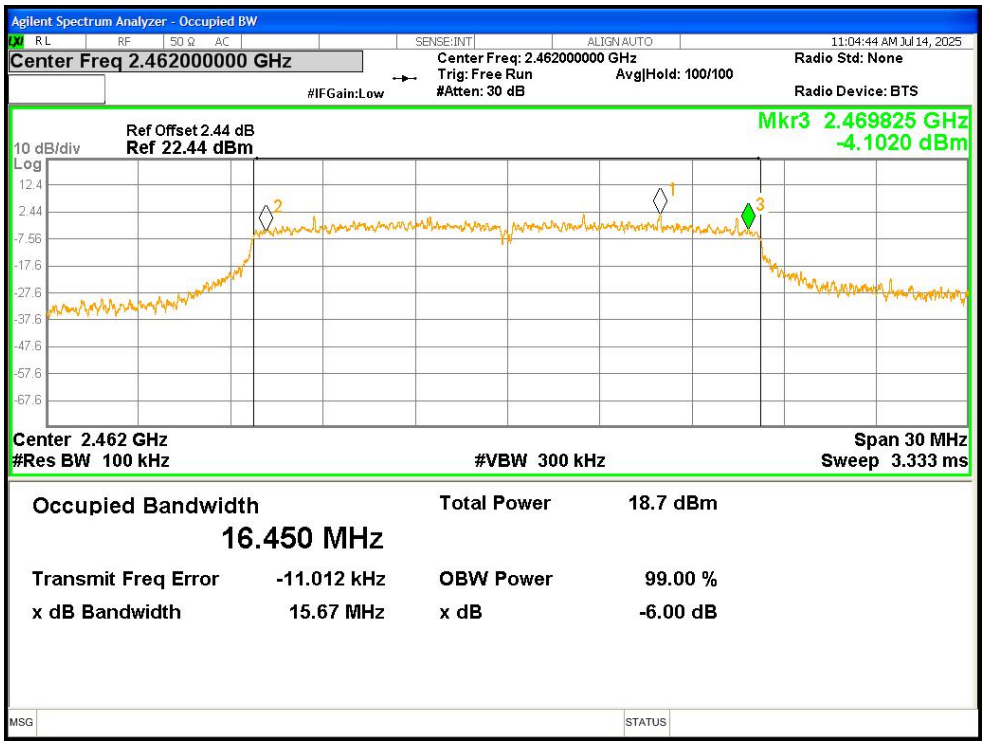
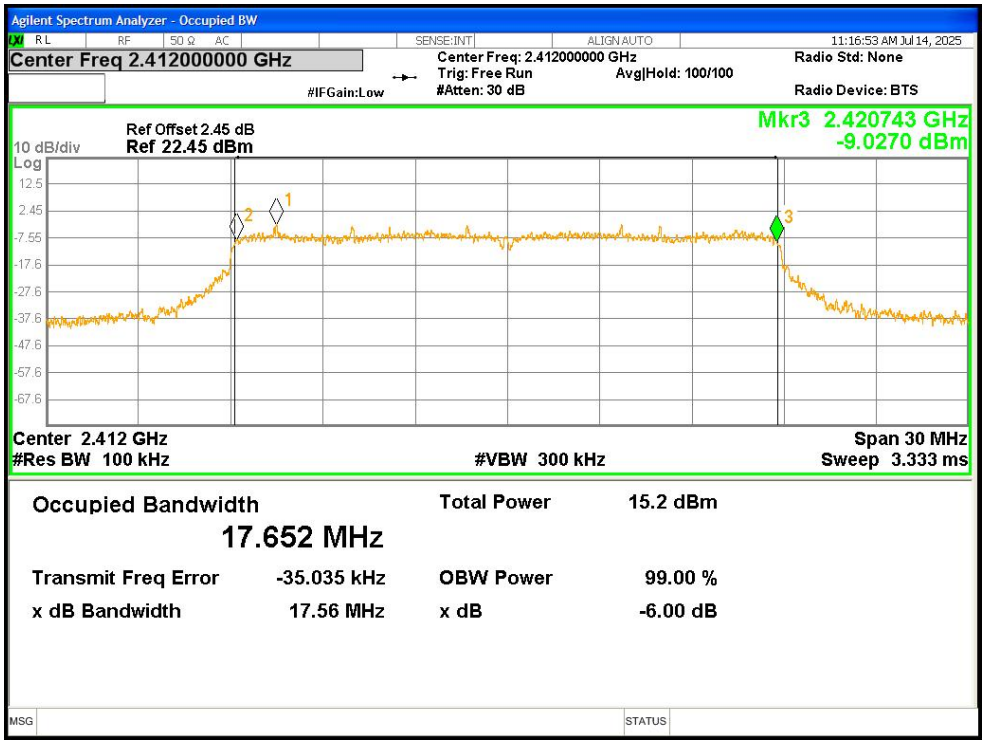
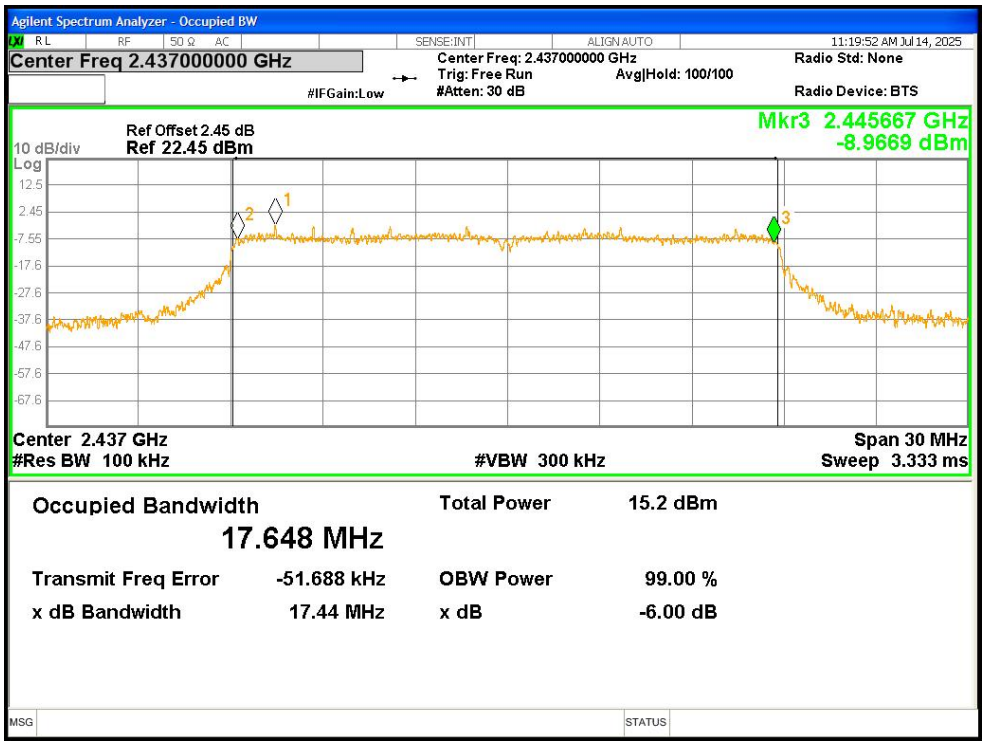


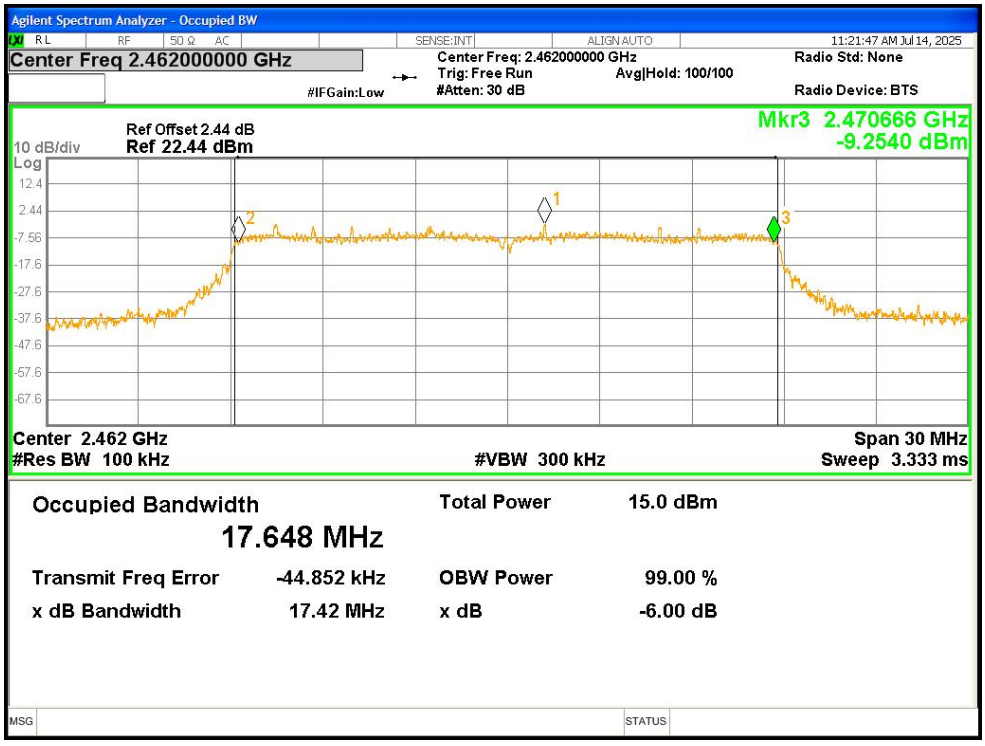
-6dB Bandwidth NVNT g 2462MHz Ant1



-6dB Bandwidth NVNT n20 2412MHz Ant1



-6dB Bandwidth NVNT n20 2437MHz Ant1



-6dB Bandwidth NVNT n20 2462MHz Ant1

8.PEAK OUTPUT POWER TEST

Test Requirement:	FCC Part15 C Section 15.247 (b)(3) RSS-247 Section 5.4(d)
Test Method:	ANSI C63.10:2013 Section 11.9.1.3

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(SISO)	1 watt or 30dBm	2400-2483.5	PASS

RSS-247 Section 5.4(d)			
Test Item	Limit	Frequency Range (MHz)	Result
Peak Output Power	1 watt or 30dBm EIRP: 4W(36dBm)	2400-2483.5	PASS

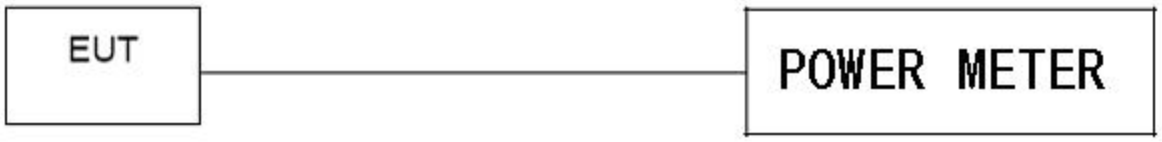
8.2 TEST PROCEDURE

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

Mode	Frequency (MHz)	Conducted Power (dBm)	e.i.r.p. (W)	Conducted Power Limit (dBm)	e.i.r.p. Limit (W)	Verdict
b	2412	11.46	0.02582	30	4	Pass
b	2437	11.23	0.02449	30	4	Pass
b	2462	10.77	0.02203	30	4	Pass
g	2412	14.84	0.05623	30	4	Pass
g	2437	14.81	0.05585	30	4	Pass
g	2462	14.48	0.05176	30	4	Pass
n20	2412	10.61	0.02123	30	4	Pass
n20	2437	10.59	0.02113	30	4	Pass
n20	2462	11.63	0.02685	30	4	Pass

Note: EIRP=Peak Output Power+Antenna gain

9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

Test Requirement:	FCC Part15 C Section 15.247 (d) RSS-247 Section 5.5
Test Method:	ANSI C63.10:2013 Section 11.11

9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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

Reference level measurement
Establish a reference level by using the following procedure:
a) Set instrument center frequency to DTS channel center frequency.
b) Set the span to ≥ 1.5 times the DTS bandwidth.
c) Set the RBW = 100 kHz.
d) Set the VBW ≥ [3 × RBW].
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum PSD level.
Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Emission level measurement
Establish an emission level by using the following procedure:
a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ [3 × RBW].
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

9.3 DEVIATION FROM STANDARD

No deviation.

