

Prüfbericht-Nr.: <i>Test report no.:</i>	IN251ZQA 001	Auftrags-Nr.: <i>Order no.:</i>	147065667 010	Seite 1 von 33 Page 1 of 33
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	2672067	Auftragsdatum: <i>Order date:</i>	2025-06-02	
Auftraggeber: <i>Client:</i>	Ideabytes Software India Pvt Ltd 11th floor, Kapil Towers, ISB Rd, Financial District, Gachibowli, Nanakramguda, Hyderabad, Telangana 500032			
Prüfgegenstand: <i>Test item:</i>	IoT Datalogger			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	Main Model: IBI-WDL-0525 Associated Model: Refer the Page No: 4			
Auftrags-Inhalt: <i>Order content:</i>	Testing and issue of Test Report with Grant Certificate			
Prüfgrundlage: <i>Test specification:</i>	FCC Part15 SubpartC 15.247; 15.205; 15.207; 15.209			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2025-06-10			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A004016452-001 & A004016452-002			
Prüfzeitraum: <i>Testing period:</i>	2025-06-11 - 2025-06-12			
Ort der Prüfung: <i>Place of testing:</i>	Wireless laboratory, Bangalore			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (India) Pvt.Ltd., 27/B, 2nd Cross, Electronic City Phase1 Bangalore -560 100, India FCC Test site registration number: 496599 ISED Test site registration number: 27711			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>			genehmigt von: <i>authorized by:</i>	
Datum: <i>Date:</i>	2025-08-05 Signed by: Naveen Kumar Muthyalapati Venkata		Ausstellungsdatum: <i>Issue date:</i>	2025-08-05 Signed by: Madhu Nagaraju
Stellung / Position:	M.V.Naveen Kumar Senior Engineer		Stellung / Position:	Madhu K.N Assistant Manager
Sonstiges / <i>Other:</i>	FCC ID: 2BP87-WDL0525			
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: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
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- | | |
|---|--|
| 1 | <p>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</p> <p>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i></p> |
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| 3 | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.</p> <p>Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i></p> <p><i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p> |
| 4 | <p>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2023, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</p> <p><i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2023, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i></p> |

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TEST SUMMARY

Test Item	FCC	Result
Maximum conducted (Average) output power	15.247 (b)(3)	Pass
Maximum Power Spectral Density	FCC 15.247(e)	*N/T
DTS Bandwidth & 99% Bandwidth	FCC 15.247(a)(2)	*N/T
Emissions in non-restricted frequency bands	15.247 (d)	*N/T
Spurious Radiated Emissions and Restricted Bands of Operation	15.247 (d) / FCC 15.209 / FCC 15.205	Pass
AC Power lines Conducted emission	FCC 15.207	Pass
Antenna Requirement	FCC 15.203	Complied

N/T: Not Tested – These test cases have not been executed, as the product incorporates the certified RF module: **Wi-Fi Internet of Things module** from ESPRESSIF SYSTEMS (SHANGHAI) PTE LTD. This module has been tested at **TA Technology (Shanghai) Co., Ltd**, under **FCC ID: 2AC7Z-ESPWROOM02D**. Therefore, the mentioned test cases are excluded, and relevant details can be found in the module's test reports of FCC: RXA1709-0323RF02R3, corresponding to the respective FCC ID.

Product	Applicant	FCC ID	FCC Report No	Issued By	FCC Grant Date
Wi-Fi Internet of Things module	ESPRESSIF SYSTEMS (SHANGHAI) PTE LTD	2AC7Z-ESPWROOM02D	RXA1709-0323RF02R3	TA Technology (Shanghai) Co., Ltd	14 th Nov 2017

Product Category: Electronics Testing

Test Discipline: EMC Test Facility

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REVISION HISTORY OF THIS REPORT

Report Number	Version	Description	Issue date
IN251ZQA 001	01	Initial issue of report	2025-08-05

Associated Models:

IBI-WT120; IBI-WDT120; IBI-WT350; IBI-T120; IBITD120; IBI-T350; IBIT350; IBI-WTH120; IBI-WTHD120;
IBI-WTH50; IBI-TH50; IBI-CSC50R; IBI-WNS120; IBI-CTH50; IBI-DPTH50

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1 GENERAL REMARKS

1.1 Attachments

All attachments are part of this test report and are issued in separate document

1. Test Setup photos
2. EUT External Photos
3. EUT Internal Photos
4. FCC Label and Label Location
5. Block Diagram
6. Specification of EUT
7. Schematic Diagrams
8. Bill of Material
9. User Manual
10. Maximum Permissible Exposure Information

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2 TEST SITES

2.1 Testing Facilities

1. TÜV Rheinland (India) Pvt.Ltd.,
27/B, 2nd Cross,
ElectronicCityPhase1
Bangalore – 560 100,
India
2. TUV Rheinland (India) Pvt.Ltd.,
108, Beside ISBR Business School,
Electronic city Phase I
Bangalore - 560 100,
India

2.2 List of Test and Measurement Instruments

Table 1: List of test and measurement instruments

Equipment	Manufacturer	Model Name	Serial Number	Firmware Versions	Calibration Due Date	Periodicity	Test Facility
EMI Receiver	Rohde & Schwarz	ESW 44	101732	4.73 SP5	2025-09-17	Yearly	Radiated Spurious Emission
Active loop antenna	Frankonia	LAX-10	LAX-10-800	-	2026-04-16	Yearly	
Balun & Biconical Antenna	Schwarzbeck mess-elektronik	BBA 9106+VH BB 9124	1028	-	2026-04-11	Yearly	
Log-Periodic Antenna	Schwarzbeck mess-elektronik	VUSLP 9111B	9111B-111	-	2026-03-13	Yearly	
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-01944	-	2025-11-12	Yearly	
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-0904	-	2026-12-14	Yearly	
EMI Test Receiver	Rohde & Schwarz	ESW44	101773	1.72.SP1	2026-01-26	Yearly	
Semi Anechoic Chamber	Frankonia	-	-	-	-	-	
Fully Anechoic Chamber	Albatross	-	-	-	-	-	
Signal Analyzer	Rohde & Schwarz	FSV7	101644	3.70	2026-02-13	Yearly	Conducted Test Parameters
Open Switch & Control Unit	Rohde & Schwarz	OSP120 Incl. B157	OSP120-101323 & B157-100894	-	2026-01-16	Yearly	
EMI Receiver	Rohde & Schwarz	ESR7	101133	3.48 SP3	2025-09-16	Yearly	Conducted AC Power line Test
Two Line LISN	Scientific	SMLIN6 3-2	161101	-	2026-03-06	Yearly	
Pulse limiter [0 - 30 MHz]	Rohde & Schwarz	ESH3-Z2	100811	-	2025-07-08	Yearly	

Table 2: Instrument application Software versions

SL. No.	Test Type	Application software	Version
1	Radiated spurious emission measurement in FAC	EMC 32	10.60.20
2	Radiated spurious emission measurement in 10mtr SAC	BAT EMC	3.20.0.17
3	Conducted Parameters	WMS 32	10.60.10
4	AC Power lines Conducted emission	BAT EMC	BAT EMC.v2022.0.19.0

3 GENERAL PRODUCT INFORMATION

3.1 Product Function and Intended Use

Ideabytes offers a range of IoT-enabled data loggers designed for real-time environmental monitoring across various industries. These devices are equipped with aviation connector to connect the wired sensors which measures parameters like temperature, humidity, pressure, CO₂, etc based on user sensor selection. Also these devices are equipped with Wi-Fi, enabling remote access via mobile apps and web dashboards. Ideabytes' data loggers are ISO-certified, VAPT-tested, and tailored to meet specific customer needs.

3.2 Ratings and System Details of Equipment under Test

Table 3: Ratings and System Details as declared by Client*

Radio Protocol		Wi-Fi 2.4GHz
Operating Frequency Range		2412MHz to 2462MHz
No. of Channels		11
Channel Spacing		5MHz
Transmitting Power level		Refer the page No:
Measured Average Power (dBm)		14.76dBm@2462MHz_b-mode_1Mbps
Measured e.i.r.p (dBm)		18.10dBm@2412MHz_b-mode_1Mbps
Modulation		802.11b: DSSS 802.11g/n: OFDM
Number of antennas		1
Antenna Gain & Type		2412MHz → 3.77dBi
		2437MHz → 3.74dBi
		2462MHz → 3.20dBi
		Integrated PCB Antenna
Supply Voltage to Product		5VDC through AC/DC Adapter
Environmental conditions	Storage	-20°C to +50°C
	Operating	-20°C to +50°C
EUT Dimension		80 mm × 82 mm × 40 mm (without wall Mount Clamps)

***Disclaimer:** The information and data provided by the client have been taken into account in determining the final measurement results. Any deviations from the specified specifications may have a direct impact on the test outcomes. For further details, please refer to the product's user manual.

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3.3 Measurement Uncertainty:

Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$

Table 4: Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	± 0.67 dB
Power Spectral Density, conducted	± 0.85 dB
Unwanted Emissions, conducted	± 2.58 dB
All emissions, radiated	± 3.67 dB

4 TEST SET-UP AND OPERATION MODE

4.1 Principle of Configuration Selection

Transmission was enabled with highest possible duty cycle transmission on low, mid and high channel.

4.2 Test Operation and Test Software

Hardware Name & Version: IoT Datalogger & v1.2

Software Name & Version: IoT Firmware & v5.3.2

Test Software Name & Version: EspRFTTestTool & v4.8

4.3 Special Accessories and Auxiliary Equipment

- None

4.4 Countermeasures to achieve EMC Compliance

- None

4.5 List of frequencies

Frequency Band (MHz)	Channel No.	Channel Frequency (MHz)
2412 – 2462	1	2412
	2	2417
	3	2422
	4	2427
	5	2432
	6	2437
	7	2442
	8	2447
	9	2452
	10	2457
	11	2462

Table 5: List of Wi-Fi Centre frequencies

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Channel used for Wi-Fi testing.

