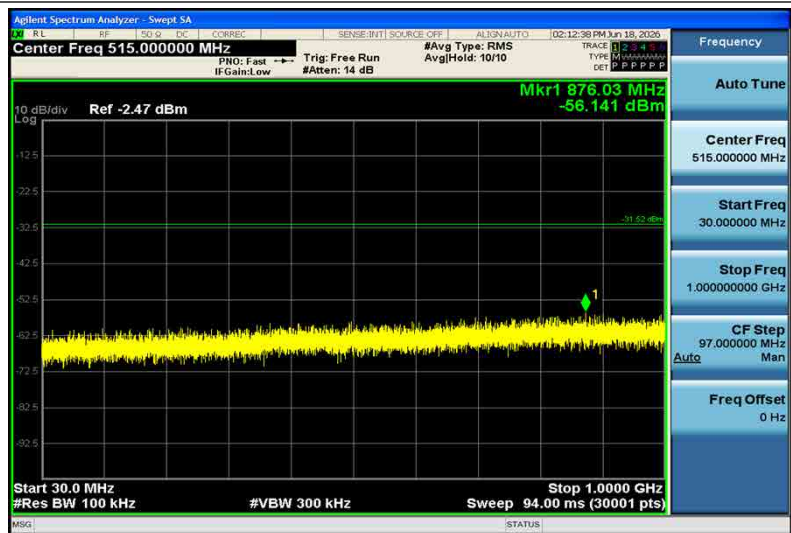
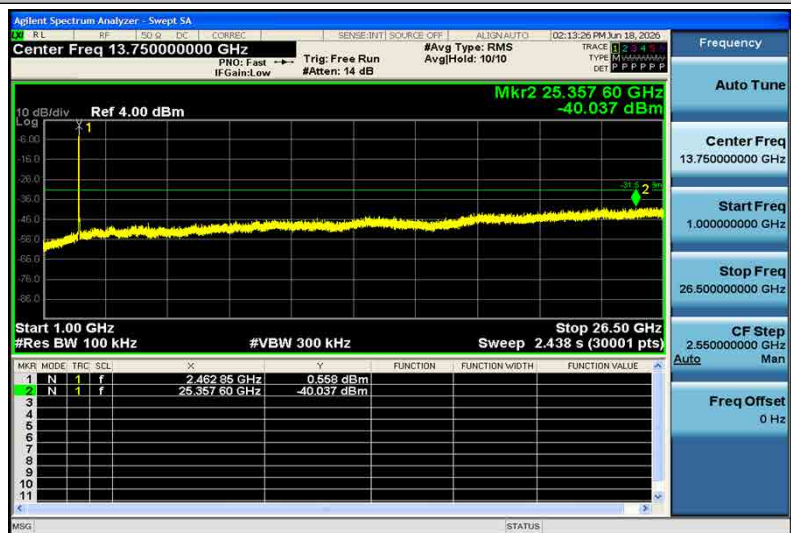




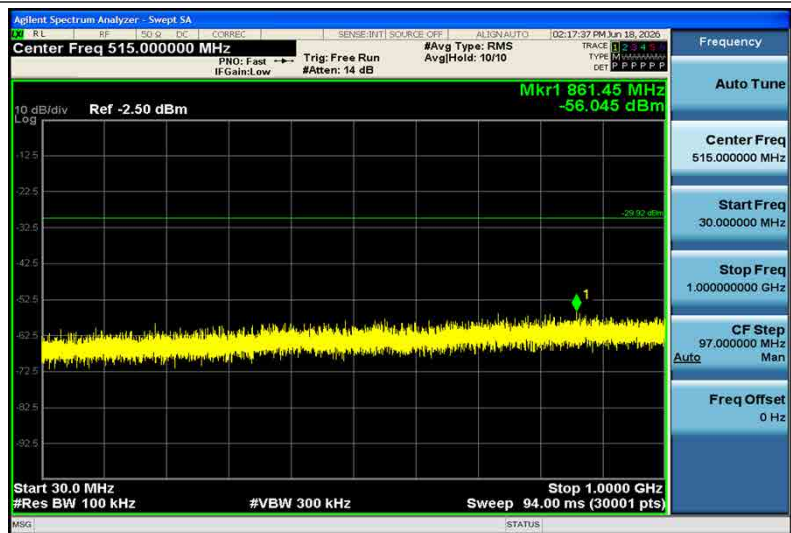
11G-Ant1-2462-30~1000-PASS



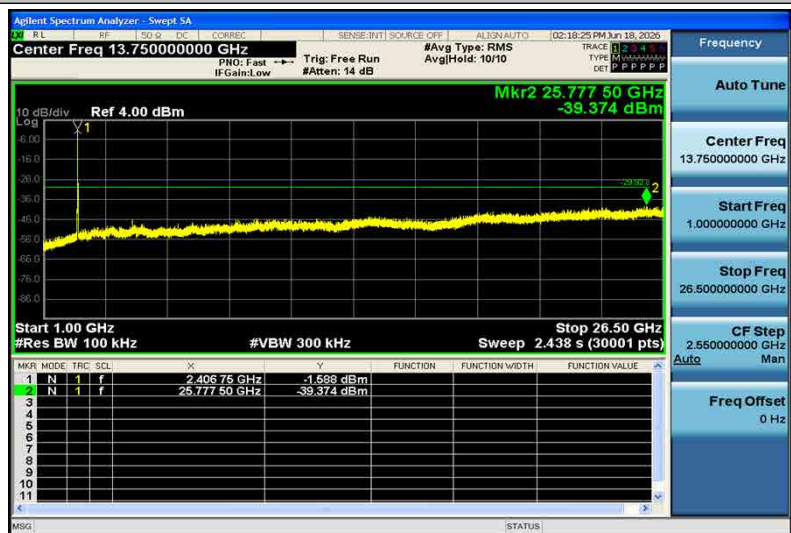
11G-Ant1-2462-1000~26500-PASS



11N20SISO-Ant1-2412-0~Reference-PASS



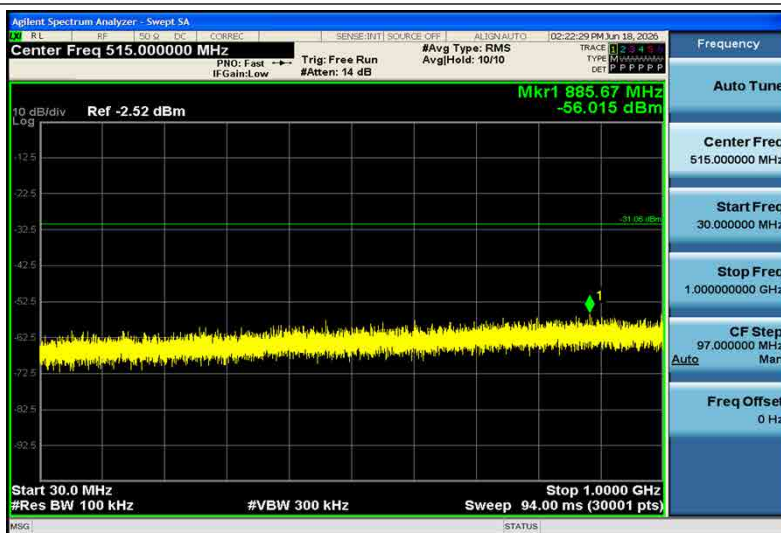
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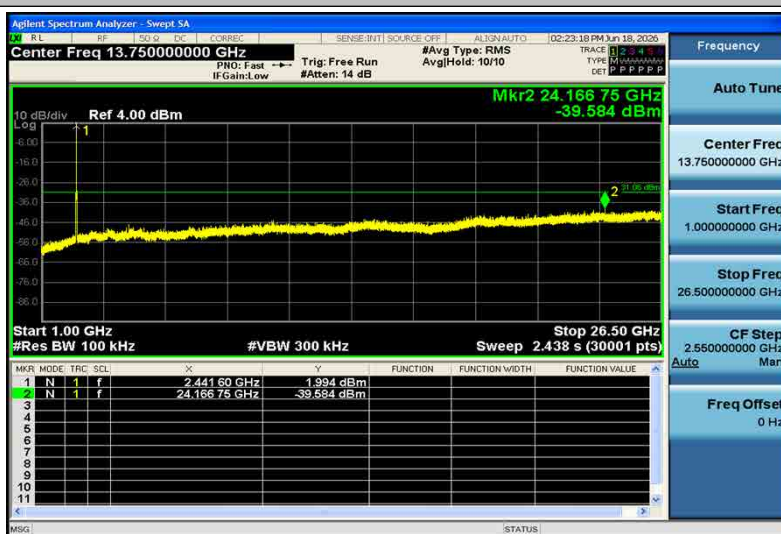
11N20SISO-Ant1-2412-1000~26500-PASS