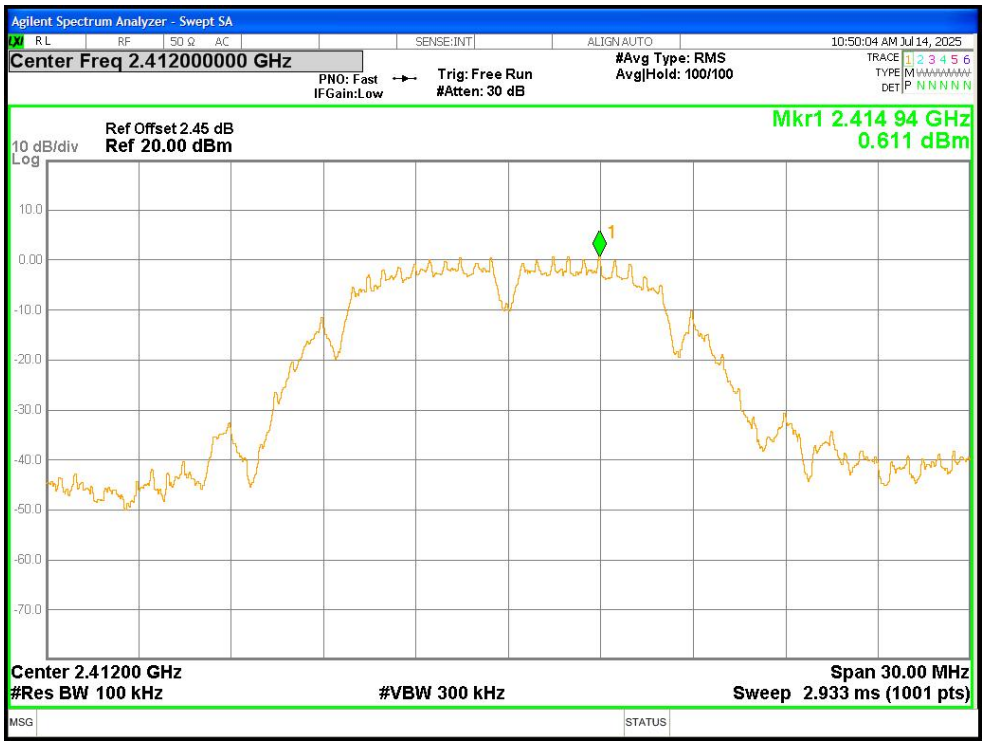
9.4 TEST SETUP

9.5 EUT OPERATION CONDITIONS

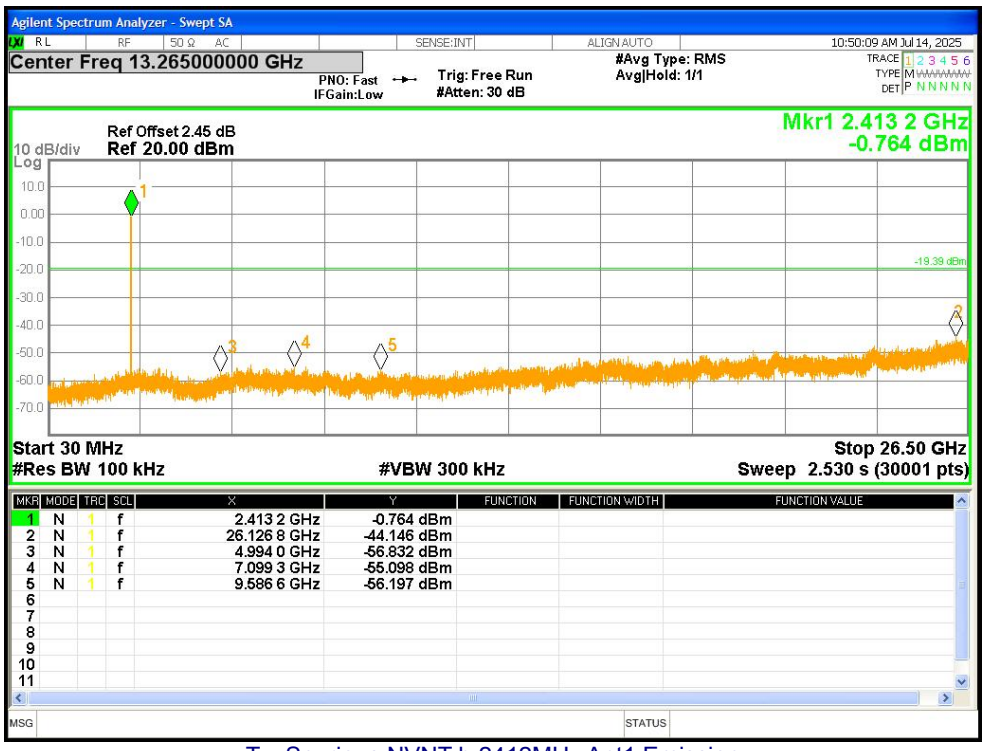
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

9.6 TEST RESULTS

Mode	Frequency (MHz)	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	-44.75	-20	Pass
b	2437	-44.35	-20	Pass
b	2462	-44.54	-20	Pass
g	2412	-46.48	-20	Pass
g	2437	-46.85	-20	Pass
g	2462	-44.00	-20	Pass
n20	2412	-38.37	-20	Pass
n20	2437	-42.08	-20	Pass
n20	2462	-38.91	-20	Pass

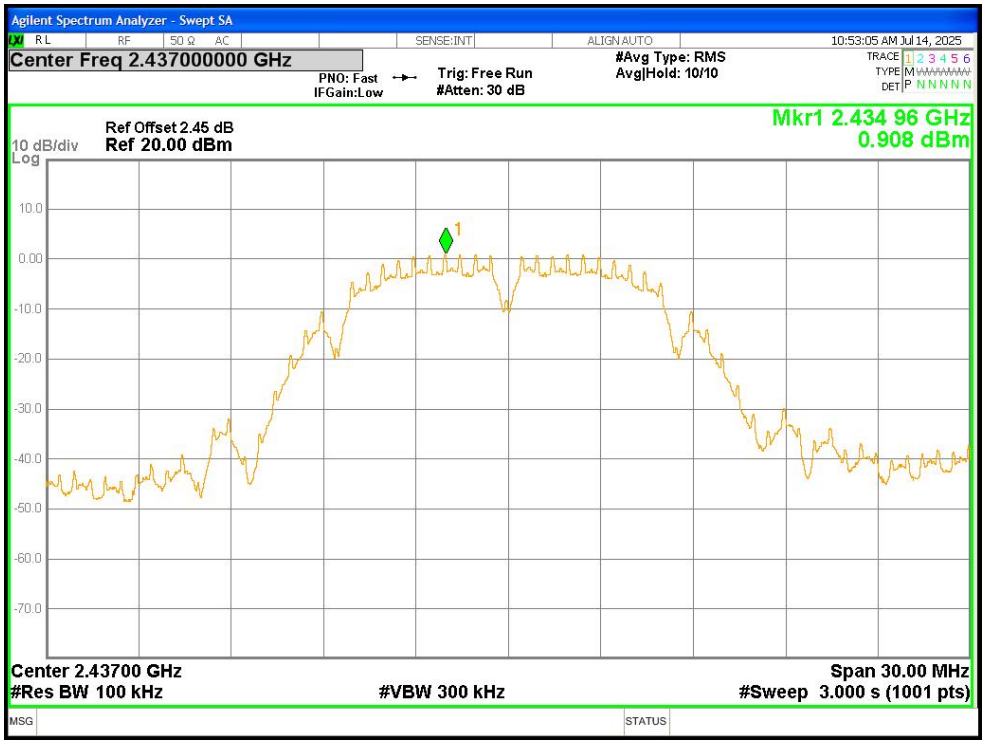


Tx. Spurious NVNT b 2412MHz Ant1 Ref

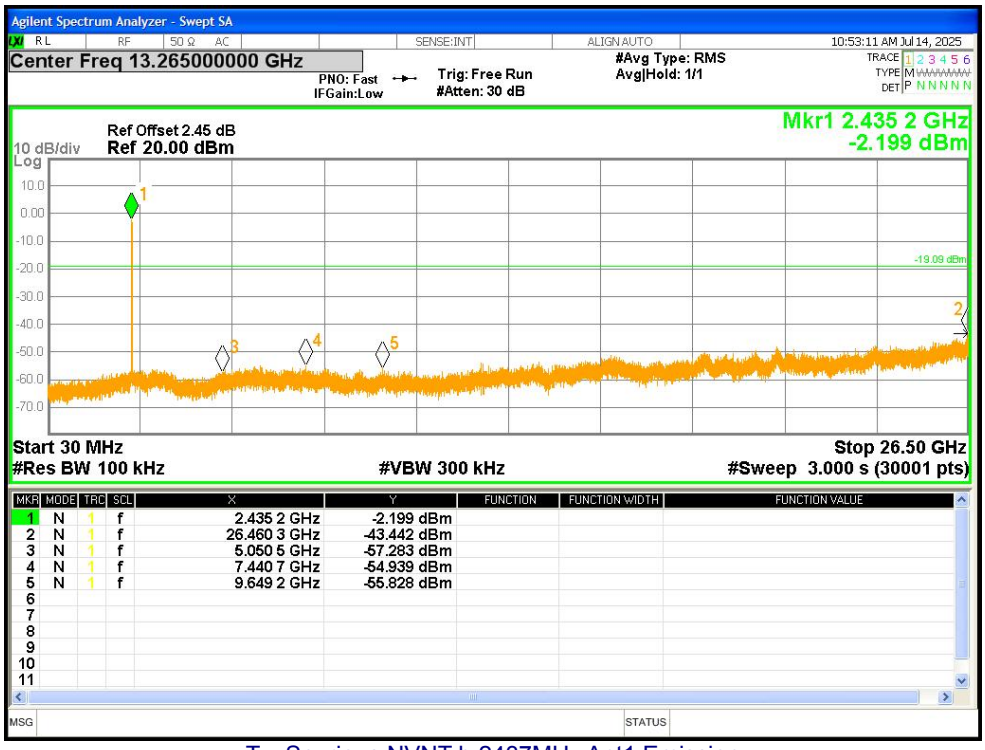


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.413 2 GHz	-0.764 dBm			
2	N	1	f	26.126 8 GHz	-44.146 dBm			
3	N	1	f	4.994 0 GHz	-56.832 dBm			
4	N	1	f	7.099 3 GHz	-55.098 dBm			
5	N	1	f	9.586 6 GHz	-56.197 dBm			
6								
7								
8								
9								
10								
11								

Tx. Spurious NVNT b 2412MHz Ant1 Emission



Tx. Spurious NVNT b 2437MHz Ant1 Ref



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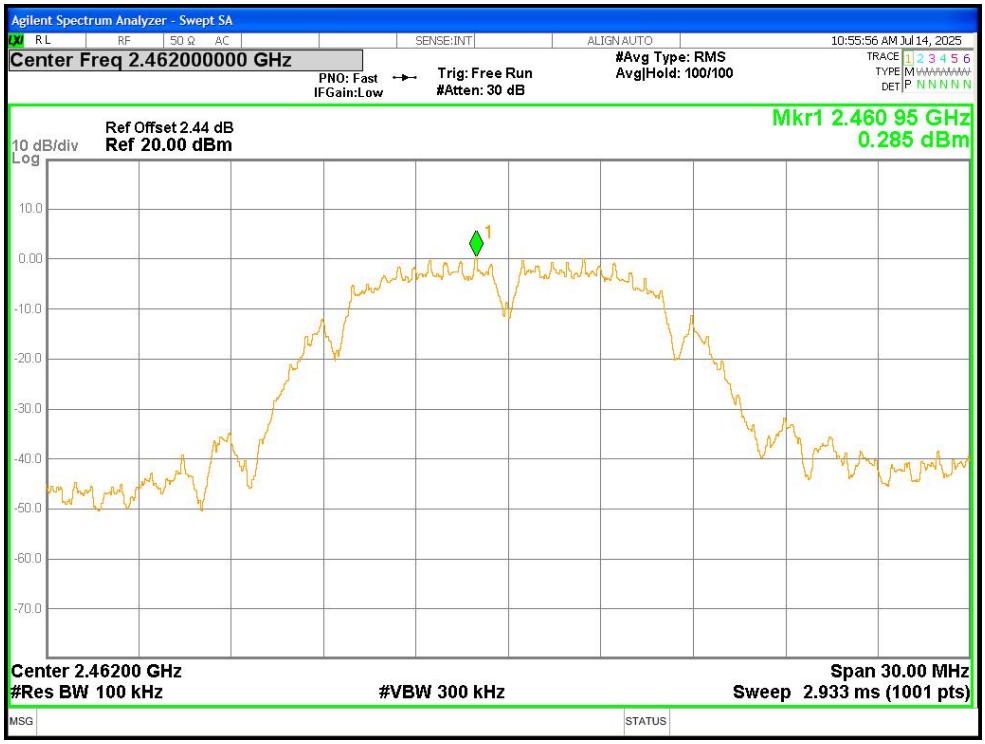

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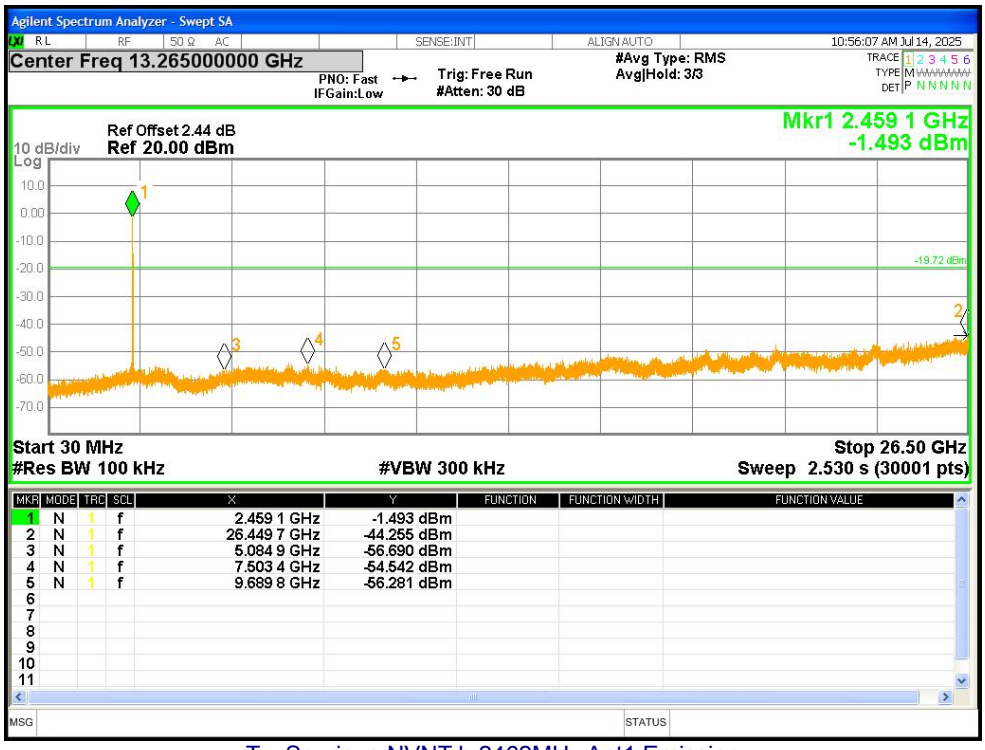

