

Prüfbericht-Nr.: Test report no.:	CN26C6HQ 001	Auftrags-Nr.: Order no.:	168585301	Seite 1 von 21 Page 1 of 21	
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2025-11-24		
Auftraggeber: Client:	Keeson Technology Corporation Limited No. 195, Yuanfeng East Road, Wangjiangjing Xiuzhou District, Jiaxing City, China				
Prüfgegenstand: Test item:	Control Box				
Bezeichnung / Typ-Nr.: Identification / Type no.:	MC342				
Auftrags-Inhalt: Order content:	Test Report				
Prüfgrundlage: Test specification:	CFR Title 47 FCC Part 15: Subpart C Section 15.247 RSS-247 Issue 4 July 2025 RSS-Gen Issue 5 February 2021				
Wareneingangsdatum: Date of sample receipt:	2025-12-02	Please refer to Photo Document			
Prüfmuster-Nr.: Test sample no.:	A004133115-001~013				
Prüfzeitraum: Testing period:	2025-12-02 - 2025-12-25				
Ort der Prüfung: Place of testing:	Refer to section 2.1				
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.				
Prüfergebnis*: Test result*:	Pass				
geprüft von: tested by:			genehmigt von: authorized by:		
Datum: Date:	2026-01-09	Signed by: Jonathan Li		Ausstellungsdatum: Issue date:	2026-01-09
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert	
Sonstiges / Other:	FCC ID: 2AK23MC342 IC: 22406-MC342, HVIN: MC342				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged				
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet				
* Legend:	P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfbedingungen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2023, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2023, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED POWER SPECTRAL DENSITY

RESULT: Pass

5.1.4 6dB BANDWIDTH

RESULT: Pass

5.1.5 99% BANDWIDTH

RESULT: Pass

5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.7 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.8 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Bluetooth Low Energy;

Appendix B: Photographs of Test Set-up.

2 Test Sites

2.1 Test Facilities

EST Technology Co., Ltd.

Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

A2LA Certificate Number: 4366.01

FCC Accreditation Designation No.: CN1215

ISED wireless device testing laboratory: CN0035

TÜV Rheinland (Guangdong) Co., Ltd. subcontract all test to **EST Technology Co., Ltd.** And all tests at this site have been conducted under the supervision of a TÜV Rheinland engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

For AC power conducted emission test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESRP3	EST-E070	LISAI	June 11,25	June 10,26
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E048	LISAI	June 11,25	June 10,26
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	LISAI	June 11,25	June 10,26
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

For radiated emissions test (30MHz-1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 11,25	June 10,26
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 11,25	June 10,26
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
30-1000MHz Cable	N/A	EST-002	N/A	N/A	N/A	N/A

For radiated emission test(Above 1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZBECK	BBHA9120D	EST-E144	LISAI	June 11,25	June 10,26
Horn Antenna	Com-Power	AHA-840	EST-E133	LISAI	June 11,25	June 10,26
Low Noise Amplifier	RF	TRLA-010180G45N	EST-E142	LISAI	June 11,25	June 10,26
Spectrum Analyzer	Rohde &Schwarz	FSV40	EST-E069	LISAI	June 11,25	June 10,26
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
Above 1GHz Cable	N/A	EST-003	N/A	N/A	N/A	N/A

For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.

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TS 1120	Tonscend	/	/	/	/	/
Test Software	Tonscend	JS1120-3	3.5.39	/	/	/
RF Control Unit	Tonscend	JS0806-2	EST-E134	LISAI	June 11,25	June 10,26
Signal and Spectrum Analyzer	Keysight	N9010B	EST-E141	LISAI	June 11,25	June 10,26

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Table 2: Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	±3.48dB
Uncertainty for spurious emissions test (Below 30MHz)	±1.62dB
Uncertainty for spurious emissions test (30MHz-1GHz)	±4.60 dB(Polarize: H)
	±4.68 dB(Polarize: V)
Uncertainty for spurious emissions test (Above 1GHz)	±4.96dB
Uncertainty for radio frequency	7×10^{-8}
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB

