

10. RF Conducted Spurious Emissions

10.1. Block diagram of test setup

Same as 4.1.

10.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

10.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Establish a reference level by using the following procedure:

Center frequency	Test frequency
RBW:	100 kHz
VBW:	300 kHz
Span	Wide enough to capture the peak level of the in-band emission
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(4) Set the spectrum analyzer as follows:

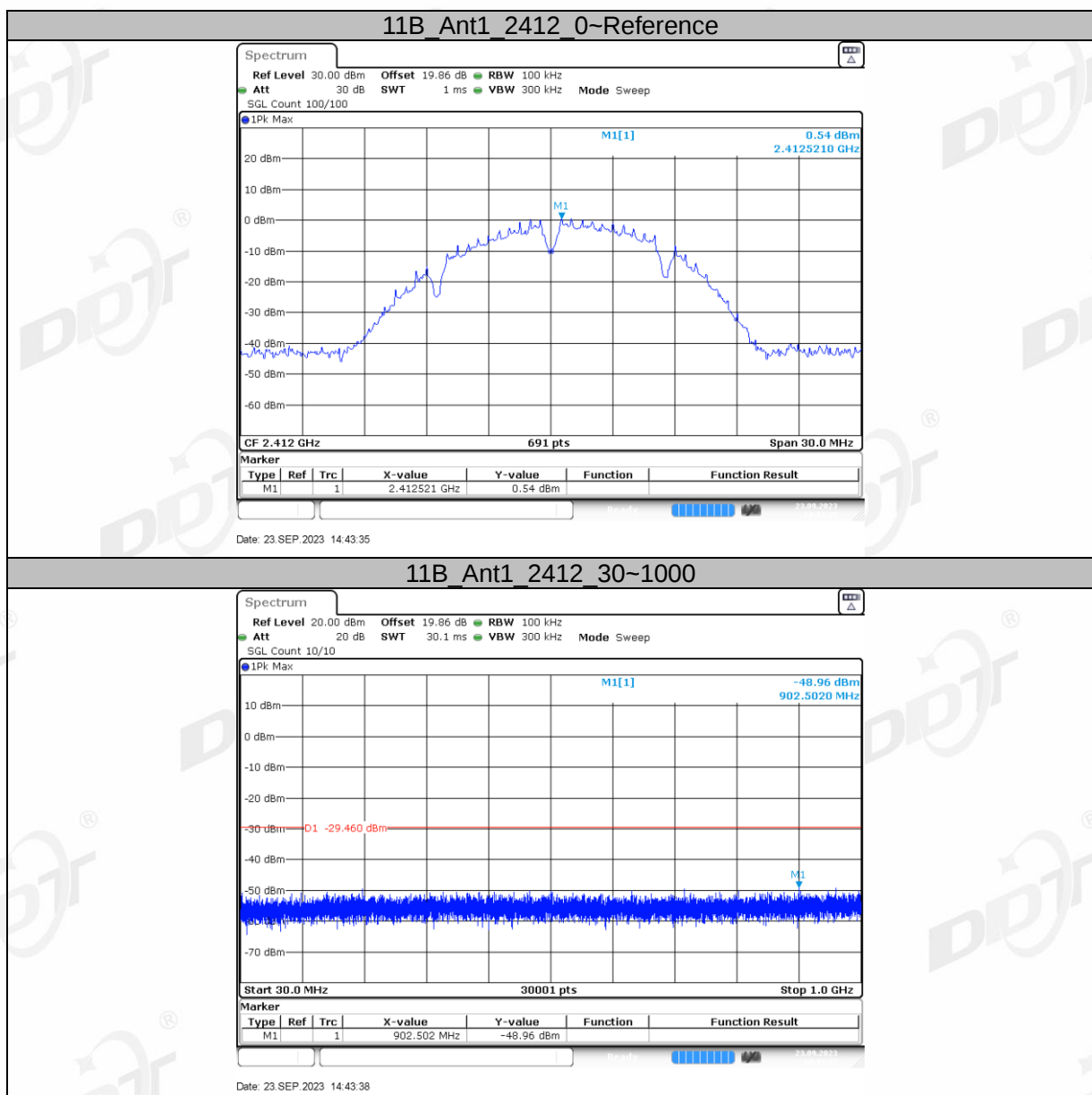
RBW:	100 kHz
VBW:	300 kHz
Span	Encompass frequency range to be measured
Number of measurement points	$\geq \text{span}/\text{RBW}$
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

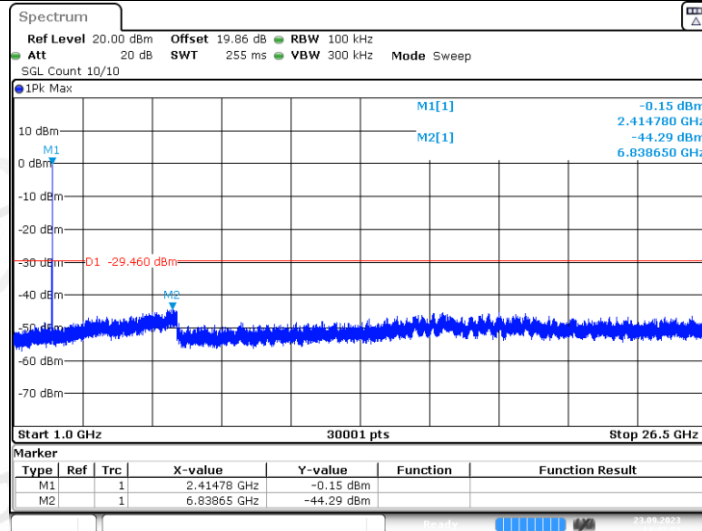
10.4. Test result

EUT Set Mode	Channel or Frequency	Result (dBm)	EUT Set Mode	Channel or Frequency	Result Result (dBm)
11b	CH1	Pass	11g	CH1	Pass
	CH6	Pass		CH6	Pass
	CH11	Pass		CH11	Pass
11n HT 20	CH1	Pass	11n HT 40	CH3	Pass
	CH6	Pass		CH6	Pass
	CH11	Pass		CH9	Pass

