



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

JAPAN MIC TEST REPORT

Applicant: SHENZHEN MINJUN ELECTRONIC Technology CO., LTD

Address: 2nd Floor, 1st Building, Libang Technology Park, Guangxue Road, Xitian Community,
Guangming New District, Shenzhen, China

Product Name: Taillight

Model Number: SEEMEE 100AD

Standard(s): Radio Law of Japan item 19 of Article 2 Paragraph 1

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: 2503Q02410E-RF-07A

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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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	2503Q02410E-RF-07A	Original Report	2024/3/17

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Taillight
Trade Name:	Magicsshine
EUT Model:	SEEMEE 100AD
Frequency Range:	2402-2480 MHz
Nominal RF Output Power (Conducted):	BLE 1Mbps: 3.1 mW BLE 2Mbps: 2.0mW
Number of TX Chain(s):	1
Number of RX Chain(s):	1
Antenna Gain[▲]:	5.05dBi
Modulation Type:	GFSK
Rated Input Voltage:	DC 3.7V from Internal Battery or DC 5V from Type-C Port
Sample Number:	2YWB-2
EUT Received Date:	2025/2/25
EUT Received Status:	Good

Operation Frequency Detail

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404	...	...
...	...	...	...
...	...	...	...
...	...	38	2478
19	2440	39	2480
The test frequencies were performed the test as below:			
Test Channel		Frequency (MHz)	
Lowest		2402	
Middle		2440	
Highest		2480	

Accessory Information

Accessory Description	Manufacturer	Model	Parameters
USB-C Charging Cable	/	/	Unshielded without ferrite core, 0.5m
Saddle Mount	/	/	/
Seat Post Mount	/	/	/

1.2 Objective

The objective of this current document is to demonstrate the EUT, as equipment type in Certification Ordinance Article 2-1-19 of Specific Radio Equipment Specified in Article 38-2-2 Paragraph 1 Item 1 of the Radio Law, compliant with Article 49-20 of Radio equipment regulations.

1.3 Test Methodology

All measurements contained in this report were conducted with technical regulations of MIC Notice No.88 Annex 43.

1.4 Description of Test Configuration

1.4.1 EUT Operation Condition

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.		
Equipment Modifications:	No		
EUT Exercise Software:	PhyPlusKit.exe		
The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:			
Test Modes	Power Level Setting		
	Lowest	Middle	Highest
BLE 1Mbps	3F	3F	3F
BLE 2Mbps	3F	3F	3F

1.4.2 EUT Extremity Condition

Environment Element	Range	Declared Voltage Value	Measured Voltage	Unit	Voltage Variation (%)
Voltage Fluctuation:	NV	3.7	3.30	Vdc	/
	LV	3.0	3.30	Vdc	0.00
	HV	4.25	3.31	Vdc	0.30

Note:

1. Voltage Variation (%) = (Measured Voltage at High or Low Voltage - Measured Voltage at Normal Voltage)/ Measured Voltage at Normal Voltage*100

2. The Measured Voltage for the Radio Part fluctuation is verified at the power input PIN of the RF circuit.

The EUT be operated at 3.0~4.25Vdc which was provided by manufacturer, the supply voltage of RF part was varied within ±1%. All test cases were done under the **Normal Voltage (NV)** only.

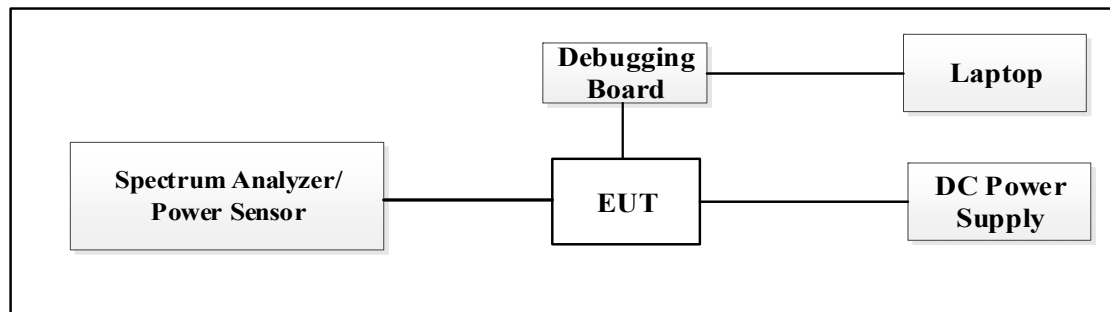
1.4.3 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	T460S	60PDTEK7
Unknown	Debugging Board	PHY6222 V1.7	5543946U_Y844_241113
DongFeng	Phone	P3	UP3_BSGF187E000165

1.4.4 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	0.5	Laptop	Debugging Board
Detachable Serial Cable	No	No	0.1	Debugging Board	EUT
Detachable Power Cable	No	No	1.0	DC Supply	EUT

1.4.5 Block Diagram of Test Setup



1.5 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	$\pm 0,5$ ppm
Occupied bandwidth and spreading bandwidth	± 5 %
RF output power, conducted	± 0.61 dB
Unwanted Emissions (TX&RX), conducted	± 2.47 dB
Temperature	± 1 °C
Humidity	± 5 %
DC and low frequency voltages	± 0.4 %
Duty Cycle	1 %

2. SUMMARY OF TEST RESULTS

Certification Ordinance Article 2-1-19 Conducted with: MIC Notice No.88 Appendix No.43	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 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.

3. REQUIREMENTS AND TEST PROCEDURES

3.1 Frequency Error

3.1.1 Limit

Within ± 50 ppm.

3.1.2 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.

3.2 Occupied Bandwidth

3.2.1 Limit

- Occupied bandwidth: ≤ 26 MHz

3.2.2 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.

3.3 Transmitter Spurious Emission Strength and Unwanted Emission Intensity

3.3.1 Limit

- $30\text{MHz} \leq f < 2387\text{ MHz}: \leq 2.5\mu\text{W}/\text{MHz}$
- $2387\text{ MHz} \leq f \leq 2400\text{ MHz}: \leq 25\mu\text{W}/\text{MHz};$
- $2483.5\text{ MHz} < f \leq 2496.5\text{ MHz}: \leq 25\mu\text{W}/\text{MHz}$
- $2496.5\text{ MHz} < f \leq 12500\text{MHz}: \leq 2.5\mu\text{W}/\text{MHz}$

3.3.2 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 $0.25\mu\text{W}/100\text{kHz}$.
- 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 $2.5\mu\text{W}/\text{MHz}$.
- 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 $25\mu\text{W}/\text{MHz}$.
- 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 $25\mu\text{W}/\text{MHz}$.
- 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 $2.5\mu\text{W}/\text{MHz}$.

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

3.4 Antenna Output Power and Antenna Power Tolerance

3.4.1 Limit

Antenna output power:

- $\leq 10 \text{ mW}$
- The Output Power Tolerance must be within $+20\% \sim -80\%$.
- $\text{EIRP} \leq 12.14\text{dBm}$ (other from 2400-2483.5 MHz)

3.4.2 Test Procedure

- a) Set the EUT in continuous maximum power transmitting mode.
- b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to power meter.
- c) Add a correction factor to the display.
- d) Set the power meter detector to average detector, to test average output power, record the result.
- e) Antenna Power Error is definition that actual measure antenna power tolerance between $+20\%$ to -80% power range that base on manufacturer declare the power density.

3.5 Receiver Spurious Emission and Unwanted Emission Intensity

3.5.1 Limit

- $\leq 4 \text{ nW}$ ($30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$)
- $\leq 20 \text{ nW}$ ($1 \text{ GHz} \leq f \leq 12.5 \text{ GHz}$)

3.5.2 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 $< 1 \text{ GHz}$
- RBW: 1MHz, VBW: 1MHz for Frequency $> 1 \text{ GHz}$
- Sweep time: AUTO or more
- Sweep mode: Auto Sweep
- Detection: Positive Peak
- Reference Level: Enough level for maximum dynamic range

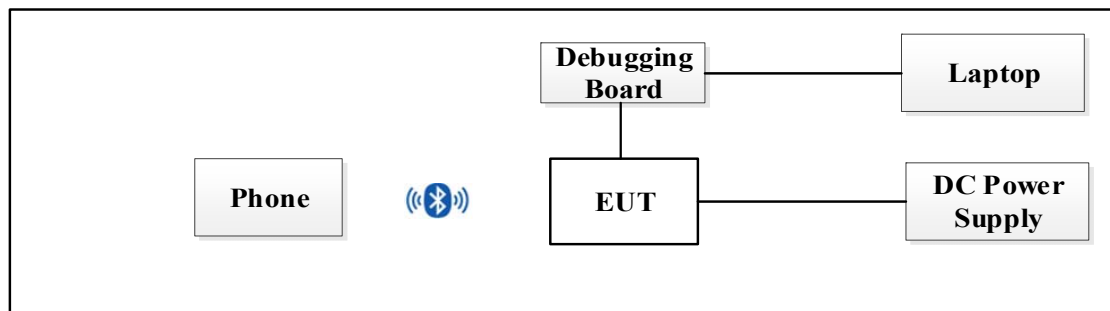
3.6 Interference Prevention Function

3.6.1 Requirement

The EUT shall have the interference prevention capability to transmit or to receive the identification automatically, so that sender and receiver shall exclude other equipment.