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

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The EST Technology Co., Ltd. Test facility located at Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 General Description

The product is a Control Box, which supports Bluetooth wireless technology.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	Control Box
Type Designation:	MC342
FCC ID:	2AK23MC342
IC:	22406-MC342
HVIN:	MC342
Operating Voltage:	DC 29V from adapter
Testing Voltage:	AC 120V, 60Hz
Technical Specification of Bluetooth LE	
Operating Frequency:	2402-2480MHz
Type of Modulation:	GFSK
Channel Number:	40 channels
Data Rate:	1Mbps, 2Mbps
Channel Separation:	2 MHz
Antenna Type:	PCB antenna
Antenna Gain:	1.225 dBi (Max) (Provided by the Client)

Note: The correctness of all data provided by customer in the test report is ensured and responsible of the customer. Any misjudgment of the test results caused by the use of incorrect data provided by customer shall be borne by the customer.

Table 4: RF Channel and Frequency of Bluetooth LE

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

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth wireless transmitting mode
 - 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel
- B. On, Normal working
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- User Manual
- Operation Description
- FCC/IC Label and Location Info

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+ C63.10a:2024.

According to clause 3.1, all tests were performed on model MC342 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	Serial No.	Remark
Laptop	Lenovo	Thinkpad E485	PF-1E3QZY	--
Adapter	DewertOKIN Technology Group Co., Ltd.	DOT-Z-290018A	N/A	Input: 100-240V~ 50/60Hz, 2.5A Output: DC 29V, 1.8A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

