802.11n-HT40

Channel 38

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17916.4	45.54	-25.55	42.3	28.79	54	8.46	V
17915.3	45.53	-25.55	42.3	28.78	54	8.47	V
13268.35	39.36	-29.75	40.3	28.81	54	14.64	V
13298.05	39.34	-29.75	40.3	28.79	54	14.66	H
5149.94	42.6	-27.27	32.7	37.17	54	11.4	H
5149.38	42.13	-27.27	32.7	36.7	54	11.87	H

Channel 62

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17925.75	45.48	-25.55	42.3	28.73	54	8.52	H
17918.05	45.41	-25.55	42.3	28.66	54	8.59	H
13271.65	39.5	-29.75	40.3	28.95	54	14.5	V
13268.9	39.47	-29.75	40.3	28.92	54	14.53	V
5351.616	42.8	-27.08	33.5	36.38	54	11.2	H
5350.896	42.48	-27.08	33.5	36.06	54	11.52	H

Channel 102

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17917.5	45.48	-25.55	42.3	28.73	54	8.52	H
17921.35	45.46	-25.55	42.3	28.71	54	8.54	H
13282.1	39.53	-29.75	40.3	28.98	54	14.47	H
13265.6	39.44	-29.75	40.2	28.99	54	14.56	V
5457.835	40.75	-27.06	33.7	34.11	54	13.25	H
5411.245	40.67	-27.18	33.6	34.25	54	13.33	H

PEAK Results:

802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17808.6	56.79	-25.55	42.3	40.04	74	17.21	V
17911.45	56.42	-25.55	42.3	39.67	74	17.58	H
13721	51.85	-29.41	40.7	40.56	68.2	16.35	V
13734.2	51.79	-29.41	40.7	40.5	68.2	16.41	H
5126.74	51.83	-27.34	32.7	46.47	74	22.17	V
5122.66	51.62	-27.34	32.7	46.26	74	22.38	V

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17914.2	56.28	-25.55	42.3	39.53	74	17.72	H
17903.2	56.21	-25.55	42.3	39.46	74	17.79	V
14163.75	52.58	-28.86	40.4	41.04	68.2	15.62	H
13692.95	51.91	-29.88	40.7	41.09	68.2	16.29	V
5384.816	52.49	-27.08	33.5	46.07	74	21.51	H
5409.568	52.17	-27.18	33.6	45.75	74	21.83	V

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17937.3	56.47	-25.55	42.3	39.72	74	17.53	V
17885.6	56.24	-25.55	42.3	39.49	74	17.76	V
14096.1	52.08	-28.98	40.5	40.56	68.2	16.12	H
14250.65	52.05	-28.86	40.4	40.51	68.2	16.15	V
5408.59	52.27	-27.18	33.6	45.85	74	21.73	H
5468.2	51.87	-27.06	33.7	45.23	68.2	16.33	H

802.11n-HT20

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17962.6	56.37	-25.55	42.3	39.62	74	17.63	H
17827.85	56.24	-25.55	42.3	39.49	74	17.76	H
13707.8	52.32	-29.88	40.7	41.5	68.2	15.88	V
13736.95	51.76	-29.41	40.7	40.47	68.2	16.44	H
5149.76	66.95	-27.27	32.7	61.52	74	7.05	H
5149.16	65.34	-27.27	32.7	59.91	74	8.66	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17828.95	56.23	-25.55	42.3	39.48	74	17.77	H
17938.4	56.23	-25.55	42.3	39.48	74	17.77	V
14169.8	52.3	-28.86	40.4	40.76	68.2	15.9	H
13787.55	51.99	-29.41	40.9	40.5	68.2	16.21	V
5350.256	63.47	-27.08	33.5	57.05	74	10.53	H
5351.168	61.05	-27.08	33.5	54.63	74	12.95	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17839.4	56.22	-25.55	42.3	39.47	74	17.78	H
17916.4	56.18	-25.55	42.3	39.43	74	17.82	H
13743.55	52.33	-29.41	40.7	41.04	68.2	15.87	V
14232.5	52.32	-28.86	40.4	40.78	68.2	15.88	H
5457.55	54.23	-27.06	33.7	47.59	74	19.77	H
5468.98	62.42	-27.06	33.7	55.78	68.2	5.78	V

802.11n-HT40

Channel 38

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17882.85	56.73	-25.55	42.3	39.98	74	17.27	V
17910.9	56.09	-25.55	42.3	39.34	74	17.91	H
14179.15	52.18	-28.86	40.4	40.64	68.2	16.02	V
13743	52.07	-29.41	40.7	40.78	68.2	16.13	V
5149.84	54.26	-27.27	32.7	48.83	74	19.74	H
5149.98	54.2	-27.27	32.7	48.77	74	19.8	H

Channel 62

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17909.25	57.15	-25.55	42.3	40.4	74	16.85	H
17927.4	56.32	-25.55	42.3	39.57	74	17.68	V
13820.55	52.27	-29.41	40.9	40.78	68.2	15.93	V
14117.55	52.07	-28.86	40.5	40.43	68.2	16.13	V
5350.016	54.74	-27.08	33.5	48.32	74	19.26	H
5350.576	54.35	-27.08	33.5	47.93	74	19.65	H

Channel 102

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
17639.2	56.43	-27.04	42.3	41.17	68.2	11.77	H
17884.5	56.31	-25.55	42.3	39.56	74	17.69	V
14627.95	52.3	-28.77	39.7	41.37	68.2	15.9	H
13656.1	51.85	-29.88	40.6	41.13	68.2	16.35	V
5437.825	52.54	-27.18	33.6	46.12	74	21.46	V
5468.365	55.95	-27.06	33.7	49.31	68.2	12.25	H

Conclusion: PASS

Band edge compliance

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.1	P
	5320 MHz	Fig.2	P
	5500 MHz	Fig.3	P
	5700 MHz	Fig.4	P
802.11n HT20	5180 MHz	Fig.5	P
	5320 MHz	Fig.6	P
	5500 MHz	Fig.7	P
	5700 MHz	Fig.8	P
802.11n HT40	5190 MHz	Fig.9	P
	5310 MHz	Fig.10	P
	5510 MHz	Fig.11	P
	5670 MHz	Fig.12	P

Conclusion: PASS

Test graphs as below:

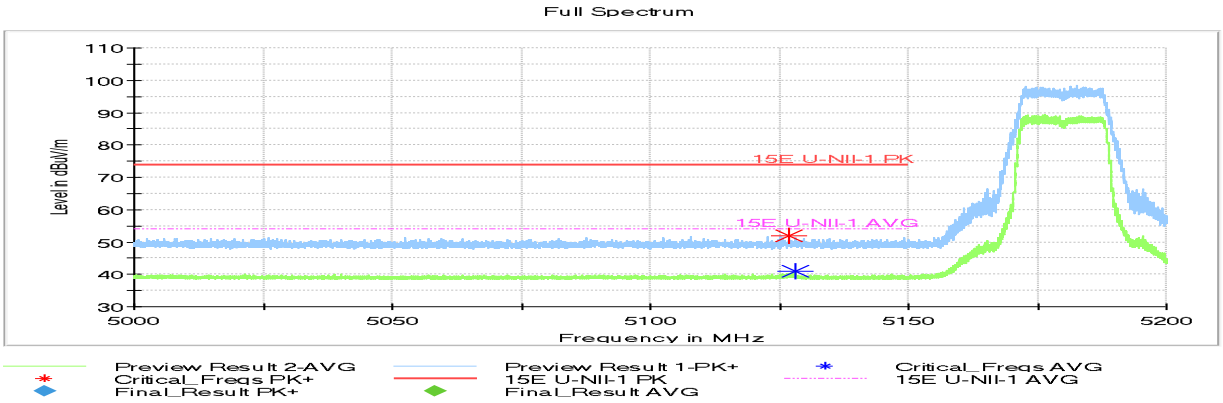


Fig. 1 Band Edges (802.11a Ch36, 5180MHz)

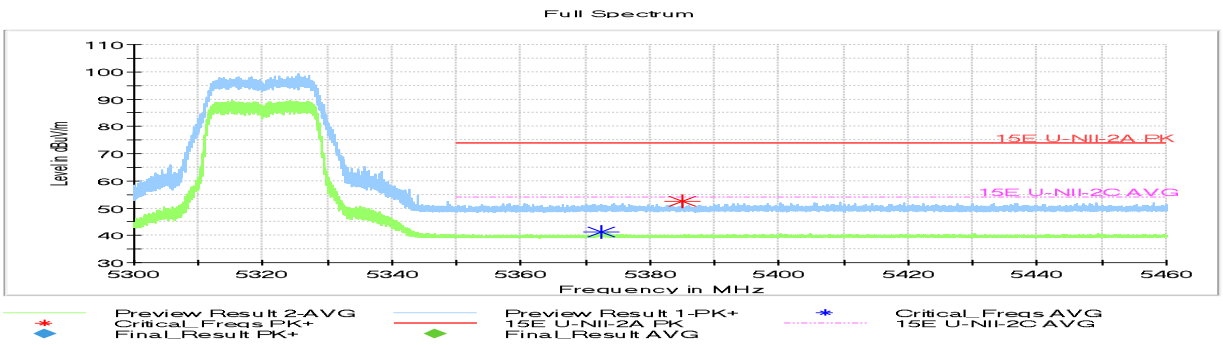


Fig. 2 Band Edges (802.11a Ch64, 5320MHz)