11N20SISO-Ant1-2437-0~Reference-PASS



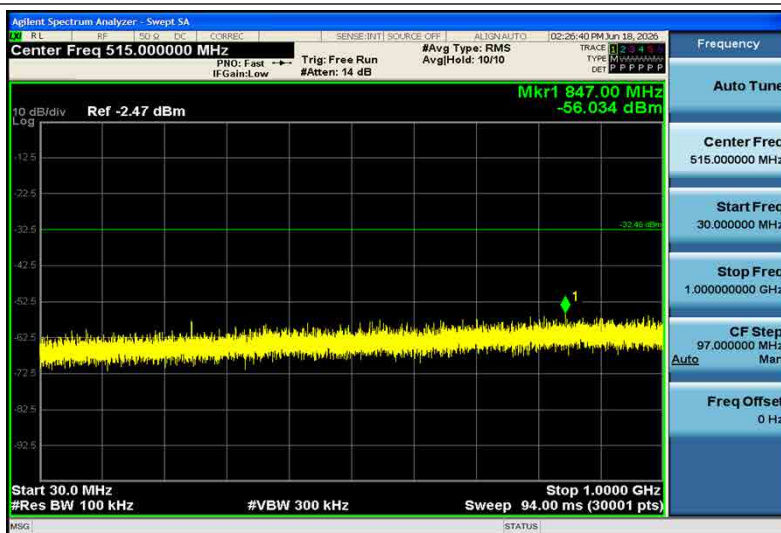
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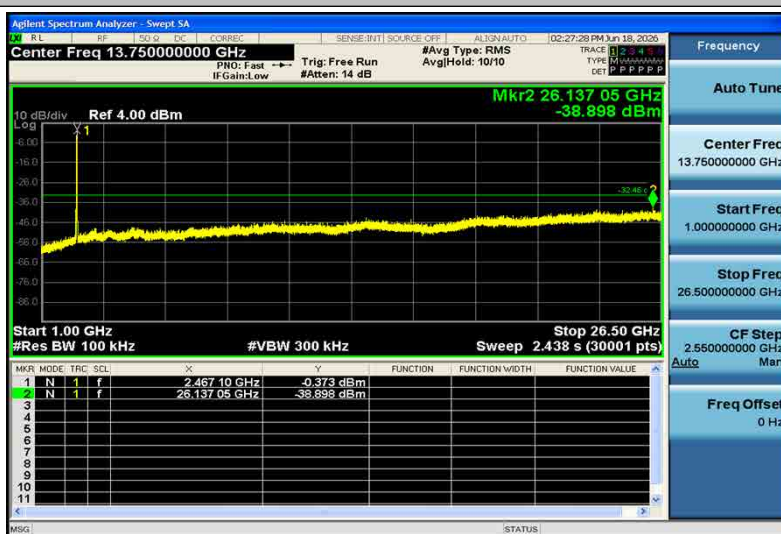
11N20SISO-Ant1-2437-1000~26500-PASS



11N20SISO-Ant1-2462-0~Reference-PASS



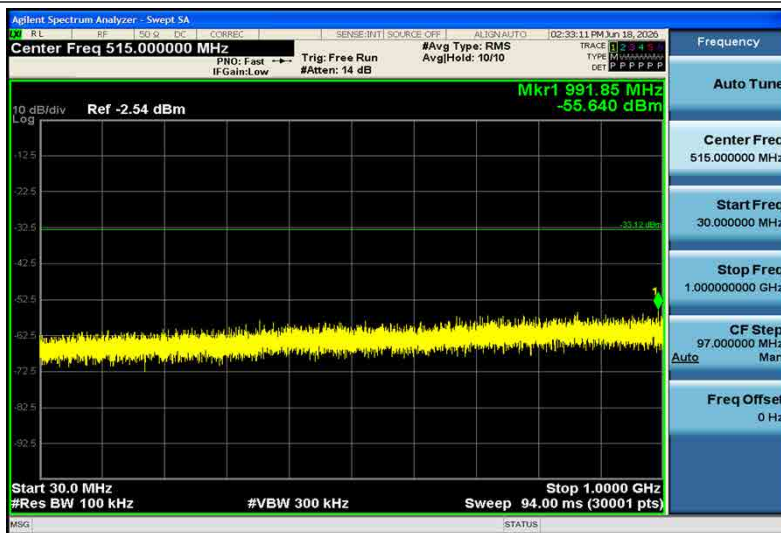
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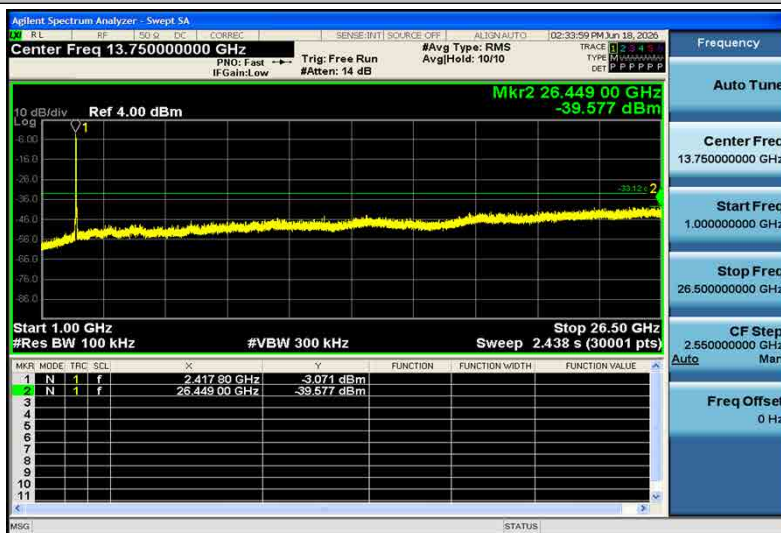
11N20SISO-Ant1-2462-1000~26500-PASS



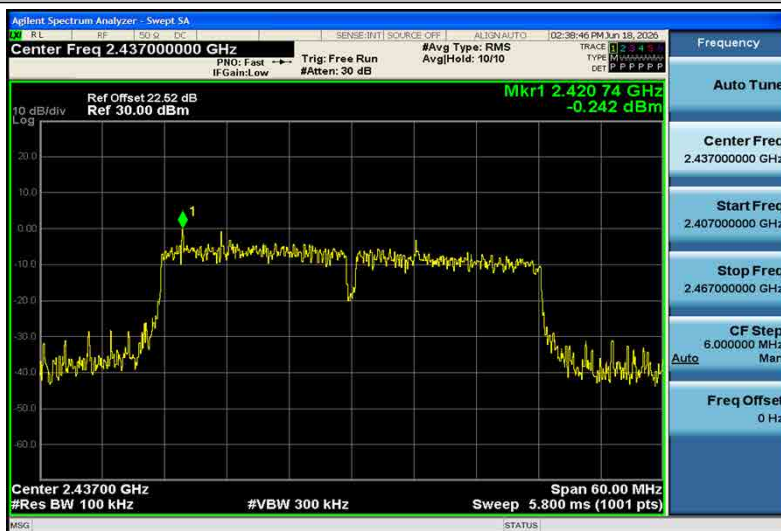
11N40SISO-Ant1-2422-0~Reference-PASS



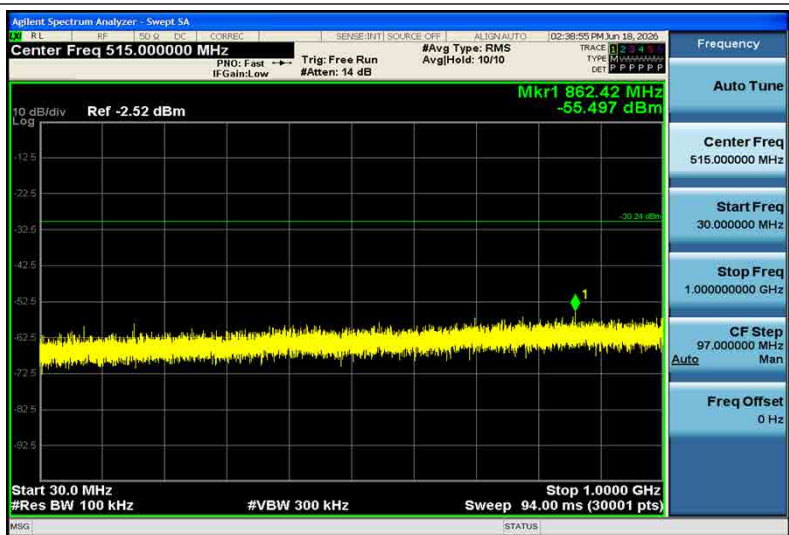
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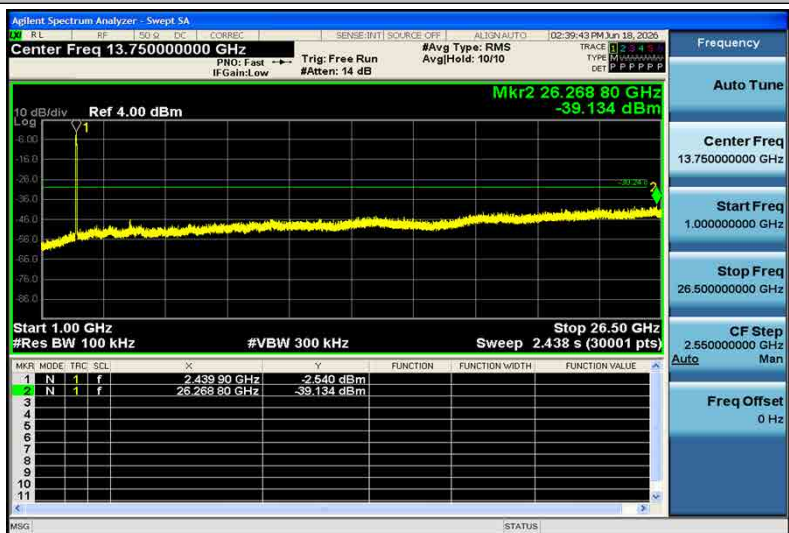
11N40SISO-Ant1-2422-1000~26500-PASS



