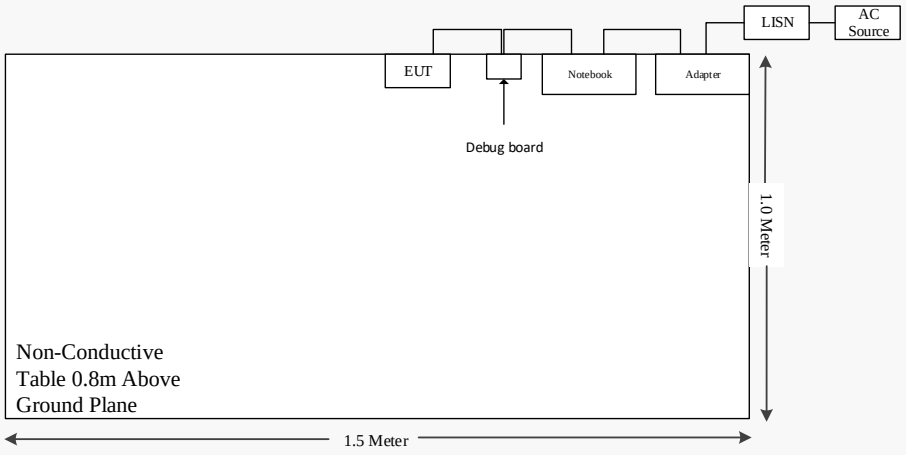
Manufacturer	Description	Model	Serial Number
DELL	Notebook	GX620	D65874152
DELL	Adapter	LA65NS0-00	DF263
/	Debug board	/	/

External I/O Cable

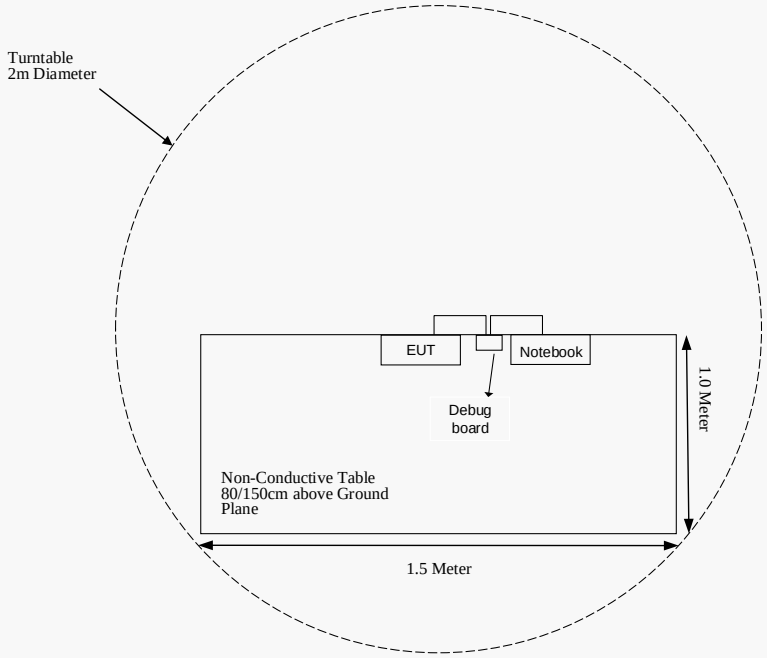
Cable Description	Length (m)	From Port	To Port
Data Cable	0.1	EUT	Debug board
USB Cable	0.1	Debug board	Notebook
Power Cable	1.0	Adapter	LISN

Block Diagram of Test Setup

For Conducted Emissions:



For Radiated Emissions:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§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)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.247 (I), §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant

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	Broadband Antenna	JB3	A090314-1	2023-11-11	2024-11-10
Narda	6dB Attenuator	773-6	10690812-2-1	2023-11-11	2024-11-10
ETS-LINDGREN	Loop Antenna	6512	108100	2023-11-09	2024-11-08
Sonoma Instrument	Pre-amplifier	310N	171205	2024-04-23	2025-04-22
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-8	008	2024-04-23	2025-04-22
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
Radiated Emission Test (Chamber #2)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2024-04-25	2025-04-24
ETS-LINDGREN	Horn Antenna	3115	9311-4159	2023-12-02	2024-12-01
ETS-LINDGREN	Horn Antenna	3116	2516	2023-12-08	2024-12-07
A.H.Systems, inc	Amplifier	PAM-0118P	512	2024-04-25	2025-04-24
SELECTOR	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2023-08-05	2024-08-04
Narda	Attenuator	10dB	010	2023-08-15	2024-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2024-04-23	2025-04-22
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	Signal Analyzer	FSV40	101116	2024-04-24	2025-04-23
Narda	Attenuator	10dB	010	2024-04-24	2025-04-23
Anritsu	Power Sensor	MA24418A	12621	2024-04-23	2025-04-22
Unknown	RF Cable	RF Cable C01	C01	Each Time	N/A
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2024-04-23	2025-04-22
Rohde & Schwarz	LISN	ENV216	101115	2024-04-23	2025-04-22
Audix	Test Software	e3	V9	N/A	N/A
Rohde & Schwarz	Pulse limiter	ESH3-Z2	100552	2024-04-24	2025-04-23
MICRO-COAX	Coaxial Cable	Cable-15	015	2024-04-24	2025-04-23

Statement of Traceability: Bay Area Compliance 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 §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247 (i) and subpart 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

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

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);

Calculated Data

Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Output Power★		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
BLE	2402-2480	-0.80	0.83	6.5	4.47	20	0.0007	1.0

Note: For the above tune-up output power were all declared by the manufacturer.

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

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 monopole antenna for BLE, and the antenna gain is -0.80 dBi, which use a unique type of connector to attach to the EUT, fulfill the requirement of this section. Please refer to the EUT photos.

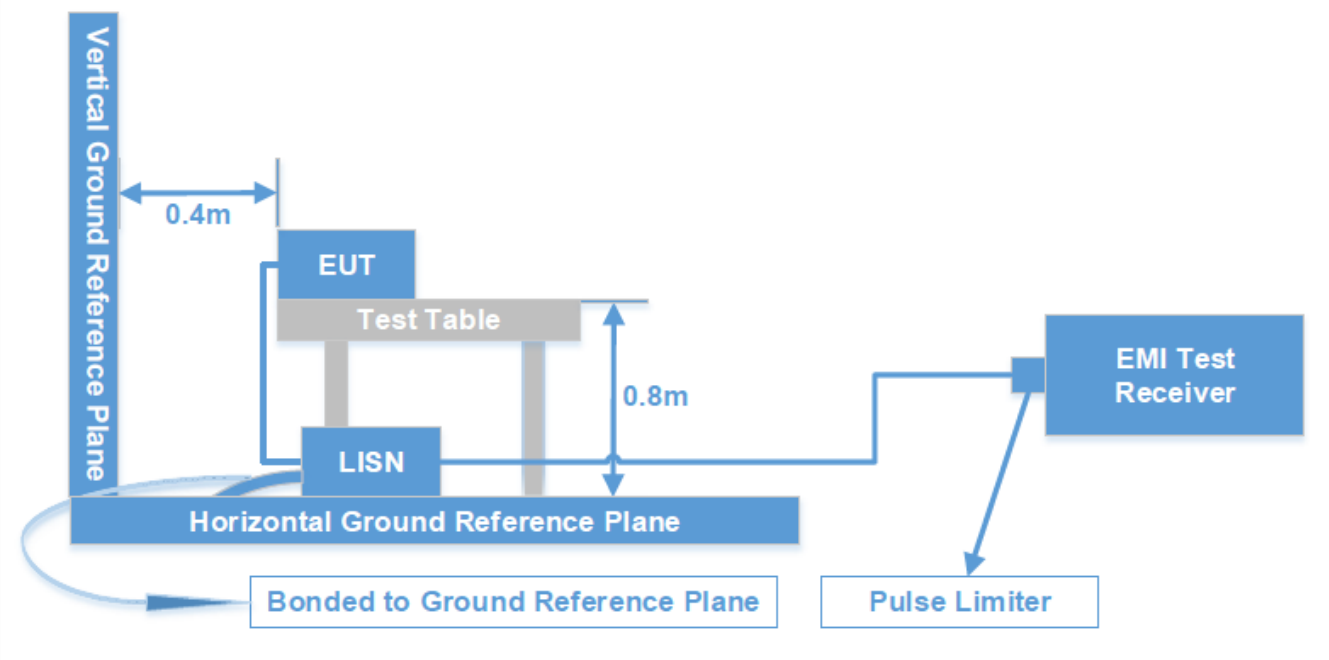
Result: Compliant.

