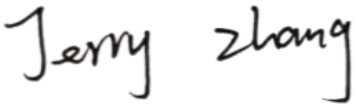
RF Test Report

Applicant:	Quectel Wireless Solutions Co., Ltd.
Address:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Product:	Bluetooth Module
Model No.:	HGMB11S
Brand Name:	QUECTEL
FCC ID:	XMR2025HGMB11S
Standards:	FCC CFR47 Part 15C
Report No.:	PD20250037-R3A
Issue Date:	2025/08/27
Test Result:	PASS *

* **Testing performed at Hefei Panwin Technology Co., Ltd. on the above equipment indicates the product meets the requirements of the relevant standards.**



Reviewed By: Jerry Zhang **Approved By:** Alec Yang

Hefei Panwin Technology Co., Ltd.

Floor 1, Zone E, Plant 2#, Mingzhu Industrial Park, No.106 Chuangxin Avenue, High-tech Zone, Hefei City, Anhui Province,China

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Revision History

Report No.	Version	Description	Issue Date	Note
PD20250037-R3A	1	Initial Report	2025/08/27	Valid

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CONTENTS

Test Summary

No.	Test Case	FCC Rules	Verdict
1	Output Power Measurement	15.247(b)	PASS
2	6dB and 99% Bandwidth Measurement	15.247(a)(2)	PASS
3	Power Spectral Density Measurement	15.247(e)	PASS
4	Conducted Band Edges and Spurious Emission Measurement	15.247(d)	PASS
5	Radiated Band Edges and Spurious Emission Measurement	15.247(d)	PASS
6	AC Conducted Emission Measurement	15.207	NA
7	Antenna Requirements	15.203 & 15.247(b)	PASS

Date of Testing: 2025/07/31 to 2025/08/26
Date of Sample Received: 2025/07/30

• We, Hefei Panwin Technology Co., Ltd., would like to declare that the tested sample has been evaluated in accordance with the procedures given in applied standard(s) in **Section 2.3** of this report and shown compliance with the applicable technical standards.

• All indications of PASS/FAIL in this report are based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

1 General Information

1.1 Notes of the Test Report

This report is invalid without signature of auditor and approver or with any alterations. The report shall not be partially reproduced without written approval of the testing company. Entrusted test results are only responsible for incoming samples. If there is any objection to the testing report, it shall be raised to the testing company within 15 days from the date of receiving the report. In the test results, "NA" means "not applicable", and the test items marked with "Δ" are subcontracted projects.

1.2 Test Facility

A2LA (Certificate Number: 6849.01)

Hefei Panwin Technology Co., Ltd. has been accredited by American Association for Laboratory Accreditation to perform measurement.

FCC (Designation Number: CN1361, Test Firm Registration Number: 473156)

Hefei Panwin Technology Co., Ltd. has been accredited on the US Federal Communications Commission list of test facilities recognized to perform measurements.

1.3 Testing Laboratory

Company Name	Hefei Panwin Technology Co., Ltd.
Address	Floor 1, Zone E, Plant 2#, Mingzhu Industrial Park, No.106 Chuangxin Avenue, High-tech Zone, Hefei City, Anhui Province,China
Telephone	+86-0551-63811775
Post Code	230031

2 General Description of Equipment under Test

2.1 Details of Application

Applicant	Quectel Wireless Solutions Co., Ltd.
Applicant Address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Manufacturer	Quectel Wireless Solutions Co., Ltd.
Manufacturer Address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

2.2 General Information

Product	Bluetooth Module
Model	HGMB11S
Hardware Version	R1.0
Software Version	HGMB11SAAR01A01K05
Antenna Type	Ceramic SMD Antenna
Antenna Gain	-13.60dBi
Max. Conducted Power	BLE: 8.36dBm
Operating voltage	Typical 3.3Vdc
Type of Modulation	Bluetooth LE 5.4: GFSK
Operating Frequency Range(s)	Bluetooth LE: 2402 to 2480MHz
Note: The declared of product specification for EUT and/or Antenna presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.	

2.3 Application Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10-2020

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

3 Test Condition

3.1 Test Configuration

Test mode

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). The worst cases were recorded in this report.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes (Z, X, Y axis), receiver antenna polarization (horizontal and vertical), the worst emission was found in Z position and the worst case was recorded.