3.6.2 Test Procedure

Measurement System Diagram:



In the case that the EUT has the function of automatically transmitting the identification code:

1. Transmit the predetermined identification codes from EUT
2. Check the transmitted identification codes with the demodulator.

In the case of receiving the identification codes:

1. Transmit the predetermined identification codes from the counterpart.
2. Check if communication is normal
3. Transmit the signal other than predetermined ID codes from the counterpart.
4. Check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

3.7 Construction Protection Confirmation

3.7.1 Requirements

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

4. TEST DATA AND RESULTS

4.1 Test Environmental Conditions & Test Equipment List and Details

Test Date:		2025/3/1			
Tester:		Lingling Li			
Environmental Conditions:					
Temperature: (°C)	24.5	Relative Humidity: (%)	50	ATM Pressure: (kPa)	100.6

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date	Calibration Agency	Calibration Method ^{Note}
R&S	Spectrum Analyzer	FSU26	200256	2024/04/01	2025/03/31	BACL Cal	C
R&S	Spectrum Analyzer	FSU26	100147	2024/04/01	2025/03/31	BACL Cal	C
UNI-T	Multimeter	UT39A+	C210582554	2025/01/06	2026/01/05	BACL Cal	C
ZHAOXIN	DC Power Supply	RXN-6010D	21R6010D0912386	Each time	N/A	CCICT	D
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A	CCICT	D
Agilent	USB Average Power Sensor	U2001H	MY50000432	2024/4/1	2025/3/31	BACL Cal	C

*** Statement of Traceability:** China Certification ICT Co., Ltd (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)

4.2 Frequency Error

Test Result: Compliant. Please refers to following table and plots.

Test Mode: Carrier transmitting mode

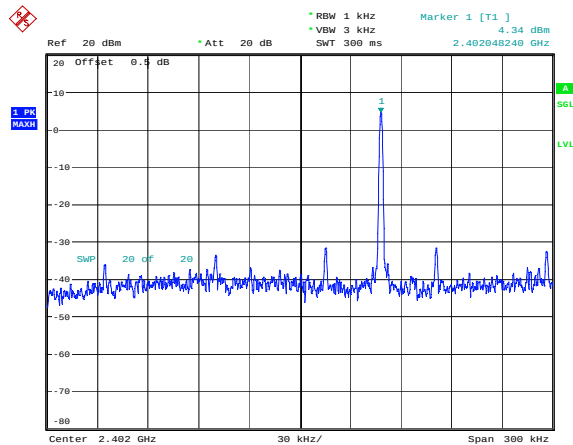
Mode	Frequency (MHz)	Measure Frequency (MHz)	Frequency Tolerance (ppm)	Limit (ppm)	Verdict
Single Carrier	2402	2402.04824	20.08	± 50	Pass
	2440	2440.04896	20.07		Pass
	2480	2480.04968	20.03		Pass

Note: Tolerance (Result) = (Measured Frequency - Test Frequency)/Test Frequency*10⁶

Please refer to the following plots:

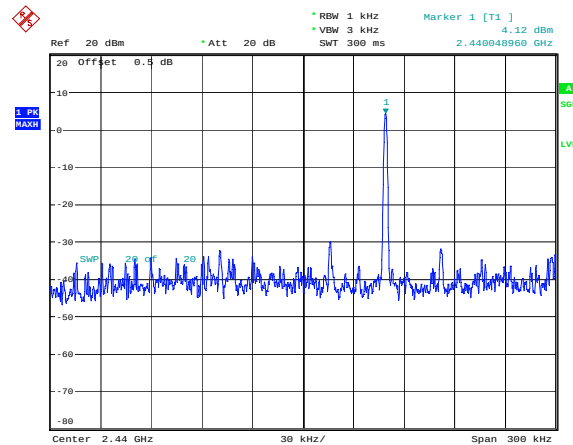
Test Condition: NV

2402MHz



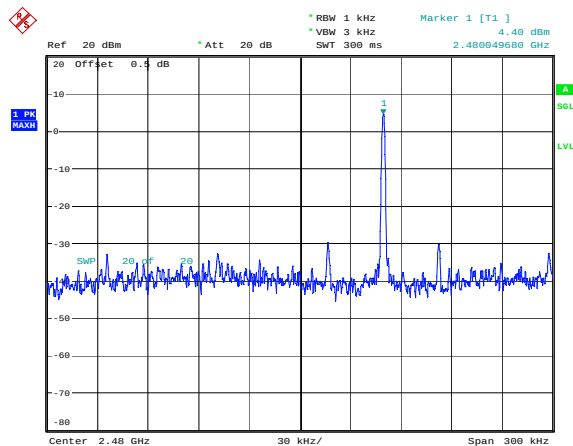
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:35:38

2440MHz



Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:36:02

2480MHz



Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:37:28

4.3 Occupied Bandwidth

Test Result: Compliant. *Please refers to following table and plots.*

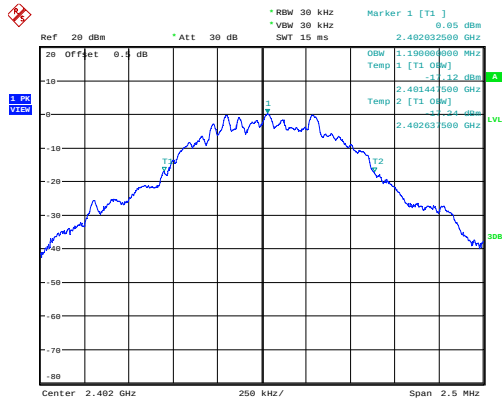
Test Mode: Transmitting

Mode	Occupied bandwidth (MHz)			Limit (MHz)	Verdict
	Low Channel	Middle Channel	High Channel		
BLE 1M	1.19	1.213	1.24	≤ 26	Pass
BLE 2M	2.09	2.09	2.09		Pass

Please refer to the following plots:

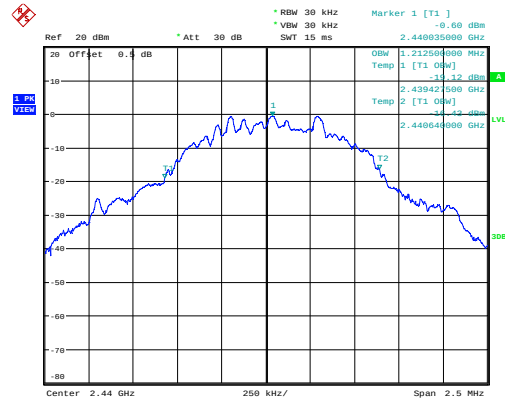
Test Condition: NV

BLE 1M_Low Channel



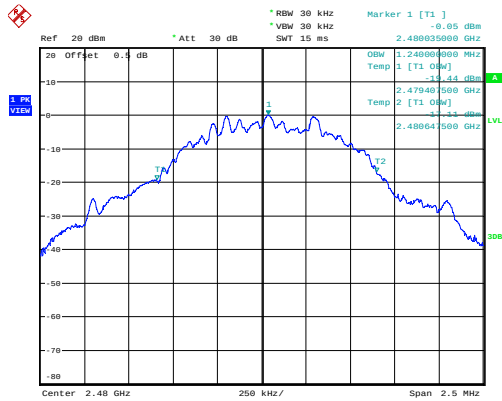
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:22:32

BLE 1M_Middle Channel



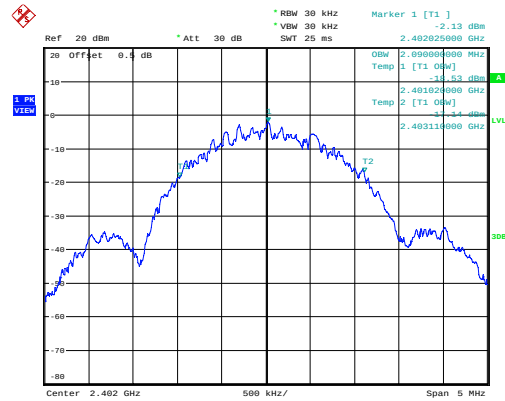
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:23:30

