



FCC RADIO TEST REPORT

FCC ID : A4RGTF7P
Equipment : Phone
Model Name : GTF7P, G3Y12
Applicant : Google LLC
1600 Amphitheatre Parkway,
Mountain View, California, 94043 USA
Standard : FCC Part 15 Subpart E §15.407

The product was received on May 21, 2024 and testing was performed from May 23, 2024 to Oct. 02, 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 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

Sporton International Inc. Wensan Laboratory

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



Table of Contents

Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test.....	5
1.2 Modification of EUT	6
1.3 Testing Location	7
1.4 Applicable Standards.....	7
2 Test Configuration of Equipment Under Test	8
2.1 Carrier Frequency and Channel	8
2.2 Test Mode.....	10
2.3 Connection Diagram of Test System.....	13
2.4 Support Unit used in test configuration and system	14
2.5 EUT Operation Test Setup	14
2.6 Measurement Results Explanation Example.....	14
3 Test Result	15
3.1 26dB & 99% Occupied Bandwidth Measurement	15
3.2 Fundamental Maximum EIRP Measurement	16
3.3 Fundamental Power Spectral Density Measurement	17
3.4 In-Band Emissions (Channel Mask)	19
3.5 Contention Based Protocol.....	21
3.6 Unwanted Emissions Measurement	45
3.7 AC Conducted Emission Measurement.....	49
3.8 Antenna Requirements	51
4 List of Measuring Equipment.....	52
5 Measurement Uncertainty	55
Appendix A. Conducted Test Results	
Appendix B. AC Conducted Emission Test Result	
Appendix C. Radiated Spurious Emission Test Data	
Appendix D. Duty Cycle Plots	
Appendix E. Spot Check Evaluation on GTF7P, G3Y12	
Appendix F. Setup Photographs	



History of this test report

Report No.	Version	Description	Issue Date
FR451607G	01	Initial issue of report	Nov. 01, 2024
FR451607G	02	Revise Appendix E This report is an updated version, replacing the report issued on Nov. 01, 2024.	Nov. 08, 2024



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.407(a)(10)	26dB Emission Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Pass	-
3.2	15.407(a)(8)	Fundamental Maximum EIRP	Pass	-
3.3	15.407(a)(8)	Fundamental Power Spectral Density	Pass	-
3.4	15.407(b)(6)	In-Band Emissions (Channel Mask)	Pass	-
3.5	15.407(d)(6)	Contention Based Protocol	Pass	-
3.6	15.407(b)	Unwanted Emissions	Pass	3.07 dB under the limit at 5924.20 MHz
3.7	15.207	AC Conducted Emission	Pass	13.60 dB under the limit at 0.15 MHz
3.8	15.203 15.407(a)	Antenna Requirement	Pass	-

Conformity Assessment Condition:

1. ECR inquiry for data referencing from A4RGXQ96 has been approved by FCC. The ECR inquiry and the associated document are submitted in the confidential exhibit.
2. A4RGTF7P is different from FCC ID: A4RGXQ96 (Reference model), in the following:
 - i. The only difference between A4RGXQ96 and A4RGTF7PE are the WWAN support bands, which is controlled by software.
3. All the test results are referenced from A4RGXQ96 (Sporton Test Report FR451606G), and spot check results to justify data referencing is presented in the Appendix E.
4. 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/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
5. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

1. 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 GTF7P and G3Y12 are 100% identical in Hardware / Software to each other, and only have different model names for marketing segmentation.

Reviewed by: William Chen**Report Producer: Ming Chen**



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs GSM/WCDMA/LTE/5G NR, Bluetooth, BLE, BLE channel sounding, Wi-Fi 802.11ax, NFC, WPC Rx and GNSS.
Antenna Type WLAN: <Ant. 4>: IFA Antenna <Ant. 3>: IFA Antenna

EUT Information List	
S/N	Performed Test Item
44291JEBF05085	Conducted Measurement
46181JEBF10894	Radiated Spurious Emission
44291JEBF05116	Conducted Emission
44291JEBF05089	Contention Based Protocol

Antenna information		
5925 MHz ~ 6425 MHz	Peak Gain (dBi)	Ant. 4: -1.8 Ant. 3: -4.9
6425 MHz ~ 6525 MHz	Peak Gain (dBi)	Ant. 4: -1.8 Ant. 3: -5.7
6525 MHz ~ 6875 MHz	Peak Gain (dBi)	Ant. 4: -0.9 Ant. 3: -2.6
6875 MHz ~ 7125 MHz	Peak Gain (dBi)	Ant. 4: -2.1 Ant. 3: -3.3

Antenna information for Directional Gain		
5925 MHz ~ 6425 MHz	Peak Gain (dBi)	<6G_Ant4 + 6G_Ant3> Correlated: -2.83 Uncorrelated: -1.80
6425 MHz ~ 6525 MHz	Peak Gain (dBi)	<6G_Ant4 + 6G_Ant3> Correlated: -2.41 Uncorrelated: -1.80
6525 MHz ~ 6875 MHz	Peak Gain (dBi)	<6G_Ant4 + 6G_Ant3> Correlated: -0.33 Uncorrelated: -0.90
6875 MHz ~ 7125 MHz	Peak Gain (dBi)	<6G_Ant4 + 6G_Ant3> Correlated: -0.33 Uncorrelated: -2.10

Remark:

1. The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.
2. The correlated antenna gain is provided by the MIMO antenna report using KDB 662911 D01 from manufacturer.

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. CO05-HY, DF02-HY (TAF Code: 1190)
Remark	The AC Conducted Emission and Contention Based Protocol test items subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.

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

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

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

FCC designation No.: TW1190 and 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 987594 D02 U-NII 6 GHz EMC Measurement v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ 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.

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: conduction emission (150 kHz to 30 MHz), 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 accessory (Adapter or Earphone), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find Z Plane with Adapter as worst plane.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

BW 20M	Channel	1	5	9	13	17	21	25	29
	Freq. (MHz)	5955	5975	5995	6015	6035	6055	6075	6095
BW 40M	Channel	3		11		19		27	
	Freq. (MHz)	5965		6005		6045		6085	
BW 80M	Channel	7				23			
	Freq. (MHz)	5985				6065			

BW 20M	Channel	33	37	41	45	49	53	57	61
	Freq. (MHz)	6115	6135	6155	6175	6195	6215	6235	6255
BW 40M	Channel	35		43		51		59	
	Freq. (MHz)	6125		6165		6205		6245	
BW 80M	Channel	39				55			
	Freq. (MHz)	6145				6225			

BW 20M	Channel	65	69	73	77	81	85	89	93
	Freq. (MHz)	6275	6295	6315	6335	6355	6375	6395	6415
BW 40M	Channel	67		75		83		91	
	Freq. (MHz)	6285		6325		6365		6405	
BW 80M	Channel	71				87			
	Freq. (MHz)	6305				6385			



BW 20M	Channel	97	101	105	109	113	117	121	125
	Freq. (MHz)	6435	6455	6475	6495	6515	6535	6555	6575
BW 40M	Channel	99		107		115		123	
	Freq. (MHz)	6445		6485		6525		6565	
BW 80M	Channel	103				119			
	Freq. (MHz)	6465				6545			

BW 20M	Channel	129	133	137	141	145	149	153	157
	Freq. (MHz)	6595	6615	6635	6655	6675	6695	6715	6735
BW 40M	Channel	131		139		147		155	
	Freq. (MHz)	6605		6645		6685		6725	
BW 80M	Channel	135				151			
	Freq. (MHz)	6625				6705			

BW 20M	Channel	161	165	169	173	177	181	185	189
	Freq. (MHz)	6755	6775	6795	6815	6835	6855	6875	6895
BW 40M	Channel	163		171		179		187	
	Freq. (MHz)	6765		6805		6845		6885	
BW 80M	Channel	167				183			
	Freq. (MHz)	6785				6865			

BW 20M	Channel	193	197	201	205	209	213	217	221
	Freq. (MHz)	6915	6935	6955	6975	6995	7015	7035	7055
BW 40M	Channel	195		203		211		219	
	Freq. (MHz)	6925		6965		7005		7045	
BW 80M	Channel	199				215			
	Freq. (MHz)	6945				7025			

BW 20M	Channel	225				229			
	Freq. (MHz)	7075				7095			
BW 40M	Channel	227							
	Freq. (MHz)	7085							

2.2 Test Mode

This device support 26/52/106/242/484/996-tone RU.

The PSD of partial RU is reduced to be smaller than full RU according to TCB workshop interim guidance Oct. 2022.

The 802.11ax mode is investigated among different tones, full resource units (RU), partial resource units. The partial RU has no higher power than full RU's, thus the full RU is chosen as main test configuration.

The 242-tone RU is covered by 20MHz channel, 484-tone RU is covered by 40MHz channel and 996-tone RU is covered by 80MHz channel.

The SISO mode conducted power is covered by MIMO mode per chain, so only the MIMO mode is tested.

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

MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0

Remark: The conducted power level of each chain in MIMO mode is equal or higher than SISO mode.

Test Cases	
AC Conducted Emission	Mode 1 : LTE Band 26 Idle + WLAN (6GHz) Link + Bluetooth Link + USB Cable 1 (Charging from Adapter) + Recording mode ; Battery < 50% + Rear Camera
Remark: - For Radiated Test Cases, the tests were performed with USB Cable 1. - During the preliminary test, both charging modes (Adapter mode and WPC Rx mode) were verified. It is determined that the adaptor mode is the worst case for official test.	



Based on ANSI C63.10 clause 5.6.2.2, b) spurious emissions,

Measure the mode with the highest output power and the mode with highest output power spectral density for each modulation family.

		5.6.2.2 (b) Spurious Emissions
UNII-5	20MHz	Covered by 80MHz
	40MHz	Covered by 80MHz
	80MHz	Test
UNII-6	20MHz	Covered by 80MHz
	40MHz	Covered by 80MHz
	80MHz	Test
UNII-7	20MHz	Covered by 80MHz
	40MHz	Covered by 80MHz
	80MHz	Test
UNII-8	20MHz	Covered by 80MHz
	40MHz	Covered by 80MHz
	80MHz	Test

Ch. #		UNII-5 (5925-6425 MHz)	UNII-6 (6425-6525 MHz)	UNII-7 (6525-6875 MHz)	UNII-8 (6875-7125 MHz)
		802.11a	802.11a	802.11a	802.11a
L	Low	001	-	-	-
M	Middle	-	-	-	-
H	High	-	-	-	229
Straddle		-	-	-	-

Ch. #		UNII-5 (5925-6425 MHz)	UNII-6 (6425-6525 MHz)	UNII-7 (6525-6875 MHz)	UNII-8 (6875-7125 MHz)
		802.11ax HE20	802.11ax HE20	802.11ax HE20	802.11ax HE20
L	Low	001	-	-	-
M	Middle	-	-	-	-
H	High	-	-	-	229
Straddle		-	-	-	-

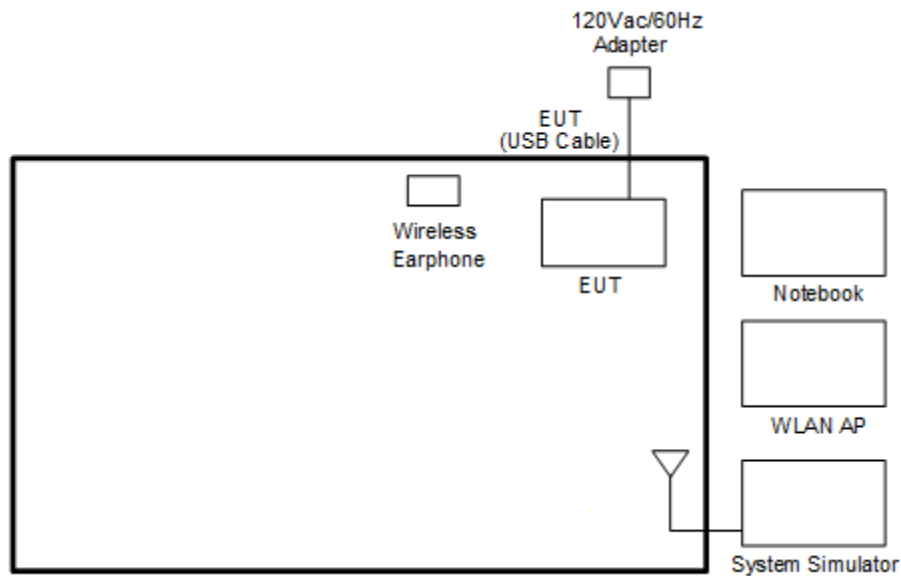
Ch. #		UNII-5 (5925-6425 MHz)	UNII-6 (6425-6525 MHz)	UNII-7 (6525-6875 MHz)	UNII-8 (6875-7125 MHz)
		802.11ax HE40	802.11ax HE40	802.11ax HE40	802.11ax HE40
L	Low	003	-	-	-
M	Middle	-	-	-	-
H	High	-	-	-	227
Straddle		-	-	-	-

Ch. #		UNII-5 (5925-6425 MHz)	UNII-6 (6425-6525 MHz)	UNII-7 (6525-6875 MHz)	UNII-8 (6875-7125 MHz)
		802.11ax HE80	802.11ax HE80	802.11ax HE80	802.11ax HE80
L	Low	007	103	135	199
M	Middle	055		151	-
H	High	087		167	215
Straddle		-	119	183	-

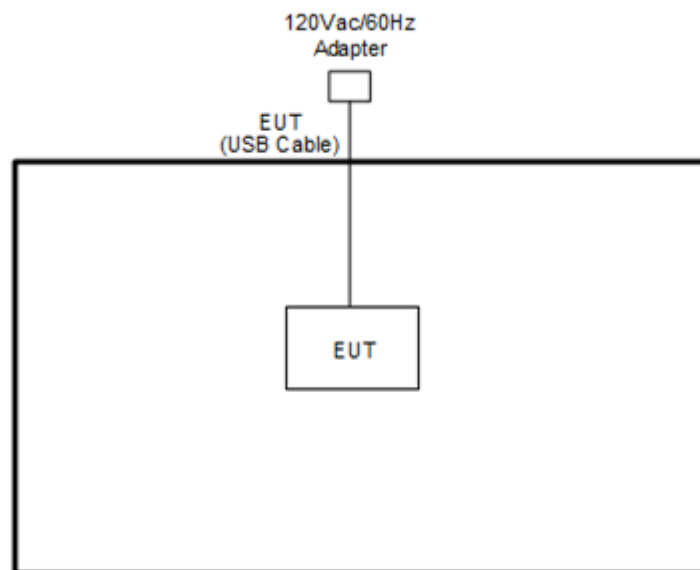
Remark: Based on ANSI C63.10 clause 5.6.2.2, b) Spurious emissions, measure the mode with the highest output power and the mode with highest output power spectral density for each modulation family.

2.3 Connection Diagram of Test System

<AC Conducted Emission Mode>



<WLAN Tx Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8m
2.	WLAN AP	ASUS	GT-AXE11000	FCC DoC	N/A	Unshielded, 1.8m
3.	Notebook	Dell	Latitude 3420	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Wireless Earphone	N/A	G1007/G1008	A4RG1007/ A4RG1008	N/A	N/A
5.	Adapter	N/A	GW8L7	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “Cmd Version 1.0.32” 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.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\
 &= 4.2 + 10 = 14.2 \text{ (dB)}
 \end{aligned}$$

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Limit of 26dB & 99% Occupied Bandwidth

<FCC 14-30 CFR 15.407>

(a)(10) The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

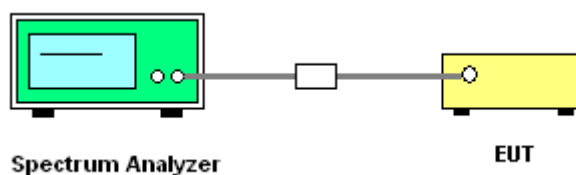
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. 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%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

3.2 Fundamental Maximum EIRP Measurement

3.2.1 Limit of Fundamental Maximum EIRP

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

3.2.2 Measuring Instruments

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

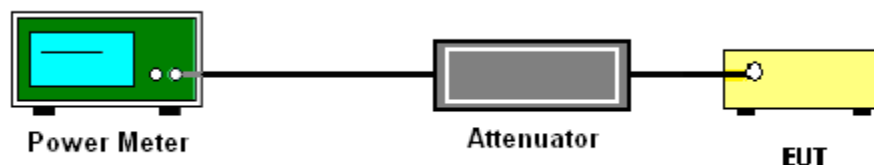
3.2.3 Test Procedures

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

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.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Fundamental Maximum EIRP

Please refer to Appendix A.



3.3 Fundamental Power Spectral Density Measurement

3.3.1 Limit of Fundamental Power Spectral Density

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed -1 dBm e.i.r.p. in any 1-megahertz band.

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section F) Maximum power spectral density.

Method SA-2

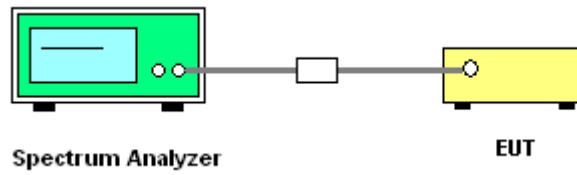
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
 2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
 3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (a): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points; the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 In-Band Emissions (Channel Mask)

3.4.1 Limit of Unwanted Emissions

<FCC 14-30 CFR 15.407>

(a)(6) For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

3.4.2 Measuring Instruments

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

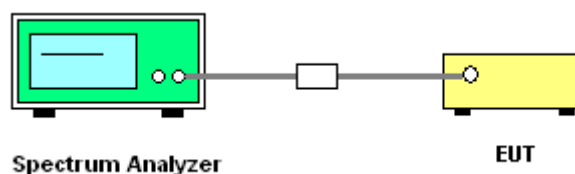
3.4.3 Test Procedures

The testing follows FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v01.

Section J) In-Band Emissions.

1. Take nominal bandwidth as reference channel bandwidth provided that 26 dB emission bandwidth is always larger than nominal bandwidth
2. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:
 - a) Set the span to encompass the entire 26 dB EBW of the signal.
 - b) Set RBW = same RBW used for 26 dB EBW measurement.
 - c) Set VBW $\geq 3 \times$ RBW
 - d) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$.
 - e) Sweep time = auto.
 - f) Detector = RMS (i.e., power averaging)
 - g) Trace average at least 100 traces in power averaging (rms) mode.
 - h) Use the peak search function on the instrument to find the peak of the spectrum.
3. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
 - a. Suppressed by 20 dB at 1 MHz outside of the channel edge.
 - b. Suppressed by 28 dB at one channel bandwidth from the channel center.
 - c. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.
4. Adjust the span to encompass the entire mask as necessary.
5. Clear trace.
6. Trace average at least 100 traces in power averaging (rms) mode.
7. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

3.4.4 Test Setup



3.4.5 Test Result

Please refer to Appendix A.

3.5 Contention Based Protocol

3.5.1 Limit of Contention Based Protocol

<FCC 14-30 CFR 15.407>

(d)(6) Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band must employ a contention-based protocol.

FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v01

Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel and stay off the channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm). The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain. To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

Table 1. Criteria to determine number of times detection threshold test may be performed

If	Number of Tests	Placement of Incumbent Transmission
$BW_{EUT} \leq BW_{Inc}$	Once	Tune incumbent and EUT transmissions ($f_{c1} = f_{c2}$)
$BW_{Inc} < BW_{EUT} \leq 2BW_{Inc}$	Once	Incumbent transmission is contained within BW_{EUT}
$2BW_{Inc} < BW_{EUT} \leq 4BW_{Inc}$	Twice. Incumbent transmission is contained within BW_{EUT}	Incumbent transmission is located as closely as possible to the lower edge and upper edge, respectively, of the EUT channel
$BW_{EUT} > 4BW_{Inc}$	Three times	Incumbent transmission is located as closely as possible to the lower edge of the EUT channel, in the middle of EUT channel, and as closely as possible to the upper edge of the EUT channel

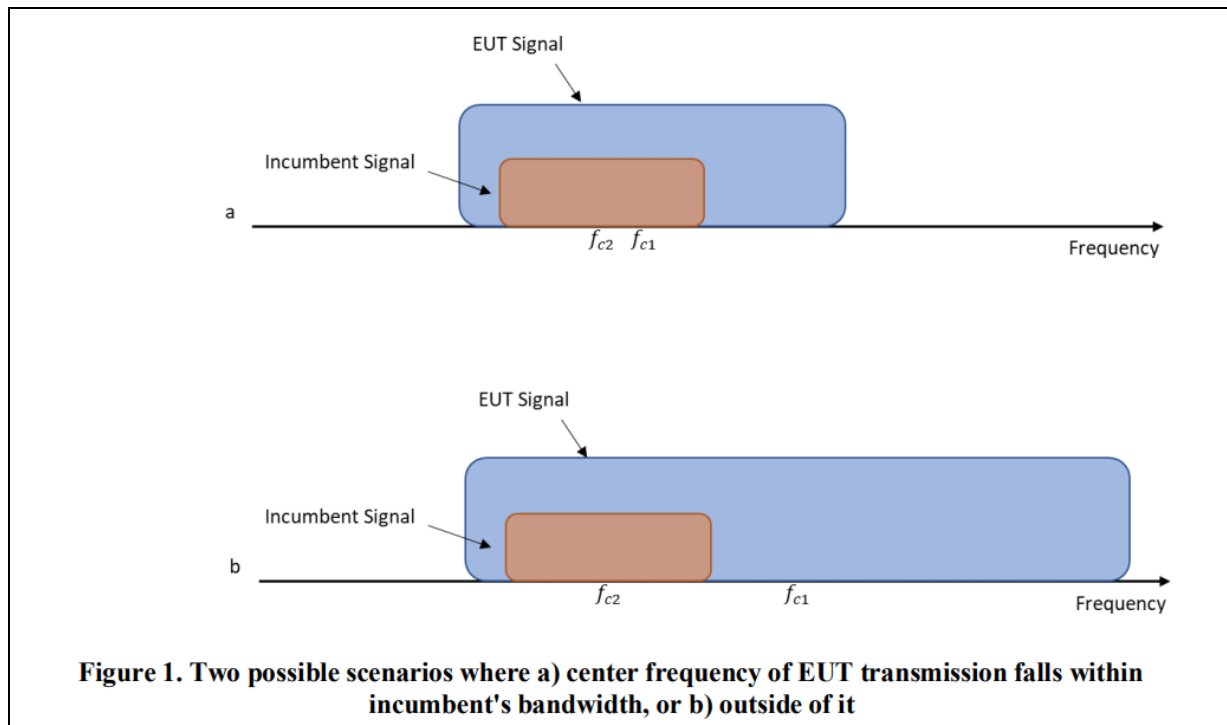
where:

BW_{EUT} : Transmission bandwidth of EUT signal

BW_{Inc} : Transmission bandwidth of the simulated incumbent signal (10 MHz wide AWGN signal)

f_{c1} : Center frequency of EUT transmission

f_{c2} : Center frequency of simulated incumbent signal



3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

The testing follows FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v01.

