

5.6 TEST RESULT

	Polar (H/V)	Frequenc y (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Detec tor Type	Result
802.11b	Low Channel 2412MHz									
	H	2390.00	60.53	30.22	4.85	23.98	59.14	74.00	PK	PASS
	H	2390.00	52.36	30.22	4.85	23.98	50.97	54.00	AV	PASS
	H	2400.00	62.26	30.22	4.85	23.98	60.87	74.00	PK	PASS
	H	2400.00	52.36	30.22	4.85	23.98	50.97	54.00	AV	PASS
	V	2390.00	60.38	30.22	4.85	23.98	58.99	74.00	PK	PASS
	V	2390.00	52.26	30.22	4.85	23.98	50.87	54.00	AV	PASS
	V	2400.00	62.11	30.22	4.85	23.98	60.72	74.00	PK	PASS
	V	2400.00	52.36	30.22	4.85	23.98	50.97	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	60.22	30.22	4.85	23.98	58.83	74.00	PK	PASS
	H	2485.50	51.26	30.22	4.85	23.98	49.87	54.00	AV	PASS
	H	2483.50	61.69	30.22	4.85	23.98	60.30	74.00	PK	PASS
	H	2485.50	52.14	30.22	4.85	23.98	50.75	54.00	AV	PASS
	V	2483.50	61.03	30.22	4.85	23.98	59.64	74.00	PK	PASS
	V	2485.50	52.63	30.22	4.85	23.98	51.24	54.00	AV	PASS
	V	2483.50	61.22	30.22	4.85	23.98	59.83	74.00	PK	PASS
	V	2485.50	52.25	30.22	4.85	23.98	50.86	54.00	AV	PASS
802.11g	Low Channel 2412MHz									
	H	2390.00	60.03	30.22	4.85	23.98	58.64	74.00	PK	PASS
	H	2390.00	52.26	30.22	4.85	23.98	50.87	54.00	AV	PASS
	H	2400.00	62.06	30.22	4.85	23.98	60.67	74.00	PK	PASS
	H	2400.00	52.16	30.22	4.85	23.98	50.77	54.00	AV	PASS
	V	2390.00	60.28	30.22	4.85	23.98	58.89	74.00	PK	PASS
	V	2390.00	52.06	30.22	4.85	23.98	50.67	54.00	AV	PASS
	V	2400.00	62.01	30.22	4.85	23.98	60.62	74.00	PK	PASS
	V	2400.00	52.06	30.22	4.85	23.98	50.67	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	60.33	30.22	4.85	23.98	58.94	74.00	PK	PASS
	H	2485.50	52.06	30.22	4.85	23.98	50.67	54.00	AV	PASS
	H	2483.50	62.16	30.22	4.85	23.98	60.77	74.00	PK	PASS
	H	2485.50	52.26	30.22	4.85	23.98	50.87	54.00	AV	PASS
	V	2483.50	60.23	30.22	4.85	23.98	58.84	74.00	PK	PASS
	V	2485.50	52.16	30.22	4.85	23.98	50.77	54.00	AV	PASS
	V	2483.50	62.21	30.22	4.85	23.98	60.82	74.00	PK	PASS
	V	2485.50	52.33	30.22	4.85	23.98	50.94	54.00	AV	PASS
802.11n20	Low Channel 2412MHz									
	H	2390.00	60.12	30.22	4.85	23.98	58.73	74.00	PK	PASS
	H	2390.00	52.35	30.22	4.85	23.98	50.96	54.00	AV	PASS
	H	2400.00	61.21	30.22	4.85	23.98	59.82	74.00	PK	PASS
	H	2400.00	52.13	30.22	4.85	23.98	50.74	54.00	AV	PASS
	V	2390.00	60.24	30.22	4.85	23.98	58.85	74.00	PK	PASS
	V	2390.00	52.24	30.22	4.85	23.98	50.85	54.00	AV	PASS
	V	2400.00	61.21	30.22	4.85	23.98	59.82	74.00	PK	PASS
	V	2400.00	53.21	30.22	4.85	23.98	51.82	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	60.35	30.22	4.85	23.98	58.96	74.00	60.35	PASS
	H	2485.50	51.68	30.22	4.85	23.98	50.29	54.00	51.68	PASS
	H	2483.50	61.22	30.22	4.85	23.98	59.83	74.00	61.22	PASS
	H	2485.50	53.24	30.22	4.85	23.98	51.85	54.00	53.24	PASS
	V	2483.50	61.03	30.22	4.85	23.98	59.64	74.00	61.03	PASS
	V	2485.50	52.45	30.22	4.85	23.98	51.06	54.00	52.45	PASS
	V	2483.50	61.22	30.22	4.85	23.98	59.83	74.00	61.22	PASS

802.11n40	V	2485.50	52.36	30.22	4.85	23.98	50.97	54.00	52.36	PASS
	Low Channel 2422MHz									
	H	2390.00	59.97	30.22	4.85	23.98	58.58	74.00	PK	PASS
	H	2390.00	51.85	30.22	4.85	23.98	50.46	54.00	AV	PASS
	H	2400.00	61.87	30.22	4.85	23.98	60.48	74.00	PK	PASS
	H	2400.00	51.74	30.22	4.85	23.98	50.35	54.00	AV	PASS
	V	2390.00	59.78	30.22	4.85	23.98	58.39	74.00	PK	PASS
	V	2390.00	51.87	30.22	4.85	23.98	50.48	54.00	AV	PASS
	V	2400.00	61.87	30.22	4.85	23.98	60.48	74.00	PK	PASS
	V	2400.00	51.79	30.22	4.85	23.98	50.40	54.00	AV	PASS
	High Channel 2452MHz									
	H	2483.50	59.95	30.22	4.85	23.98	58.56	74.00	PK	PASS
	H	2485.50	51.88	30.22	4.85	23.98	50.49	54.00	AV	PASS
	H	2483.50	61.75	30.22	4.85	23.98	60.36	74.00	PK	PASS
	H	2485.50	51.76	30.22	4.85	23.98	50.37	54.00	AV	PASS
	V	2483.50	59.88	30.22	4.85	23.98	58.49	74.00	PK	PASS
	V	2485.50	51.73	30.22	4.85	23.98	50.34	54.00	AV	PASS
	V	2483.50	62.23	30.22	4.85	23.98	60.84	74.00	PK	PASS
	V	2485.50	52.36	30.22	4.85	23.98	50.97	52.36	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

6. POWER SPECTRAL DENSITY TEST

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8dBm/3kHz	2400-2483.5	PASS

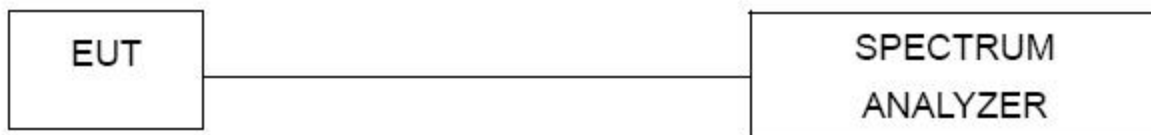
6.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	120V/60Hz
Test Mode :	TX b Mode		