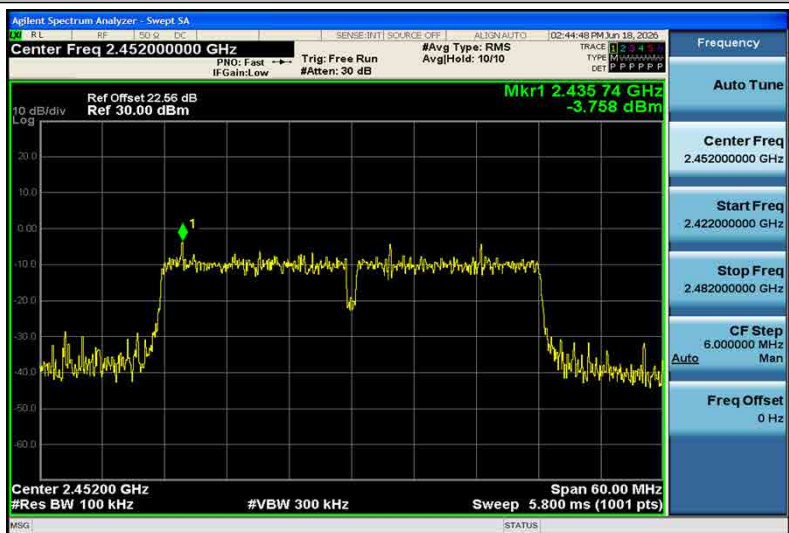
11N40SISO-Ant1-2437-0~Reference-PASS



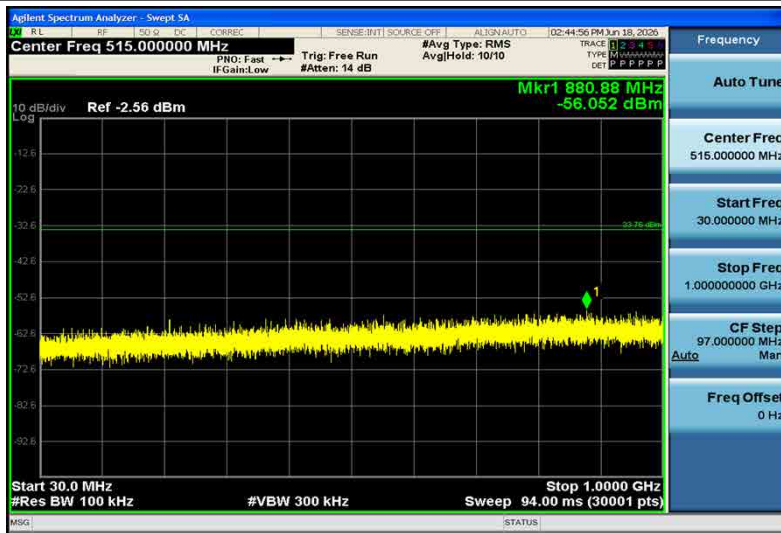
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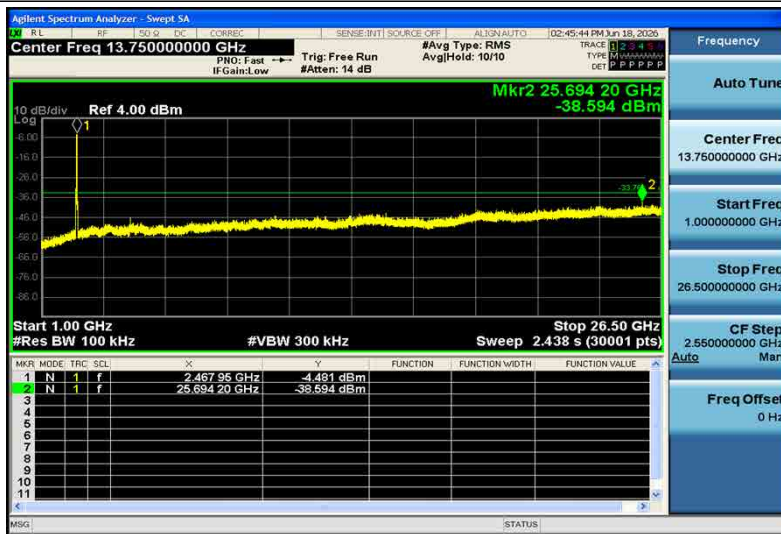
11N40SISO-Ant1-2437-1000~26500-PASS



11N40SISO-Ant1-2452-0~Reference-PASS



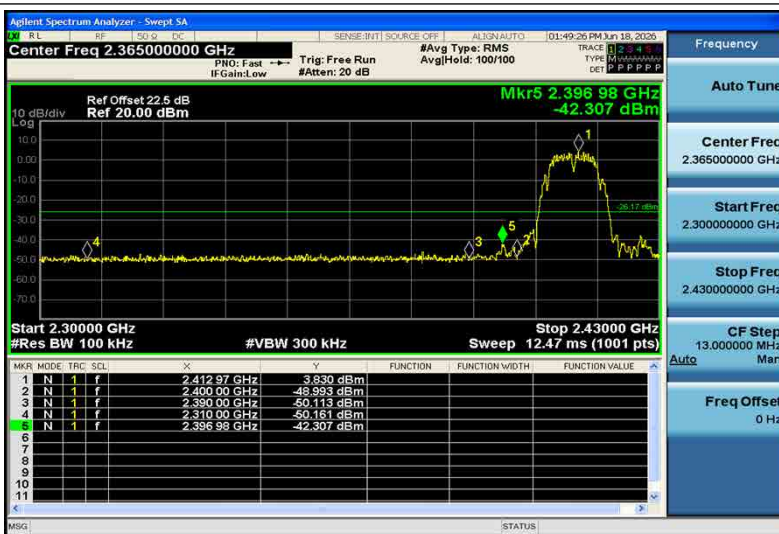
11N40SISO-Ant1-2452-30~1000-PASS



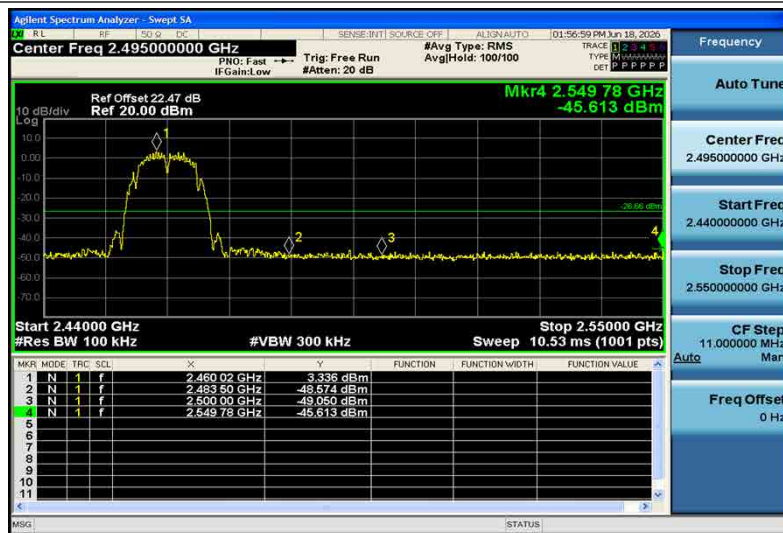
11N40SISO-Ant1-2452-1000~26500-PASS

Band edge

Test Mode	Antenna	Ch Name	Frequency[MHz]	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	3.83	-42.31	≤-26.17	PASS
11B	Ant1	High	2462	3.34	-45.61	≤-26.66	PASS
11G	Ant1	Low	2412	2.17	-28.33	≤-27.83	PASS
11G	Ant1	High	2462	1.24	-39.55	≤-28.77	PASS
11N20SISO	Ant1	Low	2412	0.10	-40.98	≤-29.9	PASS
11N20SISO	Ant1	High	2462	0.67	-40.87	≤-29.33	PASS
11N40SISO	Ant1	Low	2422	-2.29	-32.9	≤-32.29	PASS
11N40SISO	Ant1	High	2452	-4.28	-36.71	≤-34.28	PASS



11B-Ant1-2412-PASS



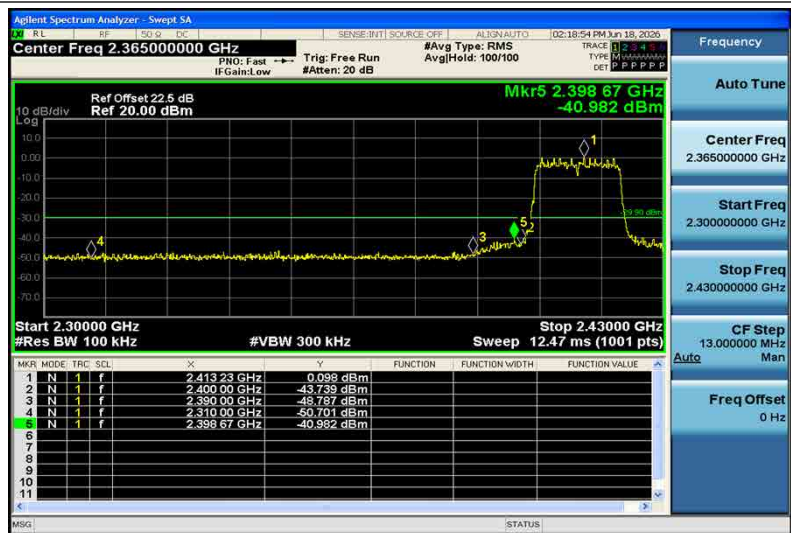
11B-Ant1-2462-PASS



11G-Ant1-2412-PASS



11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2462-PASS



11N40SISO-Ant1-2422-PASS



11N40SISO-Ant1-2452-PASS

3.4 6dB Bandwidth

3.4.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

3.4.2 Test Procedure

Test Method	
☒ Conducted Measurement	☐ Radiated Measurement
Test Channels	
☒ Lowest, Middle and Highest Channel	☐ Lowest and Highest Channel
Environmental conditions	
☒ Normal	☐ Normal and Extreme
Note: ☒ : Test ☐ : No Test	

a) The EUT was connected to the tonscond test system, and the spectrum analyser is set as follow:

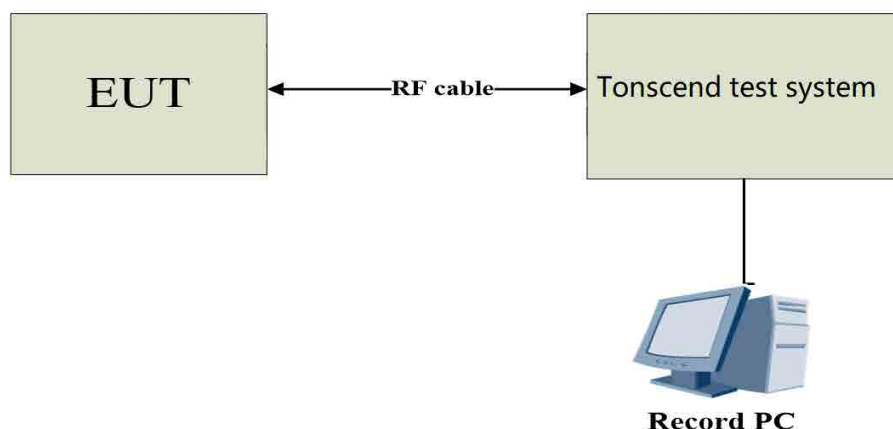
Centre Frequency	The centre frequency of the channel under test
RBW	1%~5% OBW but not less than 100 kHz.
VBW	≥ 3 RBW
Frequency span	2x Nominal Channel Bandwidth
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

b) Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.

