TEST REPORT

Applicant:	**Renesas Design Korea Inc.**
Address:	**7th SiliconPark, 35 Pangyo-ro 255 beon-gil Bundang-gu, Seongnam-si, Gyeonggi-do, 13486 Republic of Korea**
Product Name:	**RRQ61051 Module**
Model Name:	**RRQ61051-009, RRQ61051-010**
Type of Equipment:	**Certification Ordinance Article 2, Paragraph 1, Item 19**
Test method(s):	**MIC Notice No.88 of 2004, Appendix No.43(Version: MIC Notice No.409 of 2023)**
Report Number:	**2502Q45198E-RF-07A**
Report Date:	**2025/8/28**

The above device has been tested and found compliant with the requirement of the relevant standards by Bay Area Compliance Laboratories Corp. (Dongguan).

Reviewed By:	**Carlos Wu**
Title:	**Project Engineer**
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Note: The information marked ▲ is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.This report cannot be reproduced except in full, without prior written approval of the Company. 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.This report may contain data that are not covered by the accreditation scope and shall be marked with ★.Each test item follows the test standard(s) without deviation.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2502Q45198E-RF-07A	Original Report	2025/8/28

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

Product Name:	RRQ61051 Module
Test Model:	RRQ61051-009
Multiple Models:	RRQ61051-010
Model Difference:	Please refer to the DOS
Rated Input Voltage:	1.8~3.6Vdc (Typical:3.3Vdc)
Serial Number:	2YVE-1
EUT Received Date:	2025/2/25
EUT Received Status:	Good

Accessory Information

Accessory Description	Manufacturer	Model	Parameters
/	/	/	/

Technical Specification

Operation Frequency Range (MHz):	2402-2480
Max. RF Output Power (Conducted):	2mW/MHz
Number of TX Chain(s):	1
Number of RX Chain(s):	1
Antenna Gain (dBi)▲:	3.3
Modulation Type:	GFSK
Emission Type	F1D

SUMMARY OF TEST RESULTS

SN	Description of Test	Result
1	Frequency Error	Compliant
2	Occupied Bandwidth	Compliant
3	Transmitter Spurious Emission and Unwanted Emission Intensity	Compliant
4	Antenna Output Power and Output Power Tolerance	Compliant
5	Receiver Spurious Emission and Unwanted Emission Intensity	Compliant
6	Carrier sense capability (1)	Not Applicable*
7	Carrier sense capability (2)	Not Applicable**
8	Carrier sense capability (3)	Not Applicable***
9	Transmission frequency channel switching function	Not Applicable*
10	Transmission Antenna Gain	Not Applicable****
11	Transmission Radiation Angle Width	Not Applicable****
12	Interference Prevention Function	Compliant
13	Frequency Hopping Dwell Time	Not Applicable*****
14	Construction Protection Confirmation	Compliant

Note:

Not Applicable: Only required for device with "compensating for the reduction of EIRP with output power" function.*

*Not Applicable**: Only required for OBW between 26MHz and 40MHz with OFDM modulation type.*

*Not Applicable***: Only required for outdoor use radio control of model airplanes.*

*Not Applicable****: This item not applicable when the EIRP less than the limit.*

*Not Applicable*****: Testing is only required for FHSS system devices.*

DESCRIPTION OF TEST CONFIGURATION

Operation Frequency Detail

The system was configured for testing in engineering mode, which was provided by manufacturer. 40 channels are provided as below table:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	**2402**	20	2442
1	2404	…	…
…	…	…	…
…	…	…	…
…	…	38	2478
19	**2440**	39	**2480**

For lowest, middle and highest channel, EUT was tested with channel 0, 19 and 39.

The extreme voltage test conditions which were declared by the manufacturer and the normal conditions are as below:
NV: Normal Voltage 3.3V_{DC}
LV: Low Voltage 1.8V_{DC}
HV: High Voltage 3.6V_{DC}

The EUT in built a power manage system, power deviation of the RF part input of BLE SoC: DA14531 is less than 1% when the extreme voltage supplied, by measuring the crystal (Part number: Y203) voltage because of the input voltage of this crystal is equivalent to the input voltage of RF blocks according to the BLE SoC specification), therefore the test only performed at normal condition. Details as following:

Voltage Condition	Input(V_{DC})	RF System Voltage(V_{DC})
NV	3.3	0.9
LV	1.8	0.9
HV	3.6	0.9

EUT Operation Condition

The EUT was configured for testing in Engineering Mode, which was provided by the manufacturer. The EUT configuration as below:

EUT Exercise Software:	SmartSnippets Toolbox v5.0.26.4230		
The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:			
Mode	**Power Level Setting**		
	Lowest Channel	**Middle Channel**	**Highest Channel**
BLE_1M	default	default	default

Equipment Modifications

No modifications are made to the EUT during all test items.

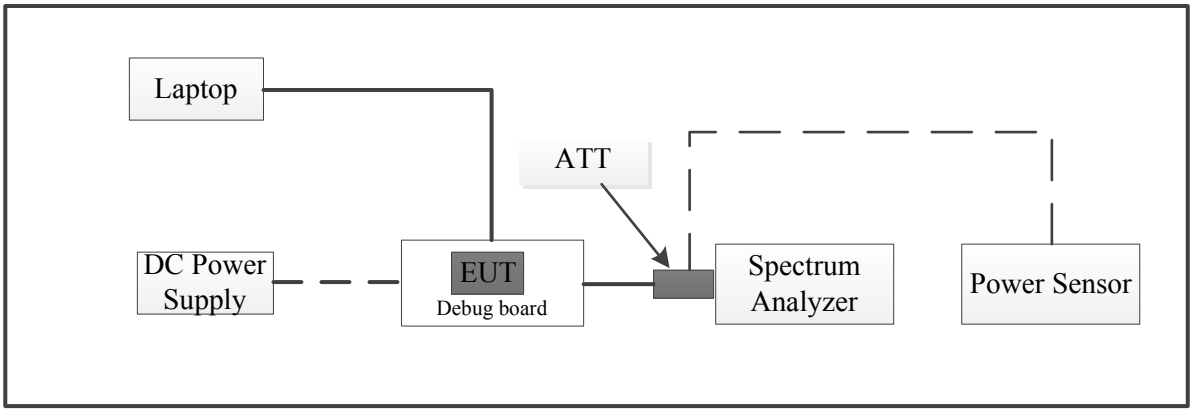
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
All-sun	Multimeter	EM305A	8348897
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1
Azeyoo	Laptop	AL141U	unknown
unknown	Debug Board	unknown	unknown

Support Cable List and Details

Manufacturer	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	NO	NO	1.1	Debug Board	Laptop
DC Cable	NO	NO	0.8	EUT	DC Power Supply

Configuration of Test Setup



Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Frequency Error	±0,5 ppm
Occupied bandwidth and spreading bandwidth	±5 %
RF output power, conducted	±0.61dB
Unwanted Emissions(TX&RX), conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%

1 - FREQUENCY ERROR

Limit

Within ±50ppm.