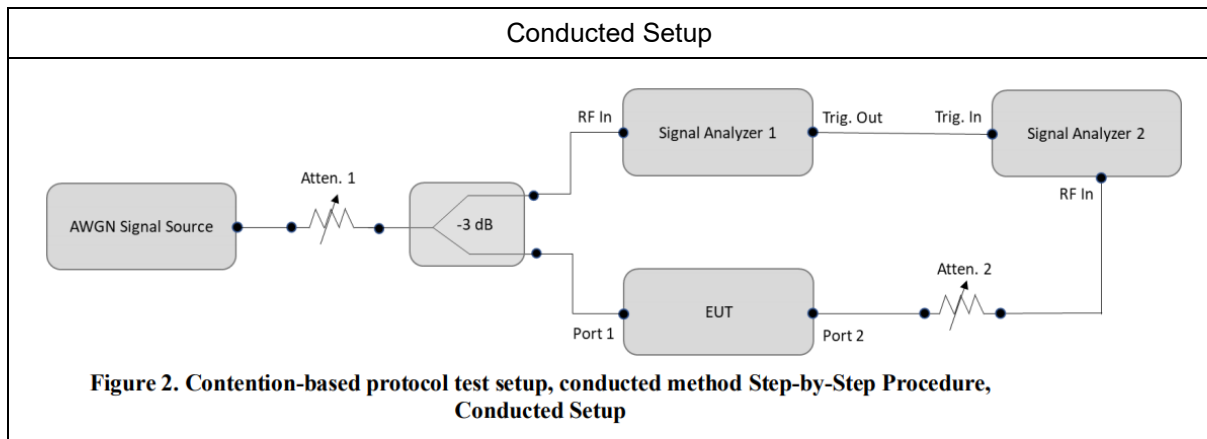
Section I) Contention Based Protocol

Conducted method Step-by-Step Procedure, Conducted Setup

1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
3. Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT.
4. Connect the output port of the EUT to the signal analyzer 2, as shown in test setup Figure 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
5. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
6. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
7. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in test setup Figure 2.
8. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.

9. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
10. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
11. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.
12. For the contention-based protocol test where only one channel in each supported sub-band needs to be tested. The narrowest and widest bandwidth in each channel shall be measured EUT was driven in MIMO mode, the interferer level was injected to both chains to monitor the performance, while the interferer level is determined according the lowest antenna gain among both antennas (i.e, lower interferer level).

3.5.4 Test Setup



3.5.5 Support Unit used in test configuration and system

Instrument	Brand Name	Model No.	Characteristics
WLAN AP	ASUS	GT-AXE11000	Dual Band AP
Notebook	Acer	N15C1	LAN

3.5.6 Minimum Antenna gain for Contention Based Protocol Test

Antenna Gain	<UNII-5>: -4.9 dBi <UNII-6>: -5.7 dBi <UNII-7>: -2.6 dBi <UNII-8>: -3.3 dBi
--------------	--



3.5.7 Test Summary of Contention Based Protocol Test

Test Engineer :	Ray Wang	Temperature :	22.1~23.5℃
		Relative Humidity :	50.8~59.4%

Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 5	6135	20	6135	-71.20	100	-62	-66.30	4.30
				Result: Stop Transmission				
				-72.20	< 90	-62	-67.30	5.30
				Result: Minimal Operation				
				-73.20	0	-62	-68.30	6.30
				Result: Normal Operation				
	6145	80	6110	-69.17	100	-62	-64.27	2.27
				Result: Stop Transmission				
				-72.17	< 90	-62	-67.27	5.27
				Result: Minimal Operation				
				-73.17	0	-62	-68.27	6.27
				Result: Normal Operation				
			6145	-70.16	100	-62	-65.26	3.26
				Result: Stop Transmission				
				-73.16	< 90	-62	-68.26	6.26
				Result: Minimal Operation				
				-74.16	0	-62	-69.26	7.26
				Result: Normal Operation				
			6180	-68.19	100	-62	-63.29	1.29
				Result: Stop Transmission				
				-70.19	< 90	-62	-65.29	3.29
				Result: Minimal Operation				
				-71.19	0	-62	-66.29	4.29
				Result: Normal Operation				

Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (-4.9 dBi).

Note 2: The antenna gain has included the path loss between RF connector and antenna.

Note 3: Margin = Regulated Threshold level - Adjusted Power.



Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 6	6455	20	6455	-71.48	100	-62	-65.78	3.78
				Result: Stop Transmission				
				-73.48	< 90	-62	-67.78	5.78
				Result: Minimal Operation				
				-74.48	0	-62	-68.78	6.78
				Result: Normal Operation				
	6465	80	6430	-69.31	100	-62	-63.61	1.61
				Result: Stop Transmission				
				-73.31	< 90	-62	-67.61	5.61
				Result: Minimal Operation				
				-74.31	0	-62	-68.61	6.61
				Result: Normal Operation				
			6465	-69.41	100	-62	-63.71	1.71
				Result: Stop Transmission				
				-72.41	< 90	-62	-66.71	4.71
				Result: Minimal Operation				
				-73.41	0	-62	-67.71	5.71
				Result: Normal Operation				
			6500	-69.40	100	-62	-63.70	1.70
				Result: Stop Transmission				
				-71.40	< 90	-62	-65.70	3.70
				Result: Minimal Operation				
				-72.40	0	-62	-66.70	4.70
				Result: Normal Operation				

Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (-5.7 dBi).

Note 2: The antenna gain has included the path loss between RF connector and antenna.

Note 3: Margin = Regulated Threshold level - Adjusted Power.



Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 7	6695	20	6695	-71.29	100	-62	-68.69	6.69
				Result: Stop Transmission				
				-72.29	< 90	-62	-69.69	7.69
				Result: Minimal Operation				
				-73.29	0	-62	-70.69	8.69
				Result: Normal Operation				
	6705	80	6670	-67.09	100	-62	-64.49	2.49
				Result: Stop Transmission				
				-72.09	< 90	-62	-69.49	7.49
				Result: Minimal Operation				
				-73.09	0	-62	-70.49	8.49
				Result: Normal Operation				
			6705	-69.36	100	-62	-66.76	4.76
				Result: Stop Transmission				
				-72.36	< 90	-62	-69.76	7.76
				Result: Minimal Operation				
				-73.36	0	-62	-70.76	8.76
				Result: Normal Operation				
			6740	-68.15	100	-62	-65.55	3.55
				Result: Stop Transmission				
				-70.15	< 90	-62	-67.55	5.55
				Result: Minimal Operation				
				-71.15	0	-62	-68.55	6.55
				Result: Normal Operation				

Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (-2.6 dBi).

Note 2: The antenna gain has included the path loss between RF connector and antenna.

Note 3: Margin = Regulated Threshold level - Adjusted Power.



Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 8	7015	20	7015	-70.78	100	-62	-67.48	5.48
					Result: Stop Transmission			
				-72.78	< 90	-62	-69.48	7.48
					Result: Minimal Operation			
				-73.78	0	-62	-70.48	8.48
					Result: Normal Operation			
	7025	80	6990	-69.02	100	-62	-65.72	3.72
					Result: Stop Transmission			
				-71.02	< 90	-62	-67.72	5.72
					Result: Minimal Operation			
				-72.02	0	-62	-68.72	6.72
					Result: Normal Operation			
			7025	-67.85	100	-62	-64.55	2.55
					Result: Stop Transmission			
				-70.85	< 90	-62	-67.55	5.55
					Result: Minimal Operation			
				-71.85	0	-62	-68.55	6.55
					Result: Normal Operation			
			7060	-69.05	100	-62	-65.75	3.75
					Result: Stop Transmission			
				-70.05	< 90	-62	-66.75	4.75
					Result: Minimal Operation			
				-71.05	0	-62	-67.75	5.75
					Result: Normal Operation			

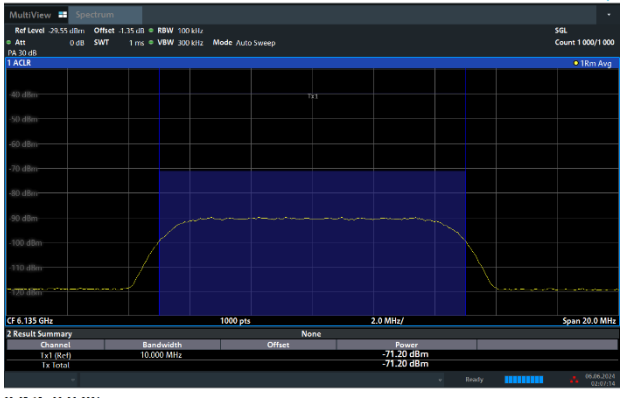
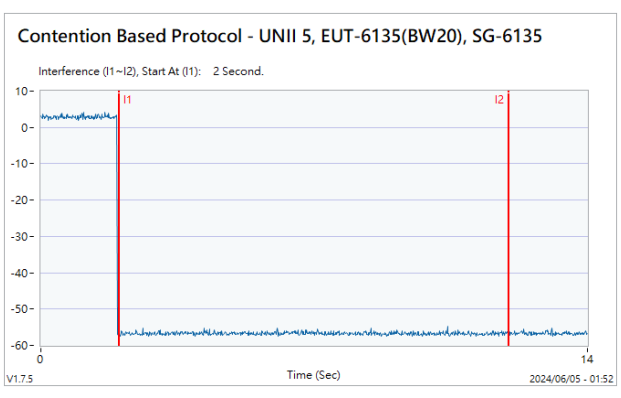
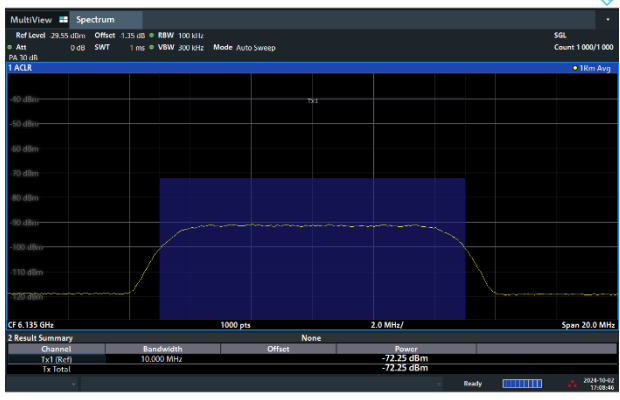
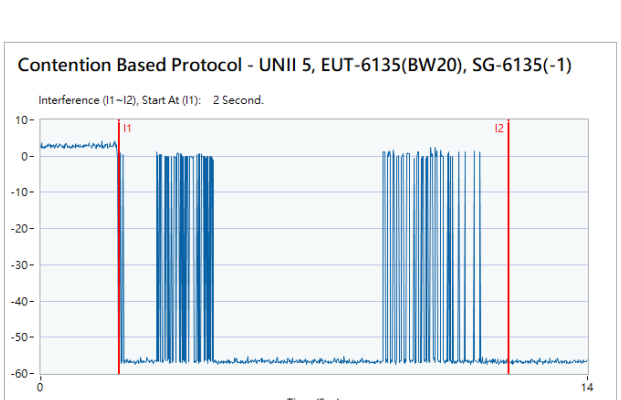
Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (-4.3 dBi).

Note 2: The antenna gain has included the path loss between RF connector and antenna.

Note 3: Margin = Regulated Threshold level - Adjusted Power.



3.5.8 Test Plots of Contention Based Protocol Test

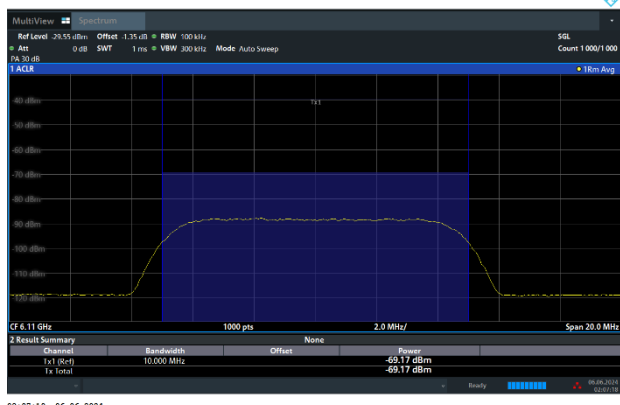
Contention Based Protocol Result Plots on U-NII 5 (AWGN Interference)	
802.11ax (HE20) / 6135MHz Threshold Level (TL) = -71.20dBm	802.11ax (HE20) / CH37 Test result is pass due to no transmission occur.
	
802.11ax (HE20) / 6135MHz Threshold Level (TL) = -72.25dBm	802.11ax (HE20) / CH37 Transmit when the interferer is 1dB lower.
	



Contention Based Protocol Result Plots on U-NII 5 (AWGN Interference)

802.11ax (HE80) / 6110MHz (Lower edge)

Threshold Level (TL) = -69.17dBm

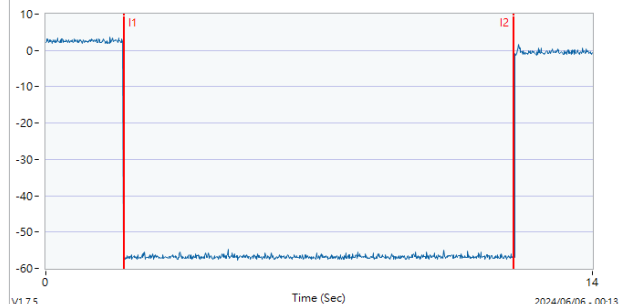


802.11ax (HE80) / CH39 (Lower edge)

Test result is pass due to no transmission occur.

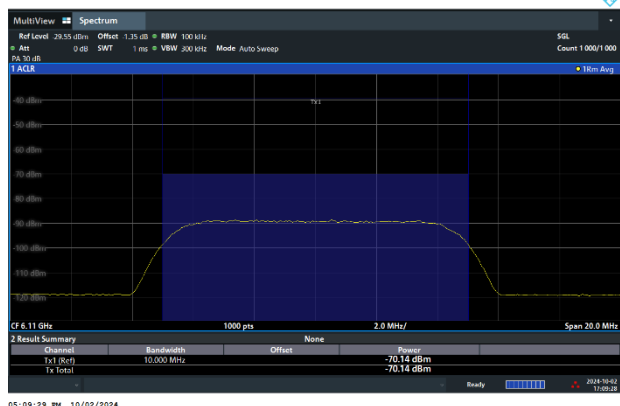
Contention Based Protocol - UNII 5, EUT-6145(BW80), SG-6110

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6110MHz (Lower edge)

Threshold Level (TL) = -70.14dBm

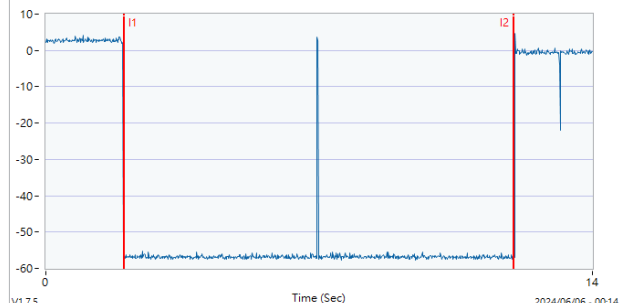


802.11ax (HE80) / CH39 (Lower edge)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 5, EUT-6145(BW80), SG-6110(-1)

Interference (I1~I2), Start At (I1): 2 Second.

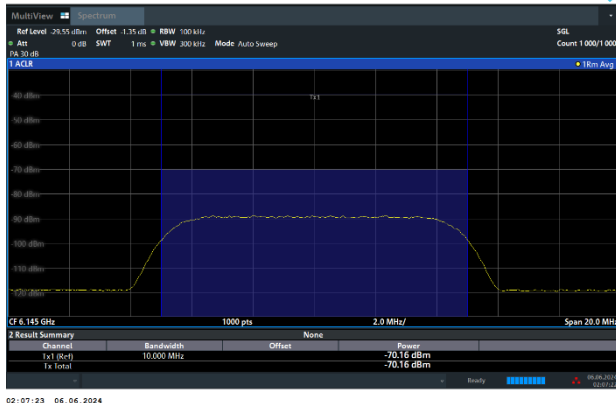




Contention Based Protocol Result Plots on U-NII 5 (AWGN Interference)

802.11ax (HE80) / 6145MHz (Middle)

Threshold Level (TL) = -70.16dBm

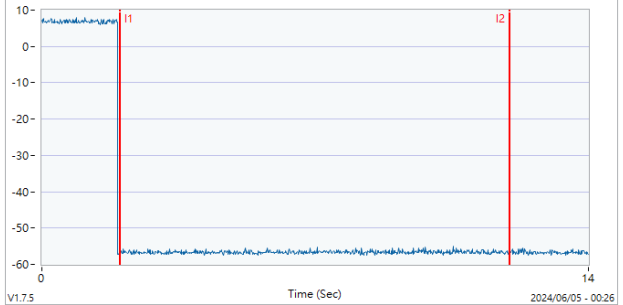


802.11ax (HE80) / CH39 (Middle)

Test result is pass due to no transmission occur.

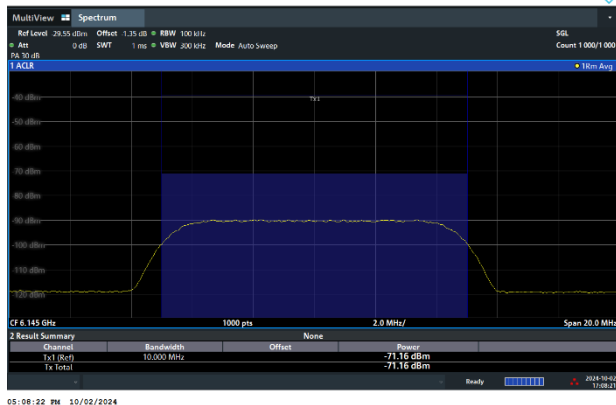
Contention Based Protocol - UNII 5, EUT-6145(BW80), SG-6145

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6145MHz (Middle)

Threshold Level (TL) = -71.16dBm

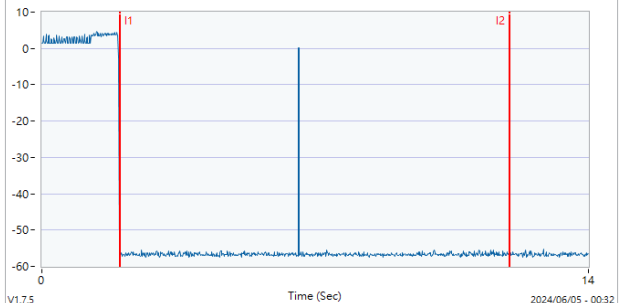


802.11ax (HE80) / CH39 (Middle)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 5, EUT-6145(BW80), SG-6145(-1)

Interference (I1~I2), Start At (I1): 2 Second.

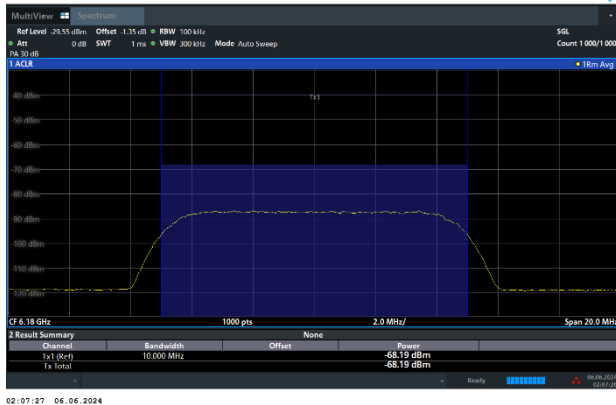




Contention Based Protocol Result Plots on U-NII 5 (AWGN Interference)

802.11ax (HE80) / 6180MHz (Upper edge)

Threshold Level (TL) = -68.19dBm

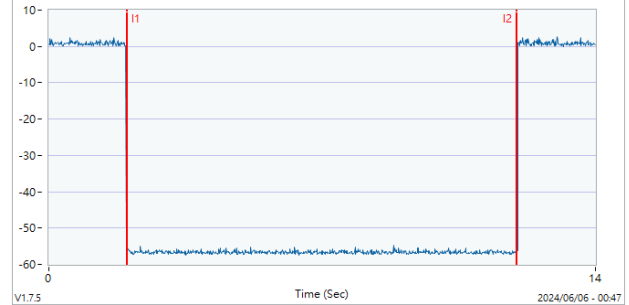


802.11ax (HE80) / CH39 (Upper edge)

Test result is pass due to no transmission occur.

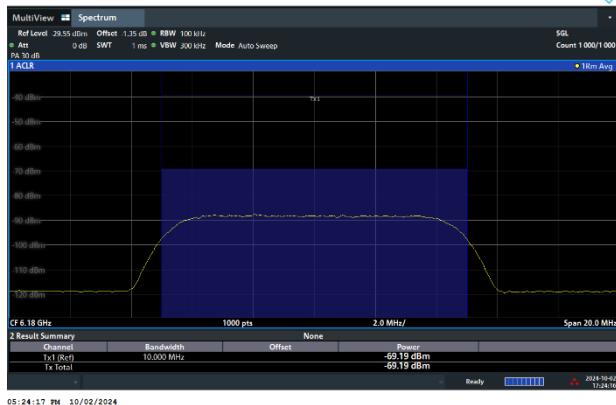
Contention Based Protocol - UNII 5, EUT-6145(BW80), SG-6180

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6180MHz (Upper edge)

Threshold Level (TL) = -69.19dBm

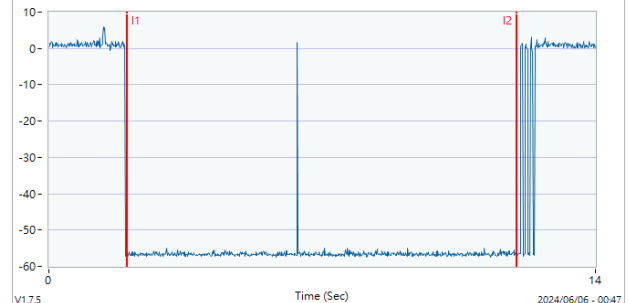


802.11ax (HE80) / CH39 (Upper edge)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 5, EUT-6145(BW80), SG-6180(-1)

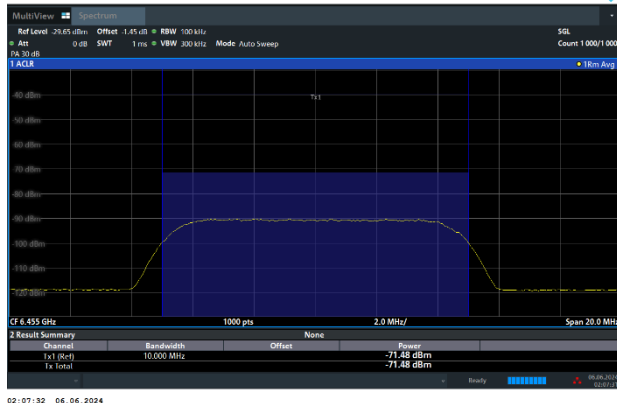
Interference (I1~I2), Start At (I1): 2 Second.





