



Test Report

Date : 2023-12-11
No. : HMD23090001

Page 1 of 50

Applicant : HORI Co., Ltd.
640 Saedo-Cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken 224-0054,
Japan

Supplier / Manufacturer : HORI Co., Ltd.
640 Saedo-Cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken 224-0054,
Japan

Description of Sample(s) : Submitted sample(s) said to be
Product: Wireless Racing Wheel Overdrive for Xbox
Brand Name: HORI
Model No.: MBS-016
FCC ID: RQZMBS-2119

Date Samples Received : 2023-09-19

Date Tested : 2023-09-19 to 2023-09-27

Investigation Requested : Perform Electro Magnetic Interference measurement in accordance
with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI
C63.10:2013 for FCC Certification.

Conclusions : The submitted product COMPLIED with the requirements of Federal
Communications Commission [FCC] Rules and Regulations Part 15.
The tests were performed in accordance with the standards described
above and on Section 2.2 in this Test Report.

Remarks : WIFI (802.11a/n20)
For additional model(s) details, see page 3

Test by : Susu

Brian Chan

Dr.CHAN Kwok Hung, Brian
Authorized Signatory



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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 2 of 50

CONTENT:

Cover		Page 1 of 50
Content		Page 2 of 50
<u>1.0</u>	<u>General Details</u>	
1.1	Test Laboratory	Page 3 of 50
1.2	Equipment Under Test [EUT] Description of EUT operation	Page 3 of 50
1.3	Antenna Details	Page 3 of 50
1.4	Date of Order	Page 3 of 50
1.5	Submitted Sample(s)	Page 3 of 50
1.6	Test Duration	Page 3 of 50
1.7	Country of Origin	Page 3 of 50
1.8	Channel List	Page 4 of 50
<u>2.0</u>	<u>Technical Details</u>	
2.1	Investigations Requested	Page 5-6 of 50
2.2	Test Standards and Results Summary	Page 7 of 50
<u>3.0</u>	<u>Test Results</u>	
3.1	Emission	Page 8-43 of 50
<u>Appendix A</u>		
List of Measurement Equipment		Page 44 of 50
<u>Appendix B</u>		
Photograph(s) of Product		Page 45-50 of 50



Test Report

Date : 2023-12-11
No. : HMD23090001

Page 3 of 50

1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate, New Territories, Hong Kong
Telephone: 852 2666 1888
Fax: 852 2664 4353

1.2 Equipment Under Test [EUT]

Description of Sample(s)

Product:	Wireless Racing Wheel Overdrive for Xbox
Manufacturer:	HORI Co., Ltd. 640 Saedo-Cho, Tsuzuki-ku, Yokohama-shi, Kanagawa-ken 224-0054, Japan
Brand Name:	HORI
Model Number:	MBS-016
Additional Model Number:	MBS-016U, MBS-016A, MBS-016C, MBS-016E
Rating:	3.7Vd.c.(Two lithium batteries in parallel) 5.0Vd.c. by Type C port

1.2.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Wireless Racing Wheel Overdrive for Xbox. The transmission signal is digital modulated with channel frequency range 5150-5250MHz.

1.3 Antenna Details

Antenna Type:	Ceramic Antenna
Antenna Gain:	1.0 dBi

1.4 Date of Order

2023-09-05

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2023-09-05 to 2023-09-27

1.7 Country of Origin

China

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 4 of 50

1.8 Channel List

Wi-Fi 5 GHz 802.11a/n20 specification

Frequency Band	Channel No.	Frequency
UNII-Low Band	36	5180MHz
	40	5200MHz
	44	5220MHz
	48	5240MHz
UNII-Middle Band (DFS)	-	-
	-	-
	-	-
	-	-
UNII-High Band (DFS)	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-

Venice 6.5 is a DFS client(Slave) device without radar detection capability

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 5 of 50

2.0 Technical Details

2.1 Investigations Requested

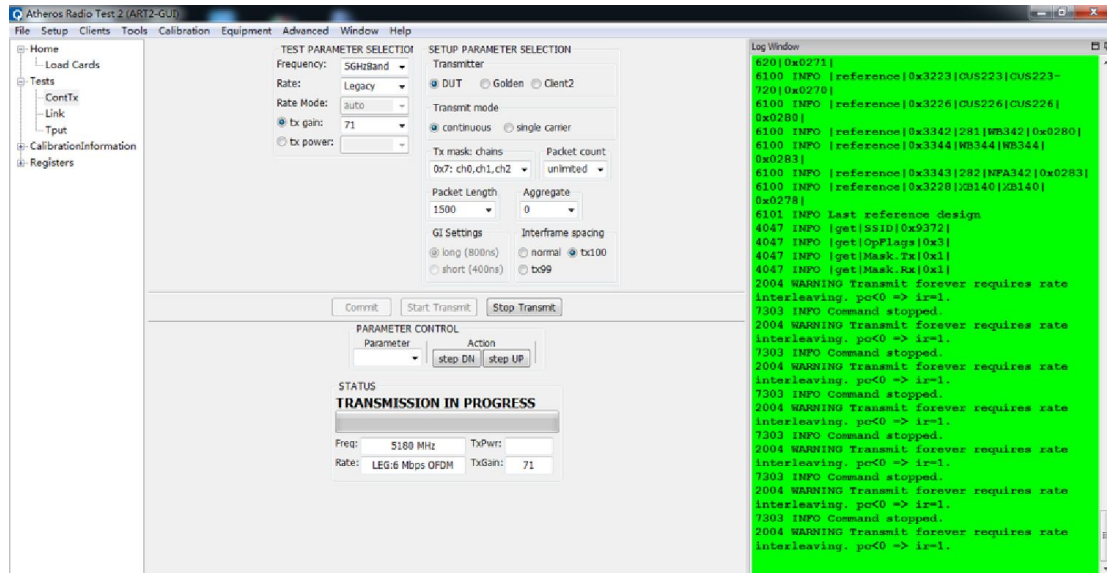
Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 Regulations and ANSI C63.10:2013 for FCC Certification.

According FCC KDB 789033D02 Measurement Guidance, Duty cycle $\geq 98\%$.

The test mode sample is provided by manufacturer.

2.1.0 Operating conditions for the EUT

The sample went into test mode handled by the manufacturer using the software and no the RF power for select..



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No. : HMD23090001

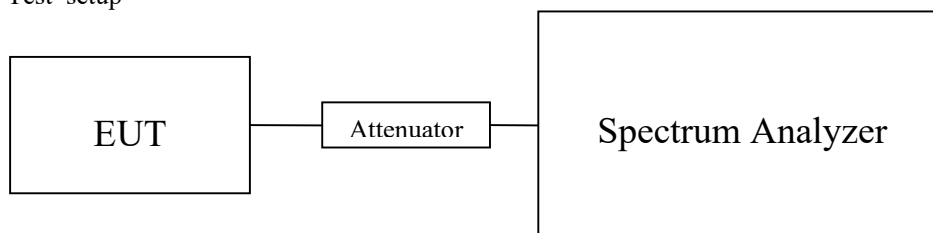
Page 6 of 50

2.1.1 EUT Duty cycle

The EUT shall be configured or modified to transmit continuously. The intent is to test at 100% duty cycle; however, a small reduction in duty cycle (to no lower than 98%) is permitted if required by the EUT for amplitude control purposes.

The test mode sample is provided by manufacturer.

Test setup

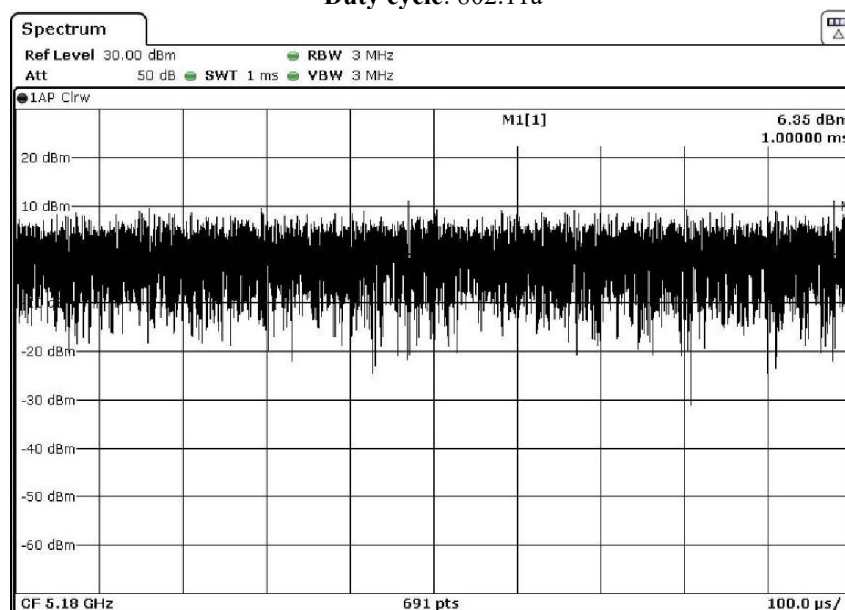


Results

Mode	On Time (msec)	Period (msec)	Duty Cycle X (Linear)	Duty Cycle (%)*
802.11a	1	1	1	100
802.11n20	1	1	1	100

-*: If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Duty cycle: 802.11a



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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 7 of 50

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Maximum Peak Output Power	15.407(a)(1)	ANSI C63.10:2013	N/A	☒	☐	☐
Radiated Emissions	15.205(a) 15.209 15.407(b)	ANSI C63.10:2013	N/A	☒	☐	☐
Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10:2013	N/A	☒	☐	☐
Power Spectral Density	15.407(a)	ANSI C63.10:2013	N/A	☒	☐	☐
26 dB Bandwidth and 99%Occupied Bandwidth	15.407(a)	ANSI C63.10:2013	N/A	☒	☐	☐
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	☒	☐	☐
Frequency stability	15.407(g)	ANSI C63.10:2013	N/A	☒	☐	☐

Note: N/A - Not Applicable

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 8 of 50

3.0 Test Results

3.1 Emission

3.1.1 Maximum Peak Output Power

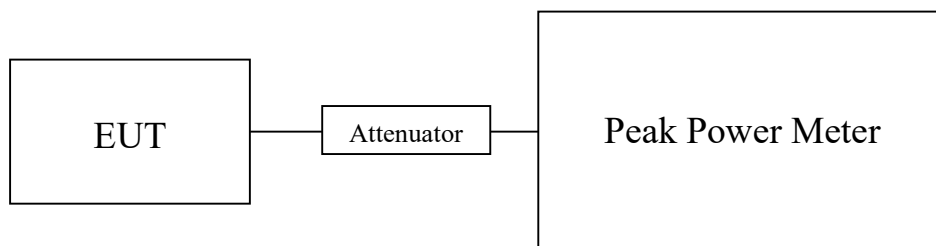
Test Requirement:	FCC 47CFR 15.407(a)(1)
Test Method:	ANSI C63.10: 2013/ KDB 789033D02
Test Date:	2023-09-20
Mode of Operation:	WIFI Tx mode

Ambient Temperature: 25°C Relative Humidity: 51% Atmospheric Pressure: 101 kPa

Test Method:

The RF output of the EUT was connected to the peak power meter. All the attenuation or cable loss will be added to the measured maximum output power. The results are recorded in Watt.

Test Setup:



Note: a temporary antenna connector was soldered to the RF output.



