



Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

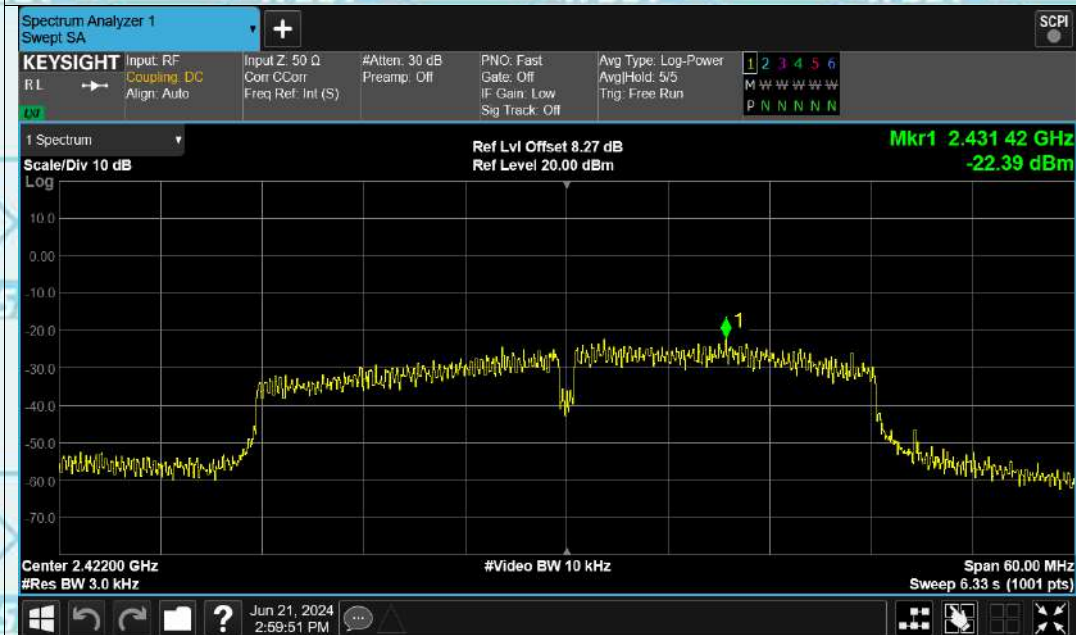
Certificate #5768.01

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PSD NVNT n20 2462MHz Ant1



PSD NVNT n40 2422MHz Ant1



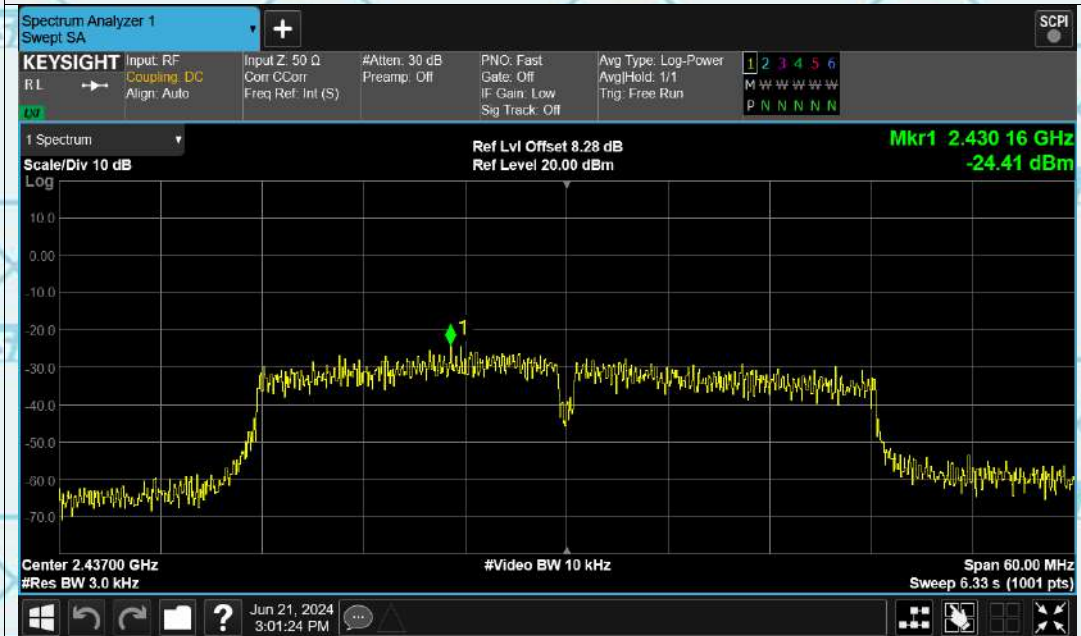


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PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1



