

Prüfbericht-Nr.: <i>Test report no.:</i>	CN24T1DU 001	Auftrags-Nr.: <i>Order no.:</i>	48224045	Seite 1 von 28 Page 1 of 28
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2023-09-19	
Auftraggeber: <i>Client:</i>	Panasonic Corporation of North America Two Riverfront Plaza, Newark, New Jersey, 07102-5490, United States			
Prüfgegenstand: <i>Test item:</i>	Silver Box			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	CQ-RQ1EN04W			
Auftrags-Inhalt: <i>Order content:</i>	FCC Part 15E Test report (WiFi 5GHz)			
Prüfgrundlage: <i>Test specification:</i>	FCC 47CFR Part 15: Subpart E Section 15.407			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-11-09			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003599005-001 A003599005-016			
Prüfzeitraum: <i>Testing period:</i>	2023-11-15 - 2024-02-01			
Ort der Prüfung: <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
Prüflaboratorium: <i>Testing laboratory:</i>	Taipei Testing Laboratories			
Prüfergebnis*: <i>Test result*:</i>	Pass			
überprüft von: <i>compiled by:</i>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i>	2024-02-16		2024-02-16	
Stellung / Position:	Senior Project Manager		Senior Project Manager	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable
5 = mangelhaft N/T = nicht getestet 5 = poor N/T = not tested				
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Prüfbericht-Nr.:
Test report no.:

CN24T1DU 001

Seite 2 von 28
Page 2 of 28

Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

TEST SUMMARY

Report Section	FCC Clause	Test Item	Result
5.1.1	15.407(a) & 15.203	Antenna Requirement	Pass
5.1.2	15.407(a)	Maximum Conducted Output Power	Pass
-	15.407(h)(1)	Transmit Power Control (TPC)	N/A
5.1.3	15.407(a)	26 dB Bandwidth	Pass
5.1.3	2.1049	99% Occupied Bandwidth	Pass
-	15.407(e)	6 dB Bandwidth (U-NII-3 Band only)	N/A
5.1.4	15.407(g)	Frequency Stability	Pass
5.1.5	15.407(a)	Power Spectral Density	Pass
5.1.6	15.407(b) & 15.205 & 15.209	Radiated Spurious Emissions and Band Edges	Pass
-	15.407(h) & KDB 905462 D02	Dynamic Frequency Selection	N/A
-	15.207	Mains Conducted Emission	N/A

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Contents

HISTORY OF THIS TEST REPORT	6
1. GENERAL REMARKS	7
1.1 COMPLEMENTARY MATERIALS.....	7
1.2 DECISION RULE OF CONFORMITY	7
2. TEST SITES	8
2.1 TEST LABORATORY	8
2.2 TEST FACILITY.....	8
2.3 TRACEABILITY	9
2.4 CALIBRATION	9
2.5 MEASUREMENT UNCERTAINTY	9
3. GENERAL PRODUCT INFORMATION.....	10
3.1 PRODUCT FUNCTION AND INTENDED USE	10
3.2 SYSTEM DETAILS AND RATINGS.....	10
3.3 NOISE GENERATING AND NOISE SUPPRESSING PARTS	11
3.4 SUBMITTED DOCUMENTS.....	11
4. TEST SET-UP AND OPERATION MODES	12
4.1 PRINCIPLE OF CONFIGURATION SELECTION	12
4.2 CARRIER FREQUENCY AND CHANNEL	12
4.3 TEST OPERATION AND TEST SOFTWARE.....	13
4.4 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	14
4.5 TEST SETUP DIAGRAM	15
4.6 DUTY CYCLE OF TEST SIGNAL	16
5. TEST RESULTS	17
5.1 TRANSMITTER REQUIREMENT & TEST SUITES	17
5.1.1 Antenna Requirement	17
5.1.2 Maximum Conducted Output Power	18
5.1.3 26 dB Bandwidth and 99% Occupied Bandwidth.....	20
5.1.4 Frequency Stability Measurement.....	21
5.1.5 Power Spectral Density.....	23
5.1.6 Radiated Spurious Emissions	24

Prüfbericht - Nr.:
Test Report No.

CN24T1DU 001

Seite 5 von 28
Page 5 of 28

APPENDIX A - TEST RESULT OF CONDUCTED

APPENDIX B - TEST RESULT OF RADIATED EMISSIONS

APPENDIX SP - PHOTOGRAPHS OF TEST SETUP

APPENDIX EP - PHOTOGRAPHS OF EUT

Prüfbericht - Nr.:
Test Report No.

CN24T1DU 001

Seite 6 von 28
Page 6 of 28

HISTORY OF THIS TEST REPORT

Revision	Description	Date Issued
R01	Original Release	2024-02-16

1. General Remarks

1.1 Complementary Materials

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

Appendix A - Test Result of Conducted

Appendix B - Test Result of Radiated Emissions

Appendix SP - Photographs of Test Setup

Appendix EP - Photographs of EUT

Applied Standard and Test Levels

Radio
FCC 47CFR Part 15: Subpart E Section 15.407
FCC 47CFR Part 2: Subpart J Section 2.1049
ANSI C63.10:2013
KDB 789033 D02 General UNII Test Procedures New Rules v02r01

1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

2. Test Sites

2.1 Test Laboratory

Taipei Testing Laboratories

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

2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,
New Taipei City 244
Taiwan (R.O.C.)
FCC Registration No.: 180491
ISED Registration No.: 25563

2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95% level of confidence.

Emission Measurement Uncertainty

Parameter	Uncertainty
Radiated Emission (9 kHz ~ 30 MHz)	± 1.15 dB
Radiated Emission (30 MHz ~ 200 MHz)	± 1.32 dB
Radiated Emission (200 MHz ~ 1 GHz)	± 1.31 dB
Radiated Emission (1 GHz ~ 18 GHz)	± 1.53 dB
Radiated Emission (18 GHz ~ 40 GHz)	± 2.50 dB
Mains Conducted Emission	± 1.65 dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT is a Silver Box. It contains a WLAN compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 System Details and Ratings

Basic Information of EUT

Item	EUT information
Kind of Equipment/Test Item	Silver Box
Type Identification	CQ-RQ1EN04W
FCC ID	ACJ932RQ1EN04W

Technical Specification of EUT

Item	EUT information
Operating Frequency	Band 1: 5180 MHz ~ 5240 MHz
Channel Number	Band 1: 4 for 802.11a, 802.11n HT20, 802.11ac VHT20 2 for 802.11n HT40, 802.11ac VHT40 1 for 802.11ac VHT80
Data Rate	802.11a: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7 802.11ac: up to MCS9
Operation Voltage	12 Vdc
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Maximum Output Power (mW)	13.58
Antenna Information	Refer to 5.1.1
Accessory Device	Refer to 4.4

3.3 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.4 Submitted Documents

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The test modes were adapted accordingly in reference to the instructions for use.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output expected by the customer and is going to be fixed on the firmware of the final end product.

Table for Parameters of Test Software Setting

802.11a		802.11n HT20 802.11ac VHT20		802.11n HT40 802.11ac VHT40		802.11ac VHT80	
Channel	Power Setting	Channel	Power Setting	Channel	Power Setting	Channel	Power Setting
36	20	36	20	38	18	42	17
40	20	40	20	46	20		
48	20	48	20				

4.2 Carrier Frequency and Channel

Band	Channel	Frequency (MHz)	802.11a 802.11n HT20 802.11ac VHT20	802.11n HT40 802.11ac VHT40	802.11ac VHT80
U-NII-1 (Band 1)	36	5180	V		
	38	5190		V	
	40	5200	V		
	42	5210			V
	44	5220	V		
	46	5230		V	
	48	5240	V		

4.3 Test Operation and Test Software

Setup for testing: Test samples are provided with a USB interface which makes it possible to control them through a test software installed on a notebook computer.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed as below.

Test Software	PuTTY
---------------	-------

The samples were used as follows:

A003599005-001

A003599005-016

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

EUT Configure Mode	Applicable To				Description
	Antenna Port Conducted Measurement	Radiated Spurious Emissions above 1 GHz	Radiated Spurious Emissions below 1 GHz	Mains Conducted Emission	
-	√	√	√	-	-

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when position on **Z-plane**.
2. "-" means no effect.

Antenna Port Conducted Measurement

- ☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency (MHz)	Available Channel	Tested Channel	Date Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	6.0
-	802.11n HT20 (Power only)	5180-5240	36 to 48	36, 40, 48	MCS0
-	802.11n HT40 (Power only)	5180-5240	38 to 46	38, 46	MCS0
-	802.11ac VHT20	5180-5240	36 to 48	36, 40, 48	NSS1 MCS0
-	802.11ac VHT40	5180-5240	38 to 46	38, 46	NSS1 MCS0
-	802.11ac VHT80	5180-5240	42	42	NSS1 MCS0

Radiated Spurious Emissions (Above 1 GHz)

- ☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency (MHz)	Available Channel	Tested Channel	Date Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	6.0
-	802.11n HT20	5180-5240	36 to 48	36, 40, 48	MCS0
-	802.11n HT40	5180-5240	38 to 46	38, 46	MCS0
-	802.11ac VHT20	5180-5240	36 to 48	36, 40, 48	NSS1 MCS0
-	802.11ac VHT40	5180-5240	38 to 46	38, 46	NSS1 MCS0
-	802.11ac VHT80	5180-5240	42	42	NSS1 MCS0

Radiated Spurious Emissions (Below 1 GHz)

- ☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency (MHz)	Available Channel	Tested Channel	Date Rate (Mbps)
-	802.11ac VHT20	5180-5240	36 to 48	48	NSS1 MCS0

Test Condition

Test Item	Ambient Temperature	Relative Humidity	Tested by
Conducted Measurement	22.1-22.8 °C	64-67 %	Zeke Wang / Andy Chen
Radiated Spurious Emissions above 1 GHz	23.7-24.6 °C	52-55 %	Roger Liao
Radiated Spurious Emissions below 1 GHz	23.7-24.6 °C	52-55 %	Roger Liao

4.4 Special Accessories and Auxiliary Equipment

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

Accessory of EUT

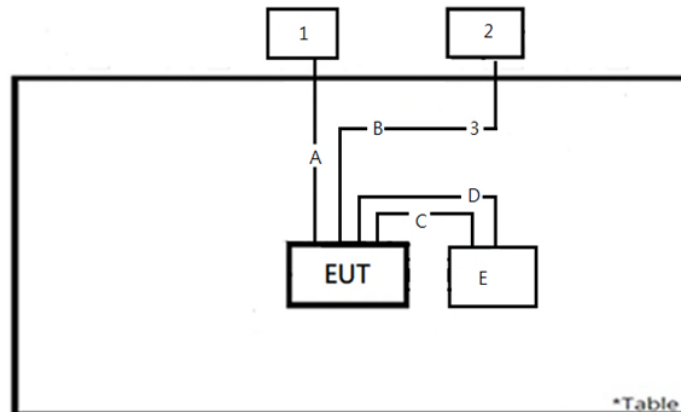
None

Support Unit

Support Unit								
No	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)	Remark
A	DC Cable	Panasonic	Panasonic-01	N/A	N/A	NO	40	--
B	USB Cable	Panasonic	Panasonic-02	N/A	N/A	NO	110	--
C	Signal Cable	Panasonic	Panasonic-03	N/A	N/A	YES	85	--
D	Signal Cable	Panasonic	Panasonic-04	N/A	N/A	YES	85	--
E	Monitor	Panasonic	Panasonic-05	N/A	-	-	-	--
1	DC Power Supply	Gwinstek	GPS-3030	N/A	-	-	-	--
2	Notebook	HP	15-da1046TX	CND9111RJB	-	-	-	--
3	USB to USB	TUV	TUV-01	N/A	NO	NO	300	--

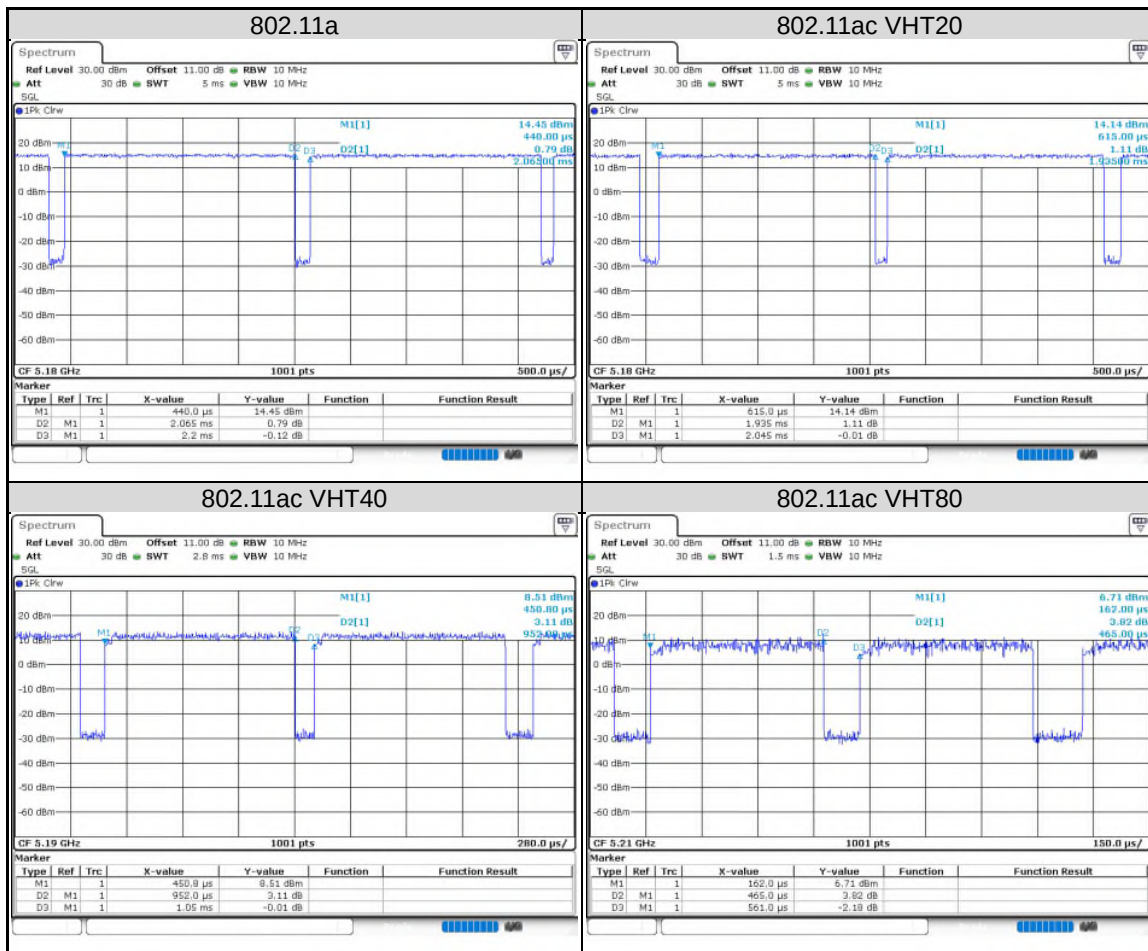
4.5 Test Setup Diagram

<Radiated Spurious Emissions mode>



4.6 Duty Cycle of Test Signal

Mode	On + Off Time (ms)	On Time (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11a	2.20	2.07	93.86	0.28
802.11ac VHT20	2.05	1.94	94.62	0.24
802.11ac VHT40	1.05	0.95	90.67	0.43
802.11ac VHT80	0.56	0.47	82.89	0.82



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

Requirement Use of approved antennas only

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 2.86 dBi. The antenna is multilayer ceramic antenna with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision. Refer to EUT photo for details.

