



Solutions

TEST REPORT

Test Report No.: UL-RPT-RP-14642160-7216-FCC

Applicant * : Visteon Electronics Germany GmbH

Model No. * : DDU

FCC ID * : 2AA98-DDU

Technology * : WLAN 2.4 GHz (802.11 b, g, n)

Test Standard(s) : **FCC Parts 15.209(a) & 15.247**

For details of applied tests refer to test result summary

1. This test report shall not be reproduced in full or partial, without the written approval of UL International Germany GmbH.
2. The results in this report apply only to the sample tested.
3. The test results in this report are traceable to the national or international standards.
4. **Test Report Version 1.2 supersede Version 1.1 with immediate effect**
Test Report No. UL-RPT-RP-14642160-7216-FCC Version 1.2, Issue Date 23 JANUARY 2024 replaces
Test Report No. UL-RPT-RP-14642160-7216-FCC Version 1.1, Issue Date 13 NOVEMBER 2023, which is no longer valid.
5. Result of the tested sample: **Pass**
6. All information marked with a (*) were provided by customer / applicant or authorized representative

Prepared by: Muhammad Faiq Khan
Title: Project Engineer
Date: 23 January 2024

Approved by: Rachid, Acharkaoui
Title: Operations Manager
Date: 23 January 2024



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This laboratory is accredited by DAkkS.
The tests reported herein have been performed in
accordance with its' terms of accreditation.

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1. Customer Information *

1.1. Applicant Information

Company Name:	Visteon Electronics Germany GmbH
Company Address:	Amalienbadstr.41a 76227, Karlsruhe Germany
Contact Person:	Nikhil Patil
Contact E-Mail Address:	nikhil.patil@visteon.com
Contact Phone No.:	+49-162-1332246

1.2. Manufacturer Information

Company Name:	Visteon Electronics Germany GmbH
Company Address:	Amalienbadstr.41a 76227, Karlsruhe Germany
Contact Person:	Nikhil Patil
Contact E-Mail Address:	nikhil.patil@visteon.com
Contact Phone No.:	+49-162-1332246

2. Summary of Testing

2.1. General Information

Applied Standards

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Section 15.247
Specification Reference:	47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Sections 15.209

Location

Location of Testing:	UL International Germany GmbH Hedelfinger Strasse. 61, 70327 Stuttgart, GERMANY
Registration Number:	399704

Date Information

Order Date:	05 January 2023
EUT Arrived:	19 June 2023
Test Dates:	11 August 2023 to 31 August 2023
EUT Returned:	-/-

2.2. Summary of Test Results

DIGITAL TRANSMISSION SYSTEMS (DTS): 2400-2483.5 MHz					
FCC Part 15 Clause	Compliance Test Description	Test Result			
		C	N.C.	N.P.	N.A.
15.207	Transmitter AC Power Line Conducted Emissions ⁽¹⁾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Part 15.247(a)(2)	Transmitter Minimum 6 dB Bandwidth	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part 15.35(c)	Transmitter Duty Cycle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part 15.247(e)	Transmitter Power Spectral Density	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part 15.247(b)(3)	Transmitter Maximum (Peak) Output Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(d) & 15.209(a)	Transmitter Radiated Emissions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(d) & 15.209(a)	Transmitter Band Edge Radiated Emissions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C: COMPLIED N.C.: NOT COMPLIED N.P.: NOT PERFORMED N.A.: NOT APPLICABLE					
Decision rule: If the decision rule is not included in the applied customer specification or testing standard, the binary statement for simple acceptance, as defined in ILAC G8: 2019 Section 4.2.1, is applied as the decision rule for a pass/ fail statement. If the measured value is on the limit, the result is defined as a pass. In this case the risk of a false positive is 50%. For further information regarding risk assessment refer to ILAC G8: 2019.					

Note(s):

1. The EUT is vehicular equipment and will be powered by the battery of the vehicle, therefore no AC conducted emission tests are required.

2.3. Methods and Procedures

Reference:	ANSI C63.10-2013
Title:	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
Reference:	FCC KDB 558074 D01 DTS Meas. Guidance v05r02 April 2, 2019
Title:	Guidance for compliance measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of the FCC rules
Reference:	FCC KDB 174176 D01 Line Conducted FAQ v01r01 June 3, 2015
Title:	AC Power-Line Conducted Emissions Frequently Asked Questions

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT) *

Brand Name:	VISTEON
Model Name or Number:	DDU
Test Sample Serial Number:	DDU-ADV, ADVC200008 (Radiated Test Sample)
Hardware Version Number:	000C
FCC ID:	2AA98-DDU

Brand Name:	VISTEON
Model Name or Number:	DDU - ADV
Test Sample Serial Number:	DDU-ADV, ADVC200009 (Conducted Test Sample)
Hardware Version Number:	000C
FCC ID:	2AA98-DDU

3.2. Description of EUT *

The equipment under test was an In-Vehicle-Infotainment, contains Model Name: DDU supporting WLAN 2.4 GHz operations in 2400-2483.5 MHz ISM band.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing *

Category of Equipment:	WLAN 2.4 GHz (IEEE 802.11b, g, n)				
Type of Radio Device:	Transceiver				
Power Supply Requirement(s):	Nominal	28V DC via external power supply			
Tested Data rate:	802.11b	1/2/5.5/11 Mbps			
	802.11g	6/9/12/18/24/36/48/54 Mbps			
	802.11n20	MCS1 to MCS7			
	802.11n40	MCS1 to MCS7			
Modulation Type:	DSSS, OFDM				
Nominal Channel Bandwidth:	20 MHz, 40 MHz				
Highest internally generated clock and/ or oscillator frequency:	5.85 GHz				
Declared Antenna Gain:	0 dBi				
Antenna Type:	External Antenna				
Antenna Details:	Impedance 50 Ohms				
Transmit Frequency Range:	2400 MHz to 2483.5 MHz				
Transmit Channels Tested: BW 20MHz	Channel ID	Channel Number	Frequency (MHz)		
	Bottom	1	2412		
	Middle	6	2437		
	Top	11	2462		
Transmit Channels Tested: BW 40MHz	Channel ID	Channel Number	Frequency (MHz)		
	Bottom	3	2422		
	Middle	6	2437		
	Top	9	2452		

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

A. Support Equipment (In-house)

Item	Description	Brand Name	Model Name or Number	Serial Number
1	Laptop with Qualcomm Radio Control Tool QRCT Ver 4.0.211.0	HP	Probook 650 G1	5CG6143YWB

B. Support Equipment (Manufacturer supplied) *

Item	Description	Brand Name	Model Name or Number	Serial Number
1	Driver Truck Display With Antenna	Visteon	Scania 2886824	-/-

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

Transmitter / Modulated Carrier Continuous Transmissions Mode WLAN 2.4 GHz:

- 802.11b | 20 MHz | No-HT | 1/2/5.5/11 Mbps | Bottom/Middle/Top Channel | Power 16
- 802.11g | 20 MHz | No-HT | 6/9/12/18/24/36/48/54 Mbps | Bottom/Middle/Top Channel | Power 16
- 802.11n | 20 MHz | HT20 | MCS1 to MCS7 | Bottom/Middle/Top Channel | Power 16
- 802.11n | 40 MHz | HT40 | MCS1 to MCS7 | Bottom/Middle/Top Channel | Power 16

4.2. Configuration and Peripherals

- The customer supplied document containing the setup instructions "Procedure_for_running_RF_test_using_QRCT_Scania.pdf" was used for configuration.

EUT Power Supply:

- The EUT was powered with 28V DC via an external AC/DC power supply.

Test Mode Activation:

- The EUT can be connected with the Test laptop via USB cables supplied by the customer.
- The test modes were activated by Qualcomm Radio Control Tool.

Conducted Measurements:

- All conducted measurements were carried out by using conducted sample with SMA RF Cable soldered on the antenna output of the DUT by customer.

Radiated Measurements:

- Radiated measurements were performed with the radiated test sample with the external antenna.
- The EUT with its external antenna was evaluated for the worst-case position w.r.t to maximum radiated power measured and following position of the EUT and antenna was found out to be the worst case. Therefore, this report includes relevant results.
 - Worst-case: EUT laying and the external antenna in standing position
- Radiated measurements below 30 MHz were performed with the EUT positioned on the turn table and rotating 360 degrees while the loop antenna height was set at 100 cm.
- Radiated measurements above 30 MHz were performed with the EUT positioned on the turn table and rotating 360° while the antenna height varies from 1 to 4 m over the measurement frequency range.
- R&S® EMC32 V11.30 Software was used for the Radiated spurious emission measurements.
- As the continuous transmission of the EUT ($D \geq 98\%$) cannot be achieved and EUT was transmitting with different duty cycles w.r.t to different modes. Duty Cycle Correction Factors were added to all average measurements respectively according to the modes used to compensate as if it was transmitting with 100% duty cycle.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 6 *Measurement Uncertainty* for details.

In accordance with DAkkS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

5.2. Test Results

5.2.1. Transmitter Minimum 6 dB Bandwidth

Test Summary:

Test Engineer:	Muhammad Faiq Khan	Test Date:	14 August 2023
Test Sample Serial Number:	ADVC200009 (Conducted Test Sample)		
Test Site Identification	SR 9		

FCC Reference:	Part 15.247(a)(2)
Test Method Used:	FCC KDB 558074 Section 8.2 referencing ANSI C63.10:2013 Section 11.8.1 Option 1

Environmental Conditions:

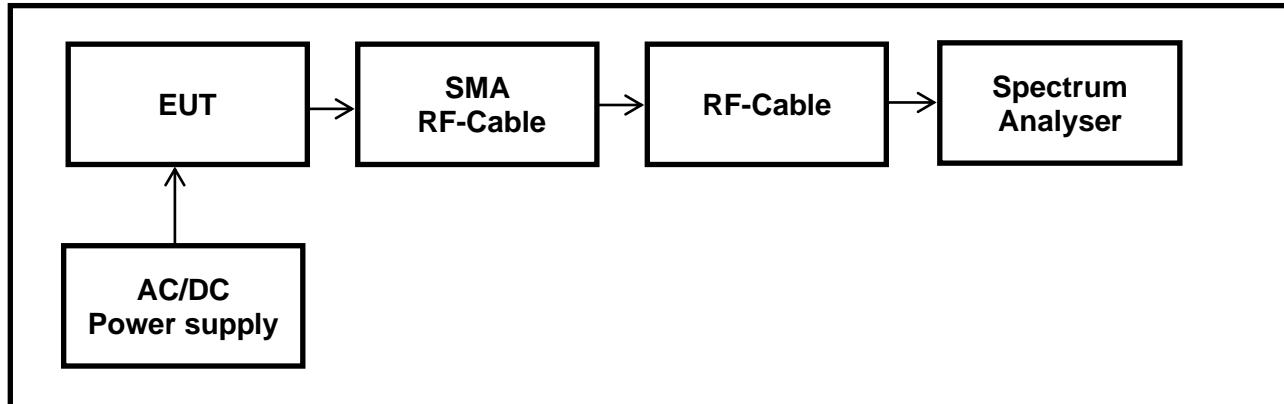
Temperature (°C):	24.2 to 26.7
Relative Humidity (%):	31.3 to 37.4

Notes:

1. The measurements were performed using the above configurations on the bottom, middle and top channels in accordance FCC KDB 558074 Section 8.2 referencing ANSI C63.10 Section 11.8 (11.8.1 Option 1 measurement procedure).
2. The spectrum analyser resolution bandwidth was set to 100 kHz and video bandwidth 300 kHz. A peak detector was used, sweep time was set to auto and the trace mode was Max Hold. The DTS bandwidth was measured at 6 dB down from the peak of the signal.
3. The measurement was performed at the worst-case data rates for each mode as follows.
 - b-mode 11 Mbps
 - g-mode 54 Mbps
 - n-mode HT20 MCS6
4. The RF port on the EUT was connected to the spectrum analyser using suitable attenuation and RF cable. The measured values takes into consideration the external attenuation correction factors.
 - The RF cable attenuation maximum 0.9 dB@2.4GHz from the EUT to Analyzer.

