

Prüfbericht-Nr.: <i>Test report no.:</i>	CN24IHAS 001	Auftrags-Nr.: <i>Order no.:</i>	48252376	Seite 1 von 33 Page 1 of 33
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2024-09-18	
Auftraggeber: <i>Client:</i>	Microchip Technology Inc. 2355 West Chandler Blvd. Chandler, Arizona 85224-6199, United States			
Prüfgegenstand: <i>Test item:</i>	Wireless MCU module with BLE 5.2 compliant and Zigbee 3.0 Radio			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	WBZ451PE-E			
Auftrags-Inhalt: <i>Order content:</i>	FCC Part 15C Test report (ZigBee)			
Prüfgrundlage: <i>Test specification:</i>	FCC 47CFR Part 15: Subpart C Section 15.247			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2024-08-21			
Prüfmuster-Nr.: <i>Test sample no:</i>	A003840531-001 A003799137-003~005			
Prüfzeitraum: <i>Testing period:</i>	2024-08-30 - 2024-10-17			
Ort der Prüfung: <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
Prüflaboratorium: <i>Testing laboratory:</i>	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>	2024-10-18	Ausstellungsdatum: <i>Issue date:</i>	2024-10-18	
Stellung / Position:	David Huang Project Manager	Stellung / Position:	Ryan Chen Senior Project Manager	
Sonstiges / Other:	This report is issued as a supplementary report to TUV report no.: CN212GHJ(P15C-ZigBee) 001 and CN212GHJ(P15C-ZigBee) 002. The difference compared with original report is adding series model which changes the high operating temperature. Some components change from 0201 to 0402 with slight layout changes but do not affect the RF part. Hence, we only evaluated the output power and RSE tests in this report.			
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 F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar
* 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
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.
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 115:2021, 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.</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 115:2021, 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></p> |

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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
5.1.3	15.247(a)(2)	6 dB Bandwidth	Refer to CN212GHJ(P15C-ZigBee) 001.
5.1.3	2.1049	99% Occupied Bandwidth	
5.1.4	15.247(e)	Power Spectral Density	
5.1.5	15.247(d)	Conducted Spurious Emissions and Band Edges	
5.1.6	15.247(d) & 15.205 & 15.209	Radiated Spurious Emissions and Band Edges	Pass
5.2.1	15.207	Mains Conducted Emission	Refer to CN212GHJ(P15C-ZigBee) 001.

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 FOR MAIN SOURCE

APPENDIX B - TEST RESULT OF RADIATED EMISSIONS FOR 2ND SOURCE

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	2024-10-18

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1. General Remarks

1.1 Complementary Materials

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

Appendix A - Test Result of Radiated Emissions for Main Source

Appendix B - Test Result of Radiated Emissions for 2nd Source

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 C63.10:2013
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.

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2. Test Sites

2.1 Test Laboratory

Taipei Testing Laboratories

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

2.2 Test Facility

Taipei Testing Laboratories

No.458-18, 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

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3. General Product Information

3.1 Product Function and Intended Use

The EUT is a Wireless MCU module with BLE 5.2 compliant and Zigbee 3.0 Radio. It contains a ZigBee 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	Wireless MCU module with BLE 5.2 compliant and Zigbee 3.0 Radio
Type Identification	WBZ451PE-E
FCC ID	2ADHKWBZ451

Technical Specification of EUT

Item	EUT information
Operating Frequency	2405 MHz ~ 2480 MHz
Channel Spacing	5 MHz
Channel Number	16
Data Rate	1Mbps, 2Mbps, 250kbps, 500kbps
Operation Voltage	Non ECC variants: 1.9Vdc to 3.6Vdc
Modulation	OQPSK
Maximum Output Power (mW)	24.77
Antenna Information	Refer to 5.1.1
Accessory Device	Refer to 4.4

Note:

- All models are listed as below.

Model Type	Type Identification	Difference
Main	WBZ451PE	WBZ451PE operation temperature is -40 ~ 85°C
Series	WBZ451PE-E	WBZ451PE-E operation temperature is -40 ~ 125°C

- Antenna List:

ANT No.	SN/Model #	Cable Length(mm)	Type	Gain(dBi)	Placement
9	WBZ451 LGA	-	PCB	2.36	Internal

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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

For Main Source:

<250kbps, 500kbps, PCB Antenna>

Mode	MPA			LPA		
With Digital Gain	45	48	34	-		
Frequency (MHz)	2405	2435	2480	2405	2435	2480
Power Setting	Disable	Disable	Disable	Disable	Disable	Disable

<1Mbps, PCB Antenna>

Mode	MPA			LPA		
With Digital Gain	45	48	34	-		
Frequency (MHz)	2405	2435	2478	2405	2435	2478
Power Setting	Disable	Disable	Disable	Disable	Disable	Disable

<2Mbps, PCB Antenna>

Mode	MPA			LPA		
With Digital Gain	45	48	34	-		
Frequency (MHz)	2405	2435	2480	2405	2435	2480
Power Setting	Disable	Disable	Disable	Disable	Disable	Disable

For 2nd Source:

<250kbps, 500kbps, PCB Antenna>

Mode	MPA			LPA		
With Digital Gain	49	51	37	44	43	41
Frequency (MHz)	2405	2435	2480	2405	2435	2480
Power Setting	Disable	Disable	Disable	Disable	Disable	Disable

<1Mbps, PCB Antenna>

Mode	MPA			LPA		
With Digital Gain	49	51	37	44	43	41
Frequency (MHz)	2405	2435	2478	2405	2435	2478
Power Setting	Disable	Disable	Disable	Disable	Disable	Disable

<2Mbps, PCB Antenna>

Mode	MPA			LPA		
With Digital Gain	49	51	37	44	43	41
Frequency (MHz)	2405	2435	2480	2405	2435	2480
Power Setting	Disable	Disable	Disable	Disable	Disable	Disable

Note: The Disable means maximum power

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4.2 Carrier Frequency and Channel

Channel	Freq. (MHz)	Channel	Freq. (MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

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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	MCHPRT3_v1.0.1.6812
---------------	---------------------

The samples were used as follows:

A003840531-001, A003799137-004 for radiated test

A003799137-003, A003799137-005 for conducted test A003799137-003~005

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

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	
MPA, LPA	√	√	√	-	-

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.
3. MPA means Maximum Power Amplifier.
4. LPA means Lower Power Amplifier.

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	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
MPA, LPA	2405 to 2480	2405, 2435, 2480	0.25
	2405 to 2480	2405, 2435, 2480	0.5
	2405 to 2480	2405, 2435, 2480	1
	2405 to 2480	2405, 2435, 2480	2

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	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
MPA, LPA	2405 to 2480	2405, 2435, 2480	0.25
	2405 to 2480	2402, 2440, 2480	2

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	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
MPA	2405 to 2480	2405	0.25
LPA	2405 to 2480	2405	2

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Test Condition

Test Item	Ambient Temperature	Relative Humidity	Tested by
Conducted Measurement	24.5-25.1 °C	60.7-62.3 %	Andy Chen/Nick Guan
Radiated Spurious Emissions above 1 GHz	22.6-24.5 °C	52-54 %	Ray Huang
Radiated Spurious Emissions below 1 GHz	22.6-24.5 °C	52-54 %	Ray Huang

4.4 Special Accessories and Auxiliary Equipment

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

Accessory of EUT

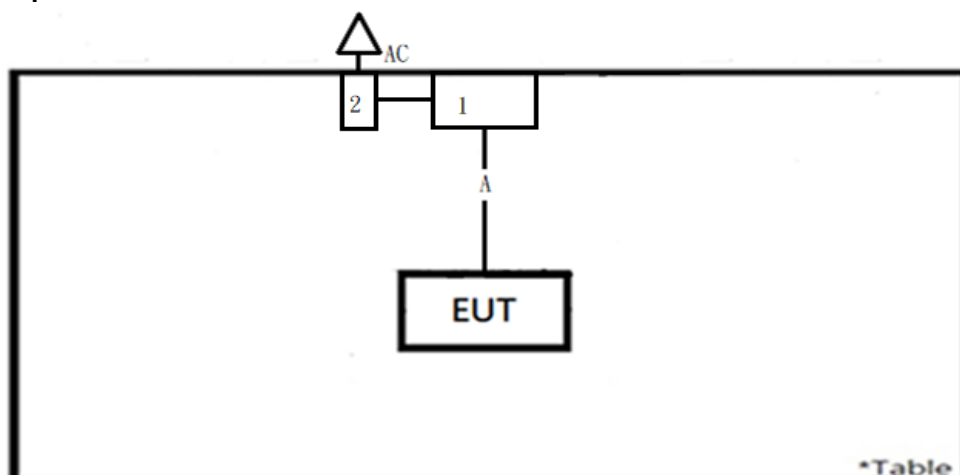
None.

Support Unit

Support Unit								
No.	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)	Remark
Radiated Test								
A	MicroUSB Cable	Microchip	--	--	NO	NO	100	A003799137-006
1	Notebook	HP	15-da1046TX	CND9111RJB	-	-	-	-
2	Adapter	HP	TPN-DA17	N/A	NO	NO	180	-
Conducted Test								
-	Notebook	LENOVO	TP00094A	PF-1GT015	-	-	-	-
-	MicoUSB To USB TypeA	TUV	NA	1	NO	NO	150	-

4.5 Test Setup Diagram

<Radiated Spurious Emissions mode>



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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.

ANT No.	SN/Model #	Cable Length(mm)	Type	Gain(dBi)	Placement
9	WBZ451 LGA	-	PCB	2.36	Internal

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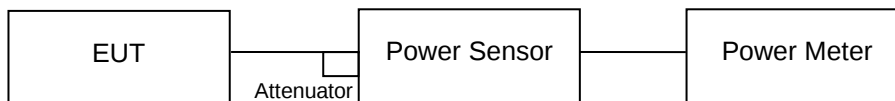
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5.1.2 Peak Output Power

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	2024/03/12	2025/03/11	2024/9/20	2024/10/17
Power Sensor	Anritsu	MA2411B	1725269	2024/03/12	2025/03/11	2024/9/20	2024/10/17

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.

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Test Result

Peak Output Power, PCB Antenna

For Main Source:

<250kbps, MPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.77	23.82	30
Middle Channel	2435	13.94	24.77	30
High Channel	2480	11.84	15.28	30

<500kbps, MPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.75	23.71	30
Middle Channel	2435	13.93	24.72	30
High Channel	2480	11.83	15.24	30

<1Mbps, MPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.76	23.77	30
Middle Channel	2435	13.93	24.72	30
High Channel	2480	11.84	15.28	30

<2Mbps, MPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.76	23.77	30
Middle Channel	2435	13.92	24.66	30
High Channel	2480	11.82	15.21	30

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<250kbps, LPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.46	2.79	30
Middle Channel	2435	4.36	2.73	30
High Channel	2480	3.92	2.47	30

<500kbps, LPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.44	2.78	30
Middle Channel	2435	4.34	2.72	30
High Channel	2480	3.90	2.45	30

<1Mbps, LPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.43	2.77	30
Middle Channel	2435	4.34	2.72	30
High Channel	2480	3.91	2.46	30

<2Mbps, LPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.44	2.78	30
Middle Channel	2435	4.31	2.70	30
High Channel	2480	3.90	2.45	30

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For 2nd Source:

<250kbps, MPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.75	23.71	30
Middle Channel	2435	13.91	24.60	30
High Channel	2480	11.80	15.14	30

<500kbps, MPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.73	23.60	30
Middle Channel	2435	13.90	24.55	30
High Channel	2480	11.79	15.10	30

<1Mbps, MPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.74	23.66	30
Middle Channel	2435	13.90	24.55	30
High Channel	2480	11.80	15.14	30

<2Mbps, MPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	13.76	23.77	30
Middle Channel	2435	13.91	24.60	30
High Channel	2480	11.81	15.17	30

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<250kbps, LPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.35	2.72	30
Middle Channel	2435	4.17	2.61	30
High Channel	2480	3.73	2.36	30

<500kbps, LPA Mode>

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.34	2.72	30
Middle Channel	2435	4.16	2.61	30
High Channel	2480	3.72	2.36	30

<1Mbps, LPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.34	2.72	30
Middle Channel	2435	4.17	2.61	30
High Channel	2480	3.73	2.36	30

<2Mbps, LPA Mode >

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2405	4.36	2.73	30
Middle Channel	2435	4.18	2.62	30
High Channel	2480	3.74	2.37	30

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Average Power

For Main Source:

<250kbps, MPA Mode>

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.54	22.59
Middle Channel	2435	13.70	23.44
High Channel	2480	11.46	14.00

<500kbps, MPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.53	22.54
Middle Channel	2435	13.69	23.39
High Channel	2480	11.45	13.96

<1Mbps, MPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.53	22.54
Middle Channel	2435	13.69	23.39
High Channel	2480	11.46	14.00

<2Mbps, MPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.54	22.59
Middle Channel	2435	13.68	23.33
High Channel	2480	11.44	13.93

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<250kbps, LPA Mode>

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.94	2.48
Middle Channel	2435	3.84	2.42
High Channel	2480	3.45	2.21

<500kbps, LPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.93	2.47
Middle Channel	2435	3.83	2.42
High Channel	2480	3.42	2.20

<1Mbps, LPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.92	2.47
Middle Channel	2435	3.83	2.42
High Channel	2480	3.43	2.20

<2Mbps, LPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.93	2.47
Middle Channel	2435	3.82	2.41
High Channel	2480	3.42	2.20

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For 2nd Source:
<250kbps, MPA Mode>

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.49	22.34
Middle Channel	2435	13.64	23.12
High Channel	2480	11.41	13.84

<500kbps, MPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.47	22.23
Middle Channel	2435	13.63	23.07
High Channel	2480	11.40	13.80

<1Mbps, MPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.48	22.28
Middle Channel	2435	13.63	23.07
High Channel	2480	11.41	13.84

<2Mbps, MPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	13.50	22.39
Middle Channel	2435	13.64	23.12
High Channel	2480	11.42	13.87

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<250kbps, LPA Mode>

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.91	2.46
Middle Channel	2435	3.73	2.36
High Channel	2480	3.21	2.09

<500kbps, LPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.90	2.45
Middle Channel	2435	3.72	2.36
High Channel	2480	3.20	2.09

<1Mbps, LPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.90	2.45
Middle Channel	2435	3.73	2.36
High Channel	2480	3.21	2.09

<2Mbps, LPA Mode >

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2405	3.92	2.47
Middle Channel	2435	3.74	2.37
High Channel	2480	3.22	2.10

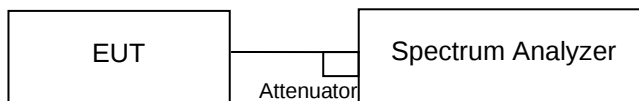
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5.1.3 6 dB Bandwidth and 99% Occupied Bandwidth

Limit The minimum 6 dB bandwidth shall be at least 500 kHz.

