



FCC RADIO TEST REPORT

FCC ID : A4RGPQQ7
Equipment : Phone
Model Name : GPQQ7
Applicant : Google LLC
1600 Amphitheatre Parkway,
Mountain View, CA, 94043 USA
Standard : FCC Part 15 Subpart E §15.407

The product was received on Nov. 12, 2025 and testing was performed from Nov. 18, 2025 to Feb. 25, 2026. 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.)



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History of this test report

Report No.	Version	Description	Issue Date
FR5N0809-01H	01	Initial issue of report	May 08, 2026
FR5N0809-01H	02	Revised Appendix B This report is an updated version, replacing the report issued on May 08, 2026.	May 13, 2026

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)(7)	Fundamental Maximum EIRP	Pass	-
3.3	15.407(a)(7)	Fundamental Power Spectral Density	Pass	-
3.4	15.407(b)(6)	In-Band Emissions (Channel Mask)	Pass	-
-	15.407(d)(6)	Contention Based Protocol	Pass	See Note
3.5	15.407 KDB 987594 D02 Section II. L.	Proper Power Adjustment, Client Devices Connected to a Standard Power Access Point (APC)	Pass	-
3.6	15.407 KDB 987594 D02 Section II. K.	Dual Client Test, Demonstration of Proper Power Adjustment based on Associated AP	Pass	-
3.7	15.407(b)	Unwanted Emissions	Pass	-
3.8	15.207	AC Conducted Emission	Pass	-
3.9	15.203 15.407(a)	Antenna Requirement	Pass	-

Note: The receiver circuitry is the same for the CBP mechanism so testing can be performed once based on LPI report to show compliance

Conformity Assessment Condition:	
1.	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.
2.	The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".
Disclaimer:	
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.	

Reviewed by: William Chen

Report Producer: Yuri Huang



1 General Description

1.1 Product Feature of Equipment Under Test

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

EUT Information List	
S/N	Performed Test Item
61041FDKY00019	RF Conducted Measurement
61031FDKY0000N	Radiated Spurious Emission
61031FDKY0000V	Conducted Emission
5B111FDDX000DL	Proper Power Adjustment, Client Devices Connected to a Standard Power Access Point (APC)
	Dual Client Test, Demonstration of Proper Power Adjustment based on Associated AP

Antenna information for Directional Gain		
5925 MHz ~ 6425 MHz	Peak Gain (dBi)	<6G_Ant4 + 6G_Ant3> Correlated: -1.07 Uncorrelated: -3.01
6525 MHz ~ 6875 MHz	Peak Gain (dBi)	<6G_Ant4 + 6G_Ant3> Correlated: -1.08 Uncorrelated: -4.06

Remark:

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

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. DF02-HY (TAF Code: 1190)
Remark	The Proper Power Adjustment, Client Devices Connected to a Standard Power Access Point (APC) and Dual Client Test, Demonstration of Proper Power Adjustment based on Associated AP test items subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.

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, CO07-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 v03
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2020 + Cor.1-2023

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 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 Y 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	117	121	125
	Freq. (MHz)	6535	6555	6575
BW 40M	Channel	-		123
	Freq. (MHz)	-		6565
BW 80M	Channel	-		
	Freq. (MHz)	-		

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
	Freq. (MHz)	6755	6775	6795	6815	6835	6855
BW 40M	Channel	163		171		179	
	Freq. (MHz)	6765		6805		6845	
BW 80M	Channel	167			-		
	Freq. (MHz)	6785			-		



2.2 Test Mode

This device supports WiFi 802.11ax 20MHz bandwidth for 2.4GHz and 80MHz bandwidth for both 5GHz and 6GHz.

This device supports both CDD and SDM modes.

For bands other than LPI and VLP, SDM mode is covered by CDD mode due to identical power level.

This device supports 26/52/106/242/484/996 single tone RU modes for 802.11ax mode and the 242/484/996-tone RU modes are covered by 20/40/80MHz channels.

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.

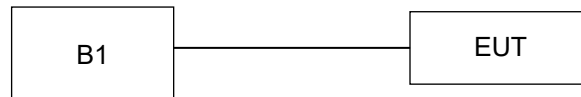
The final test modes include the worst data rates for each modulation shown in the table below.

MIMO Mode

Specification	MCS index /Data Rate
802.11a	6 Mbps
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0

Test Cases	
AC Conducted Emission	Mode 2 : 802.11ax HE20 Channel 49 Tx + USB Cable 2 (Charging from AC Adapter)
Remark: - For Radiated Test Cases, the tests were performed with USB Cable 2. - 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. - The detailed Radiated test modes are shown in Appendix B.	

2.3 Connection Diagram of Test System



Conduction Test Setup									
No.	Power Source	Connection Type	Test Mode						
			2	-	-	-	-	-	-
B1	AC : 120V/60Hz	AC Power Cable	X	-	-	-	-	-	-

Radiation Tx Test Setup									
No.	Power Source	Connection Type	Test Mode						
			1~29	-	-	-	-	-	-
B1	AC : 120V/60Hz	AC Power Cable	X	-	-	-	-	-	-

2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Adapter	N/A	GW8L7	N/A	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “BTWIFI_Final_version_240823” 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.

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

For EIRP output power:

The EIRP output power result is derived from RF conducted power plus directional antenna gain.

EIRP = RF conducted power + directional antenna gain.

Following shows an offset computation example with conducted power 20.2 dBm and directional antenna gain 3dBi.

$$\begin{aligned}\text{EIRP(dBm)} &= \text{RF conducted power(dBm)} + \text{directional antenna gain(dBi)} \\ &= 20.2 + 3 = 23.2 \text{ (dBm)}\end{aligned}$$

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.