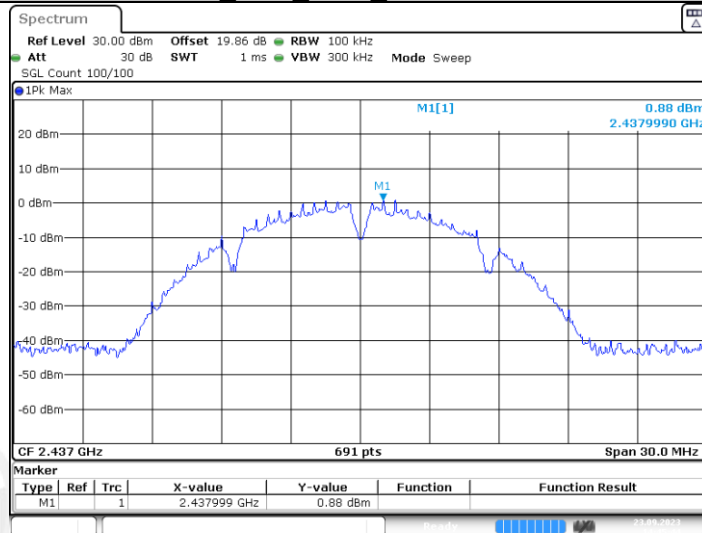
10.5. Test graphs



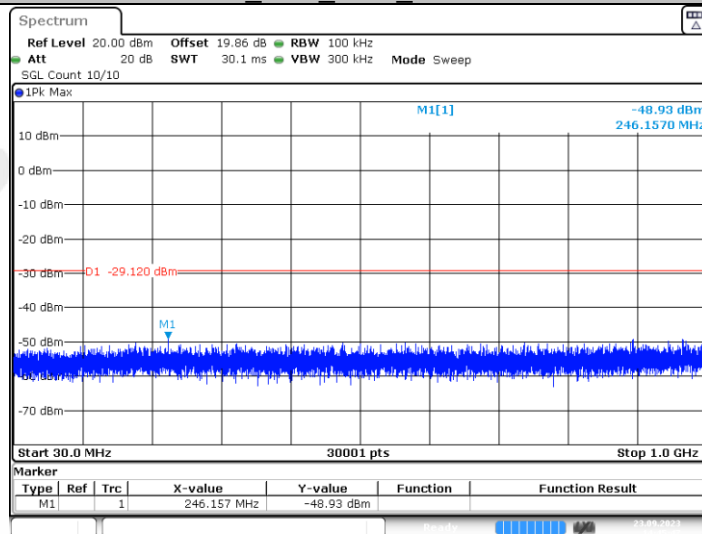
11B_Ant1_2412_1000~26500



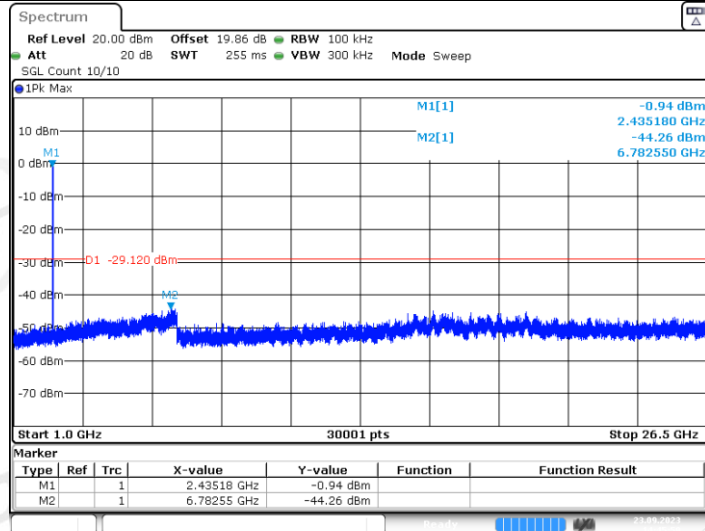
11B_Ant1_2437_0~Reference



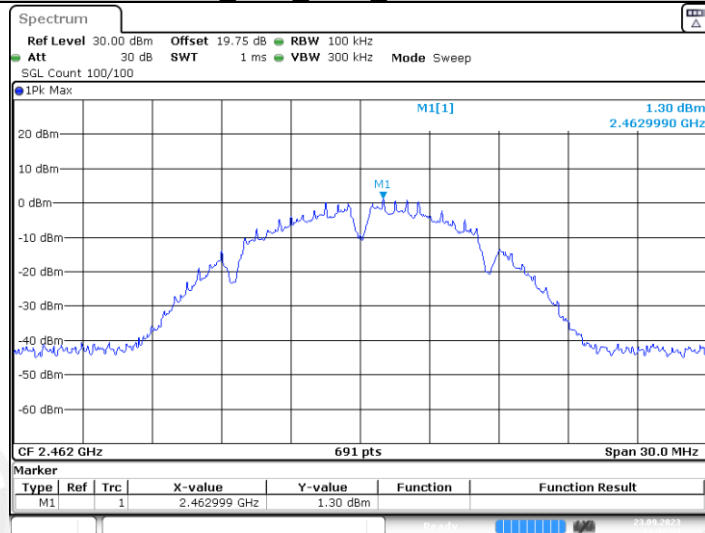
11B_Ant1_2437_30~1000



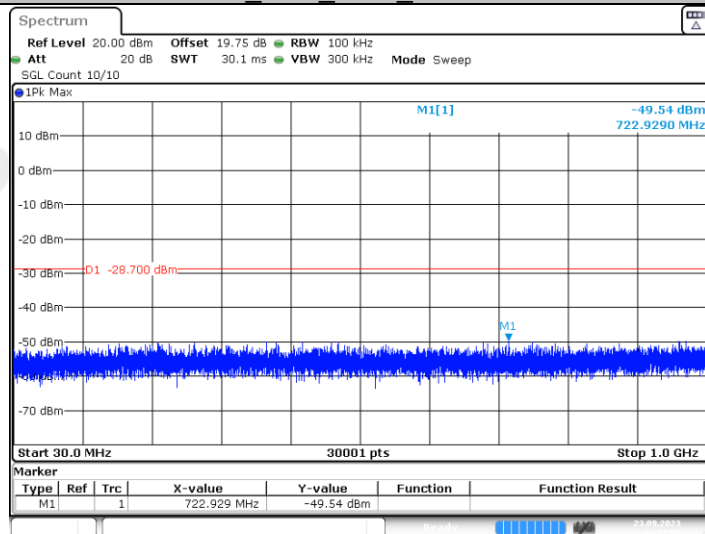
11B_Ant1_2437_1000~26500



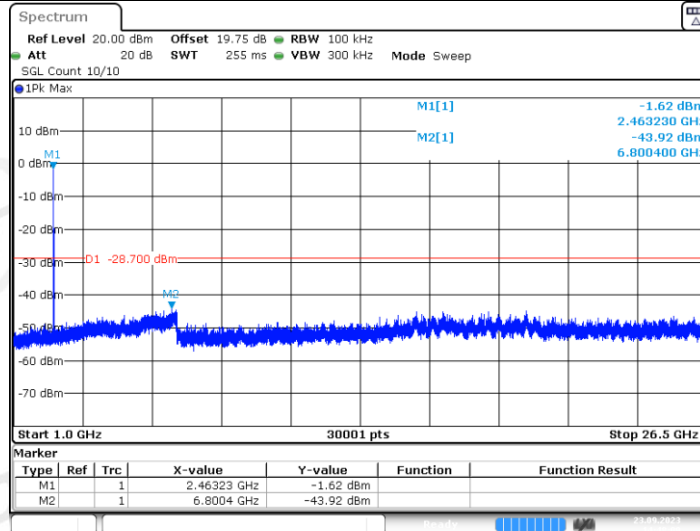
11B_Ant1_2462_0~Reference



11B_Ant1_2462_30~1000

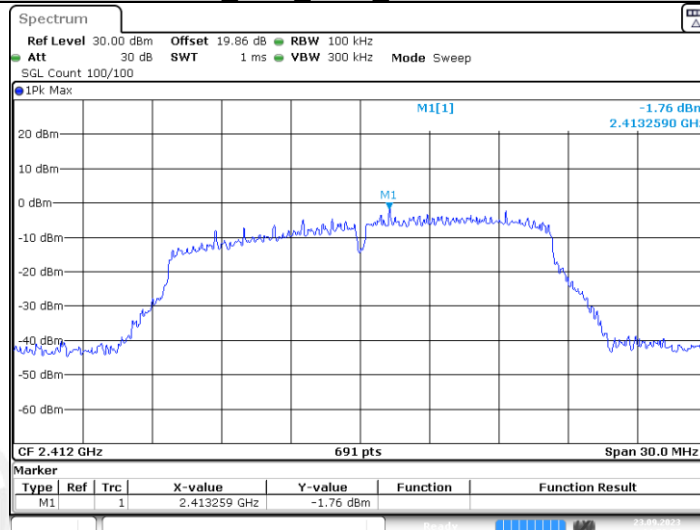


11B_Ant1_2462_1000~26500



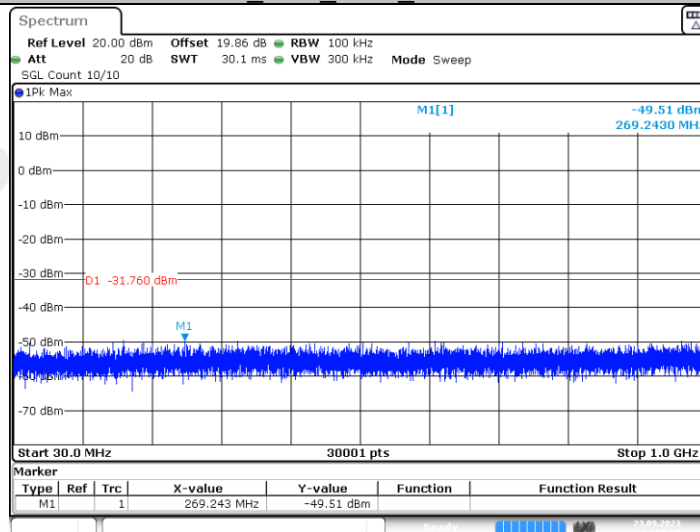
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11G_Ant1_2412_0~Reference



