

Prüfbericht-Nr.: Test report no.:	CN24UB98 001	Auftrags-Nr.: Order no.:	170390169	Seite 1 von 20 Page 1 of 20
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2024-09-20	
Auftraggeber: Client:	ONWARD BRANDS LLC 767 5TH AVE FL 37TH NEW YORK, NY 10153, USA			
Prüfgegenstand: Test item:	Incase Bluetooth Keyboard			
Bezeichnung / Typ-Nr.: Identification / Type no.:	OB1898			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	FCC CFR Title 47, Part 15, Subpart C, Section 15.247 RSS-247 Issue 3 August 2023 RSS-Gen Issue 5 March 2019			
Wareneingangsdatum: Date of sample receipt:	2024-09-20	Please refer to Photo Document		
Prüfmuster-Nr.: Test sample no:	S24092429			
Prüfzeitraum: Testing period:	2024-10-09 - 2024-10-15			
Ort der Prüfung: Place of testing:	Refer to section 2.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Guangdong) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:			genehmigt von: authorized by:	
Datum: Date:	2025-02-10	Signed by: Amy Wang	Ausstellungsdatum: Issue date:	2025-02-10 Signed by: Storm Shu
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: 2BCOY-OB1898 IC: 32736-OB1898 HVIN: OB1898			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient 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. This test report only relates to the a. m. 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.				

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Anmerkungen
Remarks

1	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>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.</i> <i>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i>
2	As contractually agreed, this document has been signed digitally only. TÜV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TÜV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. <i>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</i>
3	Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report. <i>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>
4	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 115:2021, 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>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 115:2021, 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>

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Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK 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

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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: Photographs of the Test Set-up

Appendix B: Test Results of Bluetooth Low energy

2 Test Sites

2.1 Test Facilities

Guangdong Dongdian Testing Service Co., Ltd.

Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China

FCC Accreditation Designation No.: CN1182

ISED wireless device testing laboratory: 10288A

TÜV Rheinland (Guangdong) Co., Ltd. subcontract all test to Guangdong Dongdian Testing Service 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

Radio Spectrum Testing				
Equipment	Manufacturer	Model	Serial No.	Cal. until
Signal & Spectrum Analyzer	R&S	FSV3044	101173	2025/03/31
Wideband Radio Communication Tester	R&S	CMW500	168801	2025/03/31
MXG Vector Signal Generator	Agilent	N5182A	MY48180737	2025/03/31
PSG Vector Signal Generator	Agilent	E8267D	US49060192	2025/08/25
RF Control Unit	Tonsend	JS0806-2	2118060485	2025/03/31
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2025/04/22
Test Software	Tonscend	JS1120-3	Ver.3.2.22	N/A
Unwanted Emission Testing				
Equipment	Manufacturer	Model	Serial No.	Cal. until
RF cable	Zhongke Junchuang	JCT26S-NJ-NJ-1.5M	DDT-ZC02762	2025/03/31
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2025/04/22
Hochgewinn-Hornantenne	SCHWARZBECK	BBHA 9120 D	DDT-ZC02129	2025/09/18
RF cable	Yuhu Technology	JCTB810-NJ-NJ-9M	DDT-ZC02538	2025/03/31
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2025/03/31
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2025/08/25
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/
RF Cable	N/A	W24.02 HL-562	DDT-ZC04022	2025/03/31
RF cable	Yuhu Technology	ZT26S-SMAJ-	DDT-ZC02037	2025/03/31

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		SMAJ-1M		
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2025/07/11
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2025/09/11
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2025/03/31
High Pass filter	Xi'an Xingbo	XBLBQ-GTA67	DDT-ZC02179	2025/04/22
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2025/04/22
RF Cable	N/A	W13.02 AP1-X2	DDT-ZC04023	2025/03/31
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2025/03/31
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2025/04/26

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

Parameter	Uncertainty (k=2)
RF output power, conducted	± 0.74dB
Occupied Channel Bandwidth	1.1%
RF power density, conducted	± 0.74dB
Unwanted Emissions, conducted	0.86 dB (10 MHz ≤ f < 3.6 GHz)
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 26.5 GHz)
All emissions, radiated	4.84 dB (30 M - 1 GHz)
	4.10 dB (1 - 6 GHz)
	4.40 dB (6 GHz - 18 GHz)
	3.54 dB (18 GHz - 26 GHz)
Conducted Emission 150kHz to 30MHz	± 3.34dB

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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 (Guangdong) Co., Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

Guangdong Dongdian Testing Service Co., Ltd. Test facility located at Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a wireless Keyboard, which supports Bluetooth (Low Energy) 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:	Incase Bluetooth Keyboard
Type Designation:	OB1898
FCC ID:	2BCOY-OB1898
IC:	32736-OB1898
HVIN:	OB1898
Operating Voltage:	DC 3.0V (supplied by "AAA" battery x 2)
Testing Voltage:	DC 3.0V
Technical Specification of Bluetooth (Low Energy)	
Frequency Range:	2402 MHz to 2480 MHz
Type of Modulation:	GFSK
Channel Number:	40 channels
Data Rate:	1Mbps
Channel Separation:	2 MHz
Antenna Type:	PCB Layout antenna
Antenna Gain:	6.69 dBi Max (As detailed in Antenna spec)

Table 4: RF Channel and Frequency of Bluetooth (Low Energy)

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

Test frequencies are lowest channel: 2402 MHz, middle channel: 2440 MHz and highest channel: 2480 MHz

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth Low Energy transmitting mode
 - 1) Low Channel
 - 2) Middle Channel
 - 3) High Channel
- B. On, Normal Working with Bluetooth connected
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

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

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: 2013.

4.3 Special Accessories and Auxiliary Equipment

Table 5: Auxiliary Equipment Used during Test

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	i7-4810MQ	00331-1000-00001-AA816	N/A

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)

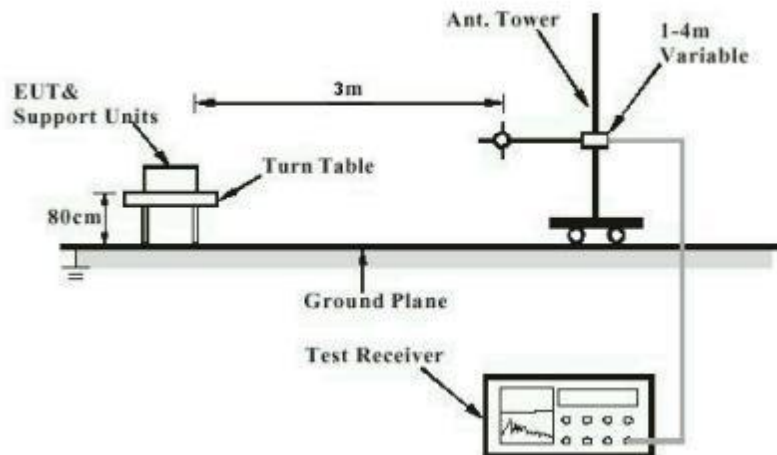
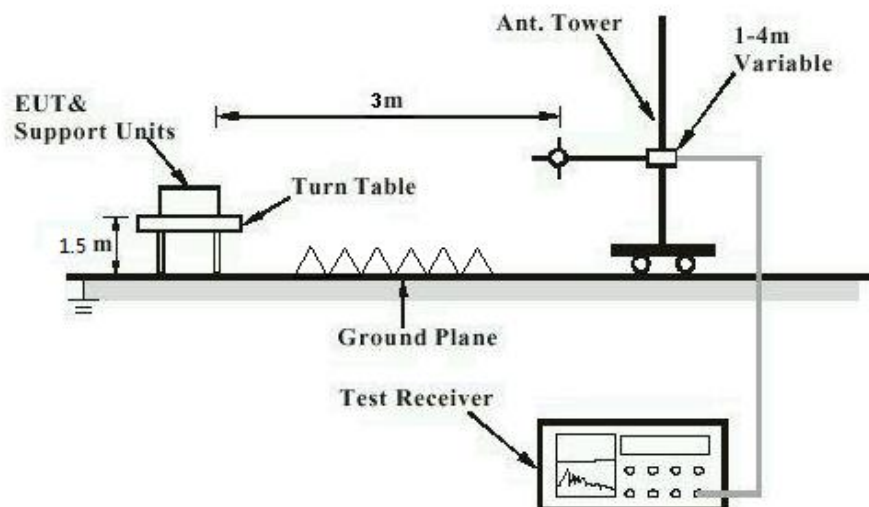