Test Mode	Data Rate
Bluetooth LE	1Mbps
	2Mbps
	125Kbps
	500Kbps

3.2 Carrier Frequency and Channel

Frequency Band	Channel	Freq.(MHz)	Channel	Freq.(MHz
2400-2483.5 MHz	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
	18	2438	39	2480
	19	2440	-	-
	20	2442	-	-

3.3 Equipment List

Conducted

Instrument	Manufacturer	Model	Asset No.	Cal. Interval	Cal. Due Date
Spectrum Analyzer	KEYSIGHT	N9020B	PWC0048	1 Year	2025/09/11
RF Control Unit	Tonseced	JS0806-2	PWC0055	/	/
Shielded Chamber	Maorui	MR543	PWC0041	3 Years	2026/08/26
Test Software	Tonseced	JS1120-3 V3.2.22	/	/	/

Radiated

Instrument	Manufacturer	Model	Asset No.	Cal. Interval	Cal. Due Date
EMI Test Receiver	R&S	ESR7	PWB0023	1 Year	2025/09/11
Spectrum Analyzer	R&S	FSV3044	PWB0024	1 Year	2025/09/11
Loop Antenna	R&S	HFH2-Z2E	PWB0026	1 Year	2025/09/13
TRILOG Broadband Antenna	Schwarzbeck	VULB9162	PWB0029	1 Year	2025/09/09
Double-Ridged Guide Antenna	ETS-Lindgren	3117	PWB0031	1 Year	2025/09/26
k Type Horn Antenna	Steatite Antennas	QMS-00880	PWB0035	1 Year	2025/09/08
Pre-Amplifier	R&S	SCU40F1	PWB0036	1 Year	2025/09/11
Pre-Amplifier	COM-MW	DLNA8	PWB0094	1 Year	2025/09/11
Pre-Amplifier	R&S	SCU18F	PWB0034	1 Year	2025/09/11
Pre-Amplifier	R&S	OSP220 (OSP-B155G)	PWB0042	1 Year	2025/09/11
Anechoic Chamber	ETS.LINDGREN	Fact 3-2m	PWB0003	3 Years	2026/06/05
Test Software	Tonscend	JS32 V5.0.0	/	/	/

3.4 Support Equipment List

Equipment	Manufacturer	Description	Model	Serial Number
EVB	QUECTEL	/	/	/
RF cable	/	2.4G:0.5dB	/	/
Antenna	QUECTEL	Ceramic SMD Antenna	YC0009AA	/

3.5 Test Uncertainty

No.	Parameter	Uncertainty
1	DTS Bandwidth	1.9 %
2	Occupied channel bandwidth	1.9 %
3	Duty Cycle	0.11 %
4	Maximum Conducted Output Power	1.18 dB
5	Maximum Power Spectral Density Level	0.98 dB
6	Band-edge Compliance	1.21 dB
7	Unwanted Emissions In Non-restricted Frequency Bands	9kHz-7GHz: 1.21 dB 7GHz-40GHz: 3.31 dB
8	Radiated Band Edges and Spurious Emission	Below 1GHz: 4.88 dB Above 1GHz: 5.06 dB
9	Temperature	3 °C
10	Humidity	1.3 %
11	Supply Voltages	0.006 V

4 Test Items Description

Ambient condition

Shielded Chamber

Temperature [°C]	22.1 to 26.5
Humidity [%RH]	39 to 57
Pressure [kPa]	100.4 to 102.1

Anechoic Chamber

Temperature [°C]	20.4 to 25.6
Humidity [%RH]	42 to 56
Pressure [kPa]	99.27 to 100.92

4.1 Output Power Measurement

4.1.1 Limit of Output Power

Rule Part 15.247 (b) (3) specifies that “For systems using digital modulation in the 902-928 MHz 2400-2483.5 MHz: 1 Watt.”

Average Output Power	≤1W(30dBm)

4.1.2 Measuring Instruments

The section 3.3 of List of Measuring Equipment of this test report is used for test.

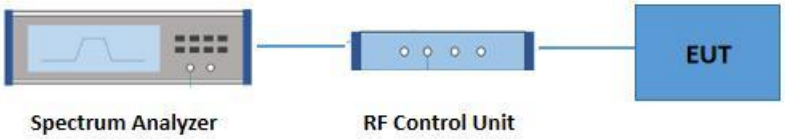
4.1.3 Test Procedures

The testing follows the Measurement Procedure of ANSI C63.10-2020 clause 11.9.1.1.

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

1) Set the RBW ≥DTS bandwidth.
2) Set VBW ≥[3×RBW].
3) Set span ≥[3×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.

4.1.4 Test Setup



4.1.5Test Results

See ANNEX A.1.