c) Use the -6dB bandwidth function of the spectrum analyser to measure the 6dB Bandwidth of the EUT. This value shall be recorded.

d) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

3.4.3 Test Setup



3.4.4 Test Result

DTS Bandwidth

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.080	2406.960	2417.040	0.5	PASS
11B	Ant1	2437	9.680	2432.400	2442.080	0.5	PASS
11B	Ant1	2462	10.120	2456.920	2467.040	0.5	PASS
11G	Ant1	2412	16.400	2403.800	2420.200	0.5	PASS
11G	Ant1	2437	16.400	2428.840	2445.240	0.5	PASS
11G	Ant1	2462	16.360	2453.800	2470.160	0.5	PASS
11N20SISO	Ant1	2412	17.560	2403.240	2420.800	0.5	PASS
11N20SISO	Ant1	2437	17.280	2428.440	2445.720	0.5	PASS
11N20SISO	Ant1	2462	17.400	2453.200	2470.600	0.5	PASS
11N40SISO	Ant1	2422	35.120	2404.480	2439.600	0.5	PASS
11N40SISO	Ant1	2437	35.520	2419.000	2454.520	0.5	PASS
11N40SISO	Ant1	2452	36.080	2433.920	2470.000	0.5	PASS



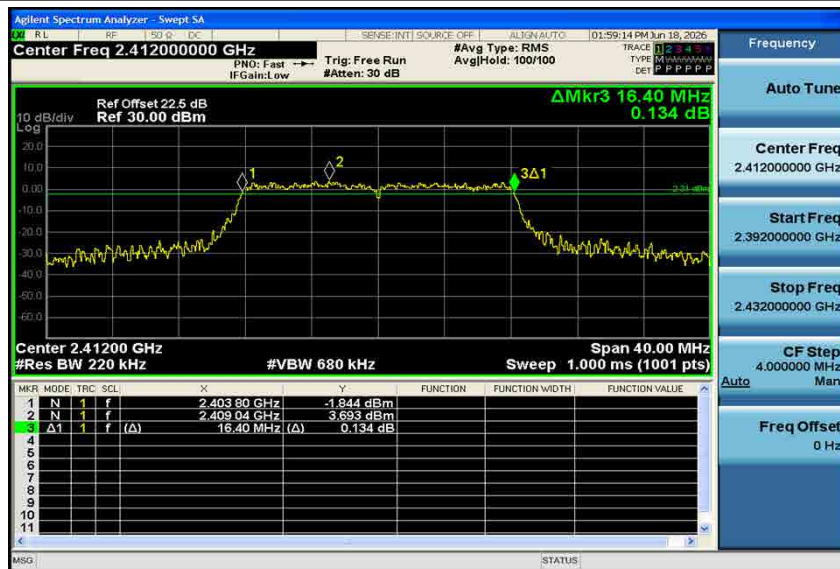
11B-Ant1-2412-PASS



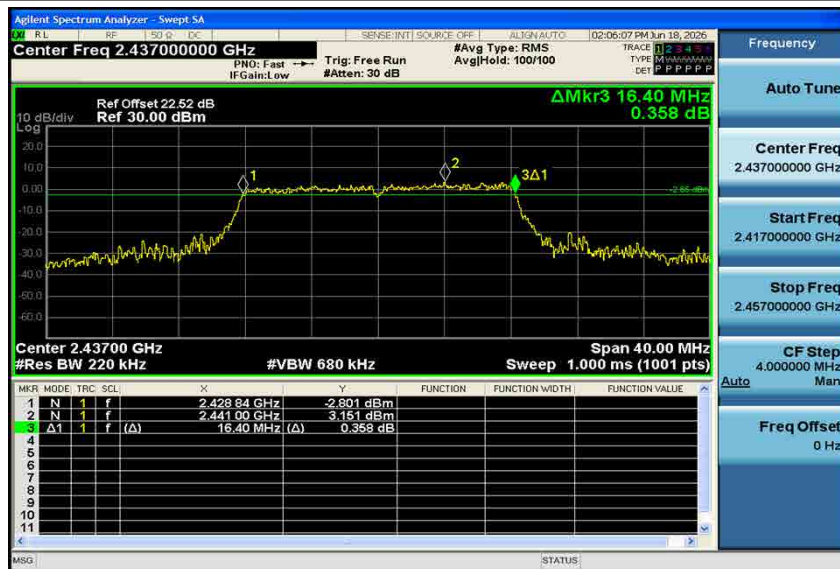
11B-Ant1-2437-PASS



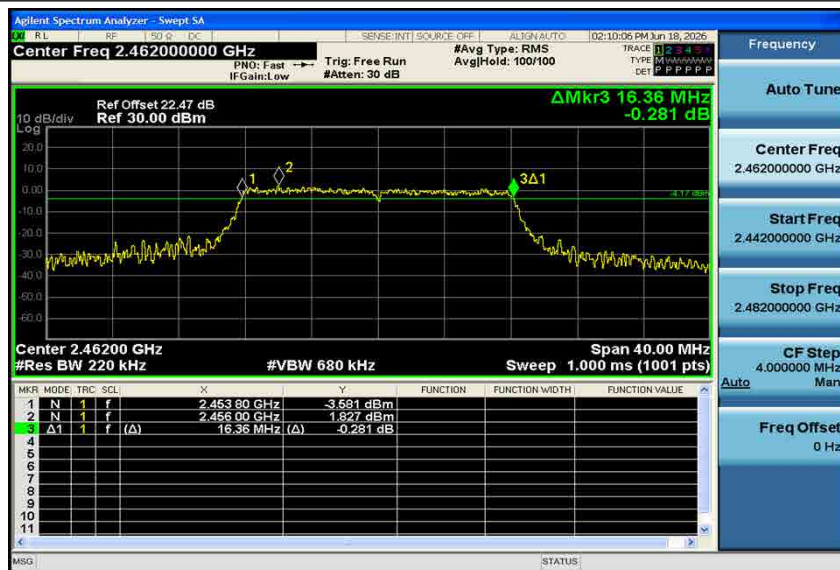
11B-Ant1-2462-PASS



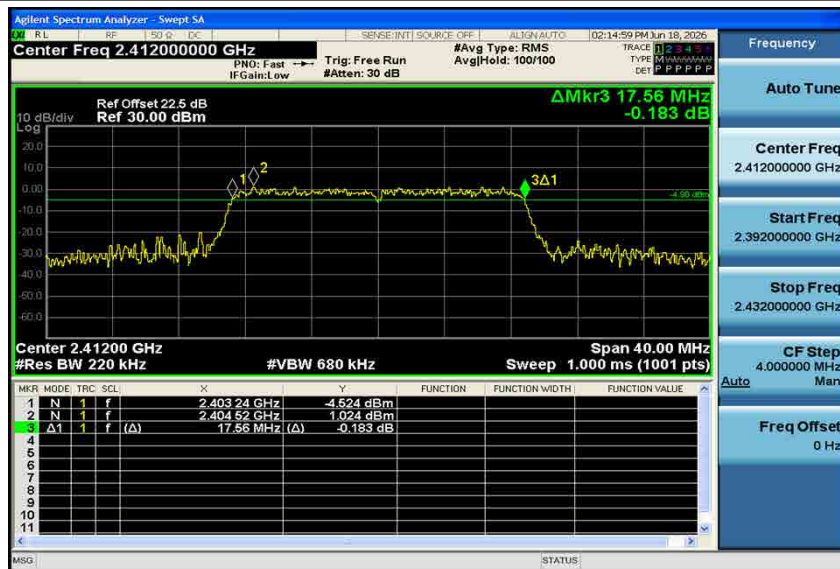
11G-Ant1-2412-PASS



11G-Ant1-2437-PASS



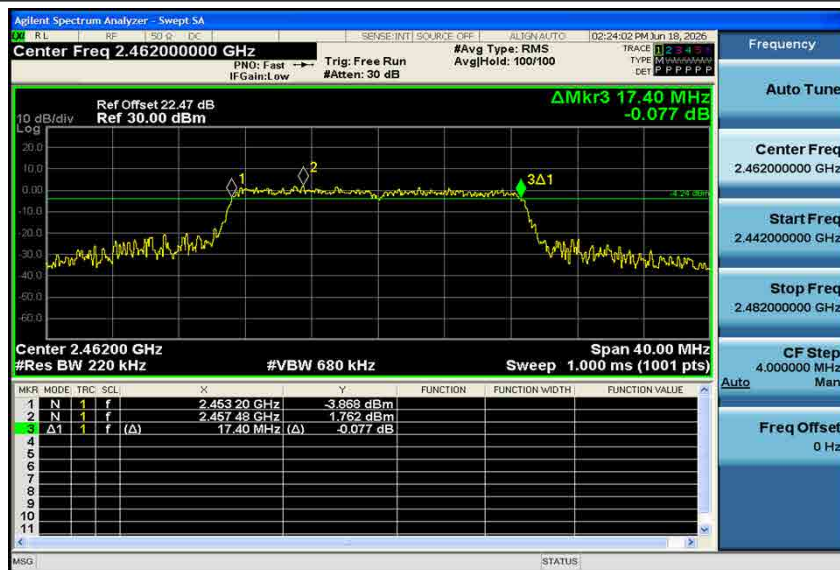
11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2437-PASS