Test Procedure

Set the EUT to the measurement frequency without modulation.
Setting of SA is following as: Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: MAX Hold.
Record the peak spot frequency.

If the EUT can`t set at un-modulation mode, measure the 10dBc center frequency.

Test Data

Test Result: Compliant. The details please refer to the Appendix.

2 - OCCUPIED BANDWIDTH

Limit

- Occupied bandwidth:≤26 MHz

Test Procedure

1. Setting of SA is following as: RB: 30 kHz/VB: 30 kHz / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
2. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.

Test Data

Test Result: Compliant. The details please refer to the Appendix.

3 - TRANSMITTER SPURIOUS EMISSION STRENGTH AND UNWANTED EMISSION INTENSITY

Limit

- 30MHz≤f＜2387 MHz:≤2.5μW/MHz
- 2387 MHz≤f≤2400 MHz:≤25μW/MHz;
- 2483.5 MHz＜f≤2496.5 MHz:≤25μW/MHz
- 2496.5 MHz＜f≤12500MHz:≤2.5μW/MHz

Test Procedure

❖ Conditions of Application Equipment (EUT)

- The modulation state shall be in continuously transmitting mode.

❖ Spectrum Analyzer Conditions

- Setting of SA start 30MHz and stop frequency 1000MHz,RB:100kHz/VB:100kHz,Sweep time: Auto. Sweep mode: continuous sweep .Detect mode: Positive peak/Trace mode: max hold. Then to mark peak. reading value + cable loss shall be less than 0.25μW/100kHz.
- Setting of SA start 1000MHz and stop frequency 2387MHz,RB:1MHz/VB:1MHz,Sweep time: Auto. Sweep mode: continuous sweep .Detect mode: Positive peak/Trace mode: max hold. Then to mark peak. reading value + cable loss shall be less than 2.5μW/MHz.
- Setting of SA start 2387MHz and stop frequency 2400MHz,RB:1MHz/VB:1MHz,Sweep time: Auto. Sweep mode: continuous sweep .Detect mode: Positive peak/Trace mode: max hold. Then to mark peak. reading value + cable loss shall be less than 25μW/MHz.
- Setting of SA start 2483.5MHz and stop frequency 2496.5MHz,RB:1MHz/VB:1MHz,Sweep time: Auto. Sweep mode: continuous sweep .Detect mode: Positive peak/Trace mode: max hold. Then to mark peak. reading value + cable loss shall be less than 25μW/MHz.
- Setting of SA start 2496.5MHz and stop frequency 12500MHz,RB:1MHz/VB:1MHz,Sweep time: Auto. Sweep mode: continuous sweep .Detect mode: Positive peak/Trace mode: max hold. Then to mark peak. reading value + cable loss shall be less than 2.5μW/MHz.

If above test over the limit, the below test procedure should be used:

Step 1:

Center the frequency which was want to investigate, search the peak frequency.

Step 2:
Center frequency: Searched Frequency
Span: 0Hz
RBW:1MHz(Above 1GHz), VBW: Same as RBW.
Sweep time: Auto(Minimum time to ensure measurement accuracy. *In case of burst wave, one burst shall be included per data point) Data points: 400 points or more. Sweep mode: Single Sweep.
Detection Mode: Sample

Test Data

Test Result: Compliant. The details please refer to the Appendix.

4 - ANTENNA OUTPUT POWER AND ANTENNA POWER TOLERANCE

Limit

Antenna output power:

- ≤10mW
- The Output Power Tolerance must be within +20% ~ -80%.
- EIRP≤12.14dBm (other from 2400-2483.5 MHz)

Test Procedure

- Connect the EUT antenna port to Power meter with RF cable;
- Power meter Detector: Average, Auto Duty factor
- Set the EUT Frequency to measure, test mode continuous transmitting.

Test Data

Test Result: Compliant. The details please refer to the Appendix.

5 - RECEIVER SPURIOUS EMISSION AND UNWANTED EMISSION INTENSITY

Limit

- ≤ 4nW (30 MHz ≤ f ≤ 1000 MHz)
- ≤ 20 nW (1 GHz ≤ f ≤ 12.5 GHz)

Test Procedure

❖ Conditions of Application Equipment (EUT)

- The modulation state shall be “continuous receiving mode”.

❖ Spectrum Analyzer Conditions

- Start Frequency: Start Frequency of frequency range to measure (30MHz to 1GHz)
- Stop Frequency: Stop Frequency of frequency range to measure (1GHz to 12.5GHz)
- Span: AUTO (Measurement Range)
- RBW: 100 kHz, VBW: 100 kHz for Frequency < 1 GHz
- RBW: 1MHz, VBW: 1MHz for Frequency > 1 GHz
- Sweep time: AUTO or more
- Sweep mode: Auto Sweep
- Detection: Positive Peak
- Reference Level: Enough level for maximum dynamic range

Test Data

Test Result: Compliant. The details please refer to the Appendix.

12 - INTERFERENCE PREVENTION FUNCTION

Requirement

Article 6-2.3 of Regulations for Enforcement of the radio law

A wireless device used mainly in the same premises to automatically transmit or receive identification codes.

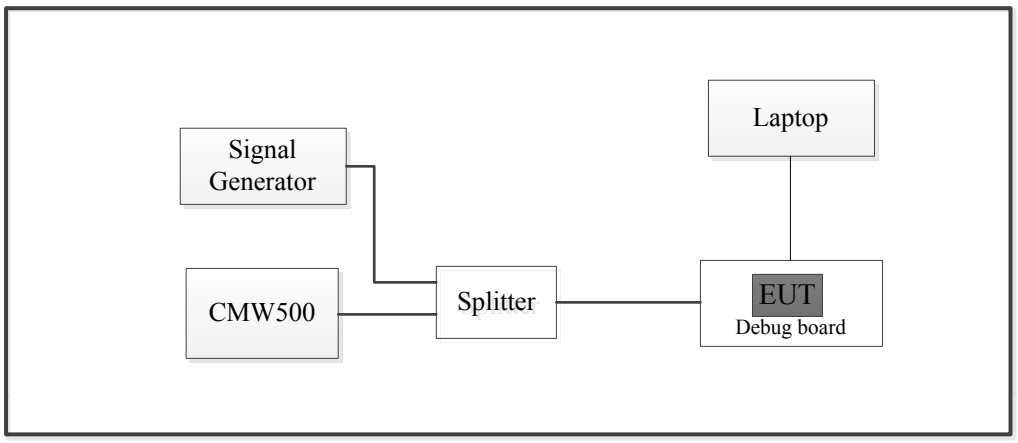
Article 1.8 of MPT Ministerial Notice No. 424 of 1994 (the last revision: Notice No. 374 of Nov. 10, 2023)

48 bits or more. However, for radio of the following frequencies, the requirement is 19 bits or more:

(1), 5150-5250MHz; 5470-5730MHz; 5925-6425MHz;
(2), 24.77-25.23GHz;
(3), 57-66GHz.