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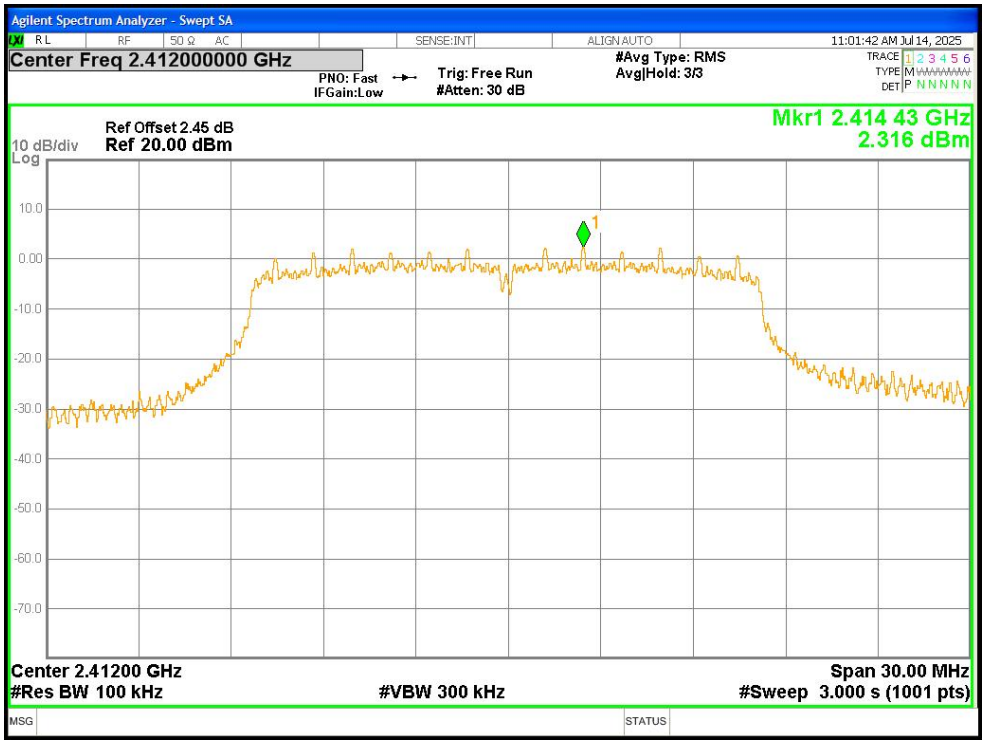
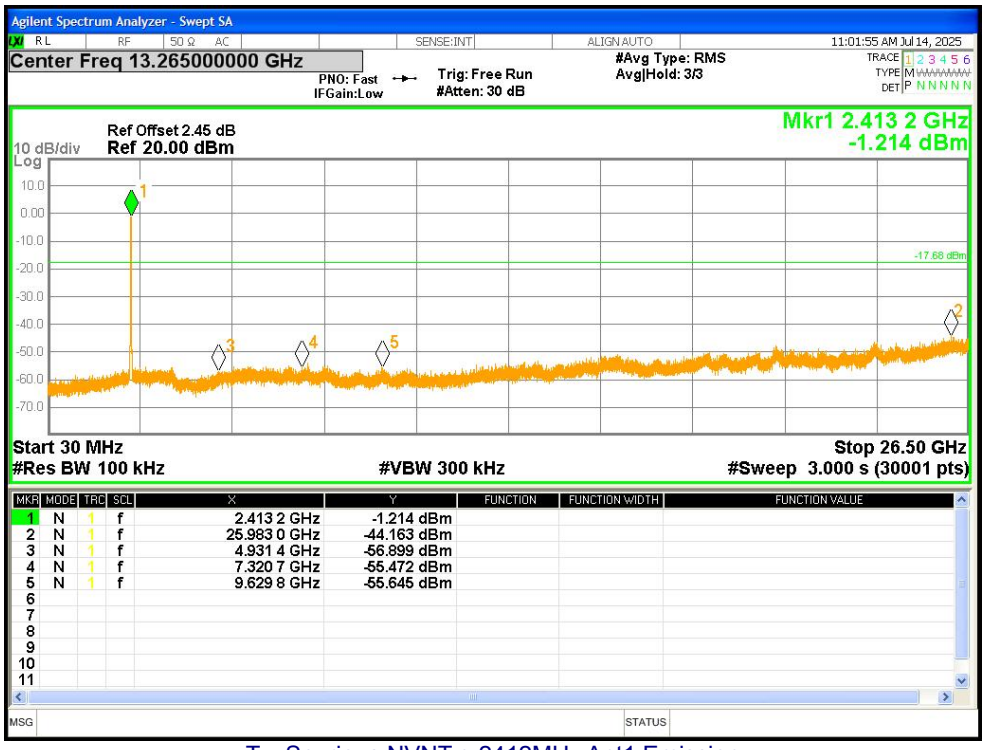


Tx. Spurious NVNT g 2412MHz Ant1 Ref



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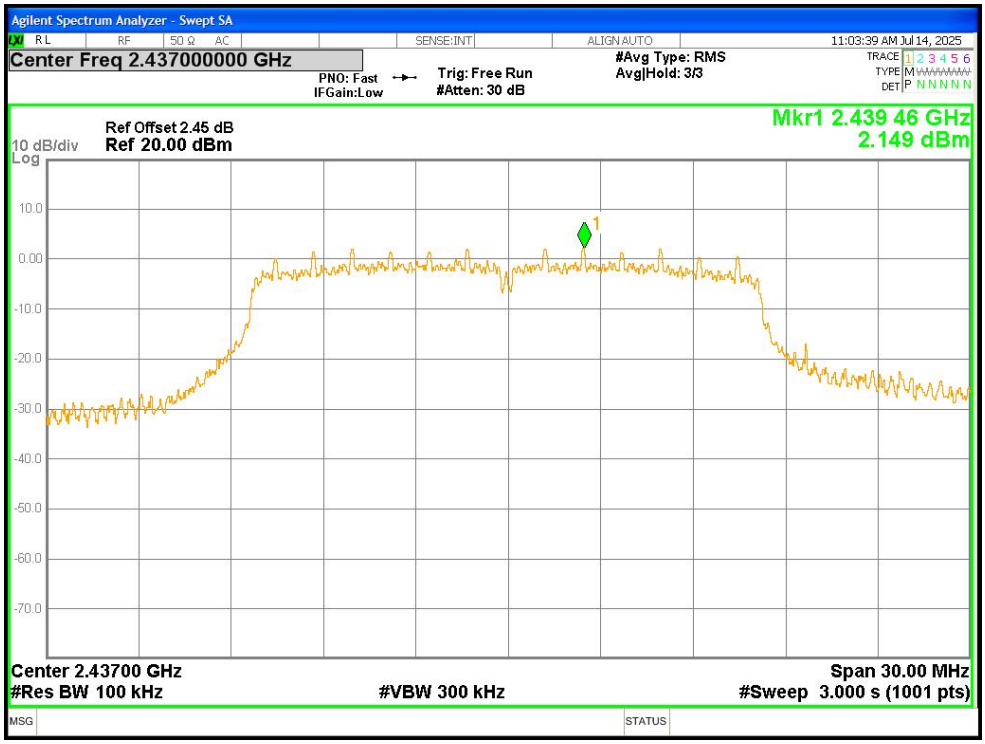

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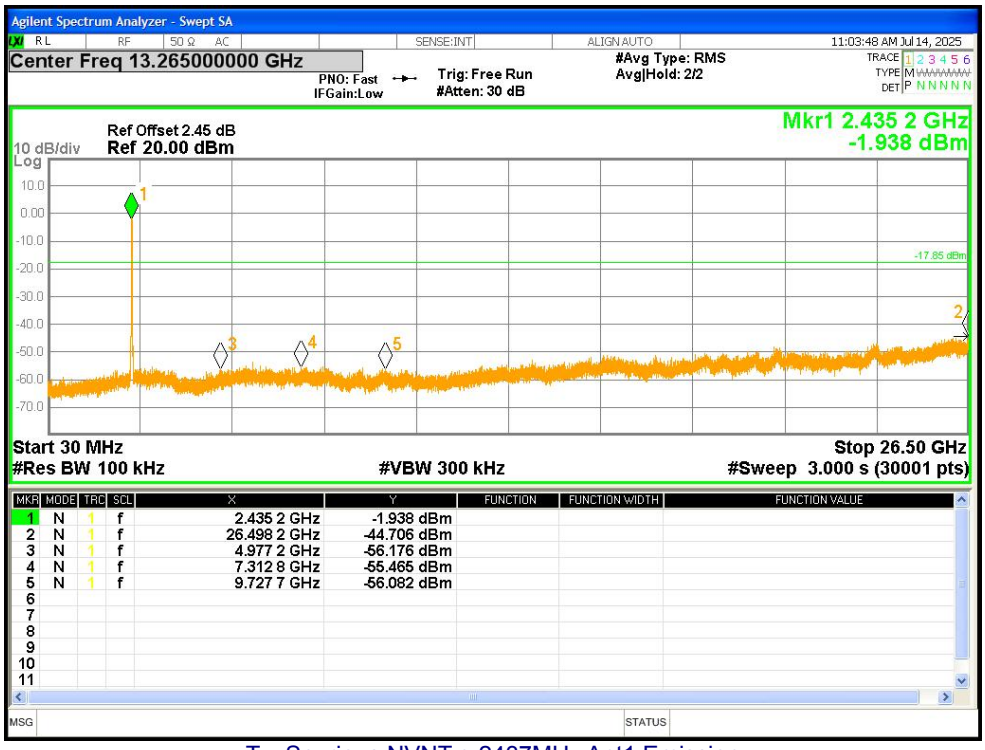

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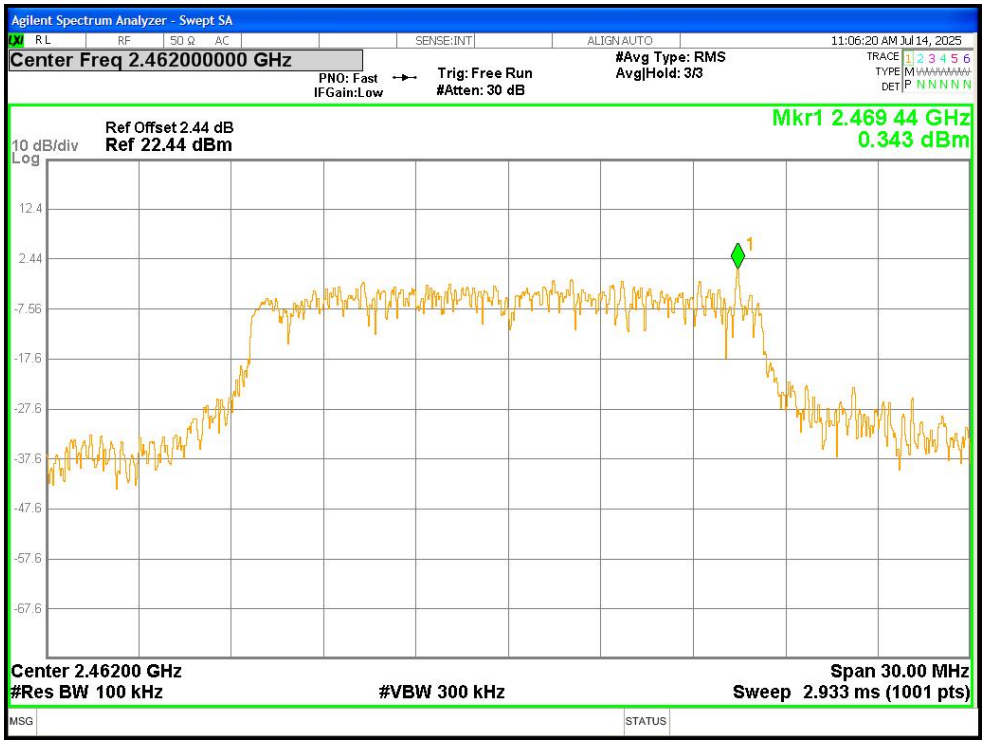