Kind of Test Site Shielded room

Test Setup



Test Instruments

N/A

Test Procedure

- Set resolution bandwidth (RBW) = 100 kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
- For 99% occupied bandwidth measurement, 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 PEAK. 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

Refer to original report no.: CN212GHJ(P15C-ZigBee) 001.

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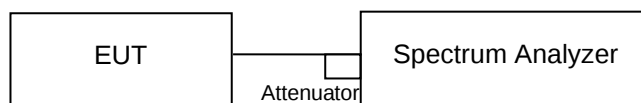
5.1.4 Power Spectral Density

Limit

The power spectral density shall not be greater than 8 dBm in any 3 kHz band.

Kind of Test Site Shielded room

Test Setup



Test Instruments

N/A

Test Procedure

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.

Test Results

Refer to original report no.: CN212GHJ(P15C-ZigBee) 001.

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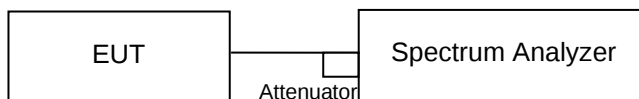
5.1.5 Conducted Spurious Emissions and Frequency Band Edges Measured in 100kHz Bandwidth

Limit

20dB (below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.)

Kind of Test Site Shielded room

Test Setup



Test Instruments

N/A

Test Procedure

Measurement procedure REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement procedure OOBE

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

Test Results

Refer to original report no.: CN212GHJ(P15C-ZigBee) 001.

5.1.6 Radiated Spurious Emissions and Band Edges

Limit

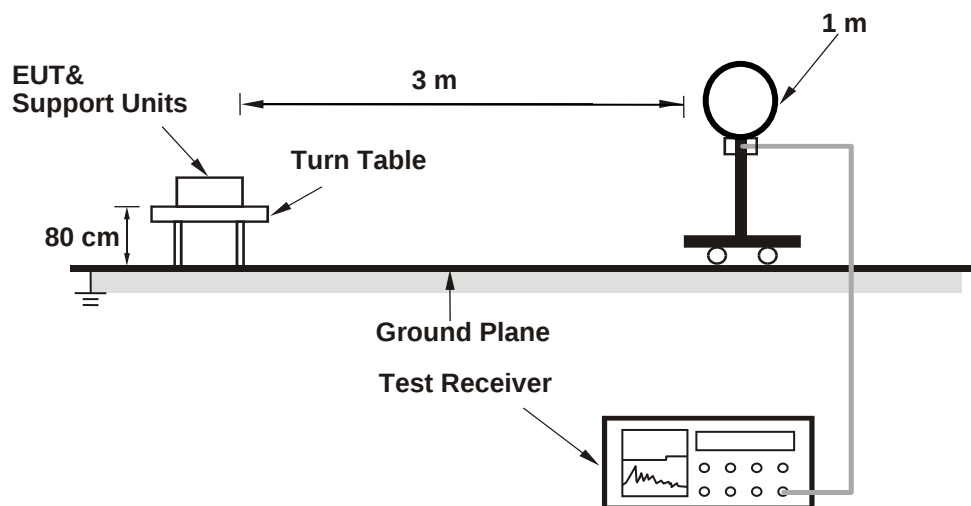
Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).

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).

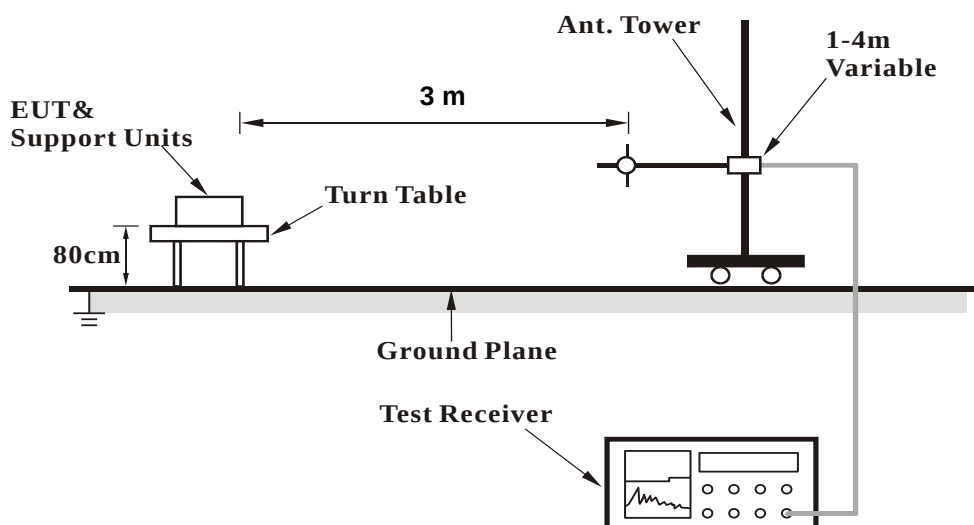
Kind of Test Site 3m Semi-Anechoic Chamber

Test Setup

<Radiated Emissions below 30 MHz>

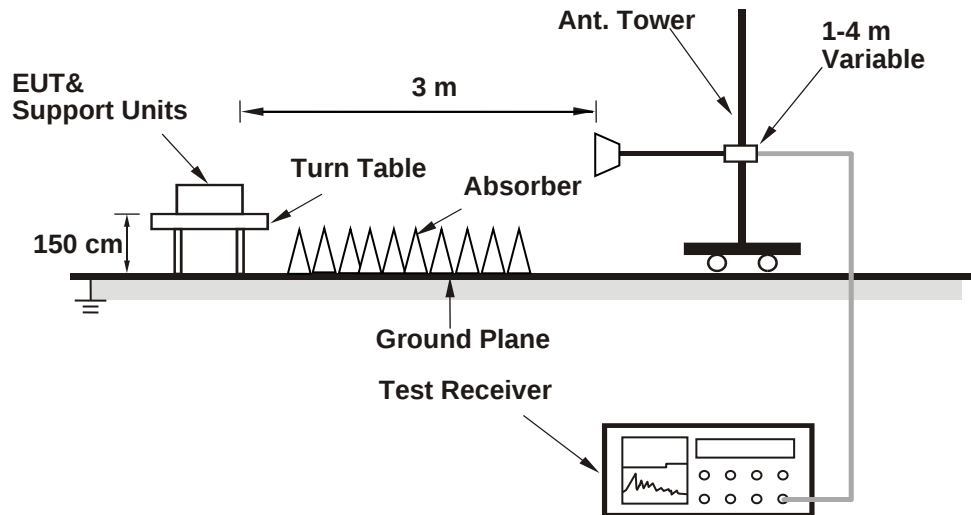


<Radiated Emissions 30 MHz to 1 GHz>



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<Radiated Emissions above 1 GHz>


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

Test Instruments

Test date: 2024-08-30 ~ 2024-10-16

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Above 1GHz					
Signal Analyzer	R&S	FSV40	101509	2024/4/30	2025/4/29
Horn Antenna	ETS-Lindgren	3117	00218929	2023/11/17	2024/11/15
Horn Antenna	SCHWARZBECK	BBHA 9170	00890	2024/4/30	2025/4/29
HF-AMP + AC source	EMCI	EMC051845SE	980633	2024/1/24	2025/1/22
HF-AMP + AC source	EMCI	EMC184045SE	980656	2024/1/18	2025/1/16
Test Software	Audix E3	15914a_20191106_tuv	PK-001087	N/A	N/A
30MHz ~ 1GHz					
Receiver	R&S	ESR7	102109	2024/2/22	2025/2/20
Bilog Antenna	SCHWARZBECK	VULB-9168	00951	2024/3/21	2025/3/20
LF-AMP	Agilent	8447D	2727A05146	2024/1/24	2025/1/22
Test Software	Audix E3	15914a_20191106_tuv	PK-001087	N/A	N/A
Below 30MHz					
Receiver	R&S	ESR7	102109	2024/2/22	2025/2/20
Loop Antenna	SCHWARZBECK	FMZB 1519B	00215	2024/1/4	2025/1/2
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 and Appendix B.

5.2 Mains Emission

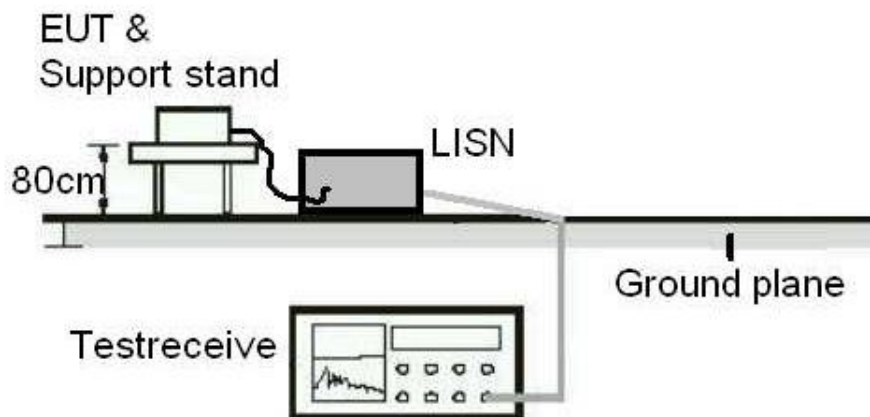
5.2.1 Mains Conducted Emission

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

N/A

Test Procedures

- 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.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 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

Refer to original report no.: CN212GHJ(P15C-ZigBee) 001.

Appendix A: Test Results of Radiated Spurious Emissions for Main Source

MPA Mode

Band Edges, 2.31GHz ~ 2.5GHz

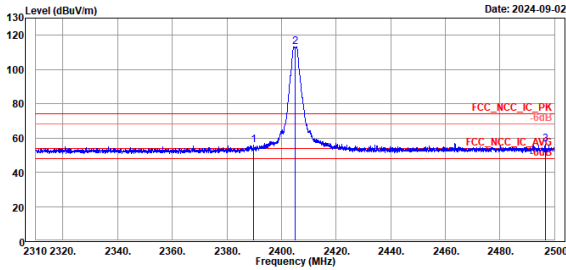
250Kbps

Low Channel (Horizontal) Peak

Low Channel (Vertical) Peak



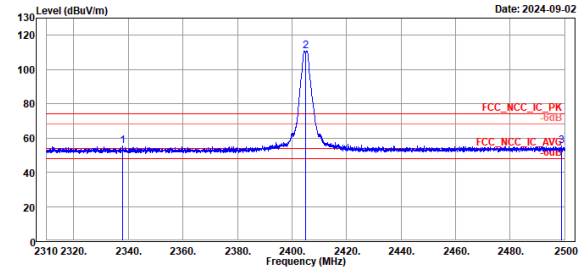
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2389.75	55.67	17.65	38.02	74.00	-18.33		271	82	Peak	Horizontal	
2 *	2405.00	113.40	75.32	38.08	74.00	39.40		271	82	Peak	Horizontal	
3	2496.53	56.18	17.90	38.28	74.00	-17.82		271	82	Peak	Horizontal	



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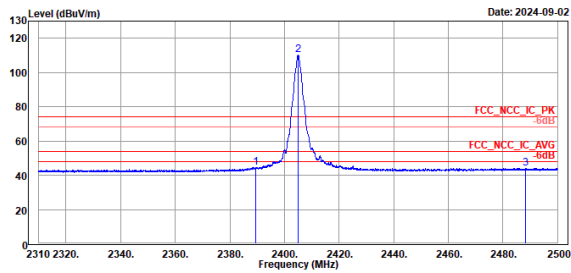
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2337.84	55.59	17.66	37.84	74.00	-18.59		280	160	Peak	Vertical	
2 *	2405.00	110.86	72.78	38.08	74.00	36.86		280	160	Peak	Vertical	
3	2498.81	55.32	17.05	38.27	74.00	-18.68		280	160	Peak	Vertical	

250Kbps

Low Channel (Horizontal) Average



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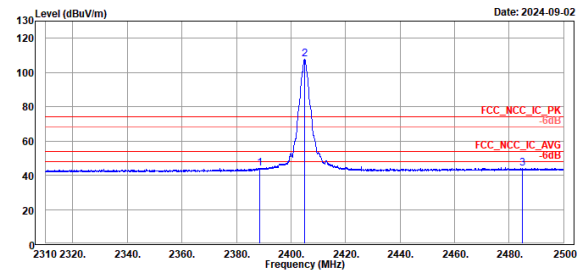


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2389.47	44.78	6.68	38.02	54.00	-9.30	271	82	Average	Horizontal		
2 *	2405.00	110.35	72.27	38.08	54.00	56.35	271	82	Average	Horizontal		
3	2488.41	44.13	5.85	38.28	54.00	-9.87	271	82	Average	Horizontal		