Contention Based Protocol Result Plots on U-NII 6 (AWGN Interference)

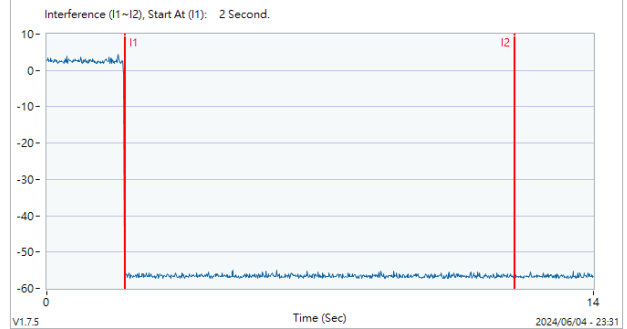
802.11ax (HE20) / 6455MHz
Threshold Level (TL) = -71.48dBm



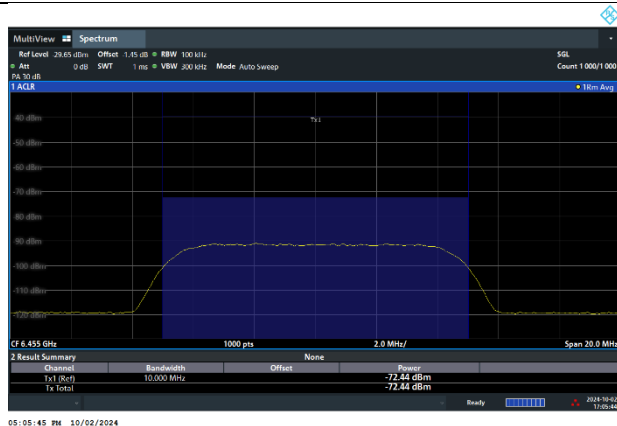
802.11ax (HE20) / CH101

Test result is pass due to no transmission occur.

Contention Based Protocol - UNII 6, EUT-6455(BW20), SG-6455



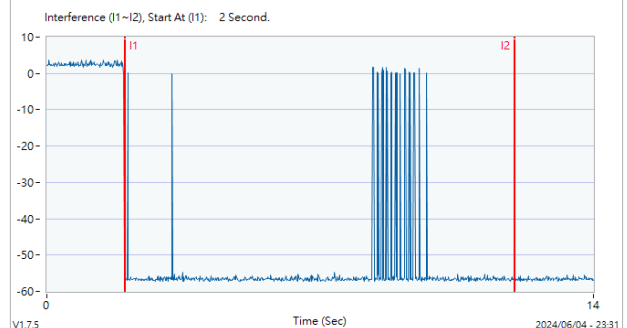
802.11ax (HE20) / 6455MHz
Threshold Level (TL) = -72.44dBm



802.11ax (HE20) / CH101

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 6, EUT-6455(BW20), SG-6455(-1)



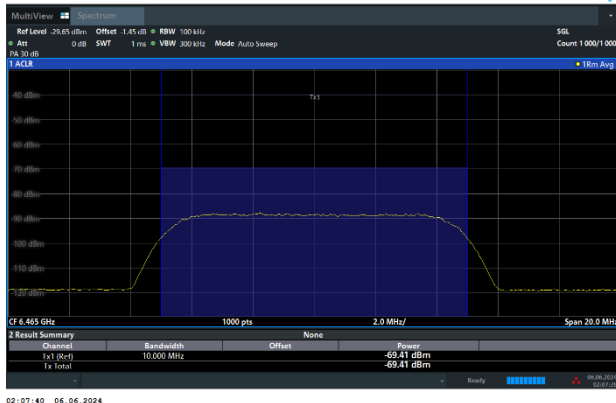




Contention Based Protocol Result Plots on U-NII 6 (AWGN Interference)

802.11ax (HE80) / 6465MHz (Middle)

Threshold Level (TL) = -69.41dBm

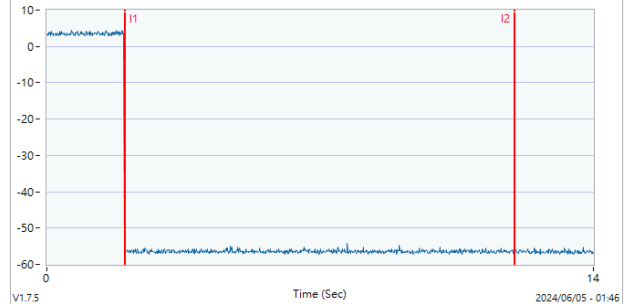


802.11ax (HE80) / CH103 (Middle)

Test result is pass due to no transmission occur.

Contention Based Protocol - UNII 6, EUT-6465(BW80), SG-6465

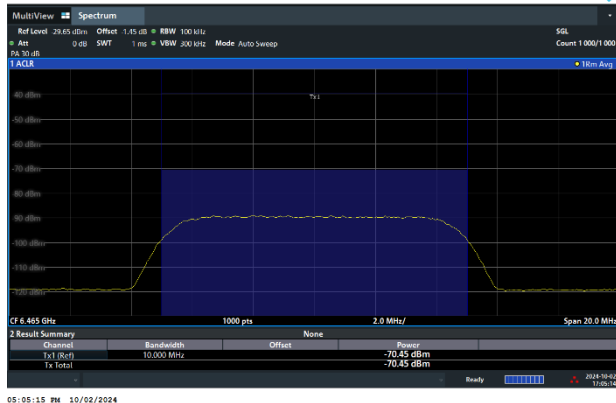
Interference (I1~I2), Start At (I1): 2 Second.



[CBP6465]

802.11ax (HE80) / 6465MHz (Middle)

Threshold Level (TL) = -70.45dBm

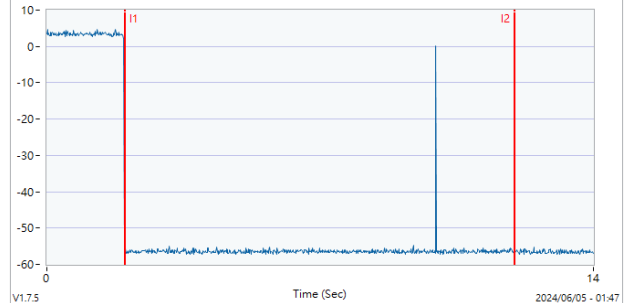


802.11ax (HE80) / CH103 (Middle)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 6, EUT-6465(BW80), SG-6465(-1)

Interference (I1~I2), Start At (I1): 2 Second.

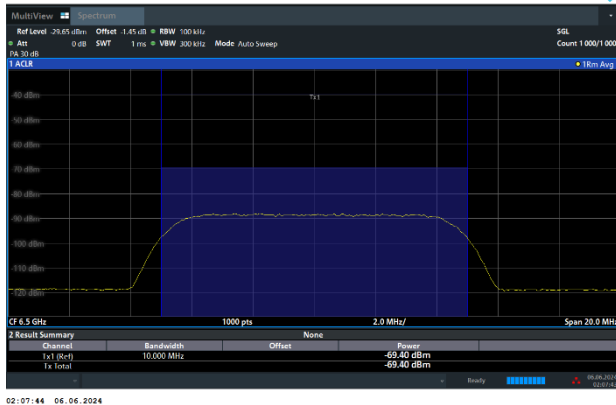




Contention Based Protocol Result Plots on U-NII 6 (AWGN Interference)

802.11ax (HE80) / 6500MHz (Upper edge)

Threshold Level (TL) = -69.40dBm

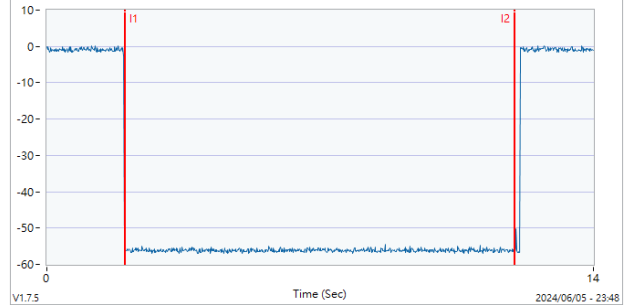


802.11ax (HE80) / CH103 (Upper edge)

Test result is pass due to no transmission occur.

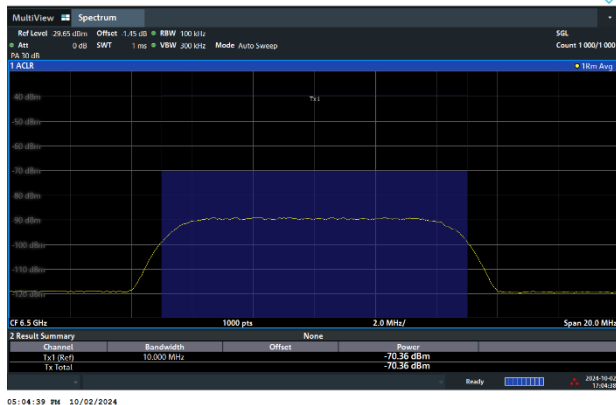
Contention Based Protocol - UNII 6, EUT-6465(BW80), SG-6500

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6500MHz (Upper edge)

Threshold Level (TL) = -70.36dBm

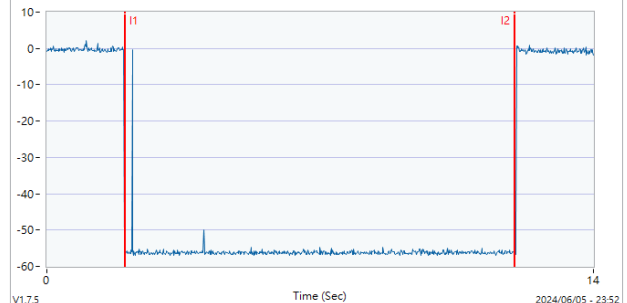


802.11ax (HE80) / CH103 (Upper edge)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 6, EUT-6465(BW80), SG-6500(-1)

Interference (I1~I2), Start At (I1): 2 Second.

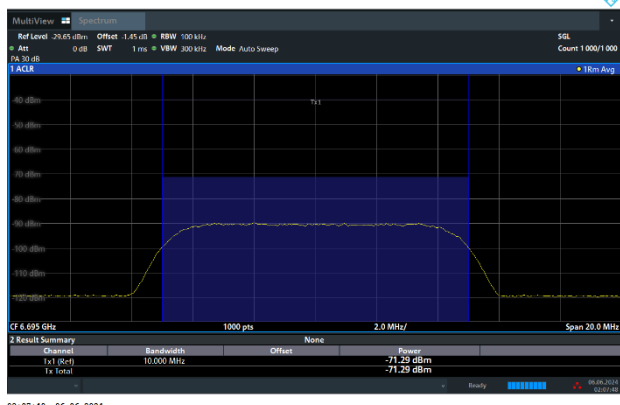




Contention Based Protocol Result Plots on U-NII 7 (AWGN Interference)

802.11ax (HE20) / 6695MHz

Threshold Level (TL) = -71.29dBm

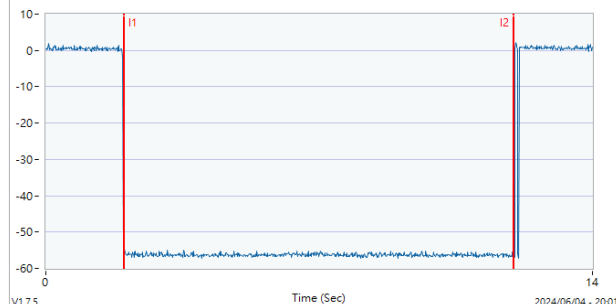


802.11ax (HE20) / CH149

Test result is pass due to no transmission occur.

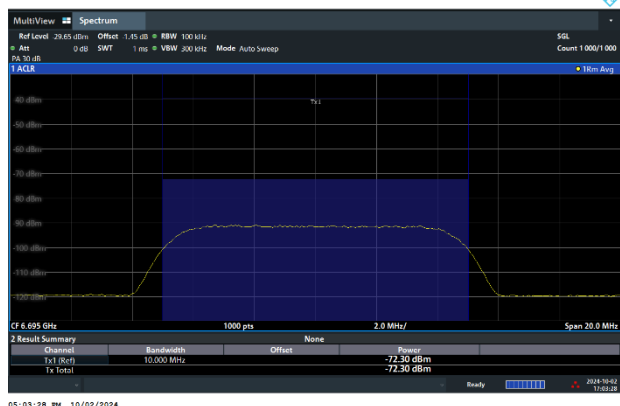
Contention Based Protocol - UNII 7, EUT-6695(BW20), SG-6695

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE20) / 6695MHz

Threshold Level (TL) = -72.30dBm

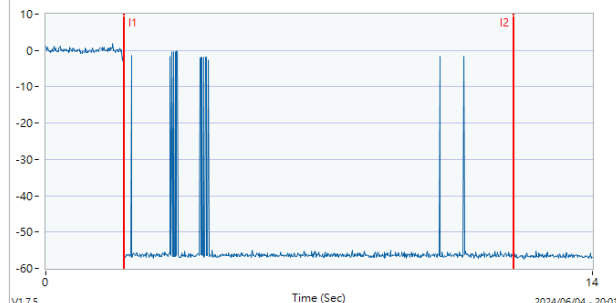


802.11ax (HE20) / CH149

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 7, EUT-6695(BW20), SG-6695(-1)

Interference (I1~I2), Start At (I1): 2 Second.

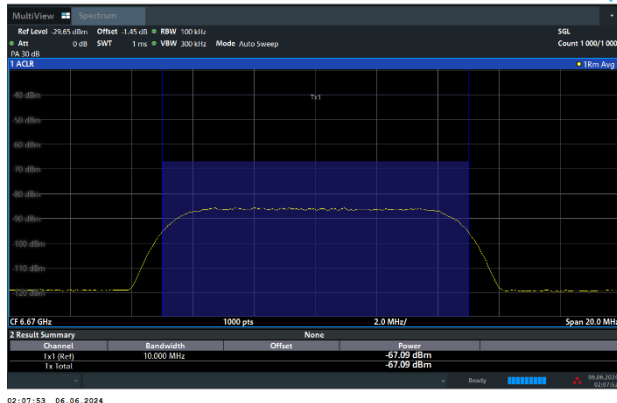




Contention Based Protocol Result Plots on U-NII 7 (AWGN Interference)

802.11ax (HE80) / 6670MHz (Lower edge)

Threshold Level (TL) = -67.09dBm

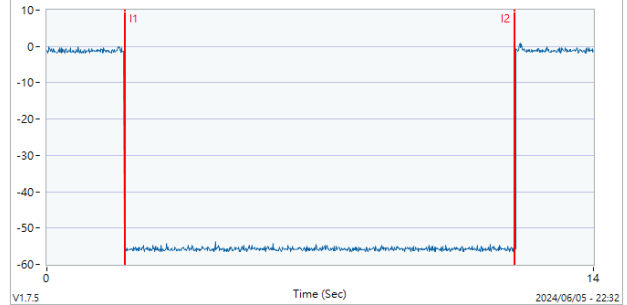


802.11ax (HE80) / CH151 (Lower edge)

Test result is pass due to no transmission occur.

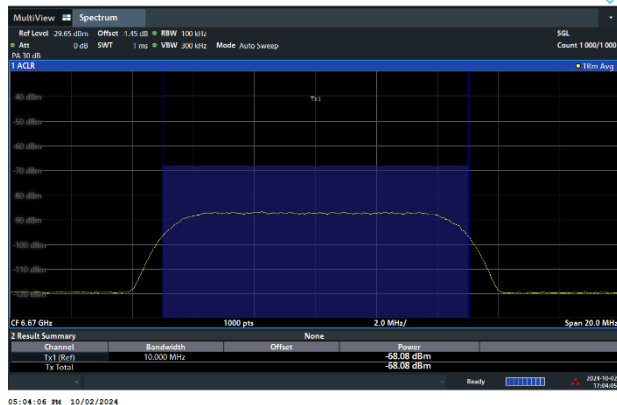
Contention Based Protocol - UNII 7, EUT-6705(BW80), SG-6670

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6670MHz (Lower edge)

Threshold Level (TL) = -68.08Bm

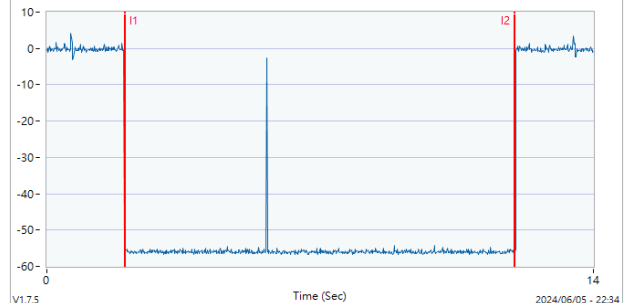


802.11ax (HE80) / CH151 (Lower edge)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 7, EUT-6705(BW80), SG-6670(-1)

Interference (I1~I2), Start At (I1): 2 Second.

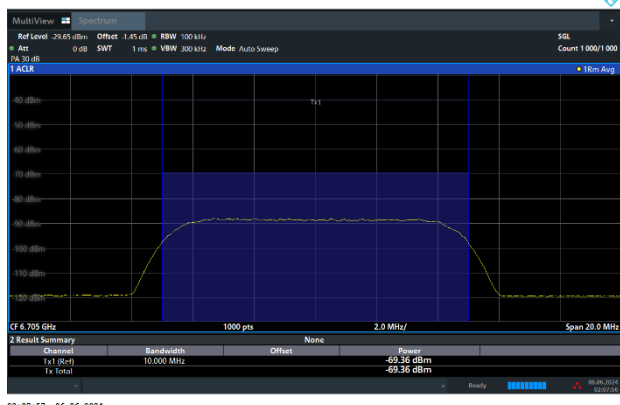




Contention Based Protocol Result Plots on U-NII 7 (AWGN Interference)

802.11ax (HE80) / 6705MHz (Middle)

Threshold Level (TL) = -69.36dBm

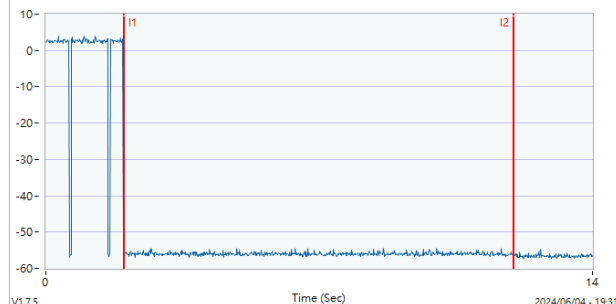


802.11ax (HE80) / CH143 (Middle)

Test result is pass due to no transmission occur.

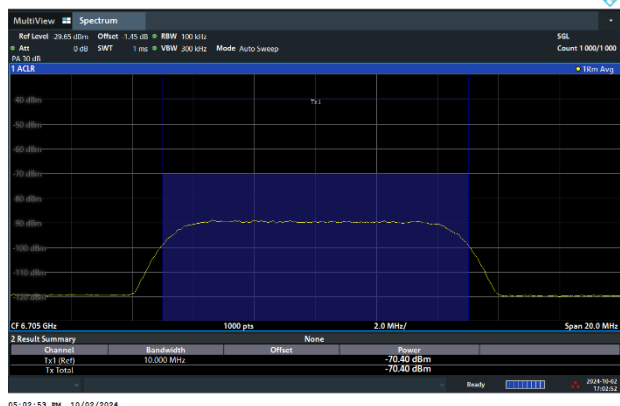
Contention Based Protocol - UNII 7, EUT-6705(BW80), SG-6705

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6705MHz (Middle)

Threshold Level (TL) = -70.40dBm

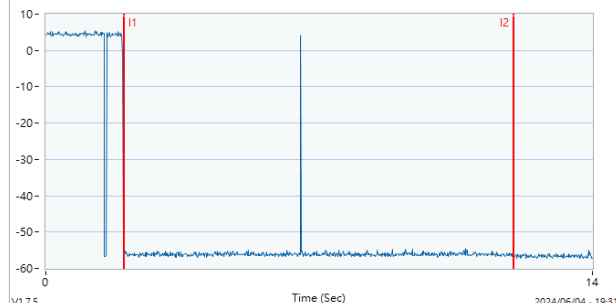


802.11ax (HE80) / CH143 (Middle)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 7, EUT-6705(BW80), SG-6705(-1)

Interference (I1~I2), Start At (I1): 2 Second.

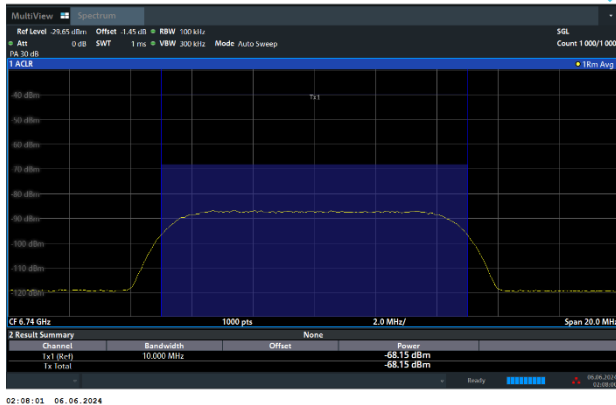




Contention Based Protocol Result Plots on U-NII 7 (AWGN Interference)

802.11ax (HE80) / 6740MHz (Upper edge)

Threshold Level (TL) = -68.15dBm

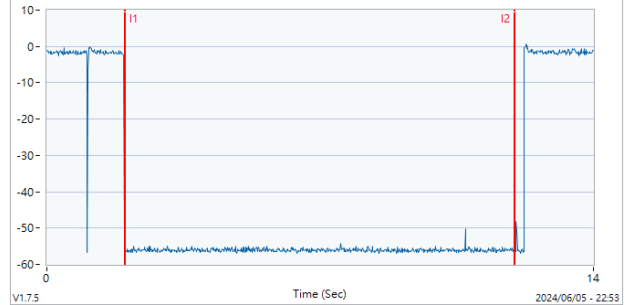


802.11ax (HE80) / CH151 (Upper edge)

Test result is pass due to no transmission occur.

