

Prüfbericht-Nr.: <i>Test report no.:</i>	CN26EQXL 001	Auftrags-Nr.: <i>Order no.:</i>	48303976	Seite 1 von 26 Page 1 of 26
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2026-04-09	
Auftraggeber: <i>Client:</i>	KAGA FEI Co., Ltd. Gunseisha ANNEX Bldg. 5th floor, 382-1, Kaminamie-machi, Takasaki, Gunma, 370-0801, Japan			
Prüfgegenstand: <i>Test item:</i>	Bluetooth Low Energy Module			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	ES4L15			
Auftrags-Inhalt: <i>Order content:</i>	FCC Part 15C Test report (Bluetooth LE with channel sounding)			
Prüfgrundlage: <i>Test specification:</i>	FCC 47CFR Part 15: Subpart C Section 15.249			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2026-04-13			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A004250598-003 A004250598-004			
Prüfzeitraum: <i>Testing period:</i>	2026-04-27 - 2026-04-28			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland Taiwan Ltd. New Taipei Branch			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland Taiwan Ltd. Taipei Testing Laboratories			
Prüfergebnis*: <i>Test result*:</i>	Pass			
überprüft von: <i>compiled by:</i>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i>	2026-05-07	Ausstellungsdatum: <i>Issue date:</i>	2026-05-07	
Stellung / Position:	Senior Project Manager	Stellung / Position:	Senior Project Manager	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor 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 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.</i>				

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Anmerkungen
Remarks

- | | |
|----------|--|
| 1 | <p>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.</p> <p>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><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></p> |
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| 3 | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.</p> <p>Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i></p> <p><i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p> |
| 4 | <p>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.</p> <p><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></p> |

TEST SUMMARY

Report Section	FCC Clause	Test Item	Result
5.1.1	15.203	Antenna Requirement	Pass
5.1.2	15.249 (a)	Field Strength of Fundamental Emissions	Pass
5.1.3	15.249 (d)	Radiated Spurious Emissions	Pass
5.1.4	15.215 (c)	20 dB Bandwidth	Pass
5.2.1	15.207	Mains Conducted Emission	Pass

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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APPENDIX A - TEST RESULT OF RADIATED EMISSIONS & MAINS CONDUCTED EMISSION

APPENDIX SP - PHOTOGRAPHS OF TEST SETUP

APPENDIX EP - PHOTOGRAPHS OF EUT

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HISTORY OF THIS TEST REPORT

Revision	Description	Date Issued
R01	Original Release	2026-05-07

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 Result of Radiated Emissions & Mains Conducted Emission

Appendix SP - Photographs of Test Setup

Appendix EP - Photographs of EUT

Applied Standard and Test Levels

Radio
FCC 47CFR Part 15: Subpart C Section 15.249
ANSI C63.10-2020

1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

2. Test Sites

2.1 Test Laboratory

TÜV Rheinland Taiwan Ltd. Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

2.2 Test Facility

TÜV Rheinland Taiwan Ltd. Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,
New Taipei City 244
Taiwan (R.O.C.)
FCC Registration No.: 180491 (TW3567)
ISED Registration No.: 25563 (TW3567)

2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95% level of confidence.

Emission Measurement Uncertainty

Parameter	Uncertainty
Radiated Emission (9 kHz ~ 30 MHz)	± 1.15 dB
Radiated Emission (30 MHz ~ 200 MHz)	± 1.32 dB
Radiated Emission (200 MHz ~ 1 GHz)	± 1.31 dB
Radiated Emission (1 GHz ~ 18 GHz)	± 1.53 dB
Radiated Emission (18 GHz ~ 40 GHz)	± 2.50 dB
Mains Conducted Emission	± 1.65 dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT is a Bluetooth Low Energy Module. It contains a Bluetooth compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 System Details and Ratings

Basic Information of EUT

Item	EUT information
Kind of Equipment/Test Item	Bluetooth Low Energy Module
Type Identification	ES4L15
FCC ID	2A6NFES4L15

Technical Specification of EUT

Item	EUT information
Operating Frequency	2404 ~ 2478 MHz (Channel Sounding)
Operation Voltage	3.0 Vdc
Modulation	ASK
Antenna Information	Refer to 5.1.1
Accessory Device	Refer to 4.3

3.3 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.4 Submitted Documents

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum emission level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Carrier Frequency and Channel

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2	2404	22	2424	45	2447	65	2467
3	2405	26	2428	46	2448	66	2468
4	2406	27	2429	47	2449	67	2469
5	2407	28	2430	48	2450	68	2470
6	2408	29	2431	49	2451	69	2471
7	2409	30	2432	50	2452	70	2472
8	2410	31	2433	51	2453	71	2473
9	2411	32	2434	52	2454	72	2474
10	2412	33	2435	53	2455	73	2475
11	2413	34	2436	54	2456	74	2476
12	2414	35	2437	55	2457	75	2477
13	2415	36	2438	56	2458	76	2478
14	2416	37	2439	57	2459		
15	2417	38	2440	58	2460		
16	2418	39	2441	59	2461		
17	2419	40	2442	60	2462		
18	2420	41	2443	61	2463		
19	2421	42	2444	62	2464		
20	2422	43	2445	63	2465		
21	2423	44	2446	64	2466		

4.3 Test Operation and Test Software

Setup for testing: Test samples are provided with a USB interface which makes it possible to control them through a test software installed on a notebook computer.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed as below.

Test Software	Radio Test Tool
---------------	-----------------

The samples were used as follows:

A004250598-003

A004250598-004

Full test was applied on all test modes, but only worst case was shown.