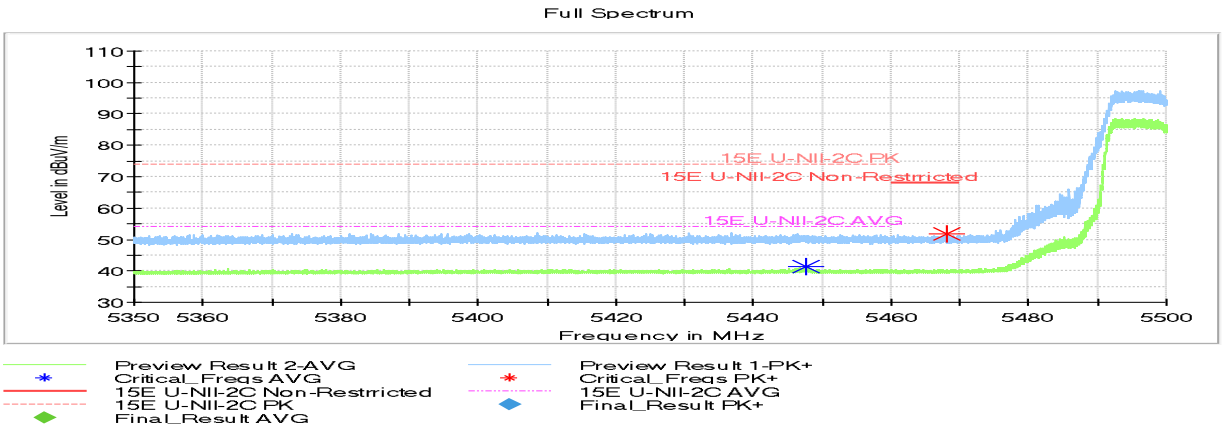


Fig. 3 Band Edges (802.11a Ch100, 5500MHz)

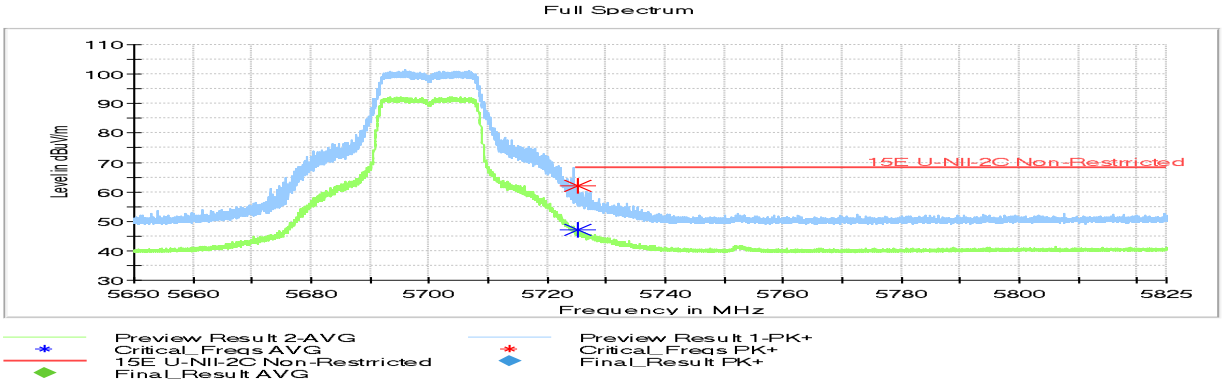


Fig. 4 Band Edges (802.11a Ch140, 5700MHz)

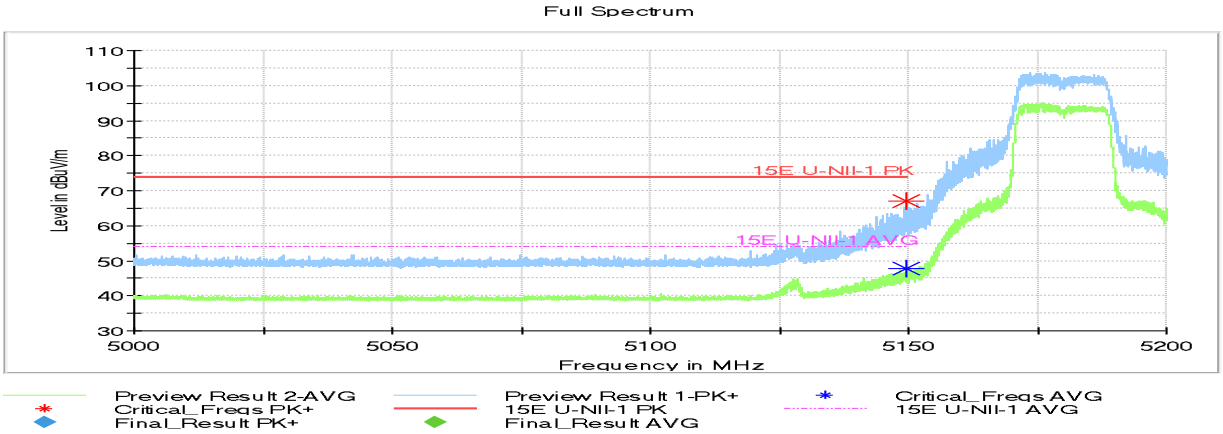


Fig. 5 Band Edges (802.11n-HT20 Ch36, 5180MHz)

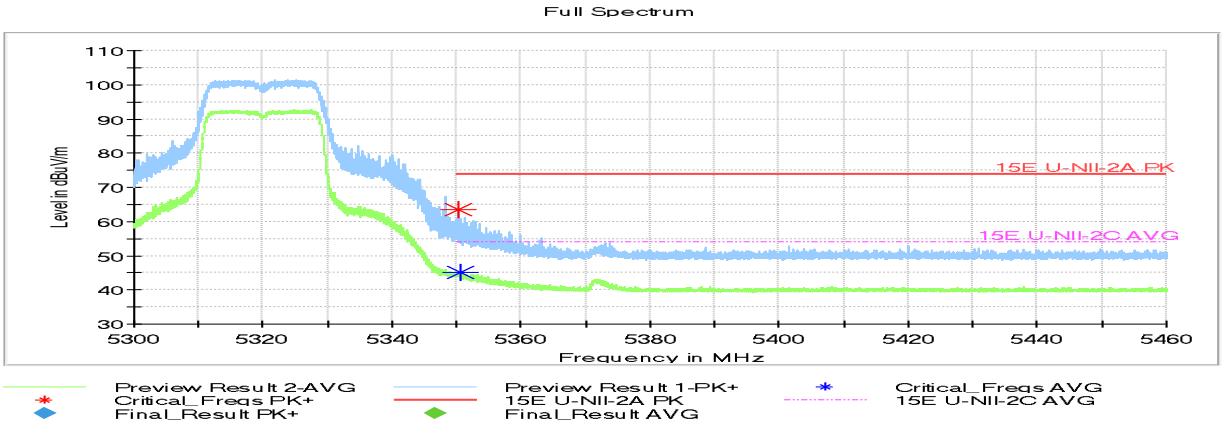


Fig. 6 Band Edges (802.11n-HT20 Ch64, 5320MHz)

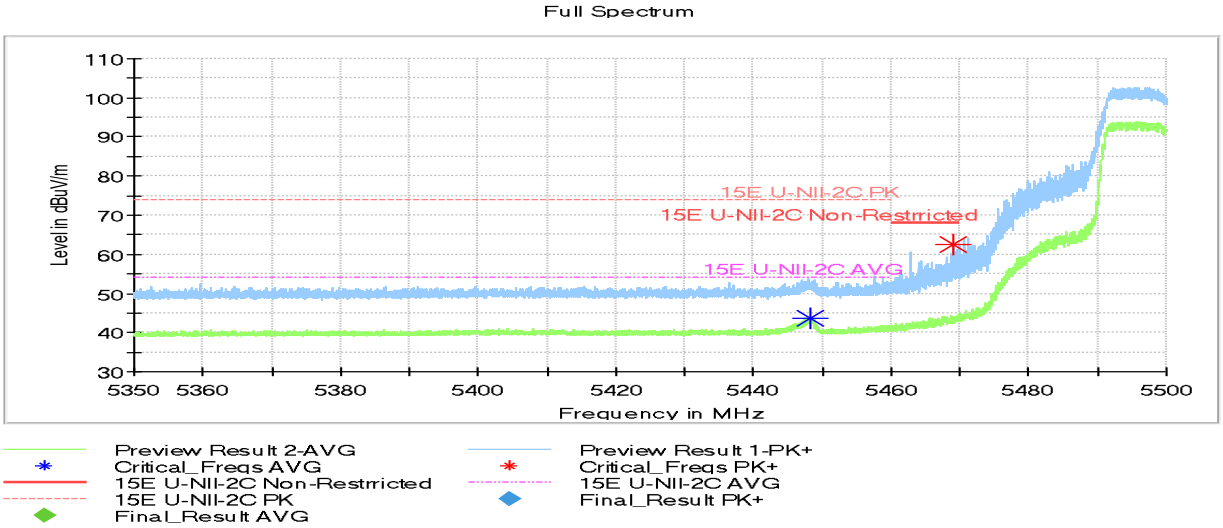


Fig. 7 Band Edges (802.11n-HT20 Ch100, 5500MHz)