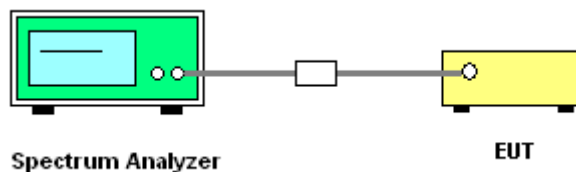
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 OBW and Section 12.5.2 Emission bandwidth.
2. Set RBW = shall be in the range of 1% to 5% 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 in the range of 1% to 5%.
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**

Test Engineer:	Howard Tsai	Temperature:	21~25	°C
Test Date:	2025/12/30~2026/02/25	Relative Humidity:	51~54	%

MIMO <Ant. 4+3>

U-NII-5										
Mod.	Data Rate	NTX	CH.	Freq (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
					Ant4	Ant3	Ant4	Ant3		
11a	6M	2	01	5955	29.99	33.17	49.74	49.86	320.00	Pass
11a	6M	2	49	6195	33.25	32.64	50.93	49.74	320.00	Pass
11a	6M	2	93	6415	31.51	35.21	51.38	54.61	320.00	Pass

U-NII-7										
Mod.	Data Rate	NTX	CH.	Freq (MHz)	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
					Ant4	Ant3	Ant4	Ant3		
11a	6M	2	117	6535	32.36	34.84	53.01	52.96	320.00	Pass
11a	6M	2	149	6695	34.10	33.99	52.25	50.50	320.00	Pass
11a	6M	2	181	6855	33.57	34.04	52.58	50.16	320.00	Pass



U-NII-5											
Mod.	Data Rate	NTX	CH.	Freq (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant4	Ant3	Ant4	Ant3		
HE20	MCS0	2	01	5955	Full	25.40	33.19	45.59	53.54	320.00	Pass
HE20	MCS0	2	49	6195	Full	36.99	36.58	57.04	59.03	320.00	Pass
HE20	MCS0	2	93	6415	Full	33.45	38.23	54.12	65.35	320.00	Pass
HE40	MCS0	2	03	5965	Full	37.98	41.51	67.49	76.66	320.00	Pass
HE40	MCS0	2	51	6205	Full	69.43	68.81	108.02	108.48	320.00	Pass
HE40	MCS0	2	91	6405	Full	60.67	69.83	99.98	113.73	320.00	Pass
HE80	MCS0	2	07	5985	Full	77.26	77.98	90.78	148.64	320.00	Pass
HE80	MCS0	2	55	6225	Full	101.40	101.33	225.44	220.32	320.00	Pass
HE80	MCS0	2	87	6385	Full	95.95	102.78	203.04	223.49	320.00	Pass

U-NII-7											
Mod.	Data Rate	NTX	CH.	Freq (MHz)	RU Config.	99% Bandwidth (MHz)		26 dB Bandwidth (MHz)		Emission Bandwidth Limit (MHz)	Pass /Fail
						Ant4	Ant3	Ant4	Ant3		
HE20	MCS0	2	117	6535	Full	32.74	37.51	53.22	60.11	320.00	Pass
HE20	MCS0	2	149	6695	Full	37.35	37.62	59.48	60.75	320.00	Pass
HE20	MCS0	2	181	6855	Full	36.11	36.84	54.43	60.28	320.00	Pass
HE40	MCS0	2	123	6565	Full	61.24	64.95	98.26	104.61	320.00	Pass
HE40	MCS0	2	147	6685	Full	70.71	71.27	109.58	110.56	320.00	Pass
HE40	MCS0	2	179	6845	Full	69.46	70.37	107.68	111.54	320.00	Pass
HE80	MCS0	2	135	6625	Full	94.39	102.88	203.04	223.52	320.00	Pass
HE80	MCS0	2	151	6705	Full	101.59	102.00	225.02	223.36	320.00	Pass
HE80	MCS0	2	167	6785	Full	102.73	101.53	241.50	217.34	320.00	Pass



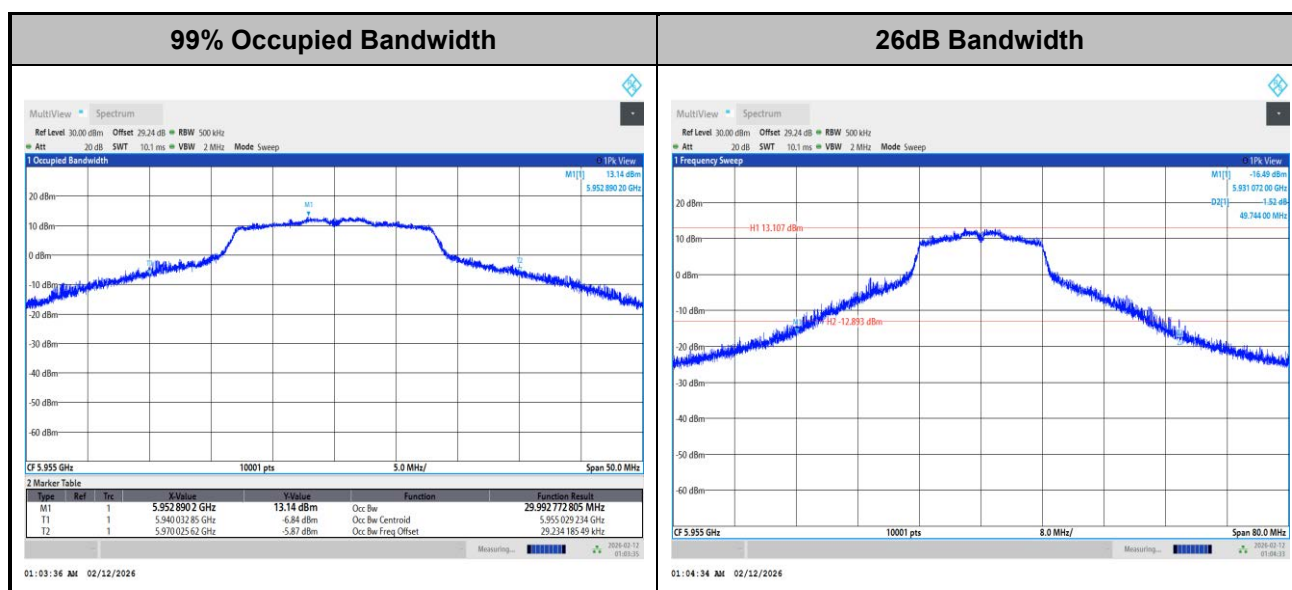
3.1.6 Test Plot of 26dB & 99% Occupied Bandwidth