Test Report

Date : 2023-12-11
No. : HMD23090001

Page 9 of 50

Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.407]:

For Digital Transmission systems in 5150-5250 MHz Band: 0.25 Watt (24dBm)

Results of WiFi mode 802.11 a, (5150MHz to 5250MHz) : Pass (TX Unit)

Maximum conducted output power

Channel	Frequency (MHz)	Conducted power(dBm)	Antenna Gain(dBi)	E.I.R.P(dBm)	E.I.R.P (Watt)
Low	5180	4.159	1.0	5.159	0.031718
Middle	5200	4.043	1.0	5.043	0.03147
High	5240	2.595	1.0	3.595	0.03101

Results of WiFi mode 802.11 n20, (5150MHz to 5250MHz) : Pass (TX Unit)

Maximum conducted output power

Channel	Frequency (MHz)	Conducted power(dBm)	Antenna Gain(dBi)	E.I.R.P(dBm)	E.I.R.P (Watt)
Low	5180	3.526	1.0	4.526	0.016315
Middle	5200	3.879	1.0	4.879	0.018231
High	5240	2.447	1.0	3.447	0.018845

Calculated measurement uncertainty : 30MHz to 1GHz 1.7dB
1GHz to 26GHz 1.7dB

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 10 of 50

3.1.2 Radiated Emissions

Test Requirement:	FCC 47CFR 15.209 & 15.407(b)
Test Method:	ANSI C63.10:2013/ KDB 789033D02
Test Date:	2023-09-21
Mode of Operation:	WIFI Tx mode

Ambient Temperature: 24°C Relative Humidity: 52% Atmospheric Pressure: 101 kPa

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-Anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with
Registration Number: HK0001
Test Firm Registration Number: 367672

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 11 of 50

Spectrum Analyzer Setting:

9KHz – 30MHz (Pk & Av)

RBW: 10kHz
VBW: 30kHz
Sweep: Auto
Span: Fully capture the emissions being measured
Trace: Max. hold

30MHz – 1GHz (QP)

RBW: 120kHz
VBW: 120kHz
Sweep: Auto
Span: Fully capture the emissions being measured
Trace: Max. hold

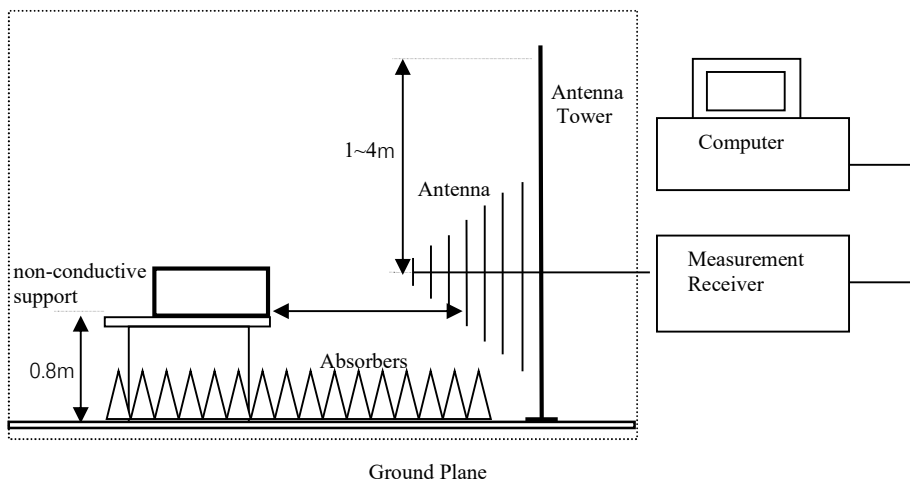
Above 1GHz (Pk)

RBW: 1MHz
VBW: 1MHz
Sweep: Auto
Span: Fully capture the emissions being measured
Trace: Max. hold

Above 1GHz (Av)

RBW: 1MHz
VBW: 10Hz
Sweep: Auto
Span: Fully capture the emissions being measured
Trace: Max. hold

Test Setup:



- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used.

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 12 of 50

Limits for Radiated Emissions FCC 47 CFR 15.407]:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further.
- (3) The provisions of §15.205 apply to intentional radiators operating under this section.

Frequency Range	Quasi-Peak Limits
[MHz]	[μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Tx mode (5180.0 MHz) (802.11a) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dB	E-Field Polarity
5150.0	48.3	0.80	49.1	74.0	24.9	Vertical
5150.0	47.4	0.50	47.9	74.0	26.1	Horizontal

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dB	E-Field Polarity
5150.0	38.6	0.80	39.4	54.0	14.6	Vertical
5150.0	37.4	0.50	37.9	54.0	16.1	Horizontal

Result of Tx mode (5180.0 MHz) (802.11a) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit μV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

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Test Report

Date : 2023-12-11

Page 13 of 50

No. : HMD23090001

Result of Tx mode (5180.0 MHz) (802.11a) (1GHz-40GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dB	E-Field Polarity
10360.0	47.6	8.90	56.5	68.2	11.7	Vertical
10360.0	47.0	8.70	55.7	68.2	12.6	Horizontal
15540.0	43.3	11.80	55.1	68.2	13.2	Vertical
15540.0	43.3	11.90	55.2	68.2	13.1	Horizontal
20720.0	44.0	12.20	56.2	68.2	12.0	Vertical
20720.0	43.7	12.40	56.1	68.2	12.1	Horizontal
25900.0	43.2	13.10	56.3	68.2	11.9	Vertical
25900.0	43.1	13.30	56.4	68.2	11.8	Horizontal

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dB	E-Field Polarity
10360.0	32.6	8.90	41.5	54.0	12.5	Vertical
10360.0	32.4	8.70	41.1	54.0	12.9	Horizontal
15540.0	30.0	11.80	41.8	54.0	12.2	Vertical
15540.0	29.9	11.90	41.8	54.0	12.3	Horizontal
20720.0	29.6	12.20	41.8	54.0	12.2	Vertical
20720.0	29.4	12.40	41.8	54.0	12.2	Horizontal
25900.0	29.2	13.10	42.3	54.0	11.7	Vertical
25900.0	29.1	13.30	42.4	54.0	11.6	Horizontal

Result of Tx mode (5200 MHz) (802.11a) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit μV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

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Test Report

Date : 2023-12-11

Page 14 of 50

No. : HMD23090001

Result of Tx mode (5200 MHz) (802.11a) (1GHz-40GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dB	E-Field Polarity
10400.0	47.1	8.90	56.0	68.2	12.2	Vertical
10400.0	47.2	8.70	55.9	68.2	12.3	Horizontal
15600.0	44.1	11.80	55.9	68.2	12.3	Vertical
15600.0	43.9	11.90	55.8	68.2	12.4	Horizontal
20800.0	44.0	12.20	56.2	68.2	12.0	Vertical
20800.0	43.1	12.40	55.5	68.2	12.7	Horizontal
26000.0	42.2	13.10	55.3	68.2	12.9	Vertical
26000.0	41.1	13.30	54.4	68.2	13.8	Horizontal

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBuV	Correction Factor dB/m	Field Strength dBuV/m	Limit @3m dBuV/m	Margin dB	E-Field Polarity
10400.0	32.8	8.90	41.7	54.0	12.3	Vertical
10400.0	30.9	8.70	39.6	54.0	14.4	Horizontal
15600.0	29.8	11.80	41.6	54.0	12.4	Vertical
15600.0	29.5	11.90	41.4	54.0	12.6	Horizontal
20800.0	29.3	12.20	41.5	54.0	12.5	Vertical
20800.0	29.4	12.40	41.8	54.0	12.2	Horizontal
26000.0	28.7	13.10	41.8	54.0	12.2	Vertical
26000.0	28.3	13.30	41.6	54.0	12.4	Horizontal

Result of Tx mode (5240 MHz) (802.11a) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit μV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 15 of 50

Result of Tx mode (5240 MHz) (802.11a) (1GHz-25GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
10480.0	47.1	8.90	56.0	68.2	12.2	Vertical
10480.0	47.5	8.70	56.2	68.2	12.0	Horizontal
17520.0	44.8	11.80	56.6	68.2	11.6	Vertical
17520.0	44.2	11.90	56.1	68.2	12.1	Horizontal
20960.0	43.3	12.20	55.5	68.2	12.7	Vertical
20960.0	44.0	12.40	56.4	68.2	11.8	Horizontal
26200.0	42.9	13.10	56.0	68.2	12.2	Vertical
26200.0	43.0	13.30	56.3	68.2	11.9	Horizontal

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
10480.0	31.2	8.90	40.1	54.0	13.9	Vertical
10480.0	31.1	8.70	39.8	54.0	14.2	Horizontal
17520.0	30.1	11.80	41.9	54.0	12.1	Vertical
17520.0	30.0	11.90	41.9	54.0	12.1	Horizontal
20960.0	29.2	12.20	41.4	54.0	12.6	Vertical
20960.0	29.2	12.40	41.6	54.0	12.4	Horizontal
26200.0	27.4	13.10	40.5	54.0	13.5	Vertical
26200.0	27.6	13.30	40.9	54.0	13.1	Horizontal

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 16 of 50

Result of Tx mode (5180.0 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
5150.0	48.2	0.80	49.0	74.0	25.0	Vertical
5150.0	47.9	0.50	48.4	74.0	25.6	Horizontal

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
5150.0	39.1	0.80	39.9	54.0	14.1	Vertical
5150.0	38.3	0.50	38.8	54.0	15.2	Horizontal

Result of Tx mode (5180 MHz) (802.11n20) (9kHz – 30MHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit μ V/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (5180 MHz) (802.11n20) (1GHz-40GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
10360.0	47.5	8.90	56.4	68.2	11.8	Vertical
10360.0	47.1	8.70	55.8	68.2	12.4	Horizontal
15540.0	43.4	11.80	55.2	68.2	13.0	Vertical
15540.0	43.6	11.90	55.5	68.2	12.7	Horizontal
20720.0	42.4	12.20	54.6	68.2	13.6	Vertical
20720.0	43.2	12.40	55.6	68.2	12.6	Horizontal
25900.0	42.0	13.10	55.1	68.2	13.1	Vertical
25900.0	41.5	13.30	54.8	68.2	13.4	Horizontal

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 17 of 50

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dB	E-Field Polarity
10360.0	32.4	8.90	41.3	54.0	12.7	Vertical
10360.0	32.7	8.70	41.4	54.0	12.6	Horizontal
15540.0	30.1	11.80	41.9	54.0	12.1	Vertical
15540.0	30.0	11.90	41.9	54.0	12.1	Horizontal
20720.0	29.5	12.20	41.7	54.0	12.3	Vertical
20720.0	26.8	12.40	39.2	54.0	14.8	Horizontal
25900.0	28.7	13.10	41.8	54.0	12.2	Vertical
25900.0	28.2	13.30	41.5	54.0	12.5	Horizontal

Result of Tx mode (5200 MHz) (802.11n20) (1GHz-40GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level dBμV	Correction Factor dB/m	Field Strength dBμV/m	Field Strength μV/m	Limit μV/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (5200 MHz) (802.11n20) (1GHz-40GHz): Pass

Field Strength of Spurious Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dB	E-Field Polarity
10400.0	46.8	8.90	55.7	68.2	12.5	Vertical
10400.0	47.5	8.70	56.2	68.2	12.0	Horizontal
15600.0	43.4	11.80	55.2	68.2	13.0	Vertical
15600.0	44.1	11.90	56.0	68.2	12.2	Horizontal
20800.0	43.2	12.20	55.4	68.2	12.8	Vertical
20800.0	43.4	12.40	55.8	68.2	12.4	Horizontal
26000.0	42.3	13.10	55.4	68.2	12.8	Vertical
26000.0	42.4	13.30	55.7	68.2	12.5	Horizontal

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Test Report

Date : 2023-12-11

Page 18 of 50

No. : HMD23090001

Field Strength of Spurious Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
10400.0	33.1	8.90	42.0	54.0	12.0	Vertical
10400.0	31.9	8.70	40.6	54.0	13.4	Horizontal
15600.0	30.0	11.80	41.8	54.0	12.2	Vertical
15600.0	29.7	11.90	41.6	54.0	12.4	Horizontal
20800.0	28.2	12.20	40.4	54.0	13.6	Vertical
20800.0	28.4	12.40	40.8	54.0	13.2	Horizontal
26000.0	27.4	13.10	40.5	54.0	13.5	Vertical
26000.0	27.7	13.10	40.8	54.0	13.2	Horizontal