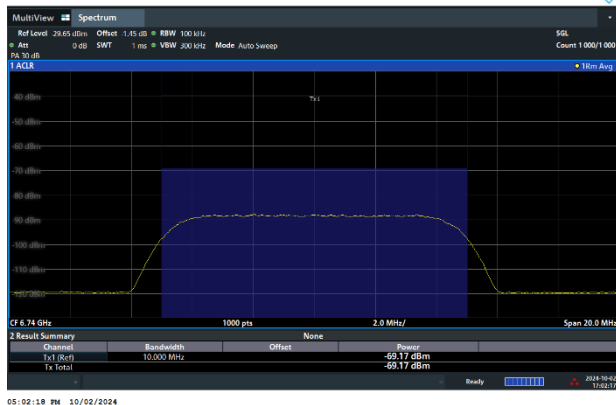
Contention Based Protocol - UNII 7, EUT-6705(BW80), SG-6740

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6740MHz (Upper edge)

Threshold Level (TL) = -69.17Bm

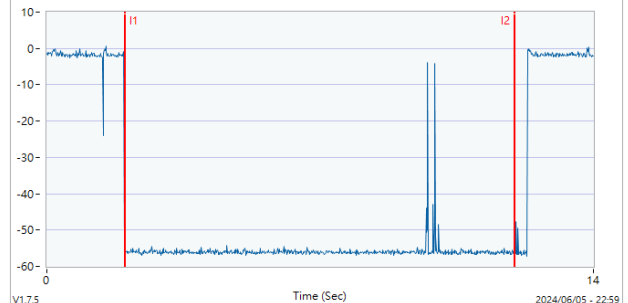


802.11ax (HE80) / CH151 (Upper edge)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 7, EUT-6705(BW80), SG-6740(-1)

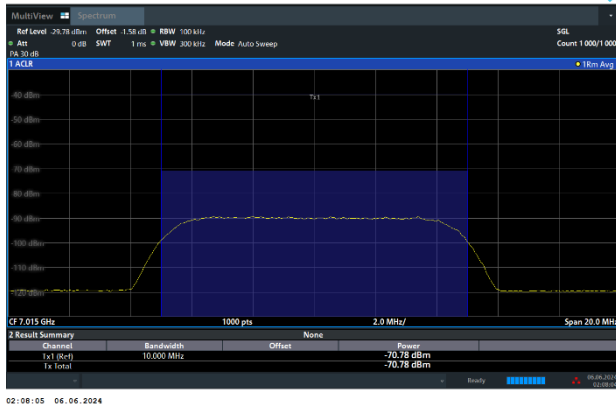
Interference (I1~I2), Start At (I1): 2 Second.





Contention Based Protocol Result Plots on U-NII 8 (AWGN Interference)

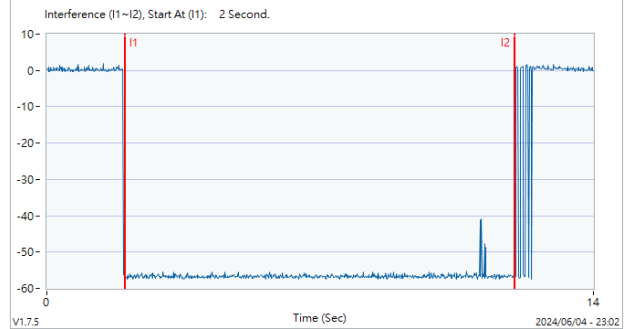
802.11ax (HE20) / 7015MHz
Threshold Level (TL) = -70.78dBm



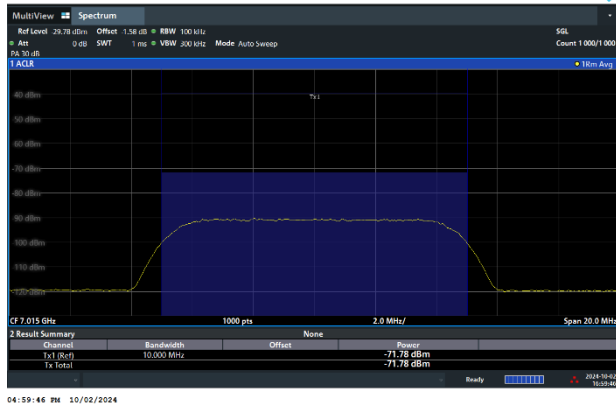
802.11ax (HE20) / CH213

Test result is pass due to no transmission occur.

Contention Based Protocol - UNII 8, EUT-7015(BW20), SG-7015



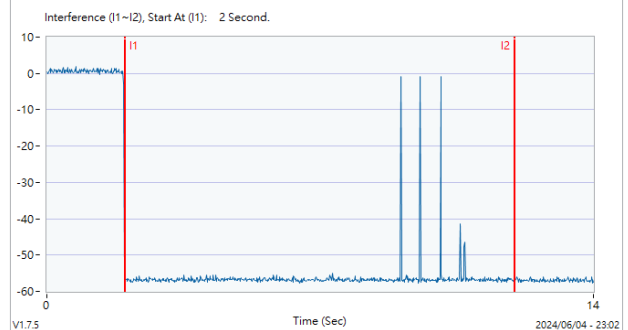
802.11ax (HE20) / 7015MHz
Threshold Level (TL) = -71.78dBm



802.11ax (HE20) / CH213

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 8, EUT-7015(BW20), SG-7015(-1)

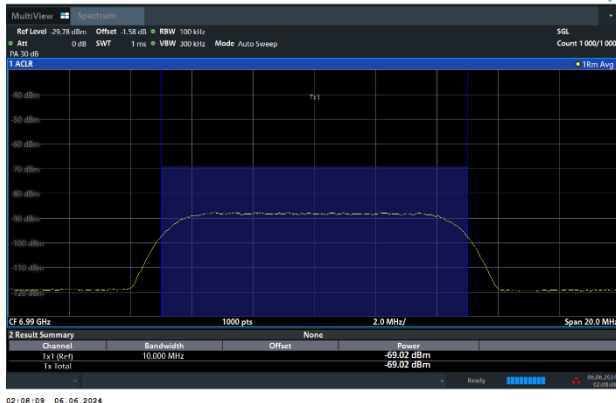




Contention Based Protocol Result Plots on U-NII 8 (AWGN Interference)

802.11ax (HE80) / 6990MHz (Lower edge)

Threshold Level (TL) = -69.02dBm

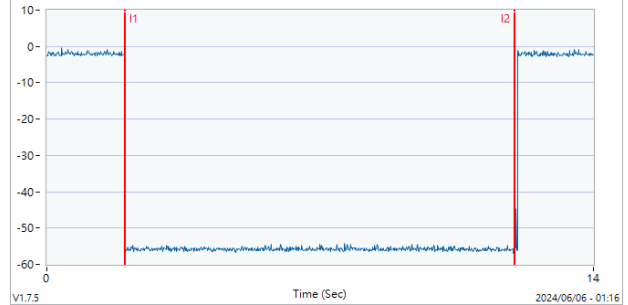


802.11ax (HE80) / CH215 (Lower edge)

Test result is pass due to no transmission occur.

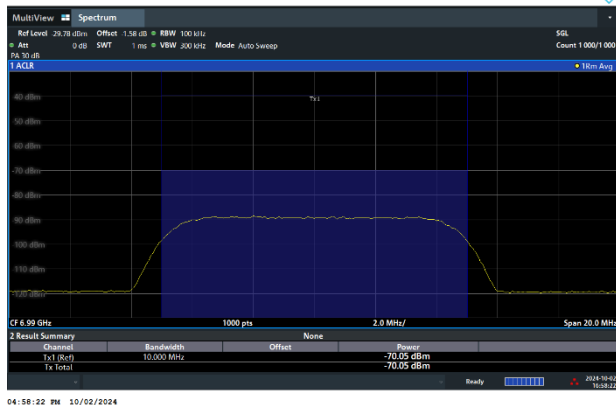
Contention Based Protocol - UNII 8, EUT-7025(BW80), SG-6990

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 6990MHz (Lower edge)

Threshold Level (TL) = -70.05dBm

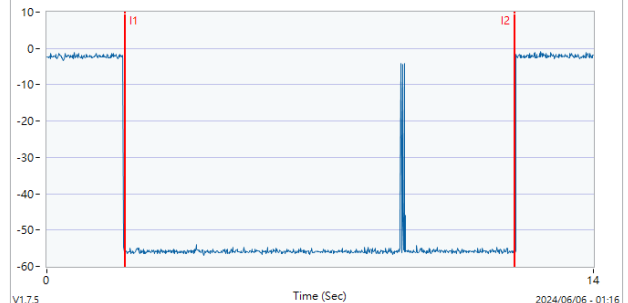


802.11ax (HE80) / CH215 (Lower edge)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 8, EUT-7025(BW80), SG-6990(-1)

Interference (I1~I2), Start At (I1): 2 Second.

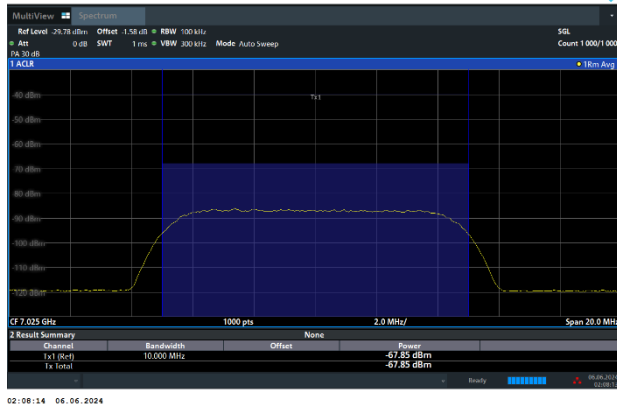




Contention Based Protocol Result Plots on U-NII 8 (AWGN Interference)

802.11ax (HE80) / 7025MHz (Middle)

Threshold Level (TL) = -67.85dBm

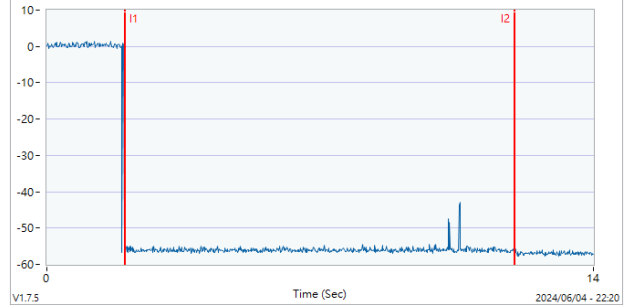


802.11ax (HE80) / CH215 (Middle)

Test result is pass due to no transmission occur.

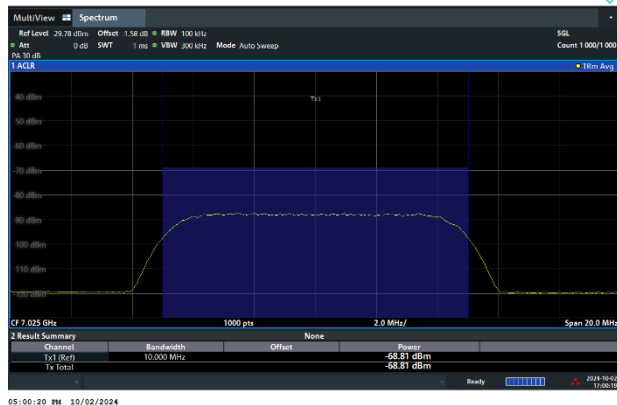
Contention Based Protocol - UNII 8, EUT-7025(BW80), SG-7025

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 7025MHz (Middle)

Threshold Level (TL) = -68.81dBm

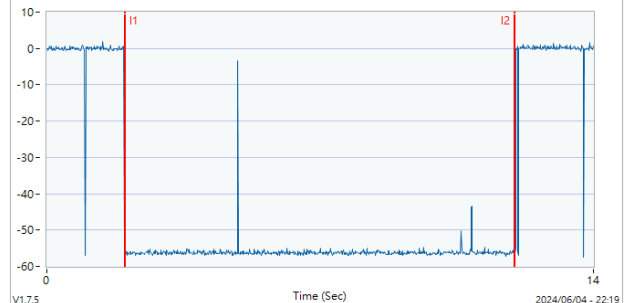


802.11ax (HE80) / CH215 (Middle)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 8, EUT-7025(BW80), SG-7025(-1)

Interference (I1~I2), Start At (I1): 2 Second.

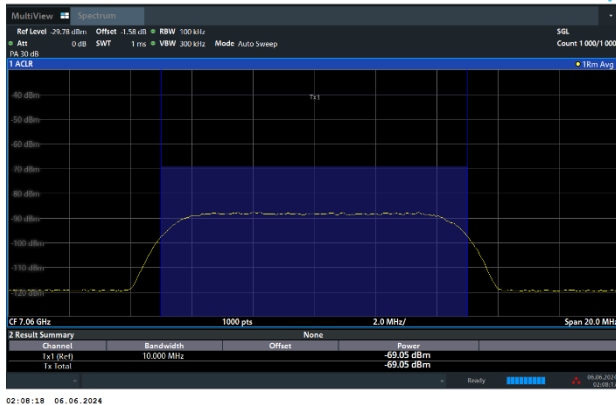




Contention Based Protocol Result Plots on U-NII 8 (AWGN Interference)

802.11ax (HE80) / 7060MHz (Upper edge)

Threshold Level (TL) = -69.05dBm

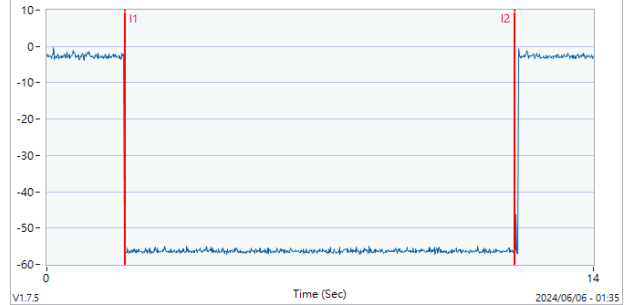


802.11ax (HE80) / CH215 (Upper edge)

Test result is pass due to no transmission occur.

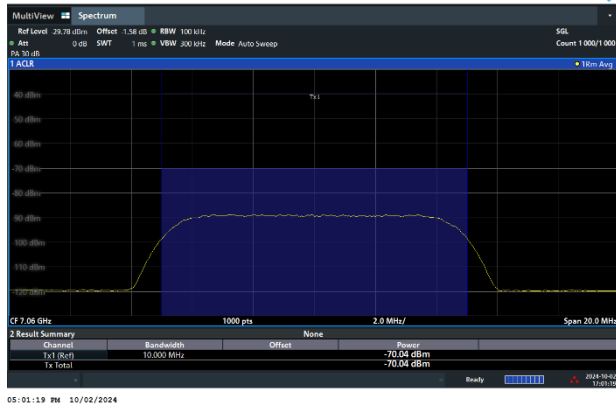
Contention Based Protocol - UNII 8, EUT-7025(BW80), SG-7060

Interference (I1~I2), Start At (I1): 2 Second.



802.11ax (HE80) / 7060MHz (Upper edge)

Threshold Level (TL) = -70.04dBm

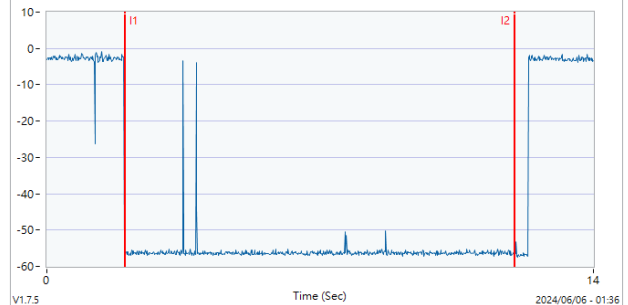


802.11ax (HE80) / CH215 (Upper edge)

Transmit when the interferer is 1dB lower.

Contention Based Protocol - UNII 8, EUT-7025(BW80), SG-7060(-1)

Interference (I1~I2), Start At (I1): 2 Second.





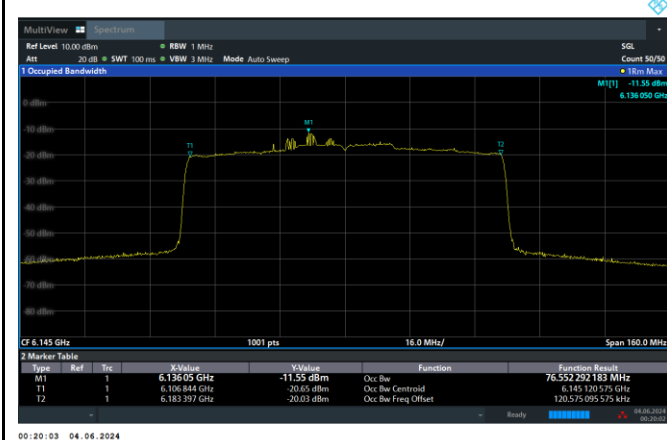
CBP verify with frequency domain plots

The device does not support channel puncturing with regards to Contention Based Protocol.

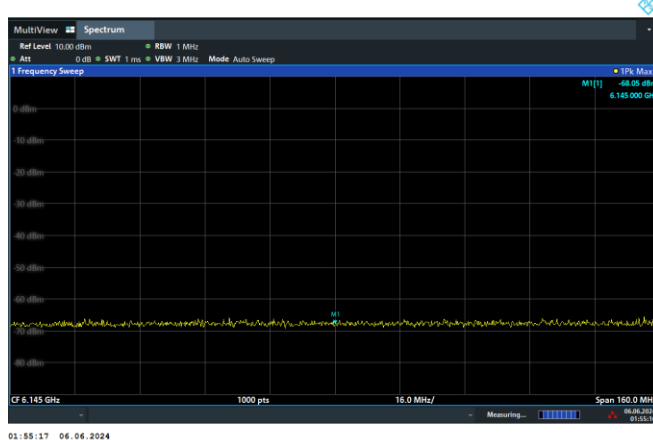
The device does not support bandwidth reduction with regards to Contention Based Protocol.

The entire bandwidth 80MHz stops transmission after the incumbent signal appears.

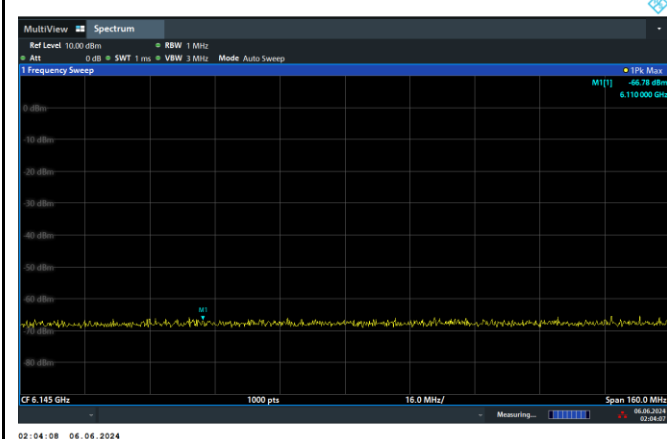
Before incumbent injected on 80MHz channel



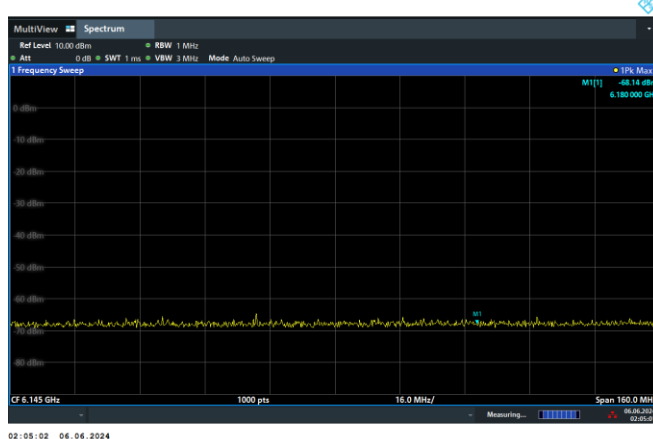
After 10MHz incumbent injected on center of channel, the entire 80MHz bandwidth stops transmission.



After 10MHz incumbent injected on bottom of channel, the entire 80MHz bandwidth stops transmission.



After 10MHz incumbent injected on top of channel, the entire 80MHz bandwidth stops transmission.



3.6 Unwanted Emissions Measurement

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

3.6.1 Limit of Unwanted Emissions

- (1) For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of -27 dBm/MHz.

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27 (RMS)	68.3
- 7 (Peak)	88.3

According 987594 D02 U-NII 6GHz EMC Measurement v01 section G:

Unwanted emissions outside of restricted bands are measured with a RMS detector.

In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (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.

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

3.6.2 Measuring Instruments

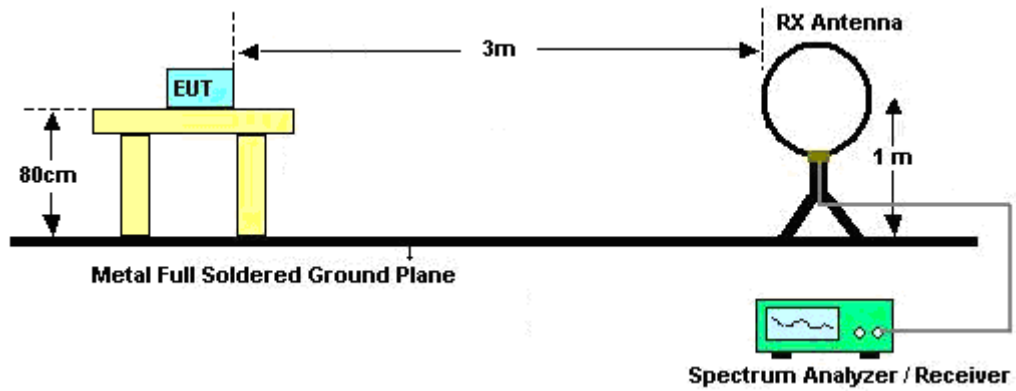
Please refer to the measuring equipment list in this test report.