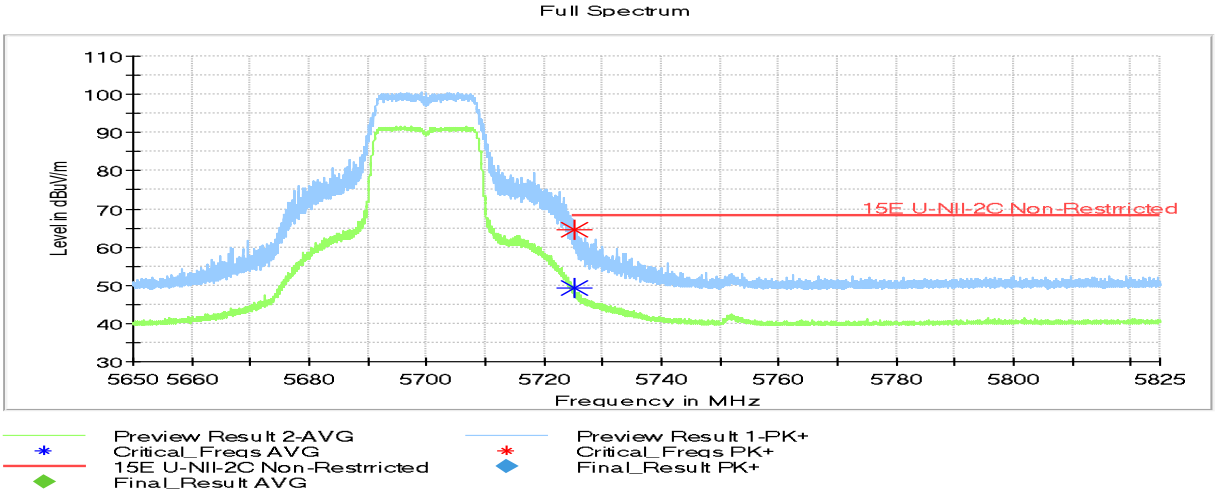


Fig. 8 Band Edges (802.11n-HT20 Ch140, 5700MHz)

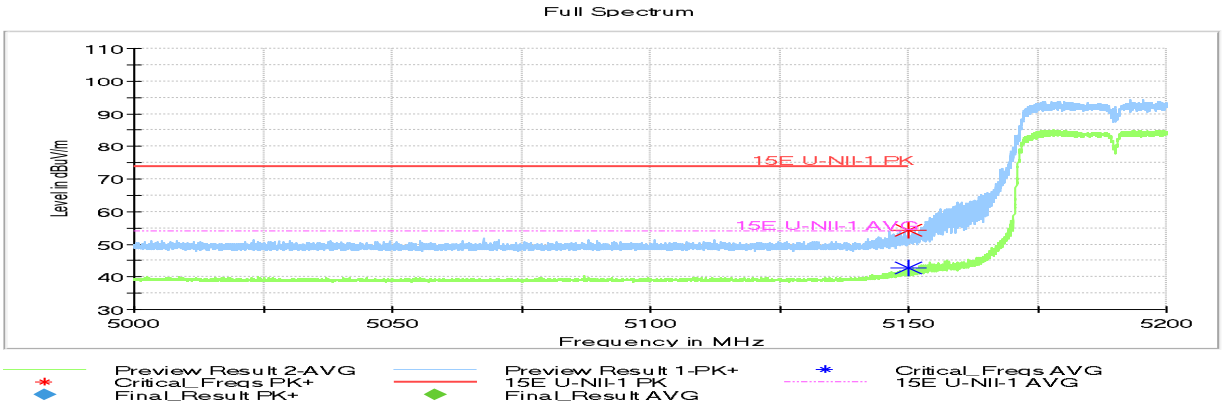


Fig. 9 Band Edges (802.11n-HT40 Ch38, 5190MHz)

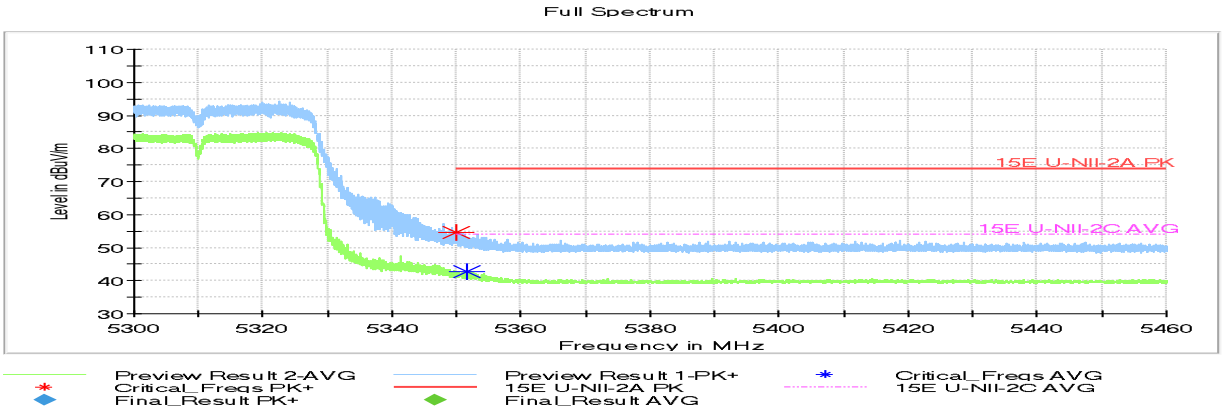


Fig. 10 Band Edges (802.11n-HT40 Ch62, 5310MHz)

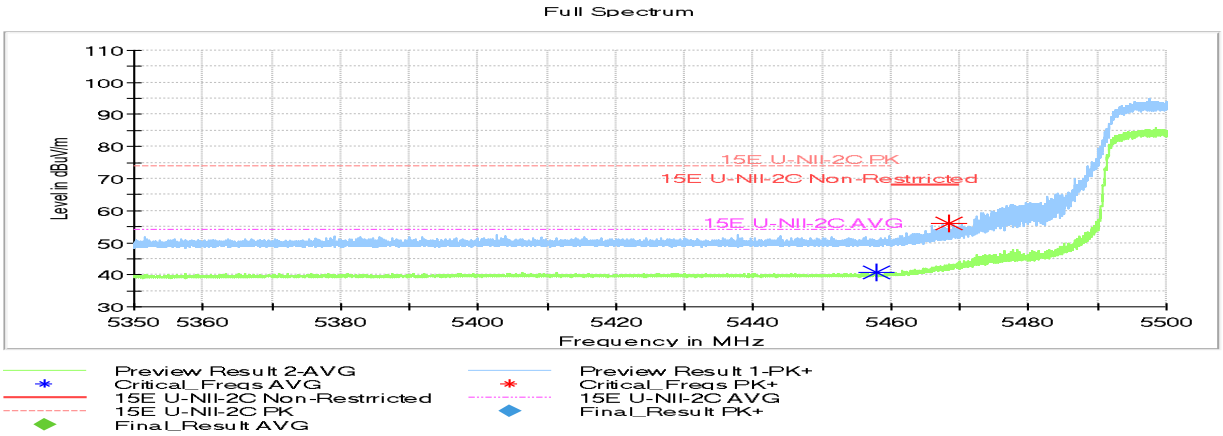


Fig. 11 Band Edges (802.11n-HT40 Ch102, 5510MHz)

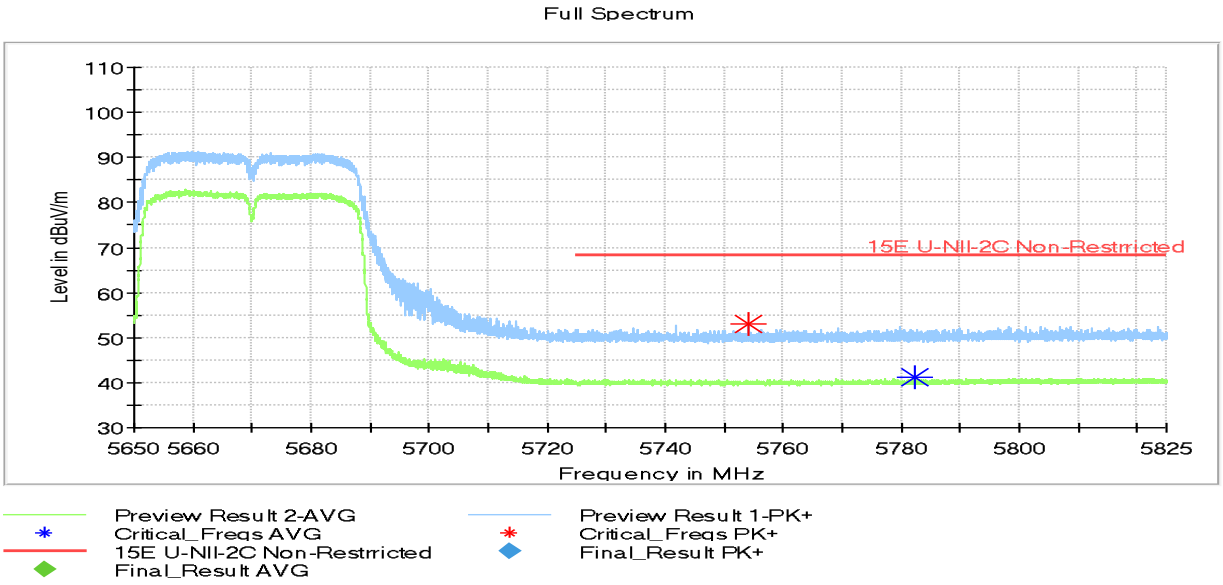


Fig. 12 Band Edges (802.11n-HT40 Ch134, 5670MHz)