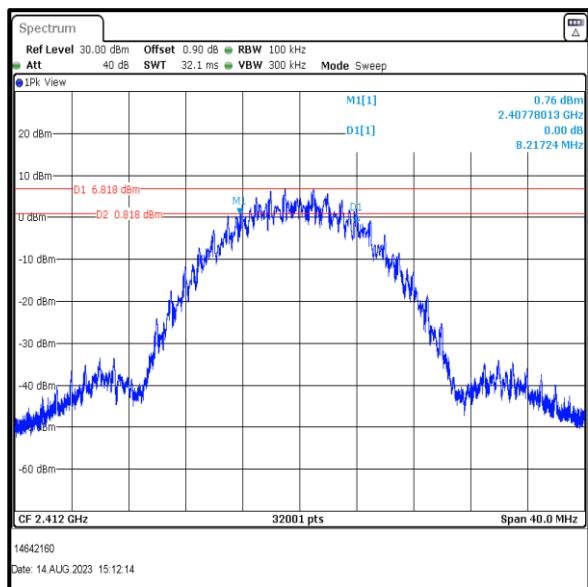
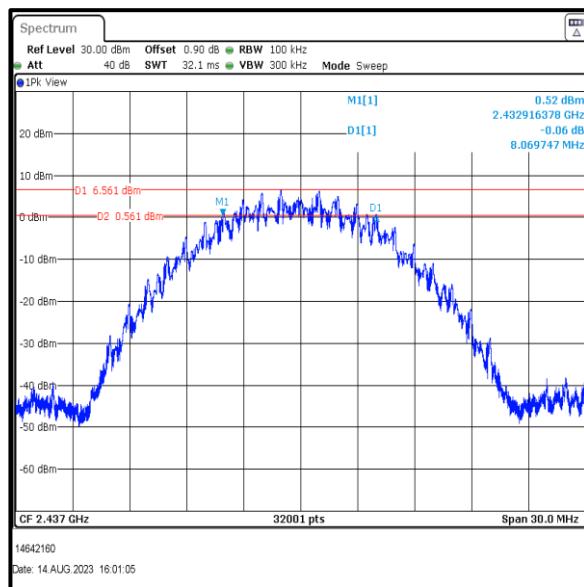
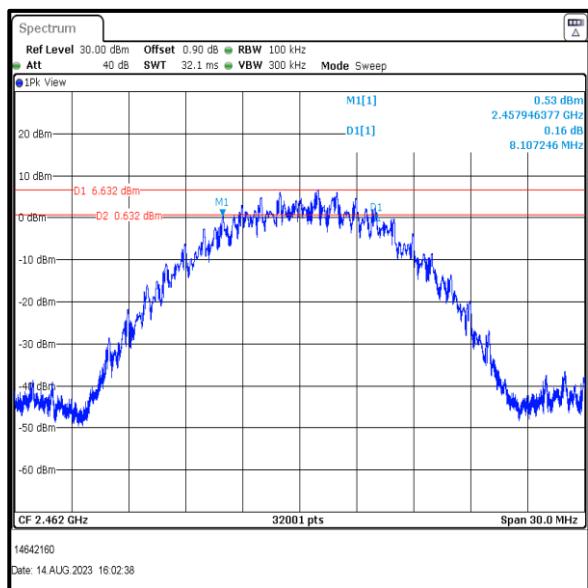
Therefore, total a reference level offset 0.9 dB was added to each of the at the tested frequencies conducted plots.

Test Setup:



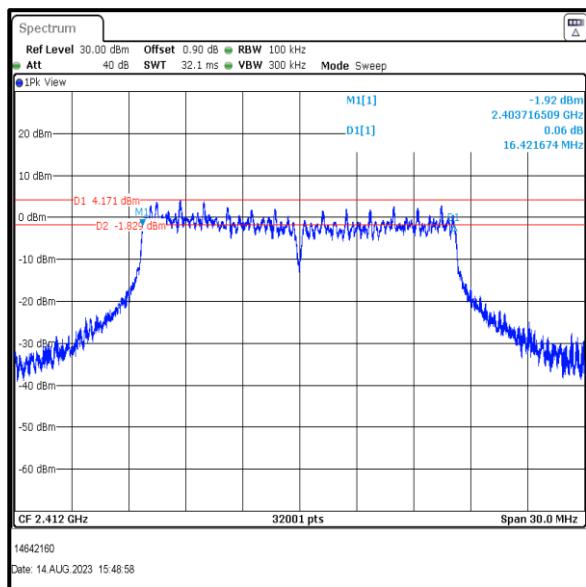
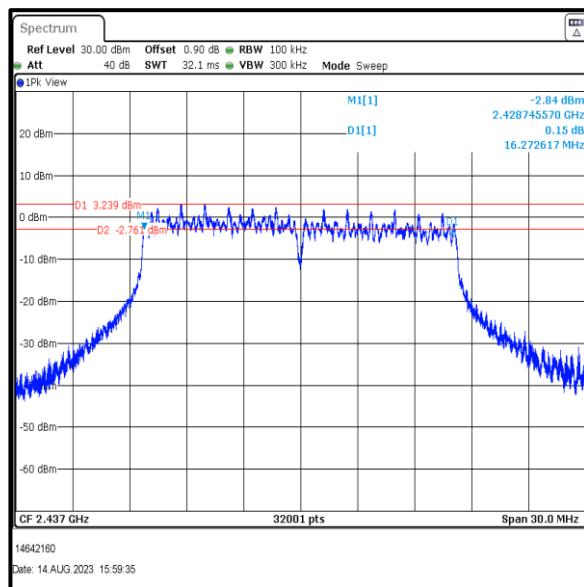
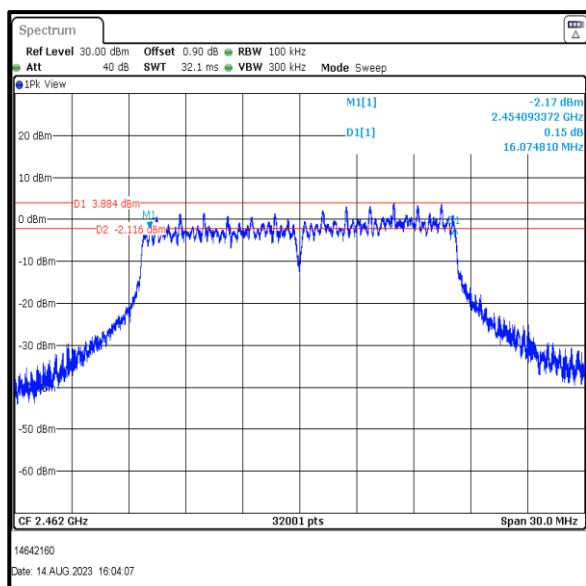
Transmitter Minimum 6 dB Bandwidth (continued)**Results: AC-DC Power Supply / 802.11b / 20 MHz / 11 Mbps / PWR 16**

Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	8217.240	≥ 500	7717.240	Complied
Middle	8069.747	≥ 500	7569.747	Complied
Top	8107.246	≥ 500	7607.246	Complied

**Bottom Channel****Middle Channel****Top Channel****Result: Pass**

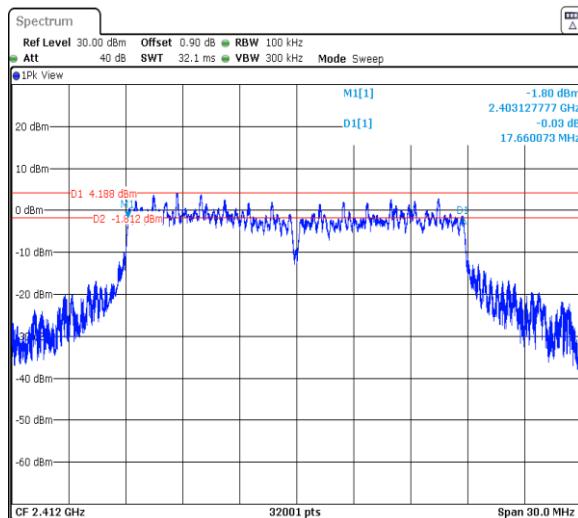
Transmitter Minimum 6 dB Bandwidth (continued)**Results: AC-DC Power Supply / 802.11g / 20 MHz / 54 Mbps / PWR 16**

Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	16421.674	≥ 500	15921.674	Complied
Middle	16272.617	≥ 500	15772.617	Complied
Top	16074.810	≥ 500	15574.810	Complied

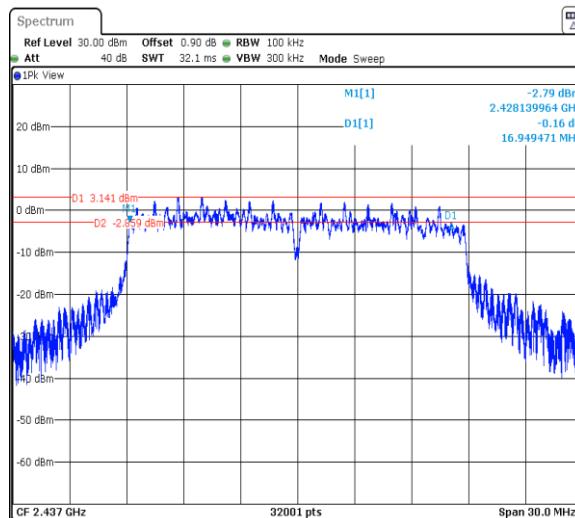
**Bottom Channel****Middle Channel****Top Channel****Result: Pass**

Transmitter Minimum 6 dB Bandwidth (continued)**Results: AC-DC Power Supply / 802.11n / 20 MHz / MCS6 / PWR 16**

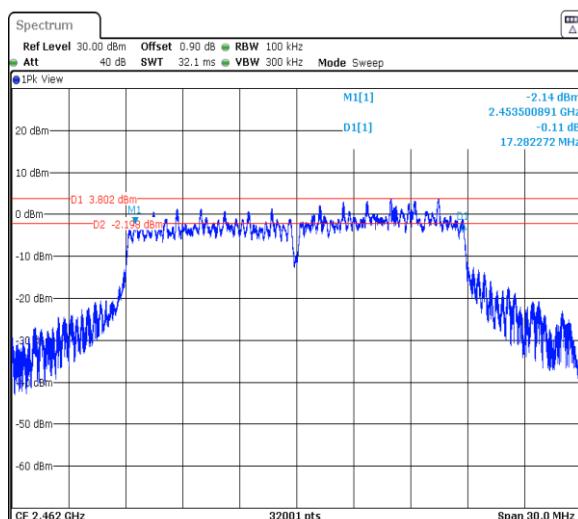
Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	17660.073	≥ 500	17160.073	Complied
Middle	16949.471	≥ 500	16449.471	Complied
Top	17282.272	≥ 500	16782.272	Complied



14642160
Date: 14 AUG 2023 15:55:12

Bottom Channel

14642160
Date: 14 AUG 2023 15:57:50

Middle Channel

14642160
Date: 14 AUG 2023 16:05:31

Top Channel**Result: Pass**

5.2.2. Transmitter Duty Cycle

Test Summary:

Test Engineer:	Muhammad Faiq Khan	Test Date:	14 August 2023
Test Sample Serial Number:	ADVC200009 (Conducted Test Sample)		
Test Site Identification	SR 9		

FCC Reference:	Part 15.35(c)
Test Method Used:	FCC KDB 558074 Section 6.0 referencing ANSI C63.10 Section 11.6

Environmental Conditions:

Temperature (°C):	27.2 to 29.3
Relative Humidity (%):	32.1 to 36.7

Notes:

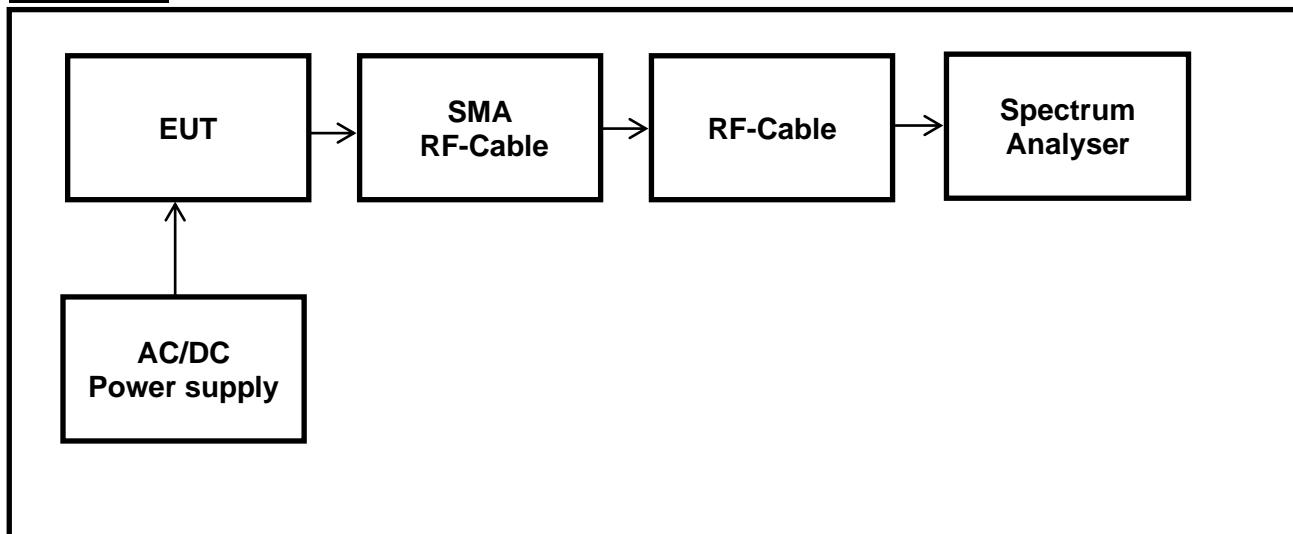
1. The transmitter duty cycle was measured using a spectrum analyser in the time domain and calculated by using the following calculation:

$$\text{Duty Cycle (\%)} = 100 \times [\text{On Time (T}_{\text{ON}})] / [\text{Period}(\text{T}_{\text{ON}} + \text{T}_{\text{OFF}}) \text{ or } 100\text{ms whichever is the lesser}]$$

$$\text{Duty Cycle Correction Factor} = 10 \log 1 / [\text{On Time (T}_{\text{ON}})] / [\text{Period}(\text{T}_{\text{ON}} + \text{T}_{\text{OFF}}) \text{ or } 100\text{ms whichever is the lesser}]$$
 - Duty Cycle Correction Factor for b-mode 11 Mbps: 0.38 dB
 - Duty Cycle Correction Factor for g-mode 54 Mbps: 1.6 dB
 - Duty Cycle Correction Factor for n-mode HT20 MCS6: 2.04 dB
2. The RF port on the EUT was connected to the spectrum analyser using suitable attenuation and RF cable. The measured values takes into consideration the external attenuation correction factors.
 - The RF cable attenuation maximum 0.9 dB@2.4GHz from the EUT to Analyzer.