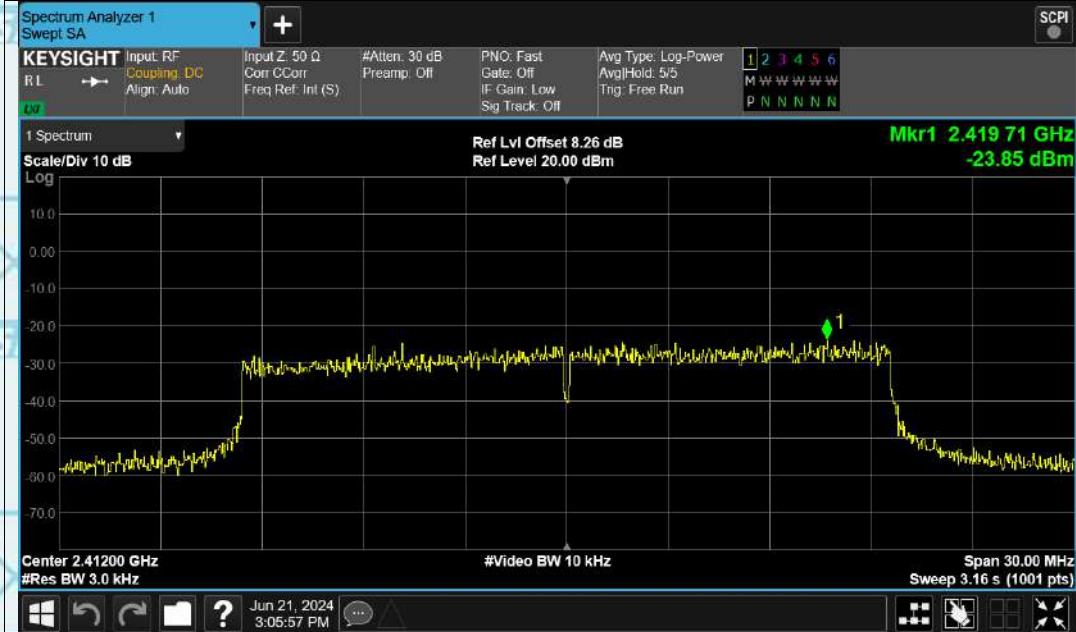


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PSD NVNT ax20 2412MHz Ant1



PSD NVNT ax20 2437MHz Ant1





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PSD NVNT ax40 2437MHz Ant1



PSD NVNT ax40 2452MHz Ant1





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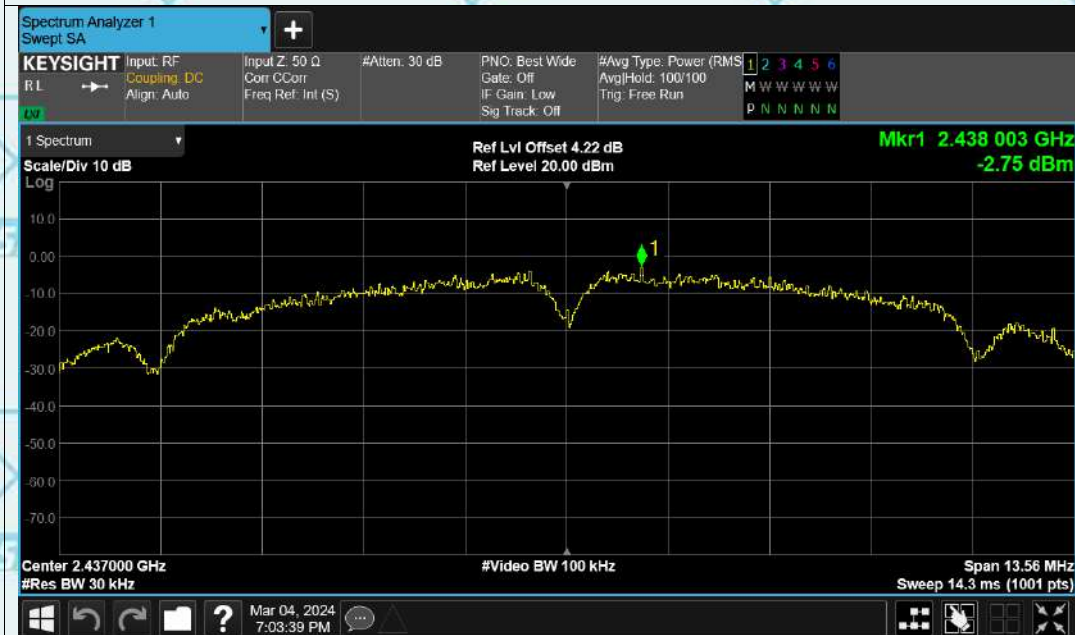
ANT2

Test Graphs

PSD NVNT b 2412MHz Ant2



PSD NVNT b 2437MHz Ant2





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PSD NVNT b 2462MHz Ant2



PSD NVNT g 2412MHz Ant2



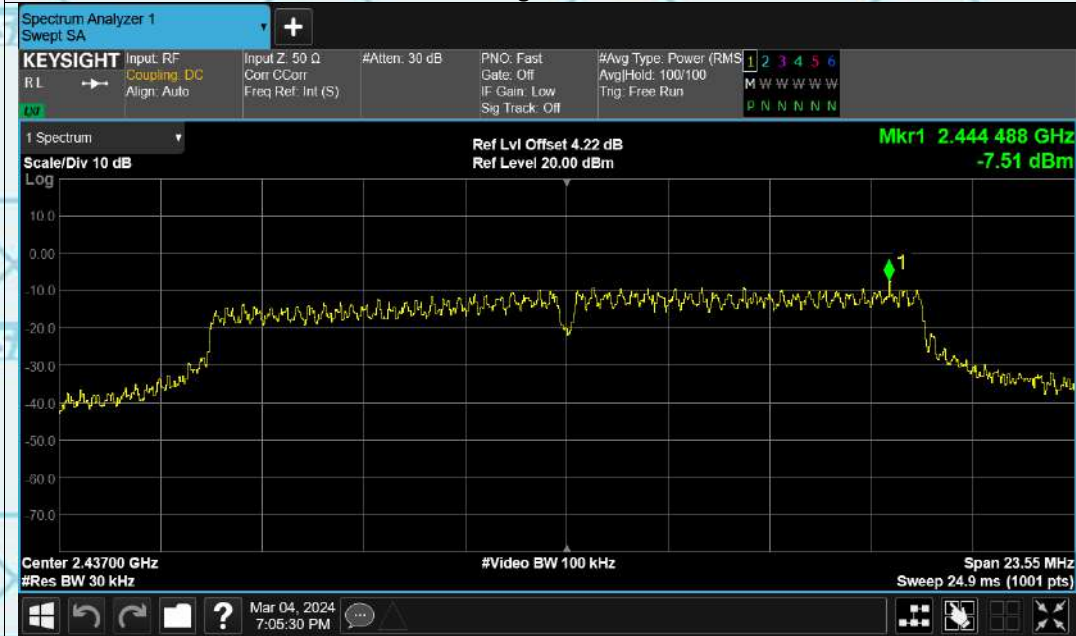


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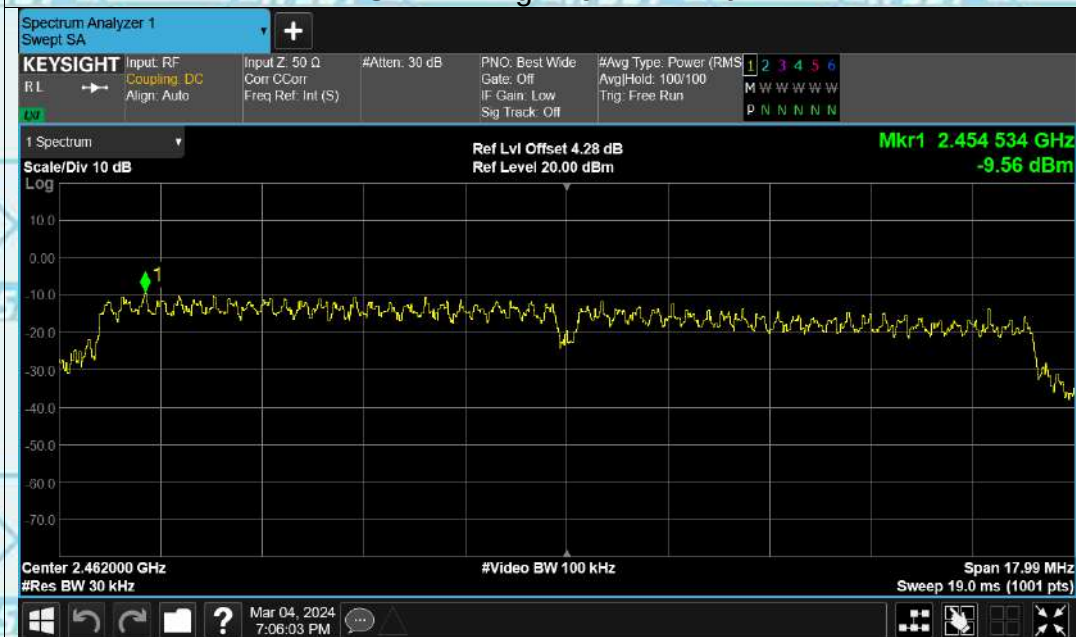
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PSD NVNT g 2437MHz Ant2



PSD NVNT g 2462MHz Ant2





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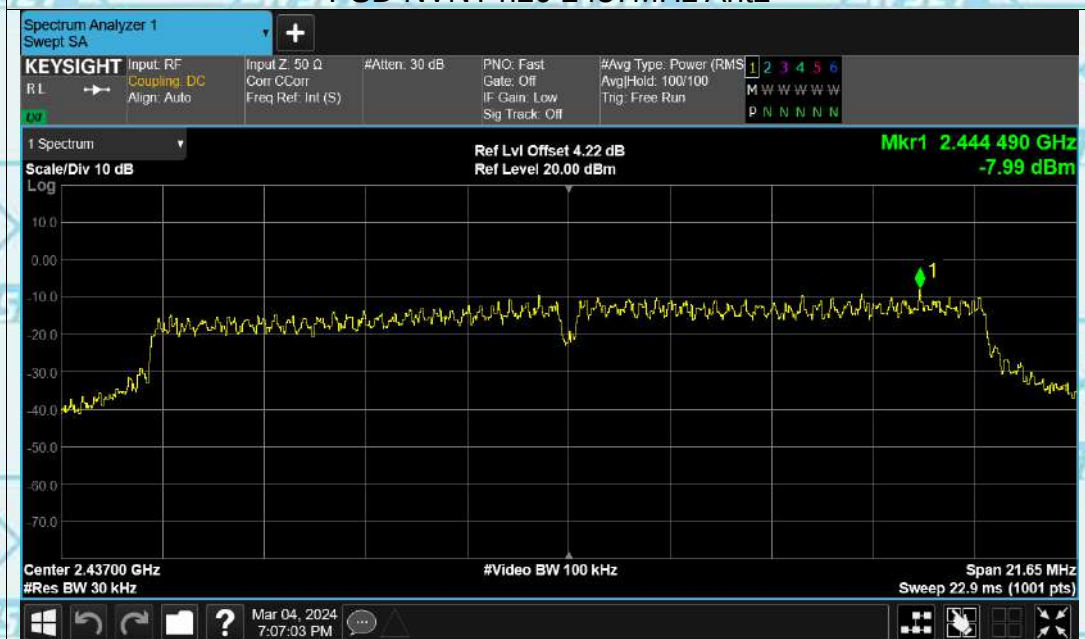
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PSD NVNT n20 2412MHz Ant2