A.6. AC Powerline Conducted Emission (150kHz- 30MHz)

A.6.1 Summary

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section

A.6.2 Method of Measurement

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

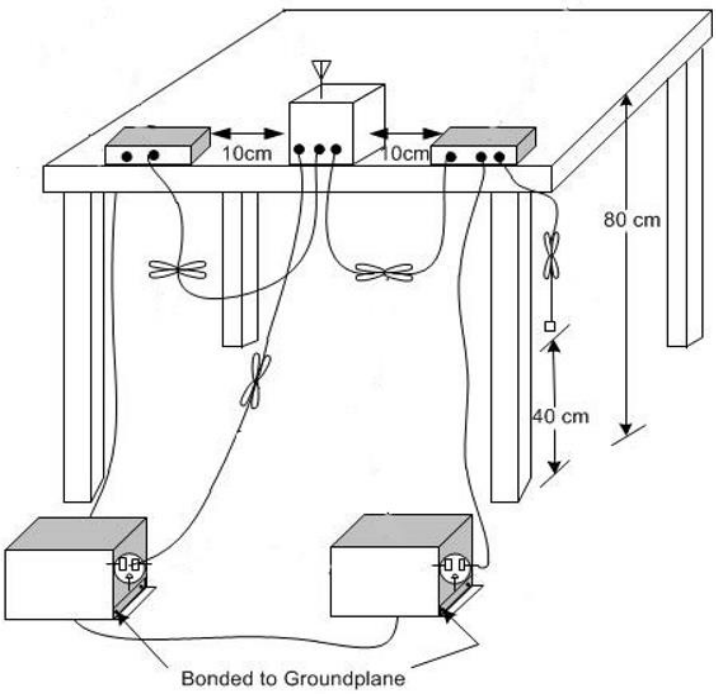
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

A.6.3 Test Condition

Voltage（V）	Frequency（Hz）
120	60

A.6.4 Test setup



Measurement Result and limit:

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig.13	Fig.14	P
0.5 to 5	56			
5 to 30	60			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dBμV)	Result (dBμV)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig.13	Fig.14	P
0.5 to 5	46			
5 to 30	50			
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Conclusion: PASS

Test graphs as below:

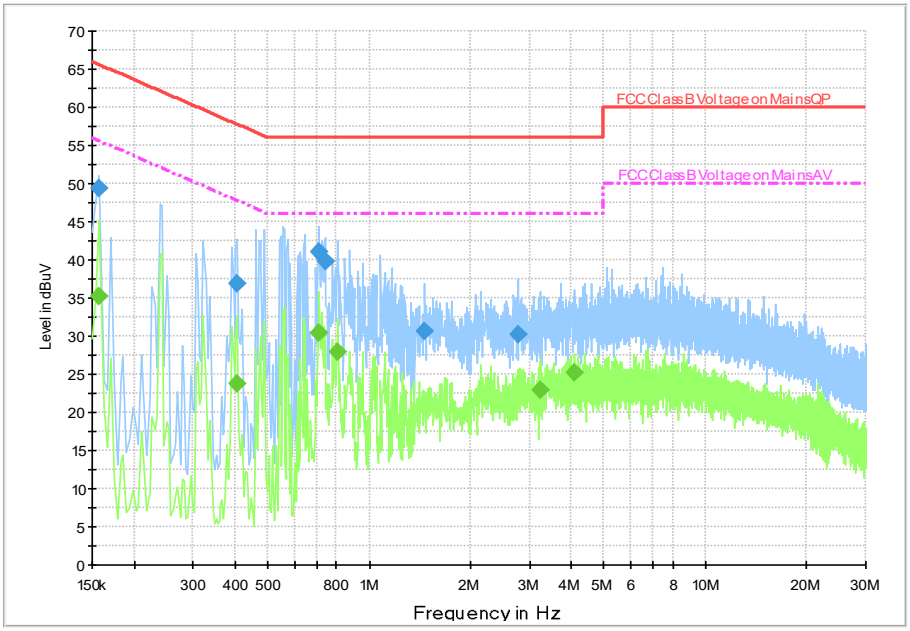


Fig.13 Conducted Emission(802.11a, Ch36, TX)

Measurement Result:

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	49.3	2000.0	9.000	On	L1	19.9	16.3	65.6
0.406000	36.9	2000.0	9.000	On	L1	20.0	20.9	57.7
0.706000	41.1	2000.0	9.000	On	N	19.8	14.9	56.0
0.738000	39.8	2000.0	9.000	On	L1	20.0	16.2	56.0
1.462000	30.6	2000.0	9.000	On	L1	19.9	25.4	56.0
2.778000	30.2	2000.0	9.000	On	L1	19.8	25.8	56.0

Measurement Result:

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	35.1	2000.0	9.000	On	L1	19.9	20.4	55.6
0.406000	23.7	2000.0	9.000	On	L1	20.0	24.1	47.7
0.710000	30.4	2000.0	9.000	On	L1	20.0	15.6	46.0
0.806000	28.0	2000.0	9.000	On	L1	19.9	18.0	46.0
3.238000	22.9	2000.0	9.000	On	L1	19.8	23.1	46.0
4.078000	25.3	2000.0	9.000	On	L1	19.8	20.7	46.0

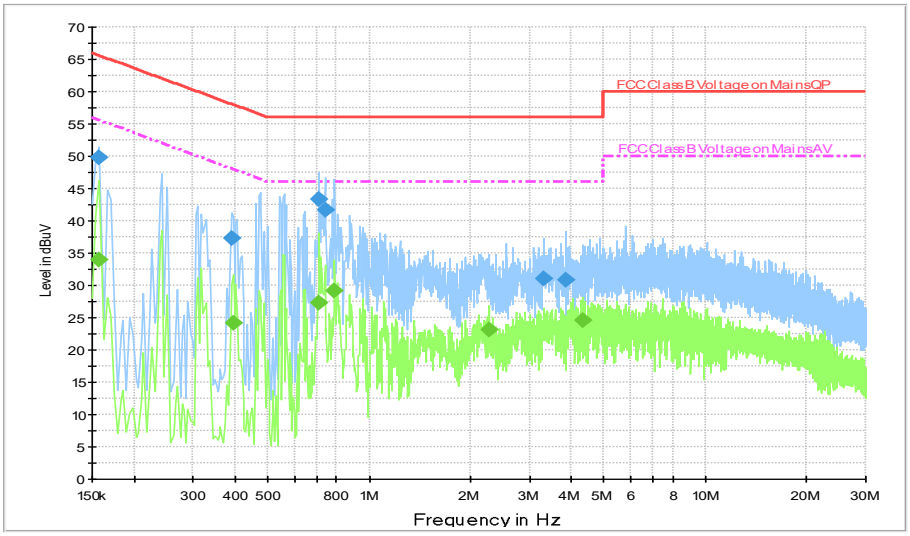


Fig.14 Conducted Emission(802.11a, IDLE)

Measurement Result:

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	49.7	2000.0	9.000	On	N	19.9	15.9	65.6
0.390000	37.3	2000.0	9.000	On	L1	19.9	20.7	58.1
0.710000	43.4	2000.0	9.000	On	N	19.8	12.6	56.0
0.738000	41.7	2000.0	9.000	On	N	19.8	14.3	56.0
3.302000	31.1	2000.0	9.000	On	L1	19.8	24.9	56.0
3.854000	30.8	2000.0	9.000	On	L1	19.8	25.2	56.0

Measurement Result:

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	34.0	2000.0	9.000	On	N	19.9	21.5	55.6
0.394000	24.1	2000.0	9.000	On	N	19.9	23.9	48.0
0.710000	27.4	2000.0	9.000	On	N	19.8	18.6	46.0
0.790000	29.1	2000.0	9.000	On	L1	19.9	16.9	46.0
2.270000	23.1	2000.0	9.000	On	L1	19.8	22.9	46.0
4.314000	24.5	2000.0	9.000	On	L1	19.8	21.5	46.0

A.7. 99% Occupied bandwidth

Method of Measurement: See ANSI C63.10-2013-clause 12.4.2.

a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.

d) Step a) through step c) might require iteration to adjust within the specified range.

e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% ofthe 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% power bandwidth is the difference between these two frequencies.