4.2 6dB and 99% Bandwidth Measurement

4.2.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz

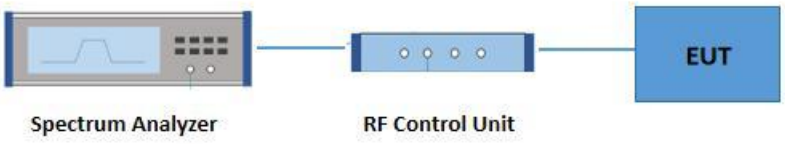
4.2.2 Measuring Instruments

The section 3.3 of List of Measuring Equipment of this test report is used for test.

4.2.3 Test Procedures

1. The testing follows ANSI C63.10-2020 clause 11.8 & 6.9.3.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. RBW= 100kHz(DTS)
   RBW=1%-5%(99%BW)
5. VBW= 3 times the RBW
6. Sweep = Auto
7. Detector= Peak
8. Trace = Max hold
9. The trace was allowed to stabilize
10. Measure and record the results in the test report.

4.2.4 Test Setup



4.2.5 Test Results

See ANNEX A.2.

4.3 Power Spectral Density Measurement

4.3.1 Limit of Power Spectral Density

Rule Part 15.247(e) specifies that" 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.

4.3.2 Measuring Instruments

The section 3.3 of List of Measuring Equipment of this test report is used for test.

4.3.3 Test Procedures

The testing follows ANSI C63.10-2020 clause 11.10.2

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

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

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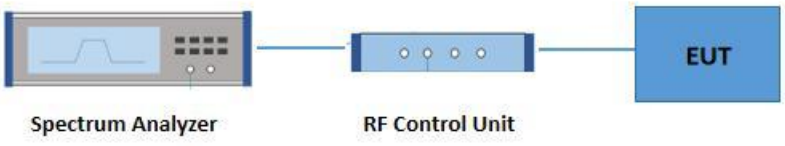
4.3.4 Test Setup



4.3.5 Test Result of Power Spectral Density

Please refer to ANNEX A.3.

4.4 Conducted Band Edges and Spurious Emission Measurement

4.4.1 Limit of Conducted Band Edges and Spurious Emission

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band， In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

4.4.2 Measuring Instruments

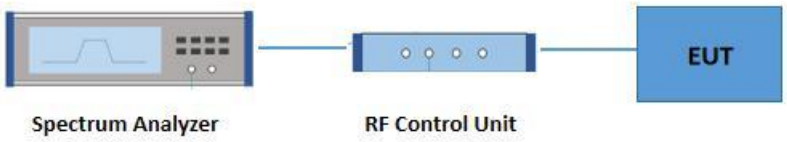
The section 3.3 of List of Measuring Equipment of this test report is used for test

4.4.3 Test Procedure

1. The testing follows ANSI C63.10-2020 clause 11.11.3
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak=Detector,Trace=Max hold.

   Unwanted Emissions measured in any 100kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

4.4.4 Test Setup



4.4.5 Test Result

Please refer to ANNEX A.4.

4.5 Radiated Band Edges and Spurious Emission Measurement

4.5.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30-88	100	3
88 -216	150	3
216 - 960	200	3
Above 960	500	3

4.5.2 Measuring Instruments

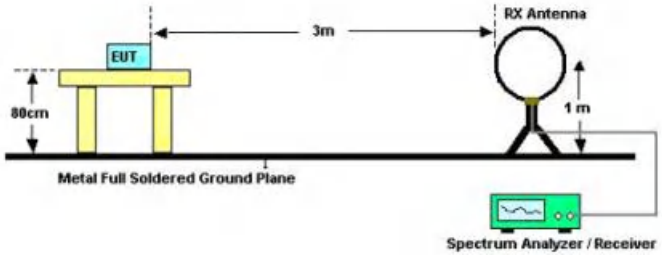
The section 3.3 of List of Measuring Equipment of this test report is used for test.

