

Prüfbericht-Nr.: <i>Test report no.:</i>	CN26E1P8 001	Auftrags-Nr.: <i>Order no.:</i>	48308148	Seite 1 von 27 Page 1 of 27
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2026-07-22	
Auftraggeber: <i>Client:</i>	Microchip Technology Inc. 2355 West Chandler Blvd. Chandler, Arizona 85224-6199, United States			
Prüfgegenstand: <i>Test item:</i>	IEEE 802.11 b/g/n Link Controller Module			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	ATWILC1000-MR110UB			
Auftrags-Inhalt: <i>Order content:</i>	FCC Part 15C Test report (WiFi 2.4GHz)			
Prüfgrundlage: <i>Test specification:</i>	FCC 47CFR Part 15: Subpart C Section 15.247			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2026-07-30			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A004350685-006 A003648659-009, 023			
Prüfzeitraum: <i>Testing period:</i>	2026-08-06 - 2026-08-12			
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			
zusammengestellt von: <i>compiled by:</i>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i>	2026-08-20	Ausstellungsdatum: <i>Issue date:</i>	2026-08-20	
Stellung / Position:	Senior Project Manager	Stellung / Position:	Project Engineer	
Sonstiges / Other:	This report proposes alternative components for C6, C7, C15, C16, C23, C24, and Y1, featuring capacitance changes for C6/C7 (10pF) and a tighter frequency tolerance for Y1 (SIWARD, XTL581150-M197-002). To evaluate these changes, only the Output Power, RSE and Mains Conducted Emissions tests were performed. For the other test results, please refer to the TUV report No. CN24LZTX 001 and the original report D51020R1 from COMPATIBLE ELECTRONICS INC..			
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 P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend 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 N/A = not applicable	4 = sufficient 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.
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.
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>
<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	15.247(b) & 15.203	Antenna Requirement	Pass
5.1.2	15.247(b)(3)	Peak Output Power	Pass
-	15.247(a)(2)	6 dB Bandwidth	Note 1
-	2.1049	99% Occupied Bandwidth	Note 1
-	15.247(e)	Power Spectral Density	Note 1
-	15.247(d)	Conducted Spurious Emissions and Band Edges	Note 1
5.1.3	15.247(d) & 15.205 & 15.209	Radiated Spurious Emissions and Band Edges	Pass
5.2.1	15.207	Mains Conducted Emission	Pass

Note:

1. Please refer to TUV report No. CN24LZTX 001 and the original report D51020R1 from COMPATIBLE ELECTRONICS INC.
2. 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	2026-08-20

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 15.247
FCC 47CFR Part 2: Subpart J Section 2.1049
ANSI C63.10-2020
KDB 558074 D01 15.247 Meas Guidance v05r02

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, 458-19, Sec. 2, Fenliao Rd., Linkou Dist.,
New Taipei City 244
Taiwan (R.O.C.)
FCC Registration No.: 180491
ISED Registration No.: 25563

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 IEEE 802.11 b/g/n Link Controller Module. It contains a WLAN 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	IEEE 802.11 b/g/n Link Controller Module
Type Identification	ATWILC1000-MR110UB
FCC ID	2ADHKATWILC1000U

Technical Specification of EUT

Item	EUT information
Operating Frequency	2412 MHz ~ 2462 MHz
Channel Spacing	5 MHz
Channel Number	802.11b/g/n HT20: 11
Data Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
Operation Voltage	3.0 Vdc ~ 4.2 Vdc (Typical = 3.3 Vdc)
Modulation	DSSS (DBPSK, DQPSK, CCK) OFDM (BPSK, QPSK, 16QAM, 64QAM)
Maximum Output Power (mW)	802.11b: 105.20 802.11g: 161.06 802.11n HT20: 139.32
Antenna Information	Refer to Note for antenna list
Accessory Device	Refer to 4.4

Note:

Antenna List

S/no.	P/N	Vendor	Antenna Gain @ 2.4GHz Band	Antenna type
1	RFA-02-P33	Aristotle	2 dBi	PCB
2	RFA-02-D3	Aristotle	2 dBi	Dipole
3	RFA-02-L2H1	Aristotle	2 dBi	Dipole
4	RFA-02-P05	Aristotle	2 dBi	PCB
5	RFA-02-C2M2	Aristotle	2 dBi	Dipole
6	86254	Delock	2 dBi	PCB
7	W3525B039	Pulse Electronics Corporation	2 dBi	PCB
8	RFDPA870920IMLB301	WALSIN	1.84 dBi	Dipole
9	RN-SMA-S	Microchip	0.56 dBi	Dipole

* S/no. 3 and 4 are selected for worst-case.

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 test modes were adapted accordingly in reference to the instructions for use.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output expected by the customer and is going to be fixed on the firmware of the final end product.

Table for Parameters of Test Software Setting

Mode	802.11b	802.11g	802.11n HT20
Channel	11	6	6
Frequency (MHz)	2462	2437	2437
Power Setting	-7	-2	-3

4.2 Carrier Frequency and Channel

802.11b, 802.11g and 802.11n HT20:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

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	MCHPRT2 ver1.7.6.1
---------------	--------------------

The samples were used as follows:

A004350685-006

A003648659-009, 023

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

Modulation Mode	Tx Function
802.11b	1TX (SISO)
802.11g	1TX (SISO)
802.11n HT20	1TX (SISO)

EUT Configure Mode	Applicable To				Description
	Antenna Port Conducted Measurement	Radiated Spurious Emissions above 1 GHz	Radiated Spurious Emissions below 1 GHz	Mains Conducted Emission	
-	√	√	√	√	-

Note:

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

Antenna Port Conducted Measurement

- ☒ 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	Mode	Available Channel	Tested Channel	Date Rate (Mbps)
Power Only	802.11b	1 to 11	11	1.0
	802.11g	1 to 11	6	6.0
	802.11n HT20	1 to 11	6	MCS0

*Only the worst-case channel has been evaluated.

Radiated Spurious Emissions (Above 1 GHz)

- ☒ 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	Mode	Available Channel	Tested Channel	Date Rate (Mbps)
-	802.11b	1 to 11	11	1.0
-	802.11g	1 to 11	6	6.0
-	802.11n HT20	1 to 11	6	MCS0

Radiated Spurious Emissions (Below 1 GHz)

- ☒ 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	Mode	Available Channel	Tested Channel	Date Rate (Mbps)
-	802.11g	1 to 11	6	6.0

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- ☒ 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	Mode	Available Channel	Tested Channel	Date Rate (Mbps)
-	802.11g	1 to 11	6	6.0

Test Condition

Test Item	Ambient Temperature	Relative Humidity	Tested by
Conducted Measurement	23.2-23.8 °C	62-63 %	Jerome Chang
Radiated Spurious Emissions above 1 GHz	25.5-27.8 °C	54-59 %	Chuan Chu
Radiated Spurious Emissions below 1 GHz	25.5-27.8 °C	54-59 %	Chuan Chu
Mains Conducted Emission	23.5 °C	66 %	Chuan Chu

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4.4 Special Accessories and Auxiliary Equipment

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

Accessory of EUT

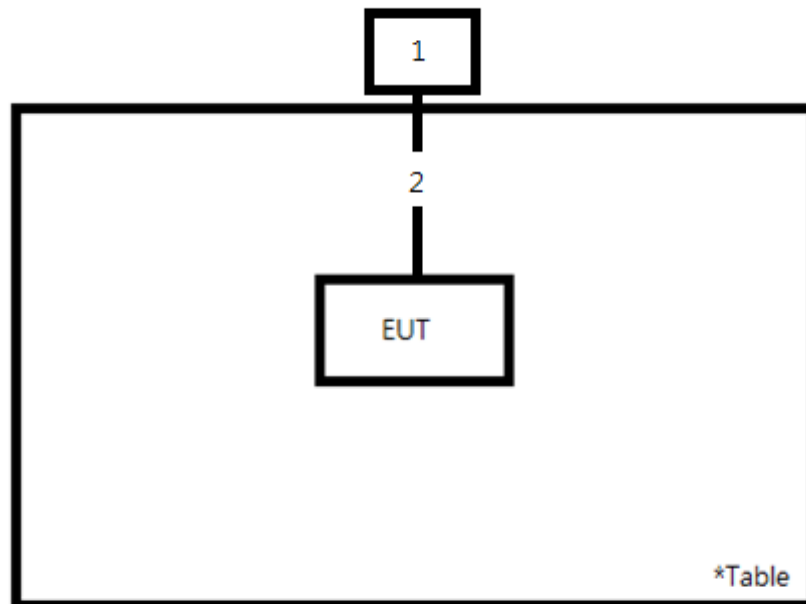
None.

