RF TEST REPORT

Applicant	ZTE Corporation
FCC ID	SRQ-MC801A
Product	5G CPE
Model	MC801A
Report No.	R2112A1085-R6
Issue Date	January 8, 2022

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.

Prepared by: Peng Tao

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

1. Test Laboratory 4
1.1. Notes of the test report 4
1.2. Test facility 4
1.3. Testing Location 4
2. General Description of Equipment under Test 5
2.1. Applicant and Manufacturer Information 5
2.2. General information 5
3. Applied Standards 6
4. Test Configuration 7
5. Test Case Results 9
5.1. Maximum output power 9
5.2. 99% Bandwidth and 6dB Bandwidth 14
5.3. Band Edge 22
5.4. Power Spectral Density 29
5.5. Spurious RF Conducted Emissions 46
5.6. Unwanted Emission 54
5.7. Conducted Emission 99
6. Main Test Instruments 102
ANNEX A: The EUT Appearance 103
ANNEX B: Test Setup Photos 104

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: December 4, 2021 ~ January 8, 2022 Date of Sample Received: December 1, 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
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
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	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2.2. General information

EUT Description	
Model	MC801A
IMEI	863671043881410
Hardware Version	MC801AHW-1.0.0
Software Version	BD_TLCMXMC801AV1.0.0B01
Power Supply	AC adapter
Antenna Type	Internal Antenna
Antenna Gain	2.5dBi
additional beamforming gain	NA
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: 21.33dBm
EUT Accessory	
Adapter 1	Manufacturer: Shenzhen Ruijing Industrial Co.,Ltd Model: STC-A1215C55-C
Adapter 2	Manufacturer: Shenzhen Dokocom Energy Technology Co., Ltd. Model: STC-A1215C55-C
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.	

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		
	Antenna 1	Antenna 2	CDD/MIMO
802.11b	1 Mbps	1 Mbps	1 Mbps
802.11g	6 Mbps	6 Mbps	6 Mbps
802.11n HT20	MCS0	MCS0	MCS8
802.11n HT40	MCS0	MCS0	MCS8
802.11ax HE20	MCS0	MCS0	MCS0
802.11ax HE40	MCS0	MCS0	MCS0

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

Test Cases	Antenna 1	Antenna 2	MIMO
Maximum conducted output power	O	O	O
6dB Bandwidth	--	--	O
Band Edge	--	--	O
Power Spectral Density	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 was selected as the worst antenna.

5. Test Case Results

5.1. Maximum output power

Ambient condition

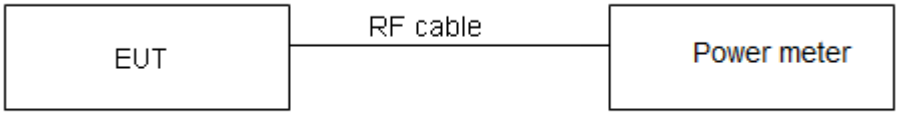
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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	≤ 1W (30dBm)

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

SISO Antenna Power Index								
Antenna	Channel	802.11b	802.11g	802.11n HT20	802.11ax HE20	Channel	802.11n HT40	802.11ax HE40
Antenna 1	CH1	18	10	12	10	CH3	12	7
	CH6	18	10	12	10	CH6	12	7
	CH11	18	10	12	10	CH9	12	7
Antenna 2	CH1	18	10	12	10	CH3	12	7
	CH6	18	10	12	10	CH6	12	7
	CH11	18	10	12	10	CH9	12	7
CDD/MIMO Antenna Power Index								
Antenna	Channel	802.11b	802.11g	802.11n HT20	802.11ax HE20	Channel	802.11n HT40	802.11ax HE40
Antenna 1	CH1	18	10	12	10	CH3	12	7
	CH6	18	10	12	10	CH6	12	7
	CH11	18	10	12	10	CH9	12	7
Antenna 2	CH1	18	10	12	10	CH3	12	7
	CH6	18	10	12	10	CH6	12	7
	CH11	18	10	12	10	CH9	12	7

Test Mode	T_{on} (ms)	$T_{(on+off)}$ (ms)	Duty cycle	Duty cycle correction Factor(dB)
802.11b	0.69	0.70	0.98	0.00
802.11g	1.00	1.00	1.00	0.00
802.11n HT20	1.00	1.00	1.00	0.00
802.11n HT40	1.00	1.00	1.00	0.00
802.11ax HE20	1.00	1.00	1.00	0.00
802.11ax HE40	1.00	1.00	1.00	0.00
Note: when Duty cycle≥0.98, Duty cycle correction Factor not required.				

SISO Antenna 1

Test Mode	Carrier frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11b	2412	17.27	17.27	30	PASS
	2437	17.85	17.85	30	PASS
	2462	17.50	17.50	30	PASS
802.11g	2412	10.15	10.15	30	PASS
	2437	10.21	10.21	30	PASS
	2462	10.45	10.45	30	PASS
802.11n HT20	2412	11.64	11.64	30	PASS
	2437	11.91	11.91	30	PASS
	2462	12.29	12.29	30	PASS
802.11n HT40	2422	12.01	12.01	30	PASS
	2437	12.27	12.27	30	PASS
	2452	12.34	12.34	30	PASS
802.11ax HE20	2412	9.49	9.49	30	PASS
	2437	9.63	9.63	30	PASS
	2462	9.93	9.93	30	PASS
802.11ax HE40	2422	6.56	6.56	30	PASS
	2437	6.82	6.82	30	PASS
	2452	6.93	6.93	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

SISO Antenna 2

Test Mode	Carrier frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11b	2412	17.25	17.25	30	PASS
	2437	17.17	17.17	30	PASS
	2462	17.67	17.67	30	PASS
802.11g	2412	9.61	9.61	30	PASS
	2437	9.85	9.85	30	PASS
	2462	9.81	9.81	30	PASS
802.11n HT20	2412	11.60	11.60	30	PASS
	2437	11.92	11.92	30	PASS
	2462	11.76	11.76	30	PASS
802.11n HT40	2422	11.54	11.54	30	PASS
	2437	11.53	11.53	30	PASS
	2452	12.01	12.01	30	PASS
802.11ax HE20	2412	9.47	9.47	30	PASS
	2437	9.51	9.51	30	PASS
	2462	9.56	9.56	30	PASS
802.11ax HE40	2422	6.21	6.21	30	PASS
	2437	6.45	6.45	30	PASS
	2452	6.74	6.74	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

CDD/MIMO Antenna

Test Mode	Carrier frequency (MHz)	MIMO Antenna 1		MIMO Antenna 2		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)			
802.11b HT20	2412	17.94	17.94	18.36	18.36	21.17	30	PASS
	2437	18.37	18.37	18.10	18.10	21.24	30	PASS
	2462	18.18	18.18	18.46	18.46	21.33	30	PASS
802.11g HT20	2412	9.71	9.71	9.80	9.80	12.77	30	PASS
	2437	9.84	9.84	9.89	9.89	12.88	30	PASS
	2462	9.91	9.91	9.96	9.96	12.95	30	PASS
802.11n HT20	2412	11.54	11.54	11.64	11.64	14.60	30	PASS
	2437	11.46	11.46	11.96	11.96	14.73	30	PASS
	2462	11.38	11.38	11.87	11.87	14.64	30	PASS
802.11n HT40	2422	11.67	11.67	11.58	11.58	14.64	30	PASS
	2437	11.94	11.94	11.65	11.65	14.81	30	PASS
	2452	11.88	11.88	11.53	11.53	14.72	30	PASS
802.11ax HE20	2412	9.82	9.82	9.51	9.51	12.68	30	PASS
	2437	9.68	9.68	9.60	9.60	12.65	30	PASS
	2462	10.01	10.01	9.67	9.67	12.85	30	PASS
802.11ax HE40	2422	6.26	6.26	6.25	6.25	9.27	30	PASS
	2437	6.76	6.76	6.43	6.43	9.61	30	PASS
	2452	6.87	6.87	6.78	6.78	9.84	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 $=10\log(10^{(\text{Power antenna1 in dBm/10})}+10^{(\text{Power antenna2 in dBm/10})})$.

3. The manufacturer declared the transmitter output signals is CDD mode. And $N_{ss}=1$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain,

Directional gain = G_{ANT} + Array Gain,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = G_{ANT} + Array Gain =2.5+0=2.5dBi<6dBi. So the power limit is 30dBm

5.2. 99% Bandwidth and 6dB Bandwidth

Ambient condition

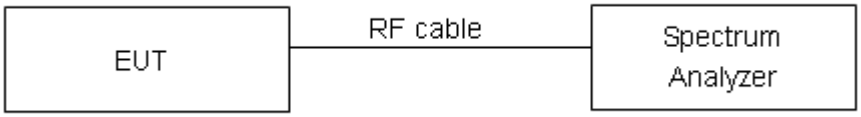
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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

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.

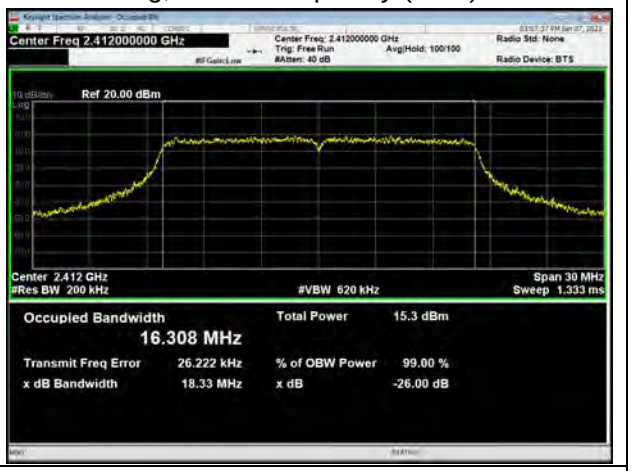
Test Results:

Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11b	2412	12.852	7.082	500	PASS
	2437	12.790	7.131	500	PASS
	2462	12.881	7.558	500	PASS
802.11g	2412	16.308	16.000	500	PASS
	2437	16.316	16.287	500	PASS
	2462	16.337	16.324	500	PASS
802.11n HT20	2412	17.482	16.575	500	PASS
	2437	17.506	16.758	500	PASS
	2462	17.535	17.526	500	PASS
802.11n HT40	2422	35.949	35.882	500	PASS
	2437	35.880	34.047	500	PASS
	2452	35.936	31.570	500	PASS
802.11ax HE20	2412	18.825	18.806	500	PASS
	2437	18.852	17.871	500	PASS
	2462	18.889	18.955	500	PASS
802.11ax HE40	2422	37.672	37.582	500	PASS
	2437	37.616	36.299	500	PASS
	2452	37.630	35.369	500	PASS