Note: The EBW spectrum setting is as following table for different nominal bandwidth.

Setting	20MHz	40MHz	80MHz
RBW	500kHz	1MHz	2MHz
VBW	2MHz	3MHz	10MHz

MIMO <Ant. 4+3>

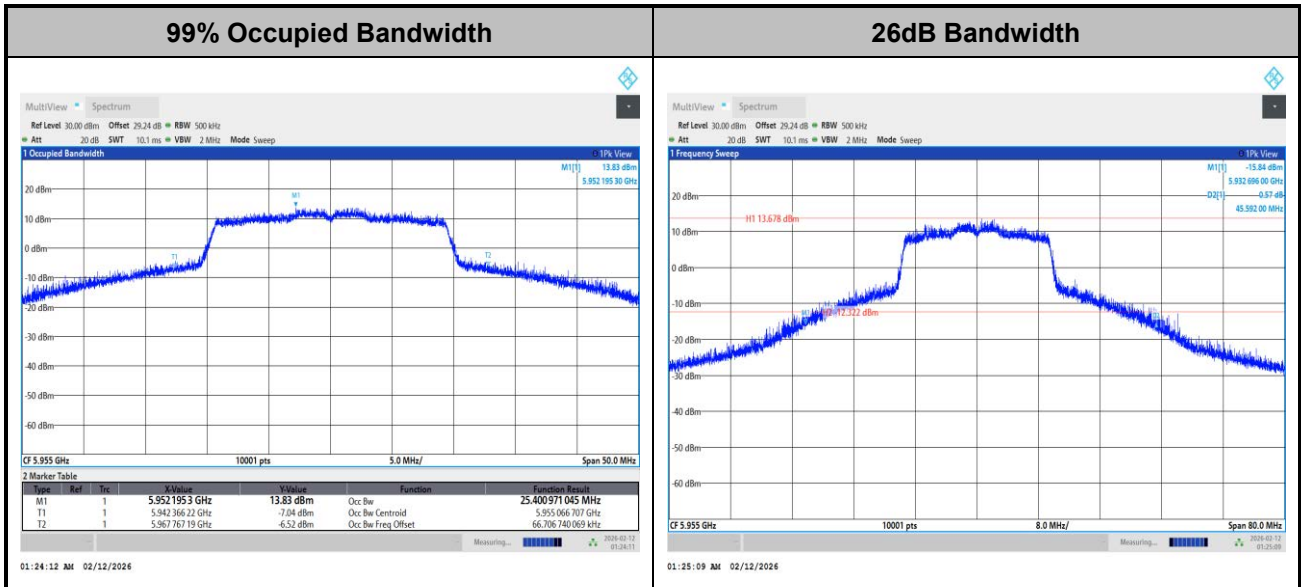
<802.11a>



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

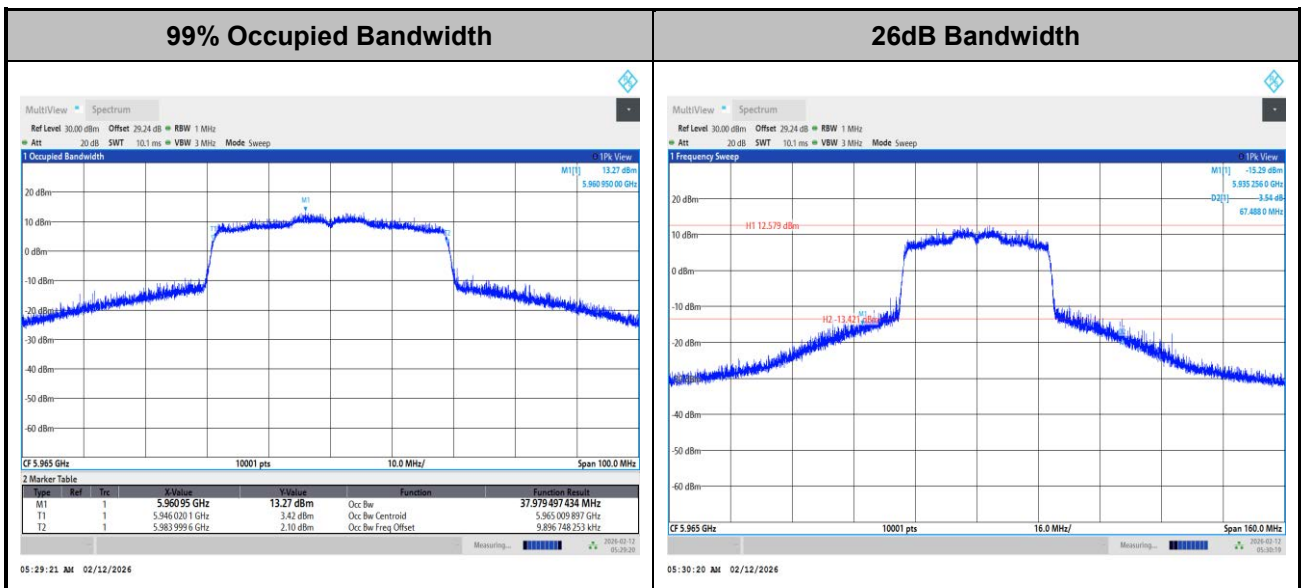


<802.11ax HE20>



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

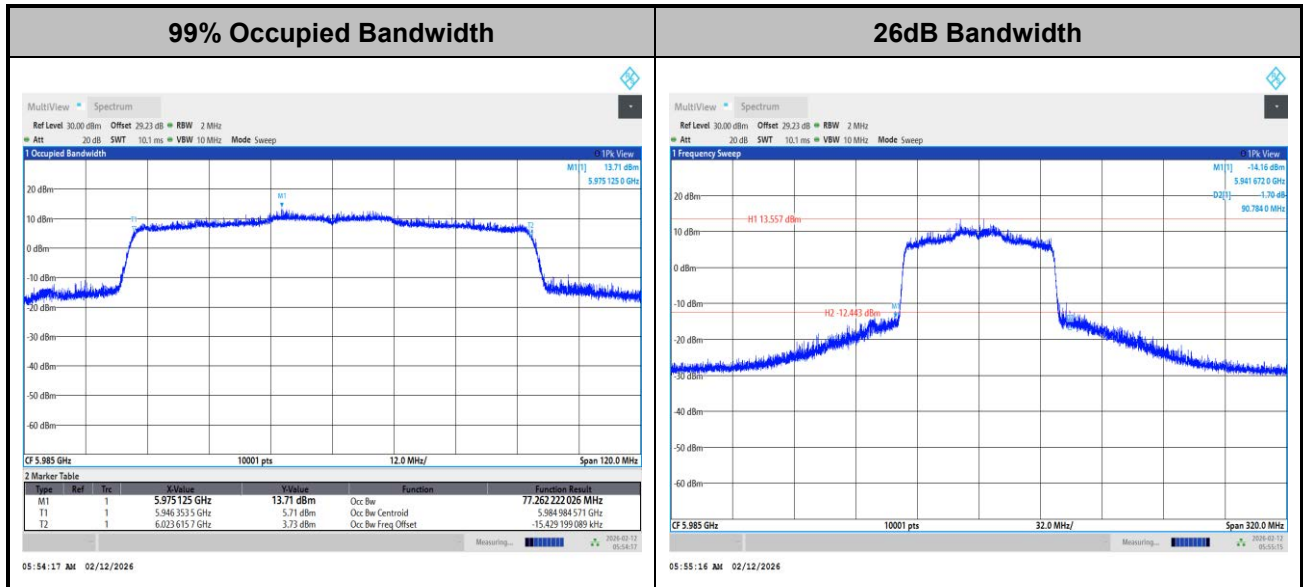
<802.11ax HE40>



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.

3.2 Fundamental Maximum EIRP Measurement

3.2.1 Limit of Fundamental Maximum EIRP

<FCC 14-30 CFR 15.407>

(a)(7) For client devices, except for fixed client devices as defined in this subpart, operating under the control of a standard power access

point in 5.925-6.425 GHz and 6.525-6.875 GHz bands, the maximum power spectral density must not exceed 17 dBm e.i.r.p. in any 1-megahertz band, and the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm and the device must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power.