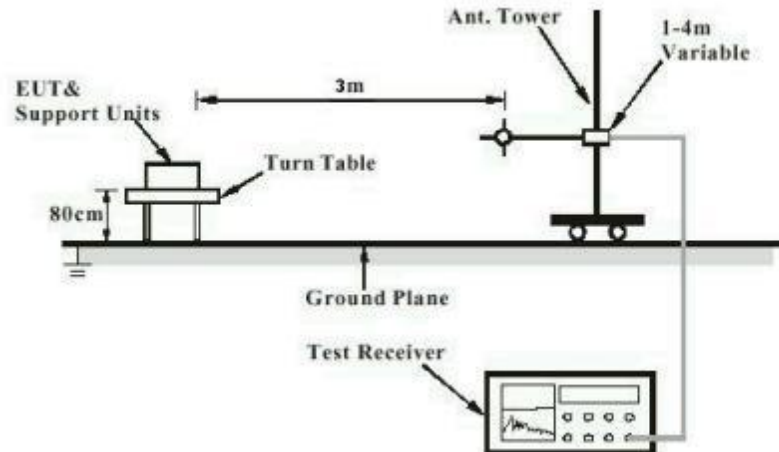


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

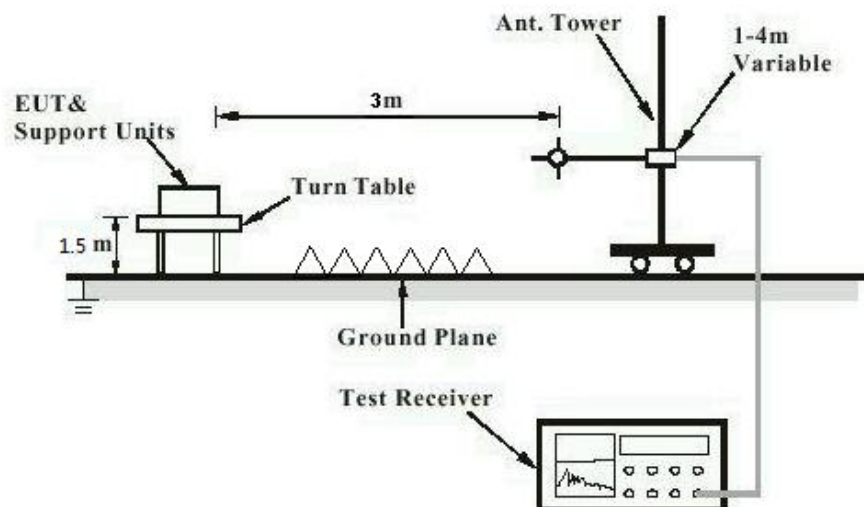


Diagram of Measurement Configuration for Mains Conduction Measurement

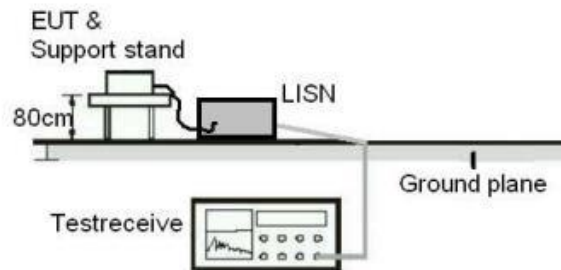
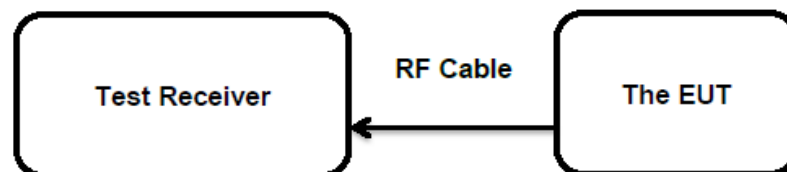


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has PCB antenna, permanent attachment and no consideration of replacement, refer to section 3.2 for details.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

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5.1.2 Maximum Conducted Output Power

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(b)(3) RSS-247 Clause 6.3.2
Basic standard	: ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+ C63.10a:2024
Limits	: 1.0 Watts
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2025-12-02 - 2025-12-25
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 23 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101.1 kPa

For the measurement records, refer to the appendix A.

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5.1.3 Conducted Power Spectral Density

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(e) RSS-247 Clause 6.3.1
Basic standard	: ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+ C63.10a:2024
Limits	: < 8 dBm / 3kHz
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2025-12-02 - 2025-12-25
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 23 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.4 6dB Bandwidth

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(a)(2) RSS-247 Clause 6.3.1
Basic standard	: ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+ C63.10a:2024
Limits	: > 500 kHz
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2025-12-02 - 2025-12-25
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 23 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A.

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5.1.5 99% Bandwidth

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.247(a)
RSS-Gen Clause 6.7

Basic standard : ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+
C63.10a:2024

Kind of test site : Shielded Room

Test Setup

Date of testing : 2025-12-02 - 2025-12-25

Input voltage : AC 120V, 60Hz

Operation mode : A

Test channel : Low / Middle / High

Ambient temperature : 23 °C

Relative humidity : 40 %

Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

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5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(d) RSS-247 Clause 6.6
Basic standard	: ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+ C63.10a:2024
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2025-12-02 - 2025-12-25
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 23 °C
Relative humidity	: 40 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix A.

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5.1.7 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(d) & FCC Part 15.205 RSS-247 Clause 6.6
Basic standard	: ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+ C63.10a:2024
Limits	: Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Section 8.9 & 8.10
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2025-10-23 to 2025-10-29
Input voltage	: AC 120V, 60Hz
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: Refer to test result

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix A.

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5.1.8 Conducted Emission on AC Mains

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.207(a) RSS-Gen Section 8.8
Basic standard	: ANSI C63.10:2020 and ANSI C63.10:2020+Cor. 1:2023+ C63.10a:2024
Frequency range	: 0.15 – 30MHz
Classification	: Class B
Limits	: FCC Part 15.207(a) RSS-Gen Table 4
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2025-10-30
Input voltage	: AC 120V, 60Hz
Operation mode	: B
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101.1 kPa

For the measurement records, refer to the appendix A.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix B.