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

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

Frequency Range	RBW	VBW
150 kHz - 30 MHz	9 kHz	30 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

During the conducted emission test, the EUT was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

If the maximum peak value of the emissions is below the average limit, the QP value and average value measurement will not need to be performed and only record the maximum peak measured value to meet the requirements.

Level & Over Limit Calculation

The Level is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation from the Meter Reading. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
Level (dBμV) = Read level (dBμV) + Factor (dB)

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit of 7 dB means the emission is 7 dB above the limit. The equation for Over Limit calculation is as follows:

Over Limit (dB) = Level (dBμV) - Limit (dBμV)

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data: See Appendix

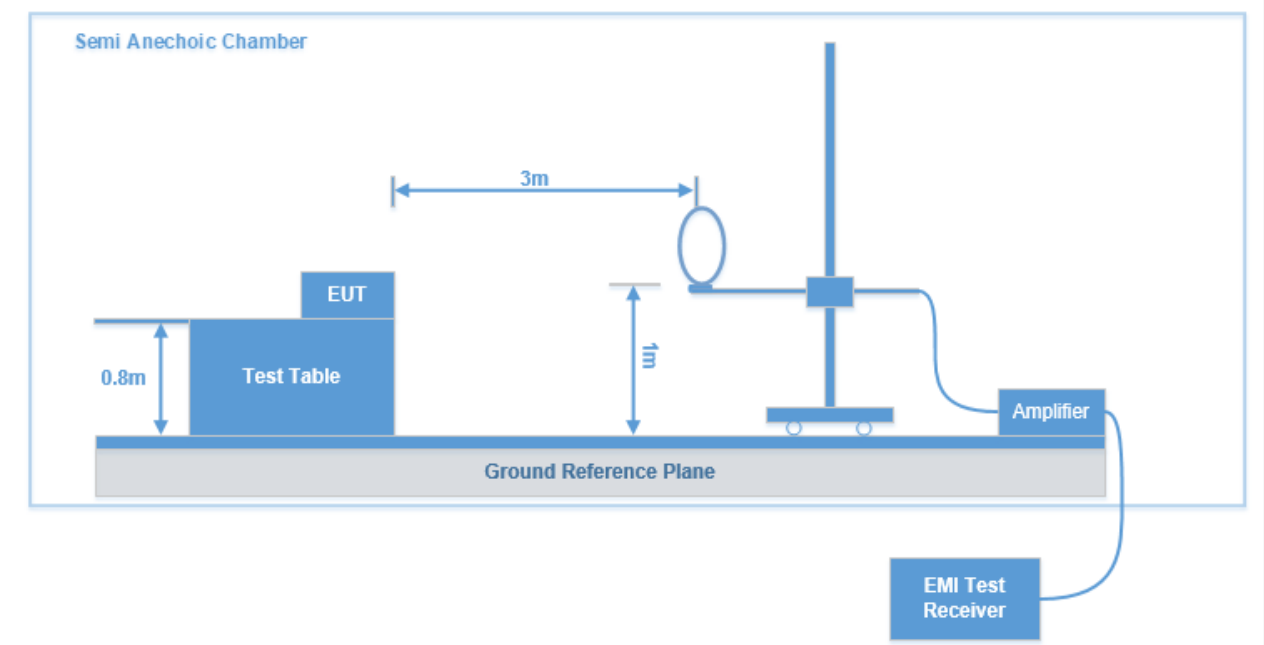
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

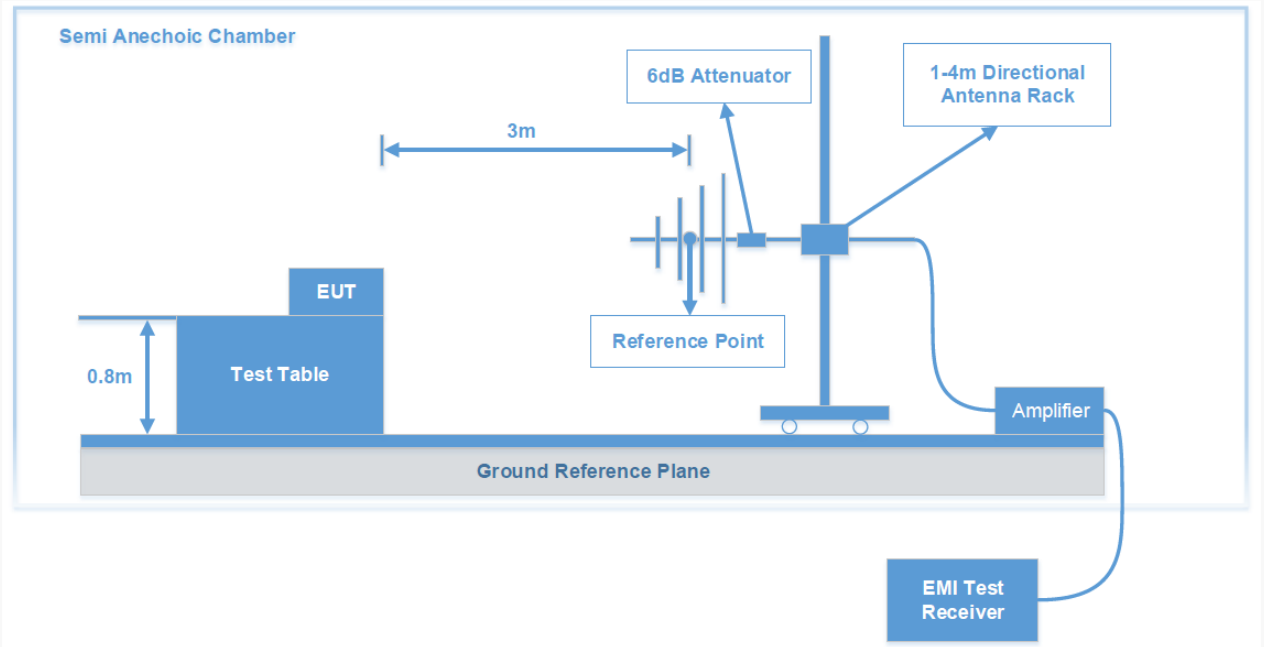
FCC §15.247 (d); §15.209; §15.205;