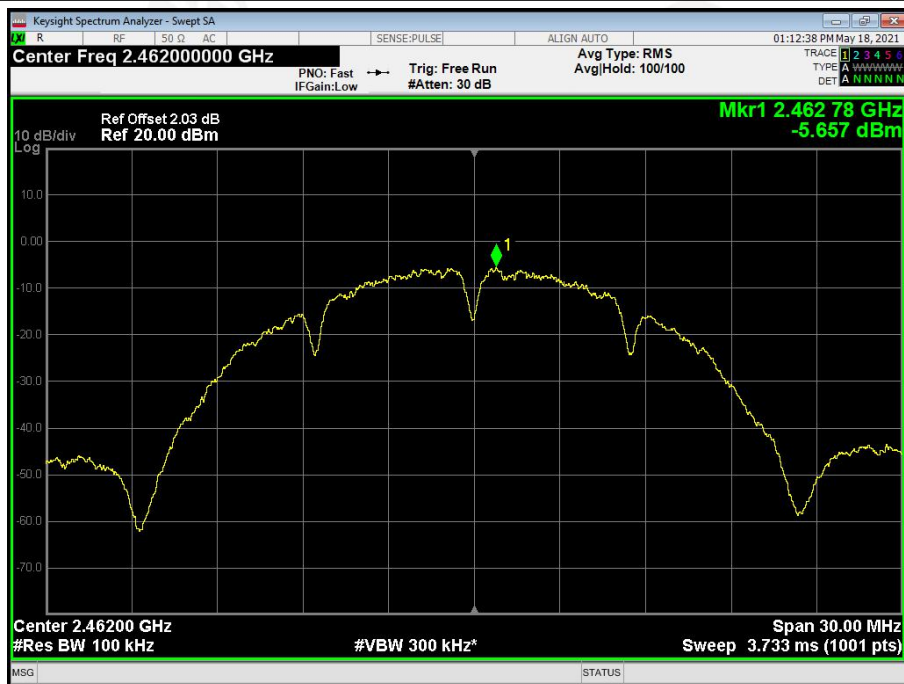
Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-4.867	8	PASS
2437 MHz	-5.286	8	PASS
2462 MHz	-5.657	8	PASS



TX CH06

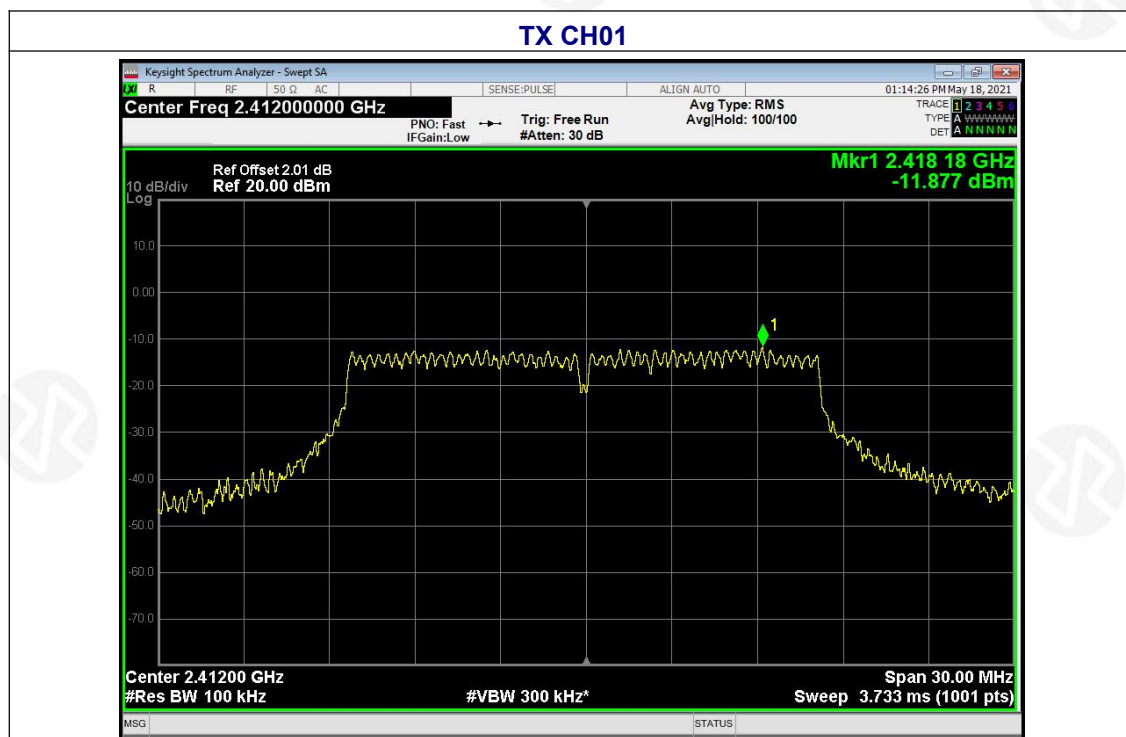


TX CH11

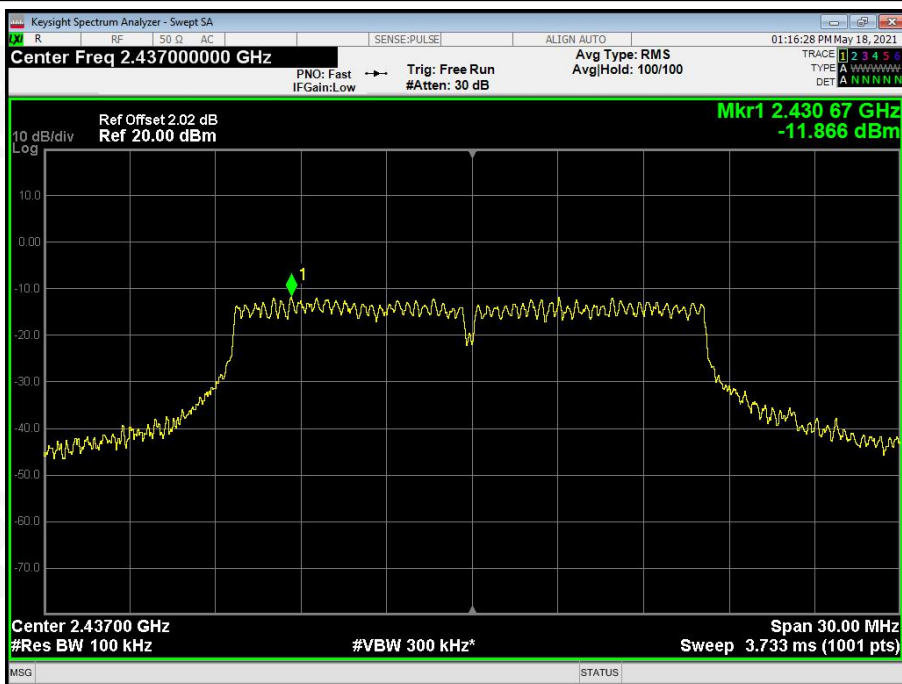


Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	120V/60Hz
Test Mode :	TX g Mode		