Low Channel (Vertical) Average



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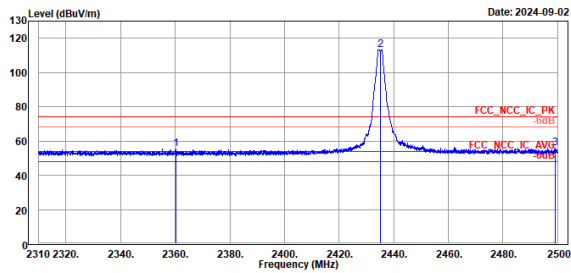
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2389.66	44.17	6.15	38.02	54.00	-9.83	280	160	Average	Vertical		
2 *	2405.00	107.80	69.72	38.08	54.00	53.80	280	160	Average	Vertical		
3	2484.99	44.07	5.79	38.28	54.00	-9.93	280	160	Average	Vertical		

250Kbps

Middle Channel (Horizontal) Peak



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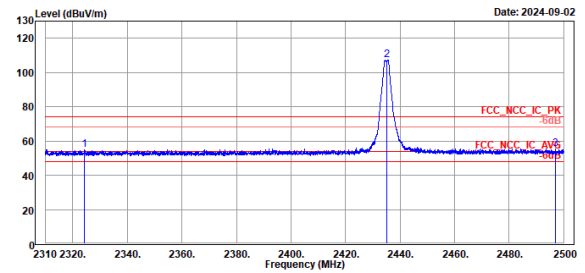


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2360.35	55.49	17.56	37.93	74.00	-18.51	323	288	Peak	Horizontal		
2 *	2435.00	113.42	75.18	38.24	74.00	39.42	323	288	Peak	Horizontal		
3	2499.05	56.10	17.83	38.27	74.00	-17.90	323	288	Peak	Horizontal		

Middle Channel (Vertical) Peak



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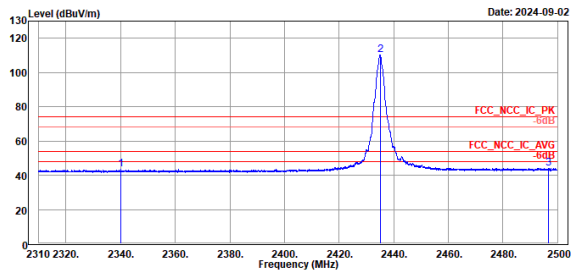
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2324.30	55.11	17.34	37.77	74.00	-18.89	312	224	Peak	Vertical		
2 *	2435.00	107.27	69.03	38.24	74.00	33.27	312	224	Peak	Vertical		
3	2497.01	55.30	17.02	38.28	74.00	-18.70	312	224	Peak	Vertical		

250Kbps

Middle Channel (Horizontal) Average



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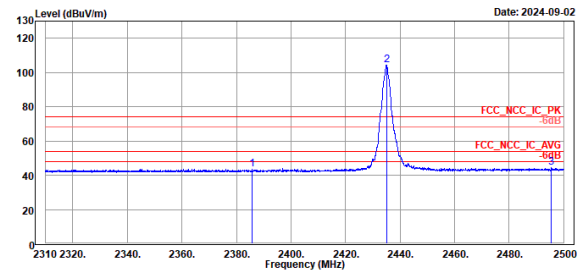


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2340.02	43.69	5.84	37.85	54.00	-10.31	323	288	Average	Horizontal		
2 *	2435.00	110.38	72.14	38.24	54.00	56.38	323	288	Average	Horizontal		
3	2496.68	43.96	5.68	38.28	54.00	-10.04	323	288	Average	Horizontal		

Middle Channel (Vertical) Average



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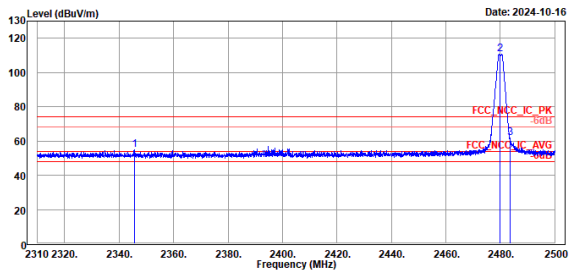
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2305.76	43.74	5.73	38.01	54.00	-10.26	312	224	Average	Vertical		
2 *	2435.00	104.20	65.96	38.24	54.00	50.20	312	224	Average	Vertical		
3	2495.49	44.30	6.03	38.27	54.00	-9.70	312	224	Average	Vertical		

250Kbps

High Channel (Horizontal) Peak



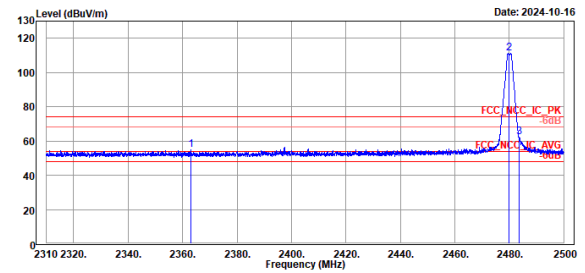
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2345.53	54.66	16.79	37.87	74.00	-19.34	290	308	Peak	Horizontal		
2 *	2480.00	110.74	72.45	38.29	74.00	36.74	290	308	Peak	Horizontal		
3	2483.50	61.63	23.35	38.28	74.00	-12.37	290	308	Peak	Horizontal		



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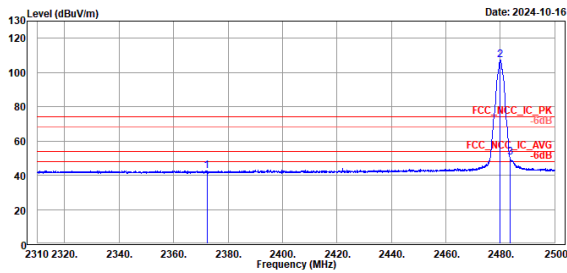
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2363.06	54.76	16.82	37.94	74.00	-19.24	372	196	Peak	Vertical		
2 *	2480.00	111.05	72.76	38.29	74.00	37.05	372	196	Peak	Vertical		
3	2483.50	62.48	24.20	38.28	74.00	-11.52	372	196	Peak	Vertical		

250Kbps

High Channel (Horizontal) Average



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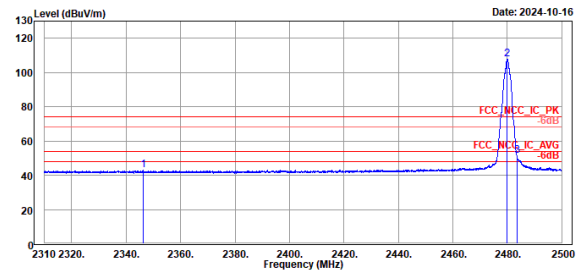


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2372.23	42.73	4.77	37.96	54.00	-11.27	290	308	Average	Horizontal		
2 *	2480.00	107.42	69.13	38.29	54.00	53.42	290	308	Average	Horizontal		
3 !	2483.52	50.48	12.20	38.28	54.00	-3.52	290	308	Average	Horizontal		

High Channel (Vertical) Average



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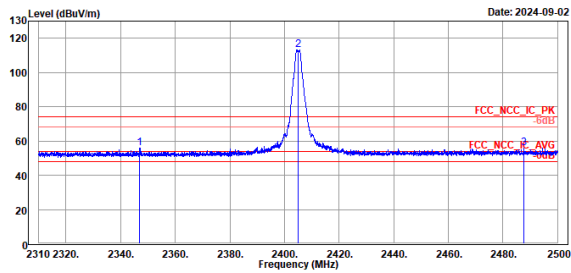
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2346.29	42.91	5.03	37.88	54.00	-11.09	372	196	Average	Vertical		
2 *	2480.00	107.78	69.49	38.29	54.00	53.78	372	196	Average	Vertical		
3 !	2483.50	51.24	12.96	38.28	54.00	-2.76	372	196	Average	Vertical		

2Mbps

Low Channel (Horizontal) Peak



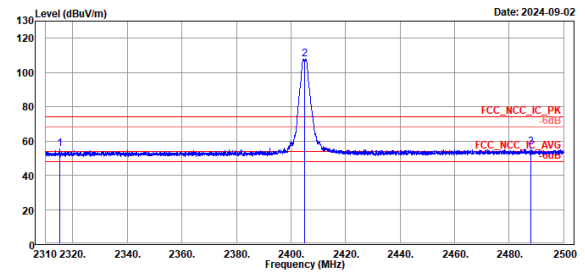
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2347.05	56.06	18.17	37.89	74.00	-17.94	335	291 Peak		Horizontal		
2 *	2405.00	113.11	75.03	38.08	74.00	39.11	335	291 Peak		Horizontal		
3	2487.60	56.05	17.77	38.28	74.00	-17.95	335	291 Peak		Horizontal		



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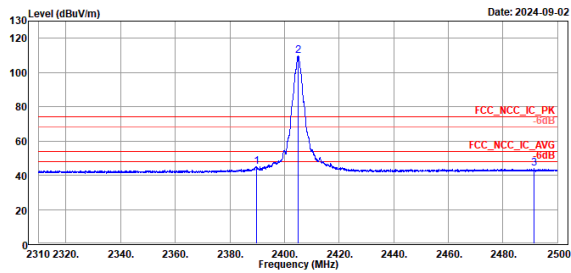
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2315.00	55.20	17.48	37.72	74.00	-18.80	333	62 Peak		Vertical		
2 *	2405.00	107.65	69.57	38.08	74.00	33.65	333	62 Peak		Vertical		
3	2487.98	56.13	17.85	38.28	74.00	-17.87	333	62 Peak		Vertical		

2Mbps

Low Channel (Horizontal) Average



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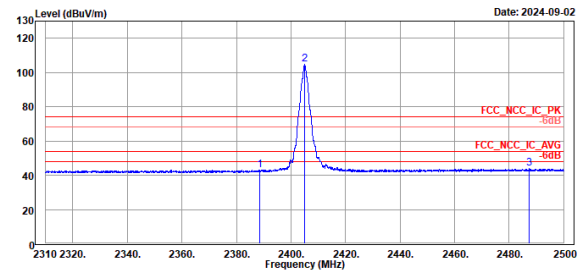


	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	Factor	Line	Limit	dB	cm	deg		
1	2389.00	45.10	7.08	38.02	54.00	-8.90	335	291 Average	Horizontal	
2 *	2405.00	109.95	71.87	38.08	54.00	55.95	335	291 Average	Horizontal	
3	2491.31	43.79	5.51	38.28	54.00	-10.21	335	291 Average	Horizontal	

Low Channel (Vertical) Average



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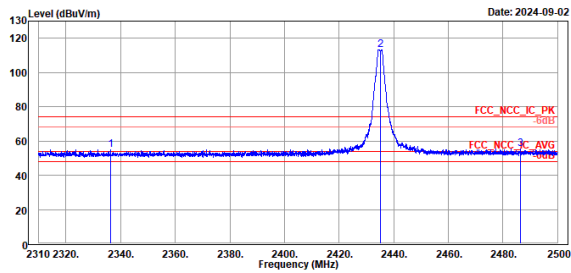
	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	Factor	Line	Limit	dB	cm	deg		
1	2389.57	43.20	5.18	38.02	54.00	-10.80	333	62 Average	Vertical	
2 *	2405.00	104.57	66.49	38.08	54.00	50.57	333	62 Average	Vertical	
3	2487.37	43.79	5.50	38.29	54.00	-10.21	333	62 Average	Vertical	

2Mbps

Middle Channel (Horizontal) Peak



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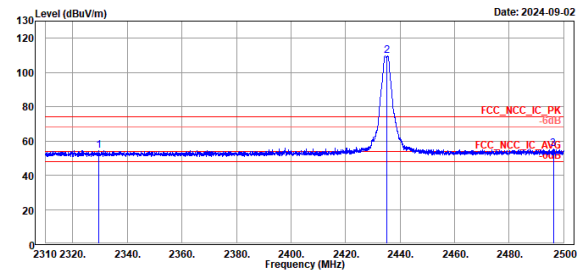


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2336.32	54.99	17.16	37.83	74.00	-19.01	333	84	Peak	Horizontal		
2 *	2435.00	113.41	75.17	38.24	74.00	39.41	333	84	Peak	Horizontal		
3	2486.42	55.12	16.84	38.28	74.00	-18.88	333	84	Peak	Horizontal		

Middle Channel (Vertical) Peak



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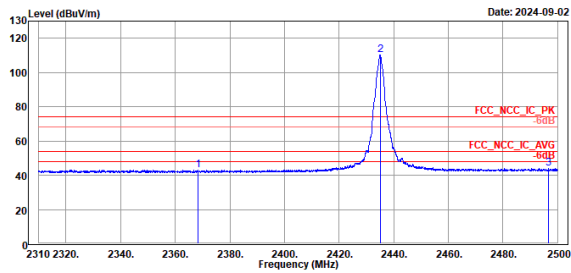
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2329.43	54.56	16.76	37.80	74.00	-19.44	347	162	Peak	Vertical		
2 *	2435.00	109.68	71.44	38.24	74.00	35.68	347	162	Peak	Vertical		
3	2496.20	55.59	17.31	38.28	74.00	-18.41	347	162	Peak	Vertical		

2Mbps

Middle Channel (Horizontal) Average



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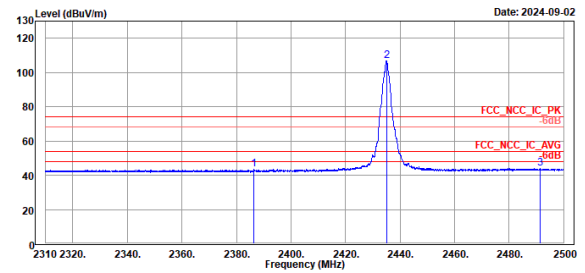


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2368.38	43.17	5.21	37.96	54.00	-10.83	333	84	Average	Horizontal		
2 *	2435.00	110.30	72.06	38.24	54.00	56.30	333	84	Average	Horizontal		
3	2496.68	44.05	5.77	38.28	54.00	-9.95	333	84	Average	Horizontal		