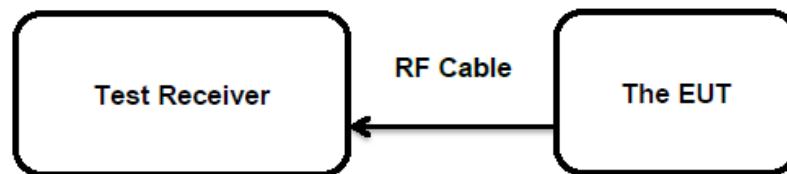
Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



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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

The EUT has an PCB antenna, the directional gain of antenna is 6.69 dBi, permanent attachment and no consideration of replacement.

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 Peak Conducted Output Power

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(3)
RSS-247 Clause 5.4(d)
Basic standard : ANSI C63.10: 2013
Limits : 1.0 Watts
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-10-09
Input voltage : DC 3.0 V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 23.6 °C
Relative humidity : 48.1 %
Atmospheric pressure : 101 kPa

Table 6: Test Result of Maximum Peak Conducted Output Power

Test Mode	Data Rate	Test Channel (MHz)	Measured Peak Power		Limit (W)
			(dBm)	(W)	
Bluetooth (Low Energy)	1Mbps	2402	1.06	0.0013	< 1.0
		2440	1.06	0.0013	
		2480	0.40	0.0011	
Maximum Measured Value			1.06	0.0013	

Note:

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G): 6.69 dBi,
e.i.r.p.=P_(Peak power)+ G, which is far below the 4 W

5.1.3 Conducted Power Spectral Density

RESULT:

Pass

Test Specification

Test standard	: FCC Part 15.247(e) RSS-247 Clause 5.2(b)
Basic standard	: ANSI C63.10: 2013
Limits	: < 8 dBm / 3kHz
Kind of test site	: Shielded Room

Test Setup

Date of testing	:	2024-10-09
Input voltage	:	DC 3.0 V
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	23.6 °C
Relative humidity	:	48.1 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix B.

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5.1.4 6dB Bandwidth

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(a)(2)
RSS-247 Clause 5.2(a)
Basic standard : ANSI C63.10: 2013
Limits : > 500 KHz
Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-10-09
Input voltage : DC 3.0 V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : 23.6 °C
Relative humidity : 48.1 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

5.1.5 99% Bandwidth

RESULT: Pass

Test Specification

Test standard : RSS-Gen Clause 6.7
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2024-10-09
 Input voltage : DC 3.0 V
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 23.6 °C
 Relative humidity : 48.1 %
 Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

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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 5.5

Basic standard : ANSI C63.10: 2013

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 : 2024-10-09

Input voltage : DC 3.0 V

Operation mode : A

Test channel : Low / Middle / High

Ambient temperature : 23.6 °C

Relative humidity : 48.1 %

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 B.

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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 3.3
Basic standard : ANSI C63.10: 2013
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 : 2024-10-15
Input voltage : DC 3.0 V
Operation mode : A
Test channel : Low / Middle / High
Ambient temperature : Refer to test result
Relative humidity : Refer to test result
Atmospheric pressure : 101 kPa

Remark:

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

For the measurement records, refer to the appendix B.

6 Photographs of the Test Set-Up

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

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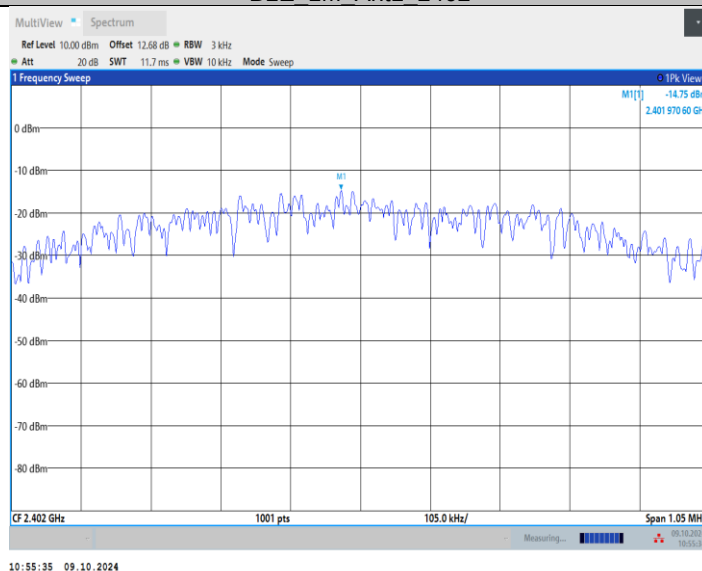
APPENDIX B.1: CONDUCTED POWER SPECTRAL DENSITY

Test Result

Test Mode	Antenna	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-14.75	≤8.00	PASS
		2440	-14.79	≤8.00	PASS
		2480	-15.32	≤8.00	PASS

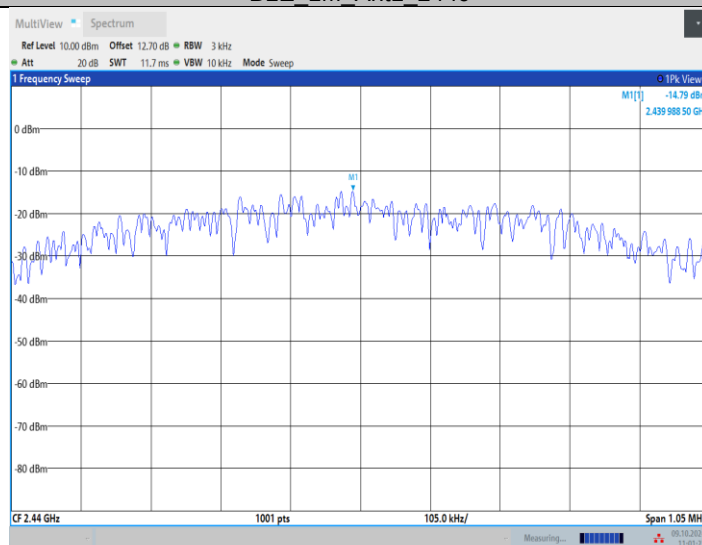
Test Graphs

BLE_1M Ant1 2402



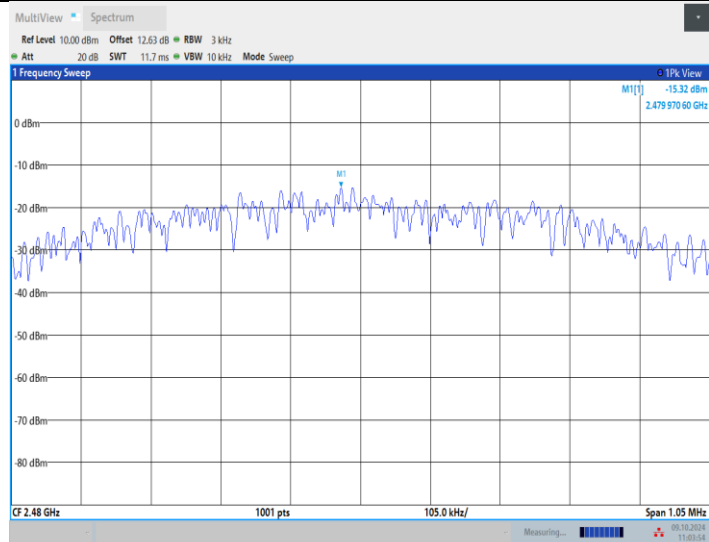
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BLE_1M Ant1 2440