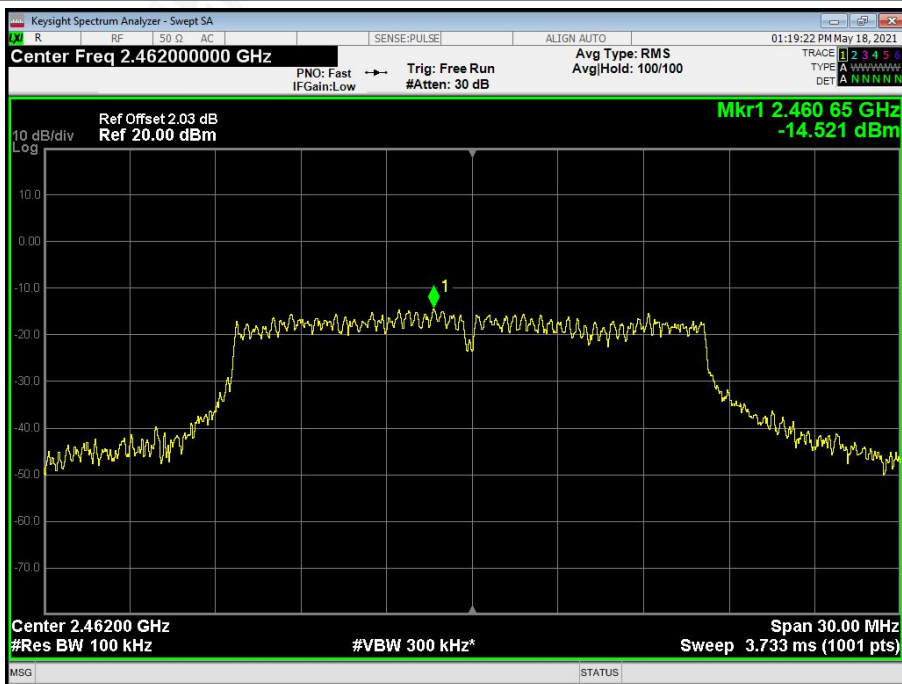
Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-11.877	8	PASS
2437 MHz	-11.866	8	PASS
2462 MHz	-14.521	8	PASS



TX CH06



TX CH11

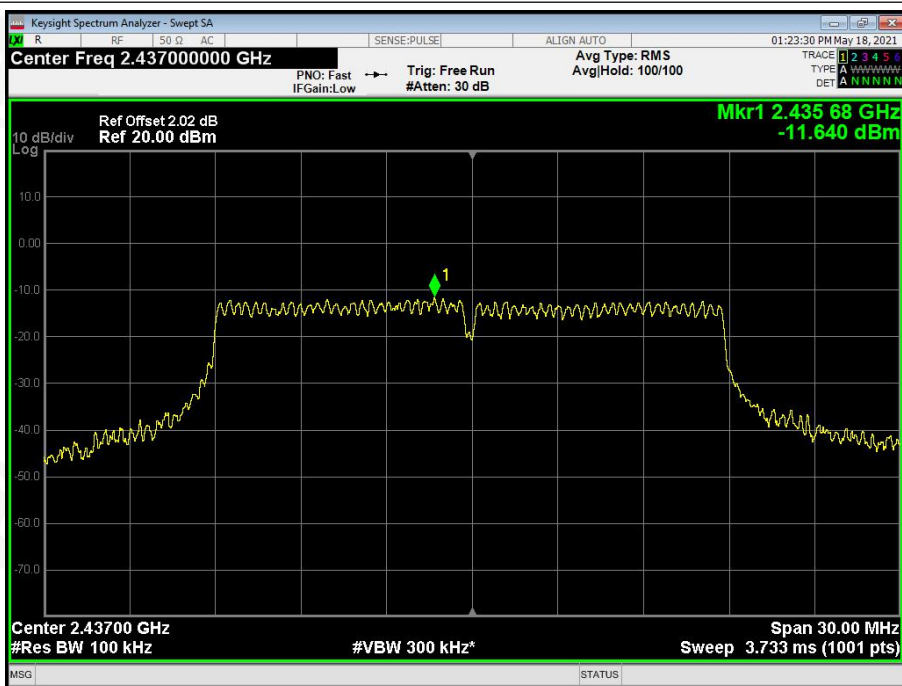


Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	120V/60Hz
Test Mode :	TX n Mode(20M)		

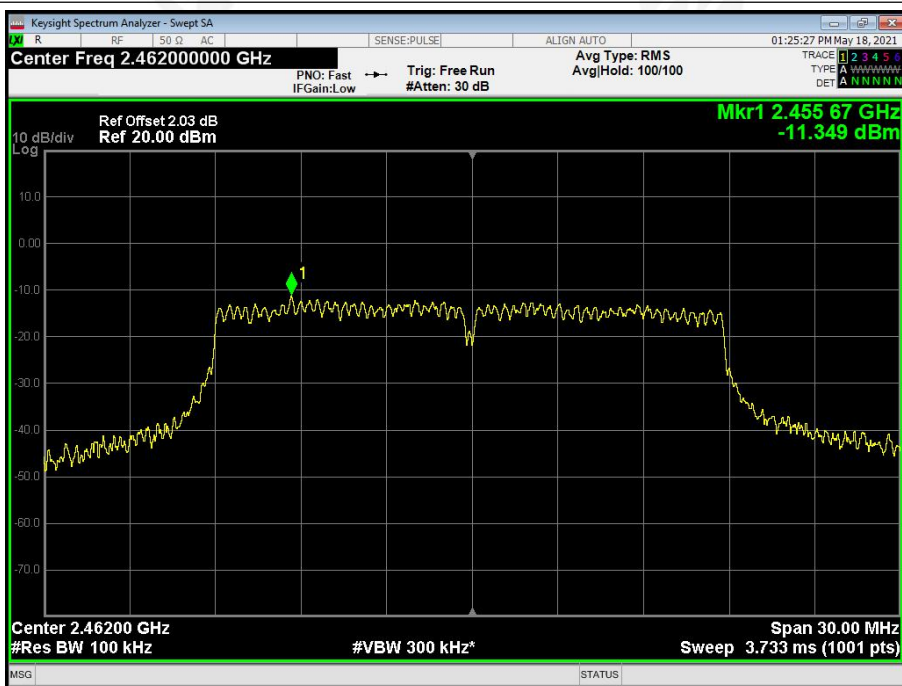
Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-10.324	8	PASS
2437 MHz	-11.640	8	PASS
2462 MHz	-11.349	8	PASS