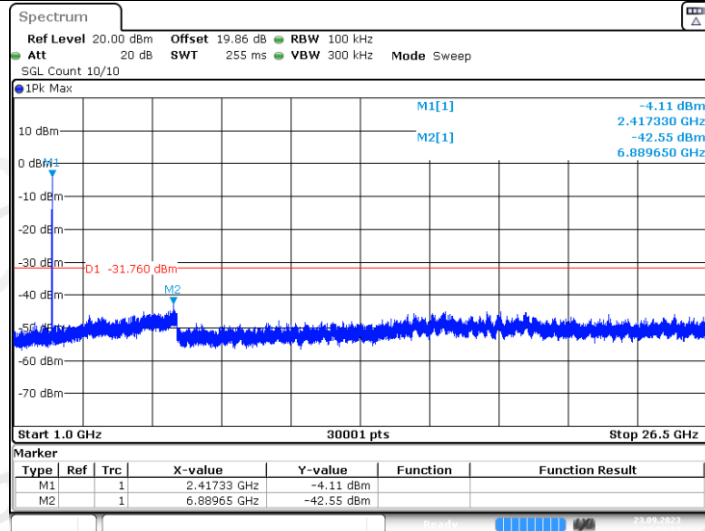
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11G_Ant1_2412_30~1000



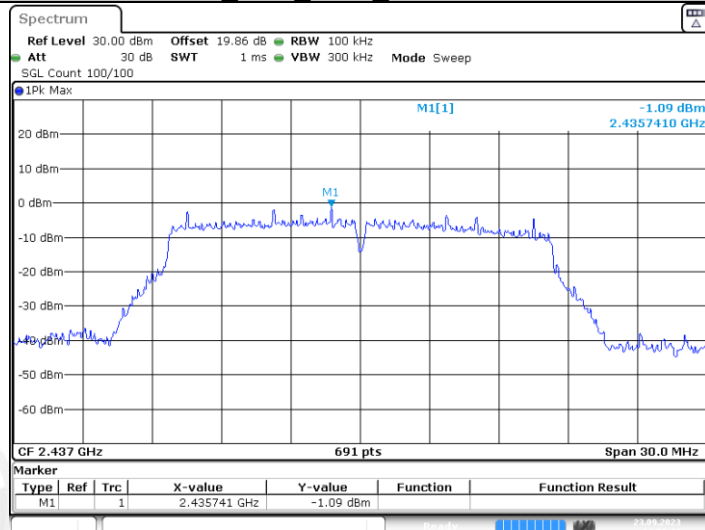
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11G_Ant1_2412_1000~26500



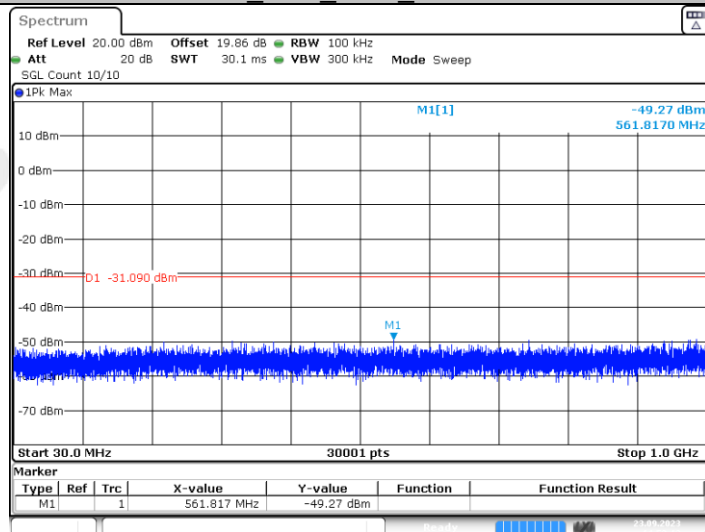
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11G_Ant1_2437_0~Reference



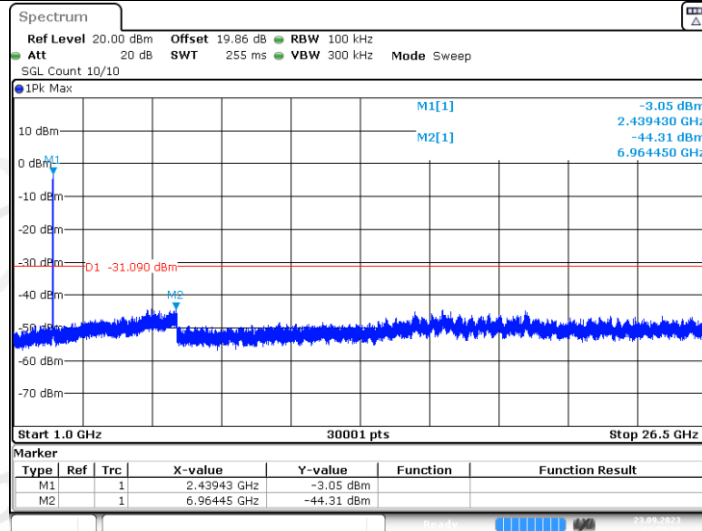
Date: 23 SEP.2023 14:53:10

11G_Ant1_2437_30~1000



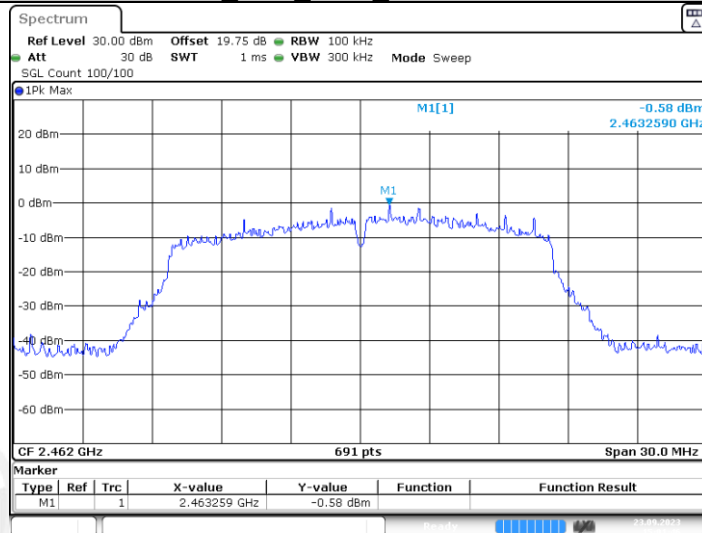
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11G_Ant1_2437_1000~26500