EUT Configure Mode	Applicable To			Description
	Field Strength of Fundamental Emissions	Radiated Spurious Emissions	Mains Conducted Emission	
-	√	√	√	-

Note:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when position on **Z-plane**.
- "-" means no effect.

Field Strength of Fundamental Emissions

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)
-	2404 ~ 2478	2404, 2440, 2478

Radiated Spurious Emission

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)
-	2404 ~ 2478	2404, 2440, 2478

Mains Conducted Emission

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)
-	2404 ~ 2478	2404

Prüfbericht - Nr.: **CN26EQXL 001**
Test Report No.Seite 13 von 26
Page 13 of 26**Test Condition**

Test Item	Ambient Temperature	Relative Humidity	Tested by
Radiated Spurious Emissions	22.7-25.5 °C	36-40 %	Chuan Chu
Field Strength of Fundamental Emissions	22.7-25.5 °C	36-40 %	Chuan Chu
Mains Conducted Emission	23.5 °C	66 %	Chuan Chu

4.4 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

Accessory of EUT

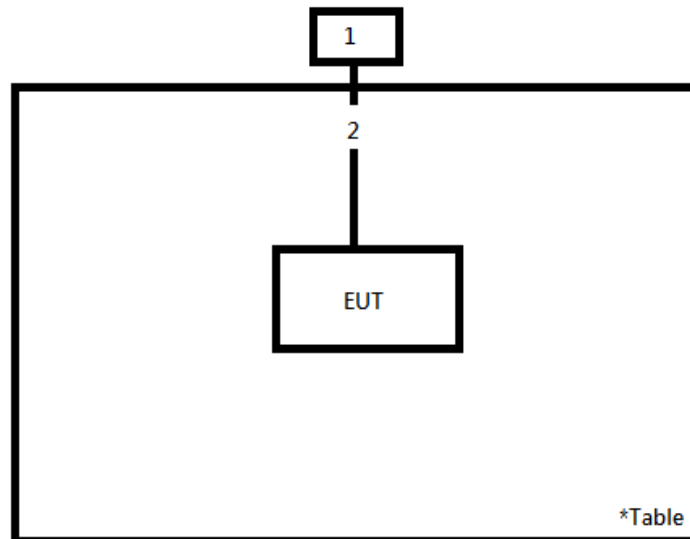
None

Support Unit

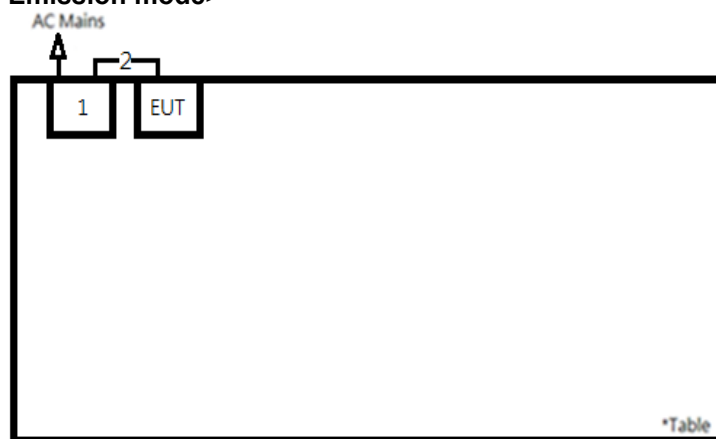
Support Unit								
No	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)	Remark
1	DC Power Supply	Gwinstek	GPS-3303	N/A	-	-	-	--
2	Cable	TUV	TUV-01	N/A	N/A	NA	180	--

4.5 Test Setup Diagram

<Radiated Spurious Emissions mode>



<Mains Conducted Emission mode>



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

Requirement Use of approved antennas only

According to the manufacturer declaration, the EUT has an antenna with a directional gain of -4.8 dBi. The antenna is monopole antenna with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.

Refer to EUT photo for details.

5.1.2 Field Strength of Fundamental Emissions

Limit

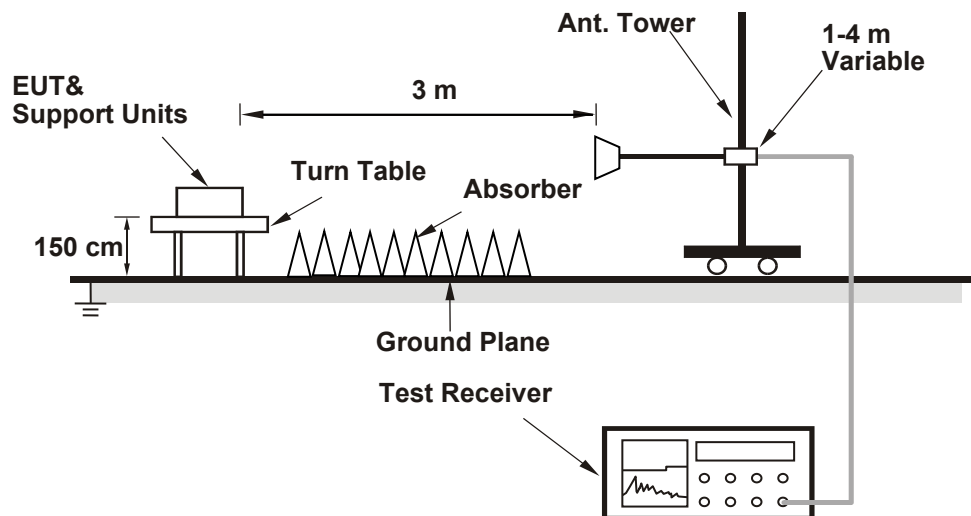
The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meters)
902 ~ 928 MHz	50	500
2400 ~ 2483.5 MHz	50	500
5725 ~ 5875 MHz	50	500
24 ~ 24.25 GHz	250	2500

