

Report No.: FR430401D



# FCC RADIO TEST REPORT

FCC ID : P4Q-TG2A001

**Equipment** : Internet Gateway

Brand Name : Amazon, AWS, SKF,

Model Name : TG2A001,

TG2A001YYYY (Y= 10 characters, Y can be 0-9, a-z, A-Z, "-", "\_" or blank for marketing purpose and no impact safety related critical components and

constructions.)

Applicant : Mitac Digital Technology Corp.

4F., NO. 1, R&D ROAD 2, HSINCHU SCIENCE PARK,

HSINCHU 30076, TAIWAN, R.O.C.

Standard : FCC Part 15 Subpart E §15.407

The product was received on Jun. 18, 2024 and testing was performed from Jun. 18, 2024 to Dec. 11, 2024. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

Louis Win

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)

FAX: 886-3-327-0855 Issue Date : Dec. 25, 2024
Report Template No.: BU5-FR15EWL AC MA Version 2.4 Report Version : 03

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# History of this test report

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Report No.	Version	Description	Issue Date
FR430401D	01	Initial issue of report	Nov. 29, 2024
FR430401D	02	<ol> <li>Revise Summary of Test Result, antenna information, Applicable Standards, Unwanted Emissions Measurement, List of Measuring Equipment and Measurement Uncertainty</li> <li>Revise appendix A, B and D</li> <li>This report is an updated version, replacing the report issued on Nov. 29, 2024.</li> </ol>	Dec. 13, 2024
FR430401D	03	Revise Product Feature of Equipment Under Test This report is an updated version, replacing the report issued on Dec. 13, 2024.	Dec. 25, 2024

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# **Summary of Test Result**

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Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.403(i)	26dB Bandwidth	Pass	See Note
-	2.1049	99% Occupied Bandwidth	Pass	See Note
3.1	15.407(a)	Maximum Conducted Output Power	Pass	-
-	15.407(a)	Power Spectral Density Pass		See Note
3.2	15.407(b)	Unwanted Emissions	Pass	2.09 dB under the limit at 5853.70 MHz
	15.207	AC Conducted Emission	Pass	See Note
3.3	15.203	Antenna Requirement	Pass	-

#### Note:

- 1. For host device, Radiated Spurious Emission is verified and complies with the limit in this test report.
- For host device, the Conducted Output Power is no difference after compared to module (Model: AW-XM553)
- 3. Spot-check testing on unwanted (spurious) radiated emissions is carried out on the worst-case modulation and channel per frequency range as shown in original module's filing. Radiated Spurious Emission is verified and complies with the limit in this test report.

#### **Conformity Assessment Condition:**

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the
  regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall
  bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into
  account
- The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

### Disclaimer:

- The product specifications of the EUT presented in the test report that may affect the test assessments
  are declared by the manufacturer who shall take full responsibility for the authenticity.
- 2. The purpose of different brand name is for marketing segmentation.

Reviewed by: Sheng Kuo

**Report Producer: Michelle Chen** 

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# 1 General Description

# 1.1 Product Feature of Equipment Under Test

#### **Product Feature**

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#### **General Specs**

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, and Sub 1GHz.

#### **Antenna Type**

WLAN: PIFA Antenna Bluetooth: PIFA Antenna Sub 1G: PIFA Antenna

Antenna information				
5150 MHz ~ 5250 MHz	Peak Gain (dBi)	5.10		
5250 MHz ~ 5350 MHz	Peak Gain (dBi)	5.10		
5470 MHz ~ 5725 MHz	Peak Gain (dBi)	4.00		

	SKU List					
SKU	Variant num	Wifi/BT	BLE	Sub GHz	Sound	
1	1	х	х	х	х	
2	2	х	х	х	-	
3	3	х	х	-	х	
4	4	х	х	-	-	
5	5	х	-	х	х	
6	6	х	-	х	-	
7	7	-	-	х	х	
8	8	-	-	х	-	

#### Remark:

- The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.
- 2. The RF related hardware (including WLAN, Bluetooth, Sub 1Ghz module, and Sound) of all models are identical. The RF feature differences are controlled by the embedded software.

# 1.2 Modification of EUT

No modifications made to the EUT during the testing.

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# 1.3 Testing Location

Test Site	Sporton International Inc. Wensan Laboratory		
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855		
Test Site No.	Sporton Site No. TH05-HY, 03CH16-HY		

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Note: The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW3786

# 1.4 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- ANSI C63.10-2013

#### Remark:

- 1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
- 2. The TAF code is not including all the FCC KDB listed without accreditation.
- 3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

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# 2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.

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# 2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	36	5180	44	5220
5150-5250 MHz Band 1	38*	5190	46*	5230
(U-NII-1)	40	5200	48	5240
(3.411.1)	42#	5210		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	52	5260	60	5300
5250-5350 MHz	54*	5270	62*	5310
Band 2 (U-NII-2A)	56	5280	64	5320
	58#	5290		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	100	5500	112	5560
	102*	5510	116	5580
5470-5725 MHz	104	5520	132	5660
Band 3 (U-NII-2C)	106#	5530	134*	5670
(3 1111 20)	108	5540	136	5680
	110*	5550	140	5700

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Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	118*	5590	124	5620
TDWR Channel	120	5600	126*	5630
	122#	5610	128	5640

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Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddla Channal	138#	5690	144	5720
Straddle Channel	142*	5710		

#### Note:

- 1. The above Frequency and Channel with "\*" are 802.11n HT40 and 802.11ac VHT40 and 802.11ax HE40.
- 2. The above Frequency and Channel with "#" are 802.11ac VHT80 and 802.11ax HE80.

