



RF TEST REPORT

Applicant Nokia ShangHai Bell Co., Ltd.
FCC ID 2ADZRXS2426GB
Product Nokia ONT
Brand Nokia
Model XS-2426G-B
Report No. R2109A0800-R2V1
Issue Date December 17, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2020)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Version	Revision description	Issue Date
Rev.0	Initial issue of report.	December 9, 2021
Rev.1	Update Applicant address	December 17, 2021
Note: This revised report (Report No. R2109A0800-R2V1) supersedes and replaces the previously issued report (Report No. R2109A0800-R2). Please discard or destroy the previously issued report and dispose of it accordingly.		

Summary of measurement results

Number	Test Case	Clause in FCC rules	Verdict
1	Maximum output power	15.247(b)(3)	PASS
2	6 dB bandwidth	15.247(a)(2)	PASS
3	Power spectral density	15.247(e)	PASS
4	Band Edge	15.247(d)	PASS
5	Spurious RF Conducted Emissions	15.247(d)	PASS
6	Unwanted Emissions	15.247(d),15.205,15.209	PASS
7	Conducted Emissions	15.207	PASS
Date of Testing: September 25, 2021 ~ December 8, 2021			
Date of Sample Received: September 6, 2021			
Note: All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
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Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Nokia ShangHai Bell Co., Ltd.
Applicant address	No. 388, Ningqiao Rd. Pilot Free Trade Zone Shanghai China 201206
Manufacturer	CIG SHANGHAI CO., LTD.
Manufacturer address	5F, BUILDING 8, 2388 CHENHANG ROAD, MINHANG DISTRICT, SHANGHAI

2.2. General information

EUT Description		
Model	XS-2426G-B	
Lab internal SN	R2109A0800/S01	
Hardware Version	3FE49546AB	
Software Version	3FE49544FJIL98	
Power Supply	AC adapter	
Antenna Type	Internal Antenna	
Antenna Connector	A permanently attached antenna (meet with the standard FCC Part 15.203 requirement)	
Direction gain	Without Beamforming Mode for Power	3.3 dBi
	Without Beamforming Mode for PSD	4.7 dBi
	With Beamforming Mode	4.7 dBi
Operating Frequency Range(s)	802.11b/g/n(HT20)/ ax(HE20): 2412 ~ 2462 MHz 802.11n(HT40)/ ax(HE40): 2422 ~ 2452 MHz	
Modulation Type	802.11b: DSSS 802.11g/n(HT20/HT40): OFDM 802.11ax(HE20/HE40): OFDM	
Max. Conducted Power	Wi-Fi 2.4G: 29.92dBm	
EUT Accessory		
Adapter 1	Manufacturer: Dongguan Shilong Fuhua Electronic Co., Ltd. Model: UES36WU-120300SPA	
Adapter 2	Manufacturer: Honor Device Co., Ltd. Model: ADS-40FKJ-12 12036EPCU	
Internal Antenna 1	Manufacturer: HL	
Internal Antenna 2	Manufacturer: DZZ	
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. There are more than one Adapter, each one should be applied throughout the compliance test respectively, however, only the worst case (Adapter 1) will be recorded in this report.		

**Information of Configuration:**

No.	Name	Model/Code No.	Edition	Serial No. or Quantity
1	EMA-XS-2426G-B	3FE49546AB	PEM2	PEM 1
4	Power adapter	UES36WU-120300SPA	A/0	UE191205GWZF2RI 1
5	Power adapter	ADS-40FKJ-12 12036EPCU	A/0	9040108111201202R 1

ONT Mnemonic	Kit Code	EMA Code	Part Description	Power Adapter	
XS-2426G-B	3FE49542AB	3FE49546AB	XS-2426G-B,US Plug,XGS PON,2xPOTS, 3xGE+1x2,5GE,4x4 + 4x4 11ax,1xUSB3.0	UES36WU-120300SPA	ADS-40FKJ-12 12036EPCU

Auxiliary equipment details

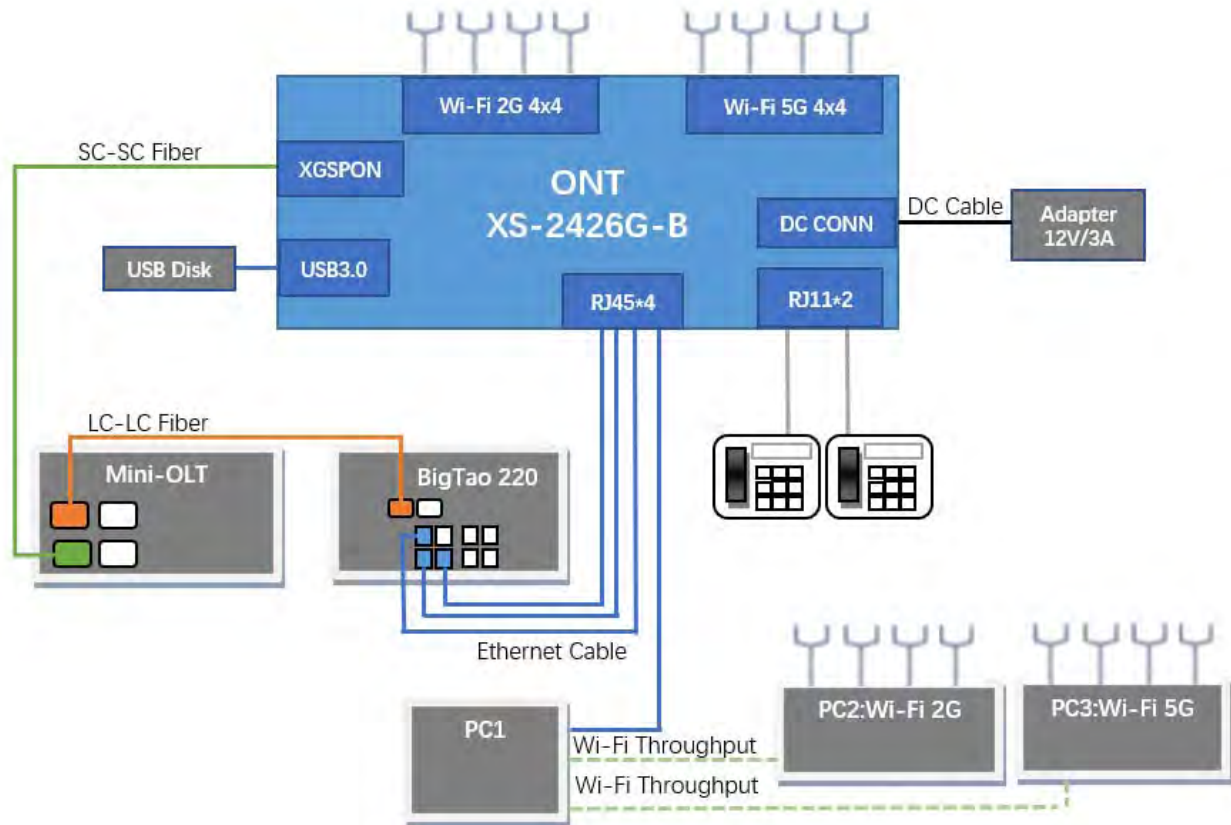
No.	Name	Brand name	Model	ASB code	Valid Until
1	BIGTAO	Xinertel	N.A	-	No Cal. Required
2	MiniOLT	Nokia	N.A	-	No Cal. Required
3	PC	HP	N.A	-	No Cal. Required
4	PC	Thinkpad	N.A	-	No Cal. Required
5	PC	Thinkpad	N.A	-	No Cal. Required

Information of Ports

No.	Port name	Number	Shielded or unshielded	Cable type (optic, twisted pair, etc.)	Max. Cable length
1	AC port	1	Unshielded	/	/
2	GE	3	Unshielded	/	/
3	2.5GE	1	Unshielded	/	/
4	POTS	2	Unshielded	/	/
5	USB	1	shielded	/	/

Description: The XS-2426G-B is a XGSPON ONT which has 3 GE LAN ports, 1 2.5GE LAN port, 1 USB port and 2POTS ports. It support 2.4G&5G wi-fi.

The basic functional test in normal room conditions consists of the traffic test and POTS connection test. XS-2426G-B runs 5 traffics on each line with BIGTAO, the each upstream of 3 GE is 900Mbps, and downstream is 900Mbps.the upstream of 2.5GE is 2G Mbps, and downstream is 2G Mbps. Frame loss ratio less than 10e-7. The POTS keep connecting though OFLT program.The WIFI keep connecting.





3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 15C (2020) Radio Frequency Devices

ANSI C63.10 (2013)

Reference standard:

KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

4. Test Configuration

Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the loop antenna is vertical, the others are vertical and horizontal. and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate			
	CDD/MIMO Antenna 1	CDD/MIMO Antenna 2	CDD/MIMO Antenna 3	CDD/MIMO Antenna 4
802.11b	1 Mbps	1 Mbps	1 Mbps	1 Mbps
802.11g	6 Mbps	6 Mbps	6 Mbps	6 Mbps
802.11n HT20	MCS24	MCS24	MCS24	MCS24
802.11n HT40	MCS24	MCS24	MCS24	MCS24
802.11ax HE20	MCS0	MCS0	MCS0	MCS0
802.11ax HE40	MCS0	MCS0	MCS0	MCS0

The worst case Antenna mode for each of the following tests for Wi-Fi:

Test Cases	CDD/MIMO Antenna 1	CDD/MIMO Antenna 2	CDD/MIMO Antenna 3	CDD/MIMO Antenna 4
Maximum conducted output power	O	O	O	O
6dB Bandwidth	-	-	O	-
Band Edge	-	-	O	-
Power Spectral Density	O	O	O	O
Spurious RF Conducted Emissions	-	-	O	-
Unwanted Emissions	-	-	O	-
Conducted Emission	-	-	O	-
Note: "O": test all bands				

According to RF Output power results in chapter 5.1, MIMO Antenna 3 was selected as the worst antenna.

5. Test Case Results

5.1. Maximum output power

Ambient condition

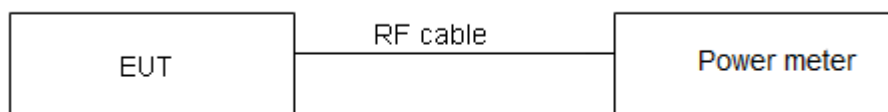
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to Power meter with a known loss. The EUT is max power transmission with proper modulation.

The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test Setup



Limits

Rule Part 15.247 (b) (3) specifies that " For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz: 1 Watt."

Average Output Power	
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44$ dB.



Test Results

Test Mode	T _{on} (ms)	T _(on+off) (ms)	Duty cycle	Duty cycle correction Factor(dB)
802.11b	0.69	1.24	0.55	2.56
802.11g	1.98	2.10	0.94	0.26
802.11n HT20	5.40	6.32	0.85	0.68
802.11n HT40	5.40	6.32	0.85	0.68
802.11ax HE20	5.43	6.33	0.86	0.66
802.11ax HE40	5.46	6.38	0.86	0.68
Note: when Duty cycle ≥ 0.98 , Duty cycle correction Factor not required.				

Internal Antenna 1: HL

MIMO Without Beamforming

Test Mode	Carrier frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		MIMO Antenna 3		MIMO Antenna 4		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11b	2412	20.88	23.44	21.27	23.83	21.37	23.93	20.58	23.14	29.62	30	PASS
	2437	20.49	23.05	20.48	23.04	21.19	23.75	20.37	22.93	29.22	30	PASS
	2462	21.13	23.69	21.06	23.62	21.36	23.92	20.70	23.26	29.65	30	PASS
802.11g	2412	20.85	21.11	21.17	21.43	20.42	20.67	21.17	21.42	27.19	30	PASS
	2417	21.54	21.80	21.92	22.18	21.24	21.50	22.00	22.25	27.96	30	PASS
	2422	22.78	23.04	23.21	23.47	22.69	22.95	23.24	23.50	29.26	30	PASS
	2437	22.42	22.68	22.76	23.02	22.98	23.24	22.48	22.74	28.94	30	PASS
	2457	22.63	22.89	23.01	23.27	22.71	22.97	22.81	23.07	29.07	30	PASS
	2462	21.56	21.82	21.07	21.33	20.67	20.93	21.02	21.28	27.37	30	PASS
802.11n HT20	2412	14.19	14.87	15.09	15.77	14.67	15.35	15.21	15.89	21.51	30	PASS
	2417	18.75	19.44	18.75	19.43	17.88	18.56	18.98	19.66	25.31	30	PASS
	2422	19.30	19.98	19.68	20.36	18.99	19.67	19.80	20.48	26.16	30	PASS
	2427	20.89	21.57	21.20	21.88	20.48	21.17	21.15	21.83	27.64	30	PASS
	2432	22.67	23.35	23.42	24.10	22.71	23.39	23.02	23.70	29.67	30	PASS
	2437	22.32	23.00	23.34	24.02	22.08	22.76	23.19	23.87	29.47	30	PASS
	2457	22.58	23.26	22.63	23.31	22.41	23.09	22.85	23.53	29.32	30	PASS
802.11n	2462	17.52	18.20	17.53	18.21	17.22	17.90	17.81	18.49	24.23	30	PASS



HT40	2427	15.76	16.44	16.32	17.00	15.65	16.33	16.21	16.89	22.70	30	PASS
	2432	16.85	17.53	17.19	17.87	16.78	17.46	17.45	18.13	23.78	30	PASS
	2437	21.42	22.10	21.98	22.66	20.98	21.66	20.88	21.56	28.04	30	PASS
	2442	19.88	20.56	20.04	20.72	19.56	20.24	19.98	20.66	26.57	30	PASS
	2447	17.36	18.04	17.55	18.23	17.65	18.33	17.61	18.29	24.25	30	PASS
	2452	17.14	17.82	17.27	17.96	17.31	17.99	16.94	17.62	23.87	30	PASS
802.11ax HE20	2412	14.98	15.64	15.26	15.92	14.97	15.63	15.39	16.05	21.84	30	PASS
	2417	18.85	19.51	19.21	19.87	18.96	19.62	19.08	19.74	25.71	30	PASS
	2422	18.99	19.65	19.17	19.83	18.83	19.49	19.26	19.92	25.75	30	PASS
	2427	21.29	21.95	21.87	22.53	21.91	22.57	22.14	22.80	28.50	30	PASS
	2432	21.31	21.97	22.08	22.74	20.98	21.64	21.64	22.30	28.21	30	PASS
	2437	22.27	22.93	22.36	23.02	23.14	23.80	22.63	23.29	29.30	30	PASS
	2447	21.91	22.57	22.54	23.20	22.02	22.68	22.59	23.25	28.96	30	PASS
	2452	22.09	22.75	22.86	23.52	22.21	22.87	22.48	23.14	29.10	30	PASS
	2457	21.14	21.80	21.81	22.47	21.21	21.87	21.75	22.41	28.17	30	PASS
	2462	19.03	19.69	19.15	19.81	18.58	19.24	18.95	19.61	25.62	30	PASS
802.11ax HE40	2422	13.01	13.69	12.98	13.66	13.11	13.79	13.24	13.92	19.79	30	PASS
	2427	14.91	15.59	15.13	15.81	14.44	15.12	15.23	15.91	21.64	30	PASS
	2432	16.89	17.57	17.22	17.90	16.49	17.17	17.34	18.02	23.70	30	PASS
	2437	19.16	19.84	19.65	20.33	18.98	19.66	19.12	19.80	25.94	30	PASS
	2442	18.95	19.63	19.56	20.24	18.65	19.33	19.19	19.87	25.80	30	PASS
	2447	17.89	18.57	18.43	19.11	17.85	18.53	18.24	18.92	24.81	30	PASS
	2452	16.96	17.64	17.38	18.06	16.53	17.21	17.15	17.83	23.72	30	PASS

Note: 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor

2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$.

3. The manufacturer declared that the directional gain = 3.30dBi. So the power limit is 30dBm

**MIMO With Beamforming**

Test Mode	Carrier frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		MIMO Antenna 3		MIMO Antenna 4		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11b	2412	21.15	23.71	21.01	23.57	21.36	23.92	21.11	23.67	29.74	30	PASS
	2437	20.56	23.12	20.56	23.12	21.25	23.81	21.33	23.89	29.52	30	PASS
	2462	20.57	23.13	21.29	23.85	21.70	24.26	21.32	23.88	29.82	30	PASS
802.11g	2412	21.03	21.29	21.26	21.51	20.68	20.94	21.28	21.53	27.34	30	PASS
	2417	21.66	21.92	21.92	22.17	21.48	21.74	22.03	22.28	28.05	30	PASS
	2422	23.09	23.35	22.98	23.24	22.78	23.04	23.16	23.42	29.28	30	PASS
	2437	22.36	22.62	22.26	22.52	22.78	23.04	22.46	22.72	28.75	30	PASS
	2457	22.68	22.94	22.73	22.99	22.51	22.77	22.95	23.21	29.00	30	PASS
	2462	20.99	21.25	21.32	21.58	21.07	21.33	21.21	21.47	27.43	30	PASS
802.11n HT20	2412	14.45	15.14	14.42	15.10	14.30	14.98	14.79	15.47	21.20	30	PASS
	2417	18.65	19.33	18.56	19.24	18.17	18.85	18.81	19.50	25.26	30	PASS
	2422	19.51	20.19	19.48	20.17	18.84	19.52	19.64	20.33	26.08	30	PASS
	2427	20.76	21.44	21.18	21.86	20.65	21.33	21.11	21.80	27.63	30	PASS
	2432	22.97	23.65	23.27	23.95	23.01	23.69	23.58	24.26	29.92	30	PASS
	2437	21.83	22.51	22.42	23.10	21.68	22.36	22.15	22.83	28.73	30	PASS
	2457	21.71	22.39	22.95	23.63	22.56	23.24	22.02	22.70	29.04	30	PASS
	2462	17.53	18.21	17.32	18.00	17.30	17.98	17.54	18.23	24.13	30	PASS
802.11n HT40	2422	14.86	15.54	15.19	15.87	15.01	15.69	15.39	16.07	21.82	30	PASS
	2427	15.81	16.49	15.98	16.66	16.11	16.79	16.23	16.91	22.74	30	PASS
	2432	16.77	17.45	17.21	17.89	16.47	17.15	17.03	17.71	23.58	30	PASS
	2437	21.22	21.90	21.54	22.22	22.45	23.13	22.21	22.89	28.59	30	PASS
	2442	18.83	19.51	19.22	19.90	19.07	19.75	19.23	19.91	25.79	30	PASS
	2447	16.87	17.55	17.01	17.69	16.37	17.05	17.06	17.74	23.54	30	PASS
	2452	16.46	17.15	16.77	17.45	15.80	16.49	16.70	17.38	23.15	30	PASS
802.11ax HE20	2412	14.99	15.66	15.27	15.94	14.98	15.65	15.40	16.07	21.85	30	PASS
	2417	18.99	19.65	19.27	19.93	19.08	19.74	19.31	19.97	25.85	30	PASS
	2422	19.00	19.67	19.18	19.85	18.84	19.51	19.27	19.94	25.76	30	PASS
	2427	21.41	22.07	21.65	22.31	21.81	22.47	22.09	22.75	28.43	30	PASS
	2432	21.32	21.99	22.09	22.76	20.99	21.66	21.65	22.32	28.22	30	PASS
	2437	22.17	22.83	22.25	22.91	23.24	23.90	22.55	23.21	29.26	30	PASS
	2447	21.92	22.58	22.55	23.22	22.03	22.70	22.60	23.27	28.97	30	PASS
	2452	22.10	22.77	22.87	23.54	22.22	22.89	22.49	23.16	29.12	30	PASS
	2457	21.15	21.82	21.82	22.49	21.22	21.89	21.76	22.43	28.19	30	PASS
	2462	19.04	19.71	19.16	19.83	18.59	19.26	18.96	19.63	25.63	30	PASS



802.11ax HE40	2422	13.02	13.70	12.99	13.67	13.12	13.80	13.25	13.93	19.80	30	PASS
	2427	14.92	15.60	15.14	15.82	14.45	15.13	15.24	15.92	21.65	30	PASS
	2432	16.87	17.55	17.32	18.00	16.69	17.37	17.19	17.87	23.72	30	PASS
	2437	19.18	19.86	19.66	20.34	18.99	19.67	19.13	19.81	25.95	30	PASS
	2442	18.96	19.64	19.57	20.25	18.66	19.34	19.20	19.88	25.81	30	PASS
	2447	17.90	18.58	18.44	19.12	17.86	18.54	18.25	18.93	24.82	30	PASS
	2452	16.97	17.65	17.39	18.07	16.54	17.22	17.15	17.83	23.73	30	PASS

Note: 1. Average Power with duty factor = Average Power Measured + Duty cycle correction factor

2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$.

3. The manufacturer declared that the directional gain = 4.70dBi. So the power limit is 30dBm



Internal Antenna 2: DZZ

MIMO Without Beamforming

Test Mode	Carrier frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		MIMO Antenna 3		MIMO Antenna 4		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11b	2412	20.88	23.44	21.27	23.83	21.37	23.93	20.58	23.14	29.62	30	PASS
	2437	20.49	23.05	20.48	23.04	21.19	23.75	20.37	22.93	29.22	30	PASS
	2462	21.13	23.69	21.06	23.62	21.36	23.92	20.70	23.26	29.65	30	PASS
802.11g	2412	20.70	20.96	21.27	21.53	21.14	21.39	21.32	21.58	27.39	30	PASS
	2417	21.40	21.66	22.14	22.40	21.87	22.13	22.09	22.35	28.16	30	PASS
	2437	22.44	22.70	22.26	22.52	22.78	23.04	22.46	23.14	28.88	30	PASS
	2462	22.81	23.07	22.68	22.94	22.96	23.22	22.82	23.50	29.21	30	PASS
802.11n HT20	2412	13.55	14.23	13.92	14.60	13.97	14.66	13.87	14.56	20.54	30	PASS
	2417	19.84	20.52	20.57	21.25	20.41	21.09	20.89	21.58	27.15	30	PASS
	2422	19.85	20.53	20.51	21.19	20.31	20.99	20.70	21.39	27.06	30	PASS
	2427	21.27	21.96	21.52	22.20	22.07	22.75	21.84	22.52	28.39	30	PASS
	2437	21.52	22.20	21.66	22.34	22.30	22.98	22.09	22.77	28.61	30	PASS
	2457	21.22	21.90	21.54	22.22	22.31	22.99	22.22	22.90	28.55	30	PASS
	2462	18.21	18.89	18.61	19.29	18.67	19.35	18.64	19.32	25.24	30	PASS
802.11n HT40	2422	16.33	17.02	17.01	17.69	16.89	17.57	17.23	17.91	23.58	30	PASS
	2427	16.60	17.28	17.07	17.75	16.84	17.52	17.01	17.69	23.59	30	PASS
	2432	18.87	19.56	19.26	19.94	19.14	19.82	19.25	19.93	25.84	30	PASS
	2437	21.46	22.14	21.48	22.16	22.27	22.95	22.19	22.87	28.57	30	PASS
	2442	18.65	19.33	19.40	20.08	19.11	19.79	18.91	19.59	25.73	30	PASS
	2447	16.42	17.10	16.65	17.33	16.56	17.25	16.38	17.06	23.21	30	PASS
	2452	16.57	17.26	17.12	17.80	16.80	17.48	16.64	17.33	23.49	30	PASS
802.11ax HE20	2412	12.18	12.85	12.55	13.22	12.69	13.35	12.70	13.36	19.22	30	PASS
	2417	19.33	19.99	20.17	20.84	19.99	20.66	20.12	20.78	26.60	30	PASS
	2422	19.32	19.99	19.94	20.60	20.06	20.73	20.30	20.96	26.60	30	PASS
	2427	20.83	21.49	21.81	22.48	21.85	22.51	21.46	22.12	28.19	30	PASS
	2432	21.83	22.49	22.21	22.88	22.15	22.81	22.18	22.84	28.78	30	PASS
	2437	21.49	22.15	22.29	22.95	21.91	22.57	21.92	22.58	28.59	30	PASS
	2447	20.28	20.94	20.98	21.64	21.01	21.67	20.02	20.68	27.27	30	PASS
	2452	20.10	20.76	20.86	21.53	20.76	21.42	20.83	21.49	27.33	30	PASS
	2457	19.63	20.29	20.36	21.02	19.98	20.64	20.19	20.85	26.73	30	PASS
	2462	19.52	20.09	20.05	20.18	20.01	20.18	19.97	20.63	26.30	30	PASS
802.11ax HE40	2422	15.49	16.17	16.05	16.73	15.85	16.53	16.06	16.73	22.57	30	PASS
	2427	15.61	16.29	16.08	16.76	15.93	16.61	16.02	16.70	22.61	30	PASS



	2432	17.53	18.21	18.03	18.71	17.56	18.24	18.14	18.82	24.52	30	PASS
	2437	17.79	18.47	18.06	18.74	18.02	18.70	17.92	18.60	24.65	30	PASS
	2442	18.70	19.38	19.20	19.88	18.98	19.65	19.17	19.85	25.72	30	PASS
	2447	17.79	18.47	18.30	18.98	17.98	18.66	17.72	18.40	24.65	30	PASS
	2452	16.88	17.56	16.76	17.43	16.91	17.59	16.82	17.50	23.54	30	PASS

Note: 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor

2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$.

3. The manufacturer declared that the directional gain = 3.30dBi. So the power limit is 30dBm

MIMO With Beamforming

Test Mode	Carrier frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		MIMO Antenna 3		MIMO Antenna 4		Total Power (dBm)	Limit (dBm)	Conclusion
		Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Average Power Measured (dBm)	Average Power with duty factor (dBm)			
802.11b	2412	21.15	23.71	21.01	23.57	21.36	23.92	21.11	23.67	29.74	30	PASS
	2437	20.56	23.12	20.56	23.12	21.25	23.81	21.33	23.89	29.52	30	PASS
	2462	20.57	23.13	21.29	23.85	21.70	24.26	21.32	23.88	29.82	30	PASS
802.11g	2412	20.56	20.82	21.39	21.64	20.98	21.23	21.15	21.40	27.30	30	PASS
	2417	21.77	22.03	22.53	22.79	22.26	22.52	22.44	22.70	28.54	30	PASS
	2437	22.37	22.63	22.47	22.73	22.86	23.12	23.06	23.74	29.10	30	PASS
	2462	22.61	22.87	22.96	23.22	23.29	23.55	23.09	23.35	29.27	30	PASS
802.11n HT20	2412	13.23	13.91	13.55	14.23	13.63	14.32	13.68	14.36	20.23	30	PASS
	2417	19.97	20.66	20.53	21.21	20.24	20.92	20.36	21.05	26.99	30	PASS
	2422	19.64	20.33	20.43	21.11	20.45	21.13	20.49	21.17	26.97	30	PASS
	2427	21.63	22.31	21.51	22.19	21.71	22.39	21.50	22.19	28.29	30	PASS
	2437	21.54	22.22	21.32	22.00	22.79	23.47	20.47	21.16	28.32	30	PASS
	2457	21.65	22.33	21.37	22.05	22.68	23.36	20.51	21.19	28.33	30	PASS
	2462	17.81	18.49	17.79	18.47	17.78	18.47	18.20	18.88	24.60	30	PASS
802.11n HT40	2422	15.97	16.65	16.30	16.99	16.17	16.85	16.13	16.81	22.85	30	PASS
	2427	15.44	16.13	15.83	16.52	15.75	16.43	15.86	16.54	22.43	30	PASS
	2432	17.93	18.62	18.55	19.23	18.13	18.81	17.98	18.66	24.86	30	PASS
	2437	21.65	22.33	21.16	21.84	22.59	23.27	20.48	21.16	28.24	30	PASS
	2442	18.57	19.25	19.40	20.08	19.21	19.89	18.87	19.55	25.73	30	PASS
	2447	16.76	17.44	16.63	17.31	16.59	17.27	16.43	17.11	23.31	30	PASS
	2452	16.61	17.29	17.22	17.90	16.80	17.48	16.61	17.29	23.52	30	PASS
802.11ax HE20	2412	12.35	13.02	12.18	12.84	12.72	13.38	12.68	13.34	19.17	30	PASS
	2417	19.07	19.74	19.66	20.32	19.45	20.11	19.59	20.25	26.13	30	PASS
	2422	19.36	20.02	19.16	19.83	19.26	19.92	19.62	20.29	26.04	30	PASS



	2427	21.21	21.88	21.33	22.00	21.48	22.15	21.09	21.75	27.97	30	PASS
	2432	22.02	22.68	22.14	22.80	22.31	22.97	22.07	22.73	28.82	30	PASS
	2437	22.04	22.70	22.31	22.97	22.65	23.31	22.14	22.80	28.97	30	PASS
	2447	20.45	21.11	20.50	21.16	20.87	21.53	20.50	21.16	27.26	30	PASS
	2452	20.32	20.98	20.93	21.59	20.95	21.61	20.80	21.47	27.44	30	PASS
	2457	19.44	20.10	19.86	20.52	19.89	20.55	19.98	20.65	26.48	30	PASS
	2462	19.31	19.97	19.78	19.97	19.75	20.41	19.88	20.54	26.25	30	PASS
802.11ax HE40	2422	15.50	16.18	16.07	16.75	15.92	16.60	16.09	16.77	22.60	30	PASS
	2427	15.63	16.31	16.10	16.78	15.89	16.57	16.01	16.69	22.61	30	PASS
	2432	17.61	18.29	18.01	18.69	17.61	18.29	18.21	18.89	24.57	30	PASS
	2437	17.73	18.41	18.02	18.70	18.10	18.78	17.98	18.66	24.66	30	PASS
	2442	18.69	19.37	19.20	19.88	18.91	19.59	19.15	19.83	25.69	30	PASS
	2447	17.80	18.48	18.31	18.99	17.89	18.57	17.71	18.39	24.63	30	PASS
	2452	16.89	17.57	16.78	17.46	16.91	17.59	16.82	17.50	23.55	30	PASS

Note: 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor

2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$.

3. The manufacturer declared that the directional gain = 4.70dBi. So the power limit is 30dBm

5.2. 99% Bandwidth and 6dB Bandwidth

Ambient condition

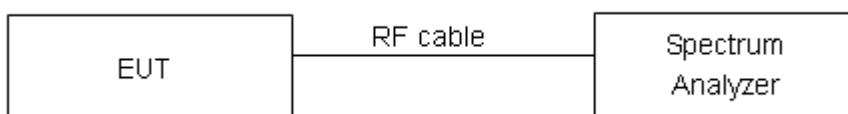
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. RBW is set to 100 kHz; VBW is set to 300 kHz on spectrum analyzer.
Dector=Peak, Trace mode=max hold.

The EUT was connected to the spectrum analyzer through a known loss cable. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value.