4.5.3 Test Procedures

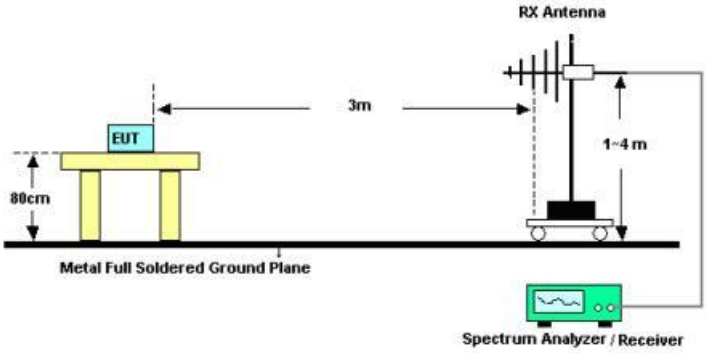
1. The testing follows ANSI C63.10-2020 Section 6.4 & 6.5 & 6.6.
2. For radiated emissions measurements performed at frequencies less than or equal to 1GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80cm above the reference ground plane.
3. For radiated emissions measurements performed at frequencies above 1GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80cm above the ground plane.
4. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1m to 4m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level(i.e, field strength or received power), when orienting the measurement antenna in vertical polarization.the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25cm.
5. For each suspected emission, the EUT was ranged its worst case and then tune the antenna tower(from1~4m) and turntable(from 0~360°) find the maximum reading. Preamplifier and a high pass filter are used for the test in order get better signal level comply with the guidelines.
6. Set to the maximum power setting and enable the EUT transmit continuously.
7.The emission limits shown in the above table are based on measurements employing a CISPR quasi.peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
8.spectrum analyzer setting:
Measurements Below 1000MHz: RBW= 120 kHz; VBW>300 kHz; Detector = Peak
Measurements Above 1000MHZ: RBW= 1 MHz: VBW≥3 MHz: Detector = Peak
Average Measurements Above 1000MHz:
RBW= 1 MHz, VBW> 1/T, with peak detector for average measurements.The field strength is calculated by adding the Antenna Factor, Cable Factor. The basic equation with a sample calculation is as follows:
Level=Reading(dBuV)+ AF(dB/m)+ Factor(dB)
AF= Antenna Factor(dB/m)
Factor= Cable Factor(dB)-Preamplifier gain(dB)
Margin = Limit(dBuV/m)-Level(dBuV/m)
9.Repeat above procedures until all frequencies measured was complete.
10.Measure and record the results in the test report.

4.5.4 Test Setup

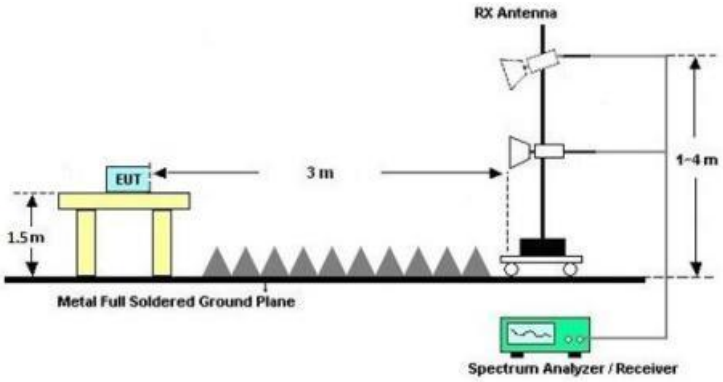
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



4.5.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

4.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to ANNEX B.1.

4.5.7 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHzwhichever is lower)

Please refer to ANNEX B.1.

4.5.8 Duty Cycle

Please refer to ANNEX A.5.

4.6 AC Conducted Emission Measurement

4.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Decreases with the logarithm of the frequency.

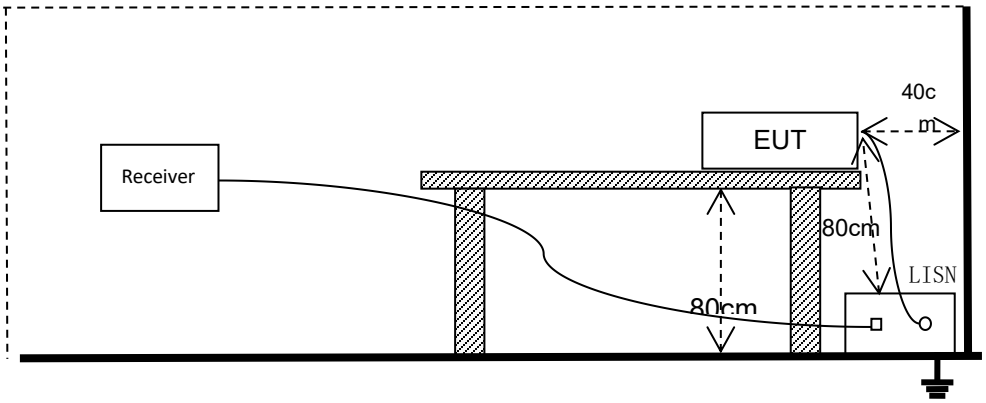
4.6.2 Measuring Instruments

The section 3.3 of List of Measuring Equipment of this test report is used for test.