PSD NVNT n20 2437MHz Ant2



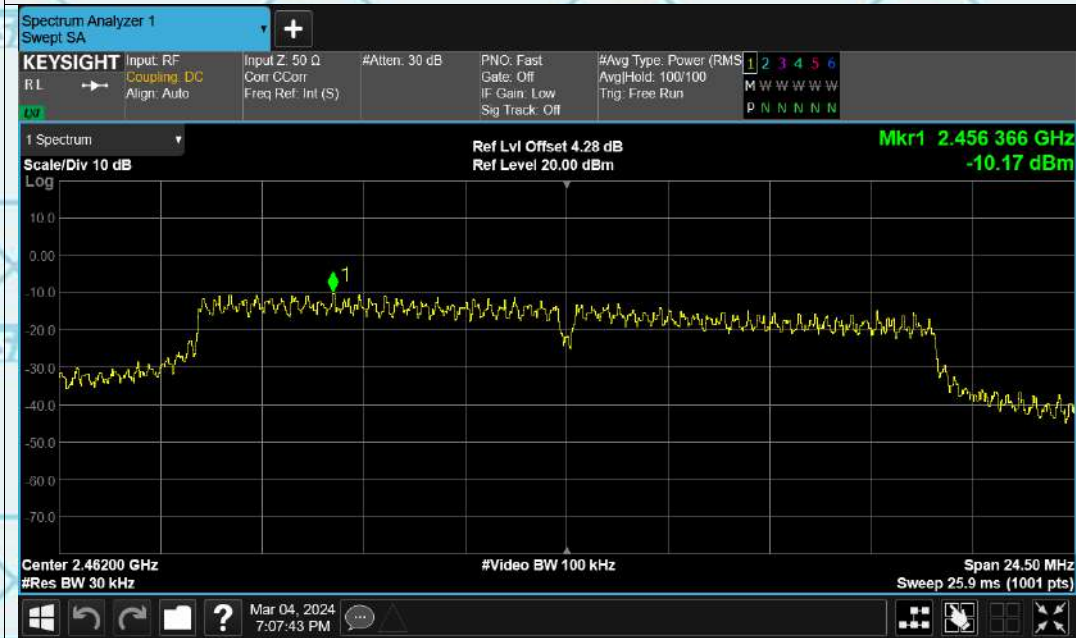


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PSD NVNT n20 2462MHz Ant2



PSD NVNT n40 2422MHz Ant2



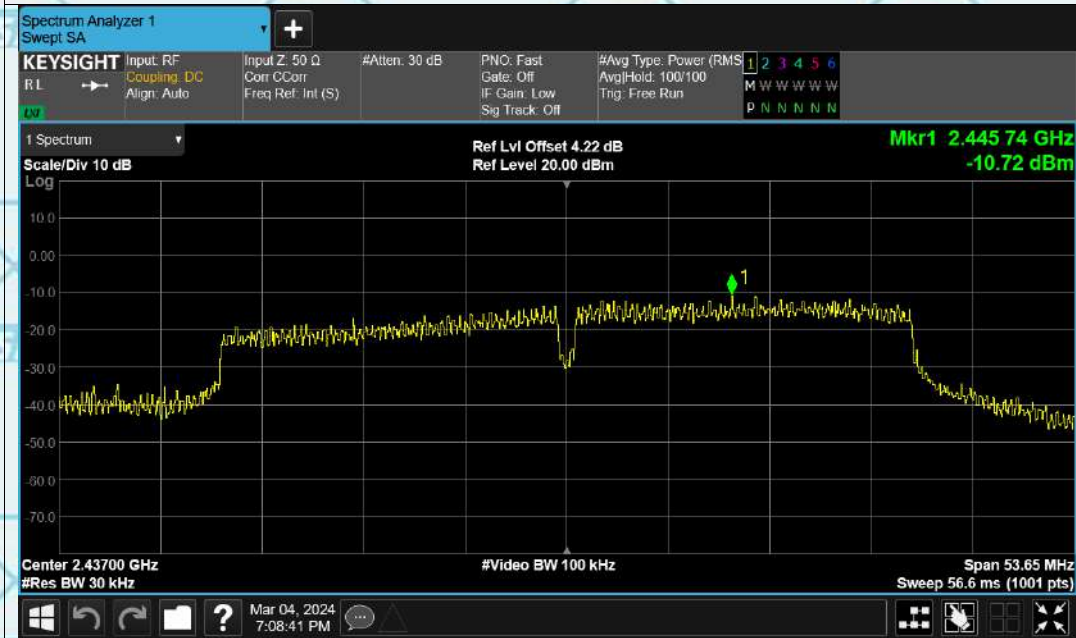


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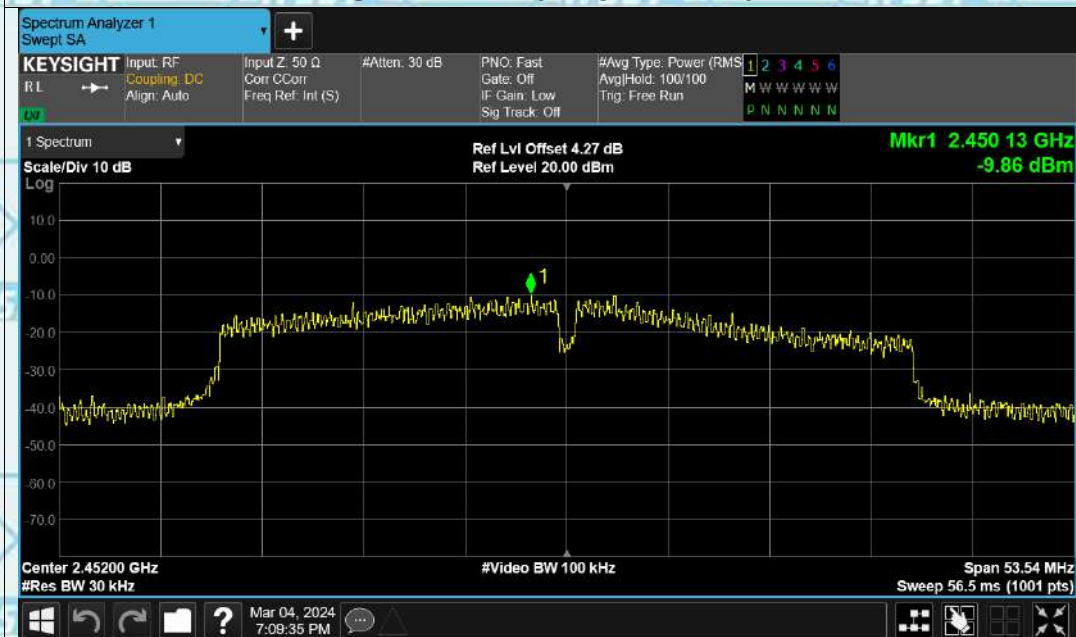
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PSD NVNT n40 2437MHz Ant2