Kind of Test Site

3m Semi-Anechoic Chamber

Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

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Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Above 1 GHz					
Signal Analyzer	R&S	FSV40	101513	2025/5/14	2026/5/13
Horn Antenna	ETS-Lindgren	3117	00218929	2025/11/20	2026/11/19
Horn Antenna	SCHWARZBECK	BBHA 9170	00896	2026/1/16	2027/1/15
HF-AMP + AC source	EMCI	EMC051845SE	980633	2026/1/15	2027/1/14
HF-AMP + AC source	EMCI	EMC051845SE	980656	2026/1/15	2027/1/14
Microwave Cable	EMCI	EM102A-KMKM-700	504231101002	2025/5/23	2026/5/22
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	800902/2EA	2025/6/6	2026/6/5
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	801026/2EA	2025/6/6	2026/6/5
3G High Pass Filter	EMCI	ZHPF3180	08223315	2025/12/18	2026/12/17
Test Software	Audix E3	15914a_20191106 tuv	PK-001087	N/A	N/A
30 MHz ~ 1 GHz					
Receiver	R&S	ESR7	102109	2026/02/04	2027/02/03
Bilog Antenna	SCHWARZBECK	VULB-9168	00950	2025/05/15	2026/05/14
LF-AMP	Agilent	8447D	2727A05146	2026/01/15	2027/01/14
Microwave Cable	EMCI	RG 214 U/2*11N/7M	24038601	2026/02/25	2027/02/24
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	802244/4	2026/02/25	2027/02/24
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	MY37203/4	2026/02/25	2027/02/24
Test Software	Audix E3	15914a_20191106 tuv	PK-001087	N/A	N/A

Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) or 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.
4. The Radiated Emissions testing was performed in the X(E1), Y(H) and Z(E2) axis orientation. The worst-case Axis orientation is recorded in this test report.

Test Results

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)

Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

Please refer to Appendix A.

5.1.3 Radiated Spurious Emissions

Limit

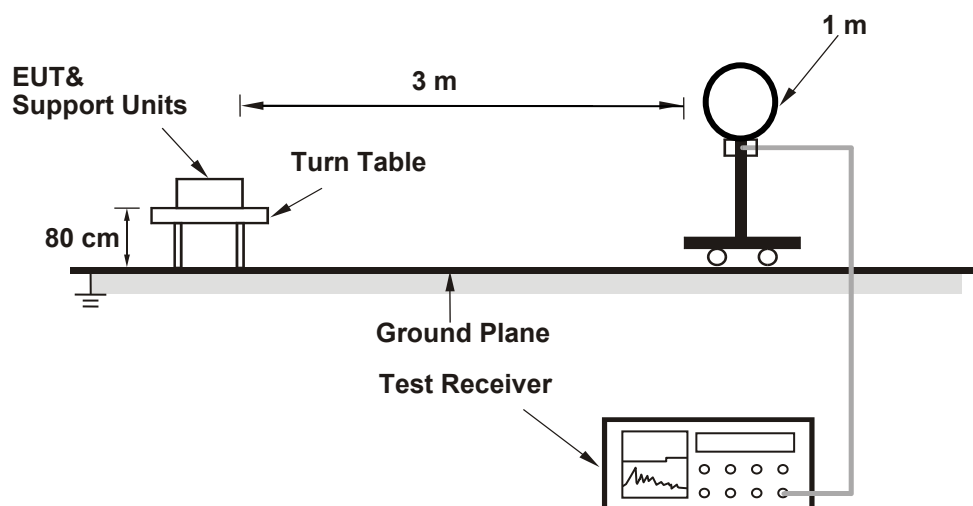
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits as below table, whichever is the lesser attenuation.

Frequencies (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

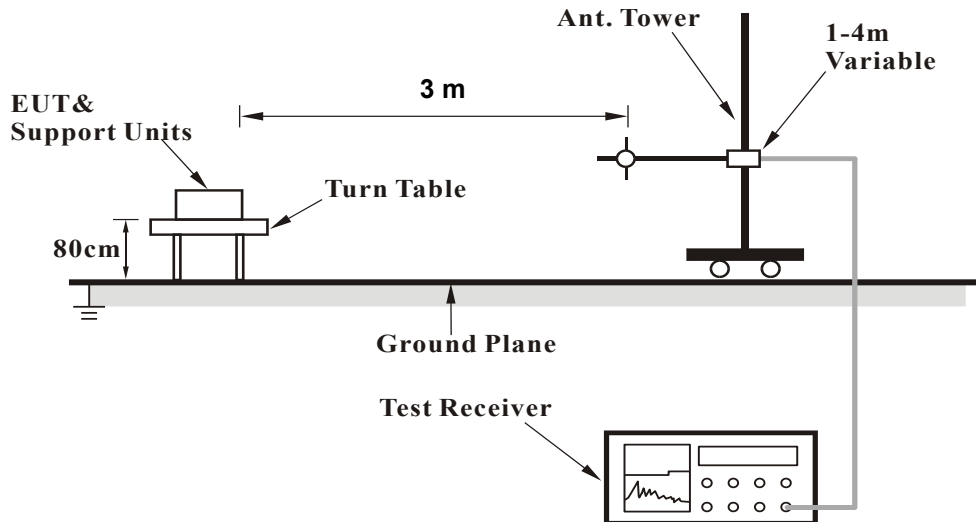
Kind of Test Site 3m Semi-Anechoic Chamber