BLE 1M_High Channel



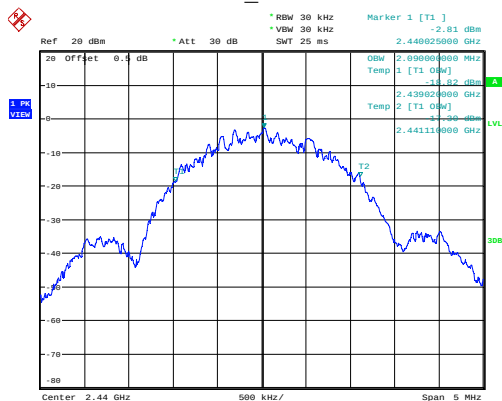
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:24:47

BLE 2M_Low Channel



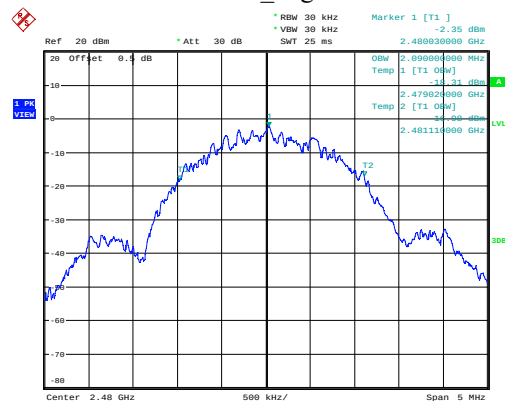
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:25:31

BLE 2M_Middle Channel



ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:26:25

BLE 2M_High Channel



ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:27:05

4.4 Transmitter Spurious Emission Strength and Unwanted Emission Intensity

Test Result: Compliant. Please refers to following tables and plots.

Test Mode: Transmitting

Test Condition: NV, BLE 1Mbps

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	985.94	-53.72	0.004	0.25	Pass
	Band II (1MHz)	1000	2387	2339.15	-41.53	0.070	2.50	Pass
	Band III (1MHz)	2387	2400	2399.99	-21.75	6.691	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2491.56	-48.17	0.015	25	Pass
	Band V (1MHz)	2496.5	12500	7203.15	-58.84	0.001	2.50	Pass
Middle	Band I (100kHz)	30	1000	961.65	-52.47	0.006	0.25	Pass
	Band II (1MHz)	1000	2387	2366.87	-48.14	0.015	2.50	Pass
	Band III (1MHz)	2387	2400	2392.34	-47.32	0.019	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2488.18	-47.96	0.016	25	Pass
	Band V (1MHz)	2496.5	12500	7323.19	-55.29	0.003	2.50	Pass
High	Band I (100kHz)	30	1000	708.71	-53.58	0.004	0.25	Pass
	Band II (1MHz)	1000	2387	2275.23	-49.12	0.012	2.50	Pass
	Band III (1MHz)	2387	2400	2399.84	-47.82	0.017	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2484.20	-30.91	0.811	25	Pass
	Band V (1MHz)	2496.5	12500	7443.23	-54.26	0.004	2.50	Pass

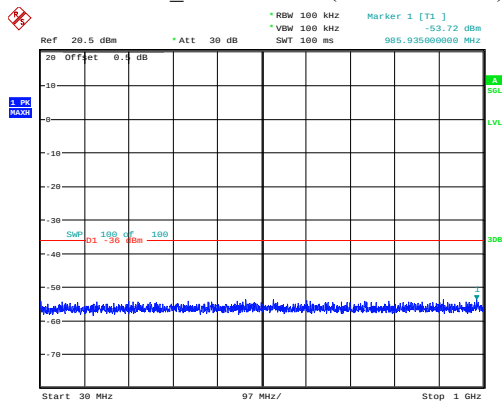
Test Condition: NV, BLE 2Mbps

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	143.12	-53.74	0.004	0.25	Pass
	Band II (1MHz)	1000	2387	2354.37	-48.35	0.015	2.50	Pass
	Band III (1MHz)	2387	2400	2400	-19.19	12.039	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2495.79	-48.16	0.015	25	Pass
	Band V (1MHz)	2496.5	12500	7203.15	-47.19	0.019	2.50	Pass
Middle	Band I (100kHz)	30	1000	928.15	-52.56	0.006	0.25	Pass
	Band II (1MHz)	1000	2387	2386.31	-49.40	0.011	2.50	Pass
	Band III (1MHz)	2387	2400	2392.20	-46.92	0.020	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2488.14	-46.18	0.024	25	Pass
	Band V (1MHz)	2496.5	12500	7318.19	-32.16	0.608	2.50	Pass
High	Band I (100kHz)	30	1000	802.89	-52.83	0.005	0.25	Pass
	Band II (1MHz)	1000	2387	2327.99	-49.02	0.013	2.50	Pass
	Band III (1MHz)	2387	2400	2399.79	-46.68	0.021	25	Pass
	Band IV (1MHz)	2483.5	2496.5	2483.50	-29.59	1.099	25	Pass
	Band V (1MHz)	2496.5	12500	7443.23	-43.87	0.041	2.50	Pass

Please refer to the below plots:

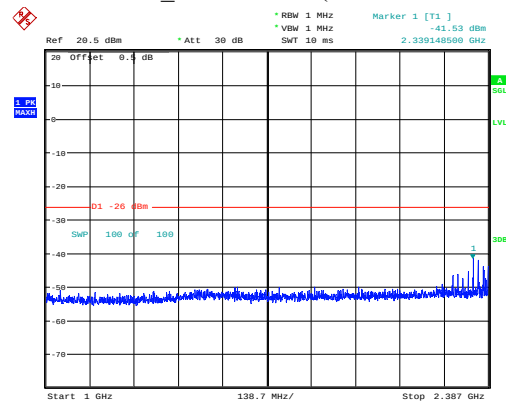
Test Condition: NV

BLE 1M_Low Channel(30MHz~1GHz)



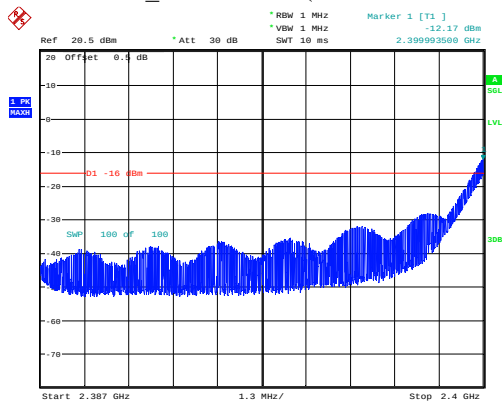
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:56:29

BLE 1M_Low Channel(1GHz~2.387GHz)



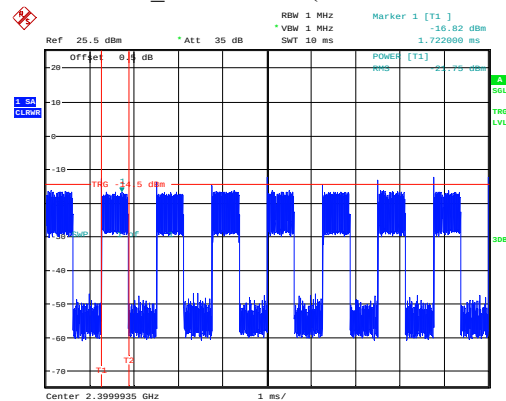
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:56:46

BLE 1M_Low Channel(2.387GHz~2.4GHz)



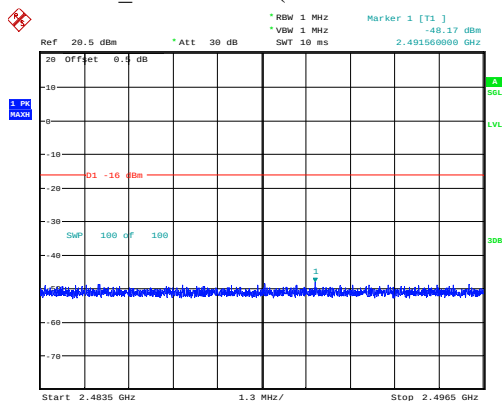
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:57:00

BLE 1M_Low Channel(2.387GHz~2.4GHz)