11:01:28 09.10.2024

BLE_1M_Ant1_2480



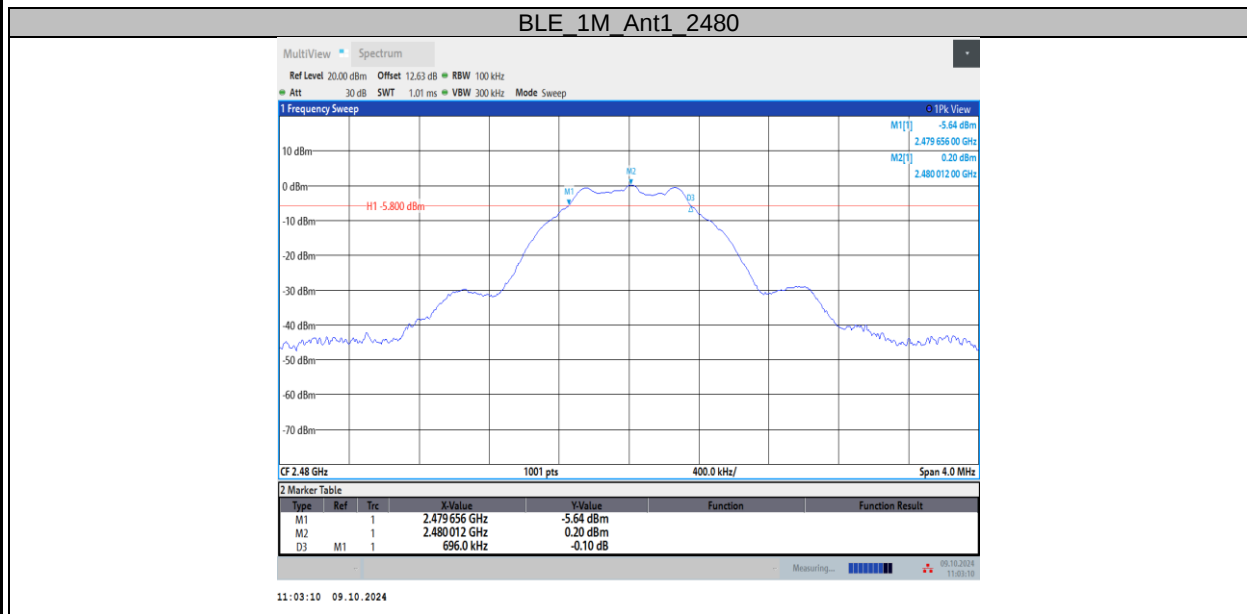
APPENDIX B.2: 6dB BANDWIDTH

Test Result

Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	0.70	2401.66	2402.35	0.5	PASS
		2440	0.70	2439.66	2440.35	0.5	PASS
		2480	0.70	2479.66	2480.35	0.5	PASS

Test Graphs



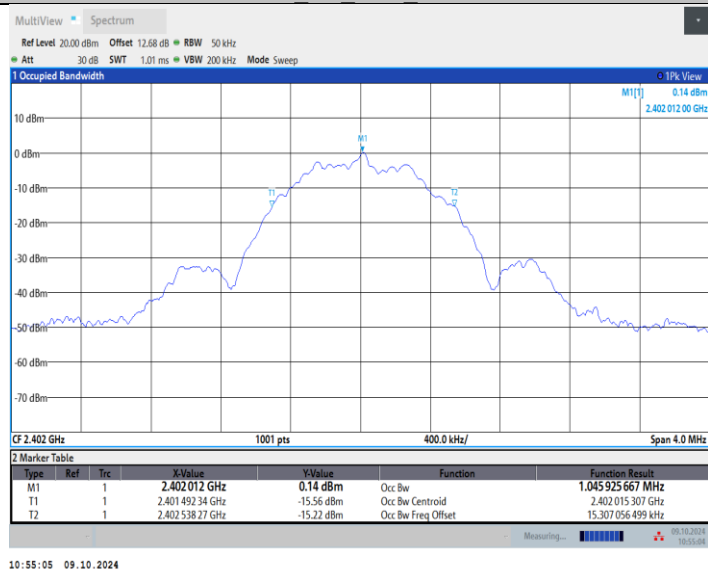


APPENDIX B.3: 99% BANDWIDTH**Test Result**

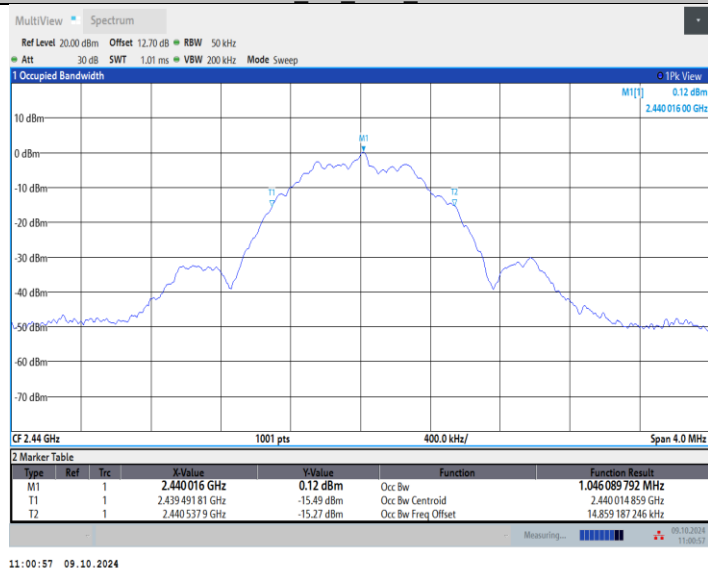
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]	Verdict
BLE_1M	Ant1	2402	1.046	2401.4923	2402.5383	---	---
		2440	1.046	2439.4918	2440.5379	---	---
		2480	1.050	2479.4903	2480.5401	---	---

Test Graphs

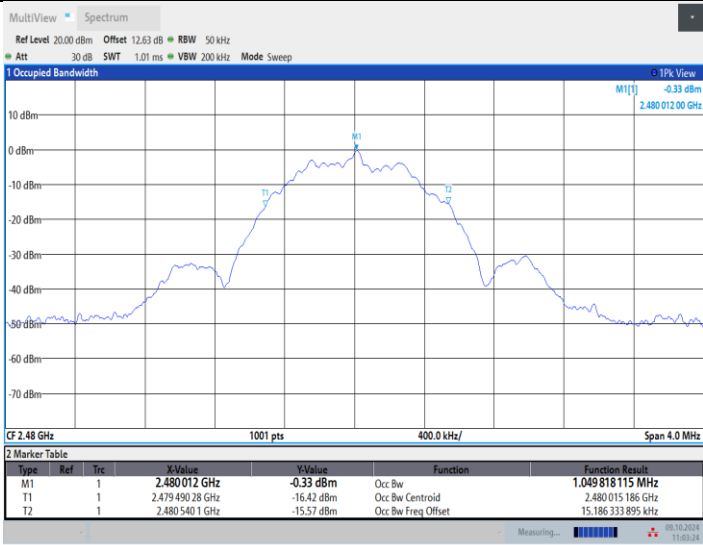
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