11N20SISO-Ant1-2462-PASS



11N40SISO-Ant1-2422-PASS

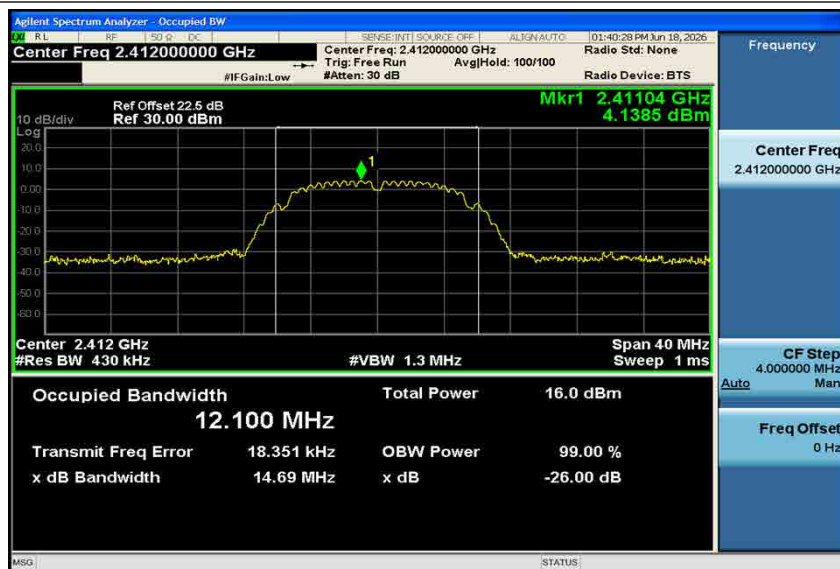


11N40SISO-Ant1-2437-PASS

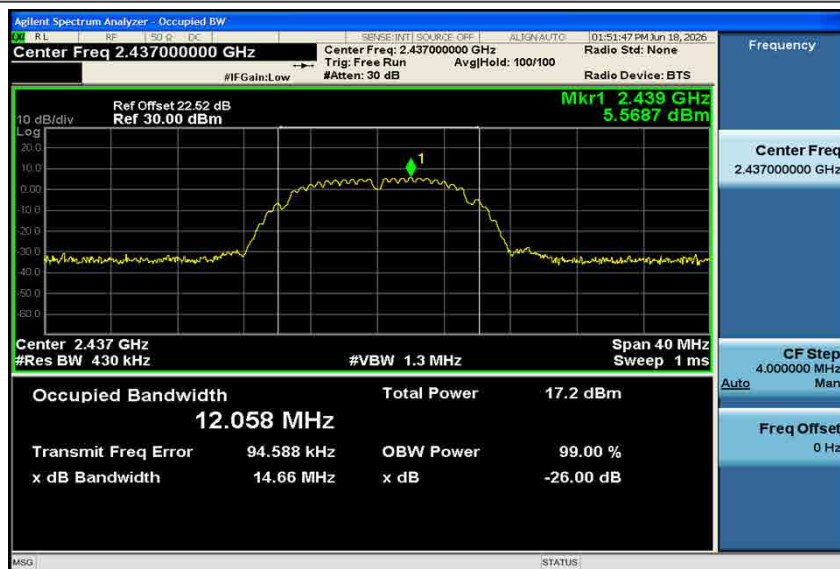


Occupied Channel Bandwidth

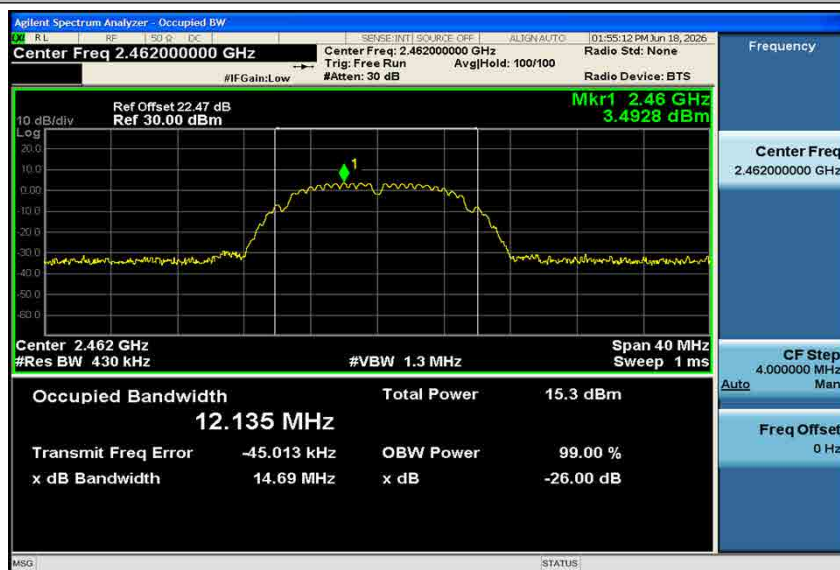
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.100	2405.9684	2418.0684	---	---
11B	Ant1	2437	12.058	2431.0656	2443.1236	---	---
11B	Ant1	2462	12.135	2455.8875	2468.0225	---	---
11G	Ant1	2412	16.980	2403.5024	2420.4824	---	---
11G	Ant1	2437	16.924	2428.6126	2445.5366	---	---
11G	Ant1	2462	16.950	2453.4686	2470.4186	---	---
11N20SISO	Ant1	2412	17.899	2403.0242	2420.9232	---	---
11N20SISO	Ant1	2437	17.884	2428.1318	2446.0158	---	---
11N20SISO	Ant1	2462	17.820	2453.0113	2470.8313	---	---
11N40SISO	Ant1	2422	35.954	2404.0493	2440.0033	---	---
11N40SISO	Ant1	2437	36.340	2418.6365	2454.9765	---	---
11N40SISO	Ant1	2452	36.619	2433.5609	2470.1799	---	---