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# 2.2 Test Mode

The final test modes include the worst data rates for each modulation shown in the table below.

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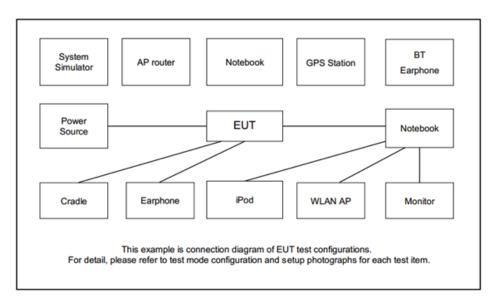
Modulation	Data Rate
802.11ax HE20	MCS0
802.11ax HE80	MCS0

	Ch. #	Band I: 5150-5250 MHz	Band II: 5250-5350 MHz	Band III:5470-5725MHz		
	CII.#	802.11ax HE20	802.11ax HE80	802.11ax HE80		
L	Low	36	-	-		
M	Middle	-	58	-		
Н	High	-	-	138		

#### Remark:

- For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.
- 2. For Radiated Test Cases, the tests were performed with SKU 1 (E).

# 2.3 Connection Diagram of Test System



# 2.4 EUT Operation Test Setup

The RF test items, utility "Tera Term 4.94" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

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# 3 Test Result

# 3.1 Maximum Conducted Output Power Measurement

# 3.1.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

#### For the 5.15-5.25 GHz bands:

■ For mobile and portable 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. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

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#### For the 5.25-5.725 GHz bands:

■ The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz.

# 3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

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### 3.1.3 Test Procedures

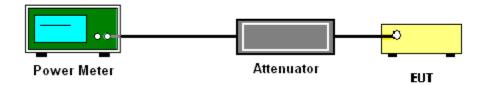
The testing follows Method PM-G of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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Method PM-G (Measurement using a gated RF average power meter):

- 1. Measurement is performed using a wideband RF power meter.
- 2. The EUT is configured to transmit at its maximum power control level.
- 3. Measure the average power of the transmitter.
- 4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

## 3.1.4 Test Setup



# 3.1.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

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## 3.2 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

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#### 3.2.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of –27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

(2) Unwanted spurious emissions falls in restricted bands shall comply with the general field strength limits as below table:

Frequency	Field Strength	Measurement Distance		
(MHz)	(microvolts/meter)	(meters)		
0.009 - 0.490	2400/F(kHz)	300		
0.490 – 1.705	24000/F(kHz)	30		
1.705 – 30.0	30	30		
30 – 88	100	3		
88 – 216	150	3		
216 - 960	200	3		
Above 960	500	3		

**Note:** The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3}$$
 µV/m, where P is the eirp (Watts)

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EIRP (dBm)	Field Strength at 3m (dBµV/m)
- 27	68.3

## (3) KDB789033 D02 v02r01 G)2)c)

(i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.

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(ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are based on the use of a peak detector.

## 3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

#### 3.2.3 Test Procedures

- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
   Section G) Unwanted emissions measurement.
  - (1) Procedure for Unwanted Emissions Measurements Below 1000 MHz
    - RBW = 120 kHz
    - VBW = 300 kHz
    - Detector = Peak
    - Trace mode = max hold
  - (2) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz
    - RBW = 1 MHz
    - VBW = 10 Hz, when duty cycle is no less than 98 percent.
    - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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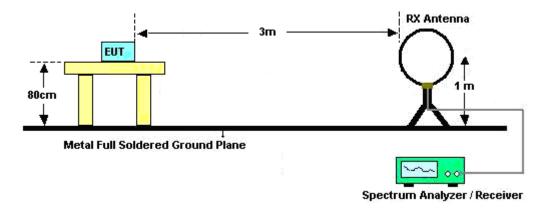
The EUT is placed on a turntable with 0.8 meter for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz respectively above ground.

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- 3. The EUT is set 3 meters away from the receiving antenna which is mounted on the top of a variable height antenna tower.
- 4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT is arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. Radiated testing below 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading. When there is no suspected emission found and the emission level is with at least 6 dB margin against QP limit line, the position is marked as "-".
- 7. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as "-

#### 3.2.4 Test Setup

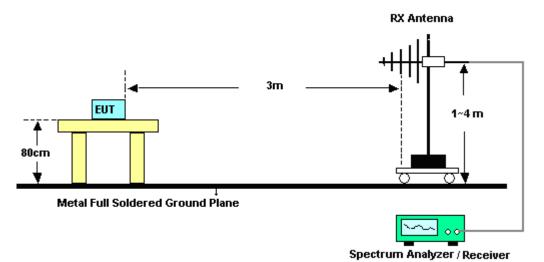
#### For radiated emissions below 30MHz



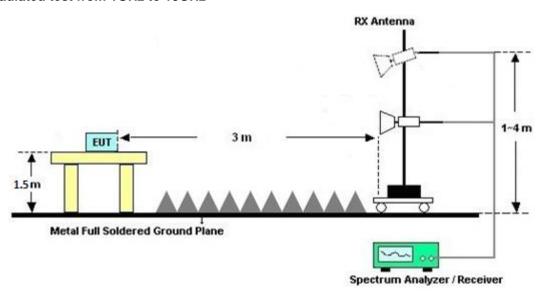
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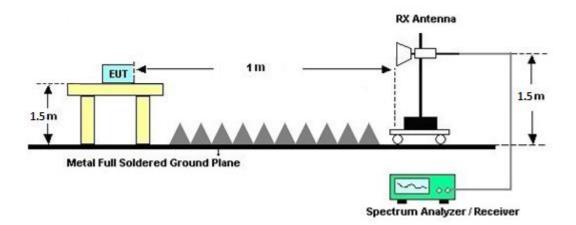
#### For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



## For radiated test above 18GHz



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# 3.2.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is not reported.