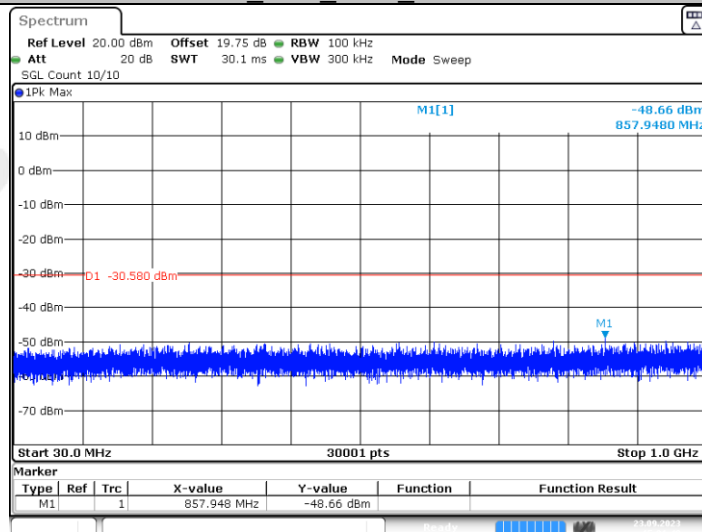
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11G_Ant1_2462_0~Reference



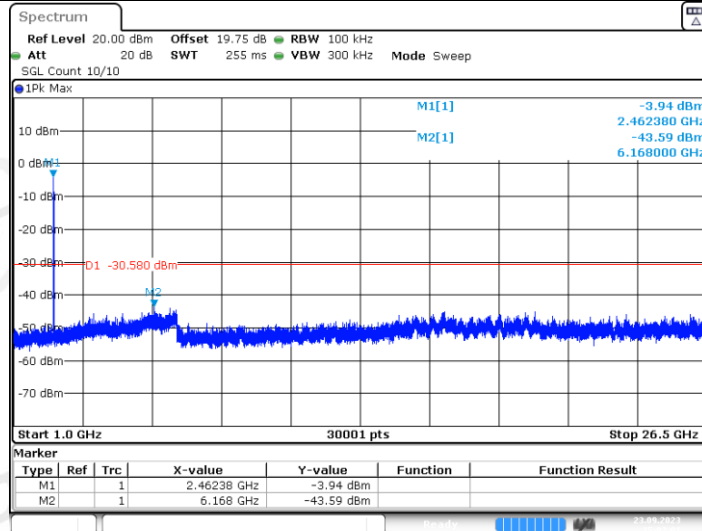
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11G_Ant1_2462_30~1000



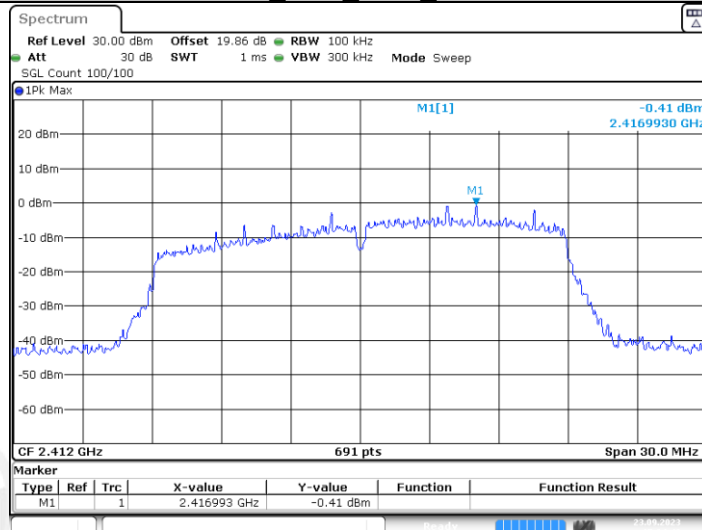
Date: 23 SEP.2023 15:01:48

11G_Ant1 2462 1000~26500



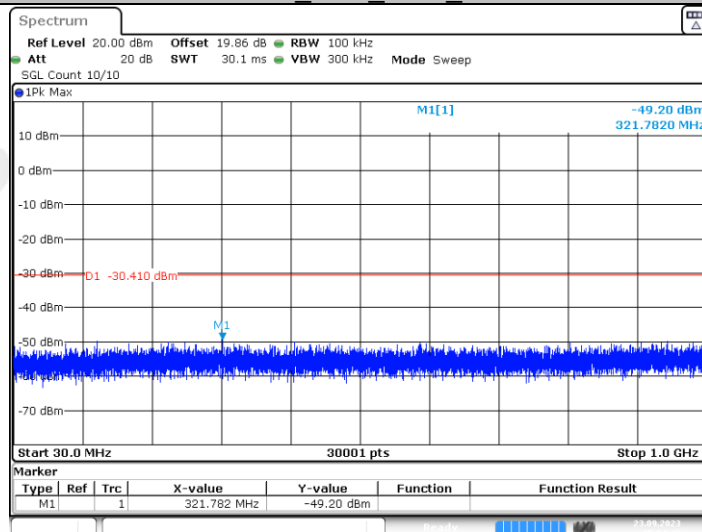
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11N20SISO_Ant1 2412 0~Reference