Test Setup



Limits

Rule Part 15.247 (a) (2) specifies that “Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.”

minimum 6 dB bandwidth	≥ 500 kHz
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

**Test Results:**

Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11b	2412	12.957	8.051	500	PASS
	2437	13.022	7.593	500	PASS
	2462	13.076	8.038	500	PASS
802.11g	2412	16.508	16.340	500	PASS
	2417	16.509	16.330	500	PASS
	2422	18.995	19.070	500	PASS
	2437	16.508	16.330	500	PASS
	2457	16.535	16.340	500	PASS
	2462	16.516	16.330	500	PASS
802.11n HT20	2412	17.726	17.570	500	PASS
	2417	17.710	17.580	500	PASS
	2422	17.718	17.600	500	PASS
	2427	17.722	17.610	500	PASS
	2432	17.737	17.620	500	PASS
	2437	17.722	17.580	500	PASS
	2457	17.731	17.650	500	PASS
	2462	17.719	17.690	500	PASS
802.11n HT40	2422	35.950	35.310	500	PASS
	2427	35.924	35.040	500	PASS
	2432	35.967	36.330	500	PASS
	2437	35.946	35.670	500	PASS
	2442	35.949	33.990	500	PASS
	2447	35.930	34.060	500	PASS
	2452	35.958	32.760	500	PASS
802.11ax HE20	2412	19.037	19.050	500	PASS
	2417	19.045	18.920	500	PASS
	2422	19.028	19.000	500	PASS



	2427	19.060	18.980	500	PASS
	2432	19.047	18.990	500	PASS
	2437	19.024	19.170	500	PASS
	2447	19.047	18.960	500	PASS
	2452	19.085	18.940	500	PASS
	2457	19.050	18.960	500	PASS
	2462	19.019	18.940	500	PASS
802.11ax HE40	2422	37.655	37.260	500	PASS
	2427	37.659	37.860	500	PASS
	2432	37.635	37.520	500	PASS
	2437	37.639	37.760	500	PASS
	2442	37.713	36.350	500	PASS
	2447	37.609	36.980	500	PASS
	2452	37.587	37.740	500	PASS

99%bandwidth

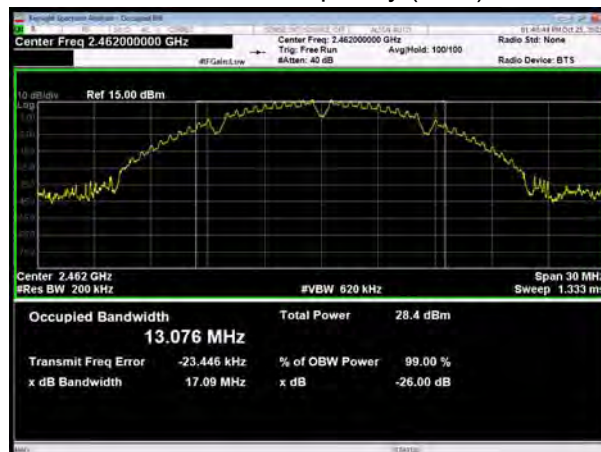
802.11b, Carrier frequency (MHz): 2412



802.11b, Carrier frequency (MHz): 2437



802.11b, Carrier frequency (MHz):2462



802.11g, Carrier frequency (MHz): 2412



802.11g, Carrier frequency (MHz): 2417



802.11g, Carrier frequency (MHz): 2422



802.11g, Carrier frequency (MHz): 2437



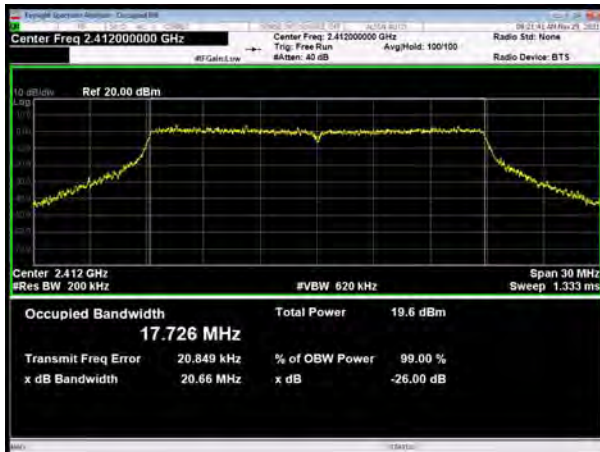
802.11g, Carrier frequency (MHz): 2457



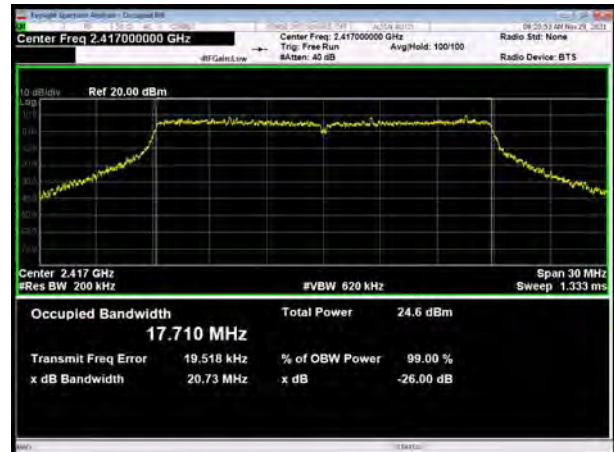
802.11g, Carrier frequency (MHz): 2462



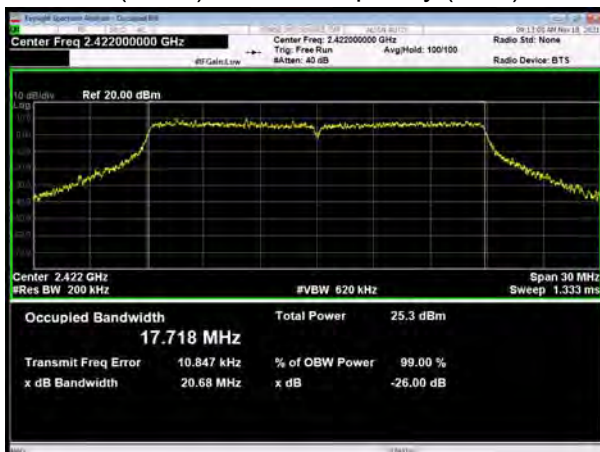
802.11n(HT20), Carrier frequency (MHz): 2412



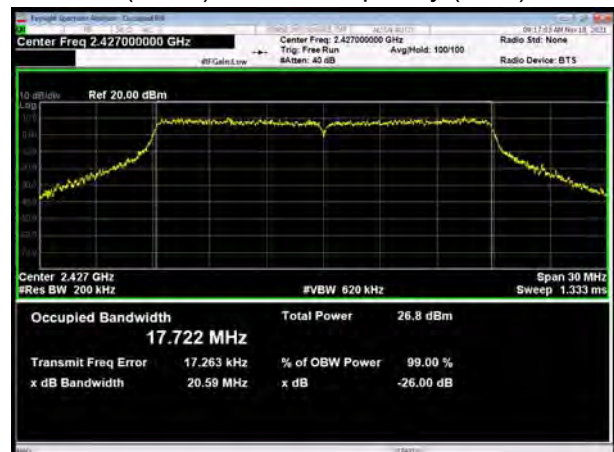
802.11n(HT20), Carrier frequency (MHz): 2417



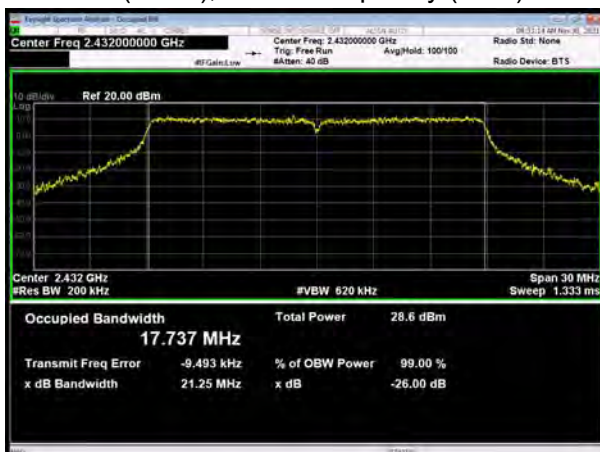
802.11n(HT20), Carrier frequency (MHz): 2422



802.11n(HT20), Carrier frequency (MHz): 2427



802.11n(HT20), Carrier frequency (MHz): 2432



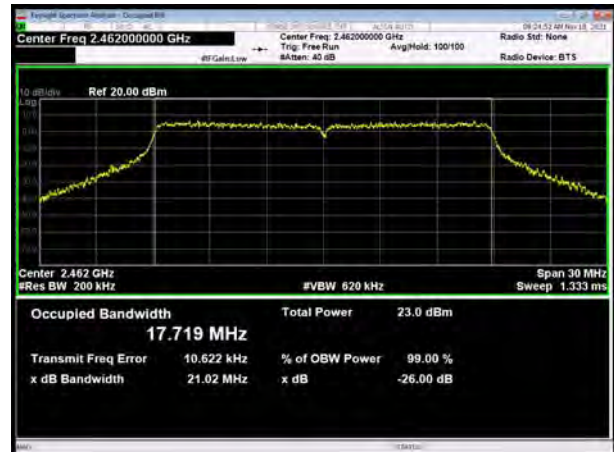
802.11n(HT20), Carrier frequency (MHz): 2437



802.11n(HT20), Carrier frequency (MHz):2457



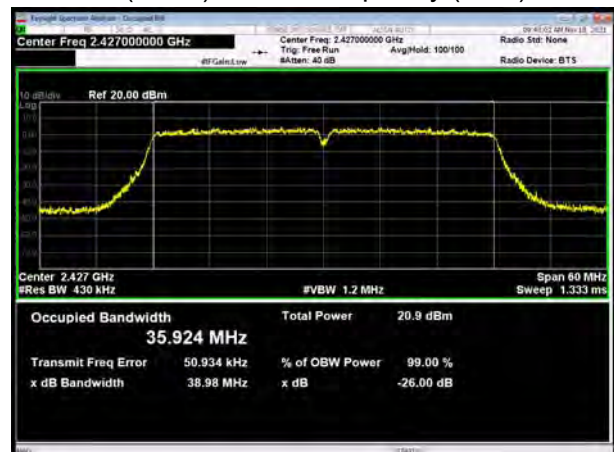
802.11n(HT20), Carrier frequency (MHz):2462



802.11n(HT40), Carrier frequency (MHz): 2422



802.11n(HT40), Carrier frequency (MHz): 2427



802.11n(HT40), Carrier frequency (MHz): 2432



802.11n(HT40), Carrier frequency (MHz): 2437





802.11n(HT40), Carrier frequency (MHz): 2442



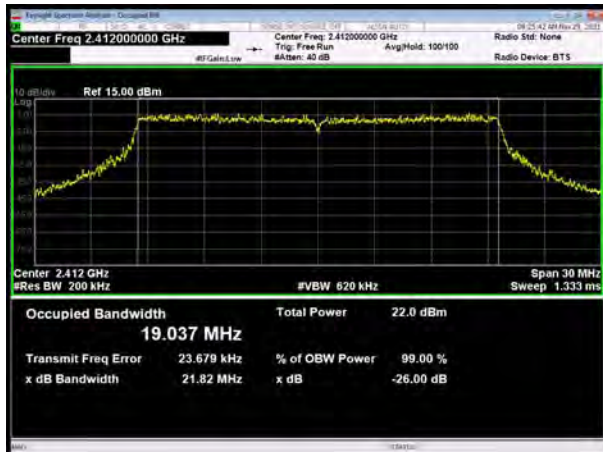
802.11n(HT40), Carrier frequency (MHz): 2447



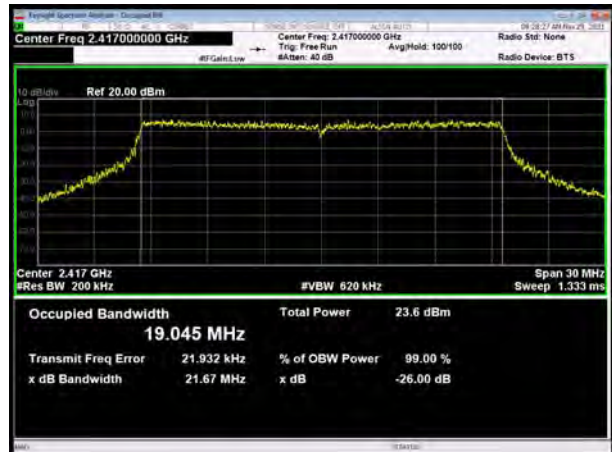
802.11n(HT40), Carrier frequency (MHz): 2452



802.11ax(HE20), Carrier frequency (MHz): 2412



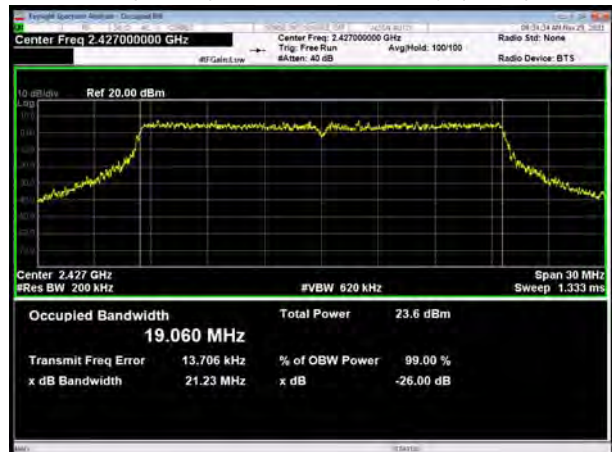
802.11ax(HE20), Carrier frequency (MHz): 2417



802.11ax(HE20), Carrier frequency (MHz): 2422



802.11ax(HE20), Carrier frequency (MHz): 2427



802.11ax(HE20), Carrier frequency (MHz):2432



802.11ax(HE20), Carrier frequency (MHz): 2437



802.11ax(HE20), Carrier frequency (MHz): 2447



802.11ax(HE20), Carrier frequency (MHz): 2452



802.11ax(HE20), Carrier frequency (MHz): 2457



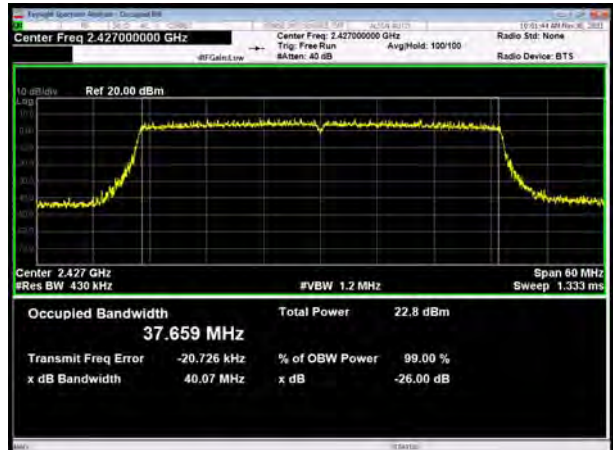
802.11ax(HE20), Carrier frequency (MHz): 2462



802.11ax(HE40), Carrier frequency (MHz): 2422



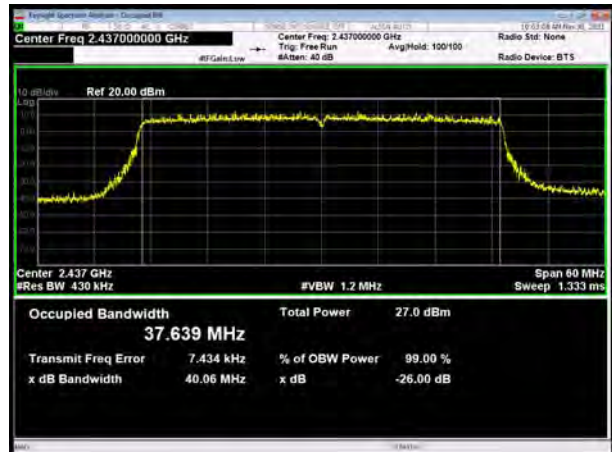
802.11ax(HE40), Carrier frequency (MHz): 2427



802.11ax(HE40), Carrier frequency (MHz): 2432



802.11ax(HE40), Carrier frequency (MHz): 2437



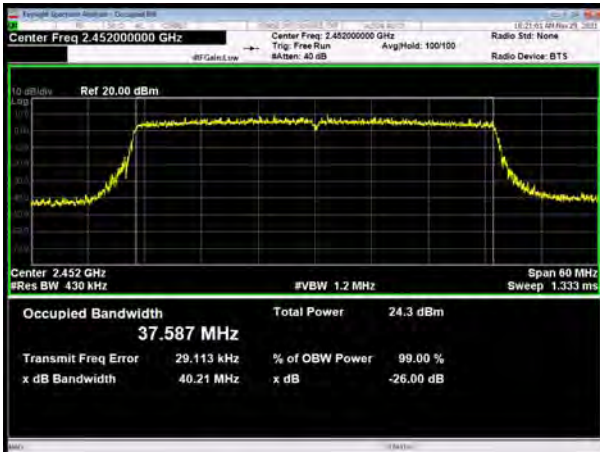
802.11ax(HE40), Carrier frequency (MHz): 2442



802.11ax(HE40), Carrier frequency (MHz): 2447



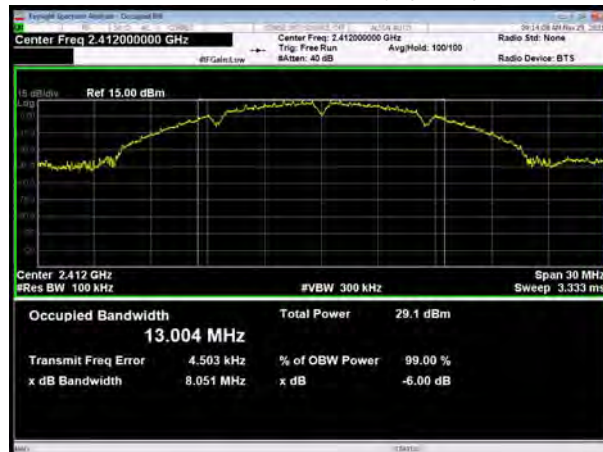
802.11ax(HE40), Carrier frequency (MHz): 2452





6 dB bandwidth

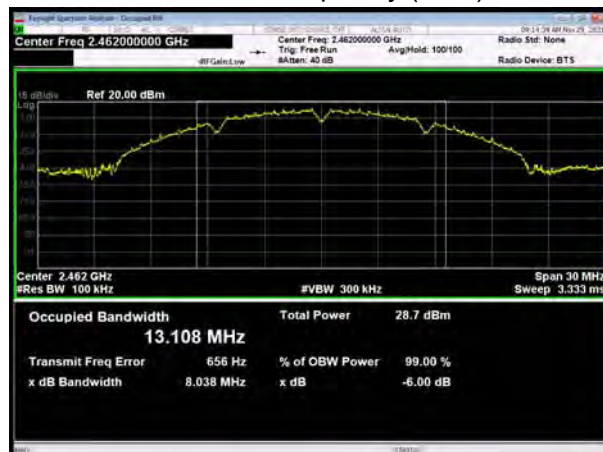
802.11b, Carrier frequency (MHz): 2412



802.11b, Carrier frequency (MHz): 2437



802.11b, Carrier frequency (MHz): 2462



802.11g, Carrier frequency (MHz): 2412



802.11g, Carrier frequency (MHz): 2417



802.11g, Carrier frequency (MHz): 2422



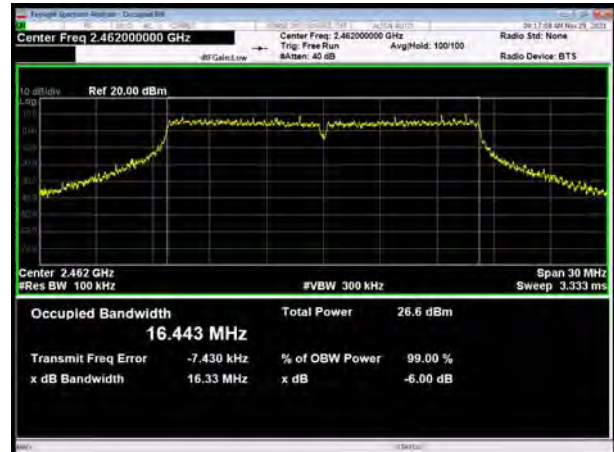
802.11g, Carrier frequency (MHz): 2437



802.11g, Carrier frequency (MHz): 2457



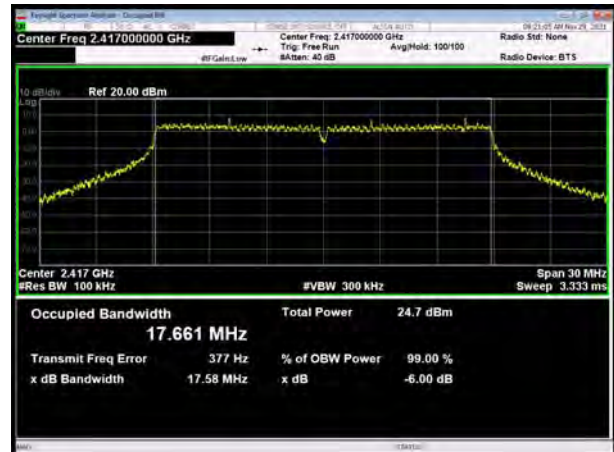
802.11g, Carrier frequency (MHz): 2462



802.11n(HT20), Carrier frequency (MHz): 2412



802.11n(HT20), Carrier frequency (MHz): 2417



802.11n(HT20), Carrier frequency (MHz): 2422



802.11n(HT20), Carrier frequency (MHz): 2427



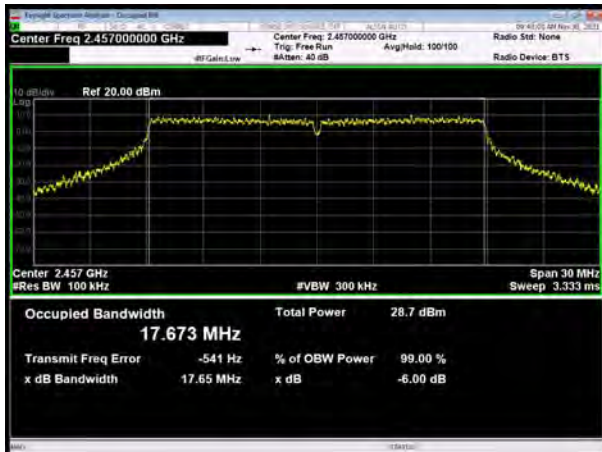
802.11n(HT20), Carrier frequency (MHz): 2432



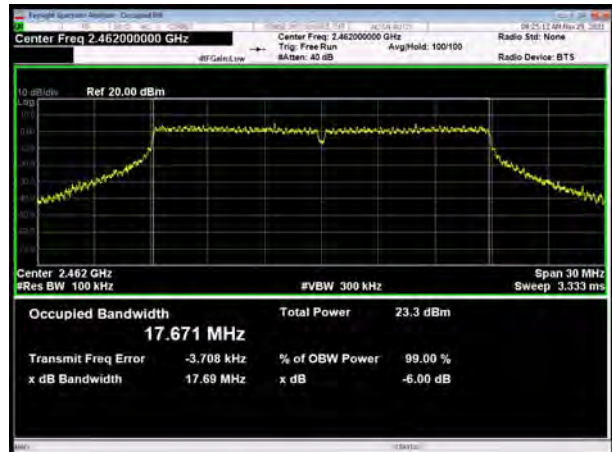
802.11n(HT20), Carrier frequency (MHz): 2437



802.11n(HT20), Carrier frequency (MHz):2457



802.11n(HT20), Carrier frequency (MHz):2462



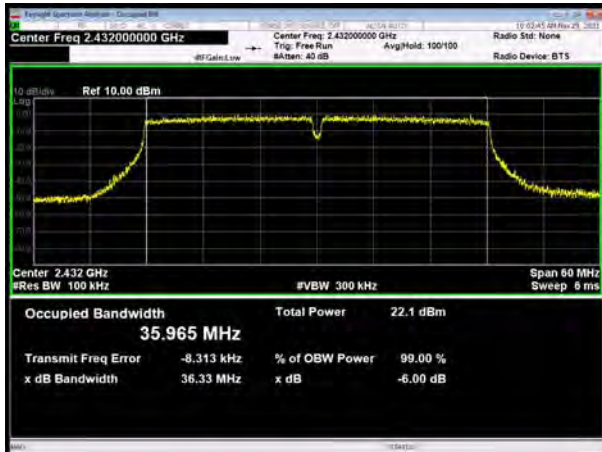
802.11n(HT40), Carrier frequency (MHz): 2422



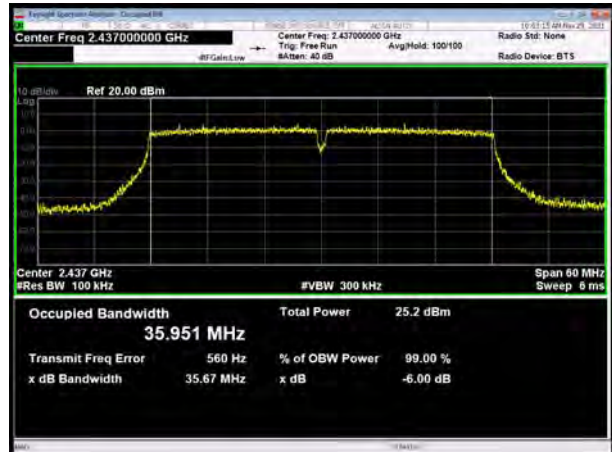
802.11n(HT40), Carrier frequency (MHz): 2427



802.11n(HT40), Carrier frequency (MHz): 2432



802.11n(HT40), Carrier frequency (MHz): 2437





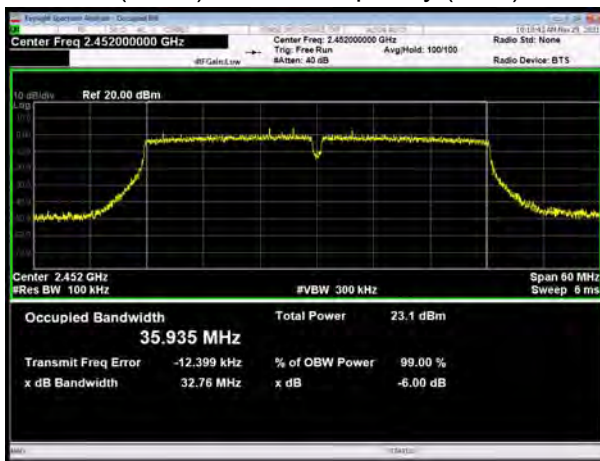
802.11n(HT40), Carrier frequency (MHz): 2442



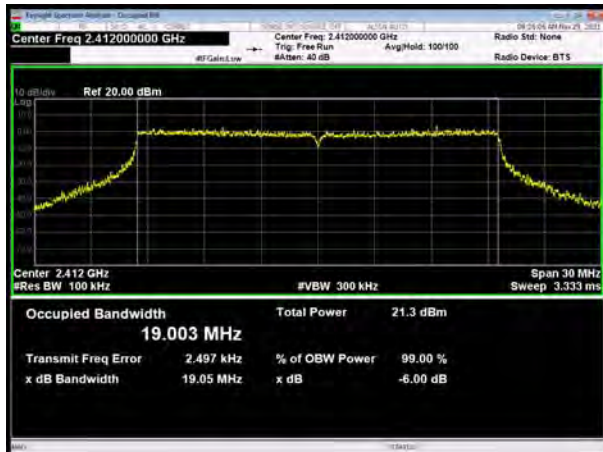
802.11n(HT40), Carrier frequency (MHz): 2447



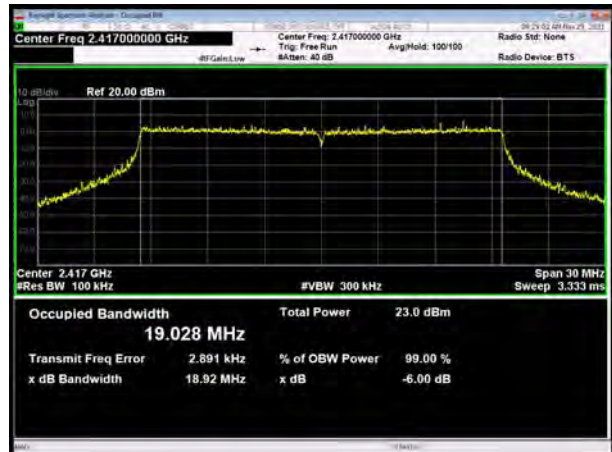
802.11n(HT40), Carrier frequency (MHz): 2452



802.11ax(HE20), Carrier frequency (MHz): 2412



802.11ax(HE20), Carrier frequency (MHz): 2417



802.11ax(HE20), Carrier frequency (MHz): 2422



802.11ax(HE20), Carrier frequency (MHz): 2427



802.11ax(HE20), Carrier frequency (MHz): 2432



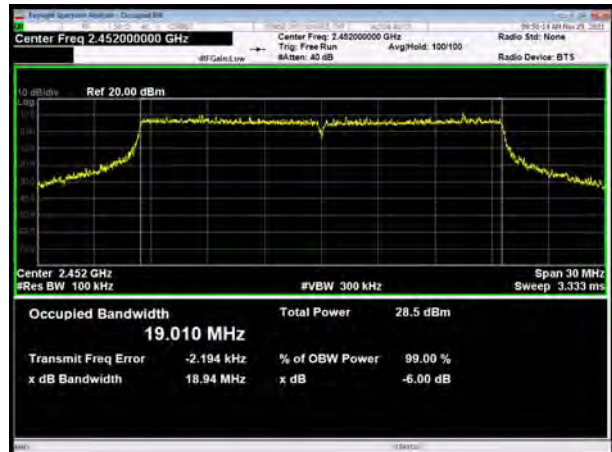
802.11ax(HE20), Carrier frequency (MHz): 2437



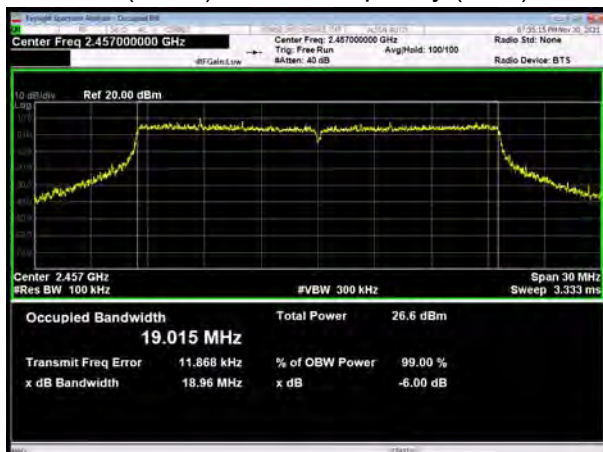
802.11ax(HE20), Carrier frequency (MHz): 2447



802.11ax(HE20), Carrier frequency (MHz): 2452



802.11ax(HE20), Carrier frequency (MHz): 2457



802.11ax(HE20), Carrier frequency (MHz): 2462



802.11ax(HE40), Carrier frequency (MHz): 2422



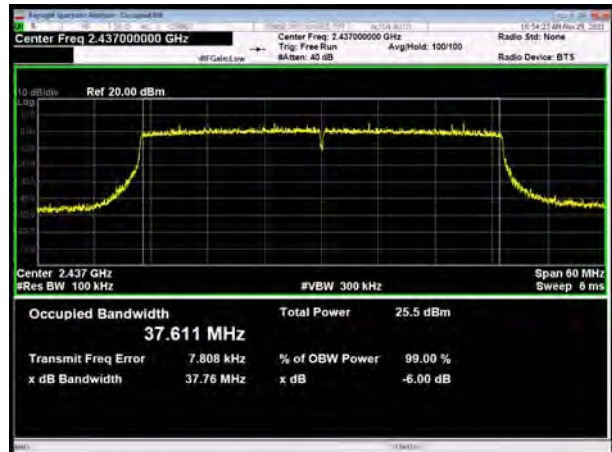
802.11ax(HE40), Carrier frequency (MHz): 2427



802.11ax(HE40), Carrier frequency (MHz):2432



802.11ax(HE40), Carrier frequency (MHz):2437



802.11ax(HE40), Carrier frequency (MHz):2442



802.11ax(HE40), Carrier frequency (MHz):2447



802.11ax(HE40), Carrier frequency (MHz):2452



5.3. Band Edge

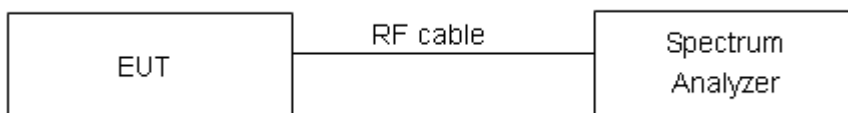
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable the band edge of the lowest and highest channels were measured. The peak detector is used and RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 15.247(d) specifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.” If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.”

Measurement Uncertainty

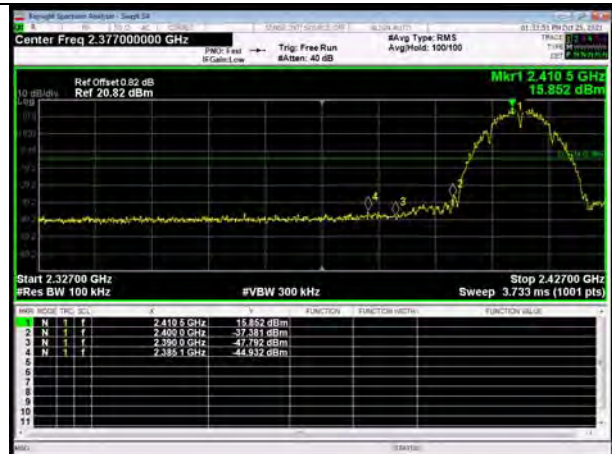
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
2GHz-3GHz	1.407 dB



Test Results: PASS

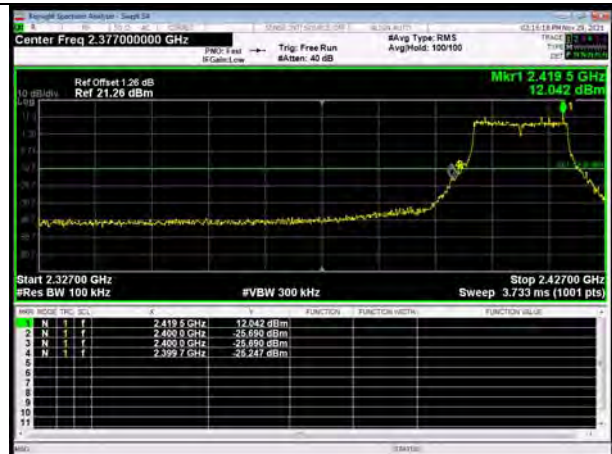
802.11b, Carrier frequency (MHz): 2412



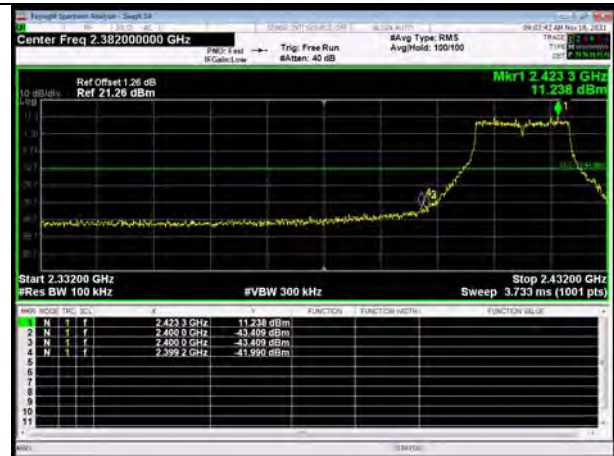
802.11b, Carrier frequency (MHz): 2462



802.11g, Carrier frequency (MHz): 2412



802.11g, Carrier frequency (MHz): 2417



802.11g, Carrier frequency (MHz): 2422



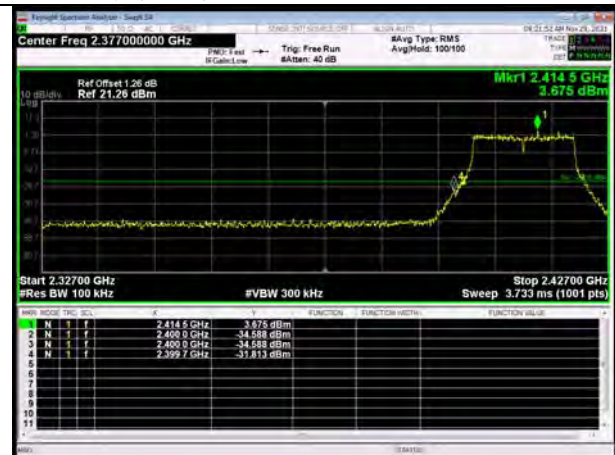
802.11g, Carrier frequency (MHz): 2457



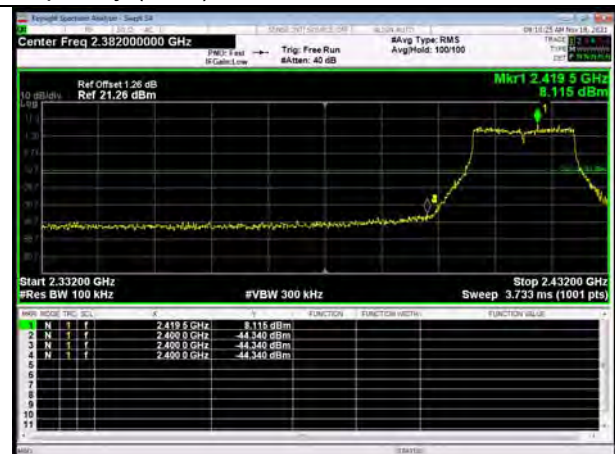
802.11g, Carrier frequency (MHz): 2462



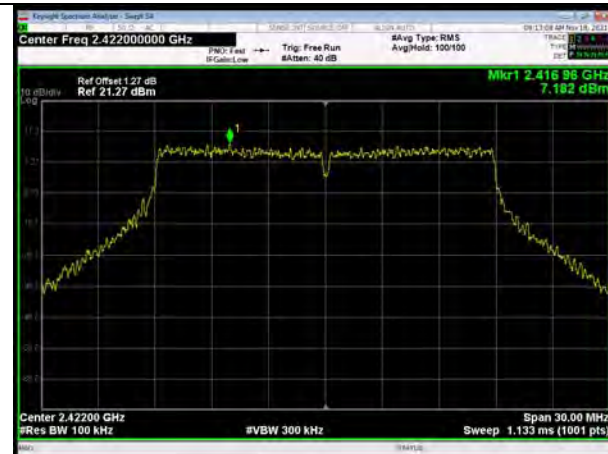
802.11n(HT20), Carrier frequency (MHz): 2412