Refer to EUT photo for details.

5.1.2 Maximum Conducted Output Power

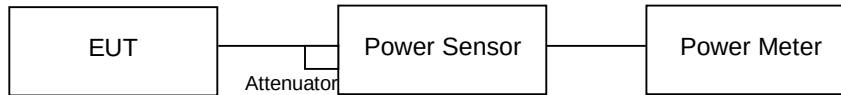
Limit

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125 mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	Fixed point-to-point Access Point	1 Watt (30 dBm)
	Indoor Access Point	1 Watt (30 dBm)
	Mobile and Portable client device	250 mW (24 dBm)
U-NII-2A	---	250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-2C	---	250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-3	---	1 Watt (30 dBm)

Note: B* is the 26 dB emission bandwidth in megahertz

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Power Meter	Anritsu	ML2495A	1901008	2023/03/17	2024/03/16	2023/11/15	2024/1/10
Power Sensor	Anritsu	MA2411B	1725269	2023/03/17	2024/03/16	2023/11/15	2024/1/10

Test Procedures

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to AVERAGE. Duty factor is not added to measured value.

Test Result
<802.11a>

Channel	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
36	5180	10.42	11.02	24.00
40	5200	10.35	10.84	24.00
48	5240	10.77	11.94	24.00

<802.11n HT20>

Channel	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
36	5180	10.79	11.99	24.00
40	5200	10.92	12.36	24.00
48	5240	11.28	13.43	24.00

<802.11n HT40>

Channel	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
38	5190	7.14	5.18	24.00
46	5230	10.63	11.56	24.00

<802.11ac VHT20>

Channel	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
36	5180	10.87	12.22	24.00
40	5200	11.01	12.62	24.00
48	5240	11.33	13.58	24.00

<802.11ac VHT40>

Channel	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
38	5190	7.29	5.36	24.00
46	5230	10.75	11.89	24.00

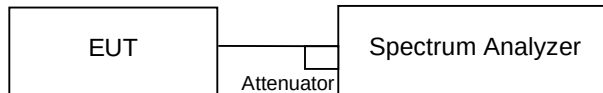
<802.11ac VHT80>

Channel	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
42	5210	6.46	4.43	24.00

5.1.3 26 dB Bandwidth and 99% Occupied Bandwidth

Kind of Test Site: Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV	101512	2023/02/23	2024/02/22	2023/11/15	2024/1/10
Thermal Chamber	Giant Force	GHT-150-40-CP-SD	MAA1902-011	2023/04/10	2024/04/09	2023/11/15	2024/1/10

Test Procedure

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
- For 99% Bandwidth Measurement, the transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to PEAK. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean power of a given emission.

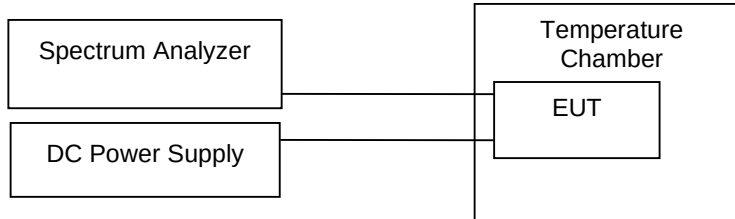
Test Results

Please refer to Appendix A

5.1.4 Frequency Stability Measurement

Kind of Test Site: Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV	101512	2023/02/23	2024/02/22	2023/11/15	2024/1/10
Thermal Chamber	Giant Force	GHT-150-40-CP-SD	MAA1902-011	2023/04/10	2024/04/09	2023/11/15	2024/1/10

Test Procedure

- To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
- The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10 dB lower than the measured peak value.
- The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

Test Results

Frequency (MHz)	5180			
Voltage (V)	Measurement Frequency (MHz)			Max. Deviation (ppm)
14.4	5179.99132			1.676
12	5179.99103			1.732
10.8	5179.99161			1.620
Temperature (°C)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
50	5180.00463	5180.00492	5180.00405	5180.00463
40	5180.004464	5180.000169	5180.003736	5180.001466
30	5179.997145	5179.99986	5179.996383	5179.999247
20	5179.99103	5179.99045	5179.99103	5179.9919
10	5180.00772	5180.00821	5180.018523	5180.00492
0	5180.008332	5180.019653	5180.020489	5180.011511
-10	5180.02142	5180.02171	5180.02171	5180.02171
-20	5180.02113	5180.02142	5180.0191	5179.99334
Max. Deviation (ppm)	4.135	4.191	4.191	4.191

5.1.5 Power Spectral Density

Limit

For the 5.15~5.25GHz Bands:

For mobile and portable client devices in the 5.15~5.25GHz band, the Maximum Power spectral density shall not exceed 11dBm/MHz. For an indoor access point operating in the band 5.15~5.25GHz, the maximum power spectral density shall not exceed 17dBm/MHz.

For the 5.25~5.35GHz and 5.47~5.725GHz Bands:

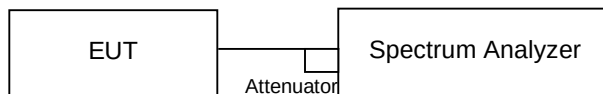
The maximum power spectral density shall not exceed 11dBm/MHz.

For the 5.745~5.85GHz Bands:

The maximum power spectral density shall not exceed 30dBm/500kHz.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV	101512	2023/02/23	2024/02/22	2023/11/15	2024/1/10
Thermal Chamber	Giant Force	GHT-150-40-CP-SD	MAA1902-011	2023/04/10	2024/04/09	2023/11/15	2024/1/10

Test Procedure

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add 10 log (1/duty cycle)

Test Results

Please refer to Appendix A

5.1.6 Radiated Spurious Emissions

Limit

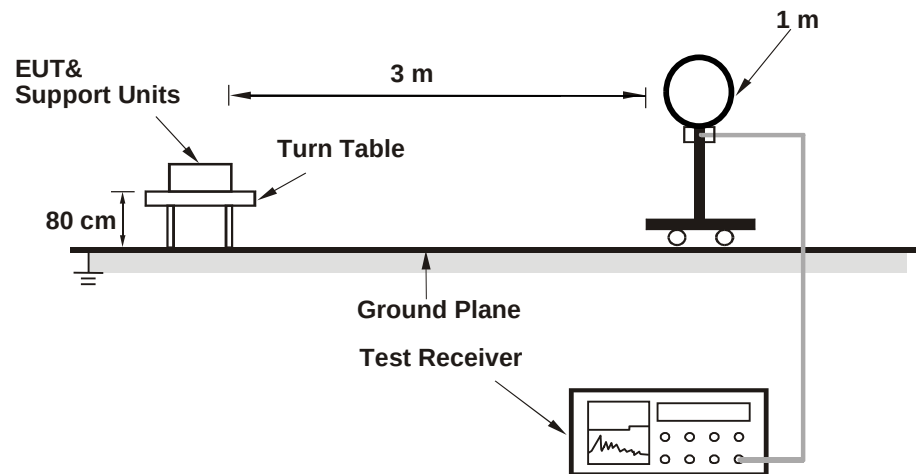
Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).

Emissions radiated outside the restricted and authorized frequency bands must either comply with the radiated emission limits specified for the restricted bands or in §15.407(b).

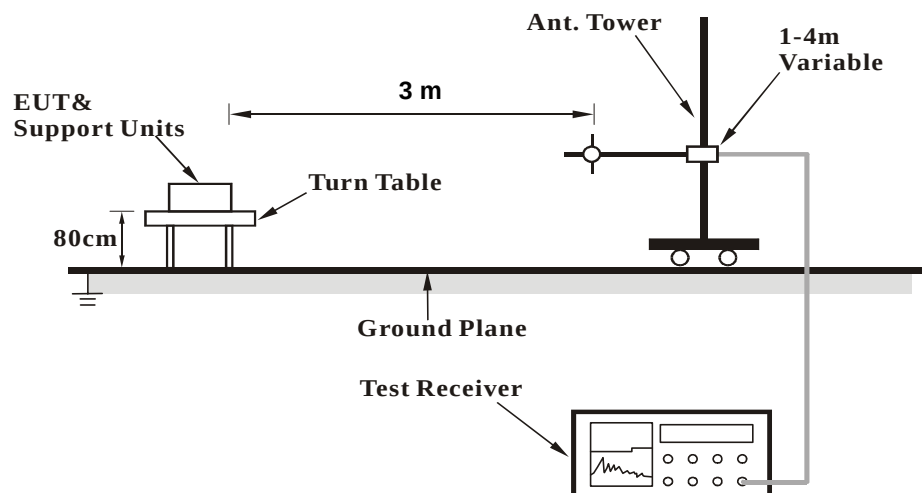
Kind of Test Site 3m Semi-Anechoic Chamber

Test Setup

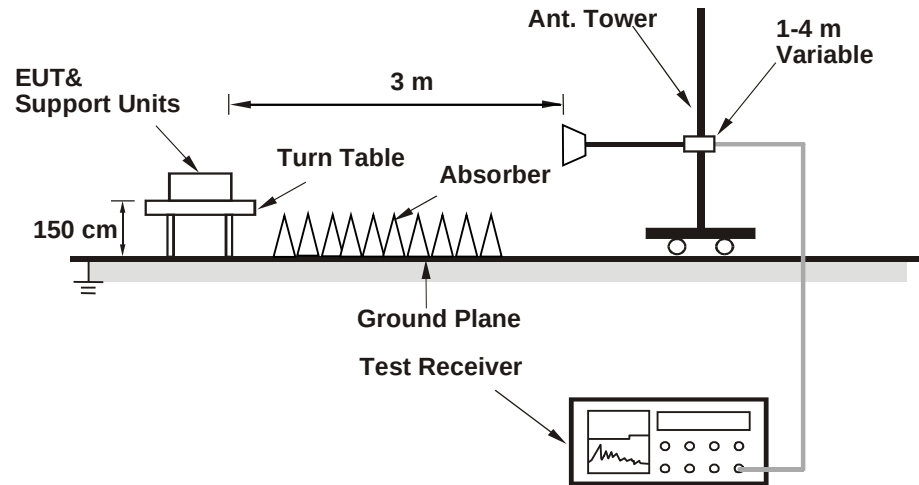
<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



<Radiated Emissions above 1 GHz>



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

Test Instruments

Test Period: 2024-01-08 ~ 2024-02-01

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Above 1 GHz					
Signal Analyzer	R&S	FSV40	101509	2023/4/26	2024/4/24
Horn Antenna	ETS-Lindgren	3117	00218929	2023/11/17	2024/11/15
Horn Antenna	SCHWARZBECK	BBHA 9170	00890	2023/5/4	2024/5/2
HF-AMP + AC source	EMCI	EMC051845SE	980635	2023/2/16	2024/2/15
HF-AMP + AC source	EMCI	EMC051845SE	980657	2023/2/16	2024/2/15
Test Software	Audix E3	15914a_20191106_tuv	PK-001087	N/A	N/A
30 MHz ~ 1 GHz					
Receiver	R&S	ESR7	102109	2023/2/24	2024/2/23
Bilog Antenna	SCHWARZBECK	VULB-9168	00951	2023/3/31	2024/3/29
LF-AMP	Agilent	8447D	2944A107722	2023/3/22	2024/3/20
Test Software	Audix E3	15914a_20191106_tuv	PK-001087	N/A	N/A
Below 30 MHz					
Receiver	R&S	ESR7	102109	2023/2/24	2024/2/23
Loop Antenna	SCHWARZBECK	FMZB 1519B	00215	2024/1/4	2025/1/2
Test Software	Audix E3	15914a_20191106_tuv	PK-001087	N/A	N/A

Test Procedures**For Radiated Emissions below 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated Emissions above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The Radiated Emissions testing was performed in the X(E1), Y(H) and Z(E2) axis orientation. The worst-case Axis orientation is recorded in this test report.
6. The emission levels of other frequencies (including the 10th harmonic of the highest fundamental frequency) are very lower than the limit and are not shown in the test report.