Support Unit

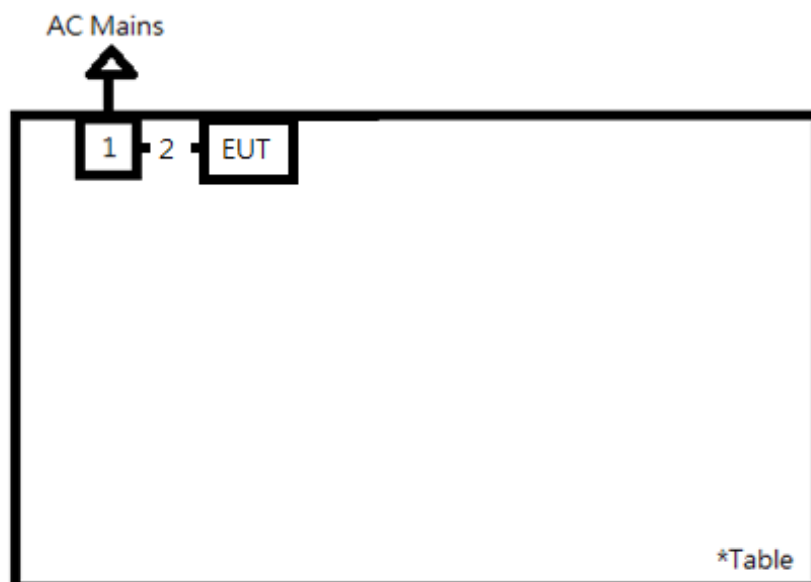
Support Unit								
No.	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)	Remark
Radiated and Mains Conducted Tests								
1	Power Supply	GWINSTEK	GPS-3303	-	-	-	-	
2	Cable	TUV	TUV-01	-	-	-	150	-
Conducted Test								
-	Notebook	Lenovo	81BL	MP1DCD6Y	-	-	-	-
-	Power Supply	GWINSTEK	GPS-3303	GEU915620	-	-	-	-

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 antenna information is as listed below.

The antenna is with no possibility of replacement with a non-approved antenna by the end-user.

Therefore, the EUT is considered to comply with this provision.

S/no.	P/N	Vendor	Antenna Gain @ 2.4GHz Band	Antenna type
1	RFA-02-P33	Aristotle	2 dBi	PCB
2	RFA-02-D3	Aristotle	2 dBi	Dipole
3	RFA-02-L2H1	Aristotle	2 dBi	Dipole
4	RFA-02-P05	Aristotle	2 dBi	PCB
5	RFA-02-C2M2	Aristotle	2 dBi	Dipole
6	86254	Delock	2 dBi	PCB
7	W3525B039	Pulse Electronics Corporation	2 dBi	PCB
8	RFDPA870920IMLB301	WALSIN	1.84 dBi	Dipole
9	RN-SMA-S	Microchip	0.56 dBi	Dipole

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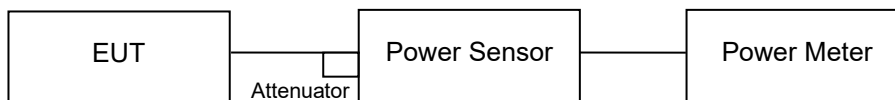
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5.1.2 Peak Output Power

Limit 1 watt (30 dBm)

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Power Meter	Anritsu	ML2495A	1901008	2026/02/24	2027/02/23	2026/08/06	2026/08/12
Power Sensor	Anritsu	MA2411B	1725269	2026/02/24	2027/02/23	2026/08/06	2026/08/12

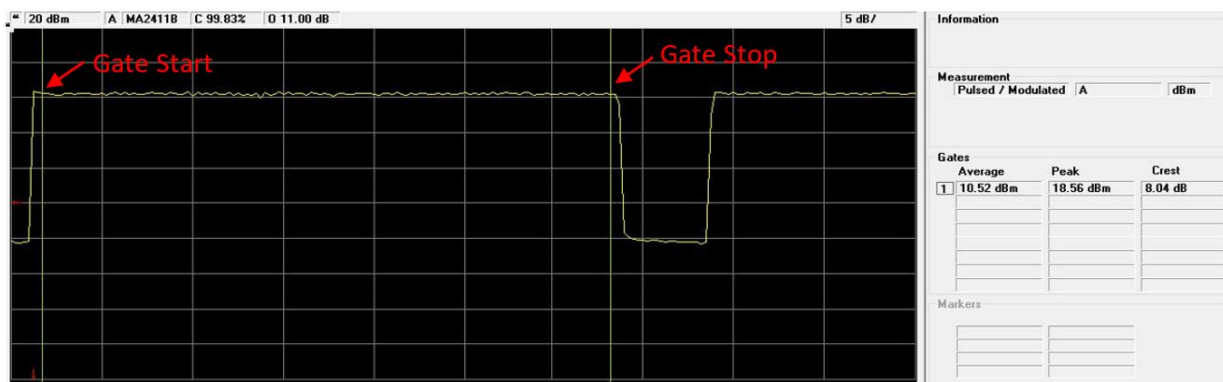
Test Procedures

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

Gate Setup:

1. Select the [Gates] tab in the software.
2. Check the box (e.g., Gate 1) to display it on the trace.
3. Set Gate Position
 - Drag the gate line with the mouse to the desired point on the waveform, or
 - Enter Values using the [Set] button and input start/stop times.
4. Switch to the next measurement channel and repeat the same gate setup procedure.
5. The instrument calculates average/peak power only within the defined gate interval.