Middle Channel (Vertical) Average



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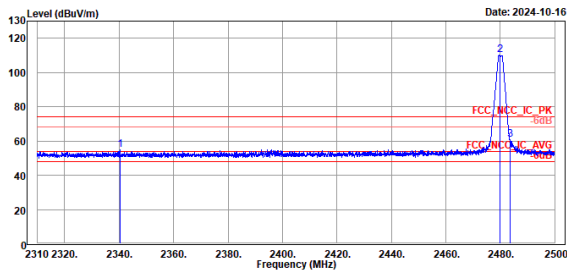
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1	2366.33	43.25	5.24	38.01	54.00	-10.75	347	162	Average	Vertical		
2 *	2435.00	106.60	68.36	38.24	54.00	52.60	347	162	Average	Vertical		
3	2491.26	43.88	5.60	38.28	54.00	-10.12	347	162	Average	Vertical		

2Mbps

High Channel (Horizontal) Peak



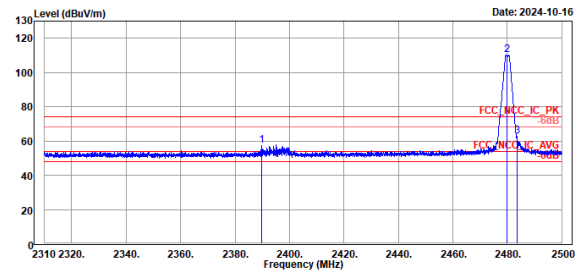
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2340.26	54.63	16.78	37.85	74.00	-19.37	290	306	Peak	Horizontal		
2 *	2480.00	110.09	71.89	38.29	74.00	36.09	290	306	Peak	Horizontal		
3	2483.61	60.88	22.60	38.28	74.00	-13.12	290	306	Peak	Horizontal		



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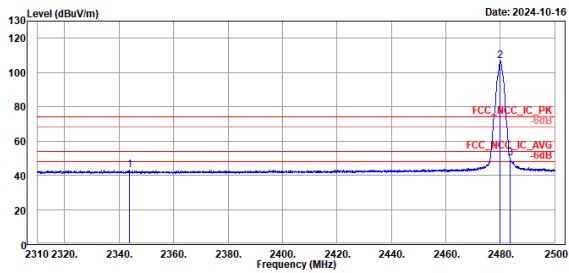
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2389.80	57.50	19.48	38.02	74.00	-16.50	371	188	Peak	Vertical		
2 *	2480.00	110.19	71.90	38.29	74.00	36.19	371	188	Peak	Vertical		
3	2483.50	62.61	24.33	38.28	74.00	-11.39	371	188	Peak	Vertical		

2Mbps

High Channel (Horizontal) Average



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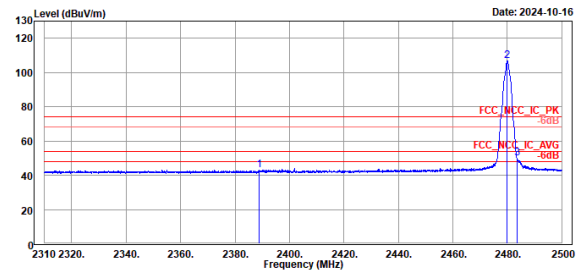


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2343.92	42.85	4.98	37.87	54.00	-11.15	290	306	Average	Horizontal		
2 *	2480.00	106.77	68.48	38.29	54.00	52.77	290	306	Average	Horizontal		
3 !	2483.50	49.91	11.63	38.28	54.00	-4.09	290	306	Average	Horizontal		

High Channel (Vertical) 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	2388.76	42.91	4.89	38.02	54.00	-11.09	371	188	Average	Vertical		
2 *	2480.00	106.91	68.62	38.29	54.00	52.91	371	188	Average	Vertical		
3 !	2483.52	49.84	11.56	38.28	54.00	-4.16	371	188	Average	Vertical		

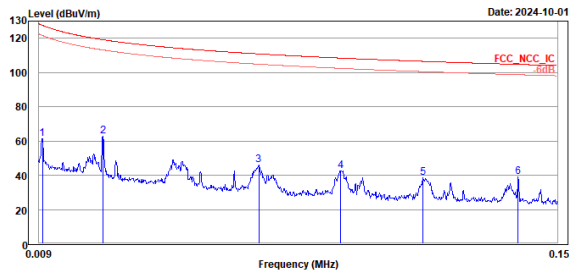
Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

250Kbps

Low Channel (Open) 9kHz~150kHz



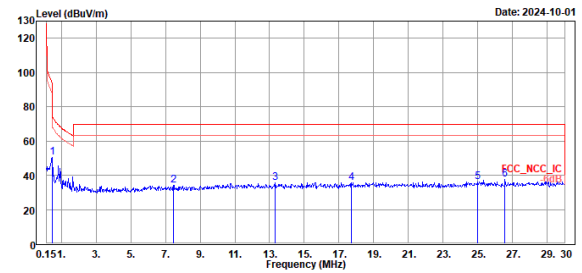
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	0.01	61.51	43.20	18.31	127.60	-66.09	100	295 Peak	Open	
2	0.03	62.65	42.84	19.81	119.13	-56.48	100	264 Peak	Open	
3	0.07	46.10	27.37	18.73	110.84	-64.74	100	264 Peak	Open	
4	0.09	42.75	24.14	18.61	108.41	-65.66	100	264 Peak	Open	
5	0.11	38.62	20.01	18.61	106.50	-67.88	100	256 Peak	Open	
6	0.14	39.13	20.36	18.77	104.72	-65.59	100	209 Peak	Open	



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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	0.48	50.32	31.16	19.16	94.01	-43.69	100	201 Peak	Open	
2	7.46	34.11	13.19	20.92	69.50	-35.39	100	211 Peak	Open	
3	13.31	35.45	13.91	21.54	69.50	-34.05	100	189 Peak	Open	
4	17.73	35.83	13.35	22.48	69.50	-33.67	100	223 Peak	Open	
5	24.99	36.32	13.13	23.19	69.50	-33.18	100	327 Peak	Open	
6	26.57	37.62	14.69	22.93	69.50	-31.88	100	229 Peak	Open	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

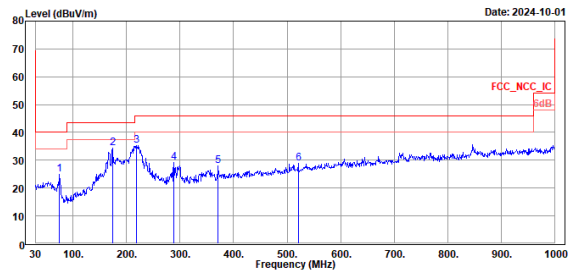
250Kbps

Low Channel (Horizontal)

Low Channel (Vertical)



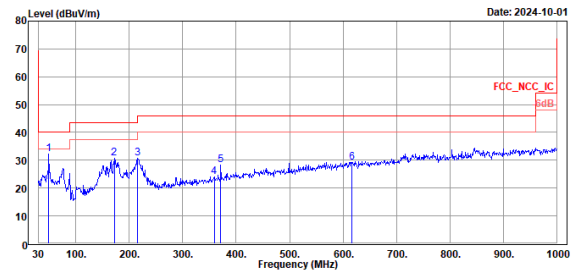
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	74.62	24.96	34.77	-9.81	40.00	-15.04	100	213	Peak	Horizontal		
2	173.56	34.27	40.21	-5.94	43.50	-9.23	100	172	Peak	Horizontal		
3	219.15	35.33	43.65	-8.32	46.00	-10.67	100	91	Peak	Horizontal		
4	288.02	29.22	34.00	-5.58	46.00	-16.78	100	196	Peak	Horizontal		
5	371.44	28.04	31.81	-3.77	46.00	-17.96	100	109	Peak	Horizontal		
6	520.82	28.76	29.65	-0.89	46.00	-17.24	100	228	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	49.40	32.28	38.22	-5.94	40.00	-7.72	100	246	Peak	Vertical		
2	171.62	30.72	36.52	-5.80	43.50	-12.78	100	63	Peak	Vertical		
3	215.27	30.71	39.09	-8.38	43.50	-12.79	100	159	Peak	Vertical		
4	358.83	24.17	28.31	-4.14	46.00	-21.83	100	79	Peak	Vertical		
5	371.44	28.24	32.01	-3.77	46.00	-17.76	100	116	Peak	Vertical		
6	615.88	29.33	28.38	0.95	46.00	-16.67	100	284	Peak	Vertical		

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

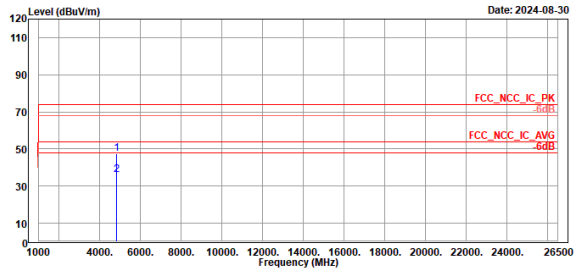
250Kbps

Low Channel (Horizontal)

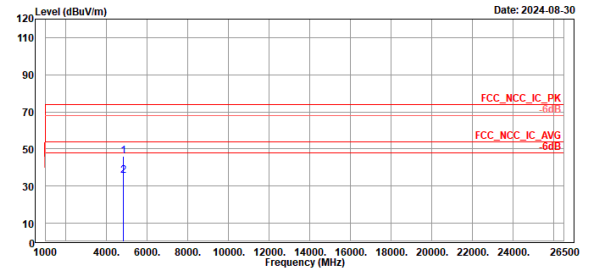
Low Channel (Vertical)



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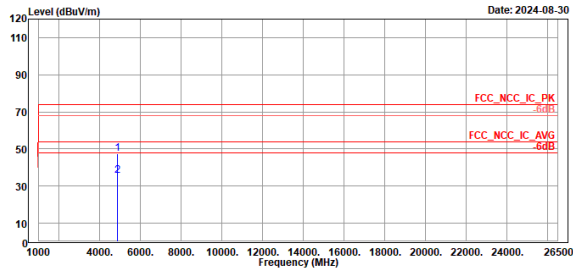
250Kbps

Middle Channel (Horizontal)

Middle Channel (Vertical)



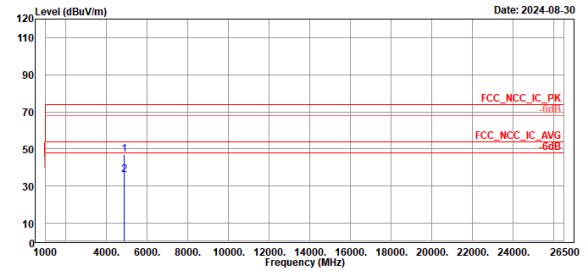
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4870.00	47.38	55.50	-8.12	74.00	-26.62	100	255	Peak	Horizontal		
2	4870.00	35.57	43.69	-8.12	54.00	-18.43	100	255	Average	Horizontal		



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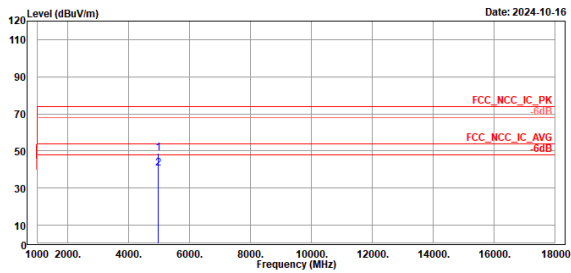
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1	4870.00	46.94	55.06	-8.12	74.00	-27.06	100	296	Peak	Vertical		
2	4870.00	35.87	43.99	-8.12	54.00	-18.13	100	296	Average	Vertical		

250Kbps

High Channel (Horizontal)



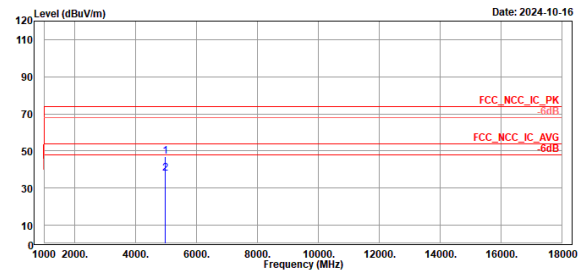
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4960.00	48.79	56.81	-8.02	74.00	-25.21	282	353	Peak	Horizontal		
2	4960.00	40.44	48.46	-8.02	54.00	-13.56	282	353	Average	Horizontal		



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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	4960.00	46.93	54.95	-8.02	74.00	-27.07	322	122	Peak	Vertical		
2	4960.00	38.00	46.02	-8.02	54.00	-16.00	322	122	Average	Vertical		

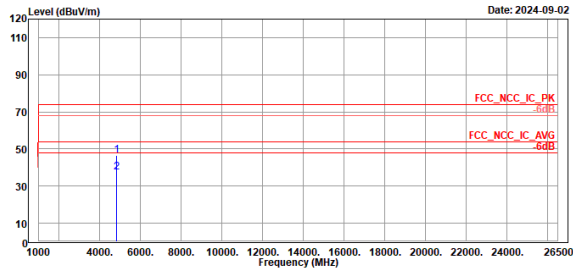
2Mbps

Low Channel (Horizontal)

Low Channel (Vertical)



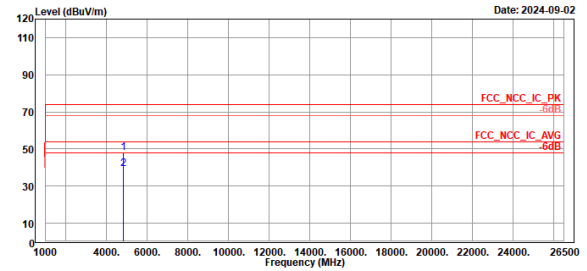
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4810.00	46.46	54.67	-8.21	74.00	-27.54	187	297	Peak	Horizontal		
2	4810.00	37.39	45.60	-8.21	54.00	-16.61	187	297	Average	Horizontal		