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Appendix A: Test Results of Bluetooth Low Energy

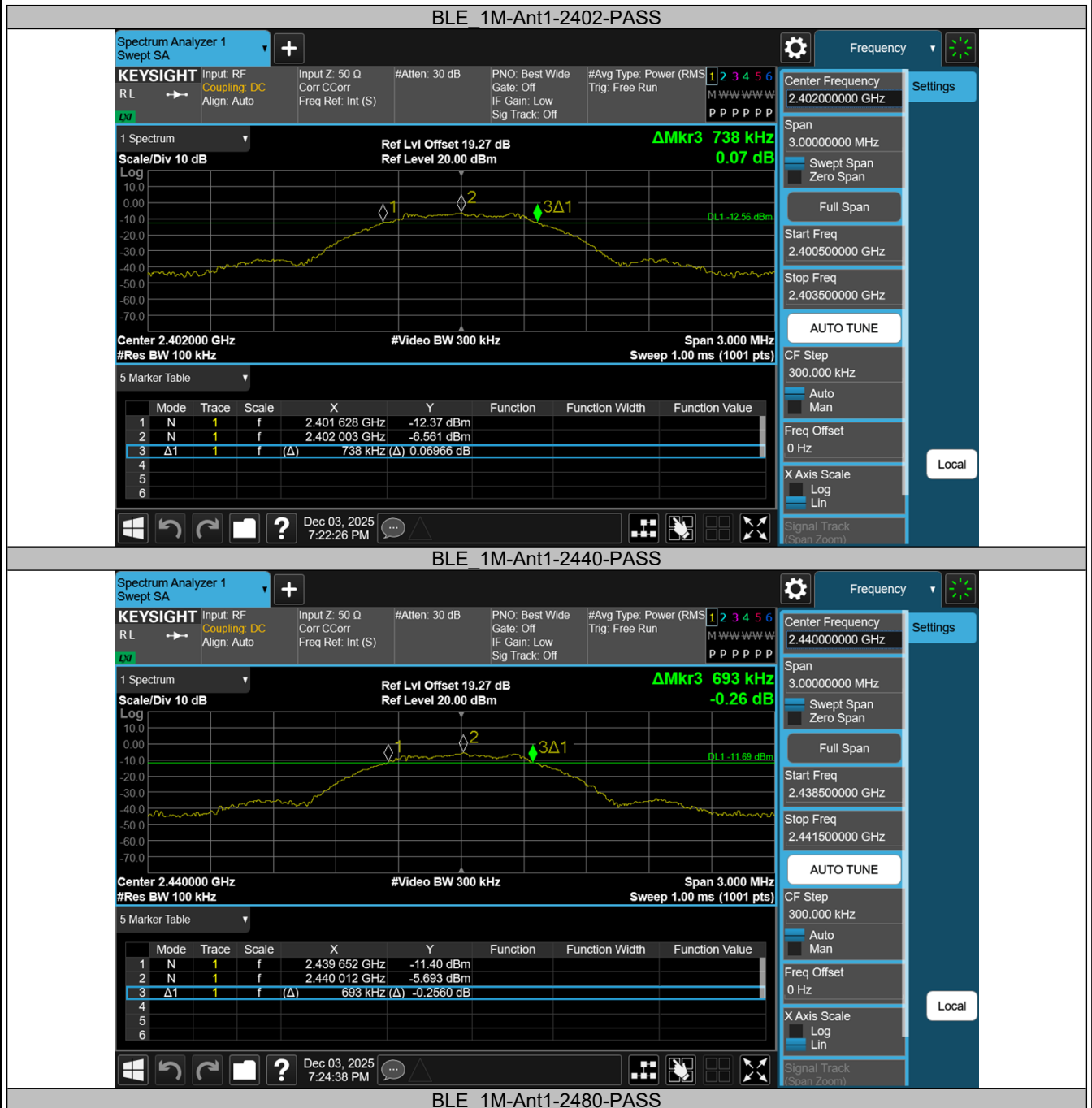
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Appendix A.1: Test Results of 6dB Bandwidth