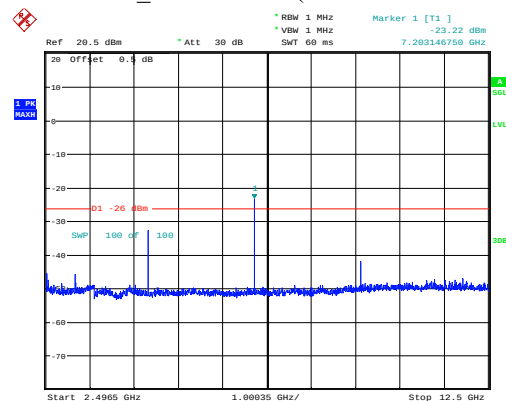
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:58:38

BLE 1M_Low Channel(2.4835GHz~2.4965GHz)



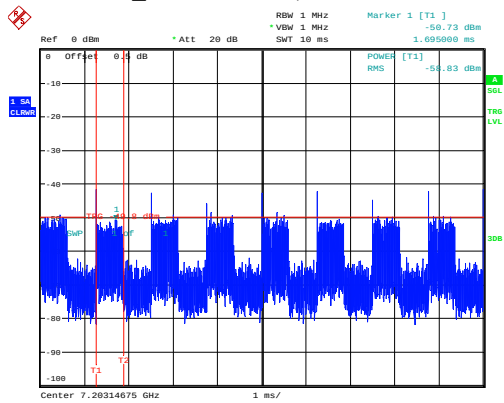
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:28:45

BLE 1M_Low Channel(2.4965GHz~12.5GHz)



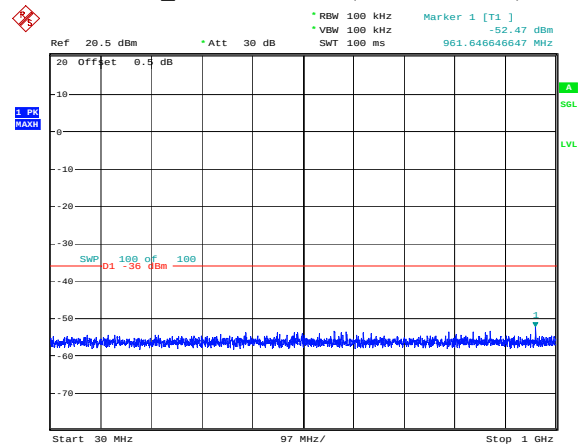
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:29:17

BLE 1M_Low Channel(2.4965GHz~12.5GHz)



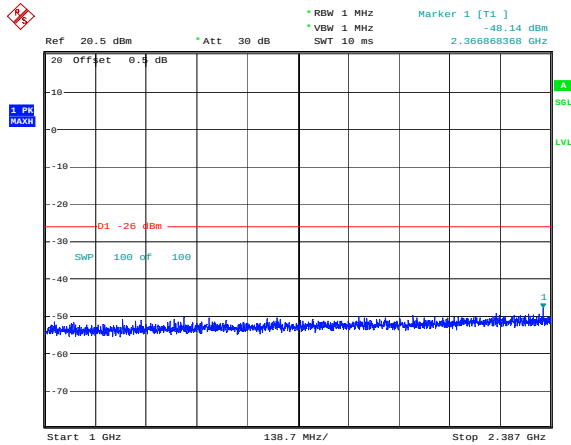
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:31:06

BLE 1M_Middle Channel(30MHz~1GHz)



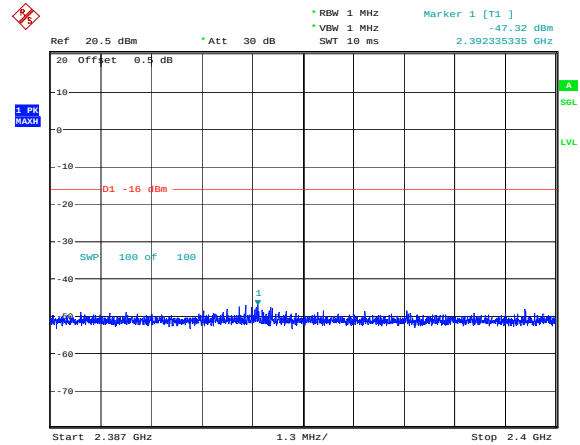
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:11:45

BLE 1M_Middle Channel(1GHz~2.387GHz)



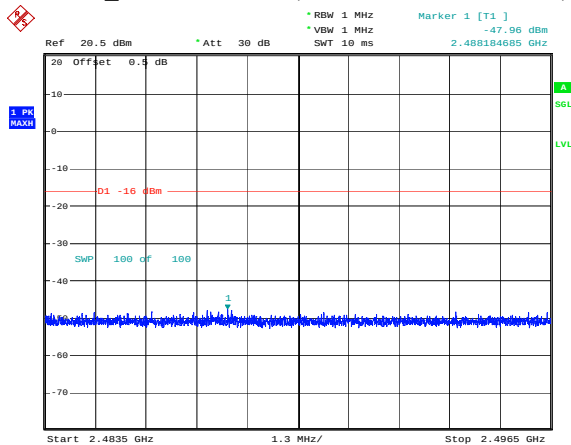
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:12:04

BLE 1M_Middle Channel(2.387GHz~2.4GHz)



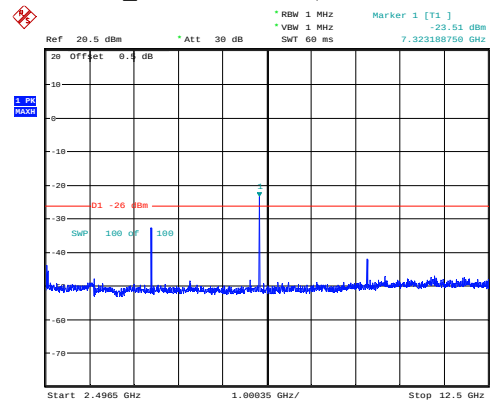
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:12:21

BLE 1M_Middle Channel(2.4835GHz~2.4965GHz)



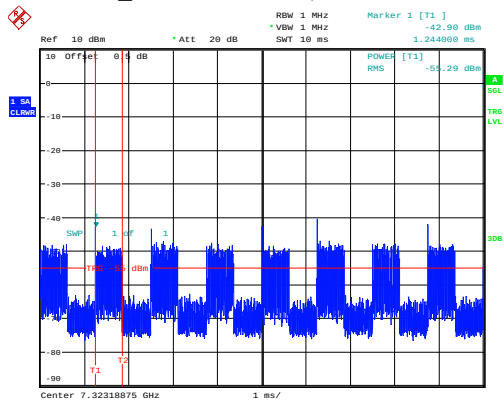
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:12:38

BLE 1M_Middle Channel(2.4965GHz~12.5GHz)



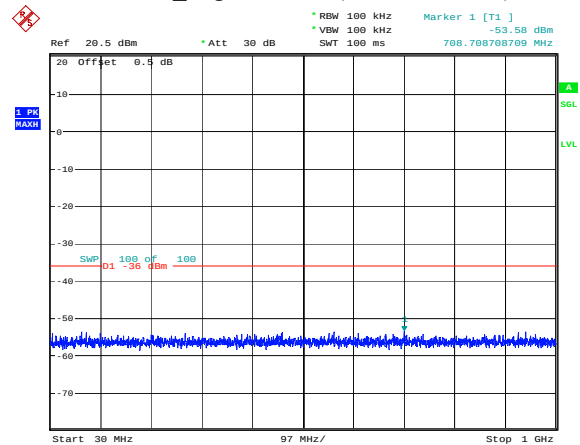
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:32:36

BLE 1M_Middle Channel(2.4965GHz~12.5GHz)



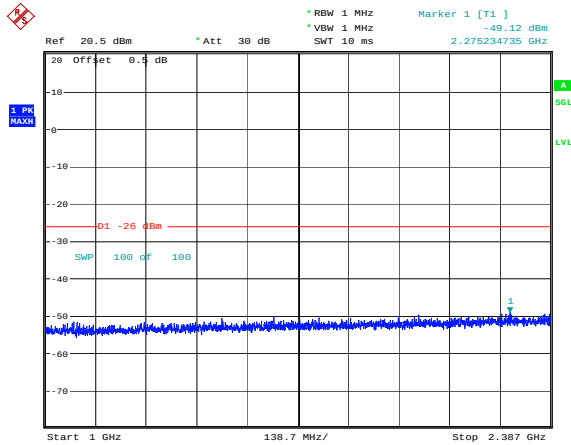
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:34:16

BLE 1M_High Channel(30MHz~1GHz)