Prüfbericht - Nr.:
Test Report No.

CN24T1DU 001

Seite 28 von 28
Page 28 of 28

Test Results

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)

Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

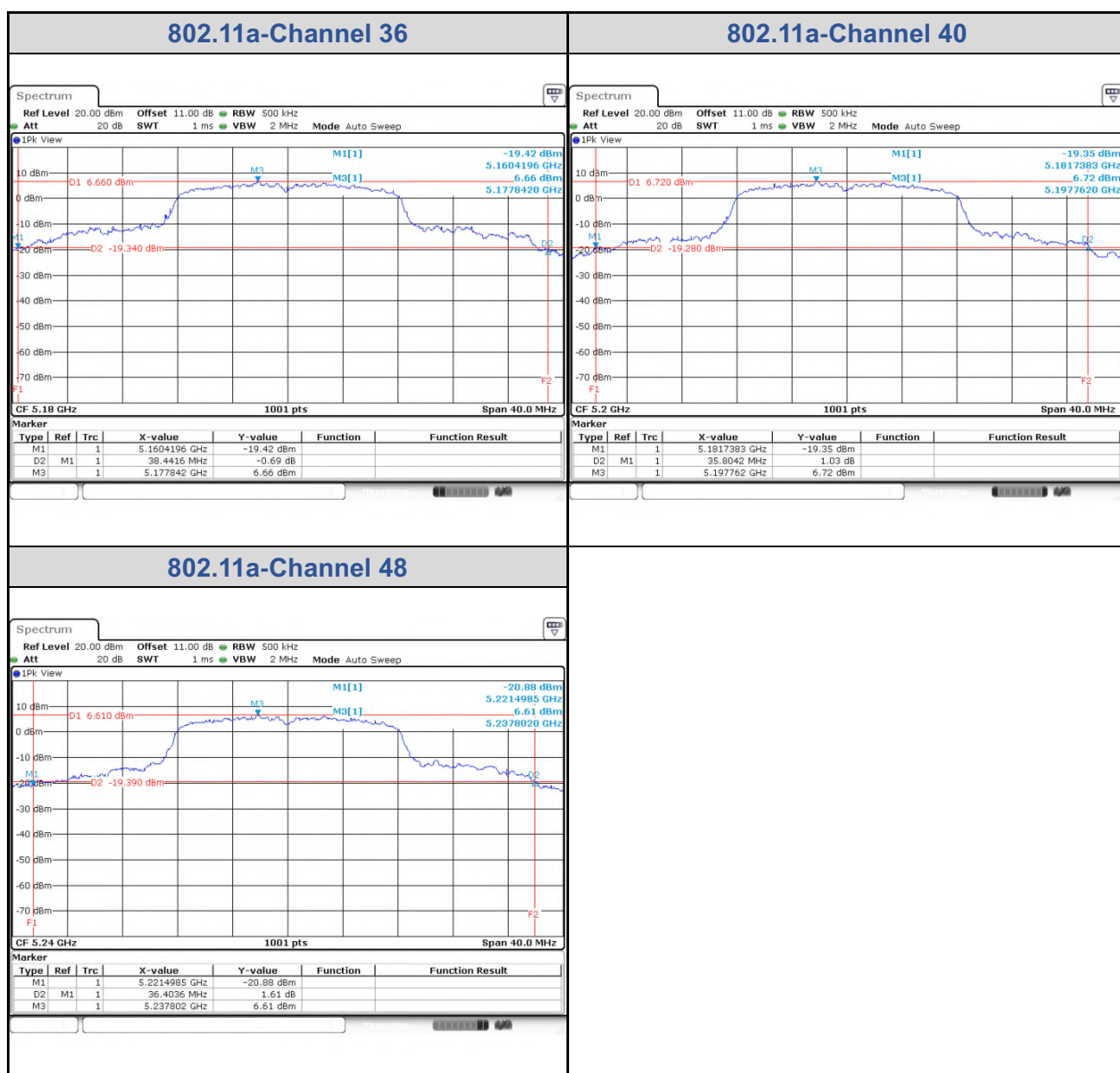
Please refer to Appendix B.

Appendix A: Test Results of Conducted Test

Test Result of 26 dB Bandwidth

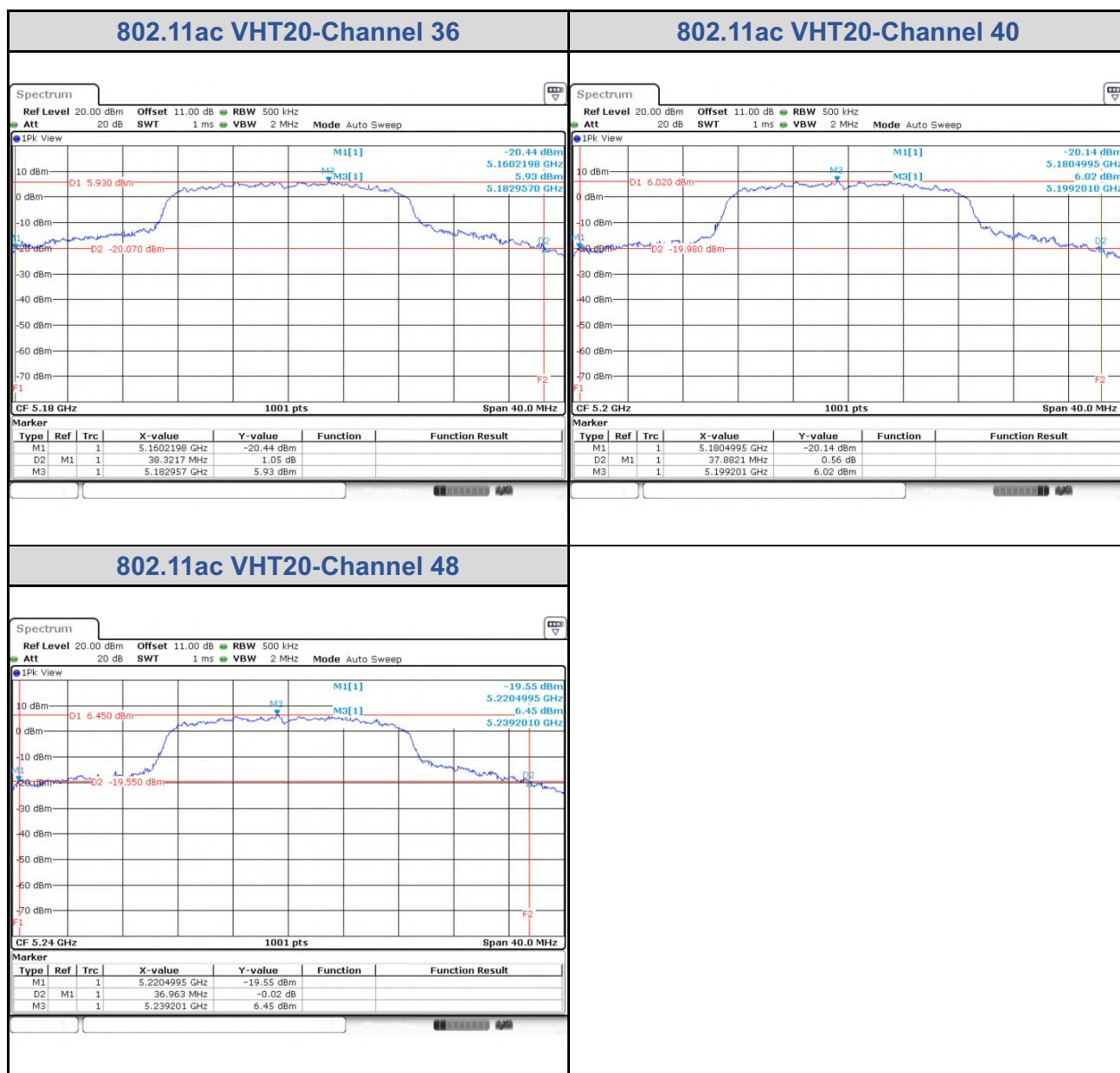
802.11a

Band	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
U-NII-1	36	5180	38.44
	40	5200	35.80
	48	5240	36.40



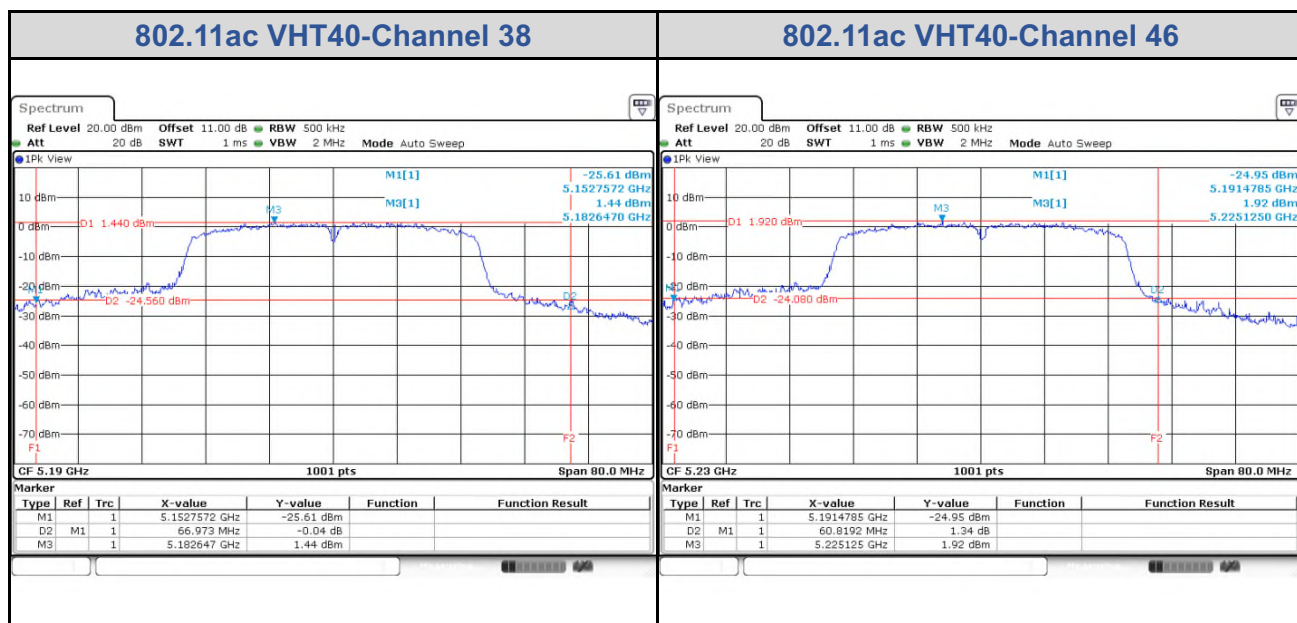
802.11ac VHT20

Band	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
U-NII-1	36	5180	38.32
	40	5200	37.88
	48	5240	36.96



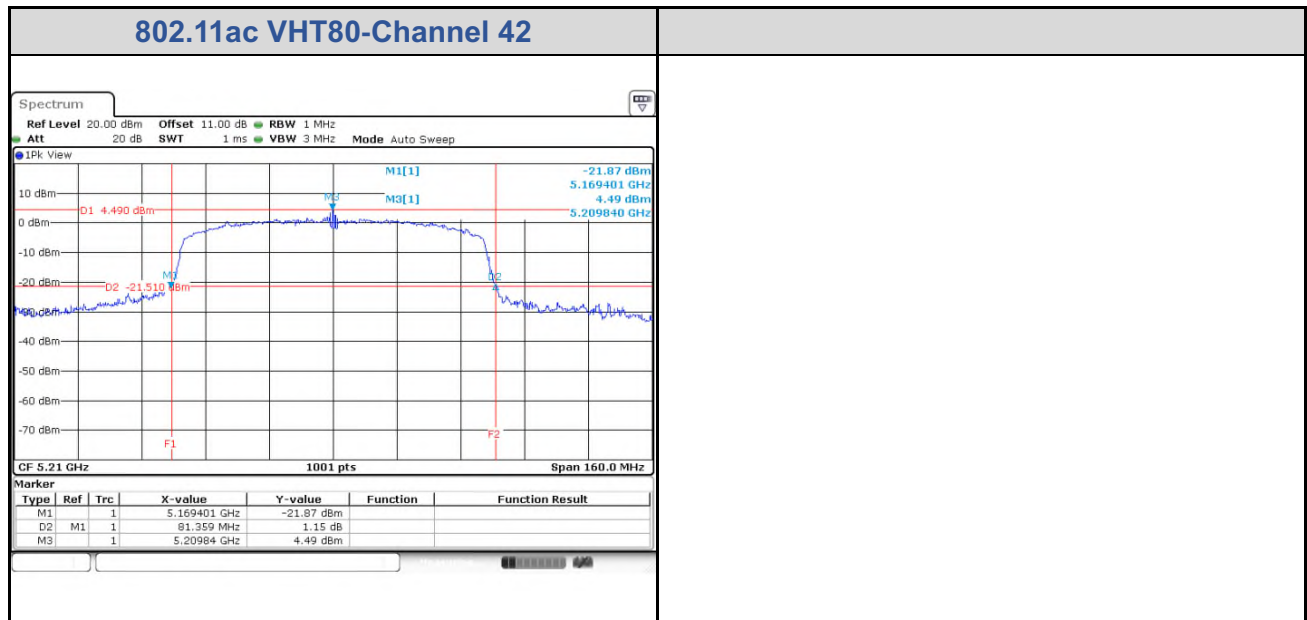
802.11ac VHT40

Band	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
U-NII-1	38	5190	66.97
	46	5230	60.82