Test System Setup

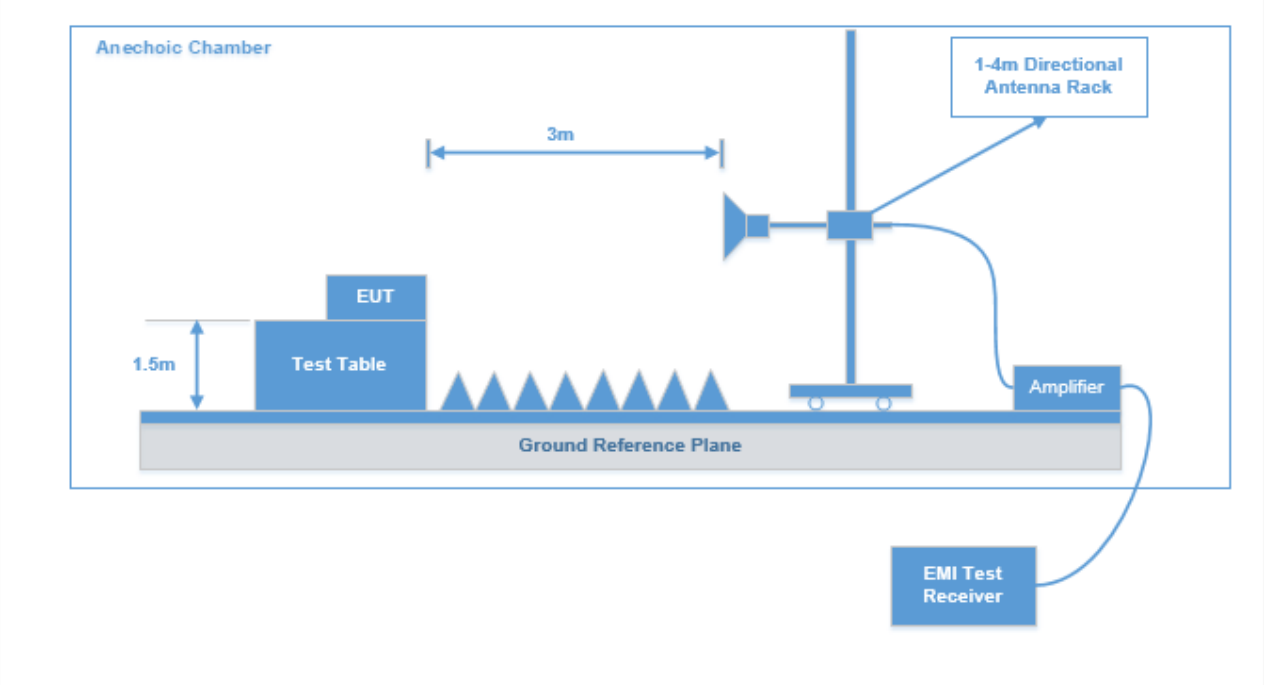
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



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	Measurement
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

According to ANSI C63.10-2013 clause 6.5, 6.6 and 6.7.

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

If the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 6 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

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)

The “Margin” column of the following data tables indicates the degree of compliance 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 complied 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

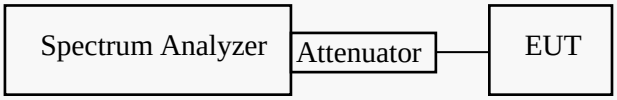
Applicable Standard

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 * 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.



Test Data: See Appendix

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

Applicable Standard

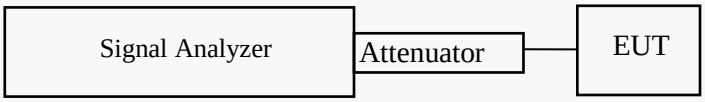
According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, Compliant with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted 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

For BLE:

According to ANSI C63.10-2013 sub-clause 11.9.1.1

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.



Test Data: See Appendix

FCC §15.247(D) – 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

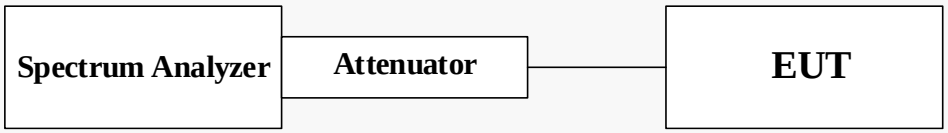
Applicable Standard

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.



Test Data: See Appendix

FCC §15.247(E) - POWER SPECTRAL DENSITY

Applicable Standard

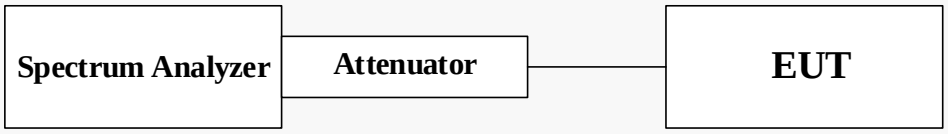
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of 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

The following procedure shall be used if maximum peak conducted output power was used to determine Compliant, and it is optional if the maximum conducted (average) output power was used to determine Compliant:

1. Set the RBW to: 3kHz≤ RBW≤100 kHz.
2. Set the VBW ≥ 3*RBW.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Test Data: See Appendix

Appendix - TEST DATA

Environmental Conditions & Test Information

Test Item:	DUTY CYCLE	AC LINE CONDUCTED EMISSIONS	RADIATED EMISSIONS	
			9kHz -1GHz	1GHz -18GHz
Test Date:	2024-09-25	2024-09-15	2024-09-19	2024-09-24
Temperature:	21.7 ℃	27.0 ℃	22.5 ℃	23.7 ℃
Relative Humidity:	51 %	51 %	52 %	48 %
ATM Pressure:	101.7kPa	100.7 kPa	101.5 kPa	102.5 kPa
Test Result:	/	Pass	Pass	Pass
Test Engineer:	Neil Zhou	Leah Li	Grace Luo	Destine Hu

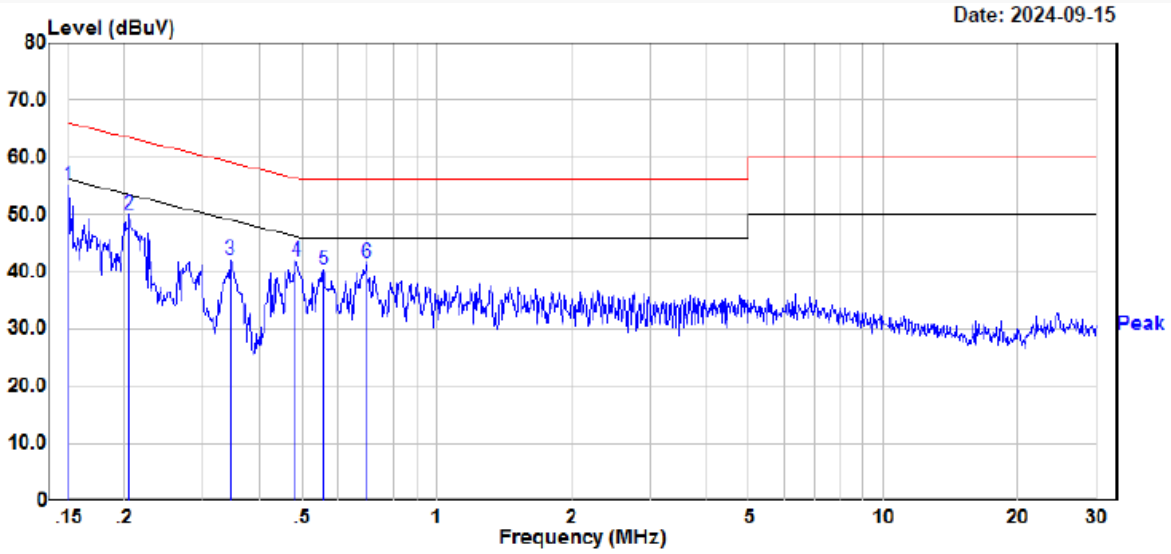
Test Item:	RADIATED EMISSIONS	6 dB Emission Bandwidth	Occupied Bandwidth	Power Spectral Density
	18GHz -25GHz			
Test Date:	2024-09-25	2024-09-25	2024-09-25	2024-09-25
Temperature:	21.7 ℃	21.7 ℃	21.7 ℃	21.7 ℃
Relative Humidity:	51 %	51 %	51 %	51 %
ATM Pressure:	101.7kPa	101.7kPa	101.7kPa	101.7kPa
Test Result:	Pass	Pass	/	Pass
Test Engineer:	Hugh Wu	Neil Zhou	Neil Zhou	Neil Zhou