3.6.3 Test Procedures

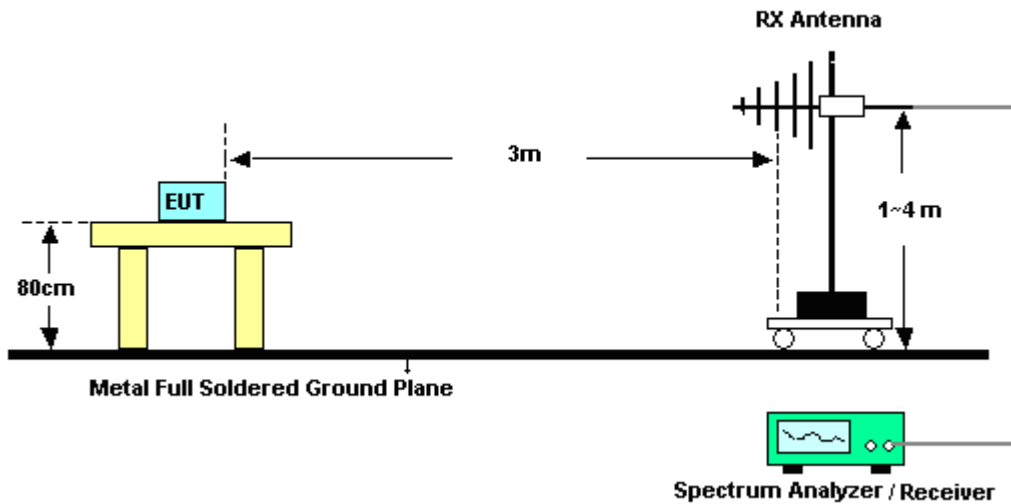
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 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.
2. 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.
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 “-“.

3.6.4 Test Setup

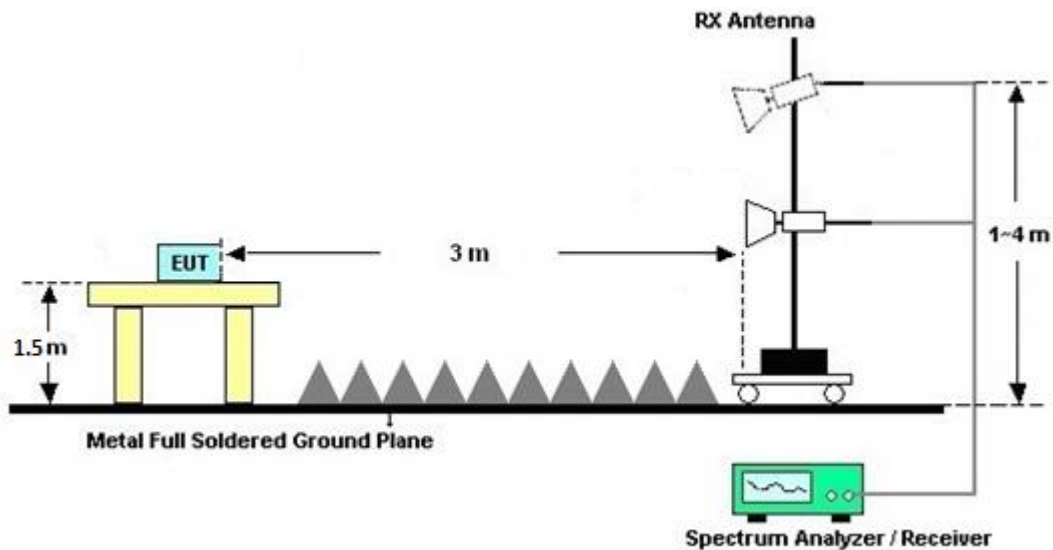
For radiated emissions below 30MHz



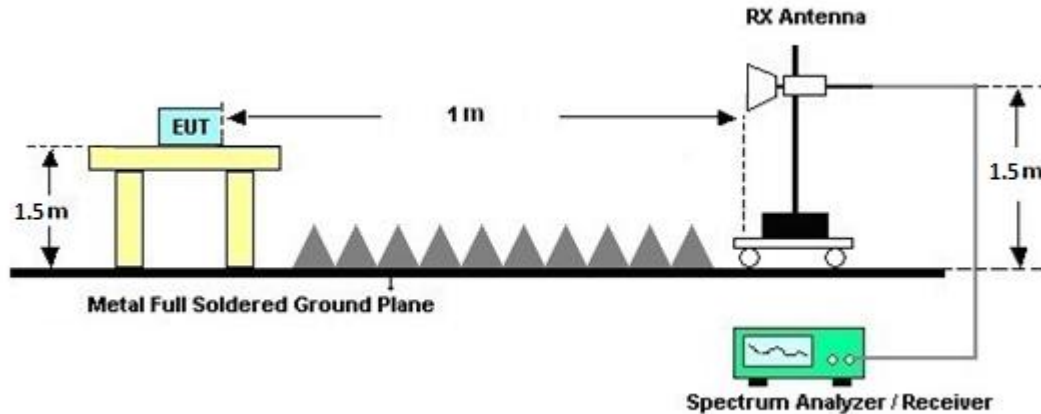
For radiated emissions from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



3.6.5 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.

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.

3.6.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.6.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix C.

3.7 AC Conducted Emission Measurement

3.7.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

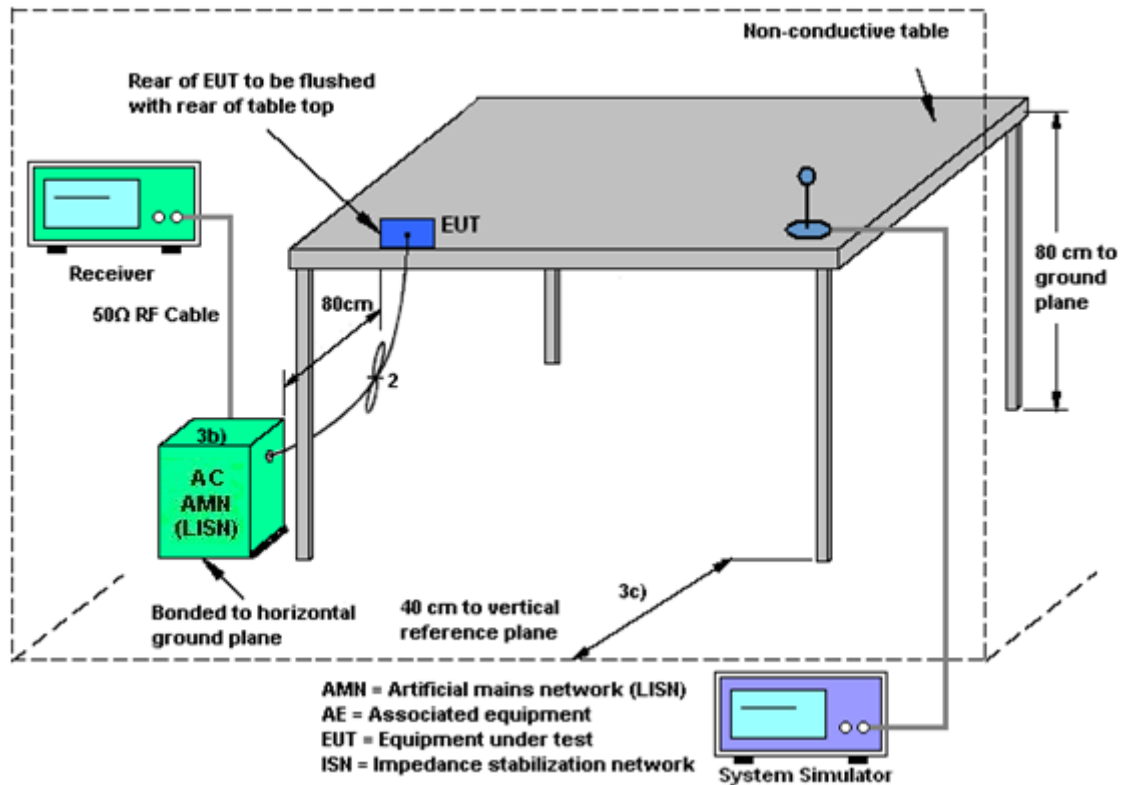
3.7.2 Measuring Instruments

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

3.7.3 Test Procedures

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.7.4 Test Setup



3.7.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.8 Antenna Requirements

3.8.1 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.

3.8.2 Antenna Anti-Replacement Construction

- b) Unique (non-standard) antenna connector.
- (3) Use of a standard connector is also allowed if the connector is within the transmitter enclosure and can only be accessed by disassembly of the transmitter, where such disassembly is not normally required. The user manual must not show that user has access to the connector.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9kHz~30MHz	Feb. 23, 2024	Jul. 11, 2024~ Sep. 06, 2024	Feb. 22, 2025	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	37059 & 01	30MHz~1GHz	Nov. 03, 2023	Jul. 11, 2024~ Sep. 06, 2024	Nov. 02, 2024	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Jul. 11, 2024	Jul. 11, 2024~ Sep. 06, 2024	Jul. 10, 2025	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz~40GHz	Nov. 24, 2023	Jul. 11, 2024~ Sep. 06, 2024	Nov. 23, 2024	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 20, 2024	Jul. 11, 2024~ Sep. 06, 2024	Mar. 19, 2025	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5GHz	May 22, 2024	Jul. 11, 2024~ Sep. 06, 2024	May 21, 2025	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G -56-01-A70	EC1900249	1GHz-18GHz	Dec. 20, 2023	Jul. 11, 2024~ Sep. 06, 2024	Dec. 19, 2024	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 07, 2023	Jul. 11, 2024~ Sep. 06, 2024	Dec. 06, 2024	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 10, 2024	Jul. 11, 2024~ Aug. 08, 2024	Jan. 09, 2025	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Aug. 09, 2024	Aug. 09, 2024~ Sep. 06, 2024	Aug. 08, 2025	Radiation (03CH12-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz~26.5GHz	Aug. 29, 2023	Jul. 11, 2024~ Aug. 27, 2024	Aug. 28, 2024	Radiation (03CH12-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290045	20Hz~8.4GHz	Apr. 17, 2024	Aug. 28, 2024~ Sep. 06, 2024	Apr. 16, 2025	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12SS	SN2	1.2GHz Low Pass Filter	Mar. 13, 2024	Jul. 11, 2024~ Sep. 06, 2024	Mar. 12, 2025	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5- 6750-18000-40ST	SN2	6.75GHz High Pass Filter	Mar. 13, 2024	Jul. 11, 2024~ Sep. 06, 2024	Mar. 12, 2025	Radiation (03CH12-HY)
Notch Filter	Wainwright	WRCQV14-542 5-5825-6525-69 25-60SS	SN1	N/A	Jan. 05, 2024	Jul. 11, 2024~ Sep. 06, 2024	Jan. 04, 2025	Radiation (03CH12-HY)
Notch Filter	Wainwright	WRCQV14-602 5-6425-7125-75 25-60SS	SN2	N/A	Jan. 05, 2024	Jul. 11, 2024~ Sep. 06, 2024	Jan. 04, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 06, 2024	Jul. 11, 2024~ Sep. 06, 2024	Mar. 05, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 18, 2023	Jul. 11, 2024~ Sep. 06, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 18, 2023	Jul. 11, 2024~ Sep. 06, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Dec. 18, 2023	Jul. 11, 2024~ Sep. 06, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP210117	N/A	Oct. 19, 2023	Jul. 11, 2024~ Sep. 06, 2024	Oct. 18, 2024	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jul. 11, 2024~ Sep. 06, 2024	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jul. 11, 2024~ Sep. 06, 2024	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jul. 11, 2024~ Sep. 06, 2024	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jul. 11, 2024~ Sep. 06, 2024	N/A	Radiation (03CH12-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 07, 2024	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 06, 2023	Aug. 07, 2024	Dec. 05, 2024	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Oct. 26, 2023	Aug. 07, 2024	Oct. 25, 2024	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 22, 2023	Aug. 07, 2024	Nov. 21, 2024	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Aug. 07, 2024	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 30, 2024	Aug. 07, 2024	Jul. 29, 2025	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 28, 2023	Aug. 07, 2024	Dec. 27, 2024	Conduction (CO05-HY)
Signal Generator (Interferer)	Rohde & Schwarz	SMW200A	109425	100kHz~7.5GHz	Dec. 20, 2023	Jun. 03, 2024~ Oct. 02, 2024	Dec. 19, 2024	CBP (DF02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV3013	101549	10Hz~13.6GHz	Jan. 30, 2024	Jun. 03, 2024~ Oct. 02, 2024	Jan. 29, 2025	CBP (DF02-HY)
Power Divider	MTJ	SMA 2Way Power Divider	MD10003	0.5GHz~6GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
Power Divider	MTJ	SMA 2Way Power Divider	MD10007	0.5GHz~6GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
Power Divider	Woken	3Way SMA Power Divider Rated to 20W	STI08-0010(#3)	2GHz~8GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
Coupler	Woken	10dB 30W SMA	DOM5CIW3A1	0.5~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	MTJ Cooperstion	SBF405-105FL EX	MTJ-30cm-03	30 kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	MTJ Cooperstion	SBF405-105FL EX	MTJ-30cm-06	30 kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	MVE	SPF141	SPF141-100cm-#13	30 kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	MVE	SPF141	SPF141-100cm-#14	30 kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	MVE	SPF141	SPF141-100cm-#15	30 kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	EC	SFL405	SFL405-100cm-#10	30kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	EC	SFL405	SFL405-100cm-#11	30kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	E-Instument	SS405	SS405-150cm-#16	30kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	E-Instument	SS405	SS405-150cm-#15	30kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
RF Cable	EC	SS405	SS405-100cm-#3	30kHz~18GHz	Calibration from System	Jun. 03, 2024~ Oct. 02, 2024	Calibration from System	CBP (DF02-HY)
Software 1	Sporton	Adaptivity Test Tools	N/A	Ver 1.7.5	NCR	Jun. 03, 2024~ Oct. 02, 2024	NCR	CBP (DF02-HY)



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	May 23, 2024~ Aug. 06, 2024	Nov. 06, 2024	Conducted (TH05-HY)
USB Power Sensor	DARE	RPR3008W	RPR8W-230100 1(NO:146)	10MHz~8GHz	Jan. 29, 2024	May 23, 2024~ Aug. 06, 2024	Jan. 28, 2025	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101564	10Hz ~ 40GHz	Sep. 12, 2023	May 23, 2024~ Aug. 06, 2024	Sep. 11, 2024	Conducted (TH05-HY)
Switch Box & RF Cable	E-Instument	ETF-058	EC1208382 (BOX1)	N/A	Apr. 01, 2024	May 23, 2024~ Aug. 06, 2024	Mar. 31, 2025	Conducted (TH05-HY)
Software	Sporton	BTWIFI_Final_v ersion1.0	N/A	N/A	N/A	May 23, 2024~ Aug. 06, 2024	N/A	Conducted (TH05-HY)



5 Measurement Uncertainty

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.5 dB
---	--------

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.1 dB
---	--------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.3 dB
---	--------

Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.8 dB
---	--------

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3 dB
---	--------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Hank Hsu and Willy Chang	Temperature:	21~25	°C
Test Date:	2024/5/23~2024/8/6	Relative Humidity:	51~54	%

TEST RESULTS DATA
26dB and 99% OBW

U-NII-5 MIMO										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3		
11a	6Mbps	2	001	5955	17.23	16.98	21.42	21.22	320.00	Pass
11a	6Mbps	2	049	6195	17.13	16.93	21.34	21.31	320.00	Pass
11a	6Mbps	2	093	6415	17.13	16.98	21.34	21.31	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-5 MIMO												
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 4	Ant 3	SUM	Ant 4	Ant 3			
11a	6Mbps	2	001	5955	9.65	8.60	12.17	-1.80		10.37	24.00	Pass
11a	6Mbps	2	049	6195	9.95	8.70	12.38	-1.80		10.58	24.00	Pass
11a	6Mbps	2	093	6415	9.85	8.80	12.37	-1.80		10.57	24.00	Pass

TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-5 MIMO														
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
11a	6Mbps	2	001	5955	0.28	0.29			1.64	-2.83		-1.19	-1.00	Pass
11a	6Mbps	2	049	6195	0.28	0.29			1.56	-2.83		-1.27	-1.00	Pass
11a	6Mbps	2	093	6415	0.28	0.29			1.71	-2.83		-1.12	-1.00	Pass

TEST RESULTS DATA
26dB and 99% OBW

U-NII-6 MIMO										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3		
11a	6Mbps	2	097	6435	17.23	17.03	21.49	21.23	320.00	Pass
11a	6Mbps	2	105	6475	17.33	17.08	21.29	21.41	320.00	Pass
11a	6Mbps	2	113	6515	17.23	17.03	21.30	21.29	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-6 MIMO												
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
11a	6Mbps	2	097	6435	9.35	7.83	11.67	-1.80		9.87	24.00	Pass
11a	6Mbps	2	105	6475	9.45	8.13	11.85	-1.80		10.05	24.00	Pass
11a	6Mbps	2	113	6515	9.45	8.03	11.81	-1.80		10.01	24.00	Pass

TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-6 MIMO														
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
11a	6Mbps	2	097	6435	0.28	0.29			1.15	-2.41	-1.26	-1.00	Pass	
11a	6Mbps	2	105	6475	0.28	0.29			1.24	-2.41	-1.17	-1.00	Pass	
11a	6Mbps	2	113	6515	0.28	0.29			1.35	-2.41	-1.06	-1.00	Pass	

TEST RESULTS DATA
26dB and 99% OBW

U-NII-7 MIMO										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3		
11a	6Mbps	2	117	6535	17.18	17.03	21.37	21.37	320.00	Pass
11a	6Mbps	2	149	6695	17.23	17.03	21.27	21.32	320.00	Pass
11a	6Mbps	2	181	6855	17.23	16.98	21.33	21.30	320.00	Pass

U-NII-7 straddle channel MIMO										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3		
11a	6Mbps	2	185	6875	17.18	17.03	21.50	21.28	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-7 MIMO												
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 4	Ant 3	SUM	Ant 4	Ant 3			
11a	6Mbps	2	117	6535	6.85	5.07	9.06	-0.90		8.16	24.00	Pass
11a	6Mbps	2	149	6695	6.95	5.07	9.12	-0.90		8.22	24.00	Pass
11a	6Mbps	2	181	6855	6.45	5.37	8.95	-0.90		8.05	24.00	Pass

U-NII-7 straddle channel MIMO												
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 4	Ant 3	SUM	Ant 4	Ant 3			
11a	6Mbps	2	185	6875	6.68	5.47	9.13	-0.90		8.23	24.00	Pass

TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-7 MIMO														
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
11a	6Mbps	2	117	6535	0.28	0.29			-0.93	-0.33	-1.26	-1.00	Pass	
11a	6Mbps	2	149	6695	0.28	0.29			-1.00	-0.33	-1.33	-1.00	Pass	
11a	6Mbps	2	181	6855	0.28	0.29			-0.98	-0.33	-1.31	-1.00	Pass	

FCC U-NII-7 straddle channel MIMO														
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
11a	6Mbps	2	185	6875	0.28	0.29				-1.20	-0.33	-1.53	-1.00	Pass

TEST RESULTS DATA
26dB EBW and 99% OBW

U-NII-8 MIMO										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3		
11a	6Mbps	2	189	6895	16.93	16.73	21.43	21.40	320.00	Pass
11a	6Mbps	2	209	6995	16.98	16.83	21.38	21.35	320.00	Pass
11a	6Mbps	2	229	7095	16.98	16.78	21.30	21.08	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-8 MIMO												
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
					Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
11a	6Mbps	2	189	6895	6.48	5.57	9.06	-2.10		6.96	24.00	Pass
11a	6Mbps	2	209	6995	6.28	4.87	8.64	-2.10		6.54	24.00	Pass
11a	6Mbps	2	229	7095	7.78	6.57	10.23	-2.10		8.13	24.00	Pass

TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-8 MIMO														
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
					Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
11a	6Mbps	2	189	6895	0.28	0.29			-0.86	-0.33	-1.19	-1.00	Pass	
11a	6Mbps	2	209	6995	0.28	0.29			-1.21	-0.33	-1.54	-1.00	Pass	
11a	6Mbps	2	229	7095	0.28	0.29			-1.16	-0.33	-1.49	-1.00	Pass	

TEST RESULTS DATA
26dB and 99% OBW

U-NII-5 MIMO											
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3		
HE20	MCS0	2	001	5955	Full	19.03	19.08	21.42	21.42	320.00	Pass
HE20	MCS0	2	049	6195	Full	19.08	19.03	21.34	21.22	320.00	Pass
HE20	MCS0	2	093	6415	Full	19.03	19.08	21.40	21.45	320.00	Pass
HE40	MCS0	2	003	5965	Full	37.66	37.56	40.43	40.50	320.00	Pass
HE40	MCS0	2	051	6205	Full	37.66	37.66	40.66	40.67	320.00	Pass
HE40	MCS0	2	091	6405	Full	37.66	37.56	40.67	40.67	320.00	Pass
HE80	MCS0	2	007	5985	Full	76.72	76.60	81.18	81.09	320.00	Pass
HE80	MCS0	2	055	6225	Full	76.48	76.60	81.09	80.99	320.00	Pass
HE80	MCS0	2	087	6385	Full	76.60	76.84	81.60	80.99	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-5 MIMO													
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	001	5955	Full	9.85	8.80	12.37	-1.80		10.57	24.00	Pass
HE20	MCS0	2	001	5955	26/0	1.65	0.50	4.12	-1.80		2.32	24.00	Pass
HE20	MCS0	2	001	5955	52/37	4.35	3.20	6.82	-1.80		5.02	24.00	Pass
HE20	MCS0	2	001	5955	106/53	7.45	6.30	9.92	-1.80		8.12	24.00	Pass
HE20	MCS0	2	049	6195	Full	9.95	8.90	12.47	-1.80		10.67	24.00	Pass
HE20	MCS0	2	049	6195	26/4	3.15	1.50	5.41	-1.80		3.61	24.00	Pass
HE20	MCS0	2	049	6195	52/38	4.45	2.80	6.71	-1.80		4.91	24.00	Pass
HE20	MCS0	2	049	6195	106/53	7.75	6.40	10.14	-1.80		8.34	24.00	Pass
HE20	MCS0	2	093	6415	Full	9.95	9.00	12.51	-1.80		10.71	24.00	Pass
HE20	MCS0	2	093	6415	26/8	1.85	0.70	4.32	-1.80		2.52	24.00	Pass
HE20	MCS0	2	093	6415	52/40	4.55	3.50	7.07	-1.80		5.27	24.00	Pass
HE20	MCS0	2	093	6415	106/54	7.25	6.20	9.77	-1.80		7.97	24.00	Pass
HE40	MCS0	2	003	5965	Full	11.95	11.90	14.94	-1.80		13.14	24.00	Pass
HE40	MCS0	2	051	6205	Full	11.95	11.00	14.51	-1.80		12.71	24.00	Pass
HE40	MCS0	2	091	6405	Full	11.65	11.10	14.39	-1.80		12.59	24.00	Pass
HE80	MCS0	2	007	5985	Full	15.25	15.20	18.24	-1.80		16.44	24.00	Pass
HE80	MCS0	2	055	6225	Full	15.45	15.20	18.34	-1.80		16.54	24.00	Pass
HE80	MCS0	2	087	6385	Full	15.35	14.90	18.14	-1.80		16.34	24.00	Pass

TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-5 MIMO															
Mod.	Data Rate	N _{rx}	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass. /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	001	5955	Full	0.40	0.40			1.70	-2.83		-1.13	-1.00	Pass
HE20	MCS0	2	001	5955	26/0	0.48	0.48			1.53	-2.83		-1.30	-1.00	Pass
HE20	MCS0	2	001	5955	52/37	0.53	0.53			1.38	-2.83		-1.45	-1.00	Pass
HE20	MCS0	2	001	5955	106/53	0.58	0.59			1.56	-2.83		-1.27	-1.00	Pass
HE20	MCS0	2	049	6195	Full	0.40	0.40			1.73	-2.83		-1.10	-1.00	Pass
HE20	MCS0	2	049	6195	26/4	0.48	0.48			1.55	-2.83		-1.28	-1.00	Pass
HE20	MCS0	2	049	6195	52/38	0.53	0.53			1.29	-2.83		-1.55	-1.00	Pass
HE20	MCS0	2	049	6195	106/53	0.58	0.59			1.54	-2.83		-1.29	-1.00	Pass
HE20	MCS0	2	093	6415	Full	0.40	0.40			1.80	-2.83		-1.03	-1.00	Pass
HE20	MCS0	2	093	6415	26/8	0.48	0.48			1.75	-2.83		-1.08	-1.00	Pass
HE20	MCS0	2	093	6415	52/40	0.53	0.53			1.69	-2.83		-1.14	-1.00	Pass
HE20	MCS0	2	093	6415	106/54	0.58	0.59			1.32	-2.83		-1.52	-1.00	Pass
HE40	MCS0	2	003	5965	Full	0.40	0.40			1.76	-2.83		-1.07	-1.00	Pass
HE40	MCS0	2	051	6205	Full	0.40	0.40			1.63	-2.83		-1.20	-1.00	Pass
HE40	MCS0	2	091	6405	Full	0.40	0.40			1.44	-2.83		-1.39	-1.00	Pass
HE80	MCS0	2	007	5985	Full	0.54	0.54			1.40	-2.83		-1.43	-1.00	Pass
HE80	MCS0	2	055	6225	Full	0.54	0.54		1.54	-2.83		-1.29	-1.00	Pass	
HE80	MCS0	2	087	6385	Full	0.54	0.54		1.33	-2.83		-1.50	-1.00	Pass	

TEST RESULTS DATA
26dB and 99% OBW

U-NII-6 MIMO											
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3		
HE20	MCS0	2	097	6435	Full	19.03	19.08	21.54	21.22	320.00	Pass
HE20	MCS0	2	105	6475	Full	19.03	19.08	21.45	21.38	320.00	Pass
HE20	MCS0	2	113	6515	Full	19.03	19.03	21.42	21.51	320.00	Pass
HE40	MCS0	2	099	6445	Full	37.66	37.76	40.56	40.58	320.00	Pass
HE40	MCS0	2	107	6485	Full	37.66	37.56	40.75	40.58	320.00	Pass
HE80	MCS0	2	103	6465	Full	76.72	76.60	81.47	81.15	320.00	Pass

U-NII-6 straddle channel MIMO											
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3		
HE40	MCS0	2	115	6525	Full	37.66	37.76	40.90	40.53	320.00	Pass
HE80	MCS0	2	119	6545	Full	76.72	76.72	81.28	81.02	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-6 MIMO													
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 4	Ant 3	SUM	Ant 4	Ant 3			
HE20	MCS0	2	097	6435	Full	9.35	7.53	11.54	-1.80		9.74	24.00	Pass
HE20	MCS0	2	097	6435	26/0	1.45	0.63	4.07	-1.80		2.27	24.00	Pass
HE20	MCS0	2	097	6435	52/37	4.05	2.83	6.49	-1.80		4.69	24.00	Pass
HE20	MCS0	2	097	6435	106/53	7.45	5.73	9.68	-1.80		7.88	24.00	Pass
HE20	MCS0	2	105	6475	Full	9.45	7.93	11.77	-1.80		9.97	24.00	Pass
HE20	MCS0	2	105	6475	26/4	2.95	1.43	5.27	-1.80		3.47	24.00	Pass
HE20	MCS0	2	105	6475	52/38	4.35	3.03	6.75	-1.80		4.95	24.00	Pass
HE20	MCS0	2	105	6475	106/53	7.35	6.23	9.84	-1.80		8.04	24.00	Pass
HE20	MCS0	2	113	6515	Full	9.25	7.73	11.57	-1.80		9.77	24.00	Pass
HE20	MCS0	2	113	6515	26/8	2.55	2.23	5.40	-1.80		3.60	24.00	Pass
HE20	MCS0	2	113	6515	52/40	4.05	2.73	6.45	-1.80		4.65	24.00	Pass
HE20	MCS0	2	113	6515	106/54	6.75	5.33	9.11	-1.80		7.31	24.00	Pass
HE40	MCS0	2	099	6445	Full	11.35	9.53	13.54	-1.80		11.74	24.00	Pass
HE40	MCS0	2	107	6485	Full	11.45	9.53	13.61	-1.80		11.81	24.00	Pass
HE80	MCS0	2	103	6465	Full	15.65	14.63	18.18	-1.80		16.38	24.00	Pass

U-NII-6 straddle channel MIMO													
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 4	Ant 3	SUM	Ant 4	Ant 3			
HE40	MCS0	2	115	6525	Full	11.45	9.67	13.66	-1.80		11.86	24.00	Pass
HE80	MCS0	2	119	6545	Full	15.55	14.77	18.19	-1.80		16.39	24.00	Pass

TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-6 MIMO															
Mod.	Data Rate	N _{rx}	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	097	6435	Full	0.40	0.40			0.96	-2.41	-1.45	-1.00	Pass	
HE20	MCS0	2	097	6435	26/0	0.48	0.48			0.88	-2.41	-1.53	-1.00	Pass	
HE20	MCS0	2	097	6435	52/37	0.53	0.53			0.84	-2.41	-1.57	-1.00	Pass	
HE20	MCS0	2	097	6435	106/53	0.58	0.59			0.85	-2.41	-1.56	-1.00	Pass	
HE20	MCS0	2	105	6475	Full	0.40	0.40			1.37	-2.41	-1.04	-1.00	Pass	
HE20	MCS0	2	105	6475	26/4	0.48	0.48			1.29	-2.41	-1.12	-1.00	Pass	
HE20	MCS0	2	105	6475	52/38	0.53	0.53			1.28	-2.41	-1.13	-1.00	Pass	
HE20	MCS0	2	105	6475	106/53	0.58	0.59			1.13	-2.41	-1.29	-1.00	Pass	
HE20	MCS0	2	113	6515	Full	0.40	0.40			1.12	-2.41	-1.29	-1.00	Pass	
HE20	MCS0	2	113	6515	26/8	0.48	0.48			0.97	-2.41	-1.44	-1.00	Pass	
HE20	MCS0	2	113	6515	52/40	0.53	0.53			0.93	-2.41	-1.48	-1.00	Pass	
HE20	MCS0	2	113	6515	106/54	0.58	0.59			0.68	-2.41	-1.73	-1.00	Pass	
HE40	MCS0	2	099	6445	Full	0.40	0.40			0.98	-2.41	-1.43	-1.00	Pass	
HE40	MCS0	2	107	6485	Full	0.40	0.40			0.75	-2.41	-1.66	-1.00	Pass	
HE80	MCS0	2	103	6465	Full	0.54	0.54			1.39	-2.41	-1.02	-1.00	Pass	

U-NII-6 straddle channel MIMO															
Mod.	Data Rate	N _{rx}	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE40	MCS0	2	115	6525	Full	0.40	0.40				0.91	-2.41	-1.50	-1.00	Pass
HE80	MCS0	2	119	6545	Full	0.54	0.54				1.16	-2.41	-1.25	-1.00	Pass

TEST RESULTS DATA
26dB and 99% OBW

U-NII-7 MIMO											
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3		
HE20	MCS0	2	117	6535	Full	19.03	19.08	21.38	21.46	320.00	Pass
HE20	MCS0	2	149	6695	Full	19.03	19.08	21.32	21.51	320.00	Pass
HE20	MCS0	2	181	6855	Full	19.03	19.03	21.60	21.22	320.00	Pass
HE40	MCS0	2	123	6565	Full	37.66	37.56	40.53	40.54	320.00	Pass
HE40	MCS0	2	147	6685	Full	37.56	37.76	40.61	40.54	320.00	Pass
HE40	MCS0	2	179	6845	Full	37.66	37.66	40.77	40.48	320.00	Pass
HE80	MCS0	2	135	6625	Full	76.72	76.72	80.90	81.44	320.00	Pass
HE80	MCS0	2	151	6705	Full	76.72	76.60	81.89	81.22	320.00	Pass
HE80	MCS0	2	167	6785	Full	76.72	76.60	80.90	81.09	320.00	Pass

U-NII-7 straddle channel MIMO											
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3		
HE20	MCS0	2	185	6875	Full	19.03	19.03	21.66	21.56	320.00	Pass
HE40	MCS0	2	187	6885	Full	37.76	37.76	40.67	40.67	320.00	Pass
HE80	MCS0	2	183	6865	Full	76.60	76.60	81.28	80.86	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-7 MIMO													
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	117	6535	Full	7.45	5.87	9.74	-0.90		8.84	24.00	Pass
HE20	MCS0	2	117	6535	26/0	-0.95	-2.43	1.38	-0.90		0.48	24.00	Pass
HE20	MCS0	2	117	6535	52/37	1.95	0.37	4.24	-0.90		3.34	24.00	Pass
HE20	MCS0	2	117	6535	106/53	5.15	3.67	7.48	-0.90		6.58	24.00	Pass
HE20	MCS0	2	149	6695	Full	6.85	5.57	9.27	-0.90		8.37	24.00	Pass
HE20	MCS0	2	149	6695	26/4	0.05	-1.43	2.38	-0.90		1.48	24.00	Pass
HE20	MCS0	2	149	6695	52/38	1.95	-0.03	4.08	-0.90		3.18	24.00	Pass
HE20	MCS0	2	149	6695	106/53	4.85	2.77	6.94	-0.90		6.04	24.00	Pass
HE20	MCS0	2	181	6855	Full	7.45	6.67	10.09	-0.90		9.19	24.00	Pass
HE20	MCS0	2	181	6855	26/8	-0.85	-2.13	1.57	-0.90		0.67	24.00	Pass
HE20	MCS0	2	181	6855	52/40	1.65	0.37	4.07	-0.90		3.17	24.00	Pass
HE20	MCS0	2	181	6855	106/54	4.85	3.57	7.27	-0.90		6.37	24.00	Pass
HE40	MCS0	2	123	6565	Full	10.95	9.07	13.12	-0.90		12.22	24.00	Pass
HE40	MCS0	2	147	6685	Full	10.85	9.17	13.10	-0.90		12.20	24.00	Pass
HE40	MCS0	2	179	6845	Full	10.65	9.97	13.33	-0.90		12.43	24.00	Pass
HE80	MCS0	2	135	6625	Full	13.95	13.27	16.63	-0.90		15.73	24.00	Pass
HE80	MCS0	2	151	6705	Full	13.55	12.67	16.14	-0.90		15.24	24.00	Pass
HE80	MCS0	2	167	6785	Full	13.95	13.17	16.59	-0.90		15.69	24.00	Pass

U-NII-7 straddle channel MIMO													
Mod.	Data Rate	N _{rx}	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	185	6875	Full	7.48	6.07	9.84	-0.90		8.94	24.00	Pass
HE20	MCS0	2	185	6875	26/8	-0.42	-1.63	2.03	-0.90		1.13	24.00	Pass
HE20	MCS0	2	185	6875	52/40	1.08	0.47	3.80	-0.90		2.90	24.00	Pass
HE20	MCS0	2	185	6875	106/54	5.08	3.77	7.48	-0.90		6.58	24.00	Pass
HE40	MCS0	2	187	6885	Full	10.38	9.47	12.96	-0.90		12.06	24.00	Pass
HE80	MCS0	2	183	6865	Full	13.58	12.67	16.16	-0.90		15.26	24.00	Pass

TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-7 MIMO															
Mod.	Data Rate	N _{rx}	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass. /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	117	6535	Full	0.40	0.40			-1.03	-0.33		-1.36	-1.00	Pass
HE20	MCS0	2	117	6535	26/0	0.48	0.48			-1.12	-0.33		-1.45	-1.00	Pass
HE20	MCS0	2	117	6535	52/37	0.53	0.53			-1.14	-0.33		-1.47	-1.00	Pass
HE20	MCS0	2	117	6535	106/53	0.58	0.59			-1.17	-0.33		-1.50	-1.00	Pass
HE20	MCS0	2	149	6695	Full	0.40	0.40			-0.93	-0.33		-1.26	-1.00	Pass
HE20	MCS0	2	149	6695	26/4	0.48	0.48			-1.37	-0.33		-1.70	-1.00	Pass
HE20	MCS0	2	149	6695	52/38	0.53	0.53			-1.01	-0.33		-1.34	-1.00	Pass
HE20	MCS0	2	149	6695	106/53	0.58	0.59			-1.03	-0.33		-1.36	-1.00	Pass
HE20	MCS0	2	181	6855	Full	0.40	0.40			-0.90	-0.33		-1.23	-1.00	Pass
HE20	MCS0	2	181	6855	26/8	0.48	0.48			-1.26	-0.33		-1.59	-1.00	Pass
HE20	MCS0	2	181	6855	52/40	0.53	0.53			-1.33	-0.33		-1.66	-1.00	Pass
HE20	MCS0	2	181	6855	106/54	0.58	0.59			-1.32	-0.33		-1.65	-1.00	Pass
HE40	MCS0	2	123	6565	Full	0.40	0.40			-0.95	-0.33		-1.28	-1.00	Pass
HE40	MCS0	2	147	6685	Full	0.40	0.40			-1.14	-0.33		-1.47	-1.00	Pass
HE40	MCS0	2	179	6845	Full	0.40	0.40			-1.15	-0.33		-1.48	-1.00	Pass
HE80	MCS0	2	135	6625	Full	0.54	0.54			-0.83	-0.33		-1.16	-1.00	Pass
HE80	MCS0	2	151	6705	Full	0.54	0.54		-0.95	-0.33		-1.28	-1.00	Pass	
HE80	MCS0	2	167	6785	Full	0.54	0.54		-0.84	-0.33		-1.17	-1.00	Pass	

U-NII-7 straddle channel MIMO															
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	185	6875	Full	0.40	0.40			-1.23	-0.33	-1.56	-1.00	Pass	
HE20	MCS0	2	185	6875	26/8	0.48	0.48			-1.39	-0.33	-1.72	-1.00	Pass	
HE20	MCS0	2	185	6875	52/40	0.53	0.53			-1.43	-0.33	-1.76	-1.00	Pass	
HE20	MCS0	2	185	6875	106/54	0.58	0.59			-1.30	-0.33	-1.63	-1.00	Pass	
HE40	MCS0	2	187	6885	Full	0.40	0.40			-0.93	-0.33	-1.26	-1.00	Pass	
HE80	MCS0	2	183	6865	Full	0.54	0.54			-0.83	-0.33	-1.16	-1.00	Pass	

TEST RESULTS DATA
26dB EBW and 99% OBW

U-NII-8 MIMO											
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3		
HE20	MCS0	2	189	6895	Full	18.98	18.98	21.72	21.33	320.00	Pass
HE20	MCS0	2	209	6995	Full	19.03	18.98	21.51	21.30	320.00	Pass
HE20	MCS0	2	229	7095	Full	18.98	18.98	21.26	21.46	320.00	Pass
HE40	MCS0	2	195	6925	Full	37.56	37.56	40.54	40.56	320.00	Pass
HE40	MCS0	2	211	7005	Full	37.46	37.46	40.58	40.29	320.00	Pass
HE40	MCS0	2	227	7085	Full	37.56	37.56	40.40	40.37	320.00	Pass
HE80	MCS0	2	199	6945	Full	76.72	76.72	81.60	81.38	320.00	Pass
HE80	MCS0	2	215	7025	Full	76.60	76.60	81.38	81.09	320.00	Pass

TEST RESULTS DATA
EIRP Power Table

U-NII-8 MIMO													
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
						Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	189	6895	Full	7.18	6.07	9.67	-2.10		7.57	24.00	Pass
HE20	MCS0	2	189	6895	26/0	-0.62	-2.63	1.50	-2.10		-0.60	24.00	Pass
HE20	MCS0	2	189	6895	52/37	2.08	0.27	4.28	-2.10		2.18	24.00	Pass
HE20	MCS0	2	189	6895	106/53	5.08	3.47	7.36	-2.10		5.26	24.00	Pass
HE20	MCS0	2	209	6995	Full	7.38	6.27	9.87	-2.10		7.77	24.00	Pass
HE20	MCS0	2	209	6995	26/4	-0.52	-1.03	2.24	-2.10		0.14	24.00	Pass
HE20	MCS0	2	209	6995	52/38	1.88	0.67	4.33	-2.10		2.23	24.00	Pass
HE20	MCS0	2	209	6995	106/53	4.28	3.47	6.90	-2.10		4.80	24.00	Pass
HE20	MCS0	2	229	7095	Full	8.18	7.07	10.67	-2.10		8.57	24.00	Pass
HE20	MCS0	2	229	7095	26/8	-0.32	-1.13	2.30	-2.10		0.20	24.00	Pass
HE20	MCS0	2	229	7095	52/40	2.58	2.07	5.34	-2.10		3.24	24.00	Pass
HE20	MCS0	2	229	7095	106/54	5.38	5.17	8.29	-2.10		6.19	24.00	Pass
HE40	MCS0	2	195	6925	Full	10.98	9.87	13.47	-2.10		11.37	24.00	Pass
HE40	MCS0	2	211	7005	Full	10.58	9.17	12.94	-2.10		10.84	24.00	Pass
HE40	MCS0	2	227	7085	Full	12.48	12.37	15.44	-2.10		13.34	24.00	Pass
HE80	MCS0	2	199	6945	Full	13.48	12.17	15.88	-2.10		13.78	24.00	Pass
HE80	MCS0	2	215	7025	Full	14.18	13.47	16.85	-2.10		14.75	24.00	Pass

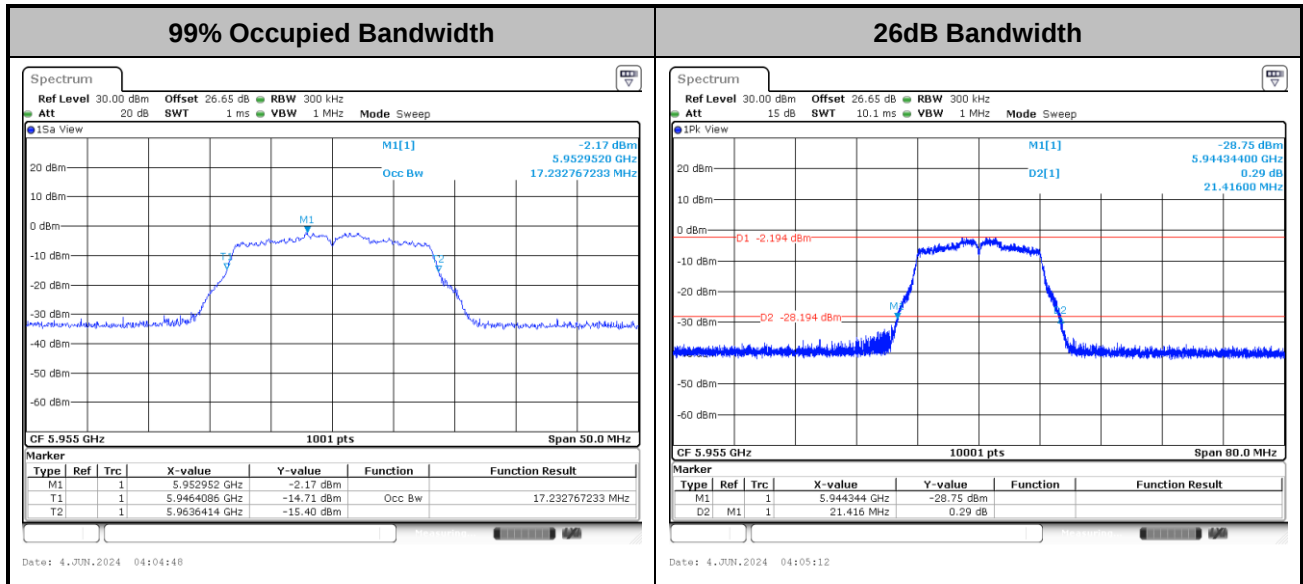
TEST RESULTS DATA
EIRP Power Spectral Density