Test Setup

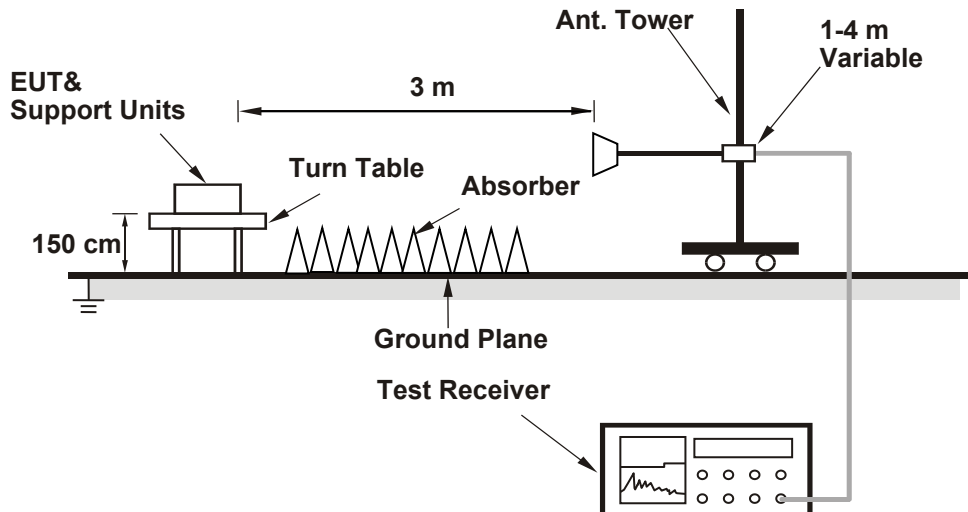
<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

Test Instruments

Please refer to 5.1.2 Instruments

Test Procedures**For Radiated Emissions below 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated Emissions above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.
4. The Radiated Emissions testing was performed in the X(E1), Y(H) and Z(E2) axis orientation. The worst-case Axis orientation is recorded in this test report.
5. The emission levels of other frequencies (including the 10th harmonic of the highest fundamental frequency) are very lower than the limit and are not shown in the test report.

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Test Results

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) – Amplifier (dB)

Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

Please refer to Appendix A.

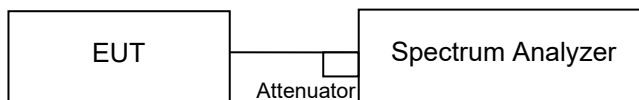
Note: The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated at least 20 dB below the permissible value to be reported.