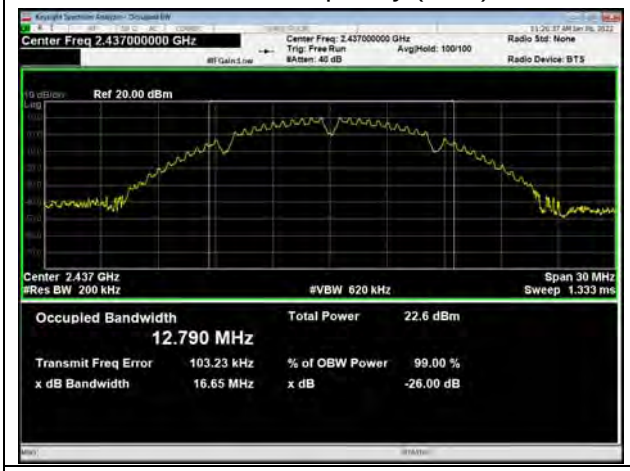
99%bandwidth

802.11b, Carrier frequency (MHz): 2412

802.11g, Carrier frequency (MHz): 2412



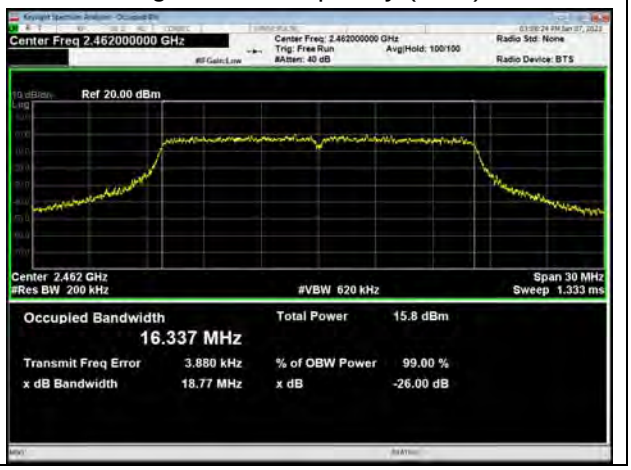
802.11b, Carrier frequency (MHz): 2437



802.11g, Carrier frequency (MHz): 2437

802.11b, Carrier frequency (MHz):2462

802.11g, Carrier frequency (MHz):2462



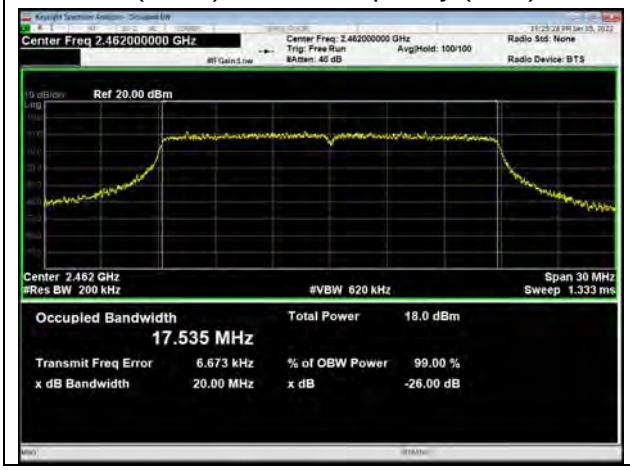
802.11n(HT20), Carrier frequency (MHz): 2412

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

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

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

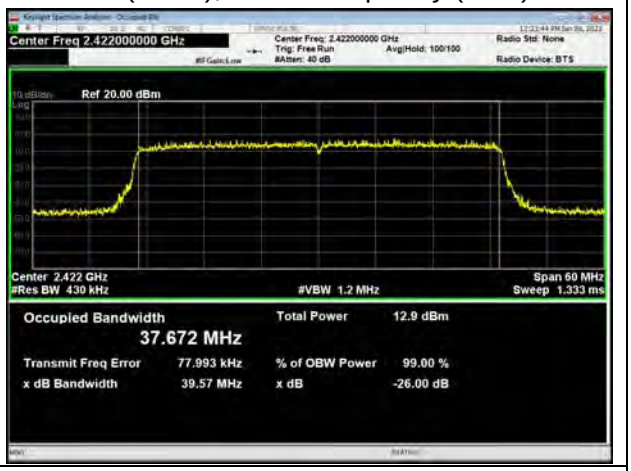
802.11n(HT20), Carrier frequency (MHz):2462



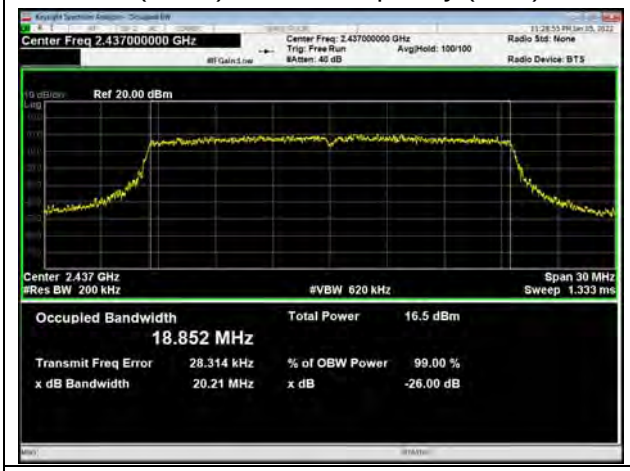
802.11n(HT40), Carrier frequency (MHz):2452

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

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

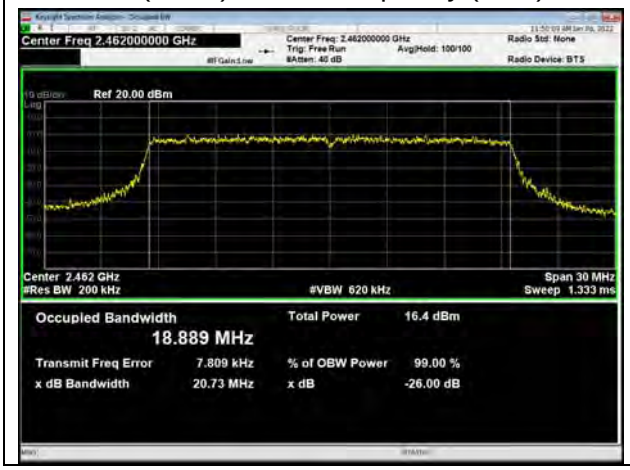


802.11ax(HE20), Carrier frequency (MHz): 2437

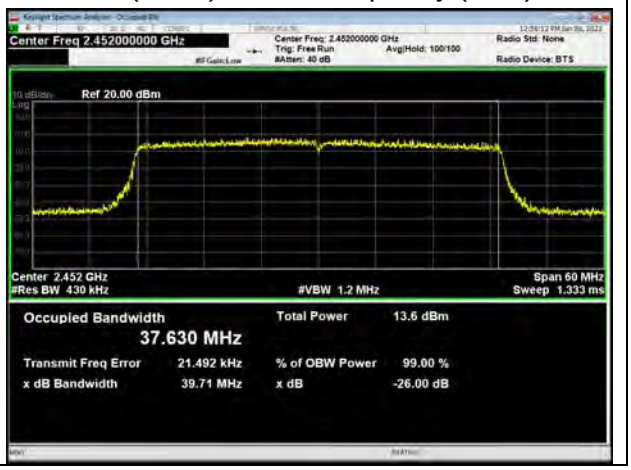


802.11ax(HE40), Carrier frequency (MHz): 2437

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



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



6 dB bandwidth

802.11b, Carrier frequency (MHz): 2412

802.11g, Carrier frequency (MHz): 2412

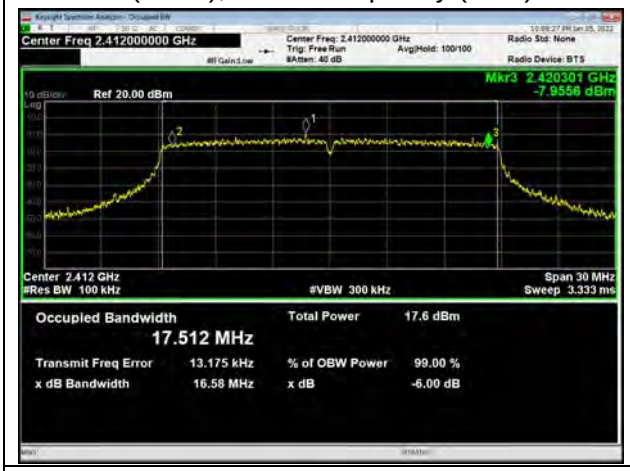
802.11b, Carrier frequency (MHz): 2437

802.11g, Carrier frequency (MHz): 2437

802.11b, Carrier frequency (MHz):2462

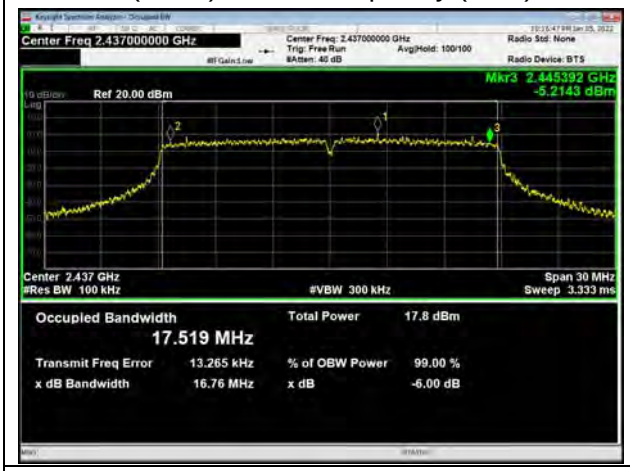
802.11g, Carrier frequency (MHz):2462

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



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

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



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

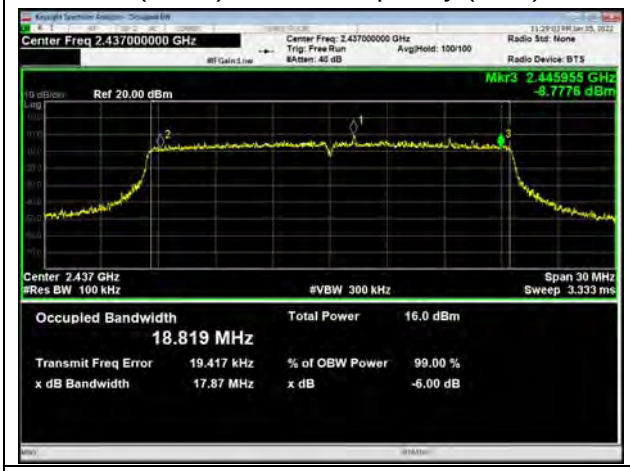
802.11n(HT20), Carrier frequency (MHz):2462

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

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

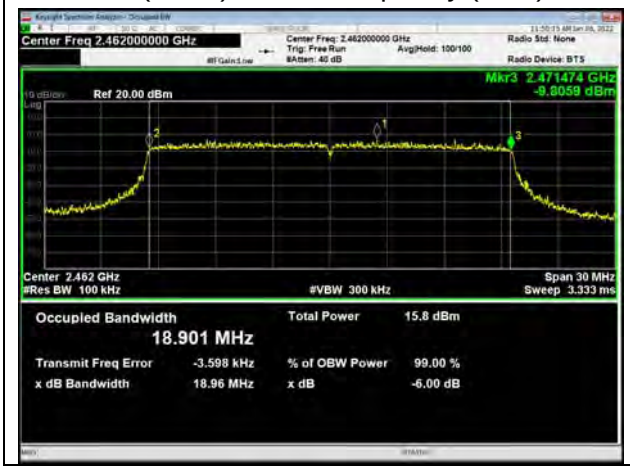
802.11ax(HE40), Carrier frequency (MHz): 2422

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

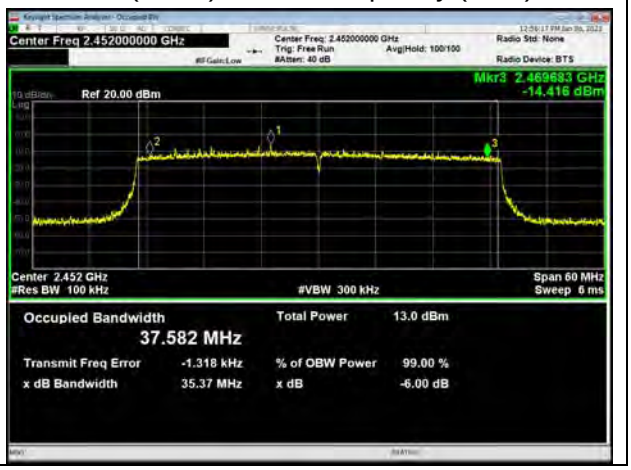


802.11ax(HE40), Carrier frequency (MHz): 2437

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



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



5.3. Band Edge

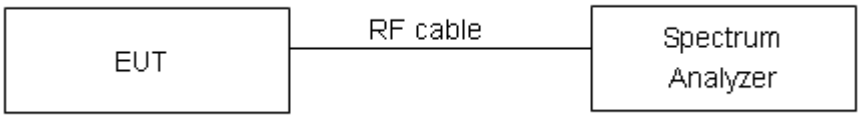
Ambient condition

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.”