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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	4810.00	47.81	56.02	-8.21	74.00	-26.19	180	293	Peak	Vertical		
2	4810.00	39.11	47.32	-8.21	54.00	-14.89	180	293	Average	Vertical		

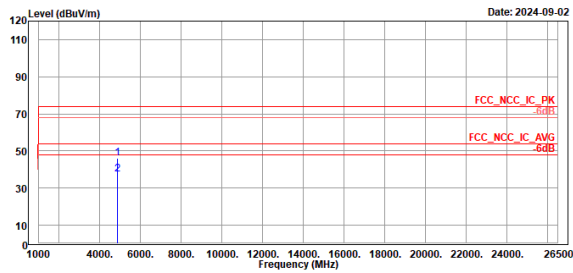
2Mbps

Middle Channel (Horizontal)

Middle Channel (Vertical)



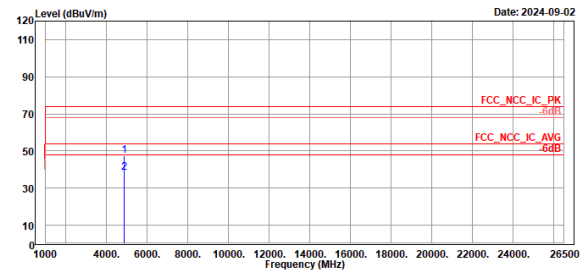
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4870.00	46.22	54.34	-8.12	74.00	-27.78	100	300	Peak	Horizontal		
2	4870.00	37.54	45.66	-8.12	54.00	-16.46	100	300	Average	Horizontal		



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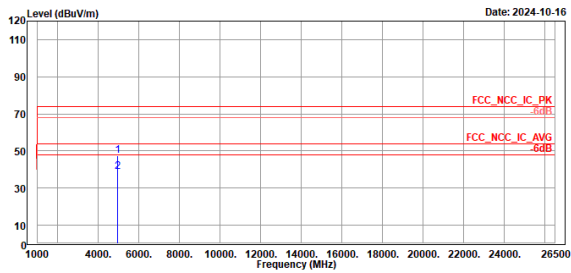
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1	4870.00	47.48	55.60	-8.12	74.00	-26.52	100	294	Peak	Vertical		
2	4870.00	38.16	46.28	-8.12	54.00	-15.84	100	294	Average	Vertical		

2Mbps

High Channel (Horizontal)



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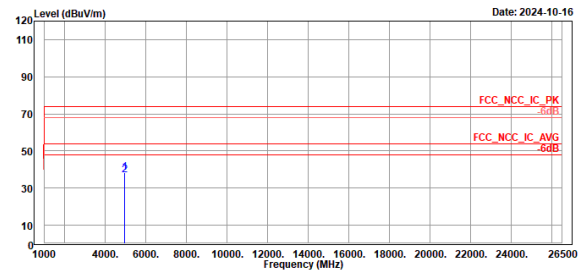


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	4960.00	47.58	55.60	-8.02	74.00	-26.42	100	67	Peak	Horizontal	
2	4960.00	38.82	46.84	-8.02	54.00	-15.18	100	67	Average	Horizontal	

High Channel (Vertical)



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	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	4960.00	38.55	46.57	-8.02	74.00	-35.45	100	293	Peak	Vertical	
2	4960.00	36.83	44.85	-8.02	54.00	-17.17	100	293	Average	Vertical	

LPA Mode

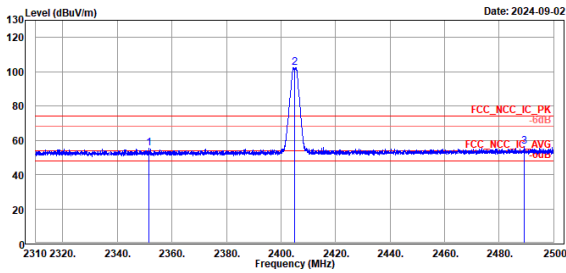
Band Edges, 2.31GHz ~ 2.5GHz

250Kbps

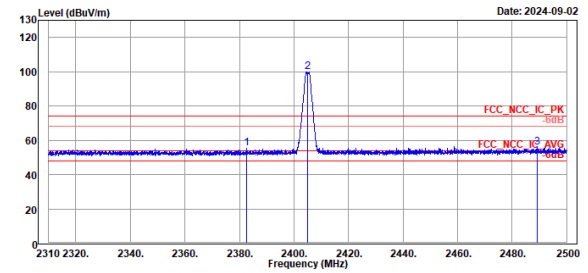
Low Channel (Horizontal) Peak



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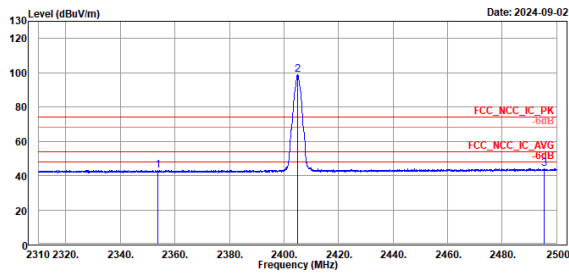


250Kbps

Low Channel (Horizontal) Average



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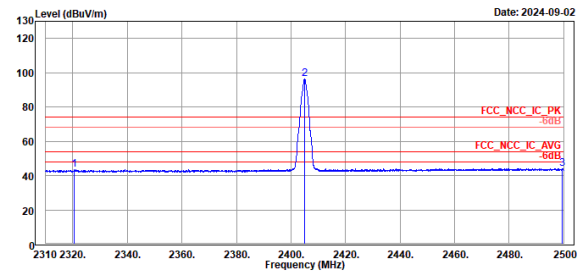


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2353.65	43.15	5.24	37.91	54.00	-10.85	271	82	Average	Horizontal		
2 *	2405.00	98.95	60.67	38.08	54.00	44.95	271	82	Average	Horizontal		
3	2495.39	44.08	5.81	38.27	54.00	-9.92	271	82	Average	Horizontal		

Low Channel (Vertical) 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	2320.45	43.47	5.72	37.75	54.00	-10.53	280	160	Average	Vertical		
2 *	2405.00	96.39	58.31	38.08	54.00	42.39	280	160	Average	Vertical		
3	2499.38	44.09	5.82	38.27	54.00	-9.91	280	160	Average	Vertical		

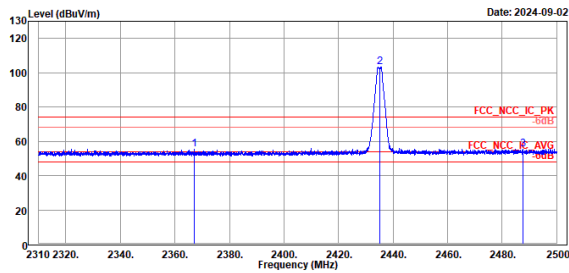
250Kbps

Middle Channel (Horizontal) Peak

Middle Channel (Vertical) Peak



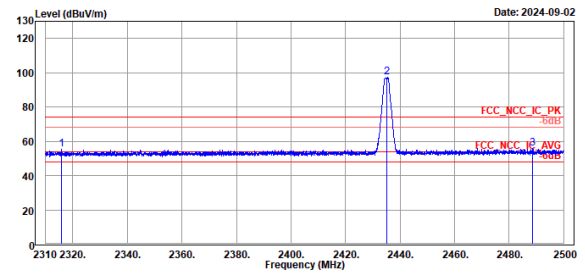
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2367.18	55.31	17.36	37.95	74.00	-18.69		323	288	Peak	Horizontal	
2 *	2435.00	103.29	65.05	38.24	74.00	29.29		323	288	Peak	Horizontal	
3	2487.56	55.55	17.27	38.28	74.00	-18.45		323	288	Peak	Horizontal	



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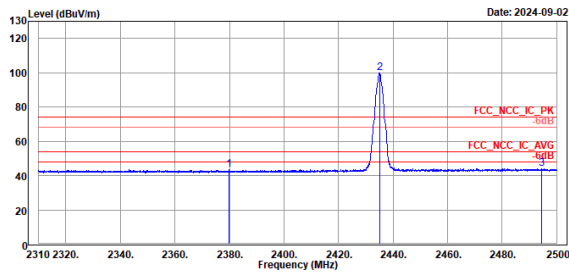
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1	2315.75	55.49	17.77	37.72	74.00	-18.51		312	224	Peak	Vertical	
2 *	2435.00	97.14	58.90	38.24	74.00	23.14		312	224	Peak	Vertical	
3	2488.55	55.86	17.58	38.28	74.00	-18.14		312	224	Peak	Vertical	

250Kbps

Middle Channel (Horizontal) Average



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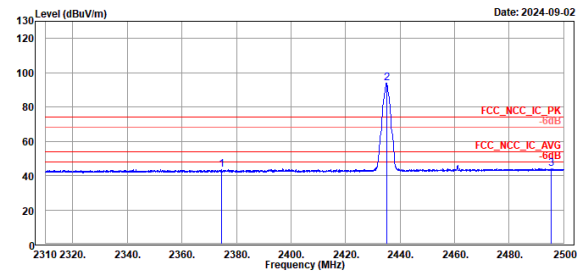


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2379.83	43.36	5.37	37.99	54.00	-10.64	323	288	Average	Horizontal		
2 *	2435.00	100.05	61.81	38.24	54.00	46.05	323	288	Average	Horizontal		
3	2494.35	43.85	5.58	38.27	54.00	-10.15	323	288	Average	Horizontal		

Middle Channel (Vertical) Average



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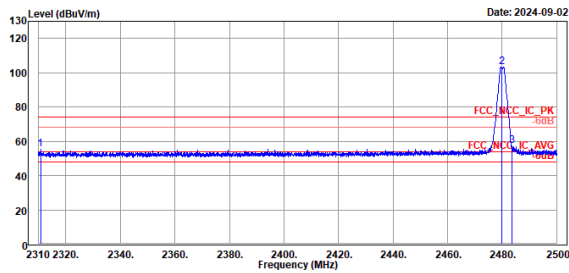
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1	2374.55	43.62	5.64	37.98	54.00	-10.38	312	224	Average	Vertical		
2 *	2435.00	93.84	55.60	38.24	54.00	39.84	312	224	Average	Vertical		
3	2495.44	44.07	5.80	38.27	54.00	-9.93	312	224	Average	Vertical		

250Kbps

High Channel (Horizontal) Peak



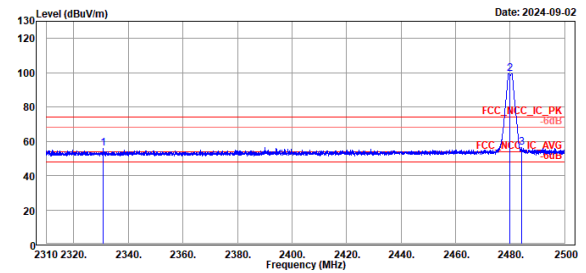
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2310.71	55.13	17.44	37.69	74.00	-18.87	323	86	Peak	Horizontal		
2 *	2480.00	103.24	64.95	38.29	74.00	29.24	323	86	Peak	Horizontal		
3	2483.71	57.28	19.00	38.28	74.00	-16.72	323	86	Peak	Horizontal		



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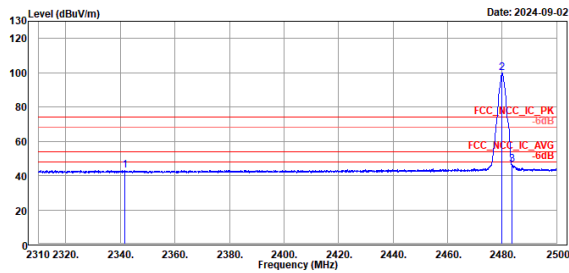
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1	2330.71	55.61	17.81	37.80	74.00	-18.39	329	168	Peak	Vertical		
2 *	2480.00	99.59	61.30	38.29	74.00	25.59	329	168	Peak	Vertical		
3	2484.28	56.57	18.29	38.28	74.00	-17.43	329	168	Peak	Vertical		

250Kbps

High Channel (Horizontal) Average



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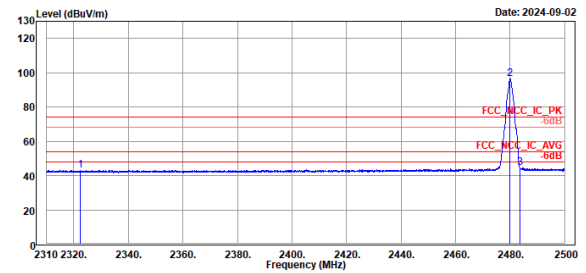


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2341.59	43.21	5.35	37.86	54.00	-10.79	323	86	Average	Horizontal		
2 *	2480.00	99.99	61.70	38.29	54.00	45.99	323	86	Average	Horizontal		
3	2483.50	46.43	8.15	38.28	54.00	-7.57	323	86	Average	Horizontal		

High Channel (Vertical) Average



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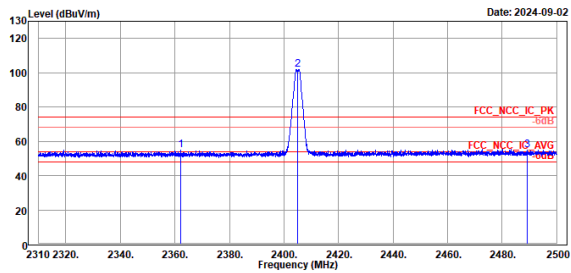
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1	2322.35	43.23	5.47	37.76	54.00	-10.77	329	168	Average	Vertical		
2 *	2480.00	96.30	58.01	38.29	54.00	42.30	329	168	Average	Vertical		
3	2483.50	44.61	6.33	38.28	54.00	-9.39	329	168	Average	Vertical		