4.6.3 Test Procedures

1. The testing follows ANSI C63.10-2020 clause 6.2.
2. The mains terminal disturbance voltage test was conducted in a shielded room.
3. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ωlinear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
4. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
5. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
6. The receiver is set to a resolution bandwidth of 9kHz. Peak detection s used net less otherwise noted as quasi-peak or average.
7. AC Power Line Conducted Emissions, the channel with the highest output power was tested.
8 .Both sides of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

4.6.4 Test Setup



4.6.5 Uncertainty Measurement

Where relevant,the following measurement uncertainty levels have been estimated for tests performed on the EUT. The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

CASE	Uncertainty
Continuous Emission (AC port)	2.92 dB

4.6.6 Test Result

Remark: The product is DC powered, this test item is not applicable.

4.7 Antenna Requirements

4.7.1 Standard Applicable

15.203 requirement: 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 Antenna Anti-Replacement Construction

The antenna is Internal on the main PCB and no consideration of replacement. The best case gain of the antenna is -13.60dBi.

-------- THE END --------

ANNEX A: Test Results of Conducted Test

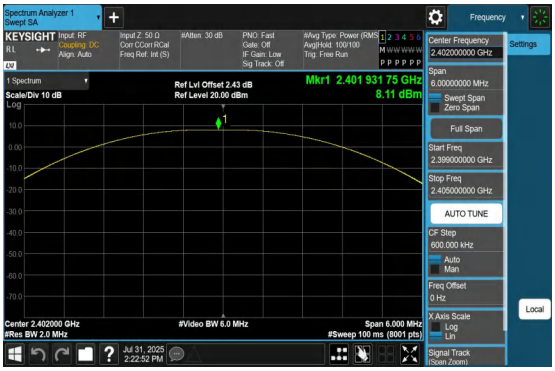
A.1 Conducted Output Power

Test Result Peak

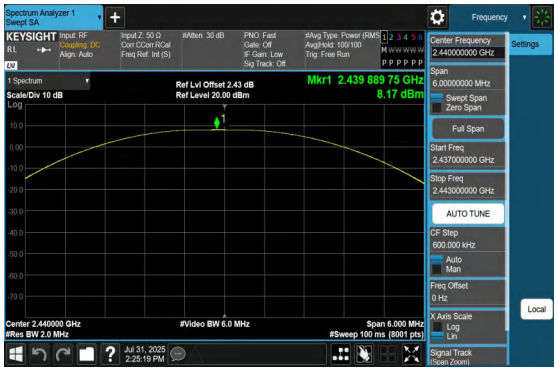
Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant1	2402	8.11	≤30	-5.49	≤36	PASS
BLE_1M	Ant1	2440	8.18	≤30	-5.42	≤36	PASS
BLE_1M	Ant1	2480	8.02	≤30	-5.58	≤36	PASS
BLE_2M	Ant1	2402	8.14	≤30	-5.46	≤36	PASS
BLE_2M	Ant1	2440	8.34	≤30	-5.26	≤36	PASS
BLE_2M	Ant1	2480	8.25	≤30	-5.35	≤36	PASS
BLE_125K	Ant1	2402	8.35	≤30	-5.25	≤36	PASS
BLE_125K	Ant1	2440	8.36	≤30	-5.24	≤36	PASS
BLE_125K	Ant1	2480	5.46	≤30	-8.14	≤36	PASS
BLE_500K	Ant1	2402	8.35	≤30	-5.25	≤36	PASS
BLE_500K	Ant1	2440	8.34	≤30	-5.26	≤36	PASS
BLE_500K	Ant1	2480	5.44	≤30	-8.16	≤36	PASS