Channel low: 2412MHz

Channel mid: 2437MHz

Channel high : 2462MHz

4.6 TUV Sample Identification

TUV Sample Identification number: A004016452-002 → Radiated Sample

A004016452-001 → Conducted Sample

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5 Operational Description

These loggers continuously measure sensor ensuring comprehensive data collection. Our devices are equipped with Wi-Fi, which facilitate seamless data transmission to cloud platforms or on-premises servers. The devices are built with robust enclosures, offering protection against environmental factors, and feature internal batteries that provide backup during power outages.

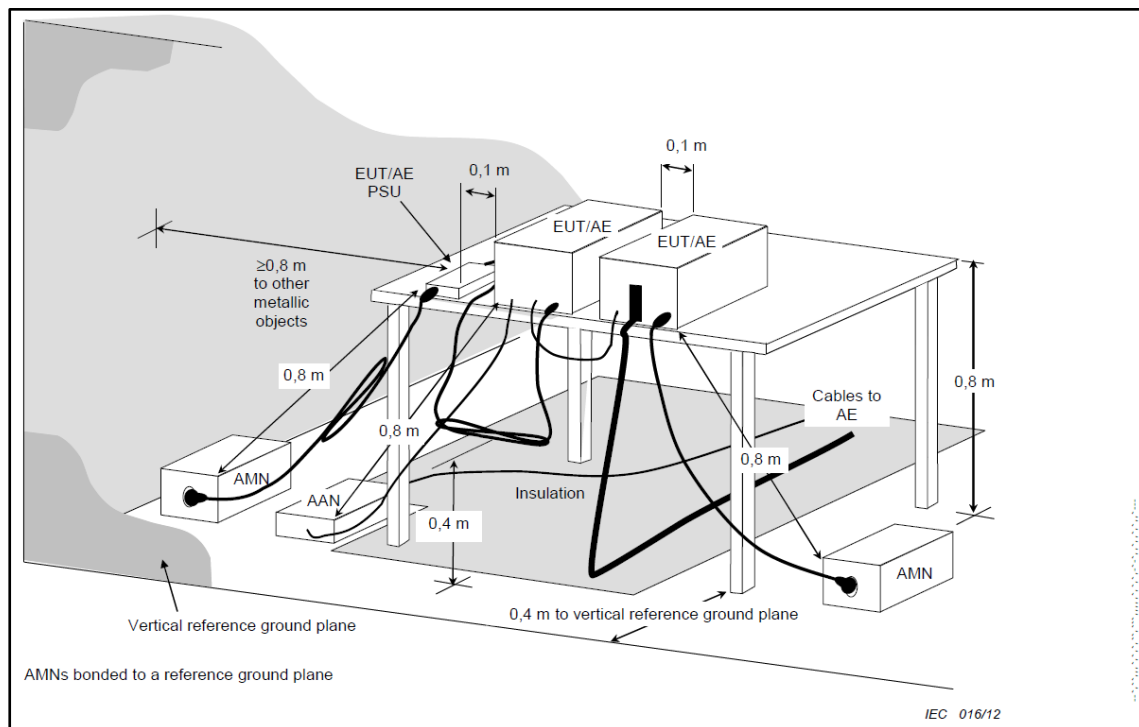
6 TEST METHODOLOGY

6.1 AC Power lines Conducted emission

Measured levels of ac powerline conducted emission across the 50Ω LISN port (to which the EUT is connected). All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer.

The device is placed on the test table, raised 80cm above the reference ground plane. The vertical conducting plane is located 40cm to the rear of the device. AC Conducted emission measurement is made over frequency range from 150 kHz to 30MHz, this measurement was performed an AC adaptor 110V AC 60Hz supply

6.1.1 Test Setup Configuration



6.2 Radiated Emission Test

The radiated emission measurement was performed according to the procedures in ANSI C63.10-2013. The equipment under test (EUT) was placed at the middle of the 80 cm high turntable for below 1 GHz & 1.5 m height for above 1 GHz measurement, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained. The measurement above 1000 MHz was performed by horn antenna, the measurement below 30 MHz was performed by loop antenna, Measurement from 30 MHz to 200 MHz was performed by Balloon and Biconical Antenna, and measurement from 200 MHz to 1 GHz was performed by Log-Periodic Antenna.

The EUT was rotated around the X-, Y-, and Z-Axis and the results from worst case axis are recorded

6.2.1 Test Setup Configuration

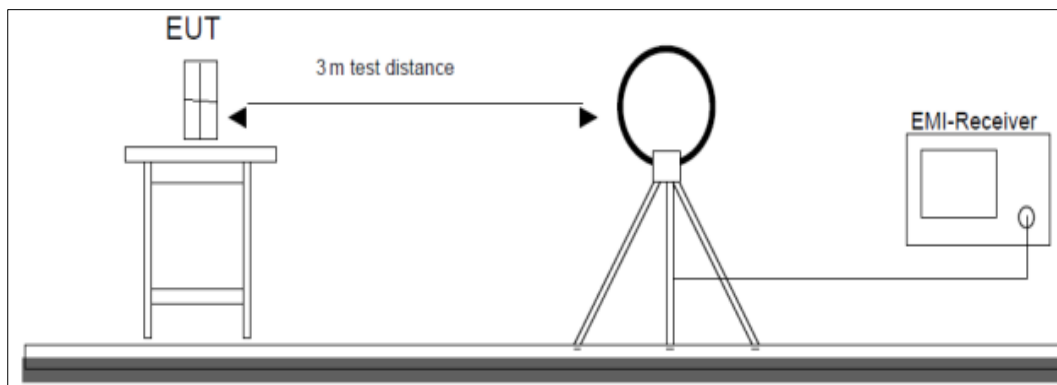


Figure 1: Frequency Range 9 kHz- 30 MHz

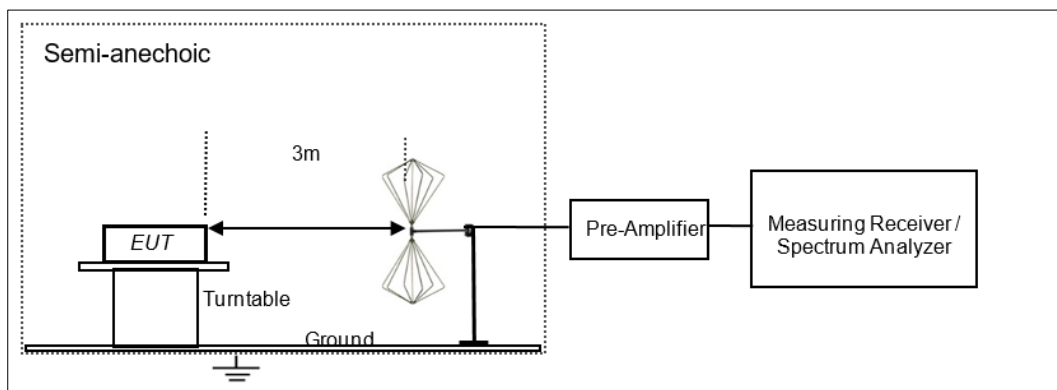


Figure 2: Frequency Range 30 MHz – 200 MHz

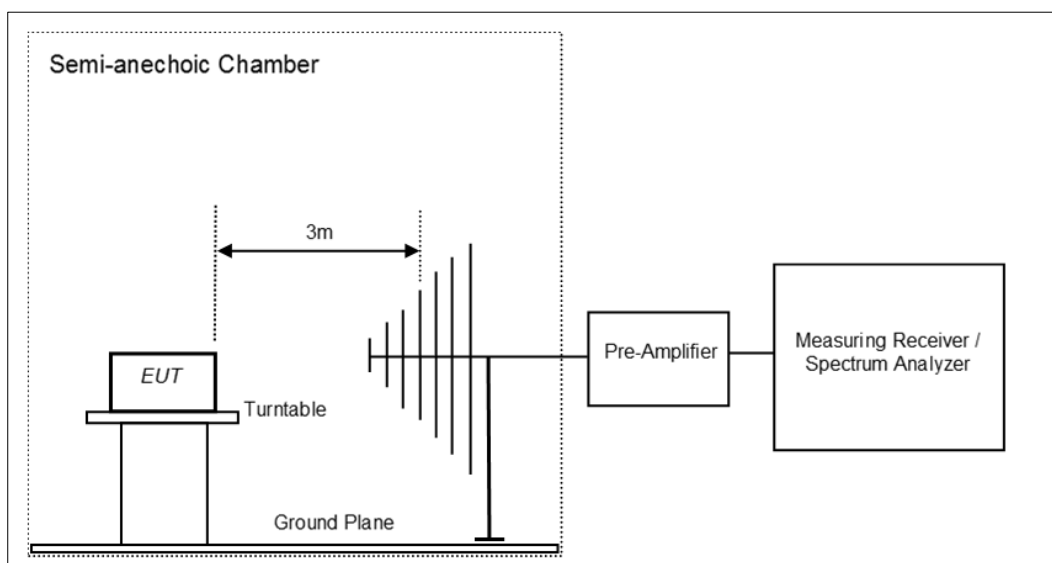


Figure 3: Frequency Range 200 MHz - 1GHz

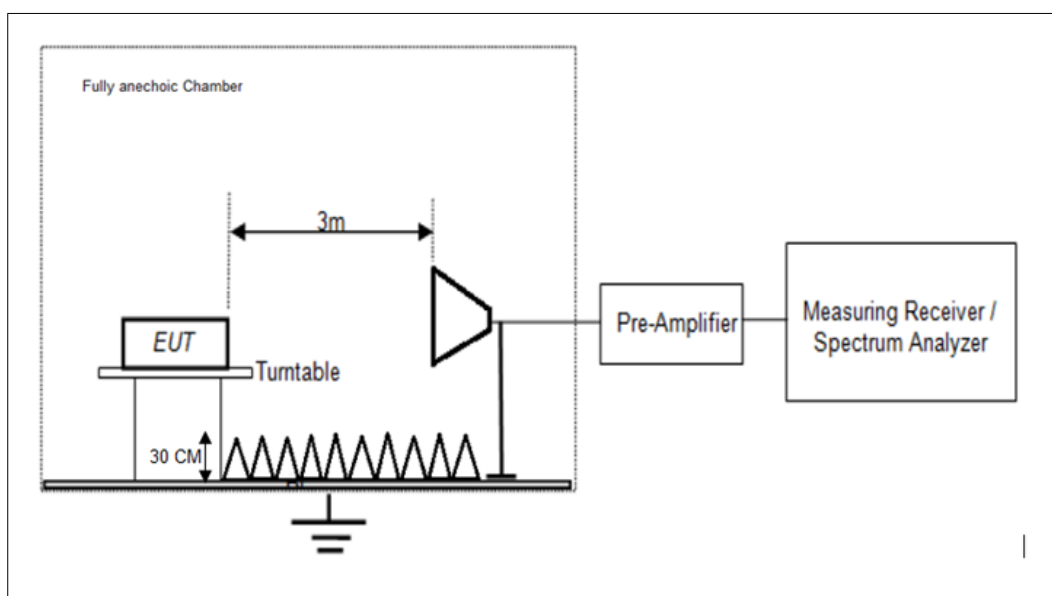


Figure 4: Frequency Range above 1 GHz

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7 TEST RESULTS

7.1 Maximum Average Conducted Output Power

Result

Pass

Test Specification	FCC part 15 Subpart C 15.247 (b)(3)
Test Method	Subclause 11.9.2.3.2 of ANSI C63.10
Detector	Gated RMS
Port of testing	Conducted mode
Requirement	Power $\leq$ 1 W (30 dBm)