Result of Tx mode (5240 MHz) (802.11n20) (1GHz-40GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency MHz	Measured Level dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit μ V/m	E-Field Polarity
Emissions detected are more than 20 dB below the FCC Limits						

Result of Tx mode (5240 MHz) (802.11n20) (1GHz-40GHz): Pass

Field Strength of Spurious Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
10480.0	47.4	8.90	56.3	68.2	11.9	Vertical
10480.0	47.1	8.70	55.8	68.2	12.4	Horizontal
17520.0	44.0	11.80	55.8	68.2	12.4	Vertical
17520.0	43.2	11.90	55.1	68.2	13.1	Horizontal
20960.0	43.8	12.20	56.0	68.2	12.2	Vertical
20960.0	43.1	12.40	55.5	68.2	12.7	Horizontal
26200.0	43.6	13.10	56.7	68.2	11.5	Vertical
26200.0	43.6	13.30	56.9	68.2	11.3	Horizontal

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 19 of 50

Field Strength of Spurious Emissions Average Value						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB	E-Field Polarity
10480.0	32.6	8.90	41.5	54.0	12.5	Vertical
10480.0	33.1	8.70	41.8	54.0	12.2	Horizontal
17520.0	29.5	11.80	41.3	54.0	12.7	Vertical
17520.0	30.0	11.90	41.9	54.0	12.1	Horizontal
20960.0	29.1	12.40	41.5	54.0	12.5	Vertical
20960.0	28.2	12.40	40.6	54.0	13.4	Horizontal
26200.0	28.5	13.10	41.6	54.0	12.4	Vertical
26200.0	28.0	13.30	41.3	54.0	12.7	Horizontal

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement (9kHz-30MHz): 2.0dB
uncertainty (30MHz -1GHz): 4.9dB
(1GHz -26GHz): 4.02dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 20 of 50

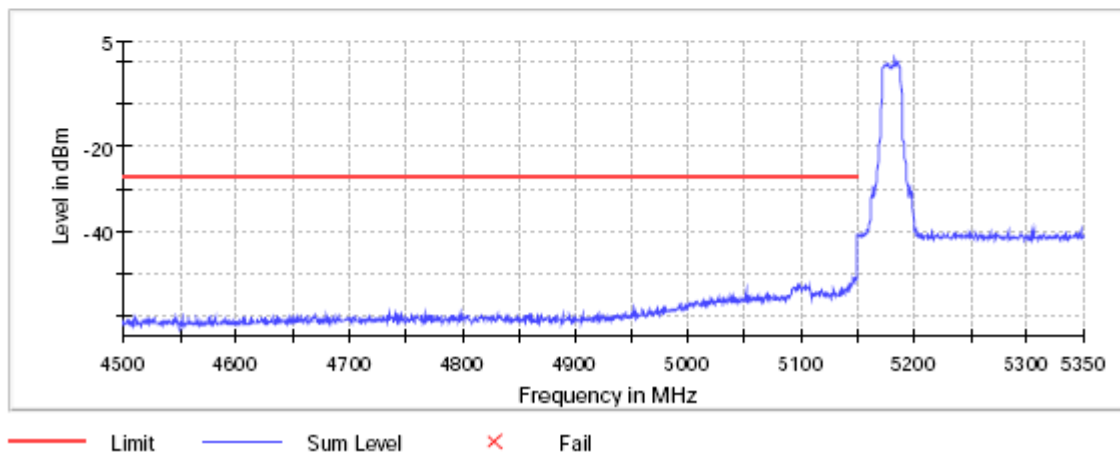
Undesirable emission:

Result: (Lowest)-802.11a 5180MHz, Undesirable emission of Band-edge Compliance

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
5147.750000	-50.8	23.8	-27.0	PASS
5147.250000	-51.2	24.2	-27.0	PASS
5146.250000	-51.2	24.2	-27.0	PASS
5148.750000	-51.4	24.4	-27.0	PASS
5149.750000	-51.5	24.5	-27.0	PASS
5148.250000	-51.7	24.7	-27.0	PASS
5149.250000	-52.0	25.0	-27.0	PASS
5146.750000	-52.3	25.3	-27.0	PASS
5142.250000	-52.4	25.4	-27.0	PASS
5144.250000	-52.6	25.6	-27.0	PASS
5104.250000	-52.7	25.7	-27.0	PASS
5145.250000	-52.9	25.9	-27.0	PASS
5145.750000	-53.0	26.0	-27.0	PASS
5144.750000	-53.1	26.1	-27.0	PASS
5099.250000	-53.1	26.1	-27.0	PASS

Band Edge



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Date : 2023-12-11
No. : HMD23090001

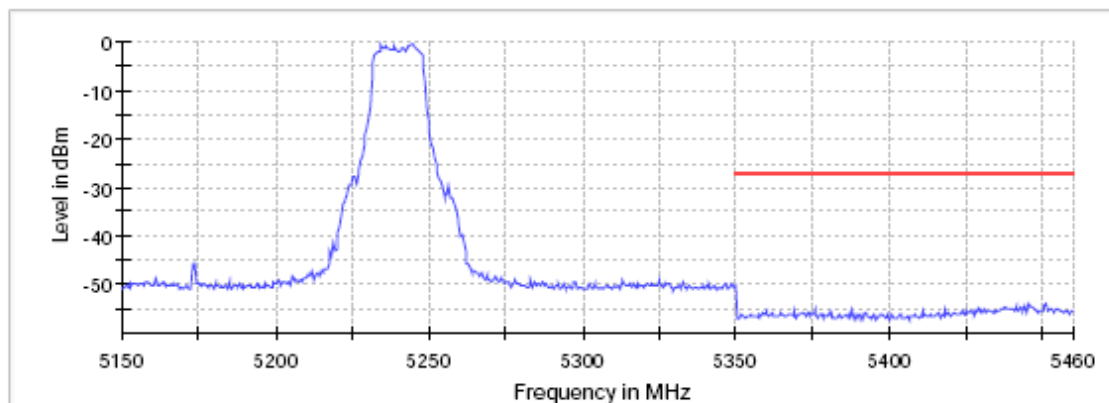
Page 21 of 50

Result: (High)-802.11a 5240MHz, Undesirable emission of Band-edge Compliance

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
5445.250000	-53.9	26.9	-27.0	PASS
5451.250000	-54.2	27.2	-27.0	PASS
5441.250000	-54.2	27.2	-27.0	PASS
5444.250000	-54.3	27.3	-27.0	PASS
5450.750000	-54.5	27.5	-27.0	PASS
5442.750000	-54.8	27.8	-27.0	PASS
5437.750000	-54.8	27.8	-27.0	PASS
5446.750000	-54.8	27.8	-27.0	PASS
5445.750000	-54.8	27.8	-27.0	PASS
5446.250000	-54.9	27.9	-27.0	PASS
5441.750000	-54.9	27.9	-27.0	PASS
5454.750000	-54.9	27.9	-27.0	PASS
5438.750000	-55.0	28.0	-27.0	PASS
5439.750000	-55.0	28.0	-27.0	PASS
5375.750000	-55.0	28.0	-27.0	PASS

Band Edge



— Limit — Sum Level × Fail

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No. : HMD23090001

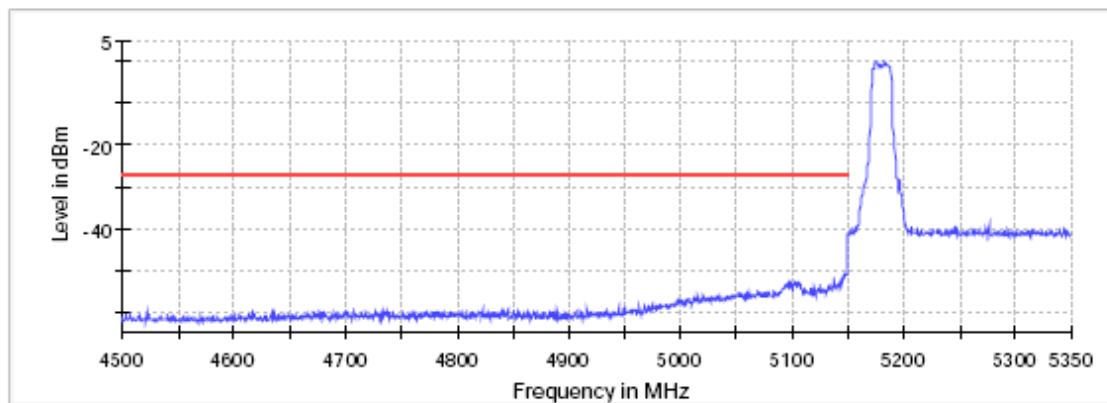
Page 22 of 50

Result: (Lowest)-802.11n20 5180MHz, Undesirable emission of Band-edge Compliance

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
5149.750000	-50.8	23.8	-27.0	PASS
5147.750000	-50.8	23.8	-27.0	PASS
5148.750000	-50.9	23.9	-27.0	PASS
5147.250000	-51.1	24.1	-27.0	PASS
5148.250000	-51.3	24.3	-27.0	PASS
5146.750000	-51.4	24.4	-27.0	PASS
5149.250000	-51.5	24.5	-27.0	PASS
5143.750000	-51.8	24.8	-27.0	PASS
5144.250000	-51.9	24.9	-27.0	PASS
5145.250000	-51.9	24.9	-27.0	PASS
5137.750000	-52.0	25.0	-27.0	PASS
5145.750000	-52.1	25.1	-27.0	PASS
5143.250000	-52.1	25.1	-27.0	PASS
5146.250000	-52.3	25.3	-27.0	PASS
5142.250000	-52.6	25.6	-27.0	PASS

Band Edge



— Limit — Sum Level × Fail

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No. : HMD23090001

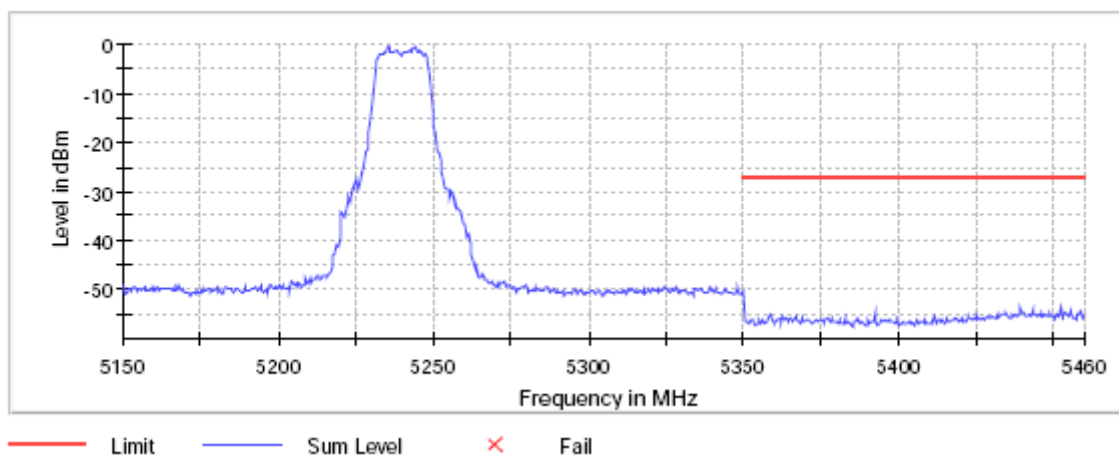
Page 23 of 50

Result: (High)-802.11n20 5240MHz, Undesirable emission of Band-edge Compliance

Measurements

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
5452.250000	-53.6	26.6	-27.0	PASS
5439.250000	-53.6	26.6	-27.0	PASS
5443.250000	-54.1	27.1	-27.0	PASS
5455.250000	-54.5	27.5	-27.0	PASS
5458.750000	-54.5	27.5	-27.0	PASS
5455.750000	-54.6	27.6	-27.0	PASS
5439.750000	-54.6	27.6	-27.0	PASS
5453.750000	-54.7	27.7	-27.0	PASS
5440.250000	-54.8	27.8	-27.0	PASS
5434.750000	-54.8	27.8	-27.0	PASS
5392.250000	-54.8	27.8	-27.0	PASS
5446.250000	-54.9	27.9	-27.0	PASS
5448.750000	-54.9	27.9	-27.0	PASS
5433.250000	-55.0	28.0	-27.0	PASS
5358.750000	-55.0	28.0	-27.0	PASS