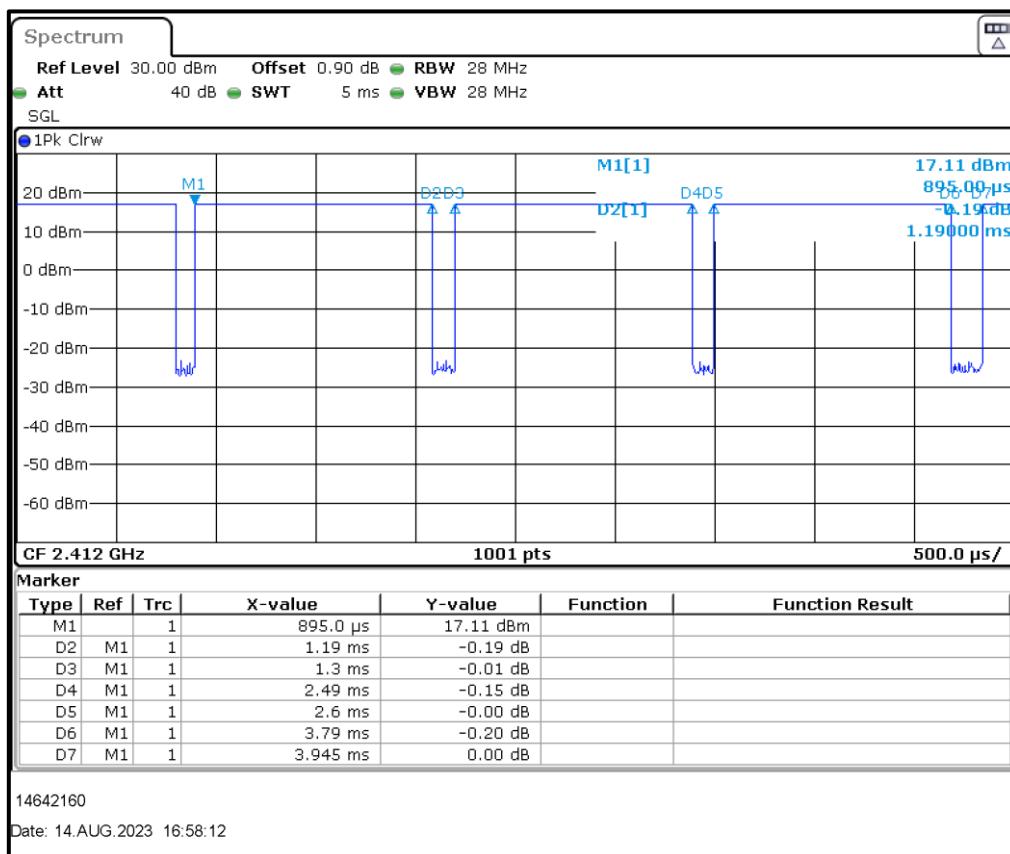
Therefore, total a reference level offset 0.9 dB was added to each of the at the tested frequencies conducted plots.

Test Setup:



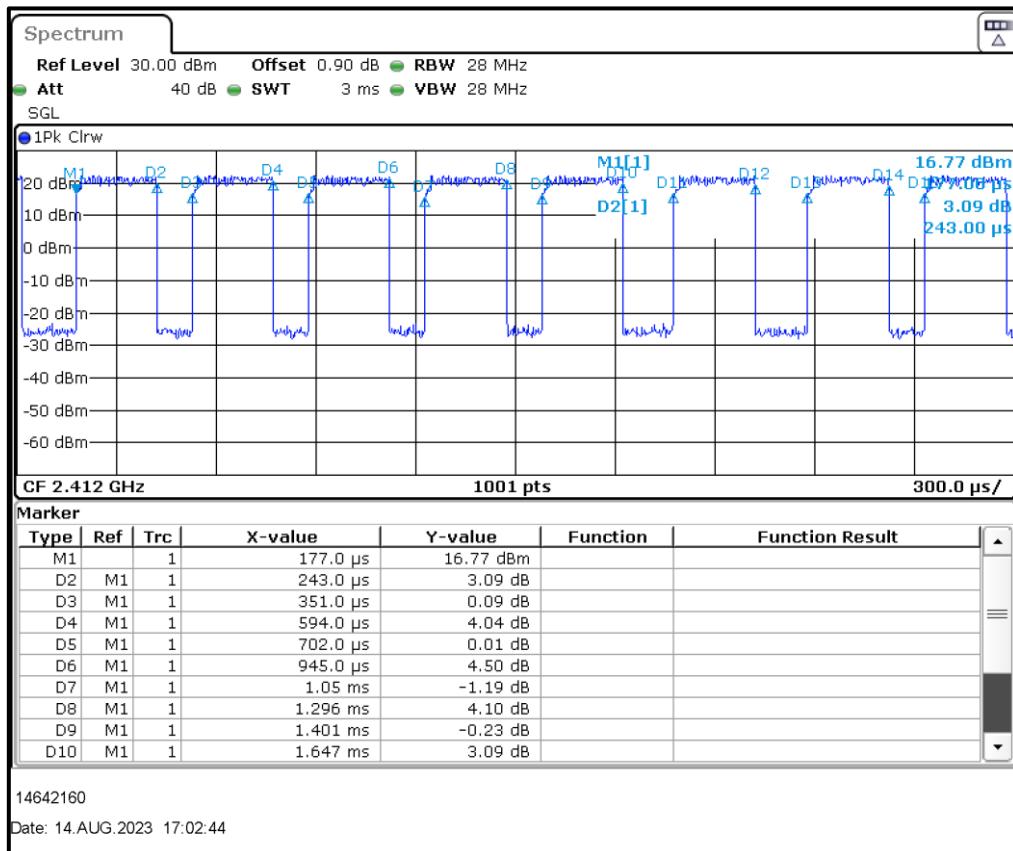
Transmitter Duty Cycle (continued)**Results: AC-DC Power Supply / 802.11b / 20 MHz / 11 Mbps / PWR 16**

Pulse On Time (T _{ON}) (ms)	Pulse Period (T _{ON} + T _{OFF}) (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
1.19	1.3	91.5	0.38

**Result: Pass**

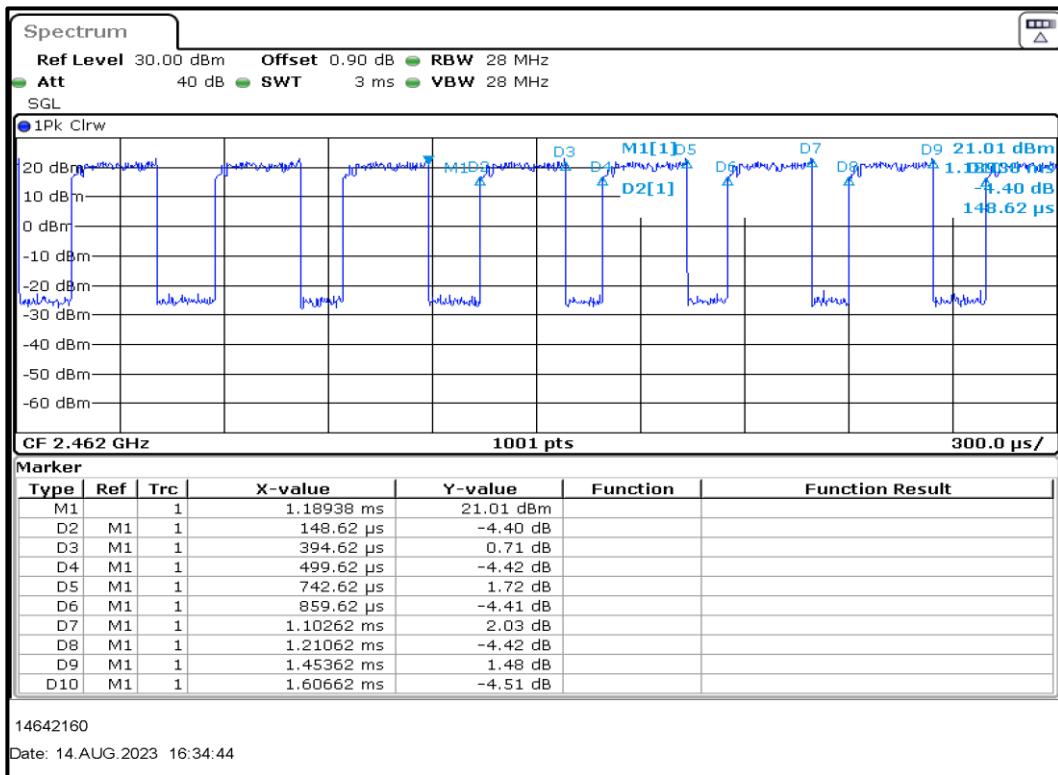
Transmitter Duty Cycle (continued)**Results: AC-DC Power Supply / 802.11g / 20 MHz / 54 Mbps / PWR 16**

Pulse On Time (T _{ON}) (ms)	Pulse Period (T _{ON} + T _{OFF}) (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
0.243	0.351	69.23	1.6

**Result: Pass**

Transmitter Duty Cycle (continued)**Results: AC-DC Power Supply / 802.11n / 20 MHz / MCS6 / PWR 16**

Pulse On Time (T _{ON}) (ms)	Pulse Period (T _{ON} + T _{OFF}) (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
0.246	0.394	62.43	2.04

**Result: Pass**

5.2.3. Transmitter Power Spectral Density

Test Summary:

Test Engineer:	Muhammad Faiq Khan	Test Date:	14 August 2023
Test Sample Serial Number:	ADVC200009 (Conducted Test Sample)		
Test Site Identification	SR 9		

FCC Reference:	Part 15.247(e)
Test Method Used:	FCC KDB 558074 Section 8.4 referencing ANSI C63.10 Sections 11.10.2

Environmental Conditions:

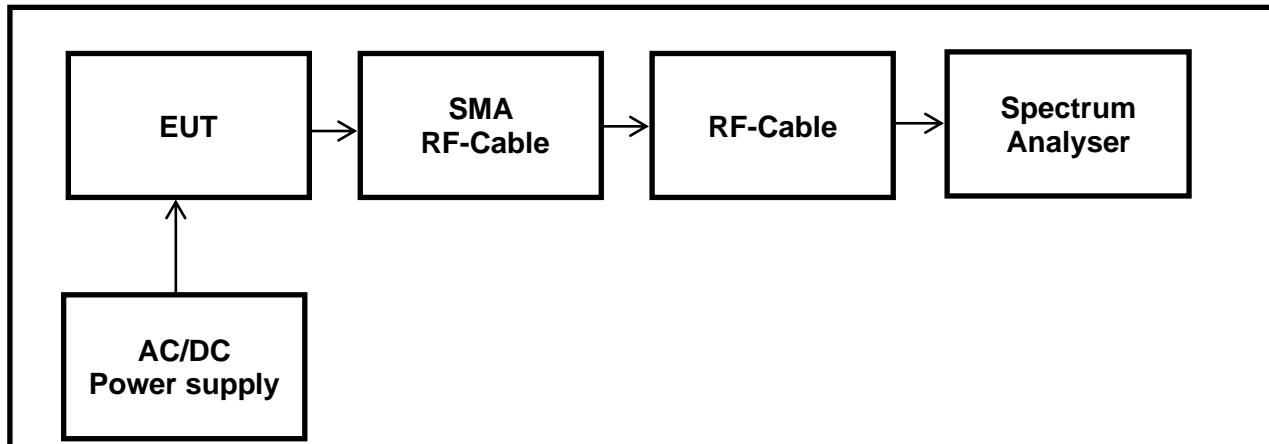
Temperature (°C):	27.1
Relative Humidity (%):	32.3

Notes:

1. Final measurements were performed using the below configurations on the bottom, middle and top channels.
2. The EUT was transmitting at < 98% duty cycle and testing was performed in accordance with ANSI C63.10 Section 11.10.2 Method PKPSD.
3. The signal analyser resolution bandwidth was set to 3 kHz and video bandwidth 10 kHz. A Peak detector was used and sweep time was set to Auto. The span was set to 1.5 times the DTS bandwidth. The highest peak of the measured signal was recorded.
4. The measurement was performed only at the worst-case data rates for each mode as follows.
 - b-mode 11 Mbps
 - g-mode 54 Mbps
 - n-mode HT20 MCS6
5. The RF port on the EUT was connected to the spectrum analyser using suitable attenuation and RF cable. The measured values takes into consideration the external attenuation correction factors.
 - The RF cable attenuation maximum 0.9 dB@2.4GHz from the EUT to Analyzer.

