

11B\_Ant1\_2462



11B\_Ant2\_2462



11G\_Ant1\_2412

CTC Laboratories, Inc.

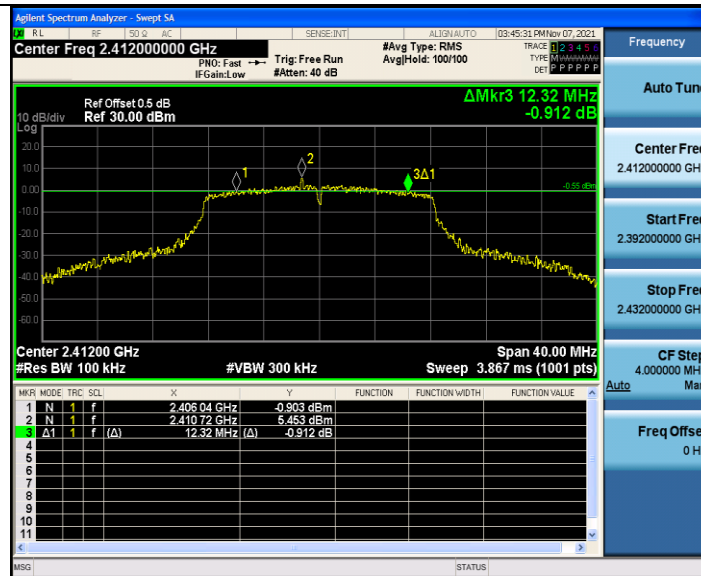
1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Tel.: (86)755-27521059

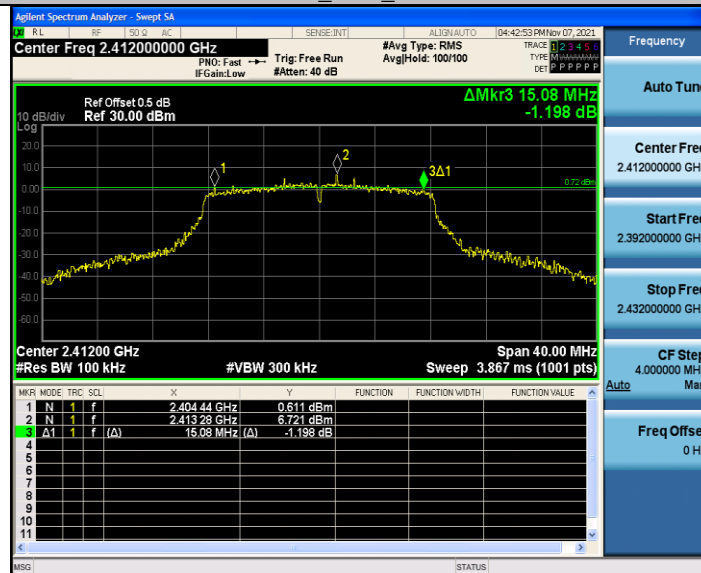
Fax: (86)755-27521011

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11G\_Ant2\_2412



11G\_Ant1\_2437



11G\_Ant2\_2437

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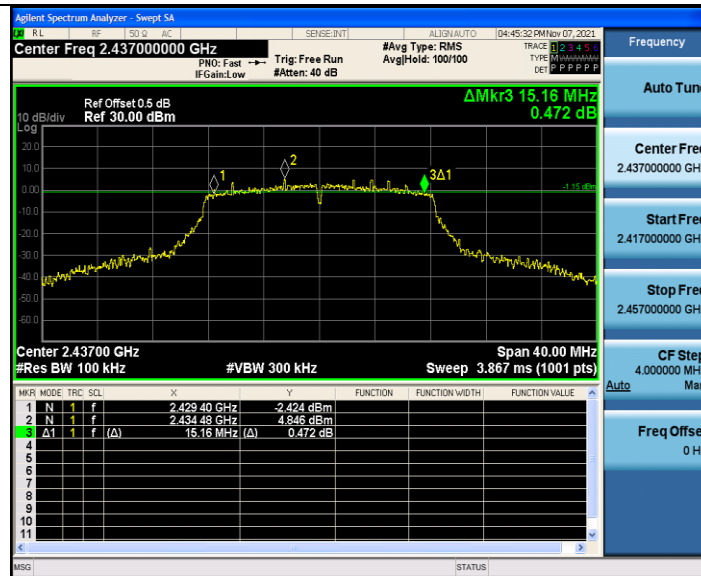
1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

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11G\_Ant1\_2462



11G\_Ant2\_2462



11N20MIMO\_Ant1\_2412

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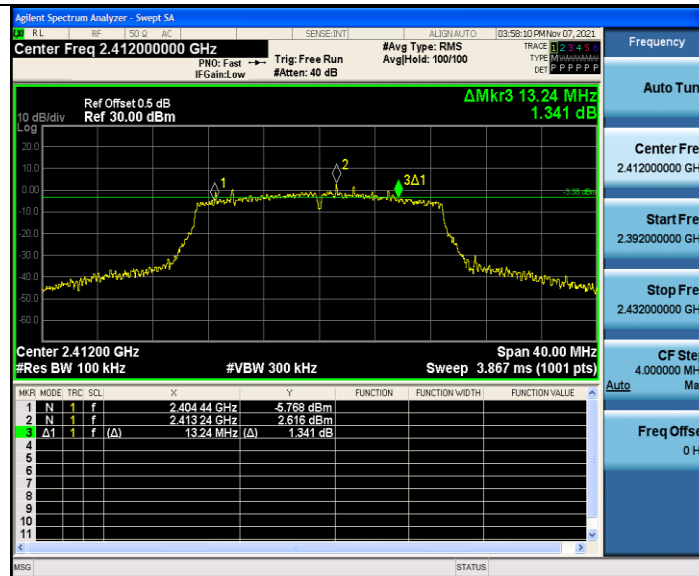
1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

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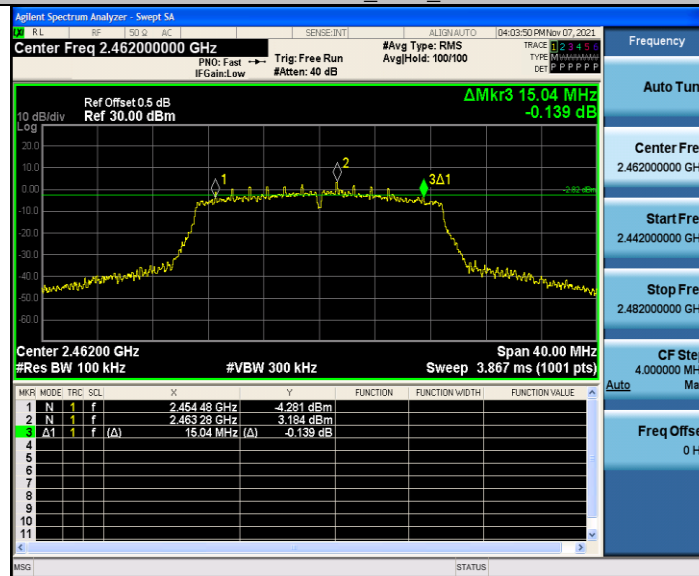
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11N20MIMO\_Ant1\_2462



11N20MIMO\_Ant2\_2462



11N40MIMO\_Ant1\_2422

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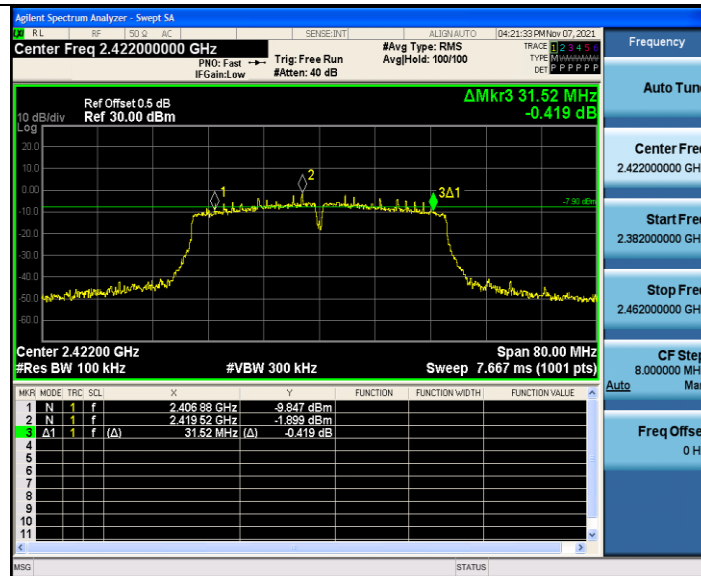
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Tel.: (86)755-27521059