802.11ac VHT80

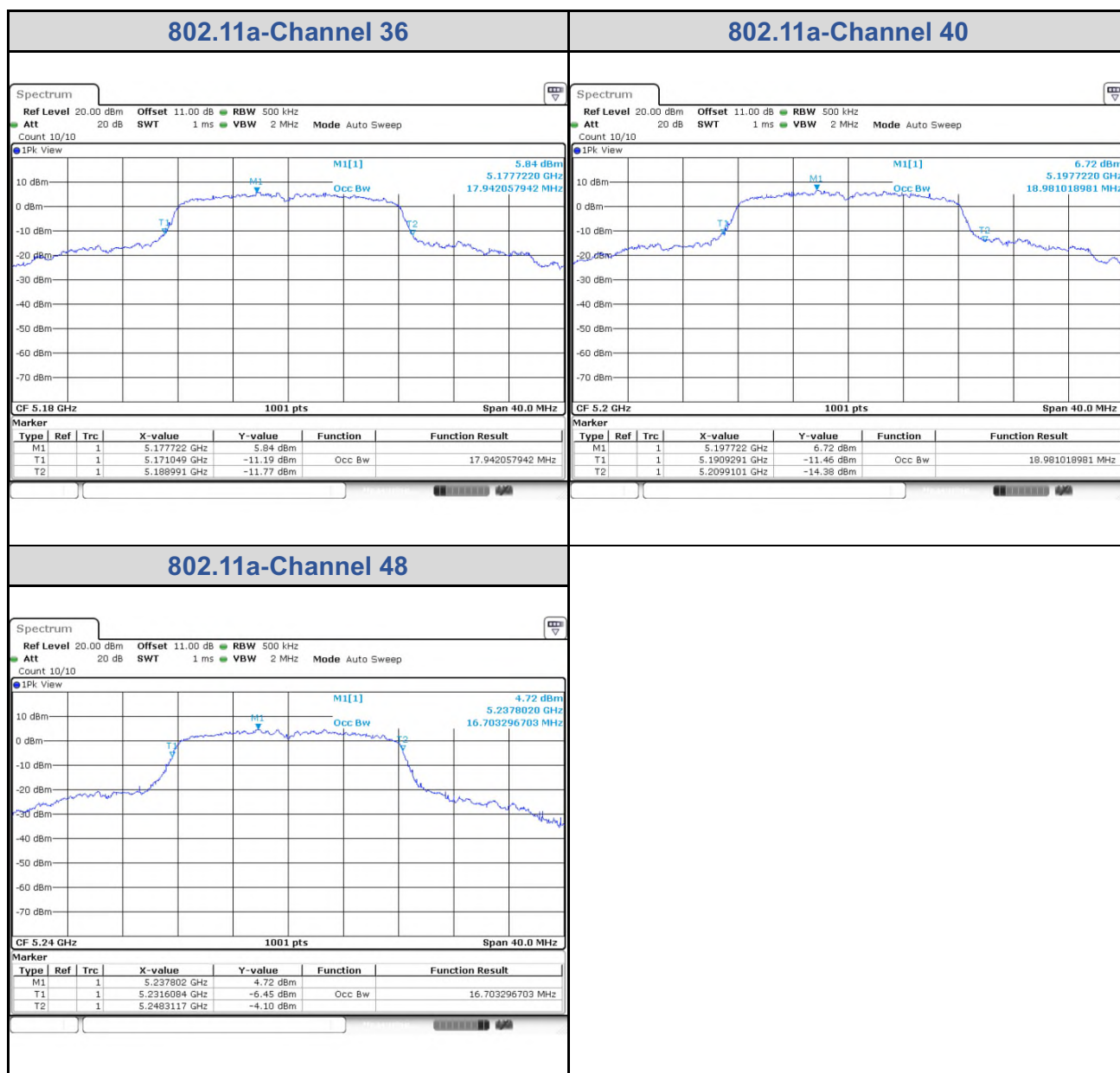
Band	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
U-NII-1	42	5210	81.36



Test Result of 99% Occupied Bandwidth

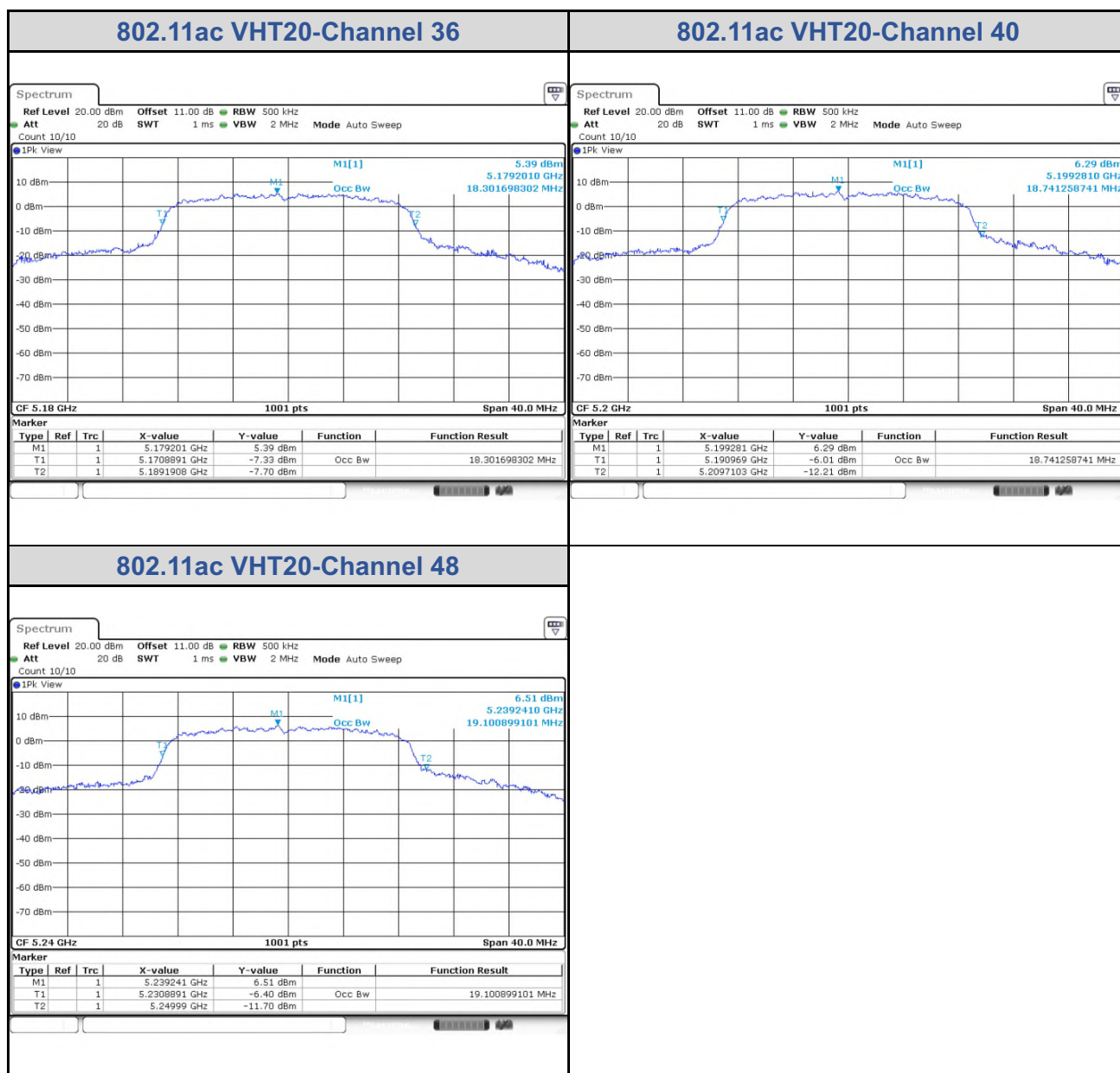
802.11a

Band	Channel	Frequency (MHz)	99% Bandwidth (MHz)
U-NII-1	36	5180	17.94
	40	5200	18.98
	48	5240	16.70



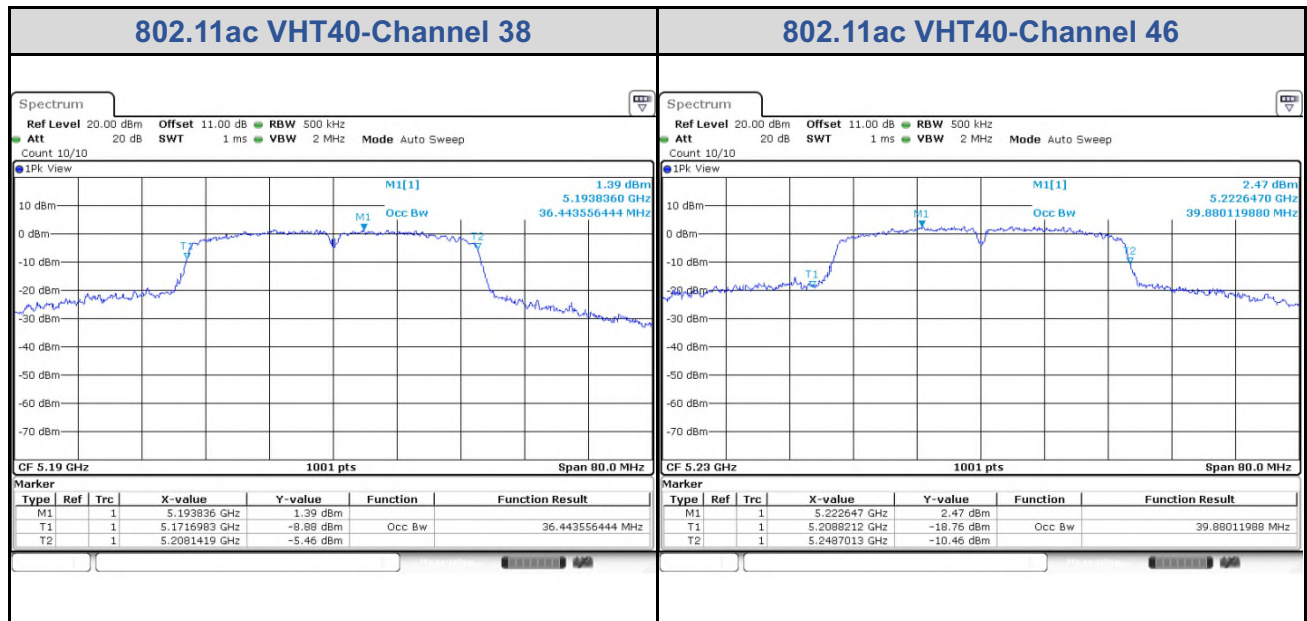
802.11ac VHT20

Band	Channel	Frequency (MHz)	99% Bandwidth (MHz)
U-NII-1	36	5180	18.30
	40	5200	18.74
	48	5240	19.10



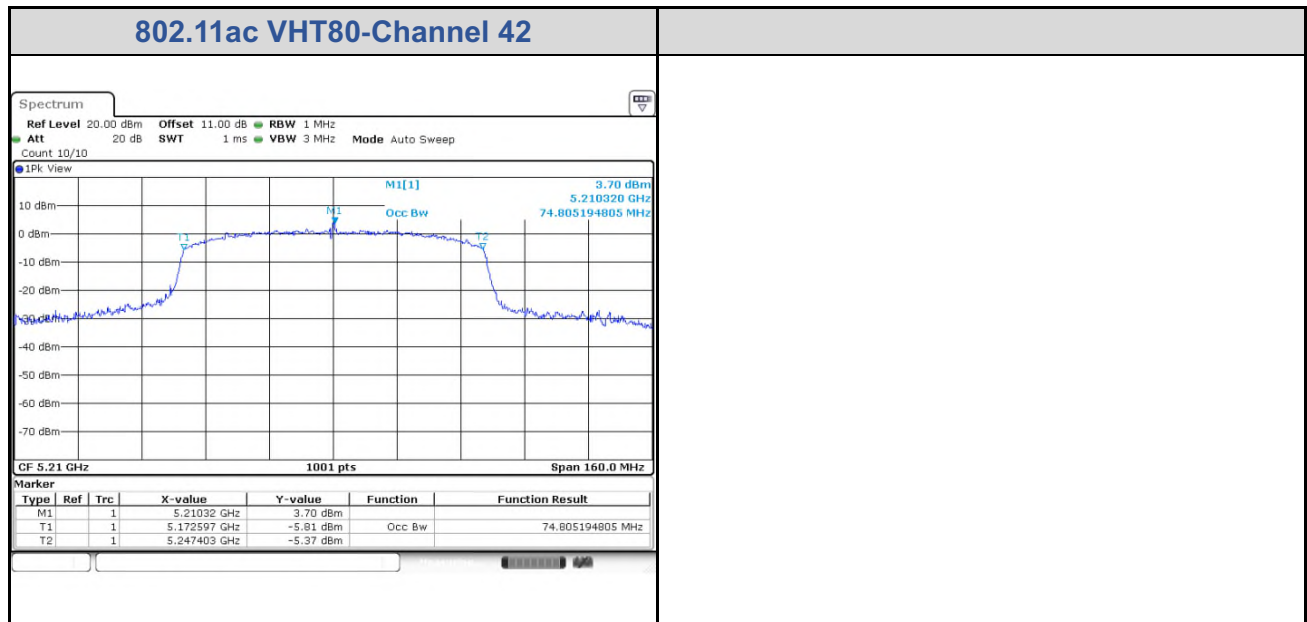
802.11ac VHT40

Band	Channel	Frequency (MHz)	99% Bandwidth (MHz)
U-NII-1	38	5190	36.44
	46	5230	39.88