2Mbps

Low Channel (Horizontal) Peak



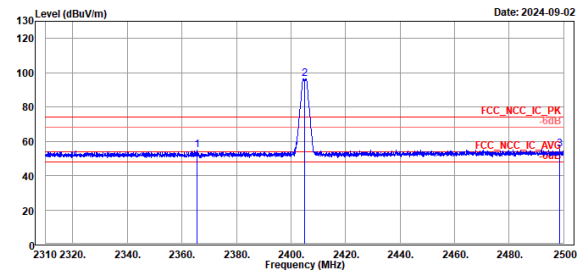
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2362.16	54.98	17.05	37.93	74.00	-19.02	335	291	Peak	Horizontal		
2 *	2405.00	102.07	63.99	38.08	74.00	28.07	335	291	Peak	Horizontal		
3	2489.22	55.00	16.72	38.28	74.00	-19.00	335	291	Peak	Horizontal		



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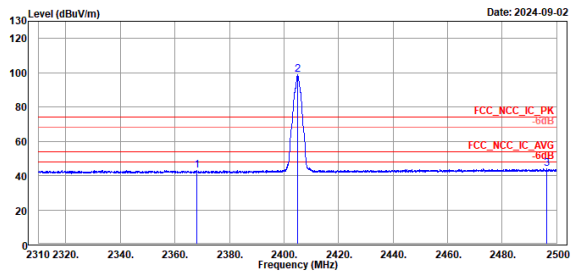
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2365.48	54.84	16.89	37.95	74.00	-19.16	333	62	Peak	Vertical		
2 *	2405.00	96.57	58.49	38.08	74.00	22.57	333	62	Peak	Vertical		
3	2498.48	55.51	17.24	38.27	74.00	-18.49	333	62	Peak	Vertical		

2Mbps

Low Channel (Horizontal) Average



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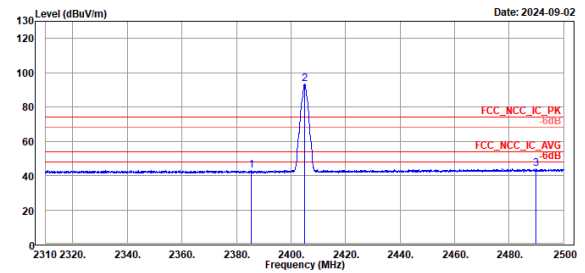


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2368.14	43.16	5.20	37.96	54.00	-10.84	335	291	Average	Horizontal		
2 *	2405.00	98.67	60.59	38.08	54.00	44.67	335	291	Average	Horizontal		
3	2496.49	43.79	5.51	38.28	54.00	-10.21	335	291	Average	Horizontal		

Low Channel (Vertical) Average



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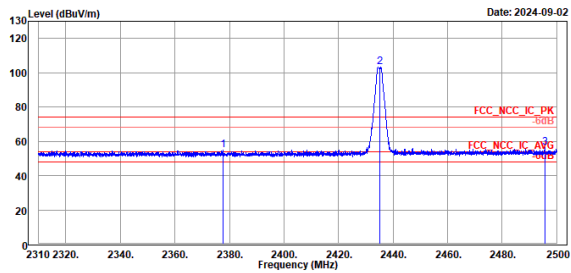
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2385.57	43.14	5.13	38.01	54.00	-10.86	333	62	Average	Vertical		
2 *	2405.00	93.26	55.18	38.08	54.00	39.26	333	62	Average	Vertical		
3	2489.69	43.79	5.51	38.28	54.00	-10.21	333	62	Average	Vertical		

2Mbps

Middle Channel (Horizontal) Peak



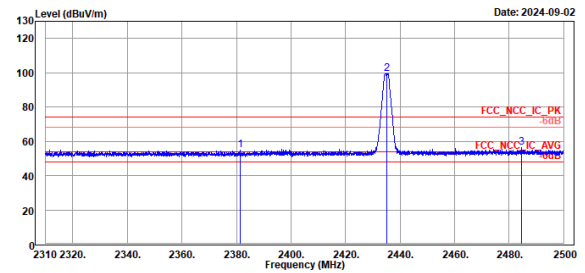
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2377.59	54.69	16.70	37.99	74.00	-19.31	333	84	Peak	Horizontal		
2 *	2435.00	103.30	65.06	38.24	74.00	29.30	333	84	Peak	Horizontal		
3	2495.68	56.42	18.14	38.28	74.00	-17.58	333	84	Peak	Horizontal		



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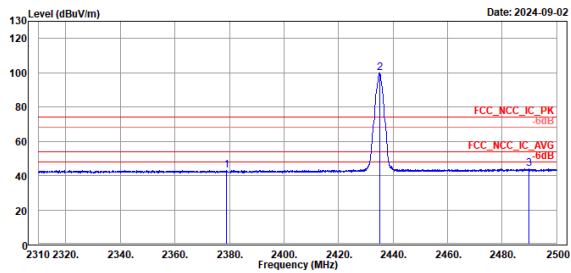
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2381.44	54.89	16.90	37.99	74.00	-19.11	347	162	Peak	Vertical		
2 *	2435.00	99.59	61.35	38.24	74.00	25.59	347	162	Peak	Vertical		
3	2484.47	56.12	17.84	38.28	74.00	-17.88	347	162	Peak	Vertical		

2Mbps

Middle Channel (Horizontal) Average



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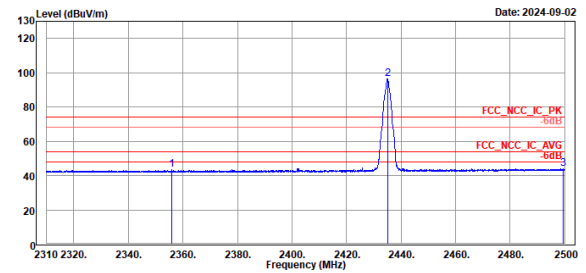


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2378.92	43.16	5.17	37.99	54.00	-10.84	333	84	Average	Horizontal		
2 *	2435.00	99.98	61.74	38.24	54.00	45.98	333	84	Average	Horizontal		
3	2489.79	43.85	5.57	38.28	54.00	-10.15	333	84	Average	Horizontal		

Middle Channel (Vertical) Average



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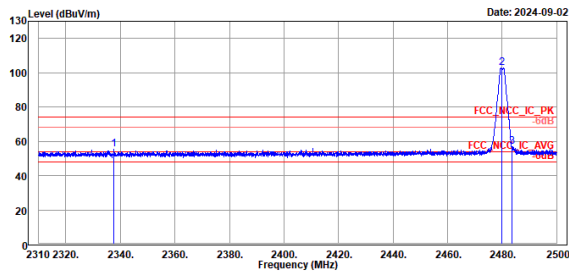
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1	2355.98	43.59	5.67	37.92	54.00	-10.41	347	162	Average	Vertical		
2 *	2435.00	96.30	58.06	38.24	54.00	42.30	347	162	Average	Vertical		
3	2499.43	43.89	5.62	38.27	54.00	-10.11	347	162	Average	Vertical		

2Mbps

High Channel (Horizontal) Peak



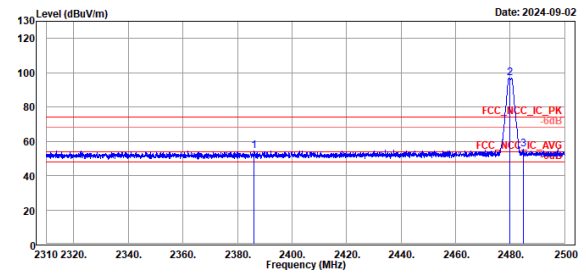
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2337.65	55.28	17.37	37.83	74.00	-18.00	355	285	Peak	Horizontal		
2 *	2480.00	102.93	64.64	38.29	74.00	28.93	355	285	Peak	Horizontal		
3	2483.50	56.99	18.71	38.28	74.00	-17.01	355	285	Peak	Horizontal		



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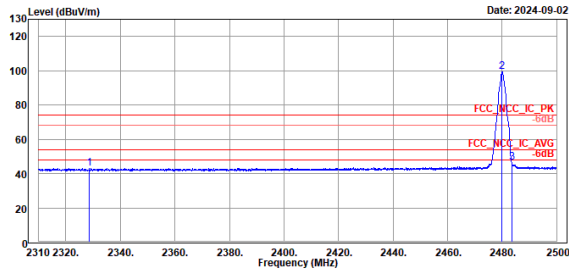
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2386.05	54.23	16.22	38.01	74.00	-19.77	361	41	Peak	Vertical		
2 *	2480.00	96.74	58.45	38.29	74.00	22.74	361	41	Peak	Vertical		
3	2484.94	55.56	17.28	38.28	74.00	-18.44	361	41	Peak	Vertical		

2Mbps

High Channel (Horizontal) Average



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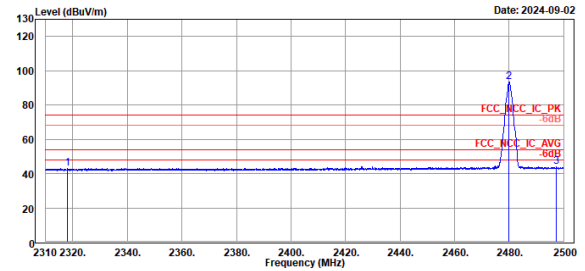


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2328.48	43.15	5.37	37.78	54.00	-10.85	355	285	Average	Horizontal		
2 *	2480.00	99.59	61.30	38.29	54.00	45.59	355	285	Average	Horizontal		
3	2483.50	46.35	8.07	38.28	54.00	-7.65	355	285	Average	Horizontal		

High Channel (Vertical) 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	2318.03	43.21	5.48	37.73	54.00	-10.79	361	41	Average	Vertical		
2 *	2480.00	93.54	55.25	38.29	54.00	39.54	361	41	Average	Vertical		
3	2497.25	44.12	5.84	38.28	54.00	-9.88	361	41	Average	Vertical		

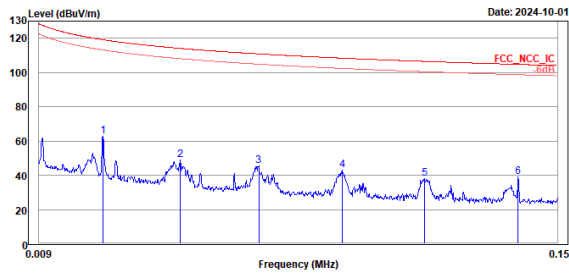
Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

2Mbps

Low Channel (Open) 9kHz~150kHz



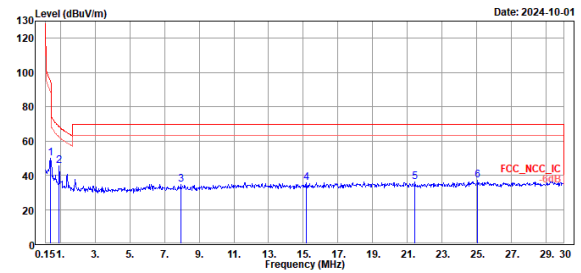
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	0.03	62.57	42.76	19.81	119.13	-56.56	100	331 Peak	Open	
2	0.05	48.87	29.35	19.52	114.06	-65.19	100	316 Peak	Open	
3	0.07	45.49	26.76	18.73	110.84	-65.35	100	288 Peak	Open	
4	0.09	42.92	24.31	18.61	108.37	-65.45	100	279 Peak	Open	
5	0.11	38.16	19.55	18.61	106.48	-68.32	100	266 Peak	Open	
6	0.14	39.13	20.36	18.77	104.72	-65.59	100	200 Peak	Open	



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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	0.45	50.08	30.93	19.15	94.57	-44.49	100	170 Peak	Open	
2	0.93	45.28	26.13	19.15	68.27	-22.99	100	170 Peak	Open	
3	7.94	34.75	13.86	20.89	69.50	-34.75	100	158 Peak	Open	
4	15.19	35.57	13.90	21.67	69.50	-33.93	100	242 Peak	Open	
5	21.43	35.95	13.65	22.30	69.50	-33.55	100	180 Peak	Open	
6	25.04	36.91	13.72	23.19	69.50	-32.59	100	218 Peak	Open	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

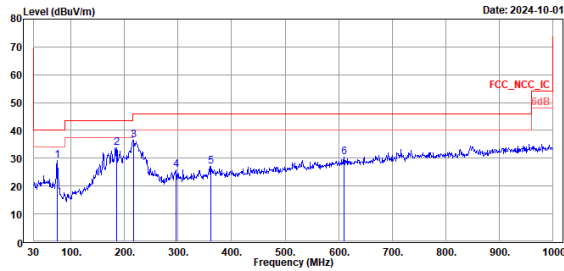
2Mbps

Low Channel (Horizontal)

Low Channel (Vertical)



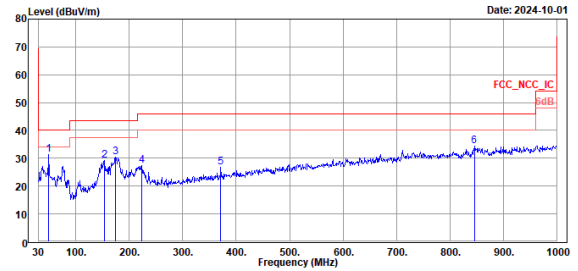
TÜV Rheinland Taiwan Ltd.
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	73.65	29.11	38.71	-9.60	40.00	-10.89	100	178	Peak	Horizontal		
2	185.20	33.90	41.32	-7.42	43.50	-9.60	100	220	Peak	Horizontal		
3	216.24	36.47	44.84	-8.37	46.00	-9.53	100	205	Peak	Horizontal		
4	296.75	25.90	31.39	-5.49	46.00	-20.10	100	190	Peak	Horizontal		
5	360.77	27.08	31.15	-4.07	46.00	-18.92	100	220	Peak	Horizontal		
6	610.06	30.33	29.41	0.92	46.00	-15.67	100	331	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	49.40	31.41	37.35	-5.94	40.00	-8.59	100	237	Peak	Vertical		
2	153.19	29.20	35.16	-5.96	43.50	-14.30	100	85	Peak	Vertical		
3	173.56	30.50	36.44	-5.94	43.50	-13.00	100	148	Peak	Vertical		
4	223.03	27.50	35.62	-8.12	46.00	-18.50	100	14	Peak	Vertical		
5	371.44	26.84	30.61	-3.77	46.00	-19.16	100	145	Peak	Vertical		
6	845.77	34.42	30.00	4.42	46.00	-11.58	100	60	Peak	Vertical		