PSD NVNT n40 2452MHz Ant2





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PSD NVNT ax20 2412MHz Ant2



PSD NVNT ax20 2437MHz Ant2



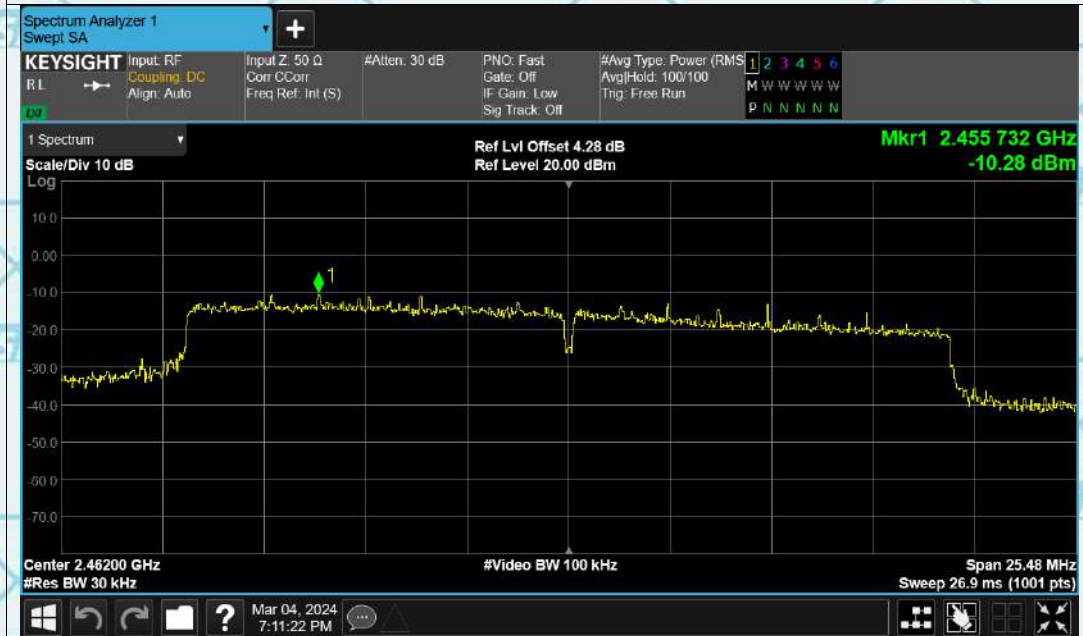


Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

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PSD NVNT ax20 2462MHz Ant2



PSD NVNT ax40 2422MHz Ant2





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PSD NVNT ax40 2437MHz Ant2



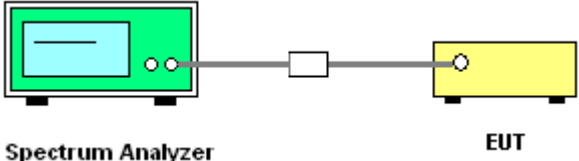
PSD NVNT ax40 2452MHz Ant2





6.5. Conducted Band Edge and Spurious Emission Measurement

6.5.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04. 2. 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. 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d). 5. Measure and record the results in the test report. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
Test Result:	PASS



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Test Data

Band Edge

Test Graphs
Band Edge NVLT b 2412MHz Ref

Band Edge NVLT b 2412MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

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Band Edge NVLT b 2462MHz Ref



Band Edge NVLT b 2462MHz Emission





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Band Edge NVLT g 2412MHz Ref



Band Edge NVLT g 2412MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

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Band Edge NVLT g 2462MHz Ref



Band Edge NVLT g 2462MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

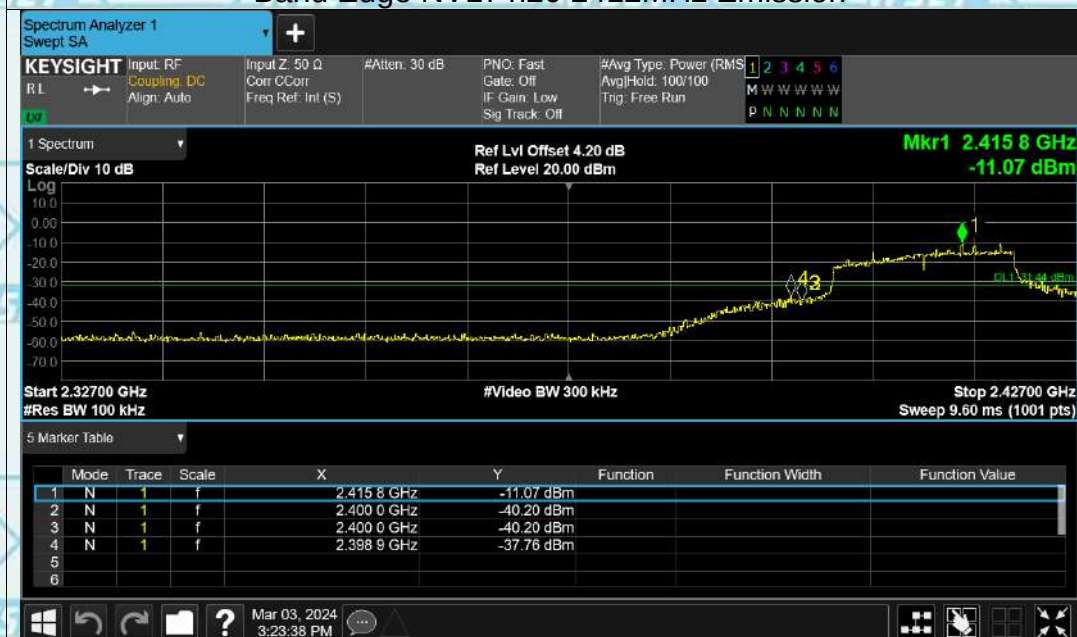
Certificate #5768.01

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Band Edge NVLT n20 2412MHz Ref



Band Edge NVLT n20 2412MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

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Band Edge NVLT n20 2462MHz Ref



Band Edge NVLT n20 2462MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

Certificate #5768.01

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Band Edge NVLT n40 2422MHz Ref



Band Edge NVLT n40 2422MHz Emission





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Band Edge NVLT n40 2452MHz Ref



Band Edge NVLT n40 2452MHz Ant2 Emission





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Band Edge NVLT ax20 2412MHz Ref



Band Edge NVLT ax20 2412MHz Emission





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Certificate #5768.01

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Band Edge NVLT ax20 2462MHz Ref



Band Edge NVLT ax20 2462MHz Emission



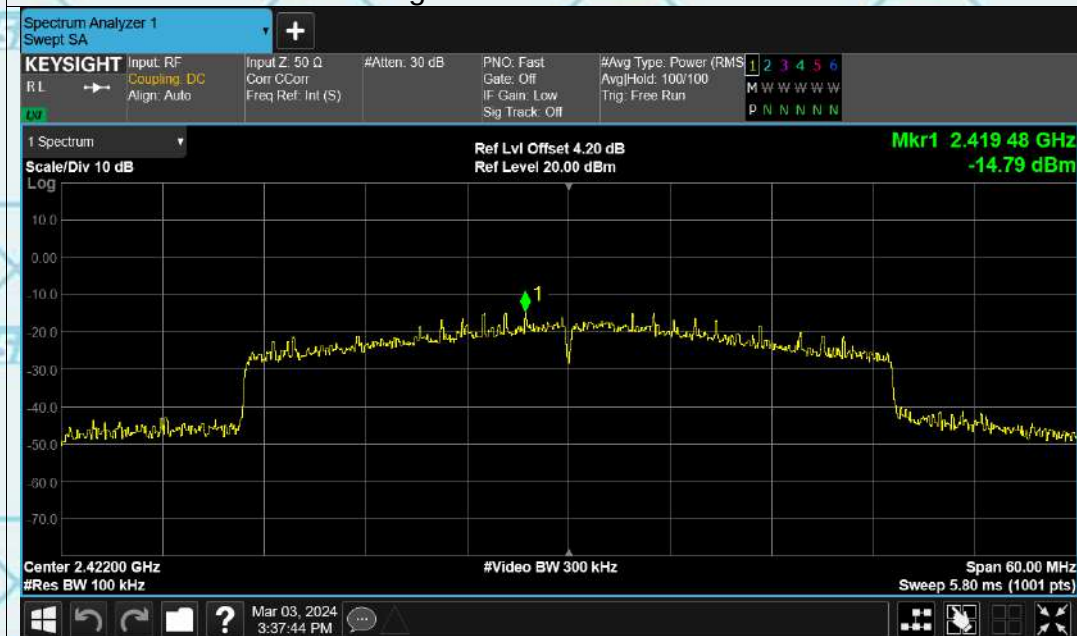


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Band Edge NVLT ax40 2422MHz Ref