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There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

# 3.2.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

# 3.2.7 Duty Cycle

Please refer to Appendix C.

## 3.2.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix B.

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# 3.3 Antenna Requirements

# 3.3.1 Standard Applicable

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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

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## 3.3.2 Antenna Anti-Replacement Construction

Antenna permanently attached.

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# 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 07, 2023	Jun. 18, 2024~ Jul. 23, 2024	Nov. 06, 2024	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	17I00015SNO 36 (NO:35)	10MHz~6GHz	Aug. 23, 2023	Jun. 18, 2024~ Jul. 23, 2024	Aug. 22, 2024	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV3044	101466	10HZ~44GHZ	Jan. 24, 2024	Jun. 18, 2024~ Jul. 23, 2024	Jan. 23, 2025	Conducted (TH05-HY)
Switch Control Mainframe	EM Electronics	EMSW18SE	SW200302 (BOX9)	N/A	Mar. 08, 2024	Jun. 18, 2024~ Jul. 23, 2024	Mar. 07, 2025	Conducted (TH05-HY)
Software1	Sporton	BTWIFI_Final_ve rsion:1.0(2024- 04-11)	N/A	Conducted Items	N/A	Jun. 18, 2024~ Jul. 23, 2024	N/A	Conducted (TH05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 12, 2023	Jul. 17, 2024~ Jul. 20, 2024	Sep. 11, 2024	Radiation (03CH16-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Aug. 29, 2024	Dec. 11, 2024	Aug. 28, 2025	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00993	18GHz-40GHz	Nov. 24, 2023	Jul. 17, 2024~ Jul. 20, 2024	Nov. 23, 2024	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00993	18GHz-40GHz	Nov. 18, 2024	Dec. 11, 2024	Nov. 17, 2025	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Dec. 04, 2023	Jul. 17, 2024~ Jul. 20, 2024	Dec. 03, 2024	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Nov. 22, 2024	Dec. 11, 2024	Nov. 21, 2025	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N- 06	47020 & 06	30MHz to 1GHz	Oct. 07, 2023	Jul. 17, 2024~ Jul. 20, 2024	Oct. 06, 2024	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N- 06	47020 & 06	30MHz to 1GHz	Oct. 05, 2024	Dec. 11, 2024	Oct. 04, 2025	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1522	1G~18GHz	Mar. 28, 2024	Jul. 17, 2024~ Dec. 11, 2024	Mar. 27, 2025	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1GHz	Jul. 02, 2024	Jul. 17, 2024~ Dec. 11, 2024	Jul. 01, 2025	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 07, 2023	Jul. 17, 2024~ Jul. 20, 2024	Dec. 06, 2024	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 05, 2024	Dec. 11, 2024	Dec. 04, 2025	Radiation (03CH16-HY)
Preamplifier	EMEC	EM1G18G	060812	1GHz~18GHz	Dec. 25, 2023	Jul. 17, 2024~ Dec. 11, 2024	Dec. 24, 2024	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060872	18GHz~40GHz	Sep. 06, 2023	Jul. 17, 2024~ Jul. 20, 2024	Sep. 05, 2024	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060872	18GHz~40GHz	Nov. 29, 2024	Dec. 11, 2024	Nov. 28, 2025	Radiation (03CH16-HY)

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Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Filter	Wainwright	WLK4-1000- 1530-8000-40SS	SN17	1.53GHz Low Pass Filter	Jan. 15, 2024	Jul. 17, 2024~ Dec. 11, 2024	Jan. 14, 2025	Radiation (03CH16-HY)
Filter	Wainwright	WHKX12-2700- 3000-18000- 60ST	SN3	3GHz High Pass Filter	Jun. 28, 2024	Jul. 17, 2024~ Dec. 11, 2024	Jun. 27, 2025	Radiation (03CH16-HY)
Filter	Wainwright	WHKX8-5872.5- 6750-18000- 40ST	SN27	6.75GHz High Pass Filter	Nov. 13, 2023	Jul. 17, 2024~ Jul. 20, 2024	Nov. 12, 2024	Radiation (03CH16-HY)
Filter	Wainwright	WHKX8-5872.5- 6750-18000- 40ST	SN27	6.75GHz High Pass Filter	Nov. 12, 2024	Dec. 11, 2024	Nov. 11, 2025	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 06, 2024	Jul. 17, 2024~ Dec. 11, 2024	Mar. 05, 2025	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102/SUCOFLEX 104	EC-A5-300- 5757,805935/ 4,802434/4	30MHz~18GHz	Aug. 08, 2023	Jul. 17, 2024~ Jul. 20, 2024	Aug. 07, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102/SUCOFLEX 104	EC-A5-300- 5757,805935/ 4,802434/4	30MHz~18GHz	Aug. 07, 2024	Dec. 11, 2024	Aug. 06, 2025	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,804 012/2	18-40GHz	Jan. 02, 2024	Jul. 17, 2024~ Dec. 11, 2024	Jan. 01, 2025	Radiation (03CH16-HY)
Software	Audix	E3 230621 V9	RK-002393	N/A	N/A	Jul. 17, 2024~ Dec. 11, 2024	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Jul. 17, 2024~ Dec. 11, 2024	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jul. 17, 2024~ Dec. 11, 2024	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jul. 17, 2024~ Dec. 11, 2024	N/A	Radiation (03CH16-HY)

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# 5 Measurement Uncertainty

# Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence	4 00 dB
of 95% (U = 2Uc(y))	4.90 dB