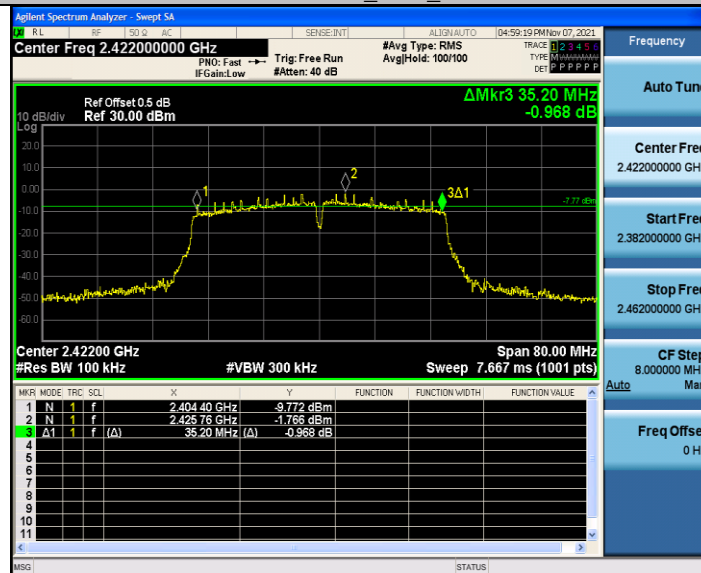
Fax: (86)755-27521011

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11N40MIMO\_Ant2\_2422



11N40MIMO\_Ant1\_2437



11N40MIMO\_Ant2\_2437

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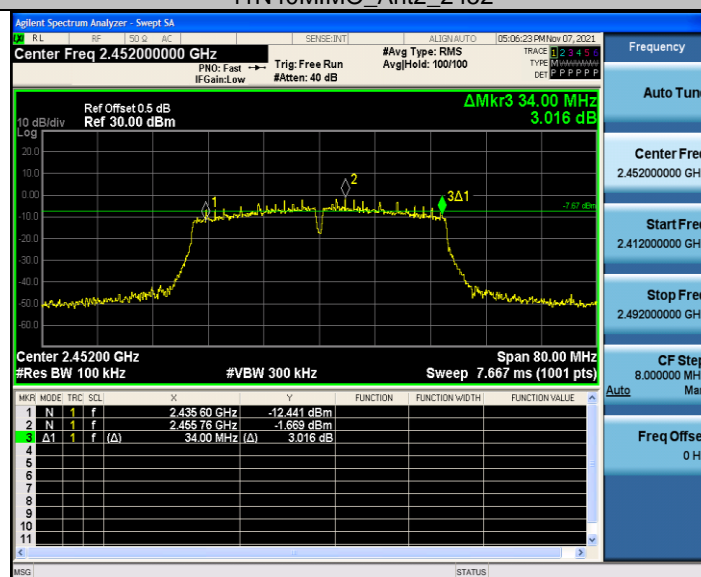
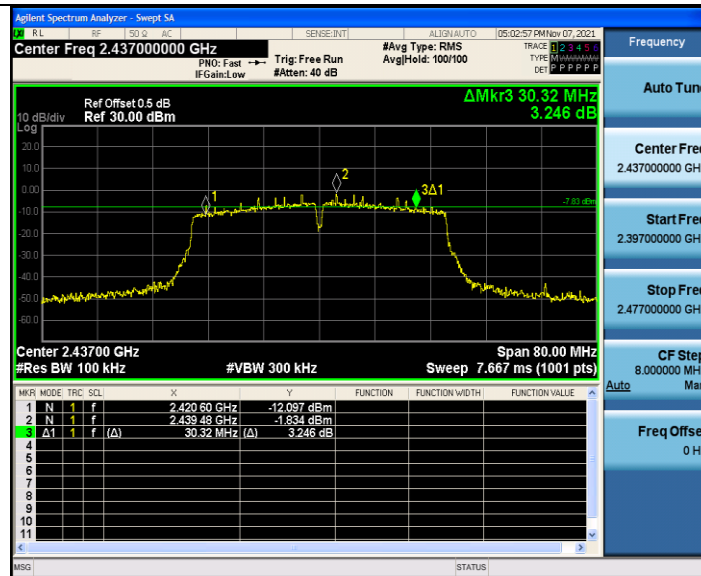
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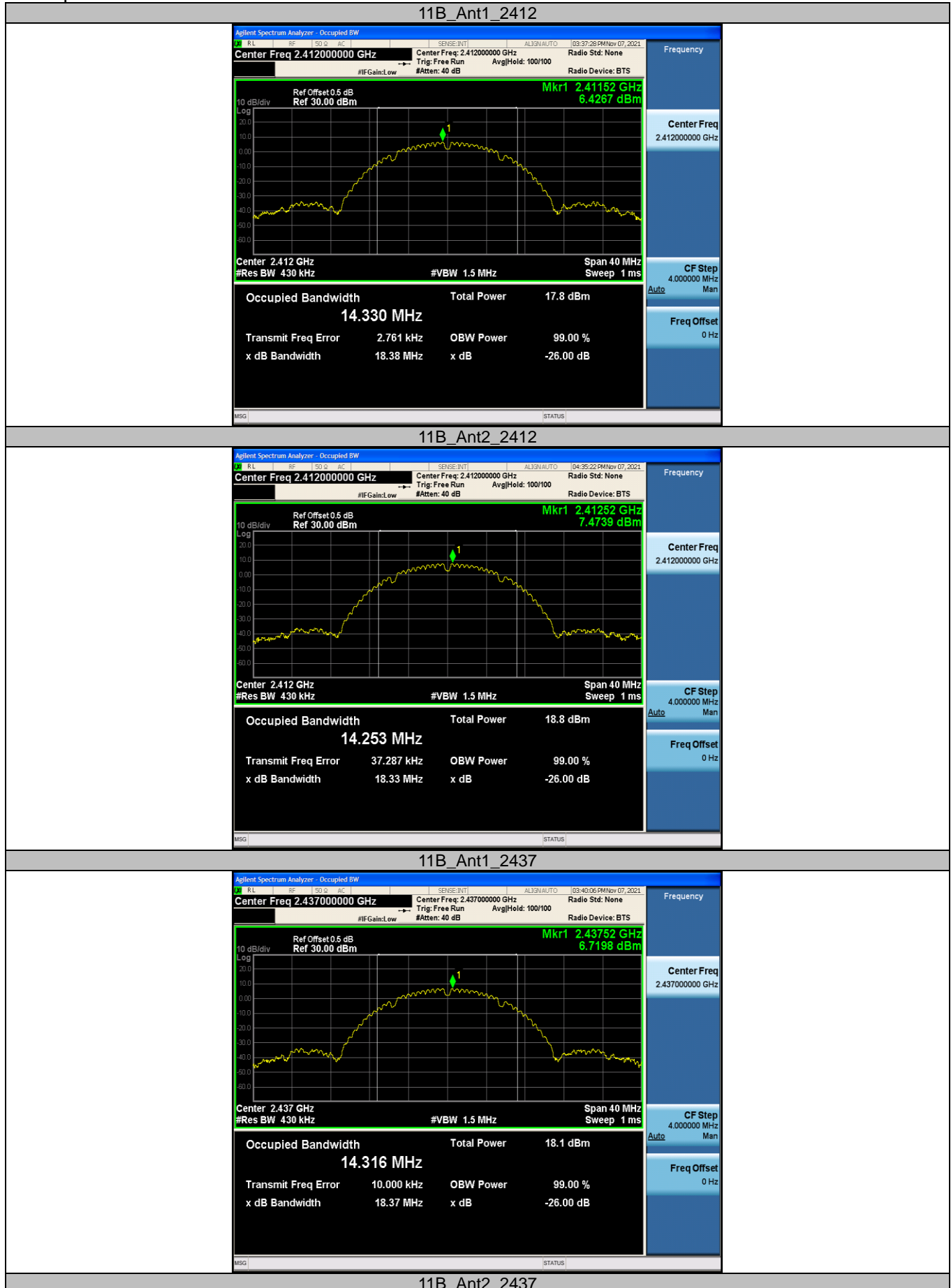
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## Occupied Channel Bandwidth:



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11B\_Ant1\_2462



11B\_Ant2\_2462



11G\_Ant1\_2412

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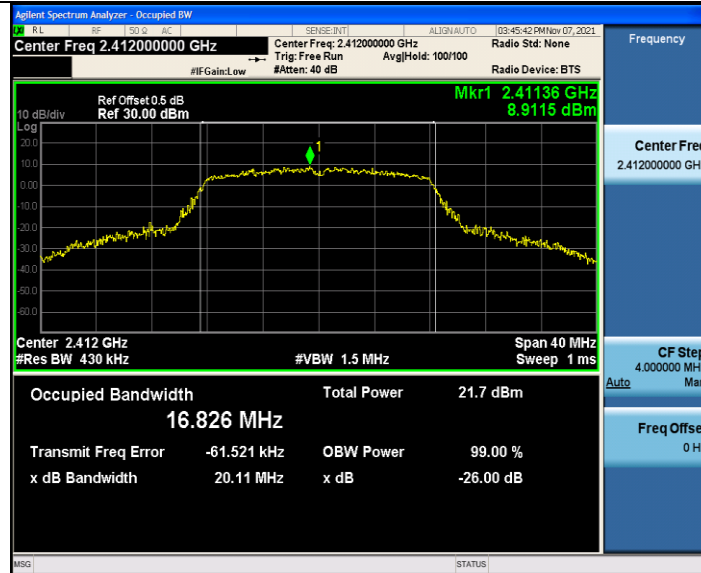
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11G\_Ant2\_2412