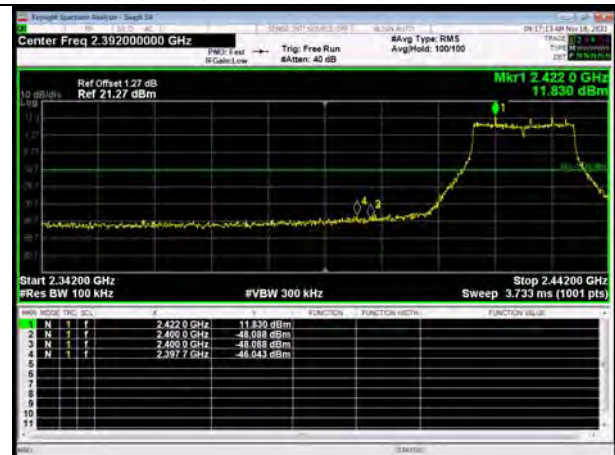
802.11n(HT20), Carrier frequency (MHz): 2417



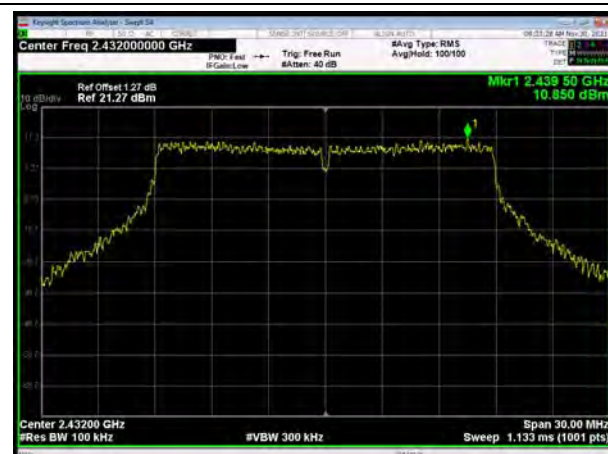
802.11n(HT20), Carrier frequency (MHz): 2422



802.11n(HT20), Carrier frequency (MHz): 2427



802.11n(HT20), Carrier frequency (MHz):2432



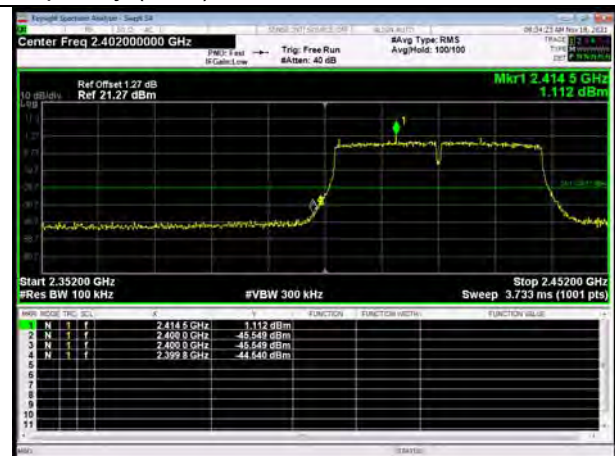
802.11n(HT20), Carrier frequency (MHz):2457



802.11n(HT20), Carrier frequency (MHz):2462



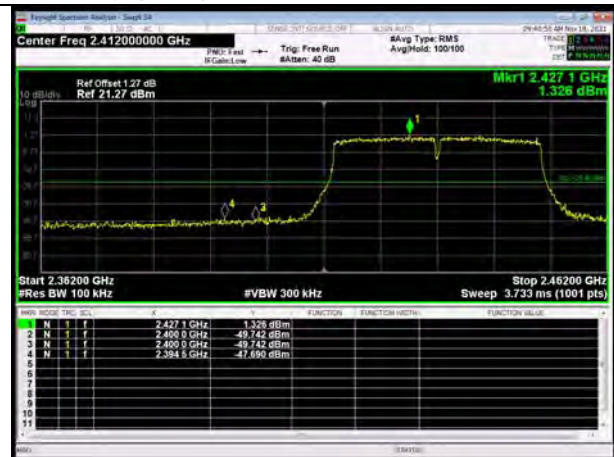
802.11n(HT40), Carrier frequency (MHz): 2422



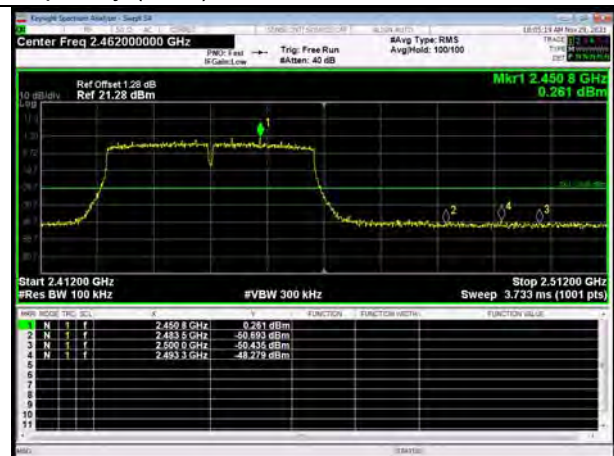
802.11n(HT40), Carrier frequency (MHz): 2427



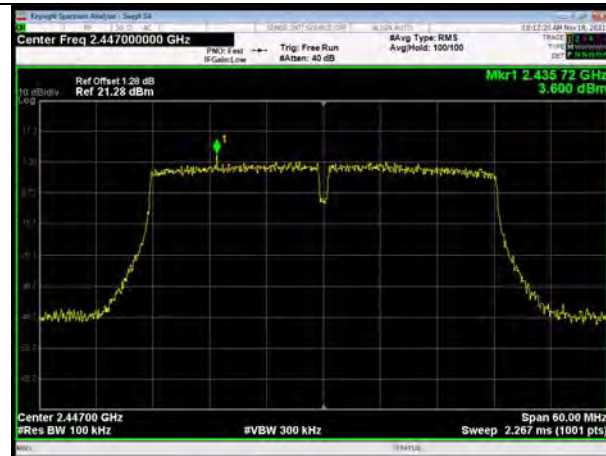
802.11n(HT40), Carrier frequency (MHz): 2432



802.11n(HT40), Carrier frequency (MHz): 2442



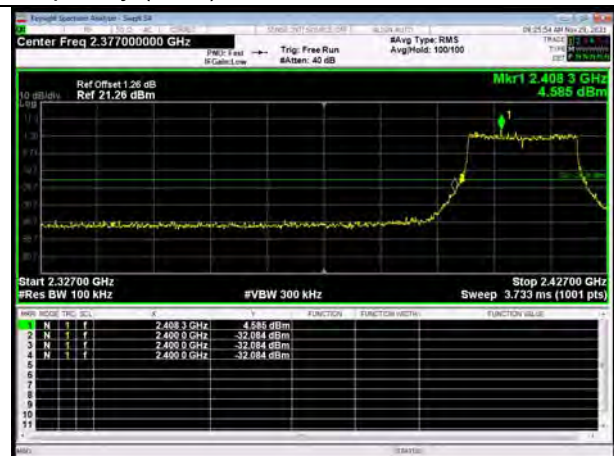
802.11n(HT40), Carrier frequency (MHz): 2447



802.11n(HT40), Carrier frequency (MHz): 2452



802.11ax(HE20), Carrier frequency (MHz): 2412



802.11ax(HE20), Carrier frequency (MHz): 2417



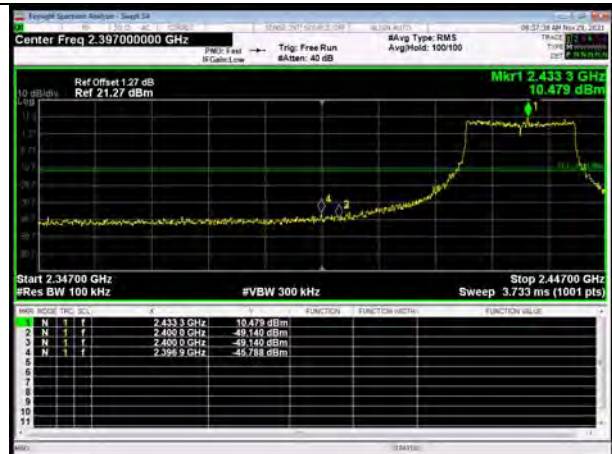
802.11ax(HE20), Carrier frequency (MHz): 2422



802.11ax(HE20), Carrier frequency (MHz): 2427



802.11ax(HE20), Carrier frequency (MHz):2432



802.11ax(HE20), Carrier frequency (MHz): 2447



802.11ax(HE20), Carrier frequency (MHz): 2452



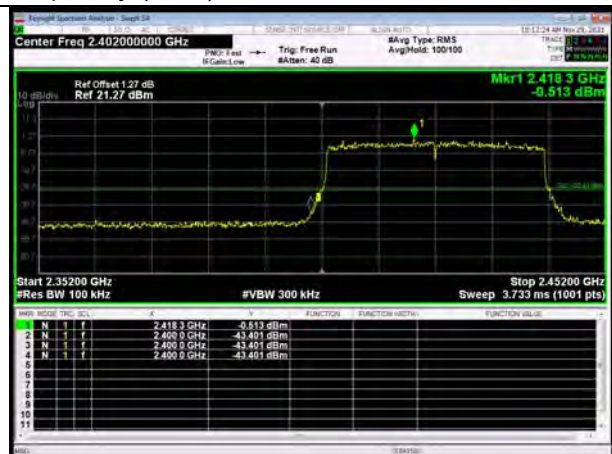
802.11ax(HE20), Carrier frequency (MHz): 2457



802.11ax(HE20), Carrier frequency (MHz): 2462



802.11ax(HE40), Carrier frequency (MHz): 2422

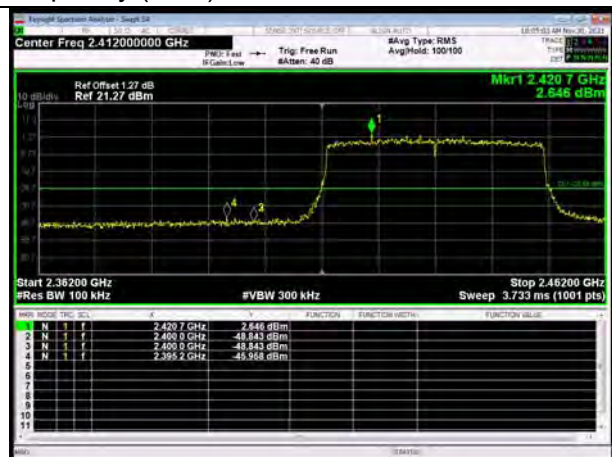




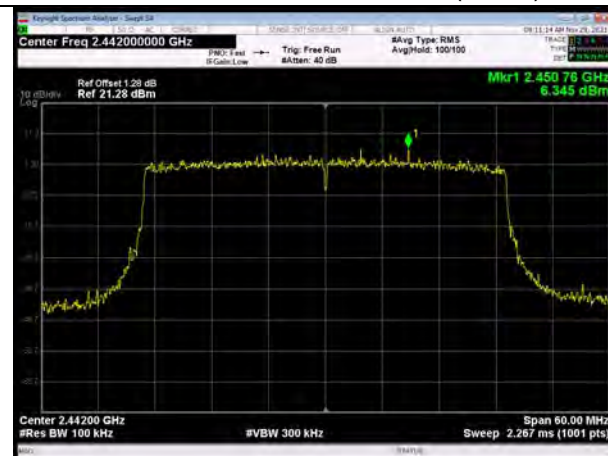
802.11ax(HE40), Carrier frequency (MHz): 2427



802.11ax(HE40), Carrier frequency (MHz): 2432



802.11ax(HE40), Carrier frequency (MHz):2442



802.11ax(HE40), Carrier frequency (MHz):2447



802.11ax(HE40), Carrier frequency (MHz):2452



5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

During the process of the testing, The EUT was connected to Spectrum Analyzer with a known loss.

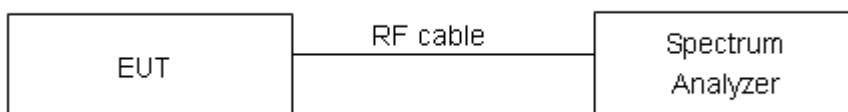
The EUT is max power transmission with proper modulation.

Method AVGPSD-2 was used for this test.

- Measure the duty cycle(D)of the transmitter output signal as described in 11.6
- Set instrument center frequency to DTS channel center frequency
- Set span to at least 1.5 times the OBW
- Set RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{Kh}$
- Set VBW $\geq [3 \times \text{RBW}]$
- Detector= power averaging(rms) or sample detector (when rms not available)
- Ensure that the number of measurement points in the sweep $2[2 \times \text{span}/\text{RBW}]$
- Sweep time =auto couple
- Do not use sweep triggering; allow sweep to "free run"
- Employ trace averaging(rms) mode over a minimum of 100 traces
- Use the peak marker function to determine the maximum amplitude level
- Add $[10 \log(1/ D)]$, where D is the duty cycle measured in step a), to the measured PSD to compute the average PSD during the actual transmission time
- If measured value exceeds requirement specified by regulatory agency then reduce RBW(but o less than 3 kHz) and repeat(note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced)

The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test setup



Limits



Rule Part 15.247(e) specifies that "For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. "

Limits	$\leq 8 \text{ dBm} / 3\text{kHz}$
--------	------------------------------------

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.75\text{dB}$.

**Test Results:****Internal Antenna 1: HL****MIMO Without Beamforming**

Test Mode	Channel Number	Power Spectral Density								Total PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
		Antenna 1		Antenna 2		Antenna 3		Antenna 4				
		Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)			
802.11b	1	-5.72	-3.16	-6.53	-3.97	-5.54	-2.98	-6.31	-3.75	2.57	8.00	PASS
	6	-6.42	-3.86	-6.74	-4.18	-6.71	-4.15	-6.58	-4.02	1.97	8.00	PASS
	11	-6.34	-3.78	-6.55	-3.99	-6.46	-3.91	-6.30	-3.74	2.17	8.00	PASS
802.11g	1	-11.97	-11.71	-11.59	-11.33	-12.38	-12.12	-11.96	-11.70	-5.69	8.00	PASS
	2	-11.07	-10.81	-10.51	-10.25	-11.55	-11.29	-11.06	-10.80	-4.76	8.00	PASS
	3	-8.41	-8.15	-8.99	-8.73	-8.91	-8.23	-8.43	-8.17	-2.30	8.00	PASS
	6	-9.33	-9.07	-9.11	-8.85	-9.25	-8.99	-8.56	-8.30	-2.77	8.00	PASS
	10	-8.59	-8.33	-8.43	-8.17	-9.04	-8.78	-8.78	-8.52	-2.43	8.00	PASS
	11	-11.89	-11.63	-12.37	-12.11	-12.51	-12.25	-12.09	-11.83	-5.93	8.00	PASS
802.11n HT20	1	-19.67	-18.99	-19.41	-18.73	-19.74	-19.06	-19.92	-19.24	-12.98	8.00	PASS
	2	-14.90	-14.22	-14.91	-14.23	-15.37	-14.69	-14.75	-14.07	-8.27	8.00	PASS
	3	-13.78	-13.10	-14.06	-13.38	-13.79	-13.11	-13.96	-13.28	-7.19	8.00	PASS
	4	-12.38	-11.70	-12.58	-11.90	-12.35	-11.67	-12.55	-11.87	-5.76	8.00	PASS
	5	-9.35	-8.67	-9.81	-9.13	-10.05	-9.37	-9.37	-8.69	-2.93	8.00	PASS
	6	-12.47	-11.79	-12.14	-11.46	-12.70	-12.02	-12.43	-11.75	-5.73	8.00	PASS
	10	-9.52	-8.84	-9.86	-9.18	-10.05	-9.37	-9.91	-9.23	-3.13	8.00	PASS
	11	-15.70	-15.02	-15.80	-15.12	-16.04	-15.36	-15.92	-15.24	-9.16	8.00	PASS
802.11n HT40	3	-20.85	-20.17	-20.76	-20.08	-21.36	-20.68	-22.76	-22.08	-14.66	8.00	PASS
	4	-19.84	-19.16	-19.73	-19.05	-20.26	-19.58	-22.09	-21.41	-13.68	8.00	PASS
	5	-18.82	-18.14	-18.97	-18.29	-19.46	-18.78	-22.81	-22.13	-13.05	8.00	PASS
	6	-11.96	-11.28	-11.99	-11.31	-13.47	-12.79	-12.26	-11.58	-5.67	8.00	PASS
	7	-15.78	-15.10	-15.76	-15.08	-16.45	-15.77	-16.11	-15.43	-9.31	8.00	PASS
	8	-19.60	-18.92	-19.42	-18.74	-19.96	-19.28	-19.55	-18.87	-12.92	8.00	PASS
	9	-19.69	-19.01	-19.09	-18.41	-19.54	-18.86	-19.39	-18.71	-12.72	8.00	PASS
802.11ax HE20	1	-18.58	-17.90	-19.10	-18.44	-19.21	-18.55	-18.62	-17.96	-12.18	8.00	PASS
	2	-15.58	-14.92	-14.90	-14.24	-15.39	-14.73	-16.03	-15.37	-8.77	8.00	PASS
	3	-16.50	-15.84	-16.14	-15.48	-16.64	-15.98	-16.03	-15.37	-9.64	8.00	PASS
	4	-13.01	-12.35	-12.91	-12.25	-13.47	-12.81	-13.84	-13.18	-6.61	8.00	PASS
	5	-13.73	-13.07	-13.21	-12.55	-13.88	-13.22	-13.46	-12.80	-6.88	8.00	PASS
	6	-11.86	-11.20	-12.05	-11.39	-12.57	-11.91	-13.09	-12.43	-5.68	8.00	PASS



	8	-13.14	-12.48	-12.04	-11.38	-13.13	-12.47	-12.40	-11.74	-5.97	8.00	PASS
	9	-12.49	-11.83	-12.21	-11.55	-13.05	-12.39	-12.58	-11.92	-5.89	8.00	PASS
	10	-14.32	-13.66	-12.73	-12.07	-13.60	-12.94	-13.51	-12.85	-6.82	8.00	PASS
	11	-16.31	-15.65	-15.84	-15.18	-16.55	-15.89	-15.65	-14.99	-9.39	8.00	PASS
802.11ax HE40	3	-25.45	-24.77	-25.38	-24.70	-26.04	-25.36	-28.55	-27.87	-19.48	8.00	PASS
	4	-23.52	-22.84	-23.20	-22.52	-23.76	-23.08	-23.00	-22.32	-16.66	8.00	PASS
	5	-20.84	-20.16	-20.65	-19.97	-20.96	-20.28	-22.07	-21.39	-14.40	8.00	PASS
	6	-19.72	-19.04	-19.27	-18.59	-19.89	-19.21	-19.25	-18.57	-12.82	8.00	PASS
	7	-19.92	-19.24	-19.16	-18.48	-20.12	-19.44	-19.44	-18.76	-12.94	8.00	PASS
	8	-20.35	-19.67	-20.00	-19.32	-20.97	-20.29	-20.69	-20.01	-13.79	8.00	PASS
	9	-21.37	-20.69	-21.32	-20.64	-22.20	-21.52	-21.74	-21.06	-14.94	8.00	PASS

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density = $10 \log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 4.70 dBi. So the power limit is $8 + 6 - \text{MAX}(6, 4.70) \text{ dBm} = 8 \text{ dBm}$.



MIMO With Beamforming

Test Mode	Channel Number	Power Spectral Density								Total	Limit (dBm / 3kHz)	Conclusion
		Antenna 1		Antenna 2		Antenna 3		Antenna 4		PSD		
		Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	(dBm / 3kHz)		
802.11b	1	-6.52	-3.96	-5.30	-2.75	-5.72	-3.16	-5.62	-3.07	2.81	8.00	PASS
	6	-7.03	-4.47	-6.09	-3.53	-6.55	-4.00	-5.93	-3.37	2.20	8.00	PASS
	11	-6.47	-3.91	-5.94	-3.38	-5.67	-3.11	-6.12	-3.56	2.54	8.00	PASS
802.11g	1	-12.16	-11.90	-11.43	-11.17	-12.15	-11.89	-11.43	-11.17	-5.50	8.00	PASS
	2	-11.57	-11.31	-10.94	-10.68	-11.61	-11.35	-11.08	-10.82	-5.01	8.00	PASS
	3	-10.37	-10.11	-10.29	-10.03	-10.84	-10.16	-9.65	-9.39	-3.89	8.00	PASS
	6	-9.05	-8.79	-9.04	-8.78	-8.26	-8.00	-8.76	-8.50	-2.49	8.00	PASS
	10	-8.18	-7.92	-8.91	-8.65	-9.59	-9.33	-8.65	-8.39	-2.53	8.00	PASS
	11	-12.25	-11.99	-11.80	-11.54	-12.55	-12.29	-12.34	-12.08	-5.95	8.00	PASS
802.11n HT20	1	-19.69	-19.01	-19.47	-18.79	-19.91	-19.23	-19.85	-19.17	-13.02	8.00	PASS
	2	-14.93	-14.25	-14.74	-14.06	-15.32	-14.64	-14.41	-13.73	-8.13	8.00	PASS
	3	-14.26	-13.58	-13.86	-13.18	-14.22	-13.54	-13.69	-13.01	-7.30	8.00	PASS
	4	-12.48	-11.80	-12.32	-11.64	-12.55	-11.87	-12.29	-11.61	-5.70	8.00	PASS
	5	-9.54	-8.86	-10.22	-9.54	-9.90	-9.22	-9.87	-9.19	-3.17	8.00	PASS
	6	-12.28	-11.60	-12.16	-11.48	-12.75	-12.07	-12.72	-12.04	-5.77	8.00	PASS
	10	-9.37	-8.69	-9.41	-8.73	9.94	10.63	-9.80	-9.11	10.77	8.00	PASS
	11	-15.77	-15.09	-15.86	-15.18	-15.76	-15.08	-16.19	-15.51	-9.19	8.00	PASS
802.11n HT40	3	-20.79	-20.11	-20.91	-20.23	-21.28	-20.60	-22.54	-21.86	-14.62	8.00	PASS
	4	-20.07	-19.39	-19.55	-18.87	-20.28	-19.60	-21.38	-20.70	-13.57	8.00	PASS
	5	-18.73	-18.05	-19.02	-18.34	-19.45	-18.77	-20.49	-19.81	-12.67	8.00	PASS
	6	-12.15	-11.47	-12.73	-12.05	-13.44	-12.76	-12.67	-11.99	-6.02	8.00	PASS
	7	-15.41	-14.73	-15.97	-15.29	-16.58	-15.89	-15.98	-15.29	-9.26	8.00	PASS
	8	-19.55	-18.87	-19.62	-18.94	-20.31	-19.63	-19.98	-19.30	-13.15	8.00	PASS
	9	-19.70	-19.02	-19.37	-18.69	-20.23	-19.55	-20.10	-19.42	-13.13	8.00	PASS
802.11ax HE20	1	-19.81	-19.13	-19.97	-19.31	-20.38	-19.72	-19.65	-18.99	-13.26	8.00	PASS
	2	-15.45	-14.79	-15.29	-14.63	-15.47	-14.81	-16.47	-15.81	-8.96	8.00	PASS
	3	-16.40	-15.74	-16.18	-15.52	-16.81	-16.15	-15.90	-15.24	-9.63	8.00	PASS
	4	-18.66	-18.00	-18.34	-17.68	-18.77	-18.11	-18.37	-17.71	-11.85	8.00	PASS
	5	-14.06	-13.40	-12.96	-12.30	-13.41	-12.75	-13.20	-12.54	-6.70	8.00	PASS
	6	-16.13	-15.47	-16.23	-15.57	-16.74	-16.08	-15.99	-15.33	-9.58	8.00	PASS
	8	-13.02	-12.36	-12.61	-11.95	-13.24	-12.58	-12.83	-12.17	-6.24	8.00	PASS



	9	-12.64	-11.98	-12.64	-11.98	-13.23	-12.57	-12.77	-12.11	-6.13	8.00	PASS
	10	-14.18	-13.52	-13.36	-12.70	-14.38	-13.72	-13.67	-13.01	-7.19	8.00	PASS
	11	-15.91	-15.25	-16.11	-15.45	-16.05	-15.39	-16.06	-15.40	-9.35	8.00	PASS
802.11ax HE40	3	-25.47	-24.79	-25.53	-24.85	-25.69	-25.01	-25.19	-24.51	-18.77	8.00	PASS
	4	-23.39	-22.71	-23.72	-23.04	-23.61	-22.93	-23.40	-22.72	-16.83	8.00	PASS
	5	-20.54	-19.86	-20.84	-20.16	-20.52	-19.84	-21.40	-20.72	-14.11	8.00	PASS
	6	-19.72	-19.04	-19.06	-18.38	-20.06	-19.38	-19.43	-18.75	-12.85	8.00	PASS
	7	-19.74	-19.06	-19.23	-18.55	-19.76	-19.08	-19.36	-18.68	-12.82	8.00	PASS
	8	-20.47	-19.79	-20.35	-19.67	-21.24	-20.56	-20.35	-19.67	-13.89	8.00	PASS
	9	-21.66	-20.98	-21.36	-20.68	-22.28	-21.60	-21.27	-20.59	-14.93	8.00	PASS

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density = $10 \log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 4.70 dBi. So the power limit is $8 + 6 - \text{MAX}(6, 4.70) \text{ dBm} = 8 \text{ dBm}$.



Internal Antenna 2: DZZ

MIMO Without Beamforming

Test Mode	Channel Number	Power Spectral Density								Total PSD	Limit (dBm / 3kHz)	Conclusion
		Antenna 1		Antenna 2		Antenna 3		Antenna 4				
		Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	(dBm / 3kHz)		
802.11b	1	-5.72	-3.16	-6.53	-3.97	-5.54	-2.98	-6.31	-3.75	2.57	8.00	PASS
	6	-6.42	-3.86	-6.74	-4.18	-6.71	-4.15	-6.58	-4.02	1.97	8.00	PASS
	11	-6.34	-3.78	-6.55	-3.99	-6.46	-3.91	-6.30	-3.74	2.17	8.00	PASS
802.11g	1	-12.05	-11.79	-11.96	-11.70	-11.87	-11.61	-11.74	-11.48	-5.63	8.00	PASS
	2	-12.08	-11.82	-10.89	-10.63	-11.15	-10.89	-11.09	-10.83	-5.00	8.00	PASS
	6	-9.33	-9.07	-9.11	-8.85	-9.25	-8.99	-8.56	-8.30	-2.77	8.00	PASS
	11	-9.24	-8.98	-9.23	-8.98	-8.61	-8.35	-9.00	-8.74	-2.74	8.00	PASS
802.11n HT20	1	-20.10	-19.42	-19.69	-19.01	-19.29	-18.61	-19.78	-19.10	-13.00	8.00	PASS
	2	-13.76	-13.08	-12.77	-12.09	-12.83	-12.15	-12.93	-12.25	-6.35	8.00	PASS
	3	-13.17	-12.49	-12.70	-12.02	-12.59	-11.91	-13.07	-12.39	-6.17	8.00	PASS
	4	-12.26	-11.58	-11.83	-11.15	-11.38	-10.70	-11.76	-11.08	-5.09	8.00	PASS
	6	-12.70	-12.02	-11.91	-11.23	-11.92	-11.24	-12.60	-11.92	-5.56	8.00	PASS
	10	-11.63	-10.95	-11.40	-10.72	-11.80	-11.12	-11.56	-10.88	-4.89	8.00	PASS
	11	-15.15	-14.47	-14.74	-14.06	-14.47	-13.79	-14.95	-14.27	-8.12	8.00	PASS
802.11n HT40	3	-19.57	-18.89	-19.53	-18.85	-19.58	-18.90	-19.18	-18.50	-12.76	8.00	PASS
	4	-19.44	-18.76	-19.56	-18.88	-19.64	-18.96	-19.18	-18.50	-12.75	8.00	PASS
	5	-18.04	-17.36	-17.44	-16.76	-17.49	-16.81	-17.27	-16.59	-10.85	8.00	PASS
	6	-13.31	-12.63	-13.35	-12.67	-13.18	-12.50	-13.28	-12.60	-6.58	8.00	PASS
	7	-17.61	-16.93	-17.16	-16.48	-17.37	-16.69	-17.29	-16.61	-10.65	8.00	PASS
	8	-20.26	-19.58	-19.87	-19.19	-20.07	-19.39	-20.26	-19.58	-13.41	8.00	PASS
	9	-20.06	-19.38	-19.44	-18.76	-20.02	-19.34	-19.40	-18.72	-13.02	8.00	PASS
802.11ax HE20	1	-21.12	-20.44	-20.74	-20.08	-20.55	-19.89	-20.45	-19.79	-14.02	8.00	PASS
	2	-15.87	-15.21	-14.97	-14.31	-14.36	-13.70	-15.43	-14.77	-8.44	8.00	PASS
	3	-15.66	-15.00	-14.82	-14.16	-15.06	-14.40	-14.89	-14.23	-8.41	8.00	PASS
	4	-14.24	-13.58	-13.53	-12.87	-13.51	-12.85	-13.63	-12.97	-7.03	8.00	PASS
	5	-13.68	-13.02	-12.97	-12.31	-12.95	-12.29	-13.23	-12.57	-6.51	8.00	PASS
	6	-13.88	-13.22	-12.52	-11.86	-12.92	-12.26	-12.74	-12.08	-7.57	8.00	PASS
	8	-14.64	-13.98	-14.41	-13.75	-13.98	-13.32	-14.73	-14.07	-9.16	8.00	PASS
	9	-14.96	-14.30	-13.74	-13.08	-14.25	-13.59	-14.77	-14.11	-9.02	8.00	PASS
	10	-15.74	-15.08	-14.77	-14.11	-14.59	-13.93	-15.31	-14.65	-9.82	8.00	PASS
	11	-14.57	-13.91	-14.17	-13.51	-14.36	-13.70	-14.64	-13.98	-9.02	8.00	PASS



802.11ax HE40	3	-22.66	-21.98	-22.42	-21.74	-22.37	-21.69	-22.31	-21.63	-17.01	8.00	PASS
	4	-22.88	-22.20	-22.43	-21.75	-22.34	-21.66	-22.40	-21.72	-17.11	8.00	PASS
	5	-20.51	-19.83	-20.42	-19.74	-20.67	-19.99	-20.24	-19.56	-14.94	8.00	PASS
	6	-20.85	-20.17	-20.37	-19.69	-20.52	-19.84	-20.73	-20.05	-15.19	8.00	PASS
	7	-19.87	-19.19	-19.22	-18.54	-19.54	-18.86	-19.96	-19.28	-14.22	8.00	PASS
	8	-20.76	-20.08	-20.41	-19.73	-20.11	-19.43	-20.54	-19.86	-15.12	8.00	PASS
	9	-21.51	-20.83	-21.15	-20.47	-21.19	-20.51	-21.79	-21.11	-16.03	8.00	PASS

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density = $10\log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 4.70dBi. So the power limit is $8 + 6 - \text{MAX}(6, 4.70)\text{dBm} = 8\text{ dBm}$.

MIMO With Beamforming

Test Mode	Channel Number	Power Spectral Density								Total PSD	Limit (dBm / 3kHz)	Conclusion
		Antenna 1		Antenna 2		Antenna 3		Antenna 4				
		Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	(dBm / 3kHz)		
802.11b	1	-6.52	-3.96	-5.30	-2.75	-5.72	-3.16	-5.62	-3.07	2.81	8.00	PASS
	6	-7.03	-4.47	-6.09	-3.53	-6.55	-4.00	-5.93	-3.37	2.20	8.00	PASS
	11	-6.47	-3.91	-5.94	-3.38	-5.67	-3.11	-6.12	-3.56	2.54	8.00	PASS
802.11g	1	-12.05	-11.79	-11.20	-10.94	-12.07	-11.81	-11.79	-11.53	-5.49	8.00	PASS
	2	-11.43	-11.17	-10.49	-10.23	-10.53	-10.27	-10.14	-9.88	-4.35	8.00	PASS
	6	-9.05	-8.79	-9.04	-8.78	-8.26	-8.00	-8.76	-8.50	-2.49	8.00	PASS
	11	-8.62	-8.36	-8.50	-8.24	-7.76	-7.50	-8.38	-8.12	-2.02	8.00	PASS
802.11n HT20	1	-20.44	-19.76	-19.39	-18.71	-19.43	-18.75	-20.08	-19.40	-13.11	8.00	PASS
	2	-13.56	-12.88	-12.94	-12.26	-12.83	-12.15	-13.06	-12.38	-6.38	8.00	PASS
	3	-13.64	-12.96	-12.86	-12.18	-12.97	-12.29	-13.23	-12.55	-6.46	8.00	PASS
	4	-11.78	-11.10	-11.53	-10.85	-11.63	-10.95	-11.99	-11.31	-5.03	8.00	PASS
	6	-12.51	-11.83	-12.29	-11.61	-12.19	-11.51	-13.36	-12.68	-5.86	8.00	PASS
	10	-10.83	-10.15	-10.57	-9.89	-10.47	-9.79	-10.43	-9.75	-3.87	8.00	PASS
	11	-15.92	-15.24	-15.55	-14.87	-15.28	-14.60	-15.19	-14.51	-8.77	8.00	PASS
802.11n HT40	3	-20.11	-19.43	-20.18	-19.50	-20.23	-19.55	-20.42	-19.74	-13.53	8.00	PASS
	4	-20.76	-20.08	-20.63	-19.95	-20.48	-19.80	-20.92	-20.24	-13.99	8.00	PASS
	5	-18.29	-17.61	-18.40	-17.72	-18.23	-17.55	-18.38	-17.70	-11.62	8.00	PASS
	6	-13.28	-12.60	-13.21	-12.53	-12.96	-12.28	-12.88	-12.20	-6.38	8.00	PASS
	7	-16.36	-15.68	-17.38	-16.70	-18.32	-17.64	-17.40	-16.72	-10.61	8.00	PASS
	8	-18.23	-17.55	-19.18	-18.50	-20.22	-19.54	-19.72	-19.04	-12.57	8.00	PASS



	9	-18.14	-17.46	-19.36	-18.68	-19.62	-18.94	-20.02	-19.34	-12.52	8.00	PASS
802.11ax HE20	1	-22.73	-22.05	-22.99	-22.33	-22.26	-21.60	-22.63	-21.97	-15.96	8.00	PASS
	2	-15.73	-15.07	-15.76	-15.10	-15.59	-14.93	-15.48	-14.82	-8.95	8.00	PASS
	3	-15.73	-15.07	-15.75	-15.09	-15.33	-14.67	-15.51	-14.85	-8.89	8.00	PASS
	4	-13.27	-12.61	-13.91	-13.25	-13.79	-13.13	-14.17	-13.51	-7.09	8.00	PASS
	5	-13.05	-12.39	-12.76	-12.10	-12.67	-12.01	-13.00	-12.34	-6.18	8.00	PASS
	6	-13.37	-12.71	-13.05	-12.39	-12.64	-11.98	-13.17	-12.51	-7.76	8.00	PASS
	8	-14.98	-14.32	-14.61	-13.95	-14.37	-13.71	-15.03	-14.37	-9.43	8.00	PASS
	9	-15.02	-14.36	-14.38	-13.72	-14.27	-13.61	-14.50	-13.84	-9.19	8.00	PASS
	10	-15.45	-14.79	-14.87	-14.21	-15.38	-14.72	-15.02	-14.36	-9.67	8.00	PASS
	11	-14.60	-13.94	-14.60	-13.94	-13.89	-13.23	-13.92	-13.26	-8.93	8.00	PASS
802.11ax HE40	3	-20.71	-20.03	-21.16	-20.48	-21.29	-20.61	-20.84	-20.16	-15.45	8.00	PASS
	4	-20.87	-20.19	-21.32	-20.64	-21.15	-20.47	-20.78	-20.10	-15.53	8.00	PASS
	5	-18.23	-17.55	-18.99	-18.31	-19.77	-19.09	-18.57	-17.89	-13.14	8.00	PASS
	6	-18.71	-18.03	-18.39	-17.71	-19.08	-18.40	-18.68	-18.00	-13.14	8.00	PASS
	7	-17.70	-17.02	-18.17	-17.49	-18.35	-17.67	-17.84	-17.16	-12.45	8.00	PASS
	8	-18.67	-17.99	-18.62	-17.94	-19.20	-18.52	-18.90	-18.22	-13.28	8.00	PASS
	9	-19.84	-19.16	-19.52	-18.84	-20.76	-20.08	-19.88	-19.20	-14.29	8.00	PASS

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density = $10\log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 4.70 dBi. So the power limit is $8 + 6 - \text{MAX}(6, 4.70) \text{ dBm} = 8 \text{ dBm}$.