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## <u>Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)</u>

Measuring Uncertainty for a Level of Confidence	5.10 dB
of 95% (U = 2Uc(y))	5. IV UB

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# Appendix A. Test Result of Conducted Test Items

Test Engineer:	Ju Chang	Temperature:	21~25	°C
Test Date:	2024/6/18~2024/7/23	Relative Humidity:	51~54	%

# TEST RESULTS DATA Average Power Table

	FCC U-NII-1 single antenna													
Mod.	Data Rate	<b>N</b> τx	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)		FCC Conducted Power Limit (dBm)		DG (dBi)			Pass/Fail	
						Ant 1	-	SUM	Ant 1	-	Ant 1	-		
HE20	MCS0	1	36	5180	Full	9.80	-	-	24.00	-	5.10	-	-	Pass

# <u>TEST RESULTS DATA</u> <u>Average Power Table</u>

	FCC U-NII-2A single antenna													
Mod.	Data Rate	<b>N</b> тх	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)		FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	
						Ant 1	-	SUM	Ant 1	-	Ant 1	-	,	
HE80	MCS0	1	58	5290	Full	6.90	-	-	23.98	-	5.10	-	30	Pass

# TEST RESULTS DATA Average Power Table

	FCC U-NII-2C straddle channel single antenna													
Mod.	Data Rate	<b>N</b> τx	CH.	Freq. (MHz)	RU Config	Average Conducted Power (dBm)		FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	
						Ant 1	-	SUM	Ant 1	-	Ant 1	-	(==:::)	
HE80	MCS0	1	138	5690	Full	16.20	-	-	23.98	-	4.00	-	30	Pass



# **Appendix B. Radiated Spurious Emission Test Data**

Toot Engineer	Bill Chang, Gary Guo, Steven Wu	Relative Humidity :	54.2 ~ 56.1 %
Test Engineer :	Bill Chang, Gary Guo, Steven Wu	Temperature :	18.2 ~ 20.2 °C

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# **Note symbol**

-L	Low channel location
-R	High channel location

# **B1. Radiated Spurious Emission Test Modes**

Mode	Band	Band (GHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	U-NII-1	5.15-5.25	1	802.11ax HE20	36	5180	MCS0	-	-
Mode 2	U-NII-2A	5.25-5.35	1	802.11ax HE80	58	5290	MCS0	-	-
Mode 3	U-NII-2C	5.47-5.725	1	802.11ax HE80	138	5690	MCS0	-	-
Mode 5	U-NII-2C	5.47-5.725	1	802.11ax HE80	138	5690	MCS0	-	LF

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**B2.** Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	RU	Remark
1	802.11ax HE20	36	5149.58	48.49	54.00	-5.51	V	Avg.	Pass	-	Band Edge
	802.11ax HE20	36	15540.00	38.64	54.00	-15.36	V	Avg.	Pass	-	Harmonic
2	802.11ax HE80	58	5350.01	51.69	54.00	-2.31	V	Avg.	Pass	-	Band Edge
	802.11ax HE80	58	15870.00	38.28	54.00	-15.72	Н	Avg.	Pass	-	Harmonic
3	802.11ax HE80	138	5853.70	66.11	68.20	-2.09	V	Peak	Pass	-	Band Edge
	802.11ax HE80	138	11380.00	41.82	54.00	-12.18	Н	Avg.	Pass	-	Harmonic
5	802.11ax HE80	138	839.95	39.94	46.00	-6.06	V	Peak	Pass	-	LF

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**Band Edge** Mode U-NII-1\_5.15-5.25\_802.11ax HE20\_CH36\_5180MHz **ANT** 1 Pol. Horizontal **Fundamental** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 52.5 52.5 35.0 35.0 Peak 17.5 17.5 5072. Frequency (MHz) 5000 1000 5036. 3400. 4 Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: PEAK BE 74 3m 9120D-1522 240328 HORIZONTAL Condition: PEAK(UNII) 3m 9120D-1522 240328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor Remark Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 5149.58 60.43 74.00 -13.57 45.47 33.00 11.35 29.39 0.00 200 218 PEAK 1 5180.00 107.97 ----- 92.99 33.00 11.37 29.39 0.00 200 218 PEAK 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 AVG\_5 52.5 52.5 35.0 35.0 Avg 17.5 17.5 5000 1000 5072. 5108. Frequency (MHz) 3400. 4600. Frequency (MHz) 7000 Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_BE\_54 3m 9120D-1522\_240328 HORIZONTAL Condition: AVG\_54 3m 9120D-1522\_240328 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos
Freq Level Line Margin Level Factor Loss Factor Factor Limit Read Ant Cable Preamp Aux APos TPos Remark Freq Level Line Margin Level Factor Loss Factor Factor Remark | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | 1 | 5149.58 | 46.56 | 54.00 | -7.44 | 31.60 | 33.00 | 11.35 | 29.39 | 0.00 | 200 | 218 | AVERAGE 

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**Band Edge** Mode U-NII-1\_5.15-5.25\_802.11ax HE20\_CH36\_5180MHz **ANT** 1 Pol. Vertical **Fundamental** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 52.5 52.5 35.0 35.0 Peak 17.5 17.5 5072. Frequency (MHz) 5000 1000 3400. 4 Frequency (MHz) 5036. Site : 03CH16-HY Site : 03CH16-HY Condition: PEAK BE 74 3m 9120D-1522 240328 VERTICAL Condition: PEAK(UNII) 3m 9120D-1522 240328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor Remark Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 5148.86 62.50 74.00 -11.50 47.54 33.00 11.35 29.39 0.00 285 202 PEAK 1 5180.00 109.62 ----- 94.64 33.00 11.37 29.39 0.00 285 202 PEAK 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 AVG\_54 52.5 52.5 35.0 35.0 Avg 17.5 17.5 5000 1000 5072. 5108. Frequency (MHz) 3400. 4600. Frequency (MHz) 7000 Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_BE\_54 3m 9120D-1522\_240328 VERTICAL Condition: AVG\_54 3m 9120D-1522\_240328 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark Freq Level Line Margin Level Factor Loss Factor Factor Remark 