Band Edge NVLT ax40 2422MHz Emission



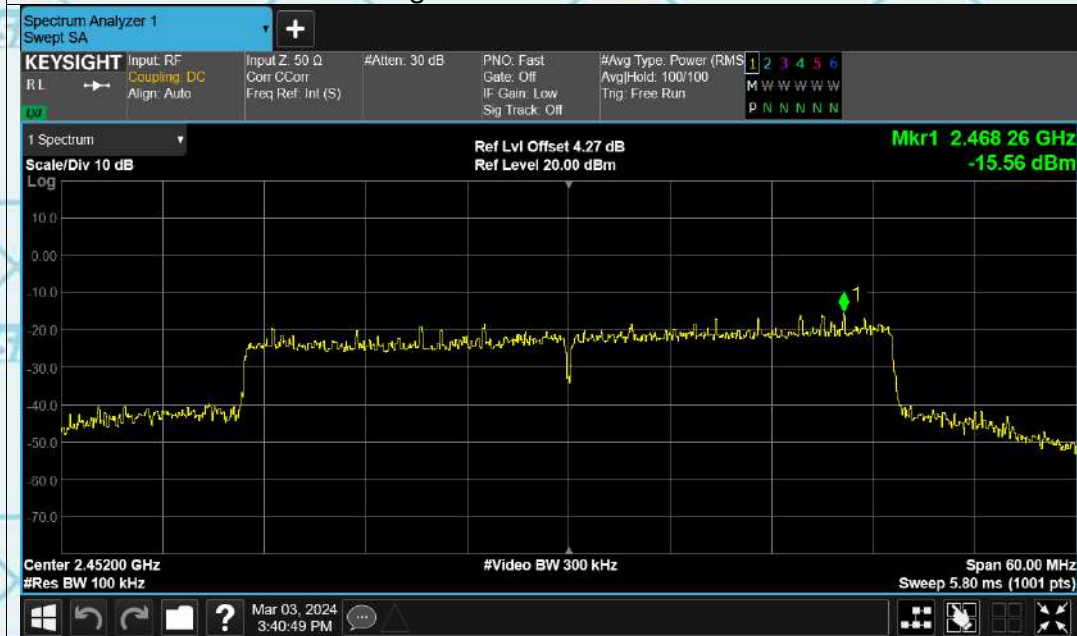


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Band Edge NVLT ax40 2452MHz Ref



Band Edge NVLT ax40 2452MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

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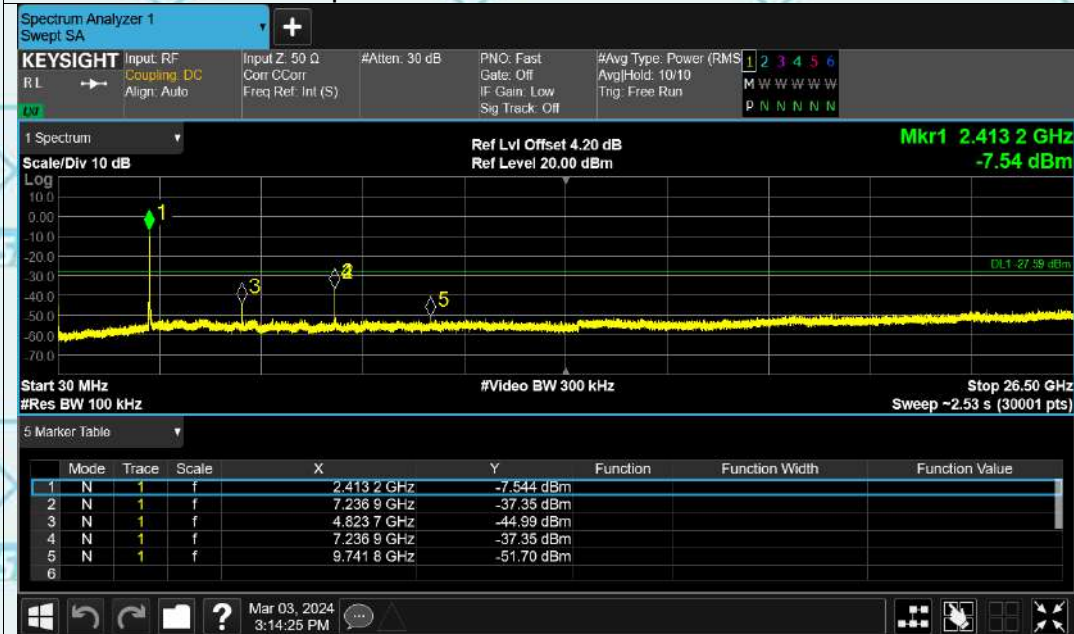
Conducted RF Spurious Emission

Test Graphs

Tx. Spurious NVLT b 2412MHz Ref



Tx. Spurious NVLT b 2412MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

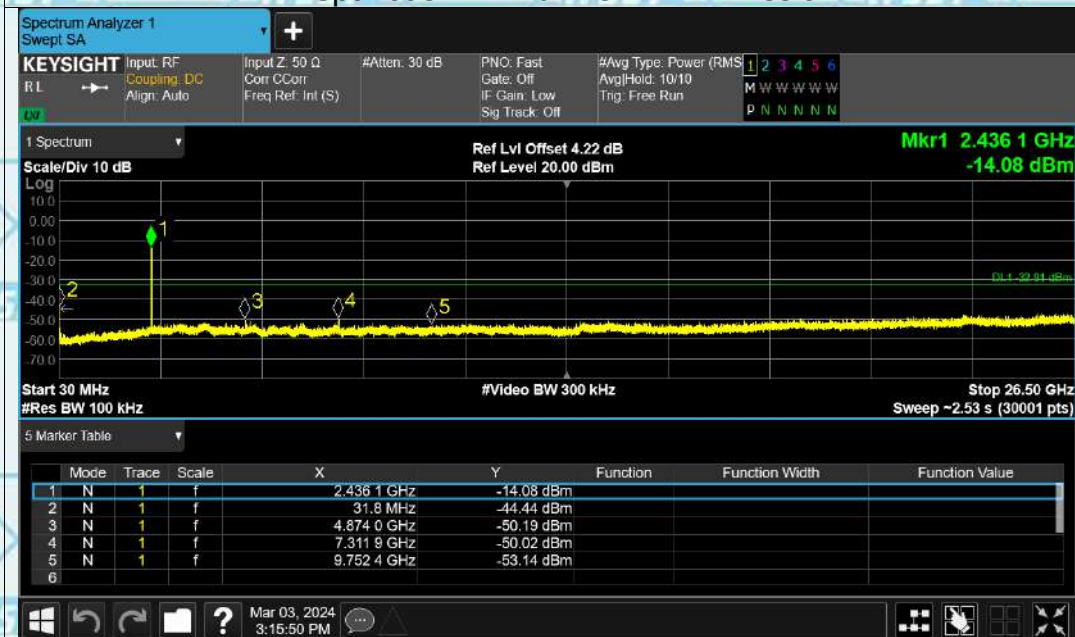
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Tx. Spurious NVLT b 2437MHz Ref