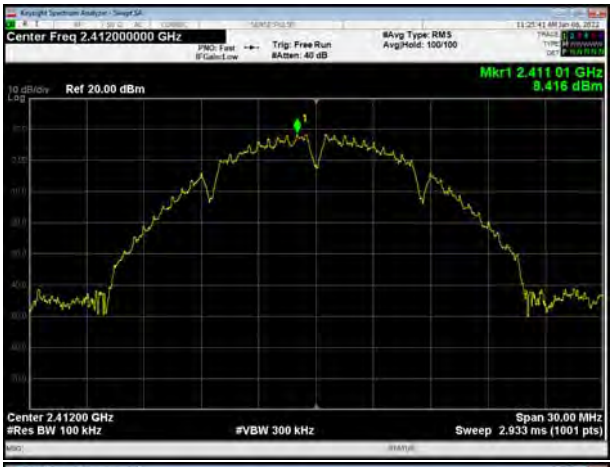
Measurement Uncertainty

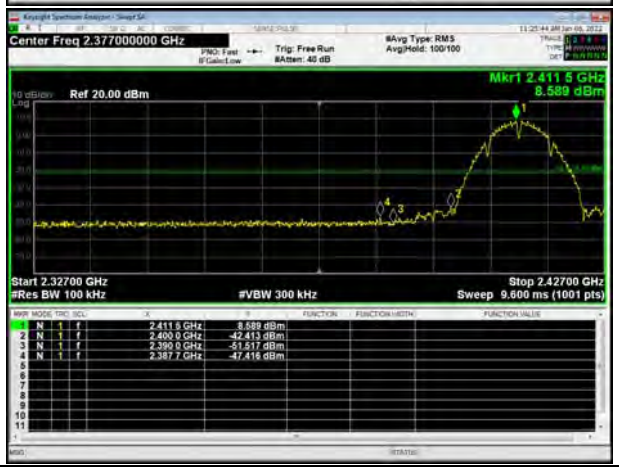
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
2GHz-3GHz	1.407 dB

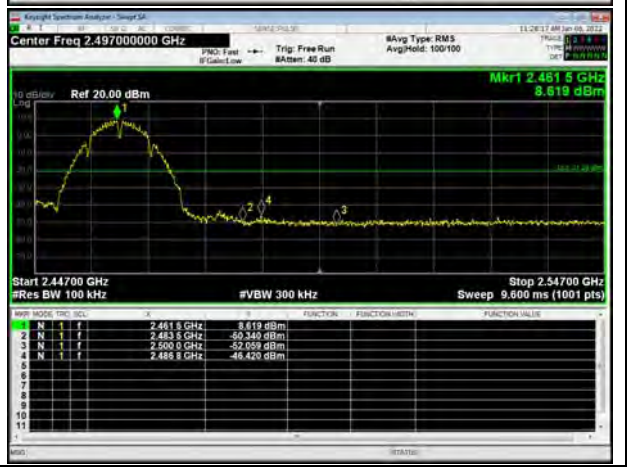
Test Results: PASS

802.11b, Channel No.: 1

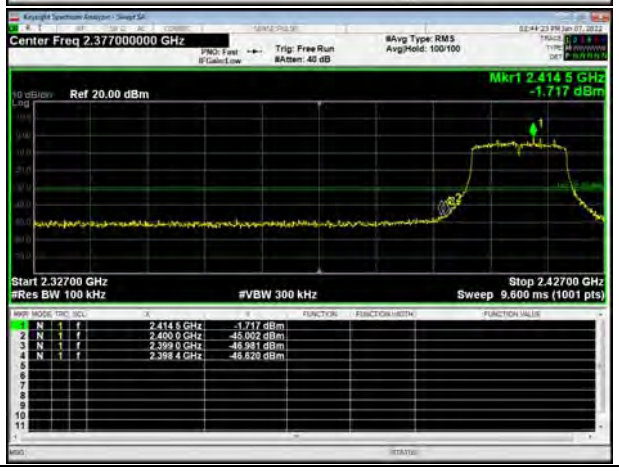




802.11b, Channel No.: 11

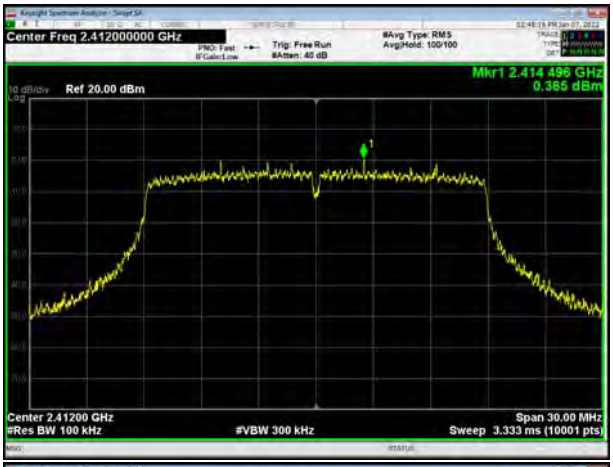


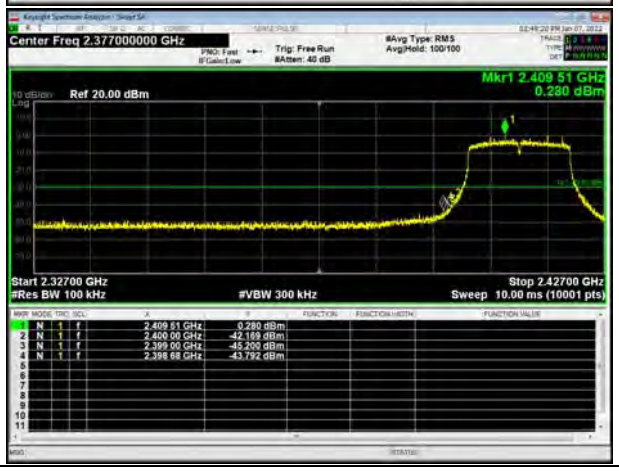
802.11g, Channel No.: 1



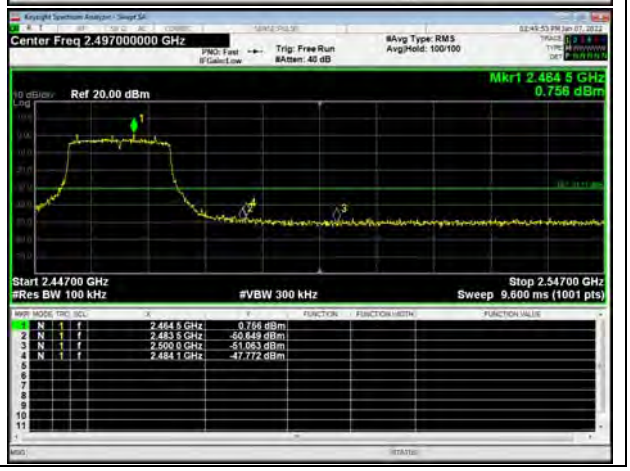
802.11g, Channel No.: 11

802.11n(HT20), Channel No.: 1

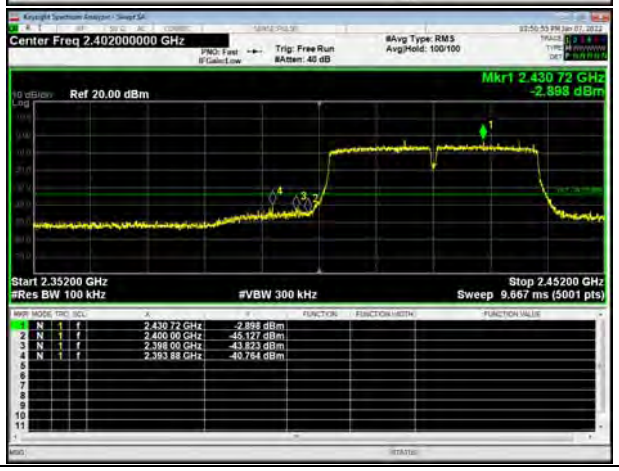




802.11n(HT20), Channel No.: 11

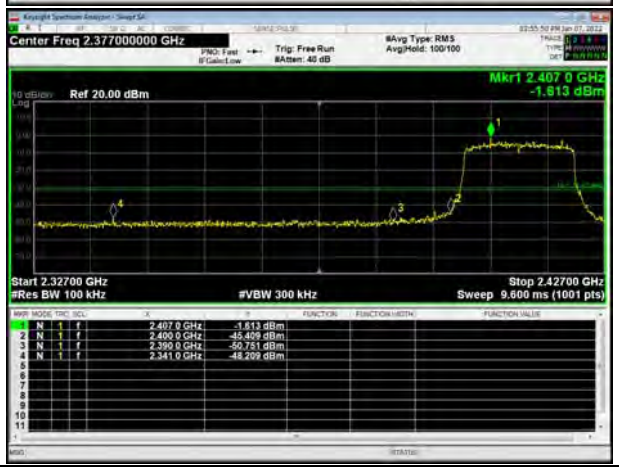


802.11n(HT40), Channel No.: 3



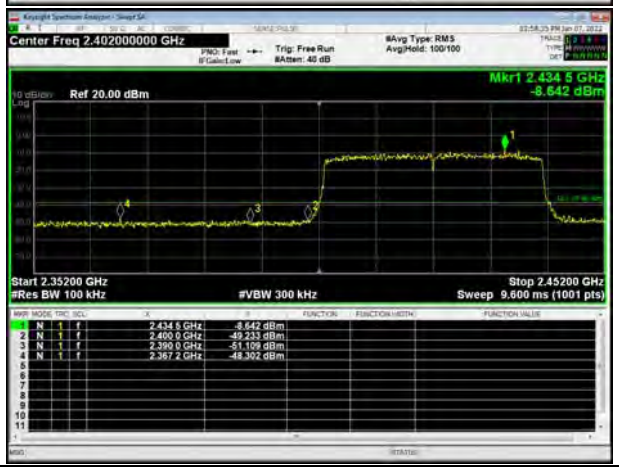
802.11n(HT40), Channel No.: 9

802.11ax(HE20), Channel No.: 1



802.11ax(HE20), Channel No.: 11

802.11ax(HE40), Channel No.: 3



802.11ax(HE40), Channel No.: 9

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-1 was used for this test.

a) Set instrument center frequency to DTS channel center frequency

b) Set span to at least 1.5 times the OBW

c) Set RBW to:3kHz≤RBW≤100kHz

d) Set VBW≥[3x RBW]

e) Detector=power averaging(rms) or sample detector(when rms not available)

f) Ensure that the number of measurement points in the sweep 2[2 X span/RBWT]

g)Sweep time auto couple

h) Employ trace averaging(rms) mode over a minimum of 100 traces

i) Use the peak marker function to determine the maximum amplitude level.