802.11ac VHT80

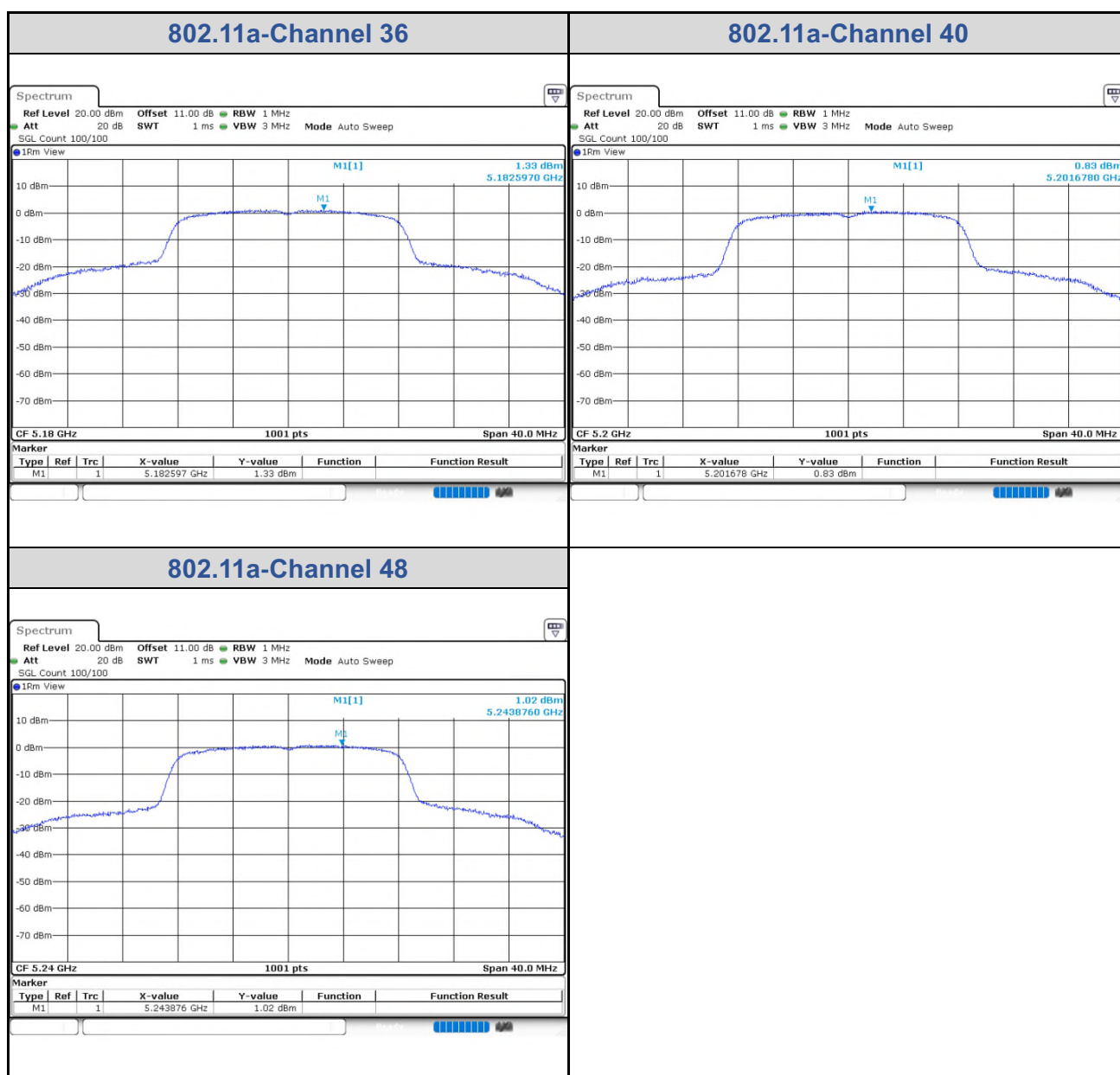
Band	Channel	Frequency (MHz)	99% Bandwidth (MHz)
U-NII-1	42	5210	74.81



Test Result of Power Spectral Density

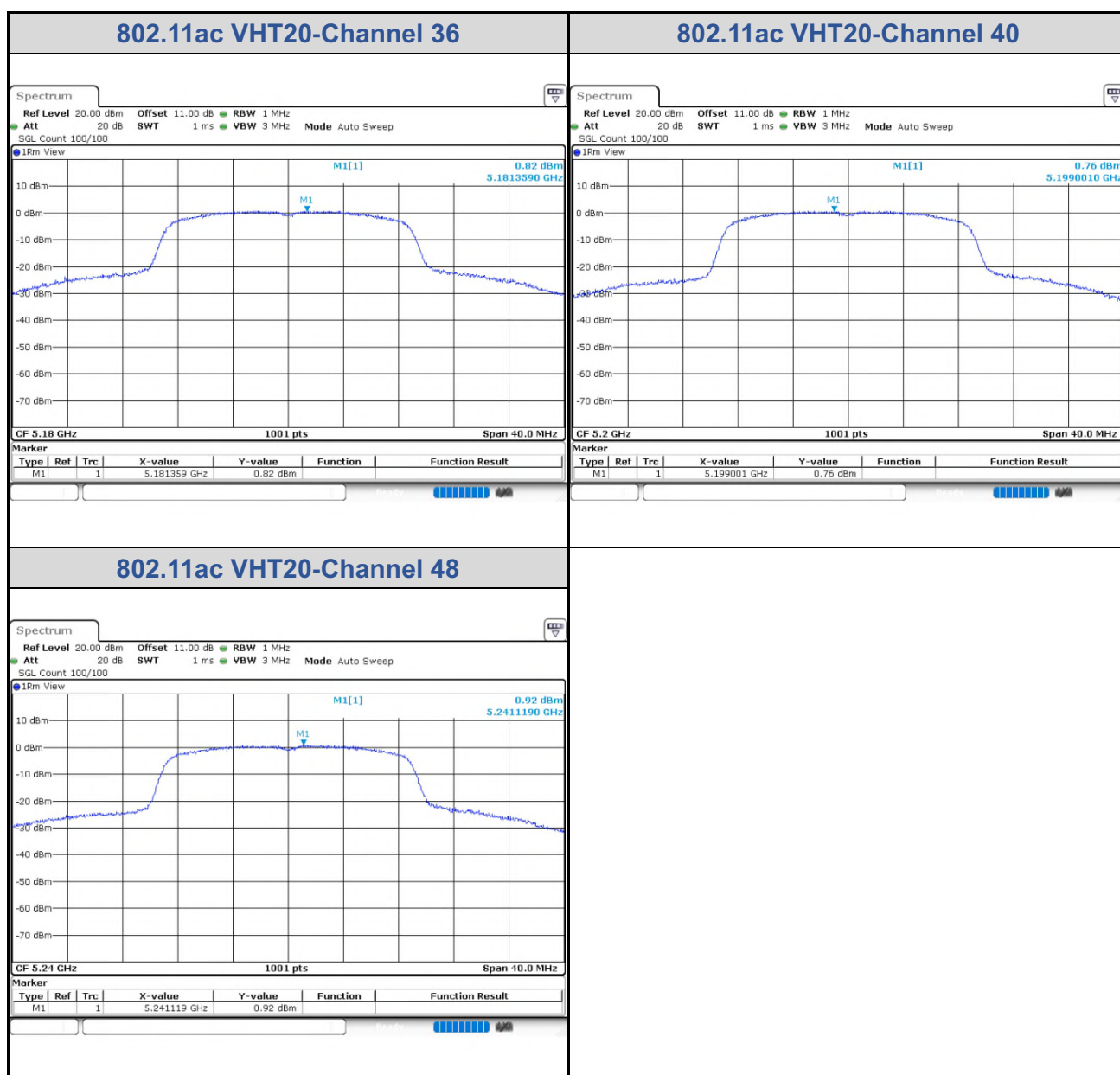
802.11a

Band	Channel	Frequency (MHz)	PSD without Duty Factor (dBm/MHz)	Total PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
U-NII-1	36	5180	1.33	1.61	11.00	Pass
	40	5200	0.83	1.11	11.00	Pass
	48	5240	1.02	1.30	11.00	Pass



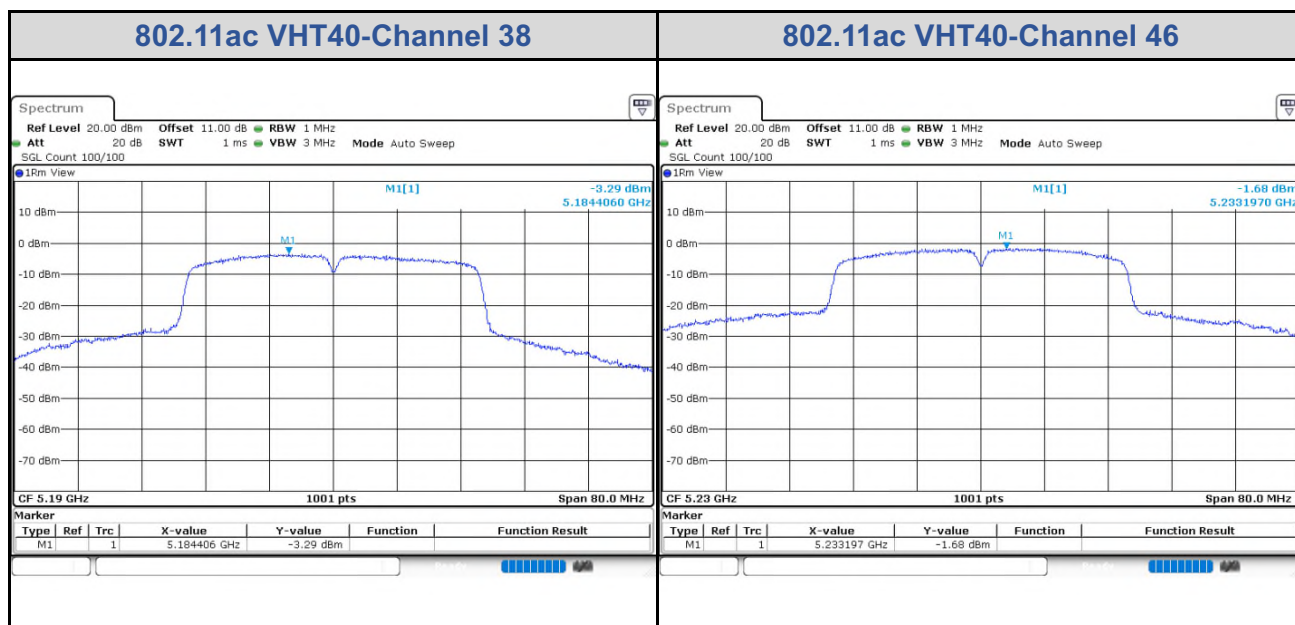
802.11ac VHT20

Band	Channel	Frequency (MHz)	PSD without Duty Factor (dBm/MHz)	Total PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
U-NII-1	36	5180	0.82	1.06	11.00	Pass
	40	5200	0.76	1.00	11.00	Pass
	48	5240	0.92	1.16	11.00	Pass



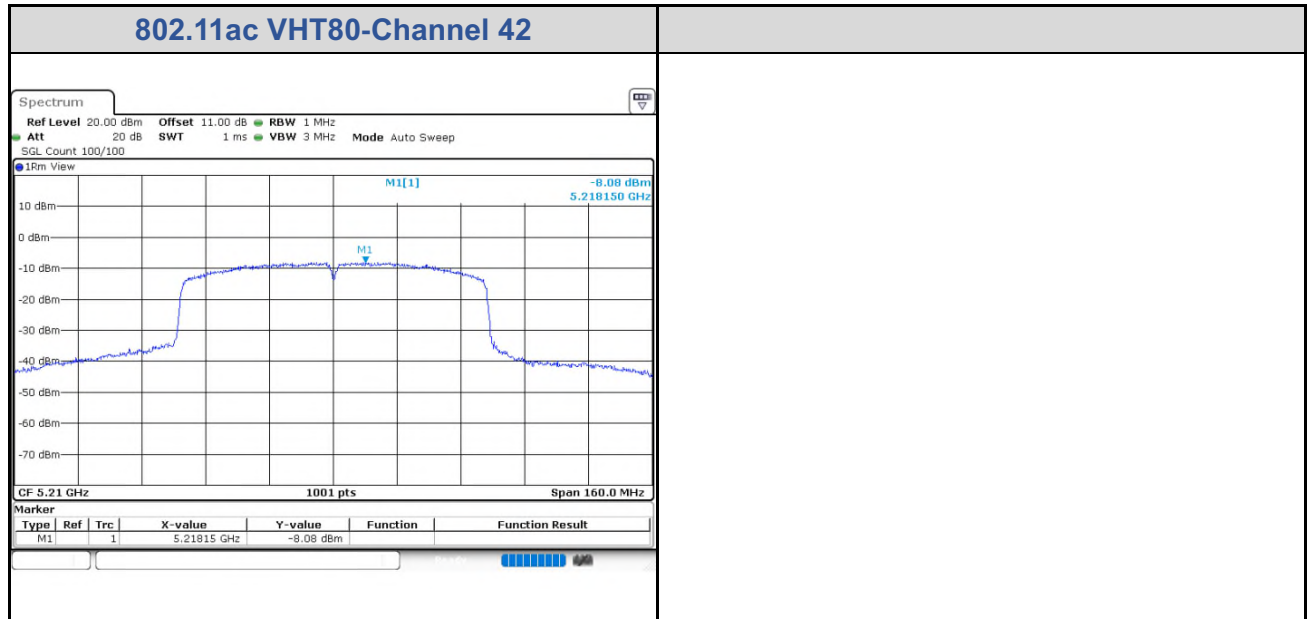
802.11ac VHT40

Band	Channel	Frequency (MHz)	PSD without Duty Factor (dBm/MHz)	Total PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
U-NII-1	38	5190	-3.29	-2.86	11.00	Pass
	46	5230	-1.68	-1.25	11.00	Pass