Band Edge



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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 24 of 50

Limits for Radiated Emissions FCC 47 CFR 15.247]:

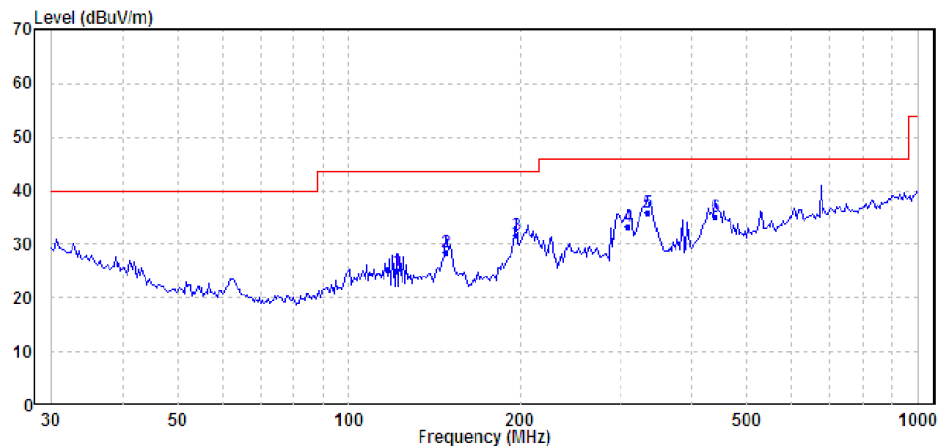
Frequency Range	Quasi-Peak Limits
[MHz]	[$\mu\text{V/m}$]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of WIFI TX mode: Pass

Please refer to the following table for result details (The data is the worst cases)

Horizontal



Ambient Temperature: 26.3C
Relative Humidity : 54.7%
Air Pressure : 100.9kPa

	Freq	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB		
1	121.123	25.22	43.50	-18.28	QP	Horizontal
2	148.441	28.59	43.50	-14.91	QP	Horizontal
3	196.510	31.59	43.50	-11.91	QP	Horizontal
4	309.998	33.33	46.00	-12.67	QP	Horizontal
5	334.859	35.95	46.00	-10.05	QP	Horizontal
6	440.196	35.19	46.00	-10.81	QP	Horizontal

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 25 of 50

Limits for Radiated Emissions FCC 47 CFR 15.247 Class B1:

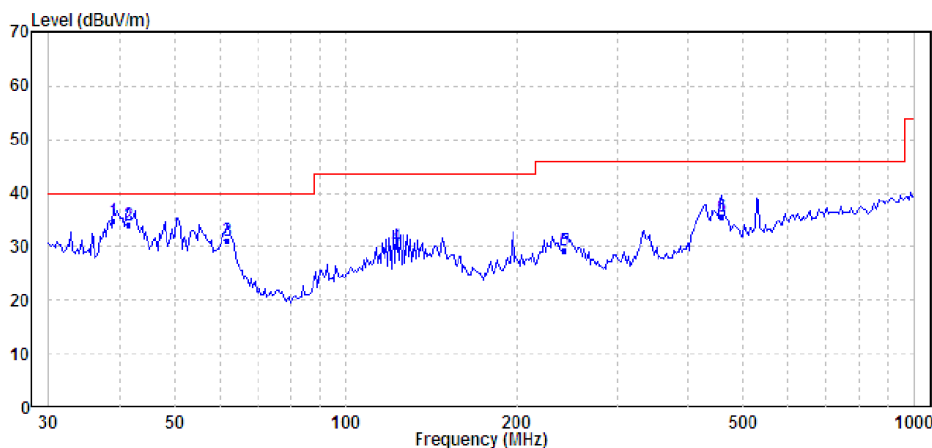
Frequency Range	Quasi-Peak Limits
[MHz]	[$\mu\text{V/m}$]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of WIFI TX mode: Pass

Please refer to the following table for result details (The data is the worst cases)

Vertical



Ambient Temperature: 26.3C
Relative Humidity : 54.7%
Air Pressure : 100.9kPa

	Freq	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB		
1	38.888	34.90	40.00	-5.10	QP	Vertical
2	41.422	34.18	40.00	-5.82	QP	Vertical
3	61.778	31.12	40.00	-8.88	QP	Vertical
4	122.834	30.17	43.50	-13.33	QP	Vertical
5	242.525	29.43	46.00	-16.57	QP	Vertical
6	459.114	35.73	46.00	-10.27	QP	Vertical

Remarks: Calculated measurement uncertainty (30MHz – 1GHz): 4.9dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 26 of 50

3.1.3 AC Mains Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.207
Test Method:	ANSI C63.10:2013
Test Date:	2023-09-25
Mode of Operation:	WIFI TX mode
Test Voltage:	120V a.c. 60Hz

Ambient Temperature: 25°C Relative Humidity: 51% Atmospheric Pressure: 101 kPa

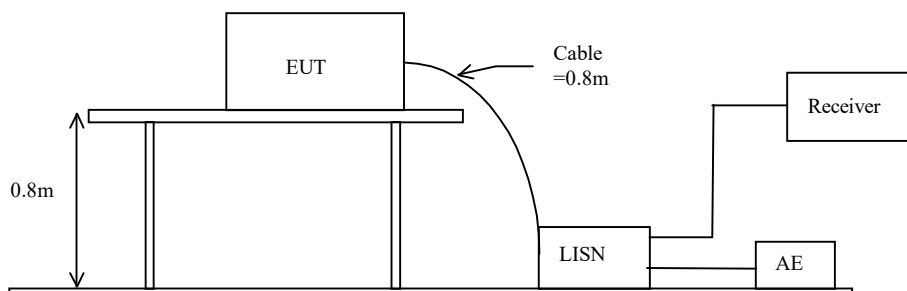
Test Method:

The test was performed in accordance with ANSI C63.10:2013, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Receiver Setting:

Bandw. = 9 kHz, Meas. Time= 10.0 ms, Step Width = 5.0kHz
 Detector = MaxPeak and CISPR AV

Test Setup:



Limits for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Remarks:

Calculated measurement uncertainty (0.15MHz – 30MHz): 3.25dB

-*- Emission(s) that is far below the corresponding limit line.

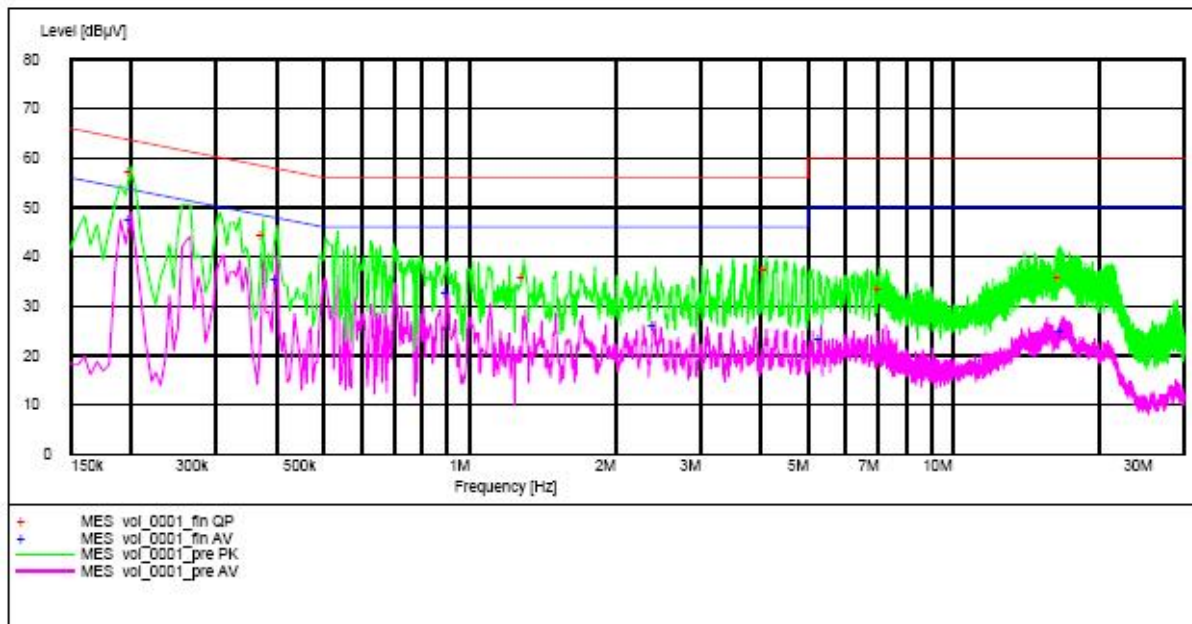
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 27 of 50

Results of WIFI TX mode (L): PASS

Please refer to the following diagram for individual results.



MEASUREMENT RESULT: "vol_0001_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.200000	57.20	9.7	63.60	6.40	L1	GND
0.375000	44.60	9.7	58.40	13.80	L1	GND
1.295000	35.80	9.7	56.00	20.20	L1	GND
4.100000	37.50	9.8	56.00	18.50	L1	GND
7.065000	33.60	9.9	60.00	26.40	L1	GND
16.575000	36.00	10.3	60.00	24.00	L1	GND

MEASUREMENT RESULT: "vol_0001_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.200000	47.70	9.7	53.60	5.90	L1	GND
0.400000	35.40	9.7	47.90	12.40	L1	GND
0.905000	32.50	9.7	46.00	13.50	L1	GND
2.415000	26.10	9.8	46.00	19.90	L1	GND
5.335000	23.50	9.9	50.00	26.50	L1	GND
16.815000	25.00	10.3	50.00	25.00	L1	GND

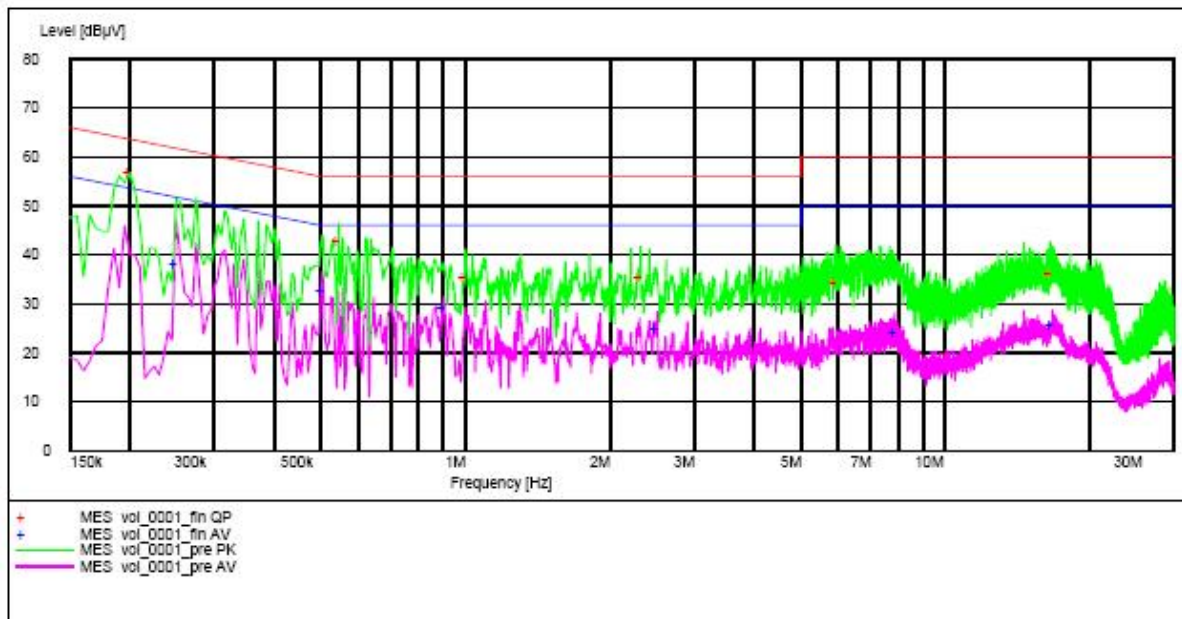
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 28 of 50

Results of WIFI TX mode (N): PASS

Please refer to the following diagram for individual results.