Tx. Spurious NVLT b 2437MHz Emission





Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

Certificate #5768.01

For Question,
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Tx. Spurious NVLT b 2462MHz Ref



Tx. Spurious NVLT b 2462MHz Emission



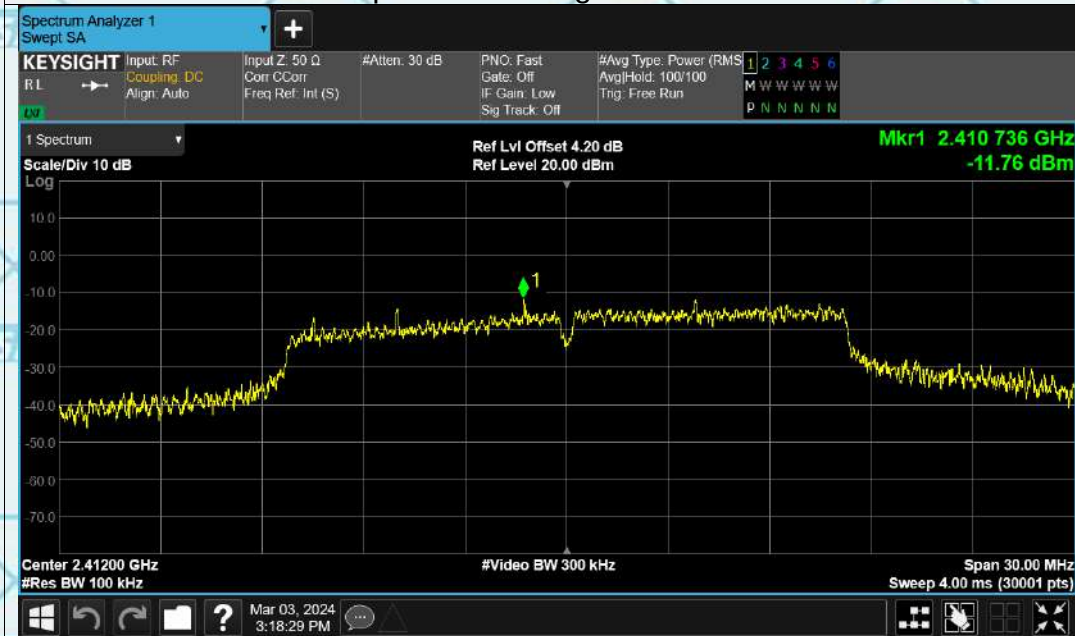


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Certificate #5768.01

For Question,
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Tx. Spurious NVLT g 2412MHz Ref



Tx. Spurious NVLT g 2412MHz Emission





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Tx. Spurious NVLT g 2437MHz Ref



Tx. Spurious NVLT g 2437MHz Emission





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Tx. Spurious NVLT g 2462MHz Ref



Tx. Spurious NVLT g 2462MHz Emission





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Tx. Spurious NVLT n20 2412MHz Ref



Tx. Spurious NVLT n20 2412MHz Emission





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Tx. Spurious NVLT n40 2422MHz Emission





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Tx. Spurious NVLT n40 2437MHz Emission





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Tx. Spurious NVLT n40 2452MHz Ref



Tx. Spurious NVLT n40 2452MHz Emission





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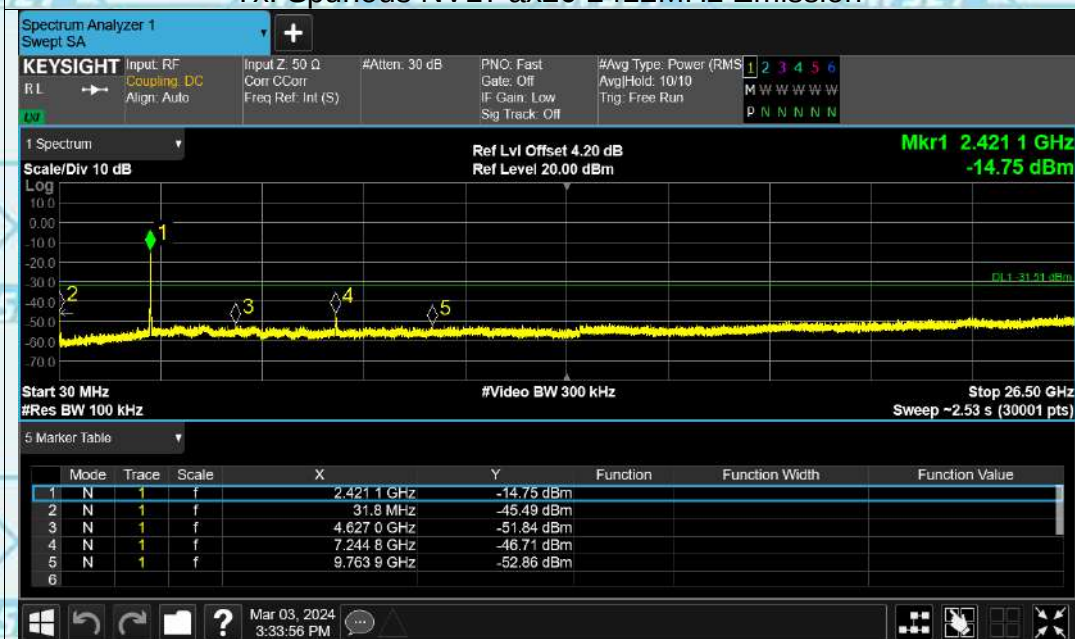
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Tx. Spurious NVLT ax20 2437MHz Emission





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Tx. Spurious NVLT ax40 2452MHz Ref



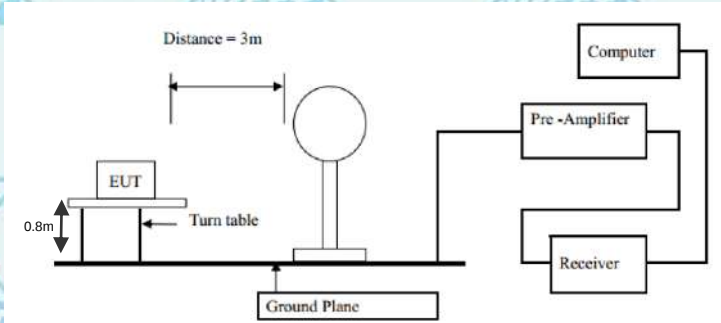
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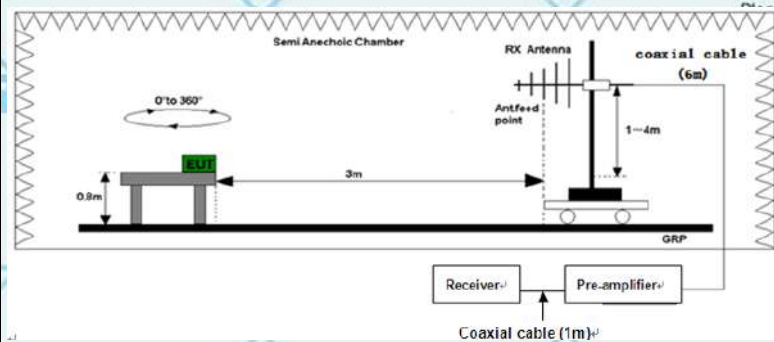




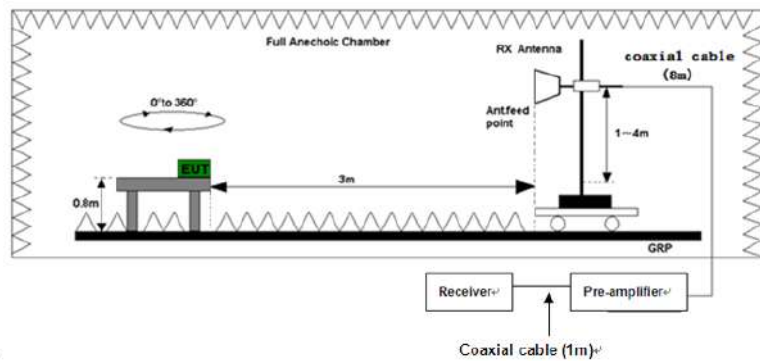
6.6. Radiated Spurious Emission Measurement