j) If the measured value exceeds requirement, then reduce RBW (but no 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)

Method AVGPSD-2 was used for this test.

a) Measure the duty cycle(D)of the transmitter output signal as described in 11.6

b) Set instrument center frequency to DTS channel center frequency

c)Set span to at least 1.5 times the OBW

d) Set RBW to:3kHz≤RBW≤100Kh

e) Set VBW≥[3x RBW]

f)Detector= power averaging(rms) or sample detector (when rms not available)

g) Ensure that the number of measurement points in the sweep 2[2 X span/RBW]

h) Sweep time =auto couple

i) Do not use sweep triggering; allow sweep to "free run”

j) Employ trace averaging(rms) mode over a minimum of 100 traces

k) Use the peak marker function to determine the maximum amplitude level

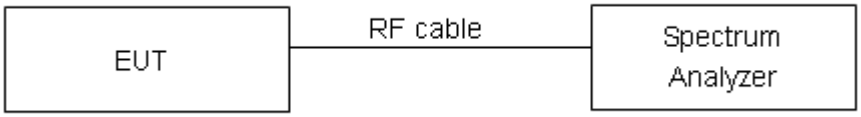
l) Add [10 log(1/ D)], where D is the duty cycle measured in step a), to the measured PSD to

compute the average PSD during the actual transmission time

m) 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	≤ 8 dBm / 3kHz

Measurement Uncertainty

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

Test Results:

SISO Antenna 1

Test Mode	Channel Number	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
802.11b	1	-13.29	-13.29	8	PASS
	6	-11.62	-11.62	8	PASS
	11	-12.36	-12.36	8	PASS
802.11g	1	-25.33	-25.33	8	PASS
	6	-24.82	-24.82	8	PASS
	11	-25.41	-25.41	8	PASS
802.11n HT20	1	-23.40	-23.40	8	PASS
	6	-23.07	-23.07	8	PASS
	11	-23.01	-23.01	8	PASS
802.11n HT40	3	-26.46	-26.46	8	PASS
	6	-25.78	-25.78	8	PASS
	9	-25.33	-25.33	8	PASS
802.11ax HE20	1	-26.79	-26.79	8	PASS
	6	-26.10	-26.10	8	PASS
	11	-26.60	-26.60	8	PASS
802.11ax HE40	3	-33.53	-33.53	8	PASS
	6	-32.60	-32.60	8	PASS
	9	-32.28	-32.28	8	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

SISO Antenna 2

Test Mode	Channel Number	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
802.11b	1	-12.73	-12.73	8	PASS
	6	-13.02	-13.02	8	PASS
	11	-12.60	-12.60	8	PASS
802.11g	1	-24.99	-24.99	8	PASS
	6	-24.82	-24.82	8	PASS
	11	-25.23	-25.23	8	PASS
802.11n HT20	1	-22.88	-22.88	8	PASS
	6	-22.77	-22.77	8	PASS
	11	-23.24	-23.24	8	PASS
802.11n HT40	3	-26.94	-26.94	8	PASS
	6	-26.02	-26.02	8	PASS
	9	-25.87	-25.87	8	PASS
802.11ax HE20	1	-25.51	-25.51	8	PASS
	6	-27.38	-27.38	8	PASS
	11	-27.00	-27.00	8	PASS
802.11ax HE40	3	-33.70	-33.70	8	PASS
	6	-32.68	-32.68	8	PASS
	9	-32.51	-32.51	8	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

CDD/MIMO Antenna

Test Mode	Channel Number	Power Spectral Density				Total PSD	Limit (dBm / 3kHz)	Conclusion
		Antenna 1		Antenna 2				
		Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	(dBm / 3kHz)		
802.11b	1	-10.29	-10.29	-10.42	-10.42	-7.34	8	PASS
	6	-9.28	-9.28	-10.08	-10.08	-6.65	8	PASS
	11	-9.90	-9.90	-9.47	-9.47	-6.67	8	PASS
802.11g	1	-27.08	-27.08	-26.76	-26.76	-23.91	8	PASS
	6	-26.70	-26.70	-26.49	-26.49	-23.58	8	PASS
	11	-26.59	-26.59	-27.22	-27.22	-23.88	8	PASS
802.11n HT20	1	-33.53	-33.53	-33.67	-33.67	-30.59	8	PASS
	6	-32.75	-32.75	-32.74	-32.74	-29.73	8	PASS
	11	-32.34	-32.34	-32.63	-32.63	-29.47	8	PASS
802.11n HT40	3	-25.33	-25.33	-24.95	-24.95	-22.13	8	PASS
	6	-24.95	-24.95	-24.90	-24.90	-21.91	8	PASS
	9	-24.87	-24.87	-25.41	-25.41	-22.12	8	PASS
802.11ax HE20	1	-23.84	-23.84	-23.81	-23.81	-20.81	8	PASS
	6	-23.35	-23.35	-23.27	-23.27	-20.30	8	PASS
	11	-23.36	-23.36	-23.82	-23.82	-20.57	8	PASS
802.11ax HE40	3	-26.67	-26.67	-26.90	-26.90	-23.77	8	PASS
	6	-26.02	-26.02	-26.16	-26.16	-23.08	8	PASS
	9	-25.62	-25.62	-25.99	-25.99	-22.79	8	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=$10\log(10^{(\text{PSD antenna1 in dBm/10})}+10^{(\text{PSD antenna2 in dBm/10})})$.

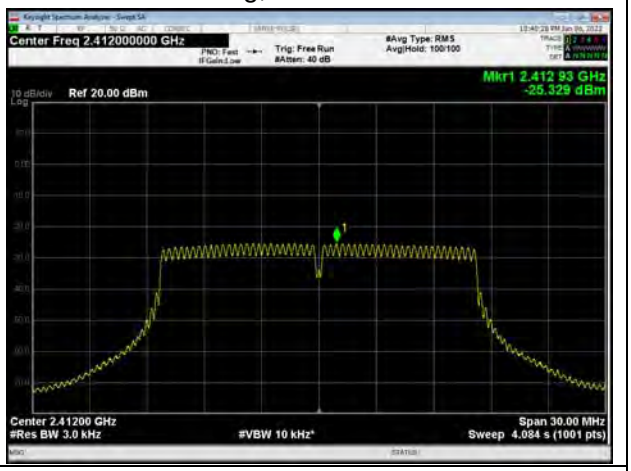
3. 3. The manufacturer declared the transmitter output signals is CDD mode. And N_{ss}=1. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain. For PSD measurements on all devices, Array Gain=10log(Nant/Nss)dB, so directional gain=G_{ANT}+Array Gain=2.5+10log(2/1)=5.51< 6dBi.