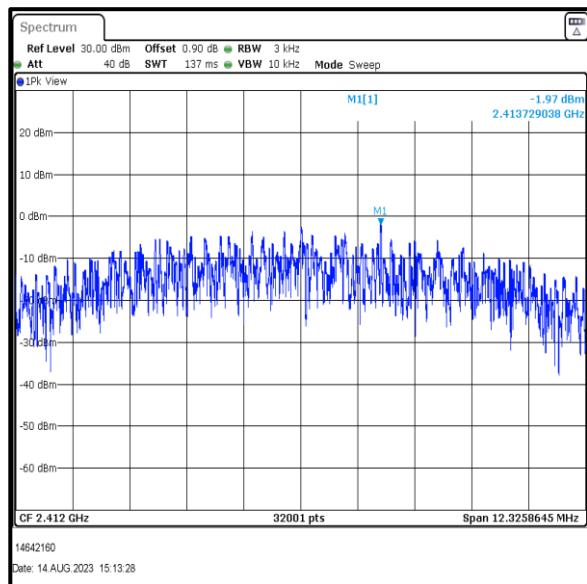
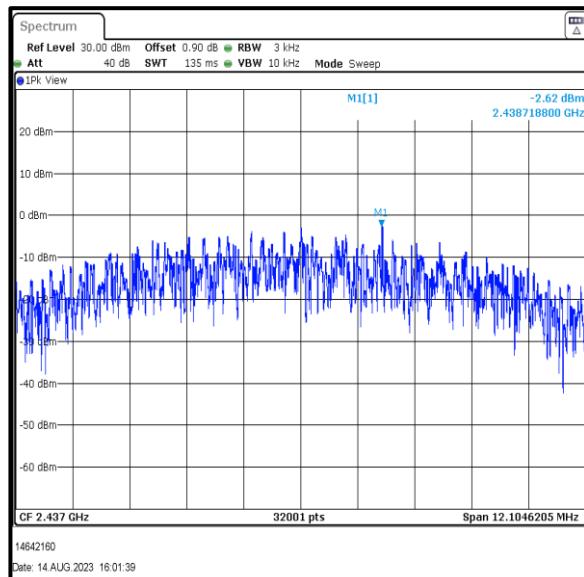
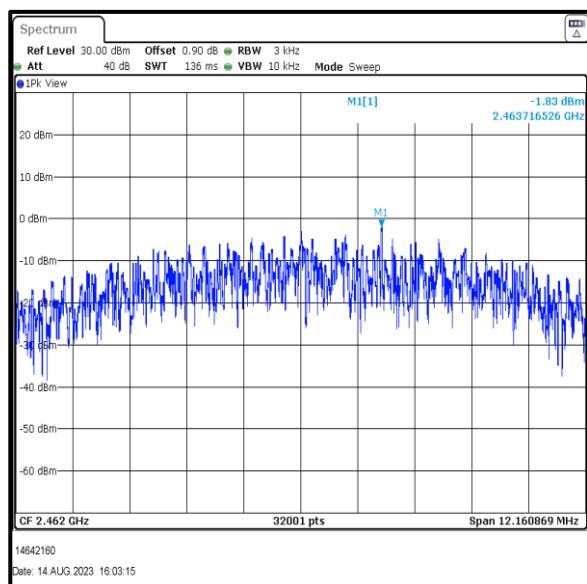
Therefore, total a reference level offset 0.9 dB was added to each of the at the tested frequencies conducted plots.

Test Setup:



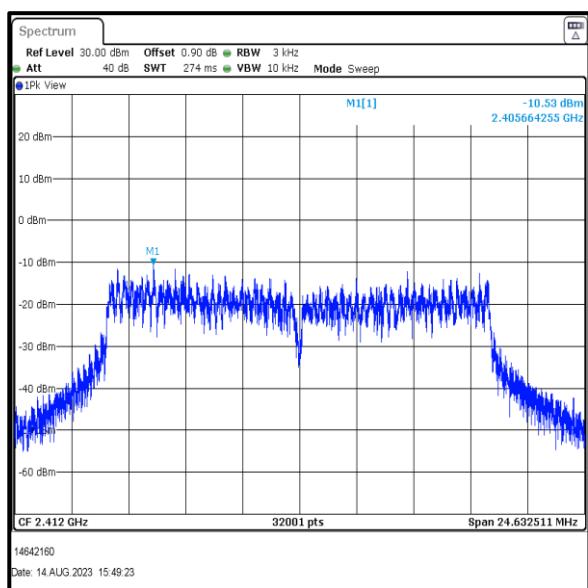
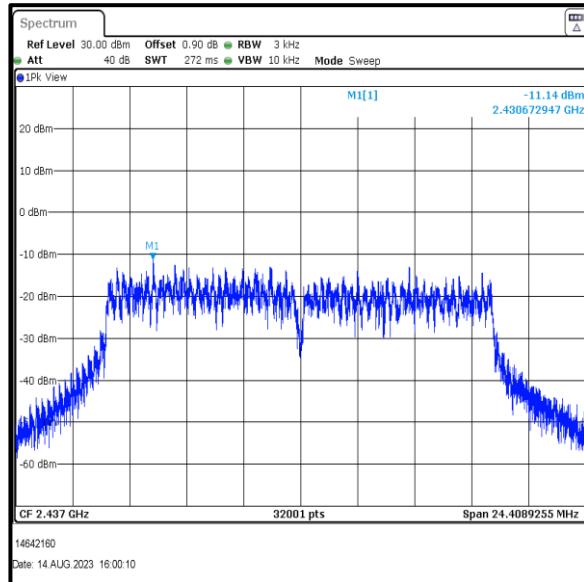
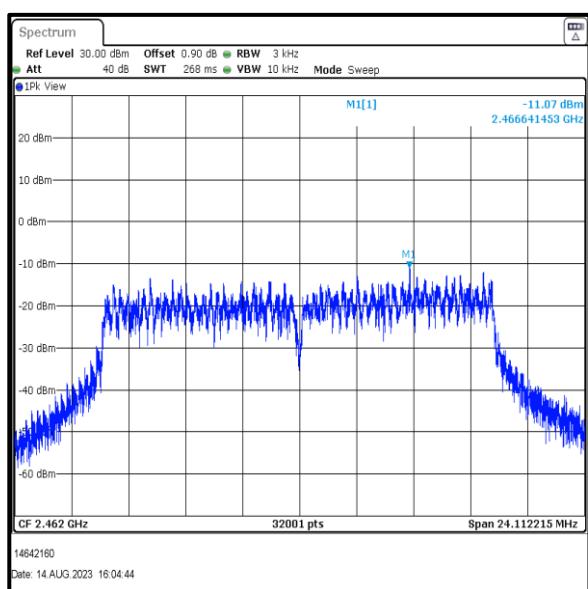
Transmitter Power Spectral Density (continued)**Results: AC-DC Power Supply / 802.11b / 20 MHz / 11 Mbps / PWR 16**

Channel	Output Power (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)	Result
Bottom	-1.97	8.0	9.97	Complied
Middle	-2.62	8.0	10.62	Complied
Top	-1.83	8.0	9.83	Complied

**Bottom Channel****Middle Channel****Top Channel****Result: Pass**

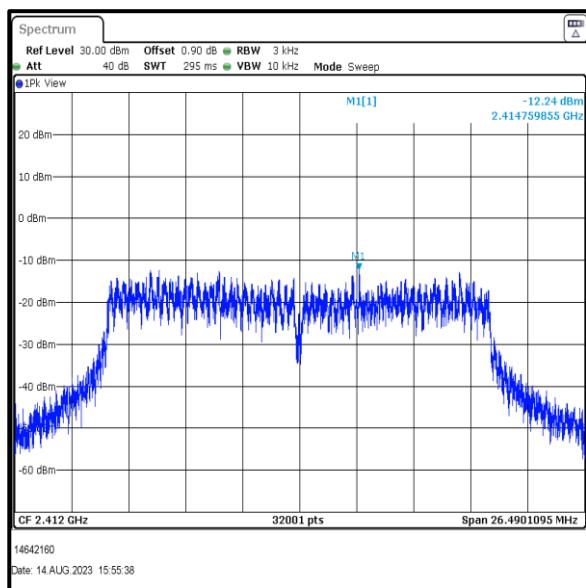
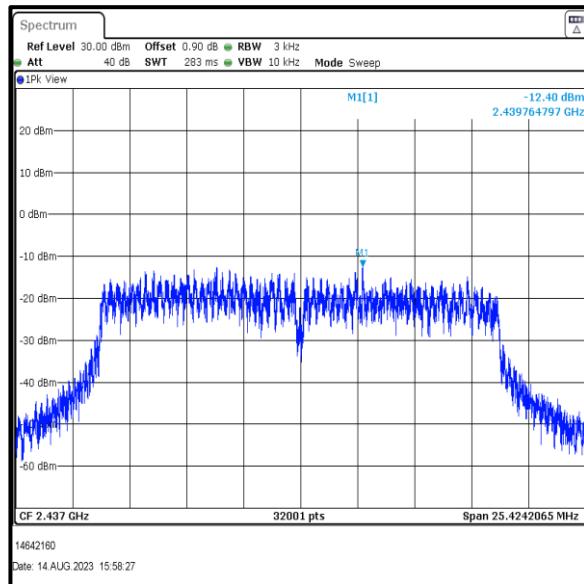
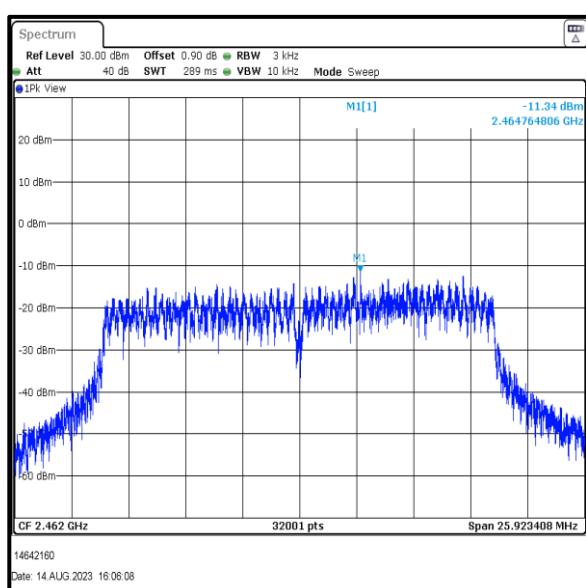
Transmitter Power Spectral Density (continued)**Results: AC-DC Power Supply / 802.11g / 20 MHz / 54 Mbps / PWR 16**

Channel	Output Power (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)	Result
Bottom	-10.53	8.0	18.53	Complied
Middle	-11.14	8.0	19.14	Complied
Top	-11.07	8.0	19.07	Complied

**Bottom Channel****Middle Channel****Top Channel****Result: Pass**

Transmitter Power Spectral Density (continued)**Results: AC-DC Power Supply / 802.11n / 20 MHz / MCS6 / PWR 16**

Channel	Output Power (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)	Result
Bottom	-12.24	8.0	20.24	Complied
Middle	-12.40	8.0	20.4	Complied
Top	-11.34	8.0	19.34	Complied

**Bottom Channel****Middle Channel****Top Channel****Result: Pass**

5.2.4. Transmitter Maximum (Peak) Output Power

Test Summary:

Test Engineer:	Muhammad Faiq Khan	Test Date:	11 August 2023
Test Sample Serial Number:	ADVC200009 (Conducted Test Sample)		
Test Site Identification	SR 9		

FCC Reference:	Part 15.247(b)(3)
Test Method Used:	FCC KDB 558074 Section 8.3.1.3 referencing ANSI C63.10 Sections 11.9.1.3

Environmental Conditions:

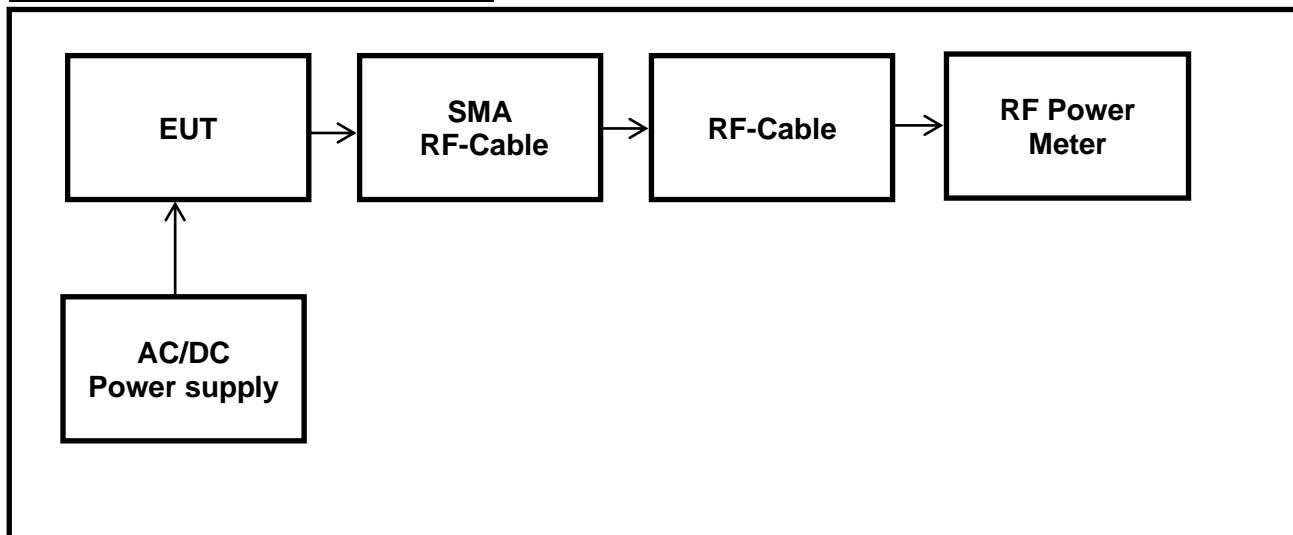
Temperature (°C):	24.3 to 27.2
Relative Humidity (%):	35.3 to 36.8

Notes:

1. The EUT was transmitting at <98% duty cycle and testing was performed in accordance with ANSI C63.10 Section 11.9.1.3 Method PKPM1. The broadband peak RF power meter (VBW \geq EUT's DTS Bandwidth) was used to measure the signal power.
2. The RF port on the EUT was connected to the spectrum analyser using suitable attenuation and RF cable. The measured values takes into consideration the external attenuation correction factors.
 - The RF cable attenuation maximum 0.9 dB@2.4GHz from the EUT to RF power meter.