11G\_Ant1\_2437



11G\_Ant2\_2437

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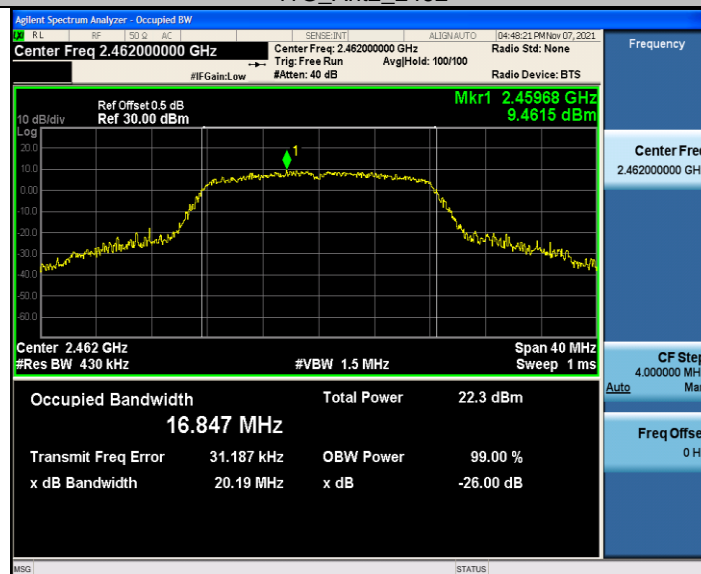
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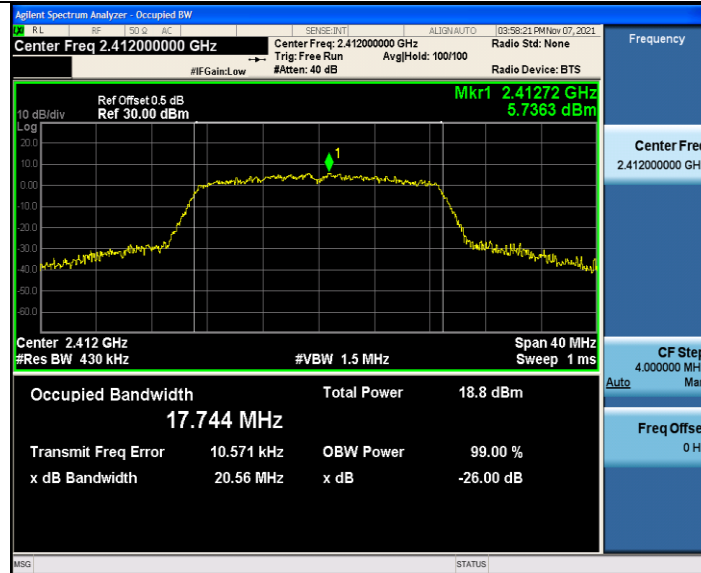
11G\_Ant1\_2462



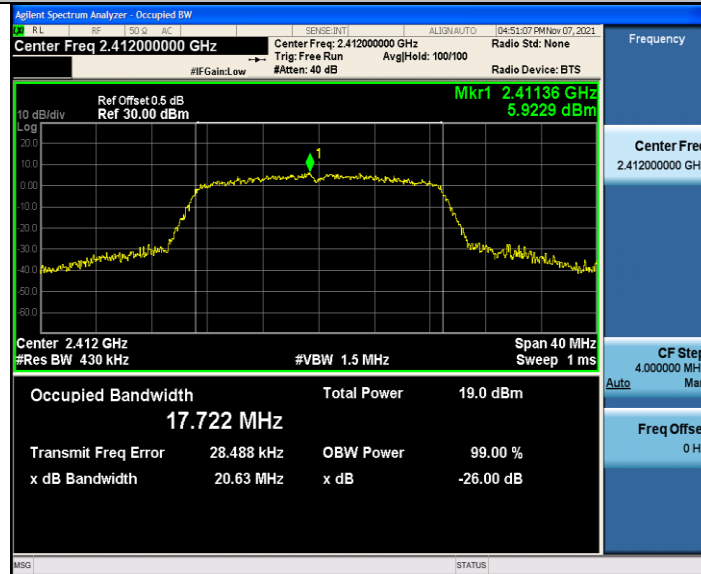
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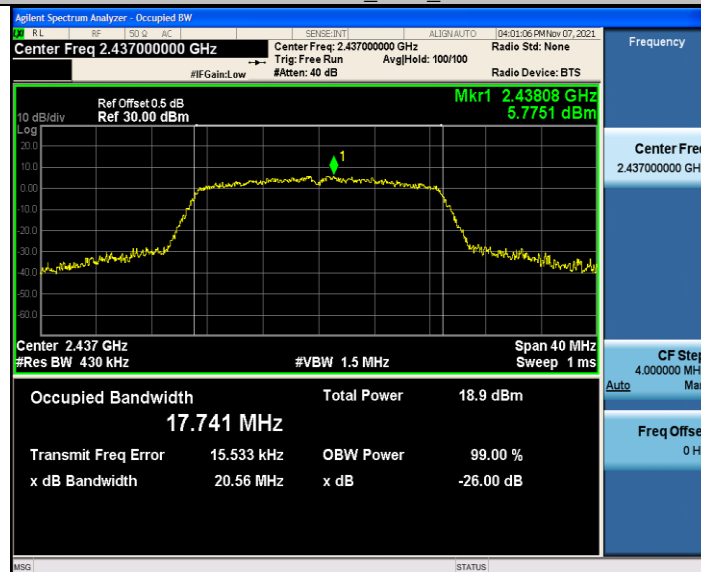
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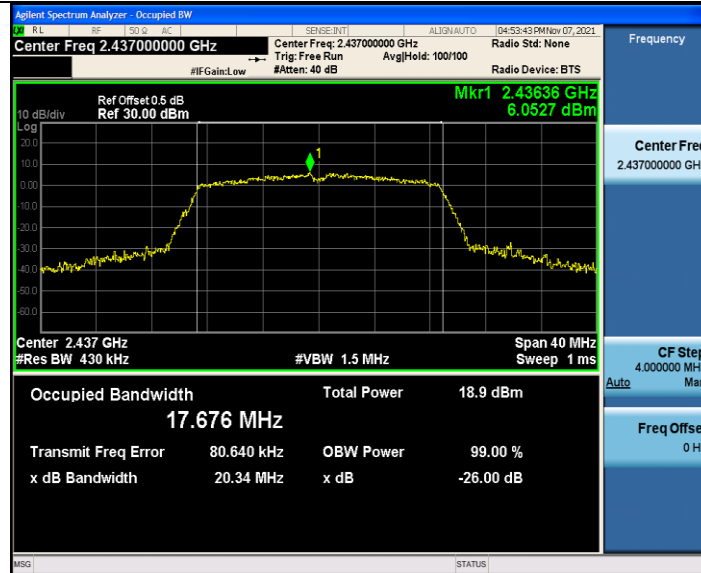
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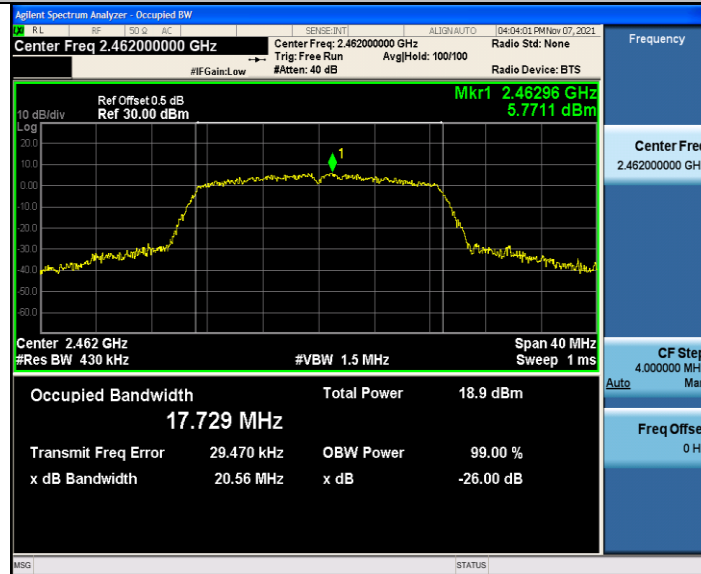
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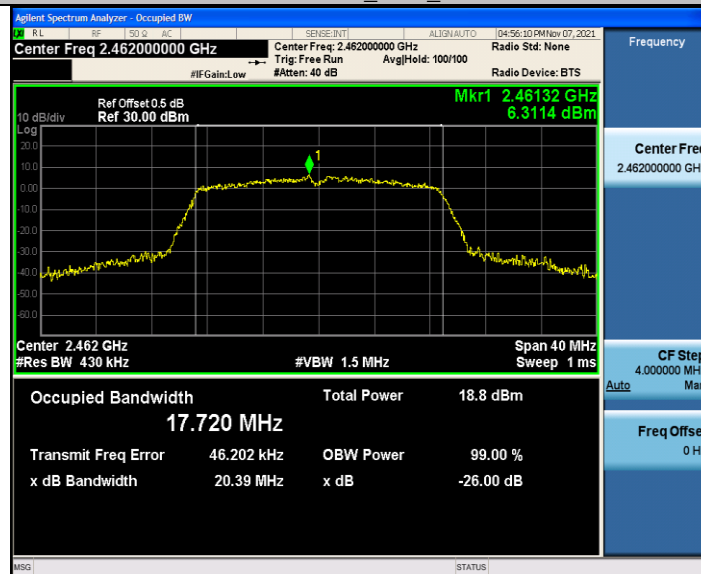
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11N20MIMO\_Ant1\_2462