So the power limit is 8 dBm

SISO Antenna 1

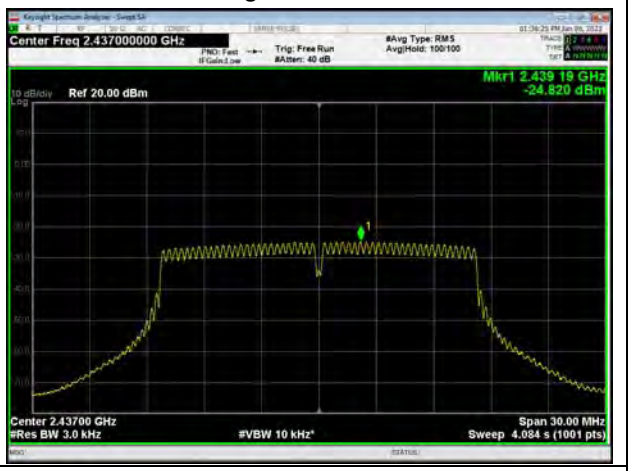
802.11b, Channel No.: 1

802.11g, Channel No.: 1



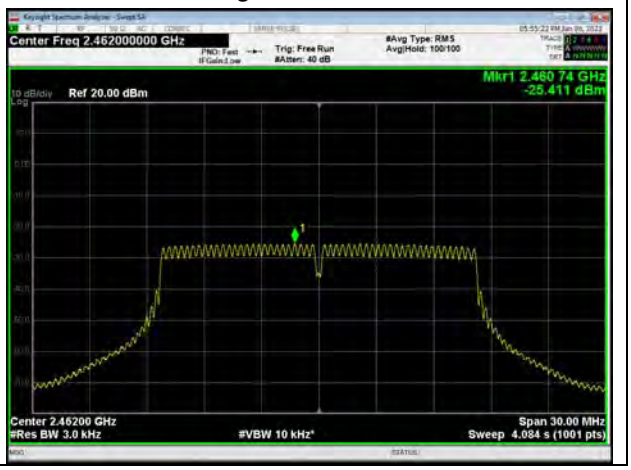
802.11b, Channel No.: 6

802.11g, Channel No.: 6

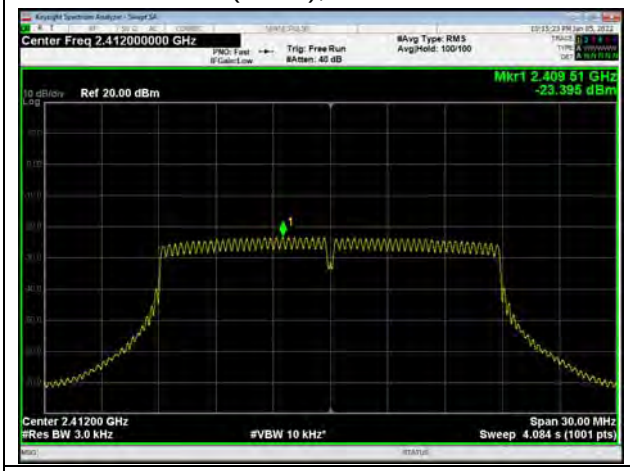


802.11b, Channel No.: 11

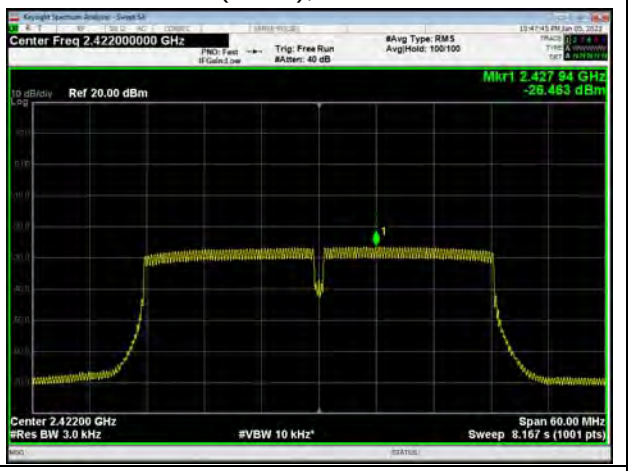
802.11g, Channel No.: 11



802.11n(HT20), Channel No. 1



802.11n(HT40), Channel No. 3

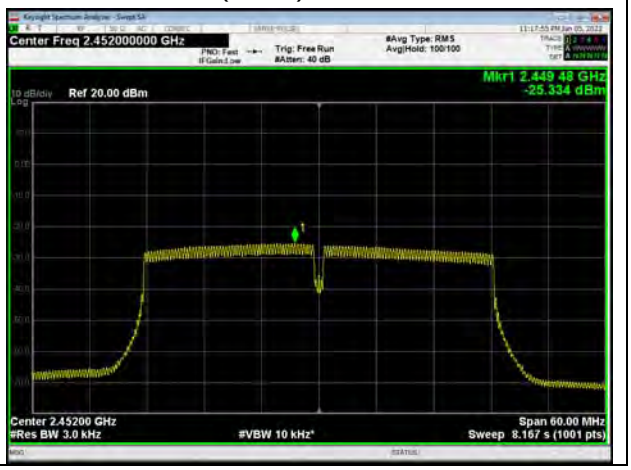


802.11n(HT20), Channel No. 6

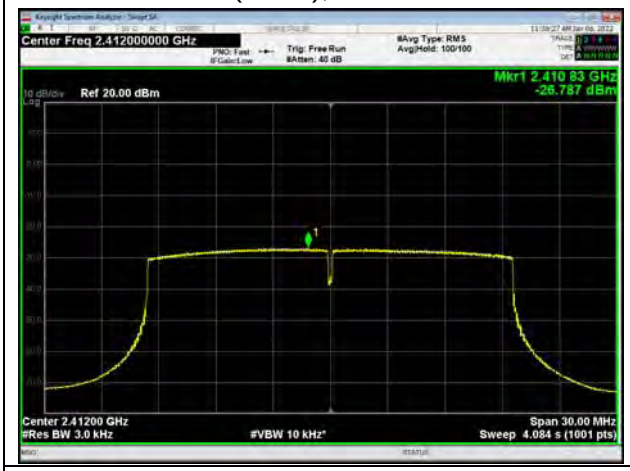
802.11n(HT40), Channel No. 6

802.11n(HT20), Channel No. 11

802.11n(HT40), Channel No. 9

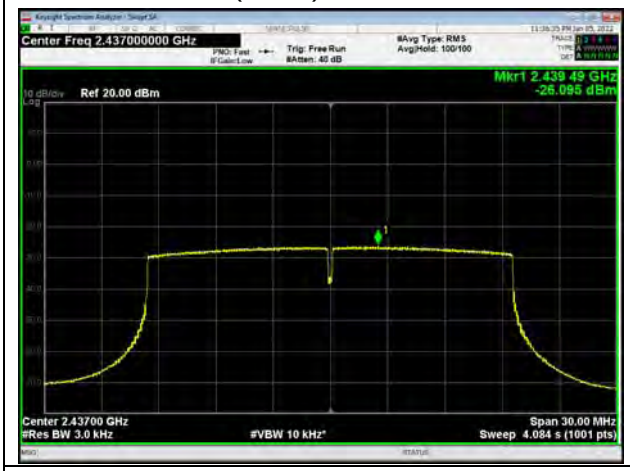


802.11ax(HE20), Channel No.: 1



802.11ax(HE40), Channel No.: 3

802.11ax(HE20), Channel No.: 6



802.11ax(HE40), Channel No.: 6

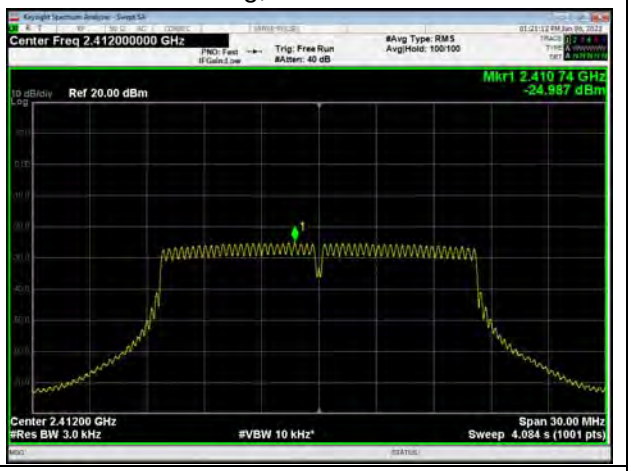
802.11ax(HE20), Channel No.: 11

802.11ax(HE40), Channel No.: 9

SISO Antenna 2

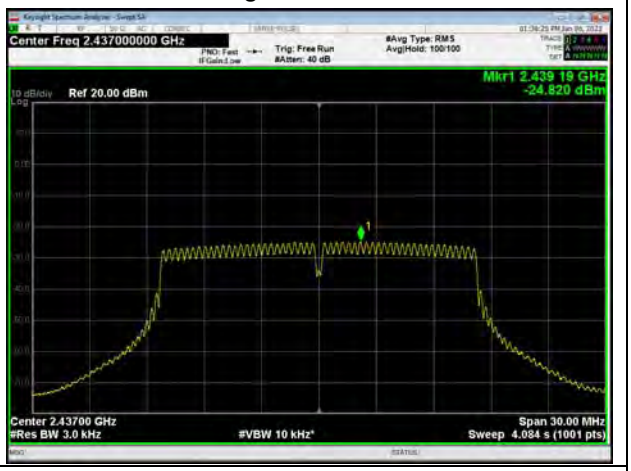
802.11b, Channel No.: 1

802.11g, Channel No.: 1



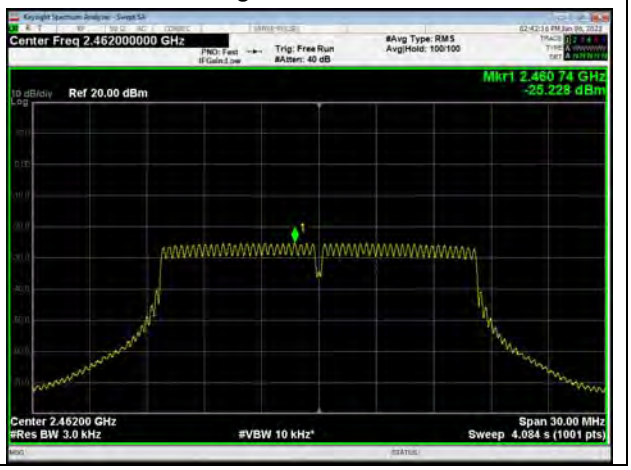
802.11b, Channel No.: 6

802.11g, Channel No.: 6

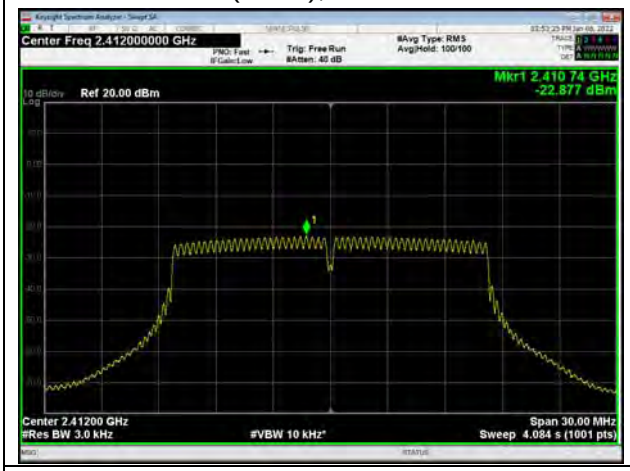


802.11b, Channel No.: 11

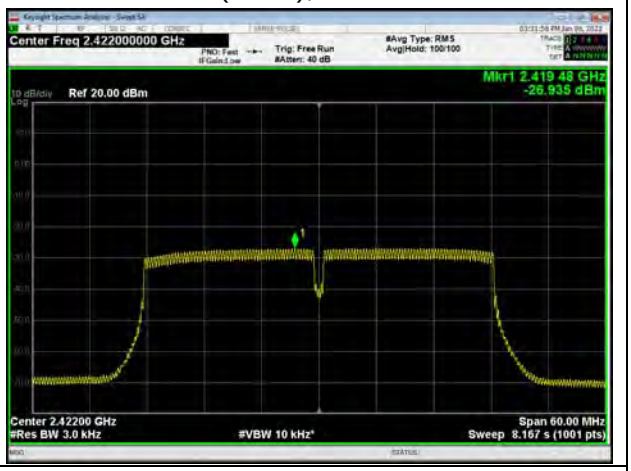
802.11g, Channel No.: 11



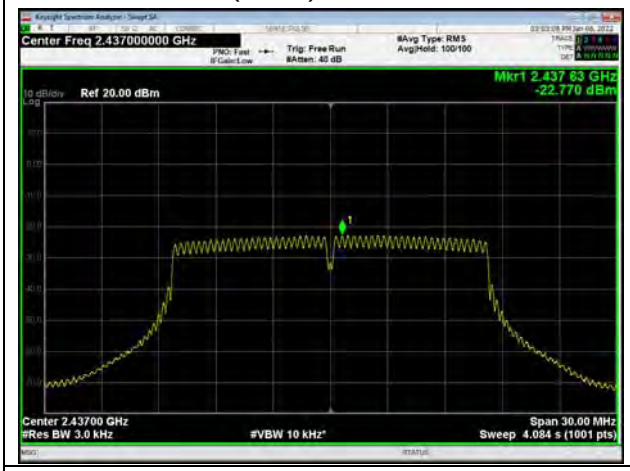
802.11n(HT20), Channel No. 1



802.11n(HT40), Channel No. 3