Test Procedure

- Measurement System Diagram



- 1.In the case that the EUT has the function of automatically transmitting the identification code: a. Transmit the predetermined identification codes form EUT. b. Check the transmitted identification codes with the demodulator.
- 2. In the case of receiving the identification code: a. Transmit the predetermined identification codes form the counterpart. b. Check if communication is normal. c. Transmit the signals other than predetermined ID codes form the counterpart. d. check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

Test Data

Test Information:

Serial No.:	2YVE-1	**Test Date:**	2025/03/21
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jeff Wei	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	21.8	**Relative Humidity: (%)**	50	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	Calibration Agency	Calibration Method
Mini-Circuits	Coaxial DC Block	BLK-18-S+	15542	2025/2/28	2026/2/27	BACL(DG)	D
Mini-Circuits	Coaxial Power Splitters & Combiner	ZFRSC-183-S+	SF448201614	2025/2/25	2026/2/24	BACL(DG)	D
R&S	Wideband Radio Communication Tester	CMW500	149216	2024/9/5	2025/9/4	BACL Metrology	C
All-sun	Multimeter	EM305A	8348897	2024/8/16	2025/8/15	BACL Metrology	C
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A	N/A	N/A
Agilent	MXG Vector Signal Generator	N5182B	MY51350142	2024/8/26	2025/8/25	GRGTEST	C

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Note:

A. Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1).

B. Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992).

C. Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).

D. Calibration conducted by using measuring instruments and other equipment which shall have been given any of calibration, etc. listed above from a) to c).

Item	Result	Requirement	Verdict
Methodology to transmit ID Code:	Automatically	Automatically	Compliant
Methodology to receive ID Code:	Automatically	Automatically	Compliant
Identification Codes (ID Codes) of EUT:	48:23:35:F4:00:09	/	/
Bits of ID Codes:	48 bits	48 bits or more	Compliant

Test Result: Compliant

14 - CONSTRUCTION PROTECTION CONFIRMATION

Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

Confirmation Result

Compliant, the RF part (Except for antenna) was covered by metal shielding case, it can`t be opened easily. Please refer the EUT photo.

EXHIBIT A – EUT PHOTOGRAPHS

Please refer to the attachment 2502Q45198E-RF-EXP EUT External photos and 2502Q45198E-RF-INP EUT Internal photos.

EXHIBIT B – TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2502Q45198E-RF-TSP Test Setup Photos.

APPENDIX - TEST DATA

Frequency Error

Test Information:

Serial No.:	2YVE-1	**Test Date:**	2025/03/21
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jeff Wei	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	21.8	**Relative Humidity: (%)**	50	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	Calibration Agency	Calibration Method
R&S	Coaxial Attenuator	10dB	F-08-EM512	2024/06/13	2025/06/12	BACL(DG)	D
R&S	Spectrum Analyzer	FSV40	101589	2024/09/05	2025/09/04	BACL Metrology	C
Mini-Circuits	Coaxial DC Block	BLK-18-S+	15542	2025/2/28	2026/2/27	BACL(DG)	D

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D. Calibration conducted by using measuring instruments and other equipment which shall have been given any of calibration, etc. listed above from a) to c).

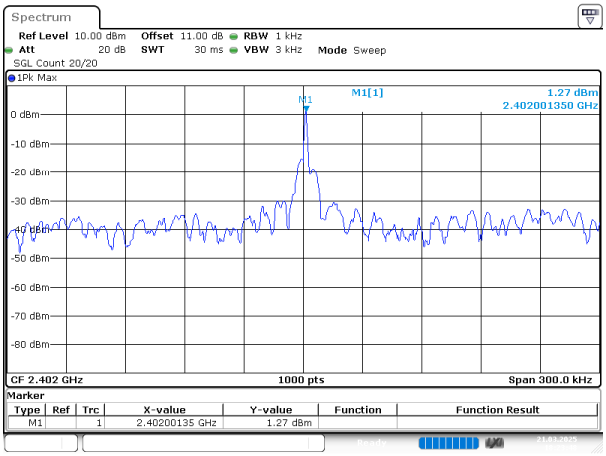
Test Condition: NV

Mode	Frequency (MHz)	Measure Frequency (MHz)	Frequency Tolerance (ppm)	Limit (ppm)	Verdict
Single Carrier	2402	2402.00135	0.56	± 50	Pass
	2440	2440.00135	0.55		Pass
	2480	2480.00135	0.54		Pass

Frequency Tolerance = (Measure Frequency - Frequency)/Frequency*10^6

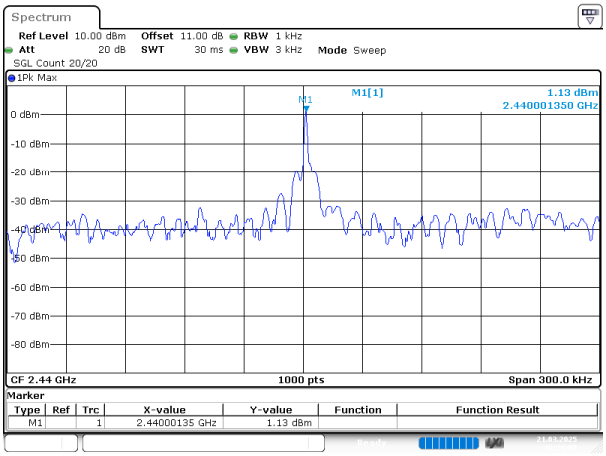
Test Condition: NV

2402MHz



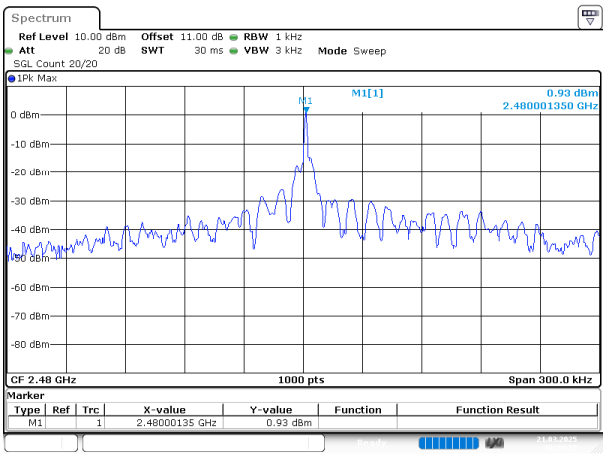
ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:23:48