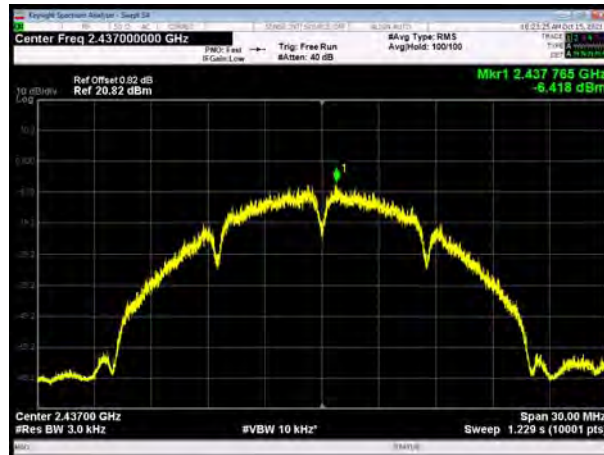


Internal Antenna 1: HL
Without Beamforming
MIMO Antenna 1

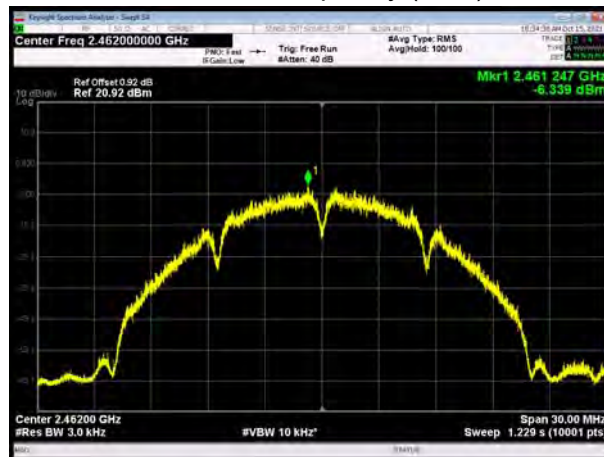
802.11b, Carrier frequency (MHz): 2412



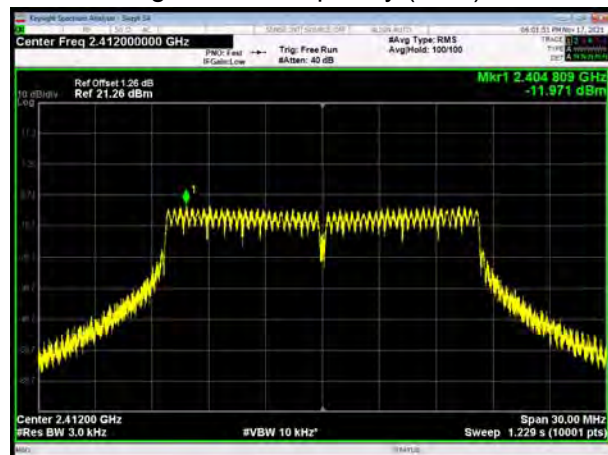
802.11b, Carrier frequency (MHz): 2437



802.11b, Carrier frequency (MHz):2462



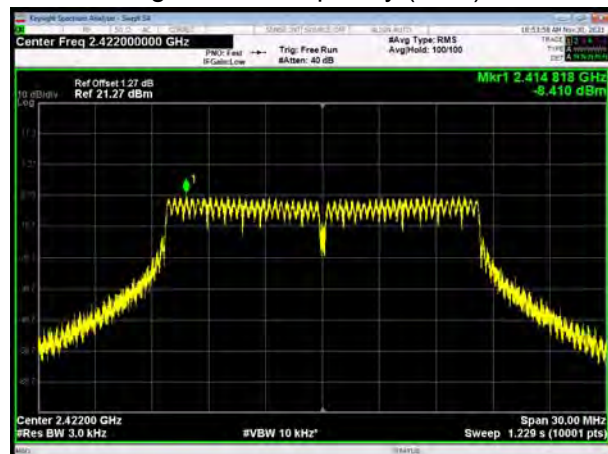
802.11g, Carrier frequency (MHz): 2412



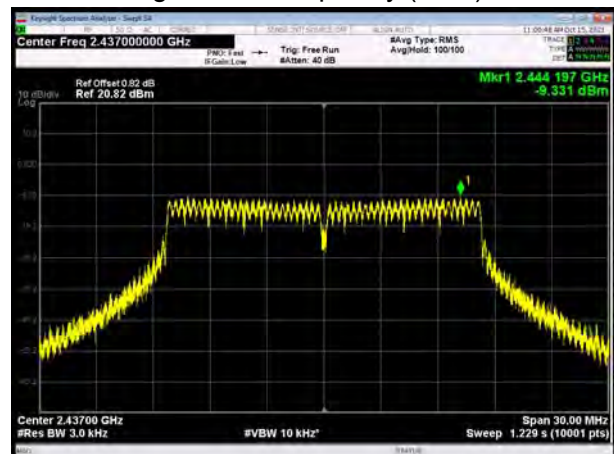
802.11g, Carrier frequency (MHz): 2417



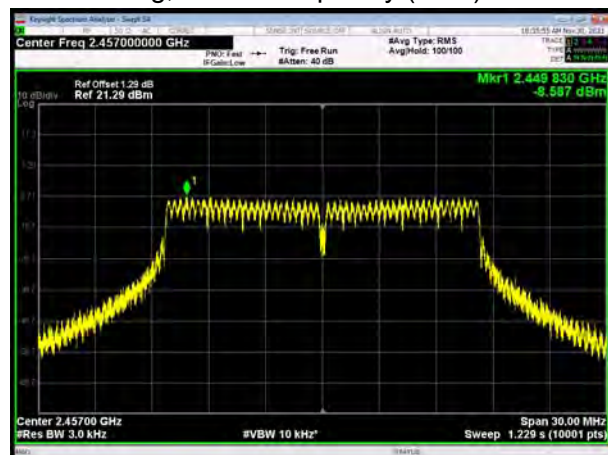
802.11g, Carrier frequency (MHz): 2422



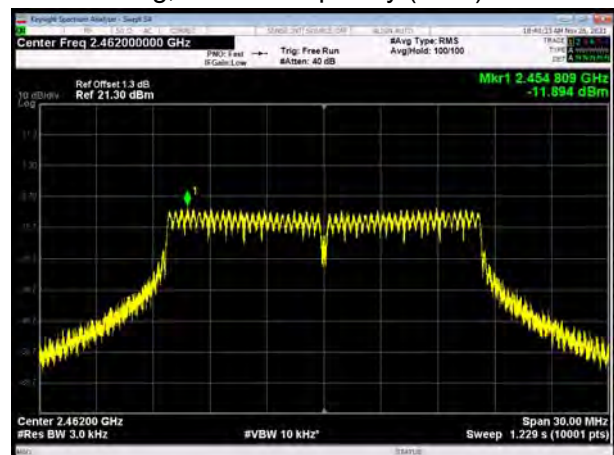
802.11g, Carrier frequency (MHz): 2437



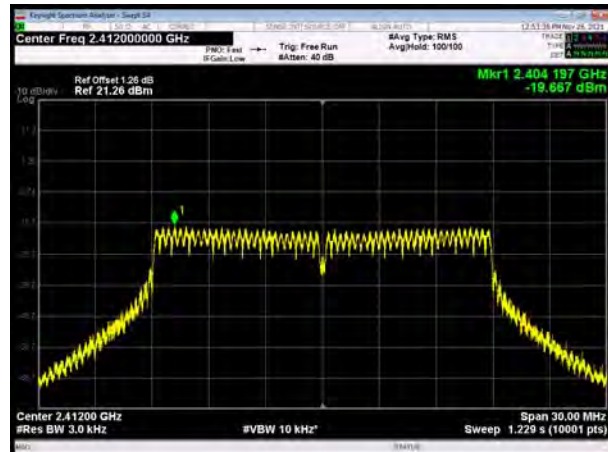
802.11g, Carrier frequency (MHz): 2457



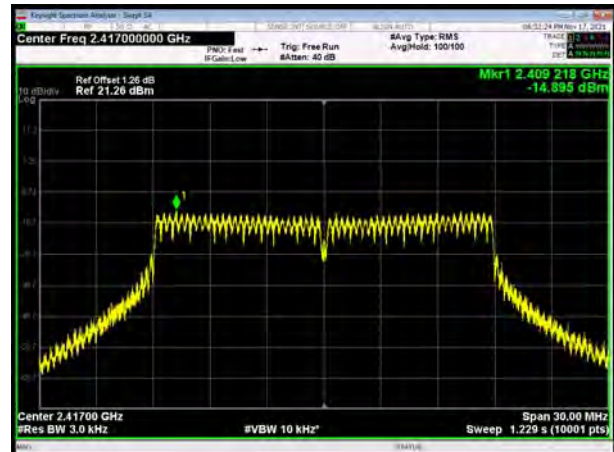
802.11g, Carrier frequency (MHz): 2462



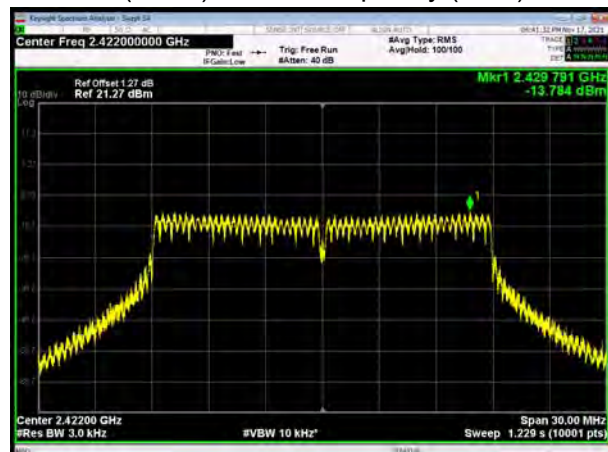
802.11n(HT20), Carrier frequency (MHz): 2412



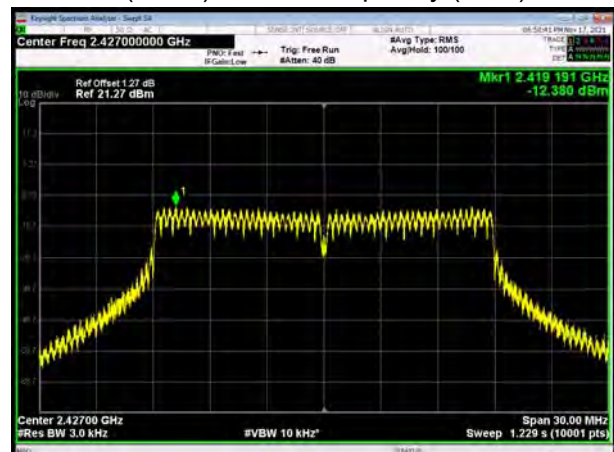
802.11n(HT20), Carrier frequency (MHz): 2417



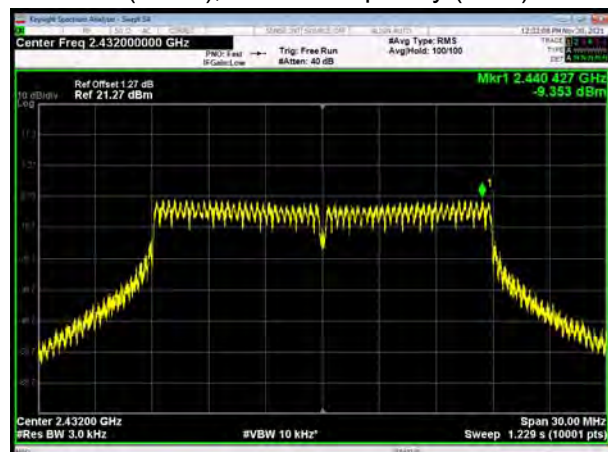
802.11n(HT20), Carrier frequency (MHz): 2422



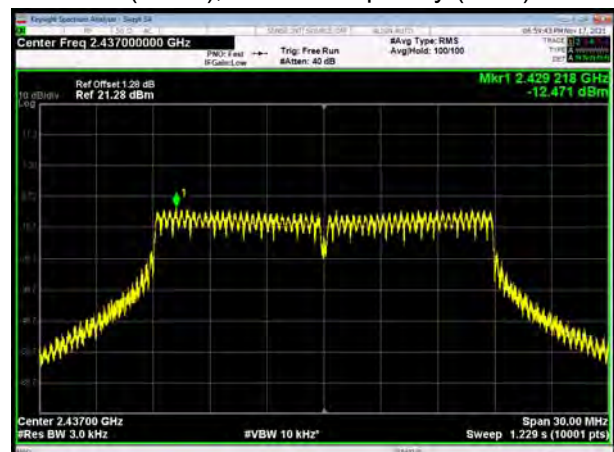
802.11n(HT20), Carrier frequency (MHz): 2427



802.11n(HT20), Carrier frequency (MHz):2432



802.11n(HT20), Carrier frequency (MHz):2437



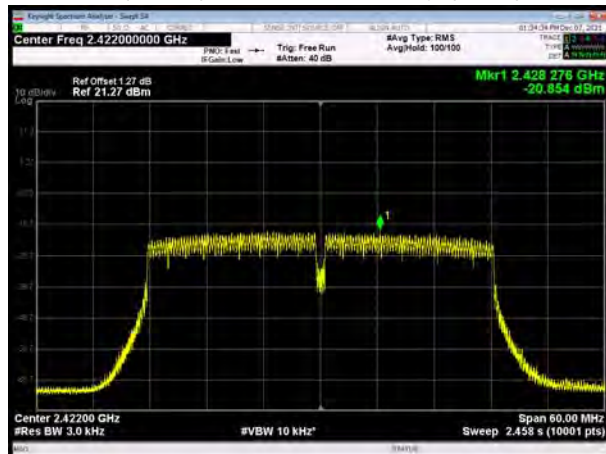
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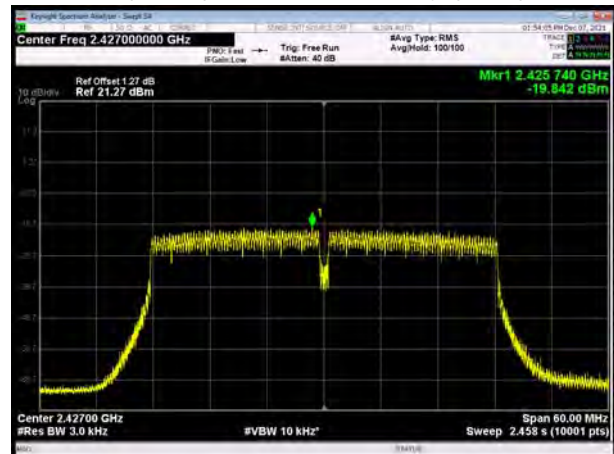
802.11n(HT20), Carrier frequency (MHz):2462



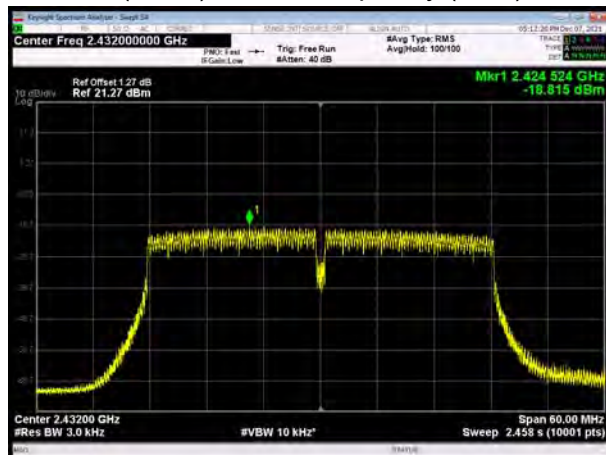
802.11n(HT40), Carrier frequency (MHz): 2422



802.11n(HT40), Carrier frequency (MHz): 2427



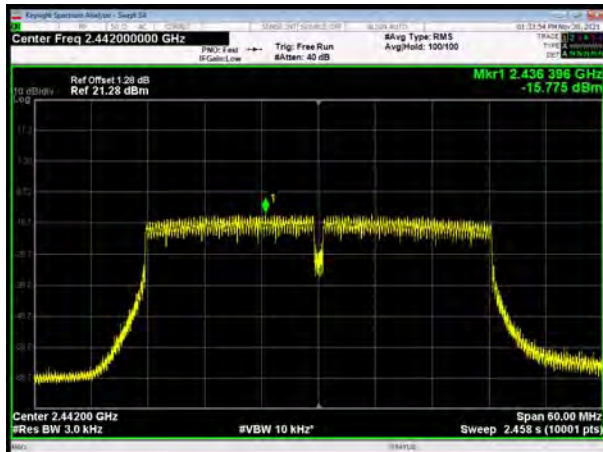
802.11n(HT40), Carrier frequency (MHz): 2432



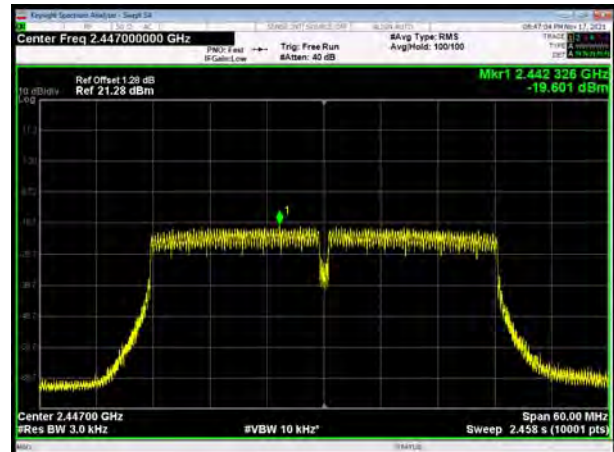
802.11n(HT40), Carrier frequency (MHz): 2437



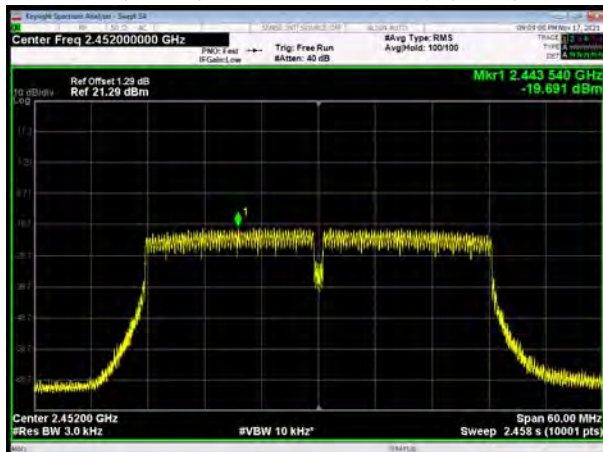
802.11n(HT40), Carrier frequency (MHz): 2442



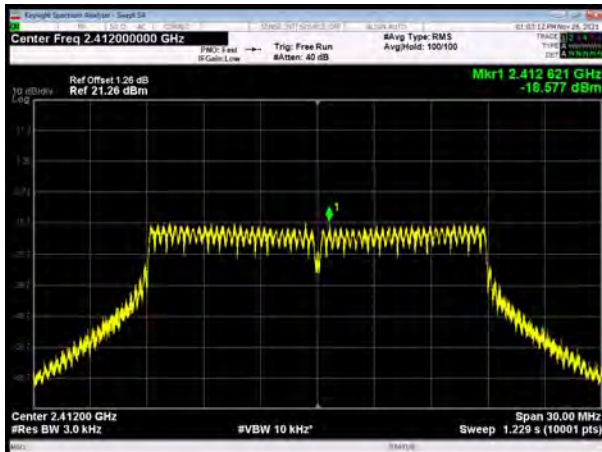
802.11n(HT40), Carrier frequency (MHz): 2447



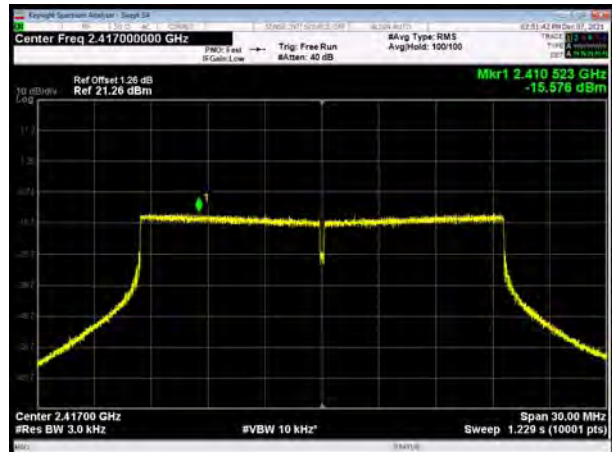
802.11n(HT40), Carrier frequency (MHz): 2452



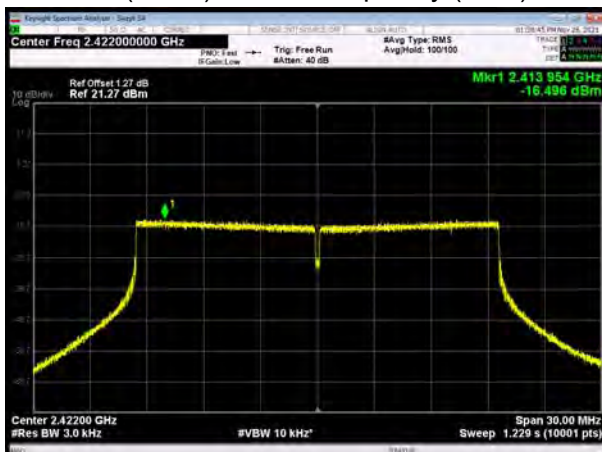
802.11ax(HE20), Carrier frequency (MHz): 2412



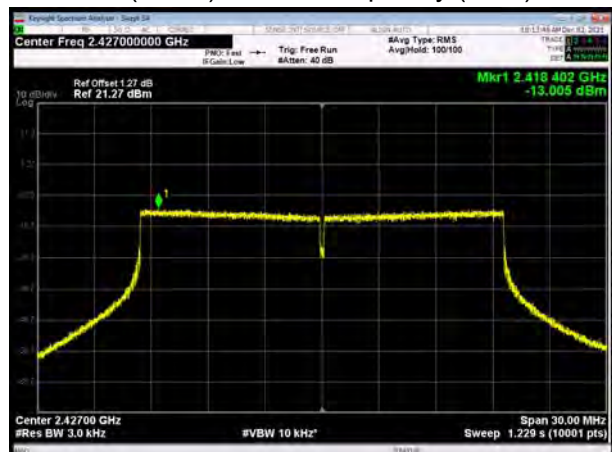
802.11ax(HE20), Carrier frequency (MHz): 2417



802.11ax(HE20), Carrier frequency (MHz): 2422



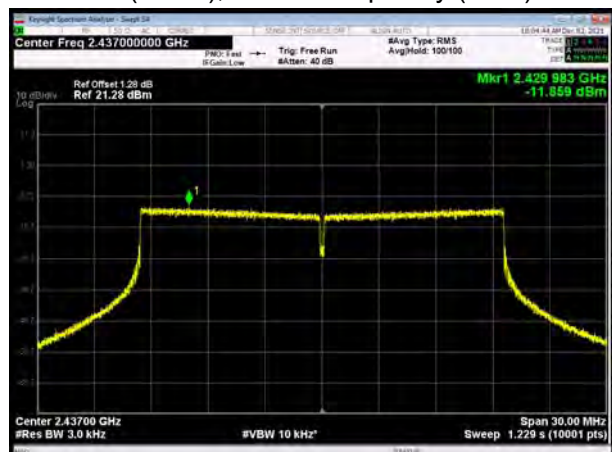
802.11ax(HE20), Carrier frequency (MHz): 2427



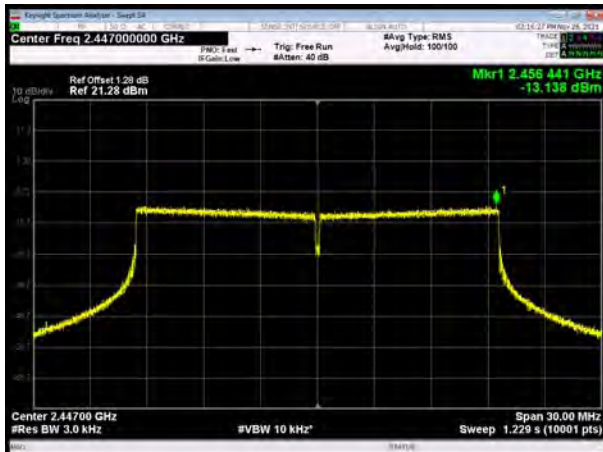
802.11ax(HE20), Carrier frequency (MHz):2432



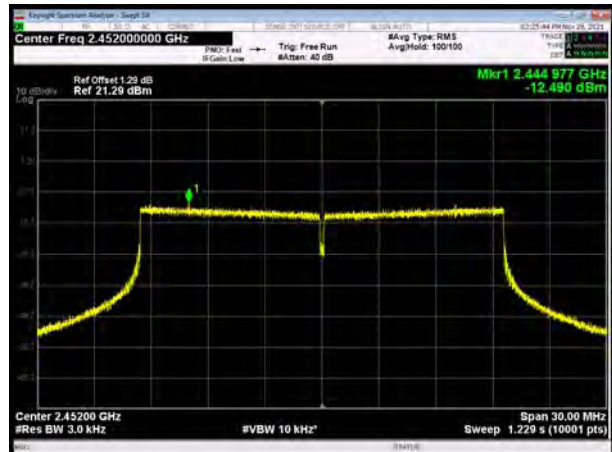
802.11ax(HE20), Carrier frequency (MHz): 2437



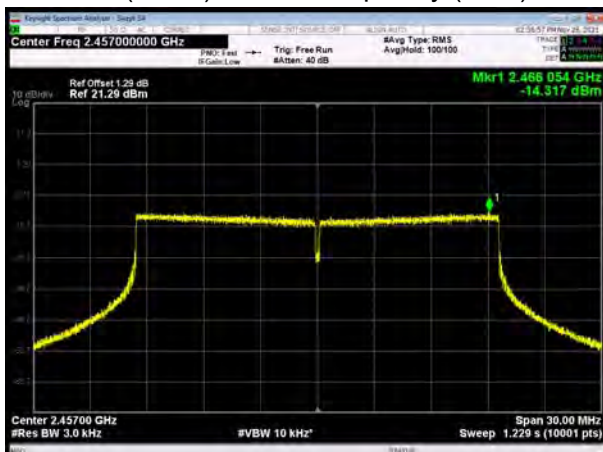
802.11ax(HE20), Carrier frequency (MHz): 2447



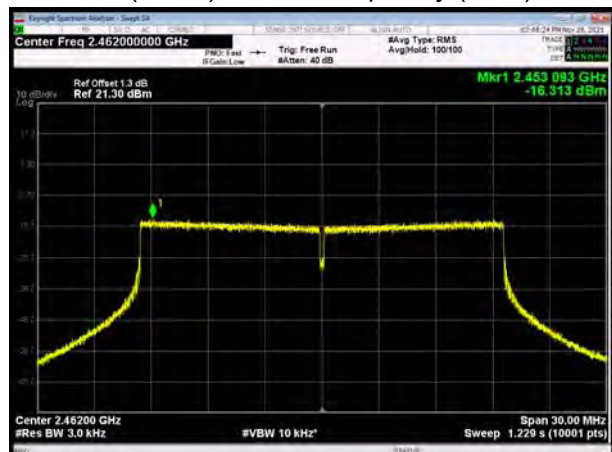
802.11ax(HE20), Carrier frequency (MHz): 2452



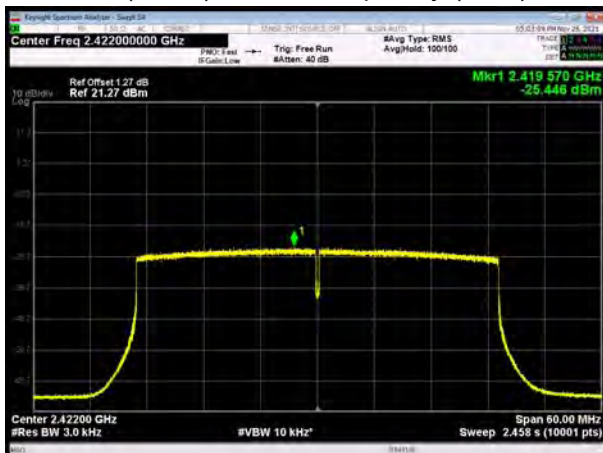
802.11ax(HE20), Carrier frequency (MHz): 2457



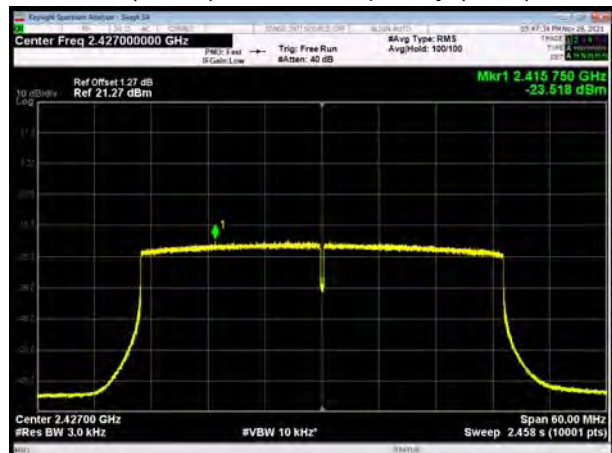
802.11ax(HE20), Carrier frequency (MHz): 2462



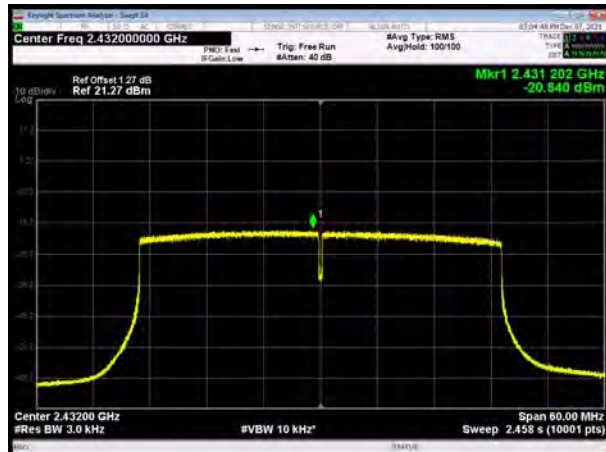
802.11ax(HE40), Carrier frequency (MHz): 2422



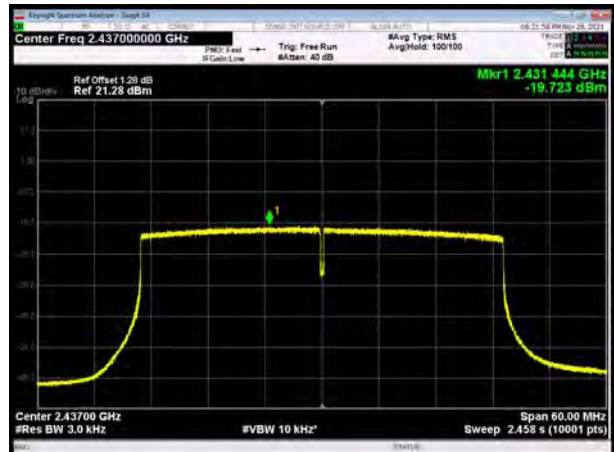
802.11ax(HE40), Carrier frequency (MHz): 2427



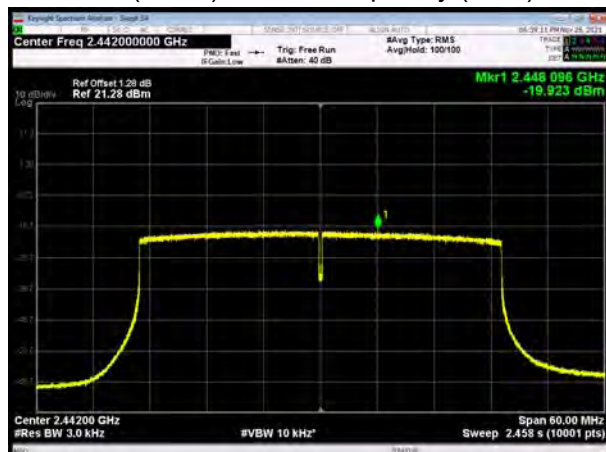
802.11ax(HE40), Carrier frequency (MHz):2432



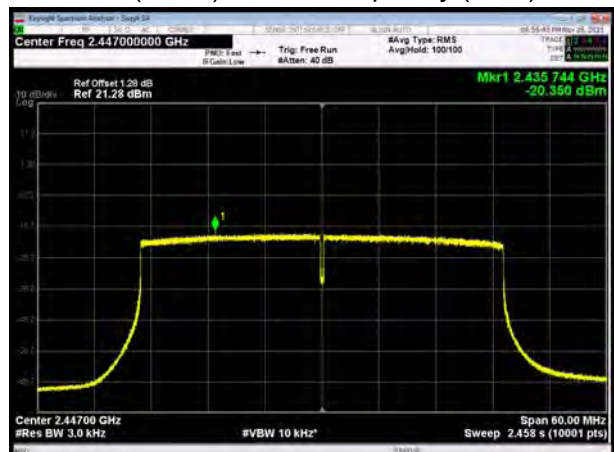
802.11ax(HE40), Carrier frequency (MHz):2437