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5.1.4 20 dB Bandwidth

Kind of Test Site Shielded room

Test Setup



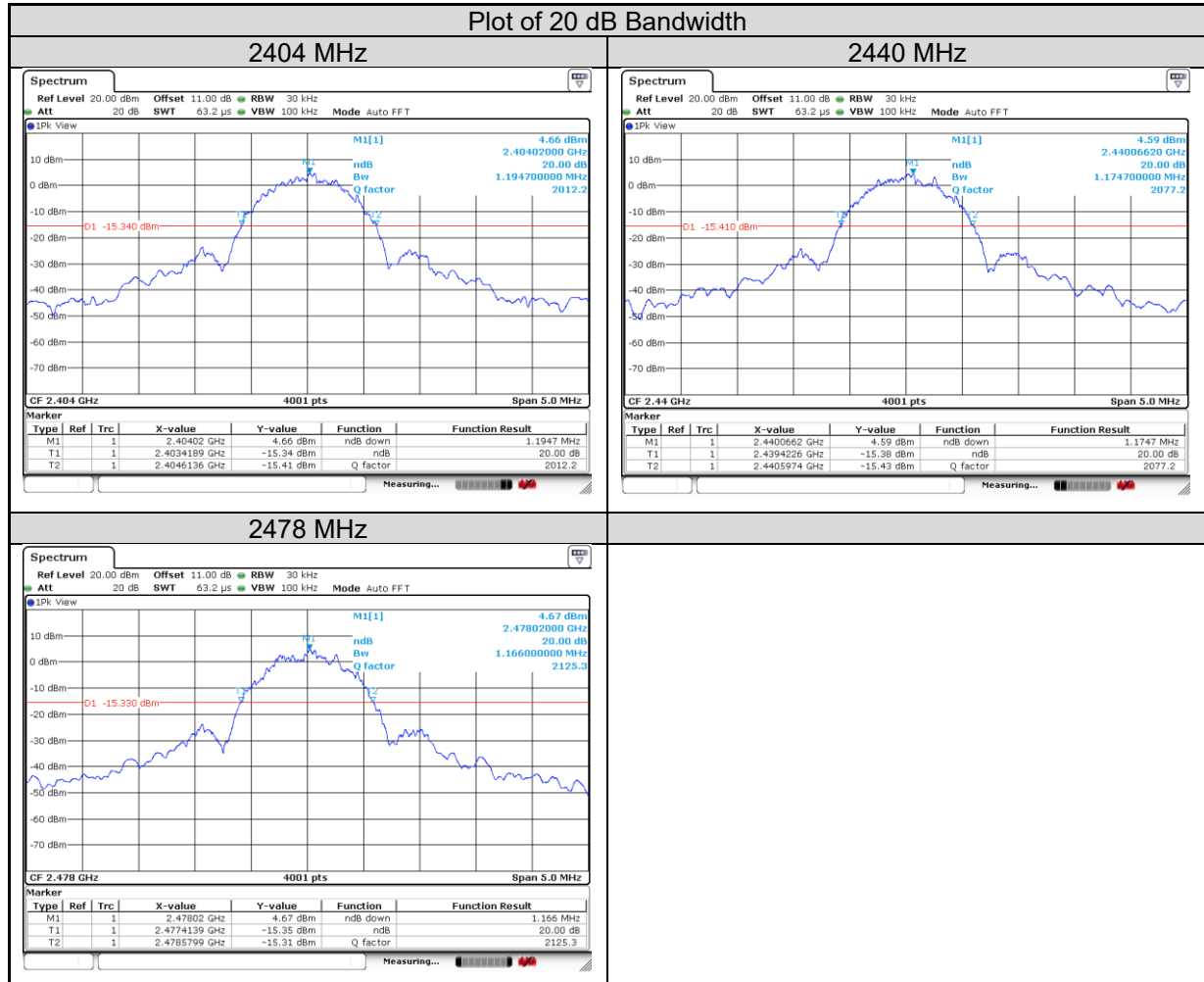
Test Instruments

Please refer to 5.1.2 Instruments

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1 % to 5 % of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to Sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

Test Results



5.2 Mains Emission

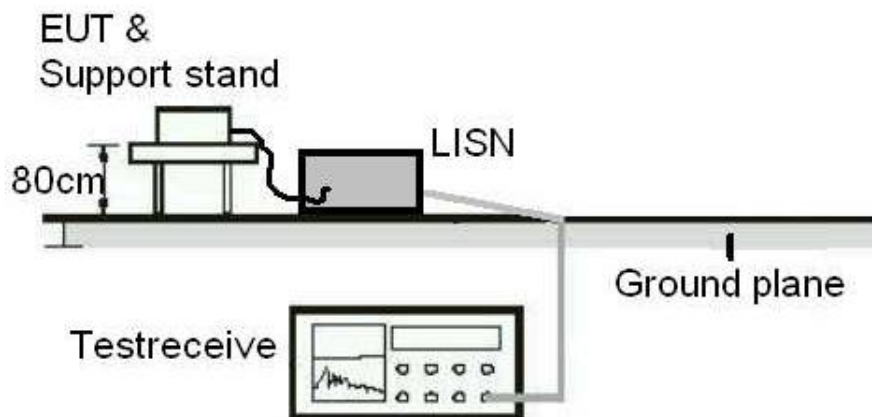
5.2.1 Mains Conducted Emission

Limit

Mains Conducted emissions as defined in §15.207 must comply with the mains conducted emission limits.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Two-Line V-Network	SCHWARZBECK	NSLK 8127	8127-00976	2026/01/07	2027/01/06
EMI Test Receiver	R&S	ESCI	101094	2025/11/19	2026/11/18

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Test Procedures

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz – 30 MHz.

Test Results

Please refer to Appendix A.

Appendix A: Test Results of Radiated Spurious Emissions & Mains

Conducted Emission Test

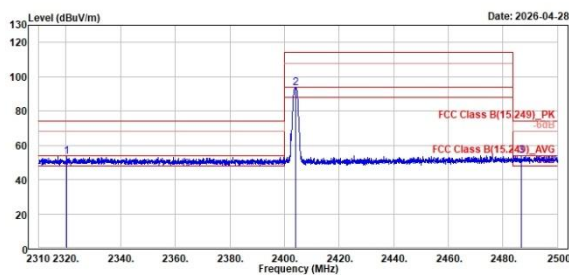
Fundamental Emissions

BLE CHANNEL SOUNDING

Low Channel (Horizontal) Peak



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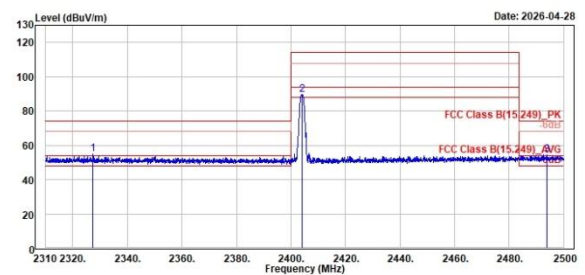


	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2320.26	53.38	16.75	36.63	74.00	-20.62	100	140 Peak	Horizontal	
2	2404.00	93.50	56.95	36.55	114.00	-20.50	100	140 Peak	Horizontal	
3	2486.61	53.91	16.69	37.22	74.00	-20.09	100	140 Peak	Horizontal	

Low Channel (Vertical) Peak



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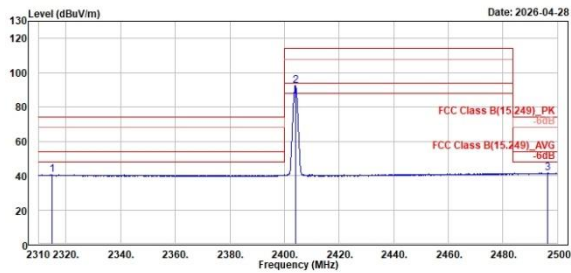
	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2327.48	54.81	18.17	36.64	74.00	-19.19	100	198 Peak	Vertical	
2	2404.00	89.56	53.01	36.55	114.00	-24.44	100	198 Peak	Vertical	
3	2493.87	54.41	17.14	37.27	74.00	-19.59	100	198 Peak	Vertical	