Therefore, total a reference level offset 0.9 dB was added to each of measured value at the tested frequencies.

Test Setup (AC-DC Power Supply):



Transmitter Maximum (Peak) Output Power (continued)**Results: AC-DC Power Supply / 802.11b / 20 MHz / PWR 16**

Operational bands:		b-mode		
Channel no.:	1	6	11	
b-mode				
1MBit	15.780	14.789	15.121	
2MBit	15.994	14.981	15.288	
5.5MBit	15.906	14.987	15.300	
11MBit	16.460	15.523	15.852	
Operational bands:		b-mode		
CE-Limits EIRP [dBm]	30.00			
Limit Check:		Limit Check:		
Highest conducted power value over channels and modulations:	16.460			
Declared antenna Gain max:	0.00	0.00	0.00	
EIRP	16.46			
Margin to Limit EIRP:	13.54			
Verdict:	pass			

Transmitter Maximum (Peak) Output Power (continued)Results: AC-DC Power Supply / 802.11g / 20 MHz / PWR 16

Operational bands:		g-mode		
Channel no.:	1	6	11	
g-mode				
6Mbit	17.974	17.075	17.294	
9Mbit	17.733	17.136	17.383	
12Mbit	17.381	16.575	17.147	
18Mbit	17.419	16.596	16.887	
24Mbit	18.520	17.642	18.143	
36Mbit	18.636	17.888	18.291	
48Mbit	18.511	17.777	18.243	
54Mbit	18.980	18.214	18.598	
Operational bands:		g-mode		
CE-Limits EIRP [dBm]		30.00		
Limit Check:		Limit Check:		
Highest conducted power value over channels and modulations:		18.980		
Declared antenna Gain max:	0.00	0.00	0.00	
EIRP		18.98		
Margin to Limit EIRP:		11.02		
Verdict:		pass		

Transmitter Maximum (Peak) Output Power (continued)Results: AC-DC Power Supply / 802.11n / 20 MHz / PWR 16

Operational bands:		n-mode (20 MHz)		
Channel no.:		1	6	11
n-mode				
MCS0	17.698	16.948	17.150	
MCS1	17.528	16.622	16.999	
MCS2	17.363	16.423	16.692	
MCS3	18.677	18.110	18.255	
MCS4	18.556	17.912	18.305	
MCS5	18.609	17.730	18.098	
MCS6	18.713	18.042	18.261	
MCS7	18.588	17.936	18.246	
Operational bands:		n-mode HT20		
CE-Limits EIRP [dBm]		30.00		
Limit Check:		Limit Check:		
Highest conducted power value over channels and modulations:		18.713		
Declared antenna Gain max:	0.00	0.00	0.00	
EIRP	18.71			
Margin to Limit EIRP:	11.29			
Verdict:	pass			

Transmitter Maximum (Peak) Output Power (continued)Results: AC-DC Power Supply / 802.11n / 40 MHz / PWR 16

Operational bands:		n-mode (40 MHz)		
Channel no.:	3	6	9	
n-mode				
MCS0	16.223	17.222	16.817	
MCS1	15.953	16.719	16.611	
MCS2	15.819	17.095	16.387	
MCS3	16.793	17.286	17.478	
MCS4	17.151	17.562	17.667	
MCS5	17.257	17.542	17.924	
MCS6	16.843	17.509	17.561	
MCS7	16.843	17.383	17.522	
Operational bands:		n-mode HT40		
CE-Limits EIRP [dBm]		30.00		
Limit Check:		Limit Check:		
Highest conducted power value over channels and modulations:		17.924		
Declared antenna Gain max:	0.00	0.00	0.00	
EIRP	17.92			
Margin to Limit EIRP:	12.08			
Verdict:	pass			

5.2.5. Transmitter Radiated Emissions

Test Summary:

Test Engineer:	Muhammad Faiq Khan	Test Date:	31 August 2023
Test Sample Serial Number:	ADVC200008 (Radiated Test Sample)		
Test Site Identification	SR 1/2		

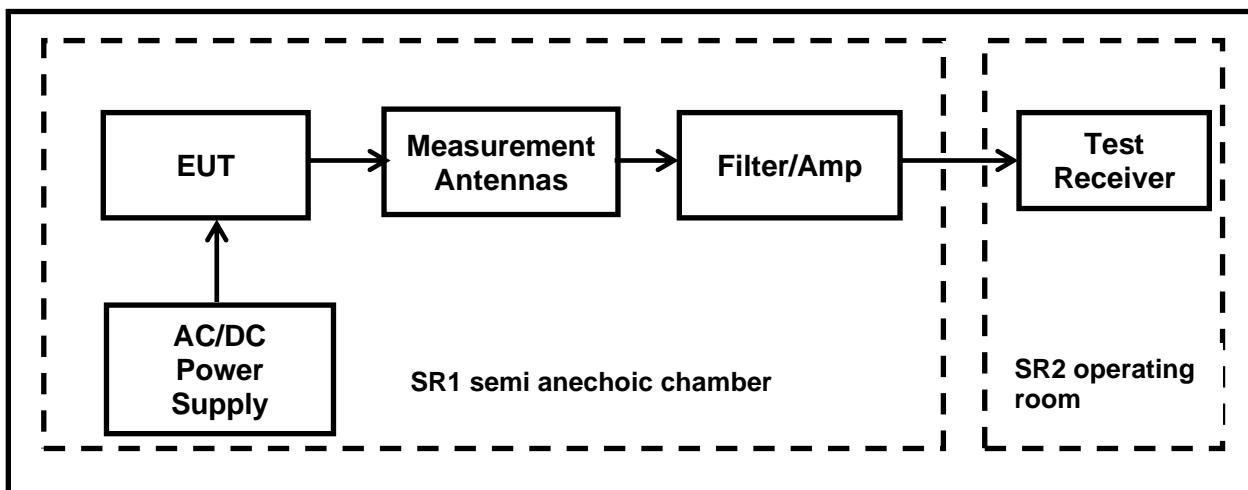
FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	FCC KDB 558074 Sections 8.5 & 8.6 referencing ANSI C63.10 Sections 11.11 and 11.12 ANSI C63.10:2013 Sections 6.3 and 6.4
Frequency Range	9 kHz to 30 MHz

Environmental Conditions:

Temperature (°C):	23.4
Relative Humidity (%):	48.1

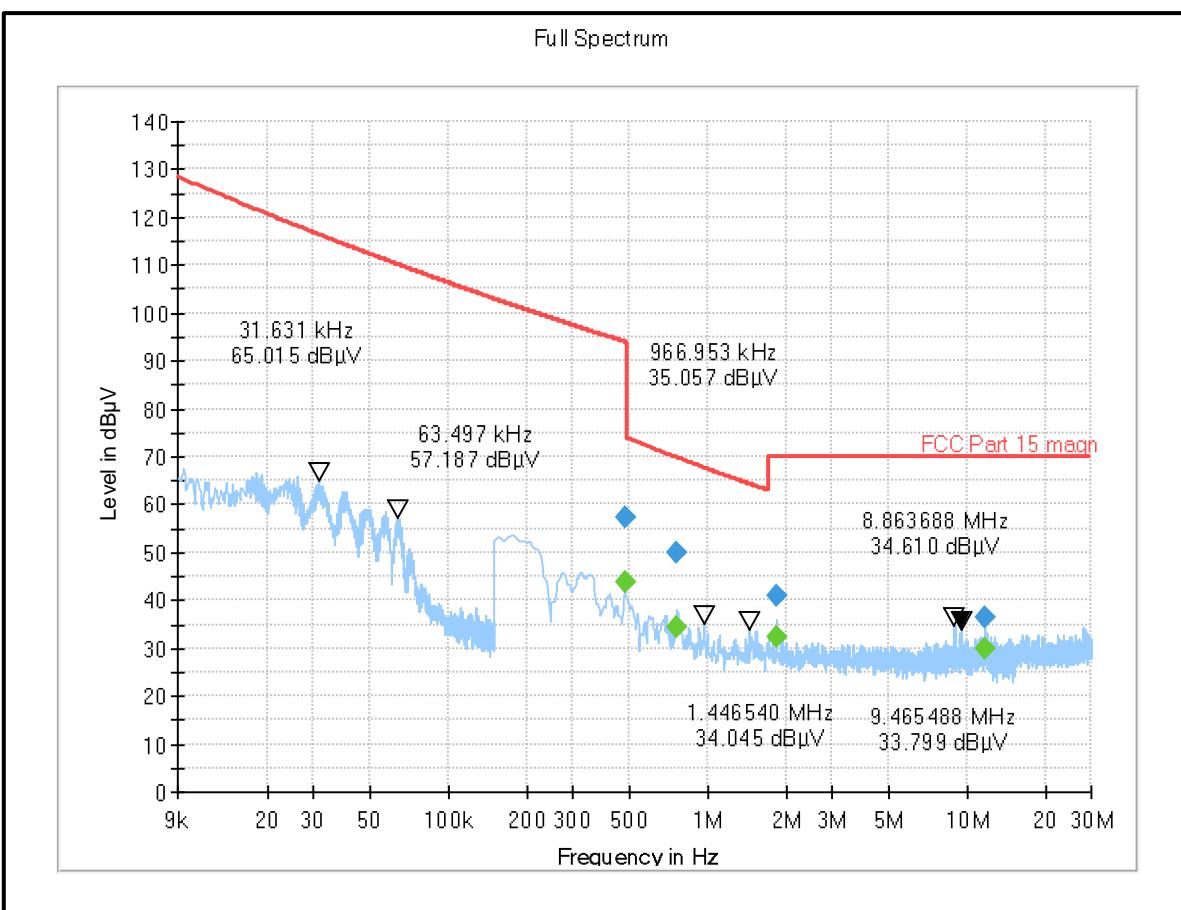
Notes:

1. In accordance with FCC KDB 414788 D01 Radiated Test Site & ANSI C63.10 clause 5.2 an alternative test site that can demonstrate equivalence to an open area test site may be used. Therefore, the measurement was performed in a Semi Anechoic Chamber. (The OATS / SAC comparison data is available upon request).
2. The limits are specified at a test distances of 30 and 300 metres. However, as specified in FCC Section 15.31 (f)(2) & ANSI C63.10 clause 6.4.3, measurements may be performed at a closer distance and the measured level extrapolated to the specified measurement distance using the method described in clauses 6.4.4, specifically sub-clause 6.4.4.1 which specifies that the measured level shall be extrapolated to the specified distance by conservatively presuming that the field strength decays at 40 dB/decade.
Therefore, measurements were performed at a measurement distance of 3 m.
3. Therefore, the limit values are extrapolated to a measurement distance of 3 m.
 - 9 kHz- 490 kHz: limits extrapolated from 300 m to 3 m by adding 80 dB at 40 dB /decade.
 - 490 kHz-1705 kHz: limits extrapolated from 30 m to 3 m by adding 40 dB at 40 dB /decade.
4. Measurements below 30 MHz were performed in a semi-anechoic chamber SR1/ 2 (Asset Number 1603665) at a distance of 3 m. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. The measurement loop antenna height was 100 cm.
5. The radiated emissions measurements were performed with the EUT set to the following worst-case mode.
 - WLAN 2.4 GHz | g-Mode | 20 MHz | 54 Mbps | Bottom channel
6. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
7. Pre-scans were performed, and markers placed on the highest measured levels. The test receiver was set to:
 - Frequency range: 9 kHz-150 kHz: RBW: 1 kHz /VBW: 3 kHz
 - Frequency range: 150 kHz – 30 MHz: RBW: 10 kHz /VBW: 30 kHz
 - Detector: Max-Peak detector
 - Trace Mode: Max Hold