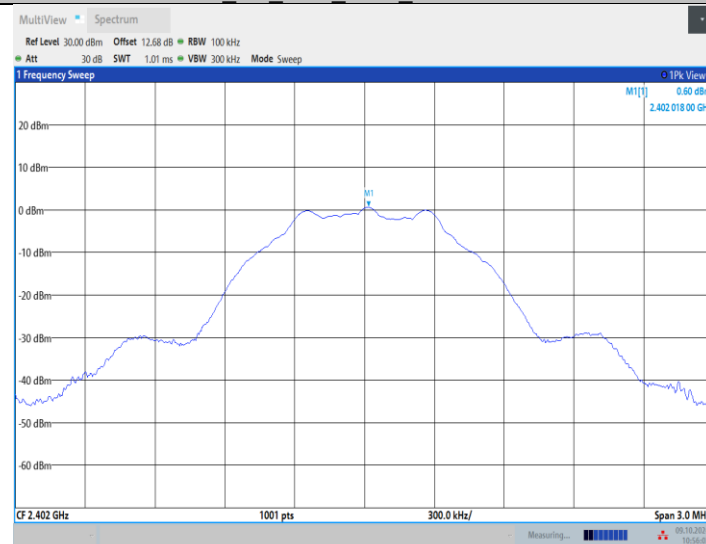
11:03:25 09.10.2024

APPENDIX B.4: CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH**Test Result**

Mode	Freq. (MHz)	Verdict
GFSK 1M	2402	Pass
	2440	Pass
	2480	Pass
GFSK 2M	2404	Pass
	2440	Pass
	2478	Pass