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Mode Harmonic U-NII-1\_5.15-5.25\_802.11ax HE20\_CH36\_5180MHz **ANT** 1 Pol. Horizontal Vertical 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 PEAK(UNII PEAK(UN 70.0 70.0 AVG\_ 52.5 52.5 35.0 35.0 **Peak** 17.5 17.5 Avg 7000 7000 9200. 11400. 1 Frequency (MHz) 15800. 18000 9200. 15800. 18000 Frequency (MHz) : 03CH16-HY Site : 03CH16-HY Condition: PEAK(UNII) 3m 9120D-1522\_240328 HORIZONTAL Condition: PEAK(UNII) 3m 9120D-1522\_240328 VERTICAL Freq Level Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark Remark | MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg | 1 19360.00 48.50 68.20 -19.70 59.87 38.60 16.11 66.53 0.45 -- -- PEAK 2 15540.00 49.20 74.00 -24.80 57.38 37.80 19.78 66.34 0.58 398 226 PEAK | MHz dBuV/m dBuV/m deg -- PEAK dB dBuV dB/m dB 1 10360.00 48.37 68.20 -19.83 59.74 38.60 16.11 66.53 0.45 -2 15540.00 48.80 74.00 -25.20 56.98 37.80 19.78 66.34 0.58 203 13 PEAK 3 15540.00 38.47 54.00 -15.53 46.65 37.80 19.78 66.34 0.58 3 15540.00 38.64 54.00 -15.36 46.82 37.80 19.78 66.34 0.58

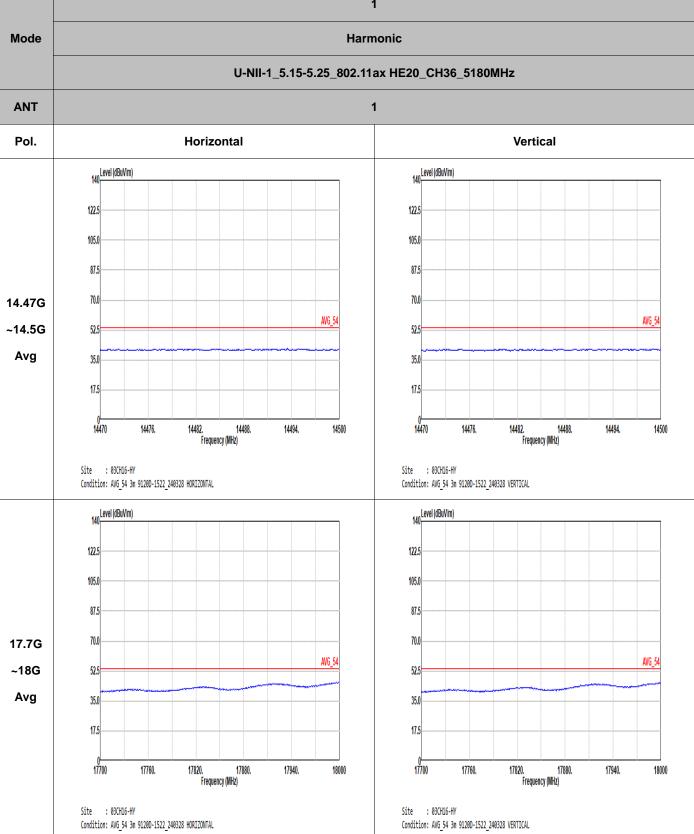
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TON LAB. FCC RADIO TEST REPORT

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2 Band Edge - L Mode U-NII-2A\_5.25-5.35\_802.11ax HE80\_CH58\_5290MHz **ANT** 1 Pol. Horizontal **Fundamental** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 52.5 52.5 35.0 35.0 Peak 17.5 17.5 5116. Frequency (MHz) 5000 1000 5058. 5232. 5290 3400. 4 Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: PEAK BE 74 3m 9120D-1522 240328 HORIZONTAL Condition: PEAK(UNII) 3m 9120D-1522 240328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor Remark NHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 5139.49 55.02 74.00 -18.98 40.09 32.98 11.34 29.39 0.00 192 219 PEAK 1 5290.00 97.03 ----- 82.12 32.84 11.45 29.38 0.00 192 219 PEAK 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 70.0 70.0 AVG\_54 52.5 52.5 35.0 35.0 Avg 17.5 17.5 5000 1000 5116. 5174. Frequency (MHz) 3400. 4600. Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_BE\_54 3m 9120D-1522\_240328 HORIZONTAL Condition: AVG\_54 3m 9120D-1522\_240328 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos
Freq Level Line Margin Level Factor Loss Factor Factor Limit Read Ant Cable Preamp Aux APos TPos Remark Freq Level Line Margin Level Factor Loss Factor Factor Remark | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | 1 | 5149.06 | 42.66 | 54.00 -11.34 | 27.70 | 33.00 | 11.35 | 29.39 | 0.00 | 192 | 219 | AVERAGE 