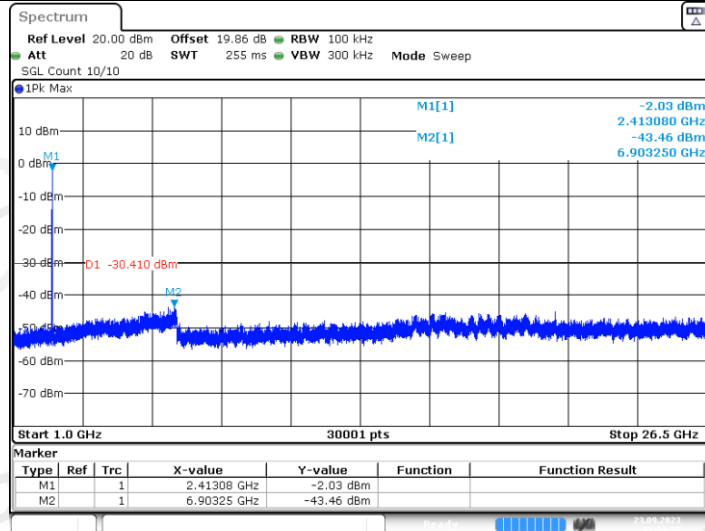
Date: 23 SEP.2023 15:04:40

11N20SISO_Ant1 2412 30~1000



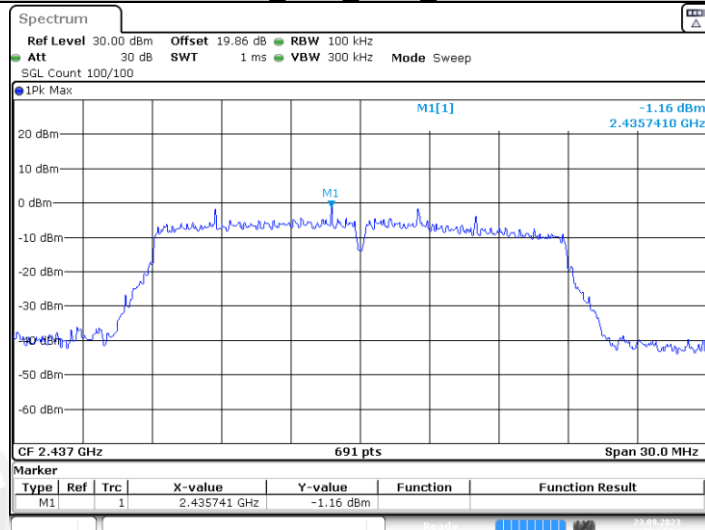
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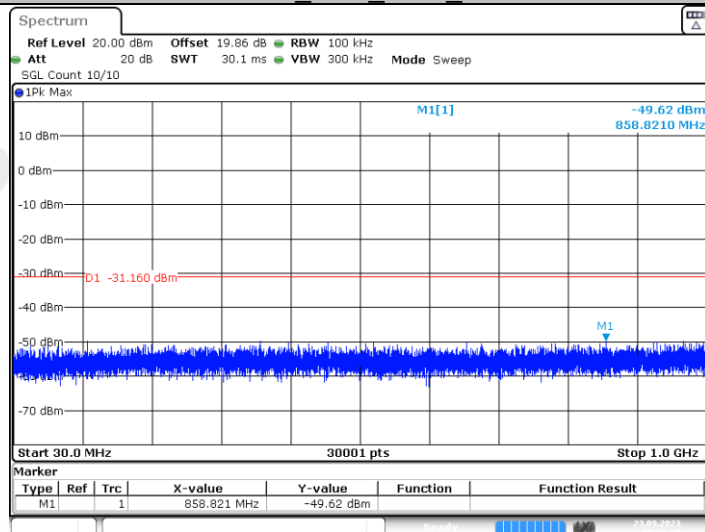
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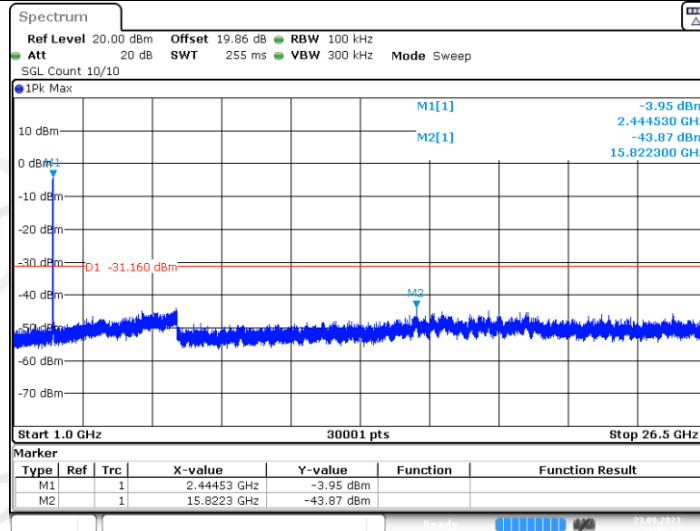
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11N20SISO_Ant1_2437_30~1000



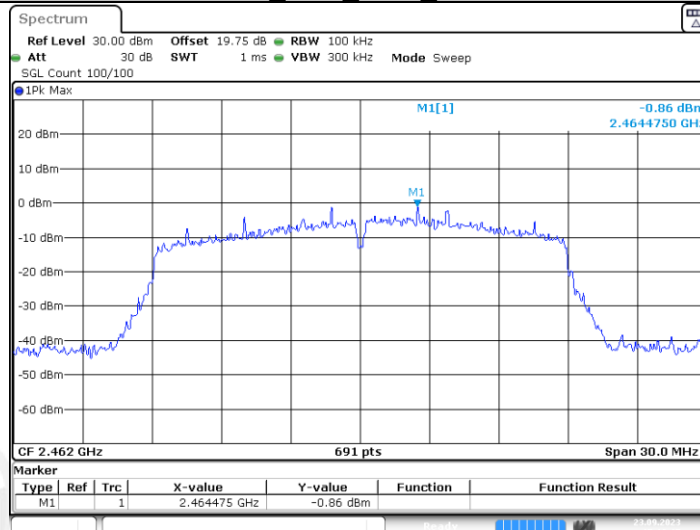
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11N20SISO_Ant1_2437_1000~26500



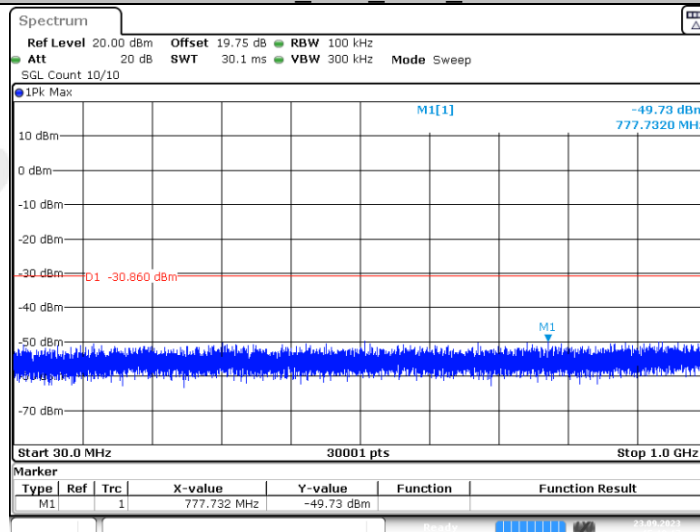
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11N20SISO_Ant1_2462_0~Reference



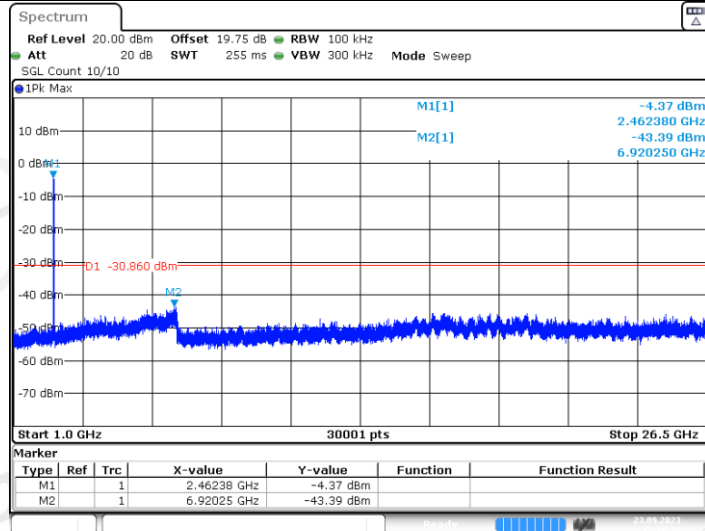
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11N20SISO_Ant1_2462_30~1000