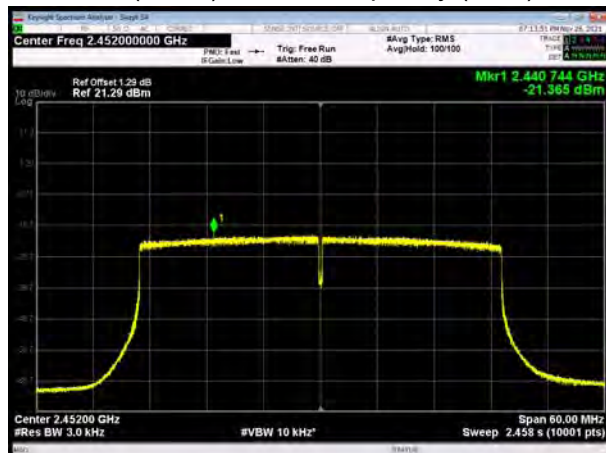
802.11ax(HE40), Carrier frequency (MHz):2442



802.11ax(HE40), Carrier frequency (MHz):2447

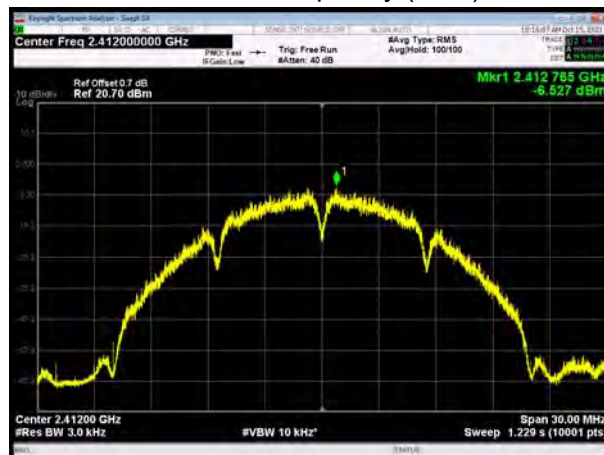


802.11ax(HE40), Carrier frequency (MHz):2452



MIMO Antenna 2

802.11b, Carrier frequency (MHz): 2412



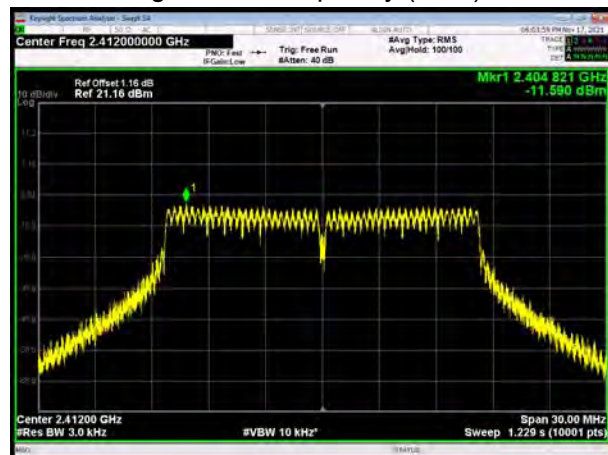
802.11b, Carrier frequency (MHz): 2437



802.11b, Carrier frequency (MHz):2462



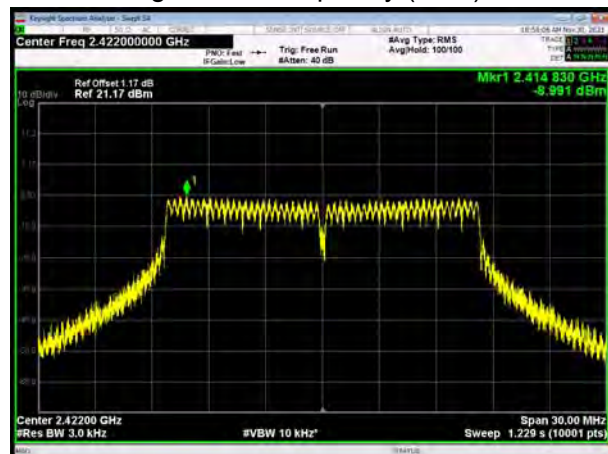
802.11g, Carrier frequency (MHz): 2412



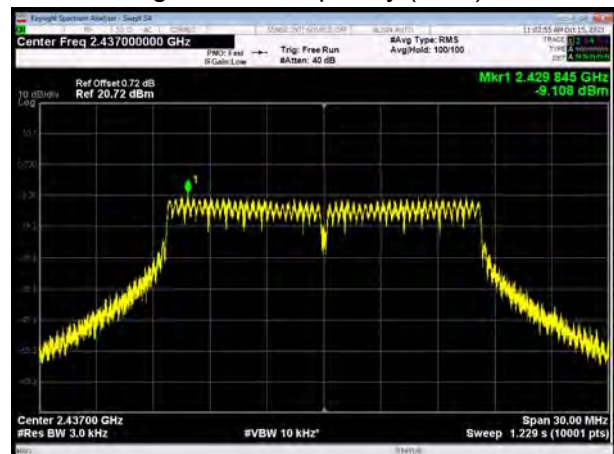
802.11g, Carrier frequency (MHz): 2417



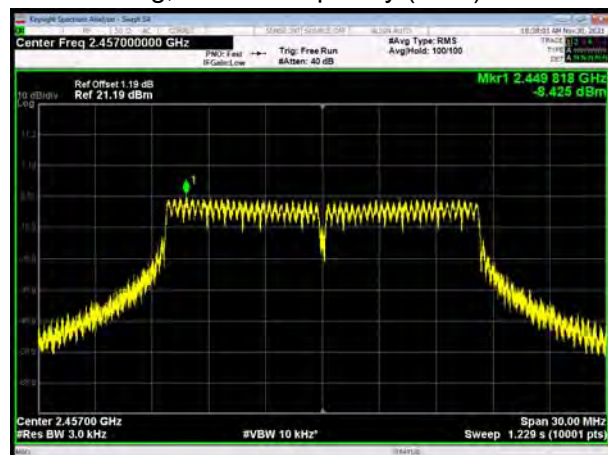
802.11g, Carrier frequency (MHz): 2422



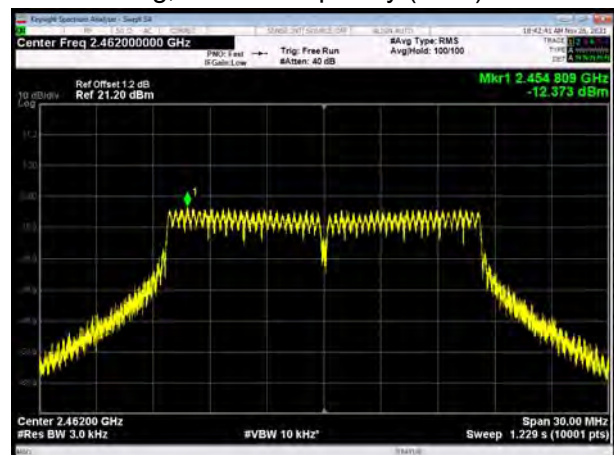
802.11g, Carrier frequency (MHz): 2437



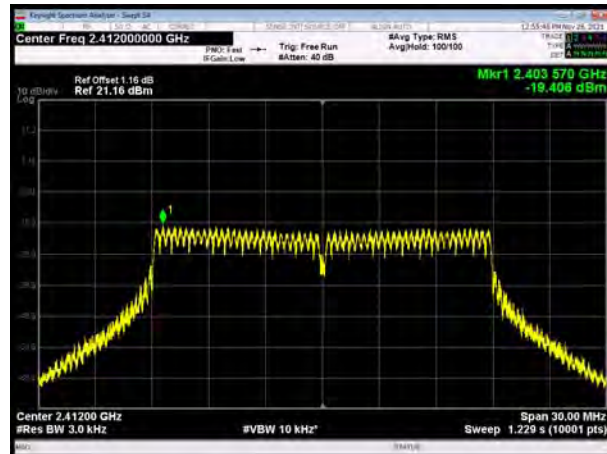
802.11g, Carrier frequency (MHz): 2457



802.11g, Carrier frequency (MHz): 2462



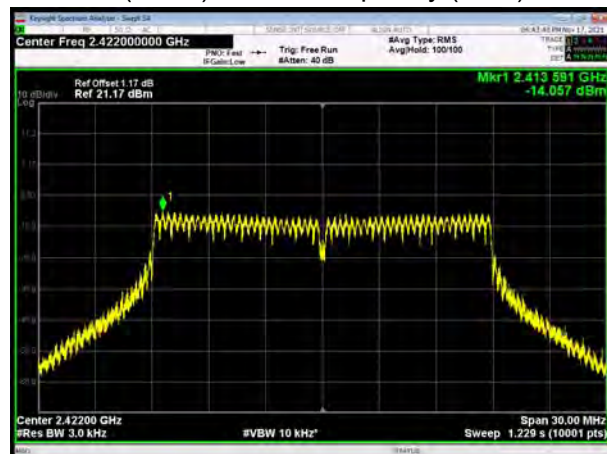
802.11n(HT20), Carrier frequency (MHz): 2412



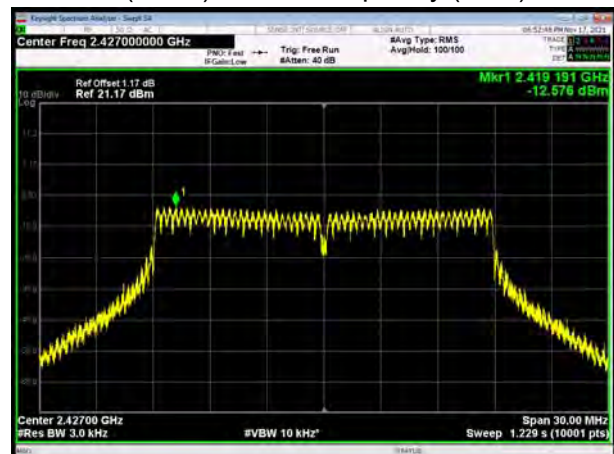
802.11n(HT20), Carrier frequency (MHz): 2417



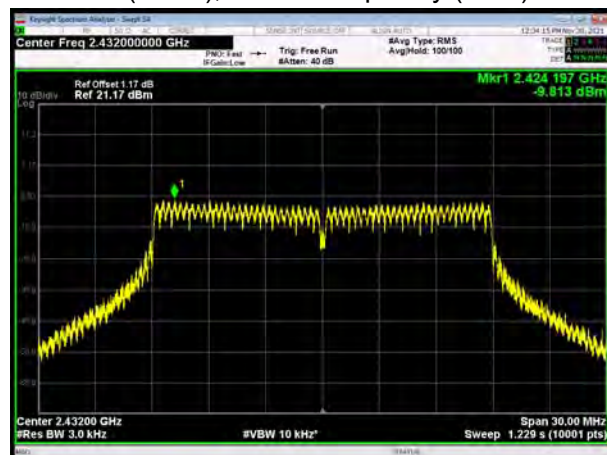
802.11n(HT20), Carrier frequency (MHz): 2422



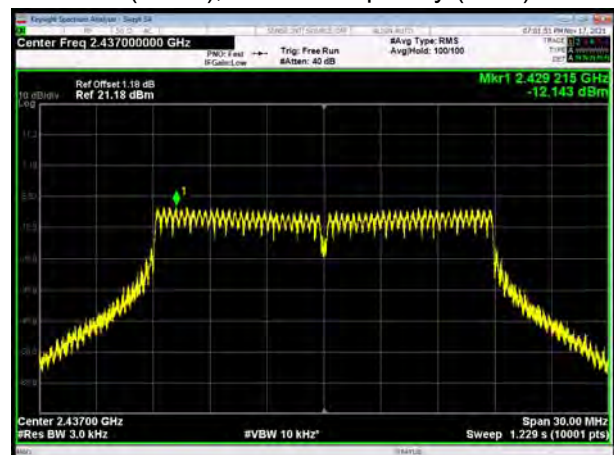
802.11n(HT20), Carrier frequency (MHz): 2427



802.11n(HT20), Carrier frequency (MHz):2432



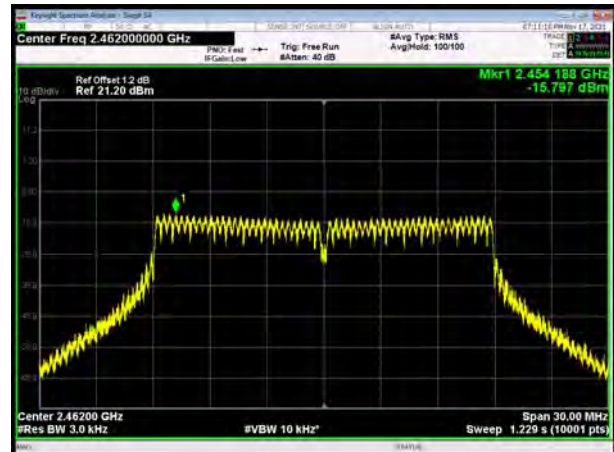
802.11n(HT20), Carrier frequency (MHz):2437



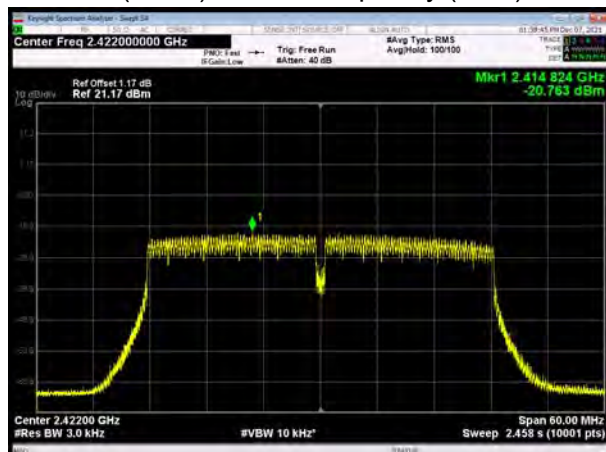
802.11n(HT20), Carrier frequency (MHz):2457



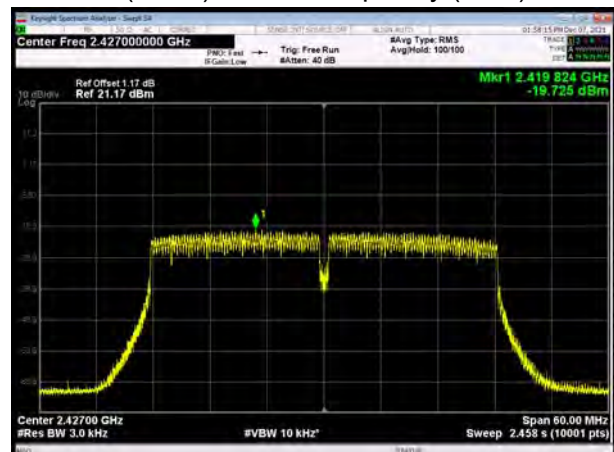
802.11n(HT20), Carrier frequency (MHz):2462



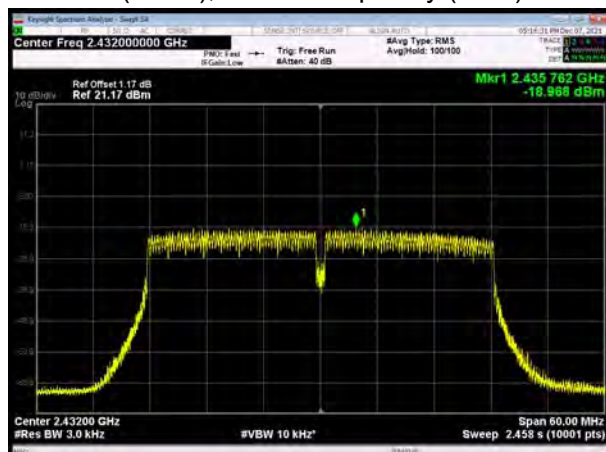
802.11n(HT40), Carrier frequency (MHz): 2422



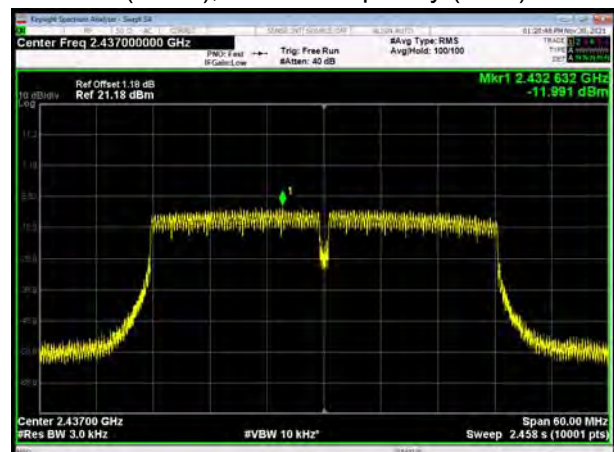
802.11n(HT40), Carrier frequency (MHz): 2427



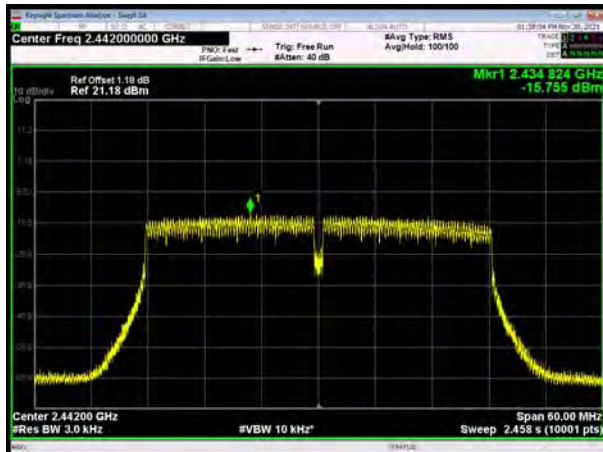
802.11n(HT40), Carrier frequency (MHz): 2432



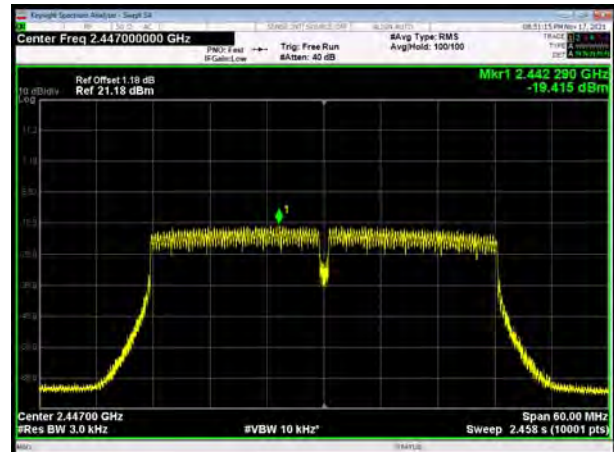
802.11n(HT40), Carrier frequency (MHz): 2437



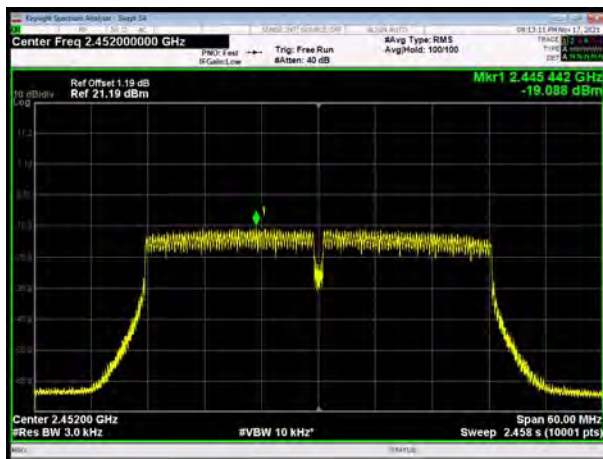
802.11n(HT40), Carrier frequency (MHz): 2442



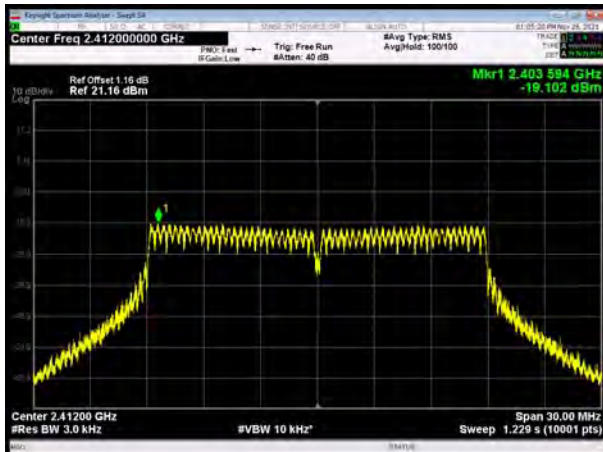
802.11n(HT40), Carrier frequency (MHz): 2447



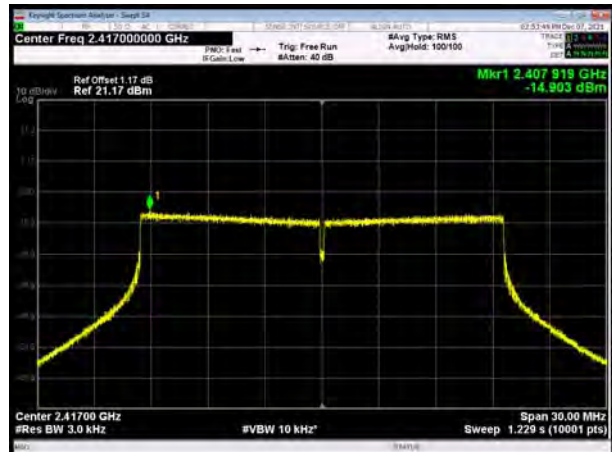
802.11n(HT40), Carrier frequency (MHz): 2452



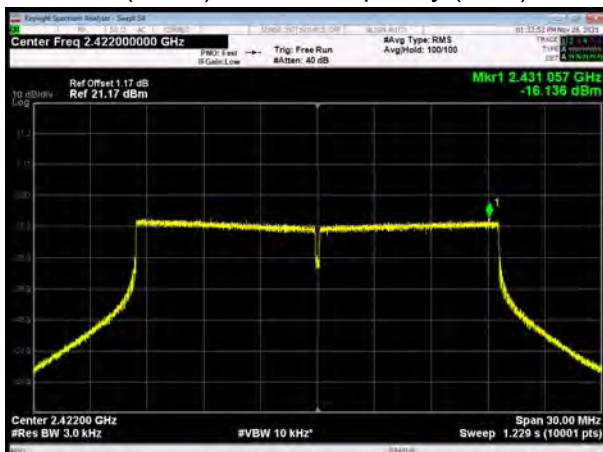
802.11ax(HE20), Carrier frequency (MHz): 2412



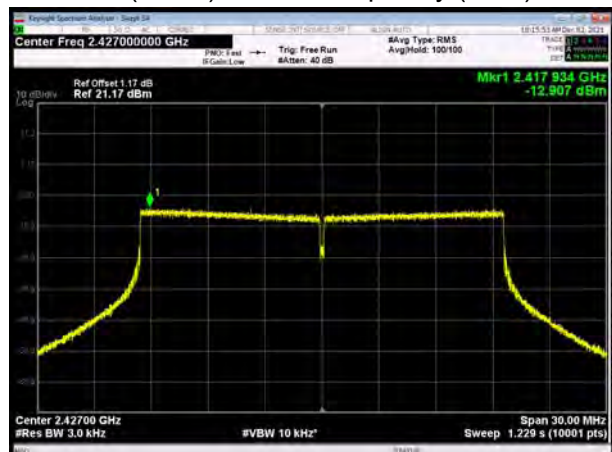
802.11ax(HE20), Carrier frequency (MHz): 2417



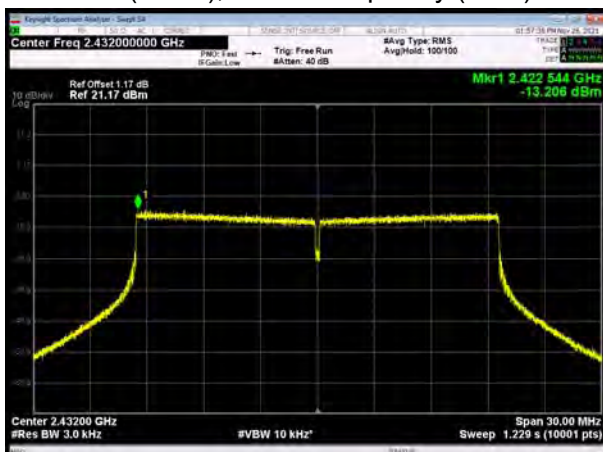
802.11ax(HE20), Carrier frequency (MHz): 2422



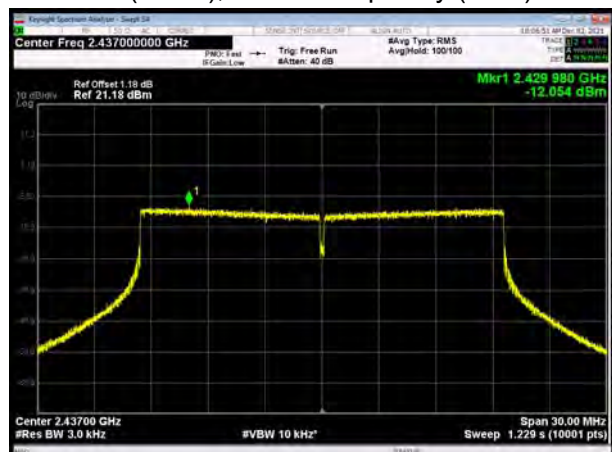
802.11ax(HE20), Carrier frequency (MHz): 2427



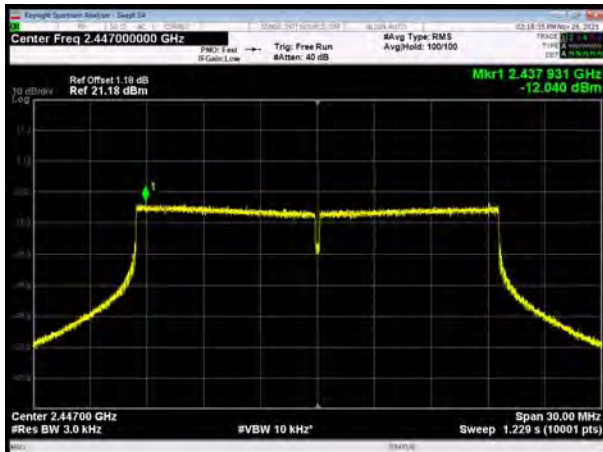
802.11ax(HE20), Carrier frequency (MHz):2432



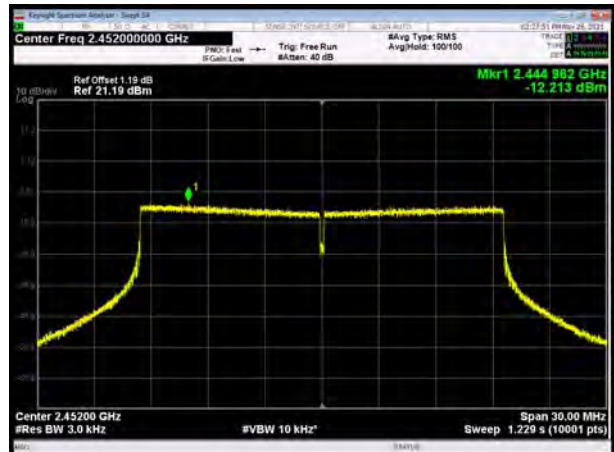
802.11ax(HE20), Carrier frequency (MHz): 2437



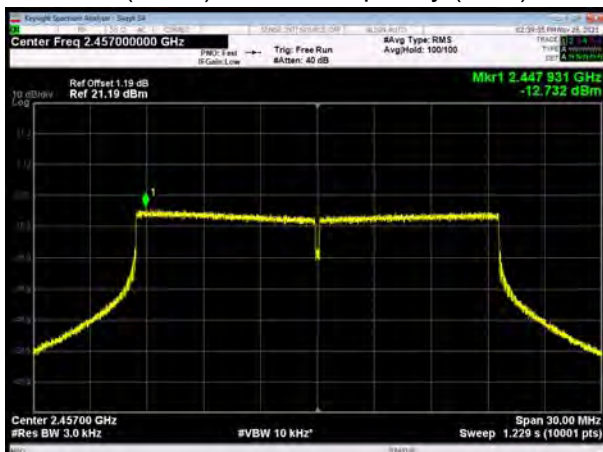
802.11ax(HE20), Carrier frequency (MHz): 2447



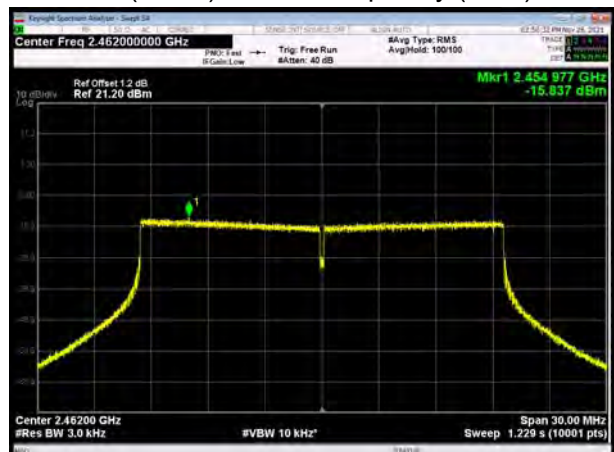
802.11ax(HE20), Carrier frequency (MHz): 2452



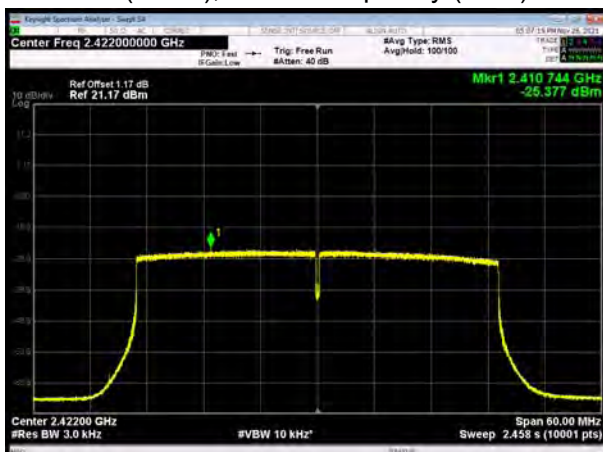
802.11ax(HE20), Carrier frequency (MHz): 2457



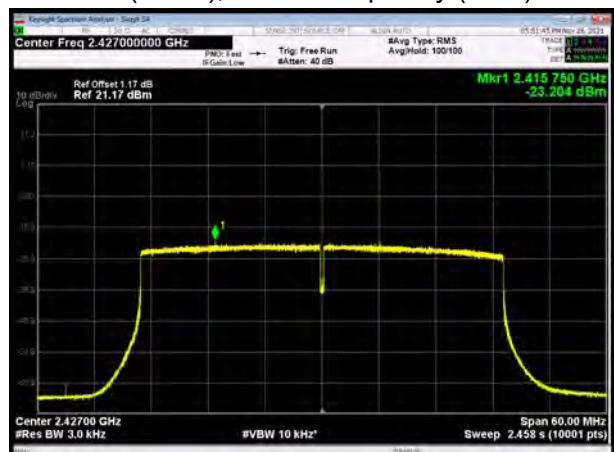
802.11ax(HE20), Carrier frequency (MHz): 2462



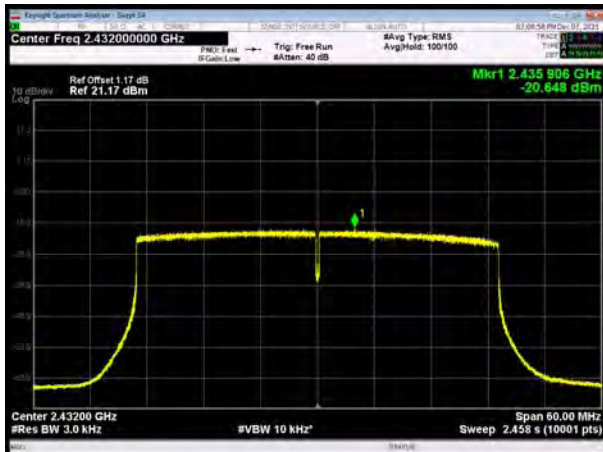
802.11ax(HE40), Carrier frequency (MHz): 2422



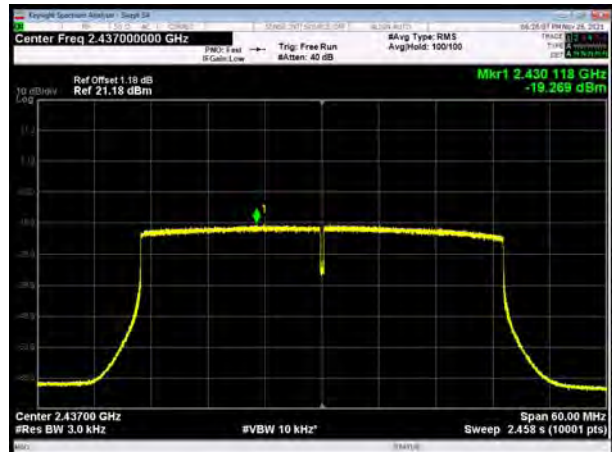
802.11ax(HE40), Carrier frequency (MHz): 2427



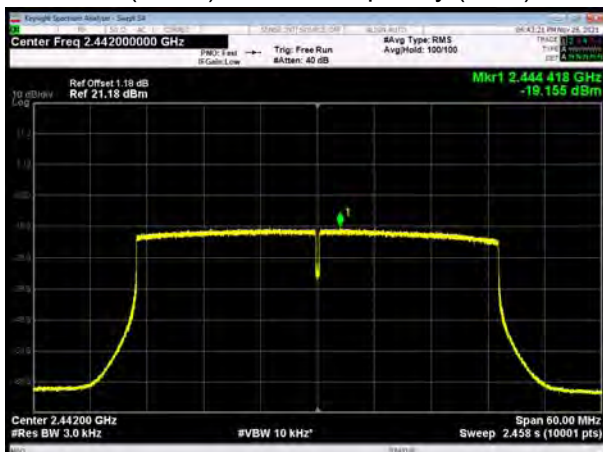
802.11ax(HE40), Carrier frequency (MHz): 2432



802.11ax(HE40), Carrier frequency (MHz): 2437



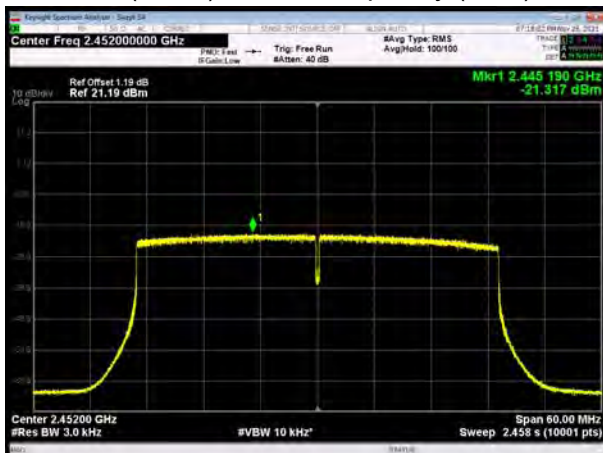
802.11ax(HE40), Carrier frequency (MHz):2442