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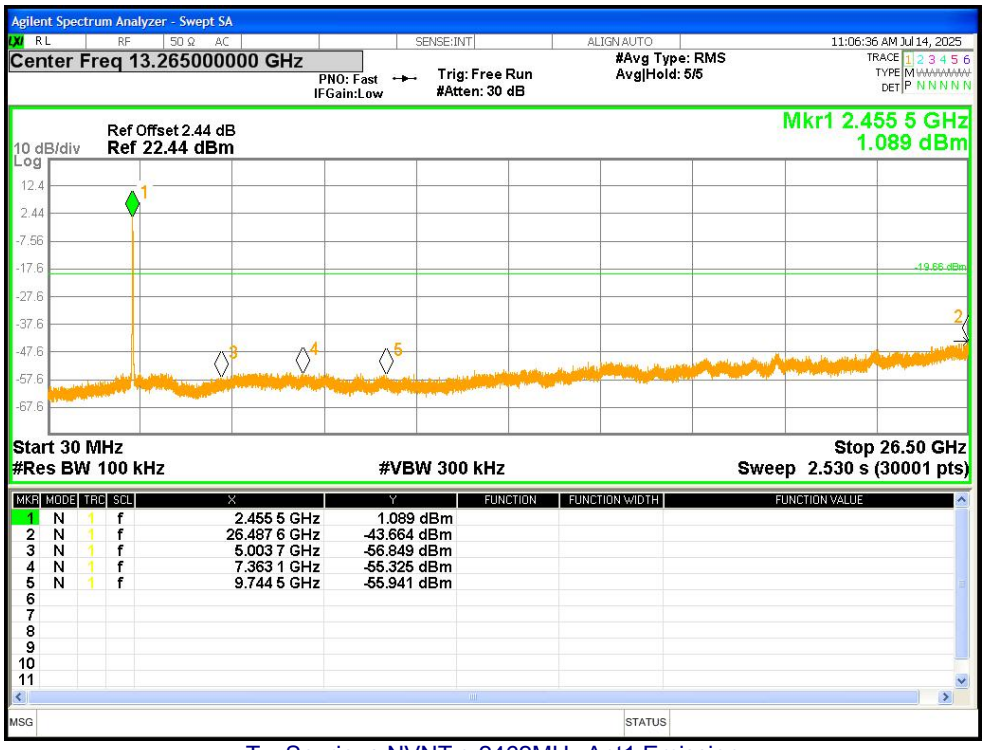
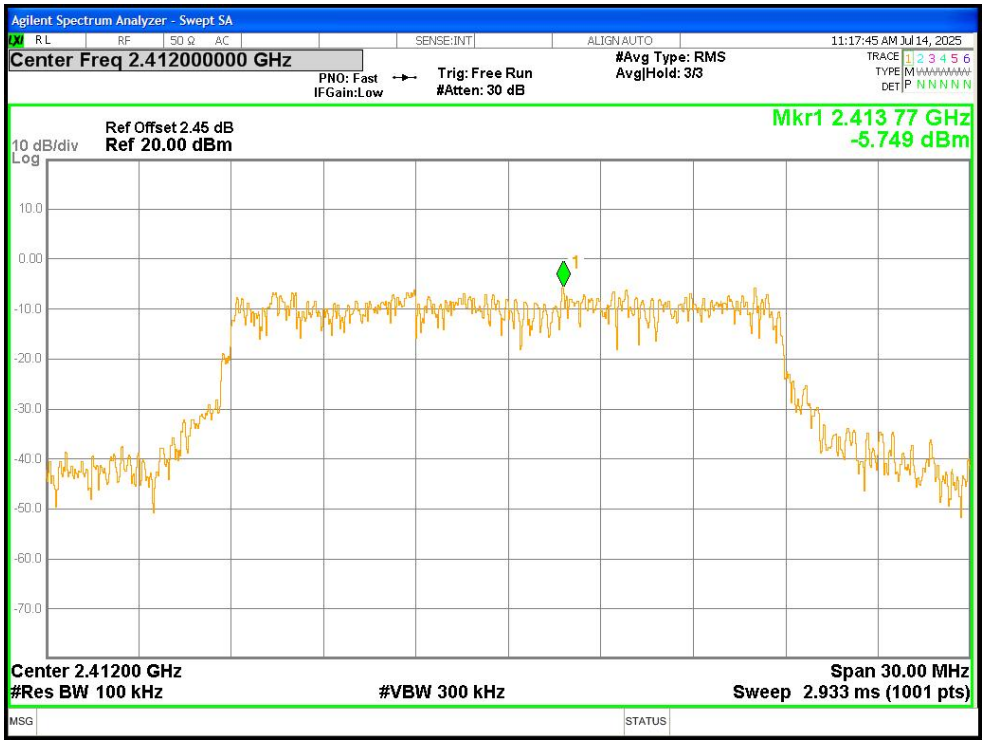
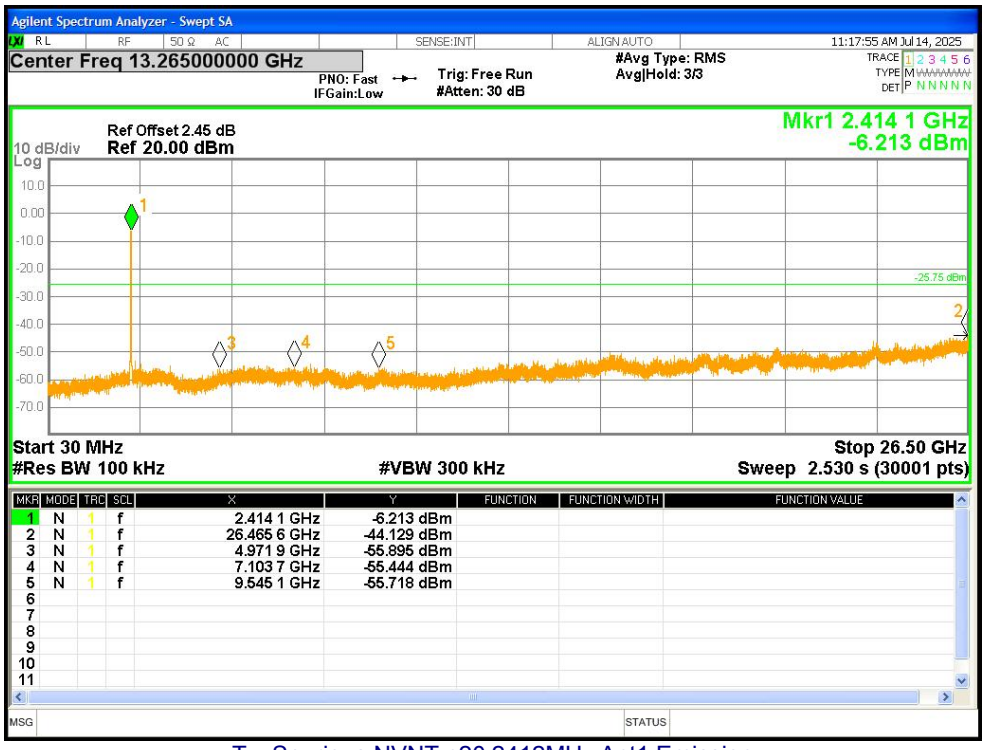


Tx. Spurious NVNT g 2462MHz Ant1 Emission



Tx. Spurious NVNT n20 2412MHz Ant1 Ref



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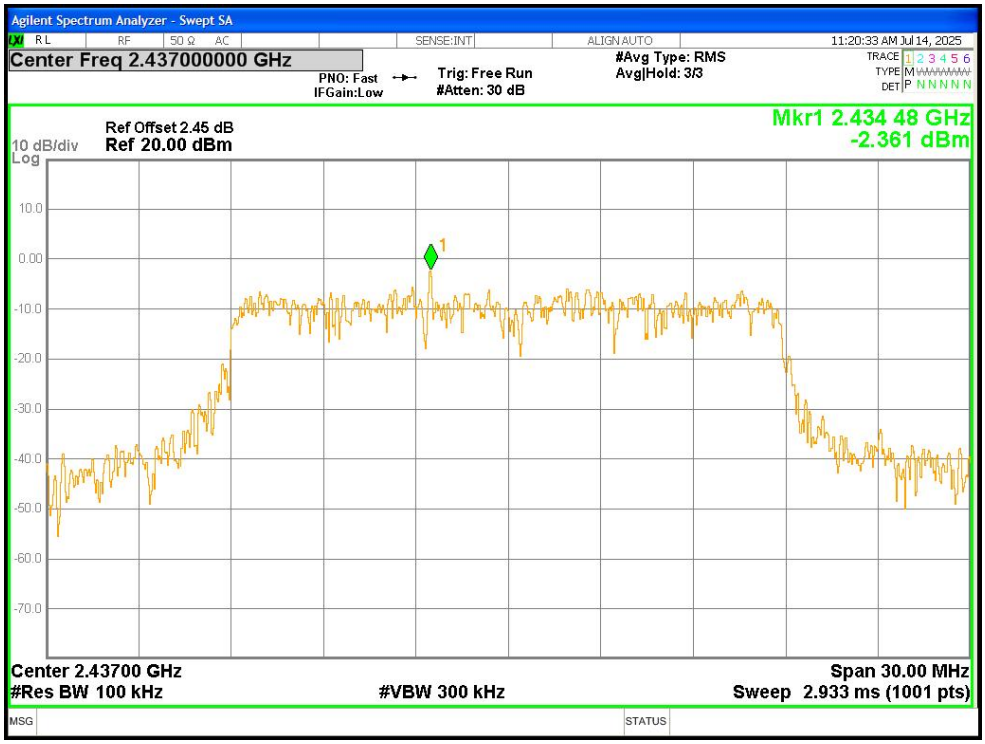

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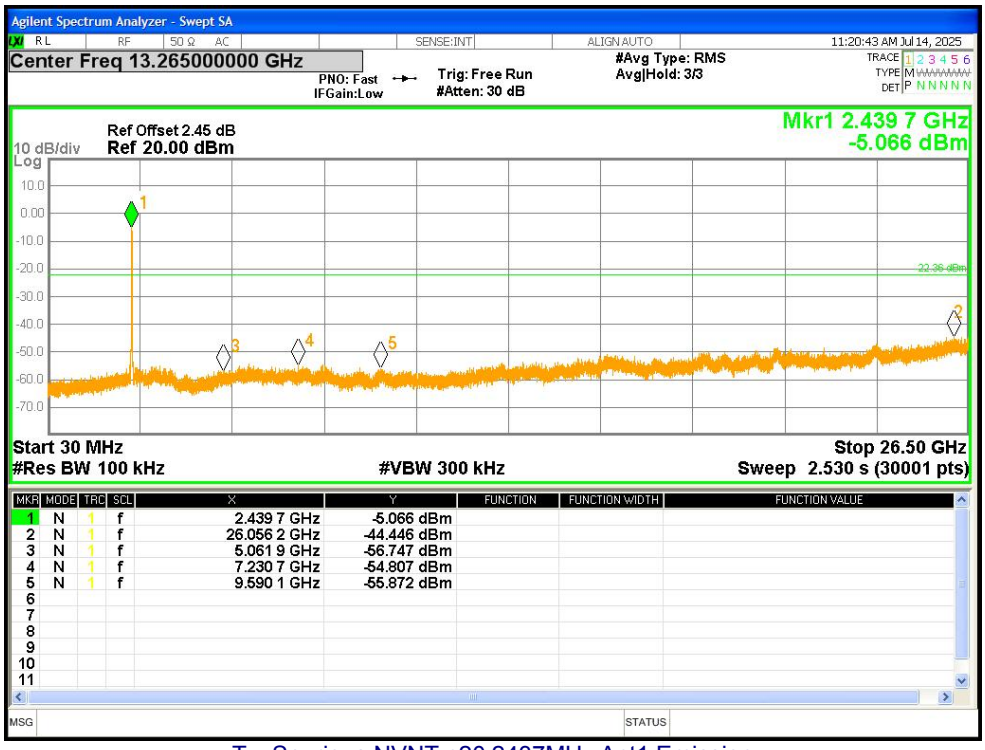
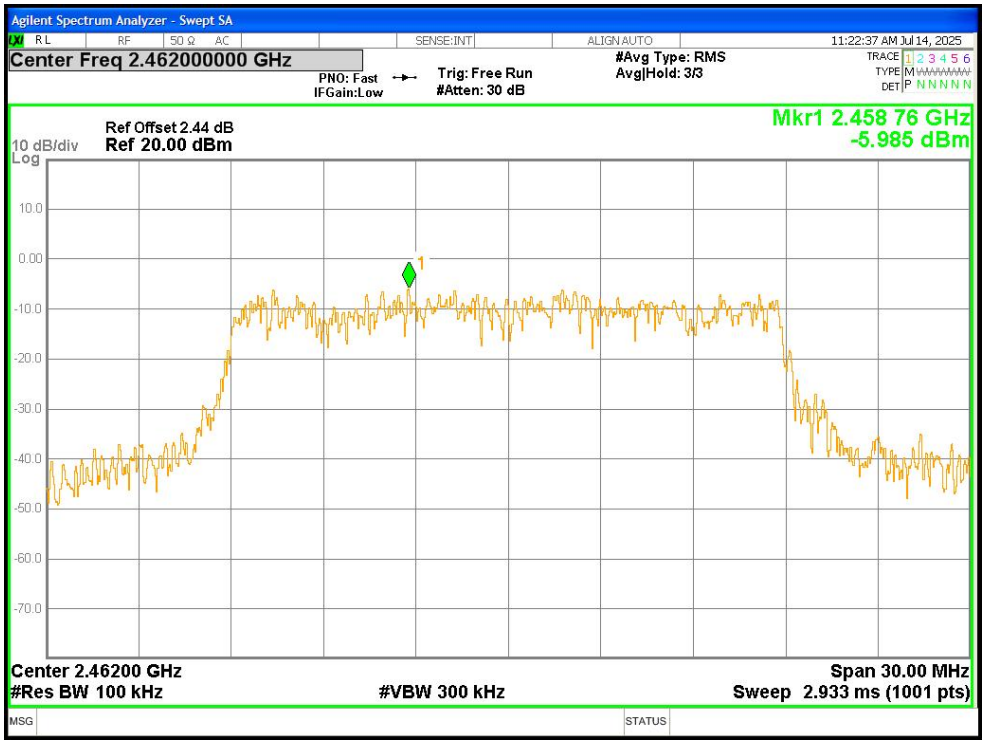
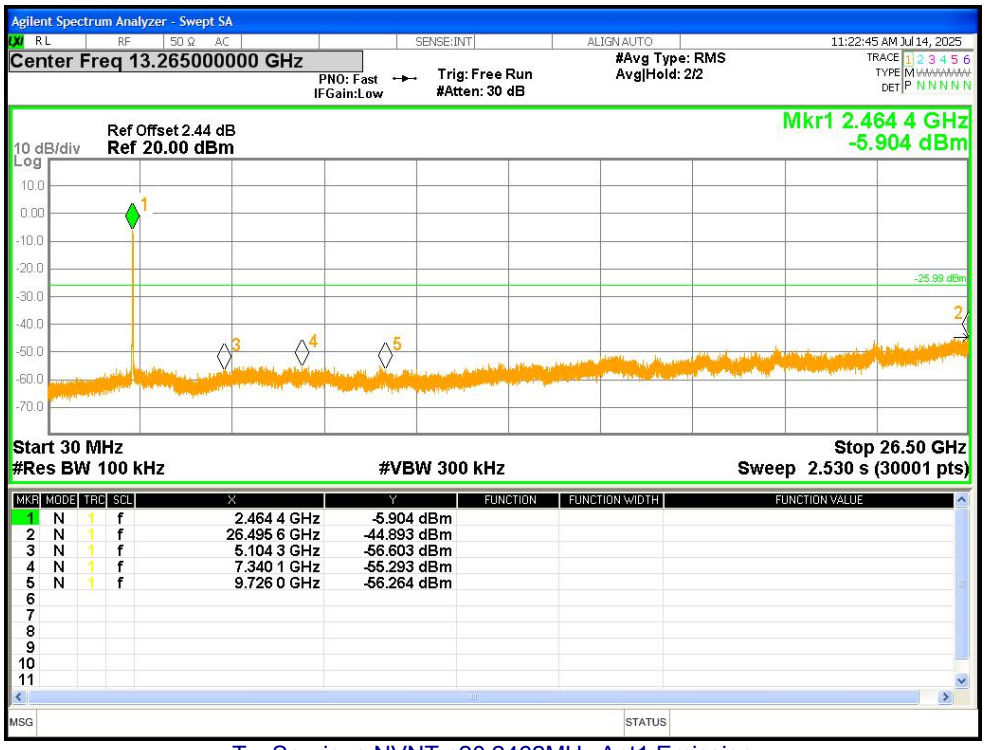