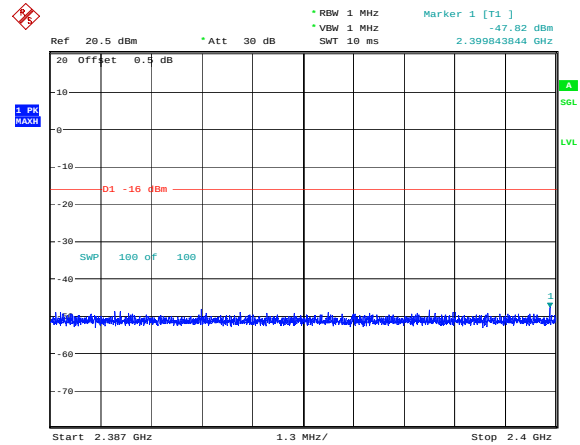
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:14:18

BLE 1M_High Channel(1GHz~2.387GHz)



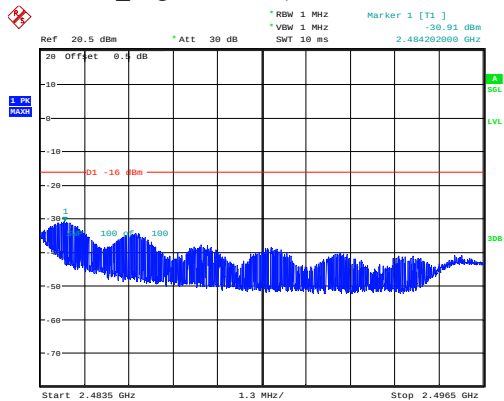
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:14:37

BLE 1M_High Channel(2.387GHz~2.4GHz)



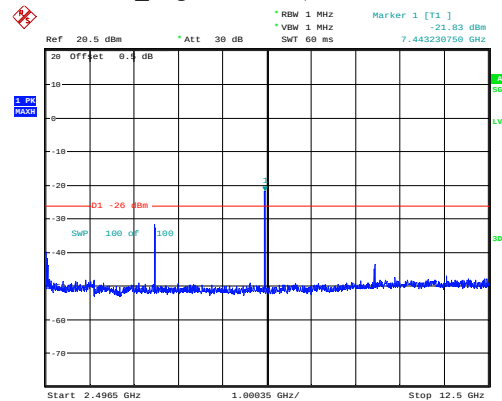
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:14:53

BLE 1M_High Channel(2.4835GHz~2.4965GHz)



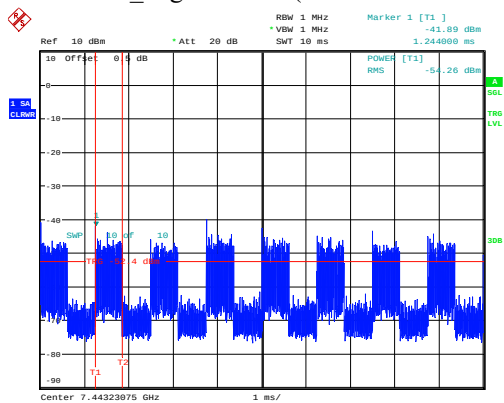
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:34:42

BLE 1M_High Channel(2.4965GHz~12.5GHz)



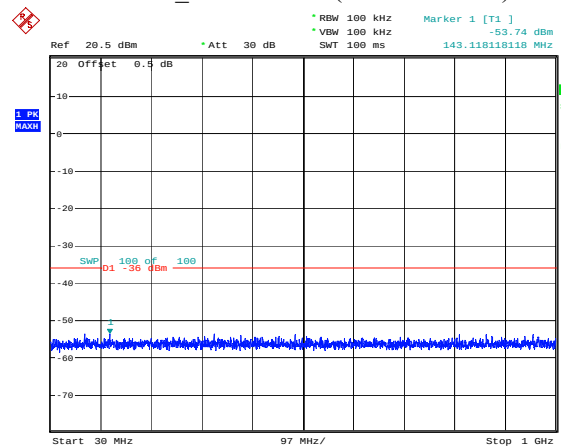
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:35:14

BLE 1M_High Channel(2.4965GHz~12.5GHz)



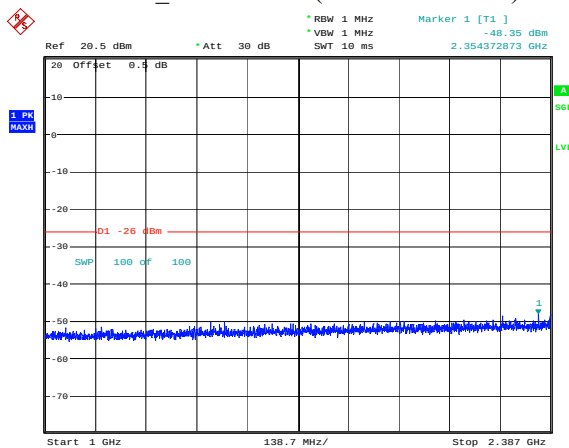
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:38:04

BLE 2M_Low Channel(30MHz~1GHz)



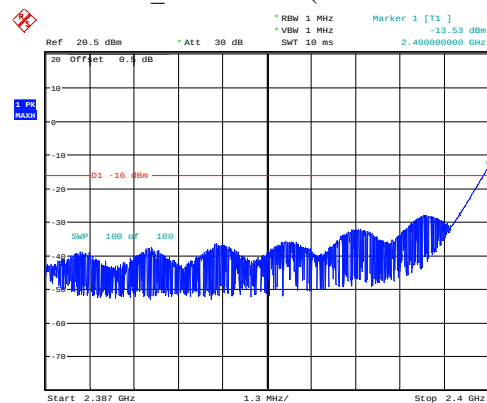
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:18:23

BLE 2M_Low Channel(1GHz~2.387GHz)



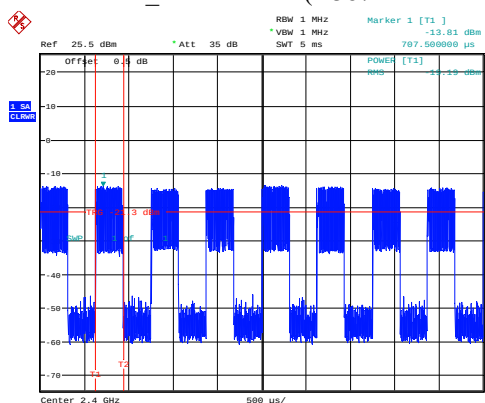
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:18:41

BLE 2M_Low Channel(2.387GHz~2.4GHz)



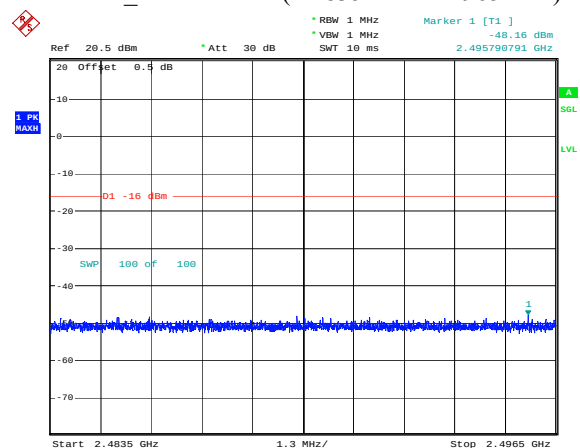
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:39:39

BLE 2M_Low Channel(2.387GHz~2.4GHz)



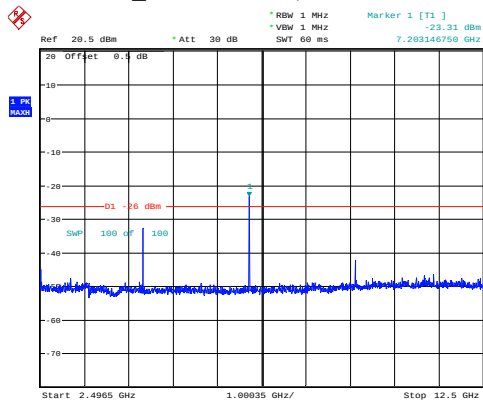
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:41:11

BLE 2M_Low Channel(2.4835GHz~2.4965GHz)



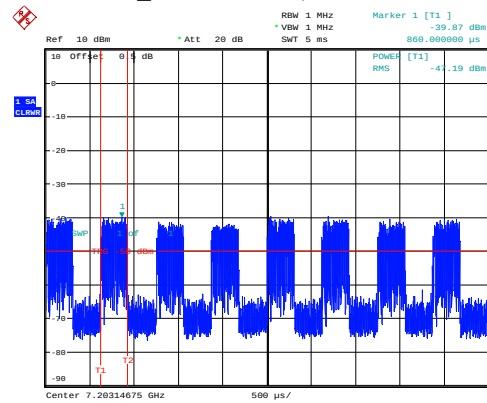
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:19:13