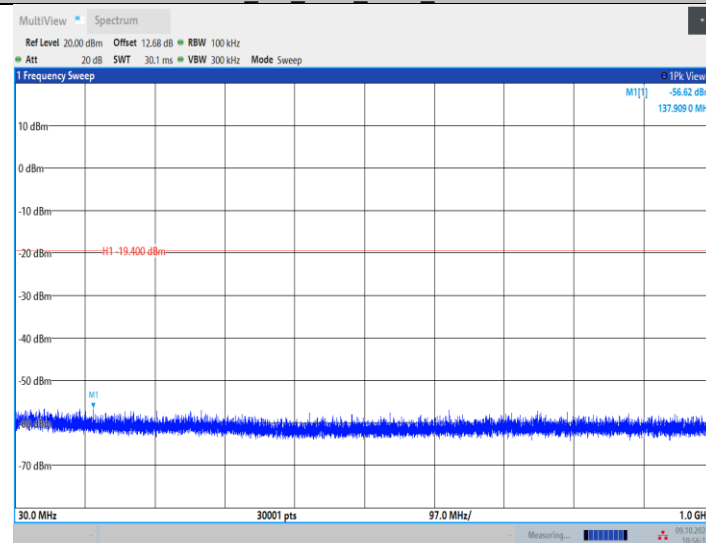
Test Graphs

BLE_1M_Ant1_2402_0~Reference



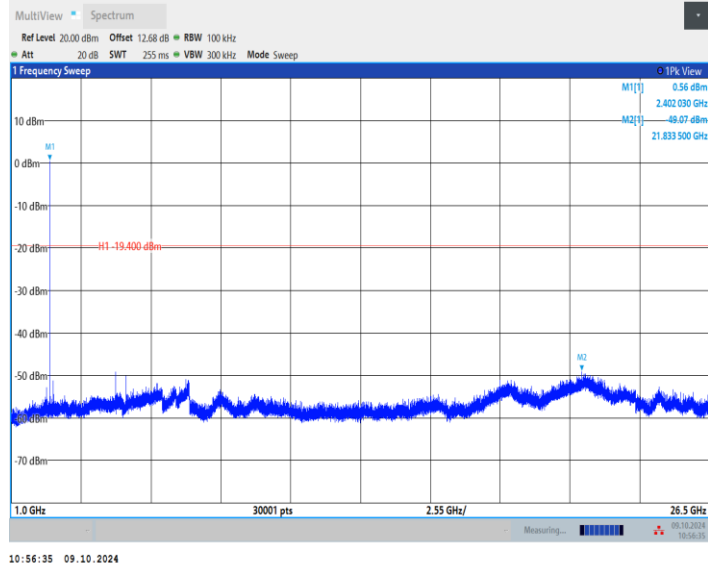
10:56:02 09.10.2024

BLE_1M_Ant1_2402_30~1000

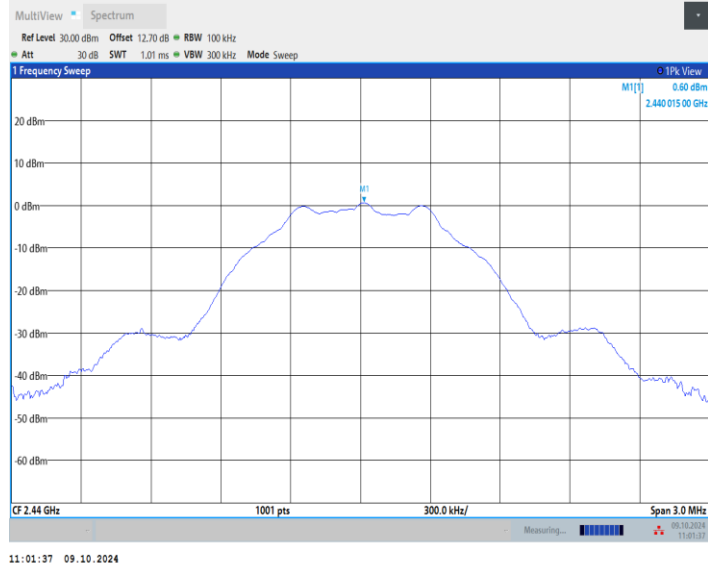


10:56:11 09.10.2024

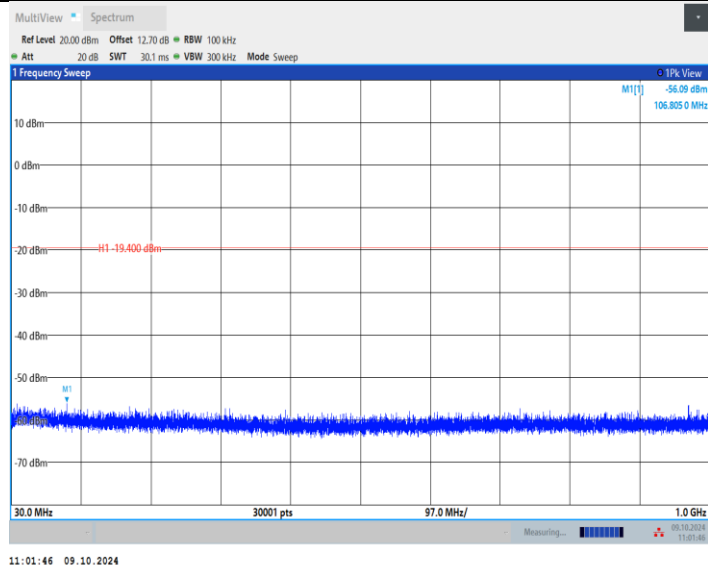
BLE 1M Ant1_2402_1000-26500



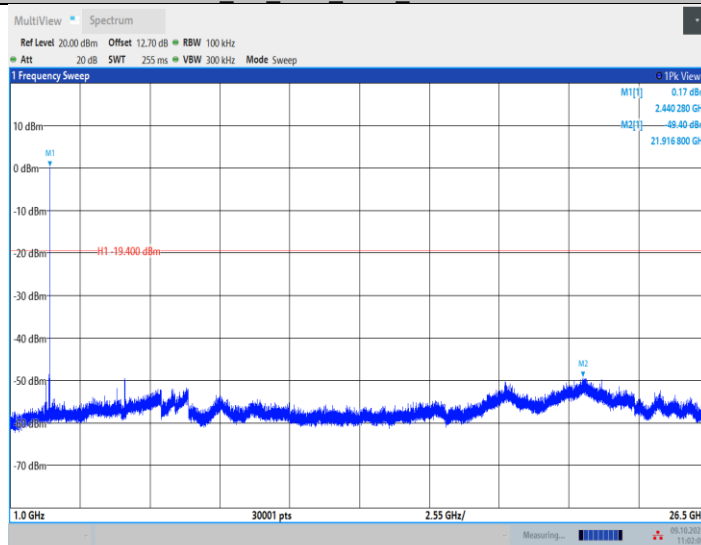
BLE 1M Ant1_2440_0-Reference



BLE 1M Ant1_2440_30-1000

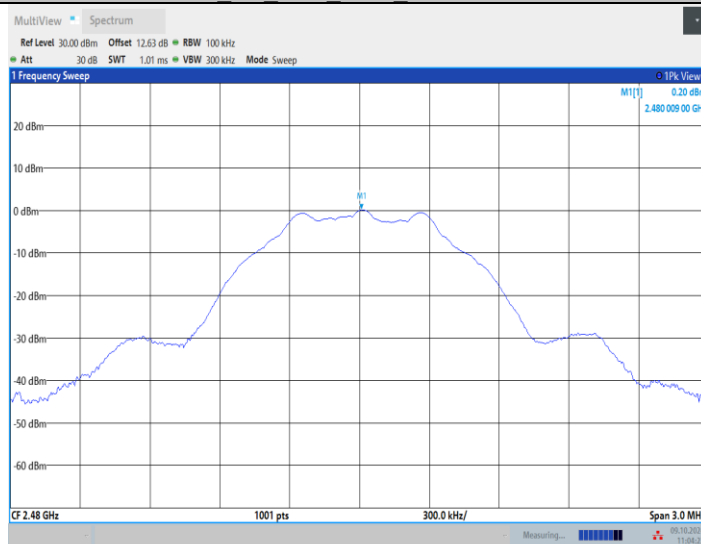


BLE 1M Ant1_2440_1000-26500



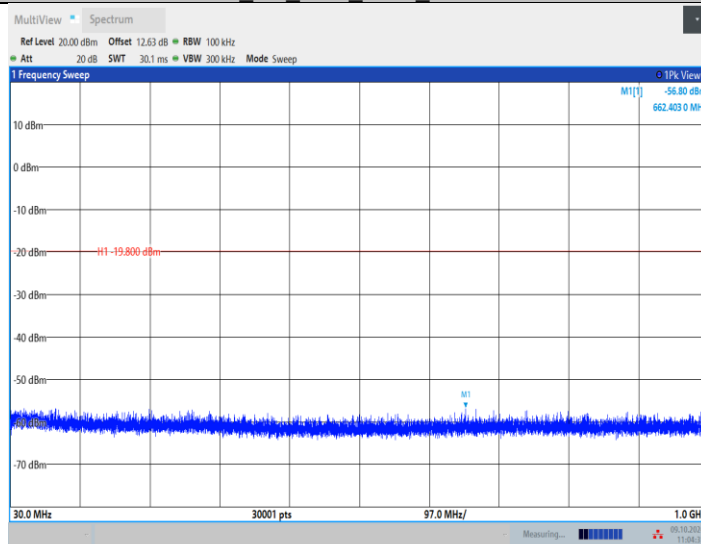
11:02:10 09.10.2024

BLE 1M Ant1_2480_0-Reference



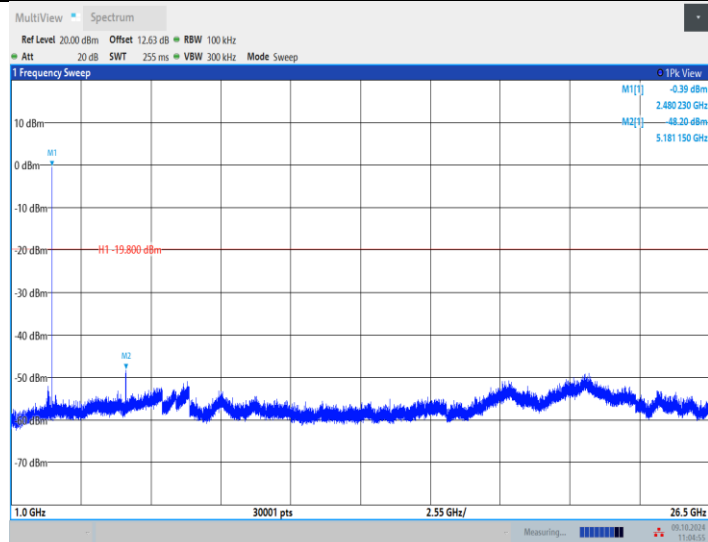
11:04:22 09.10.2024

BLE 1M Ant1_2480_30-1000



11:04:31 09.10.2024

BLE_1M_Ant1_2480_1000~26500



11:04:55 09.10.2024

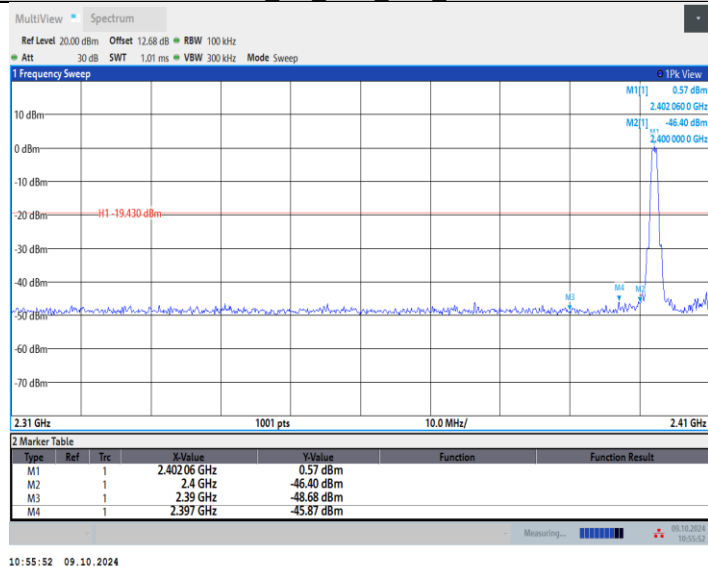
APPENDIX B.5: BAND EDGE COMPLIANCE (CONDUCTED METHOD)