Tx. Spurious NVNT n20 2437MHz Ant1 Emission

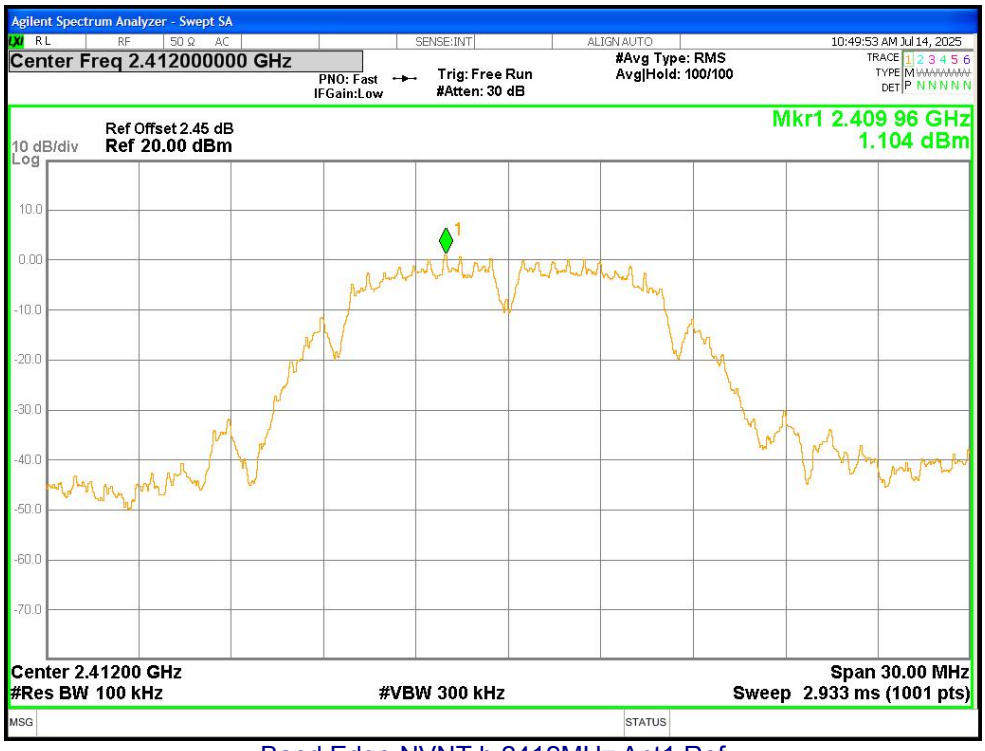


Tx. Spurious NVNT n20 2462MHz Ant1 Ref

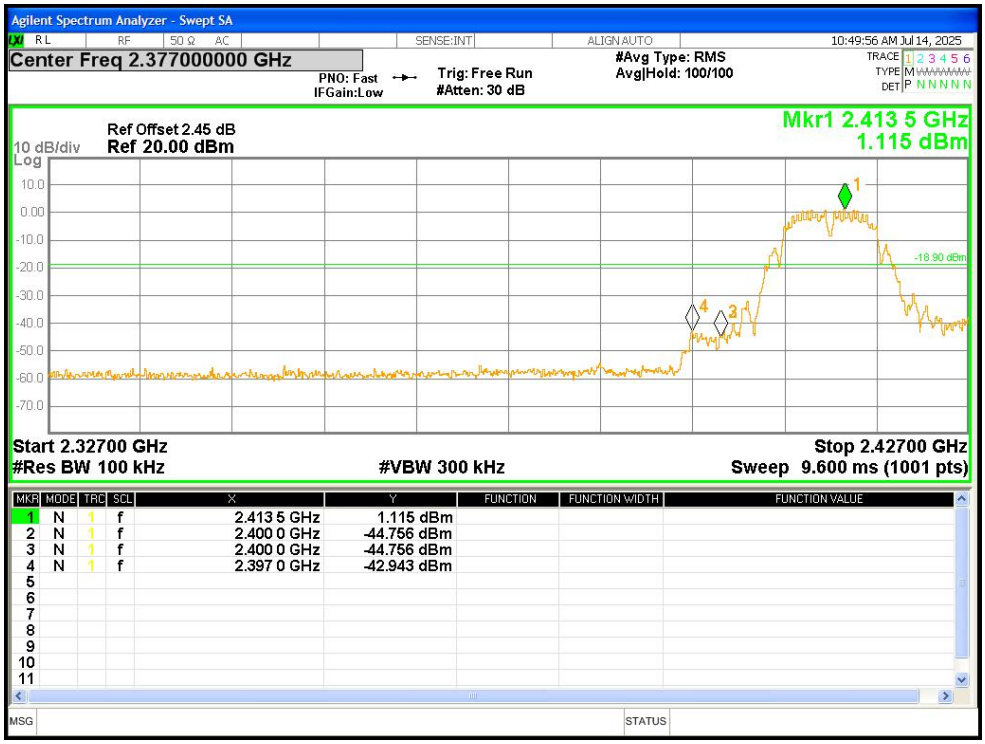


Tx. Spurious NVNT n20 2462MHz Ant1 Emission

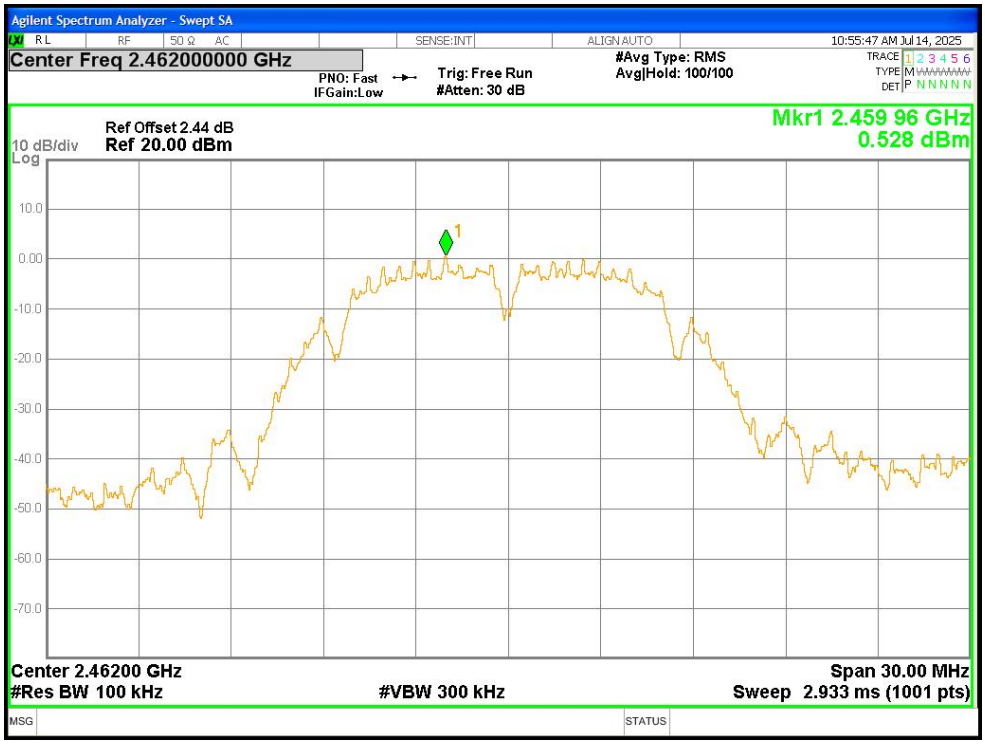
Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
b	2412	Ant1	-44.04	-20	Pass
b	2462	Ant1	-56.70	-20	Pass
g	2412	Ant1	-33.24	-20	Pass
g	2462	Ant1	-39.75	-20	Pass
n20	2412	Ant1	-32.54	-20	Pass
n20	2462	Ant1	-36.31	-20	Pass