Test Result
Peak Output Power
<802.11b>

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (dBm)
		(dBm)	(mW)	
11	2462	20.22	105.20	30

<802.11g>

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (dBm)
		(dBm)	(mW)	
6	2437	22.07	161.06	30

<802.11n HT20>

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (dBm)
		(dBm)	(mW)	
6	2437	21.44	139.32	30

Average Power
<802.11b>

Channel	Channel Frequency (MHz)	Average Power	
		(dBm)	(mW)
11	2462	17.25	53.09

<802.11g>

Channel	Channel Frequency (MHz)	Average Power	
		(dBm)	(mW)
6	2437	18.64	73.11

<802.11n HT20>

Channel	Channel Frequency (MHz)	Average Power	
		(dBm)	(mW)
6	2437	17.62	57.81

5.1.3 Radiated Spurious Emissions and Band Edges

Limit

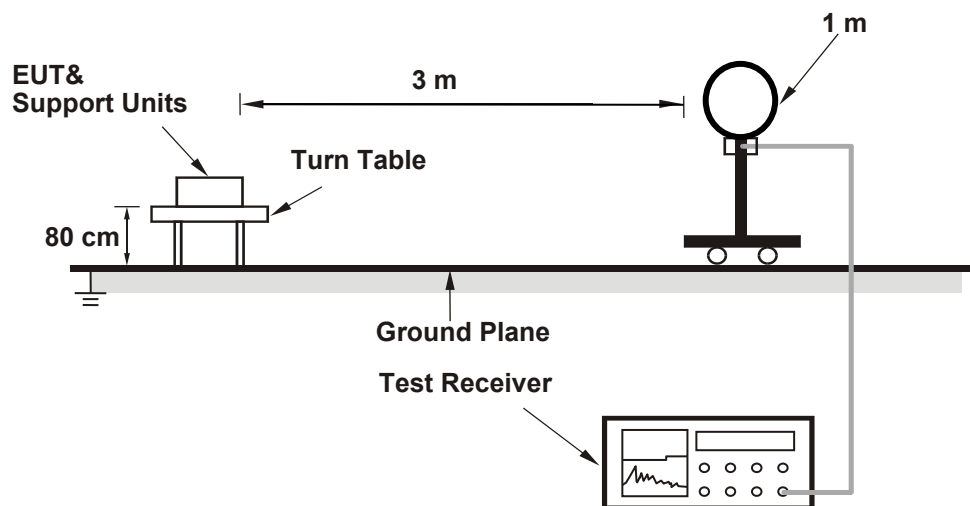
Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).

Emissions radiated outside the restricted and authorized frequency bands must either comply with the radiated emission limits specified for the restricted bands or in §15.247(d).

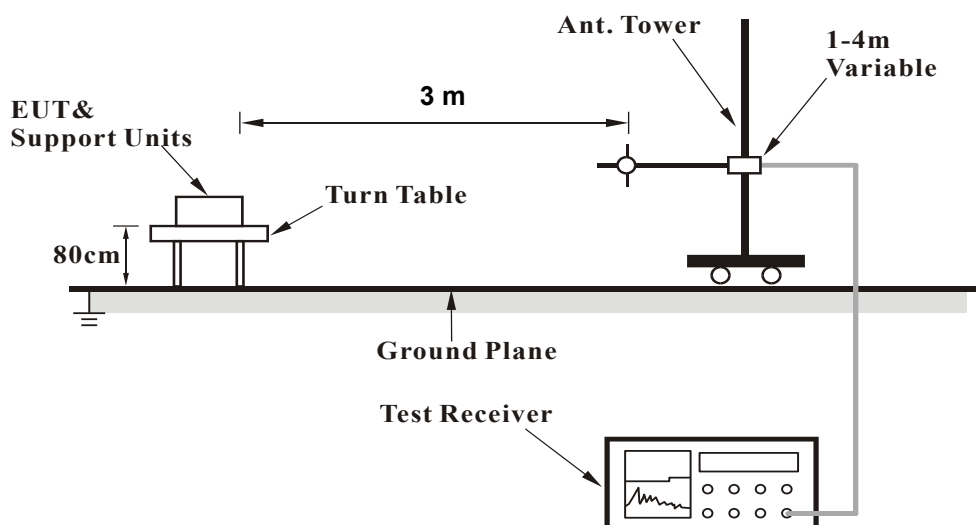
Kind of Test Site 3m Semi-Anechoic Chamber

Test Setup

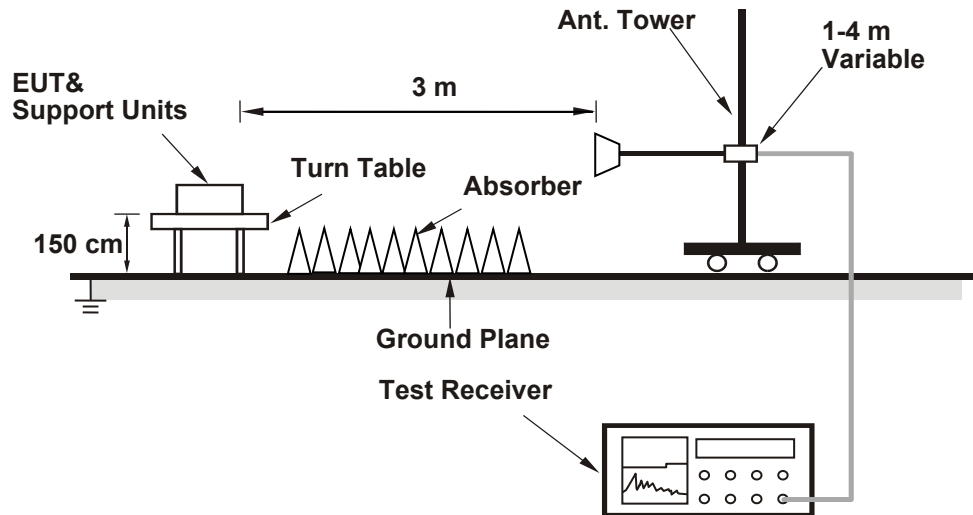
<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



<Radiated Emissions above 1 GHz>



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

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Test Instruments

Test Date: 2026/08/07 ~ 2026/08/10

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Above 1GHz					
Signal Analyzer	R&S	FSV40	101508	2026/04/28	2027/04/27
Horn Antenna	ETS-Lindgren	3117	00218930	2025/12/11	2026/12/10
Amplifier	EM	EM01G18GA	060967	2026/03/31	2027/03/30
HF-AMP + AC source	EMCI	EMC184045SE	980657	2026/02/06	2027/02/05
Horn Antenna	SCHWARZBECK	BBHA 9170	00887	2026/03/26	2027/03/25
RF Cable	EM	EM102A	EM102A-KMKM-700	2026/05/08	2027/05/07
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	800901/2EA	2025/10/23	2026/10/22
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	801027/2EA	2025/10/23	2026/10/22
3G High Pass Filter	Warison	WFIL-H3000-12000F	WRP19FWC2B2	2026/06/01	2027/05/31
7G High Pass Filter	EMCI	HPF0718	G001	2026/04/10	2027/04/09
Test Software	Audix E3	15914a_20191106_tuv	PK-001087	N/A	N/A
30MHz ~ 1GHz					
Receiver	R&S	ESR7	102108	2026/07/02	2027/07/01
Bilog Antenna	SCHWARZBECK	VULB-9168	00951	2026/05/11	2027/05/10
LF-AMP	Agilent	8447D	2944A107722	2026/03/19	2027/03/18
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104EA	800056/4EA	2026/03/20	2027/03/19
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	804680/4	2026/03/20	2027/03/19
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	MY37202/4	2026/03/20	2027/03/19
Test Software	Audix E3	15914a_20191106_tuv	PK-001087	N/A	N/A

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. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. 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.
6. 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.