MEASUREMENT RESULT: "vol_0001_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.200000	56.70	9.7	63.60	7.00	N	GND
0.545000	42.70	9.7	56.00	13.30	N	GND
1.000000	35.30	9.7	56.00	20.70	N	GND
2.320000	35.40	9.8	56.00	20.60	N	GND
5.915000	34.30	9.9	60.00	25.70	N	GND
16.605000	36.30	10.3	60.00	23.70	N	GND

MEASUREMENT RESULT: "vol_0001_fin AV"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.250000	38.00	9.7	51.80	13.80	N	GND
0.505000	32.60	9.7	46.00	13.40	N	GND
0.905000	29.30	9.7	46.00	16.70	N	GND
2.515000	25.00	9.8	46.00	21.00	N	GND
7.865000	24.10	9.9	50.00	25.90	N	GND
16.740000	25.60	10.3	50.00	24.40	N	GND



Test Report

Date : 2023-12-11
No. : HMD23090001

Page 29 of 50

3.1.4 Power Spectral Density

Test Requirement: FCC 47CFR 15.407(a)
Test Method: ANSI C63.10:2013/ KDB 789033D02
Test Date: 2023-09-26
Mode of Operation: WIFI TX mode

Ambient Temperature: 25°C Relative Humidity: 51% Atmospheric Pressure: 101 kPa

Test Method:

The RF output of the EUT was connected to the spectrum analyzer. Set the fundamental frequency as the center frequency of the spectral analyzer. Use RBW=1000kHz , VBW= 3000KHz , Set the span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal. . Detector = rms, Sweep time = auto couple . Measure the Power Spectral Density (PSD) and record the results in dBm.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Test Limit:

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

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Test Report

Date : 2023-12-11

Page 30 of 50

No. : HMD23090001

Results of WIFI TX Mode 802.11 a (Tx:5150MHz to 5250MHz): Pass (TX Unit)

Maximum power spectral density

Transmitter Frequency (MHz)	Maximum Power spectral density level / 1MHz band (dBm)	Maximum Power spectral density / 1MHz band limit
5150.0	-7.777	11dBm
5220.0	-7.789	11dBm
5240.0	-9.038	11dBm

Results of WIFI TX Mode 802.11 n20 (Tx:5150MHz to 5250MHz): Pass (TX Unit)

Maximum power spectral density

Transmitter Frequency (MHz)	Maximum Power spectral density level / 1MHz band (dBm)	Maximum Power spectral density / 1MHz band limit
5150.0	-8.385	11dBm
5220.0	-7.978	11dBm
5240.0	-9.293	11dBm

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Test Report

Date : 2023-12-11
No. : HMD23090001

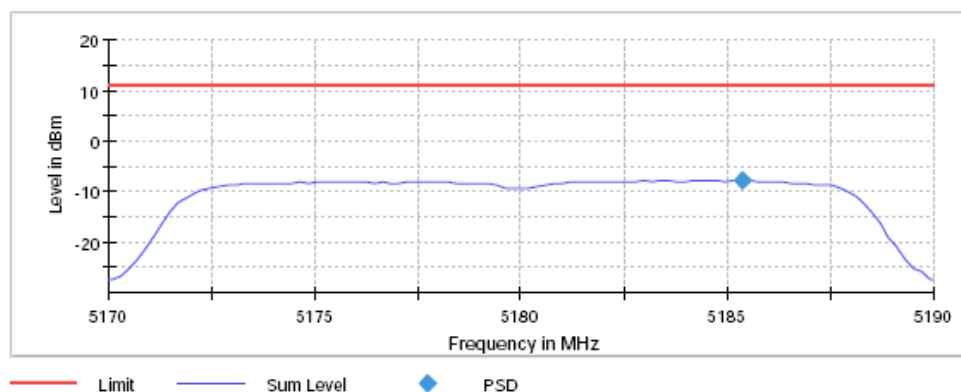
Page 31 of 50

WiFi mode 802.11 a
CH 36 (5180.0 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
5180.000000	5185.346535	-7.770	11.0	PASS

Power Spectral Density

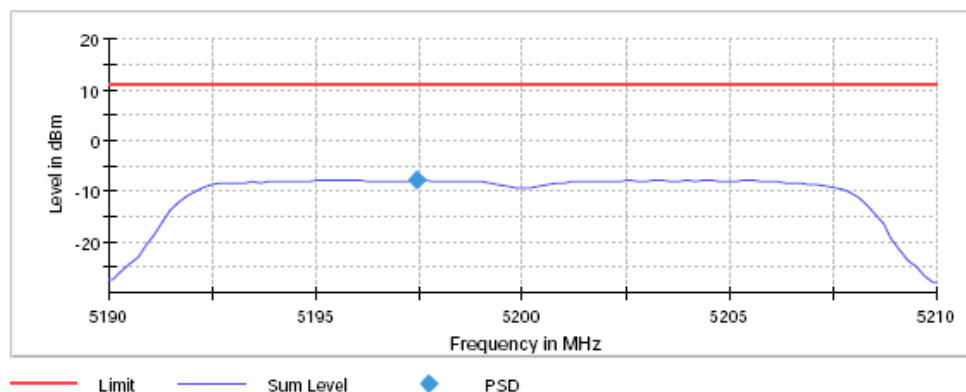


CH 40 (5200.0 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
5200.000000	5197.425743	-7.789	11.0	PASS

Power Spectral Density



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Test Report

Date : 2023-12-11
No. : HMD23090001

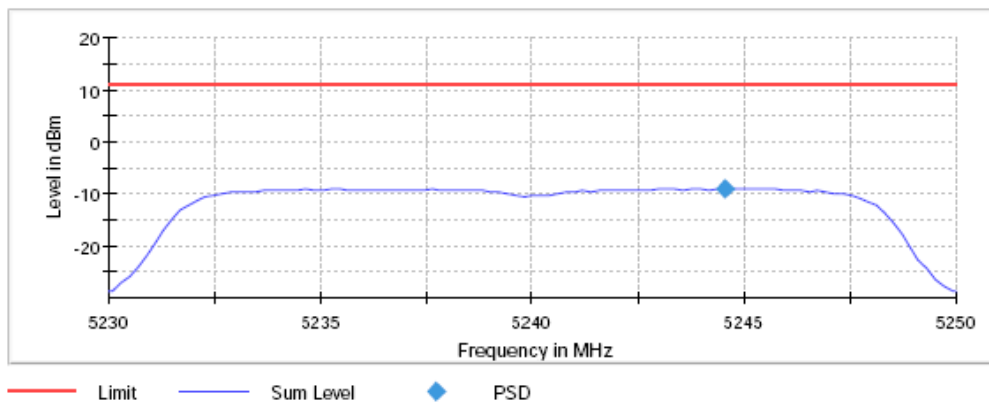
Page 32 of 50

CH 48 (5240.0 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
5240.000000	5244.554455	-9.038	11.0	PASS

Power Spectral Density

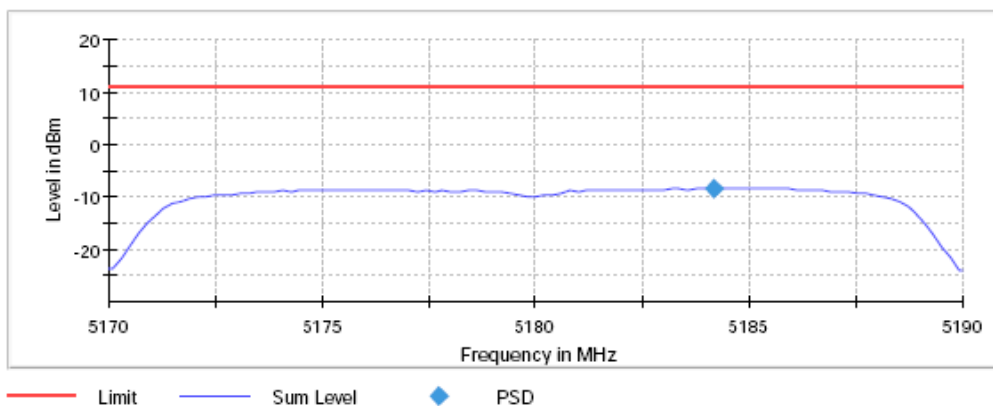


WiFi mode 802.11 n20
CH 36 (5180.0 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
5180.000000	5184.158416	-8.385	11.0	PASS

Power Spectral Density



Test Report

Date : 2023-12-11
No. : HMD23090001

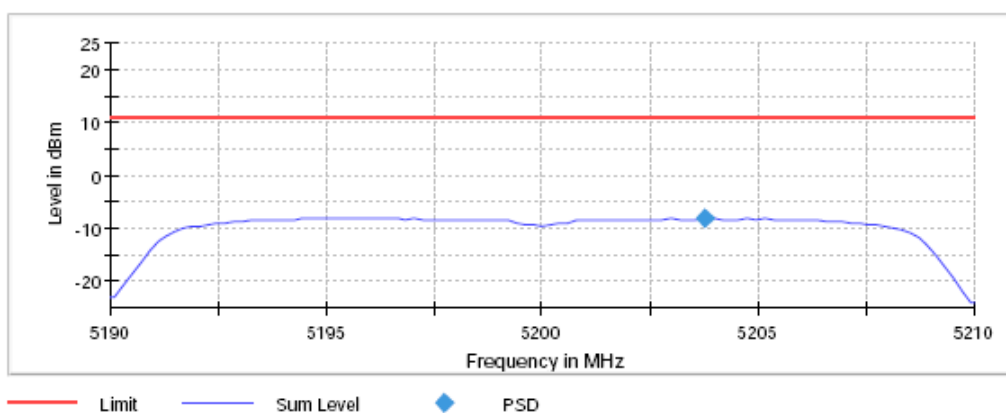
Page 33 of 50

CH 40 (5200.0 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
5200.000000	5203.762376	-7.978	11.0	PASS

Power Spectral Density

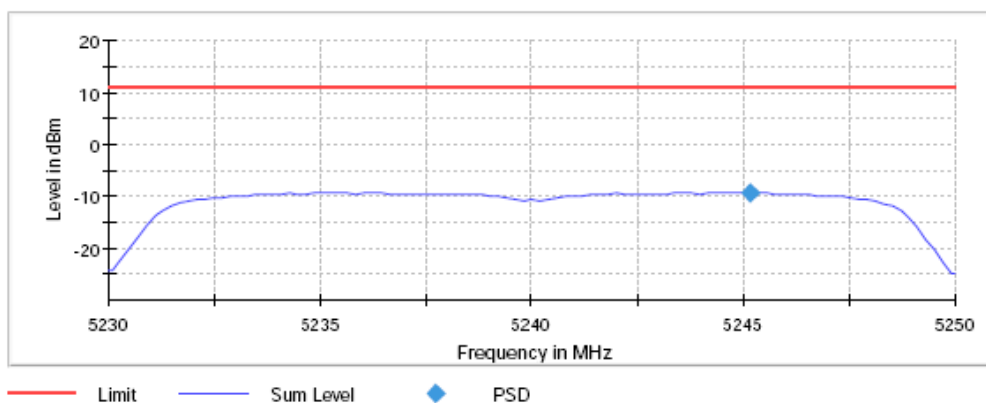


CH 48 (5240.0 MHz)