U-NII-8 MIMO															
Mod.	Data Rate	N _{rx}	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)	EIRP Power Density Limit (dBm/MHz)	Pass /Fail
						Ant 4	Ant 3	Ant 4	Ant 3	SUM	Ant 4	Ant 3	SUM		
HE20	MCS0	2	189	6895	Full	0.40	0.40			-1.24	-0.33		-1.57	-1.00	Pass
HE20	MCS0	2	189	6895	26/0	0.48	0.48			-1.51	-0.33		-1.84	-1.00	Pass
HE20	MCS0	2	189	6895	52/37	0.53	0.53			-1.66	-0.33		-1.99	-1.00	Pass
HE20	MCS0	2	189	6895	106/53	0.58	0.59			-1.43	-0.33		-1.76	-1.00	Pass
HE20	MCS0	2	209	6995	Full	0.40	0.40			-1.07	-0.33		-1.40	-1.00	Pass
HE20	MCS0	2	209	6995	26/4	0.48	0.48			-1.35	-0.33		-1.68	-1.00	Pass
HE20	MCS0	2	209	6995	52/38	0.53	0.53			-1.12	-0.33		-1.45	-1.00	Pass
HE20	MCS0	2	209	6995	106/53	0.58	0.59			-1.22	-0.33		-1.55	-1.00	Pass
HE20	MCS0	2	229	7095	Full	0.40	0.40			-1.18	-0.33		-1.51	-1.00	Pass
HE20	MCS0	2	229	7095	26/8	0.48	0.48			-1.31	-0.33		-1.64	-1.00	Pass
HE20	MCS0	2	229	7095	52/40	0.53	0.53			-1.36	-0.33		-1.69	-1.00	Pass
HE20	MCS0	2	229	7095	106/54	0.58	0.59			-1.30	-0.33		-1.63	-1.00	Pass
HE40	MCS0	2	195	6925	Full	0.40	0.40			-1.25	-0.33		-1.58	-1.00	Pass
HE40	MCS0	2	211	7005	Full	0.40	0.40			-1.15	-0.33		-1.48	-1.00	Pass
HE40	MCS0	2	227	7085	Full	0.40	0.40			-0.93	-0.33		-1.26	-1.00	Pass
HE80	MCS0	2	199	6945	Full	0.54	0.54			-0.89	-0.33		-1.22	-1.00	Pass
HE80	MCS0	2	215	7025	Full	0.54	0.54		-0.97	-0.33		-1.30	-1.00	Pass	

**Test Result of 26dB & 99% Occupied Bandwidth**

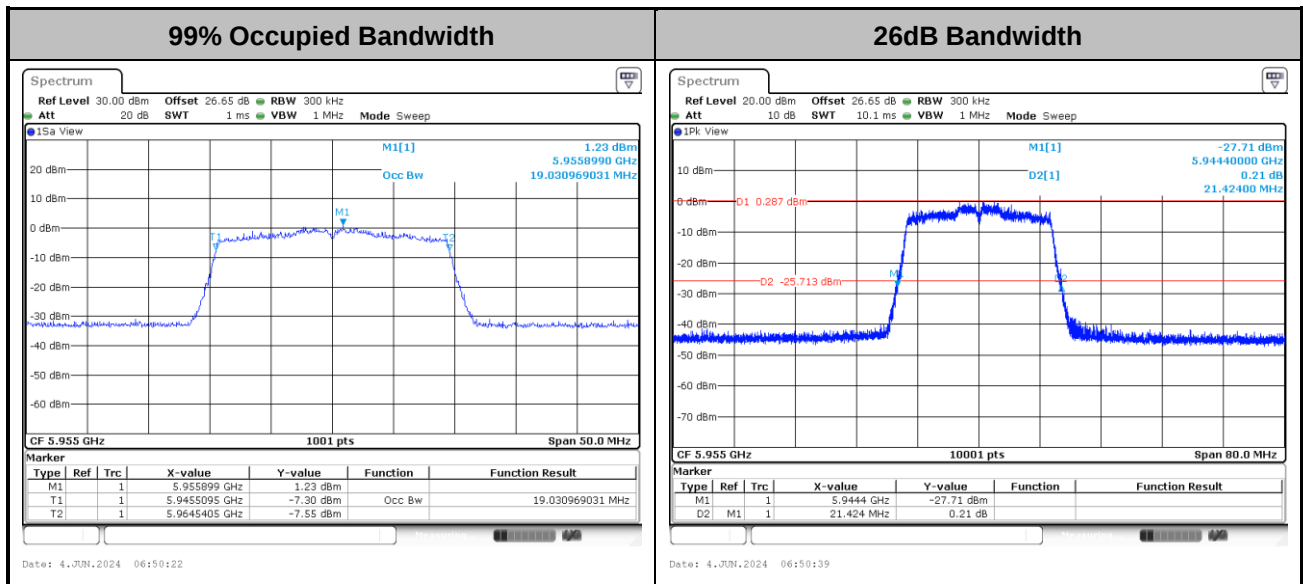
MIMO <Ant. 4+3>

<802.11a>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

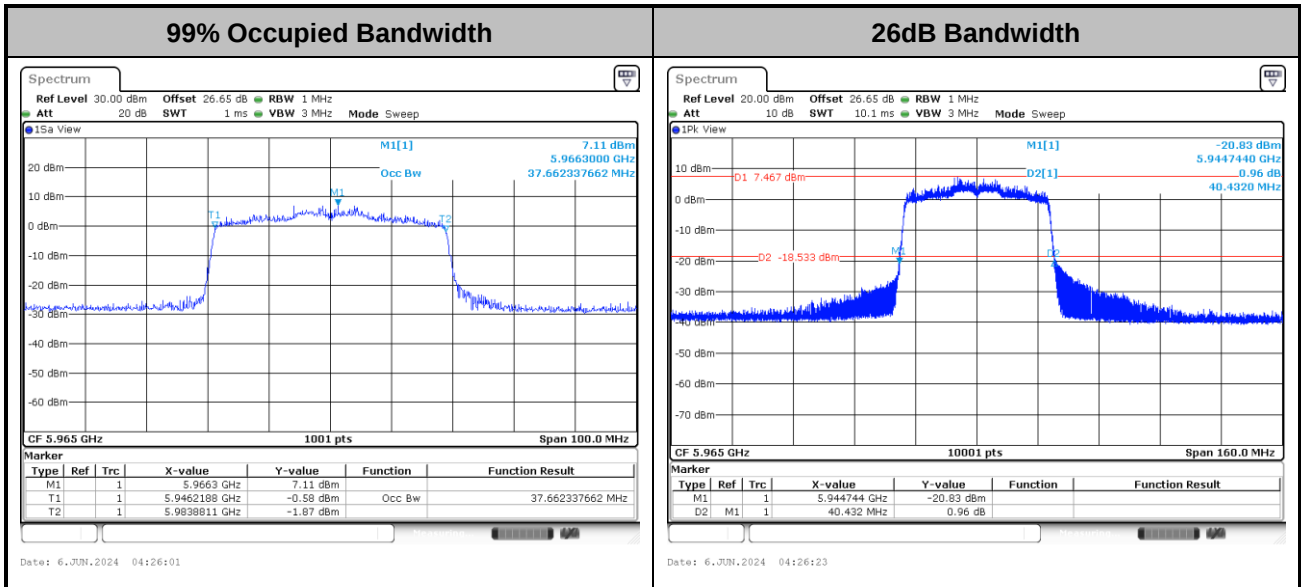
<802.11ax HE20>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

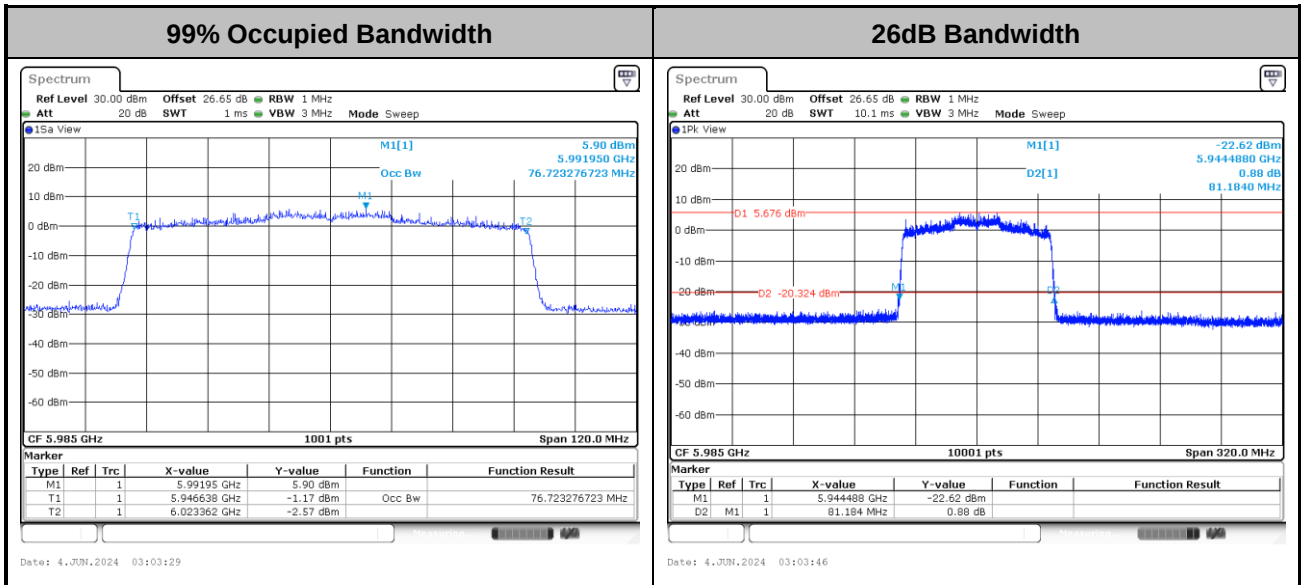


<802.11ax HE40>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

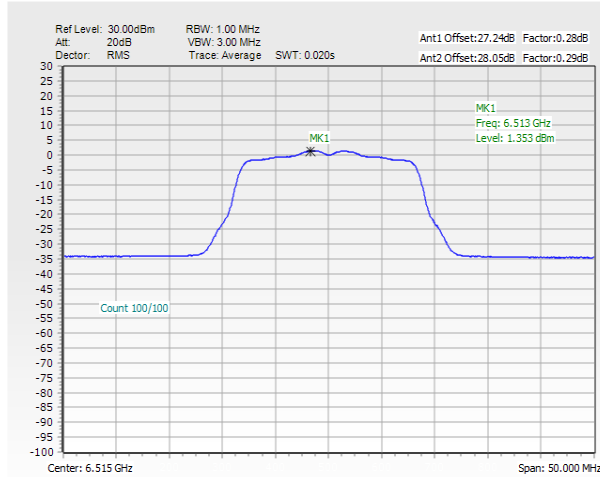
<802.11ax HE80>



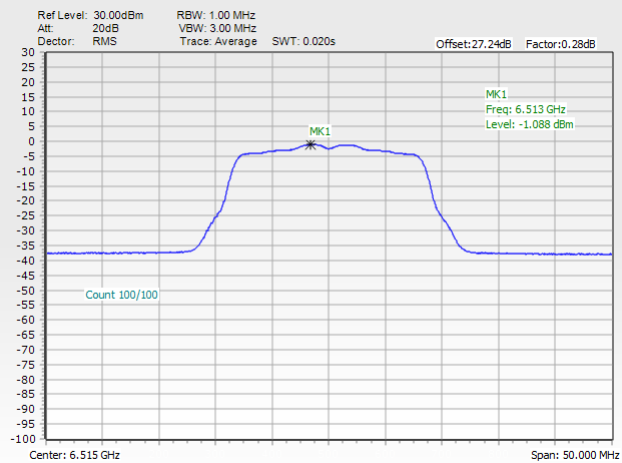
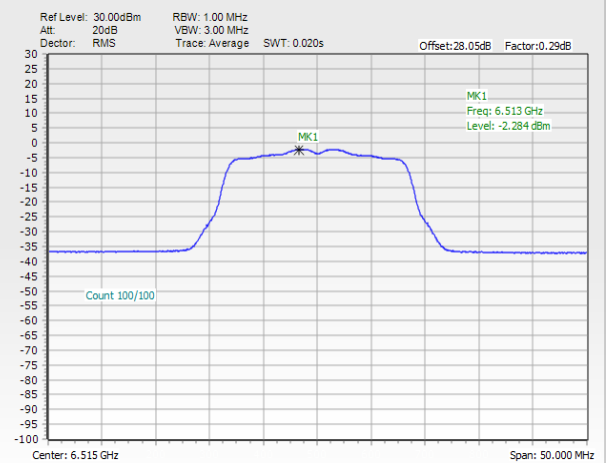
Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

**Test Result of Power Spectral Density**

<802.11a>

Maximum Power Density Plot (dBm/MHz)**Note:**

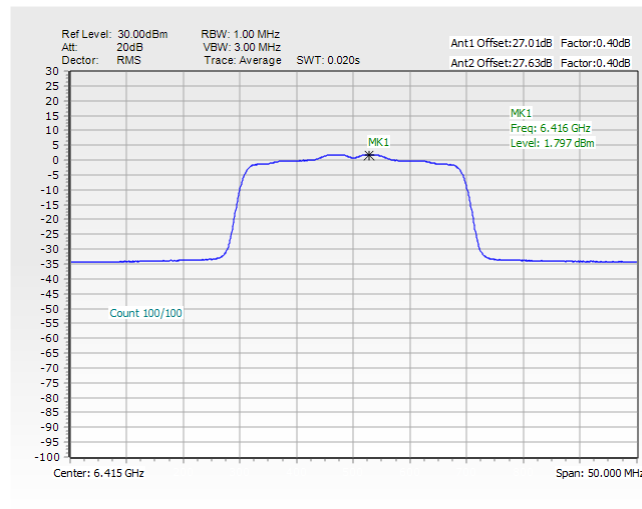
1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

Power Density Plot Trace 1 (Ant 4)**Power Density Plot Trace 2 (Ant 3)**



<802.11ax HE20>

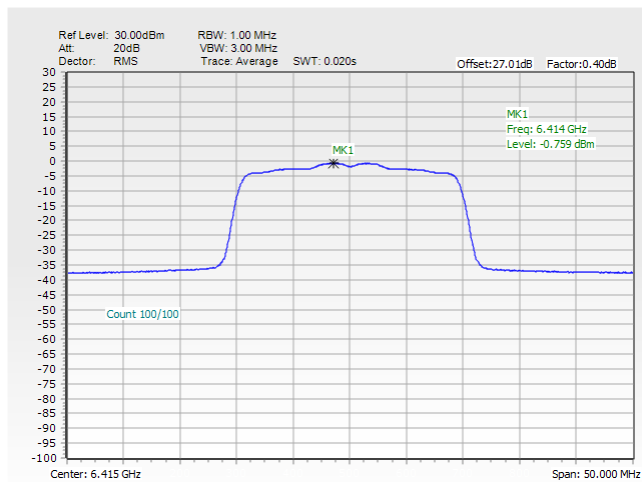
Maximum Power Density Plot (dBm/MHz)



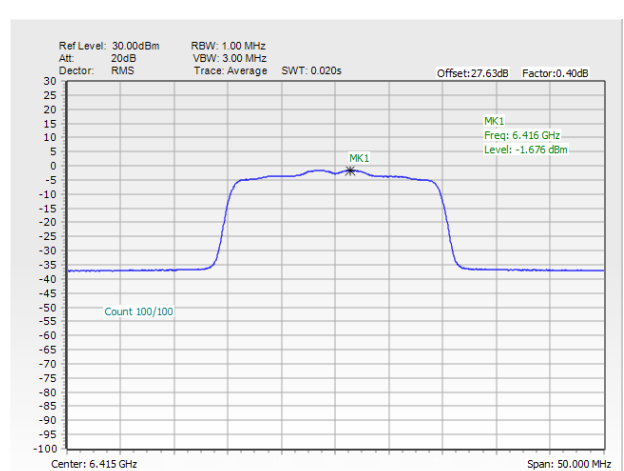
Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

Power Density Plot Trace 1 (Ant 4)



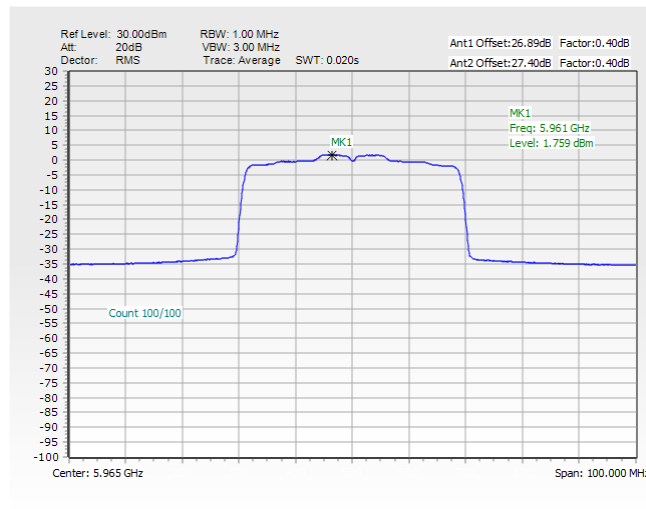
Power Density Plot Trace 2 (Ant 3)





<802.11ax HE40>

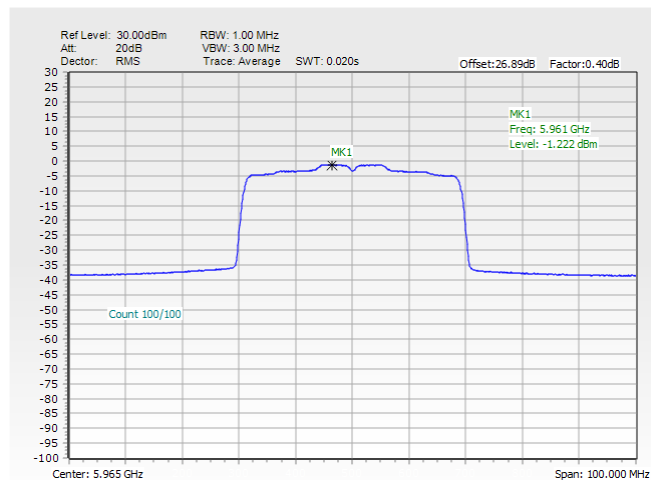
Maximum Power Density Plot (dBm/MHz)



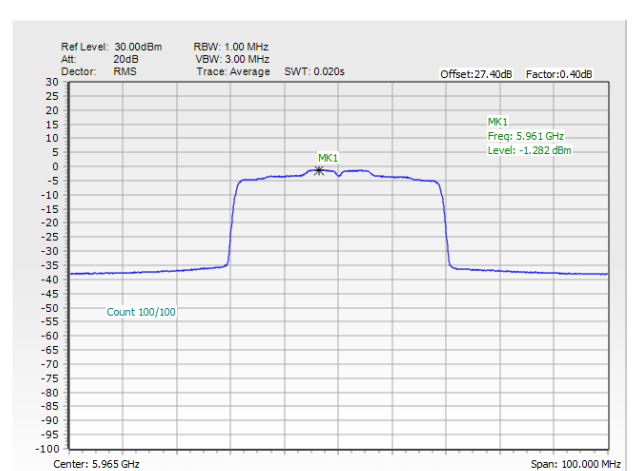
Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

Power Density Plot Trace 1 (Ant 4)



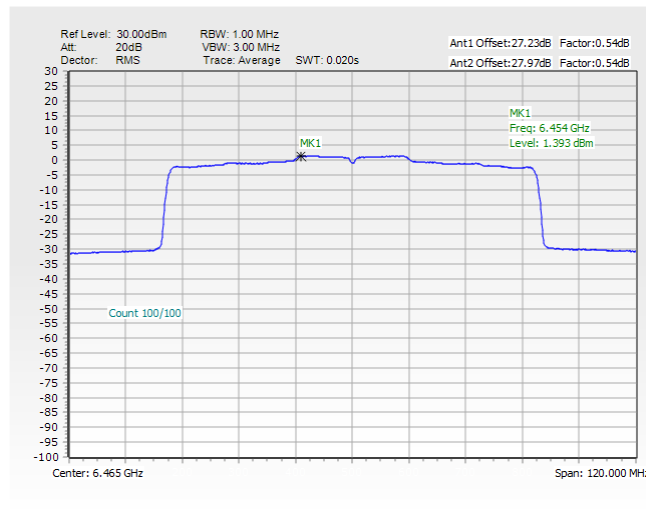
Power Density Plot Trace 2 (Ant 3)





<802.11ax HE80>

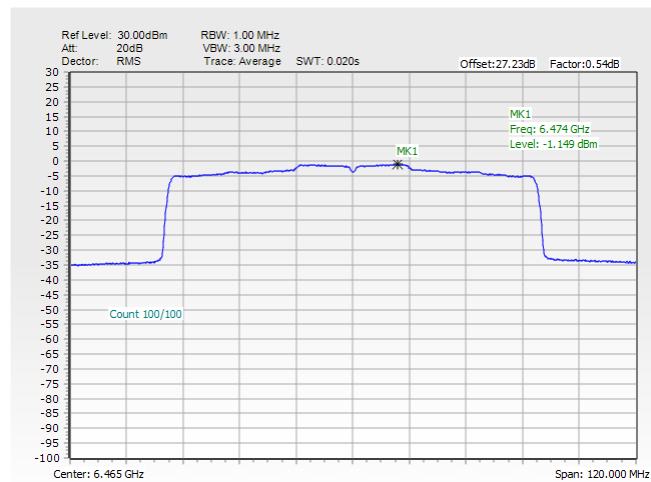
Maximum Power Density Plot (dBm/MHz)



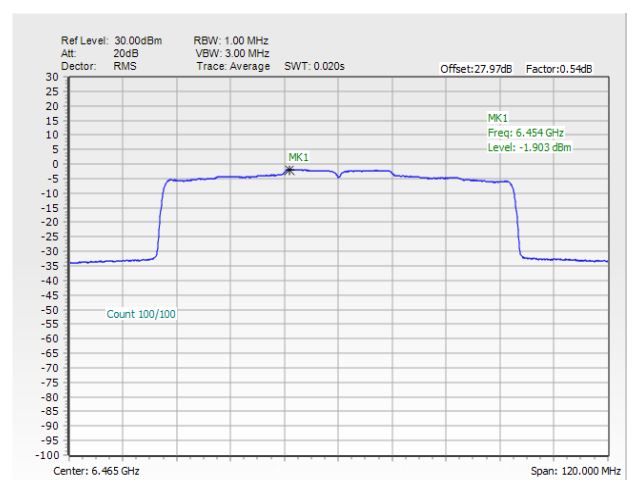
Note:

1. EIRP Power Density (dBm/MHz) = Measured value+ Duty Factor + Directional Gain
2. The test plot is showing a bin by bin combined result mathematically adds two traces.