Test Condition

Normal Test Condition:

Temperature (Norm) = +22.3°C Voltage = 5VDC through AC-DC Adapter Relative humidity: 55%

KDB Guidelines applied:

Measurements were made as per section 8.3.2.3 in KDB 558074 D01 15.247 Measurement Guidance v05r02.

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Test results:

Note:

1. All the losses are included during measurement and final values are mentioned in the test report
2. Average Output power (dBm) = Measured Average power (dBm) + Cable loss (1dB)
3. Calculated e.i.r.p (dBm) = Final output Power (dBm) + Antenna Gain (dBi)
4. This product do not support additional beamforming gain / directional gain, it uses single antenna and hence Directional gain of the single antenna is Max 3.77 dBi

Modulation	Data rate	Channel Frequency (MHz)	Average Output Power (dBm)	Output Power limit (dBm)
802.11b	1Mbps	2412.00	14.33	30.00
		2437.00	14.33	30.00
		2462.00	14.76	30.00
802.11g	6Mbps	2412.00	14.11	30.00
		2437.00	14.07	30.00
		2462.00	14.31	30.00
802.11n	MCS0	2412.00	14.01	30.00
		2437.00	13.85	30.00
		2462.00	14.14	30.00

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7.2 Spurious Radiated Emissions & Restricted Bands of Operation

Result

Pass

Test Specification	FCC part 15 Subpart C 15.247 (d) / (15.209 & 15.205)
Test Method	ANSI C63.10
Measurement Location	Semi Anechoic Chamber 9kHz - 1 GHz Fully Anechoic Chamber 1 GHz - 26GHz
Measurement Bandwidth	100 kHz for frequency range < 1GHz 1 MHz for Frequency range >1GHz
Detector	Refer remarks below
Measuring Distance	3 m
Requirement	As per the limits mentioned in the below table
Test setup	Refer TEST METHODOLOGY

Table 6: Transmitter limits for Radiated emission

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * The limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 128.51 – 93.80, 73.80 – 62.96 and 69.54 dBμV/m at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Conditions:

Temperature (Norm) = +23.4°C

Voltage = 5VDC through AC-DC Adapter

Relative humidity: 58%

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Test results:

Note: All the losses are included during measurement and final values are mentioned in the test report. Refer TEST METHODOLOGY for more details

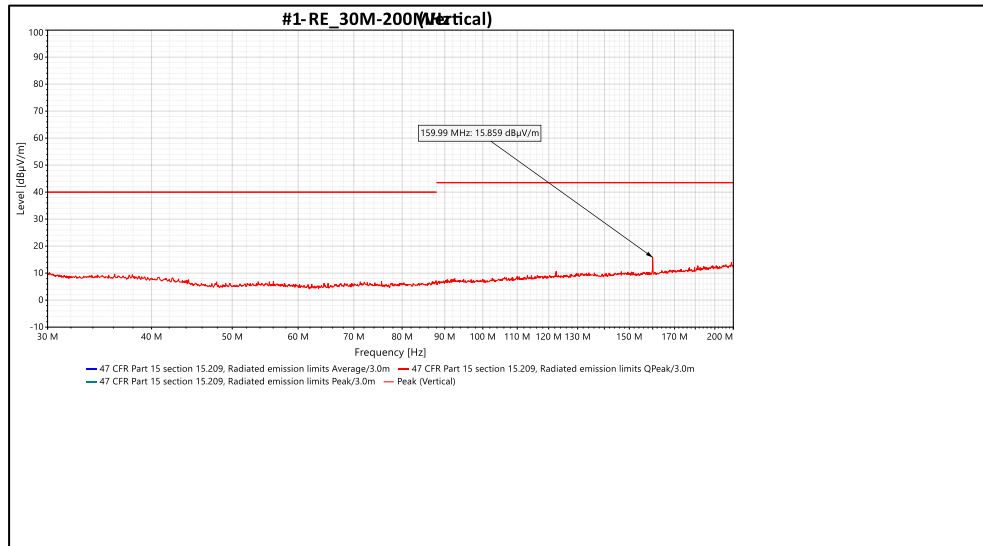
Test results for frequency range 9kHz – 30MHz

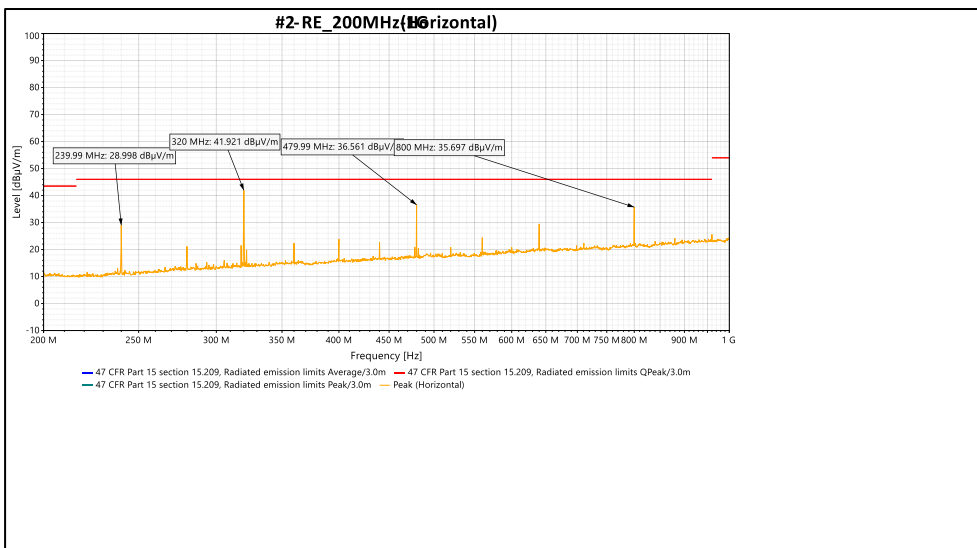
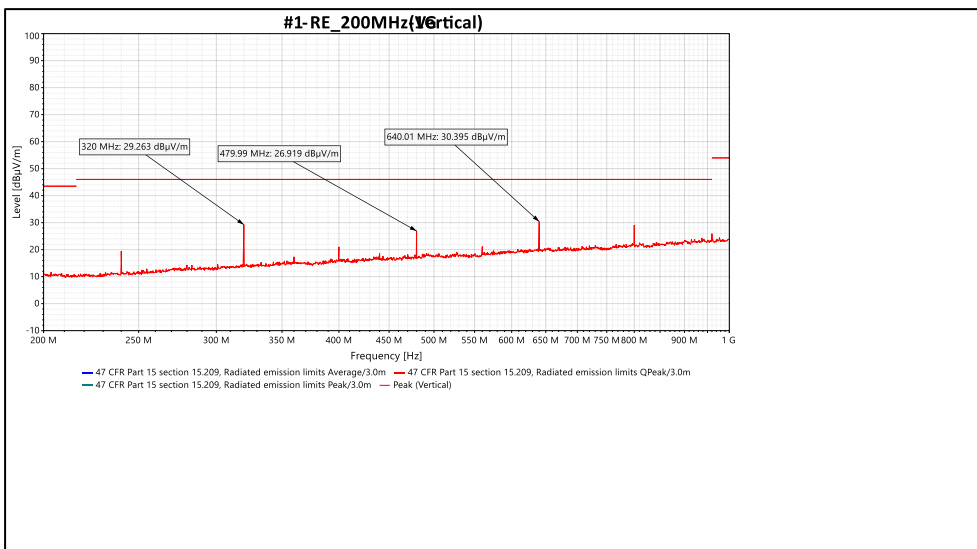
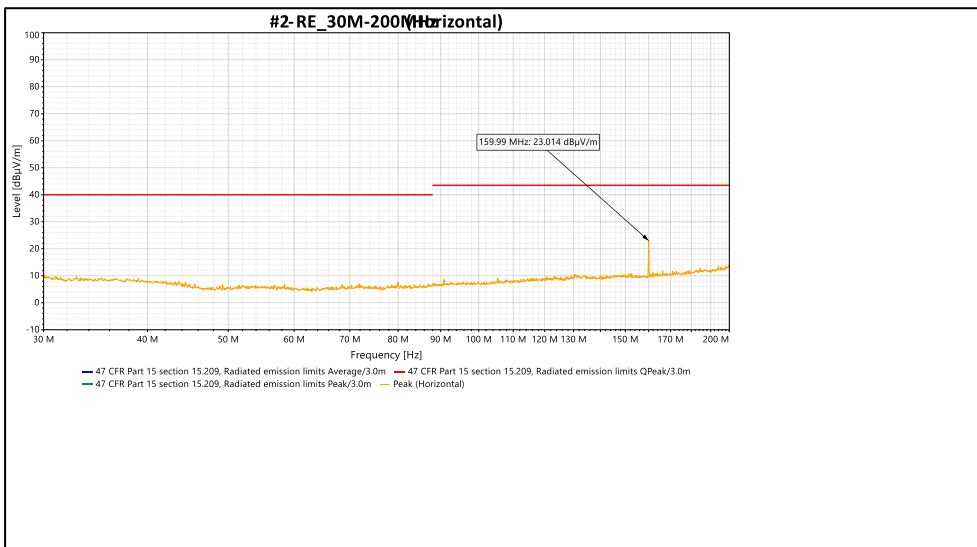
No emissions found in frequency range 9 kHz to 30 MHz, and measured levels are below 20dB from the limit line, hence not reported.