6.6.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10: 2014				
Frequency Range:	9 kHz to 25 GHz				
Measurement Distance:	3 m				
Antenna Polarization:	Horizontal & Vertical				
Operation mode:	Transmitting mode with modulation				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit:	Frequency		Field Strength (microvolts/meter)		Measurement Distance (meters)
	0.009-0.490		2400/F(KHz)		300
	0.490-1.705		24000/F(KHz)		30
	1.705-30		30		30
	30-88		100		3
	88-216		150		3
	216-960		200		3
	Above 960		500		3
	Frequency		Field Strength (microvolts/meter)	Measurement Distance (meters)	Detector
	Above 1GHz		500	3	Average
		5000	3	Peak	
Test setup:	For radiated emissions below 30MHz				
					
	30MHz to 1GHz				



Above 1GHz



Test Procedure:

- For the radiated emission test below 1GHz:
The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.
- For the radiated emission test above 1GHz:
Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.



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	3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 4. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 5. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test results:	PASS

Note 1: The symbol of "--" in the table which means not application.

Note 2: For the test data above 1 GHz, According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note 4: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and normal link mode is worst.





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www.wsct-cert.com**6.6.2. Test Data(worst)**Please refer to following diagram for individual
Below 1GHz

Horizontal:



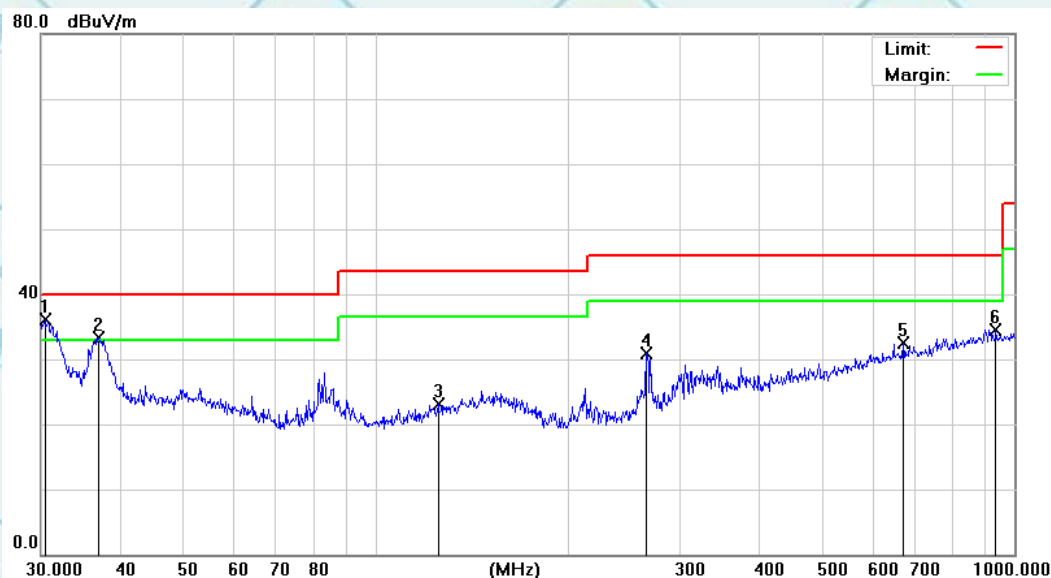
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	30.3173	39.04	-3.20	35.84	40.00	-4.16	QP
2		36.8953	33.77	-2.42	31.35	40.00	-8.65	QP
3		153.2004	27.45	-1.86	25.59	43.50	-17.91	QP
4		206.3976	32.57	-6.04	26.53	43.50	-16.97	QP
5		267.5455	39.08	-3.65	35.43	46.00	-10.57	QP
6		942.1304	26.82	7.40	34.22	46.00	-11.78	QP



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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	*	30.4238	39.29	-3.20	36.09	40.00	-3.91	QP
2	!	36.8953	35.66	-2.42	33.24	40.00	-6.76	QP
3		125.4457	26.48	-3.36	23.12	43.50	-20.38	QP
4		265.6757	34.63	-3.76	30.87	46.00	-15.13	QP
5		670.4893	27.83	4.70	32.53	46.00	-13.47	QP
6		935.5463	27.26	7.31	34.57	46.00	-11.43	QP

Note1:

Freq. = Emission frequency in MHz

Reading level (dBuV) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss - Amplifier factor.

Measurement (dBuV) = Reading level (dBuV) + Corr. Factor (dB)

Limit (dBuV) = Limit stated in standard

Margin (dB) = Measurement (dBuV) – Limits (dBuV)





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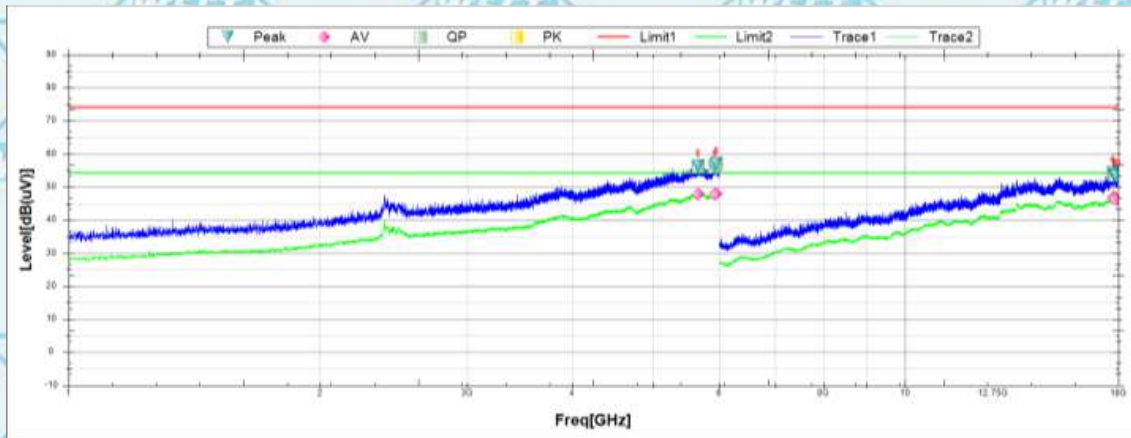
Above 1GHz

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

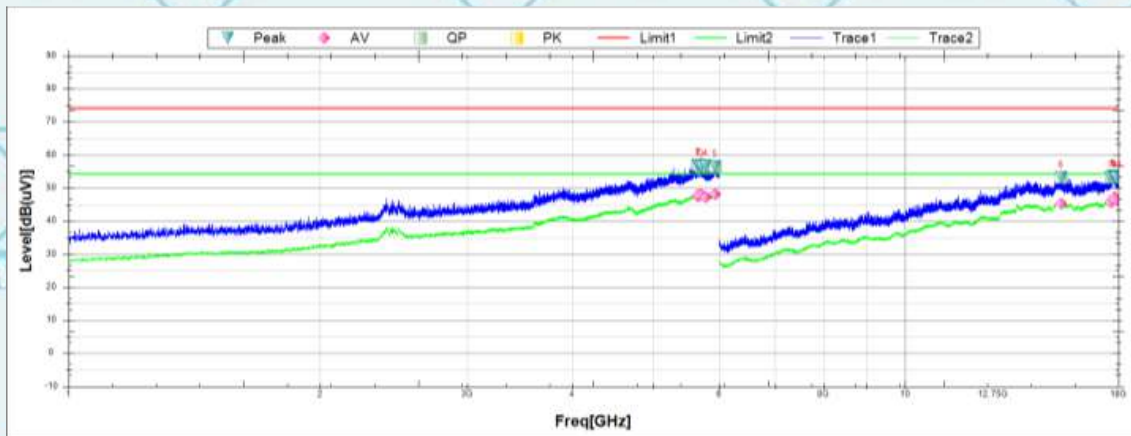
Note 2: The spurious above 18G is noise only, do not show on the report.