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

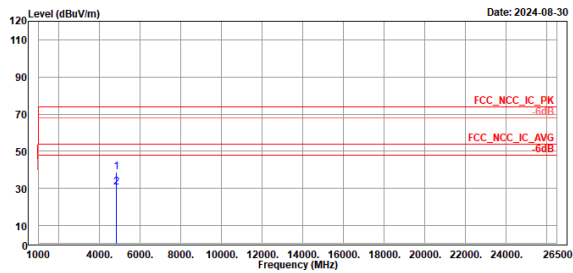
250Kbps

Low Channel (Horizontal)

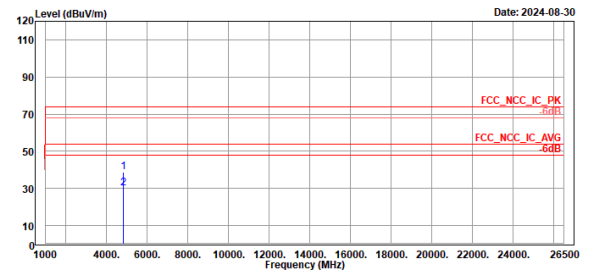
Low Channel (Vertical)



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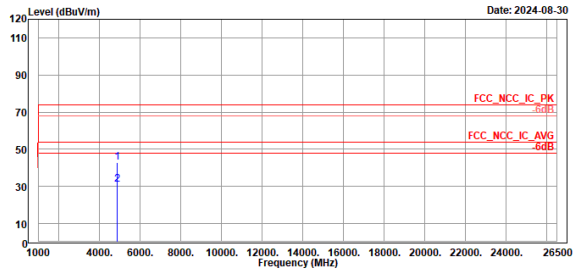


250Kbps

Middle Channel (Horizontal)



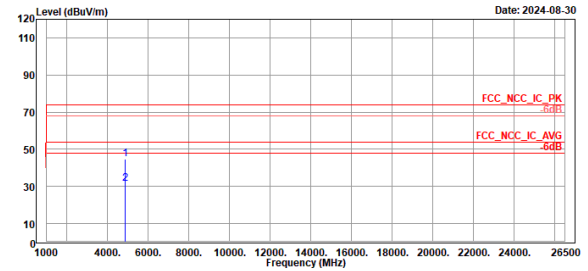
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	4870.00	42.97	51.09	-8.12	74.00	-31.03	180	25	Peak	Horizontal		
2	4870.00	31.11	39.23	-8.12	54.00	-22.89	180	25	Average	Horizontal		



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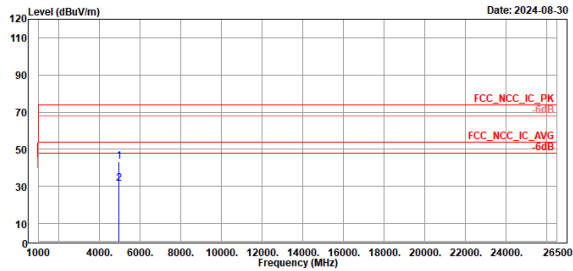
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1	4870.00	44.68	52.80	-8.12	74.00	-29.32	180	331	Peak	Vertical		
2	4870.00	31.57	39.69	-8.12	54.00	-22.43	180	331	Average	Vertical		

250Kbps

High Channel (Horizontal)



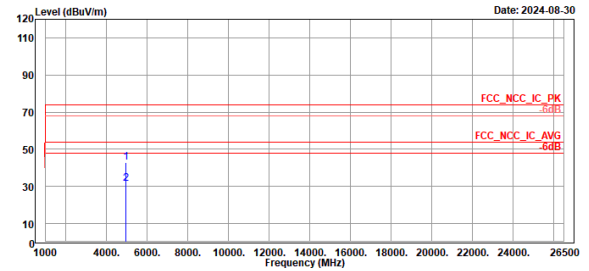
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4960.00	43.49	51.51	-8.02	74.00	-30.51	190	360	Peak	Horizontal		
2	4960.00	31.69	39.71	-8.02	54.00	-22.31	190	360	Average	Horizontal		



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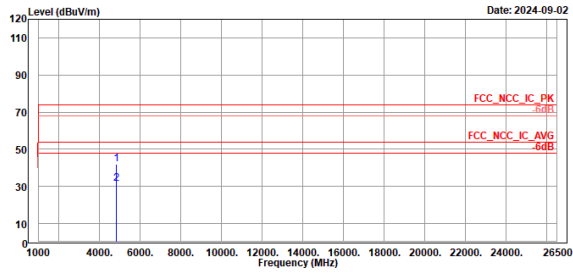
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1	4960.00	43.02	51.04	-8.02	74.00	-30.98	180	124	Peak	Vertical		
2	4960.00	31.48	39.50	-8.02	54.00	-22.52	180	124	Average	Vertical		

2Mbps

Low Channel (Horizontal)



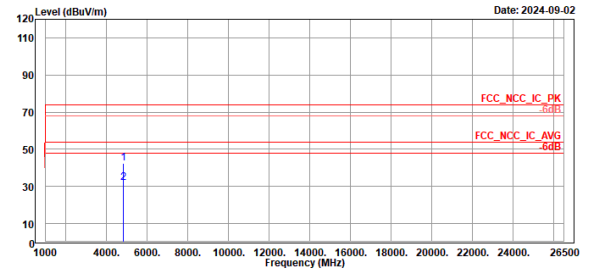
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	4810.00	42.19	50.40	-8.21	74.00	-31.81	100	344	Peak	Horizontal		
2	4810.00	31.51	39.72	-8.21	54.00	-22.49	100	344	Average	Horizontal		



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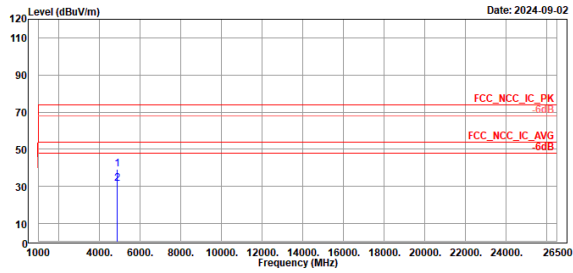
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	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	cm	deg			
1	4810.00	42.42	50.63	-8.21	74.00	-31.58	100	294	Peak	Vertical		
2	4810.00	32.01	40.22	-8.21	54.00	-21.99	100	294	Average	Vertical		

2Mbps

Middle Channel (Horizontal)



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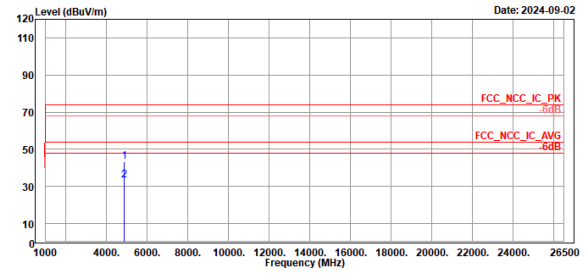


Line	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	4870.00	39.42	47.54	-8.12	74.00	-34.58	180
2	4870.00	31.58	39.70	-8.12	54.00	-22.42	180

Middle Channel (Vertical)



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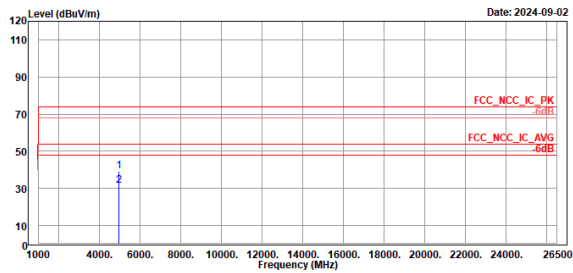
Line	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg
1	4870.00	43.40	51.52	-8.12	74.00	-30.60	180
2	4870.00	33.20	41.32	-8.12	54.00	-20.80	180

2Mbps

High Channel (Horizontal)



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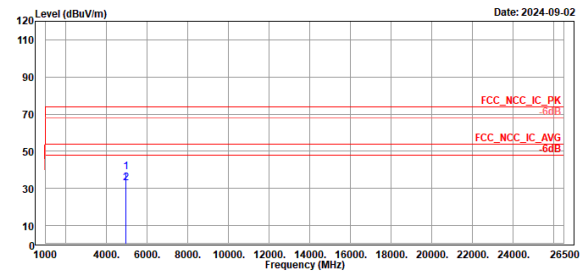


Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4960.00	39.16	47.18	-8.02	74.00	-34.84	180	39	Peak	Horizontal	
2	4960.00	31.26	39.28	-8.02	54.00	-22.74	180	39	Average	Horizontal	

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	4960.00	38.94	46.96	-8.02	74.00	-35.06	180	295	Peak	Vertical	
2	4960.00	32.96	40.98	-8.02	54.00	-21.04	180	295	Average	Vertical	

Appendix B: Test Results of Radiated Spurious Emissions for 2nd

Source

MPA Mode

Band Edges, 2.31GHz ~ 2.5GHz

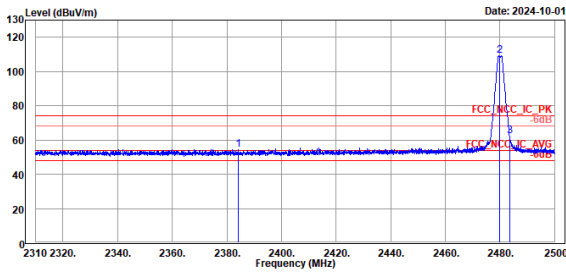
250Kbps

High Channel (Horizontal) Peak

High Channel (Vertical) Peak



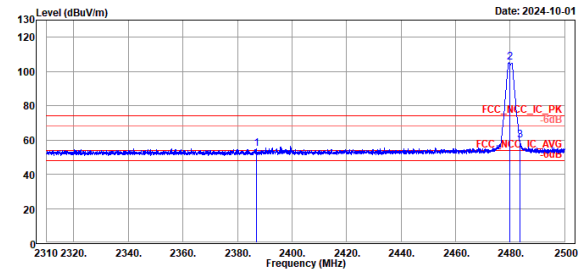
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2384.29	54.58	16.57	38.01	74.00	-19.42	249	110	Peak	Horizontal		
2 *	2480.00	109.27	70.98	38.29	74.00	35.27	249	110	Peak	Horizontal		
3	2483.50	62.39	24.11	38.28	74.00	-11.61	249	110	Peak	Horizontal		



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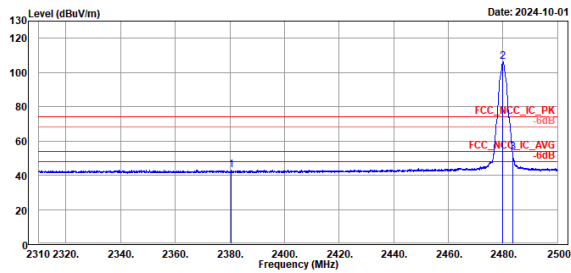
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	2387.05	55.04	17.03	38.01	74.00	-18.96	292	149	Peak	Vertical		
2 *	2480.00	105.09	66.80	38.29	74.00	31.09	292	149	Peak	Vertical		
3	2483.50	59.63	21.35	38.28	74.00	-14.37	292	149	Peak	Vertical		

250Kbps

High Channel (Horizontal) Average



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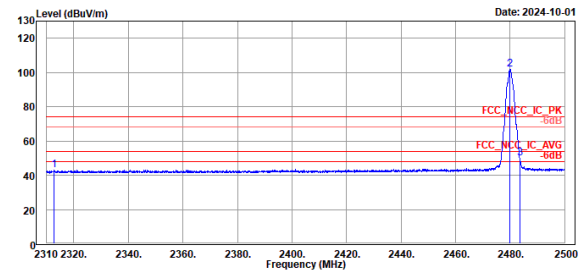


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2380.59	43.19	5.20	37.99	54.00	-10.81	249	110	Average	Horizontal		
2 *	2480.00	106.06	67.77	38.29	54.00	52.06	249	110	Average	Horizontal		
3 !	2483.50	53.16	14.88	38.28	54.00	-0.84	249	110	Average	Horizontal		

High Channel (Vertical) 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	2312.71	43.05	5.34	37.71	54.00	-10.95	292	149	Average	Vertical		
2 *	2480.00	101.91	63.62	38.29	54.00	47.91	292	149	Average	Vertical		
3 !	2483.50	49.97	11.69	38.28	54.00	-4.03	292	149	Average	Vertical		

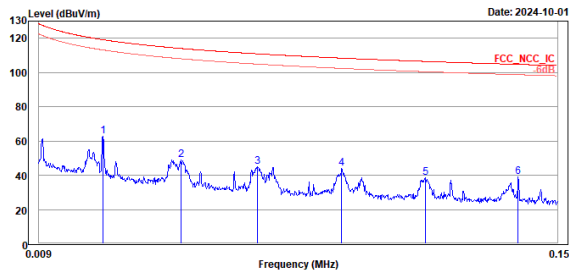
Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