5.2 Mains Emission

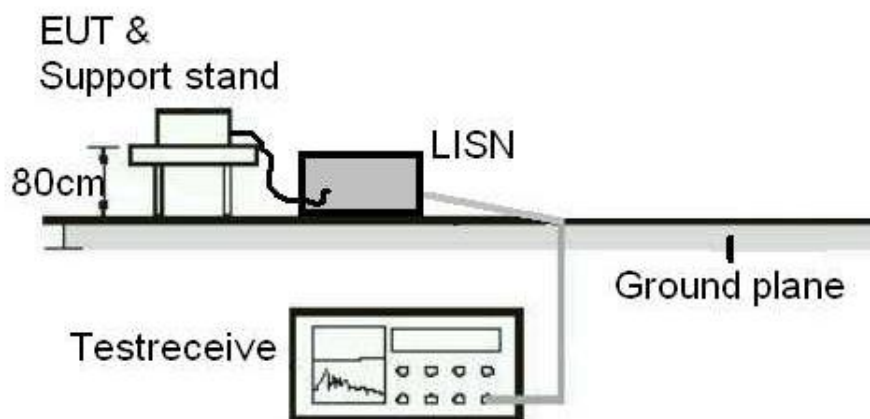
5.2.1 Mains Conducted Emission

Limit

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

Kind of Test Site Shielded room

Test Setup



Test Instruments

Test Date: 2026/07/10

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

Dipole Antenna, Ant No. 3

Band Edges, 2.31GHz ~ 2.5GHz

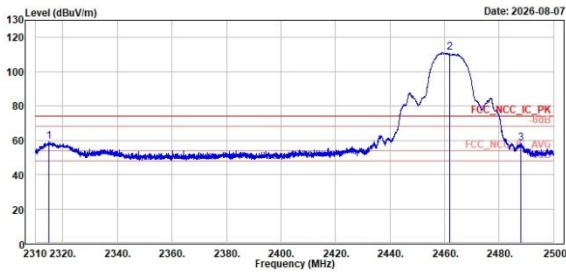
802.11b

High Channel (Horizontal) Peak

High Channel (Vertical) Peak



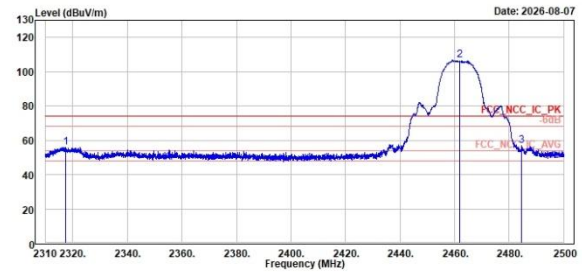
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	Level Factor	Line	Limit	dB	cm	deg		
1	2314.98	59.17	22.59	36.58	74.00	-14.83	269	294 Peak	Horizontal	
2 *	2462.00	111.45	74.04	37.41	74.00	37.45	269	294 Peak	Horizontal	
3	2487.92	58.36	20.87	37.49	74.00	-15.64	269	294 Peak	Horizontal	



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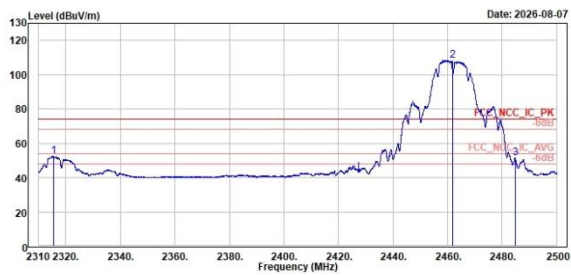
	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	Level Factor	Line	Limit	dB	cm	deg		
1	2317.45	55.79	19.18	36.61	74.00	-18.21	332	31 Peak	Vertical	
2 *	2462.00	106.78	69.37	37.41	74.00	32.78	332	31 Peak	Vertical	
3	2484.42	56.92	19.44	37.48	74.00	-17.08	332	31 Peak	Vertical	

802.11b

High Channel (Horizontal) Average



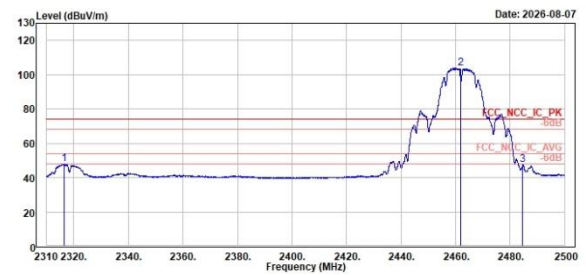
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2315.62	52.27	15.67	36.60	54.00	-1.73	269	294	Average	Horizontal		
2	2462.00	108.44	71.83	37.41	54.00	54.44	269	294	Average	Horizontal		
3	2484.76	51.45	13.97	37.48	54.00	-2.55	269	294	Average	Horizontal		



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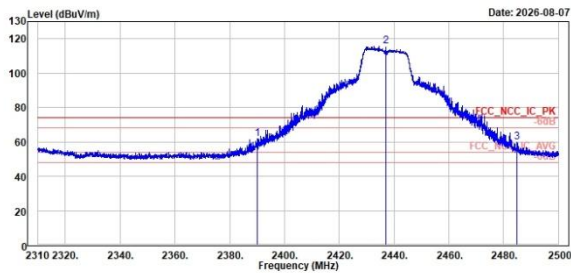
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2315.54	47.70	11.09	36.61	54.00	-6.30	332	31	Average	Vertical		
2	2462.00	103.00	66.39	37.41	54.00	49.00	332	31	Average	Vertical		
3	2484.69	47.54	10.06	37.48	54.00	-6.46	332	31	Average	Vertical		

802.11g

Middle Channel (Horizontal) Peak



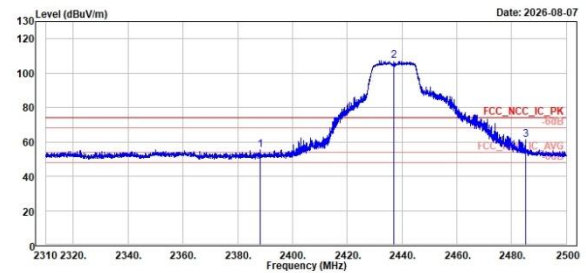
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2389.95	61.76	24.99	36.77	74.00	-12.24	269	292	Peak	Horizontal		
2 *	2437.00	115.69	78.49	37.20	74.00	41.69	269	292	Peak	Horizontal		
3	2484.84	59.59	22.11	37.48	74.00	-14.41	269	292	Peak	Horizontal		



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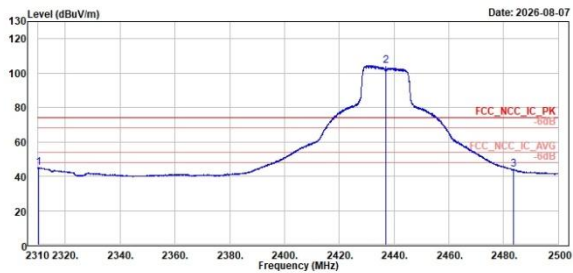
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2388.28	55.61	18.83	36.78	74.00	-18.39	330	31	Peak	Vertical		
2 *	2437.00	107.09	69.89	37.20	74.00	33.09	330	31	Peak	Vertical		
3	2485.07	61.08	23.60	37.48	74.00	-12.92	330	31	Peak	Vertical		

802.11g

Middle Channel (Horizontal) Average



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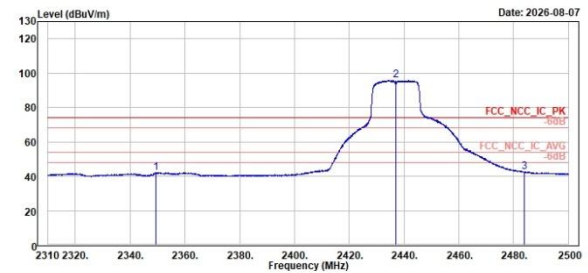


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2310.38	44.94	8.41	36.53	54.00	-9.06	269	292	Average	Horizontal		
2 *	2437.00	104.33	67.13	37.20	54.00	50.33	269	292	Average	Horizontal		
3	2483.58	44.03	6.55	37.48	54.00	-9.97	269	292	Average	Horizontal		