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
5240.000000	5245.148515	-9.293	11.0	PASS

Power Spectral Density





Test Report

Date : 2023-12-11
No. : HMD23090001

Page 34 of 50

3.1.5 26 dB Bandwidth and 99% Occupied Bandwidth Measurement

Test Requirement: FCC 47CFR 15.407(a) / KDB 789033D02
Test Method: ANSI C63.10:2013
Test Date: 2023-09-27
Mode of Operation: WIFI TX mode

Ambient Temperature: 25°C Relative Humidity: 51% Atmospheric Pressure: 101 kPa

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Spectrum Analyzer Setting:

RBW = 1% to 5% of the OBW
VBW $\geq 3 \times$ RBW, Sweep = Auto couple
Detector = Peak, Trace = Max. hold

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

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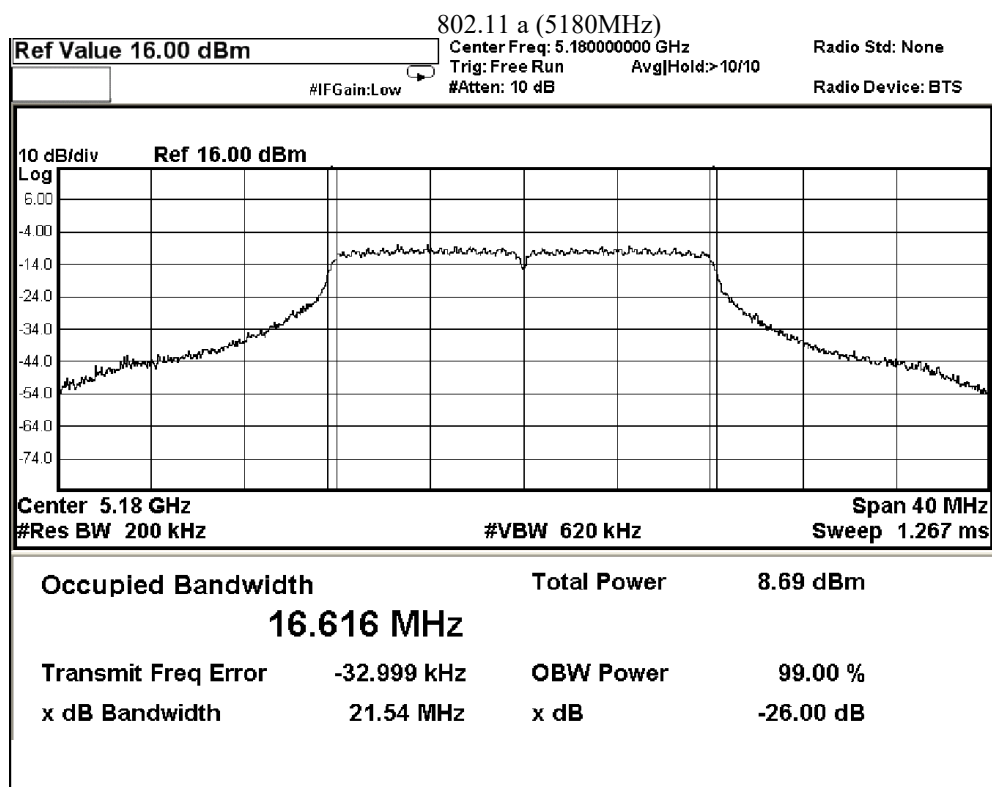
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 35 of 50

26 dB Bandwidth and 99% Occupied Bandwidth Measurement:

Center Frequency [MHz]	26dB Bandwidth [MHz]	99% Bandwidth [MHz]
5180.0	21.54	16.616



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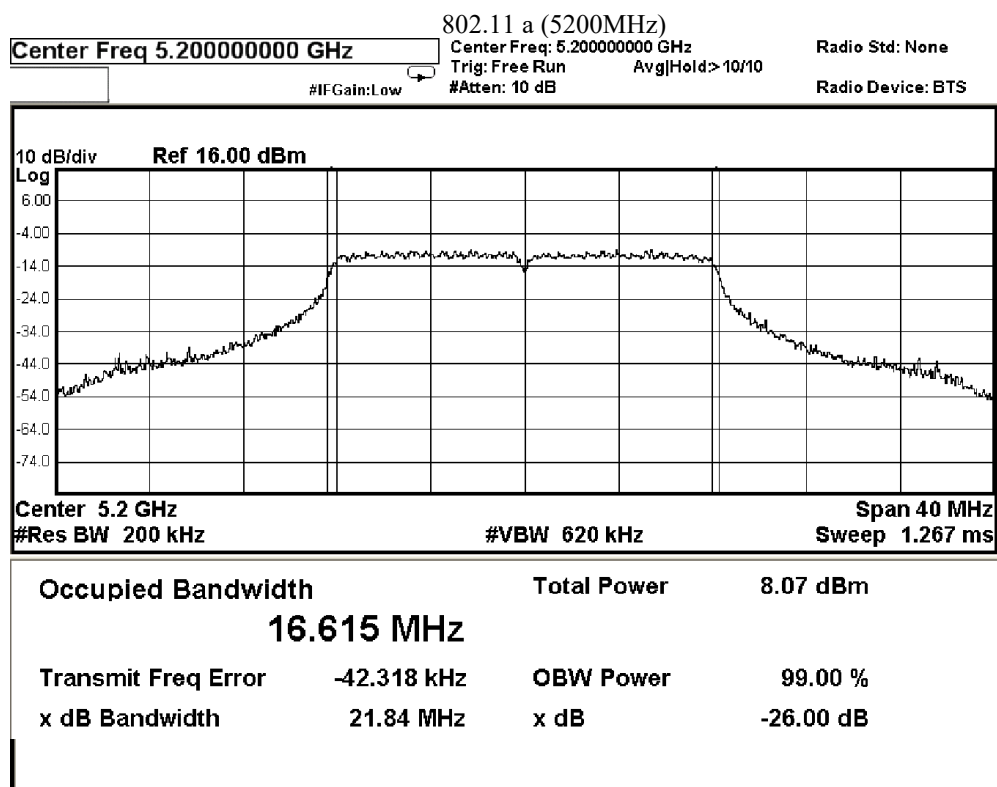
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 36 of 50

26 dB Bandwidth and 99% Occupied Bandwidth Measurement:

Center Frequency [MHz]	26dB Bandwidth [MHz]	99% Bandwidth [MHz]
5200.0	21.84	16.615



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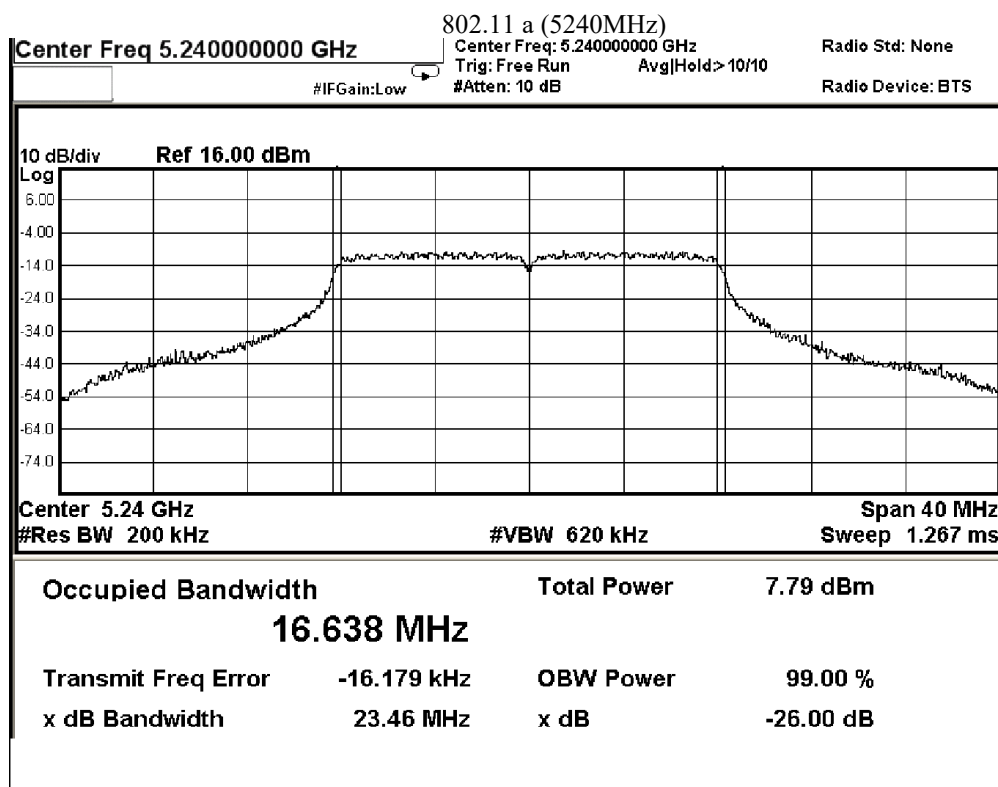
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 37 of 50

26 dB Bandwidth and 99% Occupied Bandwidth Measurement:

Center Frequency [MHz]	26dB Bandwidth [MHz]	99% Bandwidth [MHz]
5240.0	23.46	16.638



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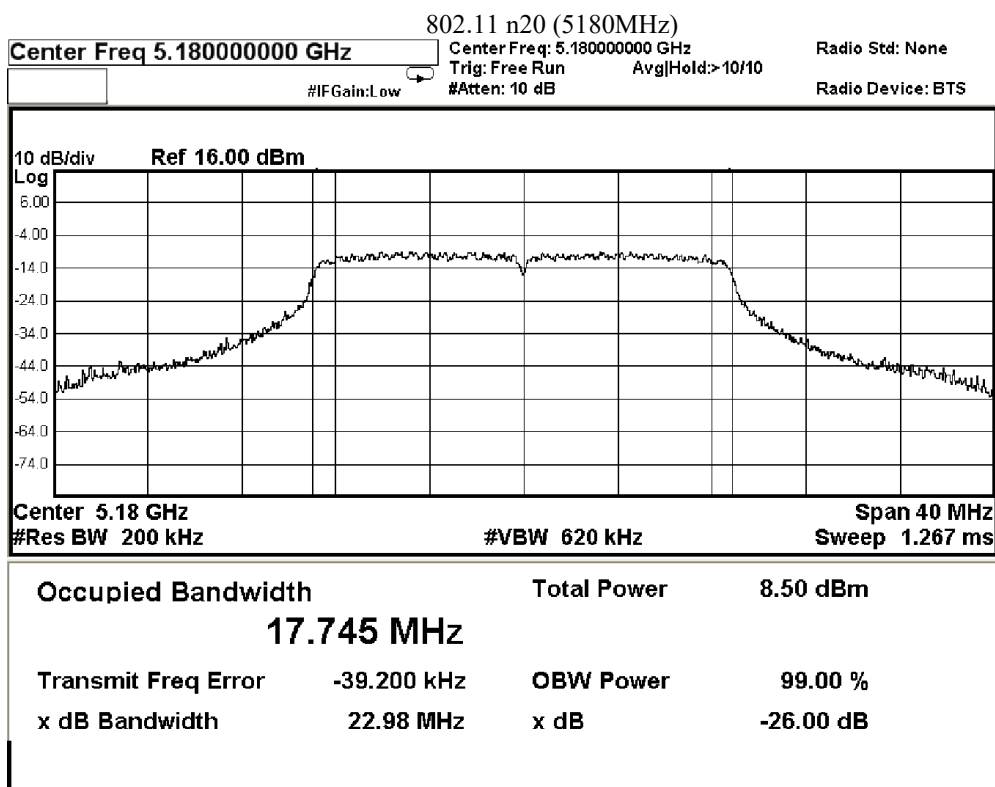
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 38 of 50