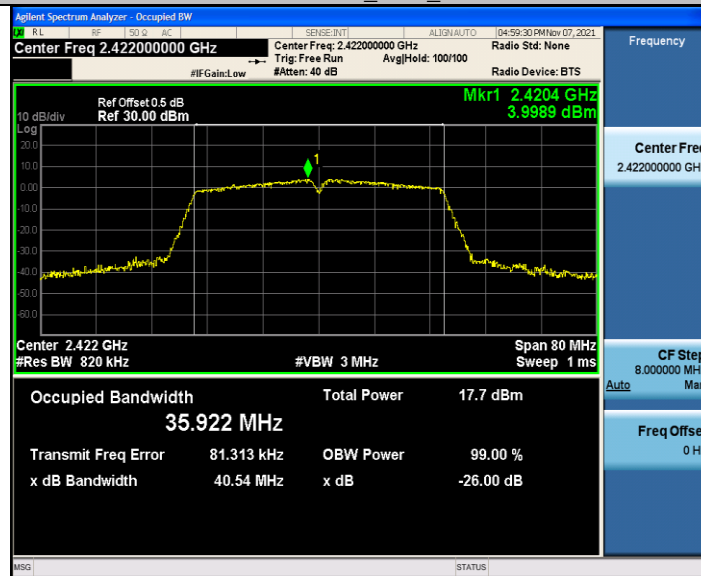
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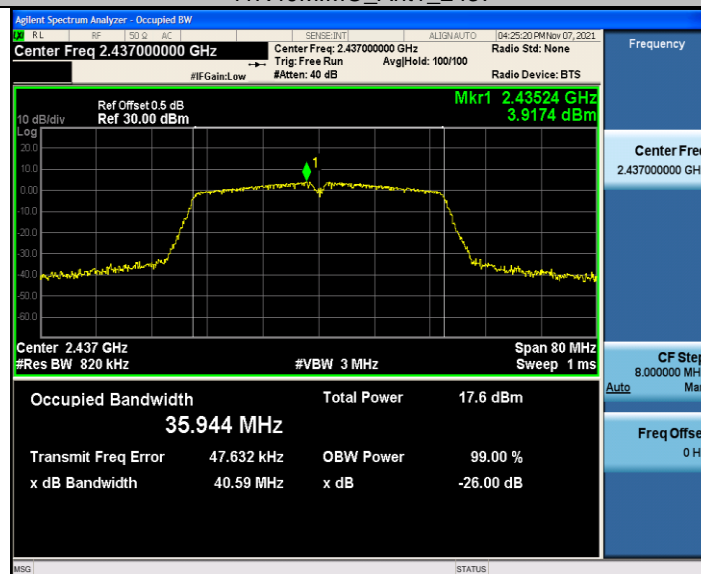
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11N40MIMO\_Ant2\_2422

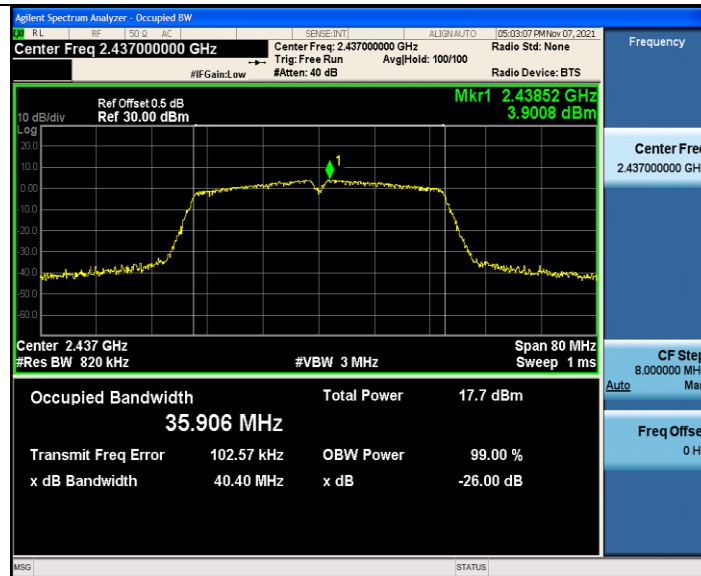


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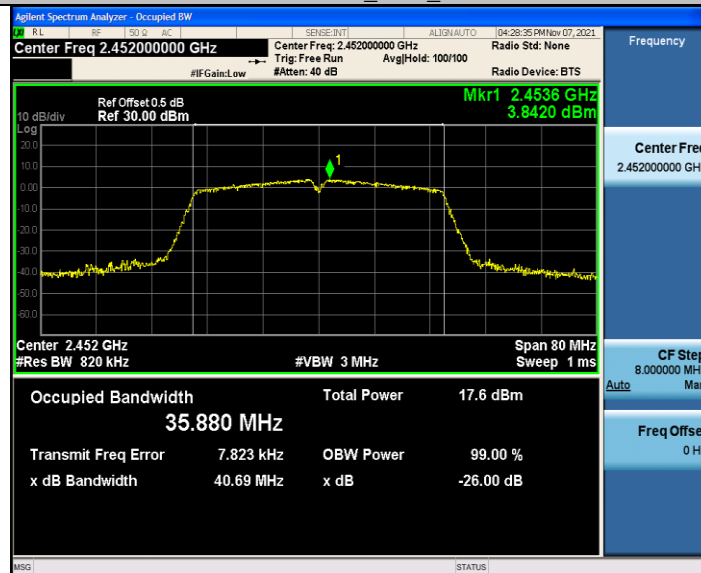


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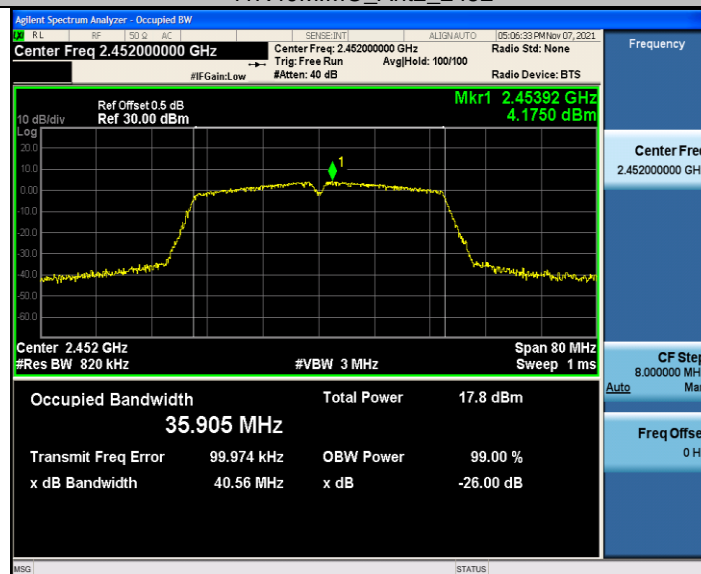




11N40MIMO\_Ant1\_2452



11N40MIMO\_Ant2\_2452



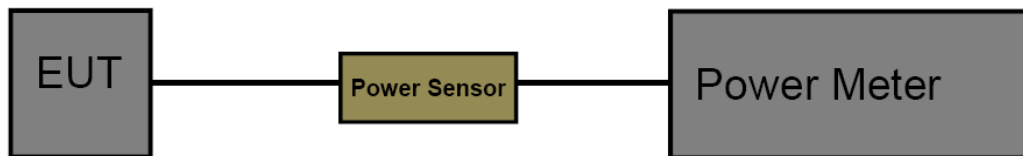
### 3.6. Peak Output Power

#### Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3)/ RSS-247 5.4:

Section	Test Item	Limit	Frequency Range(MHz)
CFR 47 FCC 15.247(b)(3)	Maximum conducted output power	1 Watt or 30dBm	2400~2483.5
ISED RSS-247 5.4 d	EIRP	4 Watt or 36dBm	2400~2483.5

#### Test Configuration



#### Test Procedure

1. The maximum conducted output power may be measured using a broadband Peak RF power meter.
2. Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor.
3. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.  
Record the measurement data.

#### Test Mode

Please refer to the clause 2.4.