Test Result

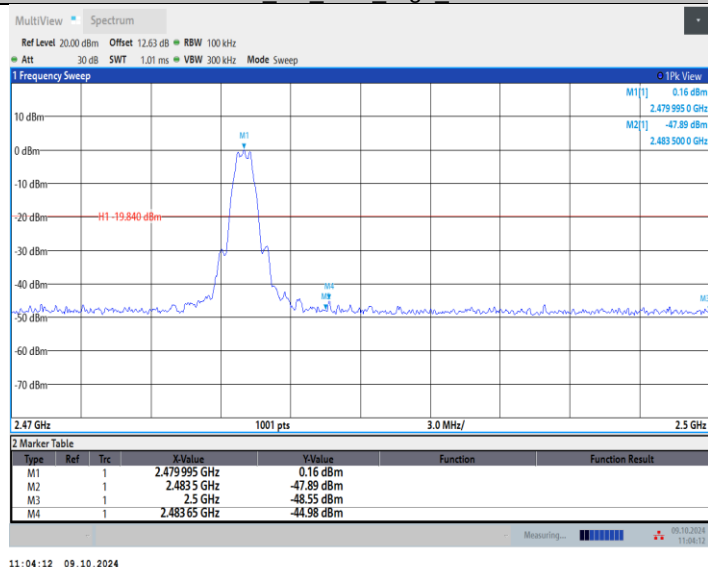
EUT Set Mode	CH or Frequency	Measured Range	Verdict
GFSK 1M	2402	2.310 GHz - 2.410 GHz	Pass
	2480	2.470 GHz - 2.500 GHz	Pass
GFSK 2M	2404	2.310 GHz - 2.410 GHz	Pass
	2478	2.470 GHz - 2.500 GHz	Pass

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



APPENDIX B.6: RADIATED SPURIOUS EMISSIONS

Note:

- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

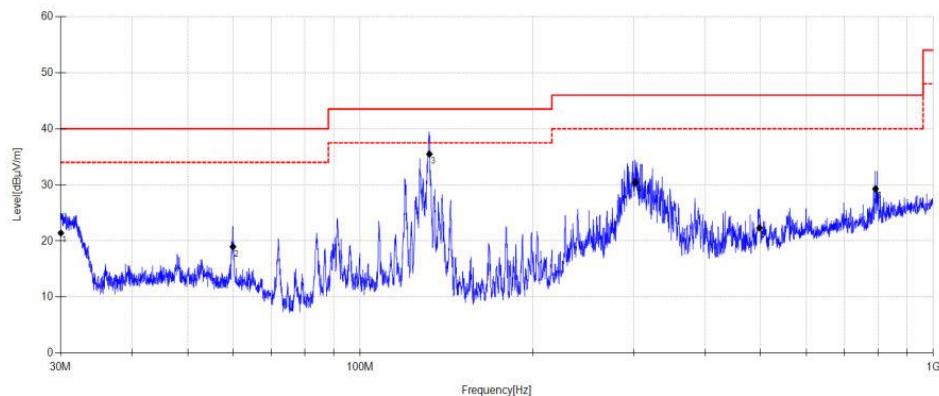
30 MHz to 1GHz



广东东电检测技术有限公司

Guangdong Dongdian Testing Service Co., Ltd.
Tel: 0769-38826678 <http://www.dgddt.com>**TR-4-E-009 Radiated Emission Test Result**

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX Mode **Power Supply:** Battery
Condition: Temp: 23°C, Humi: 59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC BELOW1G\20241015-025206_H
Memo: Sample Number: S24092429-001 Power Setting: NA



Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable Loss [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	30.042	36.22	10.30	3.76	21.43	40.00	18.57	QP	Horizontal
2	59.977	31.01	12.79	3.96	18.99	40.00	21.01	QP	Horizontal
3	132.089	50.99	8.61	4.39	35.50	43.50	8.00	QP	Horizontal
4	302.341	39.43	13.70	5.23	30.44	46.00	15.56	QP	Horizontal
5	497.397	28.69	16.84	5.99	22.34	46.00	23.66	QP	Horizontal
6	792.877	31.15	20.03	6.93	29.30	46.00	16.70	QP	Horizontal

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



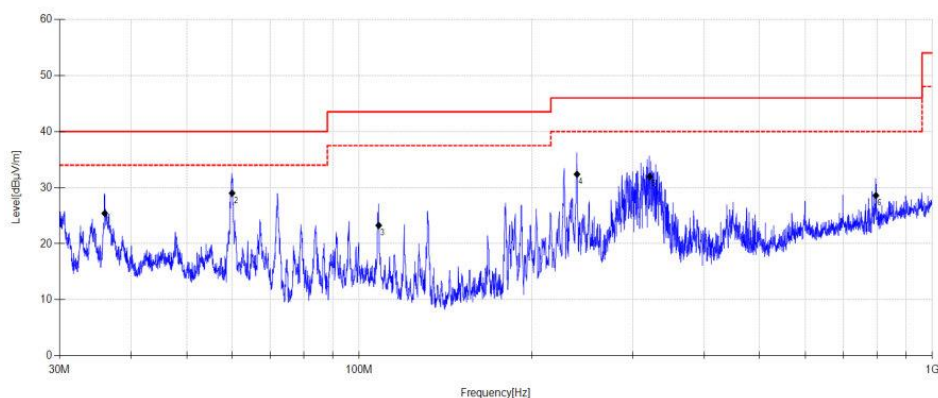
广东东电检测技术有限公司

Guangdong Dongdian Testing Service Co., Ltd.
Tel: 0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15
EUT: Incase Bluetooth Keyboard
Test Mode: BLE1M TX Mode
Condition: Temp: 23°C, Humi: 59.5%
File Path: d:\ts\2024 report data\Q24092429-1E\FCC BELOW1G\20241015-025251_V
Memo: Sample Number: S24092429-001 Power Setting: NA

Tested By: Zhong Nan
Model Number: OB1898
Power Supply: Battery
Test Site: DDT 3# Chamber



Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable Loss [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	35.974	38.57	11.89	3.80	25.42	40.00	14.58	QP	Vertical
2	60.019	41.04	12.79	3.96	29.02	40.00	10.98	QP	Vertical
3	108.163	36.07	11.51	4.26	23.27	43.50	20.23	QP	Vertical
4	239.888	43.77	11.79	4.94	32.39	46.00	13.61	QP	Vertical
5	321.359	40.84	13.86	5.31	31.97	46.00	14.03	QP	Vertical
6	797.337	30.49	19.97	6.94	28.60	46.00	17.40	QP	Vertical

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Template path: 3#RED\DDT Word format

1GHz-18GHz

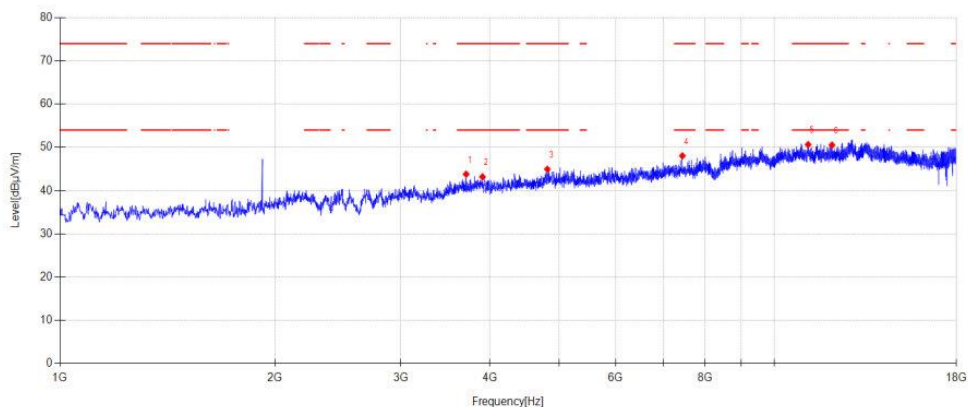


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Guangdong Dongdian Testing Service Co., Ltd.
Tel:0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2480MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\1
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3704.700	47.91	30.41	5.10	-39.61	43.81	74.00	30.19	PK	Horizontal
2	3905.300	46.59	31.19	5.07	-39.66	43.19	74.00	30.81	PK	Horizontal
3	4813.100	46.19	32.84	5.54	-39.61	44.96	74.00	29.04	PK	Horizontal
4	7439.600	45.36	36.62	6.67	-40.60	48.05	74.00	25.95	PK	Horizontal
5	11155.800	42.34	39.24	8.23	-39.16	50.65	74.00	23.35	PK	Horizontal
6	12050.000	42.48	39.25	8.79	-39.99	50.53	74.00	23.47	PK	Horizontal

Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

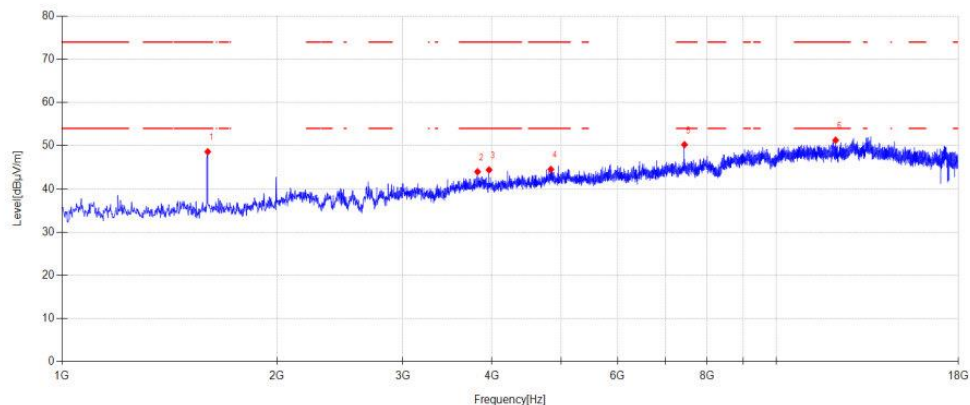


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Guangdong Dongdian Testing Service Co., Ltd.
Tel:0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2480MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\2
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	1600.100	56.71	25.60	3.90	-37.60	48.61	74.00	25.39	PK	Vertical
2	3818.600	47.77	30.77	5.08	-39.64	43.98	74.00	30.02	PK	Vertical
3	3963.100	47.98	31.05	5.06	-39.67	44.42	74.00	29.58	PK	Vertical
4	4836.900	45.13	33.46	5.55	-39.61	44.53	74.00	29.47	PK	Vertical
5	7441.300	47.56	36.62	6.67	-40.60	50.25	74.00	23.75	PK	Vertical
6	12114.600	43.14	39.30	8.82	-39.98	51.28	74.00	22.72	PK	Vertical

Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

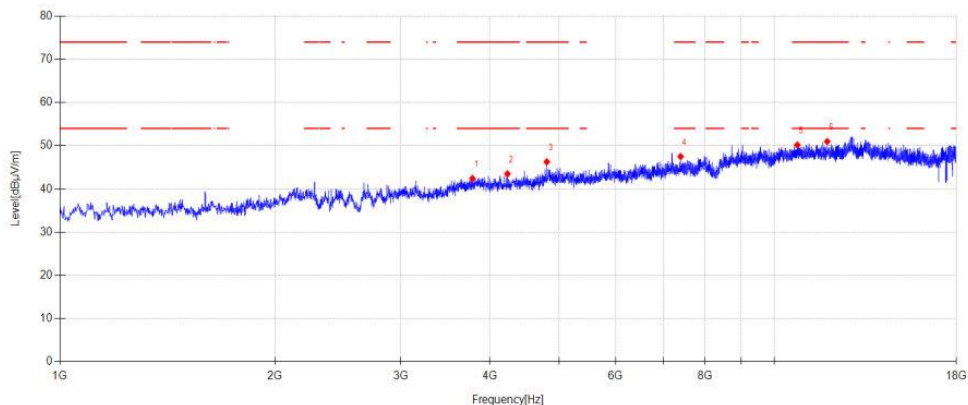


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Guangdong Dongdian Testing Service Co., Ltd.
Tel: 0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2402MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\3
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3781.200	46.33	30.62	5.09	-39.63	42.41	74.00	31.59	PK	Horizontal
2	4231.700	46.62	31.33	5.19	-39.66	43.48	74.00	30.52	PK	Horizontal
3	4804.600	47.74	32.62	5.53	-39.62	46.27	74.00	27.73	PK	Horizontal
4	7397.100	44.78	36.71	6.65	-40.64	47.50	74.00	26.50	PK	Horizontal
5	10776.700	41.86	39.40	8.02	-39.13	50.15	74.00	23.85	PK	Horizontal
6	11866.400	43.27	38.90	8.68	-39.87	50.98	74.00	23.02	PK	Horizontal

Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.



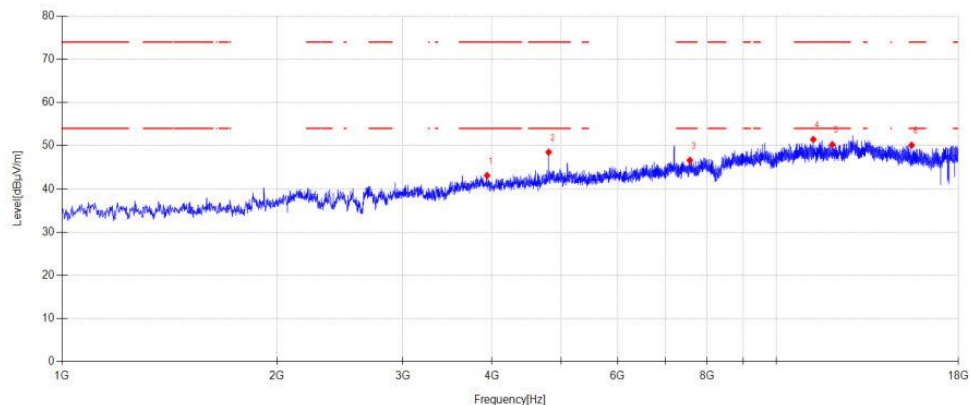
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Guangdong Dongdian Testing Service Co., Ltd.
Tel:0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2402MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\4
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3937.600	46.59	31.12	5.06	-39.67	43.10	74.00	30.90	PK	Vertical
2	4802.900	50.02	32.58	5.53	-39.62	48.51	74.00	25.49	PK	Vertical
3	7570.500	43.93	36.44	6.74	-40.49	46.62	74.00	27.38	PK	Vertical
4	11273.100	43.23	39.20	8.30	-39.27	51.46	74.00	22.54	PK	Vertical
5	11985.400	42.36	39.16	8.75	-39.99	50.28	74.00	23.72	PK	Vertical
6	15473.800	40.87	38.85	9.80	-39.40	50.12	74.00	23.88	PK	Vertical