Test Result

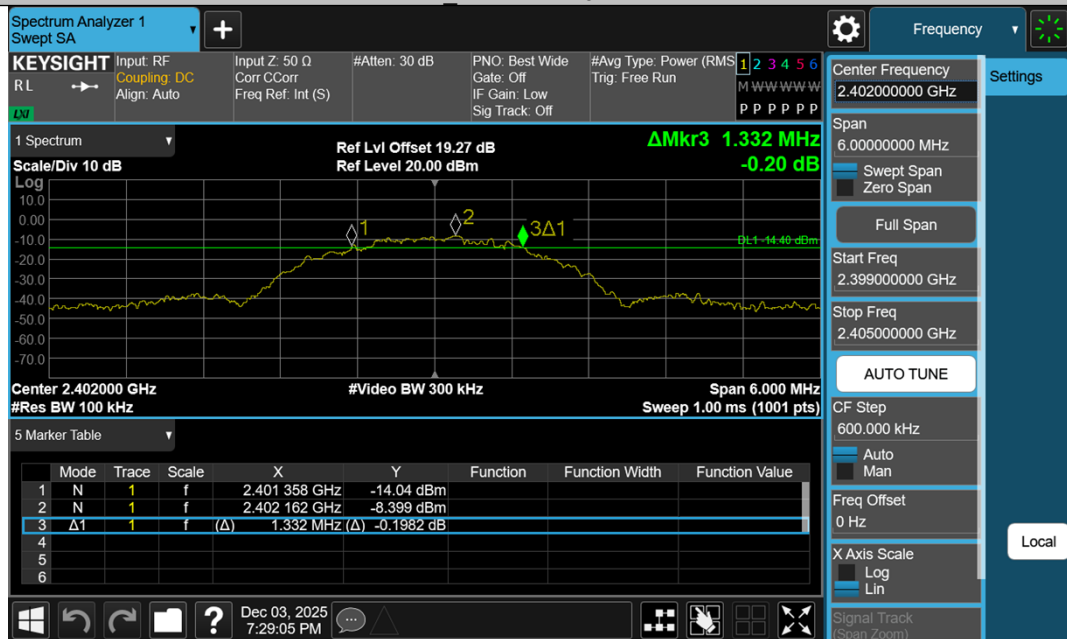
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.738	2401.628	2402.366	0.5	PASS
BLE_1M	Ant1	2440	0.693	2439.652	2440.345	0.5	PASS
BLE_1M	Ant1	2480	0.699	2479.652	2480.351	0.5	PASS
BLE_2M	Ant1	2402	1.332	2401.358	2402.690	0.5	PASS
BLE_2M	Ant1	2440	1.182	2439.406	2440.588	0.5	PASS
BLE_2M	Ant1	2480	1.164	2479.424	2480.588	0.5	PASS