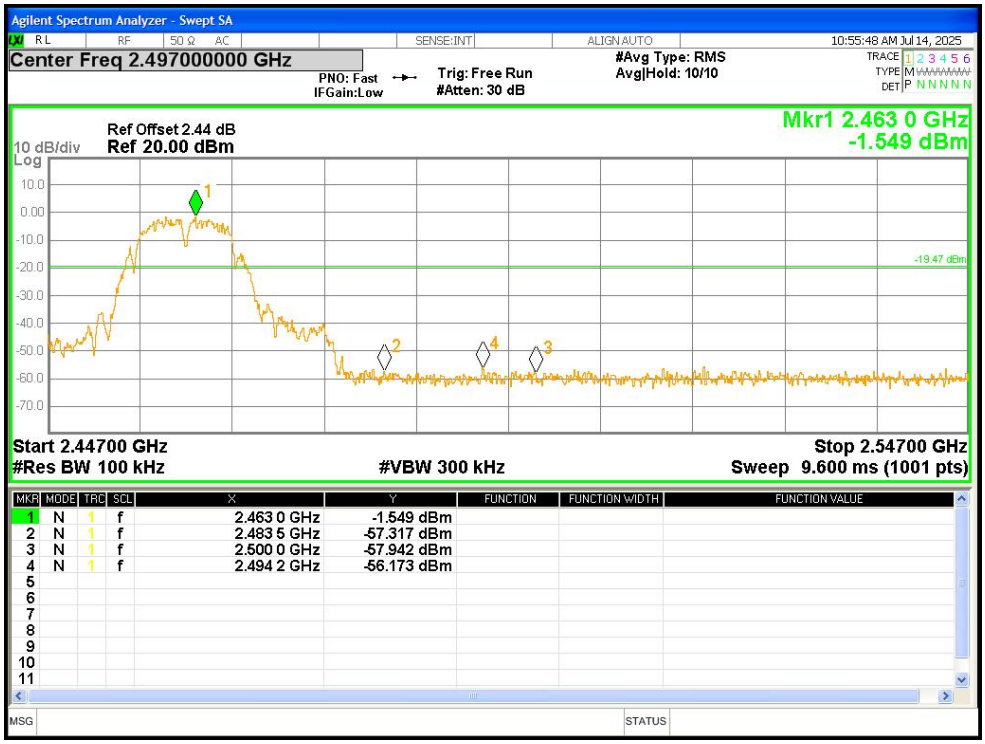
Band Edge NVNT b 2412MHz Ant1 Ref



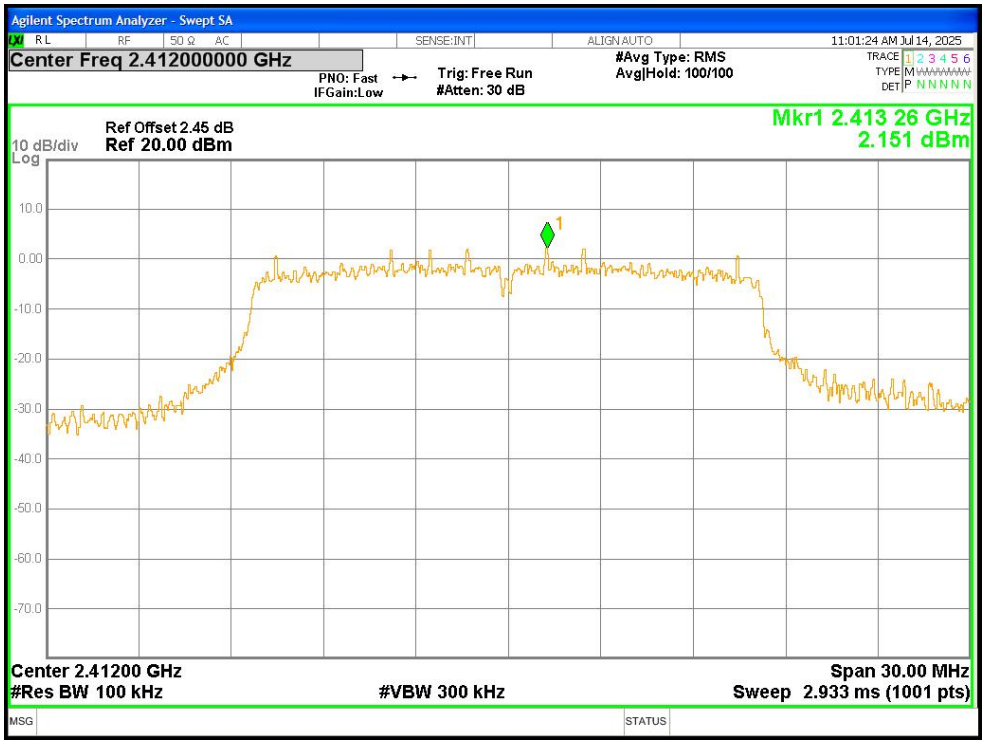
Band Edge NVNT b 2412MHz Ant1 Emission



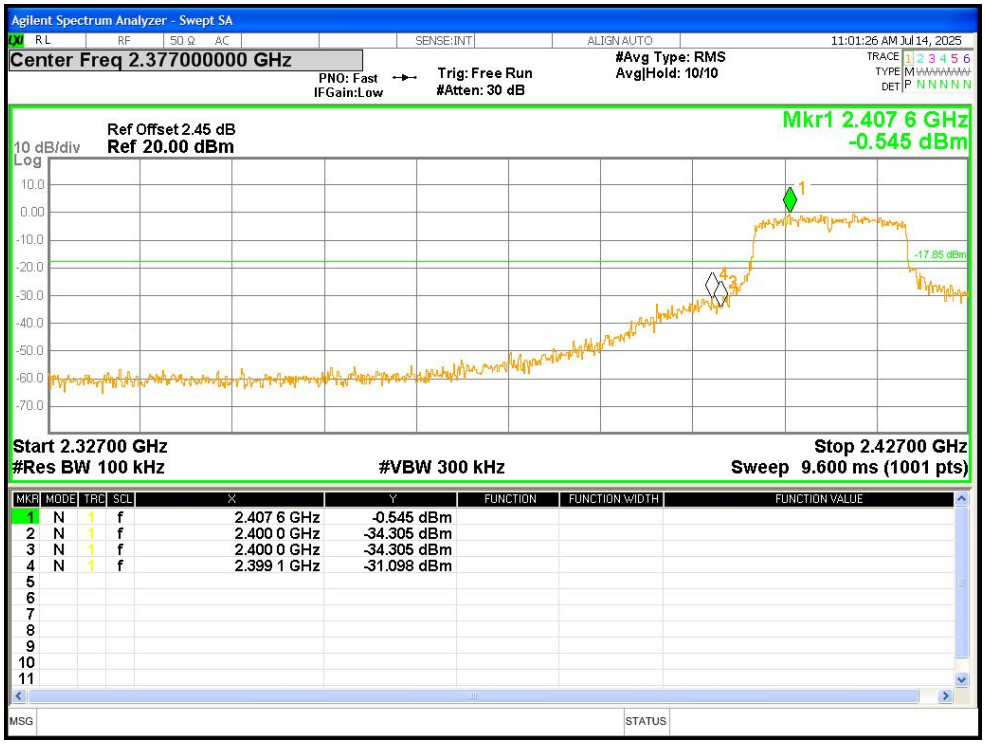
Band Edge NVNT b 2462MHz Ant1 Ref



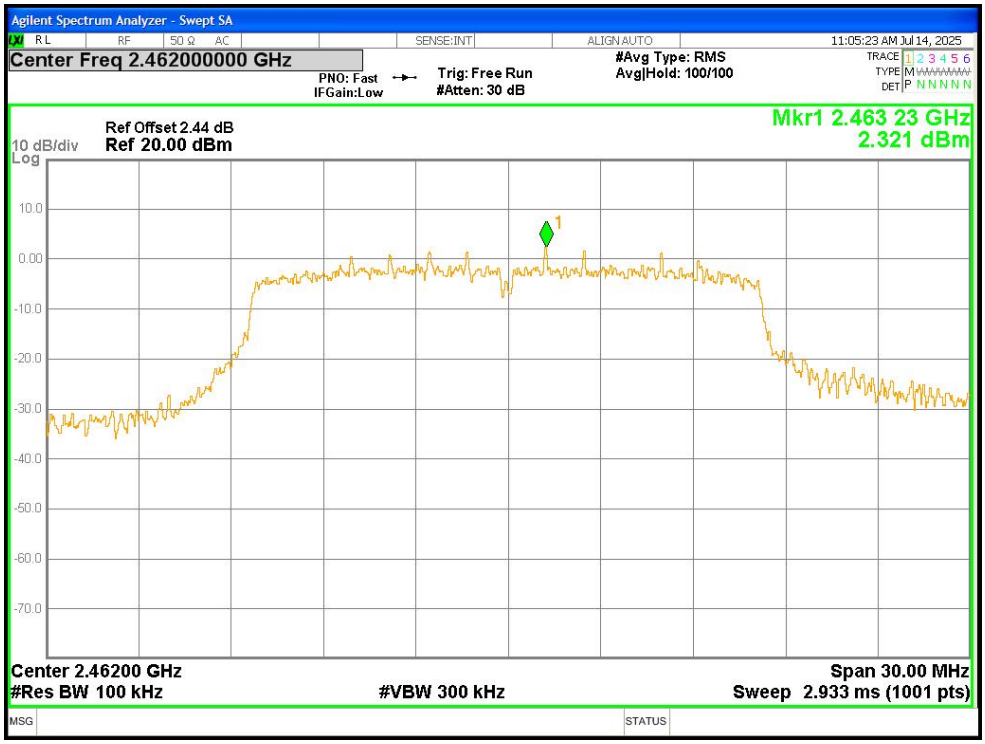
Band Edge NVNT b 2462MHz Ant1 Emission



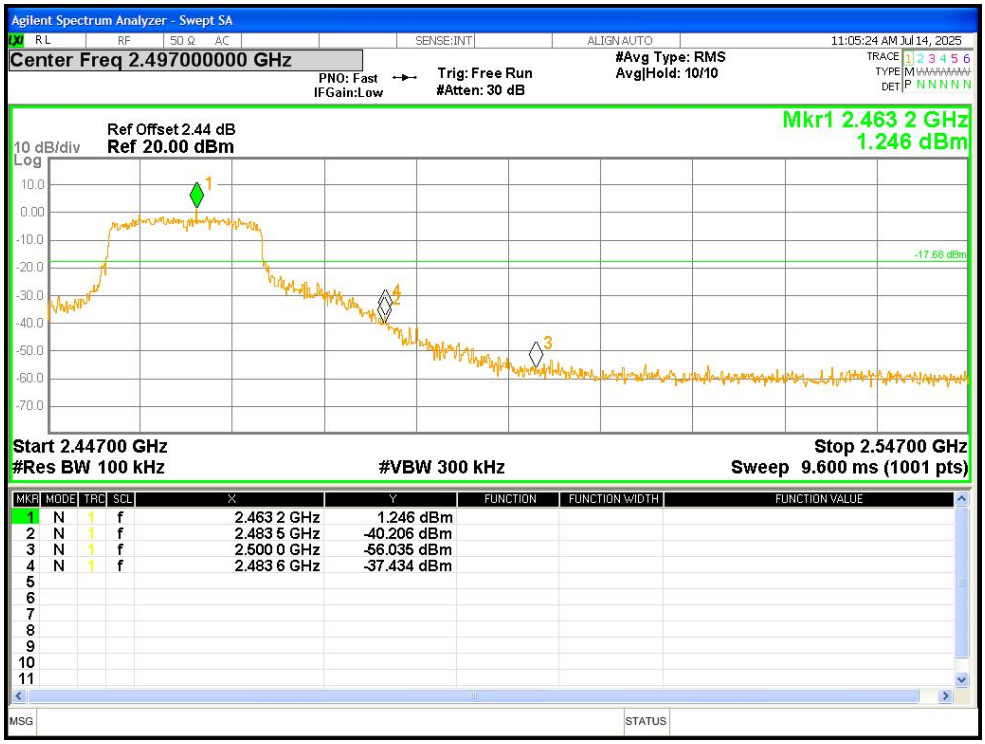
Band Edge NVNT g 2412MHz Ant1 Ref



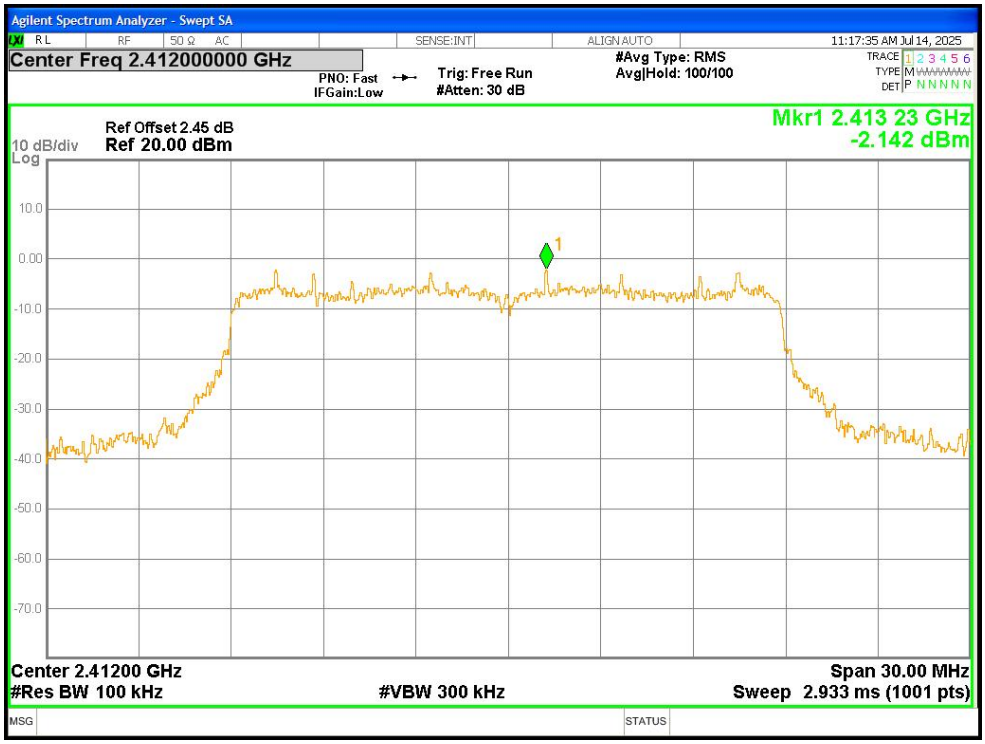
Band Edge NVNT g 2412MHz Ant1 Emission



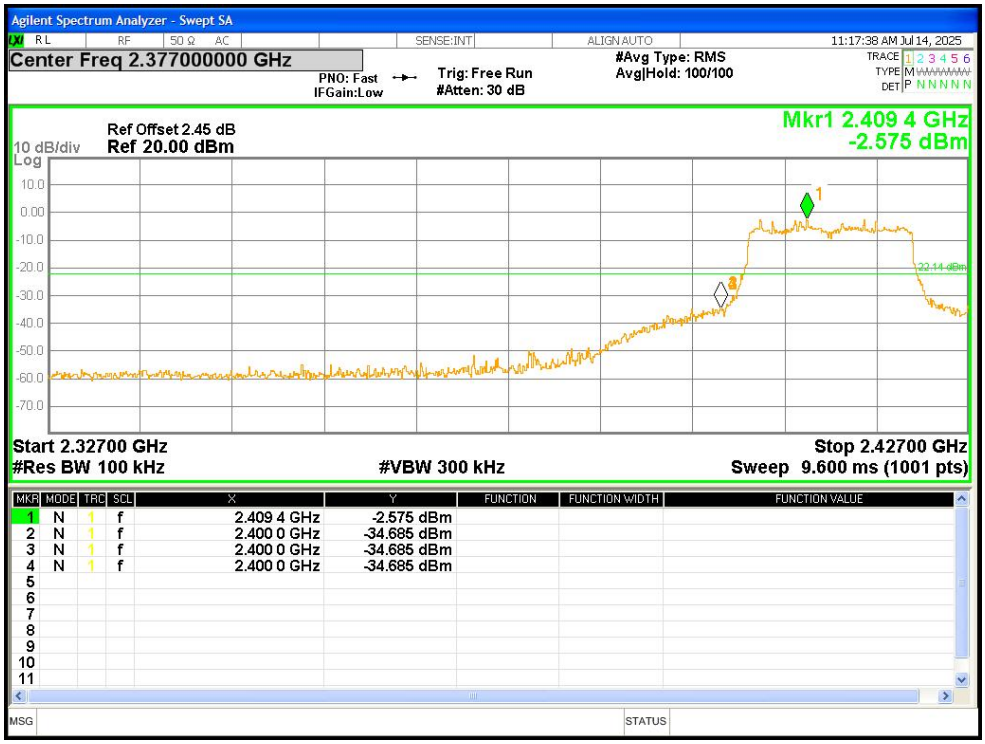
Band Edge NVNT g 2462MHz Ant1 Ref



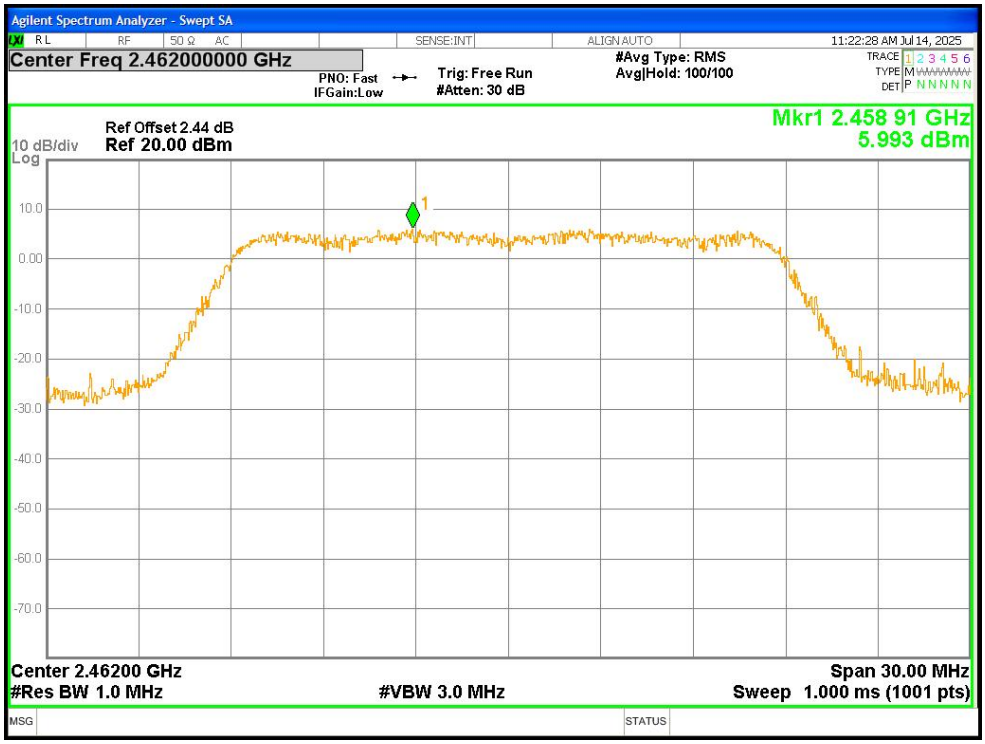
Band Edge NVNT g 2462MHz Ant1 Emission



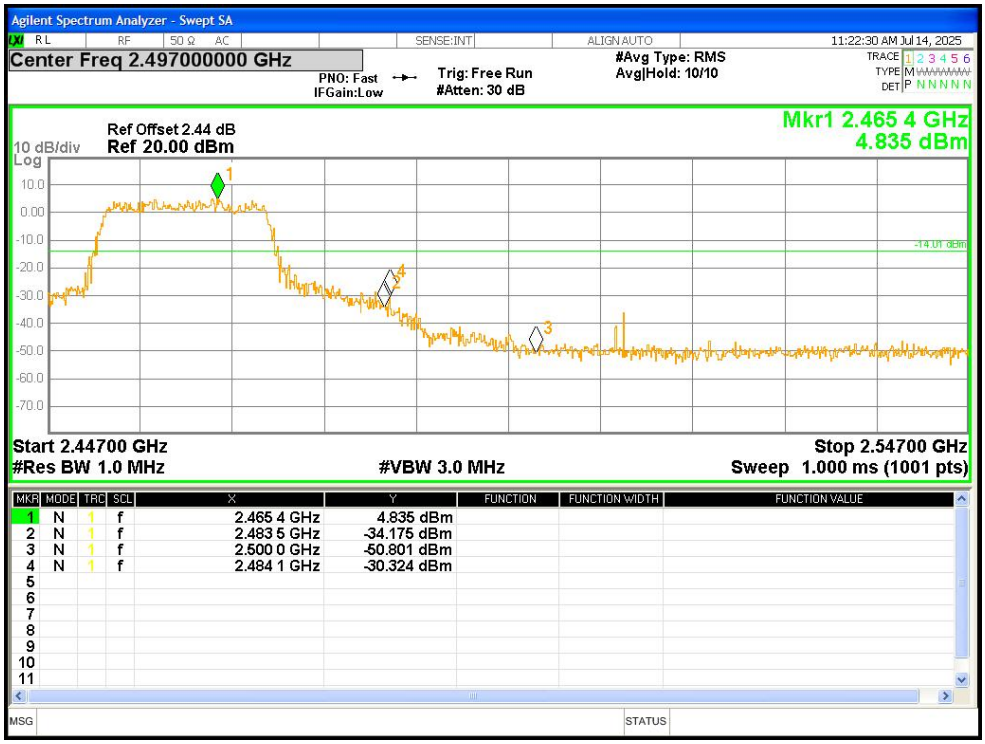
Band Edge NVNT n20 2412MHz Ant1 Ref



Band Edge NVNT n20 2412MHz Ant1 Emission



Band Edge NVNT n20 2462MHz Ant1 Ref



Band Edge NVNT n20 2462MHz Ant1 Emission

10. 99% OCCUPY BANDWIDTH

Test Requirement:	RSS-Gen 6.7
Test Method:	ANSI C63.10:2013 Section 6.9