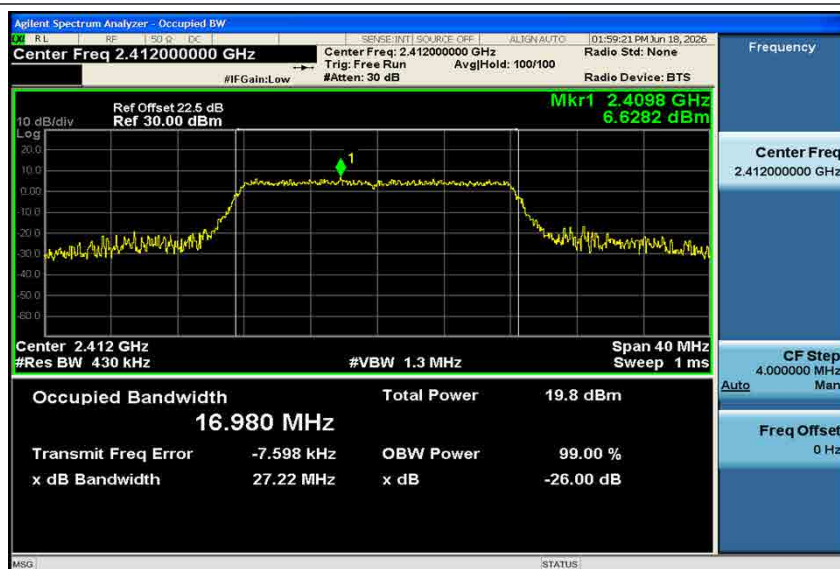
11B-Ant1-2412



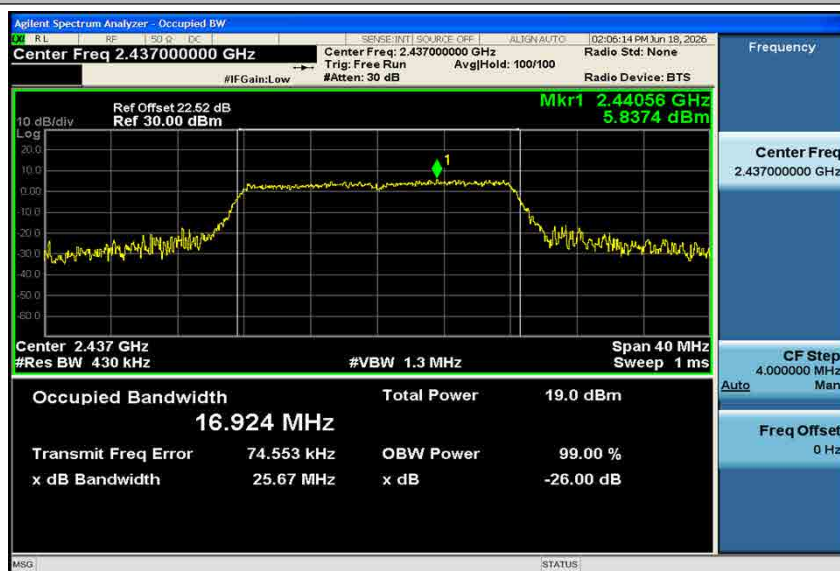
11B-Ant1-2437



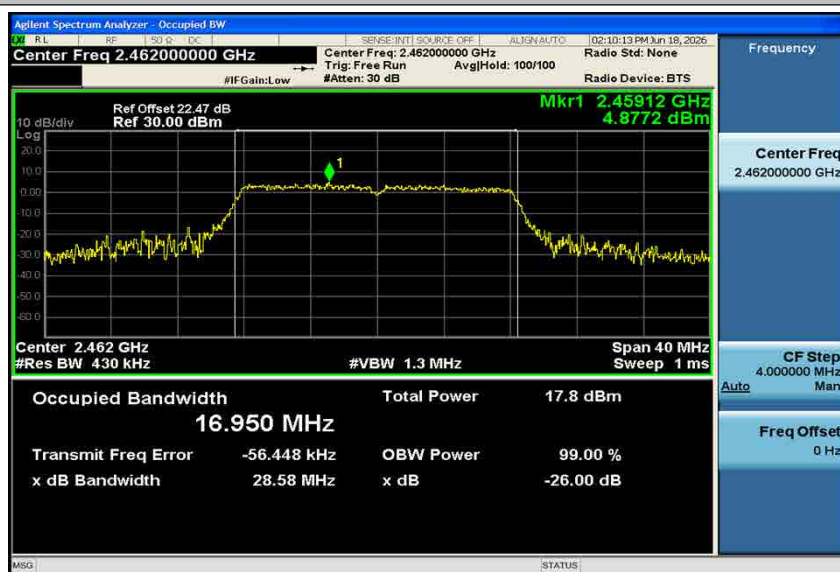
11B-Ant1-2462



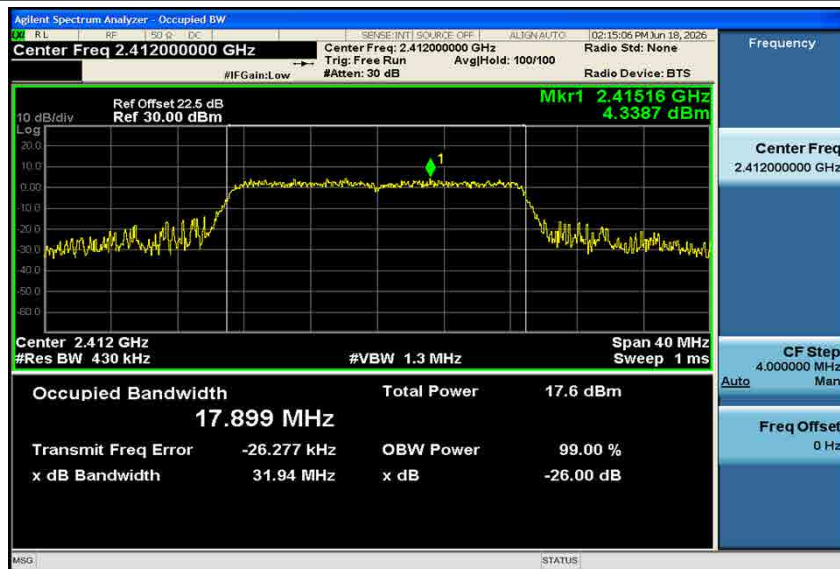
11G-Ant1-2412



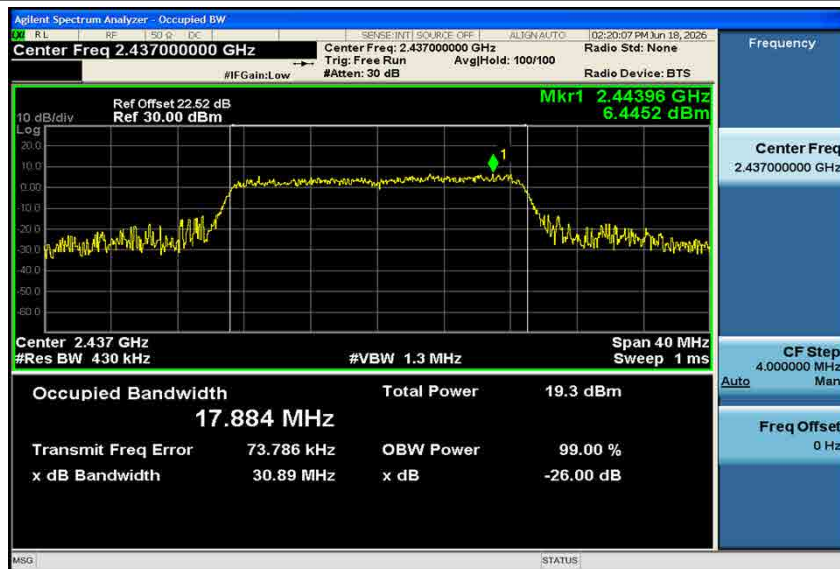
11G-Ant1-2437



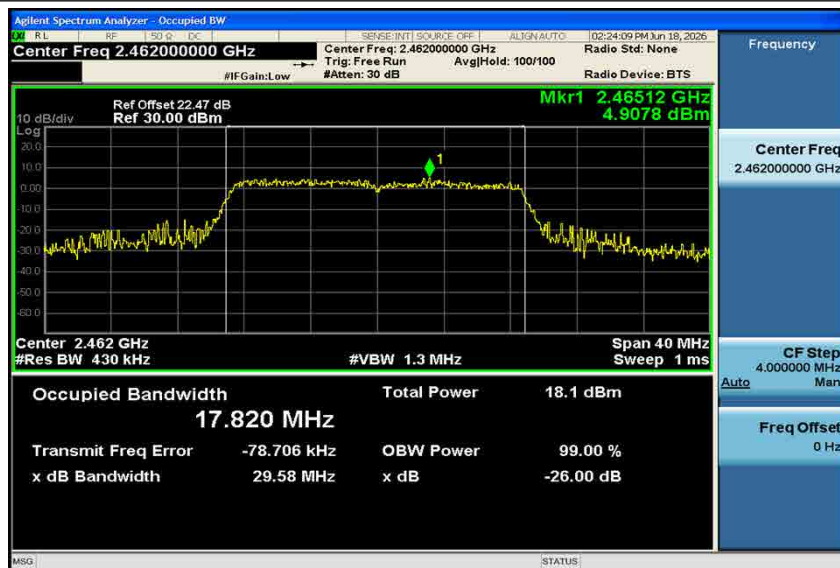
11G-Ant1-2462



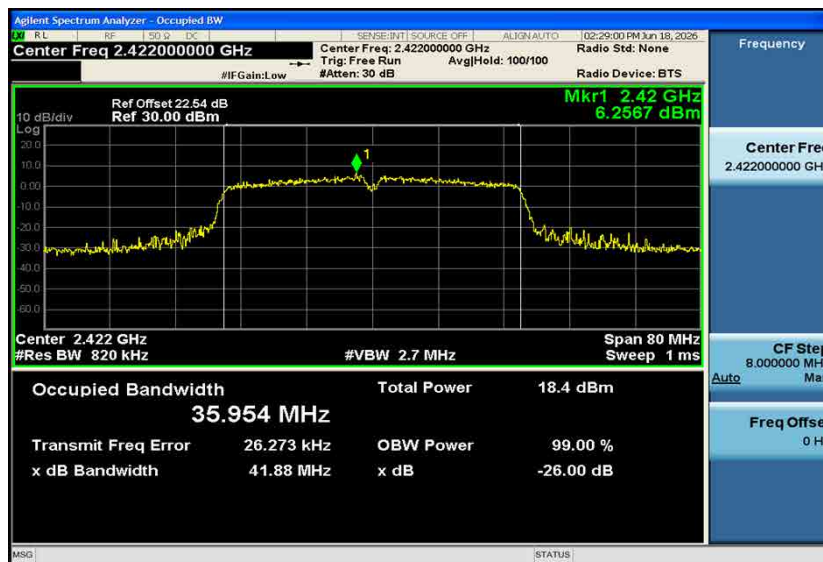
11N20SISO-Ant1-2412



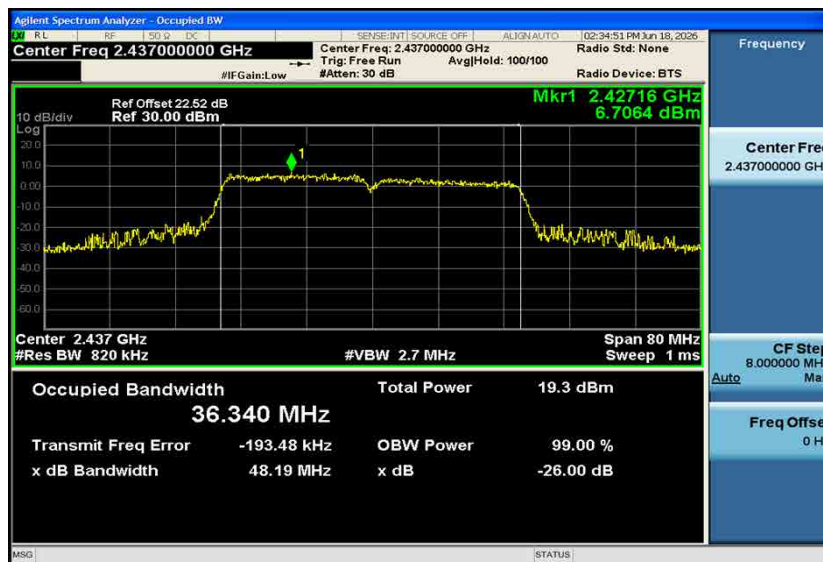
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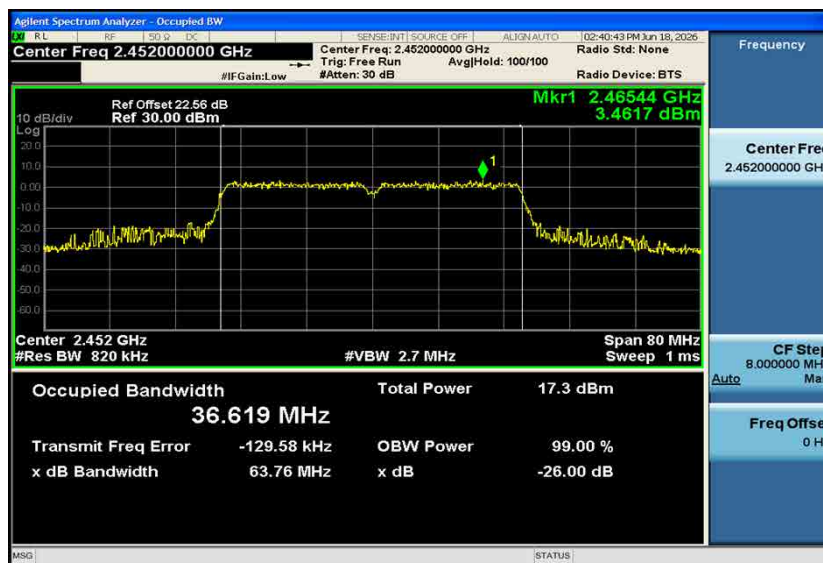
11N20SISO-Ant1-2462