Test Item:	TRANSMITTER OUTPUT POWER MEASUREMENT	OUT OF BAND EMISSIONS
Test Date:	2024-09-25	2024-09-25
Temperature:	21.7 ℃	21.7 ℃
Relative Humidity:	51 %	51 %
ATM Pressure:	101.7kPa	101.7kPa
Test Result:	Pass	Pass
Test Engineer:	Neil Zhou	Neil Zhou

AC LINE CONDUCTED EMISSIONS

For BLE Mode: *(Transmitting in maximum output power mode Low channel)*

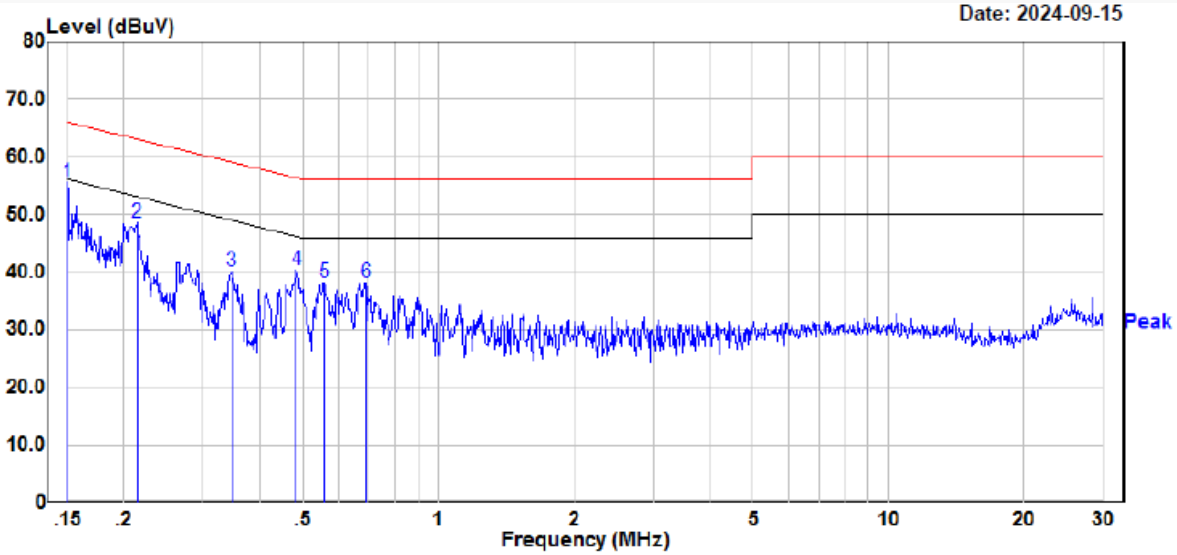
Line




```
Site                : CE
Condition           : limit\FCC PART 15.207
                    : DET:Peak
Project No.         : RKSA240902005
Model               : Turing-P
Phase               : L
Voltage             : 120V/60Hz
Mode                : BLE 1M
Test Equipment      : ENV216,ESR
Temperature         : 27.0℃
Humidity            : 51%
Atmospheric pressure: 100.7kPa
Test Engineer       : Leah Li
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	34.98	20.12	55.10	66.00	-10.90	Peak
2	0.204	29.90	20.11	50.01	63.43	-13.42	Peak
3	0.345	21.92	20.19	42.11	59.09	-16.98	Peak
4	0.484	21.56	20.16	41.72	56.27	-14.55	Peak
5	0.556	20.18	20.11	40.29	56.00	-15.71	Peak
6	0.696	21.52	20.07	41.59	56.00	-14.41	Peak

Neutral




```
Site                : CE
Condition           : limit\FCC PART 15.207
                    : DET:Peak
Project No.         : RKSA240902005
Model               : Turing-P
Phase               : N
Voltage             : 120V/60Hz
Mode                : BLE 1M
Test Equipment      : ENV216,ESR
Temperature         : 27.0℃
Humidity            : 51%
Atmospheric pressure: 100.7kPa
Test Engineer       : Leah Li
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	35.53	20.12	55.65	66.00	-10.35	Peak
2	0.214	28.50	20.12	48.62	63.06	-14.44	Peak
3	0.347	19.87	20.19	40.06	59.05	-18.99	Peak
4	0.484	20.26	20.16	40.42	56.27	-15.85	Peak
5	0.556	18.05	20.11	38.16	56.00	-17.84	Peak
6	0.689	18.05	20.07	38.12	56.00	-17.88	Peak

SPURIOUS EMISSIONS

Test Result: Compliant

EUT operation mode: Transmitting

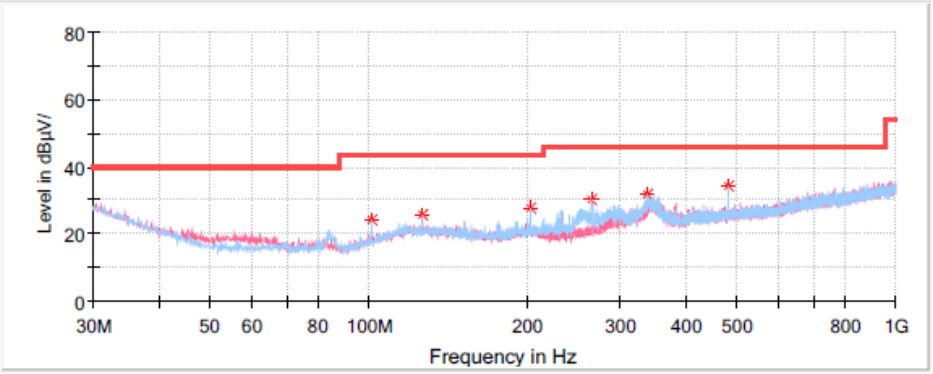
9 kHz-30MHz:
Transmitting in maximum output power mode and channel. The amplitude of spurious emissions attenuated more than 20 dB below the limit was not be recorded.

For BLE Mode:
30MHz-1GHz

Low Channel: 2402MHz

Common Information

Project No:	RKSA240902005
EUT Model:	Turing-P
Test Mode:	BLE 1M
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment:	ESCI, JB3, 310N
Temperature:	22.5 ℃
Humidity:	52 %
Barometric Pressure:	101.5 kPa
Test Engineer:	Grace Luo
Test Date:	2024/9/19



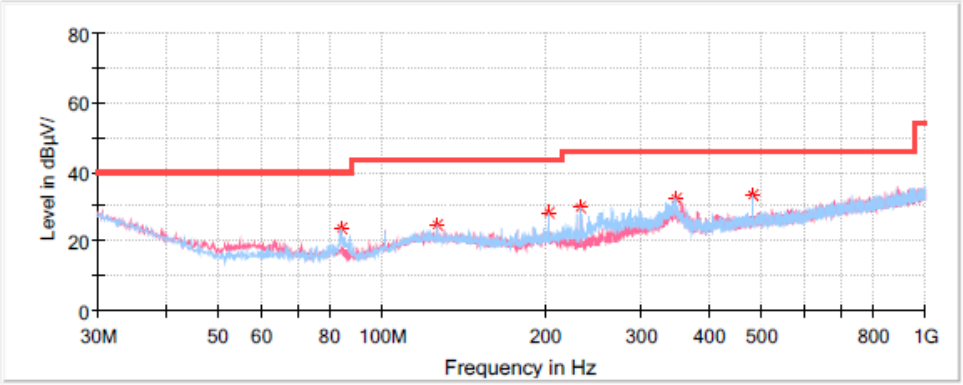
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
101.295000	24.03	43.50	19.47	V	-14.2
126.515000	25.69	43.50	17.81	H	-11.0
202.417500	27.86	43.50	15.64	H	-12.4
264.012500	30.04	46.00	15.96	H	-11.7
336.762500	31.74	46.00	14.26	H	-9.6
479.958750	34.39	46.00	11.61	H	-5.9