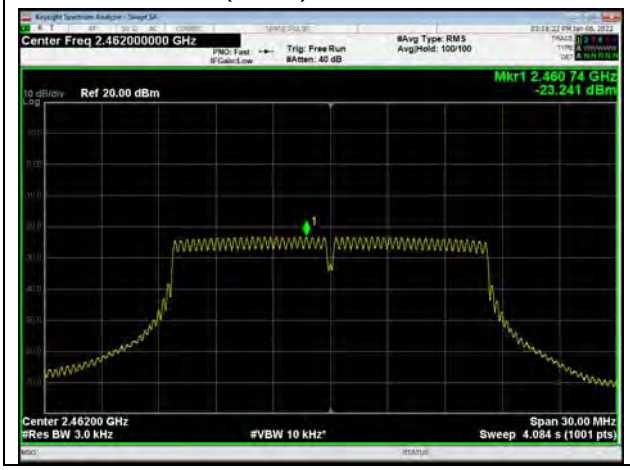


802.11n(HT20), Channel No. 6



802.11n(HT40), Channel No. 6

802.11n(HT20), Channel No. 11

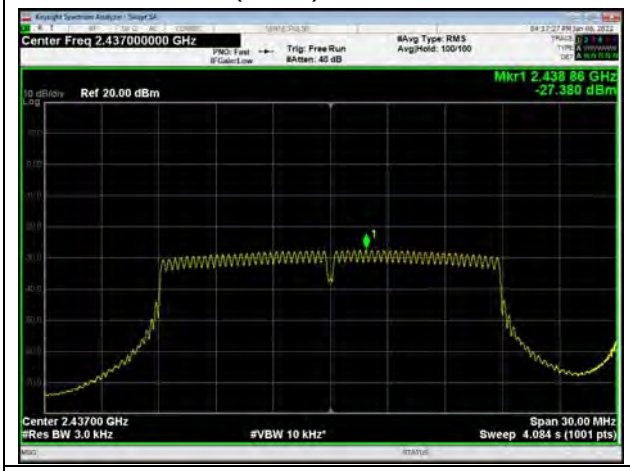


802.11n(HT40), Channel No. 9

802.11ax(HE20), Channel No.: 1

802.11ax(HE40), Channel No.: 3

802.11ax(HE20), Channel No.: 6



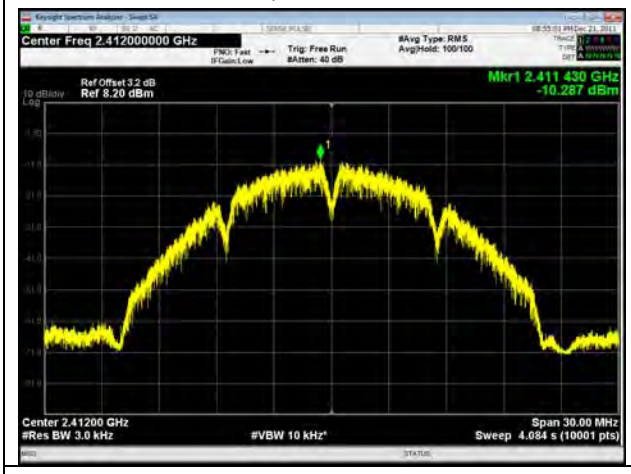
802.11ax(HE40), Channel No.: 6

802.11ax(HE20), Channel No.: 11

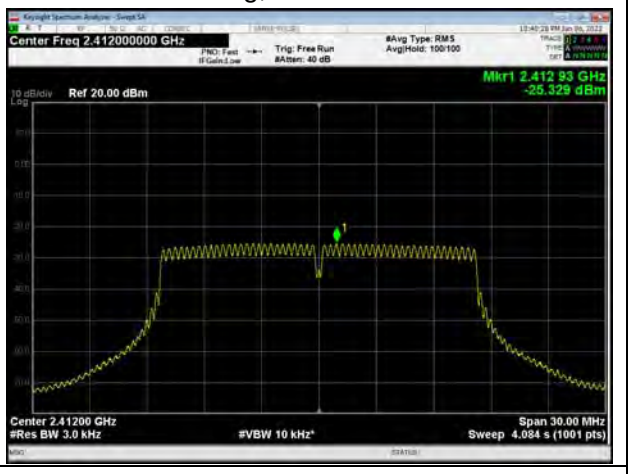
802.11ax(HE40), Channel No.: 9

CDD/MIMO Antenna 1

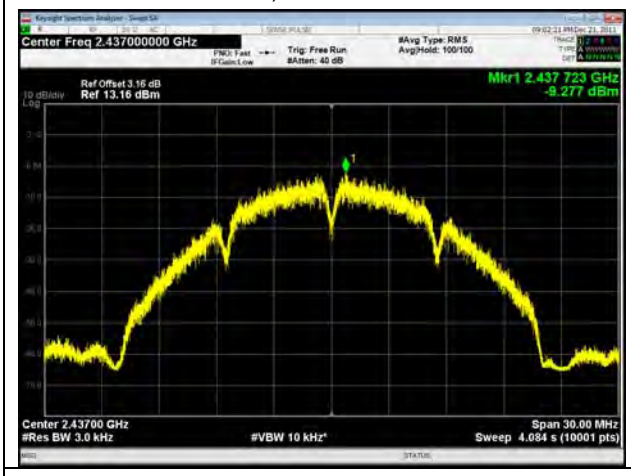
802.11b, Channel No.: 1



802.11g, Channel No.: 1

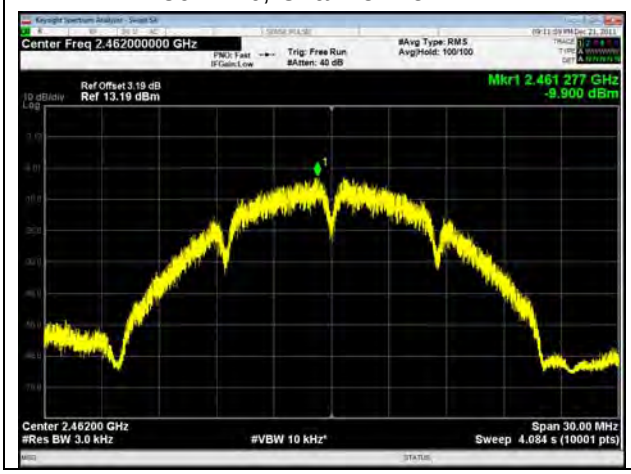


802.11b, Channel No.: 6

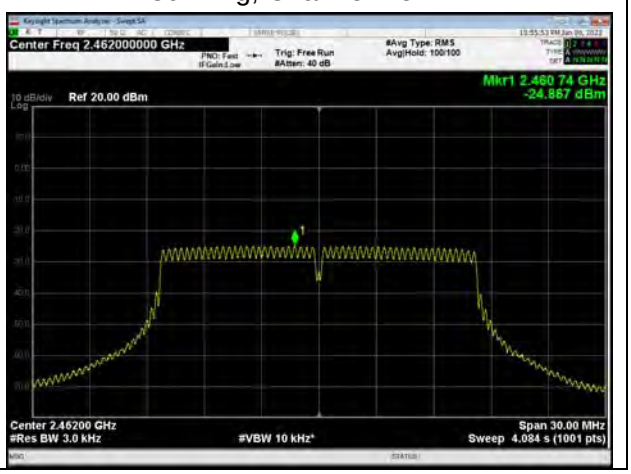


802.11g, Channel No.: 6

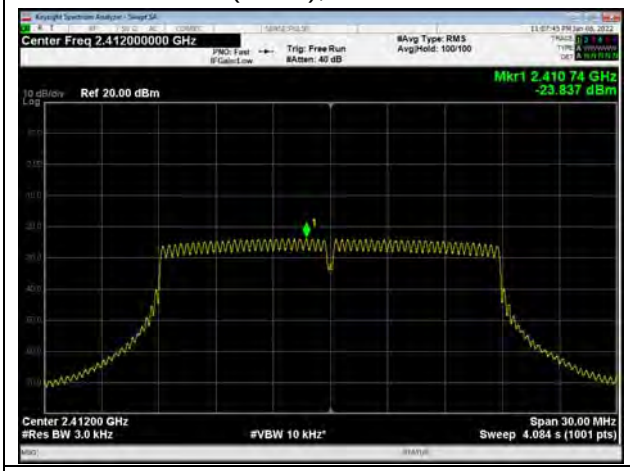
802.11b, Channel No.: 11



802.11g, Channel No.: 11

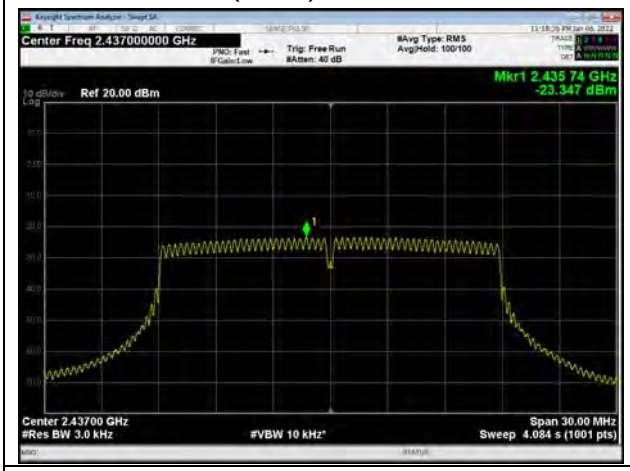


802.11n(HT20), Channel No. 1



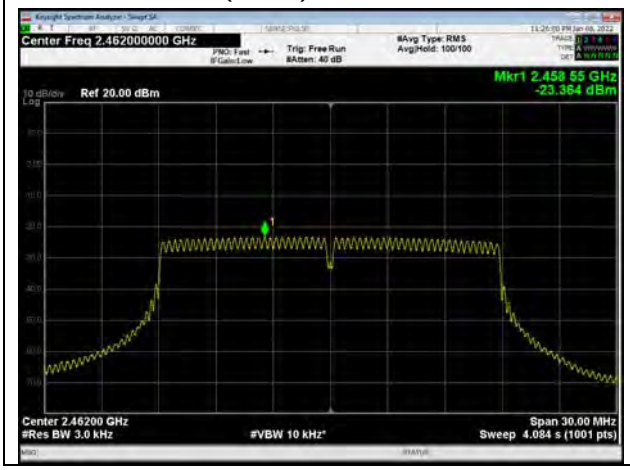
802.11n(HT40), Channel No. 3

802.11n(HT20), Channel No. 6

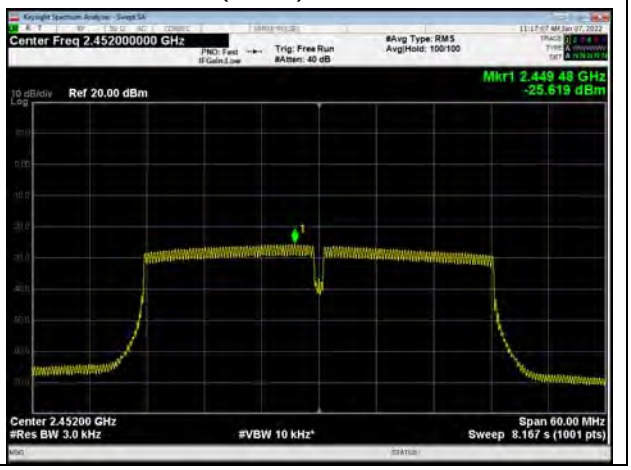


802.11n(HT40), Channel No. 6

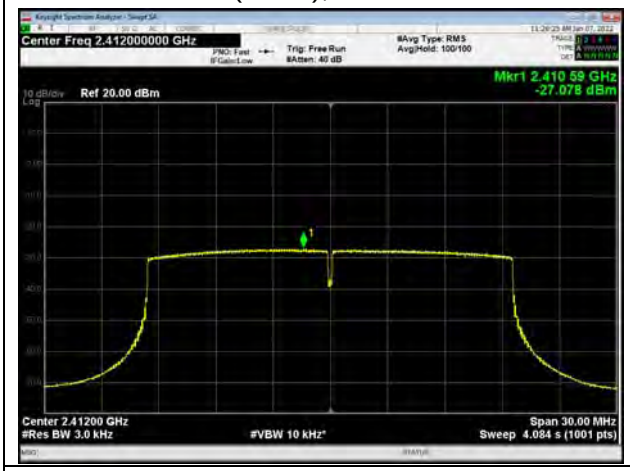
802.11n(HT20), Channel No. 11



802.11n(HT40), Channel No. 9

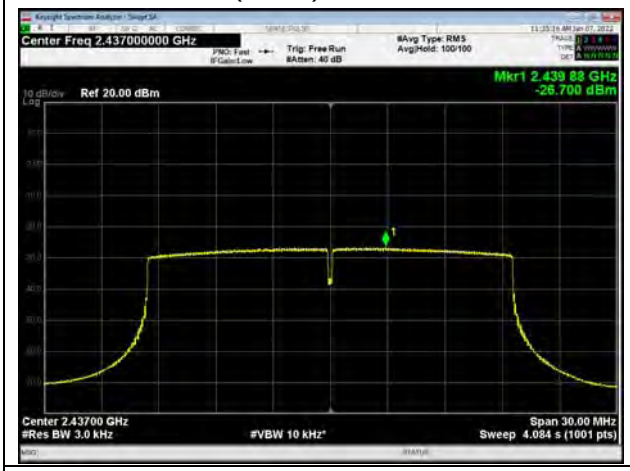


802.11ax(HE20), Channel No.: 1



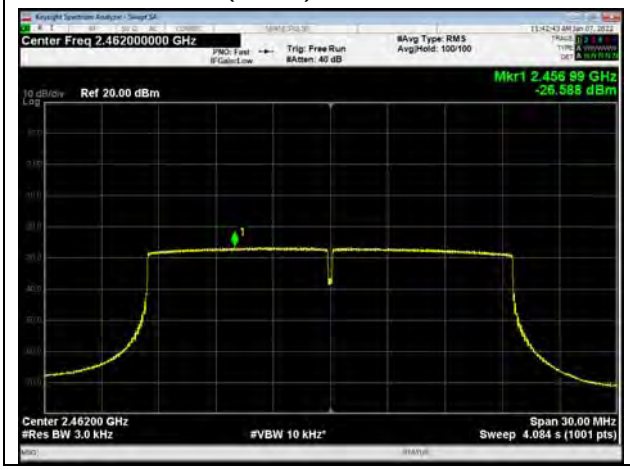
802.11ax(HE40), Channel No.: 3

802.11ax(HE20), Channel No.: 6



802.11ax(HE40), Channel No.: 6