Test Graphs

BLE_1M-Ant1-2402-PASS

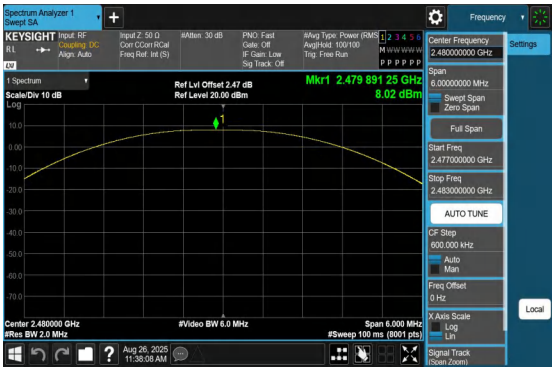


BLE_1M-Ant1-2440-PASS

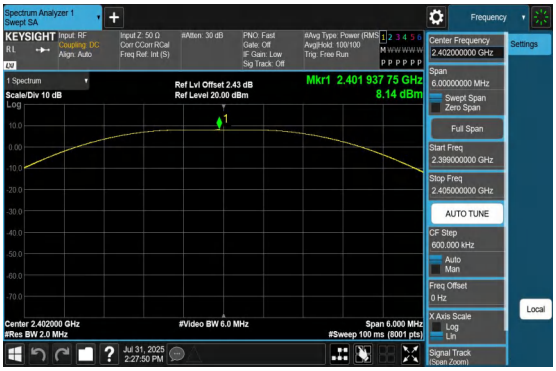


BLE_1M-Ant1-2480-PASS

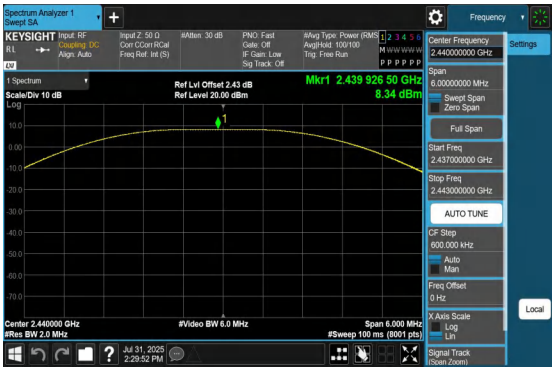
BLE_2M-Ant1-2402-PASS



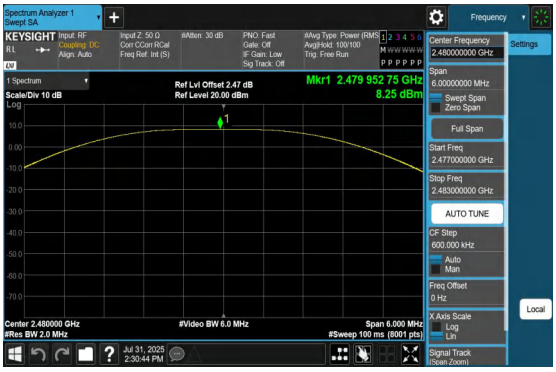
BLE_2M-Ant1-2440-PASS



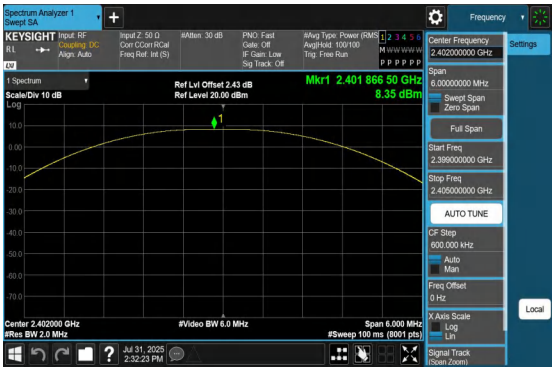
BLE_2M-Ant1-2480-PASS



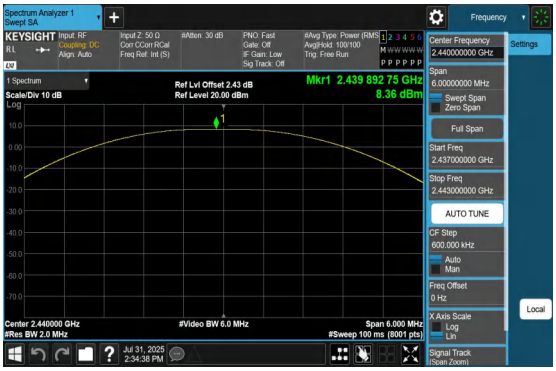
BLE_125K-Ant1-2402-PASS



BLE_125K-Ant1-2440-PASS



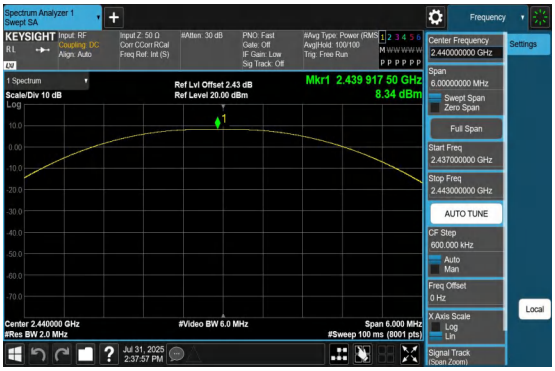
BLE_125K-Ant1-2480-PASS

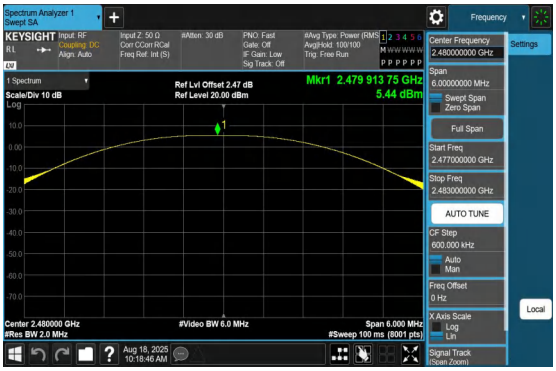


BLE_500K-Ant1-2402-PASS

BLE_500K-Ant1-2440-PASS

BLE_500K-Ant1-2480-PASS


Spectrum Analyzer 1
Swept SA
KEYSIGHT
Frequency
Ref Lvl Offset 2.43 dB
Ref Level 20.00 dBm
Mkr1 2.439 917 50 GHz
8.34 dBm
Scale/Div 10 dB
Center 2.440000 GHz
#Res BW 2.0 MHz
#Video BW 6.0 MHz
Span 6.000 MHz
#Sweep 100 ms (8001 pts)
Center Frequency
2.440000000 GHz
Span
6.00000000 MHz
Swept Span
Zero Span
Full Span
Start Freq
2.437000000 GHz
Stop Freq
2.443000000 GHz
AUTO TUNE
CF Step
600.000 kHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Signal Track
(Span Zoom)
Settings
Local
Jul 31, 2025
2:37:57 PM


Spectrum Analyzer 1
Swept SA
KEYSIGHT
Frequency
Ref Lvl Offset 2.47 dB
Ref Level 20.00 dBm
Mkr1 2.479 913 75 GHz
5.44 dBm
Scale/Div 10 dB
Center 2.480000 GHz
#Res BW 2.0 MHz
#Video BW 6.0 MHz
Span 6.000 MHz
#Sweep 100 ms (8001 pts)
Center Frequency
2.480000000 GHz
Span
6.00000000 MHz
Swept Span
Zero Span
Full Span
Start Freq
2.477000000 GHz
Stop Freq
2.483000000 GHz
AUTO TUNE
CF Step