26 dB Bandwidth and 99% Occupied Bandwidth Measurement:

Center Frequency [MHz]	26dB Bandwidth [MHz]	99% Bandwidth [MHz]
5180.0	22.98	17.745



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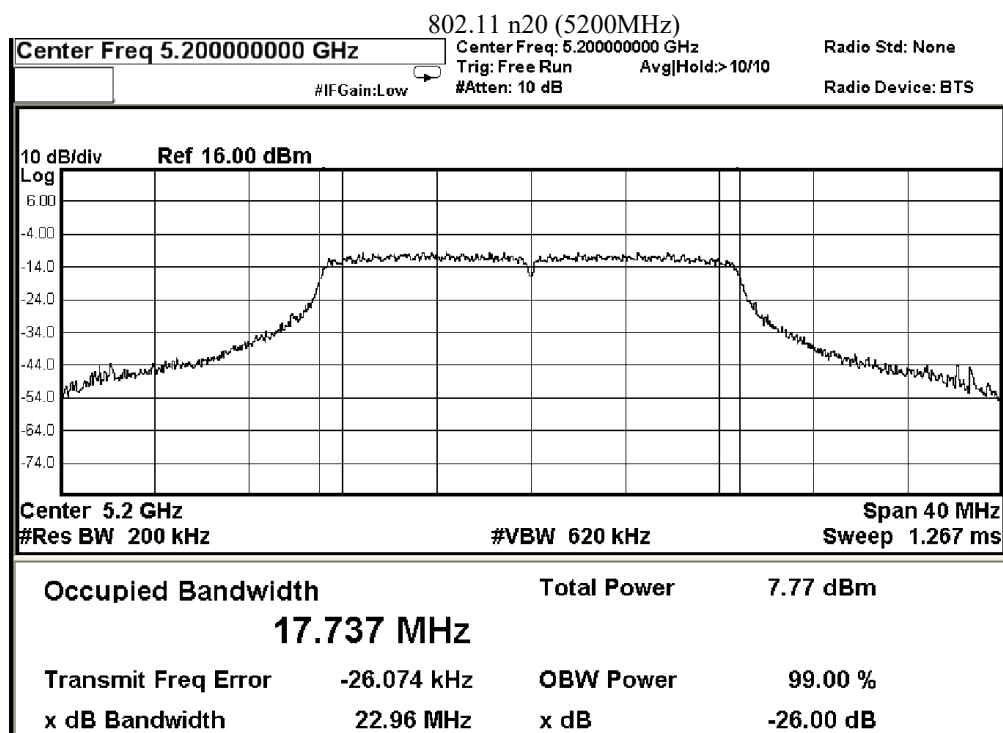
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 39 of 50

26 dB Bandwidth and 99% Occupied Bandwidth Measurement:

Center Frequency [MHz]	26dB Bandwidth [MHz]	99% Bandwidth [MHz]
5200.0	22.96	17.737



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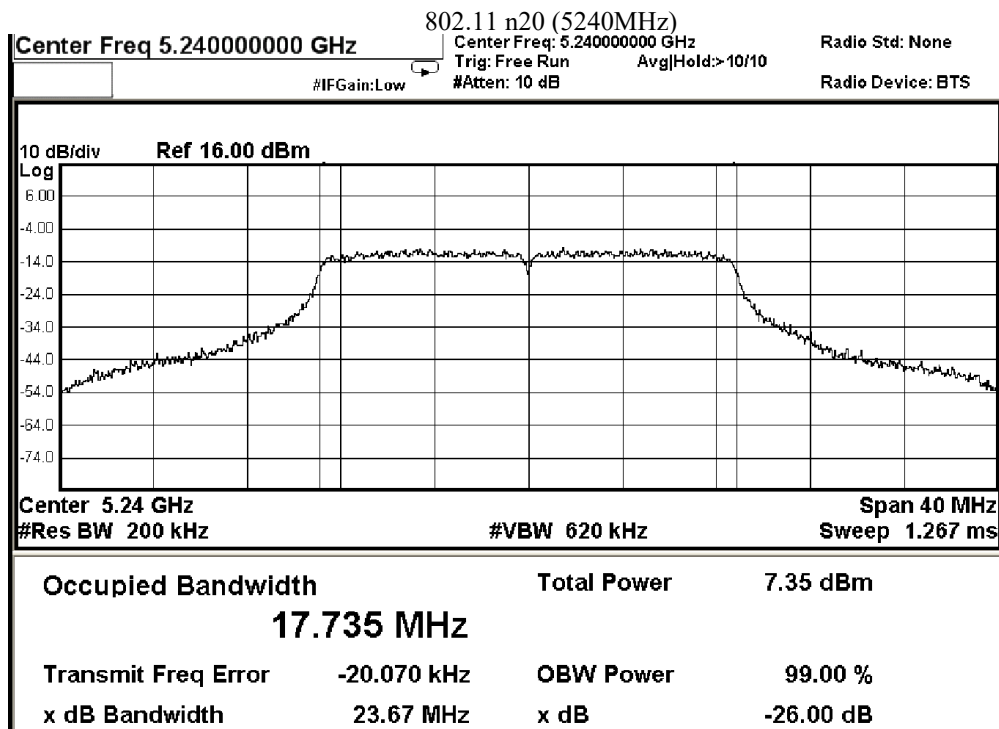
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 40 of 50

26 dB Bandwidth and 99% Occupied Bandwidth Measurement:

Center Frequency [MHz]	26dB Bandwidth [MHz]	99% Bandwidth [MHz]
5240.0	23.67	17.735



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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 41 of 50

3.1.6 Antenna Requirement

Ambient Temperature: 25°C

Relative Humidity: 51%

Atmospheric Pressure: 101 kPa

Test Requirements: § 15.203

Test Specification:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Test Results:

This is Ceramic Antenna. There is no external antenna, the antenna gain = 1.0dBi. User is unable to remove or changed the Antenna.

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 42 of 50

3.1.7 Frequency stability

Test Requirement:	FCC 47CFR 15.407(g)
Test Method:	ANSI C63.10:2013
Test Date:	2023-09-27
Mode of Operation:	WIFI TX mode

Ambient Temperature: 25°C

Relative Humidity: 51%

Atmospheric Pressure: 101 kPa

Spectrum Analyzer Setting:

RBW = 1% to 5% of the OBW
VBW $\geq$ 3*RBW, Sweep = Auto couple
Detector = Peak, Trace = Max. hold

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Limit

frequency stability such that an emission is maintained within the band of operation.

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 43 of 50

Test Results:

Operating Frequency (MHz)	Temperature (°C)	Power supply (Vdc)	2 minutes		5 minutes		10 minutes		Limit
			Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	
5180	0	3.7	5180.0042	P	5180.0042	P	5180.0043	P	Within 5150-5250M Hz
	10	3.7	5180.0035	P	5180.0032	P	5180.0034	P	
	20	3.7	5180.0034	P	5180.0031	P	5180.0030	P	
	30	3.7	5180.0036	P	5180.0035	P	5180.0035	P	
	40	3.7	5180.0044	P	5180.0044	P	5180.0045	P	
	20	3.1	5180.0043	P	5180.0047	P	5180.0044	P	
	20	4.3	5180.0034	P	5180.0034	P	5180.0034	P	
5240	0	3.7	5240.0021	P	5240.0020	P	5240.0011	P	
	10	3.7	5240.0011	P	5240.0021	P	5240.0015	P	
	20	3.7	5240.0105	P	5240.0075	P	5240.0048	P	
	30	3.7	5240.0074	P	5240.0063	P	5240.0055	P	
	40	3.7	5240.0052	P	5240.0045	P	5240.0050	P	
	20	3.1	5240.0032	P	5240.0031	P	5240.0018	P	
	20	4.3	5240.0011	P	5240.0014	P	5240.0024	P	

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 44 of 50

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDevice CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM217	ELECTRIC POWERED TURN TABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2019-04-16	2024-04-16
EM356	ANTENNA POSITIONING TOWER	ETS-LINDGREN	2171B	00150346	N/A	N/A
EM293	SPECTRUM ANALYZER	AGILENT TECHNOLOGIES	N9020A	MY50510152	2023-03-21	2024-03-21
EM363	SIGNAL ANALYZER(10HZ- 40GHZ)	R & S	FSV40	101231	2024-01-17	2026-01-17
EM299	BROADBAND HORN ANTENNA	ETS-LINDGREN	3115	00114120	2023-01-25	2025-01-25
EM300	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-09	00130130	2023-01-16	2025-01-16
EM301	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-10	00130988	2023-02-15	2025-02-15
EM353	LOOP ANTENNA	ETS_LINDGREN	6502	00206533	2022-09-26	2024-09-26
EM355	BICONILOG ANTENNA	ETS-LINDGREN	3143B	00094856	2022-08-26	2024-08-26
EM200	DUAL CHANNEL POWER METER	R & S	NRVD	100592	2023-08-02	2025-08-02

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM232	LISN	SCHAFFNER	NNB41	04/100082	2023-05-30	2025-05-30
EM181	EMI TEST RECEIVER	R & S	ESIB7	100072	2023-05-22	2024-05-22
EM179	IMPULSE LIMITER	R & S	ESH3-Z2	357.8810.52/54	2023-03-17	2025-03-17
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740-057- 99A	2022-02-06	2027-02-06
N/A	MEASUREMENT AND EVALUATION SOFTWARE	ROHDE & SCHWARZ	BSIB-K1	V1.20	N/A	N/A

Remarks:-

CM Corrective Maintenance
N/A Not Applicable
TBD To Be Determined

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 45 of 50

Appendix B

Photographs of EUT

View of the product



View of the product



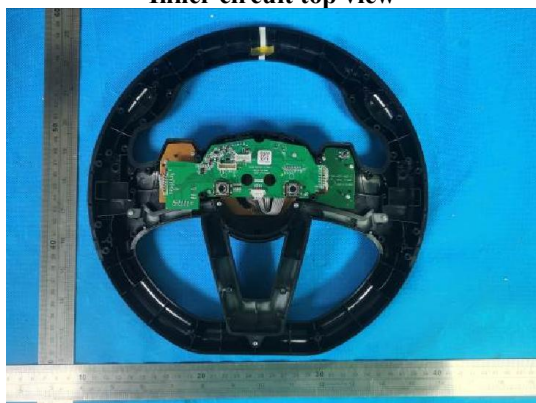
Inner circuit view



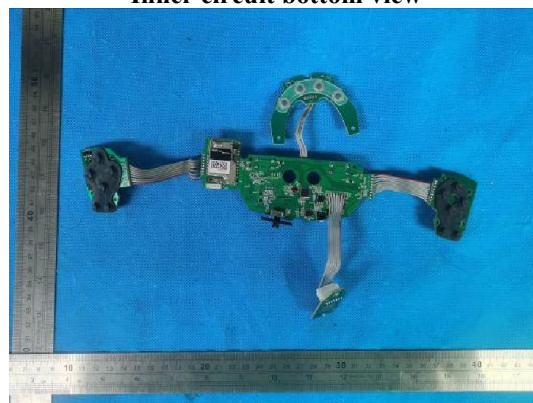
View of battery



Inner circuit top view



Inner circuit bottom view



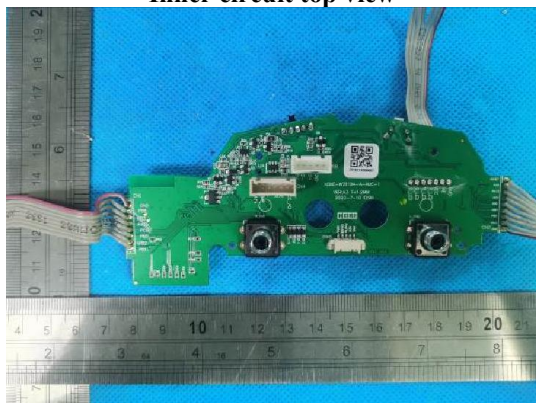
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 46 of 50