2440MHz



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:24:08

2480MHz



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:24:25

Note: Offset = Coaxial Attenuator (10dB) + Cable Loss (1dB)

Occupied Bandwidth

Test Information:

Serial No.:	2YVE-1	**Test Date:**	2025/03/21
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jeff Wei	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	21.8	**Relative Humidity: (%)**	50	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	Calibration Agency	Calibration Method
R&S	Coaxial Attenuator	10dB	F-08-EM512	2024/06/13	2025/06/12	BACL(DG)	D
R&S	Spectrum Analyzer	FSV40	101589	2024/09/05	2025/09/04	BACL Metrology	C
Mini-Circuits	Coaxial DC Block	BLK-18-S+	15542	2025/2/28	2026/2/27	BACL(DG)	D

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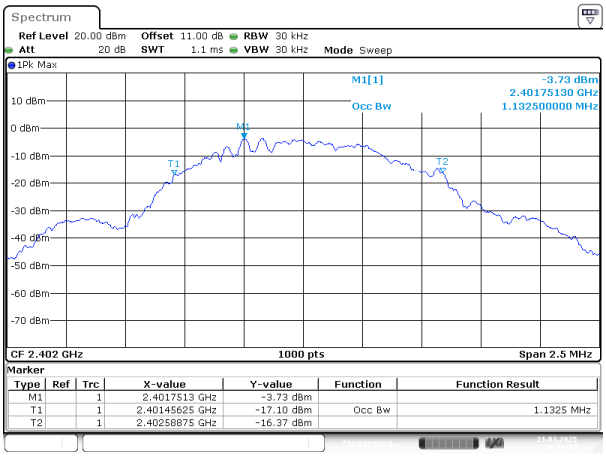
D. Calibration conducted by using measuring instruments and other equipment which shall have been given any of calibration, etc. listed above from a) to c).

Test Condition: NV

Mode	Occupied bandwidth (MHz)			Limit(MHz)	Verdict
	Low Channel	Middle Channel	High Channel		
BLE 1M	1.133	1.123	1.083	≤ 26	Pass

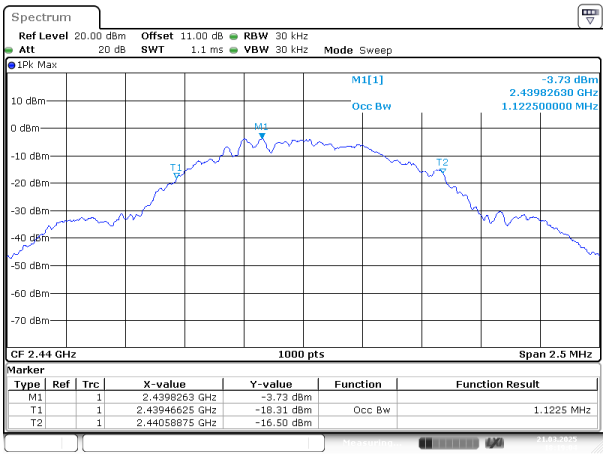
Test Condition: NV

BLE 1M_Low Channel



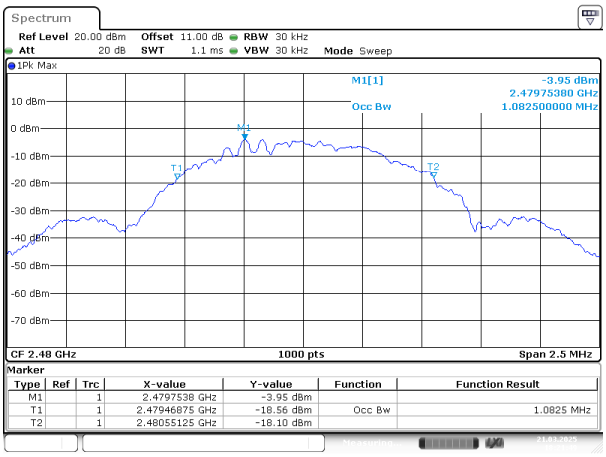
ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:16:34

BLE 1M_Middle Channel



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:19:04

BLE 1M_High Channel



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:21:49

Note: Offset = Coaxial Attenuator (10dB) + Cable Loss (1dB)

Transmitter Spurious Emission and Unwanted Emission Intensity

Test Information:

Serial No.:	2YVE-1	**Test Date:**	2025/03/21
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jeff Wei	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	21.8	**Relative Humidity: (%)**	50	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	Calibration Agency	Calibration Method
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R&S	Spectrum Analyzer	FSV40	101589	2024/09/05	2025/09/04	BACL Metrology	C
Mini-Circuits	Coaxial DC Block	BLK-18-S+	15542	2025/2/28	2026/2/27	BACL(DG)	D

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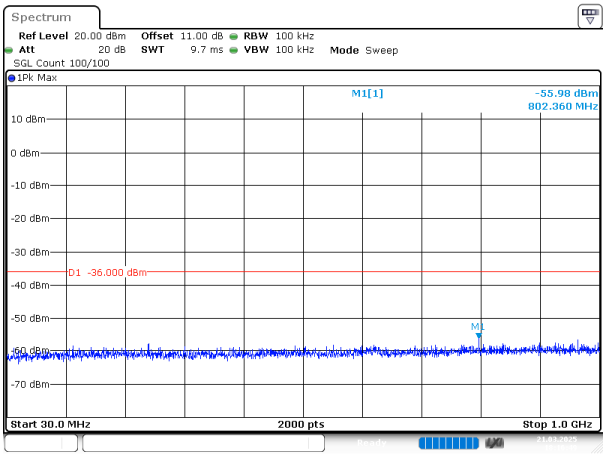
D. Calibration conducted by using measuring instruments and other equipment which shall have been given any of calibration, etc. listed above from a) to c).