600.000 kHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Signal Track
(Span Zoom)
Settings
Local
Aug 18, 2025
10:18:46 AM

A.2 6dB and 99% Bandwidth

Test Result 6dB Bandwidth

Test Mode	Antenna	Frequency[MHz]	DTS BW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.664	2401.624	2402.288	0.5	PASS
BLE_1M	Ant1	2440	0.656	2439.624	2440.280	0.5	PASS
BLE_1M	Ant1	2480	0.648	2479.636	2480.284	0.5	PASS
BLE_2M	Ant1	2402	1.336	2401.260	2402.596	0.5	PASS
BLE_2M	Ant1	2440	1.140	2439.392	2440.532	0.5	PASS
BLE_2M	Ant1	2480	1.144	2479.388	2480.532	0.5	PASS
BLE_125K	Ant1	2402	0.676	2401.616	2402.292	0.5	PASS
BLE_125K	Ant1	2440	0.628	2439.640	2440.268	0.5	PASS
BLE_125K	Ant1	2480	0.628	2479.640	2480.268	0.5	PASS
BLE_500K	Ant1	2402	0.632	2401.644	2402.276	0.5	PASS
BLE_500K	Ant1	2440	0.644	2439.644	2440.288	0.5	PASS
BLE_500K	Ant1	2480	0.668	2479.632	2480.300	0.5	PASS

Test Result 99% Bandwidth

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0115	2401.4555	2402.4670	---	---
BLE_1M	Ant1	2440	1.0115	2439.4575	2440.4690	---	---
BLE_1M	Ant1	2480	1.0107	2479.4443	2480.4550	---	---
BLE_2M	Ant1	2402	2.0407	2400.9516	2402.9923	---	---
BLE_2M	Ant1	2440	2.0170	2438.9558	2440.9728	---	---
BLE_2M	Ant1	2480	2.0191	2478.9650	2480.9841	---	---
BLE_125K	Ant1	2402	1.0225	2401.4432	2402.4657	---	---
BLE_125K	Ant1	2440	1.0401	2439.4339	2440.4740	---	---
BLE_125K	Ant1	2480	1.0238	2479.4488	2480.4726	---	---
BLE_500K	Ant1	2402	1.0154	2401.4468	2402.4622	---	---
BLE_500K	Ant1	2440	1.0315	2439.4357	2440.4672	---	---
BLE_500K	Ant1	2480	1.0250	2479.4388	2480.4638	---	---