TX CH06



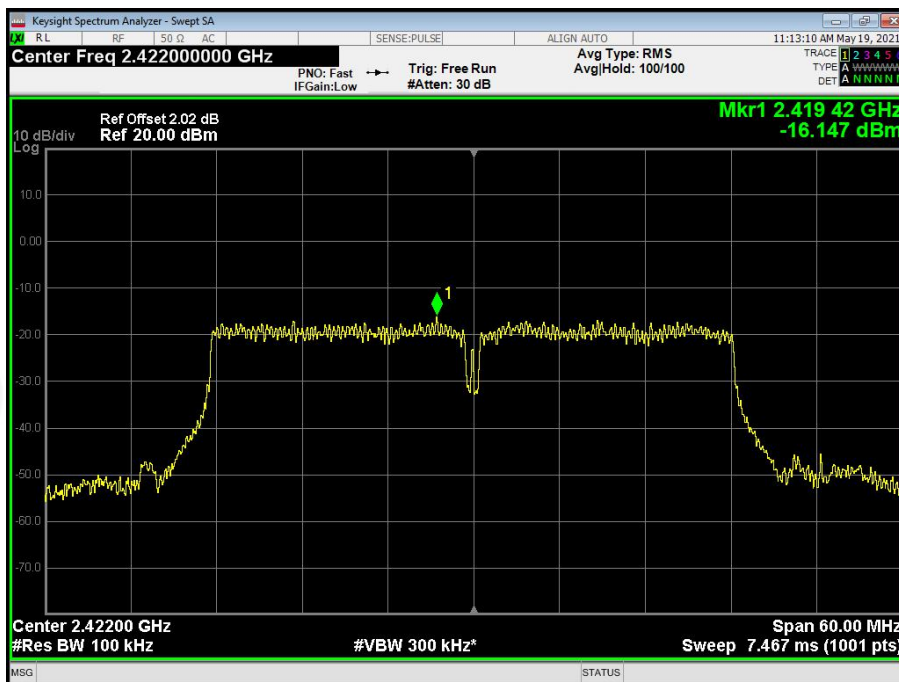
TX CH11



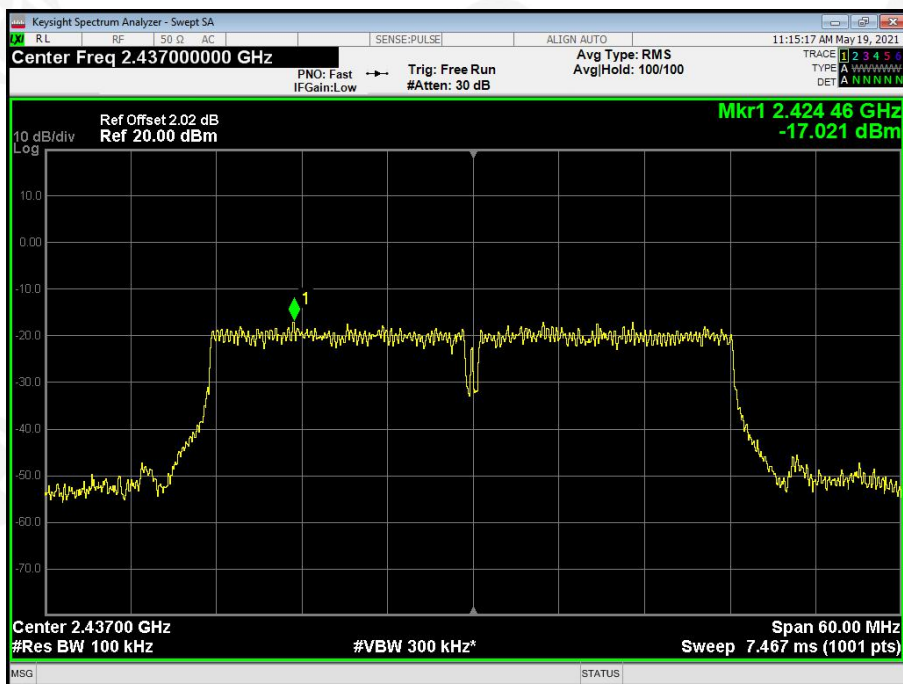
Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	120V/60Hz
Test Mode :	TX n Mode(40M)		

Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2422 MHz	-16.147	8	PASS
2437 MHz	-17.021	8	PASS
2452 MHz	-16.394	8	PASS

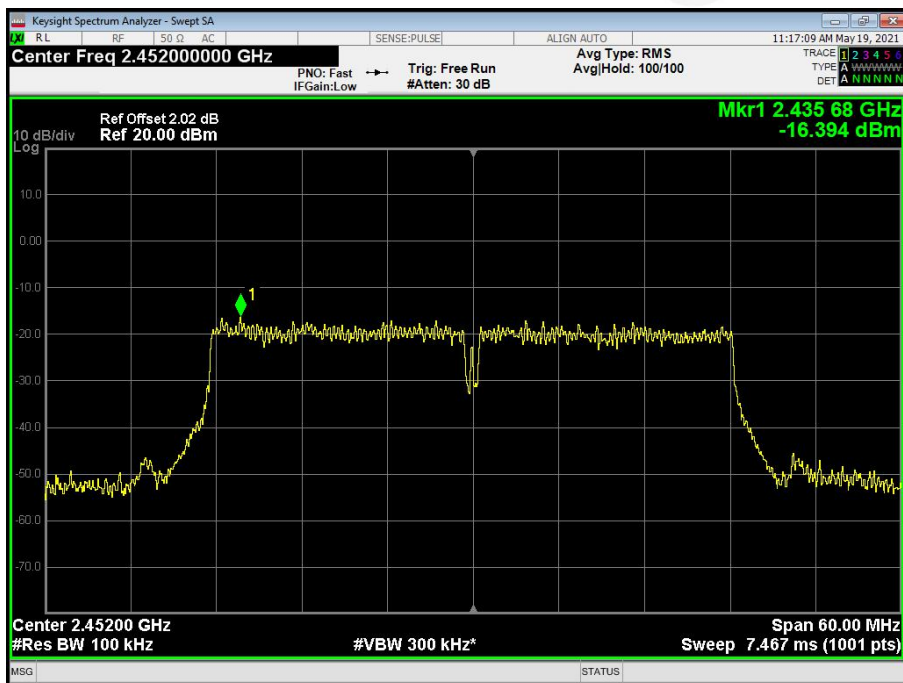
TX CH03



TX CH06



TX CH09



7. CHANNEL BANDWIDTH& 99% OCCUPY BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

7.2 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULT

Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	120V/60Hz
Test Mode :	TX b Mode		

Test CH	Limit(KHz)	Result				
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	Limit(KHz)	Result
Lowest	8.498	16.330	17.600	36.340	>500	Pass
Middle	8.551	16.380	17.570	36.310		
Highest	9.057	16.340	17.590	36.330		