Test Condition: Normal, BLE 1M

Channel	Test Band (RBW)	Frequency Range		Max.Emission Located(MHz)	Result (dBm/RBW)	Result (μW/RBW)	Limit (μW/RBW)	Verdict
		Start (MHz)	Stop (MHz)					
Low	Band I (100kHz)	30	1000	802.36	-55.98	0.003	0.25	Pass
	Band II (1MHz)	1000	2387	1281.91	-47.43	0.018	2.50	Pass
	Band III (1MHz)	2387	2400	2399.9903	-31.77	0.665	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2495.6323	-47.86	0.016	25	Pass
	Band V (1MHz)	2496.5	12500	6970.6	-42.84	0.052	2.50	Pass
Middle	Band I (100kHz)	30	1000	832.43	-49.25	0.012	0.25	Pass
	Band II (1MHz)	1000	2387	1220.88	-47.59	0.017	2.50	Pass
	Band III (1MHz)	2387	2400	2393.9973	-47.23	0.019	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2485.1933	-47.08	0.020	25	Pass
	Band V (1MHz)	2496.5	12500	6970.6	-42.57	0.055	2.50	Pass
High	Band I (100kHz)	30	1000	969.2	-56.68	0.002	0.25	Pass
	Band II (1MHz)	1000	2387	1239.6	-46.78	0.021	2.50	Pass
	Band III (1MHz)	2387	2400	2399.3013	-47.61	0.017	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2483.8868	-43.08	0.049	25	Pass
	Band V (1MHz)	2496.5	12500	6955.6	-42.54	0.056	2.50	Pass

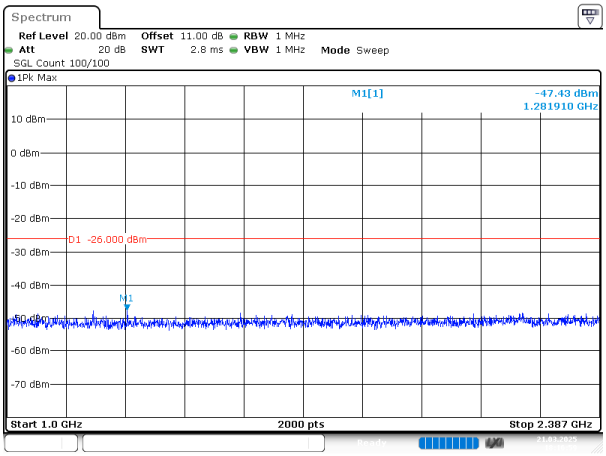
Test Condition: NV

BLE 1M_Low Channel(30MHz~1GHz)



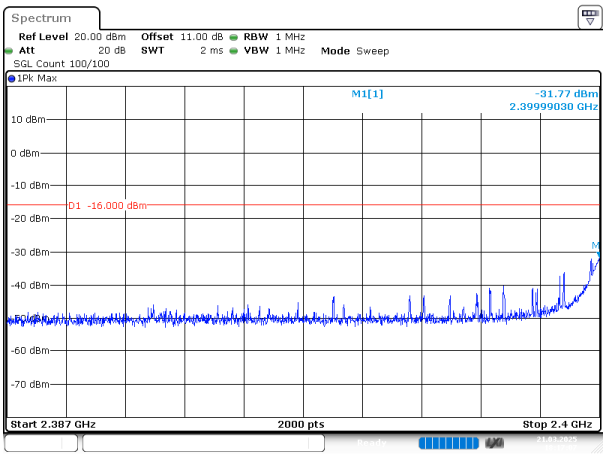
ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:16:49

BLE 1M_Low Channel(1GHz~2.387GHz)



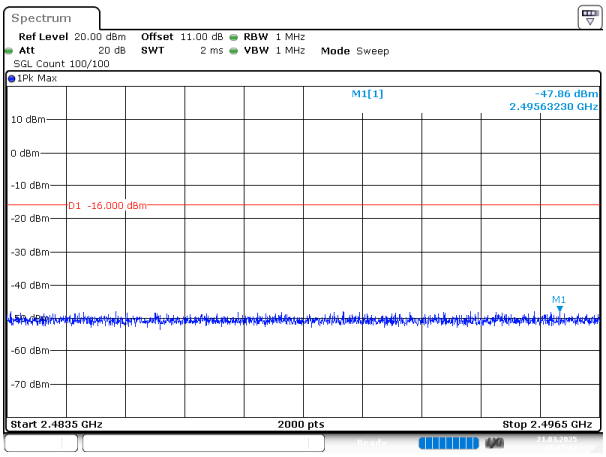
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BLE 1M_Low Channel(2.387GHz~2.4GHz)



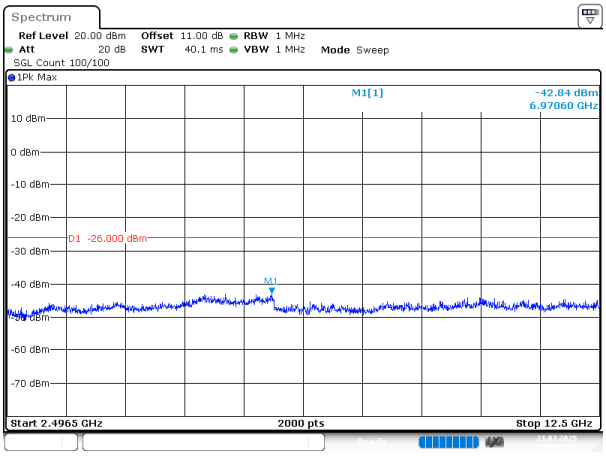
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BLE 1M_Low Channel(2.4835GHz~2.4965GHz)



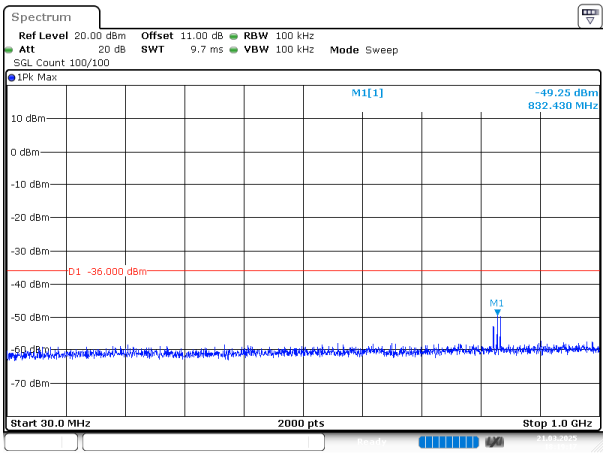
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Date: 21.MAR.2025 18:17:15