Middle Channel: 2440MHz

Common Information

Project No:	RKSA240902005
EUT Model:	Turing-P
Test Mode:	BLE 1M
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment:	ESCI, JB3, 310N
Temperature:	22.5 ℃
Humidity:	52 %
Barometric Pressure:	101.5 kPa
Test Engineer:	Grace Luo
Test Date:	2024/9/19



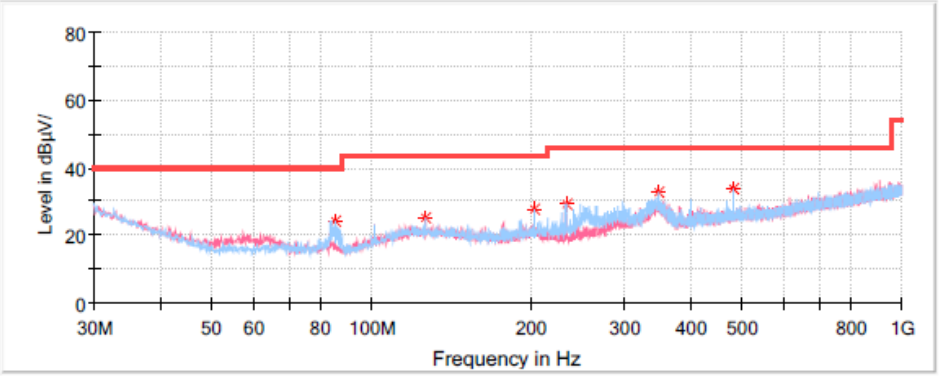
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
84.320000	23.44	40.00	16.56	H	-17.2
126.515000	24.83	43.50	18.67	H	-11.0
202.417500	28.09	43.50	15.41	H	-12.4
232.366250	29.46	46.00	16.54	H	-13.0
348.645000	32.12	46.00	13.88	H	-9.3
479.958750	33.16	46.00	12.84	H	-5.9

High Channel: 2480MHz

Common Information

Project No:	RKSA240902005
EUT Model:	Turing-P
Test Mode:	BLE 1M
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment:	ESCI, JB3, 310N
Temperature:	22.5 °C
Humidity:	52 %
Barometric Pressure:	101.5 kPa
Test Engineer:	Grace Luo
Test Date:	2024/9/19



Critical_Freqs

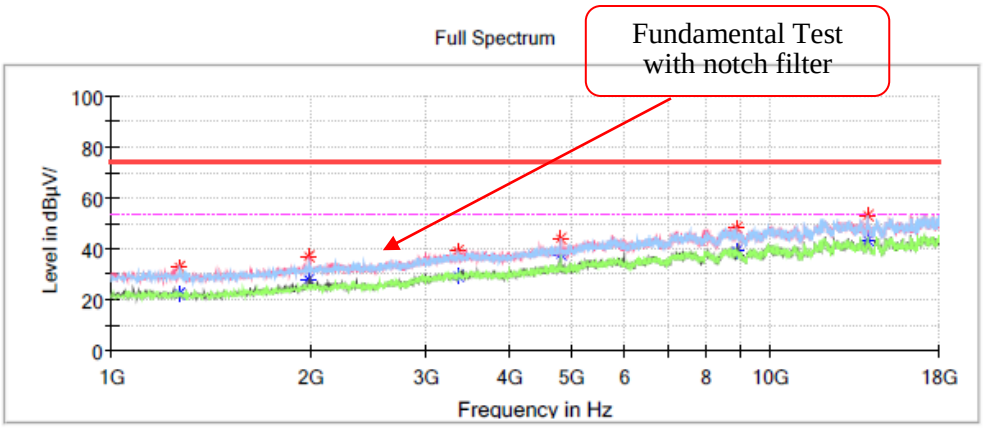
Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
85.411250	24.28	40.00	15.72	H	-17.1
126.515000	25.23	43.50	18.27	H	-11.0
202.417500	27.77	43.50	15.73	H	-12.4
233.215000	29.32	46.00	16.68	H	-12.9
346.826250	32.52	46.00	13.48	H	-9.3
480.080000	33.65	46.00	12.35	H	-5.9

1GHz-18GHz:

Low Channel: 2402MHz

Common Information

Project No.:	RKSA240902005
Test Mode:	BLE 1M
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Test Engineer:	Destine Hu



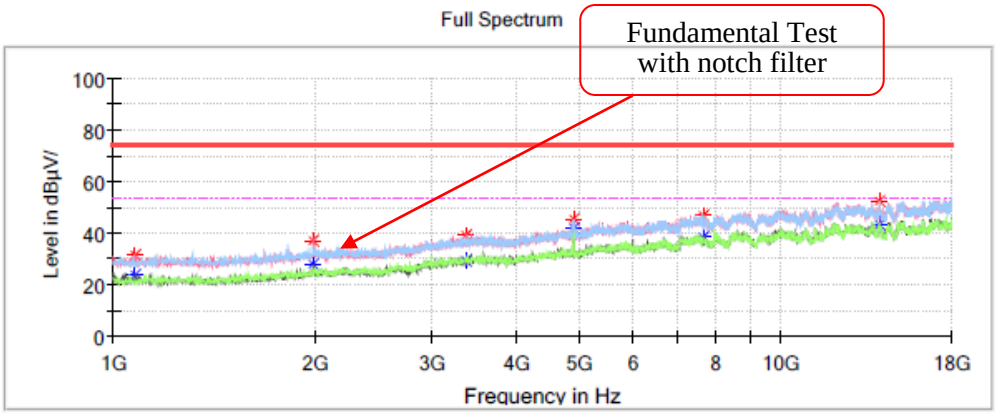
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1268.600000	---	22.32	54.00	31.68	H	-15.1
1268.600000	33.21	---	74.00	40.79	H	-15.1
1991.100000	---	27.73	54.00	26.27	V	-11.8
1991.100000	36.97	---	74.00	37.03	V	-11.8
3347.700000	---	29.48	54.00	24.52	V	-7.0
3347.700000	39.37	---	74.00	34.63	V	-7.0
4802.900000	---	37.69	54.00	16.31	H	-3.2
4802.900000	44.31	---	74.00	29.69	H	-3.2
8859.100000	---	38.90	54.00	15.10	H	5.4
8859.100000	48.57	---	74.00	25.43	H	5.4
14001.600000	---	43.67	54.00	10.33	H	9.8
14001.600000	52.93	---	74.00	21.07	H	9.8

Middle Channel: 2440MHz

Common Information

Project No.:	RKSA240902005
Test Mode:	BLE 1M
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Test Engineer:	Destine Hu