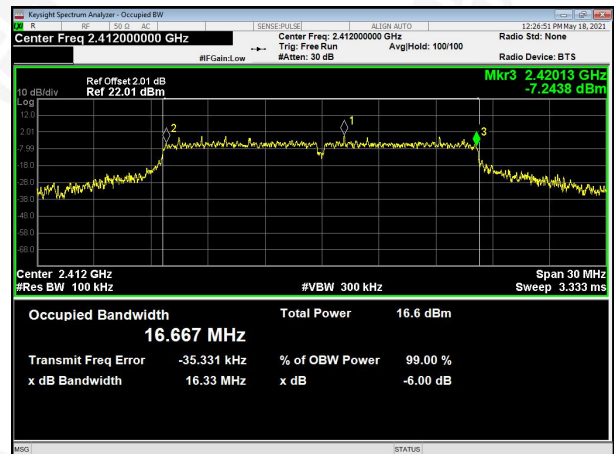
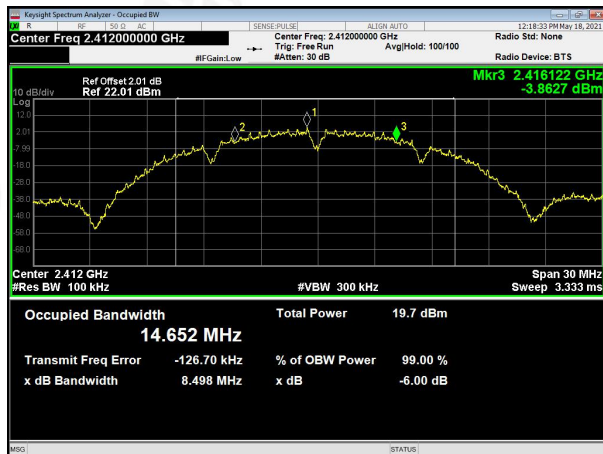
Test CH	99% Occupy Bandwidth (MHz)				Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	
Lowest	14.652	16.667	17.773	36.249	Pass
Middle	14.617	16.640	17.788	36.226	
Highest	14.573	16.647	17.779	36.229	

Test plot as follows:

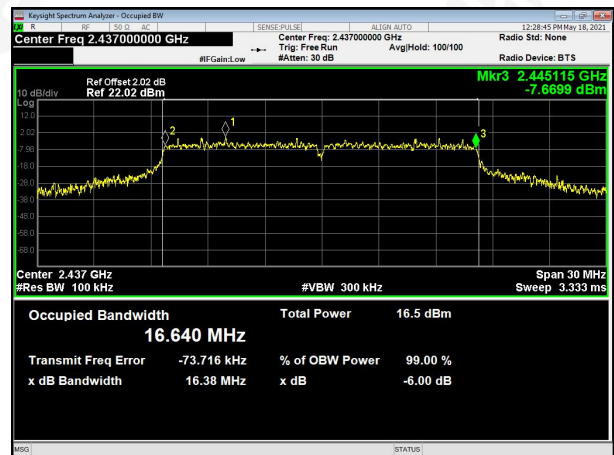
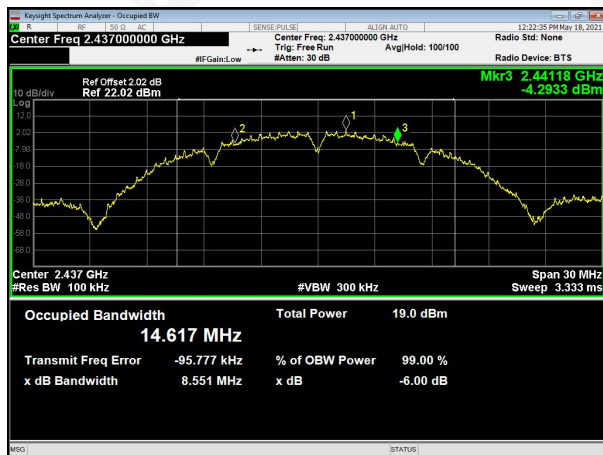
802.11b

802.11g

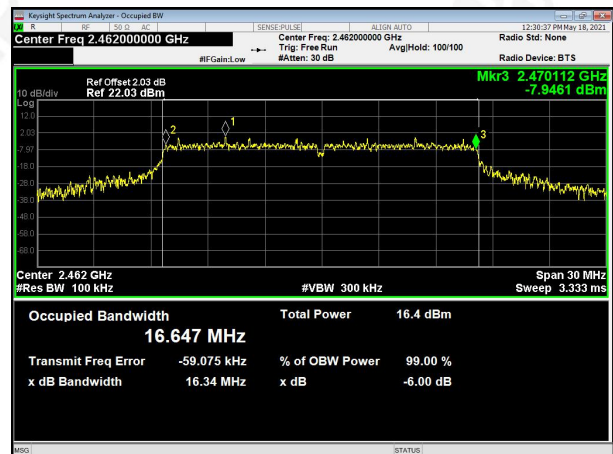
Lowest channel



Middle channel



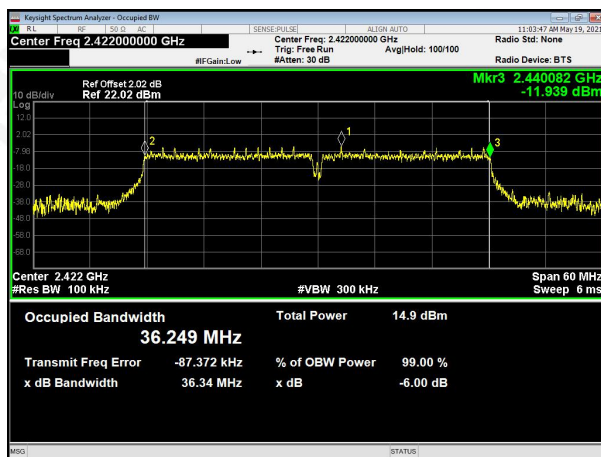
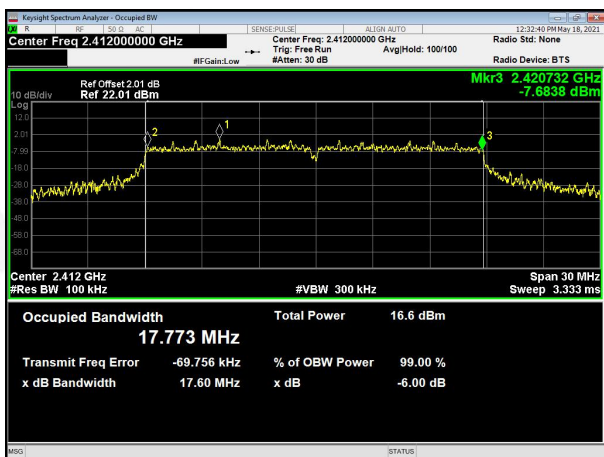
Highest channel



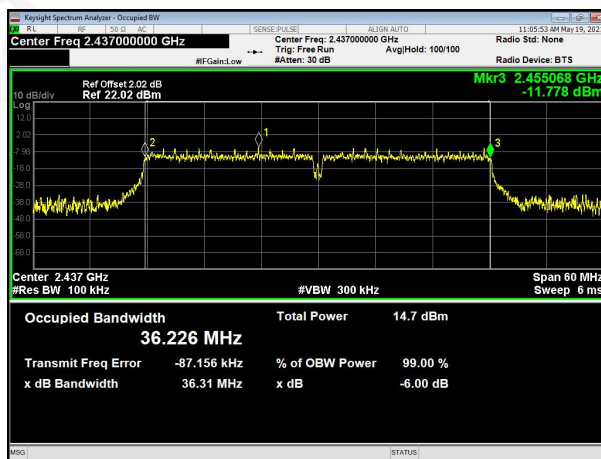
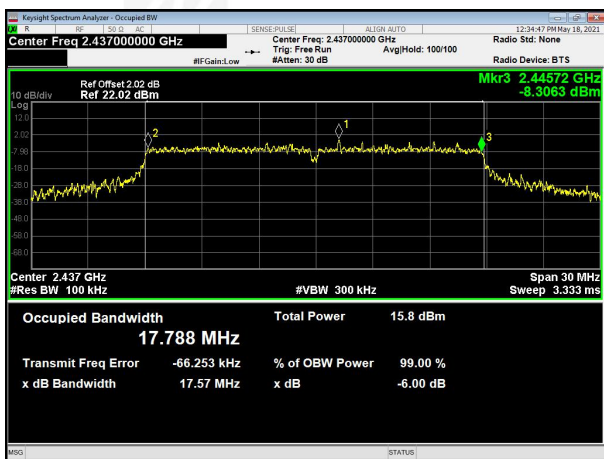
802.11n20