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2 Mode Band Edge - R U-NII-2A\_5.25-5.35\_802.11ax HE80\_CH58\_5290MHz **ANT** 1 Pol. Horizontal **Fundamental** 140 Level (dBuV/m) 122.5 105.0 87.5 PEAK\_BE\_74 70.0 52.5 35.0 Peak **Blank** 17.5 5290 5358. 5392. Frequency (MHz) 5324. 5426. 5460 Site : 03CH16-HY
Condition: PEAK\_BE\_74 3m 91200-1522\_240328 HORIZONTAL
: RBW:1000.000kHz VBN:3000.000kHz SNT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 5350.18 63.42 74.00 -10.58 48.48 32.80 11.51 29.37 0.00 192 219 PEAK 140 Level (dBuV/m) 122.5 105.0 87.5 70.0 AVG\_BE\_54 52.5 35.0 Avg **Blank** 17.5 5358. 5392. Frequency (MHz) 5290 Site : 03CH16-HY Condition: AVG\_BE\_54 3m 9120D-1522\_240328 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark | MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB dB cm deg | 15356.01 50.78 54.00 -3.22 35.84 32.80 11.51 29.37 0.00 192 219 AVERAGE

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2 Band Edge - L Mode U-NII-2A\_5.25-5.35\_802.11ax HE80\_CH58\_5290MHz **ANT** 1 Pol. Vertical **Fundamental** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 NAWANA 87.5 87.5 70.0 52.5 52.5 35.0 35.0 Peak 17.5 17.5 5000 1000 5058. 5116. 5 Frequency (MHz) 5232. 5290 3400. 4 Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: PEAK BE 74 3m 9120D-1522 240328 VERTICAL Condition: PEAK(UNII) 3m 9120D-1522 240328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Freq Level Line Margin Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 5107.30 54.17 74.00 -19.83 39.36 32.91 11.30 29.40 0.00 207 217 PEAK 1 5290.00 99.50 ----- 84.56 32.87 11.45 29.38 0.00 207 217 PEAK 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 70.0 70.0 AVG\_54 52.5 52.5 35.0 35.0 Avg 17.5 17.5 5000 1000 5116. 5174. Frequency (MHz) 3400. 4600. Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_BE\_54 3m 9120D-1522\_240328 VERTICAL Condition: AVG\_54 3m 9120D-1522\_240328 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Limit Read Ant Cable Preamp Aux APos TPos Remark Freq Level Line Margin Level Factor Loss Factor Factor Remark Freq Level Line Margin Level Factor Loss Factor Factor | MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB dB cm deg | 1 5149.64 42.55 54.00 -11.44 27.60 33.00 11.35 29.39 0.00 207 217 AVERAGE | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | 1 | 5290.00 | 90.64 ------ 75.71 | 32.86 | 11.45 | 29.38 | 0.00 | 207 | 217 | AVERAGE

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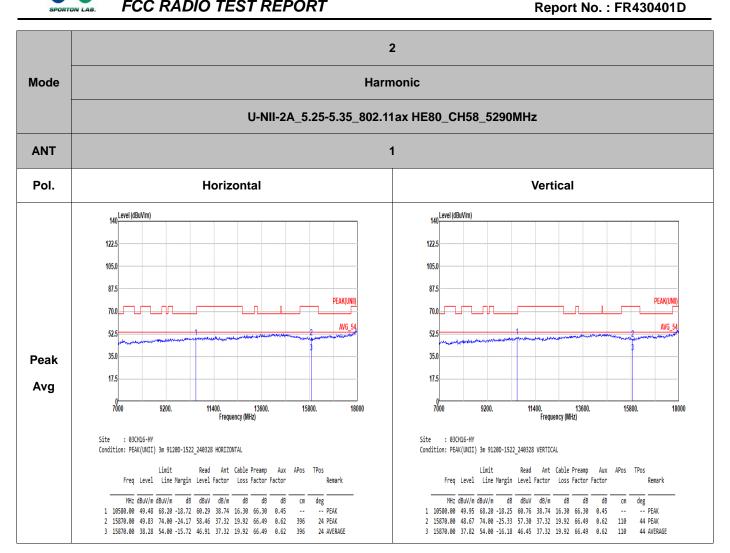


2 Mode Band Edge - R U-NII-2A\_5.25-5.35\_802.11ax HE80\_CH58\_5290MHz **ANT** 1 Pol. Vertical **Fundamental** 140 Level (dBuV/m) 122.5 105.0 87.5 PEAK\_BE\_74 70.0 52.5 35.0 Peak **Blank** 17.5 5290 5358. 5392. Frequency (MHz) 5324. 5426. 5460 Site : 03CH16-HY Condition: PEAK\_BE\_74 3m 9120D-1522\_240328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 1 5359.36 64.12 74.00 -9.88 49.18 32.80 11.51 29.37 0.00 207 217 PEAK 140 Level (dBuV/m) 122.5 105.0 87.5 70.0 AVG\_BE\_54 52.5 35.0 Avg **Blank** 17.5 5358. 5392. Frequency (MHz) 5290 Site : 03CH16-HY Condition: AVG\_BE\_54 3m 9120D-1522\_240328 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | 1 | 5356.01 | 51.69 | 54.60 | -2.31 | 36.75 | 32.80 | 11.51 | 29.37 | 0.00 | 207 | 217 | AVERAGE

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Avg

35.0

17.5

17700

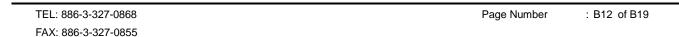
Site : 03CH16-HY

17760.