BLE 1M_Low Channel(2.4965GHz~12.5GHz)



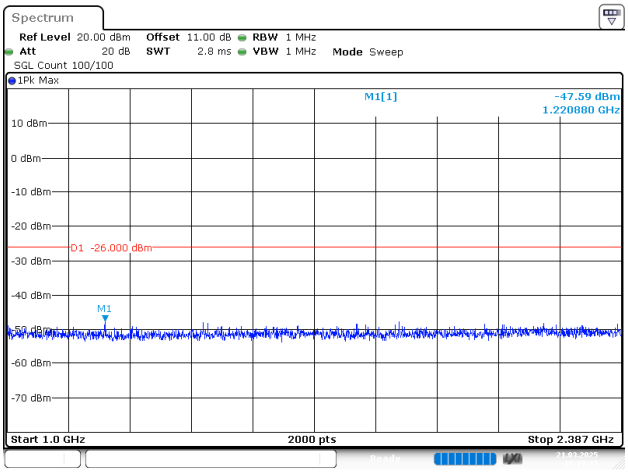
ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:17:38

BLE 1M_Middle Channel(30MHz~1GHz)



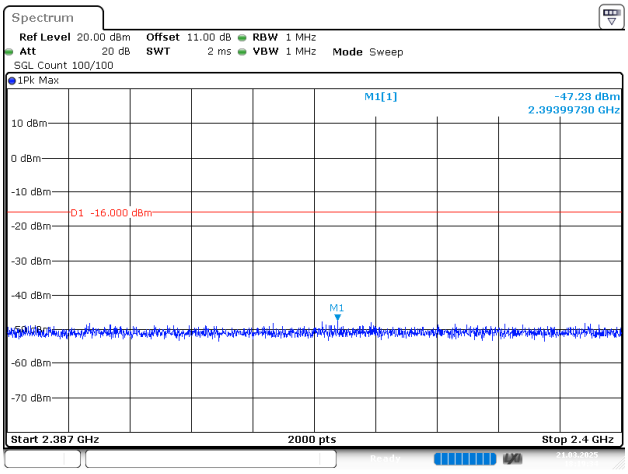
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Date: 21.MAR.2025 18:19:17

BLE 1M_Middle Channel(1GHz~2.387GHz)



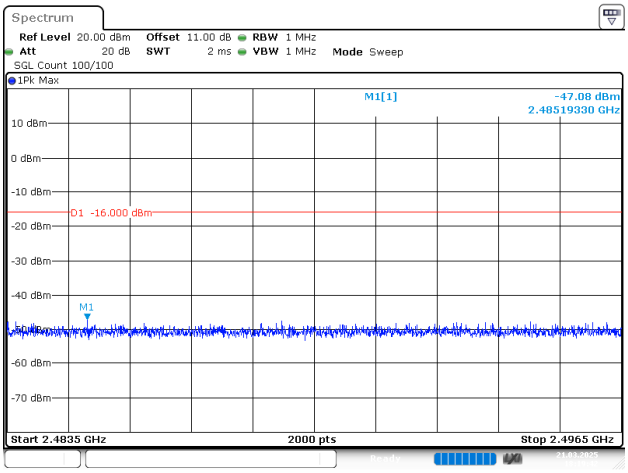
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Date: 21.MAR.2025 18:19:27

BLE 1M_Middle Channel(2.387GHz~2.4GHz)



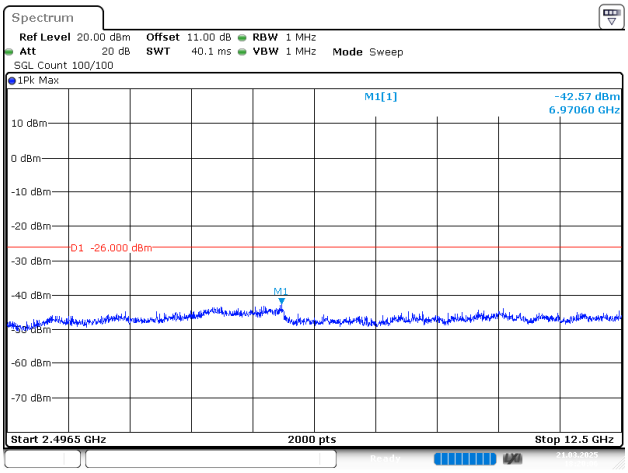
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Date: 21.MAR.2025 18:19:34

BLE 1M_Middle Channel(2.4835GHz~2.4965GHz)



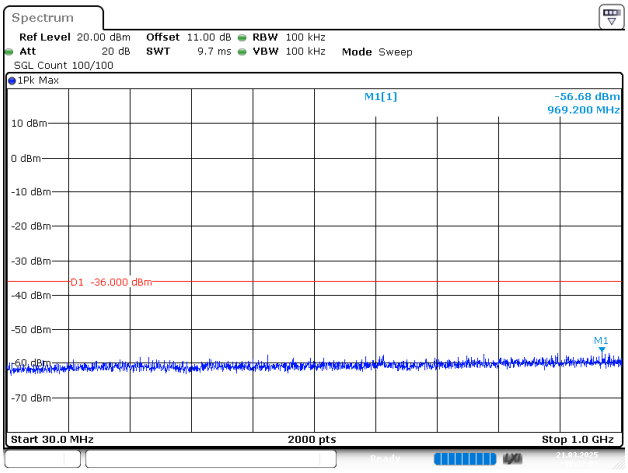
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BLE 1M_Middle Channel(2.4965GHz~12.5GHz)



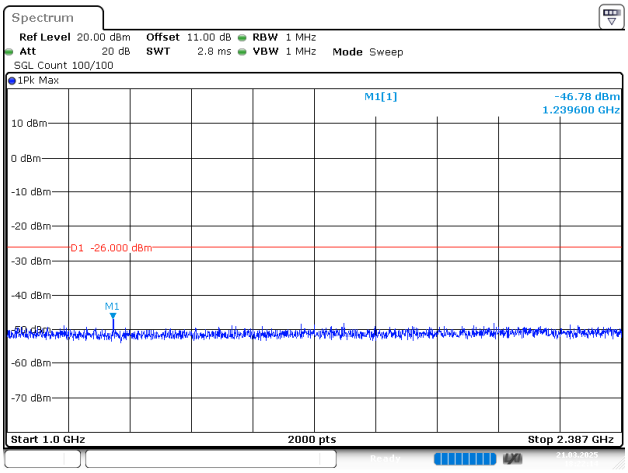
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Date: 21.MAR.2025 18:20:06