Table 7: Test results for frequency range 30MHz – 1GHz

Antenna Polarization	Measured Frequency (MHz)	Measured emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Vertical	159.99(PK)	15.85	43.50	-27.65
	320.00(PK)	29.26	46.00	-16.74
	479.99(PK)	26.91	46.00	-19.09
	640.01(PK)	30.39	46.00	-15.61
Horizontal	159.99(PK)	23.01	43.50	-20.49
	239.99(PK)	28.99	46.00	-17.01
	320.00(QP)	41.92	46.00	-4.08
	479.99(PK)	36.56	46.00	-9.44
	800.00(PK)	35.69	46.00	-10.31

Test Plots:





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Table 8: Test results for the frequencies above 1GHz:

Modulation:802.11b

Data Rate: 1Mbps

Channel Frequency (MHz)	Measured Frequency (MHz)	Antenna Polarization	Measured Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2412	2412(Pk)	Vertical	90.19	-	-
	2412(Av)		87.83	-	-
	2390(Pk)		40.86	74.00*	-33.14
	2390(Av)		28.60	54.00*	-25.40
	4824(Pk)		52.99	74.00	-21.01
	4824(Av)		50.11	54.00	-3.89
	7236(Pk)		47.58	74.00	-26.42
	7236(Av)		35.30	54.00	-18.70
	2412(Pk)	Horizontal	96.08	-	-
	2412(Av)		93.69	-	-
	2390(Pk)		44.86	74.00*	-29.14
	2390(Av)		32.77	54.00*	-21.23
	4824(Pk)		50.77	74.00	-23.23
	4824(Av)		47.58	54.00	-6.42
	7236(Pk)		47.42	74.00	-26.58
	7236(Av)		35.29	54.00	-18.71
2437	2437(Pk)	Vertical	90.10	-	-
	2437(Av)		87.66	-	-
	4874(Pk)		55.08	74.00	-18.92
	4874(Av)		53.14	54.00	-0.86
	7311(Pk)		47.03	74.00	-26.97
	7311(Av)		35.15	54.00	-18.85
	2437(Pk)	Horizontal	95.74	-	-
	2437(Av)		93.23	-	-
	4874(Pk)		49.59	74.00	-24.41
	4874(Av)		45.71	54.00	-8.29
	7311(Pk)		47.15	74.00	-26.85
	7311(Av)		35.23	54.00	-18.77
2462	2462(Pk)	Vertical	89.44	-	-
	2462(Av)		87.04	-	-
	2483.5(Pk)		42.24	74.00*	-31.76
	2483.5(Av)		29.24	54.00*	-24.76
	4924(Pk)		53.96	74.00	-20.04
	4924(Av)		51.45	54.00	-2.55
	7386(Pk)		47.76	74.00	-26.24
	7386(Av)		35.19	54.00	-18.81
	2462(Pk)	Horizontal	95.30	-	-
	2462(Av)		92.89	-	-
	2483.5(Pk)		46.37	74.00*	-27.63
	2483.5(Av)		34.16	54.00*	-19.84
	4924(Pk)		49.92	74.00	-24.08
	4924(Av)		46.56	54.00	-7.44
	7386(Pk)		47.97	74.00	-26.03
	7386(Av)		35.31	54.00	-18.69

_ → Fundamental Frequency

* → Restricted Band edges

Pk: Peak Detector;

Av: Average Detector

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Modulation: 802.11g

Data Rate: 6Mbps

Channel Frequency (MHz)	Measured Frequency (MHz)	Antenna Polarization	Measured Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2412	2412(Pk)	Vertical	95.53	-	-
	2412(Av)		86.29	-	-
	2390(Pk)		60.79	74.00*	-13.21
	2390(Av)		42.49	54.00*	-11.51
	4824(Pk)		57.59	74.00	-16.41
	4824(Av)		44.22	54.00	-9.78
	7236(Pk)		48.13	74.00	-25.87
	7236(Av)		35.53	54.00	-18.47
	2412(Pk)	Horizontal	101.24	-	-
	2412(Av)		91.89	-	-
	2390(Pk)		68.18	74.00*	-5.82
	2390(Av)		49.95	54.00*	-4.05
	4824(Pk)		52.13	74.00	-21.87
	4824(Av)		38.07	54.00	-15.93
	7236(Pk)		47.73	74.00	-26.27
	7236(Av)		35.39	54.00	-18.61
2437	2437(Pk)	Vertical	94.31	-	-
	2437(Av)		84.79	-	-
	4874(Pk)		57.21	74.00	-16.79
	4874(Av)		43.93	54.00	-10.07
	7311(Pk)		47.38	74.00	-26.62
	7311(Av)		35.32	54.00	-18.68
	2437(Pk)	Horizontal	100.67	-	-
	2437(Av)		91.18	-	-
	4874(Pk)		47.34	74.00	-26.66
	4874(Av)		33.77	54.00	-20.23
	7311(Pk)		48.10	74.00	-25.90
	7311(Av)		35.15	54.00	-18.85
2462	2462(Pk)	Vertical	93.87	-	-
	2462(Av)		84.76	-	-
	2483.5(Pk)		57.42	74.00*	-16.58
	2483.5(Av)		38.75	54.00*	-15.25
	4924(Pk)		53.07	74.00	-20.93
	4924(Av)		39.74	54.00	-14.26
	7386(Pk)		47.65	74.00	-26.35
	7386(Av)		35.60	54.00	-18.40
	2462(Pk)	Horizontal	100.65	-	-
	2462(Av)		91.60	-	-
	2483.5(Pk)		63.65	74.00*	-10.35
	2483.5(Av)		44.72	54.00*	-9.28
	4924(Pk)		51.54	74.00	-22.46
	4924(Av)		37.84	54.00	-16.16
	7386(Pk)		48.09	74.00	-25.91
	7386(Av)		35.37	54.00	-18.63

_ → Fundamental Frequency

*→ Restricted Band edges

Pk: Peak Detector;

Av: Average Detector

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Modulation: 802.11n

Data Rate: MCS0

Channel Frequency (MHz)	Measured Frequency (MHz)	Antenna Polarization	Measured Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2412	2412(Pk)	Vertical	96.27	-	-
	2412(Av)		86.17	-	-
	2390(Pk)		61.66	74.00*	-12.34
	2390(Av)		43.57	54.00*	-10.43
	4824(Pk)		53.12	74.00	-20.88
	4824(Av)		40.15	54.00	-13.85
	7236(Pk)		48.10	74.00	-25.90
	7236(Av)		35.52	54.00	-18.48
	2412(Pk)	Horizontal	101.88	-	-
	2412(Av)		91.74	-	-
	2390(Pk)		69.35	74.00*	-4.65
	2390(Av)		51.41	54.00*	-2.59
	4824(Pk)		49.47	74.00	-24.53
	4824(Av)		36.23	54.00	-17.77
	7236(Pk)		47.34	74.00	-26.66
	7236(Av)		35.30	54.00	-18.70
2437	2437(Pk)	Vertical	95.07	-	-
	2437(Av)		84.73	-	-
	4874(Pk)		56.06	74.00	-17.94
	4874(Av)		42.40	54.00	-11.60
	7311(Pk)		47.69	74.00	-26.31
	7311(Av)		35.31	54.00	-18.69
	2437(Pk)	Horizontal	101.90	-	-
	2437(Av)		91.52	-	-
	4874(Pk)		47.48	74.00	-26.52
	4874(Av)		34.15	54.00	-19.85
	7311(Pk)		47.58	74.00	-26.42
	7311(Av)		35.25	54.00	-18.75
2462	2462(Pk)	Vertical	94.70	-	-
	2462(Av)		84.67	-	-
	2483.5(Pk)		58.95	74.00*	-15.05
	2483.5(Av)		39.52	54.00*	-14.48
	4924(Pk)		53.18	74.00	-20.82
	4924(Av)		39.36	54.00	-14.64
	7386(Pk)		47.34	74.00	-26.66
	7386(Av)		35.61	54.00	-18.39
	2462(Pk)	Horizontal	101.28	-	-
	2462(Av)		91.29	-	-
	2483.5(Pk)		64.86	74.00*	-9.14
	2483.5(Av)		45.72	54.00*	-8.28
	4924(Pk)		49.89	74.00	-24.11
	4924(Av)		36.25	54.00	-17.75
	7386(Pk)		47.40	74.00	-26.60
	7386(Av)		35.44	54.00	-18.56

_ → Fundamental Frequency

* → Restricted Band edges

Pk: Peak Detector;

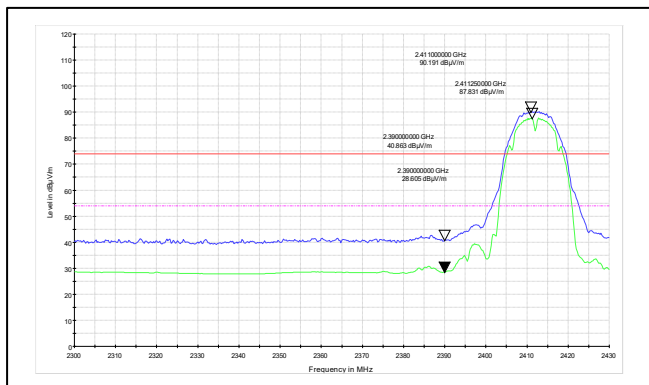
Av: Average Detector

Test Plots for Restricted Bands of Operation:

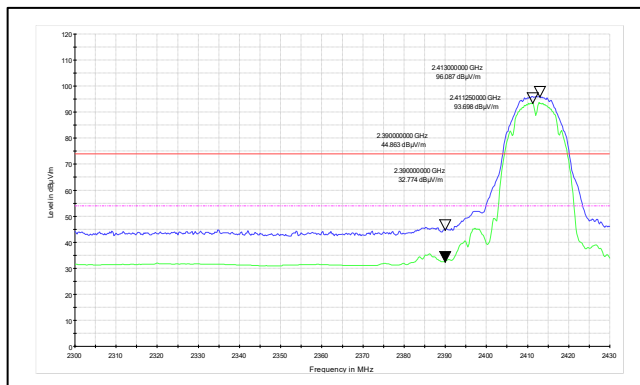
Modulation: 802.11b

Data Rate: 1Mbps

Channel Frequency: 2412MHz

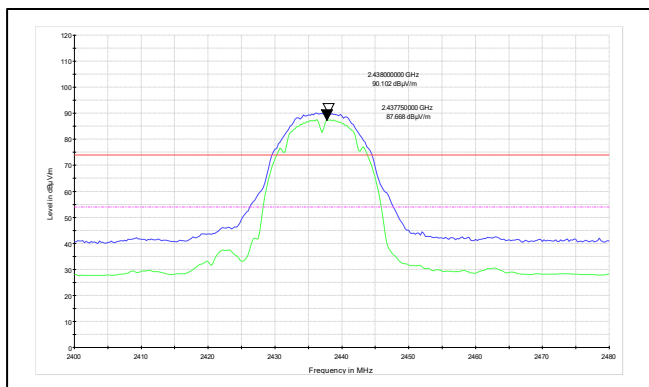


Polarization: Vertical

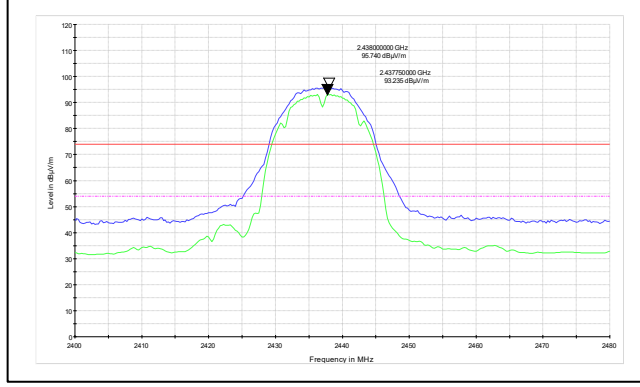


Polarization: Horizontal

Channel Frequency: 2437MHz

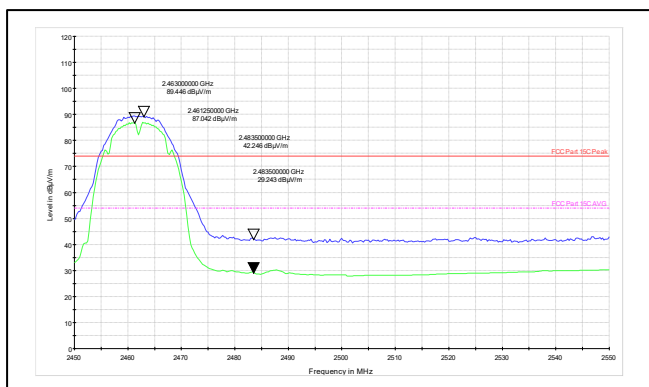


Polarization: Vertical

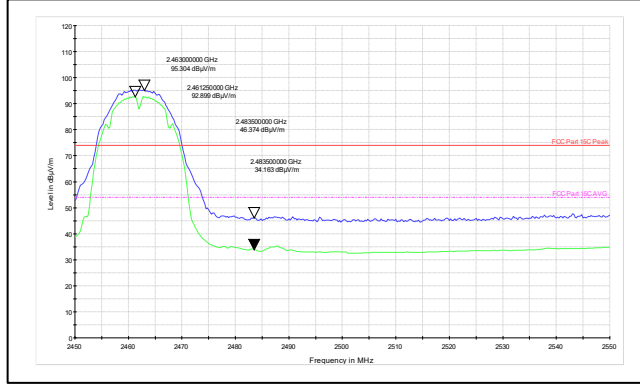


Polarization: Horizontal

Channel Frequency: 2462MHz



Polarization: Vertical



Polarization: Horizontal

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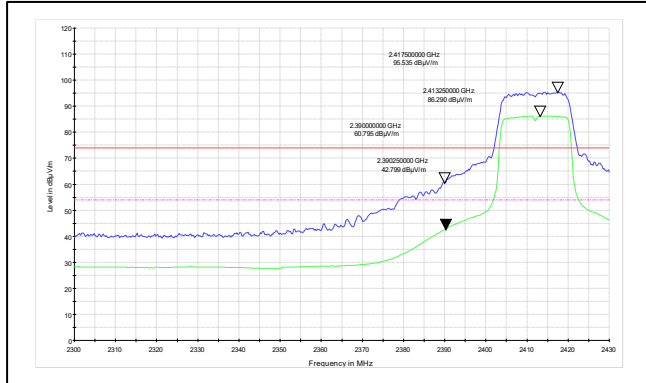
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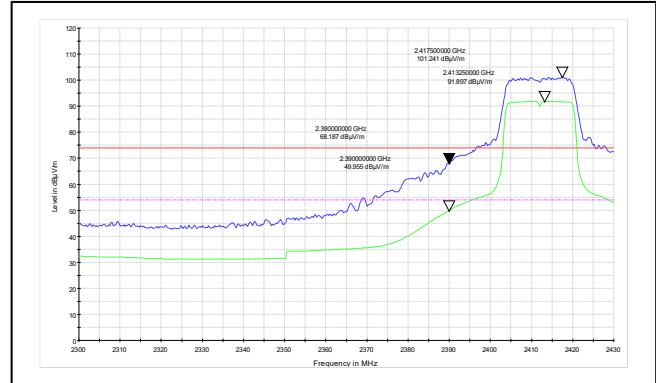
Modulation: 802.11g

Data Rate: 6Mbps

Channel Frequency: 2412MHz

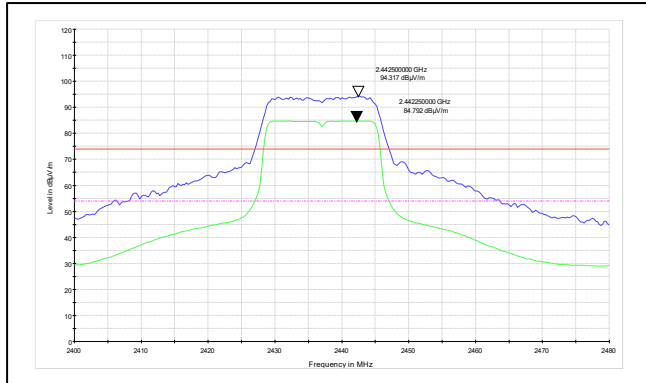


Polarization: Vertical

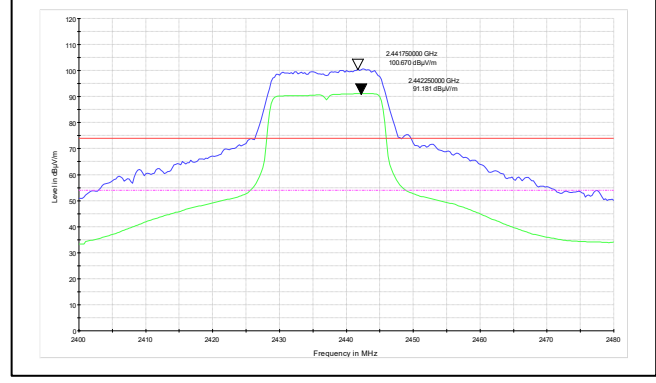


Polarization: Horizontal

Channel Frequency: 2437MHz

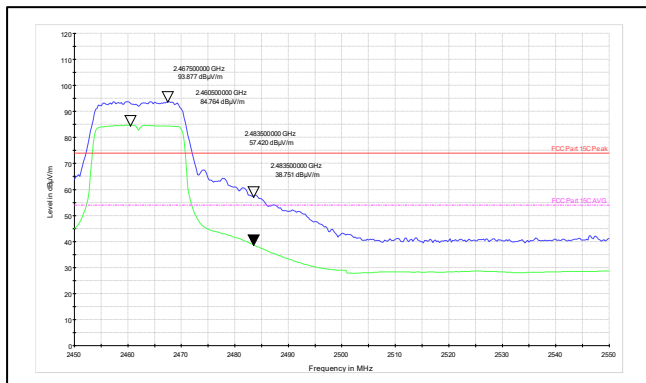


Polarization: Vertical

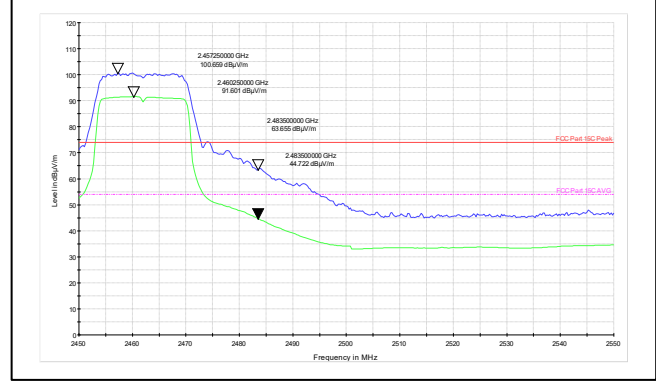


Polarization: Horizontal

Channel Frequency: 2462MHz



Polarization: Vertical



Polarization: Horizontal

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Test Report No.:

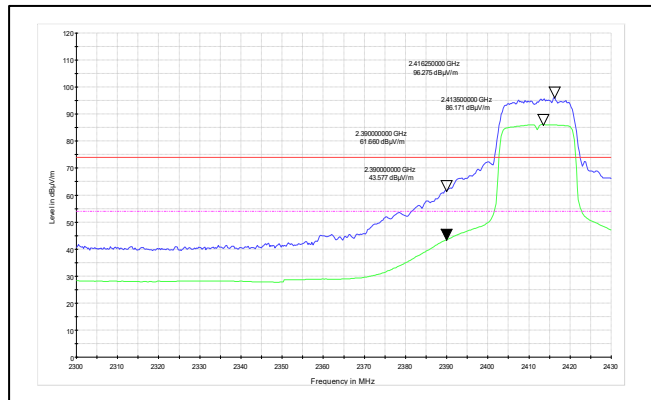
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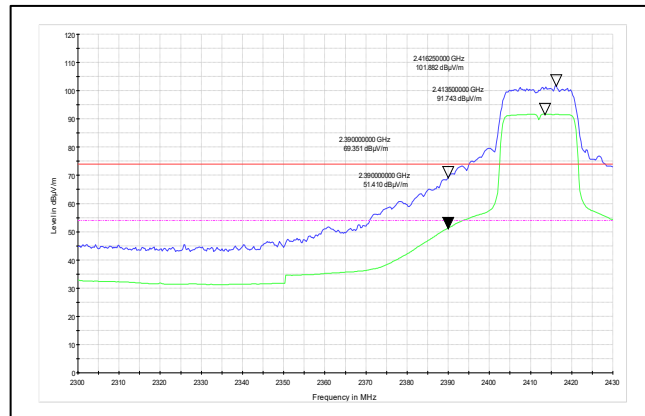
Modulation: 802.11n

Data Rate: MCS0

Channel Frequency: 2412MHz

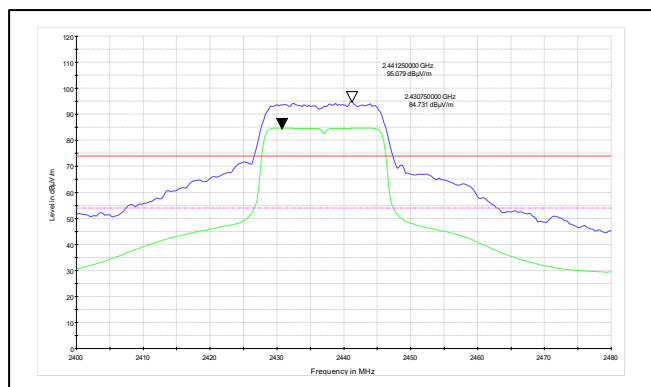


Polarization: Vertical

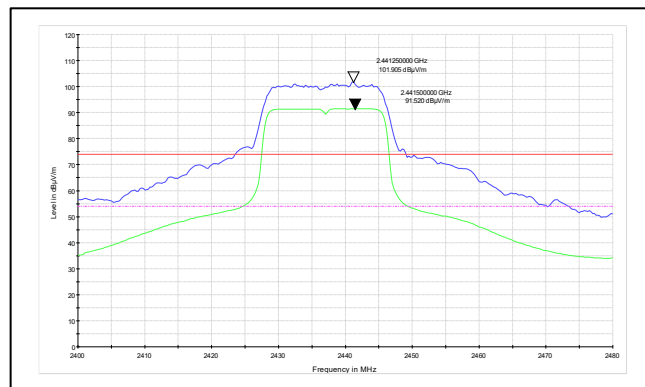


Polarization: Horizontal

Channel Frequency: 2437MHz

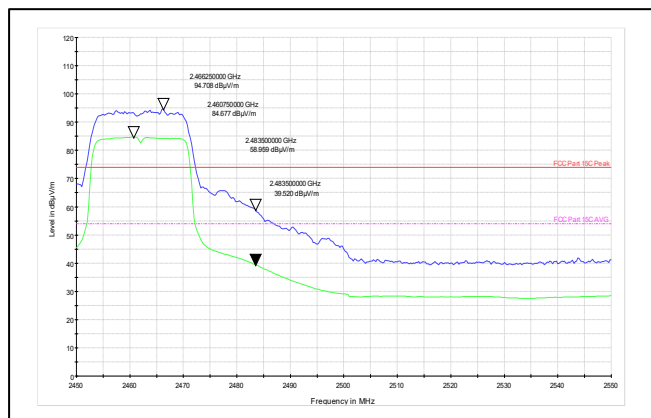


Polarization: Vertical

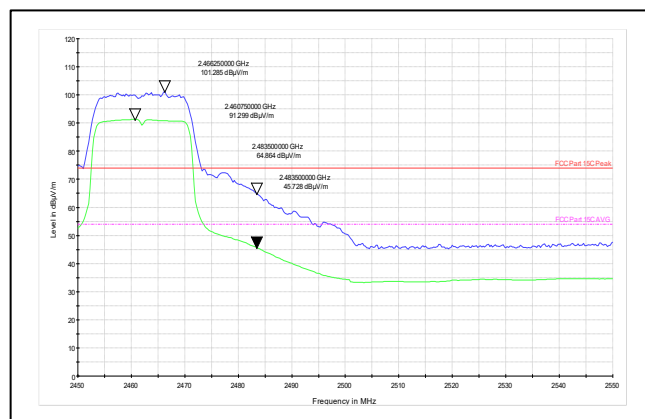


Polarization: Horizontal

Channel Frequency: 2462MHz



Polarization: Vertical



Polarization: Horizontal

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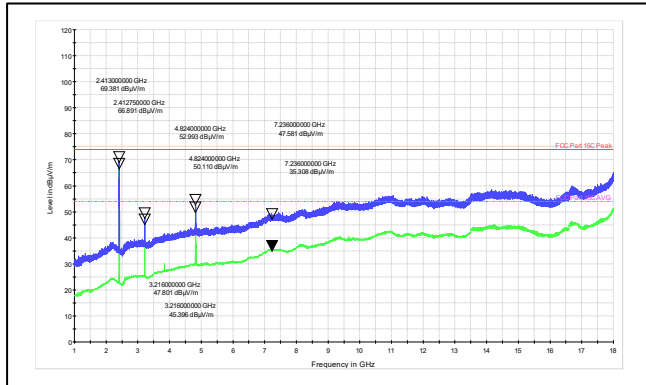
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Test plots for Spurious Radiated emission:

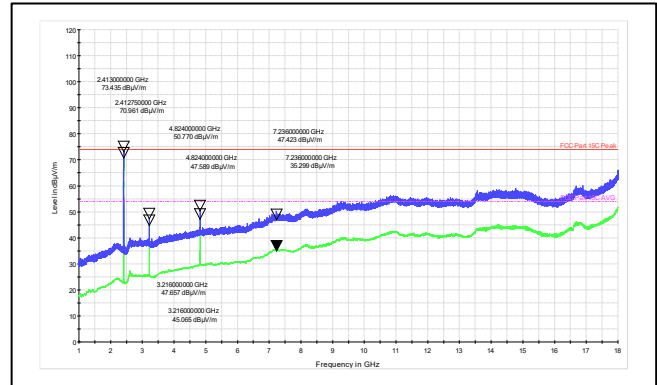
Modulation: 802.11b

Data Rate: 1Mbps

Channel Frequency: 2412MHz

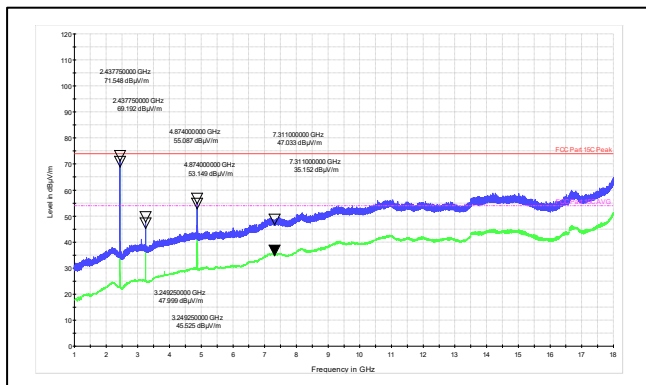


Frequency Range: 1GHz to 18GHz Polarization: Vertical

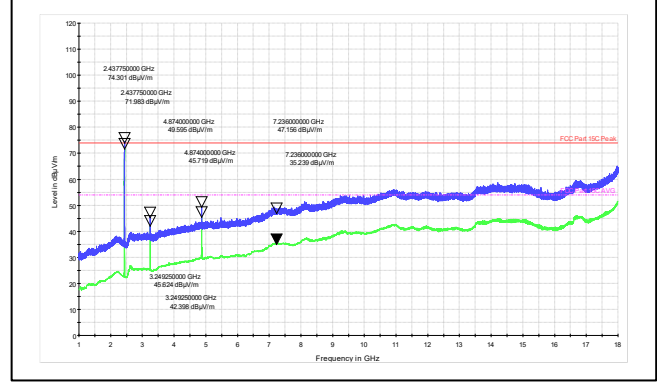


Frequency Range: 1GHz to 18GHz Polarization: Horizontal

Channel Frequency: 2437MHz

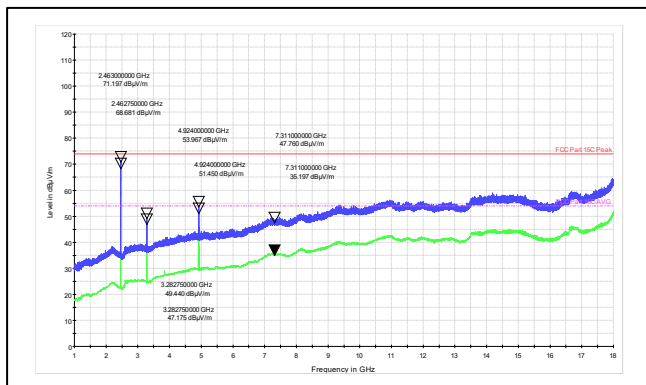


Frequency Range: 1GHz to 18GHz Polarization: Vertical

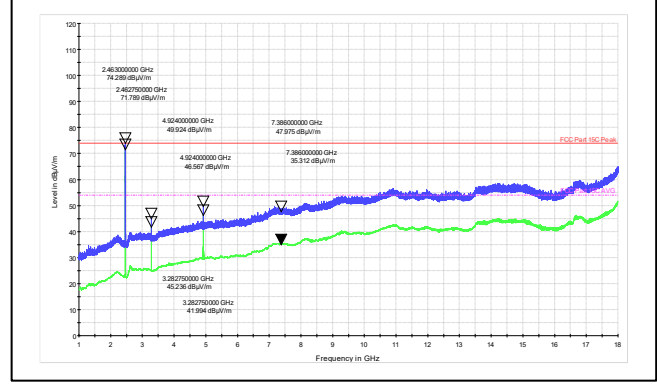


Frequency Range: 1GHz to 18GHz Polarization: Horizontal

Channel Frequency: 2462MHz



Frequency Range: 1GHz to 18GHz Polarization: Vertical



Frequency Range: 1GHz to 18GHz Polarization: Horizontal

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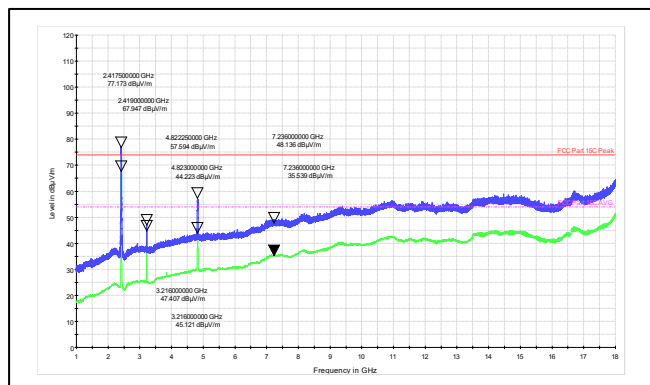
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Modulation: 802.11g

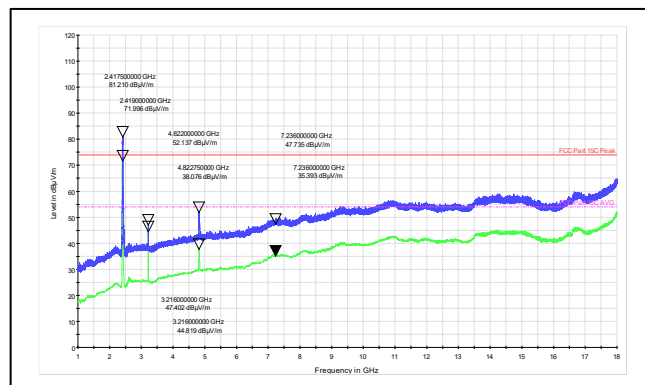
Data Rate: 6Mbps

Channel Frequency: 2412MHz



Frequency Range: 1GHz to 18GHz

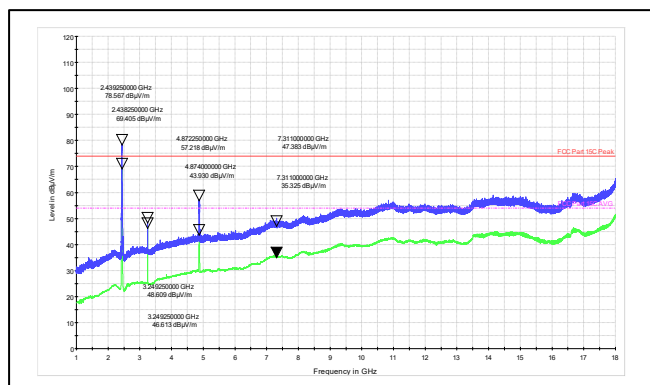
Polarization: Vertical



Frequency Range: 1GHz to 18GHz

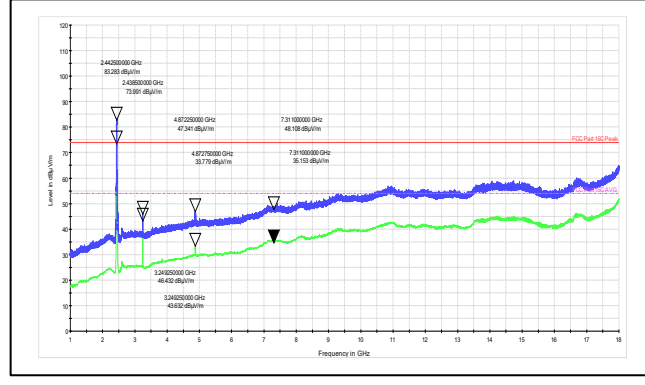
Polarization: Horizontal

Channel Frequency: 2437MHz



Frequency Range: 1GHz to 18GHz

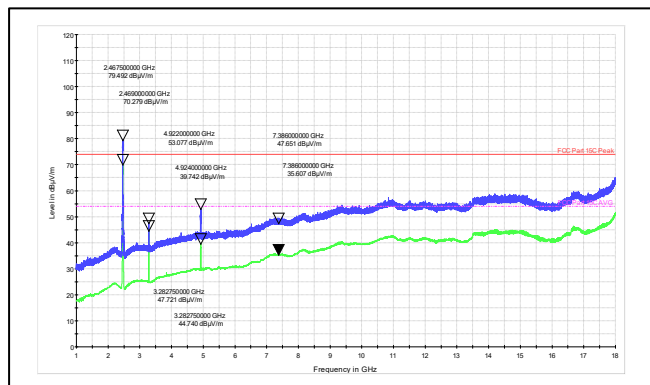
Polarization: Vertical



Frequency Range: 1GHz to 18GHz

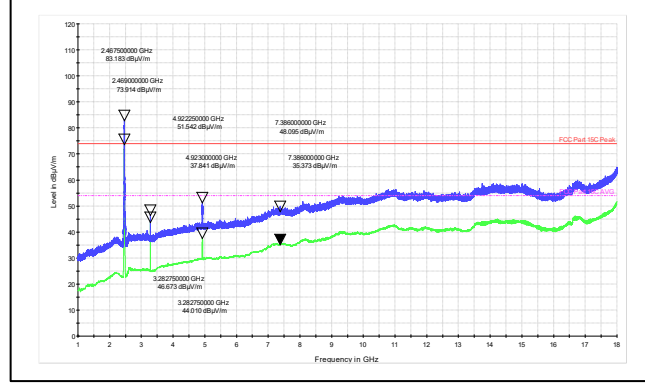
Polarization: Horizontal

Channel Frequency: 2462MHz



Frequency Range: 1GHz to 18GHz

Polarization: Vertical



Frequency Range: 1GHz to 18GHz

Polarization: Horizontal

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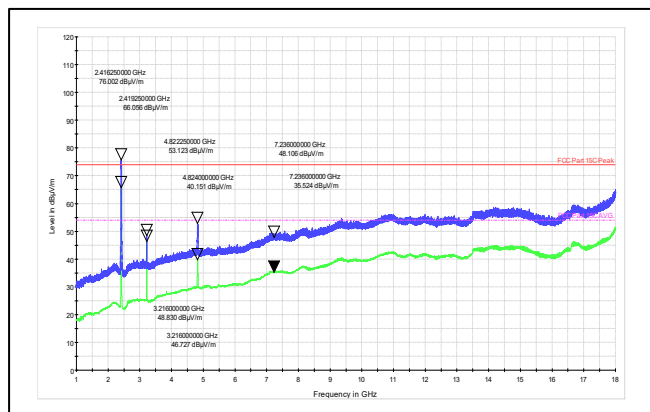
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Modulation: 802.11n