802.11ac VHT80

Band	Channel	Frequency (MHz)	PSD without Duty Factor (dBm/MHz)	Total PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
U-NII-1	42	5210	-8.08	-7.26	11.00	Pass



Appendix B: Test Results of Radiation Spurious Emissions

Band Edges, 4.5GHz ~ 5.15GHz

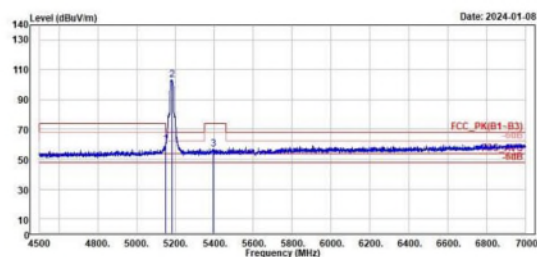
U-NII-1

802.11a

CH 36 (Horizontal) Peak



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No. 438-18, Sec. 2, Fongshan, Linkou Dist., New Taipei City 284, Taiwan(R.O.C.)
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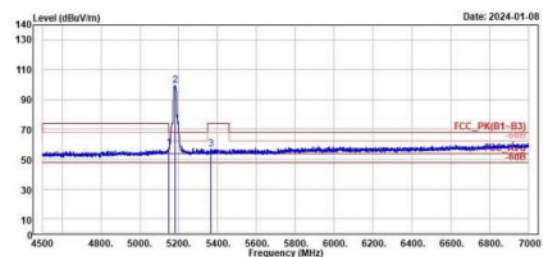


	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	Level	Line	Limit	dB	cm	deg		
1	5149.50	60.33	17.14	43.19	74.00	-13.67	100	66 Peak	Horizontal	
2	5180.00	103.51	60.17	43.34	68.20	35.31	100	66 Peak	Horizontal	
3	5394.50	56.90	13.08	43.82	74.00	-17.10	100	66 Peak	Horizontal	

CH 36 (Vertical) Peak



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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	Level	Line	Limit	dB	cm	deg		
1	5150.00	57.39	14.20	43.19	68.20	-10.81	100	278 Peak	Vertical	
2	5180.00	99.33	55.99	43.34	68.20	31.13	100	278 Peak	Vertical	
3	5365.50	57.09	13.63	43.46	74.00	-16.91	100	278 Peak	Vertical	

	Freq	Level	Read Line	Factor	Limit Line	Over Line	Apos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	5150.00	46.00	2.89	43.19	54.00	-7.92	100	278	Average	Vertical	
2 *	5180.00	90.34	47.00	43.34	54.00	36.34	100	278	Average	Vertical	
3	5403.50	44.60	0.72	43.88	54.00	-9.40	100	278	Average	Vertical	

	Freq	Level	Read dBm	Factor	Limit Line	Over Limit	Apos	TPos	Remark	Pol/Phase	Note
	Hz	dBu/m	dBu	dB/m	dBu/m	dB	cm	deg			
1	5114.50	57.20	14.11	43.89	74.00	-16.80	355	278	Peak	Vertical	
2 *	5200.00	99.64	36.21	43.43	68.20	31.44	355	278	Peak	Vertical	
3	5431.50	57.62	15.89	43.73	74.00	-16.38	355	278	Peak	Vertical	

	Freq	Level	Read Line	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	5120.00	44.39	1.26	43.13	54.00	-9.61	355	278	Average	Vertical	
2 *	5200.00	90.33	46.90	43.43	54.00	36.33	355	278	Average	Vertical	
3	5404.50	44.51	0.64	43.87	54.00	-9.49	355	278	Average	Vertical	

	Freq	Level	Read Limit	Factor	Over Limit	Apos	TPos	Remark	Pol/Phase	Note
	MHz	dBu/m	dBu	dB/m	dBu/m	dB	cm	deg		
1	5142.00	56.42	13.25	43.17	74.00	-17.58	100	275 Peak	Vertical	
2 *	5240.00	100.14	36.91	43.23	68.20	31.94	100	275 Peak	Vertical	
3	5370.50	57.41	15.09	43.52	74.00	-16.59	100	275 Peak	Vertical	

	Freq	Level	Read Line Factor	Limit Line	Over Line	Apos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	5114.50	44.48	1.39	43.09	54.00	-9.52	100	275 Average	Vertical	
2 *	5240.00	90.76	47.53	43.23	54.00	36.76	100	275 Average	Vertical	
3	5406.00	44.63	0.77	43.86	54.00	-9.37	100	275 Average	Vertical	

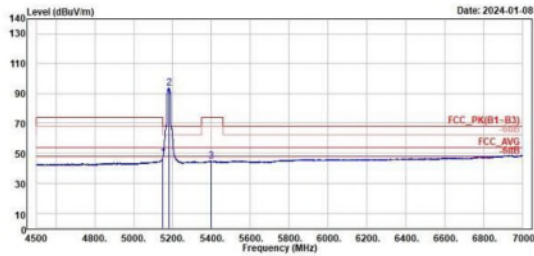
	Freq	Level	Read Line Factor	Limit Line	Over Line	Apos	TPos	Remark	Pol/Phase	Note
	MHz	dBu/m	dBu	dB/m	dBu/m	dB	cm	deg		
1	5149.50	59.18	15.99	43.19	74.00	-14.82	100	278 Peak	Vertical	
2 *	5180.00	99.51	36.17	43.34	68.20	31.31	100	278 Peak	Vertical	
3	5385.50	57.57	15.85	43.72	74.00	-16.43	100	278 Peak	Vertical	

802.11n HT20

CH 36 (Horizontal) Average



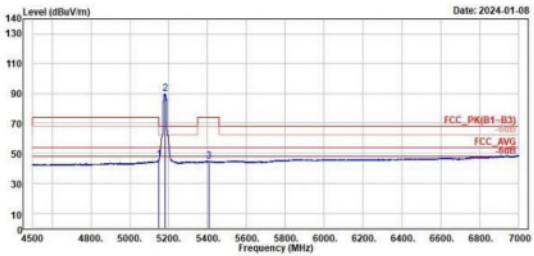
TÜV Rheinland Taiwan Ltd.
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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	dB	deg			
1	5149.50	47.02	3.83	43.19	54.00	-6.98	100	27	Average	Horizontal		
2 *	5100.00	93.04	50.50	43.34	54.00	39.04	100	27	Average	Horizontal		
3	5398.00	44.96	1.06	43.88	54.00	-9.04	100	27	Average	Horizontal		



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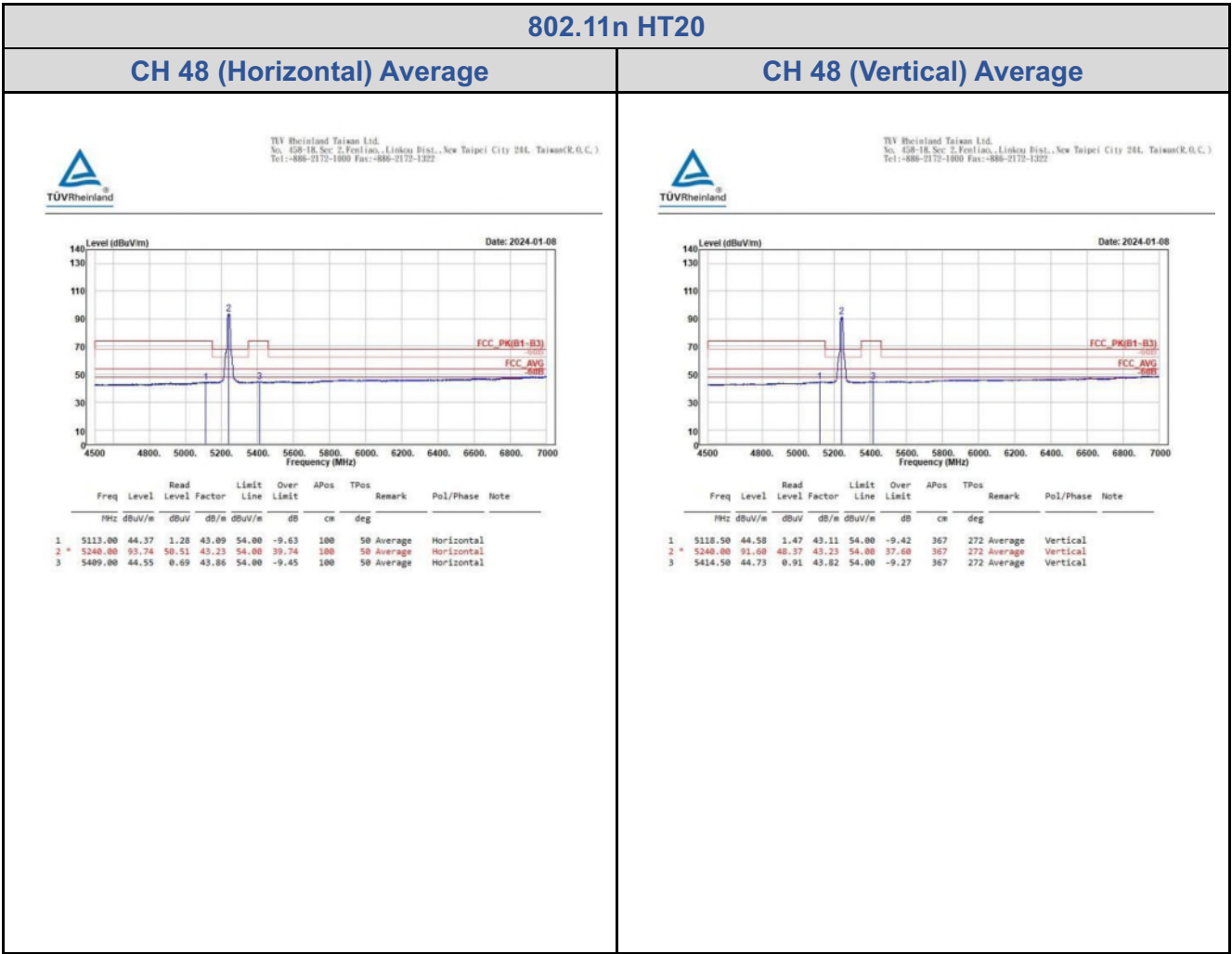


	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	dB	deg			
1	5149.50	45.78	2.51	43.19	54.00	-8.30	100	278	Average	Vertical		
2 *	5100.00	89.94	46.60	43.34	54.00	35.94	100	278	Average	Vertical		
3	5405.00	44.65	0.78	43.87	54.00	-9.35	100	278	Average	Vertical		

	Freq	Level	Read dBm	Factor	Limit Line	Over Limit	Apos	TPos	Remark	Pol/Phase	Note
	MHz	dBu/m	dBu	dB/m	dBu/m	dB	cm	deg			
1	5129.00	56.90	13.84	43.14	74.00	-17.02	355	277	Peak	Vertical	
2 *	5200.00	99.35	55.92	43.43	68.20	31.15	355	277	Peak	Vertical	
3	5392.00	56.83	13.84	43.79	74.00	-17.17	355	277	Peak	Vertical	

	Freq	Level	Read Limit	Factor	Limit	Over Limit	Apos	TPos	Remark	Pol/Phase	Note
	Hz	dBu/m	dBu	dB/m	dBu/m	dB	cm	deg			
1	5138.00	44.32	1.16	43.16	54.00	-9.68	355	277	Average	Vertical	
2 *	5200.00	89.98	46.55	43.43	54.00	35.98	355	277	Average	Vertical	
3	5402.50	44.55	0.66	43.89	54.00	-9.45	355	277	Average	Vertical	

	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Apos	TPos	Remark	Pol/Phase	Note
	Hz	dBu/m	dB		dB/m	dBu/m	dB	cm	deg		
1	5950.50	57.21	14.10		43.11	74.00	-16.79	367	272 Peak	Vertical	
2 *	5240.00	101.60	58.37	43.23	68.20	33.40		367	272 Peak	Vertical	
3	5436.50	56.50	12.39	43.71	74.00	-17.50		367	272 Peak	Vertical	