Note 3: Report and only recorded the worst-case scenario 802.11b.
1 GHz to 18 GHz, ANT H 802.11b Low Channel

Horizontal:



Vertical :





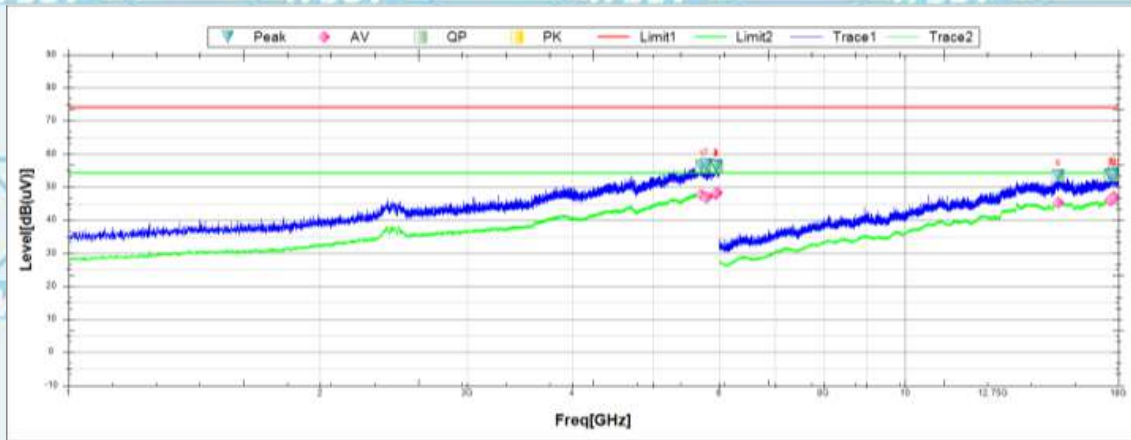
Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

Certificate #5768.01

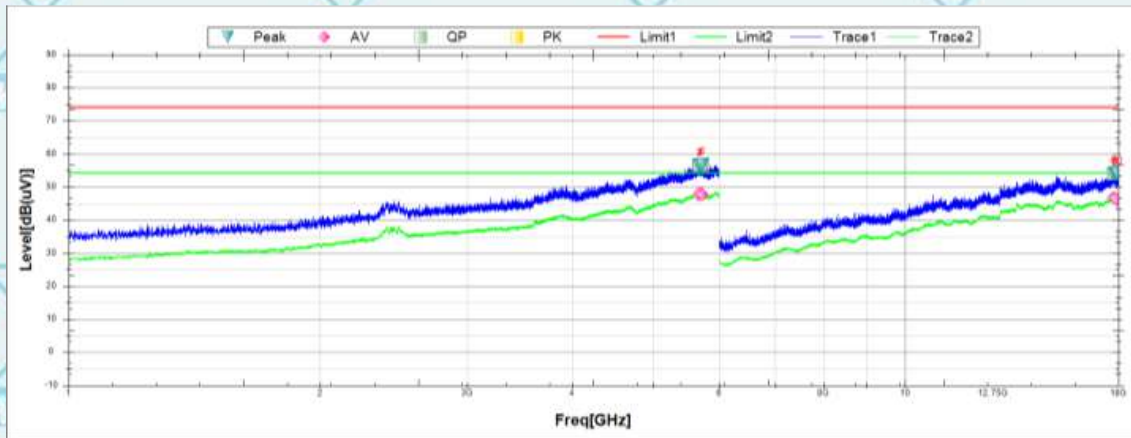
For Question,
Please Contact with WSCT
www.wsct-cert.com

1 GHz to 18 GHz, ANT H 802.11b Middle Channel

Horizontal:



Vertical :





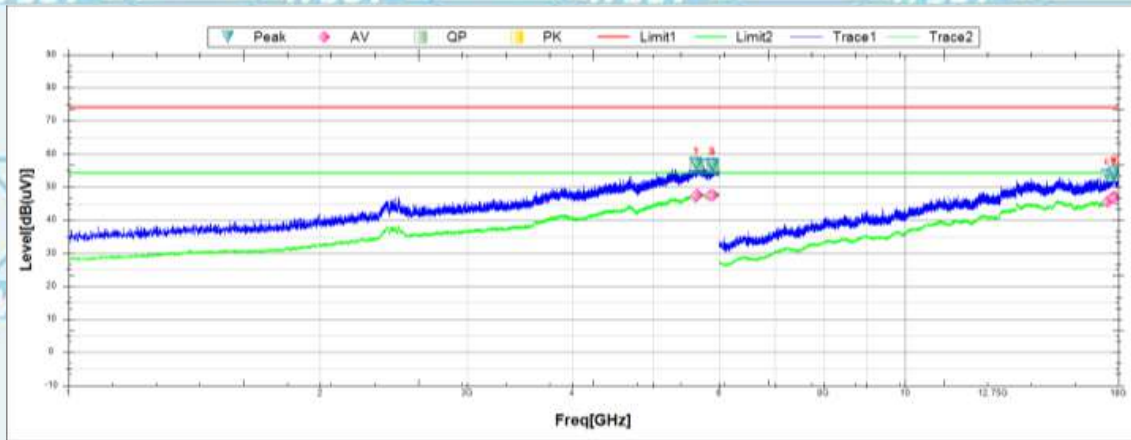
Report No.: WSCT-A2LA-R&E240300009A-Wi-Fi1

Certificate #5768.01

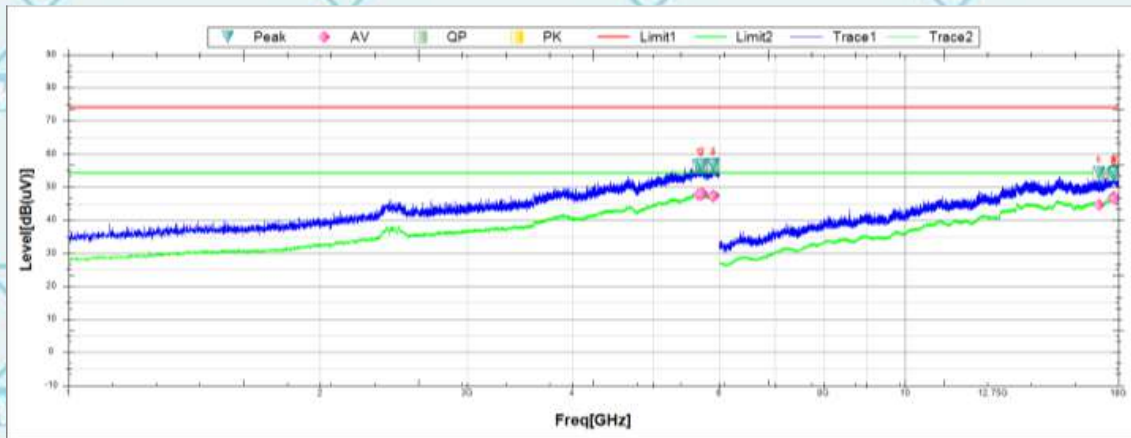
For Question,
Please Contact with WSCT
www.wsct-cert.com

1 GHz to 18 GHz, ANT H 802.11b High Channel

Horizontal:



Vertical :



Note:

1. All emissions not reported were more than 20dB below the specified limit or in the noise floor.
2. Emission Level= Reading Level+ Probe Factor +Cable Loss.
3. Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



7. Test Setup Photographs

Please refer to Annex "Set Up Photos-15C" for test setup photos

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