11N40SISO-Ant1-2422



11N40SISO-Ant1-2437



11N40SISO-Ant1-2452

3.5 Maximum conducted output power

3.5.1 Limit

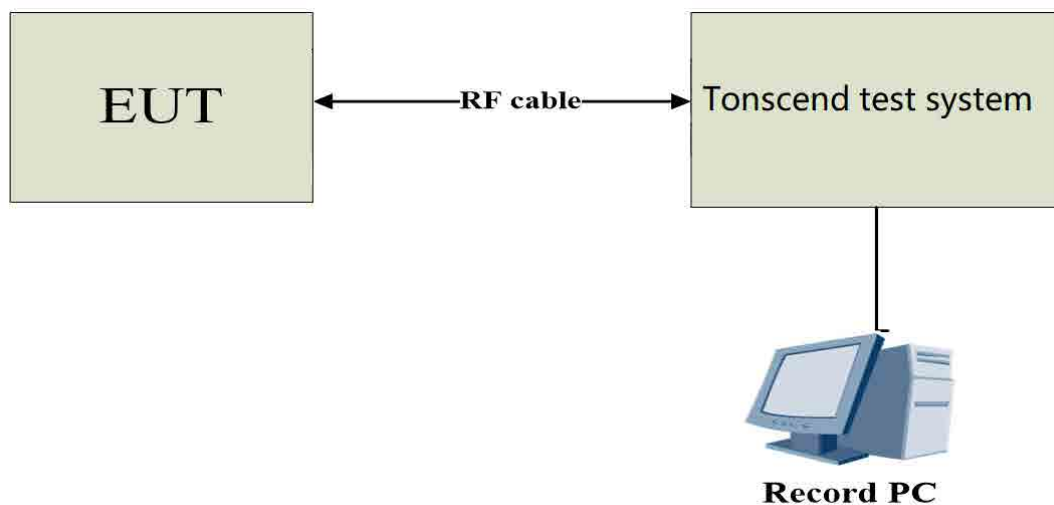
For systems using digital modulation in the 2400~2483.5MHz, The Maximum output Power shall not exceed 1W(30dBm)

3.5.2 Test Procedure

Test Method	
☒ Conducted Measurement	☐ Radiated Measurement
Test Channels	
☒ Lowest, Middle and Highest Channel	☐ Lowest and Highest Channel
Environmental conditions	
☒ Normal	☐ Normal and Extreme
Note: ● : Test ○ : No Test	

- a) The EUT was directly connected to the tonscend test system and antenna output port as show in the block diagram below.
- b) The maximum conducted output power was performed in accordance with method 11.9.1.2 (for peak power) of ANSI C63.10-2020.

3.5.3 Test Setup



3.5.4 Table of Parameters of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

For Power setting value			
Test Mode	Power Level Setting defined by Manufacturer		
Test Software Version	SmartTools		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	Default	Default	Default
IEEE 802.11g	Default	Default	Default
IEEE 802.11n(20)	Default	Default	Default
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(40)	Default	Default	Default

3.5.5 The Result

Test Mode	Antenna	Frequency[MHz]	Maximum conducted output Power [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	13.00	≤30.00	PASS
		2437	14.23	≤30.00	PASS
		2462	12.40	≤30.00	PASS
11G	Ant1	2412	14.07	≤30.00	PASS
		2437	13.19	≤30.00	PASS
		2462	12.02	≤30.00	PASS
11N20SISO	Ant1	2412	11.78	≤30.00	PASS
		2437	13.27	≤30.00	PASS
		2462	12.11	≤30.00	PASS
11N40SISO	Ant1	2422	11.25	≤30.00	PASS
		2437	12.67	≤30.00	PASS
		2452	10.57	≤30.00	PASS

3.6 Power Spectral Density

3.6.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmitting.

3.6.2 Test Procedure

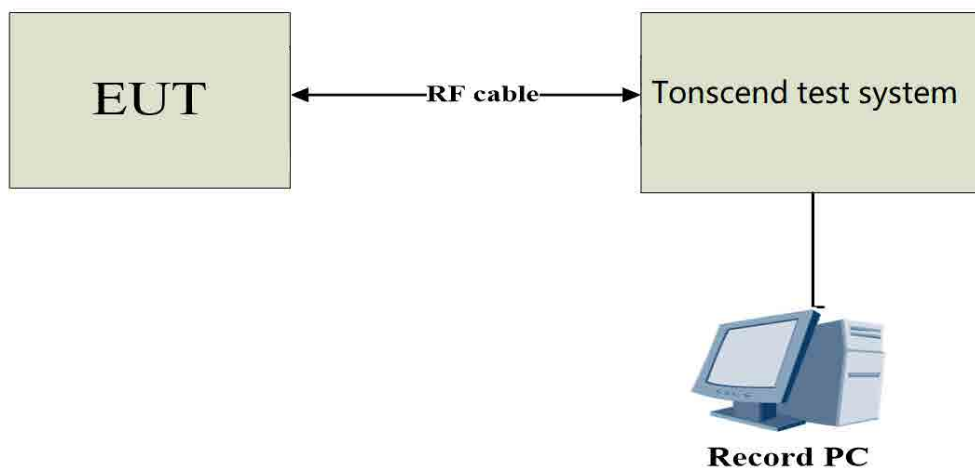
Test Method	
☒ Conducted Measurement	☐ Radiated Measurement
Test Channels	
☒ Lowest, Middle and Highest Channel	☐ Lowest and Highest Channel
Environmental conditions	
☒ Normal	☐ Normal and Extreme
Note: ☒ : Test ☐ : No Test	

a) The EUT was directly connected to the tonscond test system and antenna output port as show in the block diagram below.

b) Spectrum analyser settings as following:

Spectrum Parameters	Setting
Span Frequency	1.5 times the DTS bandwidth
RBW	3 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.6.3 Test Setup



3.6.4 The Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-17.89	≤8.00	PASS
		2437	-16.45	≤8.00	PASS
		2462	-18.41	≤8.00	PASS
11G	Ant1	2412	-18.44	≤8.00	PASS
		2437	-18.63	≤8.00	PASS
		2462	-20.46	≤8.00	PASS
11N20SISO	Ant1	2412	-21.74	≤8.00	PASS
		2437	-19.59	≤8.00	PASS
		2462	-21.15	≤8.00	PASS
11N40SISO	Ant1	2422	-23.45	≤8.00	PASS
		2437	-21.92	≤8.00	PASS
		2452	-25.21	≤8.00	PASS