Condition: AVG\_54 3m 9120D-1522\_240328 HORIZONTAL

# FCC RADIO TEST REPORT

Report No.: FR430401D 2 Mode Harmonic U-NII-2A\_5.25-5.35\_802.11ax HE80\_CH58\_5290MHz ANT 1 Pol. Horizontal **Vertical** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 14.47G AVG 54 AVG 54 ~14.5G 52.5 52.5 Avg 35.0 35.0 17.5 17.5 14482. Frequency (MHz) 14470 14476. 14488. 14494. 14500 14470 14476. 14482. 14488. 14494. 14500 Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_54 3m 9120D-1522\_240328 HORIZONTAL Condition: AVG\_54 3m 9120D-1522\_240328 VERTICAL 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 17.7G AVG\_54 AVG\_54 ~18G 52.5



18000

17940.

17880.

Frequency (MHz)

17.5

17700

Site : 03CH16-HY

17760.

Condition: AVG\_54 3m 9120D-1522\_240328 VERTICAL

17940.

Frequency (MHz)

18000



3 Band Edge - L Mode U-NII-2C\_5.47-5.725\_802.11ax HE80\_CH138\_5690MHz **ANT** 1 Pol. Horizontal **Fundamental** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 52.5 52.5 35.0 35.0 Peak 17.5 17.5 5350 5428. 5662. 5740 1000 Frequency (MHz) 3400. 4 Frequency (MHz) : 03CH16-HY Condition: STRADDLES U-NII-1&2A 3m 9120D-1522\_240328 HORIZONTAL Site : 03CH16-HY Condition: PEAK(UNII) 3m 9120D-1522 240328 HORIZONTAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Line Margin Level Factor Loss Factor Factor Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | dB | cm | deg | 1 5459.98 | 60.76 | 74.00 -13.24 | 45.66 | 32.80 | 11.65 | 29.35 | 0.00 | 191 | 228 | PEAK MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 2 5464.66 62.95 68.20 -5.25 47.84 32.80 11.66 29.35 0.00 1 5690.00 104.37 ----- 88.71 33.14 11.90 29.38 0.00 191 228 PEAK 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 AVG 5 52.5 52.5 35.0 35.0 Avg 17.5 17.5 5506. Frequency (MHz) 5350 1000 3400. 4600. Frequency (MHz) 7000 Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_54 3m 9120D-1522\_240328 HORIZONTAL Condition: U-NII-1&2A AVERAGE 3m 9120D-1522 240328 HORIZONTAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos
Freq Level Line Margin Level Factor Loss Factor Factor Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | 1 | 5690.00 | 95.98 | ...... 80.42 | 33.05 | 11.89 | 29.38 | 0.00 | 191 | 228 AVERAGE MHz dBuV/m dBuV/m dB dB v dB/m dB dB dB cm deg 1 5459.59 45.68 54.00 -8.32 30.58 32.80 11.65 29.35 0.00 191 228 AVERAGE

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	3							
Mode	Band Edge - R							
	U-NII-2C_5.47-5.725_802.11ax HE80_CH138_5690MHz							
ANT	1							
Pol.	Horizontal Fundamental							
Peak	105.0  87.5  70.0  17.5  35.0  17.5  STRADDLES U-NII-182A  52.5  35.0  17.5  Site : 03CH16-HY Condition: STRADDLES U-NII-182A and 91200-1522 240328 HORIZONTAL : RBH: 1000.000kHz vBH: 3000.000kHz SNT: Aurto  Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark  NHz dBuV/m dBuV/m dB dB dB vW dB/m dB dB dB dB cm deg 1 5851.30 65.90 68.20 -2.30 49.27 33.91 12.14 29.42 0.00 191 228 PEAK	Blank						

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3 Band Edge - L Mode U-NII-2C\_5.47-5.725\_802.11ax HE80\_CH138\_5690MHz **ANT** 1 Pol. Vertical **Fundamental** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 Af haddyning mention to place make 70.0 52.5 52.5 35.0 35.0 Peak 17.5 17.5 5350 5428. 5662. 5740 1000 Frequency (MHz) 3400. 4 Frequency (MHz) : 03CH16-HY Condition: STRADDLES U-NII-1&2A 3m 9120D-1522\_240328 VERTICAL Site : 03CH16-HY Condition: PEAK(UNII) 3m 9120D-1522 240328 VERTICAL : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Freq Level Line Margin Level Factor Loss Factor Factor Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor Remark | MHz | dBuV/m | dB uV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | |
| 1 5452,96 | 60.86 | 74.90 | -13.14 | 45.78 | 32.80 | 11.64 | 29.36 | 0.00 | 300 | 207 | PEAK MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg 2 5468.17 63.15 68.20 -5.05 48.03 32.80 11.67 29.35 0.00 1 5690.00 106.04 ----- 90.28 33.24 11.91 29.39 0.00 300 207 PEAK 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 AVG 54 52.5 52.5 35.0 35.0 Avg 17.5 17.5 5506. Frequency (MHz) 5350 1000 3400. 4600. Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_54 3m 9120D-1522\_240328 VERTICAL Condition: U-NII-1&2A AVERAGE 3m 9120D-1522 240328 VERTICAL : RBW:1000.000kHz VBW:0.010kHz SWT:Auto : RBW:1000.000kHz VBW:0.010kHz SWT:Auto Limit Read Ant Cable Preamp Aux APos TPos Read Ant Cable Preamp Aux APos TPos Remark Freq Level Line Margin Level Factor Loss Factor Factor Remark Freq Level Line Margin Level Factor Loss Factor Factor | MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg | 1 5459.98 45.70 54.00 -8.30 30.60 32.80 11.65 29.35 0.00 300 207 AVERAGE