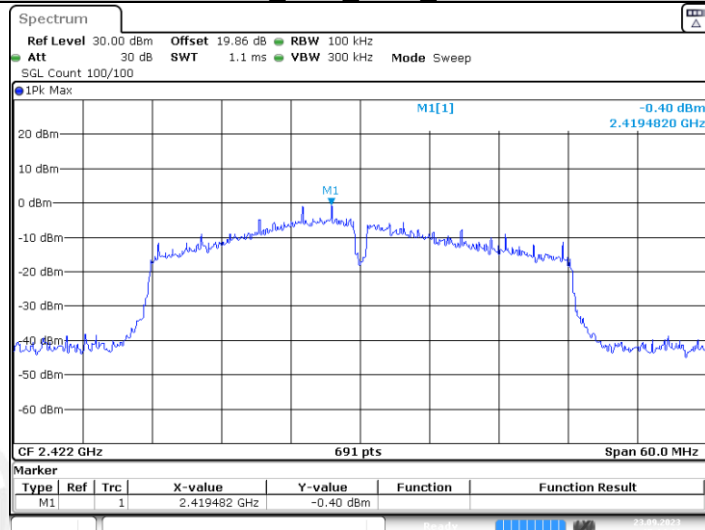
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11N20SISO Ant1 2462 1000~26500



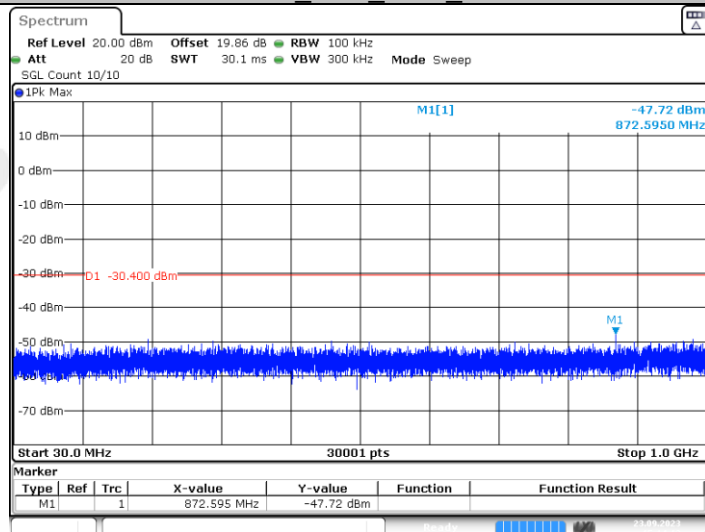
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11N40SISO Ant1 2422 0~Reference