h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

EUT ID: EUT2

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.861	5171.0710	5188.9315	---	---
		5200	17.813	5190.9971	5208.8103	---	---
		5240	17.852	5231.0272	5248.8797	---	---
		5260	17.85	5251.0035	5268.8534	---	---
		5280	17.874	5271.0112	5288.8849	---	---
		5320	17.843	5311.0117	5328.8547	---	---
		5500	17.944	5490.9279	5508.8718	---	---
		5580	17.927	5570.9113	5588.8383	---	---
		5700	17.903	5690.9305	5708.8338	---	---
		5720	17.982	5710.8912	5728.8734	---	---
11N20SISO	Ant1	5180	18.649	5170.6513	5189.2998	---	---
		5200	18.62	5190.6215	5209.2415	---	---

		5240	18.687	5230.6611	5249.3479	---	---
		5260	18.667	5250.5696	5269.2363	---	---
		5280	18.676	5270.6146	5289.2907	---	---
		5320	18.69	5310.5865	5329.2769	---	---
		5500	18.768	5490.4965	5509.2647	---	---
		5580	18.584	5570.6460	5589.2299	---	---
		5700	18.637	5690.6250	5709.2621	---	---
		5720	18.755	5710.5432	5729.2987	---	---
11N40SISO	Ant1	5190	36.868	5171.5848	5208.4529	---	---
		5230	36.986	5211.4795	5248.4657	---	---
		5270	36.991	5251.4229	5288.4138	---	---
		5310	36.971	5291.4614	5328.4321	---	---
		5510	37.025	5491.3996	5528.4243	---	---
		5550	36.95	5531.4259	5568.3758	---	---
		5670	37.264	5651.2835	5688.5471	---	---
		5710	37.061	5691.3389	5728.3998	---	---

Conclusion: PASS

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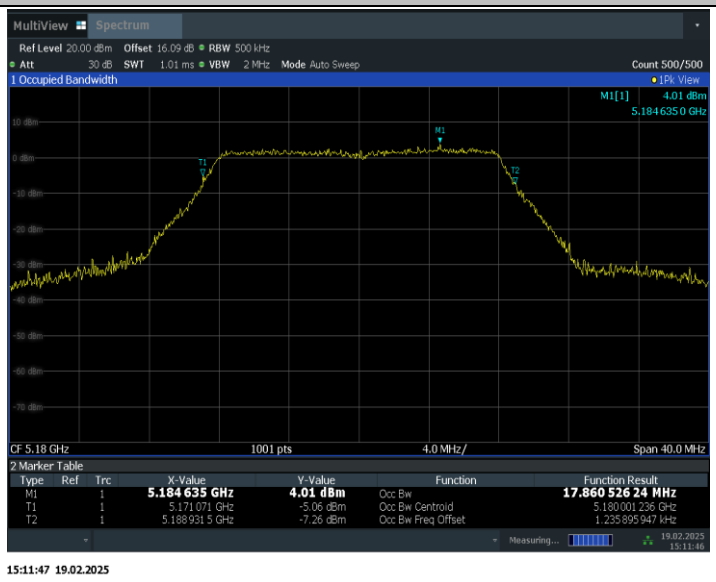

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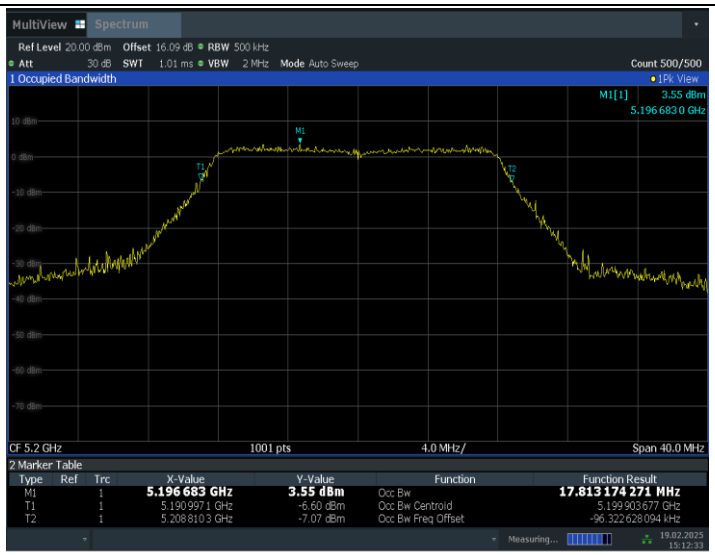

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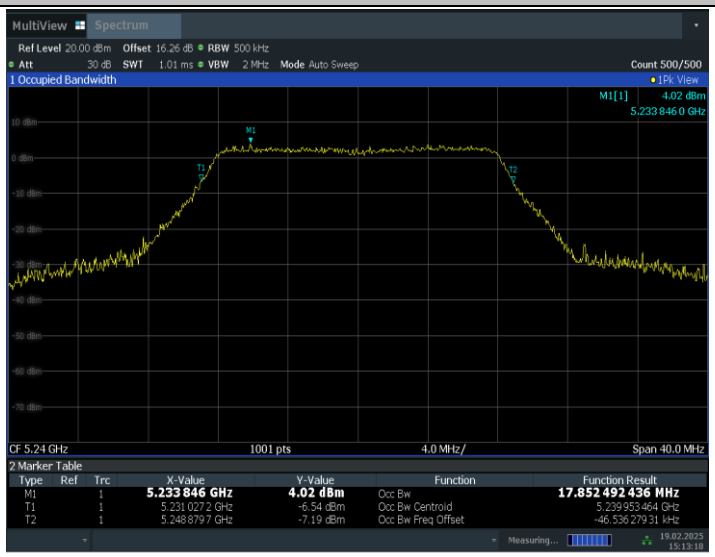

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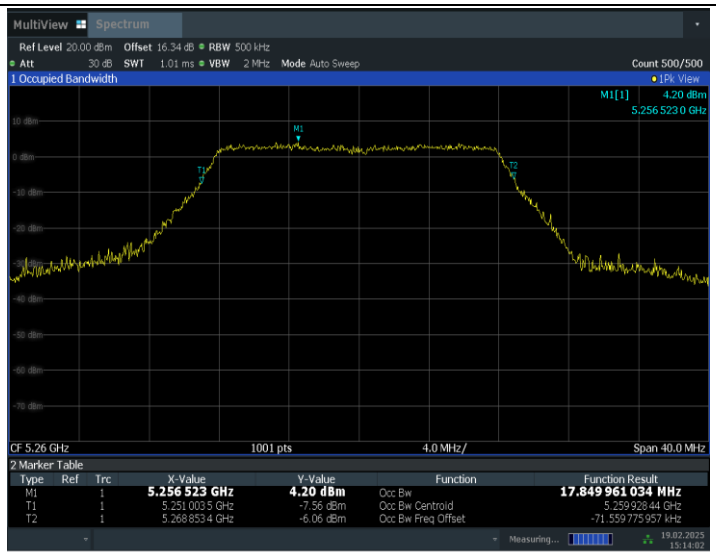

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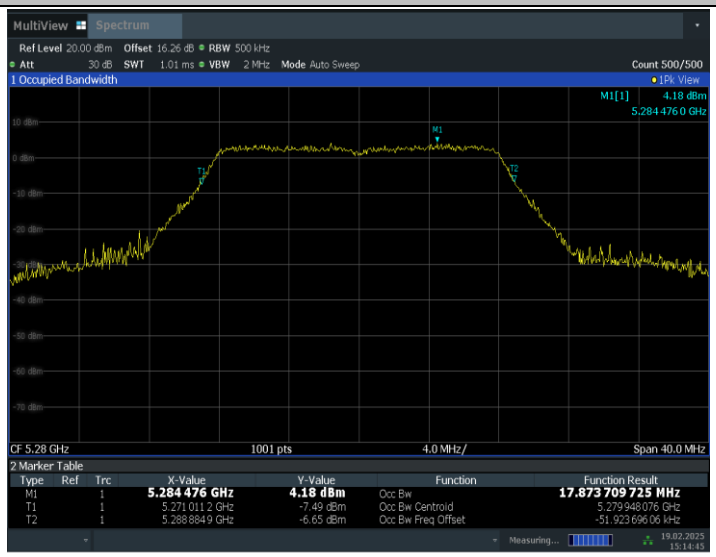

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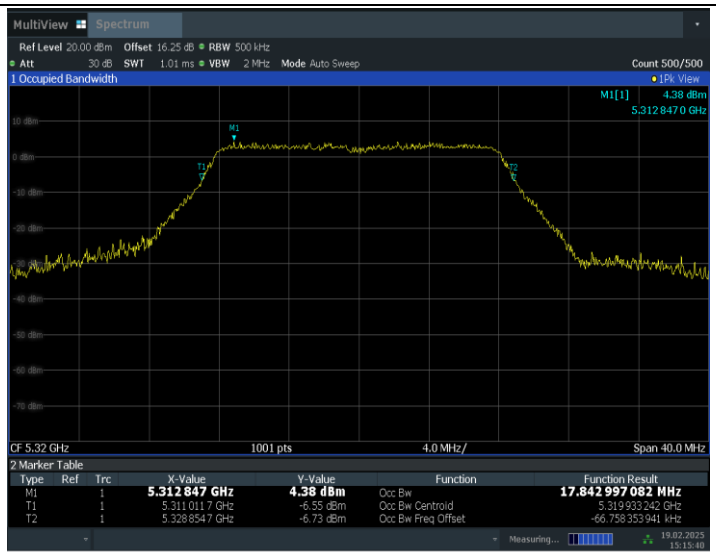