Transmitter Radiated Emissions (continued)**Test Setup:**

Transmitter Radiated Emissions (continued)**Results: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**

Frequency (MHz)	Loop Antenna Orientation	MaxPeak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
0.477443	0° to the EUT	57.40	93.99	36.59	Complied
0.761888	90° to the EUT	49.85	69.77	19.92	Complied
1.843440	90° to the EUT	40.88	70.00	29.12	Complied
11.759850	90° to the EUT	36.29	70.00	33.71	Complied

Plot: 9 kHz – 30 MHz: Results: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**Result: Pass**

Transmitter Radiated Emissions (continued)**Test Summary:**

Test Engineer:	Muhammad Faiq Khan	Test Date:	31 August 2023
Test Sample Serial Number:	ADVC200008 (Radiated Test Sample)		
Test Site Identification	SR 1/2		

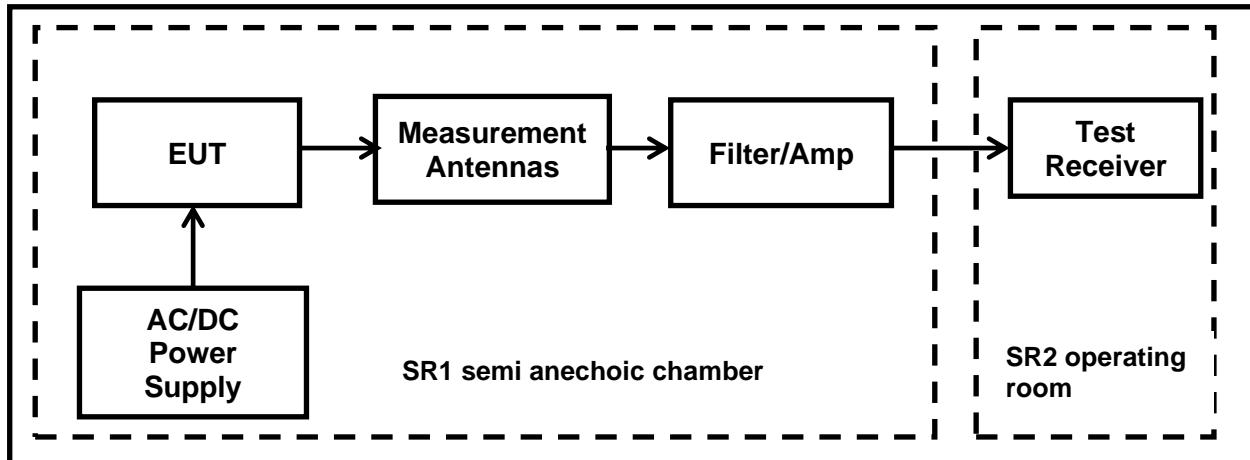
FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	FCC KDB 558074 Sections 8.5 & 8.6 referencing ANSI C63.10 Sections 11.11 and 11.12 ANSI C63.10:2013 Sections 6.3 and 6.5
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	23.4
Relative Humidity (%):	48.1

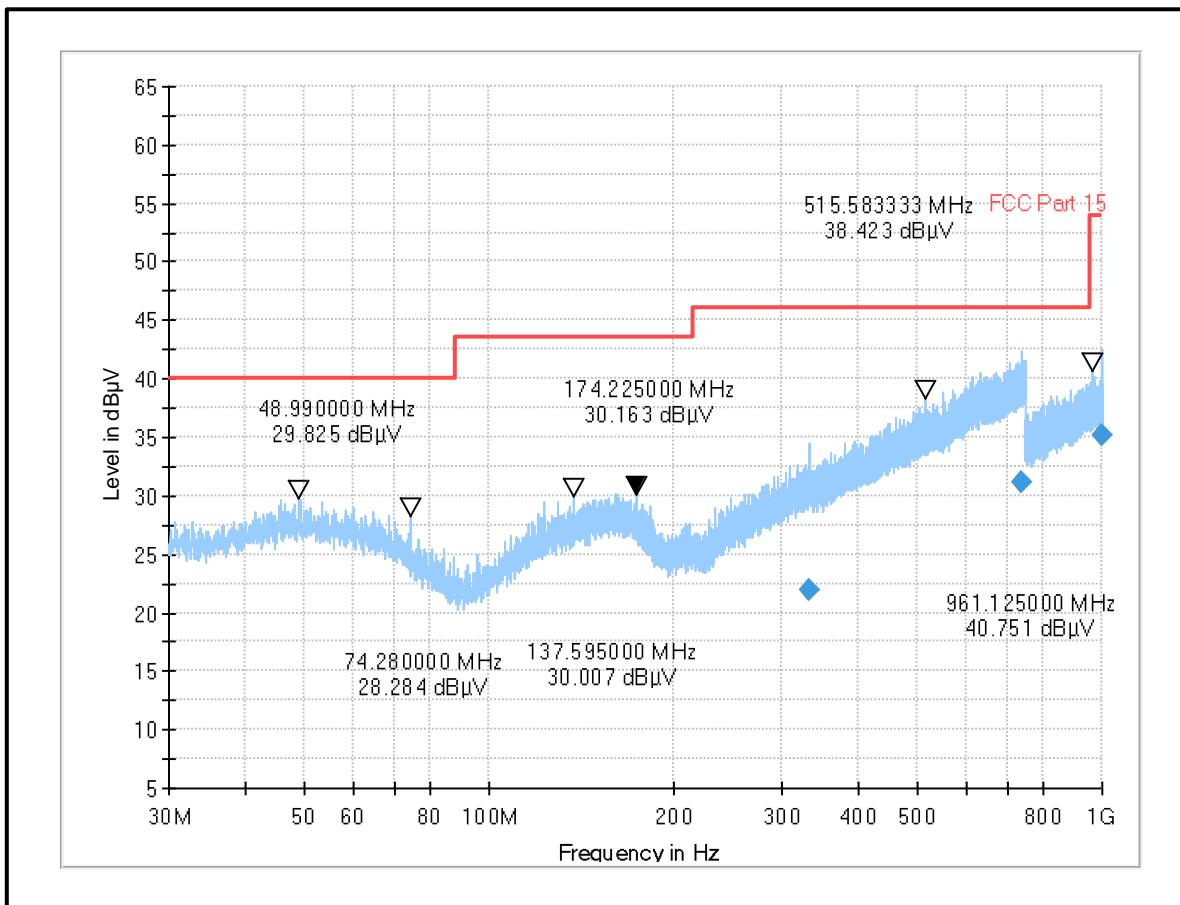
Note(s):

1. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
2. The radiated emissions measurements were performed with the EUT set to the following worst-case mode.
 - WLAN 2.4 GHz | g-Mode | 20 MHz | 54 Mbps | Bottom channel
3. Pre-scans were performed, and markers placed on the highest measured levels. The test receiver resolution bandwidth was set to 100 kHz and video bandwidth 300 kHz. A peak detector was used, sweep time was set to auto and trace mode was Max Hold.
4. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
5. All other emissions shown on the pre-scan plot were investigated and found to be below the measurement system noise floor.

Test Setup:

Transmitter Radiated Emissions (continued)**Results: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**

Frequency (MHz)	Antenna Polarization	MaxPeak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
333.700000	Vertical	21.97	46.00	24.03	Complied
738.208333	Vertical	31.14	46.00	14.86	Complied
999.958333	Vertical	35.09	54.00	18.91	Complied

Plot: 30 MHz – 1GHz: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**Result: Pass**

Transmitter Radiated Emissions (continued)**Test Summary:**

Test Engineer:	Muhammad Faiq Khan	Test Date:	23 August 2023
Test Sample Serial Number:	ADVC200008 (Radiated Test Sample)		
Test Site Identification	SR 1/2		

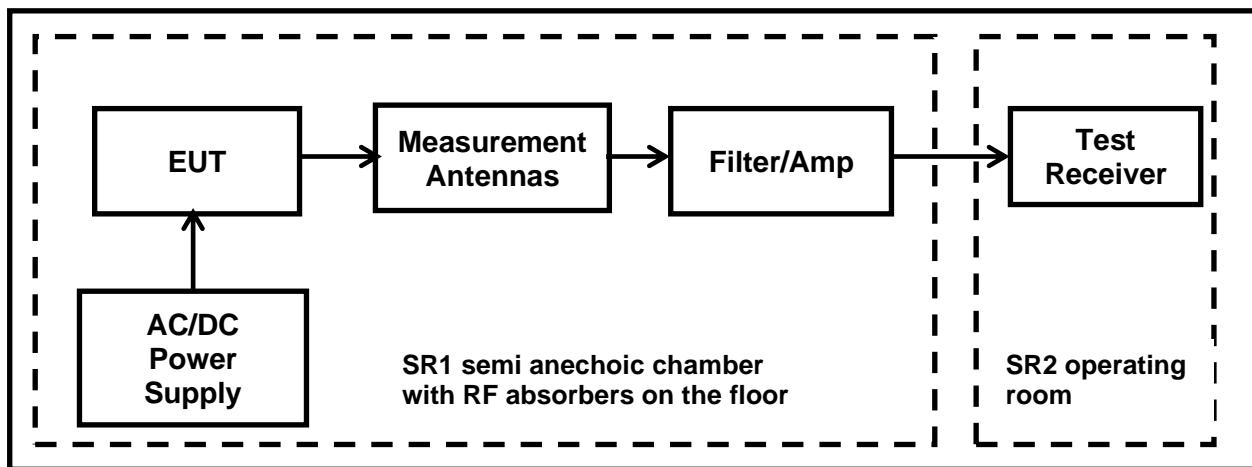
FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	FCC KDB 558074 Sections 8.5 & 8.6 referencing ANSI C63.10 Sections 11.11 and 11.12 ANSI C63.10:2013 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 25 GHz

Environmental Conditions:

Temperature (°C):	27.2
Relative Humidity (%):	55.5

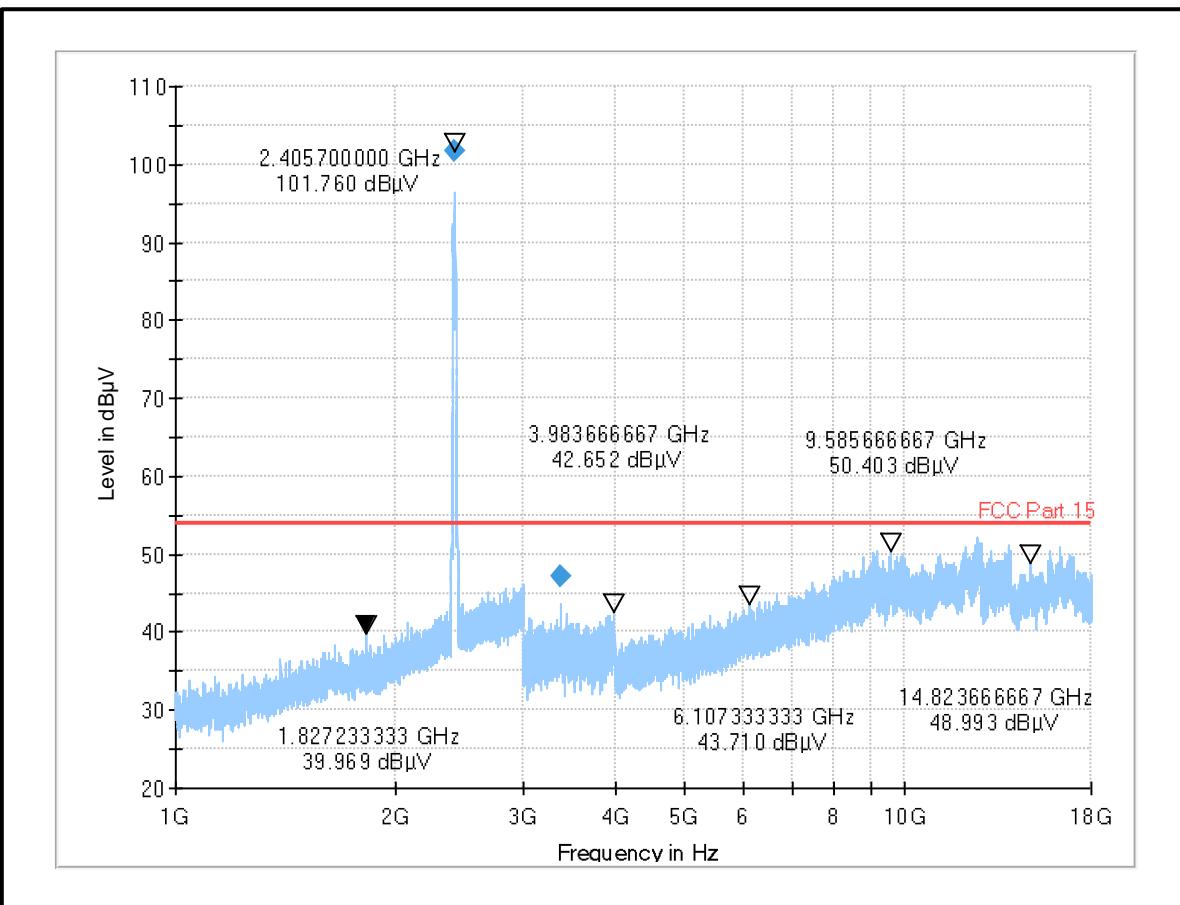
Notes:

1. Pre-scans above 1 GHz were performed in a semi-anechoic chamber SR1/ 2 (Asset Number 1603665) with RF absorbers on the floor at a distance of 3 m. The EUT was placed at a height of 1.5 m above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 m above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber SR1/ 2 (Asset Number 1603665) with absorber on the floor at a distance of 3 m. The EUT was placed at a height of 1.5 m above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 m to 4 m.
2. The radiated measurements were performed with the EUT set to the following worst-case mode.
 - WLAN 2.4 GHz | g-Mode | 20 MHz | 54 Mbps | Bottom channel
3. Pre-scans were performed, and a marker placed on the highest measured level of the appropriate plot. The test receiver resolution bandwidth was set to 1 MHz and video bandwidth 3 MHz the sweep time was set to auto.
4. The emissions shown at frequencies approximately 2.4 GHz to 2.4835 GHz on the 1 GHz to 18 GHz plots are the EUT fundamental for the tested channel.
5. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
6. In accordance with ANSI C63.10-2013 Section 5.3.3 & 6.5.3 measurements above 18 GHz were performed at closer distance (1 m); because at specified measurement distance (3m) for compliance the instrumentation noise floor was typically close to the radiated emission limit.
7. For frequency range between 18 GHz and 25 GHz, no critical emissions were found. All emissions shown on the pre-scans were investigated and found to be below the noise floor of the measurement system

Transmitter Radiated Emissions (continued)**Test Setup:**

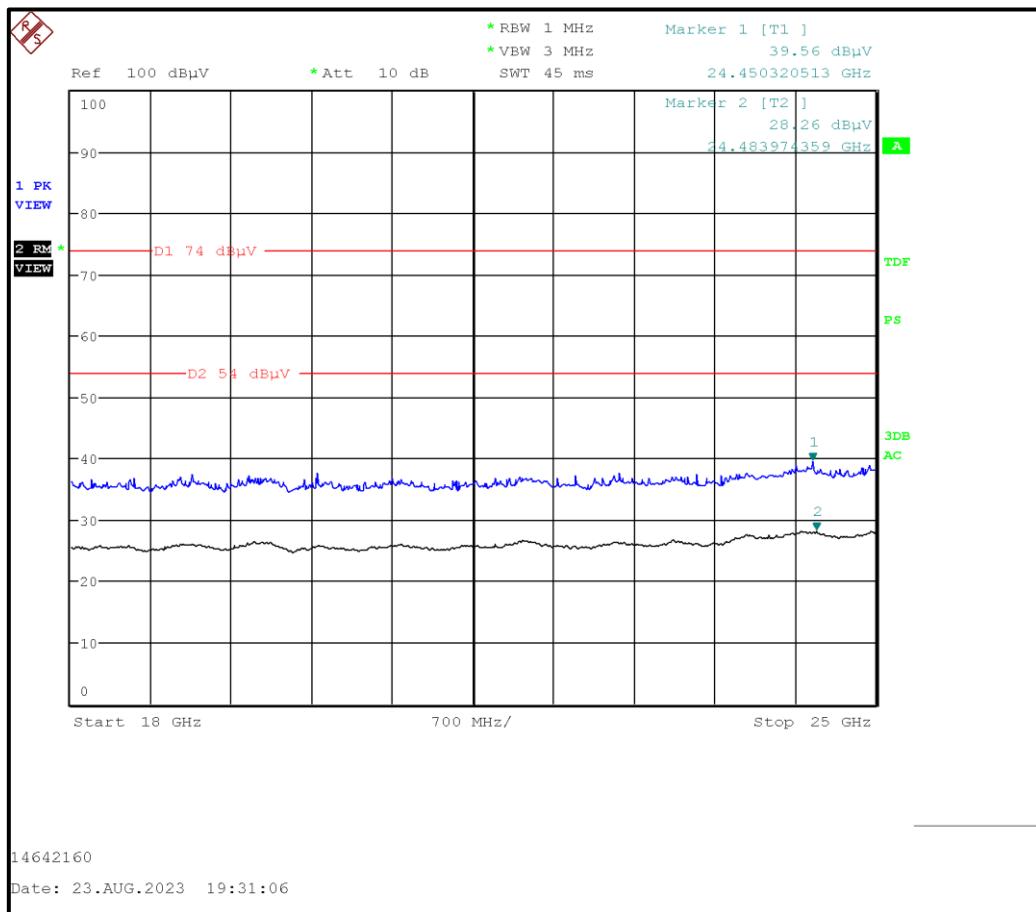
Transmitter Radiated Emissions (continued)**Results: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**

Frequency (MHz)	Antenna Polarization	Peak Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
3373.166667	Vertical	47.24	54.00	6.76	Complied

Plot: 1 GHz – 18 GHz: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**Result: Pass**

Transmitter Radiated Emissions (continued)**Results: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**

Frequency (MHz)	Antenna Polarization	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
All emissions were below the level of the measurement system noise floor.					

Plot: 18 GHz – 25 GHz: 802.11g / 20 MHz / 54 Mbps / Bottom Channel**Result: Pass**

5.2.6. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	Muhammad Faiq Khan	Test Date:	24 & 25 August 2023
Test Sample Serial Number:	ADVC200008 (Radiated Test Sample)		
Test Site Identification	SR 1/2		

FCC Reference:	Parts 15.247(d), 15.209(a) & 15.205(a)
Test Method Used:	DTS emissions in non-restricted frequency bands: FCC KDB 558074 Section 8.5 referencing ANSI C63.10:2013 Sections 11.11
	DTS emissions in restricted frequency bands: FCC KDB 558074 Section 8.6 referencing ANSI C63.10:2013 Sections 11.12
	ANSI C63.10:2013 Sections 6.10.4, 6.10.5

Environmental Conditions:

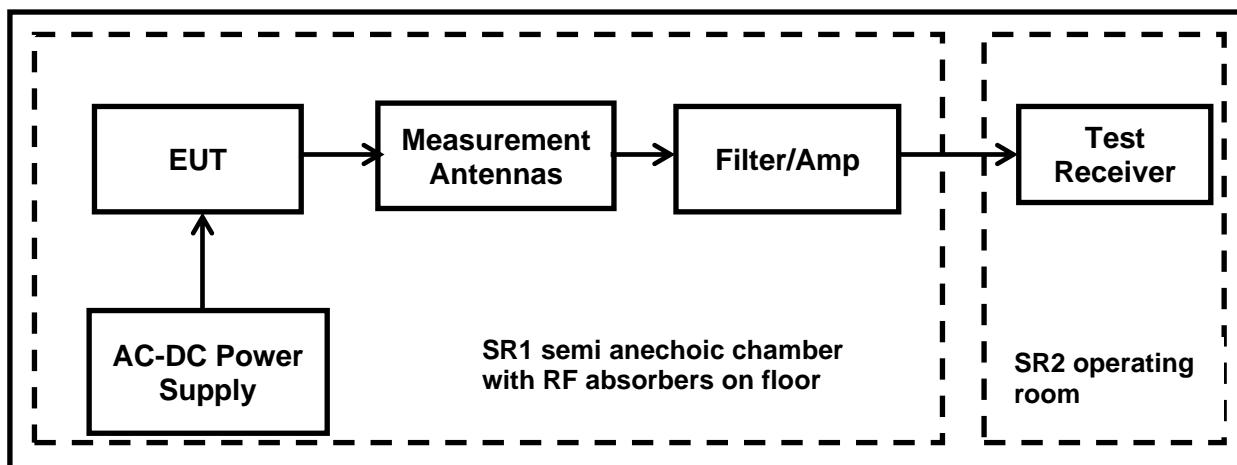
Temperature (°C):	22.2 to 24.8
Relative Humidity (%):	49.2 to 54.6

Note(s):

1. The measurements were in a semi-anechoic chamber SR1/ 2 (Asset Number 1603665) with RF absorbers on the floor at a distance of 3 m. The EUT was placed at a height of 1.5 m above the test chamber floor in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 m to 4 m
2. As the lower band edge falls within a non-restricted band, measurements were performed in accordance with FCC KDB 558074 Section 8.5 referencing ANSI C63.10 Section 11.11. Since maximum conducted (Peak) output power was previously measured in accordance with ANSI C63.10 Section 11.11.1(a) lower band edge measurement was performed with a peak detector and the -20 dBc limit applied.
3. As the lower band edge falls within a non-restricted band, only peak measurements are required. The test receiver resolution bandwidth was set to 100 kHz and video bandwidth 300 kHz. A peak detector was used, sweep time was set to auto and trace mode was Max Hold. The test receiver was left to sweep for 300 sweeps in order to maximise the carrier level and out-of-band emissions. A marker and corresponding reference level line were placed on the peak of the carrier. Marker frequencies and levels were recorded.
4. The restricted band peak measurements were performed in accordance with ANSI C63.10 Section 11.12.2.4.
5. As the EUT continuous transmission of the EUT ($D \geq 98\%$) cannot be achieved and the duty cycle is constant (duty cycle variations are less than $\pm 2\%$), the restricted band average measurements were performed in accordance with ANSI C63.10 Section 11.12.2.5.2.
6. As the upper band edge falls within a restricted band both peak and average measurements were recorded by placing a marker at the edge of the band. For peak measurements the test receiver resolution bandwidth was set to 1 MHz and the video bandwidth 3 MHz. A peak detector was used, sweep time was set to auto and trace mode was Max Hold. For average measurements the test receiver resolution bandwidth was set to 1 MHz and the video bandwidth 3 MHz. A RMS detector in power averaging mode was used. The test receiver was left to sweep for a sufficient length of time in order to maximise the carrier level and out-of-band emissions. A marker was placed on the band edge spot frequencies and a second marker placed on the highest emission level in the adjacent restricted band of operation (where a higher level emission was present). Marker frequencies and levels were recorded.

Transmitter Band Edge Radiated Emissions (continued)**Note(s): (continued)**

7. There is a restricted band 10 MHz below the lower band edge. The test receiver was set up as follows: the RBW set to 1 MHz, the VBW set to 3 MHz, with the sweep time set to auto couple. Peak and average measurements were performed with their respective detectors. Markers were placed on the highest point on each trace.
6. The measurement was performed only at the worst-case data rates for each mode as follows.
 - b-mode 11 Mbps
 - g-mode 54 Mbps
 - n-mode HT20 MCS6
8. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
9. ** As the continuous transmission of the EUT ($D \geq 98\%$) cannot be achieved and EUT was transmitting with different duty cycles w.r.t to different modes. Duty Cycle Correction Factors (as mentioned below) were added to all average measurements respectively according to the modes used to compensate as if it was transmitting with 100% duty cycle.
 - Duty Cycle Correction Factor for b-mode 11 Mbps: 0.38 dB
 - Duty Cycle Correction Factor for g-mode 54 Mbps: 1.6 dB
 - Duty Cycle Correction Factor for n-mode HT20 MCS6: 2.04 dB

Test Setup:

Transmitter Band Edge Radiated Emissions (Continued)**Results: AC-DC Power Supply / 802.11b / 20 MHz / 11 Mbps / PWR 16****Results: Lower Band Edge / Peak**

Frequency (MHz)	Peak Level (dB μ V/m)	-20 dBc Limit (dB μ V/m)	Margin (dB)	Result
2398.00	61.51	81.65	20.14	Complied
2400.00	54.48	81.65	27.17	Complied

Results: Lower Band Edge / 2310 to 2390 MHz Restricted Band / Peak

Frequency (MHz)	Peak Level (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)	Result
2330.57	54.27	74.00	19.73	Complied

Results: Lower Band Edge / 2310 to 2390 MHz Restricted Band / Average

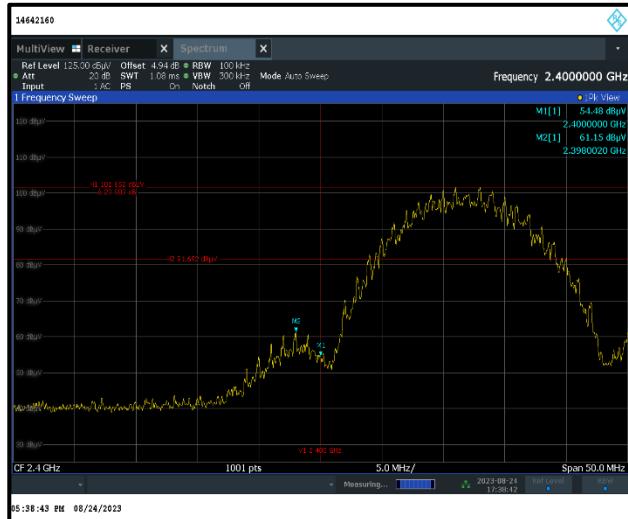
Frequency (MHz)	Average Level (dB μ V/m)	Duty Cycle Correction Factor (dB)	Corrected Average Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
2389.80	43.23	0.38	43.61**	54.00	10.39	Complied