BLE CHANNEL SOUNDING

Low Channel (Horizontal) Average



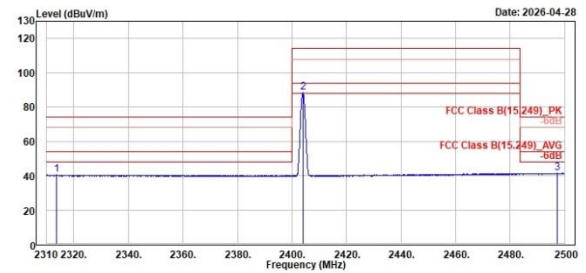
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Low Channel (Vertical) Average



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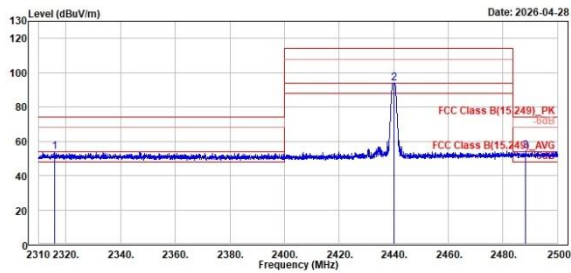


BLE CHANNEL SOUNDING

Middle Channel (Horizontal) Peak



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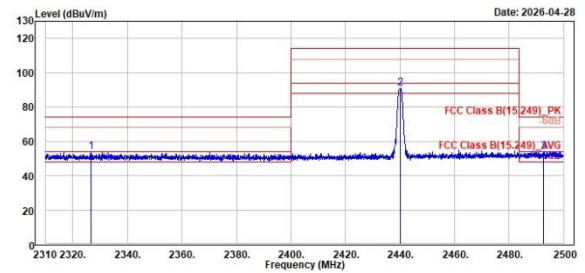


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	2315.75	53.92	17.29	36.63	74.00	-20.08	100	139	Peak	Horizontal		
2	2440.00	94.12	57.25	36.87	114.00	-19.88	100	139	Peak	Horizontal		
3	2488.32	54.13	16.90	37.23	74.00	-19.87	100	139	Peak	Horizontal		

Middle Channel (Vertical) Peak



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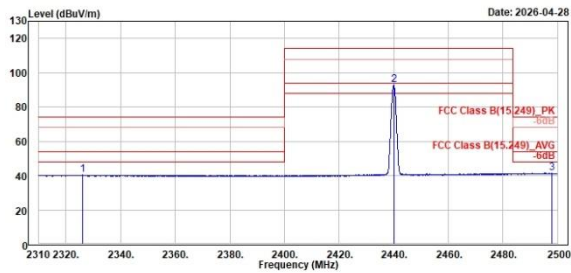
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	2326.58	53.97	17.33	36.64	74.00	-20.03	100	170	Peak	Vertical		
2	2440.00	90.72	53.85	36.87	114.00	-23.28	100	170	Peak	Vertical		
3	2492.73	54.08	16.81	37.27	74.00	-19.92	100	170	Peak	Vertical		

BLE CHANNEL SOUNDING

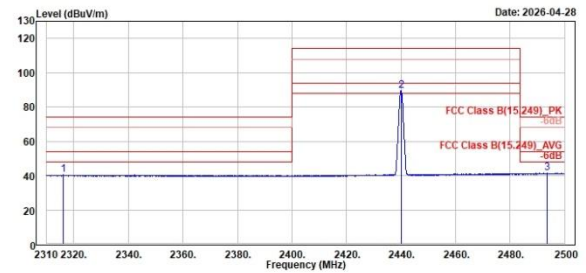
Middle Channel (Horizontal) Average



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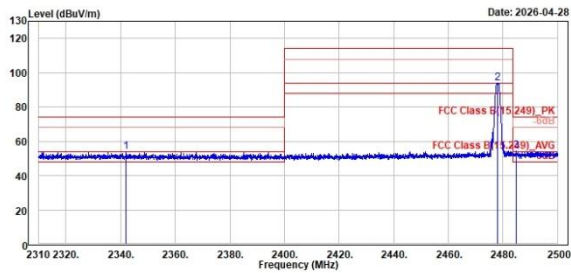


BLE CHANNEL SOUNDING

High Channel (Horizontal) Peak



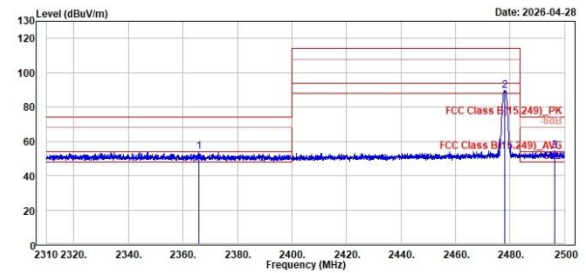
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Peak	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2341.92	53.99	17.33	36.66	74.00	-20.01	100	139	Peak	Horizontal		
2	2478.00	94.06	56.90	37.16	114.00	-19.94	100	139	Peak	Horizontal		
3	2484.90	54.50	17.29	37.21	74.00	-19.50	100	139	Peak	Horizontal		



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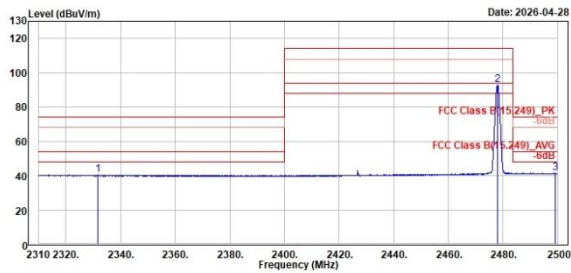
Peak	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2365.81	53.98	17.36	36.62	74.00	-20.02	100	172	Peak	Vertical		
2	2478.00	89.47	52.31	37.16	114.00	-24.53	100	172	Peak	Vertical		
3	2496.34	54.52	17.23	37.29	74.00	-19.48	100	172	Peak	Vertical		