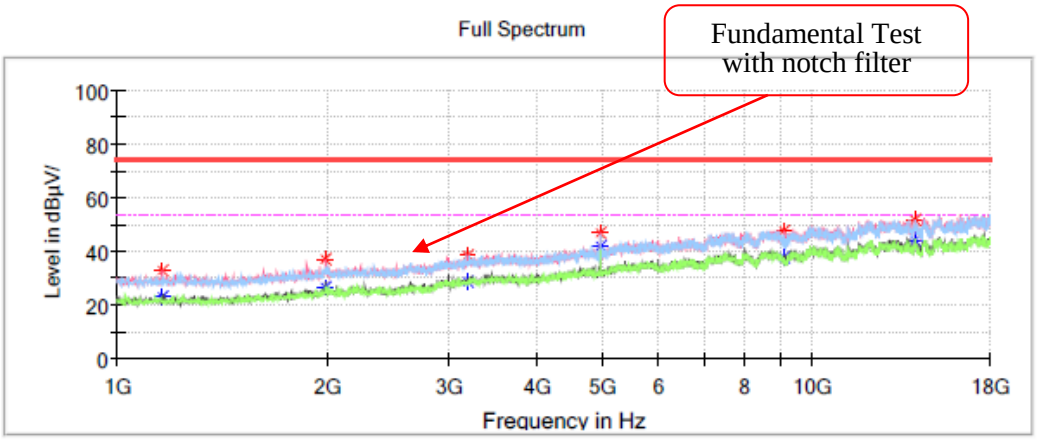
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1076.500000	31.22	---	74.00	42.78	V	-15.3
1076.500000	---	23.66	54.00	30.34	V	-15.3
1996.200000	---	27.71	54.00	26.29	V	-11.8
1996.200000	36.94	---	74.00	37.06	V	-11.8
3380.000000	---	29.64	54.00	24.36	V	-6.8
3380.000000	39.14	---	74.00	34.86	V	-6.8
4879.400000	---	41.80	54.00	12.20	H	-2.9
4879.400000	45.71	---	74.00	28.29	H	-2.9
7645.300000	---	38.38	54.00	15.62	H	3.9
7645.300000	46.71	---	74.00	27.29	H	3.9
14015.200000	---	43.25	54.00	10.75	V	9.8
14015.200000	52.42	---	74.00	21.58	V	9.8

High Channel: 2480MHz

Common Information

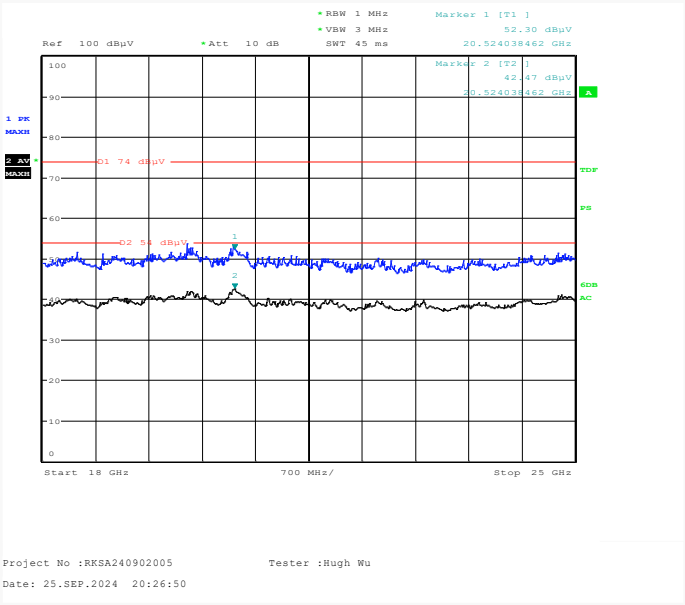
Project No.:	RKSA240902005
Test Mode:	BLE 1M
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Test Engineer:	Destine Hu



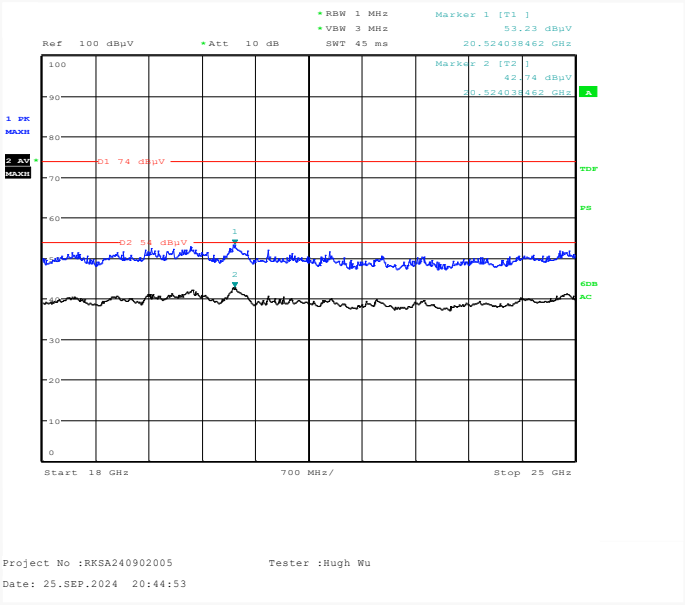
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1158.100000	---	22.75	54.00	31.25	V	-15.2
1158.100000	32.73	---	74.00	41.27	V	-15.2
1994.500000	---	26.73	54.00	27.27	V	-11.8
1994.500000	37.37	---	74.00	36.63	V	-11.8
3184.500000	---	28.79	54.00	25.21	H	-7.7
3184.500000	38.59	---	74.00	35.41	H	-7.7
4959.300000	---	41.74	54.00	12.26	V	-2.6
4959.300000	47.07	---	74.00	26.93	V	-2.6
9100.500000	---	38.06	54.00	15.94	V	5.4
9100.500000	47.32	---	74.00	26.68	V	5.4
14003.300000	---	43.82	54.00	10.18	H	9.8
14003.300000	52.07	---	74.00	21.93	H	9.8

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



Vertical:



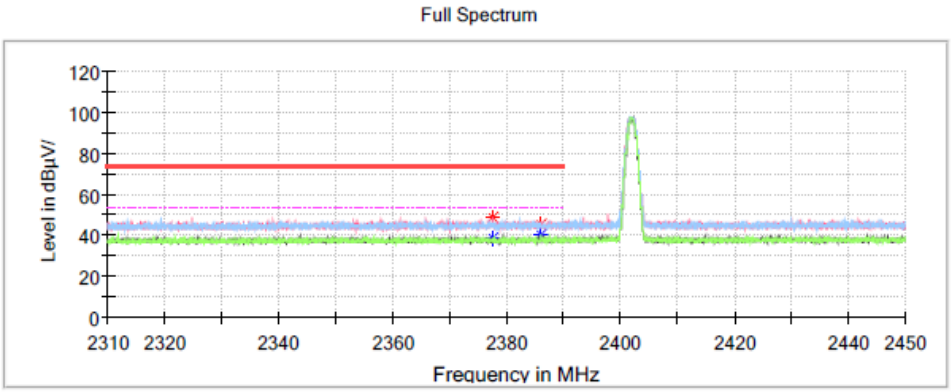
Note: The test distance is 3m. The limit is 74dBµV/m(Peak) and 54dBµV/m(Average).