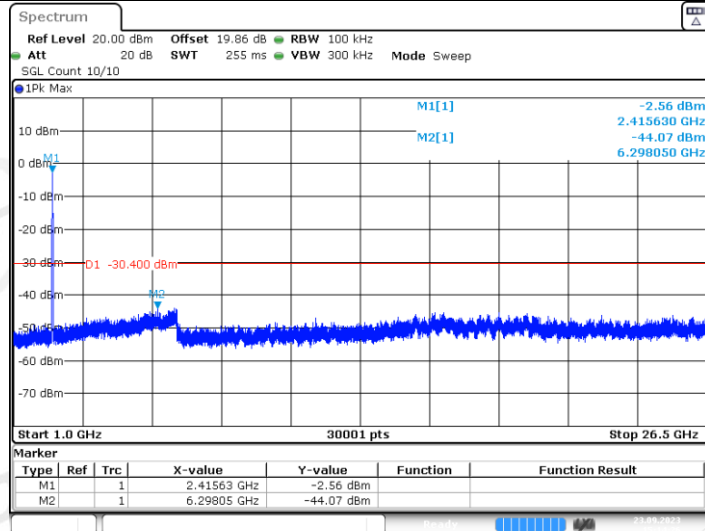
Date: 23 SEP.2023 15:14:11

11N40SISO Ant1 2422 30~1000

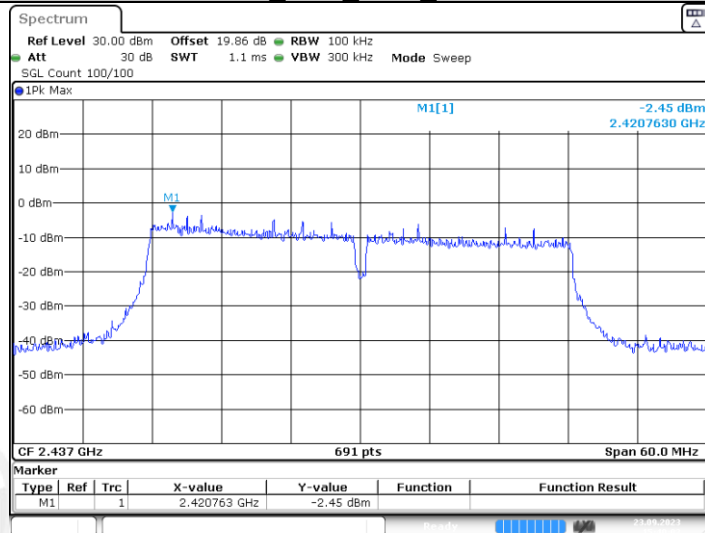


Date: 23 SEP.2023 15:14:14

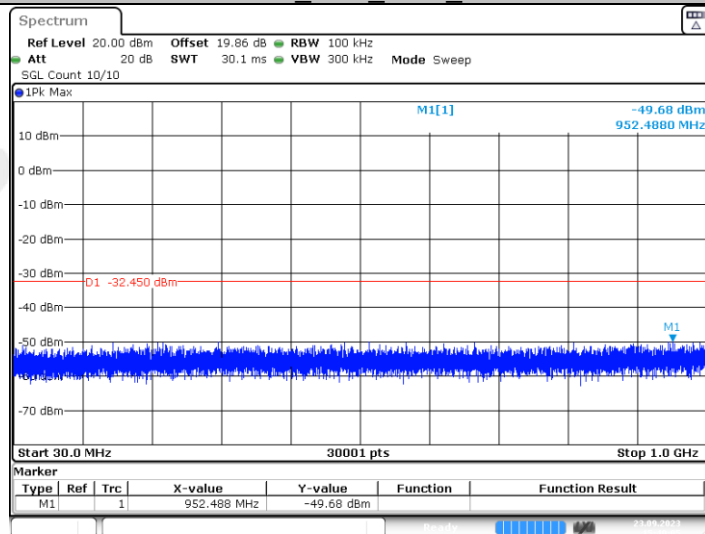
11N40SISO_Ant1_2422_1000~26500



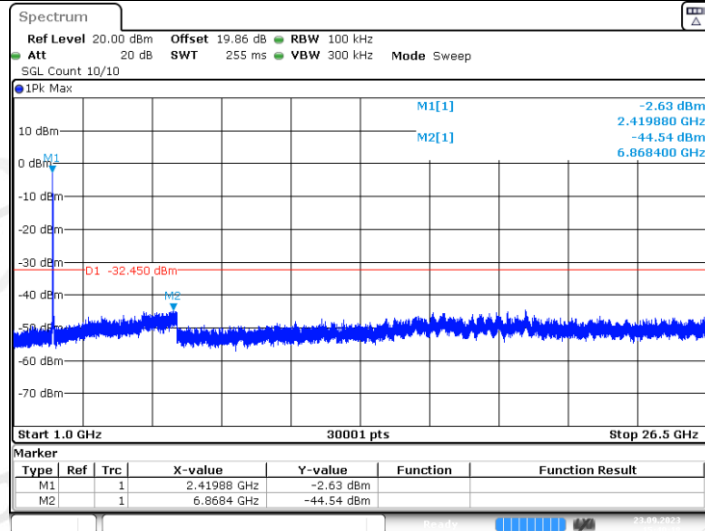
11N40SISO_Ant1_2437_0~Reference



11N40SISO_Ant1_2437_30~1000

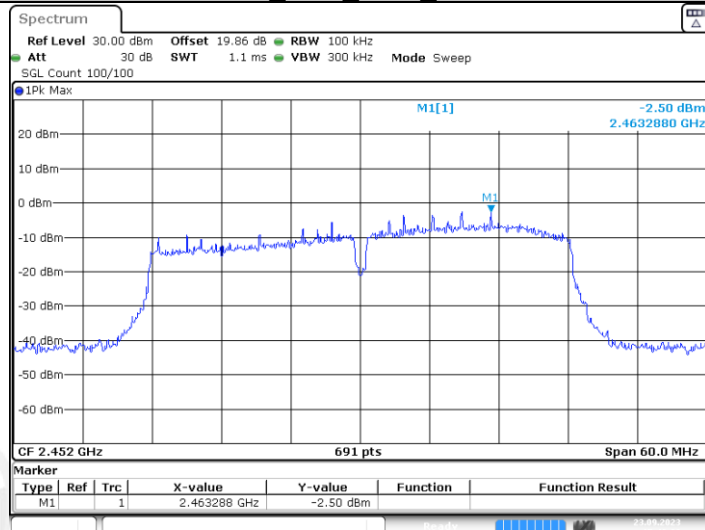


11N40SISO_Ant1_2437_1000~26500



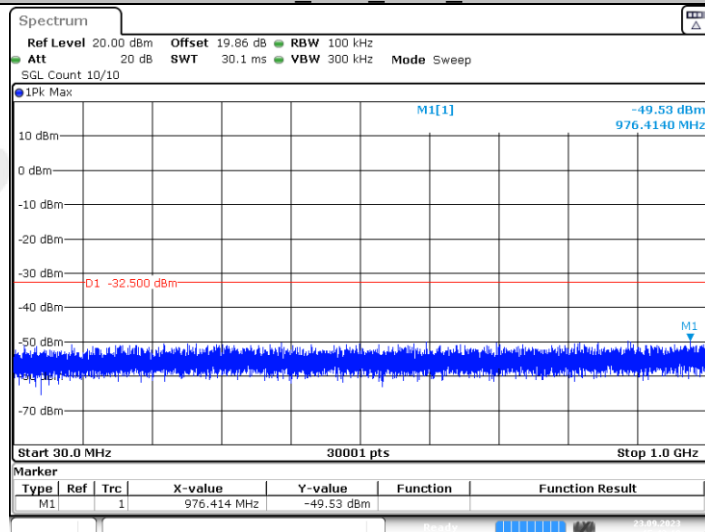
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11N40SISO_Ant1_2452_0~Reference

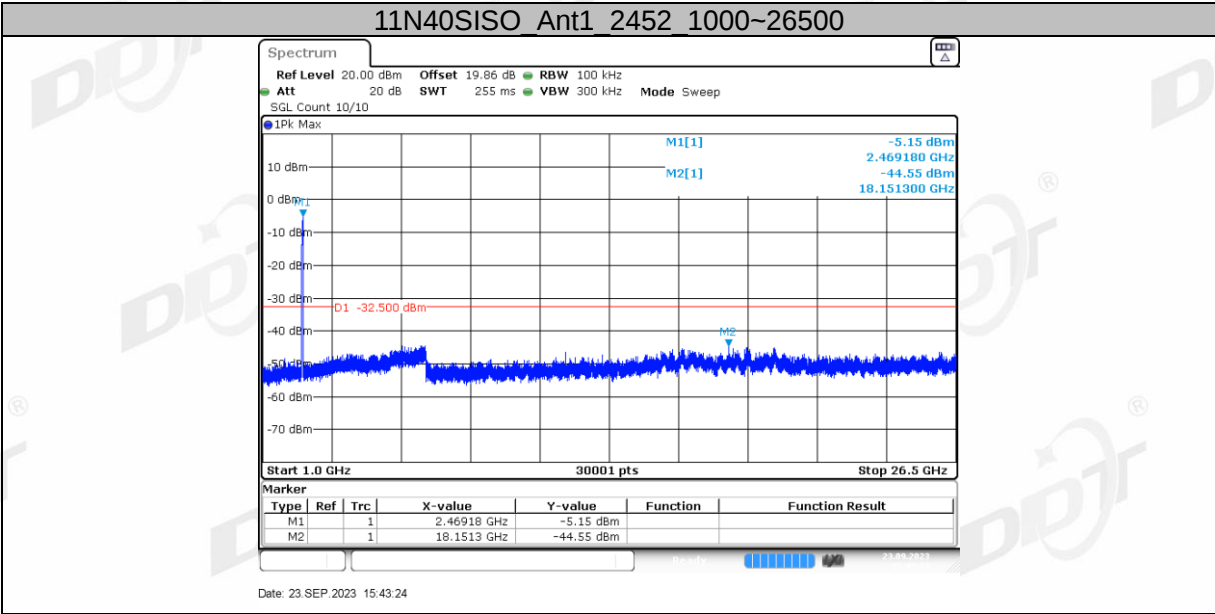


Date: 23.SEP.2023 15:43:09

11N40SISO_Ant1_2452_30~1000

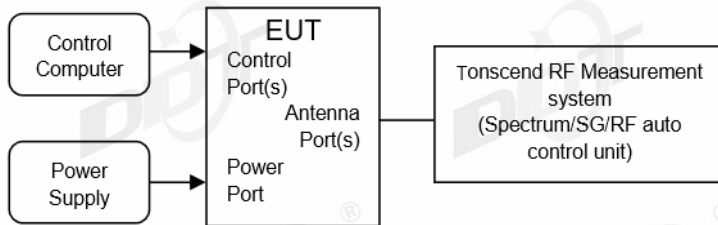


Date: 23.SEP.2023 15:43:11



11. Duty Cycle

11.1. Block diagram of test setup



11.2. Limit

Just for Report.