BLE 1M_High Channel(30MHz~1GHz)



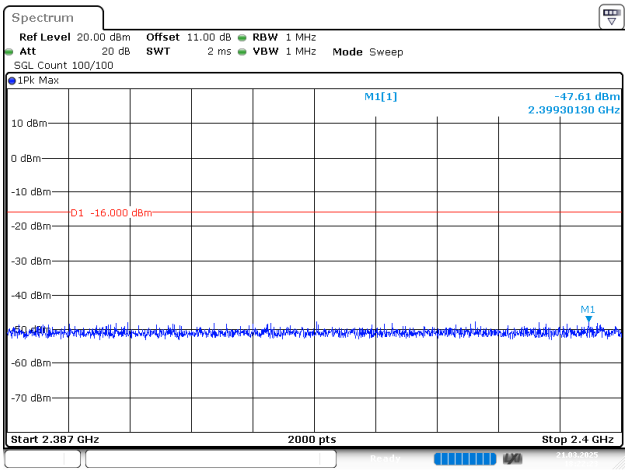
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BLE 1M_High Channel(1GHz~2.387GHz)



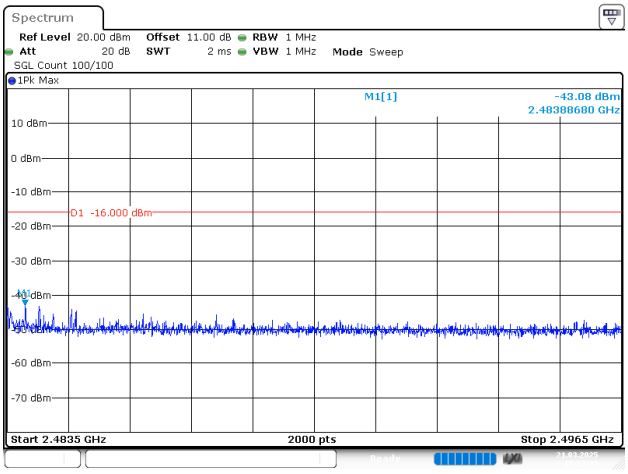
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Date: 21.MAR.2025 18:22:14

BLE 1M_High Channel(2.387GHz~2.4GHz)



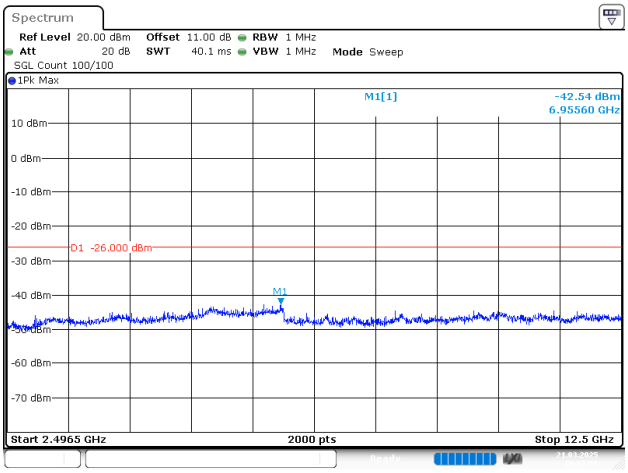
ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:22:23

BLE 1M_High Channel(2.4835GHz~2.4965GHz)



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:22:32

BLE 1M_High Channel(2.4965GHz~12.5GHz)



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 21.MAR.2025 18:22:57

Note: Offset = Coaxial Attenuator (10dB) + Cable Loss (1dB)

Antenna Output Power and Output Power Tolerance

Test Information:

Serial No.:	2YVE-1	**Test Date:**	2025/03/21
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jeff Wei	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	21.8	**Relative Humidity: (%)**	50	**ATM Pressure: (kPa)**	101.8

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	Calibration Agency	Calibration Method
Anritsu	Microwave Peak Power Sensor	MA24418A	12618	2024/8/27	2025/8/26	BACL Metrology	C
Eastsheep	Coaxial Attenuator	5W-N-JK-6G-10dB	F-08-EM504	2024/6/7	2025/6/6	BACL(DG)	D
Mini-Circuits	Coaxial DC Block	BLK-18-S+	15542	2025/2/28	2026/2/27	BACL(DG)	D

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Note:

A. Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1).

B. Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992).

C. Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).

D. Calibration conducted by using measuring instruments and other equipment which shall have been given any of calibration, etc. listed above from a) to c).

Test Condition: NV

Mode	Antenna gain (dBi)	Declared power (mW)
BLE 1M	3.30	2

Mode	Channel	Conducted power(dBm)	Antenna output power(mW)		Antenna output tolerance(%)		EIRP (dBm)		Verdict
			Result	Limit	Result	Limit	Result	Limit	
BLE 1M	Low	0.94	1.242	≤ 10	-37.90	-80~+20	4.24	≤ 12.14	Pass
	Middle	0.85	1.216		-39.20		4.15		Pass
	High	0.65	1.161		-41.95		3.95		Pass

Note:
Antenna otput power(mW) = 10^{Conducted power(dBm) / 10}
Antenna output power tolerance(%) = (Antenna output power - Declared power) / Declared power * 100%
Antenna output power(dBm) = 10 * log10{Antenna output power(mW)}
EIRP(dBm) = Antenna output power(dBm) + Antenna gain.

Receiver Spurious Emission and Unwanted Emission Intensity

Test Information:

Serial No.:	2YVE-1	**Test Date:**	2025/04/03
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Jeff Wei	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	21.3	**Relative Humidity: (%)**	55	**ATM Pressure: (kPa)**	101.4

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	Calibration Agency	Calibration Method
R&S	Coaxial Attenuator	10dB	F-08-EM512	2024/06/13	2025/06/12	BACL(DG)	D
R&S	Spectrum Analyzer	FSV40	101589	2024/09/05	2025/09/04	BACL Metrology	C
Mini-Circuits	Coaxial DC Block	BLK-18-S+	15542	2025/02/28	2026/02/27	BACL(DG)	D

** Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Note:

A. Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1).

B. Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992).

C. Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).

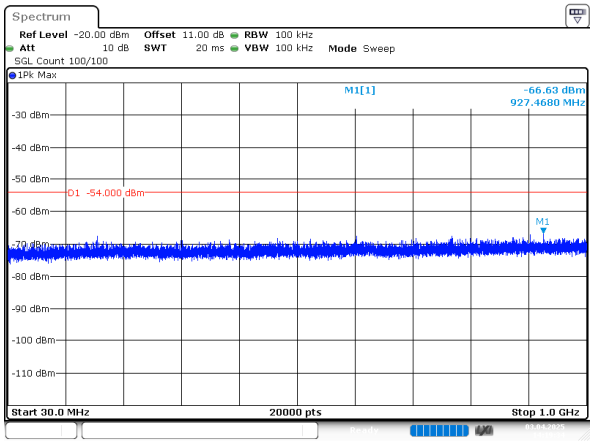
D. Calibration conducted by using measuring instruments and other equipment which shall have been given any of calibration, etc. listed above from a) to c).