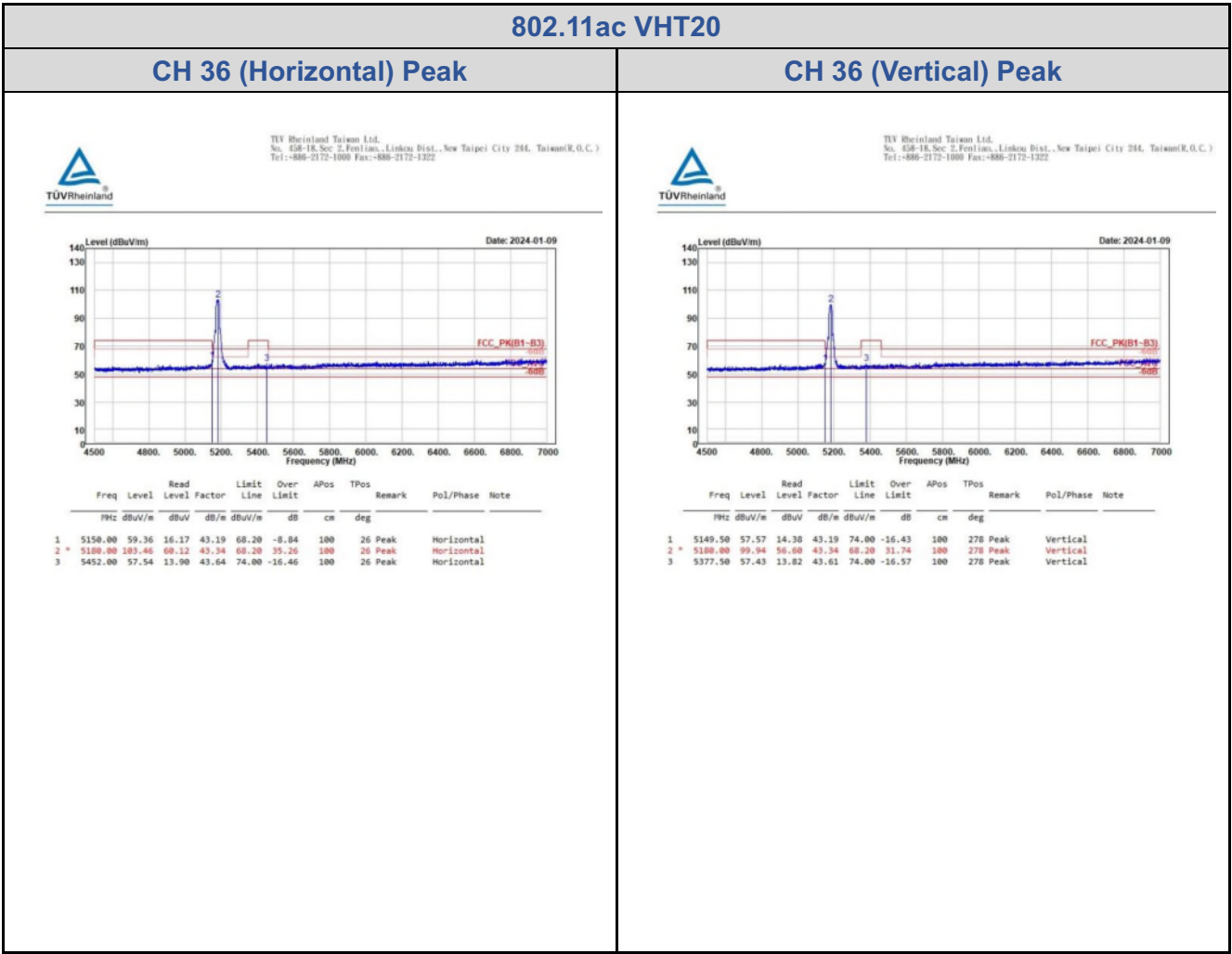


	Freq	Level	Read Line	Factor	Limit Line	Over Limit	Apos	TPos	Remark	Pol/Phase	Note
	Hz	dBu/m	dBu	dB/m	dBu/m	dB	cm	deg			
1	5150.00	60.31	17.12	43.19	68.20	-7.89	288	278 Peak		Vertical	
2 *	5190.00	95.04	52.45	43.39	68.20	27.64	288	278 Peak		Vertical	
3	5441.50	57.50	18.42	43.68	74.00	-16.50	288	278 Peak		Vertical	

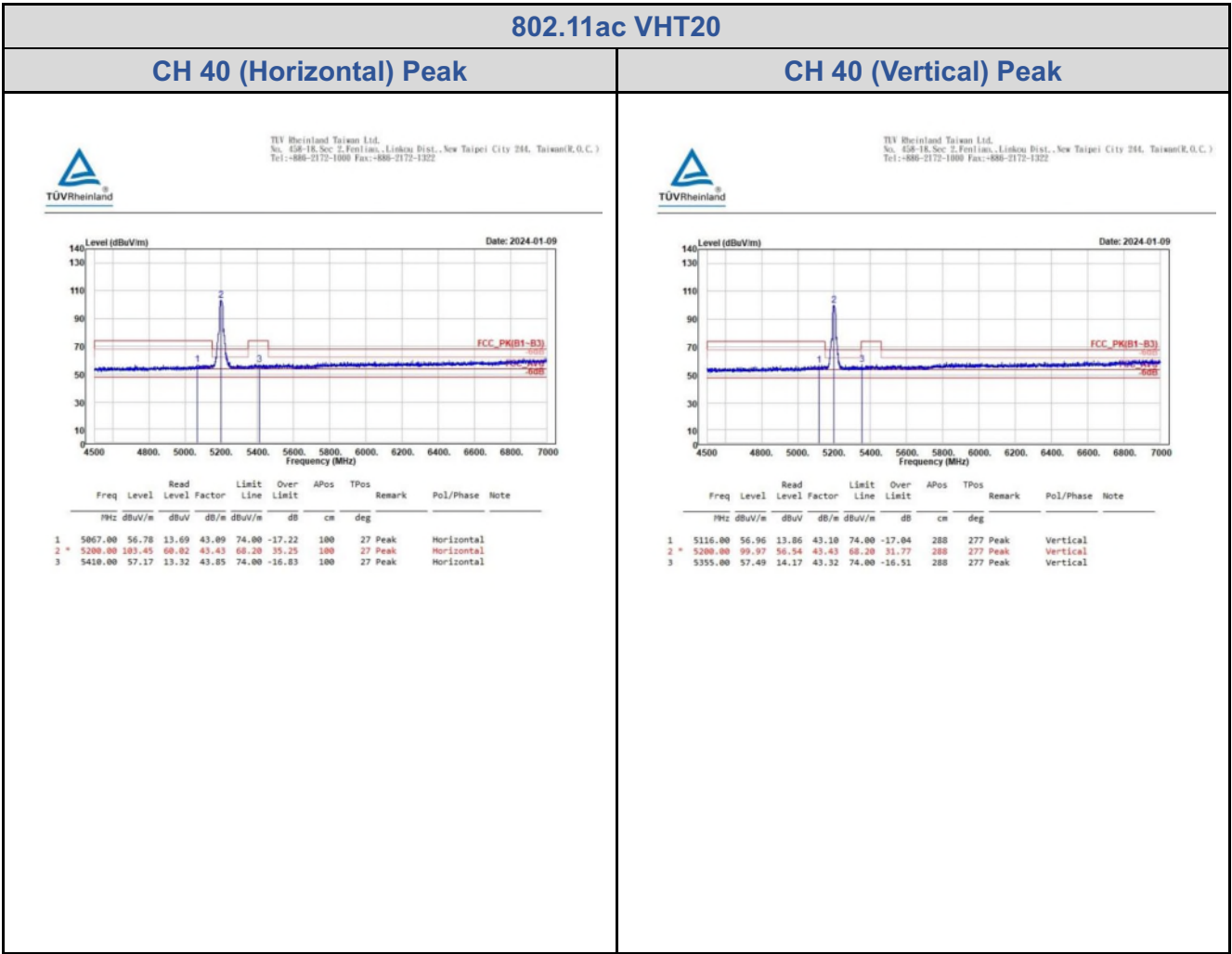
	Freq	Level	Read Level Factor	Limit Line	Over Limit	Apos	TPos	Remark	Pol/Phase	Note
	Hz	dBu/m	dB	dB/m	dBu/m	dB	cm	deg		
1	5150.0	48.67	5.48	43.19	54.00	-5.33	288	278 Average	Vertical	
2	5190.0	87.10	43.71	43.39	54.00	33.10	288	278 Average	Vertical	
3	5393.0	45.07	1.26	43.81	54.00	-8.93	288	278 Average	Vertical	

	Freq	Level	Read Line	Factor	Limit Line	Over Line	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBu/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	5090.50	57.48	14.42	43.06	74.00	-16.52	316	329	Peak	Vertical	
2 *	5230.00	99.65	56.37	43.28	68.20	31.45	316	329	Peak	Vertical	
3	5431.00	57.35	16.32	43.73	74.00	-16.65	316	329	Peak	Vertical	

	Freq	Level	Read Line	Factor	Limit Line	Over Line	Apos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	5136.00	45.13	1.98	43.15	54.00	-8.87	316	329	Average	Vertical	
2	5230.00	90.54	47.26	43.28	54.00	36.54	316	329	Average	Vertical	
3	5400.50	94.94	1.04	43.90	54.00	-9.06	316	329	Average	Vertical	



	Freq	Level	Read Limit	Factor	Limit	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	5150.00	45.96	2.77	43.19	54.00	-8.04	100	278	Average	Vertical	
2 *	5100.00	90.34	47.47	43.34	54.00	36.34	100	278	Average	Vertical	
3	5407.50	45.81	1.15	43.06	54.00	-8.99	100	278	Average	Vertical	

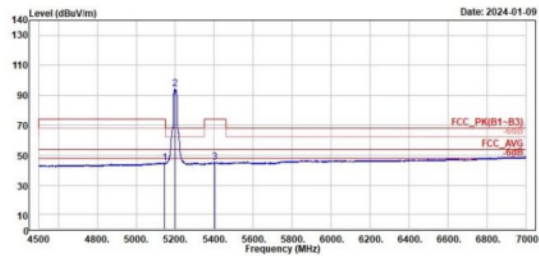


802.11ac VHT20

CH 40 (Horizontal) Average



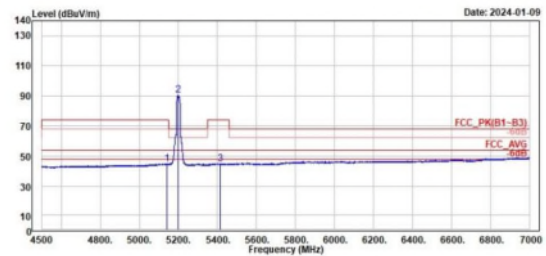
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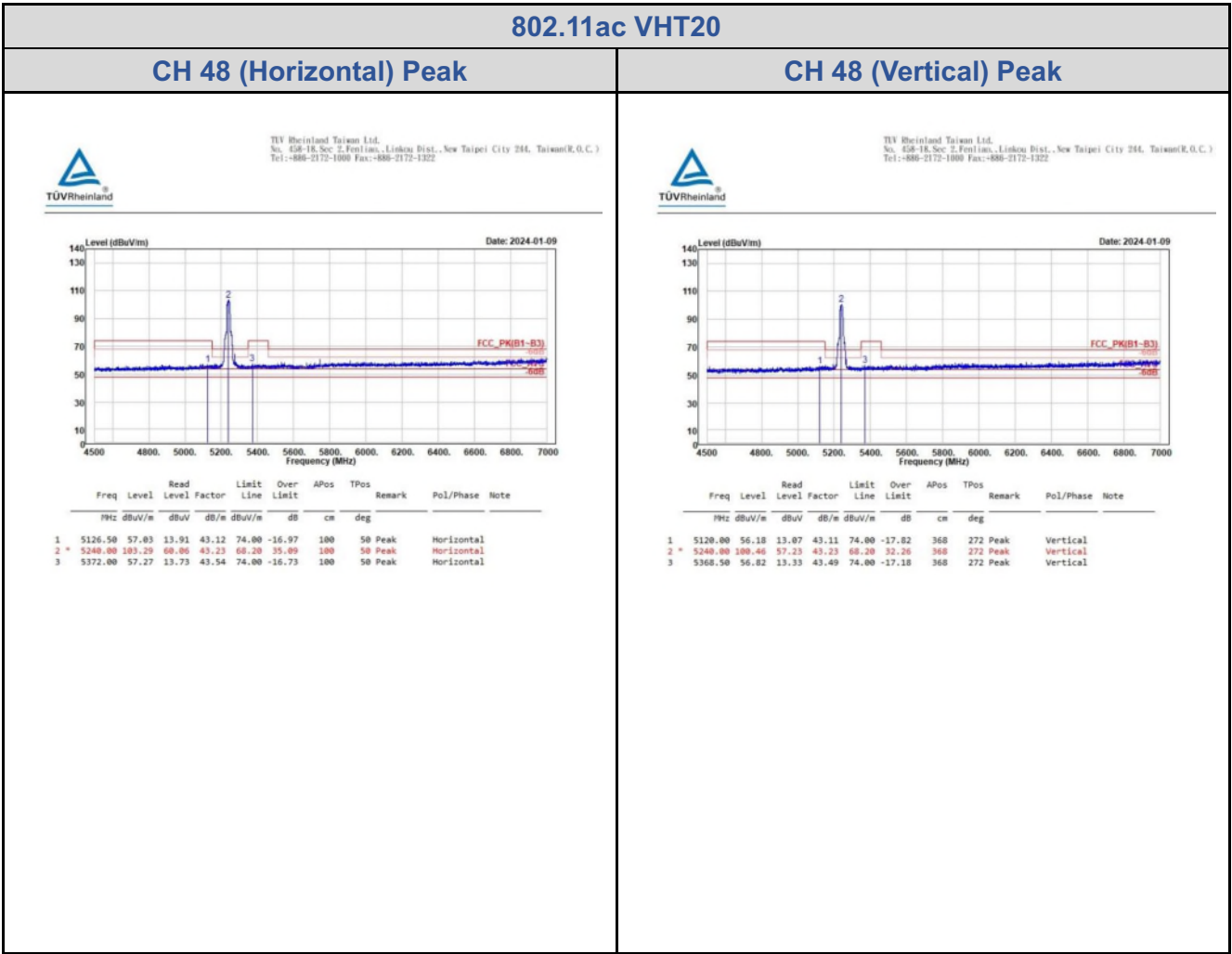
	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	5146.50	44.91	1.73	43.18	54.00	-9.89	100	27	Average	Horizontal		
2 *	5200.00	94.00	50.65	43.43	54.00	40.00	100	27	Average	Horizontal		
3	5402.00	45.13	1.24	43.89	54.00	-8.87	100	27	Average	Horizontal		



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	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	5140.50	44.72	1.55	43.17	54.00	-9.28	288	277	Average	Vertical		
2 *	5200.00	90.44	47.01	43.43	54.00	36.44	288	277	Average	Vertical		
3	5415.50	44.90	1.08	43.82	54.00	-9.10	288	277	Average	Vertical		



	Freq	Level	Read Limit	Factor	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	5128.00	44.86	1.73	43.13	54.00	-9.14	368	272	Average	Vertical
2	5240.00	91.53	48.30	43.23	54.00	37.53	368	272	Average	Vertical
3	5397.50	44.97	1.10	43.87	54.00	-9.83	368	272	Average	Vertical