10.1 CONFORMANCE LIMIT

No limit requirement.

10.2 TEST PROCEDURE

The EUT was operating in Bluetooth transmitter mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 1-5% of 99% occupied bandwidth.

Set the video bandwidth (VBW) ⩾3*RBW.

Set Span= approximately 2 to 3 times OBW

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

Measure and record the results in the test report.

10.3 DEVIATION FROM STANDARD

No deviation.

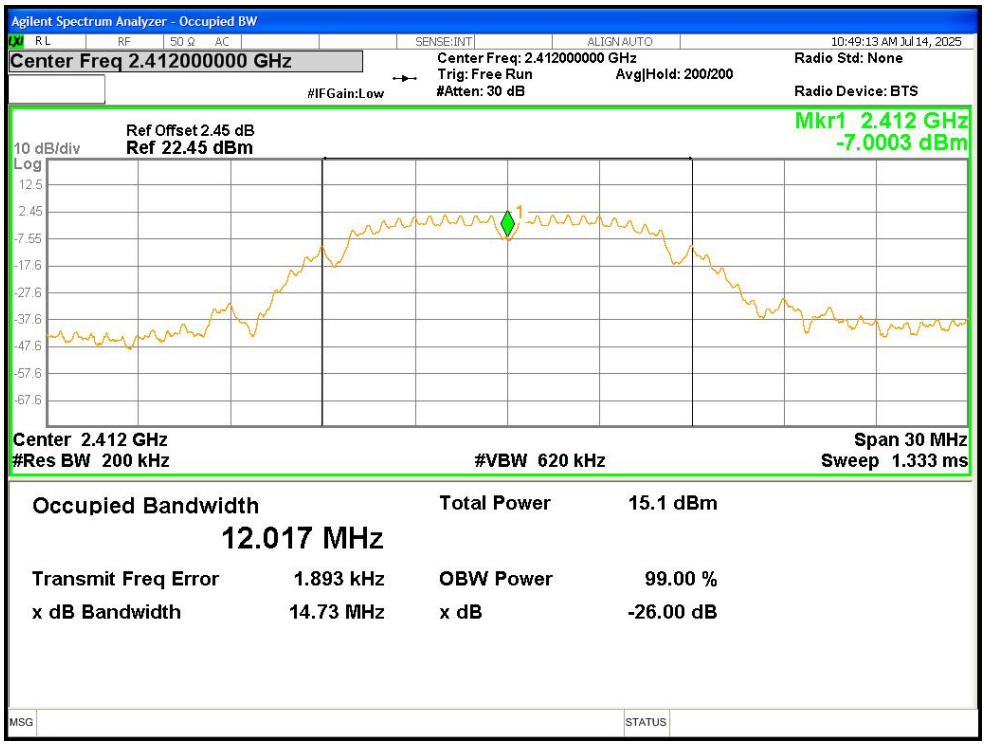
10.4 TEST SETUP

10.5 EUT OPERATION CONDITIONS

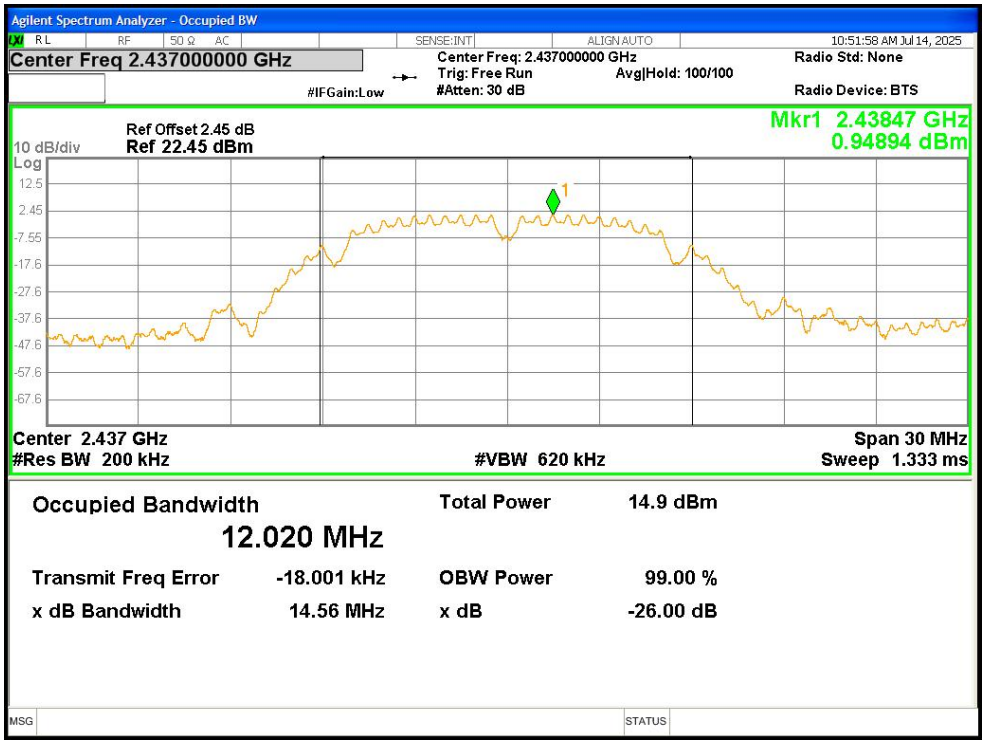
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

10.6 TEST RESULTS

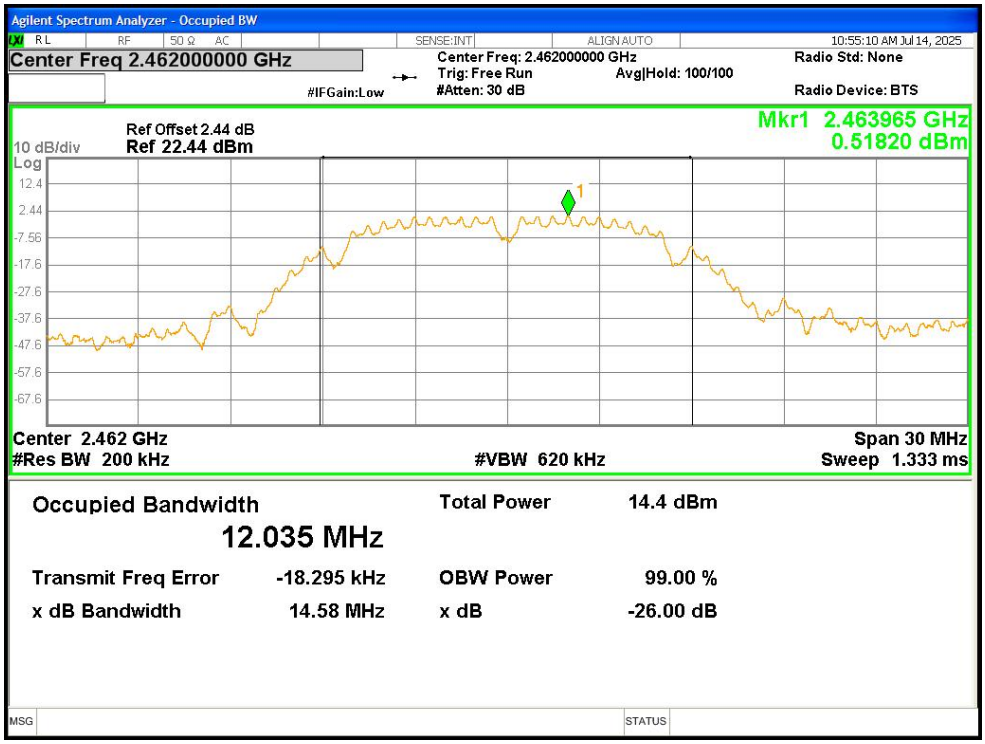
Mode	Channel Frequency (MHz)	99% Occupied Bandwidth (MHz)	Verdict
b	2412	12.017	PASS
b	2437	12.020	PASS
b	2462	12.035	PASS
g	2412	16.489	PASS
g	2437	16.486	PASS
g	2462	16.532	PASS
n20	2412	17.698	PASS
n20	2437	17.707	PASS
n20	2462	17.700	PASS