3.2.2 Measuring Instruments

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

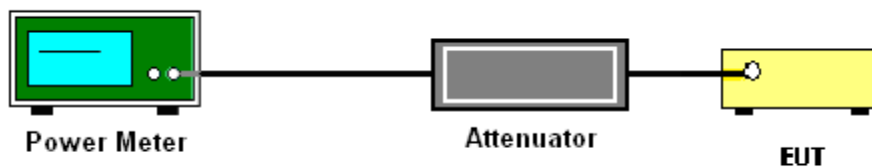
3.2.3 Test Procedures

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****MIMO <Ant. 4+3>**

U-NII-5													
Mod.	Data Rate	NTX	CH.	Freq (MHz)	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
					Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3		
11a	6M	2	01	5955	17.20	18.83	21.10	-3.01		18.09		30.00	Pass
11a	6M	2	49	6195	18.04	18.64	21.36	-3.01		18.35		30.00	Pass
11a	6M	2	93	6415	18.78	18.84	21.82	-3.01		18.81		30.00	Pass

U-NII-7													
Mod.	Data Rate	NTX	CH.	Freq (MHz)	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
					Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3		
11a	6M	2	117	6535	18.84	18.88	21.87	-4.06		17.81		30.00	Pass
11a	6M	2	149	6695	17.40	18.67	21.09	-4.06		17.03		30.00	Pass
11a	6M	2	181	6855	17.33	17.82	20.59	-4.06		16.53		30.00	Pass