Test Graphs_6dB Bandwidth

BLE_1M-Ant1-2402-PASS	BLE_1M-Ant1-2440-PASS
	
BLE_1M-Ant1-2480-PASS	BLE_2M-Ant1-2402-PASS
	
BLE_2M-Ant1-2440-PASS	BLE_2M-Ant1-2480-PASS
	
BLE_125K-Ant1-2402-PASS	BLE_125K-Ant1-2440-PASS

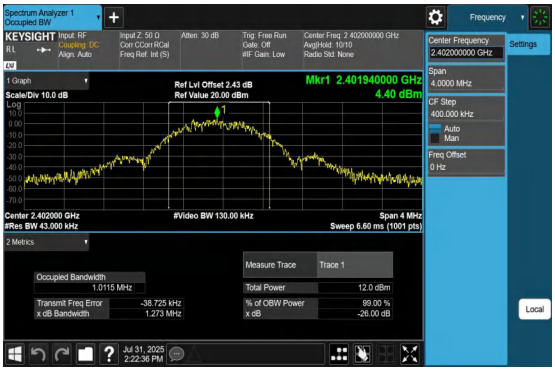
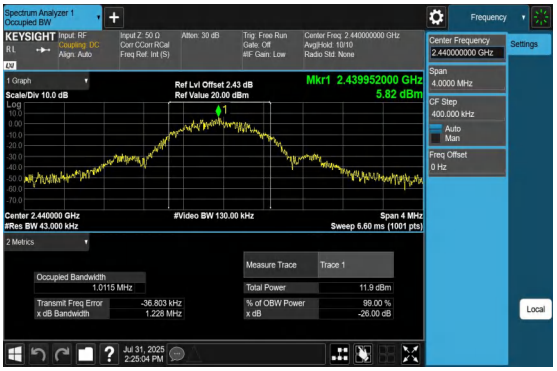
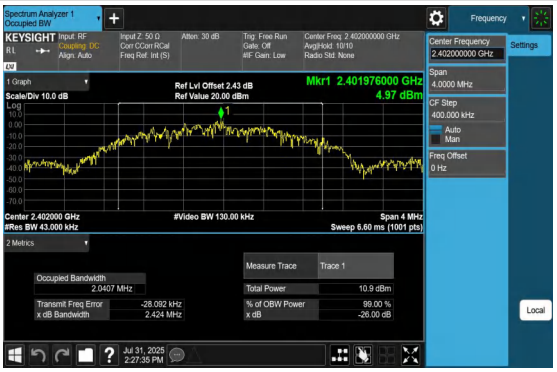
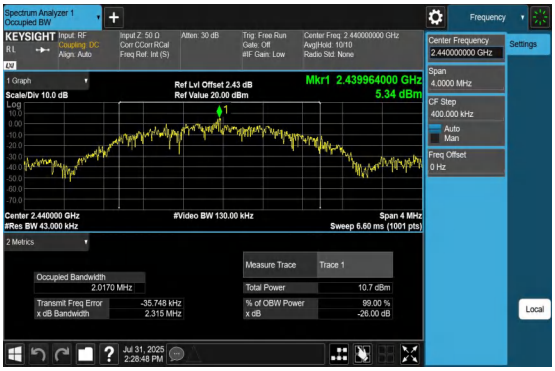
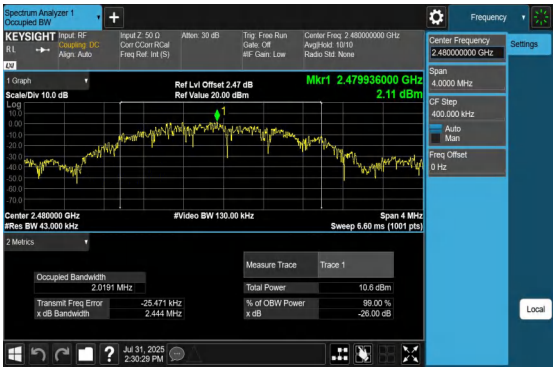
BLE_125K-Ant1-2480-PASS

BLE_500K-Ant1-2402-PASS

BLE_500K-Ant1-2440-PASS

BLE_500K-Ant1-2480-PASS

Test Graphs_99% Bandwidth

BLE_1M-Ant1-2402	BLE_1M-Ant1-2440
	
BLE_1M-Ant1-2480	BLE_2M-Ant1-2402
	
BLE_2M-Ant1-2440	BLE_2M-Ant1-2480
	
BLE_125K-Ant1-2402	BLE_125K-Ant1-2440