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

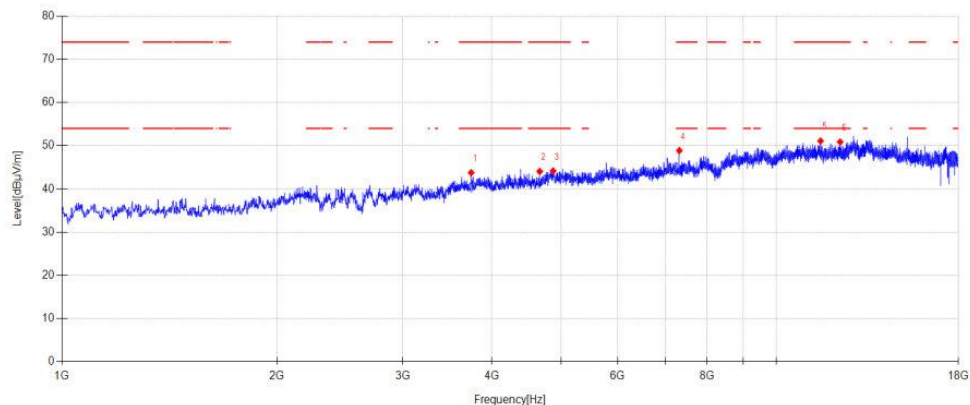


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Guangdong Dongdian Testing Service Co., Ltd.
Tel:0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2440MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\5
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3740.400	47.81	30.48	5.09	-39.62	43.76	74.00	30.24	PK	Horizontal
2	4665.200	46.19	32.06	5.45	-39.63	44.07	74.00	29.93	PK	Horizontal
3	4872.600	44.77	33.44	5.57	-39.61	44.17	74.00	29.83	PK	Horizontal
4	7318.900	46.13	36.86	6.61	-40.71	48.89	74.00	25.11	PK	Horizontal
5	11538.300	43.05	39.12	8.47	-39.54	51.10	74.00	22.90	PK	Horizontal
6	12291.400	42.60	39.30	8.91	-39.94	50.87	74.00	23.13	PK	Horizontal

Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

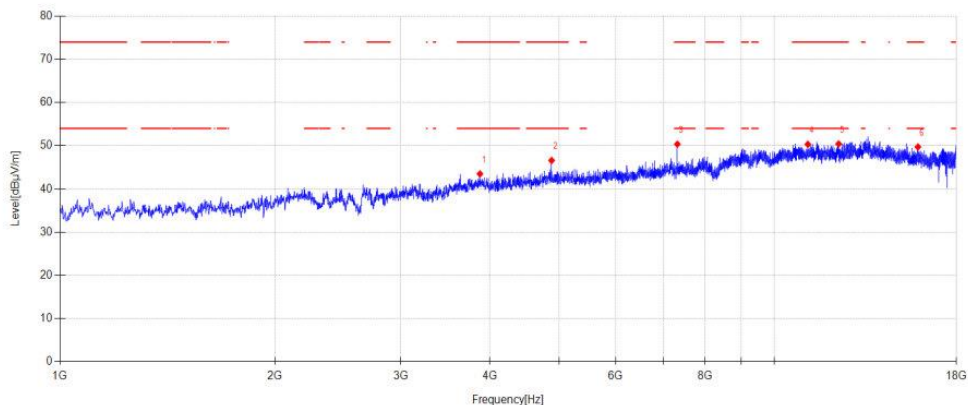


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Guangdong Dongdian Testing Service Co., Ltd.
Tel:0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2440MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\6
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	3873.000	47.03	31.04	5.07	-39.65	43.49	74.00	30.51	PK	Vertical
2	4879.400	47.30	33.33	5.58	-39.61	46.60	74.00	27.40	PK	Vertical
3	7318.900	47.61	36.86	6.61	-40.71	50.37	74.00	23.63	PK	Vertical
4	11147.300	42.02	39.25	8.22	-39.15	50.34	74.00	23.66	PK	Vertical
5	12310.100	42.14	39.30	8.92	-39.94	50.42	74.00	23.58	PK	Vertical
6	15895.400	40.93	38.11	10.08	-39.40	49.72	74.00	24.28	PK	Vertical

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

APPENDIX B.7: RADIATED EMISSIONS IN RESTRICTED BANDS



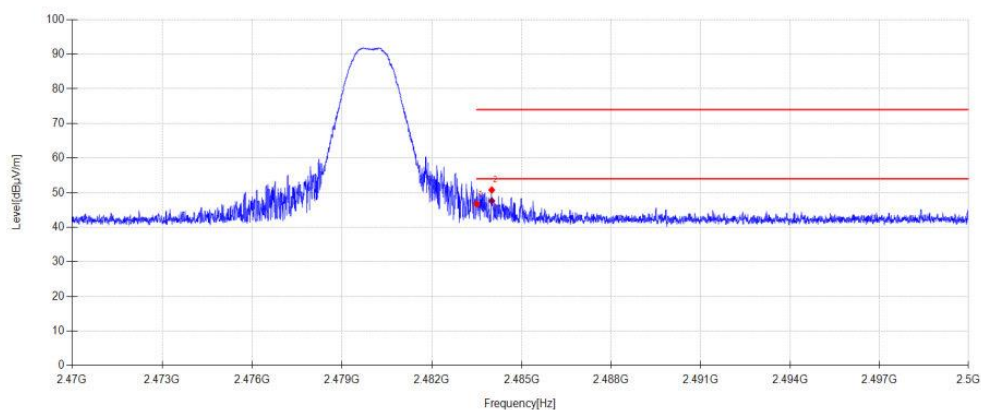
广东东电检测技术有限公司

Guangdong Dongdian Testing Service Co., Ltd.
Tel: 0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2480MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\7
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.500	15.56	27.53	3.62	0.00	46.71	74.00	27.29	PK	Horizontal
2	2484.001	19.61	27.54	3.62	0.00	50.77	74.00	23.23	PK	Horizontal

Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	2484.001	16.48	27.54	3.62	47.64	54.00	6.36	AV	Horizontal	

Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

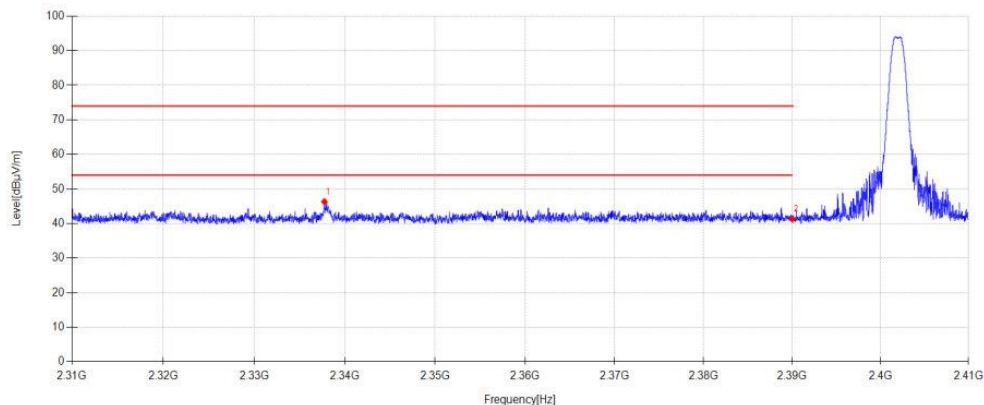


广东东电检测技术有限公司
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Tel:0769-38826678 <http://www.dgddt.com>

TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-10-15 **Tested By:** Zhong Nan
EUT: Incase Bluetooth Keyboard **Model Number:** OB1898
Test Mode: BLE1M TX 2402MHz Mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:59.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2024 report data\Q24092429-1E\FCC ABOVE1G\9
Memo: Sample Number:S24092429-001 Power Setting:NA

Test Graph



Data List										
NO	Freq. [MHz]	Reading [dBμV/m]	Antenna Factor [dB]	Cable loss [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2337.730	15.75	27.03	3.54	0.00	46.32	74.00	27.68	PK	Horizontal
2	2390.000	10.52	27.26	3.57	0.00	41.35	74.00	32.65	PK	Horizontal

Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.