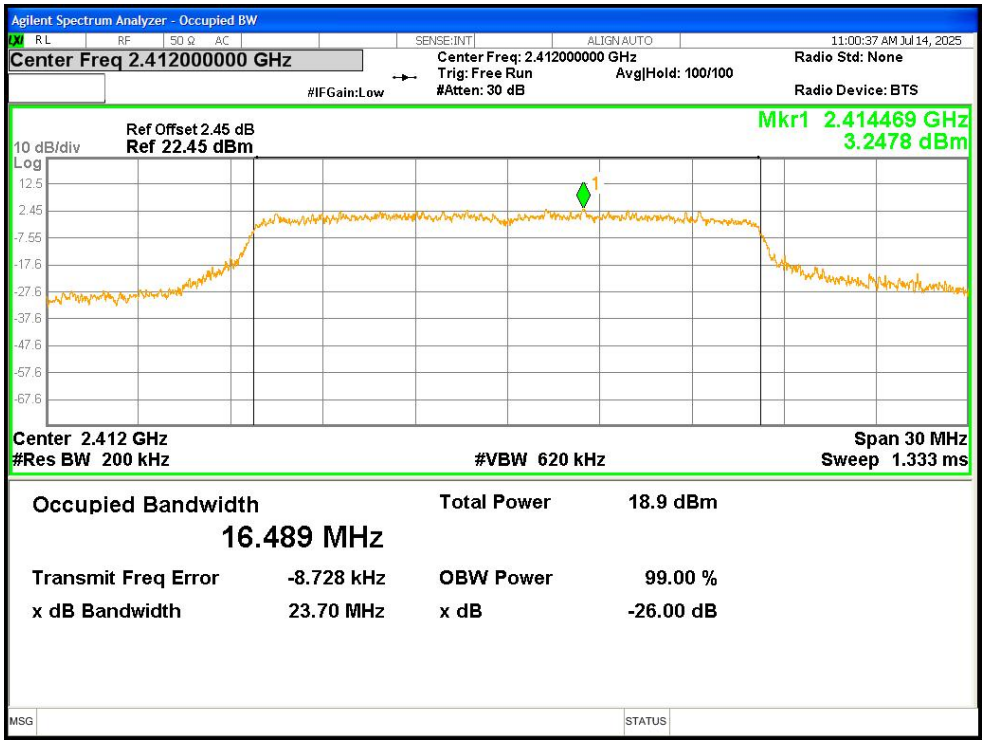
OBW NVNT b 2412MHz Ant1



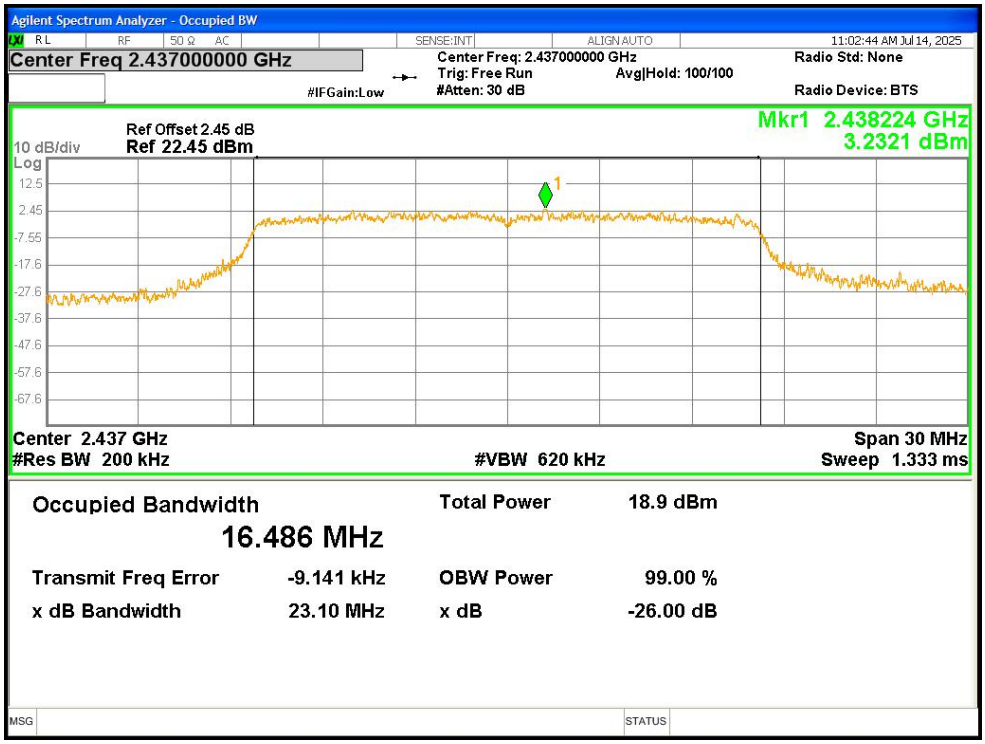
OBW NVNT b 2437MHz Ant1



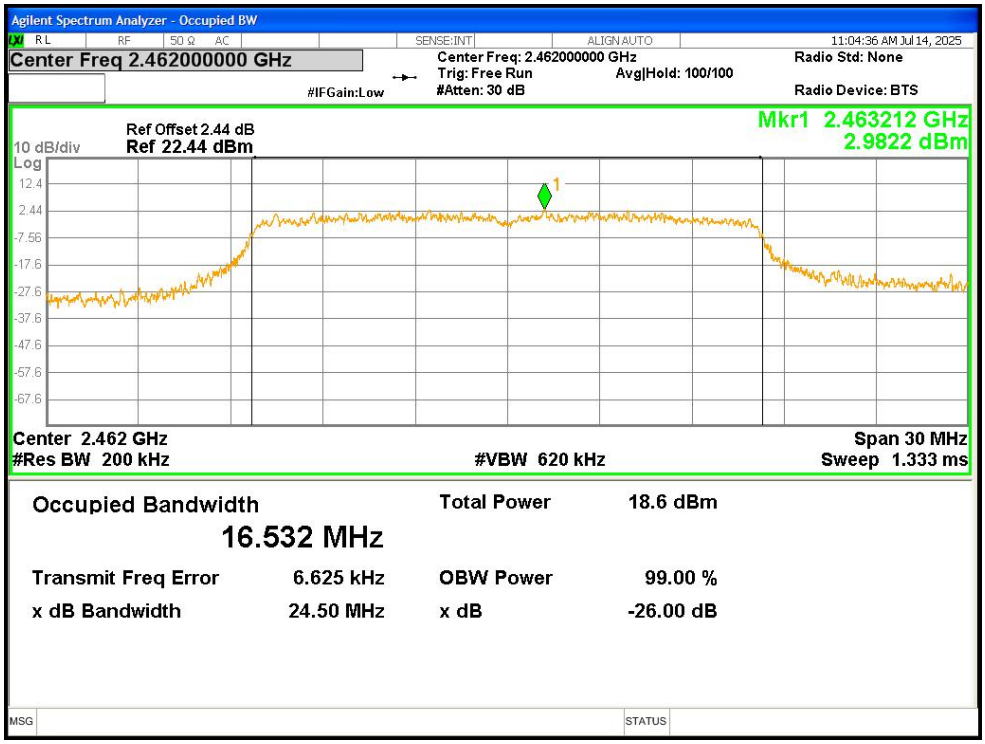
OBW NVNT b 2462MHz Ant1



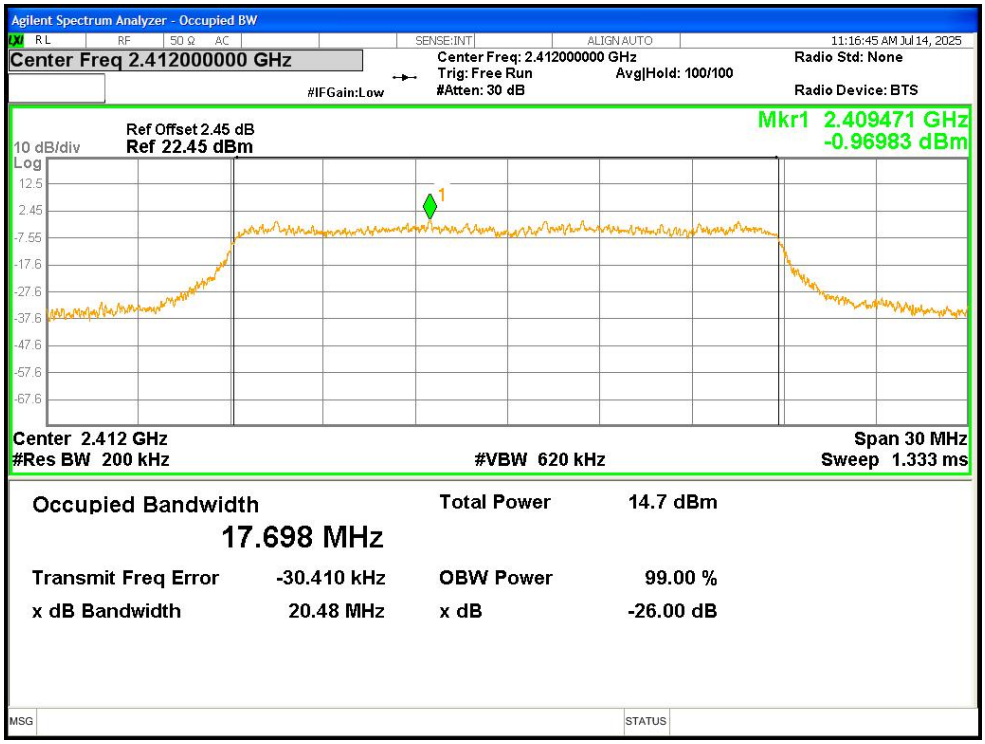
OBW NVNT g 2412MHz Ant1



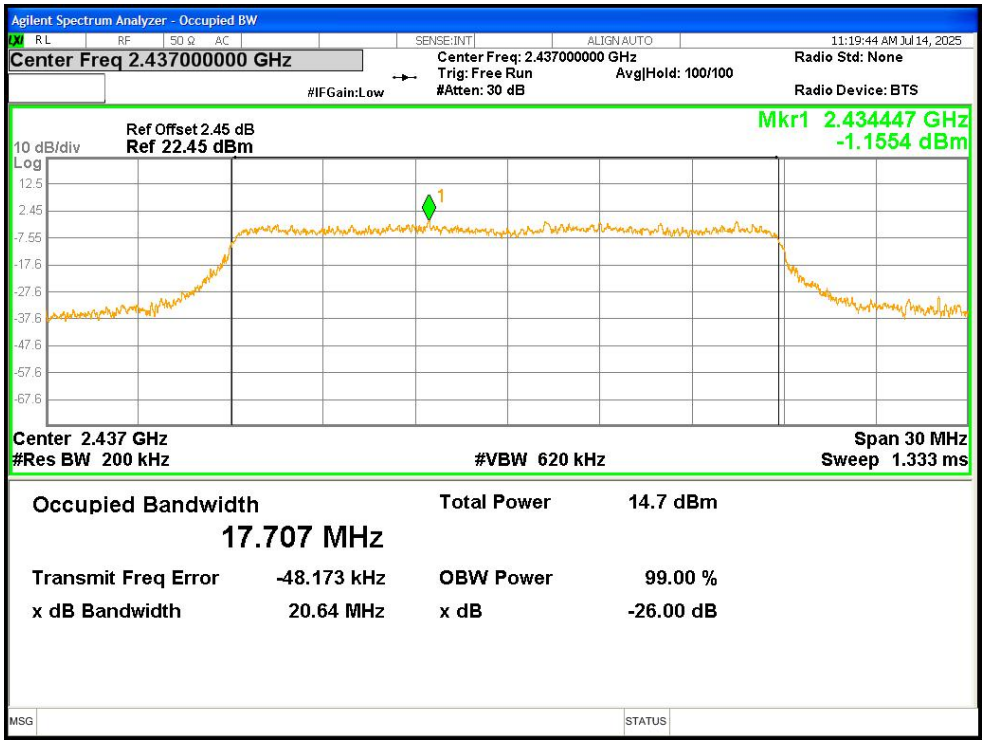
OBW NVNT g 2437MHz Ant1



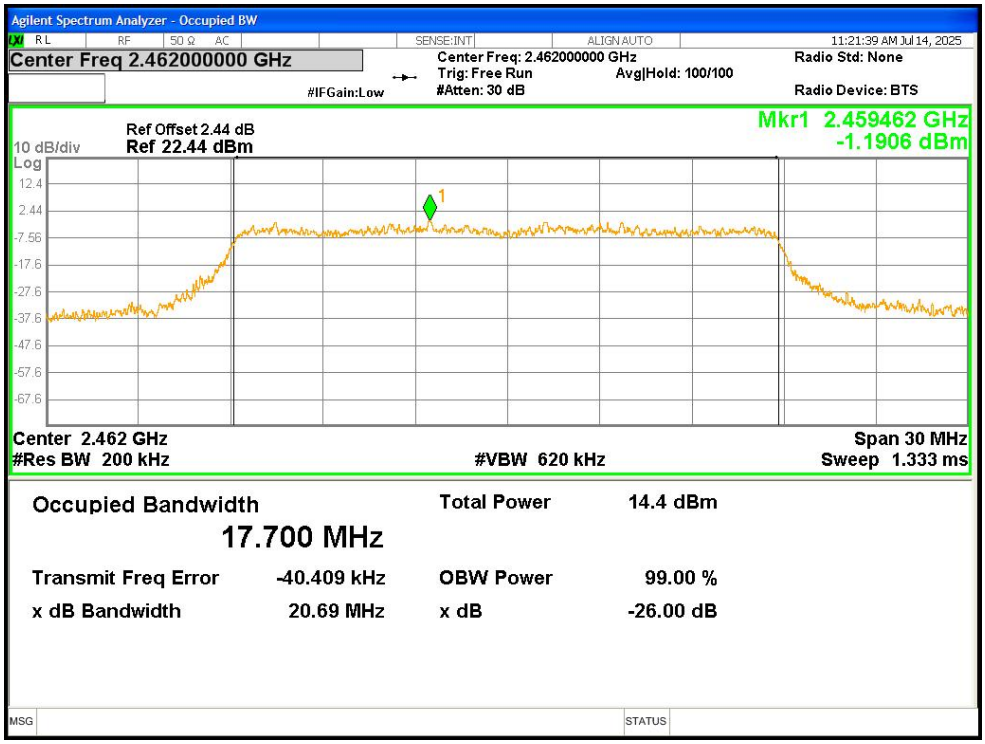
OBW NVNT g 2462MHz Ant1



OBW NVNT n20 2412MHz Ant1



OBW NVNT n20 2437MHz Ant1



OBW NVNT n20 2462MHz Ant1

11. 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 WIFI 2.4G antenna is FPC antenna, the best case gain for the antenna is +2.66dBi, reference to the appendix II for details	

12. TEST SETUP PHOTO

Reference to the appendix I for details.

13. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

※※※※※ END OF REPORT ※※※※※