Band Edge:

Low Channel

Common Information

Project No.:	RKSA240902005
Test Mode:	BLE 1M
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
Test Engineer:	Destine Hu



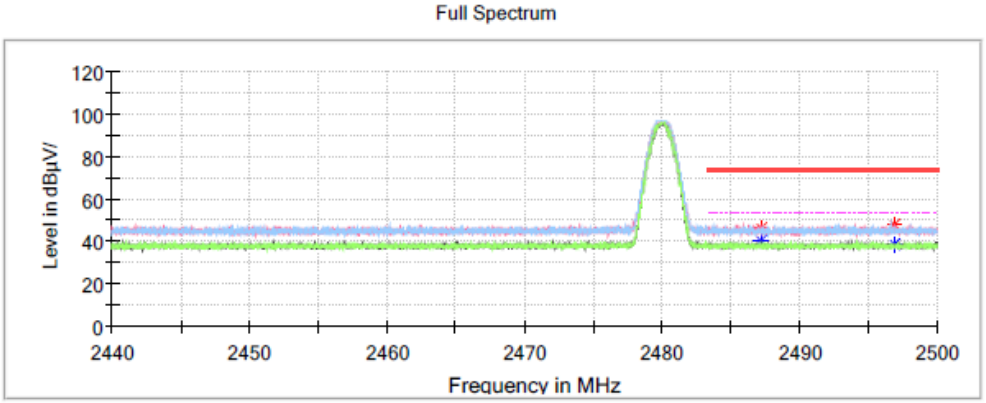
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2377.494000	48.31	---	74.00	25.69	V	-0.6
2377.494000	---	38.40	54.00	15.60	V	-0.6
2386.006000	45.30	---	74.00	28.70	H	-0.6
2386.006000	---	39.90	54.00	14.10	H	-0.6

High Channel

Common Information

Project No.:	RKSA240902005
Test Mode:	BLE 1M
Standard:	FCC Part 15.247& FCC Part 15.205& FCC Part 15.209
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)
2487.238000	---	40.44	54.00	13.56	V	-0.2
2487.238000	46.11	---	74.00	27.89	V	-0.2
2496.844000	---	38.68	54.00	15.32	H	-0.2
2496.844000	48.21	---	74.00	25.79	H	-0.2

6 dB EMISSION BANDWIDTH

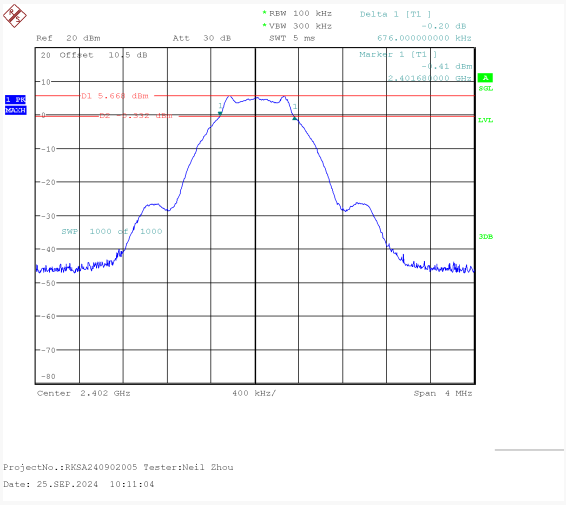
Test Result: Compliant.

EUT operation mode: Transmitting

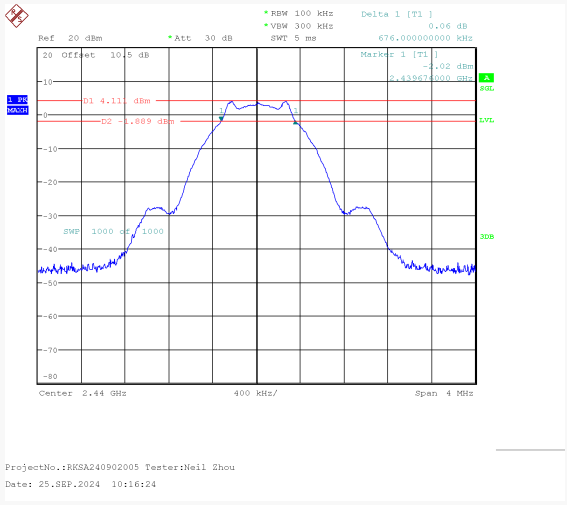
For BLE Mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
Low	2402	0.676	≥0.5
Middle	2440	0.676	≥0.5
High	2480	0.688	≥0.5

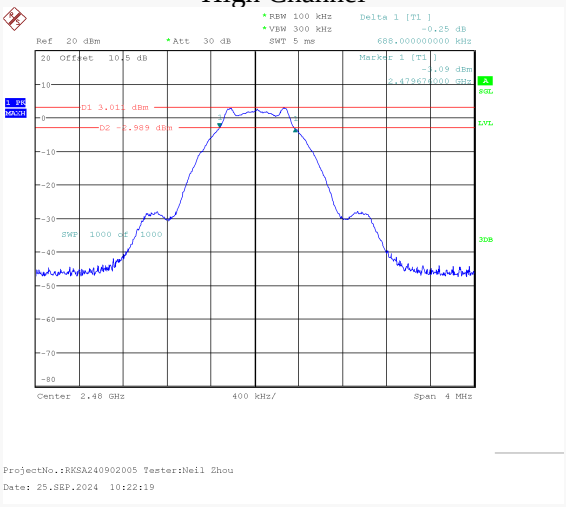
Low Channel



Middle Channel



High Channel



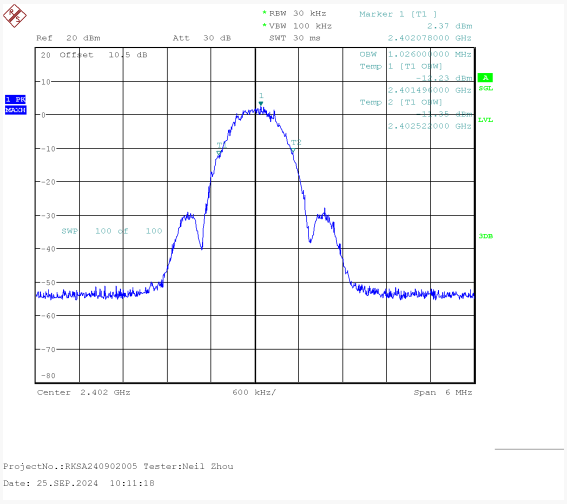
OCCUPIED BANDWIDTH

EUT operation mode: Transmitting

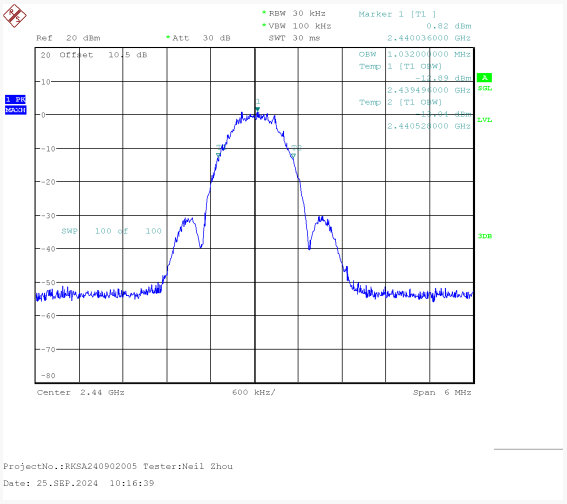
For BLE Mode:

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
Low	2402	1.026
Middle	2440	1.032
High	2480	1.020

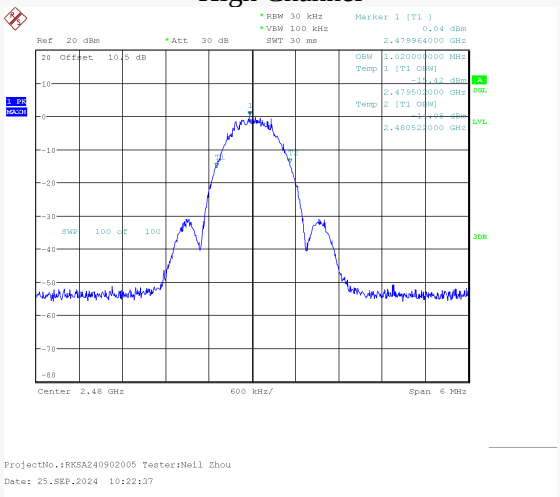
Low Channel



Middle Channel



High Channel



POWER SPECTRAL DENSITY

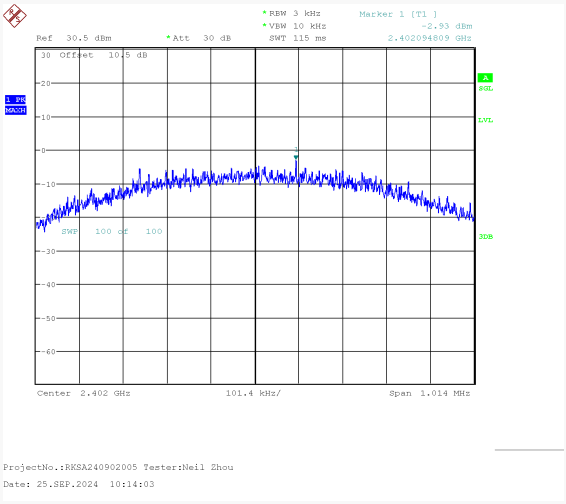
Test Result: Compliant.