Middle Channel (Vertical) Average



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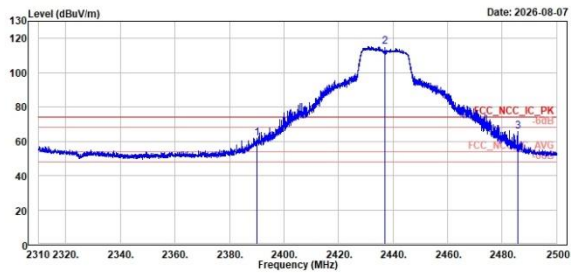
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2349.48	42.06	5.10	36.96	54.00	-11.94	330	31	Average	Vertical		
2 *	2437.00	95.80	58.60	37.20	54.00	41.80	330	31	Average	Vertical		
3	2483.85	42.62	5.14	37.48	54.00	-11.38	330	31	Average	Vertical		

802.11n HT20

Middle Channel (Horizontal) Peak



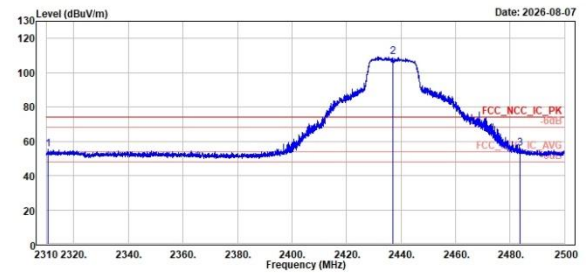
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2389.99	61.90	25.13	36.77	74.00	-12.10	270	292	Peak	Horizontal		
2 *	2437.00	115.30	78.10	37.20	74.00	41.30	270	292	Peak	Horizontal		
3	2485.71	65.86	28.38	37.48	74.00	-8.14	270	292	Peak	Horizontal		



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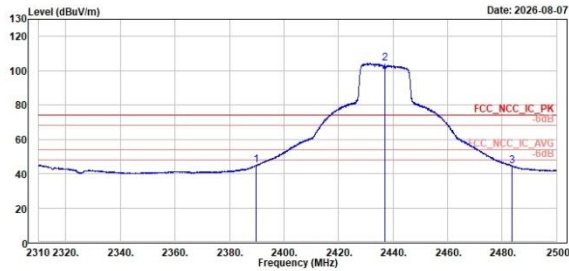
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2310.46	55.19	18.66	36.53	74.00	-18.81	339	30	Peak	Vertical		
2 *	2437.00	109.15	71.95	37.20	74.00	35.15	339	30	Peak	Vertical		
3	2483.74	55.68	18.20	37.48	74.00	-18.32	339	30	Peak	Vertical		

802.11n HT20

Middle Channel (Horizontal) Average



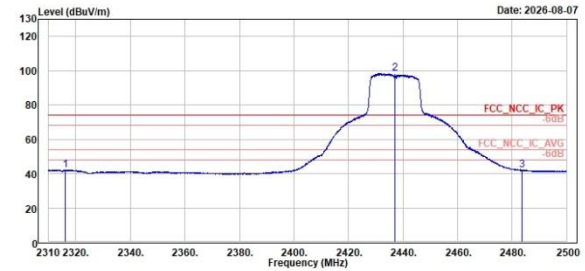
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2389.88	45.09	8.32	36.77	54.00	-8.91	270	292	Average	Horizontal		
2 *	2437.00	104.38	67.18	37.20	54.00	50.38	270	292	Average	Horizontal		
3	2483.51	44.67	7.19	37.48	54.00	-9.33	270	292	Average	Horizontal		



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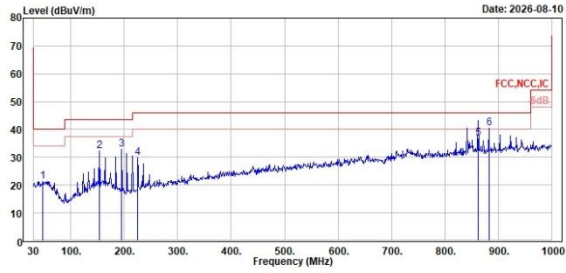
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2316.00	42.16	5.56	36.60	54.00	-11.84	339	30	Average	Vertical		
2 *	2437.00	98.29	61.09	37.20	54.00	44.29	339	30	Average	Vertical		
3	2483.51	42.15	4.67	37.48	54.00	-11.85	339	30	Average	Vertical		

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

Horizontal



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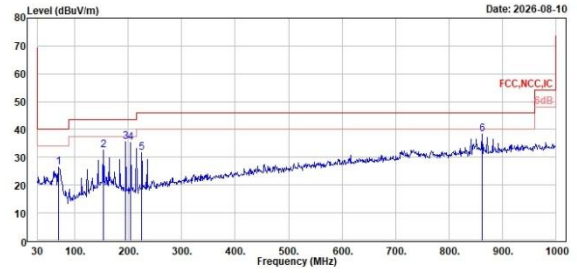


Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	47.46	21.38	28.58	-7.20	40.00	-18.62	114	360	Peak	Horizontal	
2	153.19	32.15	39.24	-7.09	43.50	-11.35	200	220	Peak	Horizontal	
3	194.90	32.75	42.19	-9.44	43.50	-10.75	100	199	Peak	Horizontal	
4	224.97	29.92	39.11	-9.19	46.00	-16.08	100	202	Peak	Horizontal	
5	862.26	36.75	32.69	4.06	46.00	-9.25	100	326	QP	Horizontal	
6	862.63	40.57	36.23	4.34	46.00	-5.43	100	330	Peak	Horizontal	

Vertical



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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	dB	cm	deg			
1	68.80	26.53	36.05	-9.52	40.00	-13.47	106	360	Peak	Vertical	
2	153.19	32.55	39.64	-7.09	43.50	-10.95	100	271	Peak	Vertical	
3	194.90	35.68	45.12	-9.44	43.50	-7.82	100	264	Peak	Vertical	
4	204.60	35.27	45.14	-9.87	43.50	-8.23	100	253	Peak	Vertical	
5	224.97	31.55	40.74	-9.19	46.00	-14.45	100	202	Peak	Vertical	
6	862.26	38.44	34.38	4.06	46.00	-7.56	200	0	Peak	Vertical	

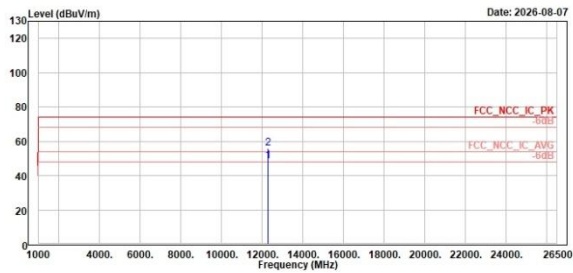
Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

802.11b

High Channel (Horizontal)



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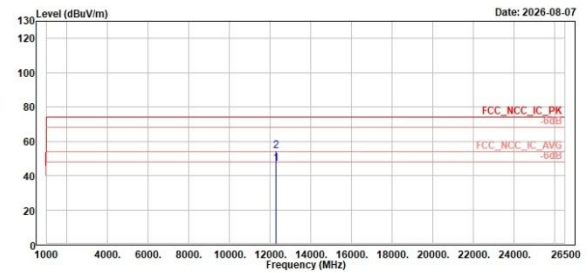


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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	12310.00	48.25	38.02	10.23	54.00	-5.75	120	100	Average	Horizontal		
2	12310.00	55.83	45.60	10.23	74.00	-18.17	120	100	Peak	Horizontal		

High Channel (Vertical)



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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	12310.00	47.16	36.93	10.23	54.00	-6.84	390	176	Average	Vertical		
2	12310.00	54.38	44.15	10.23	74.00	-19.62	390	176	Peak	Vertical		