BLE 2M_Low Channel(2.4965GHz~12.5GHz)



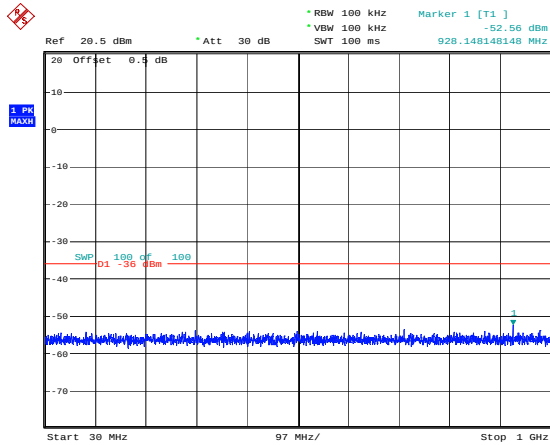
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:41:44

BLE 2M_Low Channel(2.4965GHz~12.5GHz)



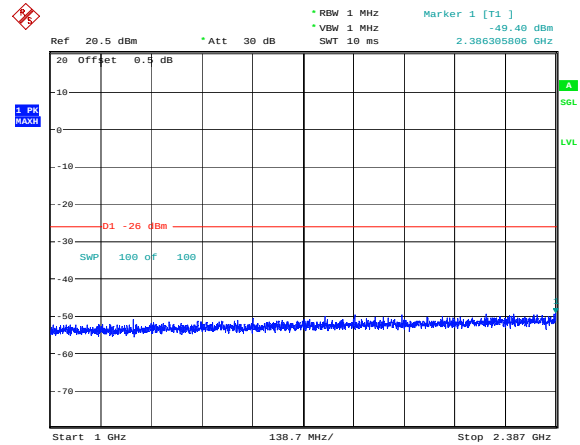
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:44:16

BLE 2M_Middle Channel(30MHz~1GHz)



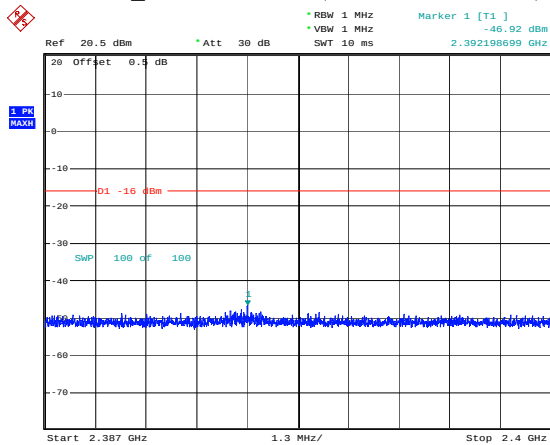
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:20:59

BLE 2M_Middle Channel(1GHz~2.387GHz)



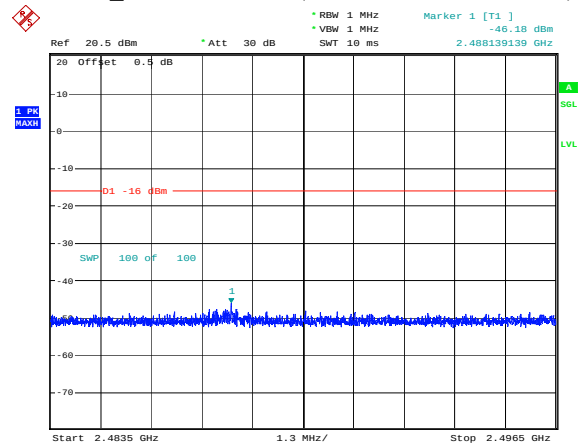
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:21:19

BLE 2M_Middle Channel(2.387GHz~2.4GHz)



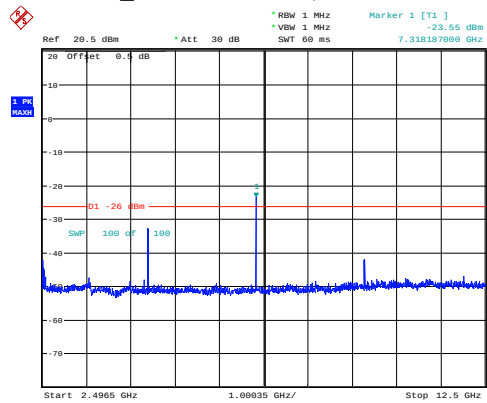
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:21:36

BLE 2M_Middle Channel(2.4835GHz~2.4965GHz)



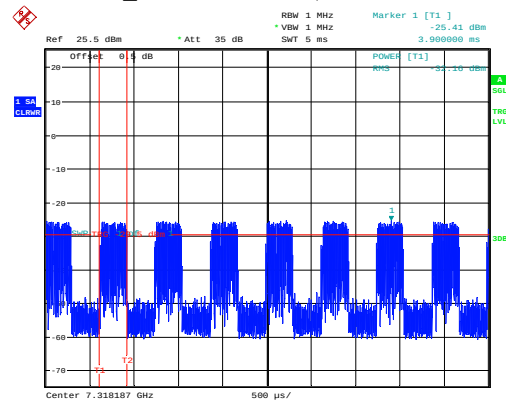
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:21:53

BLE 2M_Middle Channel(2.4965GHz~12.5GHz)



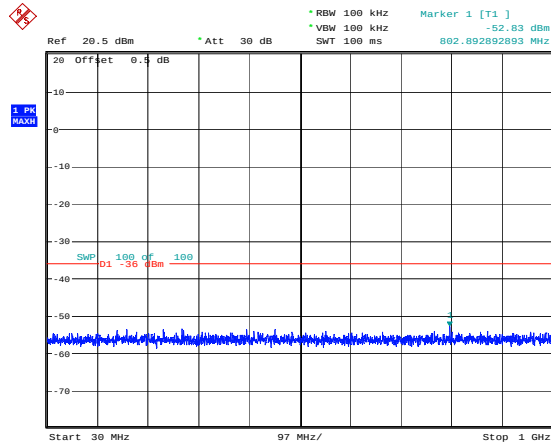
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:45:00

BLE 2M_Middle Channel(2.4965GHz~12.5GHz)



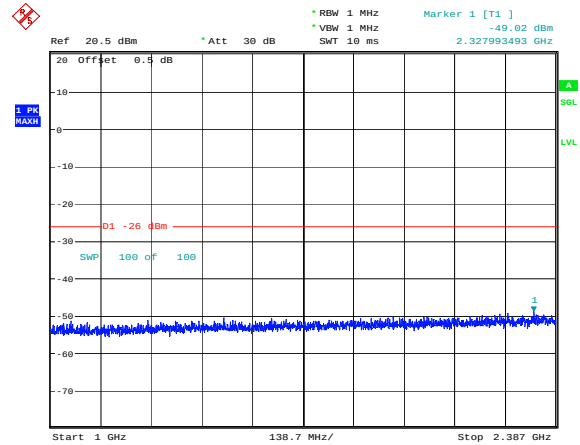
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:46:28

BLE 2M_High Channel(30MHz~1GHz)



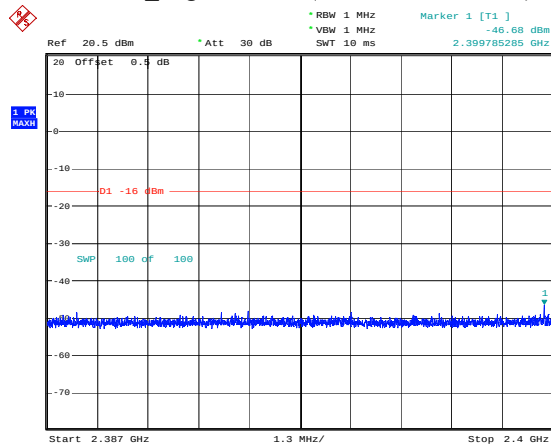
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:23:46

BLE 2M_High Channel(1GHz~2.387GHz)



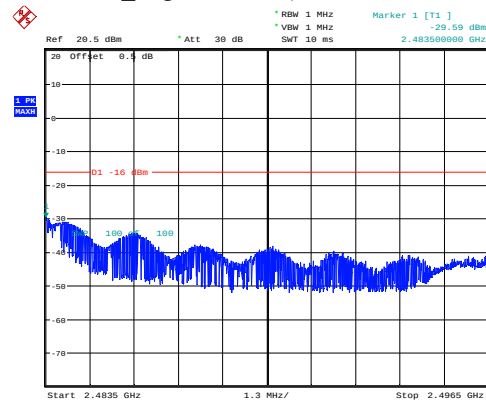
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:24:05