802.11ax(HE40), Carrier frequency (MHz):2447



802.11ax(HE40), Carrier frequency (MHz):2452

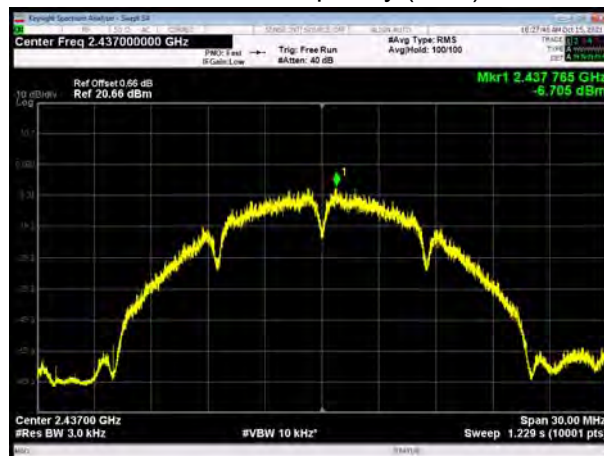


MIMO Antenna 3

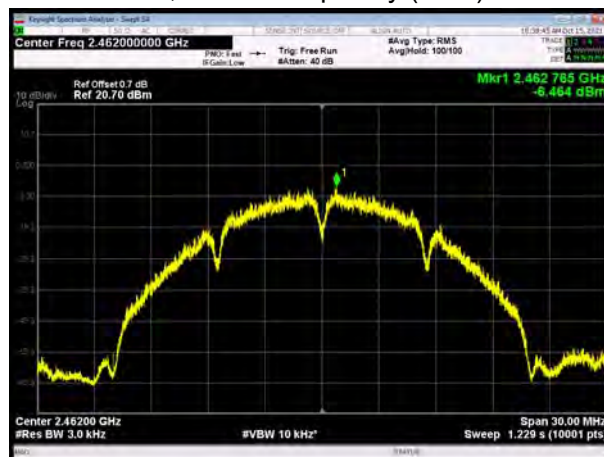
802.11b, Carrier frequency (MHz): 2412



802.11b, Carrier frequency (MHz): 2437



802.11b, Carrier frequency (MHz):2462



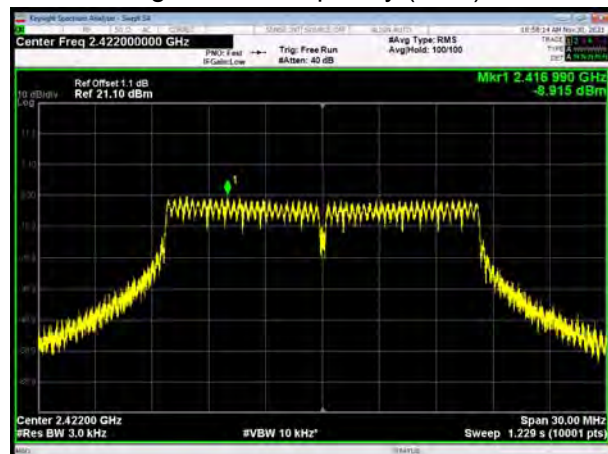
802.11g, Carrier frequency (MHz): 2412



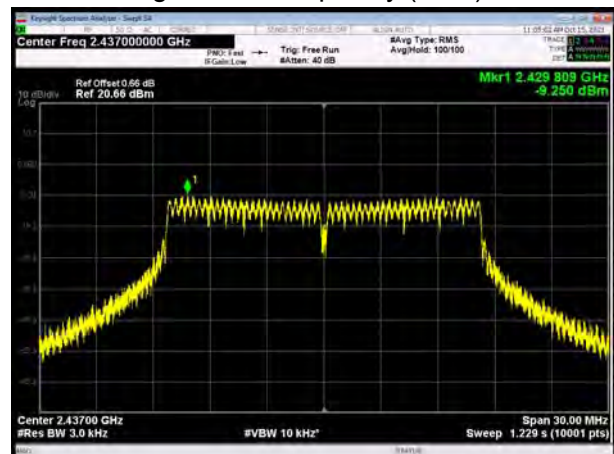
802.11g, Carrier frequency (MHz): 2417



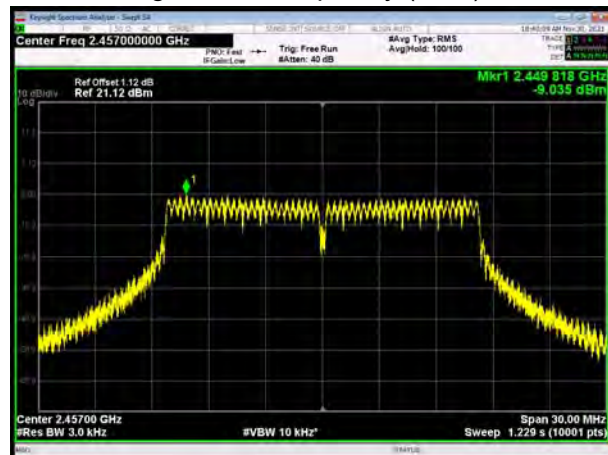
802.11g, Carrier frequency (MHz): 2422



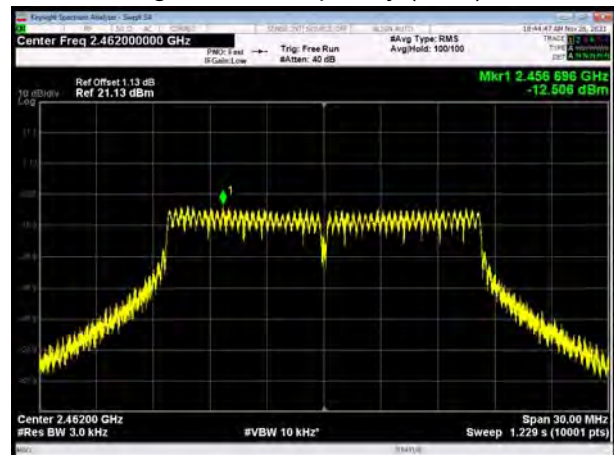
802.11g, Carrier frequency (MHz): 2437



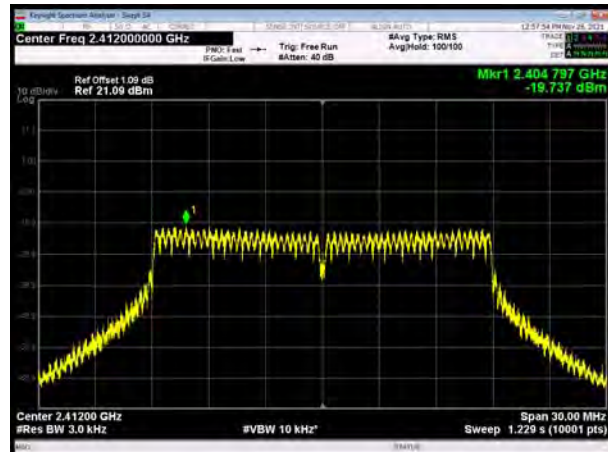
802.11g, Carrier frequency (MHz): 2457



802.11g, Carrier frequency (MHz): 2462



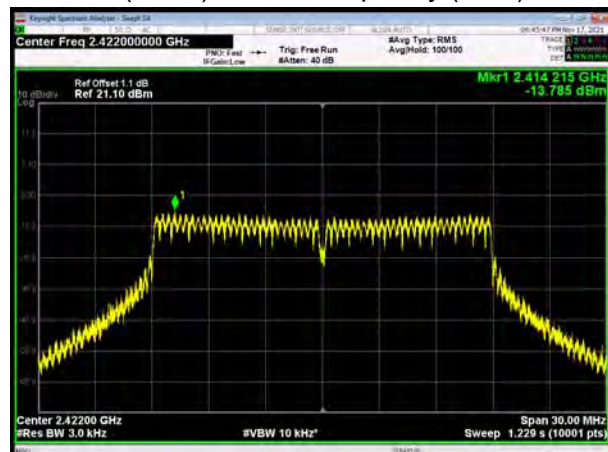
802.11n(HT20), Carrier frequency (MHz): 2412



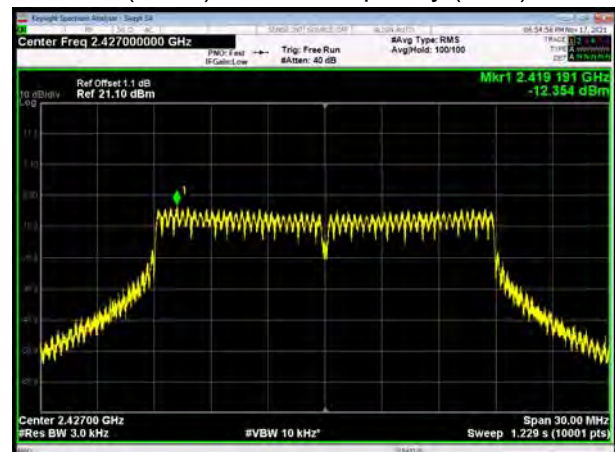
802.11n(HT20), Carrier frequency (MHz): 2417



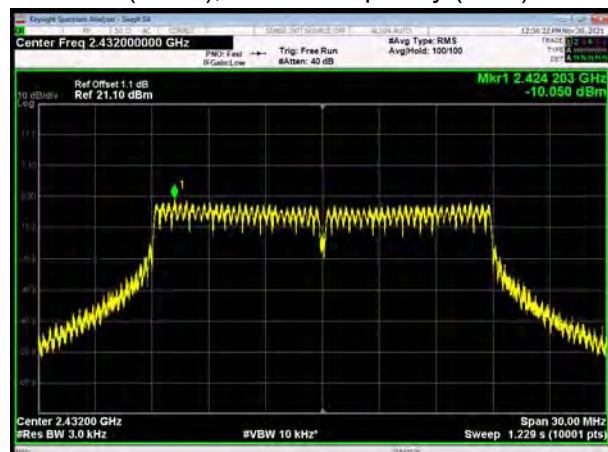
802.11n(HT20), Carrier frequency (MHz): 2422



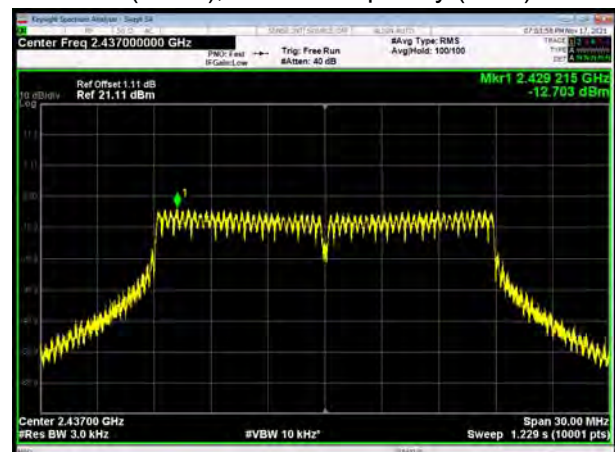
802.11n(HT20), Carrier frequency (MHz): 2427



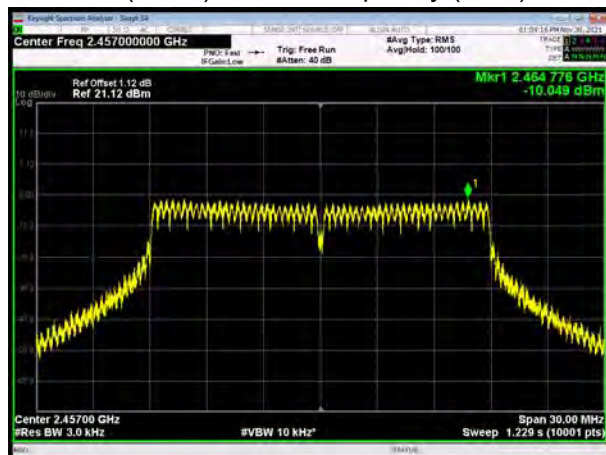
802.11n(HT20), Carrier frequency (MHz): 2432



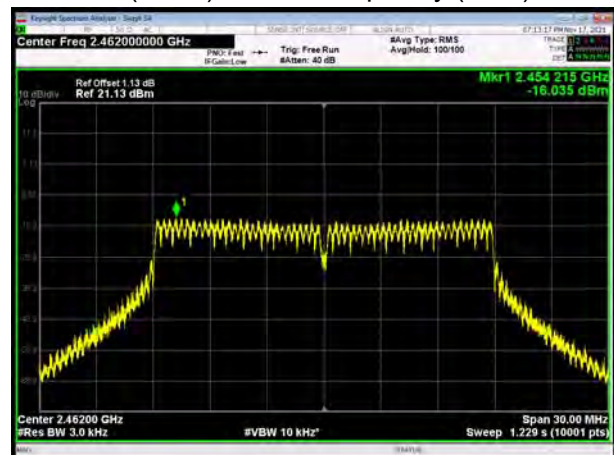
802.11n(HT20), Carrier frequency (MHz): 2437



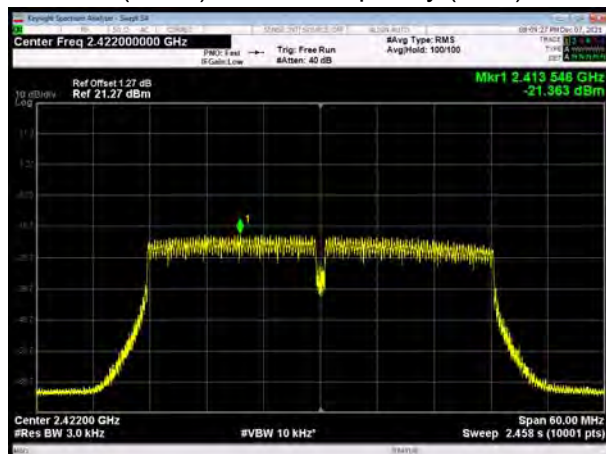
802.11n(HT20), Carrier frequency (MHz):2457



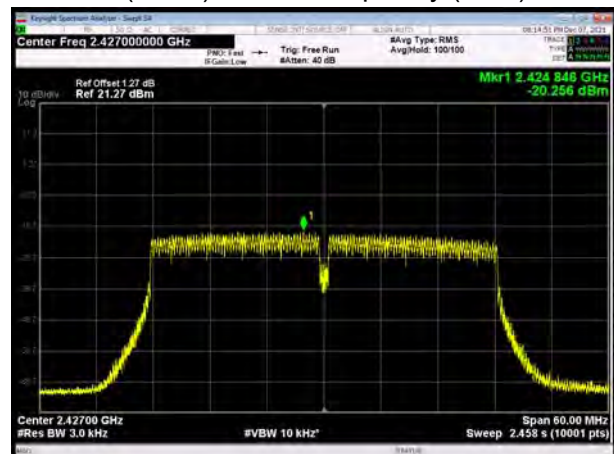
802.11n(HT20), Carrier frequency (MHz):2462



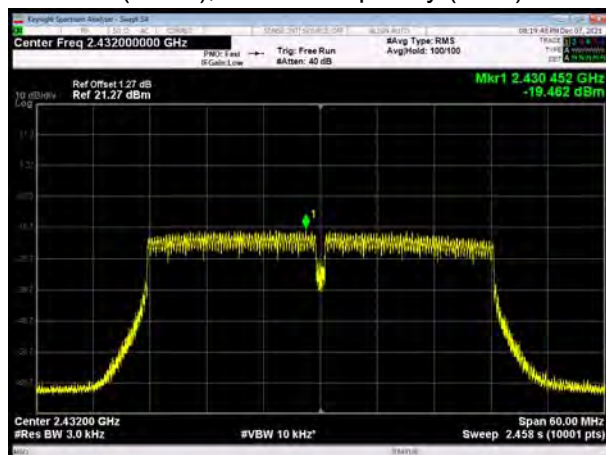
802.11n(HT40), Carrier frequency (MHz): 2422



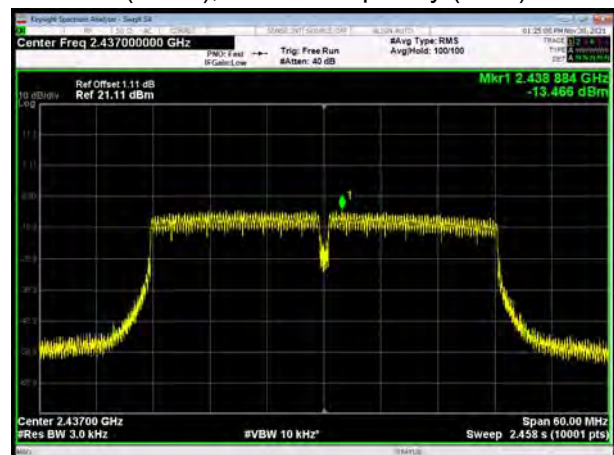
802.11n(HT40), Carrier frequency (MHz): 2427



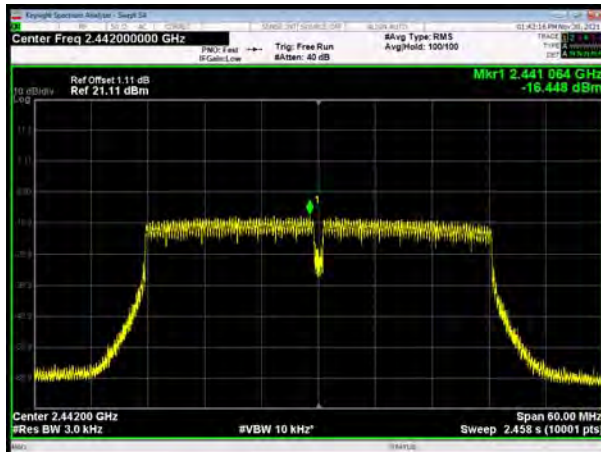
802.11n(HT40), Carrier frequency (MHz): 2432



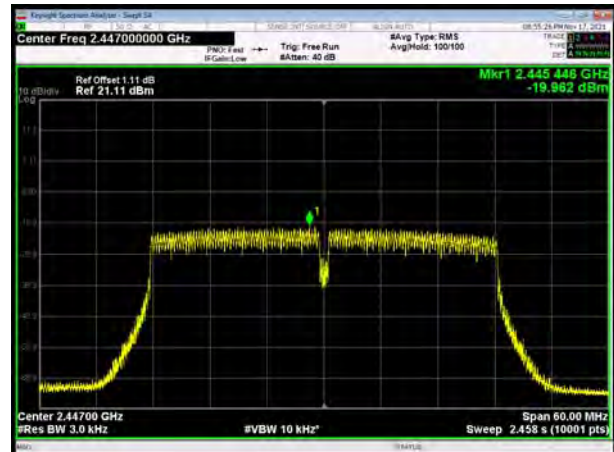
802.11n(HT40), Carrier frequency (MHz): 2437



802.11n(HT40), Carrier frequency (MHz): 2442



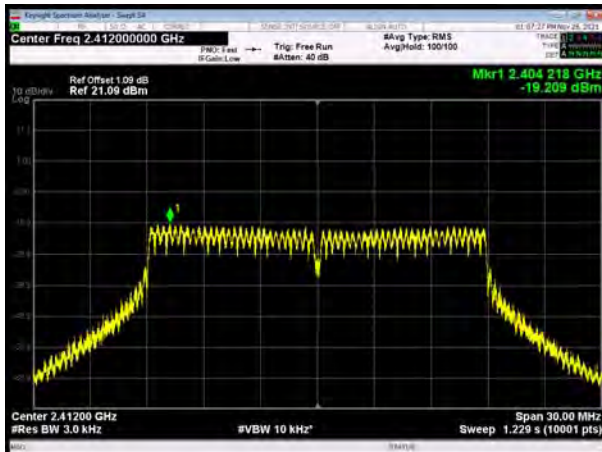
802.11n(HT40), Carrier frequency (MHz): 2447



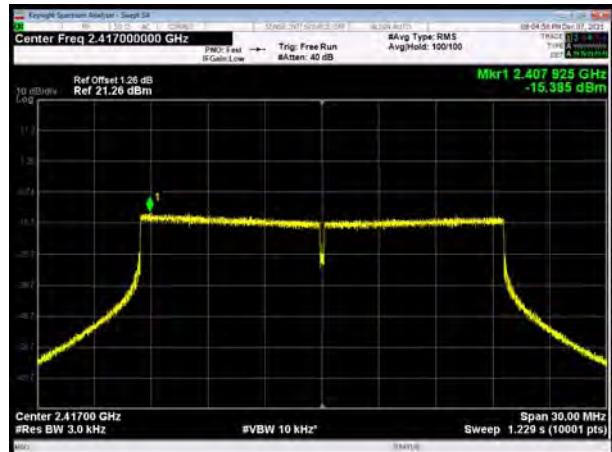
802.11n(HT40), Carrier frequency (MHz): 2452



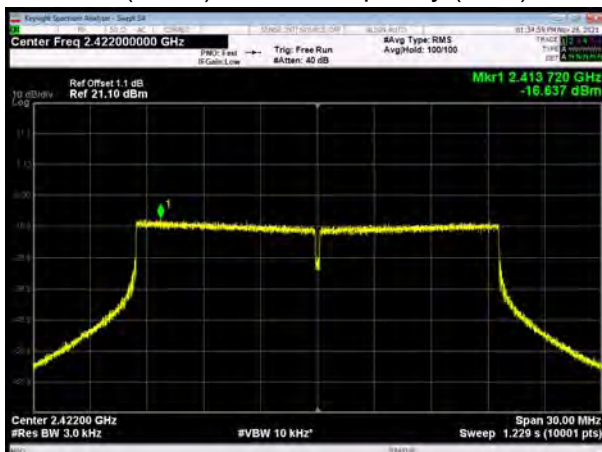
802.11ax(HE20), Carrier frequency (MHz): 2412



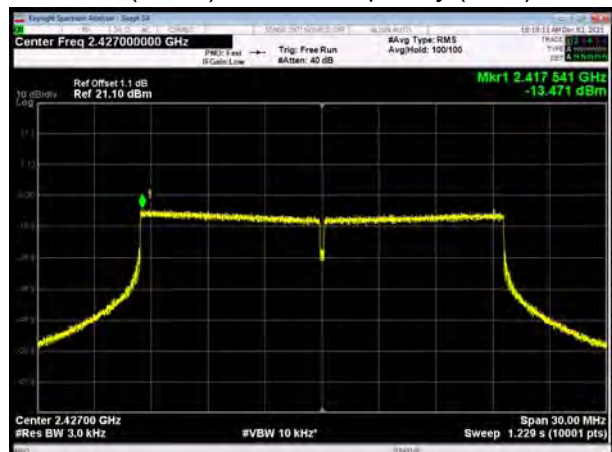
802.11ax(HE20), Carrier frequency (MHz): 2417



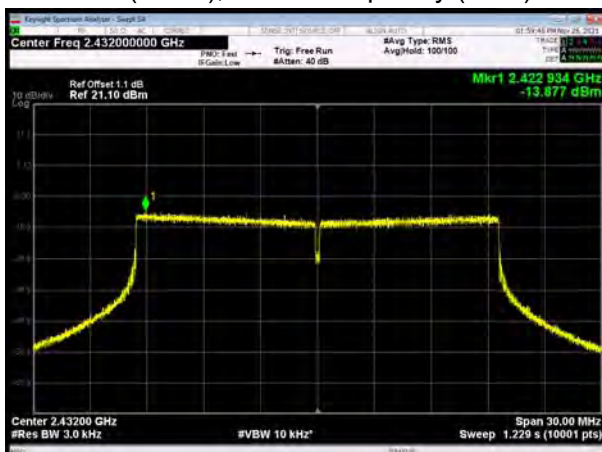
802.11ax(HE20), Carrier frequency (MHz): 2422



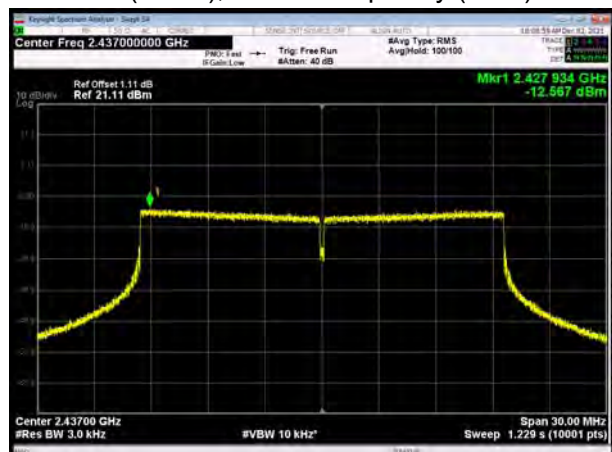
802.11ax(HE20), Carrier frequency (MHz): 2427



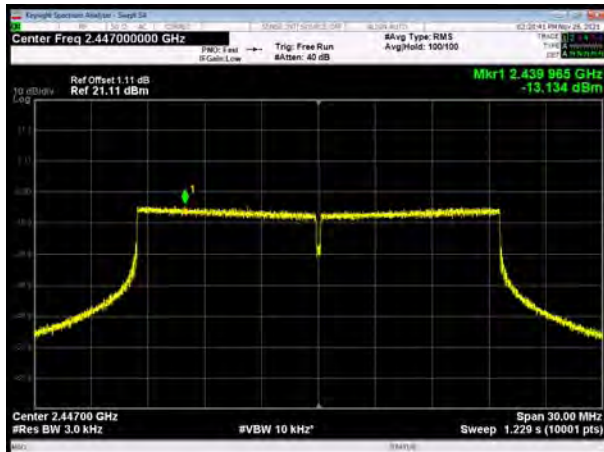
802.11ax(HE20), Carrier frequency (MHz):2432



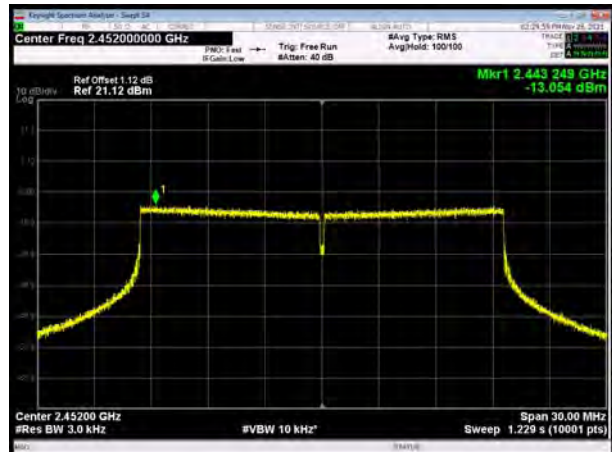
802.11ax(HE20), Carrier frequency (MHz): 2437



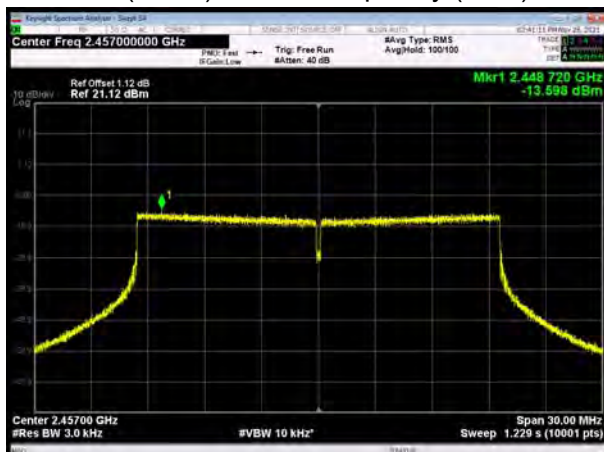
802.11ax(HE20), Carrier frequency (MHz): 2447



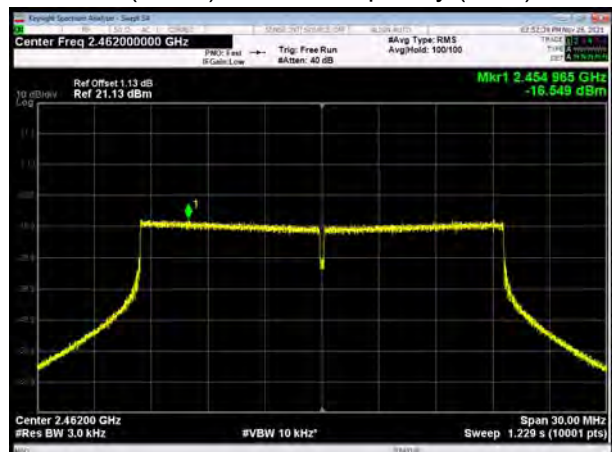
802.11ax(HE20), Carrier frequency (MHz): 2452



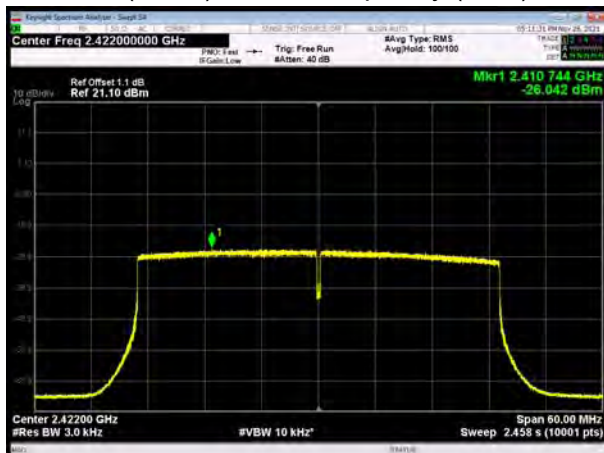
802.11ax(HE20), Carrier frequency (MHz): 2457



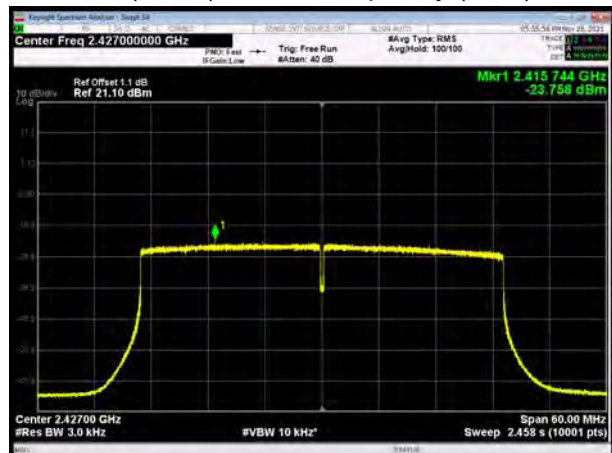
802.11ax(HE20), Carrier frequency (MHz): 2462



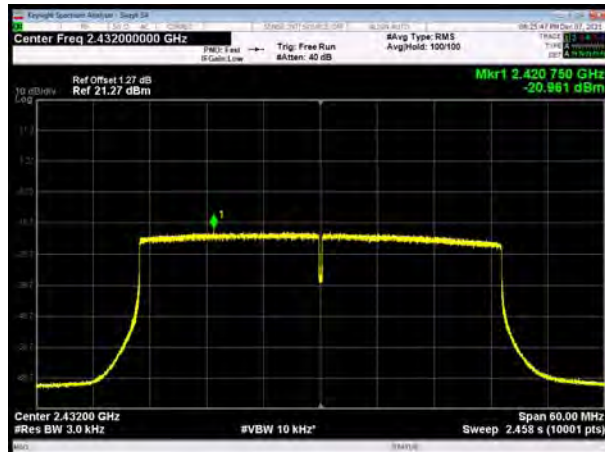
802.11ax(HE40), Carrier frequency (MHz): 2422



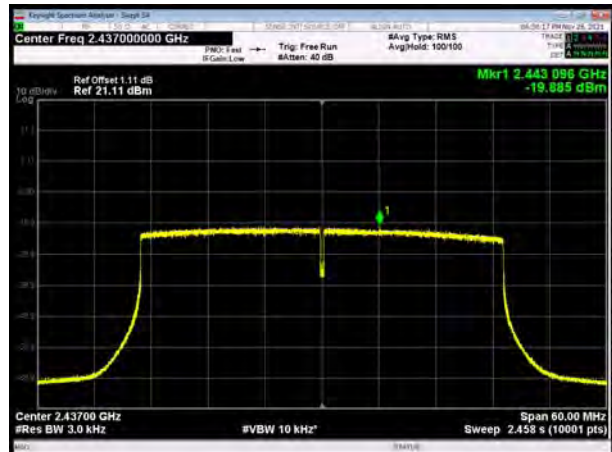
802.11ax(HE40), Carrier frequency (MHz): 2427



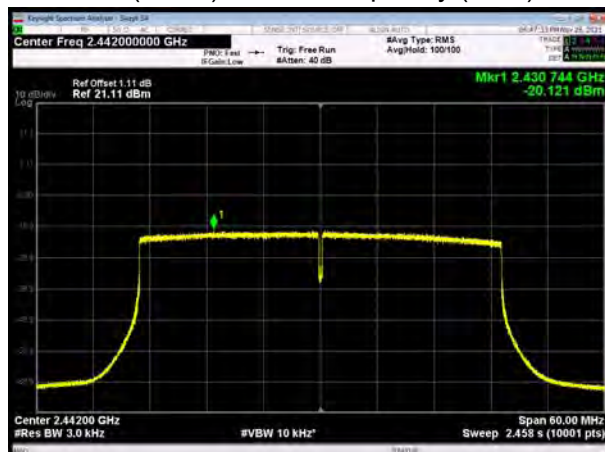
802.11ax(HE40), Carrier frequency (MHz):2432



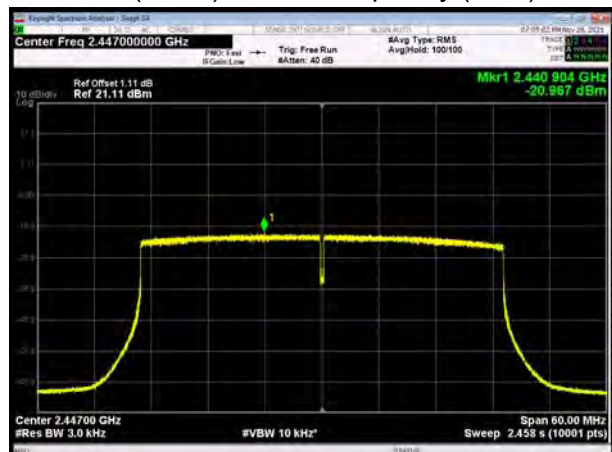
802.11ax(HE40), Carrier frequency (MHz):2437