U-NII-5														
Mod.	Data Rate	NTX	CH.	Freq (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3		
HE20	MCS0	2	01	5955	Full	16.82	17.94	20.43	-3.01		17.42		30.00	Pass
HE20	MCS0	2	01	5955	26RU/0	7.76	8.92	11.39	-3.01		8.38		30.00	Pass
HE20	MCS0	2	01	5955	52RU/37	10.73	11.98	14.41	-3.01		11.40		30.00	Pass
HE20	MCS0	2	01	5955	106RU/53	14.84	15.13	18.00	-3.01		14.99		30.00	Pass
HE20	MCS0	2	49	6195	Full	18.26	18.88	21.59	-3.01		18.58		30.00	Pass
HE20	MCS0	2	49	6195	26RU/4	11.06	10.50	13.80	-3.01		10.79		30.00	Pass
HE20	MCS0	2	49	6195	52RU/38	13.59	12.47	16.08	-3.01		13.07		30.00	Pass
HE20	MCS0	2	49	6195	106RU/53	16.98	15.69	19.39	-3.01		16.38		30.00	Pass
HE20	MCS0	2	93	6415	Full	18.83	18.87	21.86	-3.01		18.85		30.00	Pass
HE20	MCS0	2	93	6415	26RU/8	9.31	9.63	12.48	-3.01		9.47		30.00	Pass
HE20	MCS0	2	93	6415	52RU/40	12.99	12.38	15.71	-3.01		12.70		30.00	Pass
HE20	MCS0	2	93	6415	106RU/54	15.84	15.60	18.73	-3.01		15.72		30.00	Pass
HE40	MCS0	2	03	5965	Full	15.57	16.34	18.98	-3.01		15.97		30.00	Pass
HE40	MCS0	2	51	6205	Full	18.17	18.89	21.56	-3.01		18.55		30.00	Pass
HE40	MCS0	2	91	6405	Full	18.71	18.81	21.77	-3.01		18.76		30.00	Pass
HE80	MCS0	2	07	5985	Full	14.92	15.42	18.19	-3.01		15.18		30.00	Pass
HE80	MCS0	2	55	6225	Full	17.81	18.76	21.32	-3.01		18.31		30.00	Pass
HE80	MCS0	2	87	6385	Full	18.50	18.99	21.76	-3.01		18.75		30.00	Pass



U-NII-7														
Mod.	Data Rate	NTX	CH.	Freq (MHz)	RU Config.	Conducted Power (dBm)			DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)	Pass /Fail
						Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3		
HE20	MCS0	2	117	6535	Full	18.78	18.84	21.82	-4.06		17.76		30.00	Pass
HE20	MCS0	2	117	6535	26RU/0	9.84	9.96	12.91	-4.06		8.85		30.00	Pass
HE20	MCS0	2	117	6535	52RU/37	13.41	12.81	16.13	-4.06		12.07		30.00	Pass
HE20	MCS0	2	117	6535	106RU/53	16.16	15.96	19.07	-4.06		15.01		30.00	Pass
HE20	MCS0	2	149	6695	Full	17.65	18.95	21.36	-4.06		17.30		30.00	Pass
HE20	MCS0	2	149	6695	26RU/4	10.07	10.21	13.15	-4.06		9.09		30.00	Pass
HE20	MCS0	2	149	6695	52RU/38	11.33	11.71	14.53	-4.06		10.47		30.00	Pass
HE20	MCS0	2	149	6695	106RU/53	15.49	15.35	18.43	-4.06		14.37		30.00	Pass
HE20	MCS0	2	181	6855	Full	17.56	18.10	20.85	-4.06		16.79		30.00	Pass
HE20	MCS0	2	181	6855	26RU/8	8.52	8.24	11.39	-4.06		7.33		30.00	Pass
HE20	MCS0	2	181	6855	52RU/40	11.01	10.79	13.91	-4.06		9.85		30.00	Pass
HE20	MCS0	2	181	6855	106RU/54	14.75	14.50	17.64	-4.06		13.58		30.00	Pass
HE40	MCS0	2	123	6565	Full	18.25	18.87	21.58	-4.06		17.52		30.00	Pass
HE40	MCS0	2	147	6685	Full	17.73	18.97	21.40	-4.06		17.34		30.00	Pass
HE40	MCS0	2	179	6845	Full	17.37	17.89	20.65	-4.06		16.59		30.00	Pass
HE80	MCS0	2	135	6625	Full	18.50	18.78	21.65	-4.06		17.59		30.00	Pass
HE80	MCS0	2	151	6705	Full	17.72	18.86	21.34	-4.06		17.28		30.00	Pass
HE80	MCS0	2	167	6785	Full	17.61	18.25	20.95	-4.06		16.89		30.00	Pass

3.3 Fundamental Power Spectral Density Measurement

3.3.1 Limit of Fundamental Power Spectral Density

<FCC 14-30 CFR 15.407>

(a)(7) For client devices, except for fixed client devices as defined in this subpart, operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands, the maximum power spectral density must not exceed 17 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

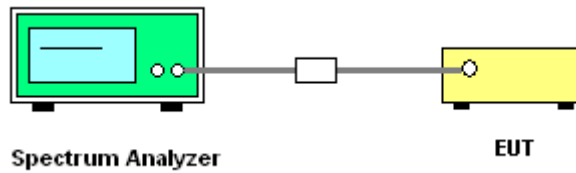
(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- 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

MIMO <Ant. 4+3>

U-NII-5															
Mod.	Data Rate	NTX	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
							Ant4	Ant3	Ant4			Ant3	SUM		
11a	6M	2	01	5955	0.02	0.02	-		9.97	-1.07		8.90		17.00	Pass
11a	6M	2	49	6195	0.02	0.02	-		10.48	-1.07		9.41		17.00	Pass
11a	6M	2	93	6415	0.02	0.02	-		10.49	-1.07		9.42		17.00	Pass