BLE 2M_High Channel(2.387GHz~2.4GHz)



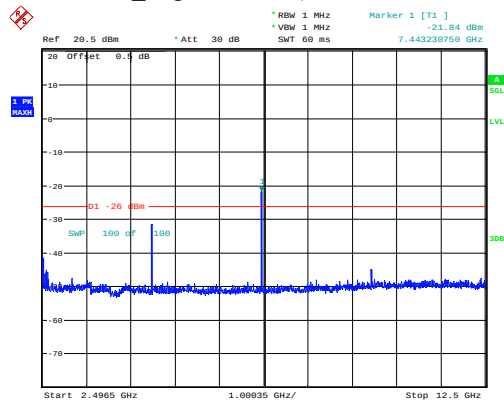
Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:24:21

BLE 2M_High Channel(2.4835GHz~2.4965GHz)



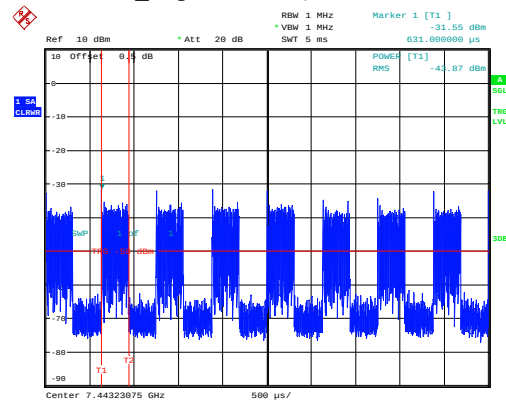
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:47:25

BLE 2M_High Channel(2.4965GHz~12.5GHz)



ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:47:56

BLE 2M_High Channel(2.4965GHz~12.5GHz)



ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:49:15

4.5 Antenna Output Power and Antenna Power Tolerance

Test Result: Compliant. Please refers to following tables and plots.

Test Mode: Transmitting

Duty Cycle and Declared Power

Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Antenna Gain (dBi)	Declared Power (mW)
BLE 1Mbps	0.614	1.253	49.00	5.05	3.10
BLE 2Mbps	0.311	0.631	49.29		2.00

Antenna Output Power

Test Condition	Mode	Channel	Conducted Power (dBm)	Antenna Output Power (mW)		Antenna Output Power Tolerance (%)		EIRP (dBm)	
				Result	Limit	Result	Limit	Result	Limit
NV	BLE 1Mbps	Low	1.60	2.950	≤ 10	-4.84	-80 ~ +20	9.75	≤ 12.14
		Middle	1.41	2.824		-8.90		9.56	
		High	1.75	3.054		-1.48		9.90	
NV	BLE 2Mbps	Low	-0.20	1.937	≤ 10	-3.15	-80 ~ +20	7.92	≤ 12.14
		Middle	-0.37	1.863		-6.85		7.75	
		High	-0.09	1.987		-0.65		8.03	

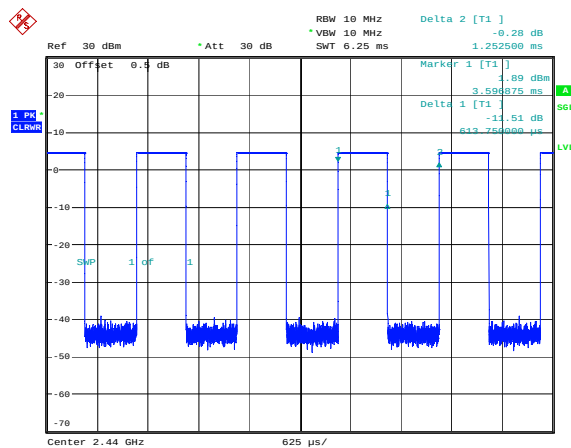
Note:

1. Antenna Output Power Tolerance = (Antenna Output power - Declared Power)/Declared Power*100%
2. Antenna output power (mW) = Conducted power(mW)/Duty cycle = $(10^{(Conducted\ power(dBm)/10)})/Duty\ cycle$
3. EIRP (dBm) = $10 * \log(Antenna\ output\ power\ (mW)) + Antenna\ Gain$

Test Plots for Duty Cycle:

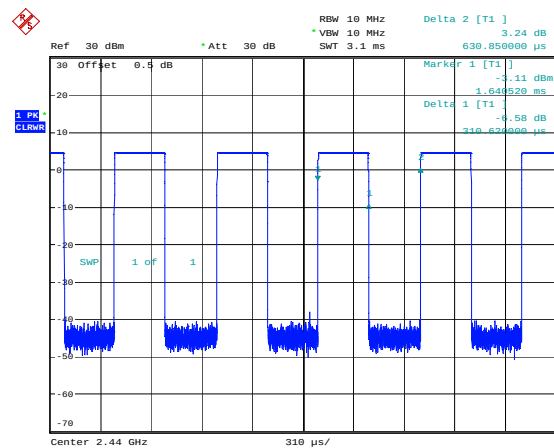
Test Condition: NV

BLE 1M



Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:40:29

BLE 2M



Comment: ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 15:41:06

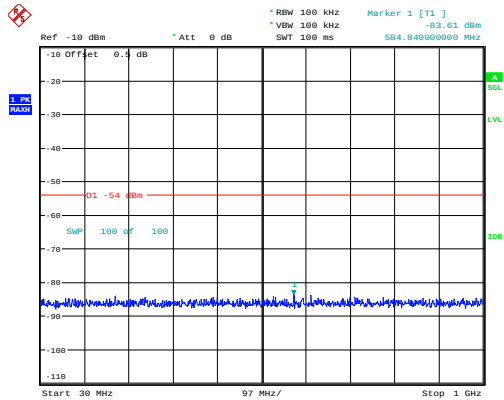
4.6 Receiver Spurious Emission and Unwanted Emission Intensity

Test Result: Compliant, please see the below tables and plots

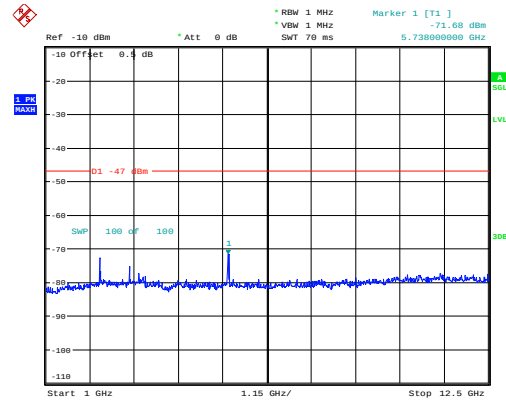
Test Mode: Receiving

Test Condition: NV

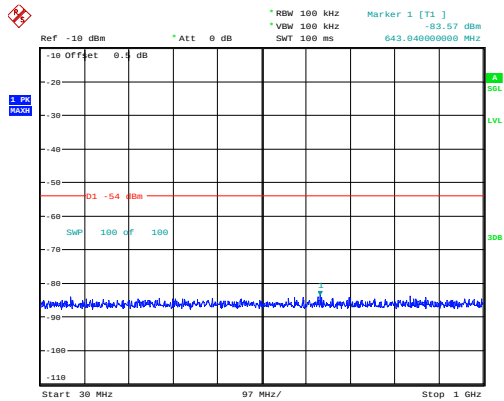
Mode	Channel	Test Band (RBW)	Frequency Range		Max.Emission Located(MHz)	Result (dBm)	Result (nW)	Limit (nW)	Verdict
			Start(MHz)	Stop(MHz)					
BLE 1Mbps	Low	Band I (100kHz)	30	1000	584.84	-83.61	0.004	4	Pass
		Band II (1MHz)	1000	12500	5738	-71.68	0.068	20	Pass
	Middle	Band I (100kHz)	30	1000	643.04	-83.57	0.004	4	Pass
		Band II (1MHz)	1000	12500	3173.50	-74.15	0.038	20	Pass
	High	Band I (100kHz)	30	1000	780.78	-83.77	0.004	4	Pass
		Band II (1MHz)	1000	12500	3173.50	-72.42	0.057	20	Pass
BLE 2Mbps	Low	Band I (100kHz)	30	1000	636.25	-83.55	0.004	4	Pass
		Band II (1MHz)	1000	12500	3173.50	-74.51	0.035	20	Pass
	Middle	Band I (100kHz)	30	1000	172.59	-83.35	0.005	4	Pass
		Band II (1MHz)	1000	12500	2403	-73.27	0.047	20	Pass
	High	Band I (100kHz)	30	1000	706.09	-80.29	0.009	4	Pass
		Band II (1MHz)	1000	12500	3162	-74.46	0.036	20	Pass