#### Test Result



Test Mode	Antenna	Frequency (MHz)	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	14.19	<=30	PASS
	Ant2	2412	14.24	<=30	PASS
	Ant1	2437	14.24	<=30	PASS
	Ant2	2437	14.22	<=30	PASS
	Ant1	2462	14.47	<=30	PASS
	Ant2	2462	14.02	<=30	PASS
11G	Ant1	2412	14.65	<=30	PASS
	Ant2	2412	14.48	<=30	PASS
	Ant1	2437	14.61	<=30	PASS
	Ant2	2437	14.43	<=30	PASS
	Ant1	2462	14.59	<=30	PASS
	Ant2	2462	14.43	<=30	PASS
11N20MIMO	Ant1	2412	11.50	<=30	PASS
	Ant2	2412	11.40	<=30	PASS
	total	2412	14.50	<=30	PASS
	Ant1	2437	11.53	<=30	PASS
	Ant2	2437	11.25	<=30	PASS
	total	2437	14.40	<=30	PASS
	Ant1	2462	11.65	<=30	PASS
	Ant2	2462	11.28	<=30	PASS
	total	2462	14.50	<=30	PASS
11N40MIMO	Ant1	2422	10.03	<=30	PASS
	Ant2	2422	9.98	<=30	PASS
	total	2422	13.00	<=30	PASS
	Ant1	2437	10.03	<=30	PASS
	Ant2	2437	9.61	<=30	PASS
	total	2437	12.80	<=30	PASS
	Ant1	2452	9.99	<=30	PASS
	Ant2	2452	9.45	<=30	PASS
	total	2452	12.70	<=30	PASS

Note: Test results increased RF cable loss by 0.5dB.

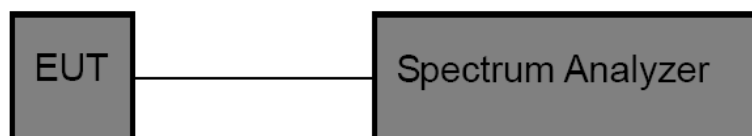
### 3.7. Power Spectral Density

#### Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (e)/ RSS-247 5.2 b:

Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

#### Test Configuration



#### Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
3. Spectrum Setting:  
Set analyzer center frequency to DTS channel center frequency.  
Set the span to 1.5 times the DTS bandwidth.  
Set the RBW to: 3 kHz  
Set the VBW to: 10 kHz  
Detector: Avg  
Sweep time: Auto  
Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

#### Test Mode

Please refer to the clause 2.4.

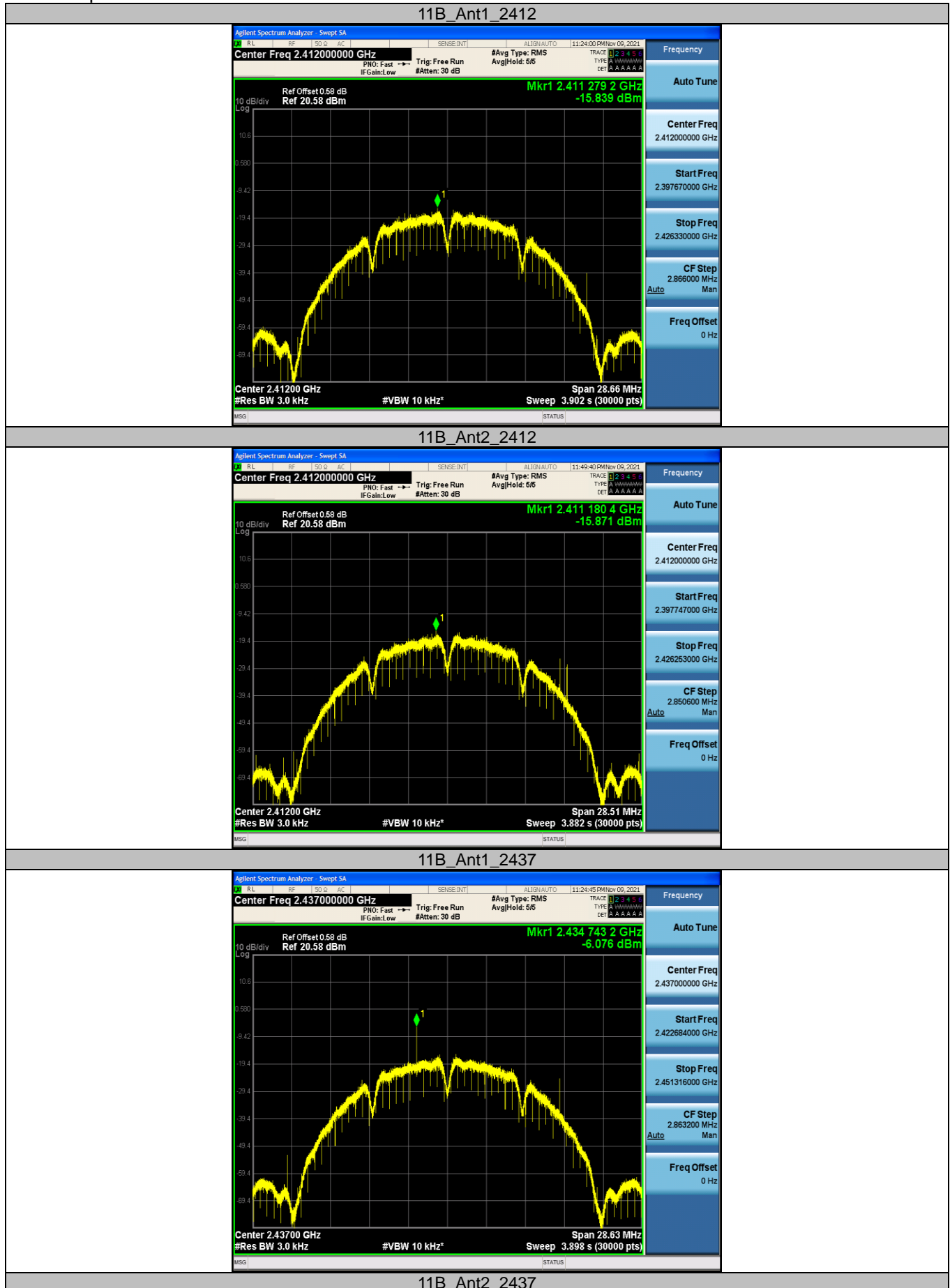
**Test Result**

Test Mode	Antenna	Frequency (MHz)	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-15.84	<=8	PASS
	Ant2	2412	-15.87	<=8	PASS
	Ant1	2437	-6.08	<=8	PASS
	Ant2	2437	-7.41	<=8	PASS
	Ant1	2462	-8.37	<=8	PASS
	Ant2	2462	-5.47	<=8	PASS
11G	Ant1	2412	-15.68	<=8	PASS
	Ant2	2412	-15.16	<=8	PASS
	Ant1	2437	-16.14	<=8	PASS
	Ant2	2437	-16.36	<=8	PASS
	Ant1	2462	-16.08	<=8	PASS
	Ant2	2462	-15.89	<=8	PASS
11N20MIMO	Ant1	2412	-18.45	<=8	PASS
	Ant2	2412	-18.89	<=8	PASS
	total	2412	-15.65	<=8	PASS
	Ant1	2437	-19.03	<=8	PASS
	Ant2	2437	-19.24	<=8	PASS
	total	2437	-16.12	<=8	PASS
	Ant1	2462	-18.61	<=8	PASS
	Ant2	2462	-18.84	<=8	PASS
	total	2462	-15.71	<=8	PASS
11N40MIMO	Ant1	2422	-22.50	<=8	PASS
	Ant2	2422	-23.59	<=8	PASS
	total	2422	-20.00	<=8	PASS
	Ant1	2437	-22.33	<=8	PASS
	Ant2	2437	-23.58	<=8	PASS
	total	2437	-19.90	<=8	PASS
	Ant1	2452	-22.34	<=8	PASS
	Ant2	2452	-22.55	<=8	PASS
	total	2452	-19.43	<=8	PASS

Note: Duty Cycle Correction Factor =  $10 \cdot \log(1/\text{duty cycle})$   
The Duty Cycle Correction Factor is compensated in the graph.  
MIMO = (MIMO)/2