BLE CHANNEL SOUNDING

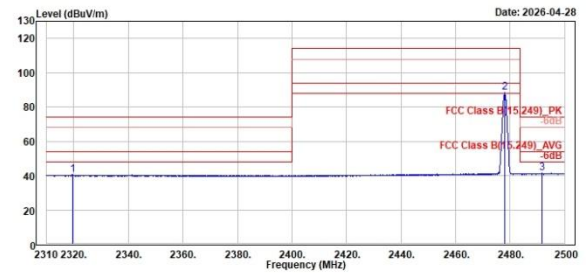
High Channel (Horizontal) Average



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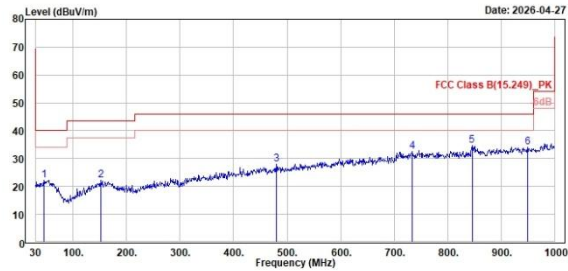
Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

BLE CHANNEL SOUNDING

Low Channel (Horizontal)



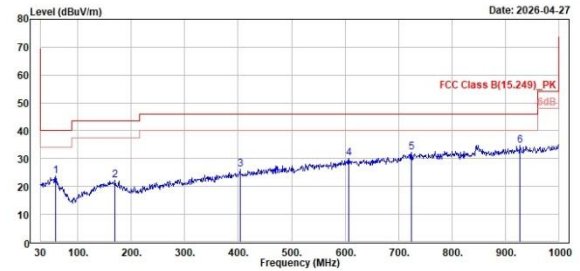
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	45.52	22.27	28.70	-6.43	40.00	-17.73	200	26	Peak	Horizontal		
2	151.25	22.08	28.62	-6.54	43.50	-21.42	200	360	Peak	Horizontal		
3	480.08	27.90	30.13	-2.23	46.00	-18.10	200	139	Peak	Horizontal		
4	734.22	32.43	30.34	2.09	46.00	-13.57	200	338	Peak	Horizontal		
5	845.77	34.59	30.69	3.90	46.00	-11.41	100	306	Peak	Horizontal		
6	949.56	34.02	28.87	5.15	46.00	-11.98	100	360	Peak	Horizontal		



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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	58.13	23.68	30.18	-6.50	40.00	-16.32	126	360	Peak	Vertical		
2	169.68	22.24	28.81	-6.57	43.50	-21.26	200	182	Peak	Vertical		
3	403.45	26.07	29.66	-3.59	46.00	-19.93	199	360	Peak	Vertical		
4	607.15	29.99	29.53	0.46	46.00	-16.01	100	286	Peak	Vertical		
5	724.52	32.10	30.02	2.08	46.00	-13.90	200	360	Peak	Vertical		
6	927.25	34.57	29.59	4.98	46.00	-11.43	200	280	Peak	Vertical		

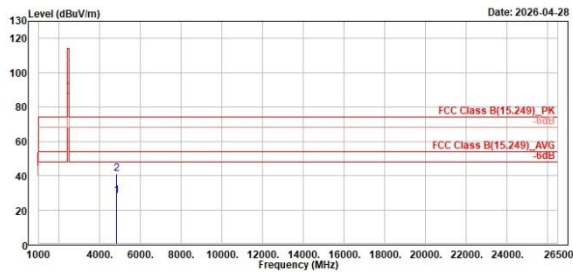
Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

BLE CHANNEL SOUNDING

Low Channel (Horizontal)



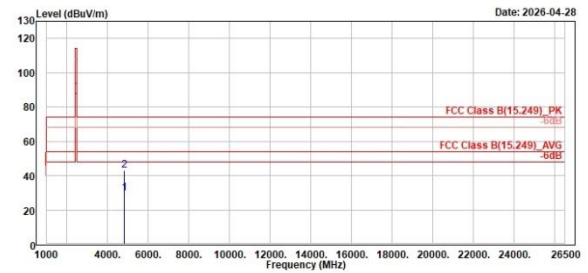
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4880.00	28.33	39.18	-10.85	54.00	-25.67	100	123	Average	Horizontal		
2	4905.00	41.12	51.97	-10.85	74.00	-32.88	100	123	Peak	Horizontal		



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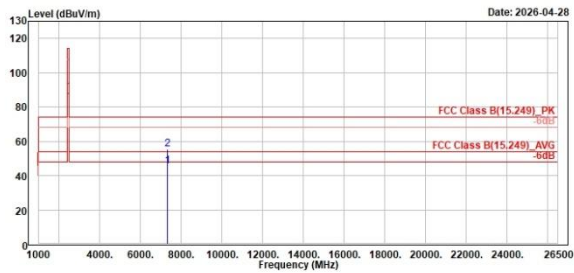
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4880.00	29.75	40.60	-10.85	54.00	-24.25	100	360	Average	Vertical		
2	4905.00	43.16	54.01	-10.85	74.00	-30.84	100	360	Peak	Vertical		

BLE CHANNEL SOUNDING

Middle Channel (Horizontal)