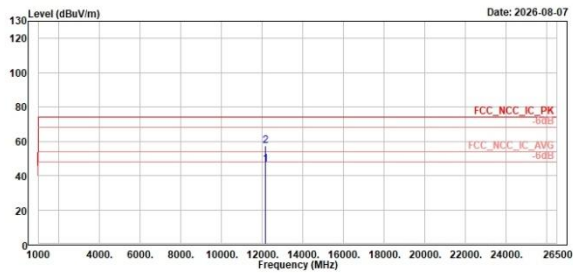
802.11g

Middle Channel (Horizontal)

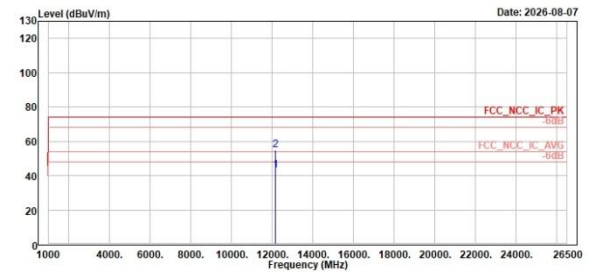
Middle Channel (Vertical)



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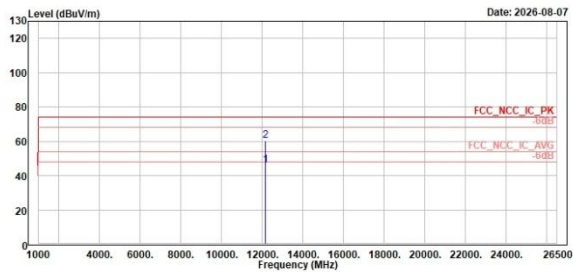


802.11n HT20

Middle Channel (Horizontal)



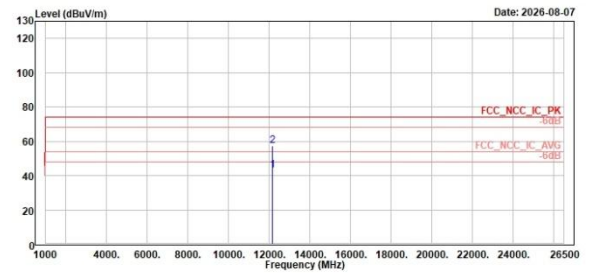
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Middle Channel (Vertical)



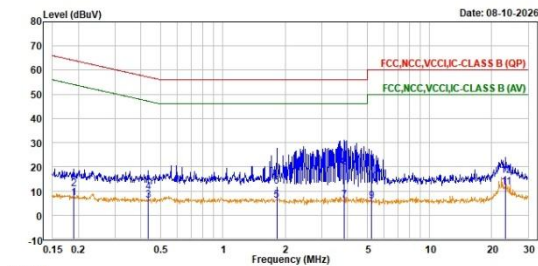
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Mains Conducted Emission, 150kHz ~ 30MHz

Worst Mode

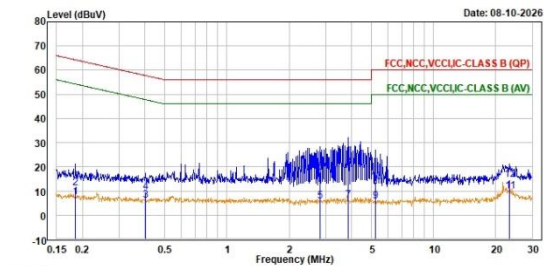
Line



Trace: 1

	Freq	Level	Read	Limit	Over	Remark	Pol/Phase	Note
	MHz	dBuV	Level Factor	Line	Limit			
	MHz	dBuV	dB	dBuV	dB			
1	0.19	7.20	-2.73	9.93	54.01	-46.81 Average	line1	
2	0.19	10.78	0.85	9.93	64.01	-53.23 QP	line1	
3	0.43	6.16	-3.79	9.95	47.18	-41.02 Average	line1	
4	0.43	9.43	-0.52	9.95	57.18	-47.75 QP	line1	
5	1.82	6.25	-3.81	10.06	46.00	-39.75 Average	line1	
6	1.82	12.04	1.98	10.06	56.00	-43.96 QP	line1	
7	3.87	6.18	-3.96	10.14	46.00	-39.82 Average	line1	
8	3.87	19.76	9.62	10.14	56.00	-36.24 QP	line1	
9	5.22	5.61	-4.58	10.19	50.00	-44.39 Average	line1	
10	5.22	13.58	3.39	10.19	60.00	-46.42 QP	line1	
11	23.38	11.44	0.78	10.66	50.00	-38.56 Average	line1	
12	23.38	16.43	5.77	10.66	60.00	-43.57 QP	line1	

Neutral



Trace: 1

	Freq	Level	Read	Limit	Over	Remark	Pol/Phase	Note
	MHz	dBuV	Level Factor	Line	Limit			
	MHz	dBuV	dB	dBuV	dB			
1	0.18	7.40	-2.52	9.92	54.26	-46.86 Average	neutral	
2	0.18	11.17	1.25	9.92	64.26	-53.09 QP	neutral	
3	0.40	6.14	-3.79	9.93	47.00	-41.66 Average	neutral	
4	0.40	9.41	-0.52	9.93	57.80	-48.39 QP	neutral	
5	2.81	5.63	-4.38	10.01	46.00	-40.37 Average	neutral	
6	2.81	17.56	7.55	10.01	56.00	-38.44 QP	neutral	
7	3.87	6.11	-3.93	10.04	46.00	-39.89 Average	neutral	
8	3.87	19.60	9.56	10.04	56.00	-36.40 QP	neutral	
9	5.22	5.59	-4.51	10.10	50.00	-44.41 Average	neutral	
10	5.22	13.69	3.59	10.10	60.00	-46.31 QP	neutral	
11	23.38	9.70	-0.89	10.59	50.00	-40.30 Average	neutral	
12	23.38	14.65	4.06	10.59	60.00	-45.35 QP	neutral	

PCB Antenna, Ant No. 4
Band Edges, 2.31GHz ~ 2.5GHz

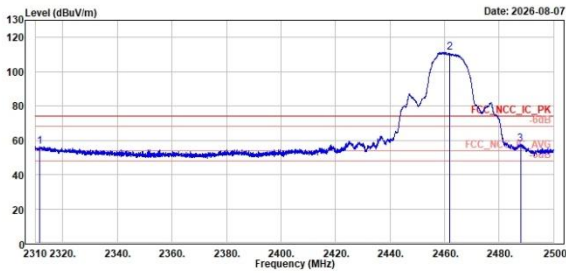
802.11b

High Channel (Horizontal) Peak

High Channel (Vertical) Peak



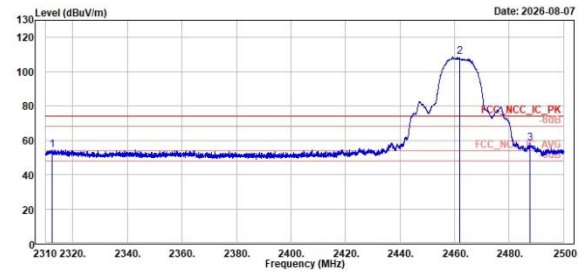
TÜV Rheinland Taiwan Ltd.
No. 458-18, Sec 2, Fenliao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)
Tel: +886-2172-1000 Fax: +886-2172-1322



	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2311.44	56.50	19.96	36.54	74.00	-17.50	268	293 Peak	Horizontal	
2 *	2462.00	111.46	74.85	37.41	74.00	37.46	268	293 Peak	Horizontal	
3	2487.80	57.96	20.47	37.49	74.00	-16.04	268	293 Peak	Horizontal	