Results: Upper Band Edge / Peak

Frequency (MHz)	Peak Level (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)	Result
2483.50	55.57	74.00	18.43	Complied
2485.41	55.99	74.00	18.01	Complied

Results: Upper Band Edge / Average

Frequency (MHz)	Peak Level (dB μ V/m)	Duty Cycle Correction Factor (dB)	Corrected Average Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
2483.50	44.97	0.38	45.35**	54.00	8.65	Complied
2483.90	45.20	0.38	45.58**	54.00	8.42	Complied

Transmitter Band Edge Radiated Emissions (Continued)**Results: AC-DC Power Supply / 802.11b / 20 MHz / 11 Mbps / PWR 16**

Lower Band Edge Peak Measurement



Upper Band Edge Measurement



Restricted Band Edge Measurement

Result: Pass

Transmitter Band Edge Radiated Emissions (Continued)**Results: AC-DC Power Supply / 802.11g / 20 MHz / 54 Mbps / PWR 16****Results: Lower Band Edge / Peak**

Frequency (MHz)	Peak Level (dB μ V/m)	-20 dBc Limit (dB μ V/m)	Margin (dB)	Result
2399.20	65.39	78.92	13.53	Complied
2400.00	62.21	78.92	16.71	Complied

Results: Lower Band Edge / 2310 to 2390 MHz Restricted Band / Peak

Frequency (MHz)	Peak Level (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)	Result
2389.96	70.49	74.00	3.513.51	Complied

Results: Lower Band Edge / 2310 to 2390 MHz Restricted Band / Average

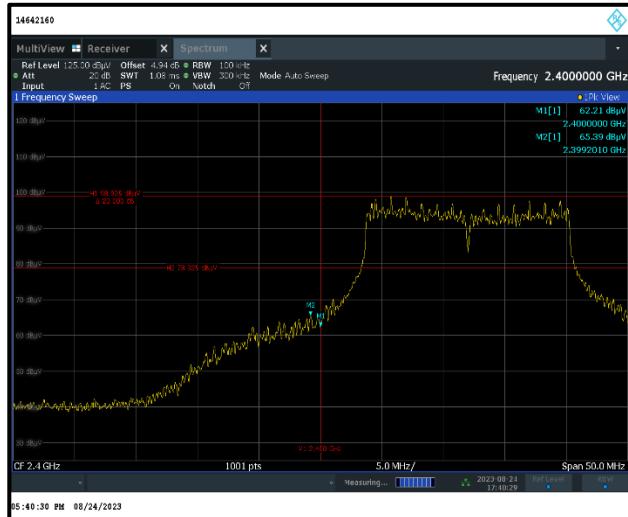
Frequency (MHz)	Average Level (dB μ V/m)	Duty Cycle Correction Factor (dB)	Corrected Average Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
2389.88	50.84	1.6	52.44**	54.00	1.56	Complied

Results: Upper Band Edge / Peak

Frequency (MHz)	Peak Level (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)	Result
2483.50	72.51	74.00	2.49	Complied
2483.58	72.51	74.00	2.49	Complied

Results: Upper Band Edge / Average

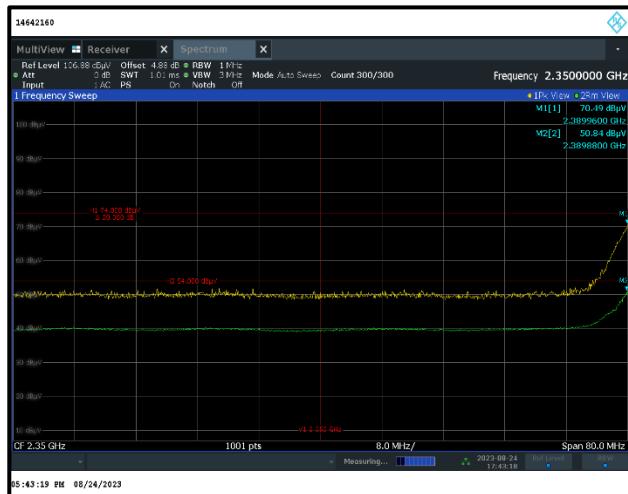
Frequency (MHz)	Peak Level (dB μ V/m)	Duty Cycle Correction Factor (dB)	Corrected Average Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
2483.50	50.99	1.6	52.59**	54.00	1.41	Complied
2483.58	51.33	1.6	52.93**	54.00	1.07	Complied

Transmitter Band Edge Radiated Emissions (Continued)**Results: AC-DC Power Supply / 802.11g / 20 MHz / 54 Mbps / PWR 16**

Lower Band Edge Peak Measurement



Upper Band Edge Measurement



Restricted Band Edge Measurement

Result: Pass

Transmitter Band Edge Radiated Emissions (Continued)**Results: AC-DC Power Supply / 802.11n / 20 MHz / MCS6 / PWR 16****Results: Lower Band Edge / Peak**

Frequency (MHz)	Peak Level (dB μ V/m)	-20 dBc Limit (dB μ V/m)	Margin (dB)	Result
2399.09	71.16	78.82	7.66	Complied
2400.00	66.07	78.82	12.75	Complied

Results: Lower Band Edge / 2310 to 2390 MHz Restricted Band / Peak

Frequency (MHz)	Peak Level (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)	Result
2389.96	67.94	74.00	6.06	Complied

Results: Lower Band Edge / 2310 to 2390 MHz Restricted Band / Average

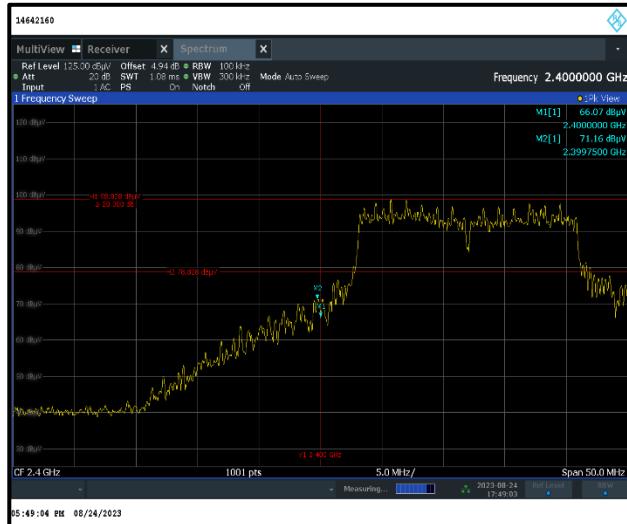
Frequency (MHz)	Average Level (dB μ V/m)	Duty Cycle Correction Factor (dB)	Corrected Average Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
2389.96	51.41	2.04	53.45**	54.00	0.55	Complied

Results: Upper Band Edge / Peak

Frequency (MHz)	Peak Level (dB μ V/m)	Peak Limit (dB μ V/m)	Margin (dB)	Result
2483.50	70.31	74.00	3.69	Complied
2483.74	70.59	74.00	3.41	Complied

Results: Upper Band Edge / Average

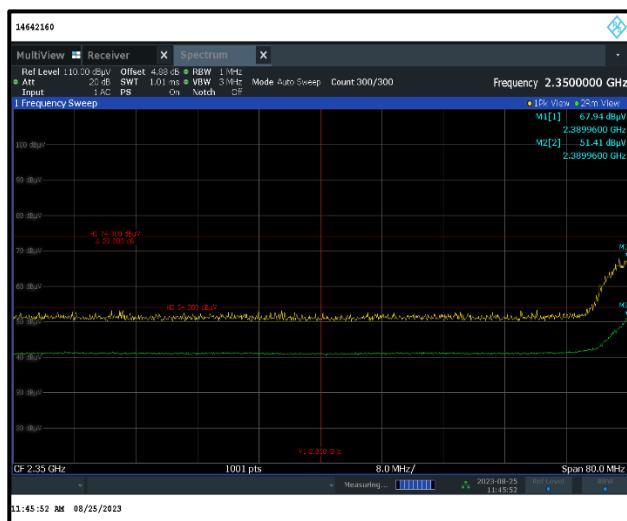
Frequency (MHz)	Peak Level (dB μ V/m)	Duty Cycle Correction Factor (dB)	Corrected Average Level (dB μ V/m)	Average Limit (dB μ V/m)	Margin (dB)	Result
2483.50	50.87	2.04	52.91**	54.00	1.09	Complied
2483.82	50.70	2.04	52.74**	54.00	1.26	Complied

Transmitter Band Edge Radiated Emissions (Continued)**Results: AC-DC Power Supply / 802.11n / 20 MHz / MCS6 / PWR 16**

Lower Band Edge Peak Measurement



Upper Band Edge Measurement



Restricted Band Edge Measurement

Result: Pass

6. Measurement Uncertainty

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	95%	±2.49 dB
Conducted Maximum Peak Output Power	95%	±0.59 dB
Radiated Spurious Emissions	95%	±3.10 dB
Band Edge Radiated Emissions	95%	±3.10 dB
Transmitter Duty Cycle	95%	±3.4%
Minimum 6 dB Bandwidth	95%	±0.87 %
Spectral Power Density	95%	±0.59 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Used equipment

Test site: SR 1/2

ID	Manufacturer	Type	Model	Serial	Calibration Date	Cal. Cycle (months)
1	Rohde & Schwarz	Antenna, Loop	HFH2-Z2	831247/012	18/07/2023	36
377	BONN Elektronik	Amplifier, Low Noise Pre	BLMA 0118-1A	025294B	18/07/2023	12
423	Bonn Elektronik	Amplifier, Low Noise Pre	BLMA 1840-1A	55929	18/07/2022	12
460	Deisel	Turntable	DT 4250 S	n/a	n/a	n/a
465	Schwarzbeck	Antenna, Trilog Broadband	VULB 9168	9168-240	02/09/2020	42
495	Rohde & Schwarz	Antenna, log. - periodical	HL050	100296	06/08/2021	36
496	Rohde & Schwarz	Antenna, log. - periodical	HL050	100297	22/08/2022	24
588	Maturo	Controller	NCD	029/7180311	n/a	n/a
591	Rohde & Schwarz	Receiver	ESU 40	100244/040	13/07/2023	12
669	Rohde & Schwarz	EMI Test Receiver	ESW 44	103087	13/07/2023	18
607	Schwarzbeck	Antenna broadband horn antenna	BBHA 9170	9170-561	15/10/2019	48
608	Rohde & Schwarz	Switch Matrix	OSP 120	101227	lab verification	n/a
628	Maturo	Antenna mast	CAM 4.0-P	224/19590716	n/a	n/a
629	Maturo	Kippeinrichtung	KE 2.5-R-M	MAT002	n/a	n/a
-/-	Testo	Thermo-Hygrometer	608-H1	01	lab verification	n/a
328	SPS	AC/DC power distribution system	PAS 5000	A2464 00/2 0200	lab verification	n/a
1603665	Siemens Matsushita Components	semi-anechoic chamber SR1/ 2	-/-	B83117-A1421-T161	n/a	n/a
681	Maturo	Antenna mast, tilting	BAM4.5-P	402/0718.1	n/a	n/a

Test site: SR 9

ID	Manufacturer	Type	Model	Serial	Calibration Date	Cal. Cycle (months)
625	Schwarzbeck	Antenna, H-field	HFSL 7101	109	lab verification only relative measurements	n/a
637	Rohde & Schwarz	Spectrum Analyser	FSV40	101587	12/07/2023	12
327	SPS	AC/DC power distribution system	PAS 5000	A2464 00/1 0200	lab verification	n/a
-/-	Testo	Thermo-Hygrometer	608-H1	07	lab verification	n/a
645	Weiss Umwelttechnik	Climatic Chamber	LabEvent T/110/70/3	5822619794 0010	lab verification	n/a

8. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	47	-	Initial Version
1.1	8	3.5	Support equipment (Manufacturer supplied) updated

Test Report Version 1.2 supersedes Version 1.1 with immediate effect

Test Report No. UL-RPT-RP-14642160-7216-FCC Version 1.2, Issue Date 23 JANUARY 2024 replaces

Test Report No. UL-RPT-RP-14642160-7216-FCC Version 1.1, Issue Date 13 NOVEMBER 2023, which is no longer valid.

1.2	as below	as below	Current Version
	6	5.2.1	Notes updated
	15-18	5.2.2	Notes and results updated
	19	5.2.3	Notes updated
	38-44	5.2.6	Notes and results table updated

APPENDIX A: UNTESTED VARIANTS

The tested EUT corresponds to the sample DDU-ADV (with part number VPPFEF-20B337-**) which was declared to be the worst-case scenario by customer. The other possible samples associated to model DDU are as follows:

Sample reference	Visteon Part No
DDU-MID	VPPFEF-20B337-**
DDU-BSC	VPPFEF-20B337-**

--- END OF REPORT ---