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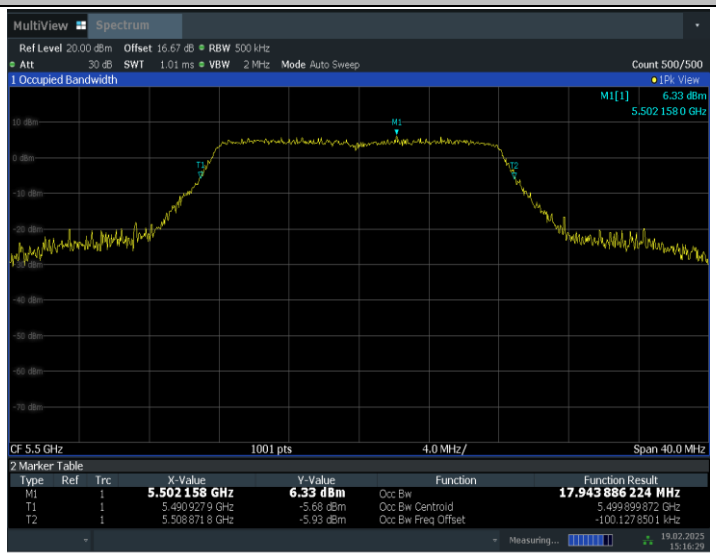

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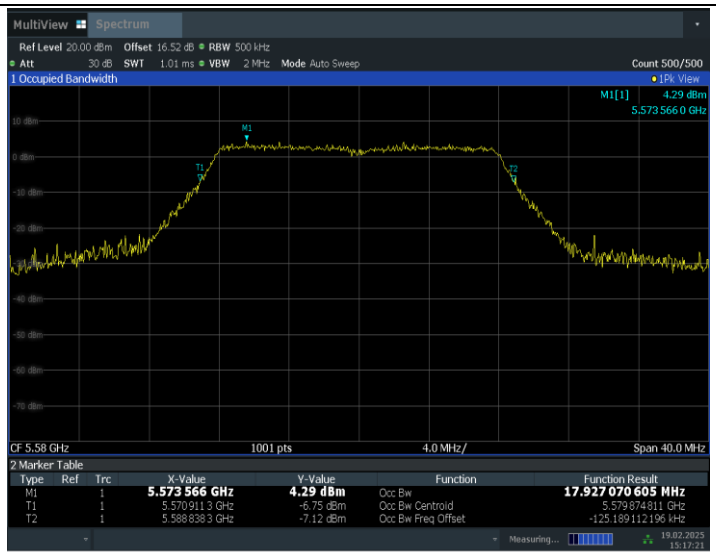

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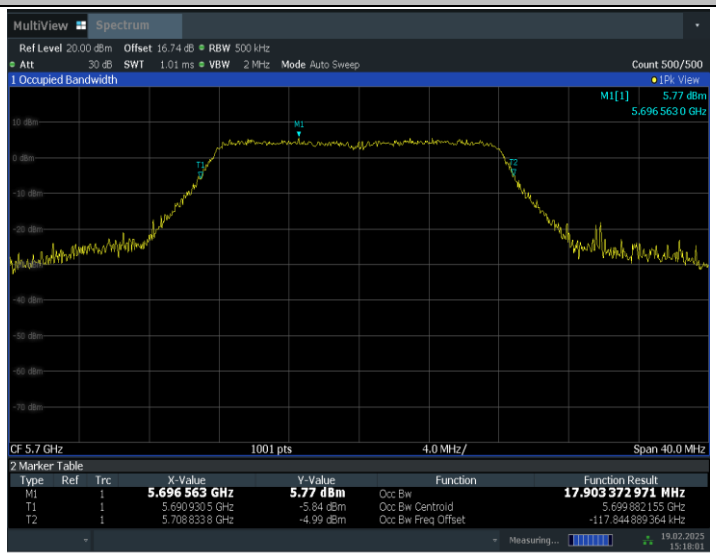

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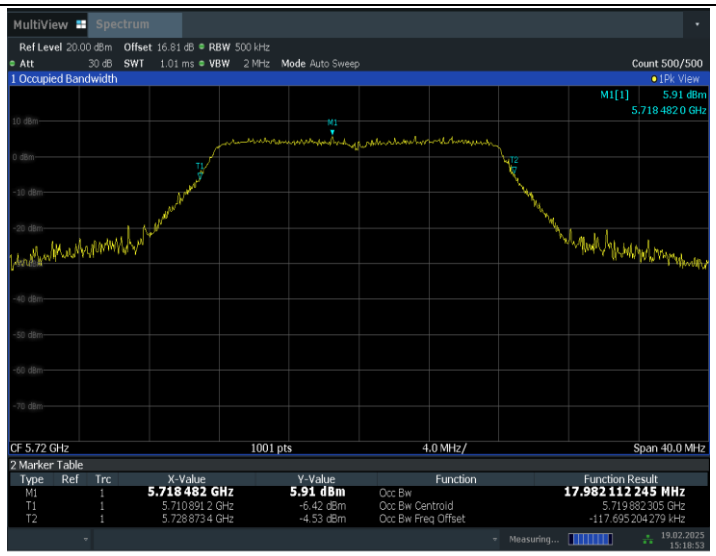

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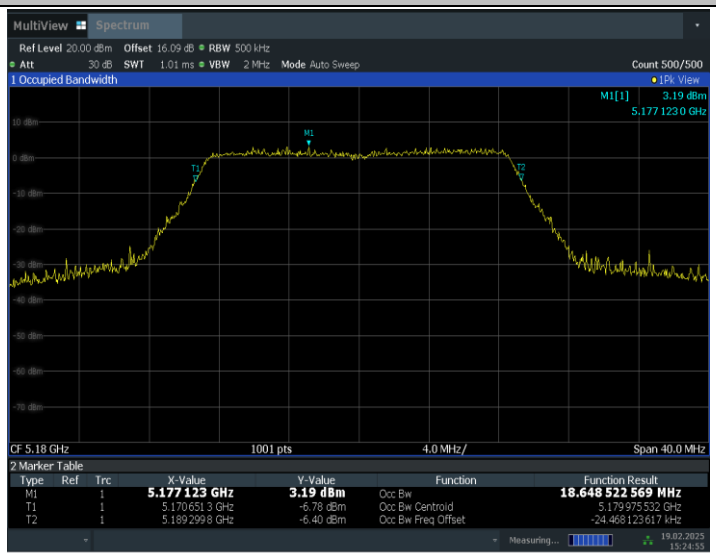

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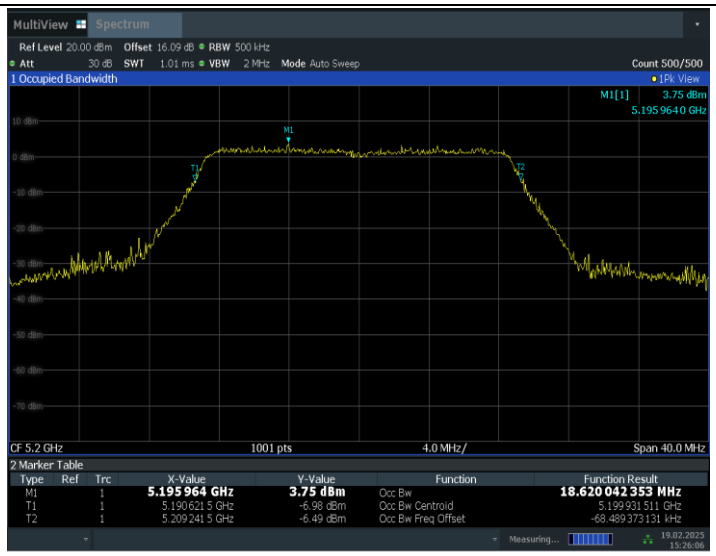

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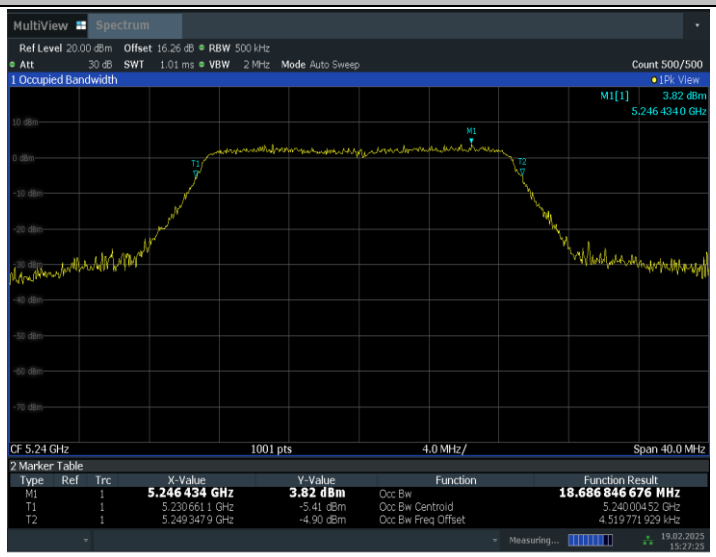