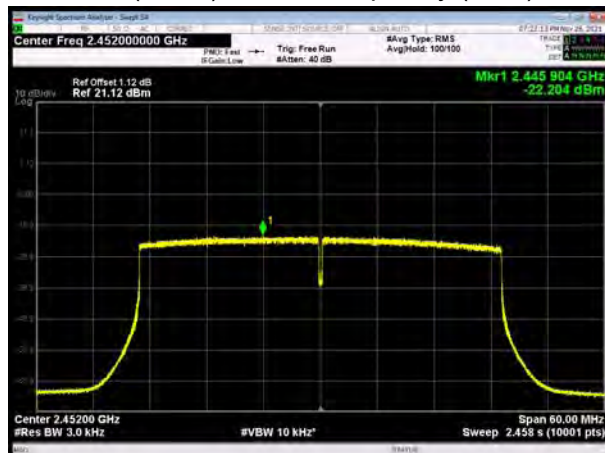
802.11ax(HE40), Carrier frequency (MHz):2442



802.11ax(HE40), Carrier frequency (MHz):2447

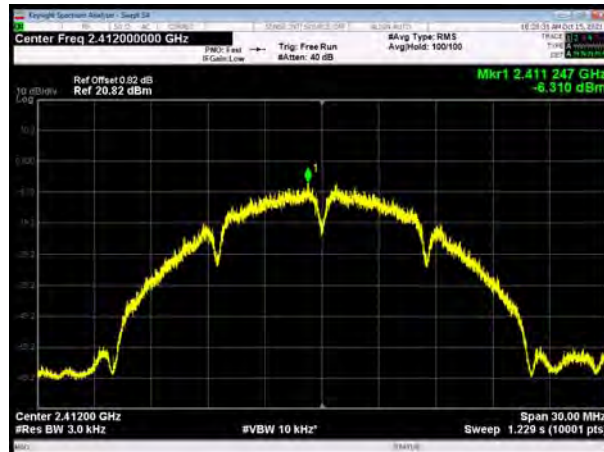


802.11ax(HE40), Carrier frequency (MHz):2452



MIMO Antenna 4

802.11b, Carrier frequency (MHz): 2412



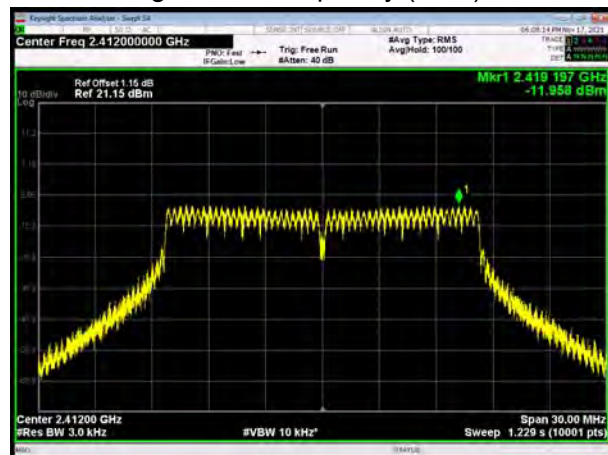
802.11b, Carrier frequency (MHz): 2437



802.11b, Carrier frequency (MHz):2462



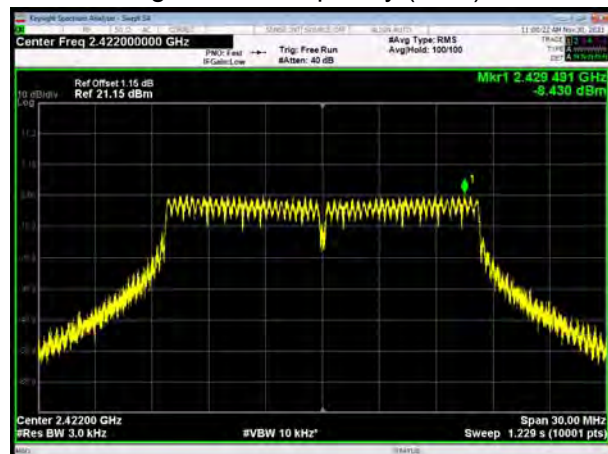
802.11g, Carrier frequency (MHz): 2412



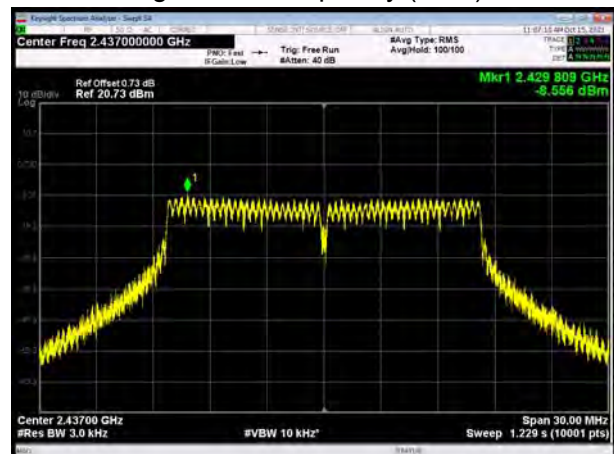
802.11g, Carrier frequency (MHz): 2417



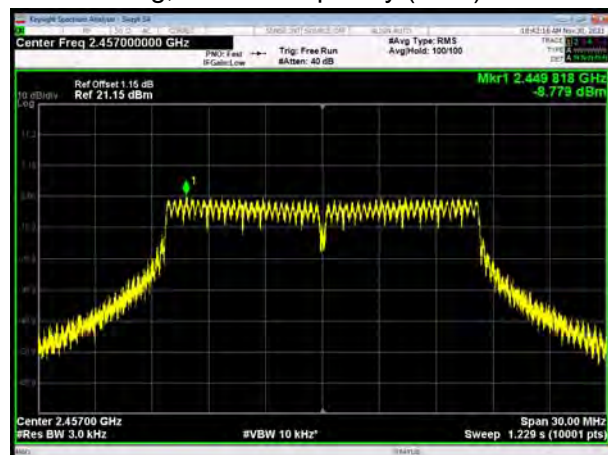
802.11g, Carrier frequency (MHz): 2422



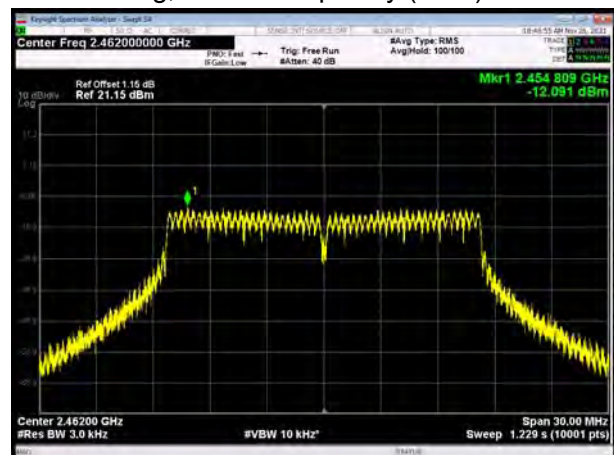
802.11g, Carrier frequency (MHz): 2437



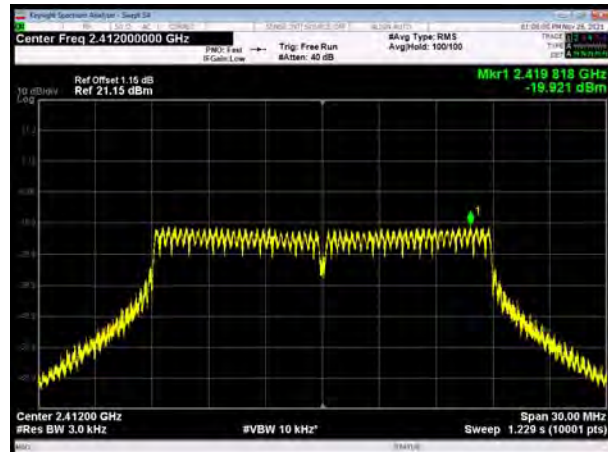
802.11g, Carrier frequency (MHz): 2457



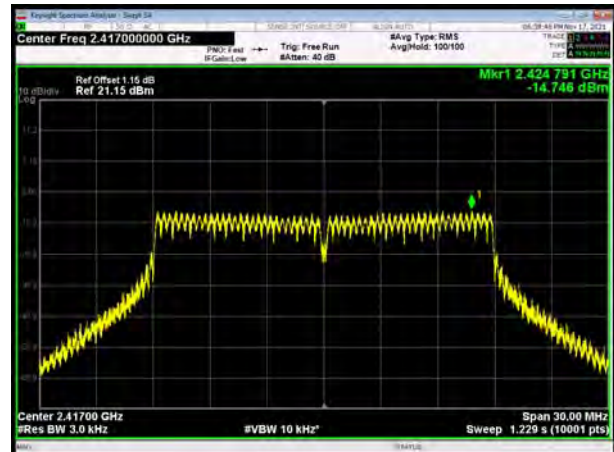
802.11g, Carrier frequency (MHz): 2462



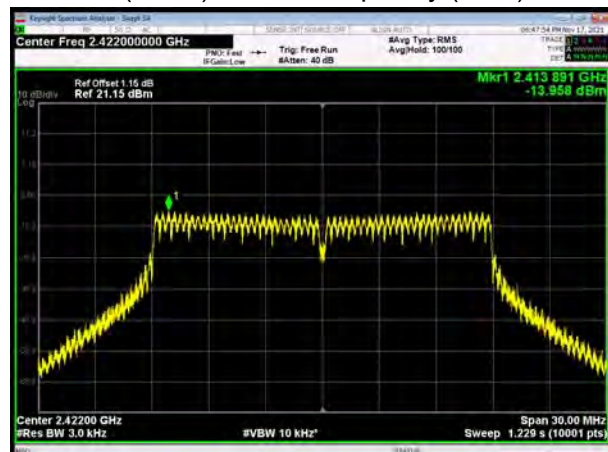
802.11n(HT20), Carrier frequency (MHz): 2412



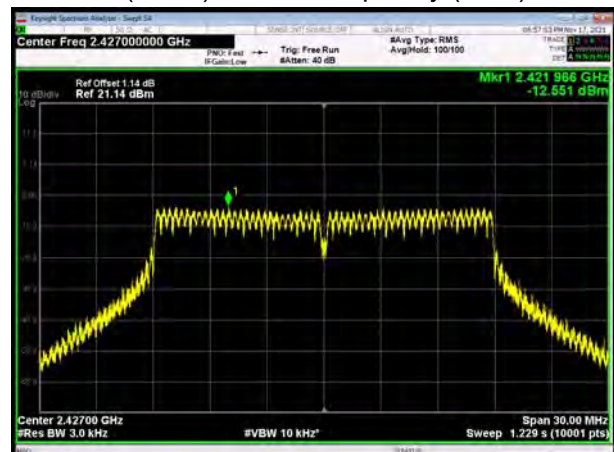
802.11n(HT20), Carrier frequency (MHz): 2417



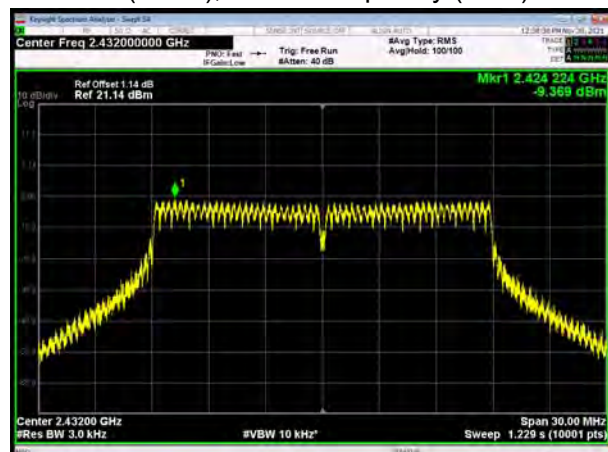
802.11n(HT20), Carrier frequency (MHz): 2422



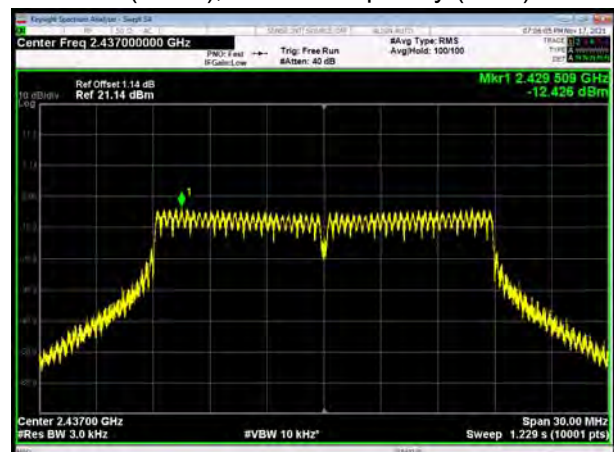
802.11n(HT20), Carrier frequency (MHz): 2427



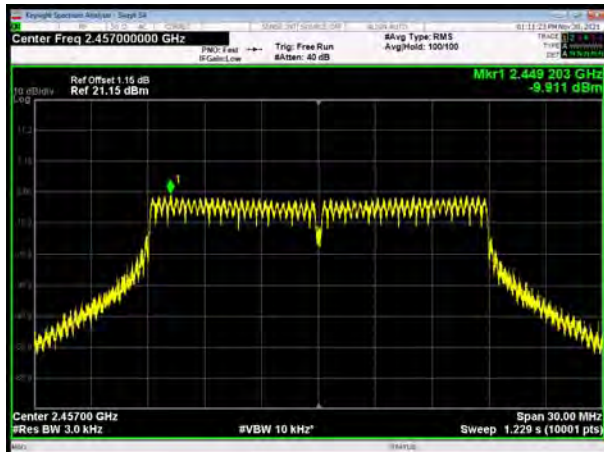
802.11n(HT20), Carrier frequency (MHz): 2432



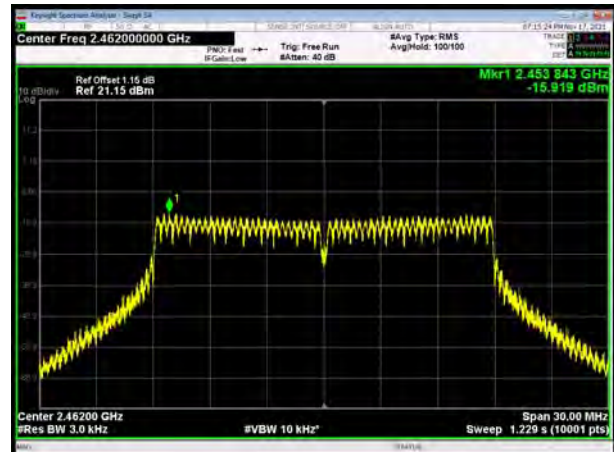
802.11n(HT20), Carrier frequency (MHz): 2437



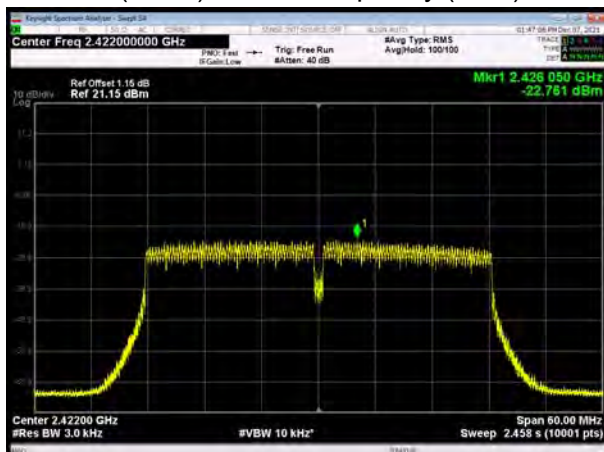
802.11n(HT20), Carrier frequency (MHz):2457



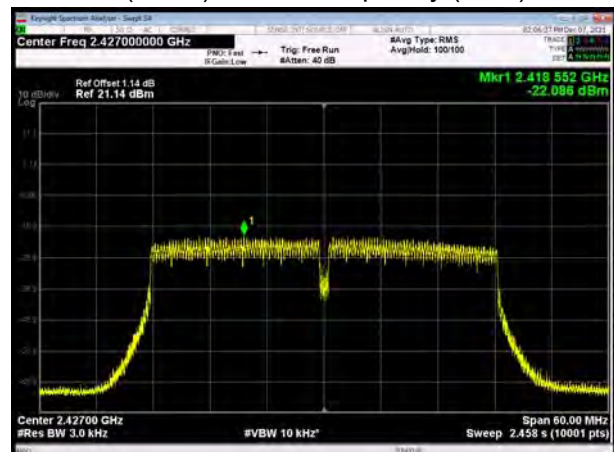
802.11n(HT20), Carrier frequency (MHz):2462



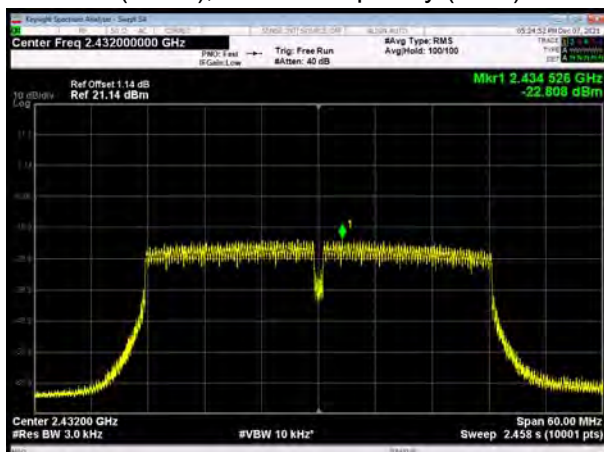
802.11n(HT40), Carrier frequency (MHz): 2422



802.11n(HT40), Carrier frequency (MHz): 2427



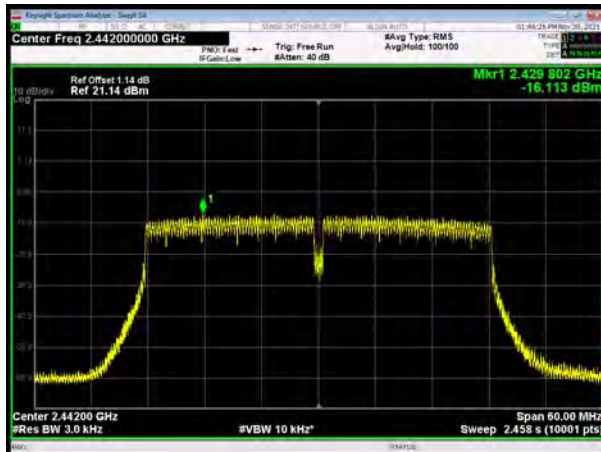
802.11n(HT40), Carrier frequency (MHz): 2432



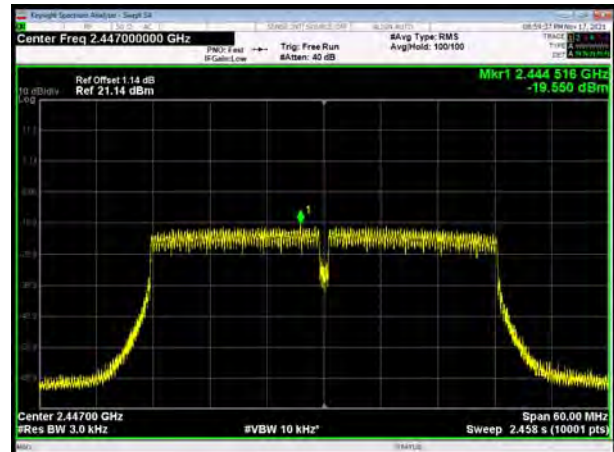
802.11n(HT40), Carrier frequency (MHz): 2437



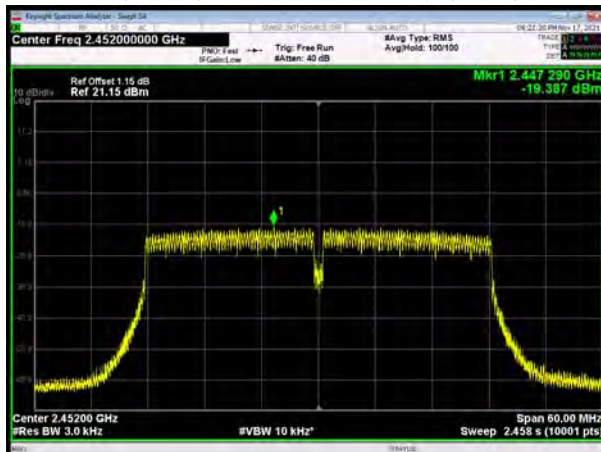
802.11n(HT40), Carrier frequency (MHz): 2442



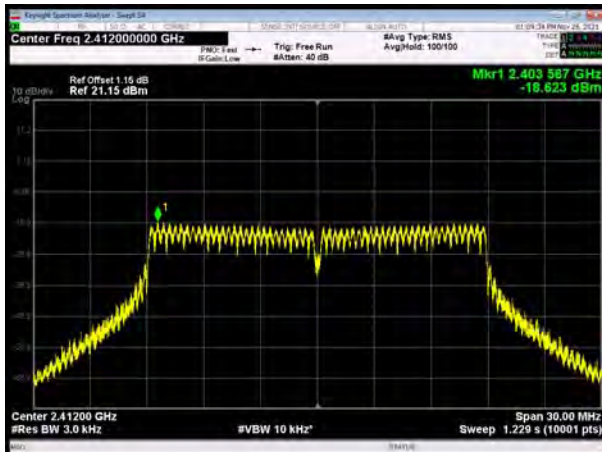
802.11n(HT40), Carrier frequency (MHz): 2447



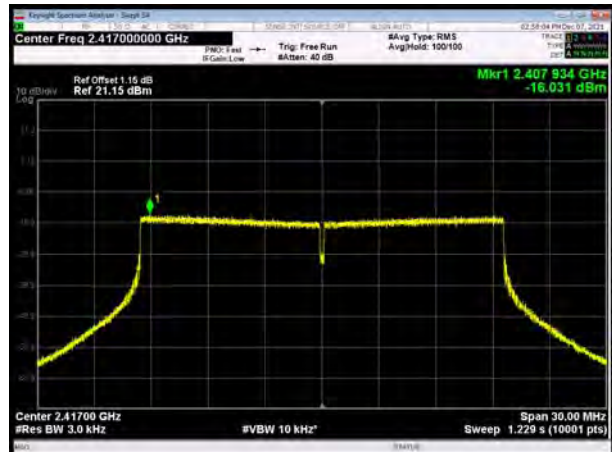
802.11n(HT40), Carrier frequency (MHz): 2452



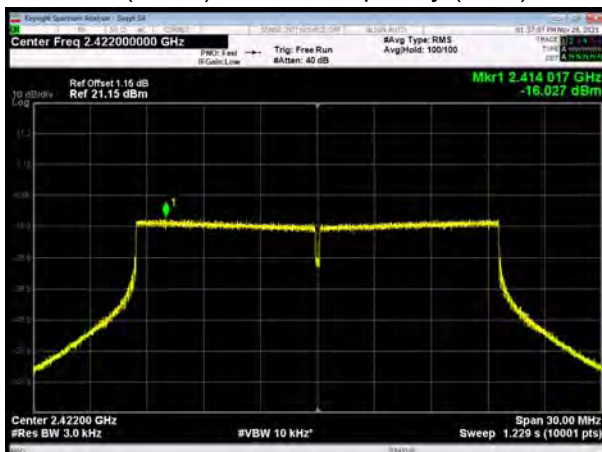
802.11ax(HE20), Carrier frequency (MHz): 2412



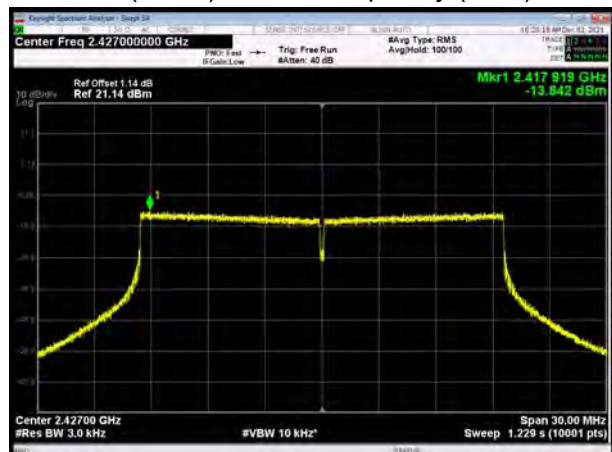
802.11ax(HE20), Carrier frequency (MHz): 2417



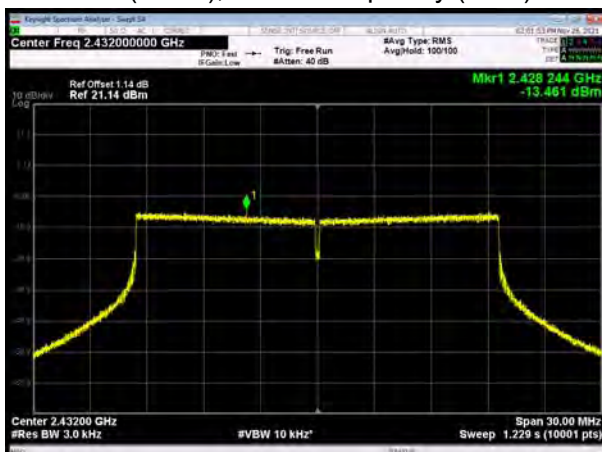
802.11ax(HE20), Carrier frequency (MHz): 2422



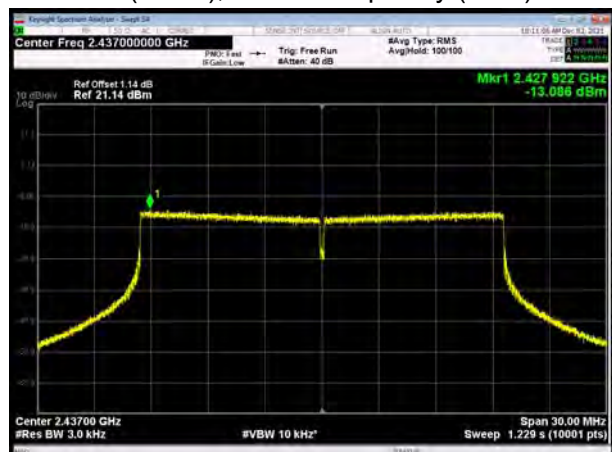
802.11ax(HE20), Carrier frequency (MHz): 2427



802.11ax(HE20), Carrier frequency (MHz):2432



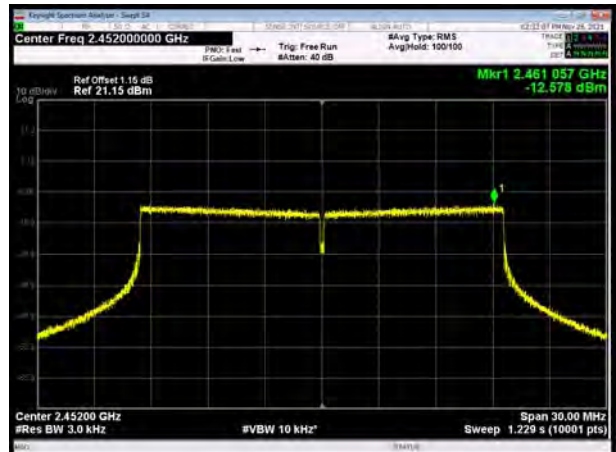
802.11ax(HE20), Carrier frequency (MHz): 2437



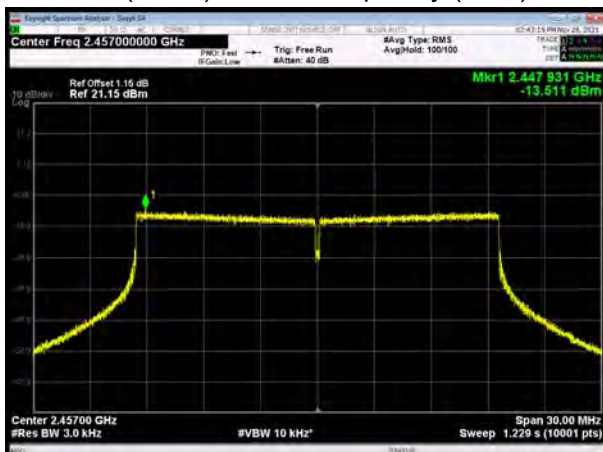
802.11ax(HE20), Carrier frequency (MHz): 2447



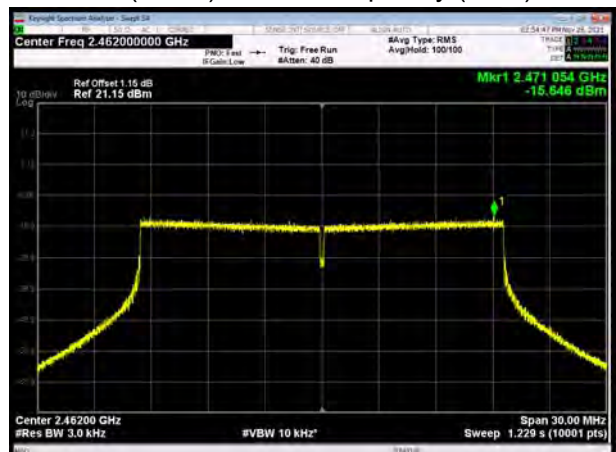
802.11ax(HE20), Carrier frequency (MHz): 2452



802.11ax(HE20), Carrier frequency (MHz): 2457



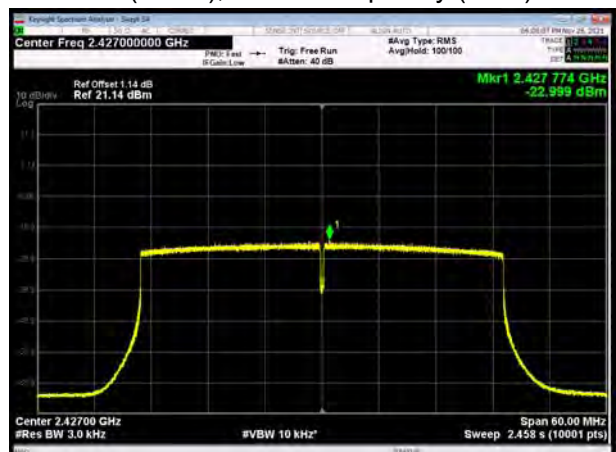
802.11ax(HE20), Carrier frequency (MHz): 2462



802.11ax(HE40), Carrier frequency (MHz): 2422



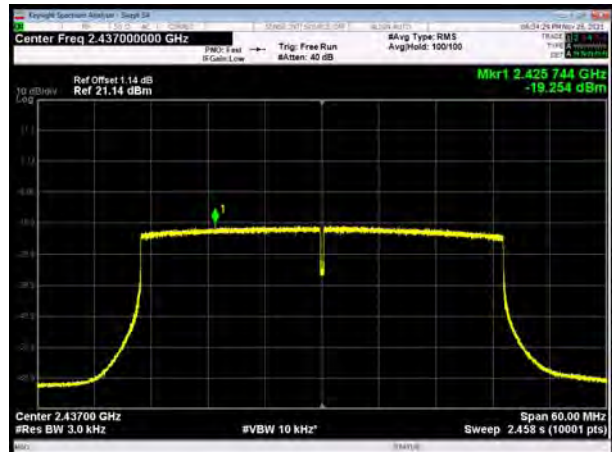
802.11ax(HE40), Carrier frequency (MHz): 2427



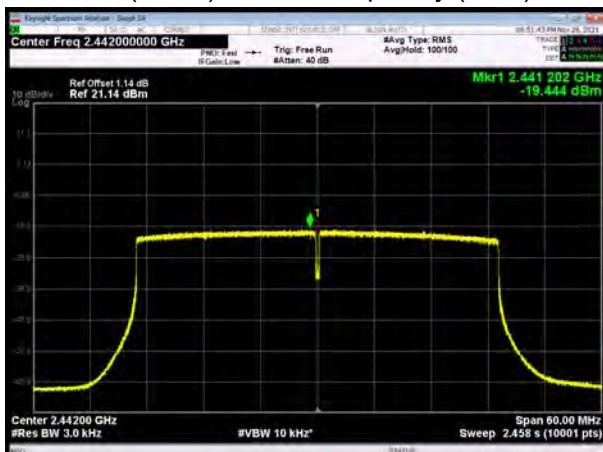
802.11ax(HE40), Carrier frequency (MHz):2432



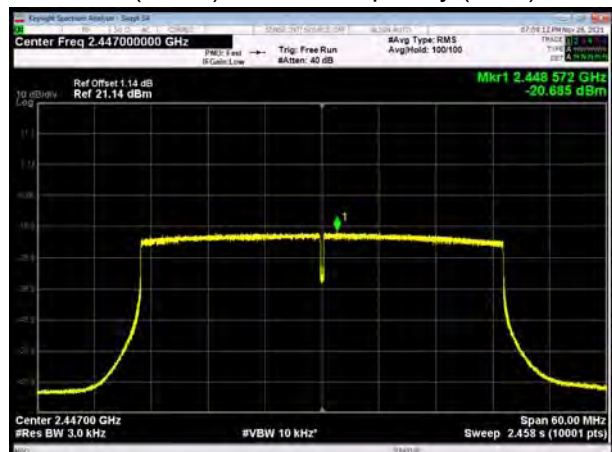
802.11ax(HE40), Carrier frequency (MHz):2437



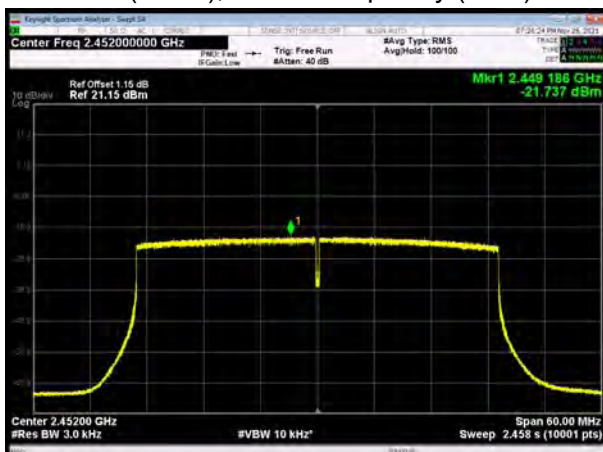
802.11ax(HE40), Carrier frequency (MHz):2442