1.1.1 Test Graphs





BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



BLE 2M-Ant1-2480-PASS

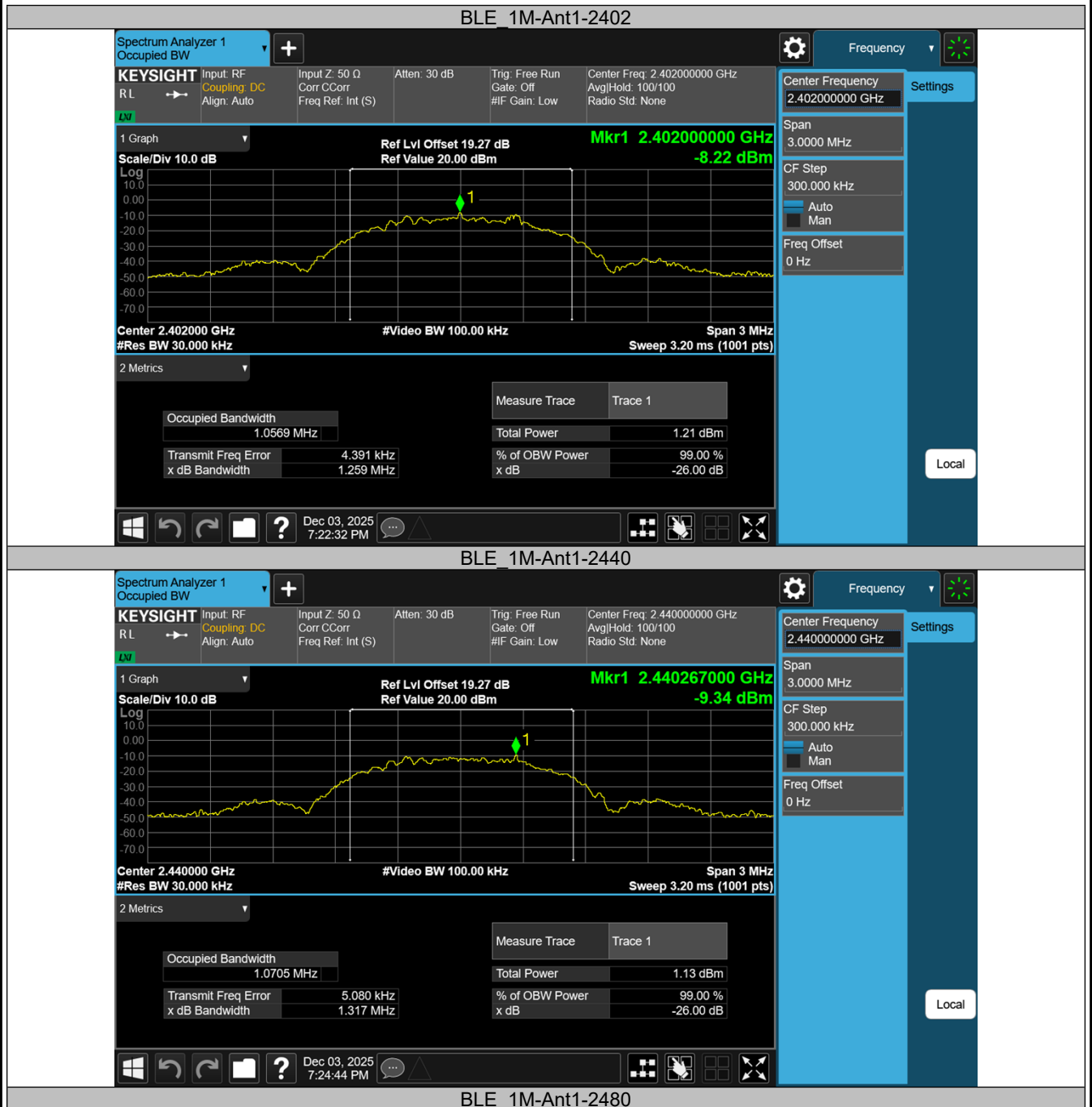


Appendix A.2: Test Results of 99% Bandwidth

1.1.2 Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0569	2401.4759	2402.5328	---	---
BLE_1M	Ant1	2440	1.0705	2439.4698	2440.5403	---	---
BLE_1M	Ant1	2480	1.0627	2479.4735	2480.5362	---	---
BLE_2M	Ant1	2402	2.1069	2400.9595	2403.0664	---	---
BLE_2M	Ant1	2440	2.0991	2438.9646	2441.0637	---	---
BLE_2M	Ant1	2480	2.1233	2478.9474	2481.0707	---	---