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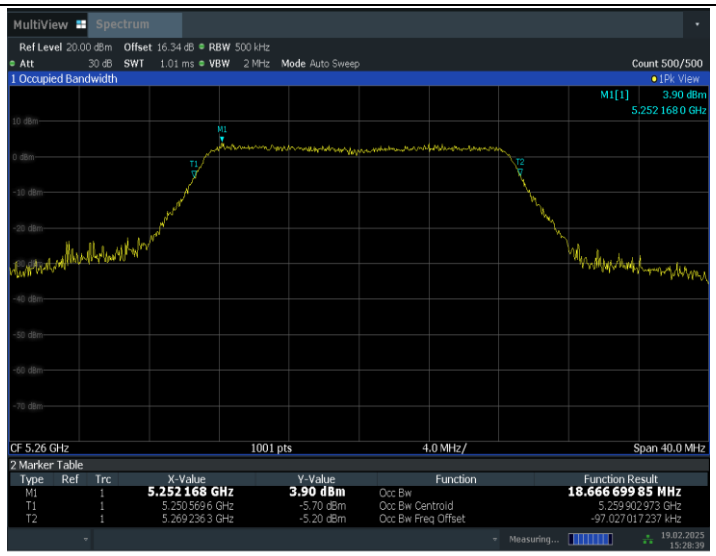

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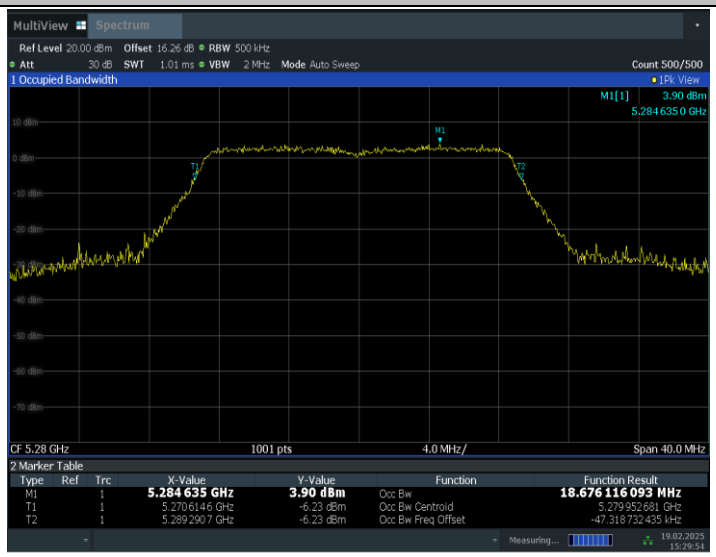

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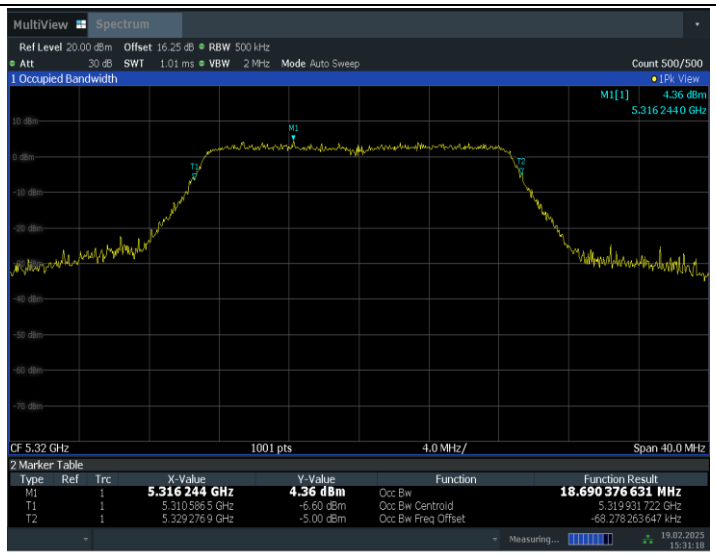

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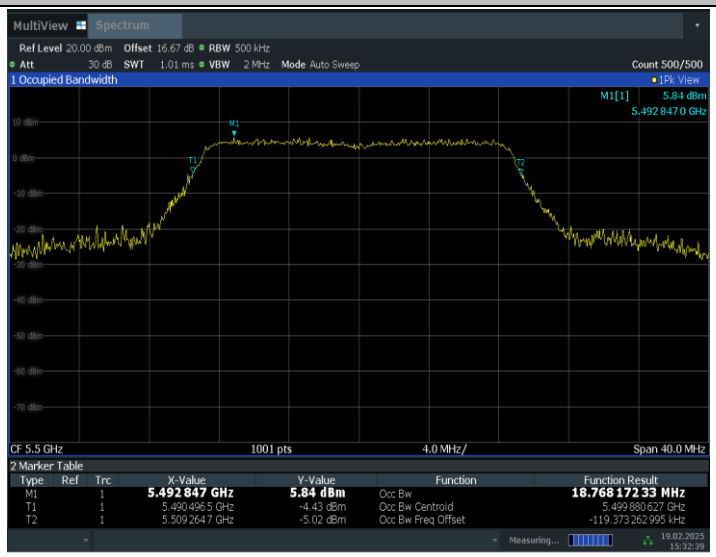

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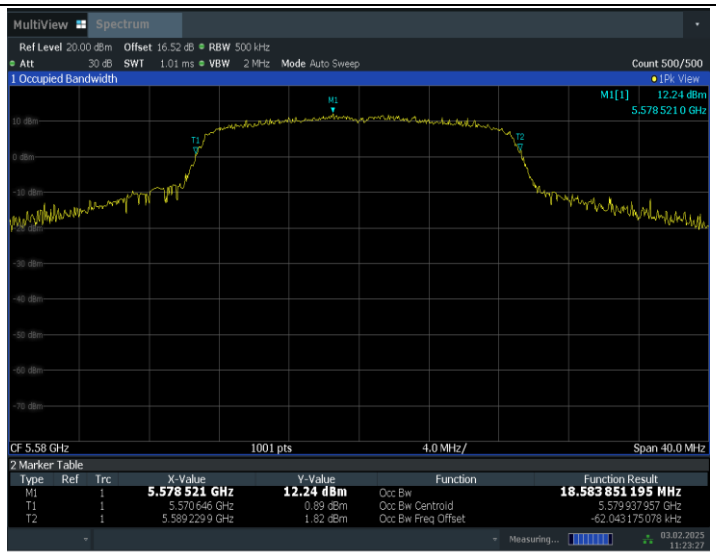

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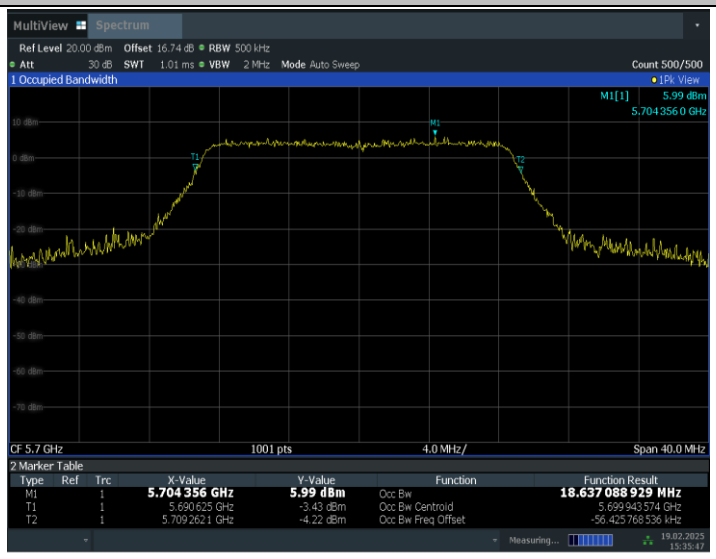

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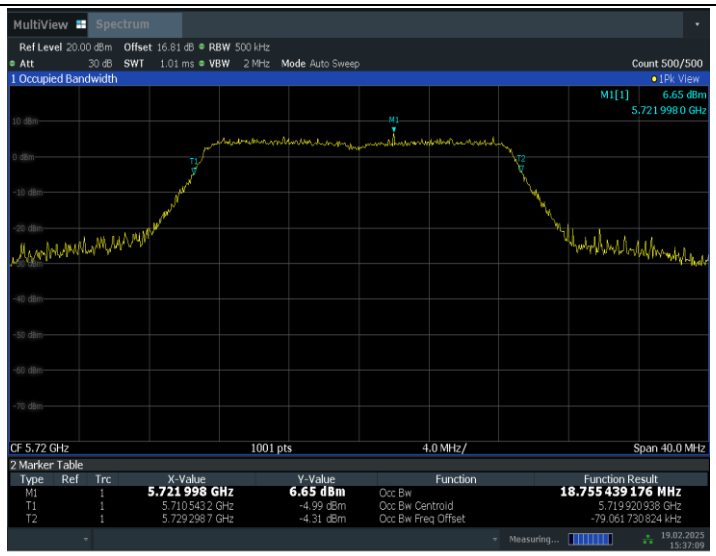