## Test Graphs:



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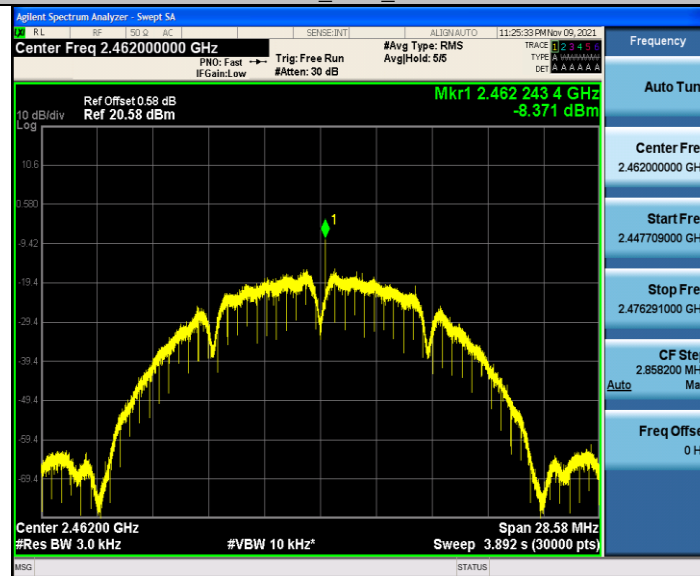
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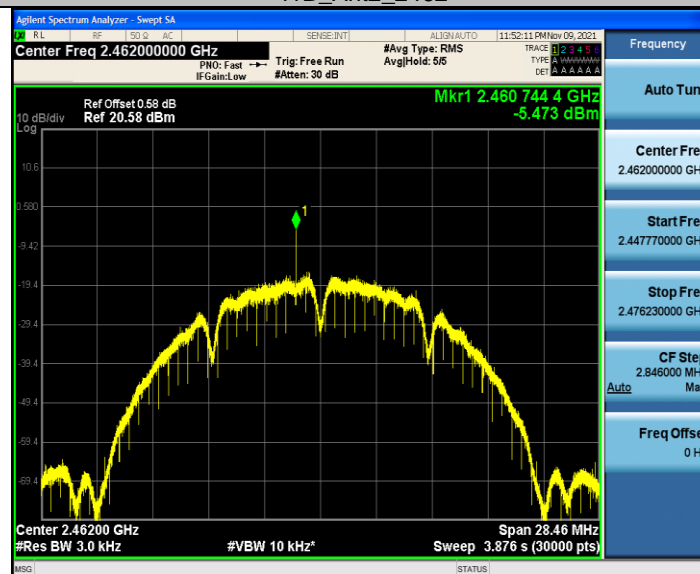




11B\_Ant1\_2462



11B\_Ant2\_2462



11G\_Ant1\_2412

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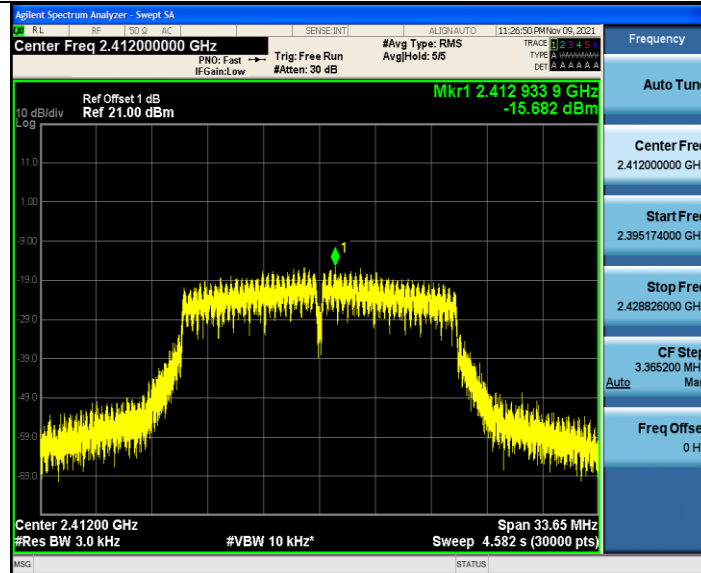
1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Tel.: (86)755-27521059

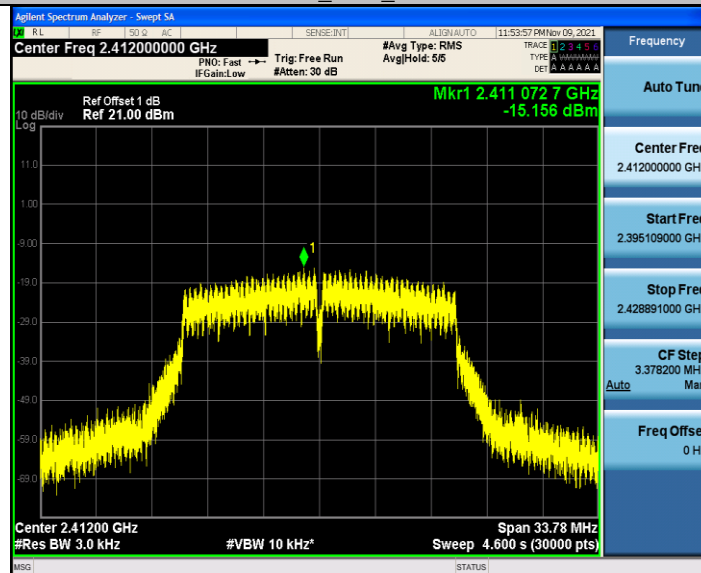
Fax: (86)755-27521011

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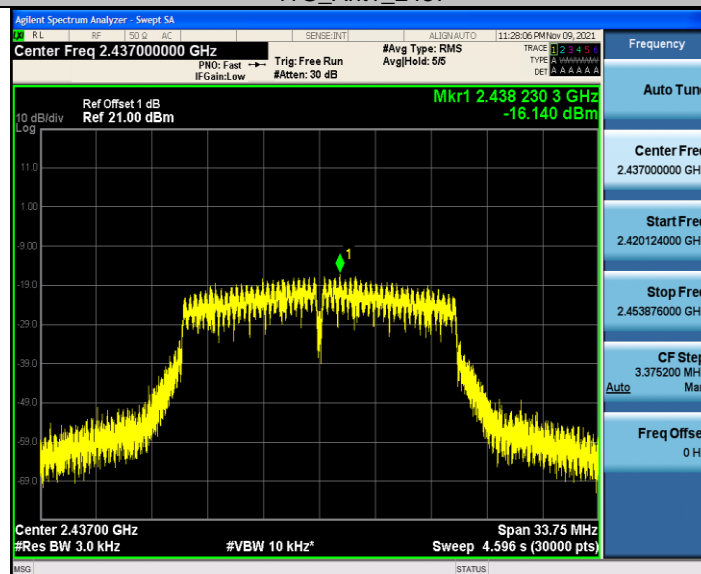
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11G\_Ant2\_2412



11G\_Ant1\_2437



11G\_Ant2\_2437

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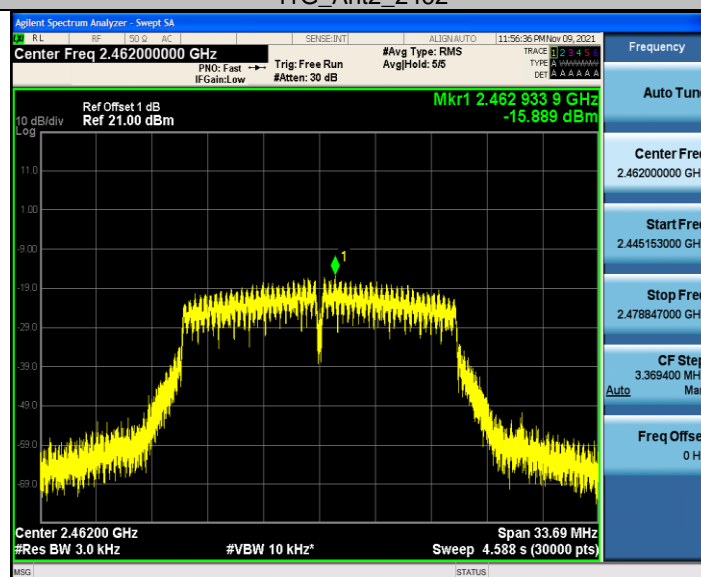
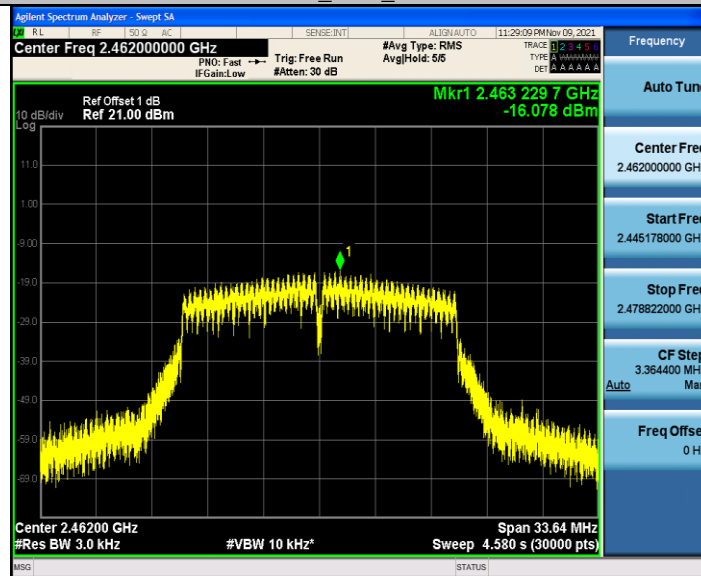
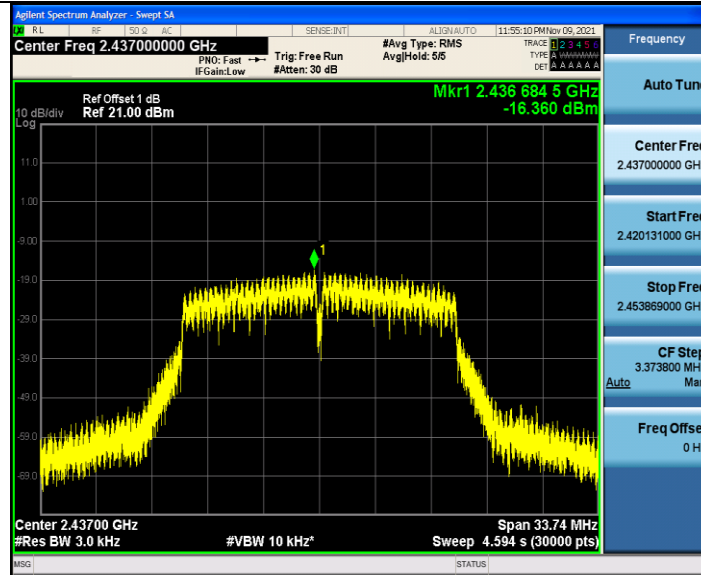
1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