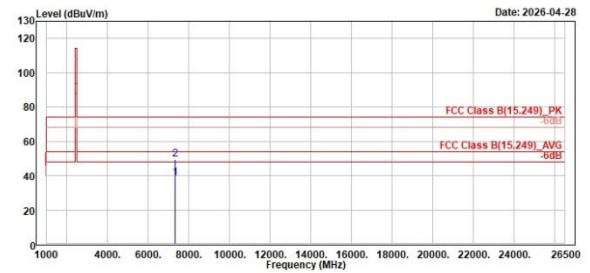
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	7320.00	45.24	53.95	-8.71	54.00	-8.76	200	293	Average	Horizontal		
2	7320.00	55.33	64.04	-8.71	74.00	-18.67	200	293	Peak	Horizontal		



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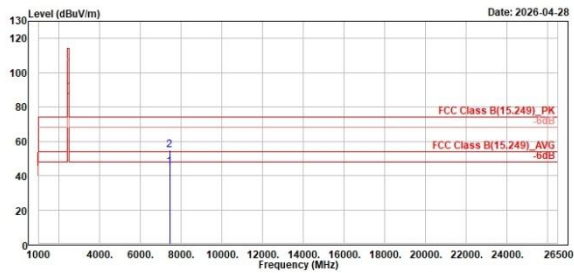
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	7320.00	38.79	47.50	-8.71	54.00	-15.21	100	134	Average	Vertical		
2	7320.00	49.54	58.25	-8.71	74.00	-24.46	100	134	Peak	Vertical		

BLE CHANNEL SOUNDING

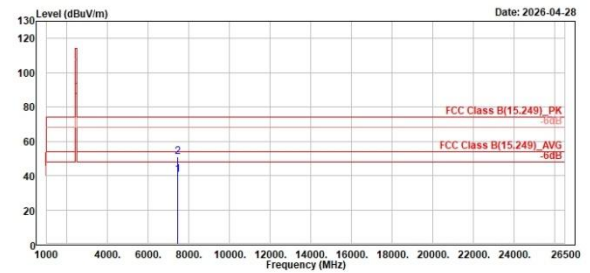
High Channel (Horizontal)



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Mains Conducted Emission, TX 150kHz ~ 30MHz

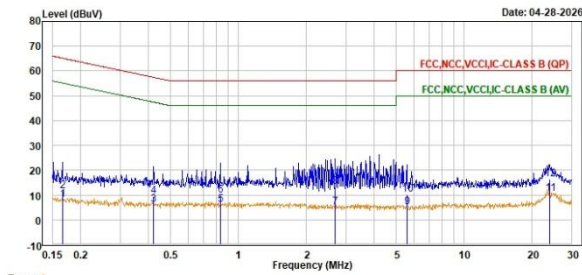
Worst Band

(Line)

(Neutral)



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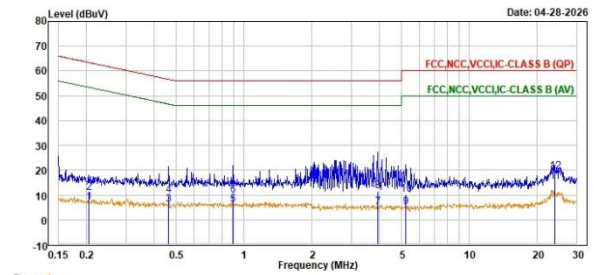


Trace: 1

	Freq	Level	Read	Limit	Over		
	MHz	dBuV	Level Factor	Line	Limit	Remark	Pol/Phase Note
	MHz	dBuV	dB	dBuV	dB		
1	0.17	7.98	-1.96	9.94	55.17	-47.19 Average	line1
2	0.17	11.40	1.46	9.94	65.17	-53.77 QP	line1
3	0.42	6.15	-3.81	9.96	47.43	-41.28 Average	line1
4	0.42	9.46	-0.50	9.96	57.43	-47.97 QP	line1
5	0.83	6.11	-3.92	10.03	46.00	-39.89 Average	line1
6	0.83	9.91	-0.12	10.03	56.00	-46.09 QP	line1
7	2.67	5.88	-5.02	10.10	46.00	-40.92 Average	line1
8	2.67	13.37	3.27	10.10	56.00	-42.63 QP	line1
9	5.59	4.90	-5.30	10.20	50.00	-45.10 Average	line1
10	5.59	10.06	-0.14	10.20	60.00	-49.94 QP	line1
11	24.09	10.38	-0.30	10.68	50.00	-39.62 Average	line1
12	24.09	16.40	5.72	10.68	60.00	-43.60 QP	line1



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Trace: 1

	Freq	Level	Read	Limit	Over		
	MHz	dBuV	Level Factor	Line	Limit	Remark	Pol/Phase Note
	MHz	dBuV	dB	dBuV	dB		
1	0.20	7.24	-2.69	9.93	53.43	-46.19 Average	neutral
2	0.20	10.74	0.81	9.93	63.43	-52.69 QP	neutral
3	0.46	6.11	-3.84	9.95	46.64	-40.53 Average	neutral
4	0.46	9.68	-0.27	9.95	56.64	-46.96 QP	neutral
5	0.89	6.02	-3.95	9.97	46.00	-39.98 Average	neutral
6	0.89	9.70	-0.27	9.97	56.00	-46.30 QP	neutral
7	3.93	4.94	-5.10	10.04	46.00	-41.06 Average	neutral
8	3.93	11.45	1.41	10.04	56.00	-44.55 QP	neutral
9	5.24	4.89	-5.21	10.10	50.00	-45.11 Average	neutral
10	5.24	10.34	0.24	10.10	60.00	-49.66 QP	neutral
11	23.97	15.29	4.68	10.61	50.00	-34.71 Average	neutral
12	23.97	19.31	8.70	10.61	60.00	-40.69 QP	neutral