250Kbps

High Channel (Open) 9kHz~150kHz



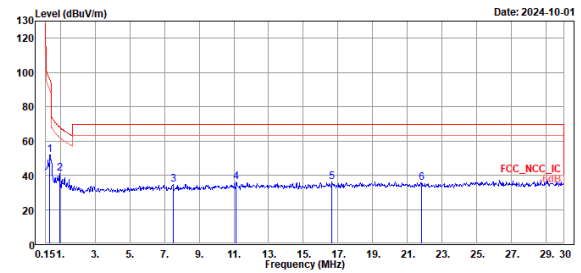
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	0.03	62.62	42.81	19.81	119.13	-56.51	100	284 Peak	Open	
2	0.05	48.95	29.43	19.52	114.01	-65.06	100	294 Peak	Open	
3	0.07	44.85	26.11	18.74	110.90	-66.05	100	248 Peak	Open	
4	0.09	43.91	25.30	18.61	108.38	-64.47	100	272 Peak	Open	
5	0.11	38.72	20.11	18.61	106.46	-67.74	100	281 Peak	Open	
6	0.14	38.87	20.10	18.77	104.72	-65.85	100	212 Peak	Open	



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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	0.39	51.95	32.81	19.14	95.81	-43.86	100	232 Peak	Open	
2	0.96	41.16	22.03	19.13	68.00	-26.84	100	210 Peak	Open	
3	7.49	34.70	13.78	20.92	69.50	-34.80	100	356 Peak	Open	
4	11.13	35.90	14.35	21.55	69.50	-33.60	100	297 Peak	Open	
5	16.66	35.99	13.78	22.21	69.50	-33.51	100	236 Peak	Open	
6	21.79	35.48	13.32	22.16	69.50	-34.02	100	37 Peak	Open	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

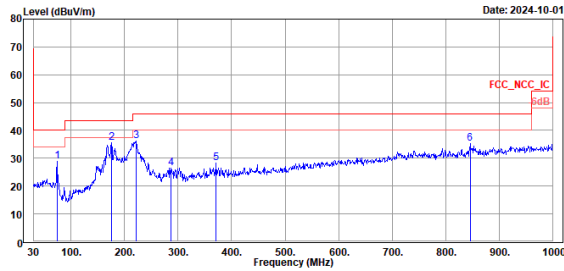
250Kbps

High Channel (Horizontal)

High Channel (Vertical)



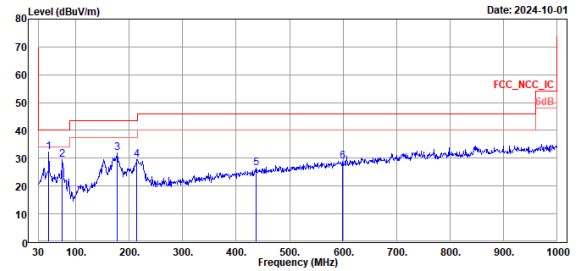
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	73.65	28.90	38.50	-9.60	40.00	-11.10	100	150	Peak	Horizontal		
2	175.50	35.45	41.57	-6.12	43.50	-8.05	100	124	Peak	Horizontal		
3	221.09	36.08	44.32	-8.24	46.00	-9.92	100	192	Peak	Horizontal		
4	287.05	26.61	32.23	-5.62	46.00	-19.39	100	176	Peak	Horizontal		
5	371.44	28.31	32.08	-3.77	46.00	-17.69	100	102	Peak	Horizontal		
6	845.77	35.38	30.96	4.42	46.00	-10.62	100	48	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	49.40	32.12	38.06	-5.94	40.00	-7.88	100	207	Peak	Vertical		
2	74.62	29.58	39.39	-9.81	40.00	-10.42	100	312	Peak	Vertical		
3	177.44	31.92	38.27	-6.35	43.50	-11.58	100	58	Peak	Vertical		
4	214.30	29.44	37.86	-8.42	43.50	-14.06	100	125	Peak	Vertical		
5	437.40	26.48	28.92	-2.44	46.00	-19.52	100	6	Peak	Vertical		
6	598.42	28.88	28.19	0.69	46.00	-17.12	100	350	Peak	Vertical		

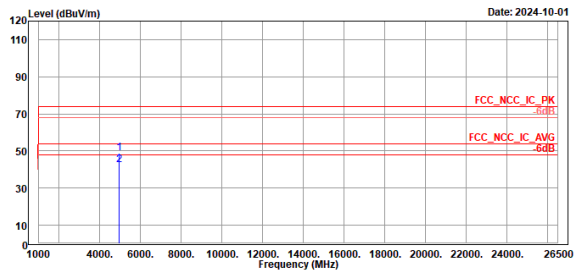
Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

250Kbps

High Channel (Horizontal)



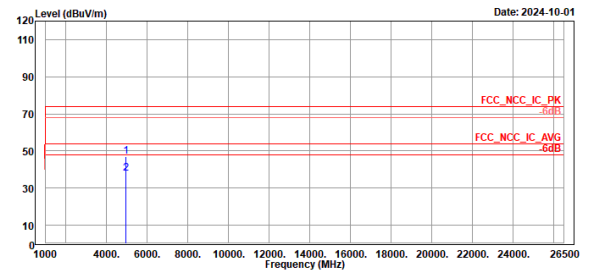
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High Channel (Vertical)



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LPA Mode

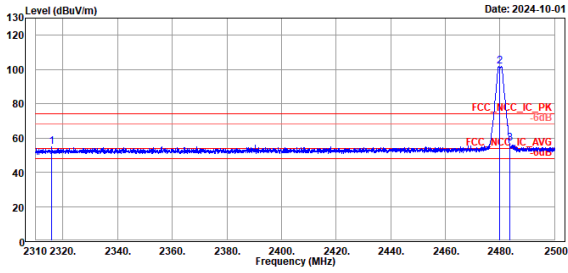
Band Edges, 2.31GHz ~ 2.5GHz

250Kbps

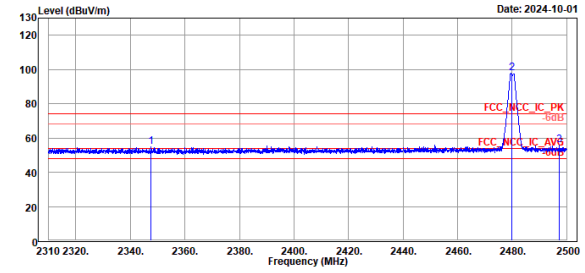
High Channel (Horizontal) Peak



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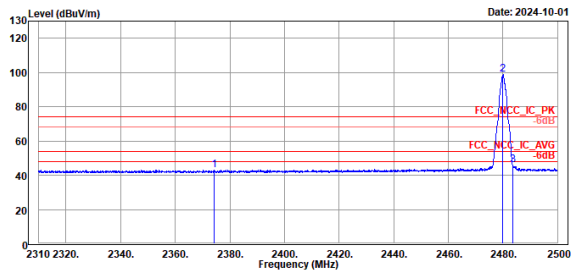


250Kbps

High Channel (Horizontal) Average



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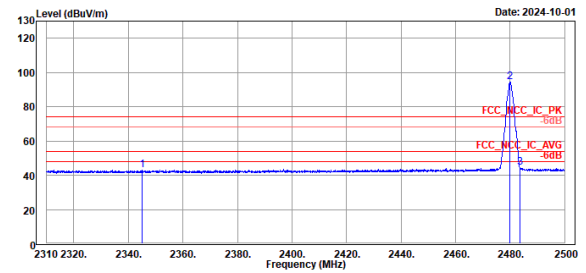


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2374.13	42.99	5.01	37.98	54.00	-11.01	249	110	Average	Horizontal		
2 *	2480.00	98.64	60.35	38.29	54.00	44.64	249	110	Average	Horizontal		
3	2483.50	46.00	7.72	38.28	54.00	-8.00	249	110	Average	Horizontal		

High Channel (Vertical) 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	2345.15	42.95	5.08	37.87	54.00	-11.05	292	149	Average	Vertical		
2 *	2480.00	94.53	56.24	38.29	54.00	40.53	292	149	Average	Vertical		
3	2483.50	44.58	6.30	38.28	54.00	-9.42	292	149	Average	Vertical		

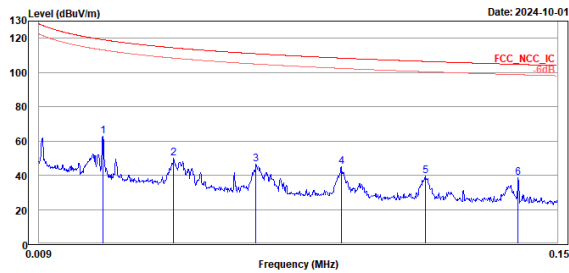
Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

250Kbps

High Channel (Open) 9kHz~150kHz



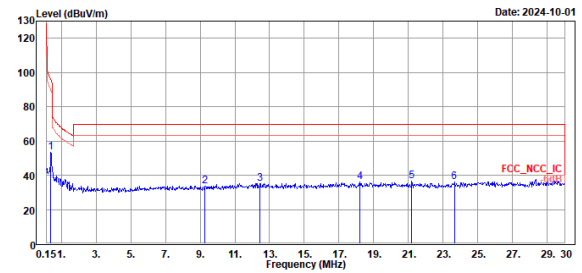
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	0.03	62.54	42.73	19.81	119.13	-56.59	100	41 Peak	Open	
2	0.05	49.79	30.27	19.52	114.40	-64.61	100	237 Peak	Open	
3	0.07	46.53	27.79	18.74	110.93	-64.40	100	258 Peak	Open	
4	0.09	44.95	26.34	18.61	108.40	-63.45	100	230 Peak	Open	
5	0.11	39.67	21.06	18.61	106.46	-66.79	100	267 Peak	Open	
6	0.14	38.56	19.79	18.77	104.72	-66.16	100	218 Peak	Open	



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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	0.39	53.35	34.21	19.14	95.81	-42.46	100	208 Peak	Open	
2	9.25	33.85	12.91	20.94	69.50	-35.65	100	82 Peak	Open	
3	12.45	35.33	13.72	21.61	69.50	-34.17	100	99 Peak	Open	
4	18.18	36.04	13.49	22.55	69.50	-33.46	100	180 Peak	Open	
5	21.19	36.53	14.14	22.39	69.50	-32.97	100	287 Peak	Open	
6	23.64	35.95	13.80	22.15	69.50	-33.55	100	135 Peak	Open	

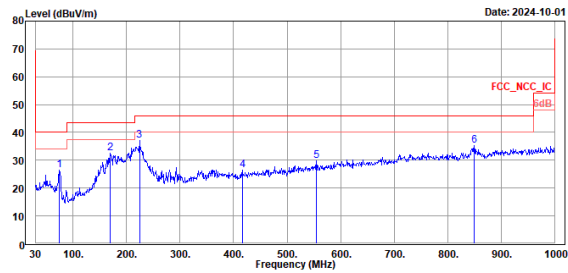
Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

250Kbps

High Channel (Horizontal)



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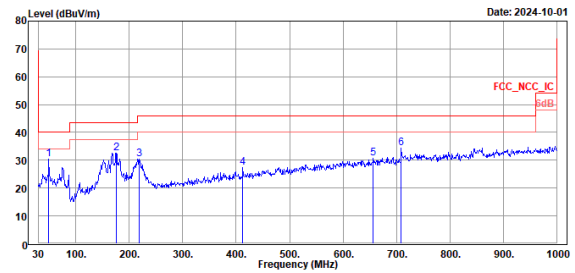


	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	74.62	26.51	36.32	-9.81	40.00	-13.49	100	9 Peak	Horizontal	
2	169.68	32.59	38.38	-5.79	43.50	-10.91	100	68 Peak	Horizontal	
3	224.00	37.15	45.22	-8.07	46.00	-8.85	100	210 Peak	Horizontal	
4	416.06	26.59	29.56	-2.97	46.00	-19.41	100	188 Peak	Horizontal	
5	554.77	29.93	30.16	-0.23	46.00	-16.07	100	105 Peak	Horizontal	
6	849.65	35.28	30.78	4.50	46.00	-10.72	100	134 Peak	Horizontal	

High Channel (Vertical)



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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	49.40	30.52	36.46	-5.94	40.00	-9.48	100	277 Peak	Vertical	
2	175.50	32.55	38.67	-6.12	43.50	-10.95	100	76 Peak	Vertical	
3	219.15	30.48	38.80	-8.32	46.00	-15.52	100	146 Peak	Vertical	
4	412.18	27.32	30.43	-3.11	46.00	-18.68	100	316 Peak	Vertical	
5	656.62	30.79	29.46	1.33	46.00	-15.21	100	292 Peak	Vertical	
6	789.00	34.43	31.89	2.54	46.00	-11.57	100	152 Peak	Vertical	

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

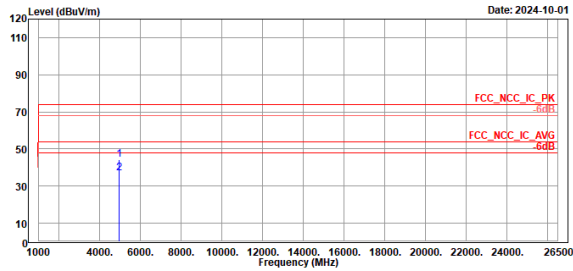
250Kbps

High Channel (Horizontal)

High Channel (Vertical)



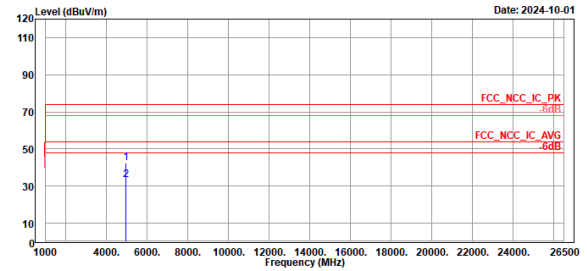
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	4960.00	44.19	52.21	-8.02	74.00	-29.81	100	68	Peak	Horizontal		
2	4960.00	37.04	45.06	-8.02	54.00	-16.96	100	68	Average	Horizontal		



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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	4960.00	42.61	50.63	-8.02	74.00	-31.39	100	38	Peak	Vertical		
2	4960.00	33.17	41.19	-8.02	54.00	-20.83	100	38	Average	Vertical		