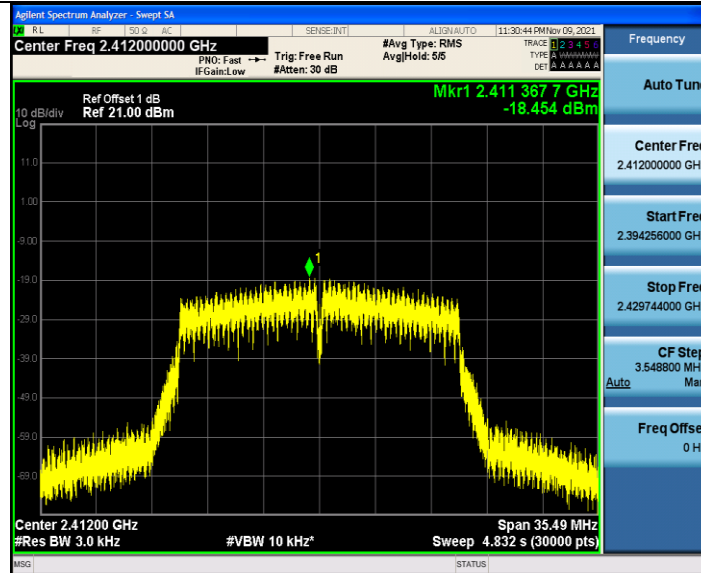
Tel.: (86)755-27521059

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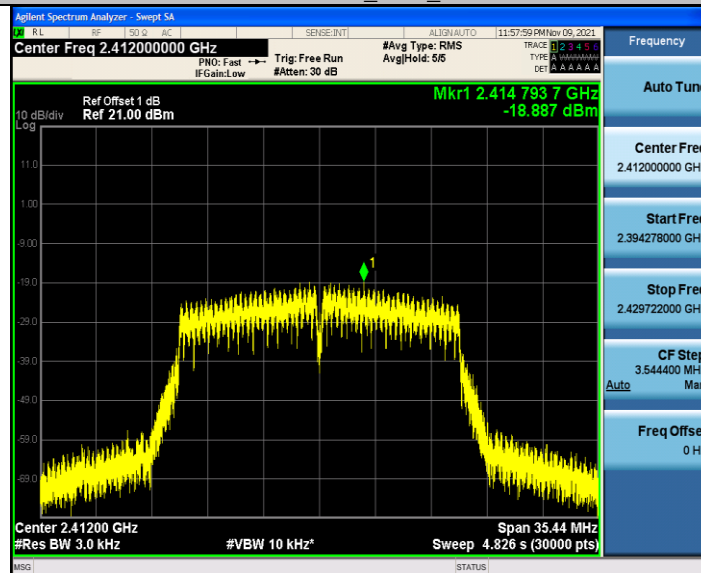
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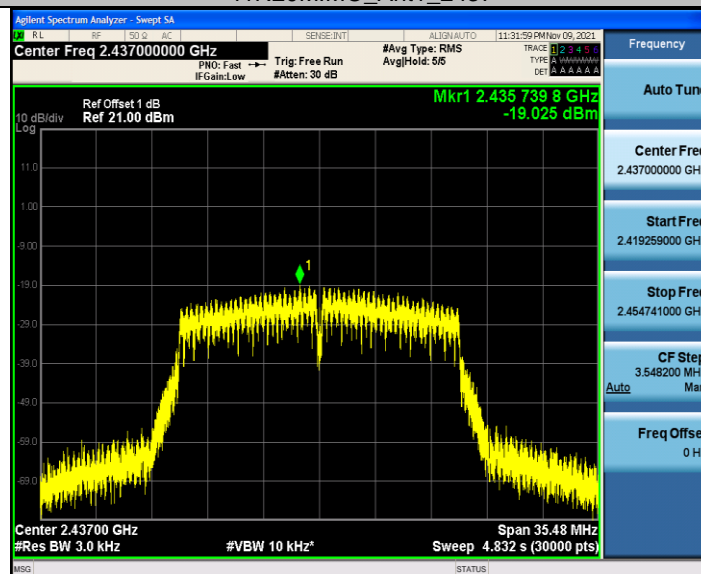