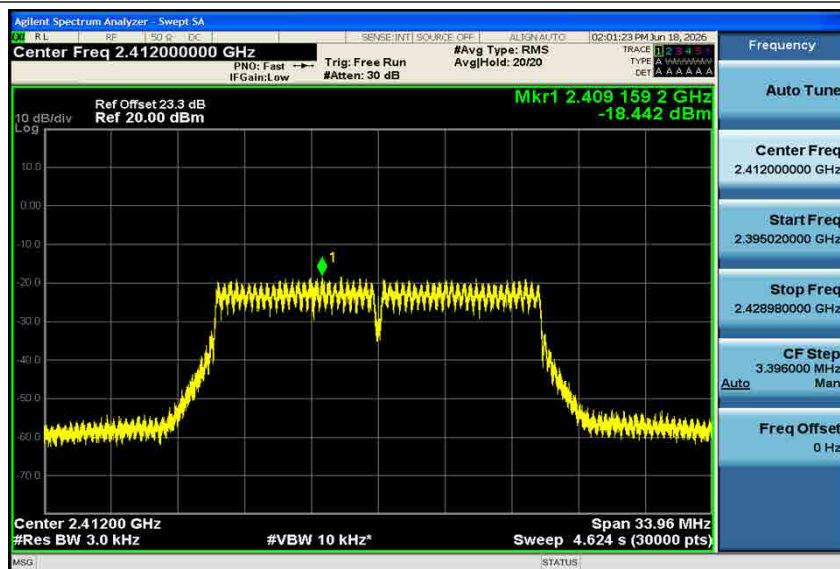
11B-Ant1-2412-PASS



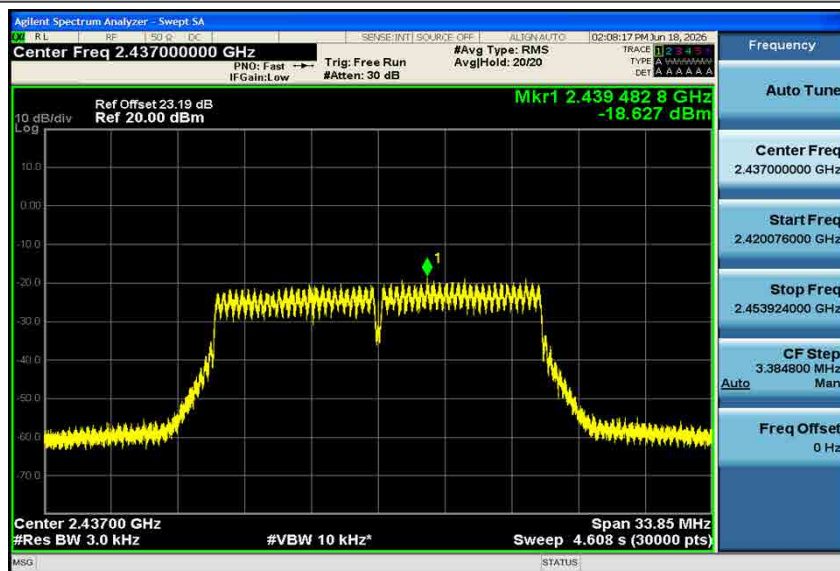
11B-Ant1-2437-PASS



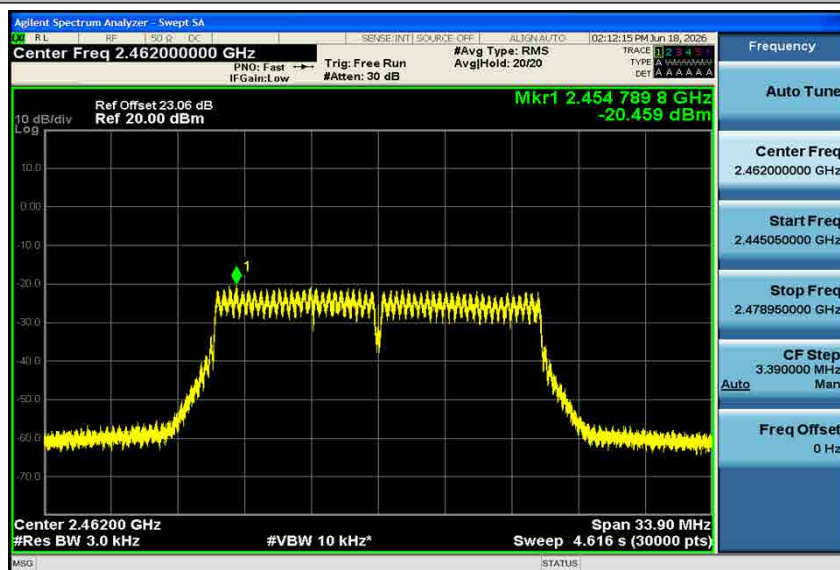
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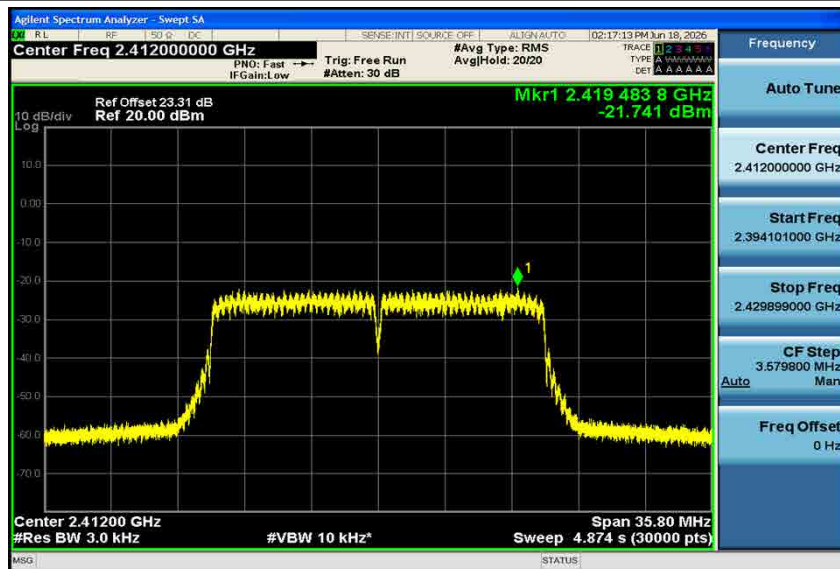
11G-Ant1-2412-PASS



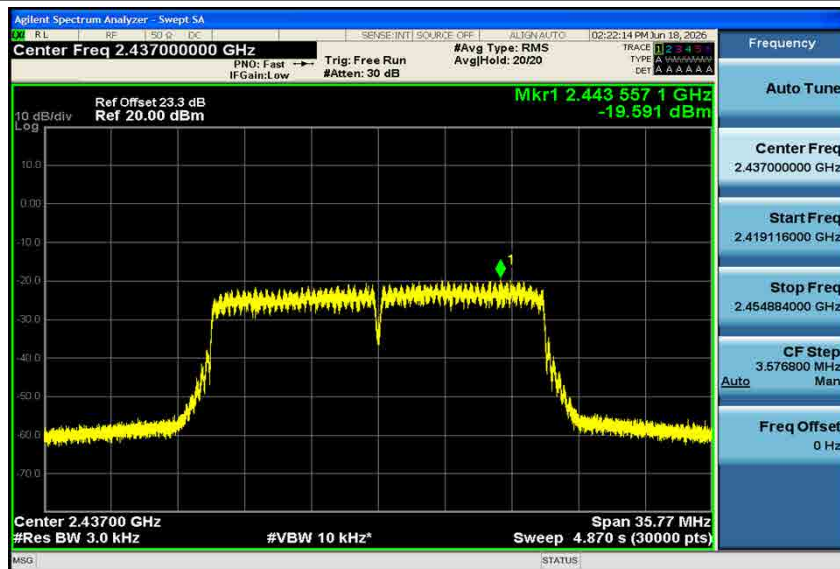
11G-Ant1-2437-PASS



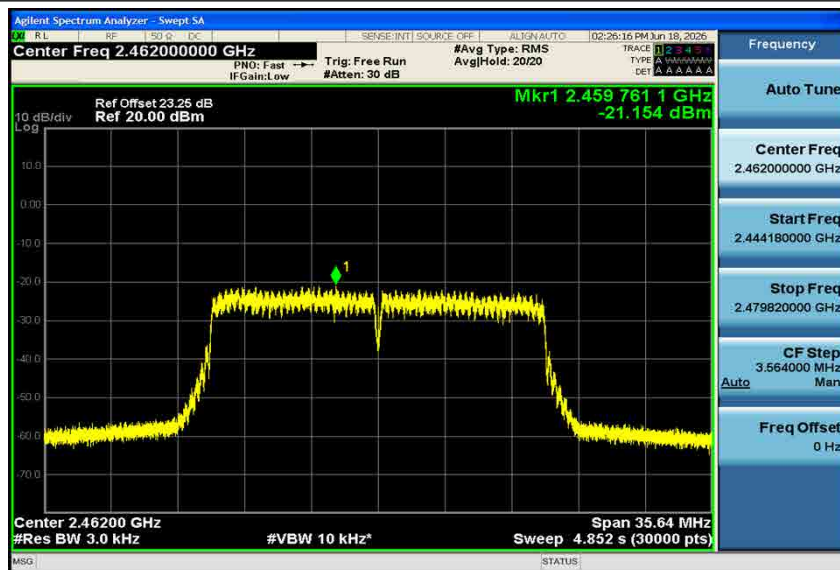
11G-Ant1-2462-PASS



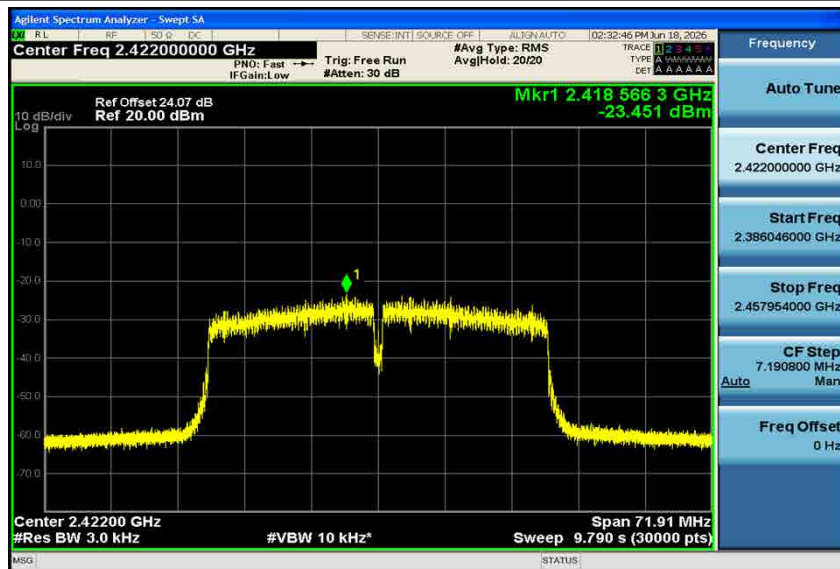
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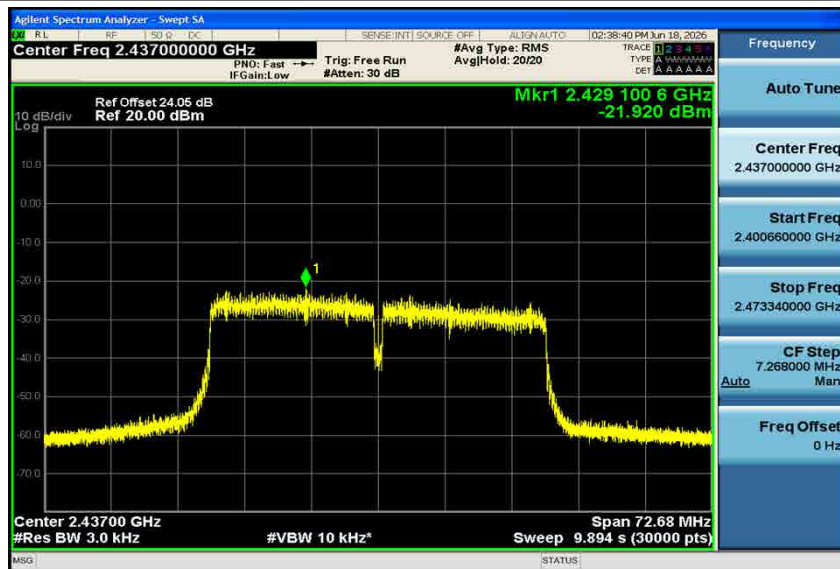
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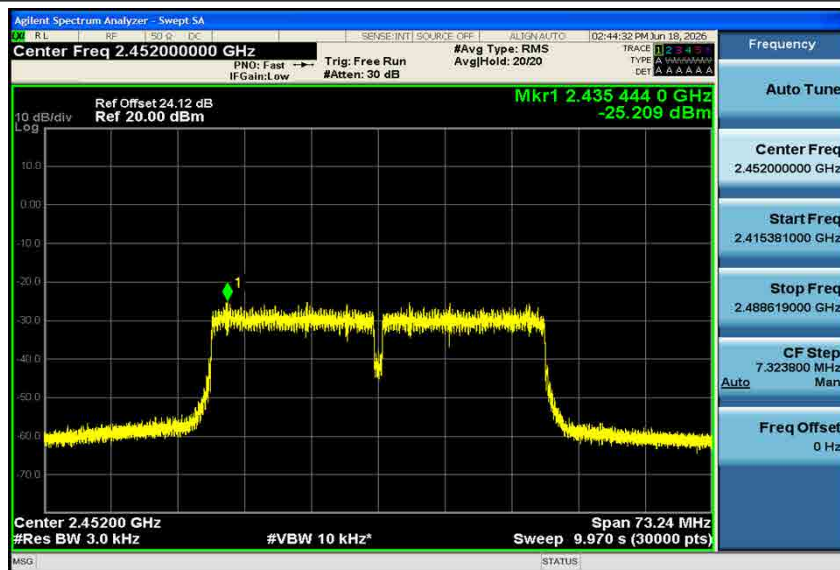
11N20SISO-Ant1-2462-PASS



11N40SISO-Ant1-2422-PASS



11N40SISO-Ant1-2437-PASS



11N40SISO-Ant1-2452-PASS

Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technical Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

Shenzhen Haiyun Standard Technical Co., Ltd.

Address: Room 110, 111, 112, 113, 115, 116, Block B, Jinyuan Business Building, No. 302, Xixiang Avenue, Labor Community, Xixiang Street, Baoan District, Shenzhen, China

End of Test Report