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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	2312.43	54.34	17.79	36.55	74.00	-19.66	333	360 Peak	Vertical	
2 *	2462.00	100.00	71.39	37.41	74.00	34.60	333	360 Peak	Vertical	
3	2487.54	58.10	20.61	37.49	74.00	-15.90	333	360 Peak	Vertical	

802.11b

High Channel (Horizontal) Average



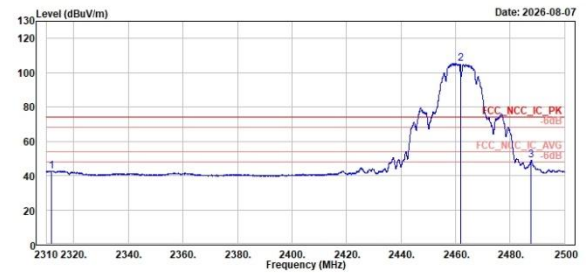
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2310.04	46.72	10.18	36.54	54.00	-7.28	268	293	Average	Horizontal		
2 *	2462.00	108.14	79.73	37.41	54.00	54.14	268	293	Average	Horizontal		
3 †	2487.73	49.72	12.23	37.49	54.00	-4.28	268	293	Average	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	2311.90	42.75	6.20	36.55	54.00	-11.25	333	360	Average	Vertical		
2 *	2462.00	105.31	67.90	37.41	54.00	51.31	333	360	Average	Vertical		
3 †	2487.69	48.91	11.42	37.49	54.00	-5.09	333	360	Average	Vertical		

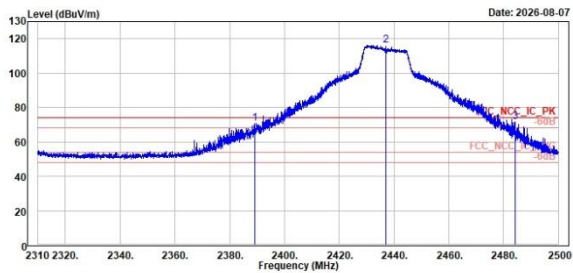
802.11g

Middle Channel (Horizontal) Peak

Middle Channel (Vertical) Peak



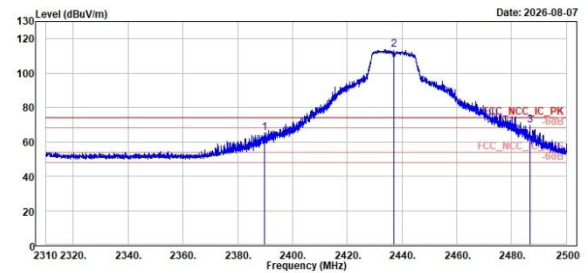
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2389.08	70.68	33.82	36.78	74.00	-3.40	242	291 Peak	Horizontal	
2	2437.00	116.36	79.16	37.20	74.00	42.36	242	291 Peak	Horizontal	
3	2484.34	71.43	33.95	37.48	74.00	-2.57	242	291 Peak	Horizontal	



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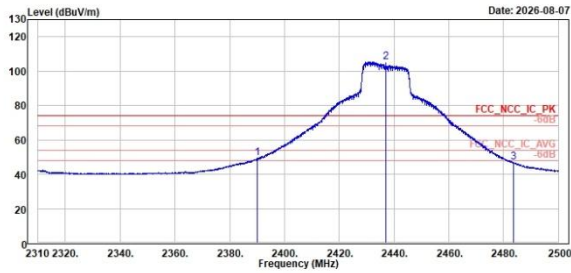
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2389.72	65.29	28.52	36.77	74.00	-8.71	306	0 Peak	Vertical	
2	2437.00	113.68	76.48	37.20	74.00	39.68	306	0 Peak	Vertical	
3	2486.78	69.83	32.35	37.48	74.00	-4.17	306	0 Peak	Vertical	

802.11g

Middle Channel (Horizontal) Average



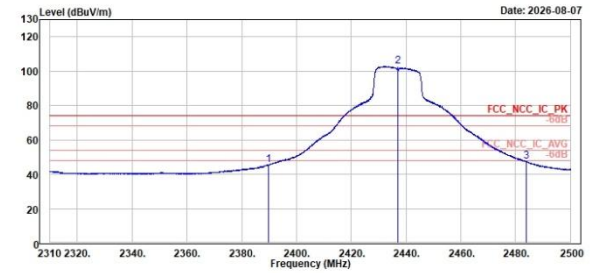
TÜV Rheinland Taiwan Ltd.
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Middle Channel (Vertical) Average



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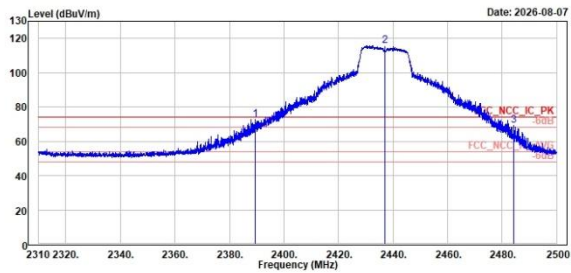


802.11n HT20

Middle Channel (Horizontal) Peak



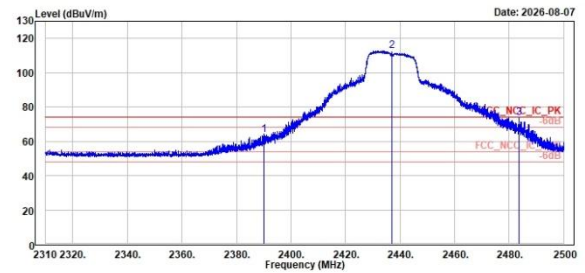
TÜV Rheinland Taiwan Ltd.
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Middle Channel (Vertical) Peak



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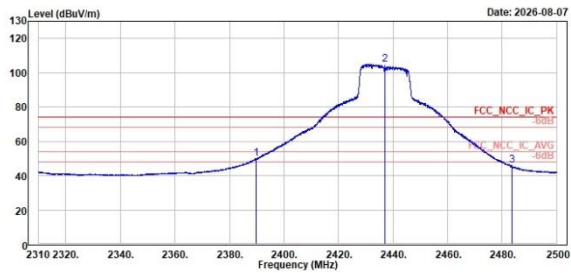


802.11n HT20

Middle Channel (Horizontal) Average



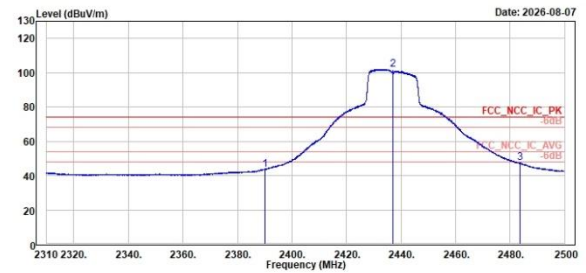
TÜV Rheinland Taiwan Ltd.
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Middle Channel (Vertical) Average



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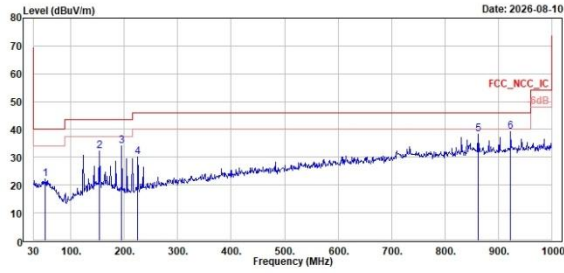


Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

Horizontal



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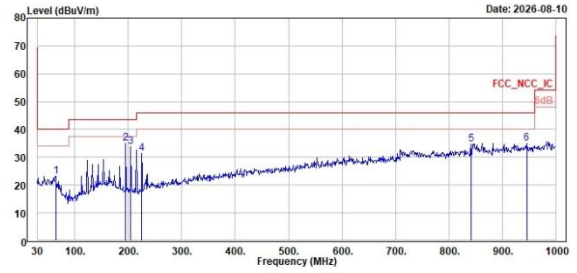