Test Condition: NV**BLE 1M_Low Channel(30MHz~1GHz)**

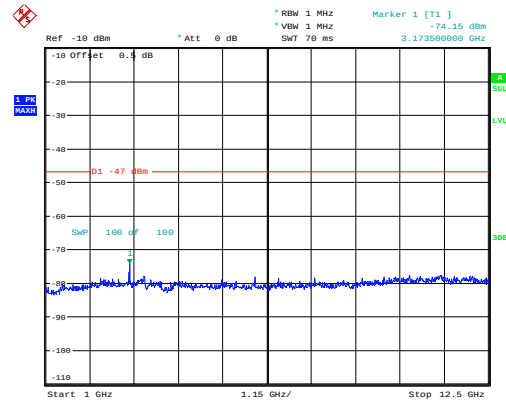
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:09:52

BLE 1M_Low Channel(1GHz~12.5GHz)

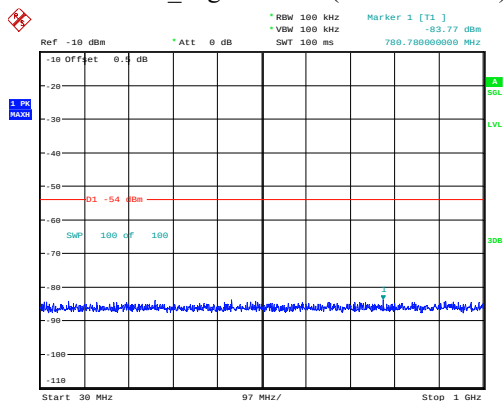
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:10:22

BLE 1M_Middle Channel(30MHz~1GHz)

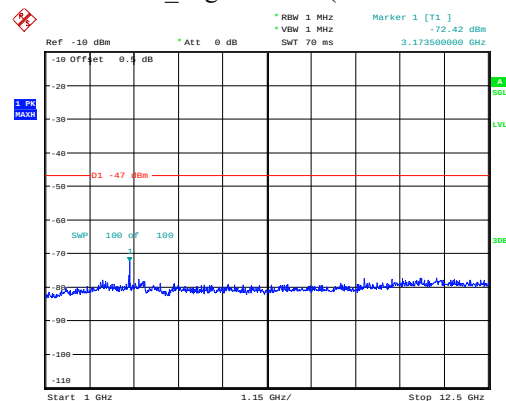
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:10:50

BLE 1M_Middle Channel(1GHz~12.5GHz)

ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:11:21

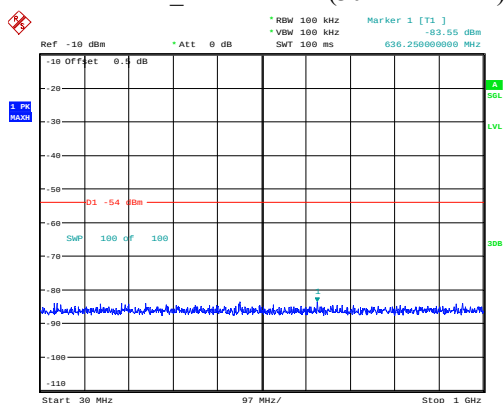
BLE 1M_High Channel(30MHz~1GHz)

ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:11:45

BLE 1M_High Channel(1GHz~12.5GHz)

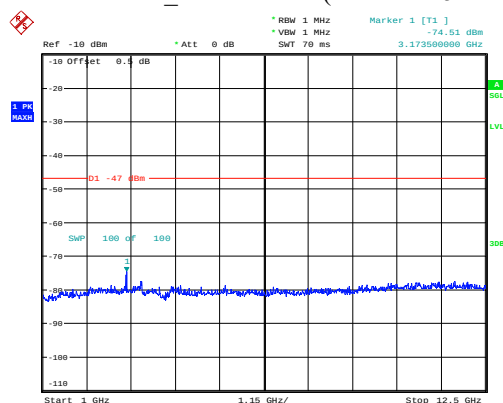
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:12:17

BLE 2M_Low Channel(30MHz~1GHz)



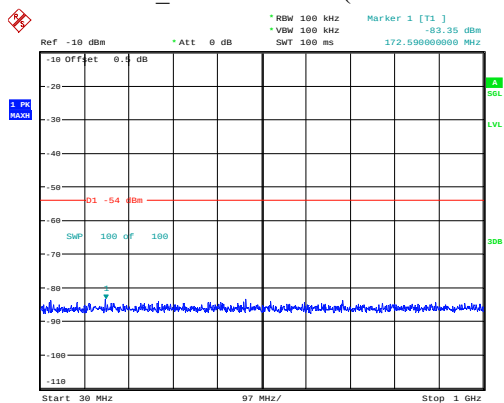
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:12:44

BLE 2M_Low Channel(1GHz~12.5GHz)



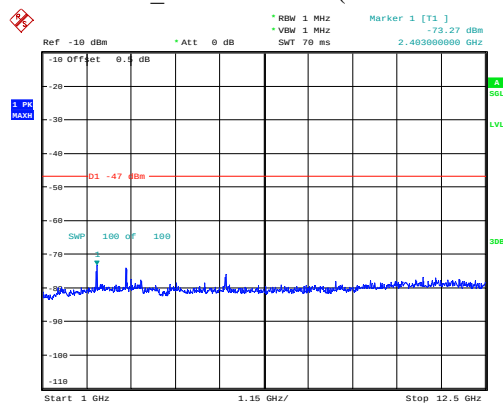
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:13:15

BLE 2M_Middle Channel(30MHz~1GHz)



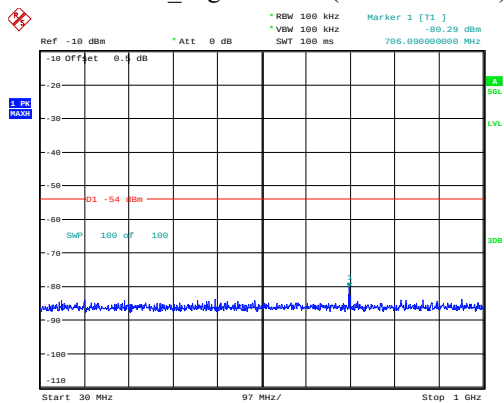
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:13:38

BLE 2M_Middle Channel(1GHz~12.5GHz)



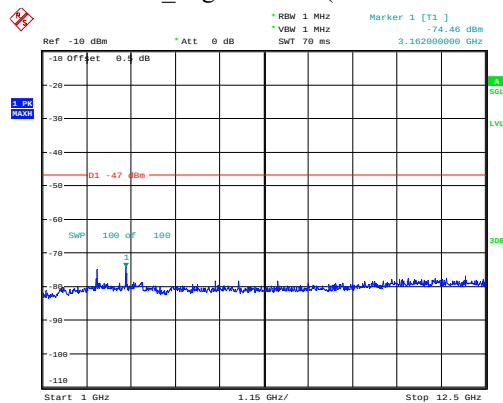
ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:14:10

BLE 2M_High Channel(30MHz~1GHz)



ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:14:33

BLE 2M_High Channel(1GHz~12.5GHz)



ProjectNo.:2503Q02410E-RF Tester:Lingling Li
Date: 1.MAR.2025 16:15:04

4.7 Interference Prevention Function

Test Result: Compliant, please see the below table.

Item	Result	Requirement	Verdict
Methodology to transmit ID Code:	Automatically	Automatically	Good
Methodology to receive ID Code:	Automatically	Automatically	Good
Identification Codes (ID Codes):	00:C0:CA:B7:A2:83	/	/
Bits of ID Codes:	48 bits	48 bits or more	Compliant
Screenshot:			

4.8 Construction Protection Confirmation

Result: Compliant. please see the below table.

☐	Sealed with screws.
☐	Plastic chassis is being welded using ultrasonic waves.
☒	Cover is glued using a special adhesive.
☐	Metal covers are spot-fused.
☒	Cover is specially interlocked.
☐	RF and Modulation components are covered with shielding case and this shielding case is soldered.
☐	Other
If 'Other', describe the method here. Then delete this text.	
Photographs	
	

5. EUT PHOTOGRAPHS

Please refer to the attachment 2503Q02410E-RF_EXP EUT EXTERNAL PHOTOGRAPHS and 2503Q02410E-RF_INP EUT INTERNAL PHOTOGRAPHS.

6. TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2503Q02410E-RF-07A-TSP TEST SETUP PHOTOGRAPHS.

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