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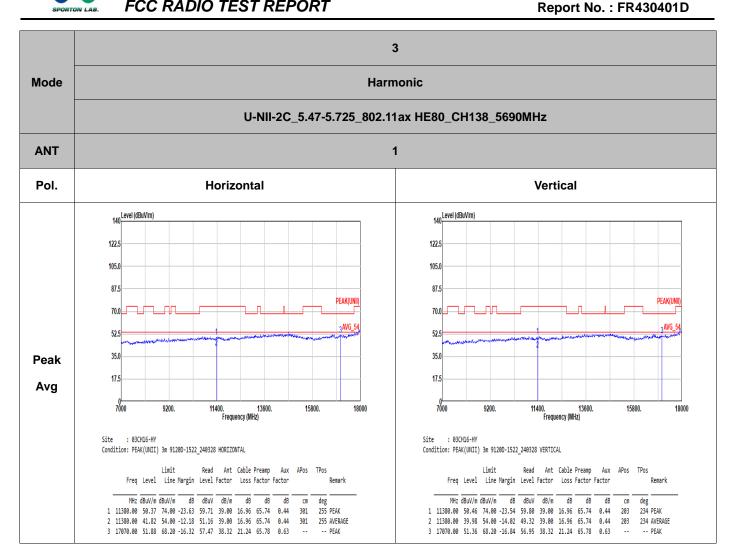


	3 Band Edge - R									
Mode										
	U-NII-2C_5.47-5.725_802.11ax HE80_CH138_5690MHz									
ANT	1									
Pol.	Vertical Fundamental									
Peak	105.0  87.5  70.0  17.5  589.0  5710.  5770.  5890.  5890.  5950  5710.  5770.  5890.  5890.  5950  Frequency (MHz)  Site : 03CH16-HY Condition: STRADDLES U-NIII-182A 3m 91280-1522 240328 VERTICAL : RBH:1000.000kHz VBH:3000.000kHz SNT:Auto  Limit Read Ant Cable Preamp Aux APos TPos Freq Level Line Margin Level Factor Loss Factor Factor  Remark  1 5853.70 66.11 68.20 -2.09 49.48 33.91 12.14 29.42 0.00 300 267 PEAK	Blank								

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Report No.: FR430401D 3 Mode Harmonic U-NII-2C\_5.47-5.725\_802.11ax HE80\_CH138\_5690MHz ANT 1 Pol. Horizontal **Vertical** 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 14.47G AVG 54 AVG 54 ~14.5G 52.5 52.5 Avg 35.0 35.0 17.5 17.5 14482. Frequency (MHz) 14470 14476. 14488. 14494. 14500 14470 14476. 14482. 14488. 14494. 14500 Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY Condition: AVG\_54 3m 9120D-1522\_240328 HORIZONTAL Condition: AVG\_54 3m 9120D-1522\_240328 VERTICAL 140 Level (dBuV/m) 140 Level (dBuV/m) 122.5 122.5 105.0 105.0 87.5 87.5 70.0 70.0 17.7G AVG\_54 AVG\_54 ~18G 52.5 Avg 35.0 17.5 17.5 17700 17700 17760. 17760. 17940. 18000 17940. 18000 17880. Frequency (MHz) Frequency (MHz) Site : 03CH16-HY Site : 03CH16-HY

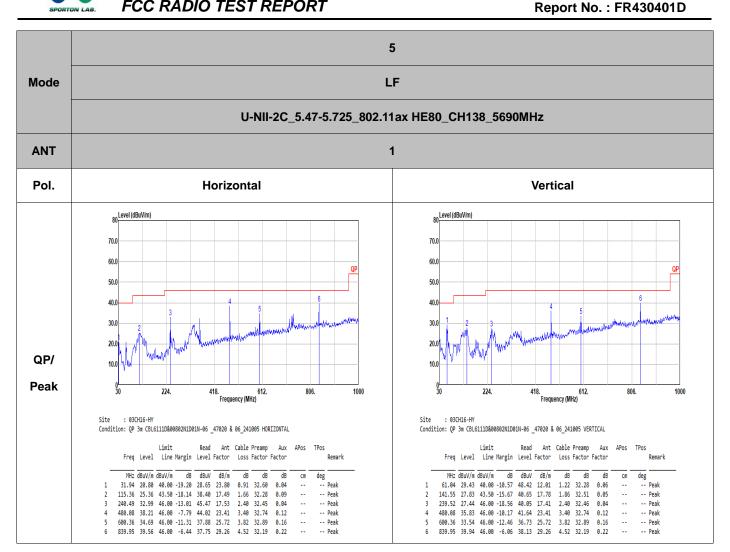
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Condition: AVG\_54 3m 9120D-1522\_240328 VERTICAL

FAX: 886-3-327-0855

Condition: AVG\_54 3m 9120D-1522\_240328 HORIZONTAL



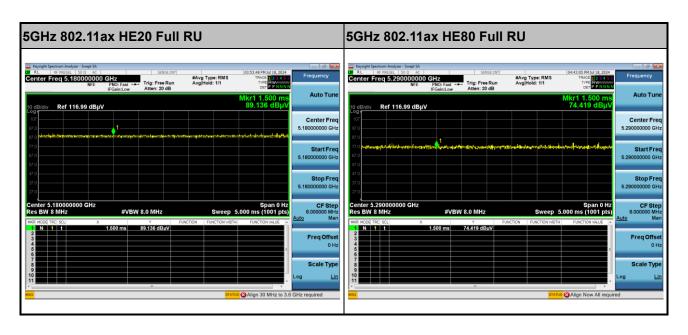


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# Appendix C. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	5GHz 802.11ax HE20 Full RU	100.00	-	-	10Hz
1	5GHz 802.11ax HE80 Full RU	100.00	-	-	10Hz

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