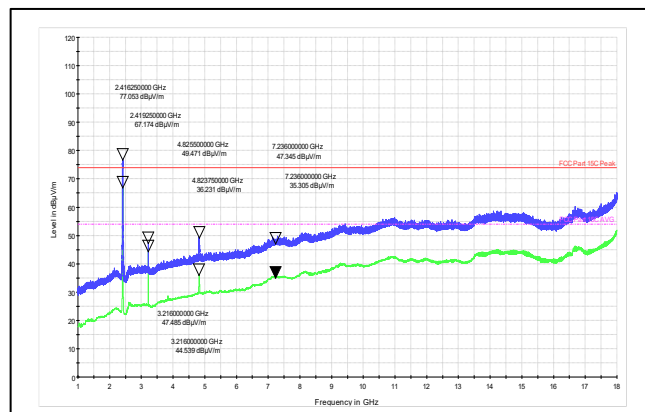
Data Rate: MCS0

Channel Frequency: 2412MHz



Frequency Range: 1GHz to 18GHz

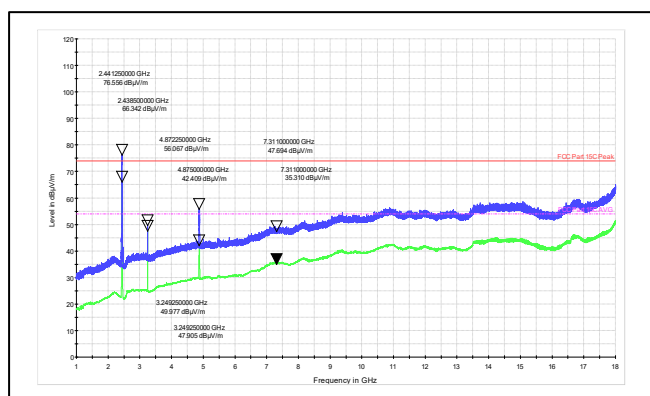
Polarization: Vertical



Frequency Range: 1GHz to 18GHz

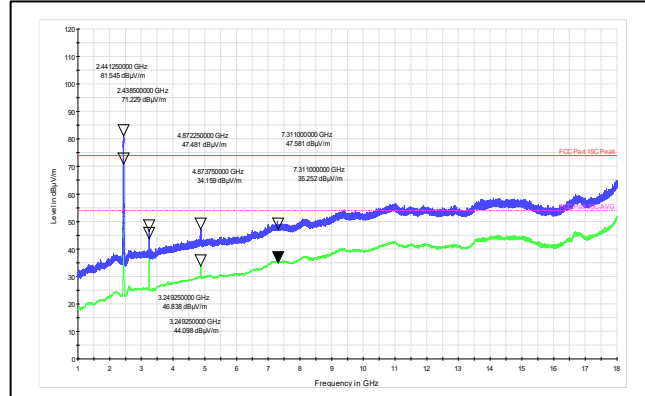
Polarization: Horizontal

Channel Frequency: 2437MHz



Frequency Range: 1GHz to 18GHz

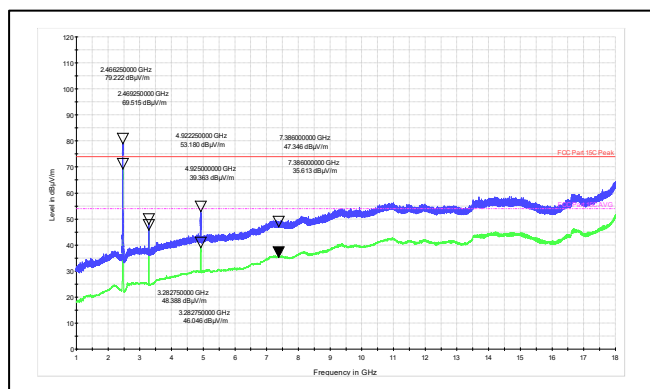
Polarization: Vertical



Frequency Range: 1GHz to 18GHz

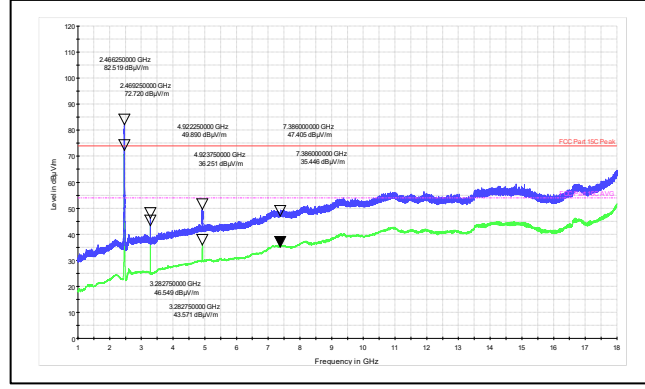
Polarization: Horizontal

Channel Frequency: 2462MHz



Frequency Range: 1GHz to 18GHz

Polarization: Vertical



Frequency Range: 1GHz to 18GHz

Polarization: Horizontal

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7.3 AC Power lines Conducted Emission

Result

Pass

Test Specification : FCC Part 15 Section 15.207
Test Method : ANSI C 63.10-2020
Testing Location : Screened room
Measurement Bandwidth : 9kHz
Frequency Range : 150kHz – 30MHz
Supply Voltage : 110VAC,60Hz
Test Method : Refer TEST METHODOLOGY

Table 9: Limits for Conducted power line emission

Frequency of emission (MHz)	QP Limit (dBμV)	AV Limit (dBμV)
0.15 – 0.5	66 – 56*	56 – 46*
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency

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Test Conditions:

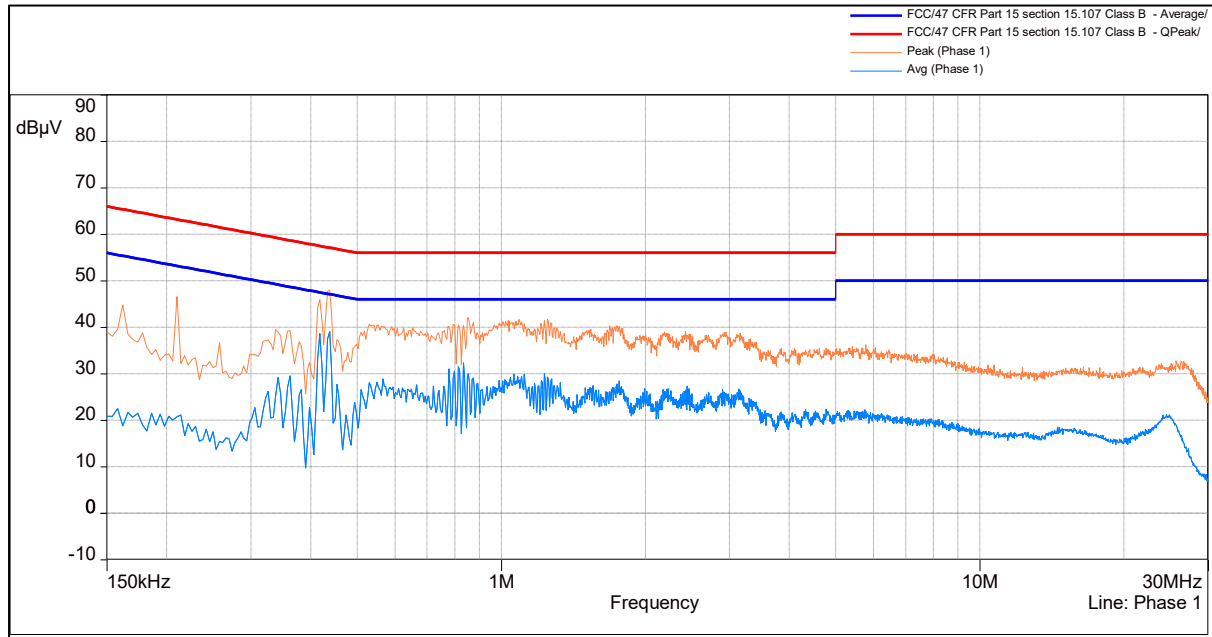
Temperature (Norm) = +22.3°C

Voltage = 110VAC through AC-DC Adapter

Relative humidity: 57%

Test results:

110VAC-60Hz-Line



Quasi Peak:

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Comments
0.43485	46.53	57.18	-10.65	Pass
0.854	40.62	56	-15.38	Pass
1.25405	39.09	56	-16.91	Pass
1.7446	37.41	56	-18.59	Pass
2.96715	34.08	56	-21.92	Pass
0.18885	32.77	64.04	-31.27	Pass

Average:

Frequency (MHz)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Comments
0.43485	38.45	47.18	-8.73	Pass
0.854	30.89	46	-15.11	Pass
1.25405	29.76	46	-16.24	Pass
1.7446	26.97	46	-19.03	Pass
2.96715	24.19	46	-21.81	Pass
0.18885	20.14	54.04	-33.9	Pass

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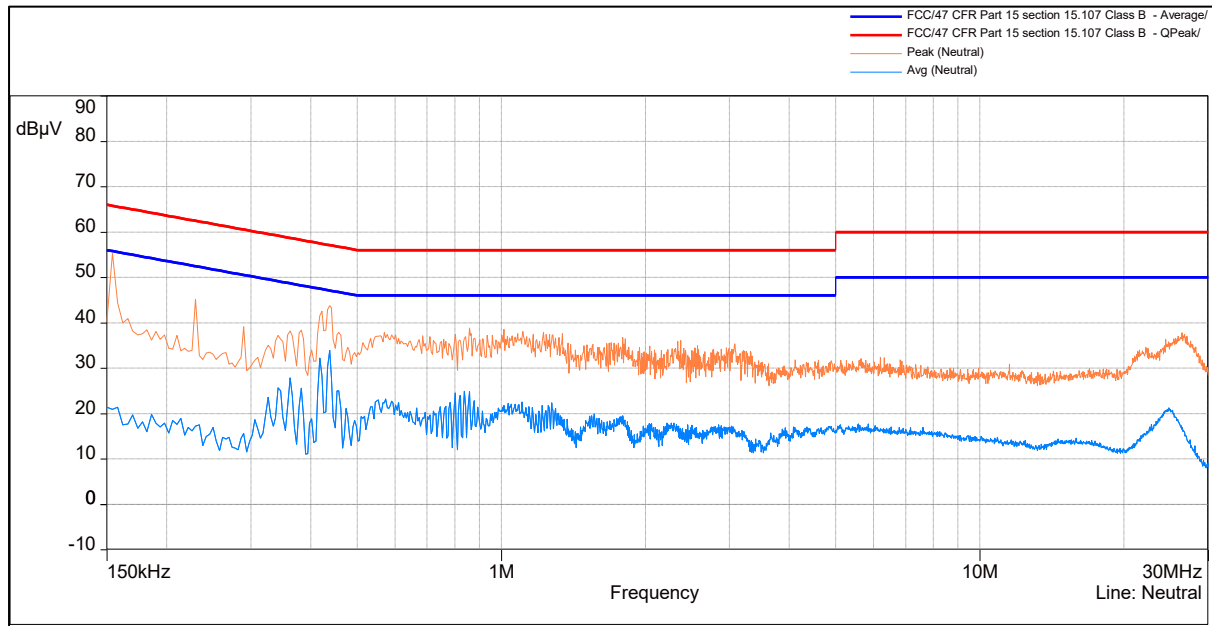
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110VAC-60Hz-Neutral:



Quasi peak:

Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Margin (dB)	Comments
0.43845	42.18	57.1	-14.92	Pass
0.8589	34.85	56	-21.15	Pass
1.23725	31.92	56	-24.08	Pass
1.78815	29.01	56	-26.99	Pass
2.3718	27.19	56	-28.81	Pass
0.1545	36.83	65.78	-28.95	Pass
0.20885	33.17	63.21	-30.03	Pass

Average:

Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Margin (dB)	Comments
0.43845	33.22	47.1	-13.88	Pass
0.8589	22.36	46	-23.64	Pass
1.23725	21.33	46	-24.67	Pass
1.78815	18.34	46	-27.66	Pass
2.3718	15.5	46	-30.5	Pass
0.20885	17.48	53.21	-35.72	Pass
0.1545	19.79	55.78	-35.99	Pass

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10 Power levels

Mode	Data Rate	Power level
802.11b	1Mbps	18
802.11g	6Mbps	18
802.11n	MCS0	18

End of test report