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	52.31	22.19	29.23	-7.04	40.00	-17.81	200	326	Peak	Horizontal		
2	153.19	32.18	39.27	-7.09	43.50	-11.32	100	74	Peak	Horizontal		
3	194.90	33.94	43.38	-9.44	43.50	-9.56	200	279	Peak	Horizontal		
4	224.97	30.25	39.44	-9.19	46.00	-15.75	100	192	Peak	Horizontal		
5	862.26	38.34	34.28	4.06	46.00	-7.66	100	327	Peak	Horizontal		
6	923.37	39.15	34.05	5.10	46.00	-6.85	100	266	Peak	Horizontal		

Vertical



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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	dB	cm	deg			
1	63.95	23.22	31.67	-8.45	40.00	-16.78	100	71	Peak	Vertical		
2	194.90	35.08	44.52	-9.44	43.50	-8.42	100	256	Peak	Vertical		
3	204.60	33.74	43.61	-9.87	43.50	-9.76	100	250	Peak	Vertical		
4	224.97	31.25	40.44	-9.19	46.00	-14.75	100	231	Peak	Vertical		
5	841.89	34.62	31.08	3.74	46.00	-11.18	200	0	Peak	Vertical		
6	945.68	34.95	29.53	5.42	46.00	-11.05	200	334	Peak	Vertical		

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

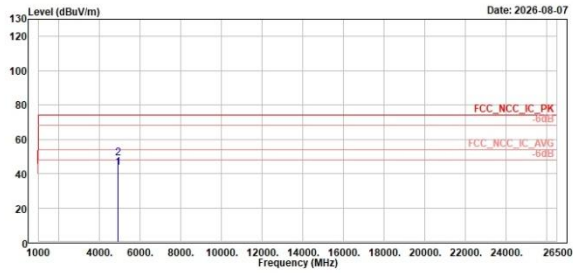
802.11b

High Channel (Horizontal)

High Channel (Vertical)



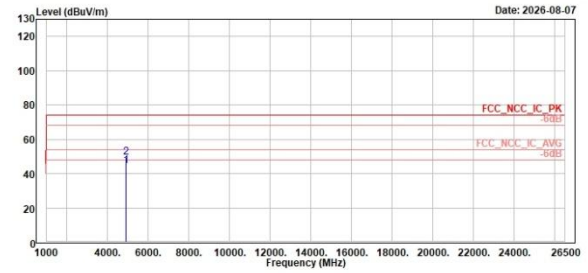
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Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	4924.00	43.58	35.25	8.33	54.00	-10.42	180	163	Average	Horizontal	
2	4924.00	48.86	40.53	8.33	74.00	-25.14	180	163	Peak	Horizontal	



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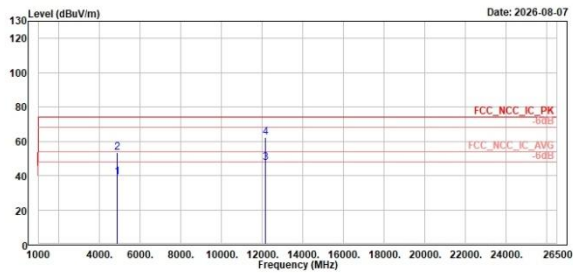
Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	4924.00	44.67	36.34	8.33	54.00	-9.33	480	185	Average	Vertical	
2	4924.00	49.33	41.00	8.33	74.00	-24.67	480	185	Peak	Vertical	

802.11g

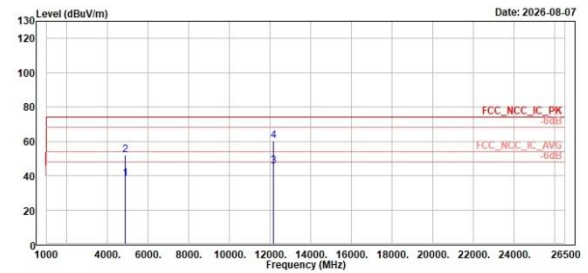
Middle Channel (Horizontal)



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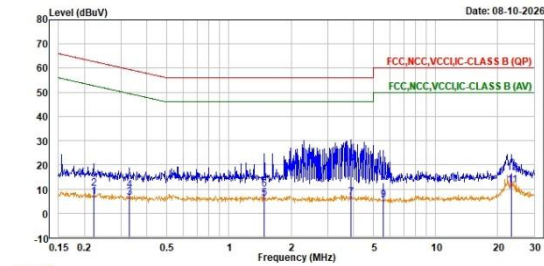
Mains Conducted Emission, 150kHz ~ 30MHz

Worst Mode

Line

Neutral

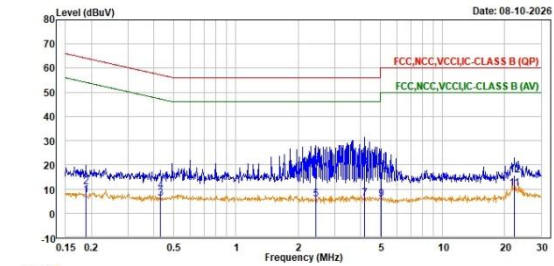
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Trace: 1

	Freq	Level	Read	Level	Factor	Limit	Over			
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	Remark	Pol/Phase	Note
1	0.22	6.90	-3.03	9.93	52.77	-45.87	Average	line1		
2	0.22	10.09	0.16	9.93	62.77	-52.68	QP	line1		
3	0.33	6.30	-3.64	9.94	49.46	-43.16	Average	line1		
4	0.33	9.58	-0.36	9.94	59.46	-49.88	QP	line1		
5	1.49	6.05	-3.99	10.04	46.00	-39.95	Average	line1		
6	1.49	9.98	-0.06	10.04	56.00	-46.02	QP	line1		
7	3.91	6.34	-3.00	10.14	46.00	-39.66	Average	line1		
8	3.91	20.35	10.21	10.14	56.00	-35.65	QP	line1		
9	5.57	5.48	-4.72	10.20	50.00	-44.52	Average	line1		
10	5.57	12.50	2.30	10.20	60.00	-47.50	QP	line1		
11	23.38	11.64	0.90	10.66	50.00	-38.36	Average	line1		
12	23.38	16.60	5.94	10.66	60.00	-43.40	QP	line1		

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Trace: 1

	Freq	Level	Read	Level	Factor	Limit	Over			
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	Remark	Pol/Phase	Note
1	0.19	7.30	-2.62	9.92	54.14	-46.84	Average	neutral		
2	0.19	10.84	0.92	9.92	64.14	-53.30	QP	neutral		
3	0.43	6.24	-3.69	9.93	47.22	-40.98	Average	neutral		
4	0.43	9.17	-0.76	9.93	57.22	-48.05	QP	neutral		
5	2.45	5.70	-4.29	9.99	46.00	-40.30	Average	neutral		
6	2.45	19.04	9.05	9.99	56.00	-36.96	QP	neutral		
7	4.21	6.07	-3.98	10.05	46.00	-39.93	Average	neutral		
8	4.21	19.05	9.00	10.05	56.00	-36.95	QP	neutral		
9	5.06	5.85	-4.25	10.10	50.00	-44.15	Average	neutral		
10	5.06	16.91	6.81	10.10	60.00	-43.09	QP	neutral		
11	22.25	10.13	-0.43	10.56	50.00	-39.87	Average	neutral		
12	22.25	15.77	5.21	10.56	60.00	-44.23	QP	neutral		