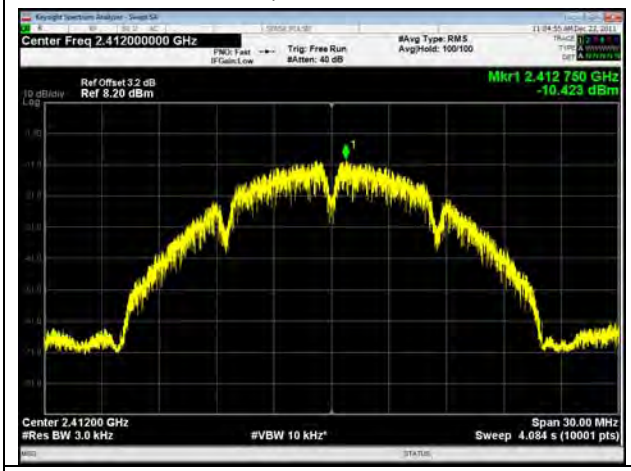
802.11ax(HE20), Channel No.: 11



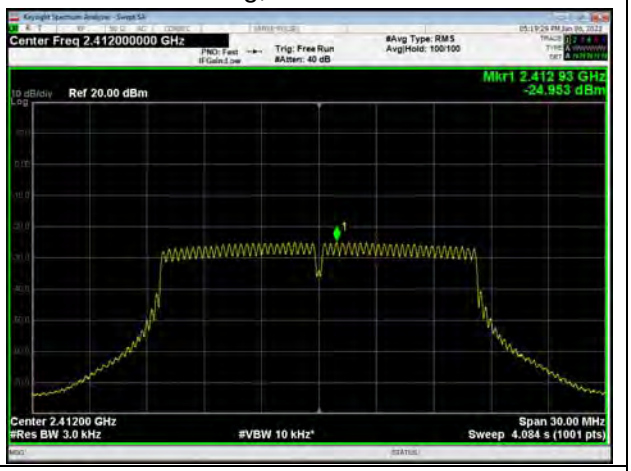
802.11ax(HE40), Channel No.: 9

CDD/MIMO Antenna 2

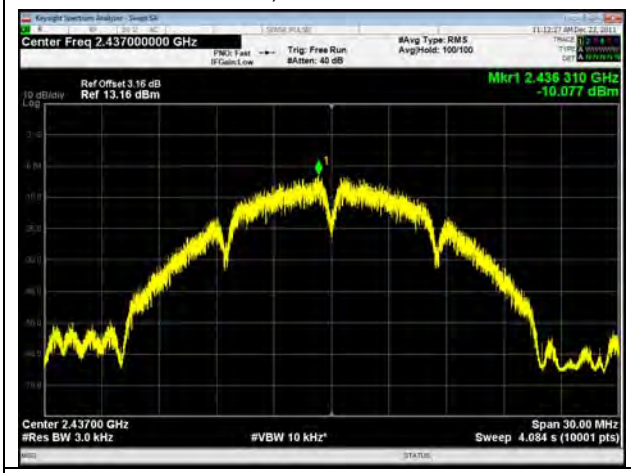
802.11b, Channel No.: 1



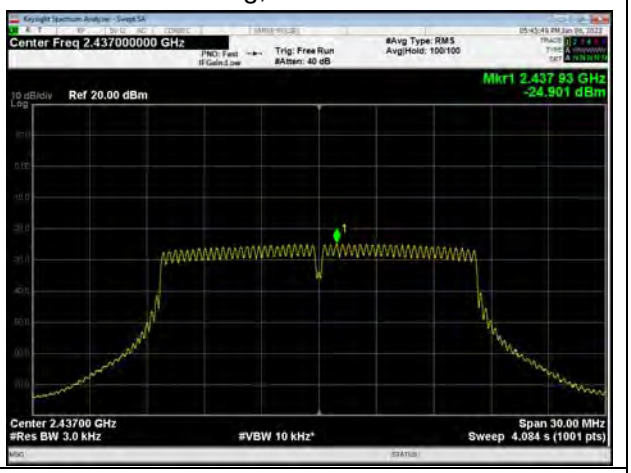
802.11g, Channel No.: 1



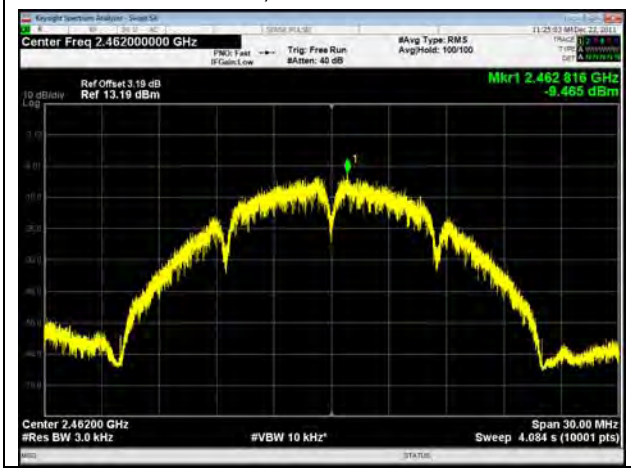
802.11b, Channel No.: 6



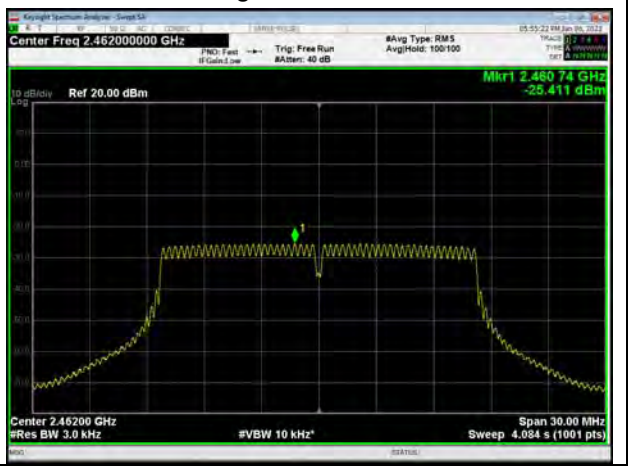
802.11g, Channel No.: 6



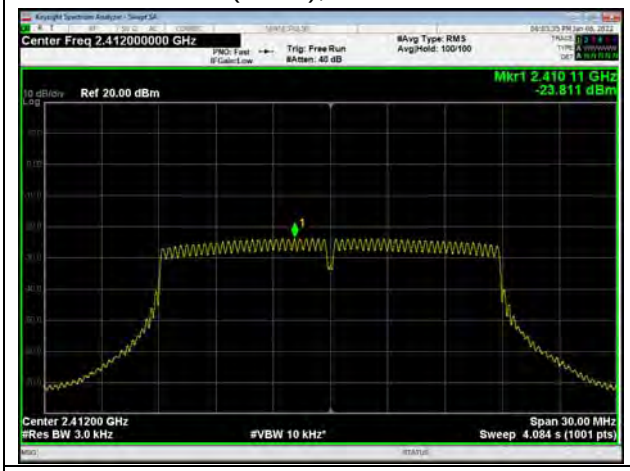
802.11b, Channel No.: 11



802.11g, Channel No.: 11

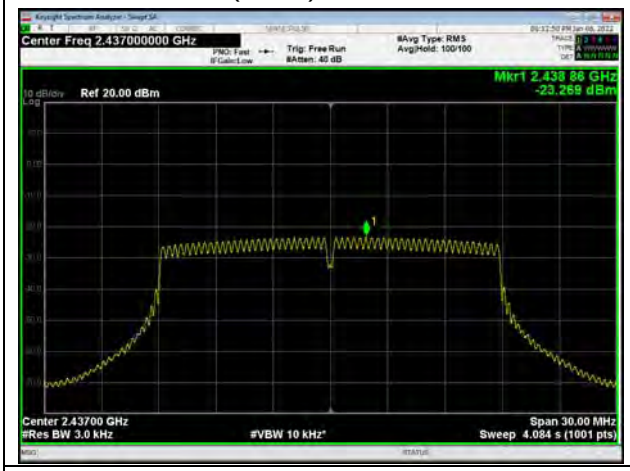


802.11n(HT20), Channel No. 1



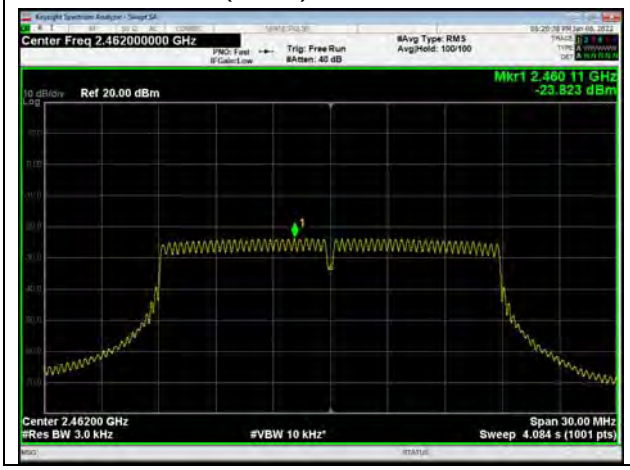
802.11n(HT40), Channel No. 3

802.11n(HT20), Channel No. 6



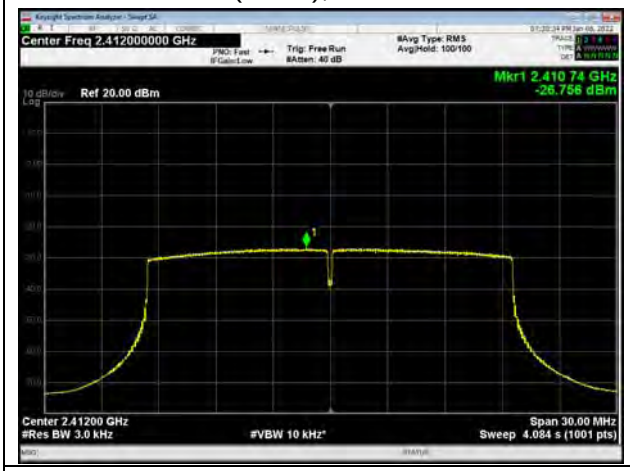
802.11n(HT40), Channel No. 6

802.11n(HT20), Channel No. 11



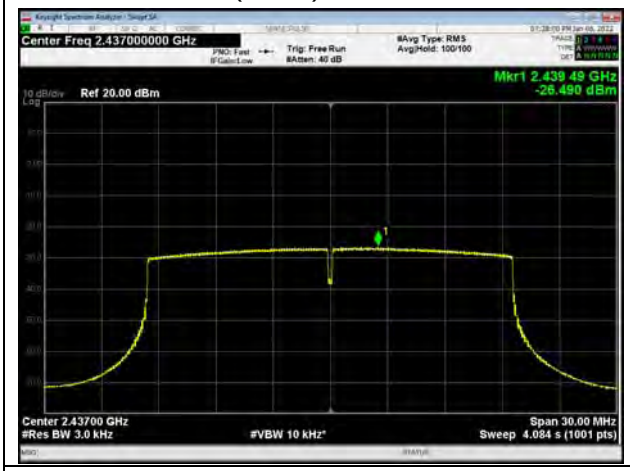
802.11n(HT40), Channel No. 9

802.11ax(HE20), Channel No.: 1



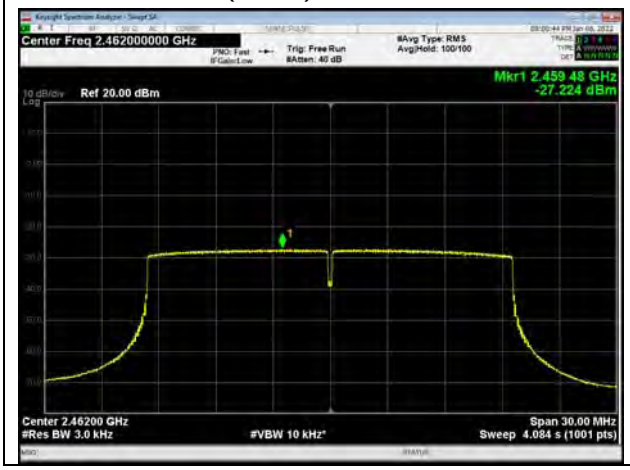
802.11ax(HE40), Channel No.: 3

802.11ax(HE20), Channel No.: 6



802.11ax(HE40), Channel No.: 6

802.11ax(HE20), Channel No.: 11



802.11ax(HE40), Channel No.: 9

5.5. Spurious RF Conducted Emissions

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 with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW to 100 kHz and VBW to 300 kHz, Sweep is set to ATUO.
The test is in transmitting mode.