U-NII-7															
Mod.	Data Rate	NTX	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
					Ant4	Ant3	Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3		
11a	6M	2	117	6535	0.02	0.02	-		10.69	-1.08		9.61		17.00	Pass
11a	6M	2	149	6695	0.02	0.02	-		9.92	-1.08		8.84		17.00	Pass
11a	6M	2	181	6855	0.02	0.02	-		9.44	-1.08		8.36		17.00	Pass



U-NII-5															
Mod.	Data Rate	NTX	CH.	Freq (MHz)	RU Config.	Duty Factor (dB)		Conducted Power Density with Duty Factor (dBm/MHz)			DG (dBi)		EIRP Power Density (dBm/MHz)		Pass /Fail
						Ant4	Ant3	Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3	
HE20	MCS0	2	01	5955	Full	0.03	0.03	-		8.82	-1.07		7.75	17.00	Pass
HE20	MCS0	2	01	5955	26RU/0	0.09	0.09	-		8.46	-1.07		7.39	17.00	Pass
HE20	MCS0	2	01	5955	52RU/37	0.09	0.09	-		8.39	-1.07		7.32	17.00	Pass
HE20	MCS0	2	01	5955	106RU/53	0.10	0.10	-		8.39	-1.07		7.32	17.00	Pass
HE20	MCS0	2	49	6195	Full	0.03	0.03	-		10.04	-1.07		8.97	17.00	Pass
HE20	MCS0	2	49	6195	26RU/4	0.09	0.09	-		9.83	-1.07		8.76	17.00	Pass
HE20	MCS0	2	49	6195	52RU/38	0.09	0.09	-		9.89	-1.07		8.82	17.00	Pass
HE20	MCS0	2	49	6195	106RU/53	0.10	0.10	-		9.70	-1.07		8.63	17.00	Pass
HE20	MCS0	2	93	6415	Full	0.03	0.03	-		9.96	-1.07		8.89	17.00	Pass
HE20	MCS0	2	93	6415	26RU/8	0.09	0.09	-		9.47	-1.07		8.40	17.00	Pass
HE20	MCS0	2	93	6415	52RU/40	0.09	0.09	-		9.50	-1.07		8.43	17.00	Pass
HE20	MCS0	2	93	6415	106RU/54	0.10	0.10	-		9.59	-1.07		8.52	17.00	Pass
HE40	MCS0	2	03	5965	Full	0.06	0.06	-		4.54	-1.07		3.47	17.00	Pass
HE40	MCS0	2	51	6205	Full	0.06	0.06	-		7.03	-1.07		5.96	17.00	Pass
HE40	MCS0	2	91	6405	Full	0.06	0.06	-		7.10	-1.07		6.03	17.00	Pass
HE80	MCS0	2	07	5985	Full	0.12	0.12	-		1.14	-1.07		0.07	17.00	Pass
HE80	MCS0	2	55	6225	Full	0.12	0.12	-		3.86	-1.07		2.79	17.00	Pass
HE80	MCS0	2	87	6385	Full	0.12	0.12	-		4.35	-1.07		3.28	17.00	Pass



U-NII-7																
Mod.	Data Rate	NTX	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
						Ant4	Ant3	Ant4	Ant3	SUM	Ant4	Ant3	Ant4	Ant3		
HE20	MCS0	2	117	6535	Full	0.03	0.03	-		10.12	-1.08		9.04		17.00	Pass
HE20	MCS0	2	117	6535	26RU/0	0.09	0.09	-		10.00	-1.08		8.92		17.00	Pass
HE20	MCS0	2	117	6535	52RU/37	0.09	0.09	-		9.87	-1.08		8.79		17.00	Pass
HE20	MCS0	2	117	6535	106RU/53	0.10	0.10	-		9.72	-1.08		8.64		17.00	Pass
HE20	MCS0	2	149	6695	Full	0.03	0.03	-		9.50	-1.08		8.42		17.00	Pass
HE20	MCS0	2	149	6695	26RU/4	0.09	0.09	-		9.19	-1.08		8.11		17.00	Pass
HE20	MCS0	2	149	6695	52RU/38	0.09	0.09	-		8.70	-1.08		7.62		17.00	Pass
HE20	MCS0	2	149	6695	106RU/53	0.10	0.10	-		9.08	-1.08		8.00		17.00	Pass
HE20	MCS0	2	181	6855	Full	0.03	0.03	-		9.02	-1.08		7.94		17.00	Pass
HE20	MCS0	2	181	6855	26RU/8	0.09	0.09	-		8.69	-1.08		7.61		17.00	Pass
HE20	MCS0	2	181	6855	52RU/40	0.09	0.09	-		8.40	-1.08		7.32		17.00	Pass
HE20	MCS0	2	181	6855	106RU/54	0.10	0.10	-		8.57	-1.08		7.49		17.00	Pass
HE40	MCS0	2	123	6565	Full	0.06	0.06	-		7.09	-1.08		6.01		17.00	Pass
HE40	MCS0	2	147	6685	Full	0.06	0.06	-		6.79	-1.08		5.71		17.00	Pass
HE40	MCS0	2	179	6845	Full	0.06	0.06	-		6.07	-1.08		4.99		17.00	Pass
HE80	MCS0	2	135	6625	Full	0.12	0.12	-		4.17	-1.08		3.09		17.00	Pass
HE80	MCS0	2	151	6705	Full	0.12	0.12	-		3.78	-1.08		2.70		17.00	Pass
HE80	MCS0	2	167	6785	Full	0.12	0.12	-		3.65	-1.08		2.57		17.00	Pass