Test Condition: NV

Mode	Channel	Test Band (RBW)	Frequency Range		Max.Emission Located(MHz)	Result (dBm)	Result (nW)	Limit (nW)	Verdict
			Start(MHz)	Stop(MHz)					
BLE 1M	Low	Band I (100kHz)	30	1000	927.47	-66.63	0.217	4	Pass
		Band II (1MHz)	1000	12500	5905.61	-53.08	4.920	20	Pass
	Middle	Band I (100kHz)	30	1000	987.12	-66.94	0.202	4	Pass
		Band II (1MHz)	1000	12500	6751.44	-52.43	5.715	20	Pass
	High	Band I (100kHz)	30	1000	809.42	-66.99	0.200	4	Pass
		Band II (1MHz)	1000	12500	6969.36	-52.81	5.236	20	Pass

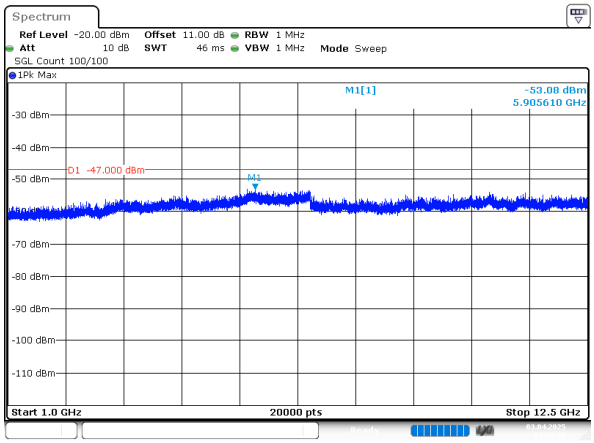
Test Condition: NV

BLE 1M_Low Channel(30MHz~1GHz)



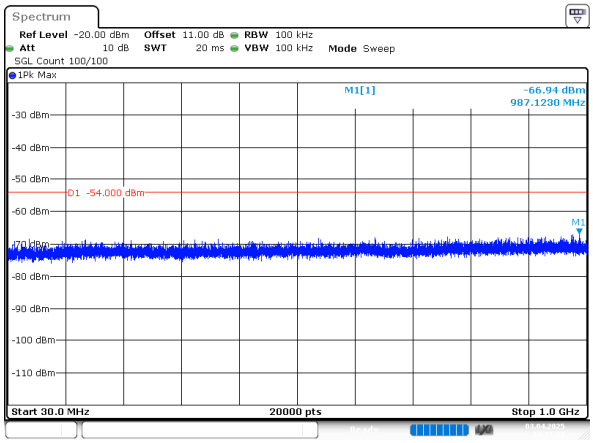
ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 3.APR.2025 14:19:34

BLE 1M_Low Channel(1GHz~12.5GHz)



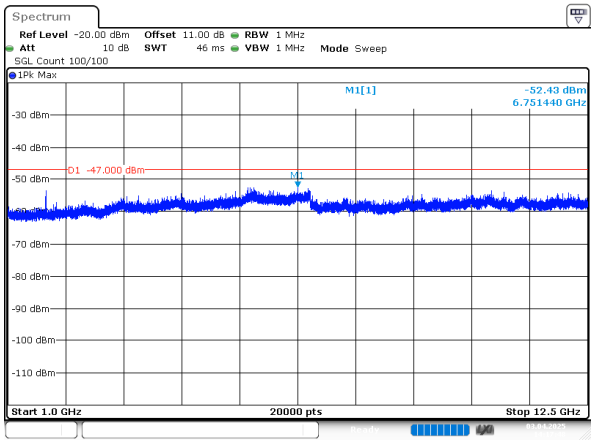
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Date: 3.APR.2025 14:20:00

BLE 1M_Middle Channel(30MHz~1GHz)



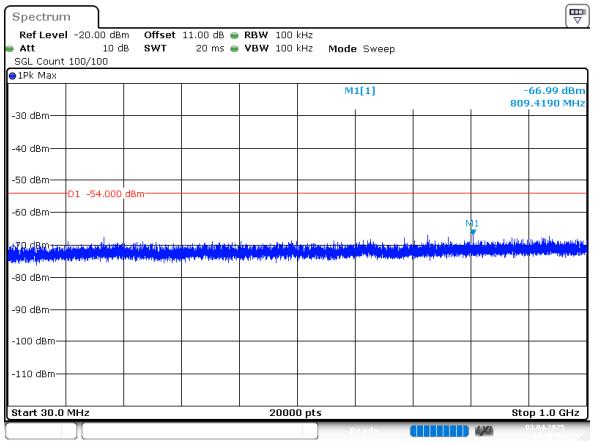
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Date: 3.APR.2025 14:17:23

BLE 1M_Middle Channel(1GHz~12.5GHz)



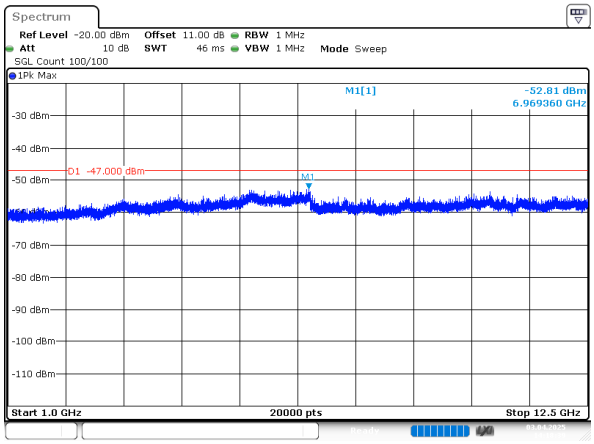
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Date: 3.APR.2025 14:17:49

BLE 1M_High Channel(30MHz~1GHz)



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 3.APR.2025 14:20:54

BLE 1M_High Channel(1GHz~12.5GHz)



ProjectNo.:2502Q45198E-RF Tester:Jeff Wei
Date: 3.APR.2025 14:18:40

Note: Offset = Coaxial Attenuator (10dB) + Cable Loss (1dB)

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