1.1.3 Test Graphs





BLE_2M-Ant1-2402



BLE_2M-Ant1-2440

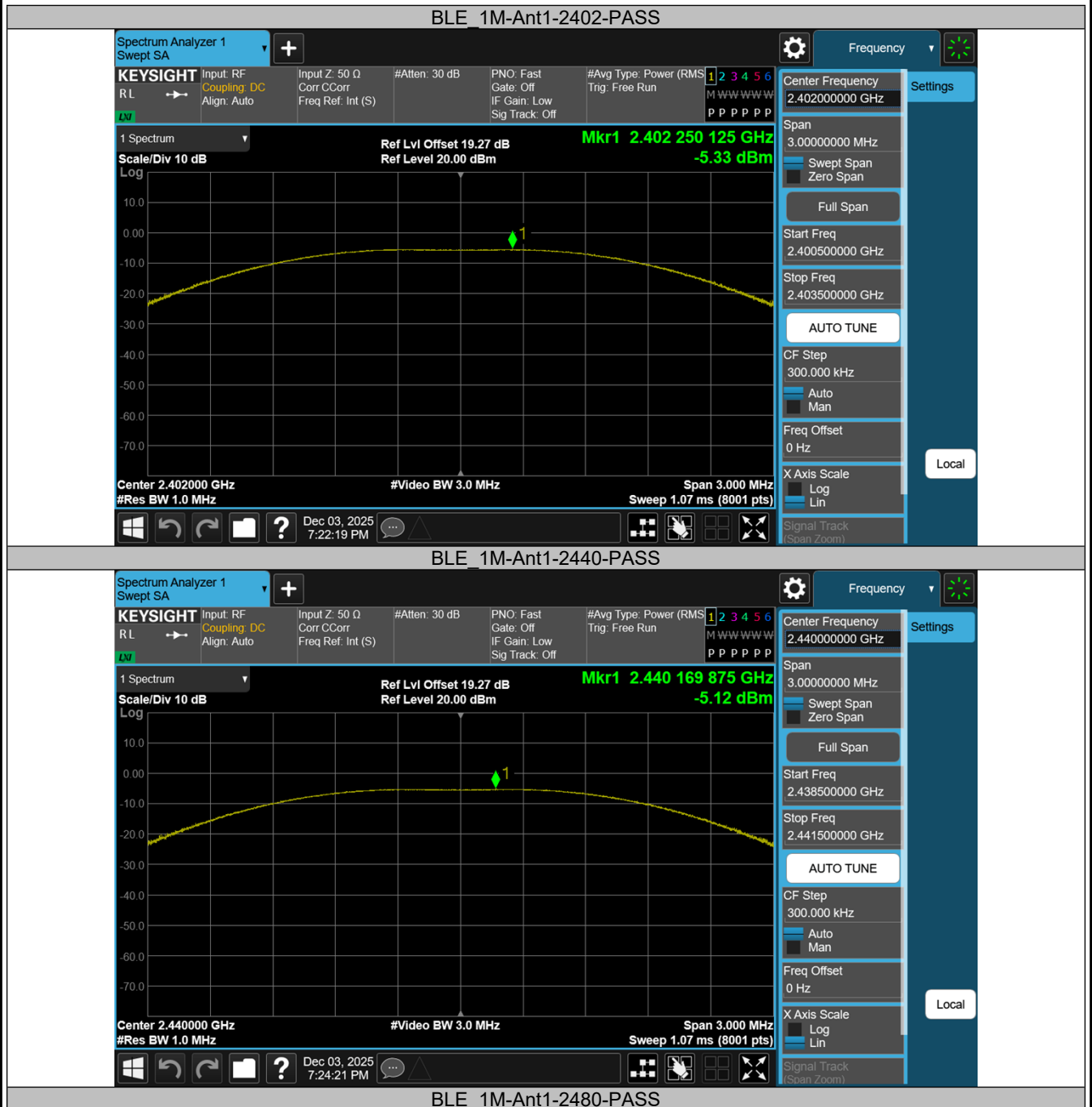


Appendix A.3: Test Results of Maximum Conducted Output Power

Test Result

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Gain [dBi]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-5.33	≤30	1.225	-4.105	≤36	PASS
BLE_1M	Ant1	2440	-5.12	≤30	1.225	-3.895	≤36	PASS
BLE_1M	Ant1	2480	-5.82	≤30	1.225	-4.595	≤36	PASS
BLE_2M	Ant1	2402	-5.21	≤30	1.225	-3.985	≤36	PASS
BLE_2M	Ant1	2440	-4.94	≤30	1.225	-3.715	≤36	PASS
BLE_2M	Ant1	2480	-5.64	≤30	1.225	-4.415	≤36	PASS

Test Graphs





BLE_2M-Ant1-2402-PASS



BLE_2M-Ant1-2440-PASS



BLE 2M-Ant1-2480-PASS