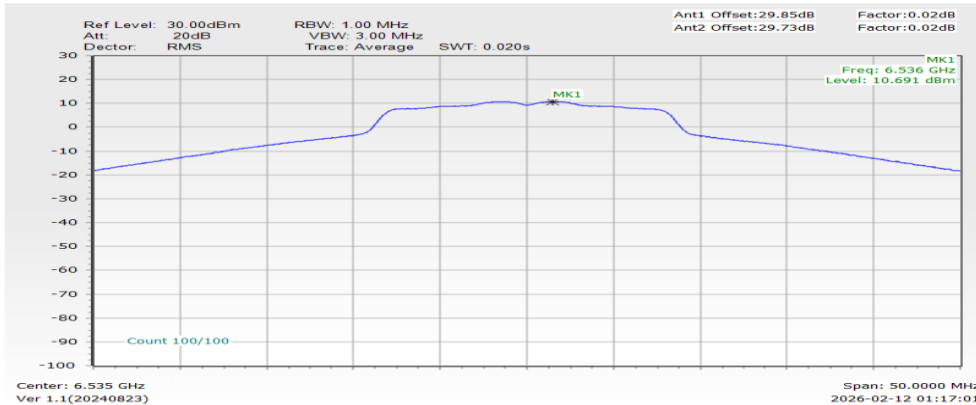


3.3.6 Test Plot of Power Spectral Density

MIMO <Ant. 4+3>

<802.11a>

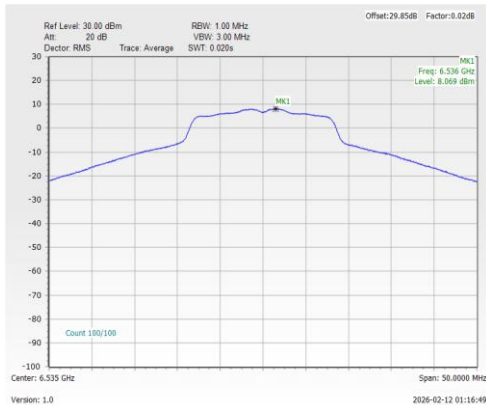
Maximum Power Density Plot (dBm/MHz)



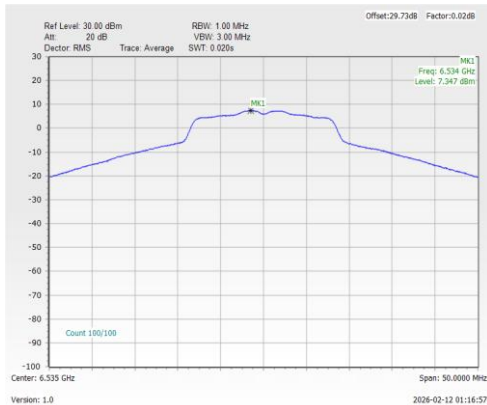
Note:

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)



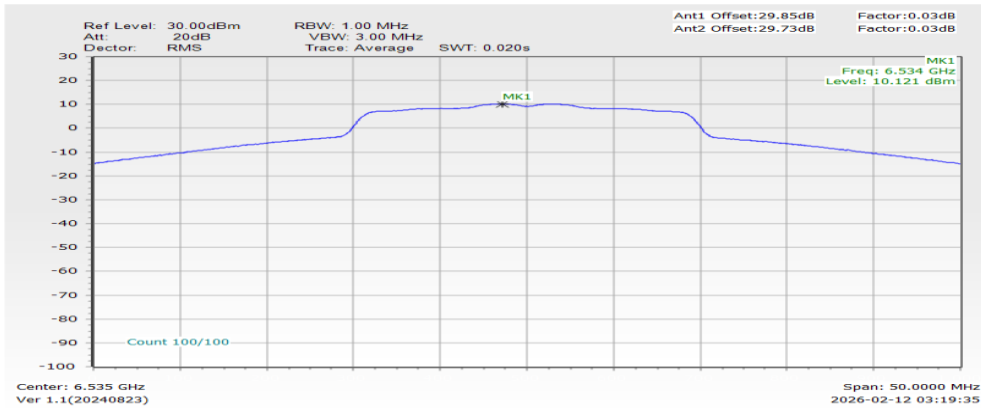
Power Density Plot Trace 2 (Ant 3)





<802.11ax HE20>

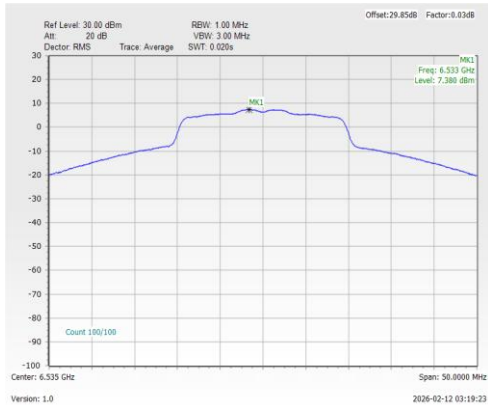
Maximum Power Density Plot (dBm/MHz)