Photographs of EUT

Inner circuit top view



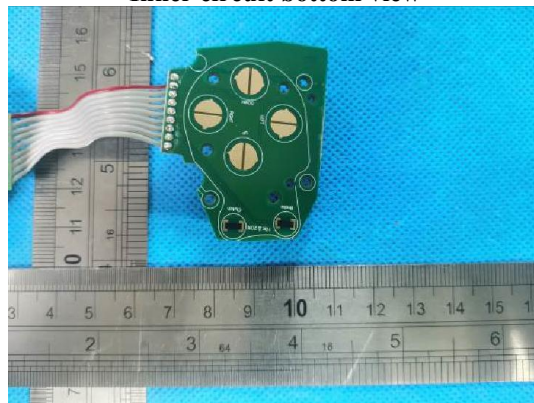
Inner circuit bottom view



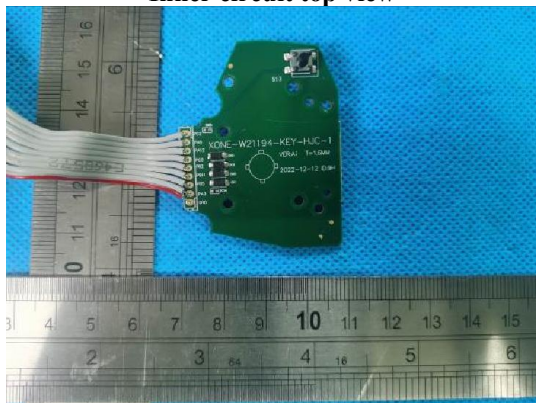
View of module



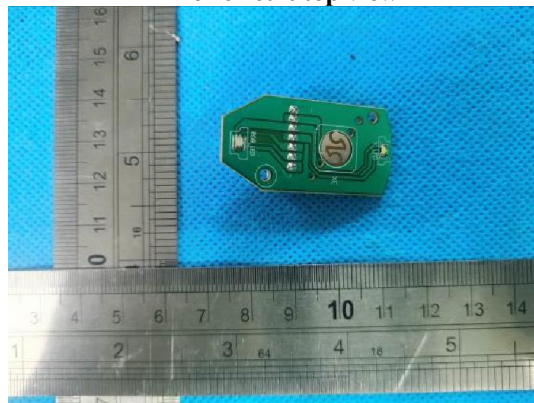
Inner circuit bottom view



Inner circuit top view



Inner circuit top view



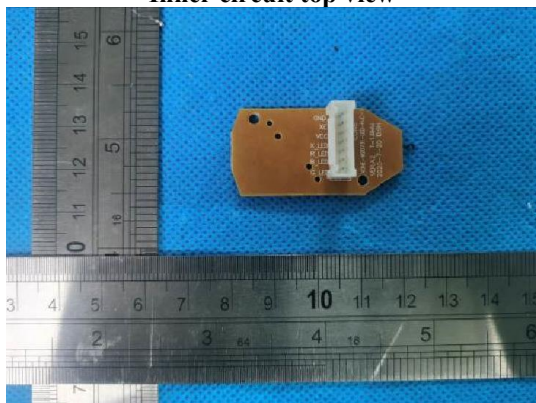
Test Report

Date : 2023-12-11
No. : HMD23090001

Page 47 of 50

Photographs of EUT

Inner circuit top view



Inner circuit bottom view



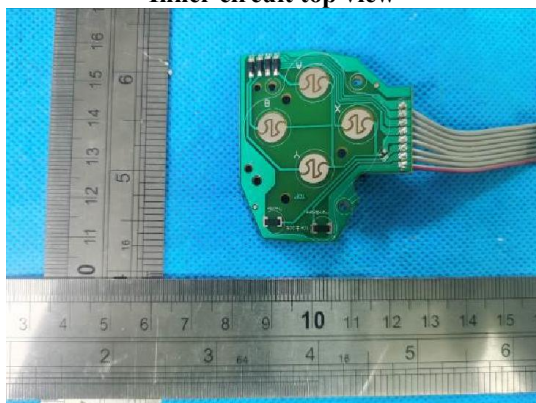
Inner circuit top view



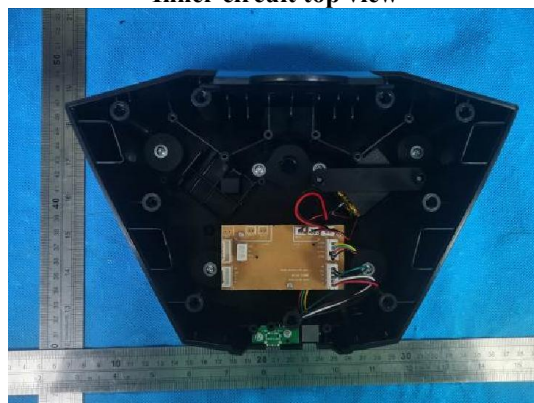
Inner circuit bottom view



Inner circuit top view



Inner circuit top view



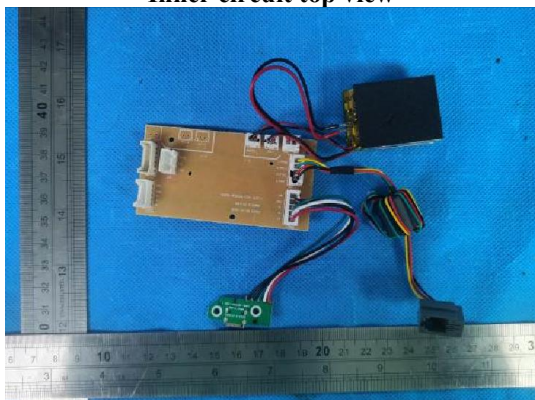
Test Report

Date : 2023-12-11
No. : HMD23090001

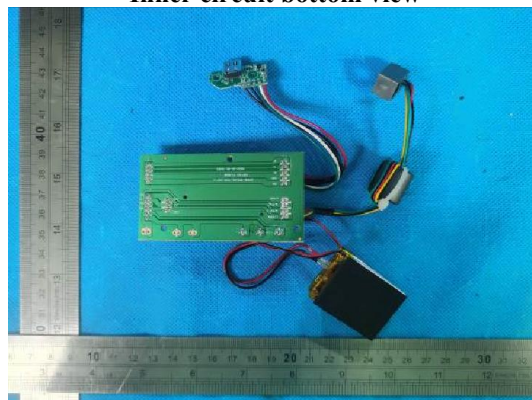
Page 48 of 50

Photographs of EUT

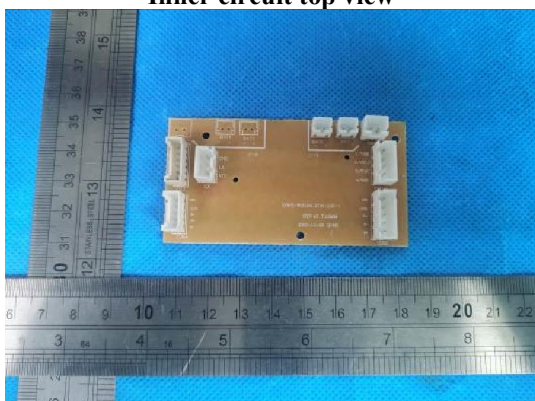
Inner circuit top view



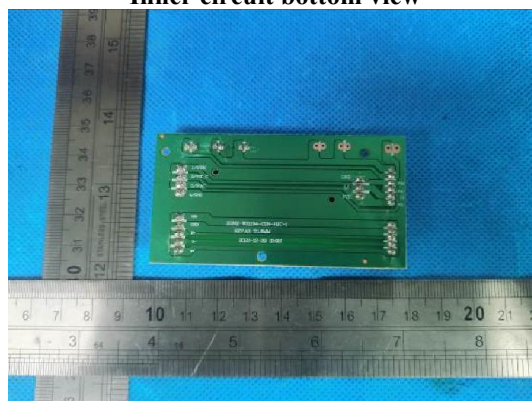
Inner circuit bottom view



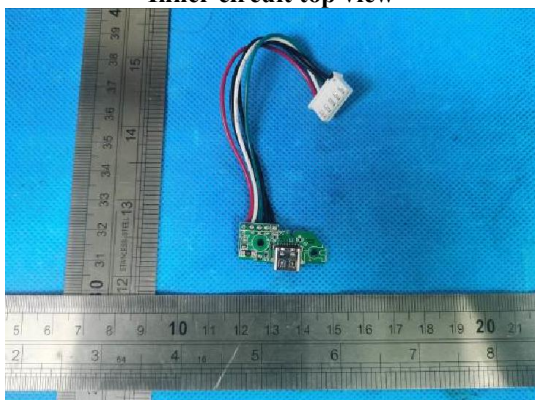
Inner circuit top view



Inner circuit bottom view



Inner circuit top view



Inner circuit bottom view



Test Report

Date : 2023-12-11
No. : HMD23090001

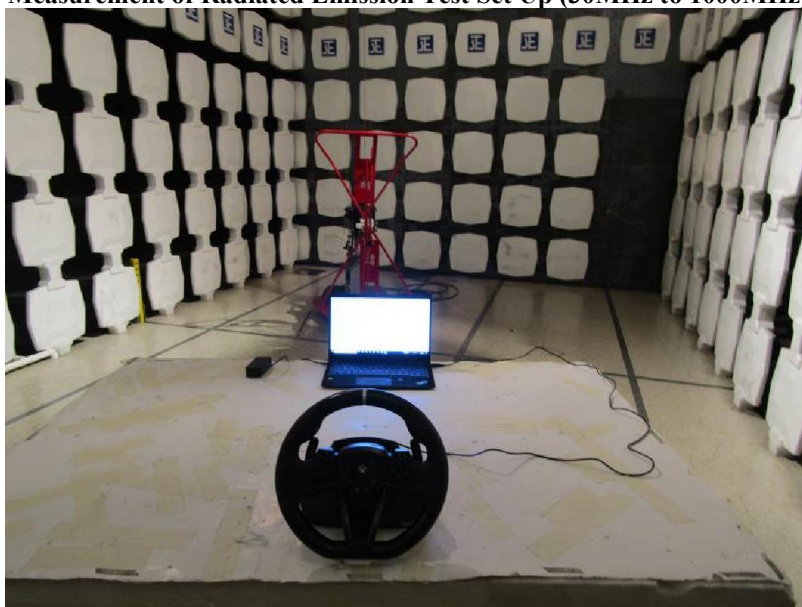
Page 49 of 50

Photographs of EUT

Measurement of Radiated Emission Test Set Up (9kHz – 30MHz)



Measurement of Radiated Emission Test Set Up (30MHz to 1000MHz)



The Hong Kong Standards and Testing Centre Limited

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Test Report

Date : 2023-12-11
No. : HMD23090001

Page 50 of 50

Photographs of EUT

Measurement of Radiated Emission Test Set Up (Above 1000MHz)



Measurement of Conducted Emission Test Set Up



***** End of Test Report *****

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11. Subject to the variable length of retention time for test data and report stored hereinto as to otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of this test report for a period of three years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after the retention period. Under no circumstances shall we be liable for damages of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.
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