EUT operation mode: Transmitting

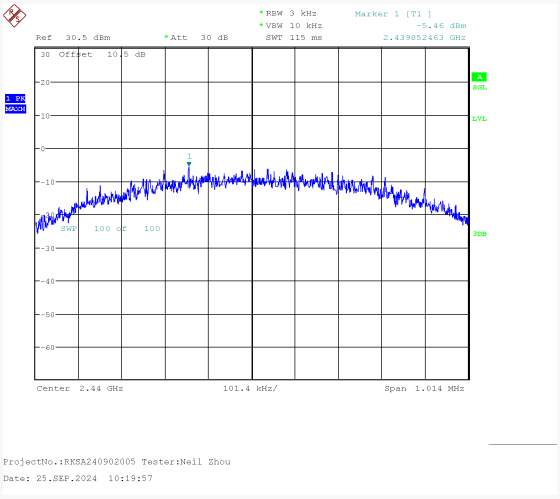
For BLE Mode:

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
Low	2402	-2.93	≤8
Middle	2440	-5.46	≤8
High	2480	-6.48	≤8

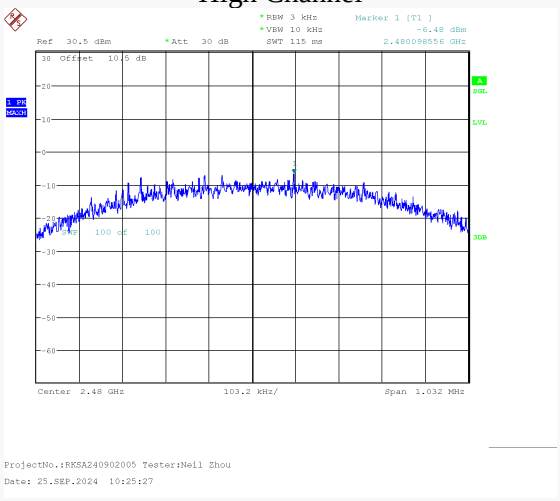
Low Channel



Middle Channel



High Channel

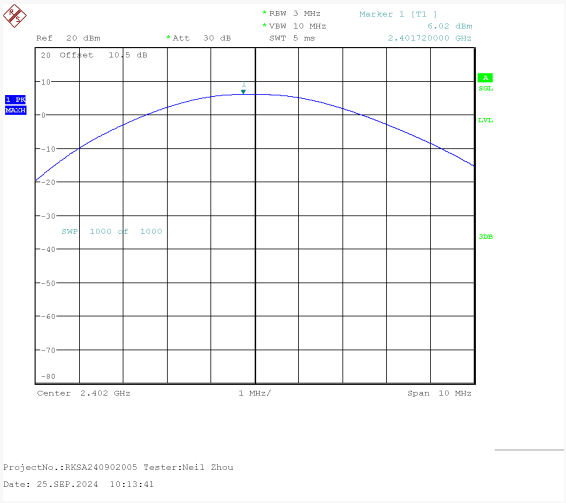


TRANSMITTER OUTPUT POWER MEASUREMENT

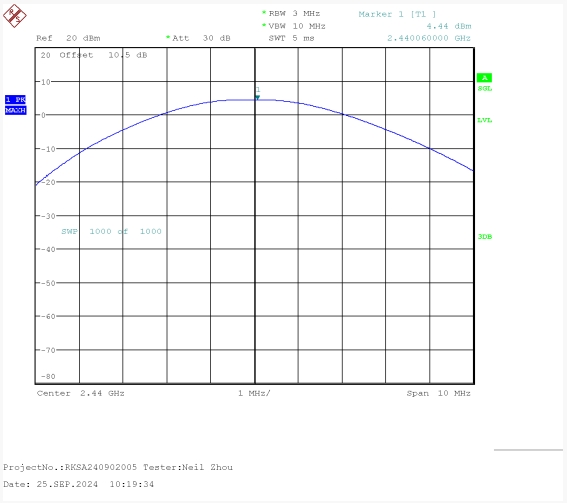
BLE Mode:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Peak Output Power Limit (dBm)
Low	2402	6.02	≤30
Middle	2440	4.44	≤30
High	2480	3.31	≤30

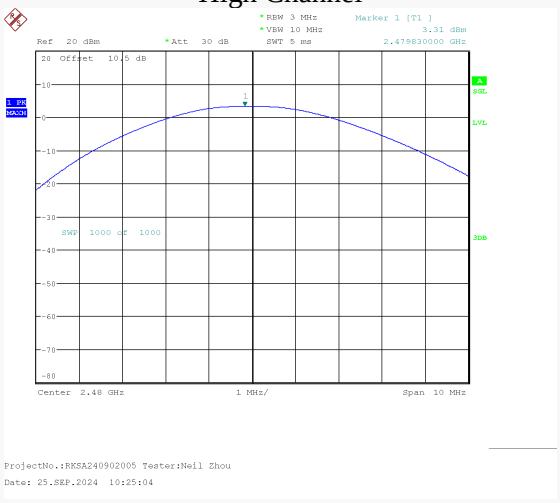
Low Channel



Middle Channel



High Channel

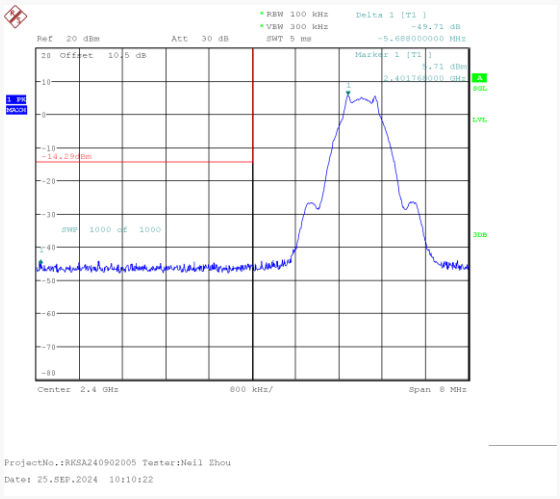


OUT OF BAND EMISSIONS

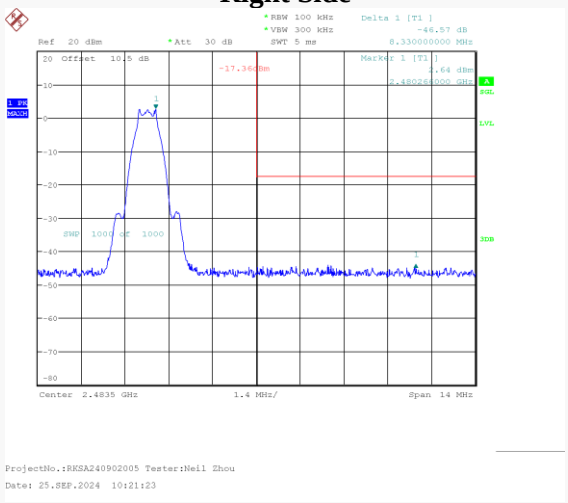
EUT operation mode: Transmitting

BLE 1Mbps:

Left Side



Right Side



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 *******