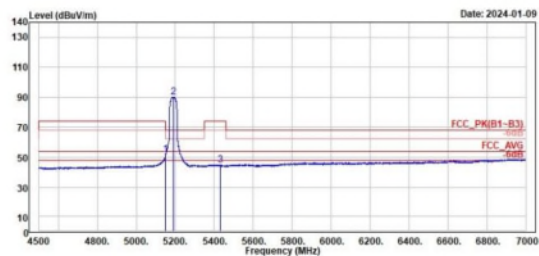
	Freq	Level	Read Limit Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	5150.00	59.88	16.69	43.19	68.20	-8.32	100	278 Peak	Vertical	
2 *	5100.00	94.63	51.24	43.39	68.20	26.43	100	278 Peak	Vertical	
3	5300.00	56.71	13.07	43.64	74.00	-17.29	100	278 Peak	Vertical	

802.11ac VHT40

CH 38 (Horizontal) Average



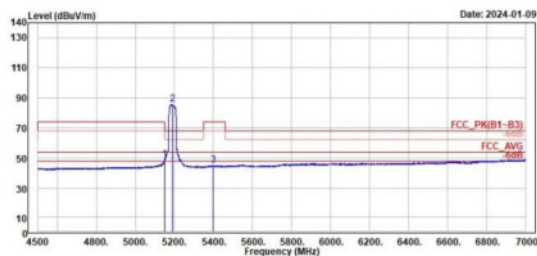
TUV Rheinland Taiwan Ltd.
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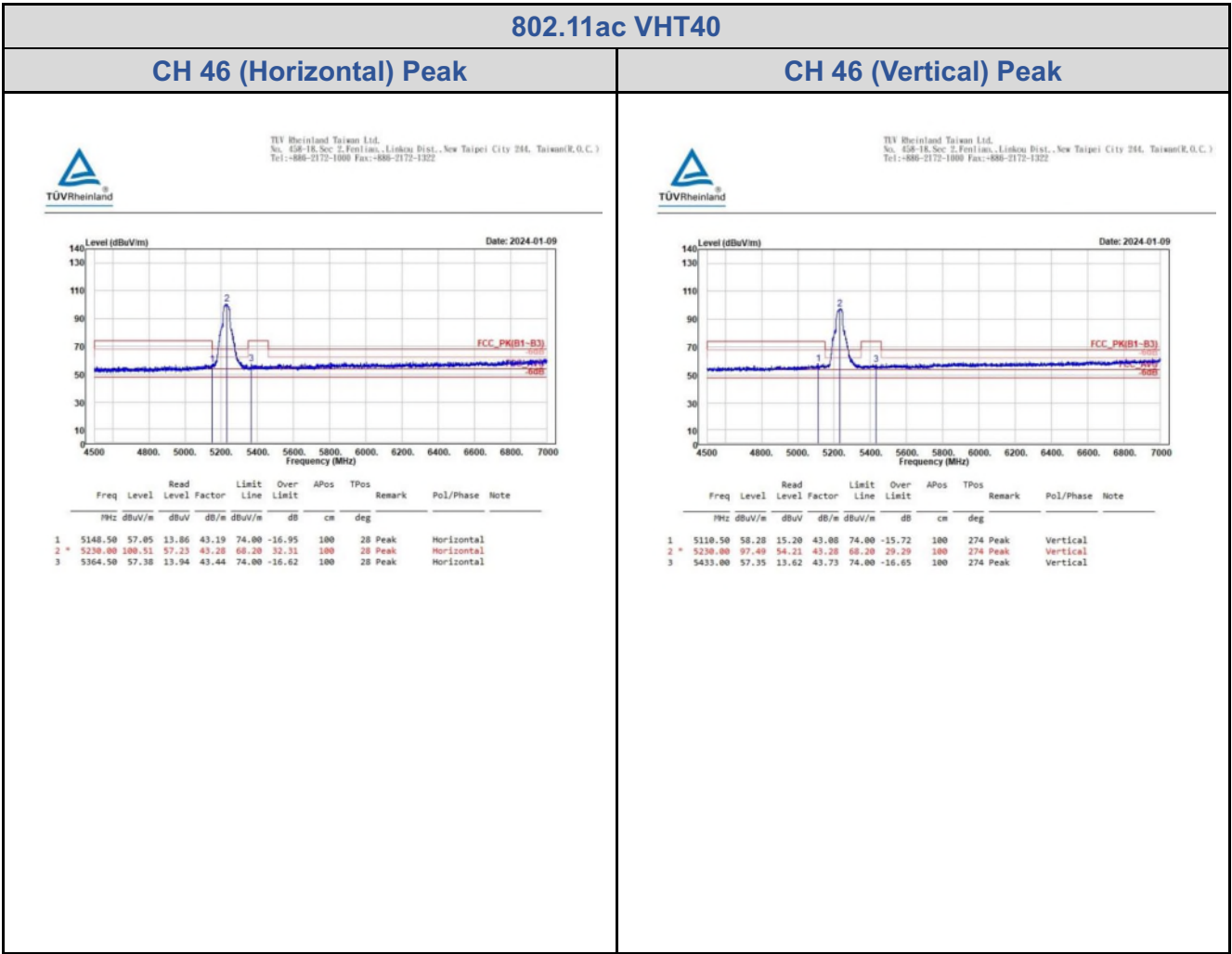
	Freq	Level	Read Level	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBW/m	dBW	dBW	dB	cn	deg			
1	5150.00	51.50	8.31	43.19	54.00	-2.50	100	27 Average	Horizontal	
2	5100.00	90.18	16.79	43.39	54.00	36.18	100	27 Average	Horizontal	
3	5430.50	44.91	4.17	43.74	54.00	-9.09	100	27 Average	Horizontal	



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	Freq	Level	Read Limit	Factor	Over Line	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	5150.0	48.75	5.56	43.19	54.00	-5.25	100	278	Average	Vertical
2	5190.0	85.61	42.22	43.39	54.00	31.61	100	278	Average	Vertical
3	5390.0	45.05	4.17	43.88	54.00	-8.95	100	278	Average	Vertical

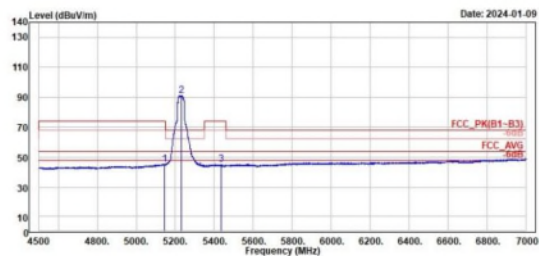


802.11ac VHT40

CH 46 (Horizontal) Average



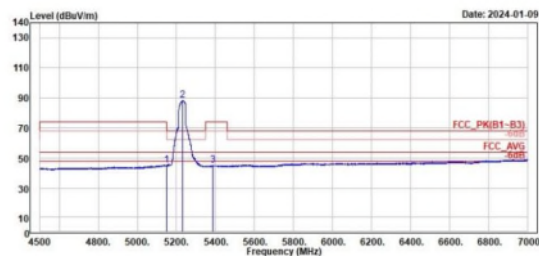
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	Freq	Level	Read Level	Limit Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBW/m	dBW	dB/m	dBW/m	dB	cn	deg			
1	5145.50	45.44	2.26	43.18	54.00	-8.56	100	28	Average	Horizontal	
2 *	5230.00	91.08	47.07	43.28	54.00	37.08	100	28	Average	Horizontal	
3	5434.00	45.07	1.34	43.73	54.00	-8.93	100	28	Average	Horizontal	



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	Freq	Level	Read Line	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	Hz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	5150.00	45.37	2.18	43.19	54.00	-8.63	100	274	Average	Vertical	
2	5230.00	48.56	45.28	43.28	54.00	34.56	100	274	Average	Vertical	
3	5306.00	48.03	1.31	43.72	54.00	-8.97	100	274	Average	Vertical	

	Freq	Level	Read Limit	Factor	Over Line	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	5148.50	61.13	17.94	43.19	74.00	-12.87	322	328 Peak	Vertical	
2 *	5210.00	94.89	51.51	43.38	68.20	26.69	322	328 Peak	Vertical	
3	5407.00	57.05	13.19	43.86	74.00	-16.95	322	328 Peak	Vertical	

	Freq	Level	Read Limit	Factor	Over Limit	APos	TPos	Remark	Pol/Phase	Note
	Hz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	5148.50	49.66	6.47	43.19	54.00	-4.34	322	328	Average	Vertical
2	5210.00	84.49	4.31	43.38	54.00	30.69	322	328	Average	Vertical
3	5410.50	45.46	6.11	43.85	54.00	-8.54	322	328	Average	Vertical

Spurious Emissions, Tx Mode, 9kHz ~30MHz

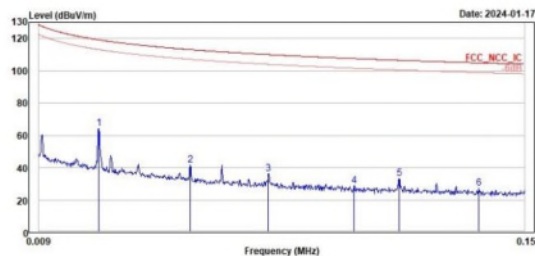
802.11ac VHT20

CH48(Open) (9kHz ~ 150kHz)

CH 48(Open) (150kHz ~ 30MHz)



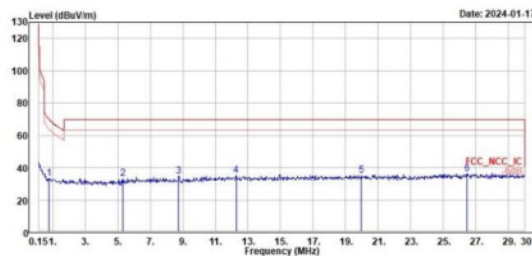
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	Freq	Level	Read	Level	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	0.83	64.01	44.20	19.81	119.13	-55.12	100		194 Peak	Open	
2	0.85	41.49	22.19	19.30	113.11	-71.62	100		143 Peak	Open	
3	0.88	36.19	17.58	18.61	110.01	-73.82	100		368 Peak	Open	
4	0.10	26.76	18.24	18.52	107.55	-78.79	100		128 Peak	Open	
5	0.11	33.05	14.45	18.60	106.49	-73.44	100		315 Peak	Open	
6	0.14	27.07	8.33	18.74	104.80	-77.81	100		112 Peak	Open	



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	Freq	Level	Read	Level	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	0.78	33.28	14.14	19.14	69.80	-36.52	100		283 Peak	Open	
2	5.31	33.27	13.18	20.09	69.50	-36.23	100		288 Peak	Open	
3	8.75	34.69	13.90	20.79	69.50	-34.81	100		161 Peak	Open	
4	12.27	35.27	13.69	21.58	69.50	-34.23	100		161 Peak	Open	
5	19.97	35.01	12.41	22.60	69.50	-34.49	100		222 Peak	Open	
6	26.45	35.99	13.15	22.84	69.50	-33.51	100		291 Peak	Open	

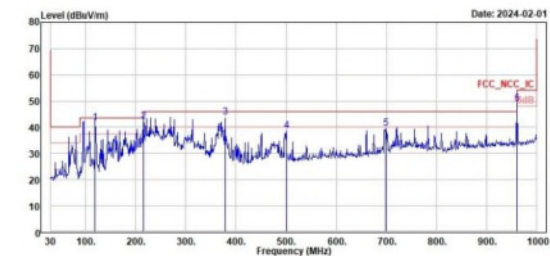
Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

802.11ac VHT20

CH 48 (Horizontal) Peak



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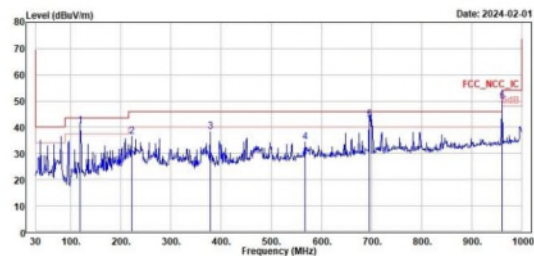


	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
Freq	Level	Level	Factor	Line	Limit			
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	119.24	41.70	50.89	-9.19	43.50	-1.80	300	325 QP
2	215.27	42.40	50.79	-8.39	43.50	-1.10	100	76 QP
3	378.23	43.03	47.11	-3.28	46.00	-2.17	100	94 QP
4	500.45	38.50	48.09	-1.51	46.00	-7.42	200	320 Peak
5	698.33	39.50	37.41	2.09	46.00	-6.50	100	278 Peak
6	960.23	49.07	43.56	5.51	54.00	-4.93	100	147 Peak

CH 48 (Vertical) Peak



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	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
Freq	Level	Level	Factor	Line	Limit			
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	119.24	40.50	49.69	-9.19	43.50	-3.00	100	162 QP
2	221.09	36.59	44.73	-8.14	46.00	-9.41	100	136 Peak
3	378.23	38.30	41.58	-3.28	46.00	-7.70	100	130 Peak
4	507.30	34.41	34.89	-0.48	46.00	-11.59	100	151 Peak
5	696.39	42.81	40.79	2.02	46.00	-3.19	100	214 QP
6	961.20	49.93	44.38	5.55	54.00	-4.07	200	232 Peak

Spurious Emissions, Tx Mode, 1GHz ~ 40GHz
U-NII-1

802.11a

CH 36 (Horizontal)

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Level (dBuV/m)

Date: 2024-01-08

Frequency (MHz)

	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	10360.00	45.50	46.21	-0.71	68.20	-22.70	100	62	Peak	Horizontal		

CH 36 (Vertical)

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Level (dBuV/m)

Date: 2024-01-08

Frequency (MHz)

	Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	10360.00	46.86	47.57	-0.71	68.20	-21.34	243	77	Peak	Vertical		