11N20MIMO\_Ant2\_2412



11N20MIMO\_Ant1\_2437



11N20MIMO\_Ant2\_2437

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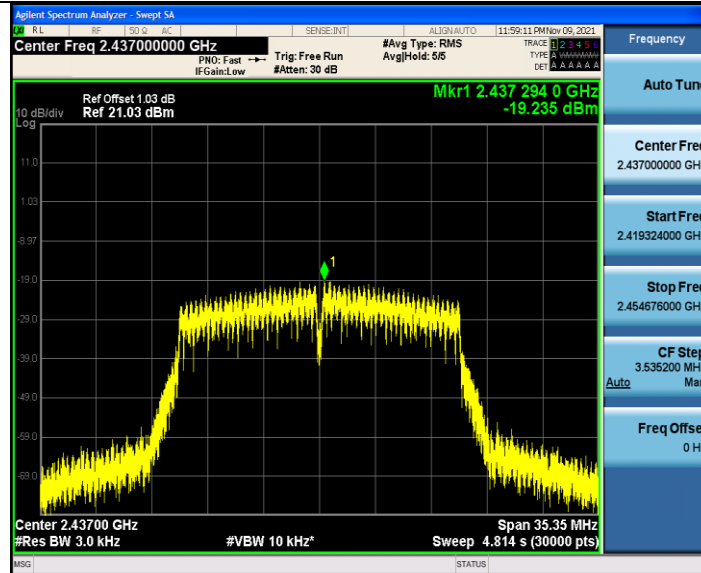
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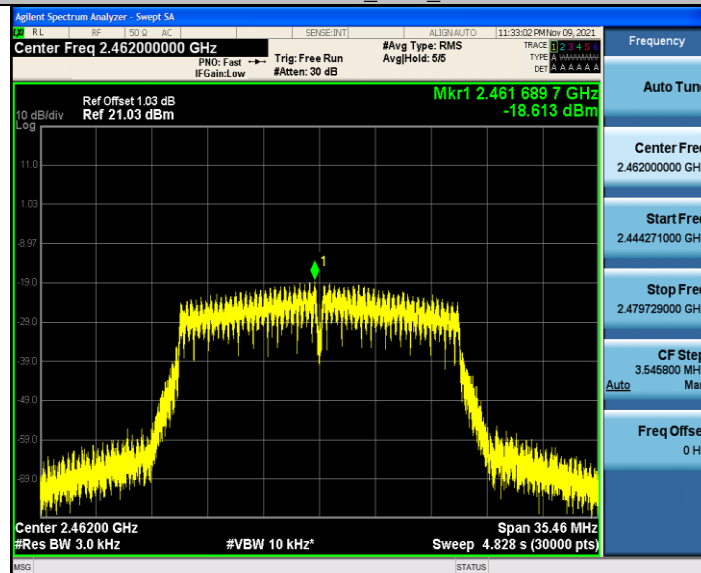
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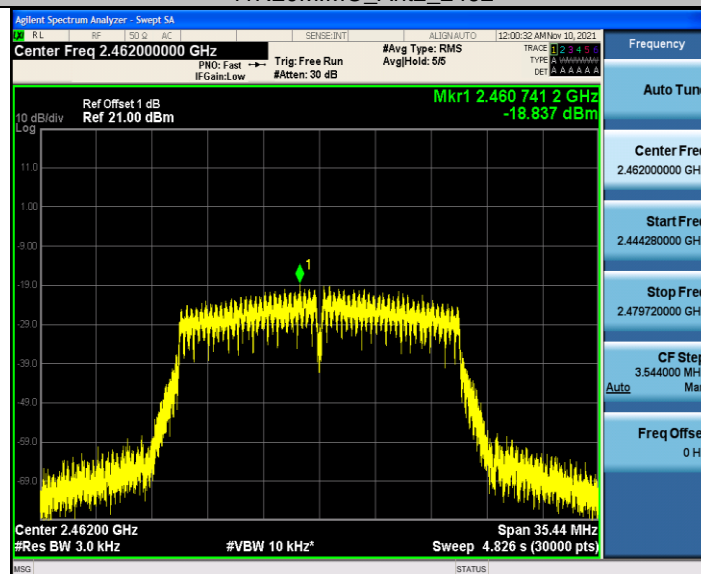
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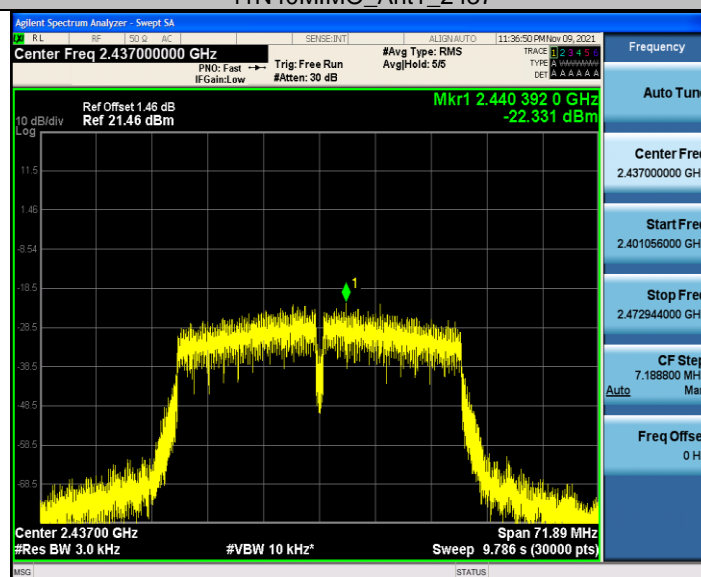
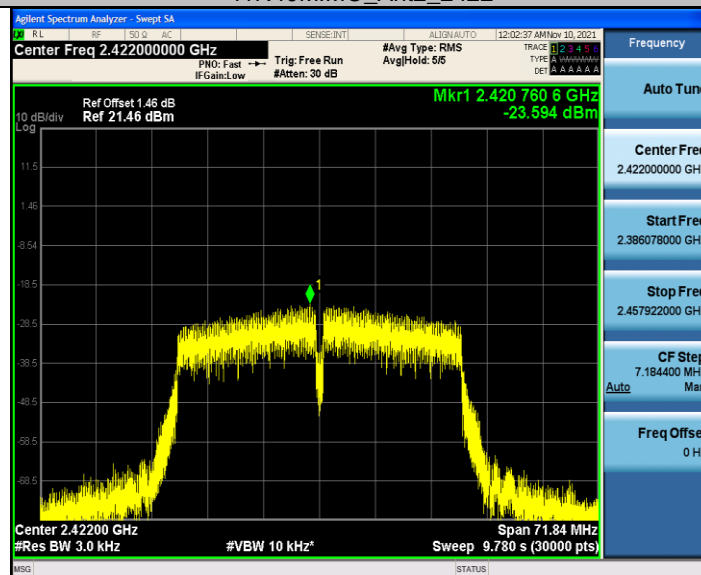
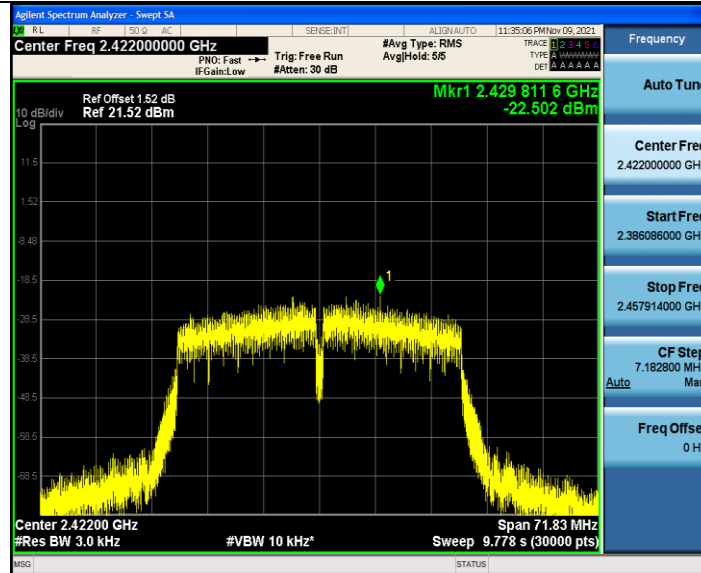
11N20MIMO\_Ant1\_2462



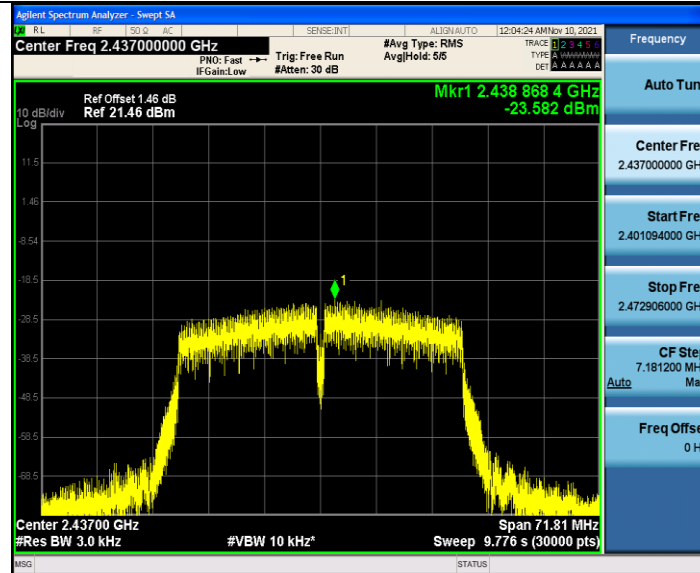
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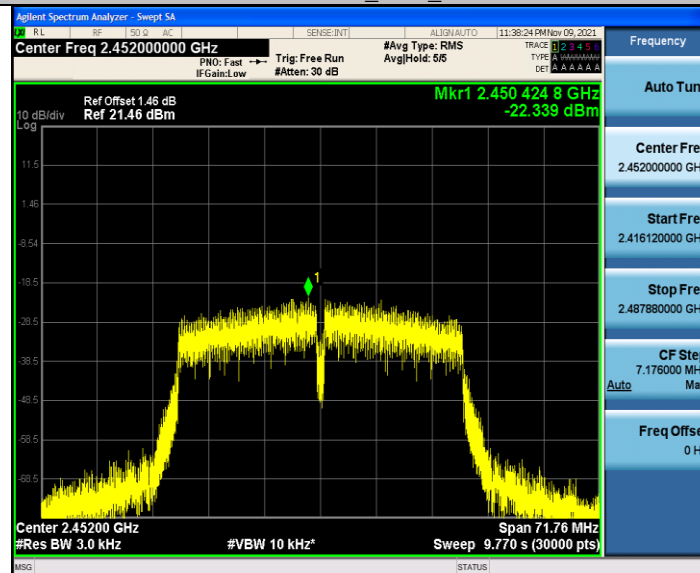
11N40MIMO\_Ant1\_2422



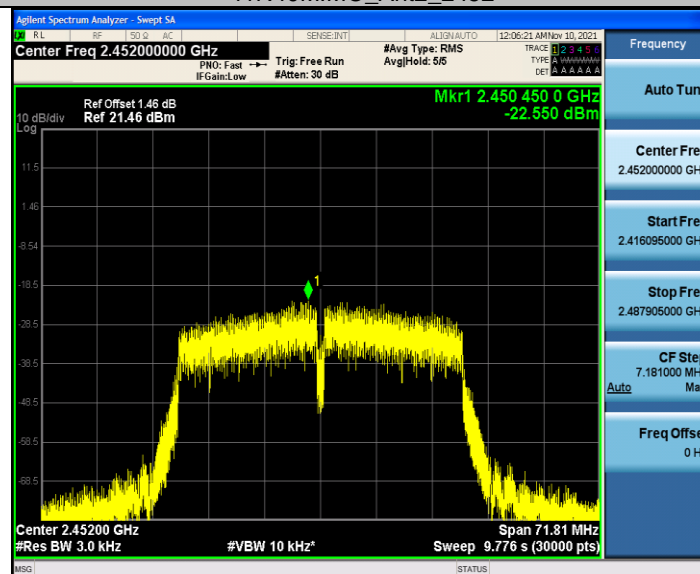




11N40MIMO\_Ant1\_2452



11N40MIMO\_Ant2\_2452





### 3.8. Antenna Requirement

#### Requirement

**FCC CFR Title 47 Part 15 Subpart C Section 15.203:**

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 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.

**FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):**

(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.

#### Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

\*\*\*\*\*THE END\*\*\*\*\*