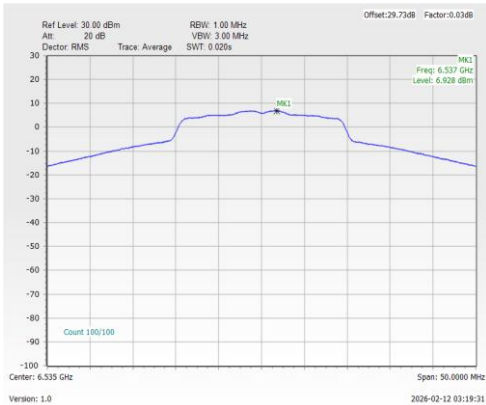
Note:

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)



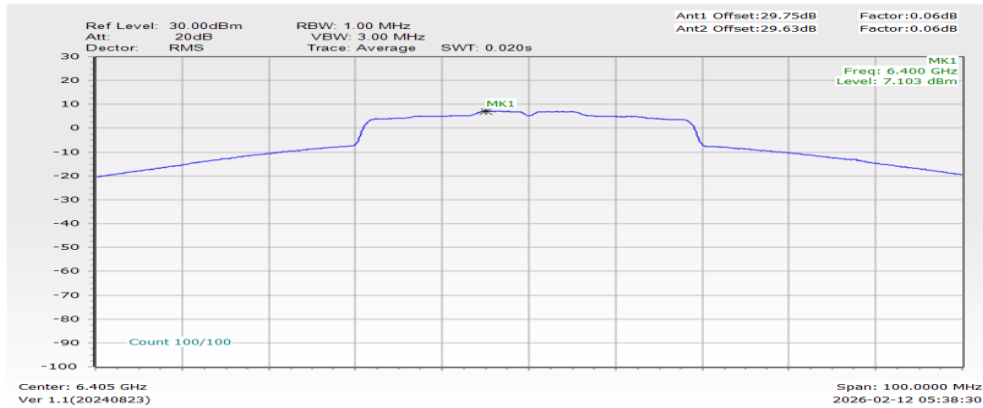
Power Density Plot Trace 2 (Ant 3)





<802.11ax HE40>

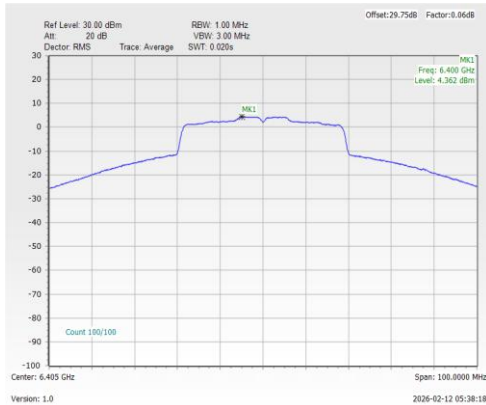
Maximum Power Density Plot (dBm/MHz)



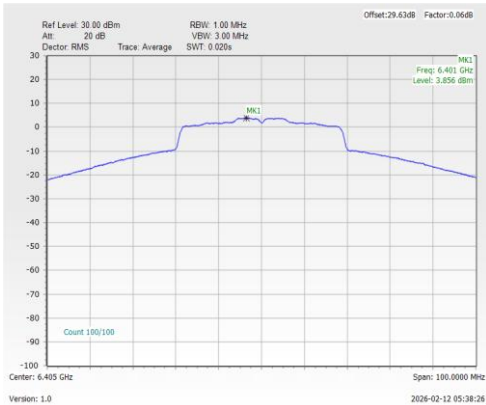
Note:

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)



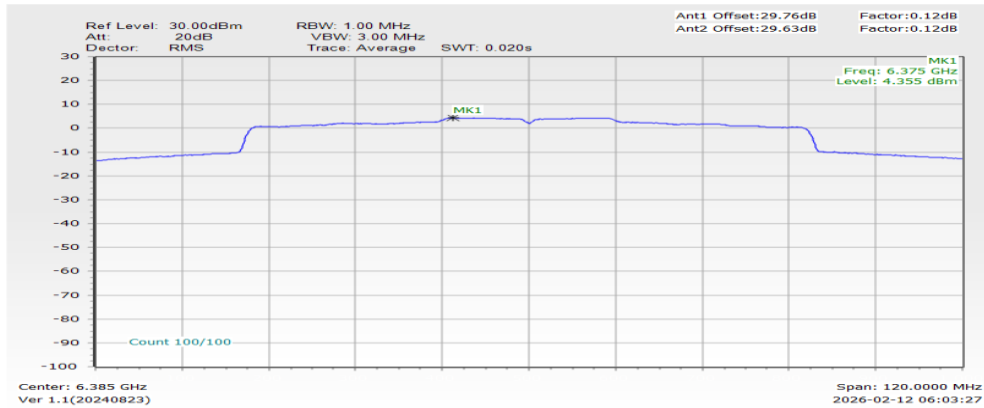
Power Density Plot Trace 2 (Ant 3)





<802.11ax HE80>

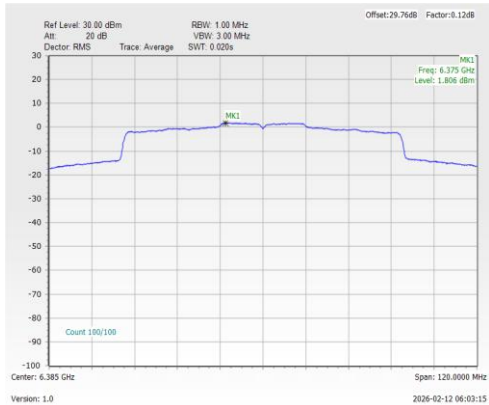
Maximum Power Density Plot (dBm/MHz)



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)