Test setup

Limits

Rule Part 15.247(d) pacifies 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. ”

Test Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
802.11b	2412	8.50	-21.50
	2437	9.24	-20.76
	2462	9.03	-20.97
802.11g	2412	-1.54	-31.54
	2437	-0.74	-30.74
	2462	-0.73	-30.73
802.11n HT20	2412	0.14	-29.86
	2437	0.52	-29.48
	2462	1.01	-28.99
802.11n HT40	2422	-2.70	-32.70
	2437	-3.16	-33.16
	2452	-2.30	-32.30
802.11ax HE20	2412	-2.57	-32.57
	2437	-1.64	-31.64
	2462	-1.55	-31.55
802.11ax HE40	2422	-7.67	-37.67
	2437	-6.81	-36.81
	2452	-6.47	-36.47

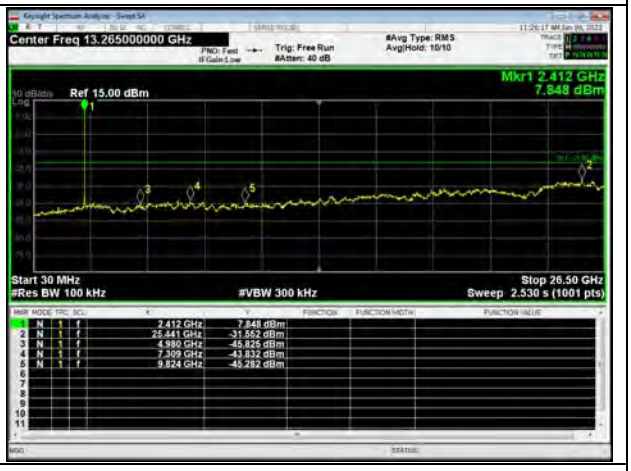
Measurement Uncertainty

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

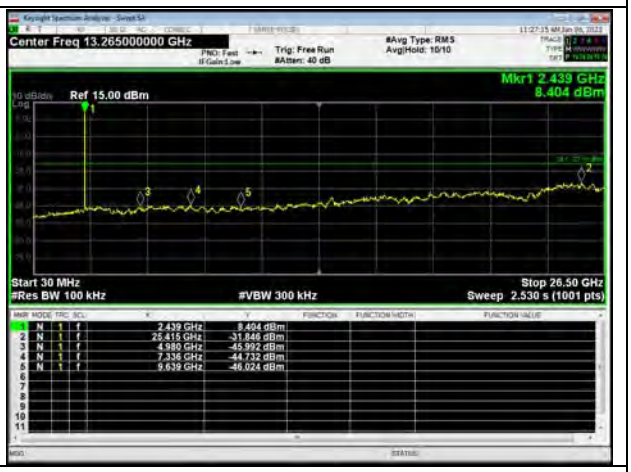
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

Test Results:

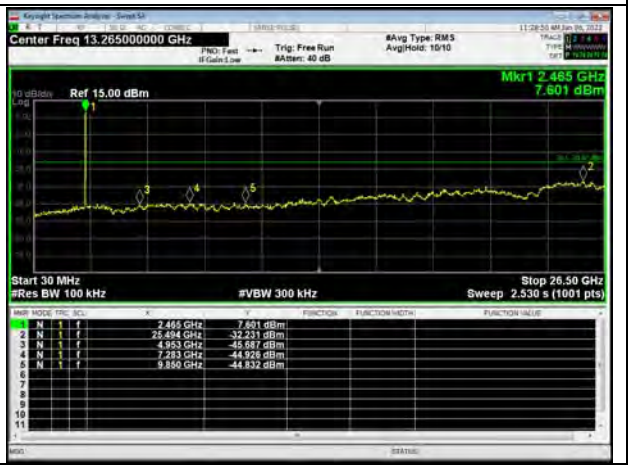
802.11b, Channel No.: 1



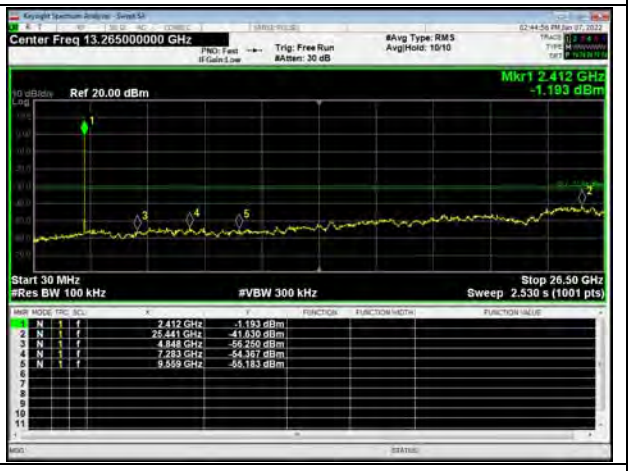
802.11b, Channel No.: 6



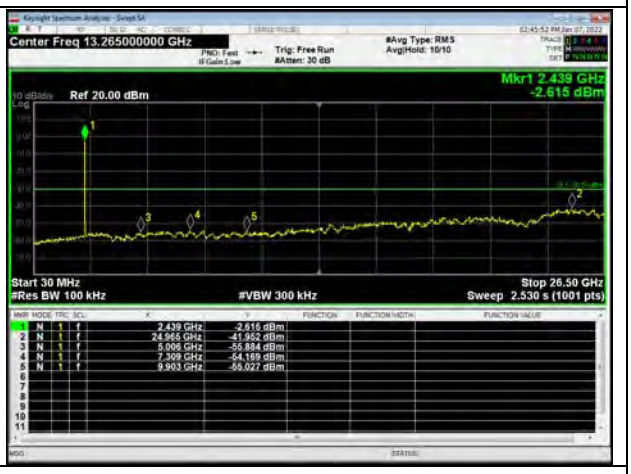
802.11b, Channel No.: 11



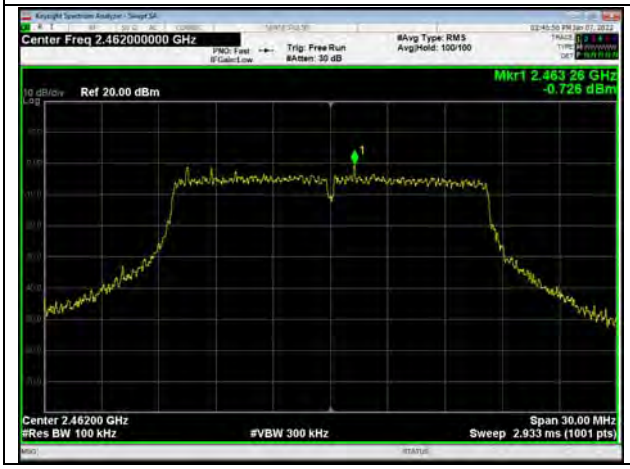
802.11g, Channel No.: 1

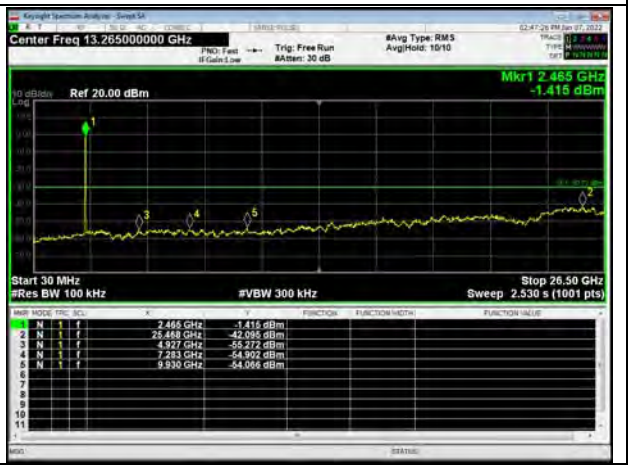


802.11g, Channel No.: 6

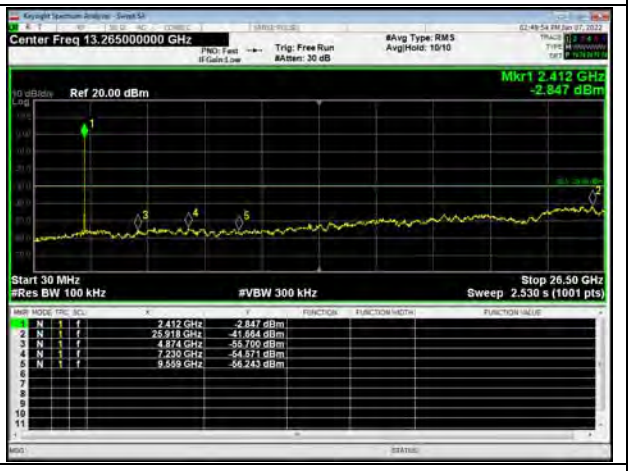


802.11g, Channel No.: 11

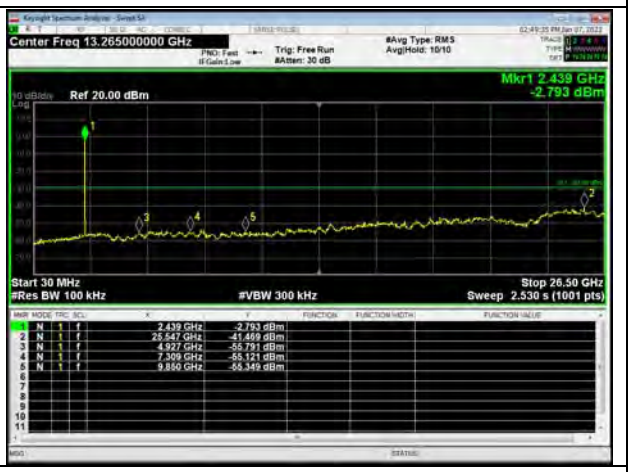




802.11n(HT20), Channel No. 1



802.11n(HT20), Channel No. 6



802.11n(HT20), Channel No. 11