Power Density Plot Trace 1 (Ant 4)



Power Density Plot Trace 2 (Ant 3)





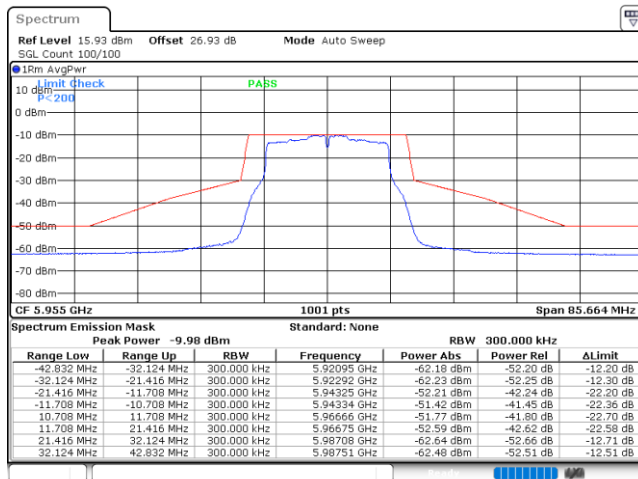
In-Band Emissions (Channel Mask)

MIMO <Ant. 4+3(4)>

EUT Mode

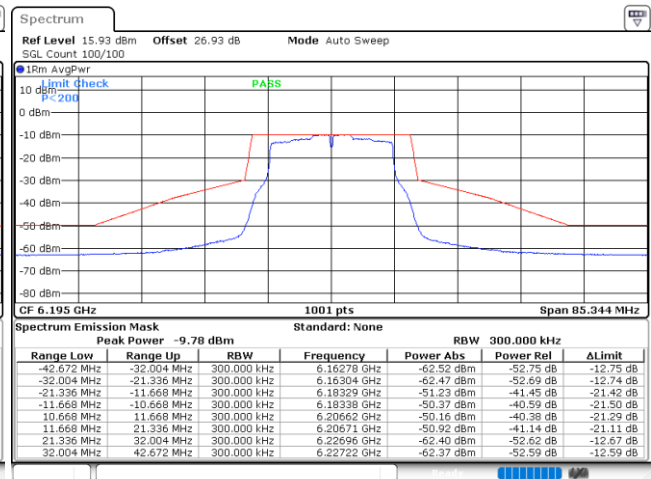
802.11a

Plot on Channel 5955 MHz



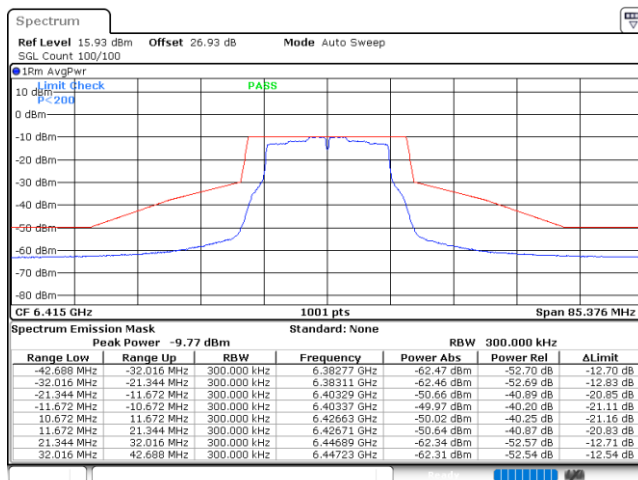
Date: 4.JUN.2024 04:05:36

Plot on Channel 6195 MHz



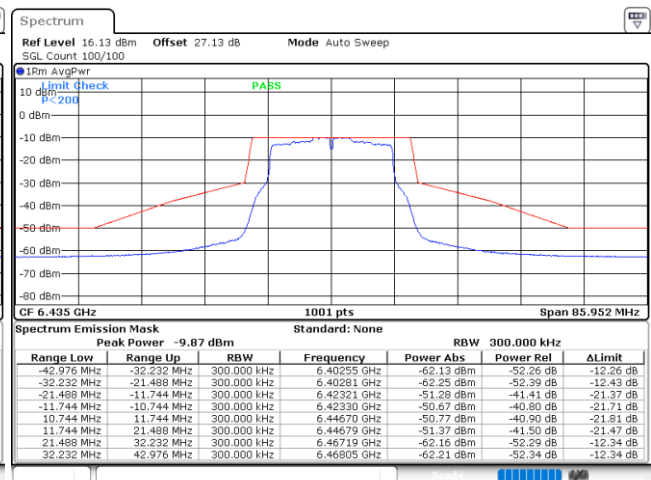
Date: 4.JUN.2024 04:13:02

Plot on Channel 6415 MHz



Date: 4.JUN.2024 04:22:38

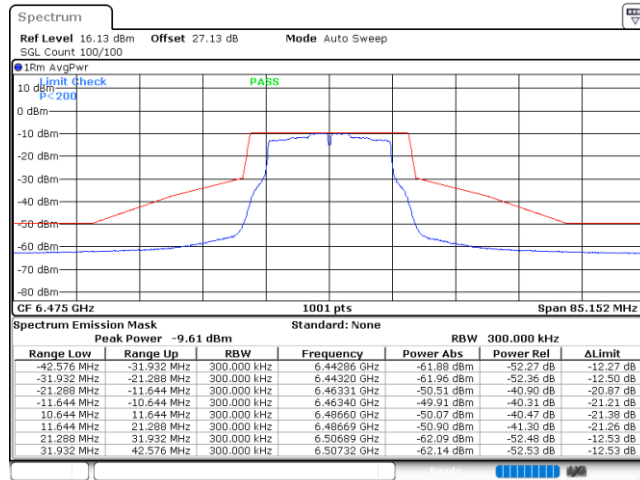
Plot on Channel 6435 MHz



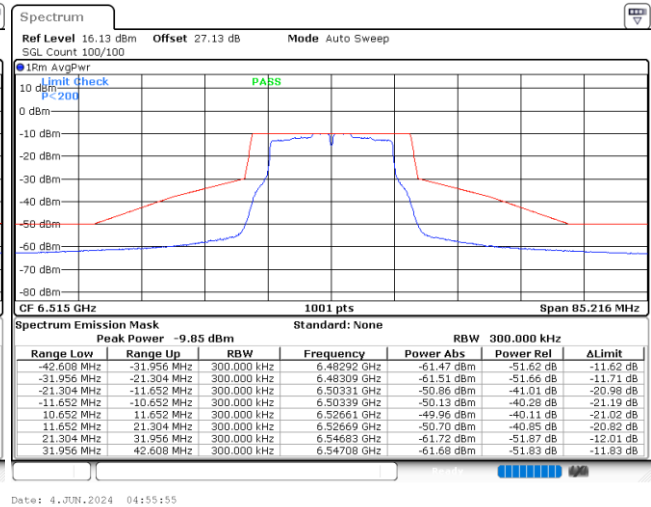
Date: 4.JUN.2024 04:27:48



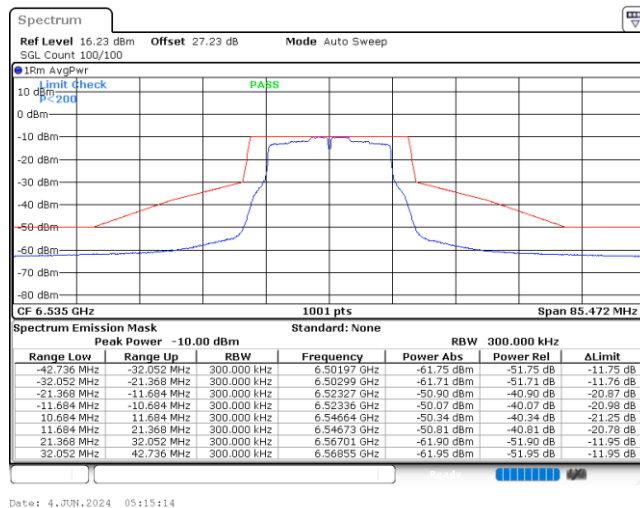
Plot on Channel 6475 MHz



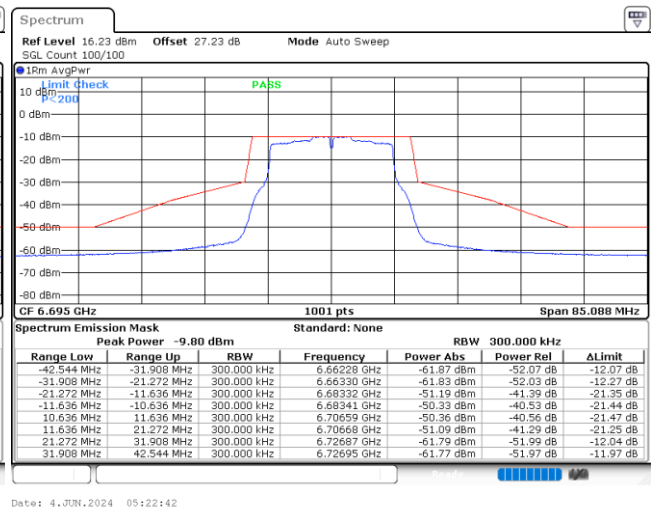
Plot on Channel 6515 MHz



Plot on Channel 6535 MHz

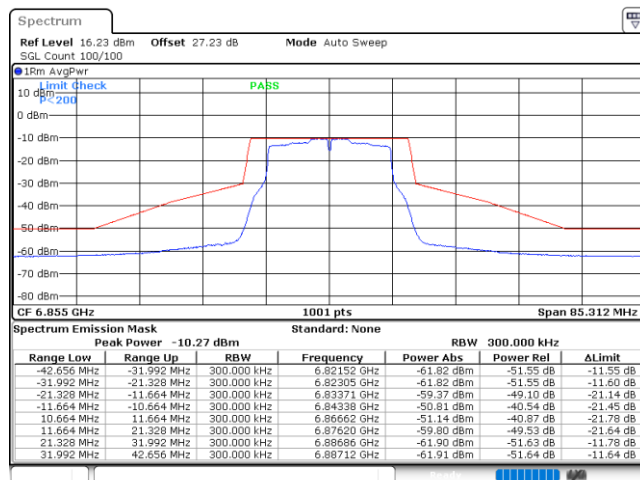


Plot on Channel 6695 MHz



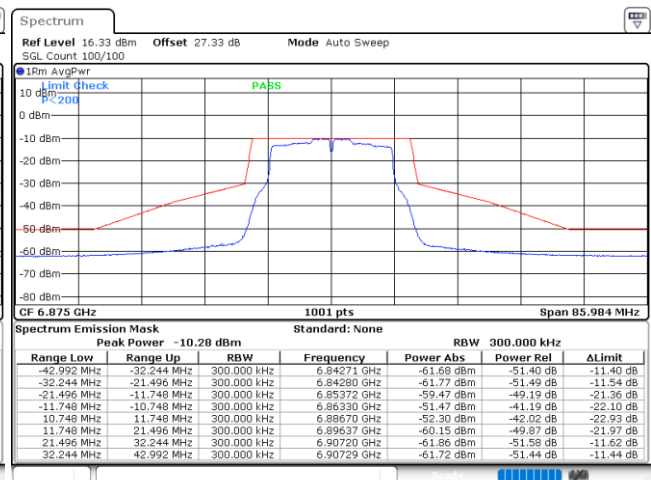


Plot on Channel 6855 MHz



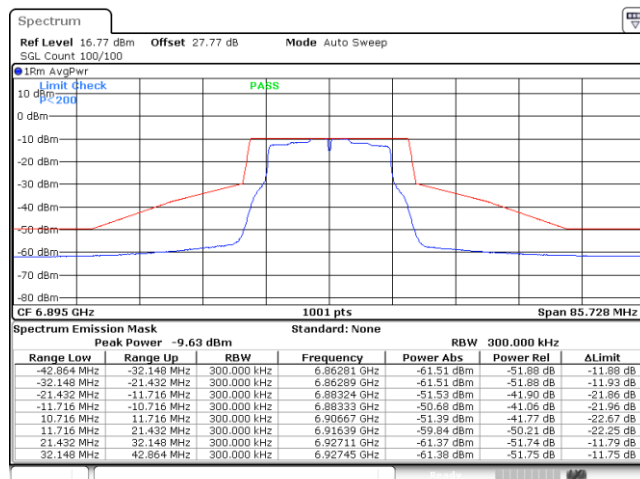
Date: 4.JUN.2024 05:31:30

Plot on Channel 6875 MHz



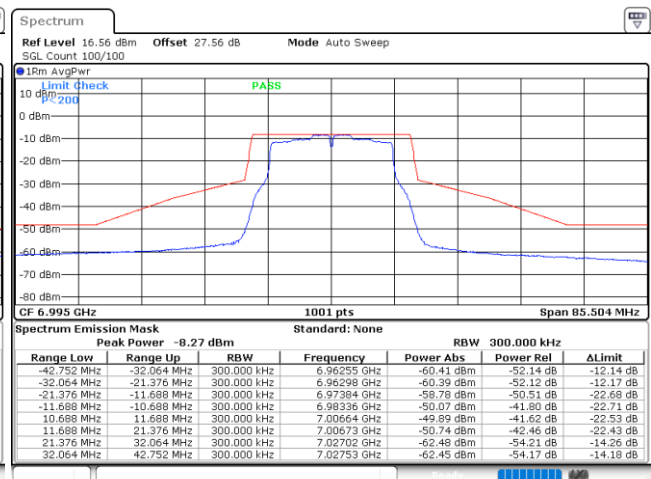
Date: 4.JUN.2024 05:49:25

Plot on Channel 6895 MHz



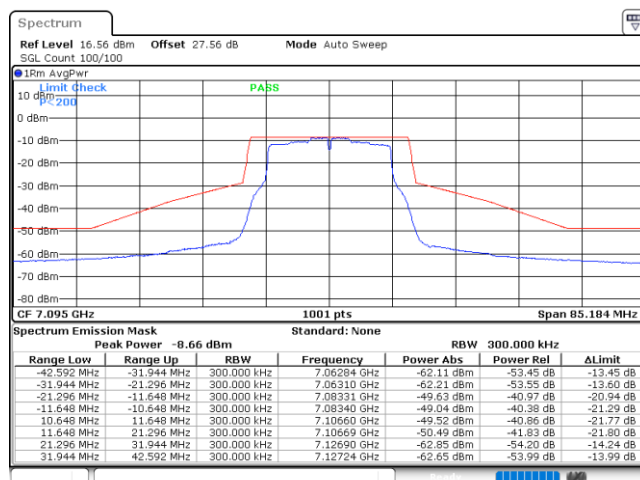
Date: 25.JUN.2024 20:45:19

Plot on Channel 6995 MHz



Date: 4.JUN.2024 06:22:25

Plot on Channel 7095 MHz



Date: 4.JUN.2024 06:31:35

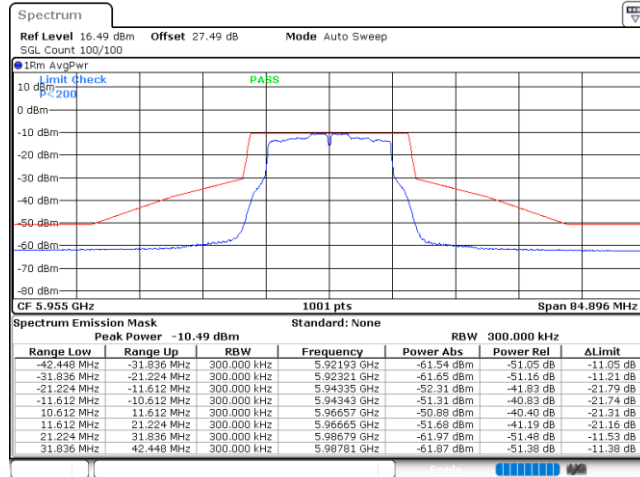


MIMO <Ant. 4+3(3)>

EUT Mode

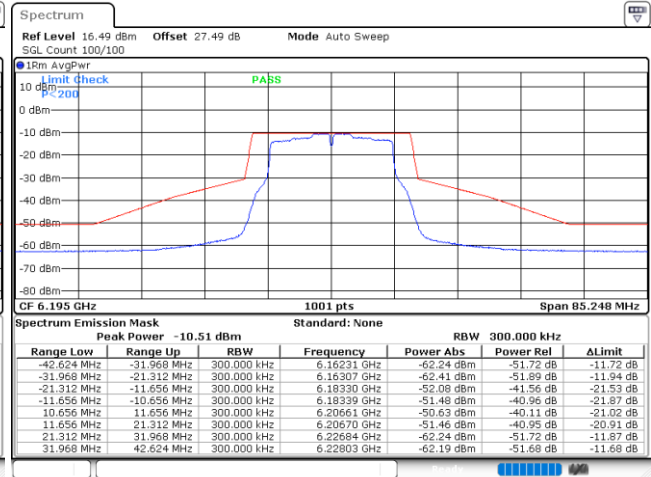
802.11a

Plot on Channel 5955 MHz



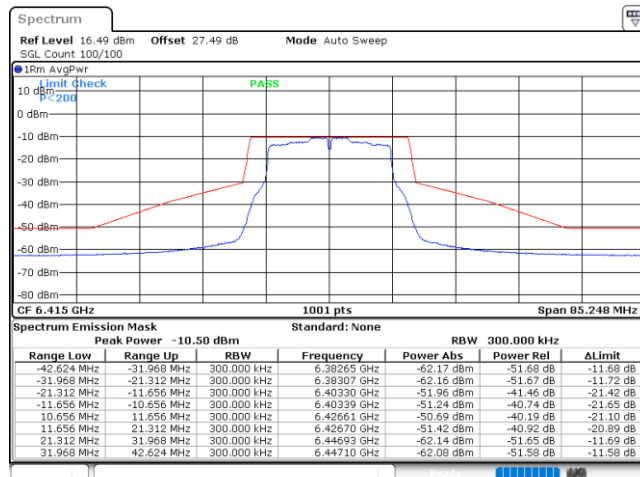
Date: 4.JUN.2024 04:06:50

Plot on Channel 6195 MHz



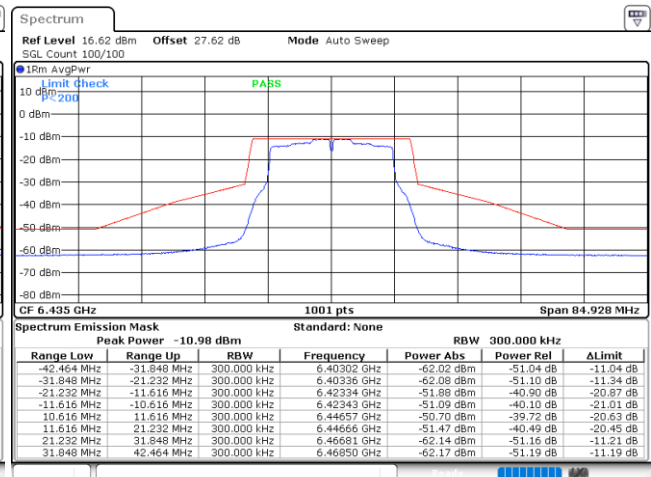
Date: 4.JUN.2024 04:14:25

Plot on Channel 6415 MHz



Date: 4.JUN.2024 04:23:50

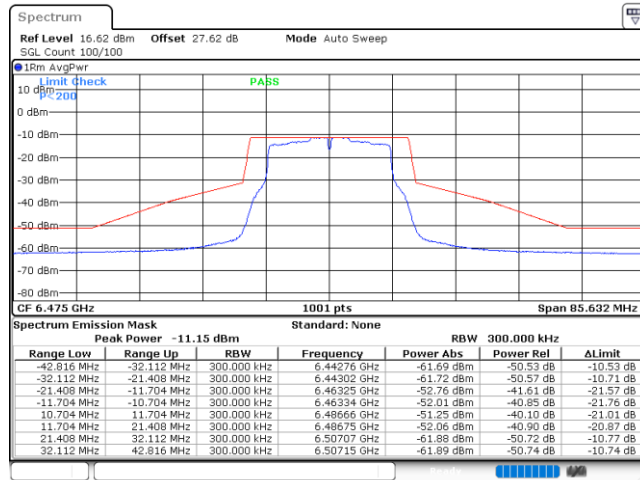
Plot on Channel 6435 MHz



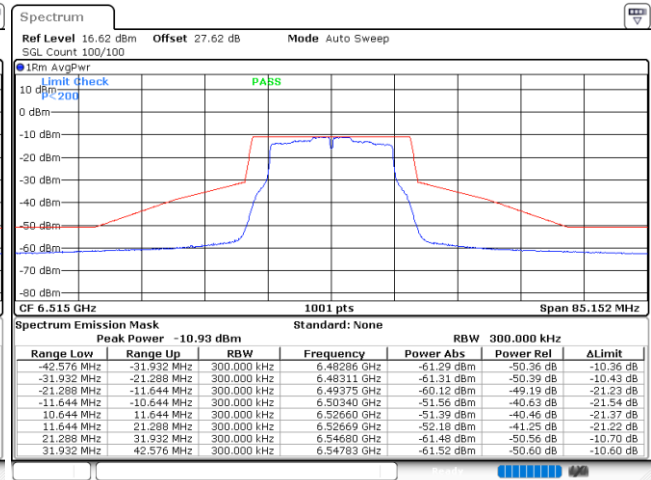
Date: 4.JUN.2024 04:31:04



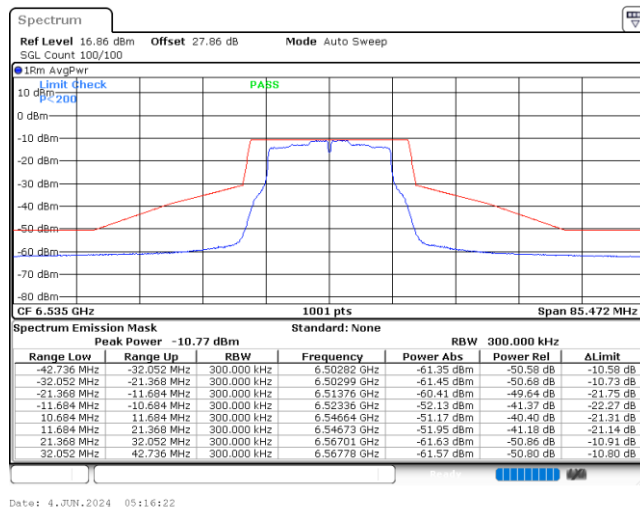
Plot on Channel 6475 MHz



Plot on Channel 6515 MHz



Plot on Channel 6535 MHz



Plot on Channel 6695 MHz