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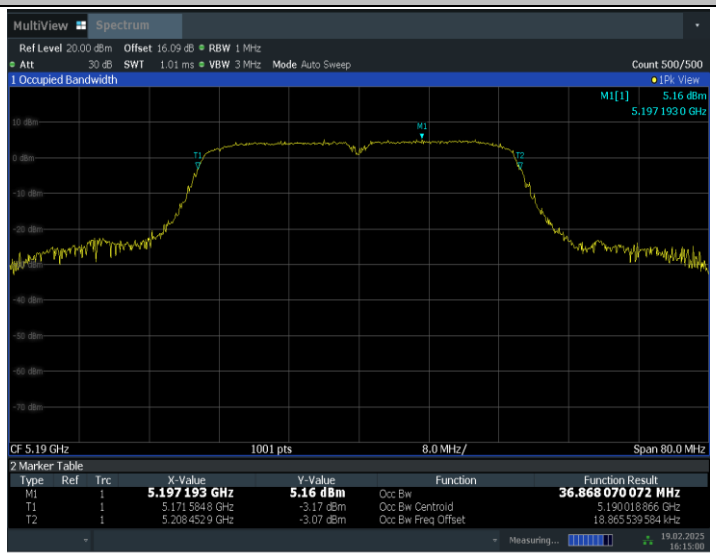

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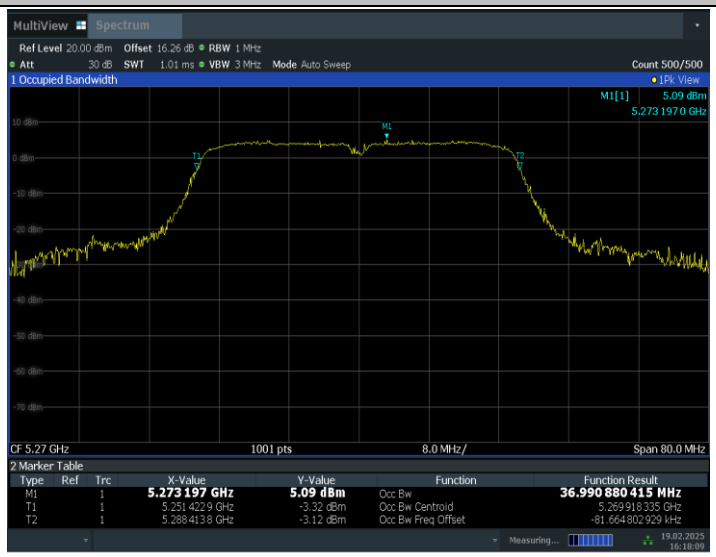

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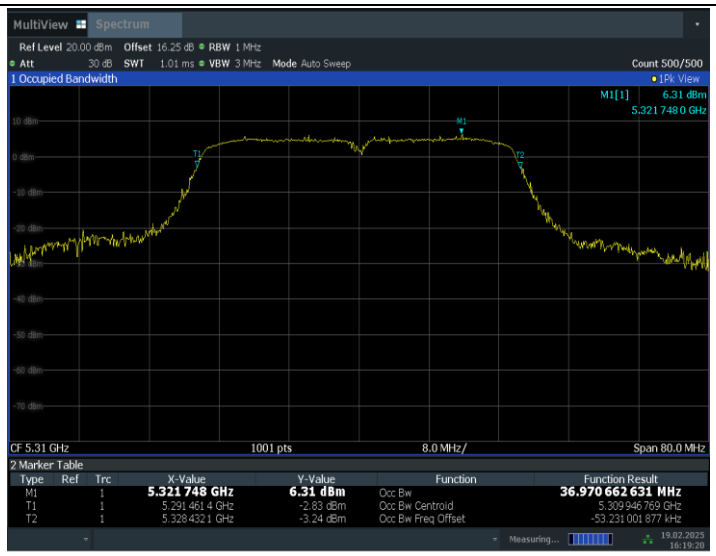

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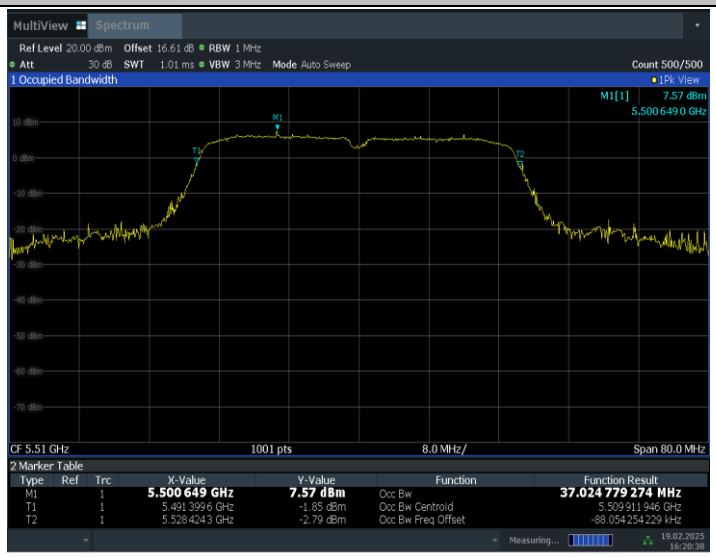

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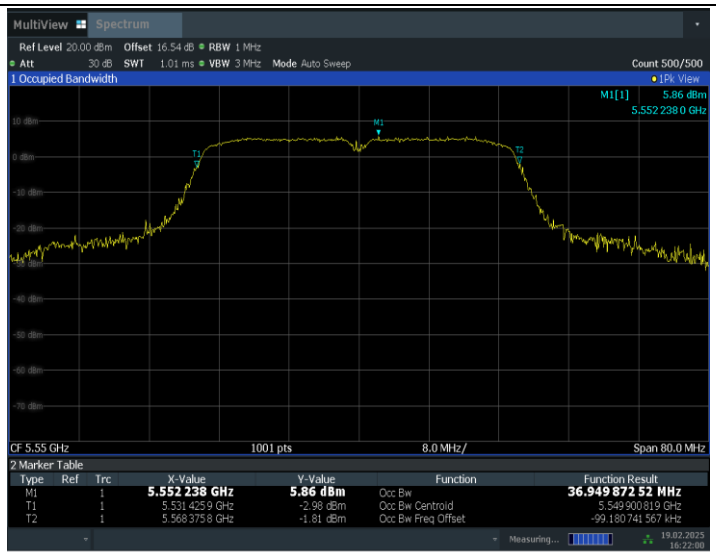

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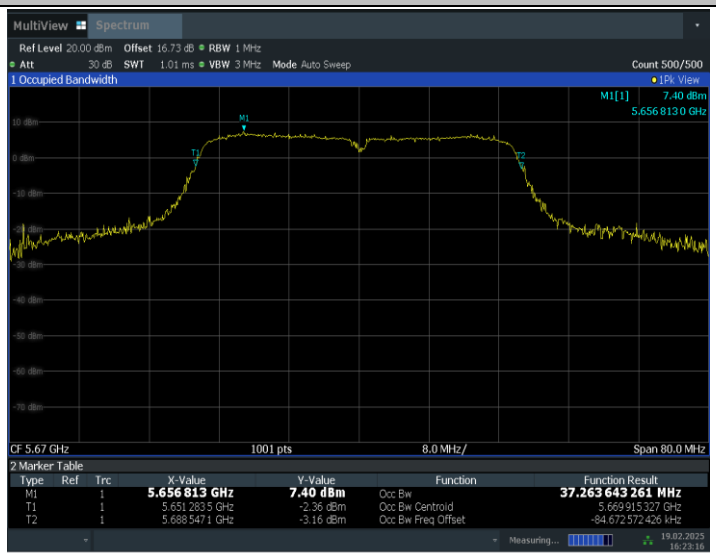

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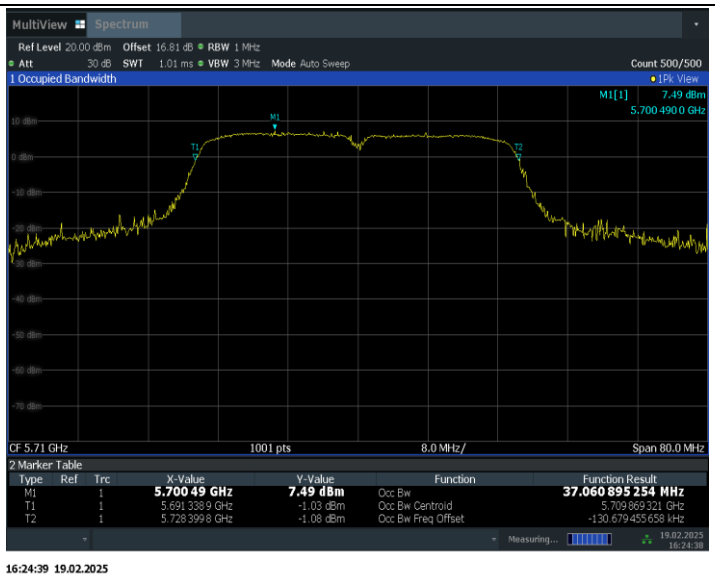

A.8. Power control

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500 mW).

A.9. Antenna Requirement

The antenna of the device is permanently attached. There are no provisions for connection to an external antenna.

The unit complies with the requirement of FCC Part 15.203.

ANNEX B: EUT parameters

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

ANNEX C: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

TELECOMMUNICATION TECHNOLOGY LABS, CAICT

Beijing, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 23rd day of July 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7049.01
Valid to July 31, 2026

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

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