802.11n40

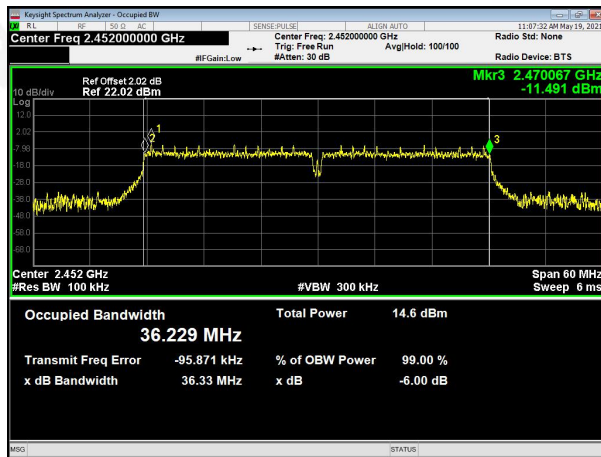
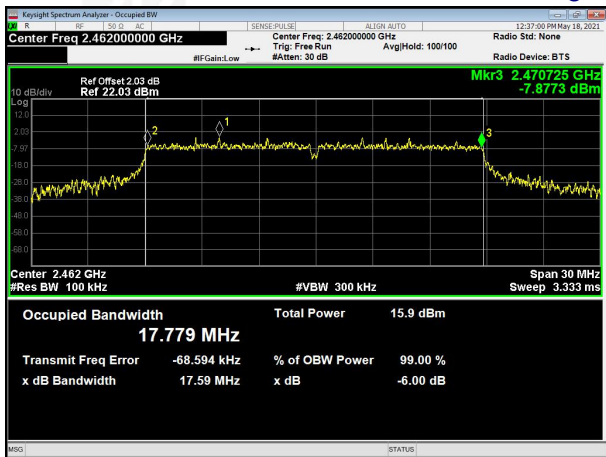
Lowest channel



Middle channel



Highest channel



8. PEAK OUTPUT POWER TEST

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

8.1 APPLIED PROCEDURES/LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

8.2 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULT

Temperature :	26℃	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	120V/60Hz

Test CH	Peak Output Power (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)		
Lowest	12.391	11.468	10.914	8.929	30.00	Pass
Middle	12.104	11.235	10.551	8.431		
Highest	12.341	11.117	10.342	8.774		

9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidancev05r02

9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in15.209(a).

9.2 TEST PROCEDURE

Using the following spectrum analyzer setting:

- A) Set the RBW = 100KHz.
- B) Set the VBW = 300KHz.
- C) Sweep time = auto couple.
- D) Detector function = peak.
- E) Trace mode = max hold.
- F) Allow trace to fully stabilize.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



9.5 EUT OPERATION CONDITIONS

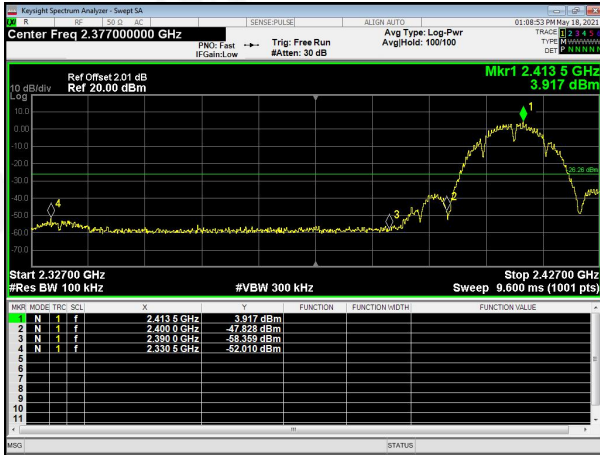
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

9.6 TEST RESULTS

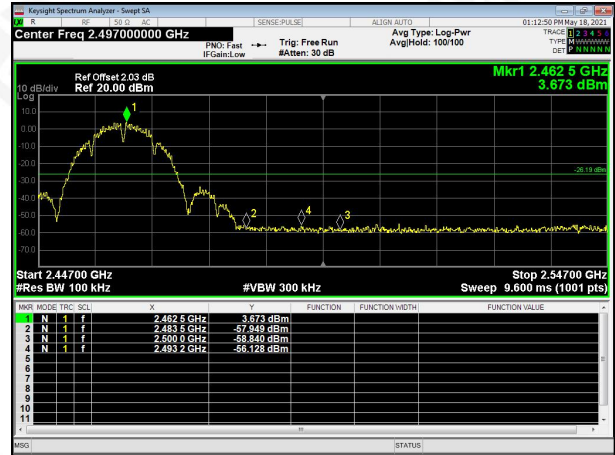
Test plot as follows:

Test mode:

802.11b



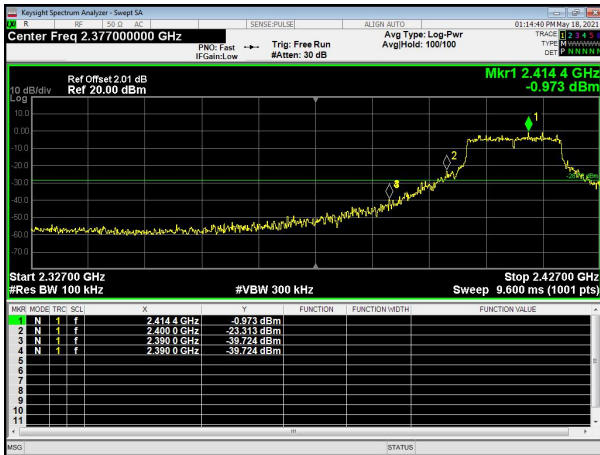
Lowest channel



Highest channel

Test mode:

802.11g



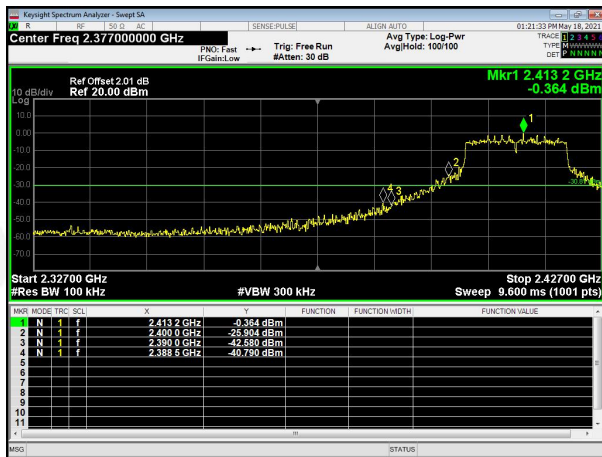
Lowest channel



Highest channel

Test mode:

802.11n(HT20)



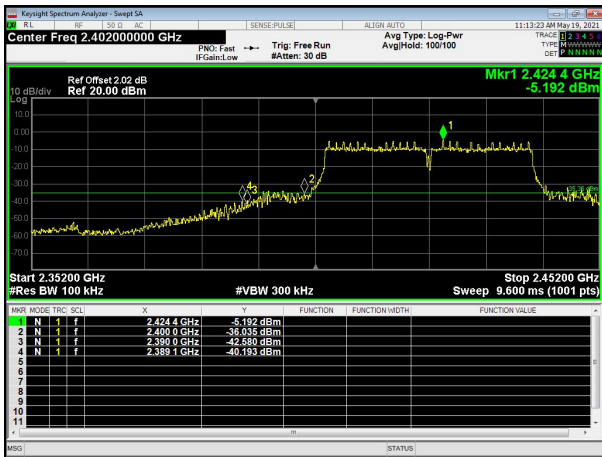
Lowest channel



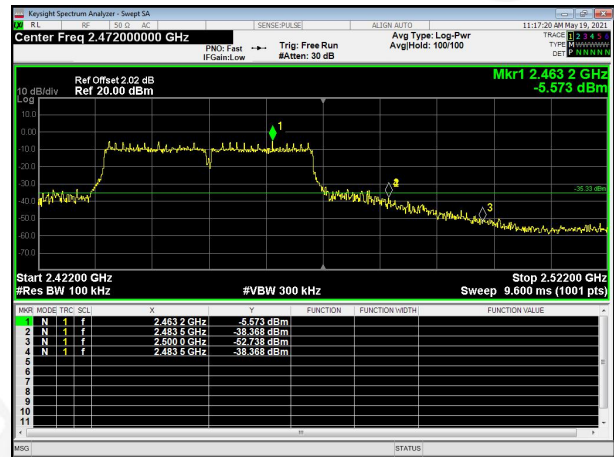
Highest channel

Test mode:

802.11n(HT40)



Lowest channel

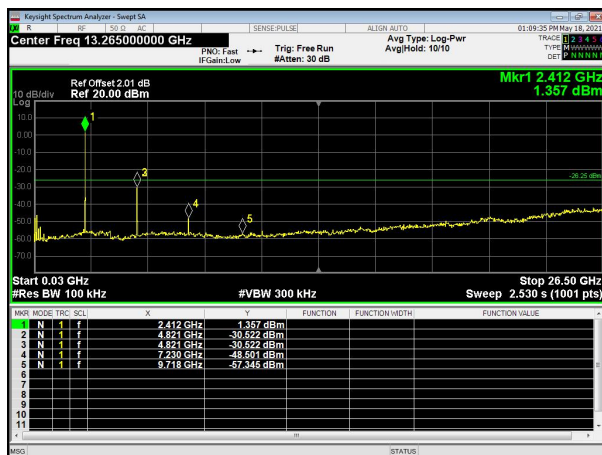


Highest channel

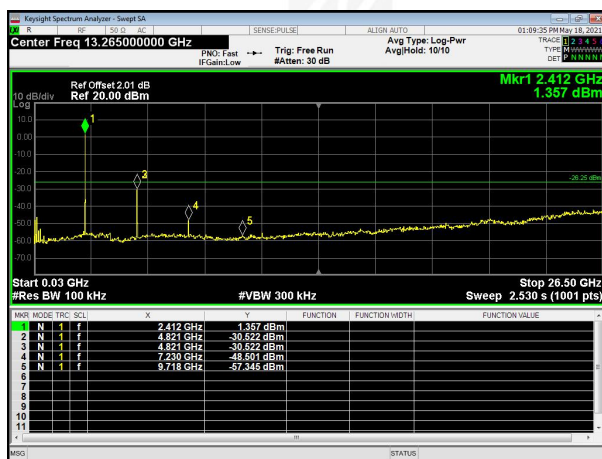
Test plot as follows:

802.11b

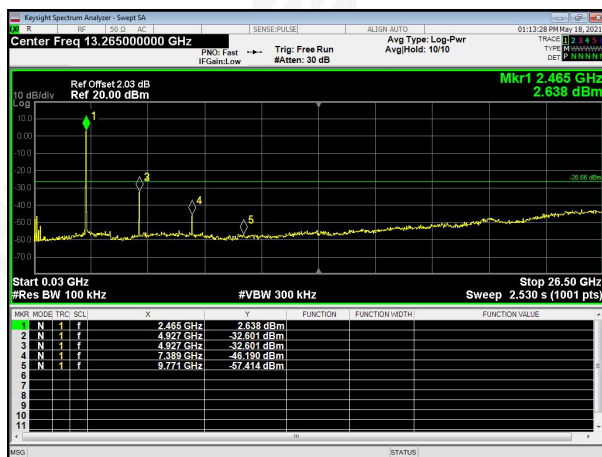
Lowest channel



Middle channel

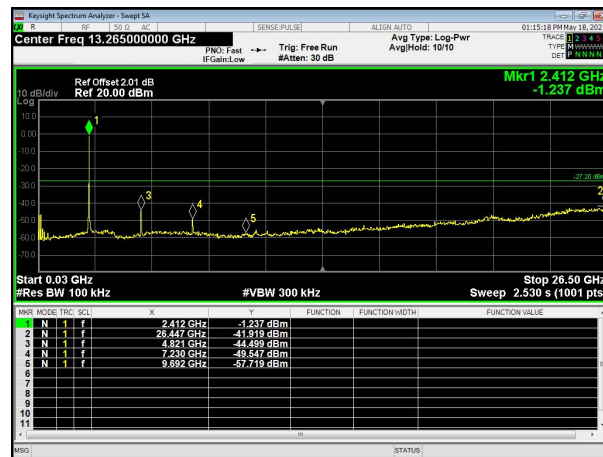


Highest channel

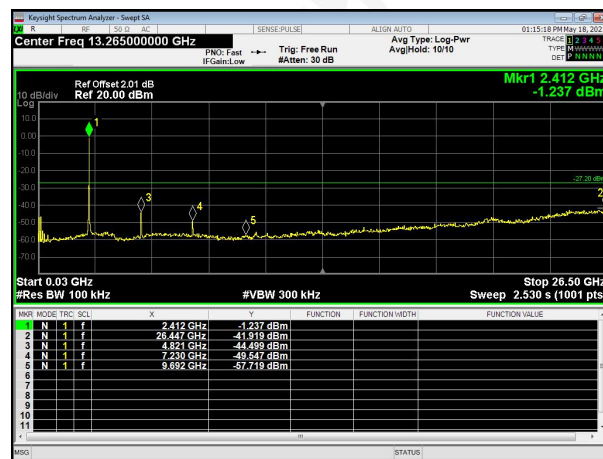


802.11g

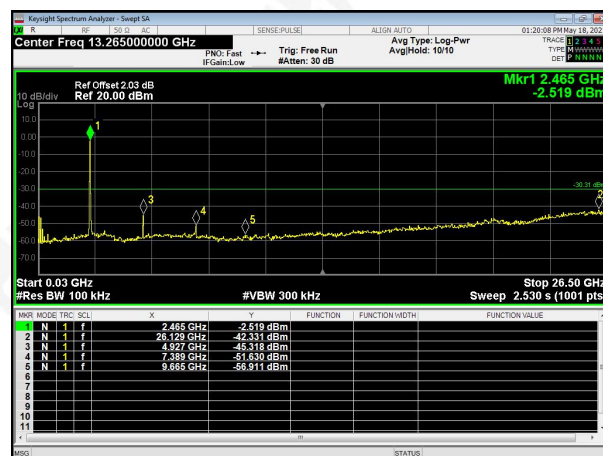
Lowest channel



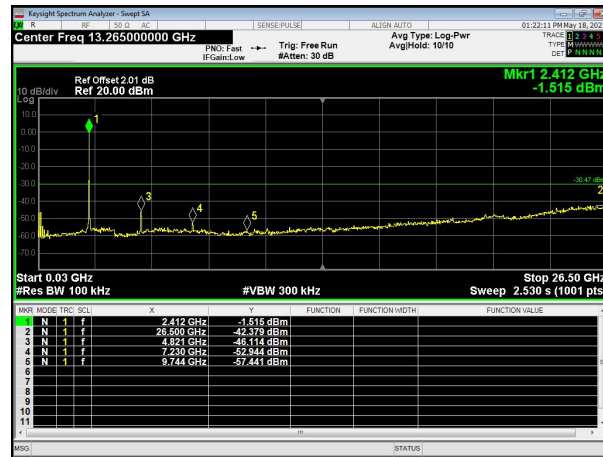
Middle channel



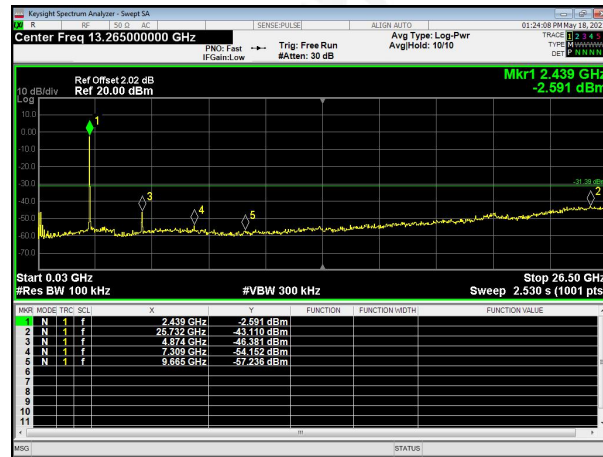
Highest channel



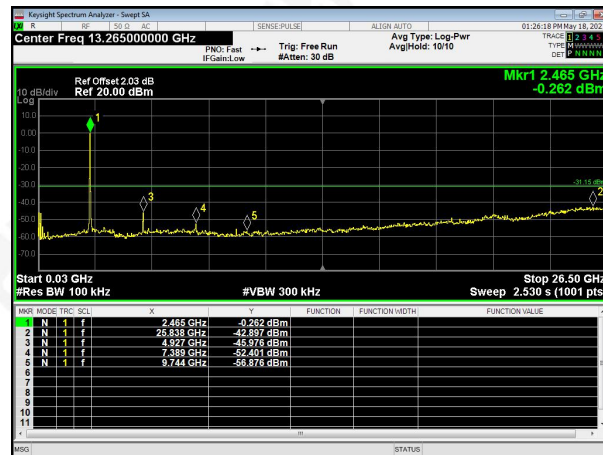
802.11n(HT20)
Lowest channel



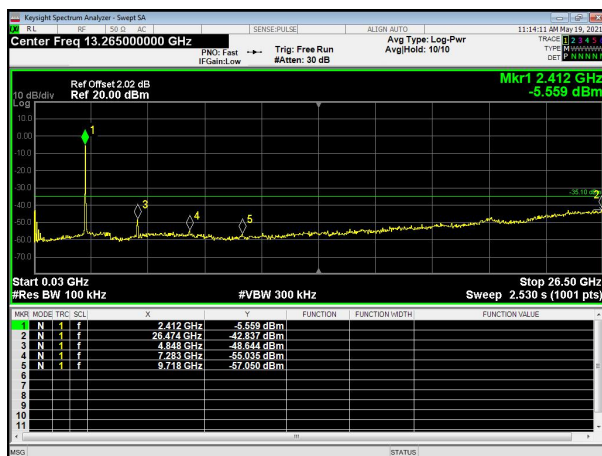
Middle channel



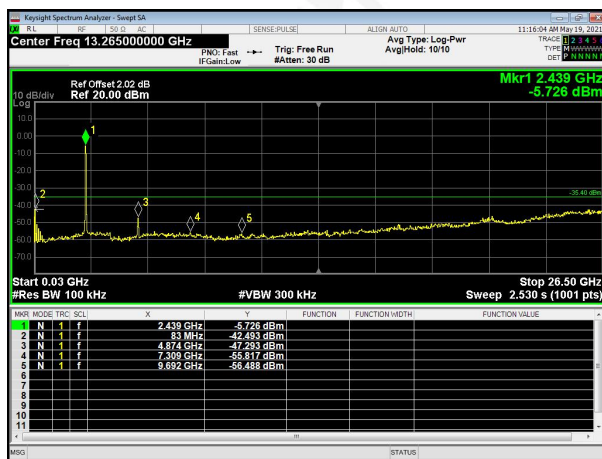
Highest channel



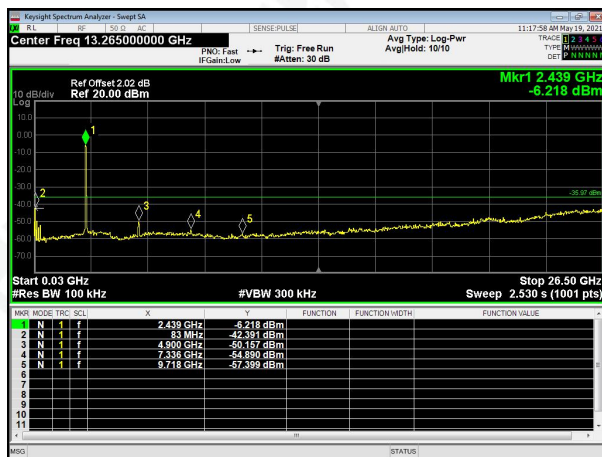
802.11n(HT40)
Lowest channel



Middle channel



Highest channel



10. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
EUT Antenna:	
The antenna is PCB Antenna1, the best case gain of the antenna is 0dBi, reference to the appendix II for details	

11. TEST SETUP PHOTO

Reference to the appendix I for details.

12. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

***** END OF REPORT *****