802.11ax(HE40), Carrier frequency (MHz):2447



802.11ax(HE40), Carrier frequency (MHz):2452





With Beamforming MIMO Antenna 1

802.11b, Carrier frequency (MHz): 2412



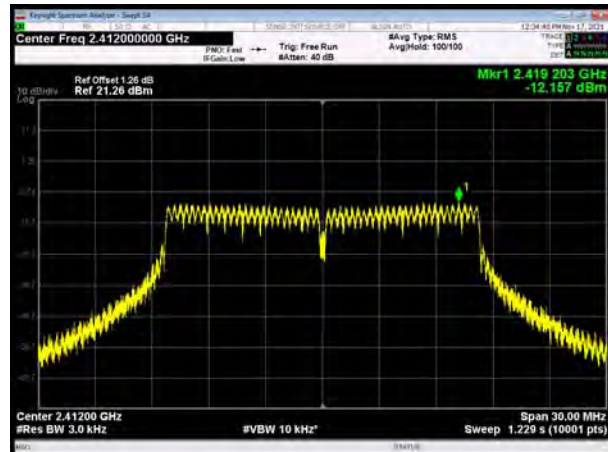
802.11b, Carrier frequency (MHz): 2437



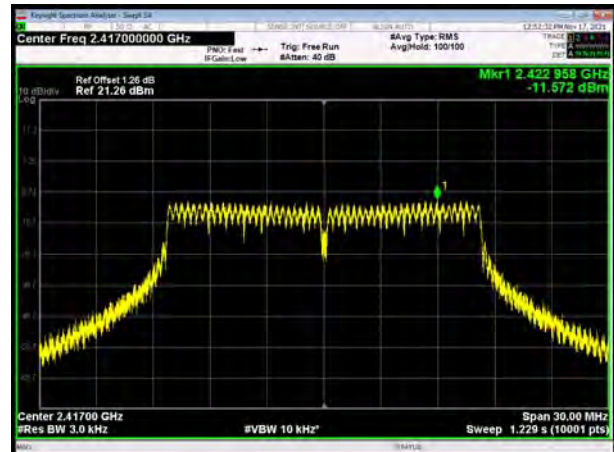
802.11b, Carrier frequency (MHz):2462



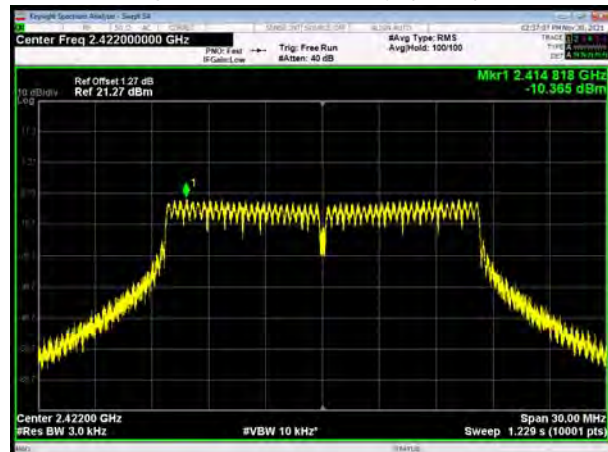
802.11g, Carrier frequency (MHz): 2412



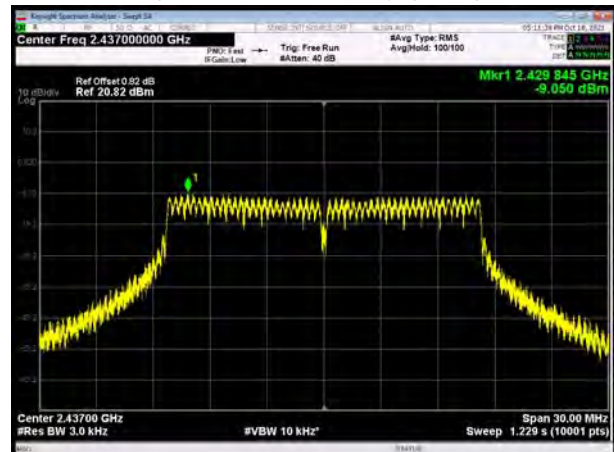
802.11g, Carrier frequency (MHz): 2417



802.11g, Carrier frequency (MHz): 2422



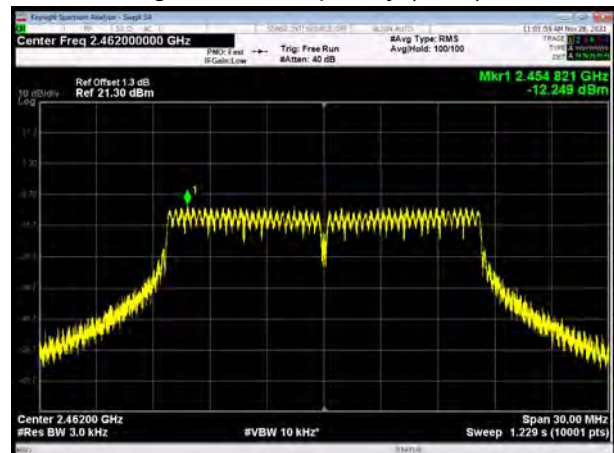
802.11g, Carrier frequency (MHz): 2437



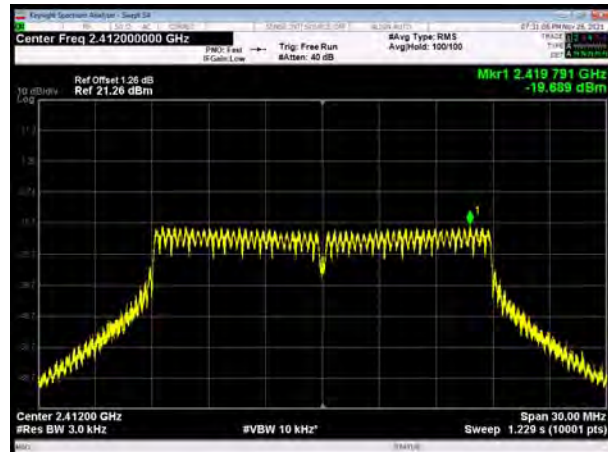
802.11g, Carrier frequency (MHz): 2457



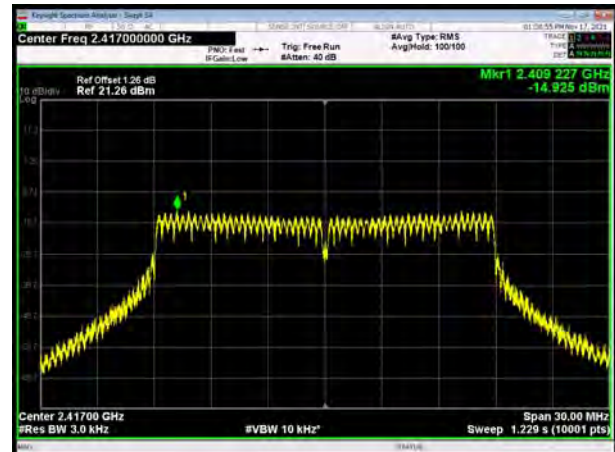
802.11g, Carrier frequency (MHz): 2462



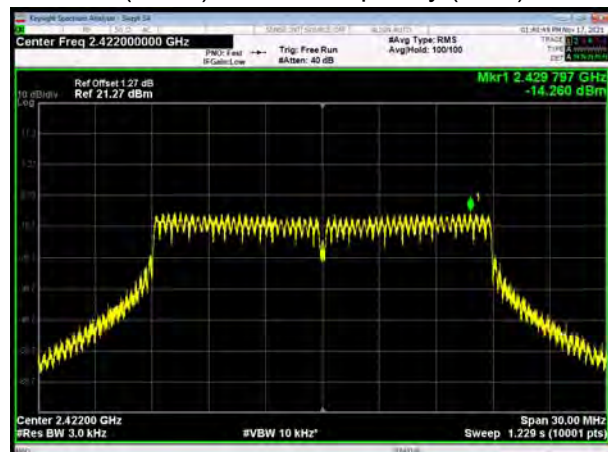
802.11n(HT20), Carrier frequency (MHz): 2412



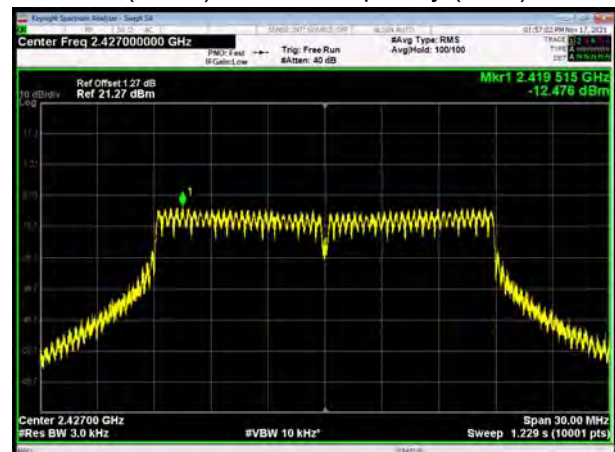
802.11n(HT20), Carrier frequency (MHz): 2417



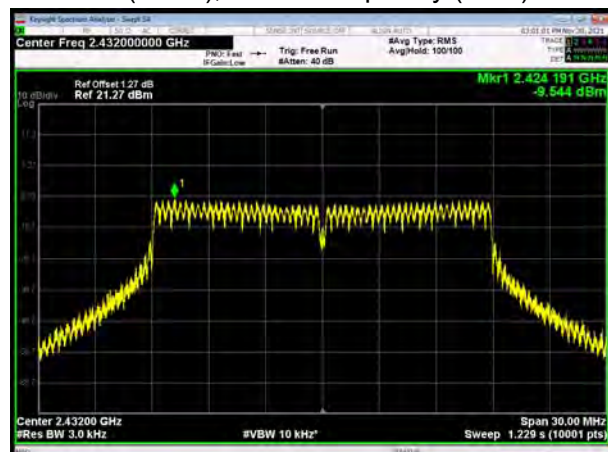
802.11n(HT20), Carrier frequency (MHz): 2422



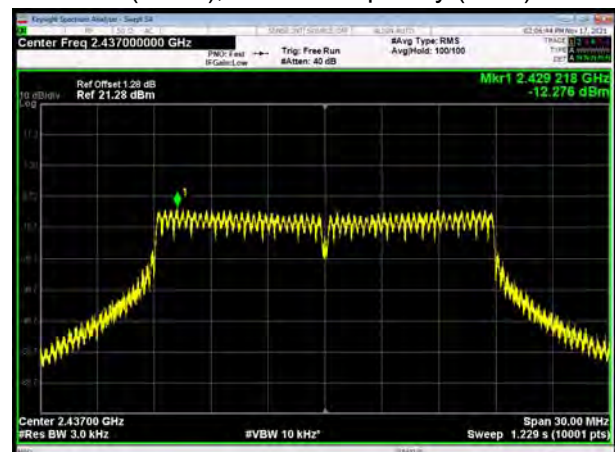
802.11n(HT20), Carrier frequency (MHz): 2427



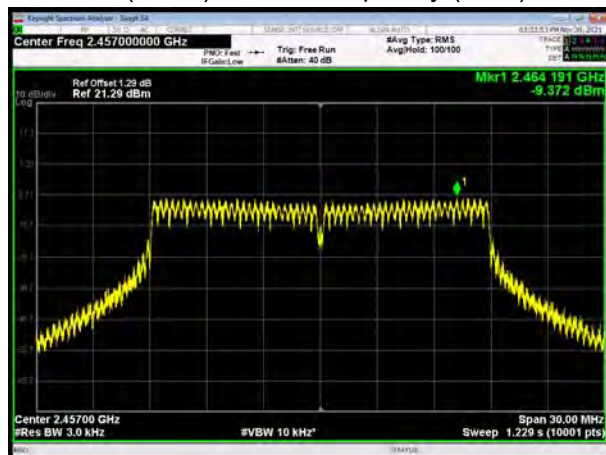
802.11n(HT20), Carrier frequency (MHz): 2432



802.11n(HT20), Carrier frequency (MHz): 2437



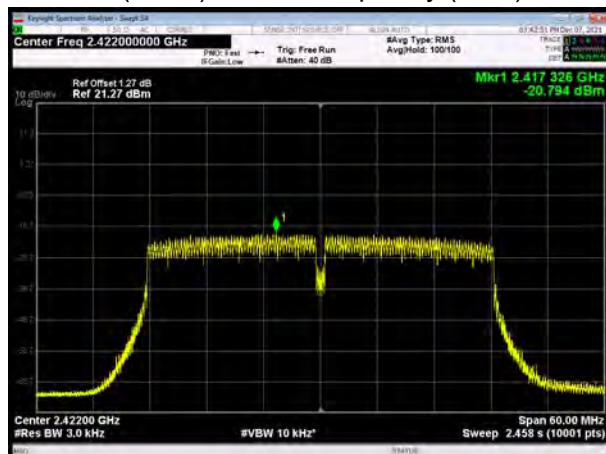
802.11n(HT20), Carrier frequency (MHz):2457



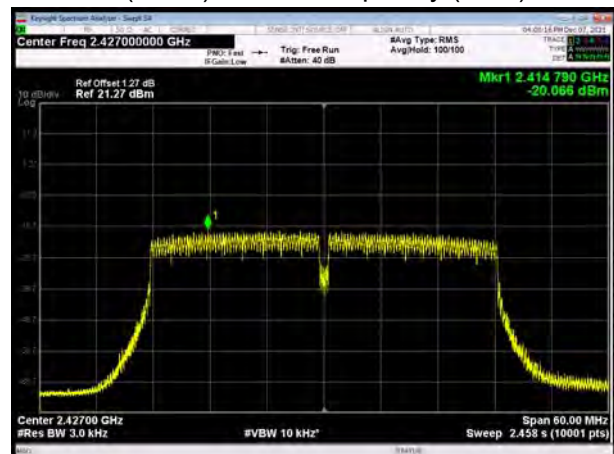
802.11n(HT20), Carrier frequency (MHz):2462



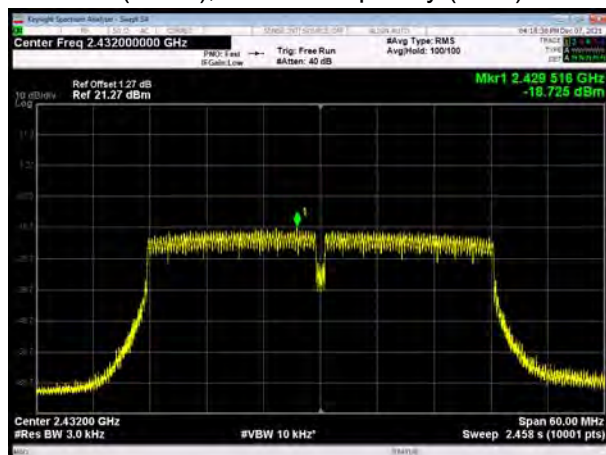
802.11n(HT40), Carrier frequency (MHz): 2422



802.11n(HT40), Carrier frequency (MHz): 2427



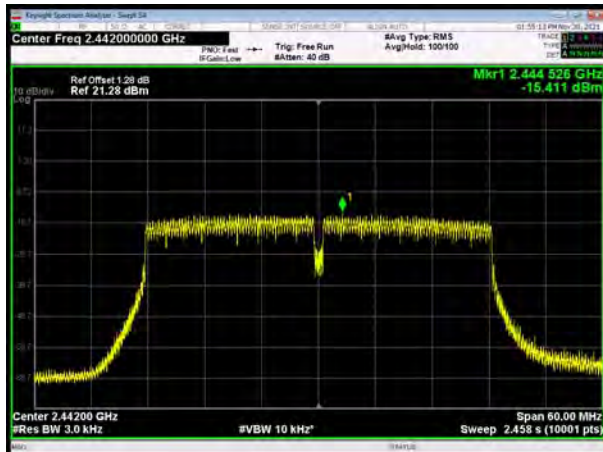
802.11n(HT40), Carrier frequency (MHz): 2432



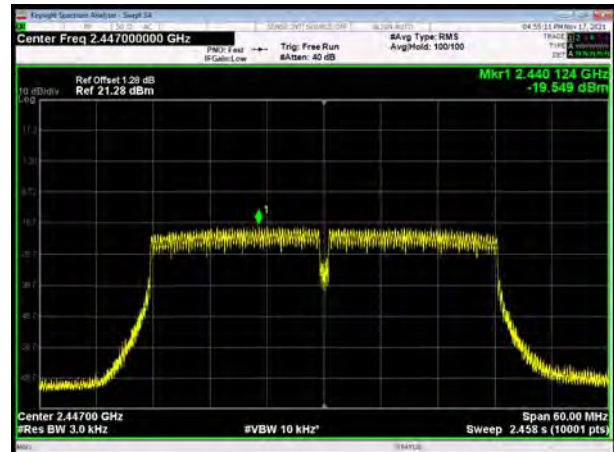
802.11n(HT40), Carrier frequency (MHz): 2437



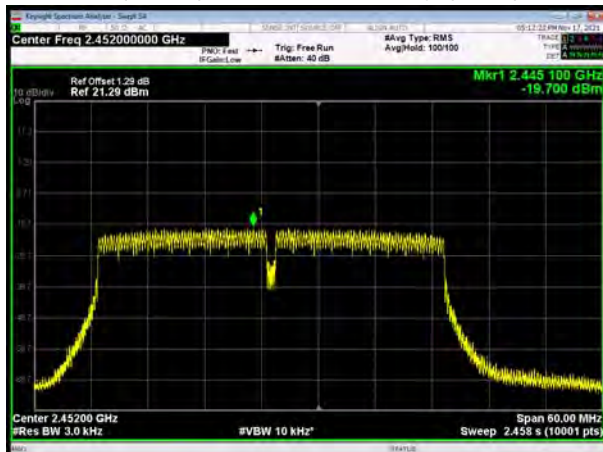
802.11n(HT40), Carrier frequency (MHz): 2442



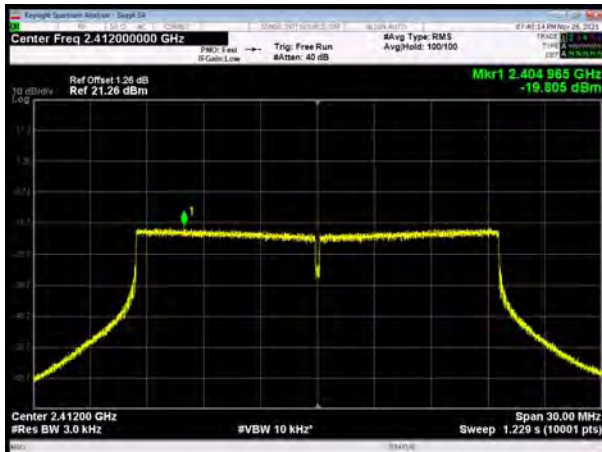
802.11n(HT40), Carrier frequency (MHz): 2447



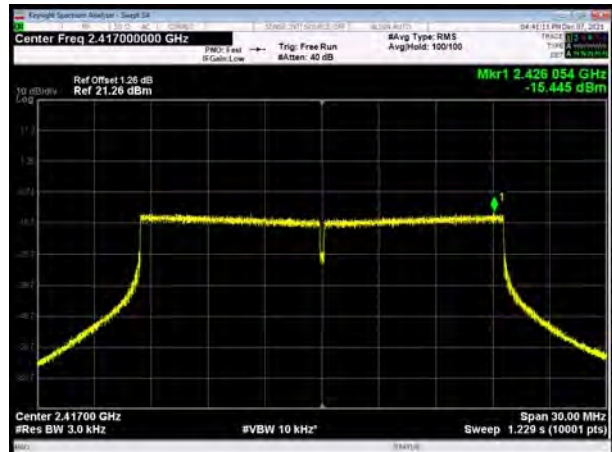
802.11n(HT40), Carrier frequency (MHz): 2452



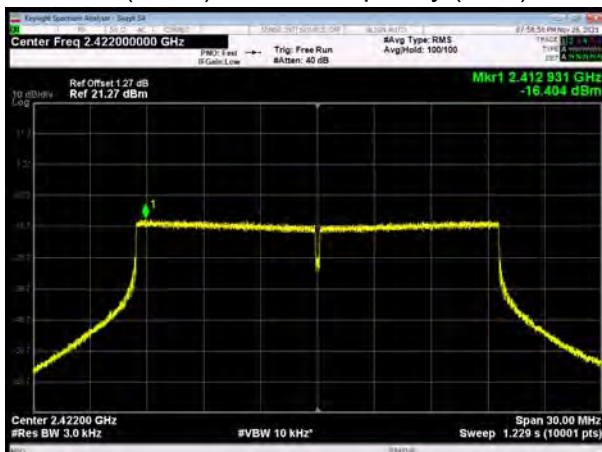
802.11ax(HE20), Carrier frequency (MHz): 2412



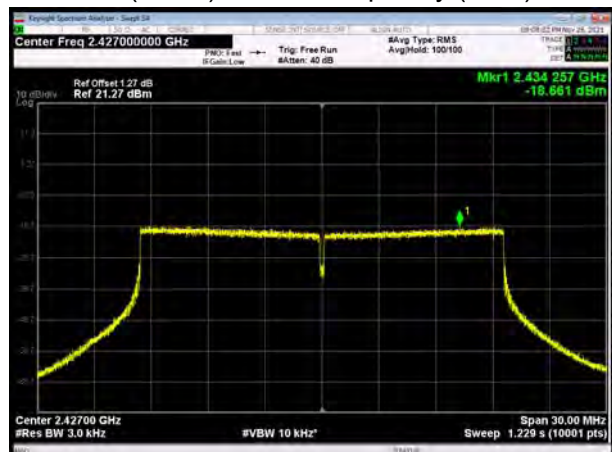
802.11ax(HE20), Carrier frequency (MHz): 2417



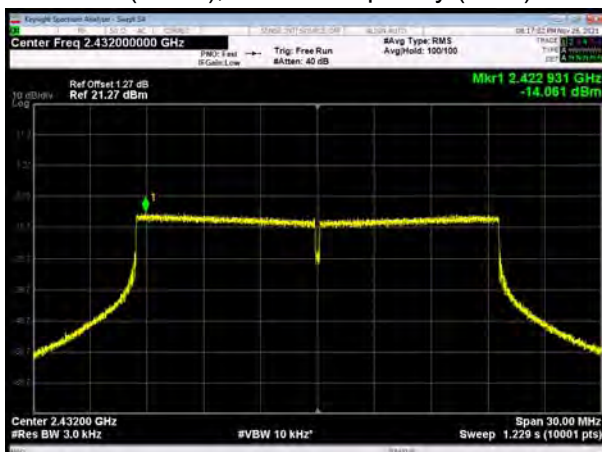
802.11ax(HE20), Carrier frequency (MHz): 2422



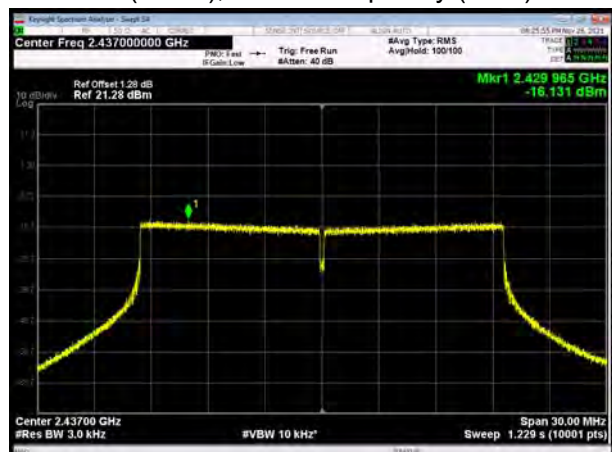
802.11ax(HE20), Carrier frequency (MHz): 2427



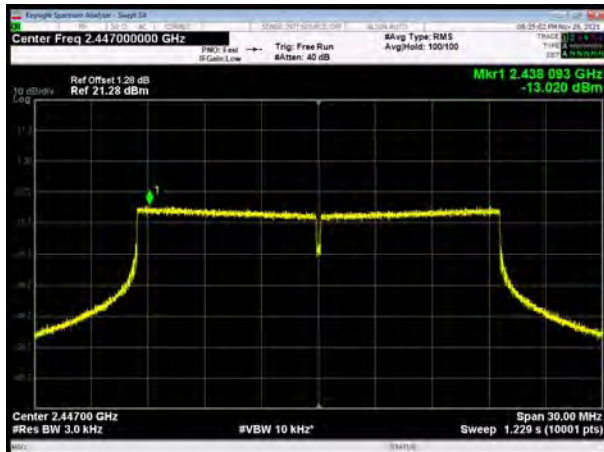
802.11ax(HE20), Carrier frequency (MHz):2432



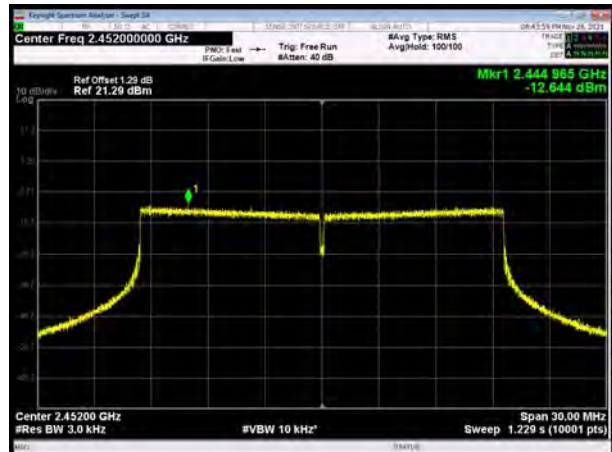
802.11ax(HE20), Carrier frequency (MHz): 2437



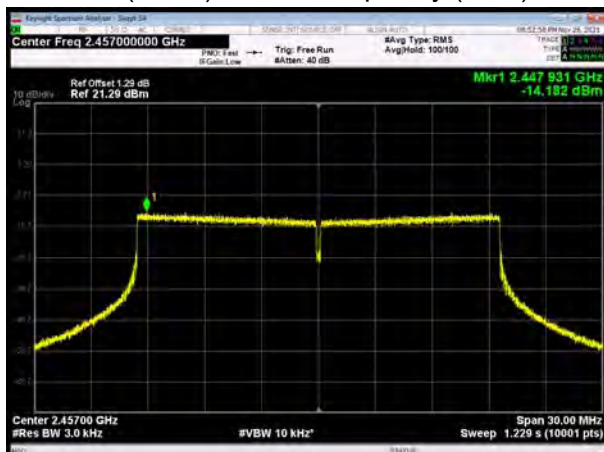
802.11ax(HE20), Carrier frequency (MHz): 2447



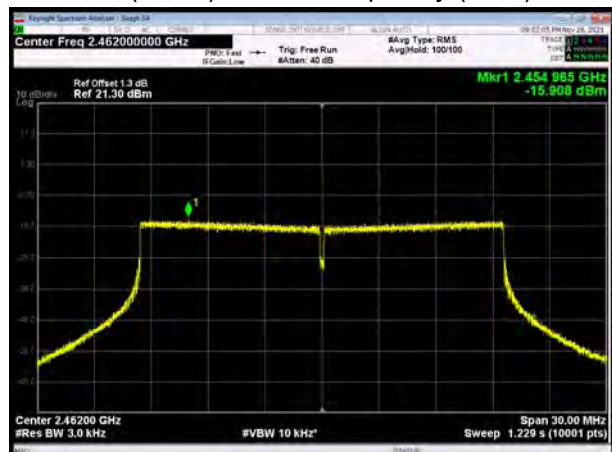
802.11ax(HE20), Carrier frequency (MHz): 2452



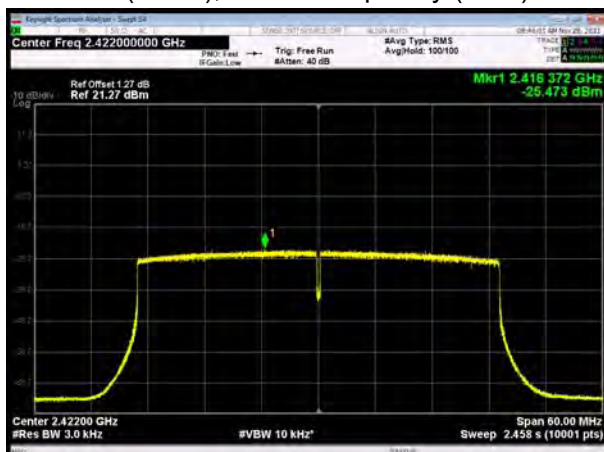
802.11ax(HE20), Carrier frequency (MHz): 2457



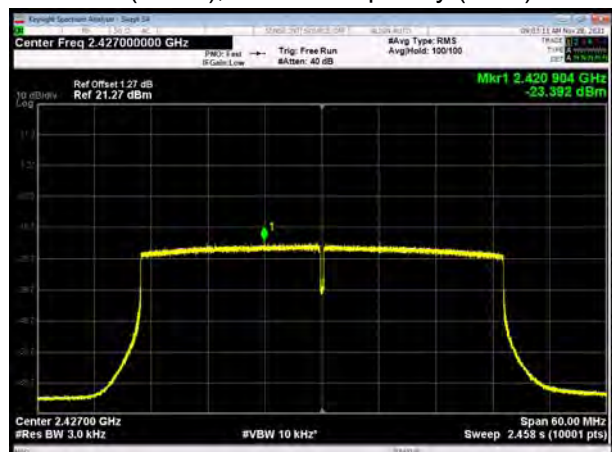
802.11ax(HE20), Carrier frequency (MHz): 2462



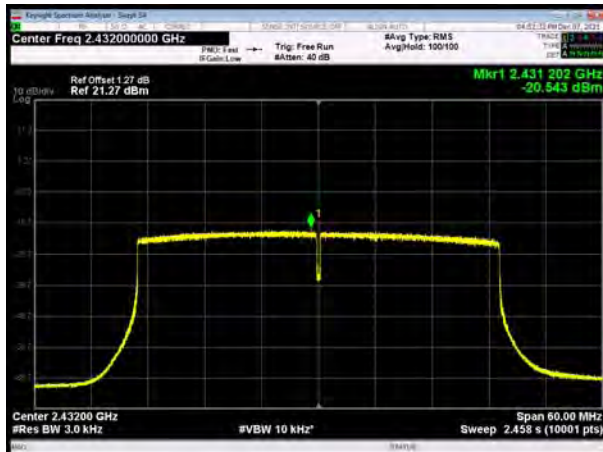
802.11ax(HE40), Carrier frequency (MHz): 2422



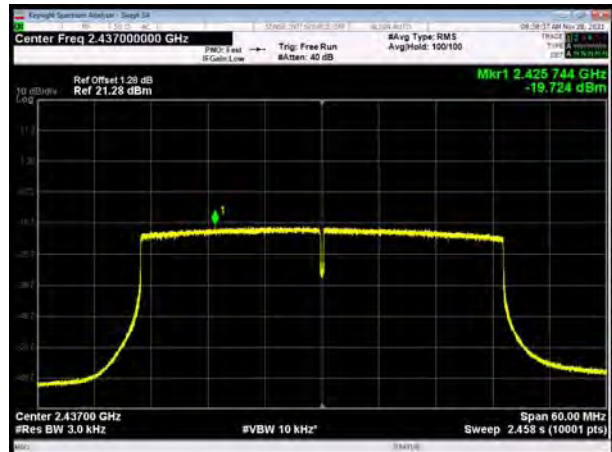
802.11ax(HE40), Carrier frequency (MHz): 2427



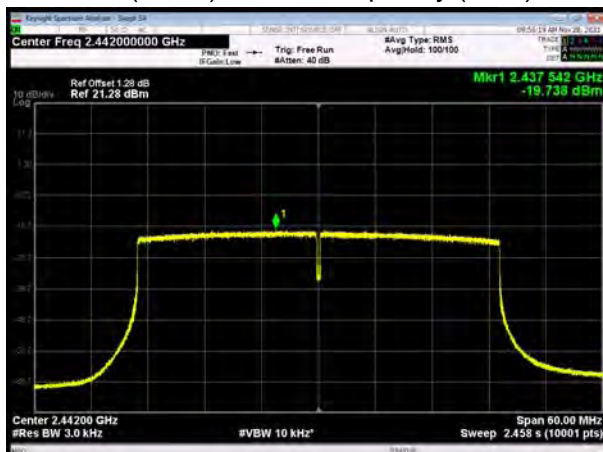
802.11ax(HE40), Carrier frequency (MHz): 2432



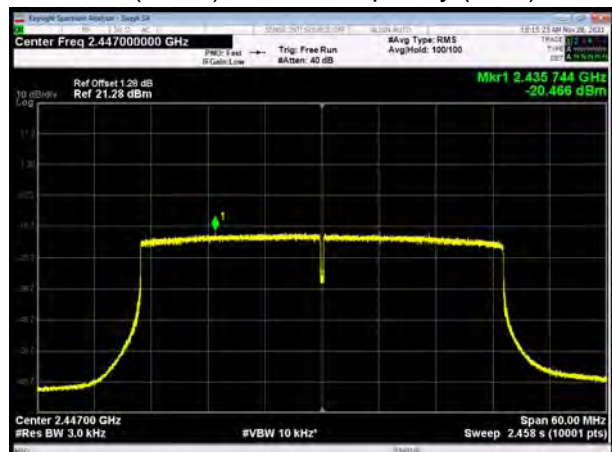
802.11ax(HE40), Carrier frequency (MHz): 2437



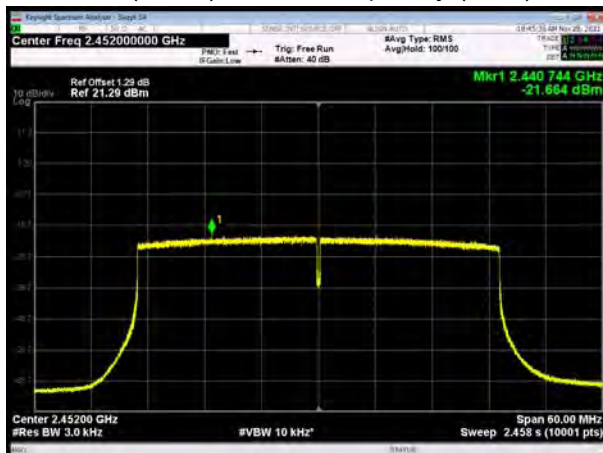
802.11ax(HE40), Carrier frequency (MHz): 2442



802.11ax(HE40), Carrier frequency (MHz): 2447



802.11ax(HE40), Carrier frequency (MHz): 2452

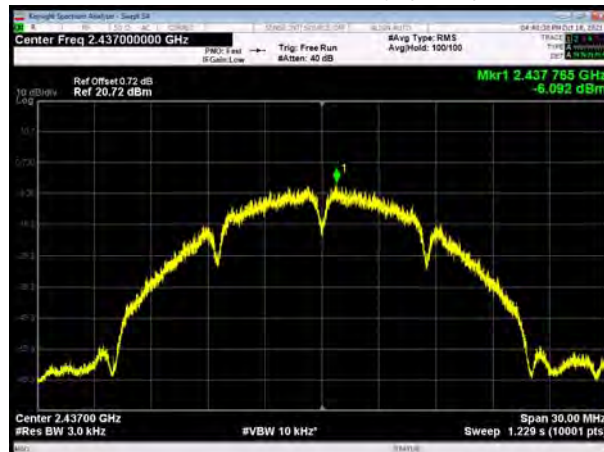


MIMO Antenna 2

802.11b, Carrier frequency (MHz): 2412



802.11b, Carrier frequency (MHz): 2437



802.11b, Carrier frequency (MHz): 2462