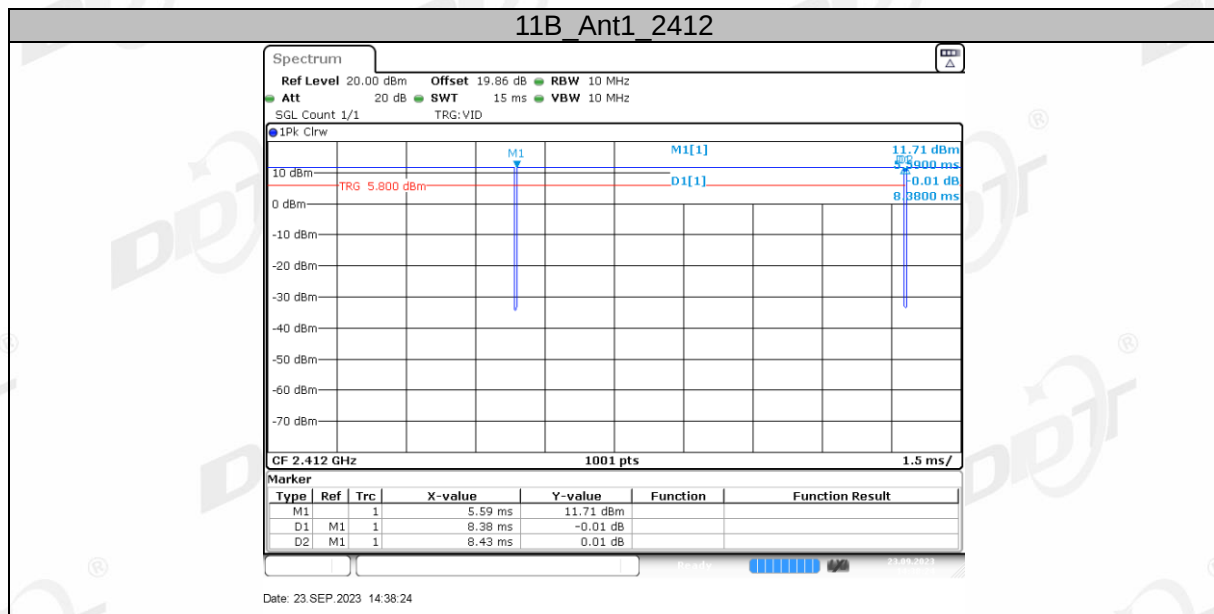
11.3. Test procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.
- (2) set the Spectrum Analyzer as below:
 - Centre Frequency: The centre frequency of the middle hopping channel.
 - Resolution BW: 10 MHz.
 - Video BW: 10 MHz.
 - Span: Zero span.
 - Detector: Peak.
 - Trace Mode: Max Hold.
 - Sweep: Video Trigger
- (3) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.
- (4) Calculate dwell time follow below formula:
$$\text{Duty cycle} = \text{Pulse's on time} / \text{Burst cycle}$$

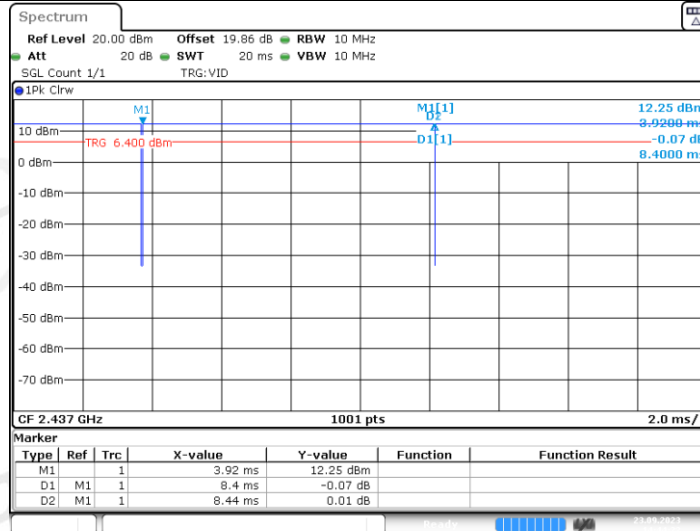
11.4. Test result

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant1	2412	8.38	8.43	99.41
		2437	8.40	8.44	99.53
		2462	8.40	8.44	99.53
11G	Ant1	2412	1.39	1.44	96.53
		2437	1.39	1.44	96.53
		2462	1.40	1.44	97.22
11N20SISO	Ant1	2412	1.30	1.34	97.01
		2437	1.30	1.35	96.30
		2462	1.30	1.35	96.30
11N40SISO	Ant1	2422	0.65	0.69	94.20
		2437	0.64	0.69	92.75
		2452	0.64	0.69	92.75

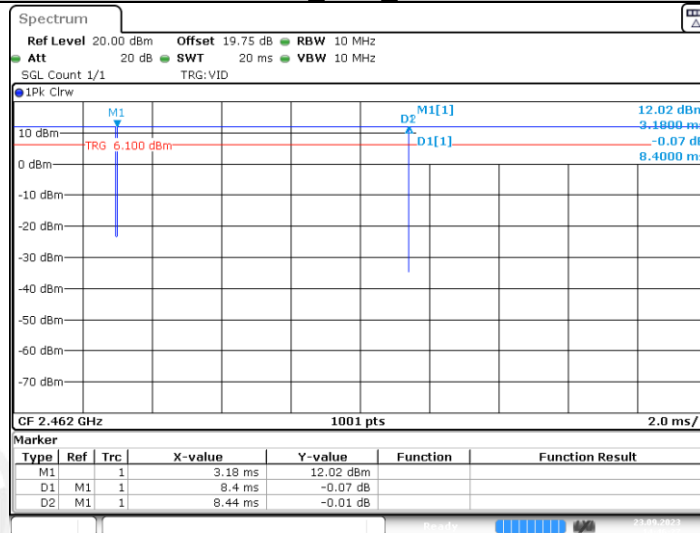
11.5. Test graphs



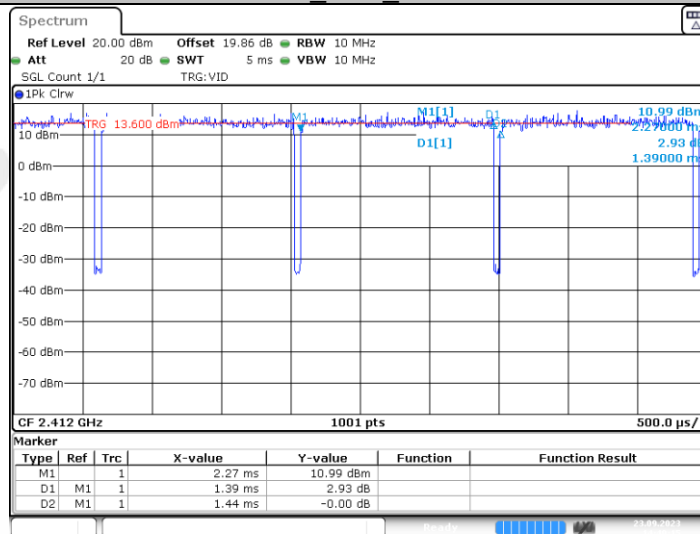
11B_Ant1_2437



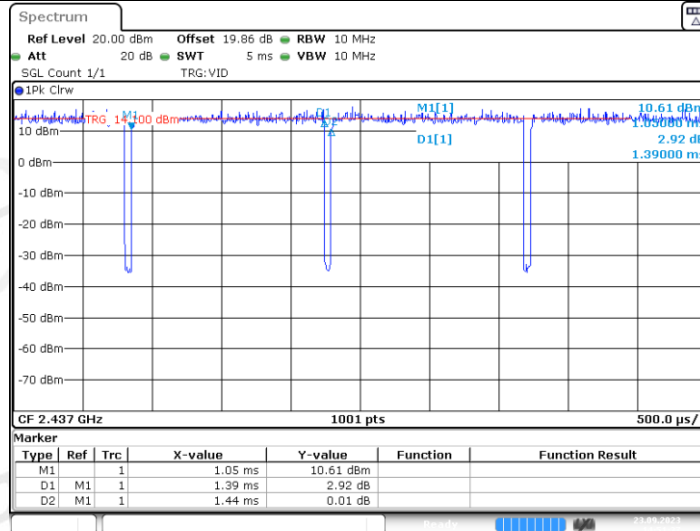
11B_Ant1_2462



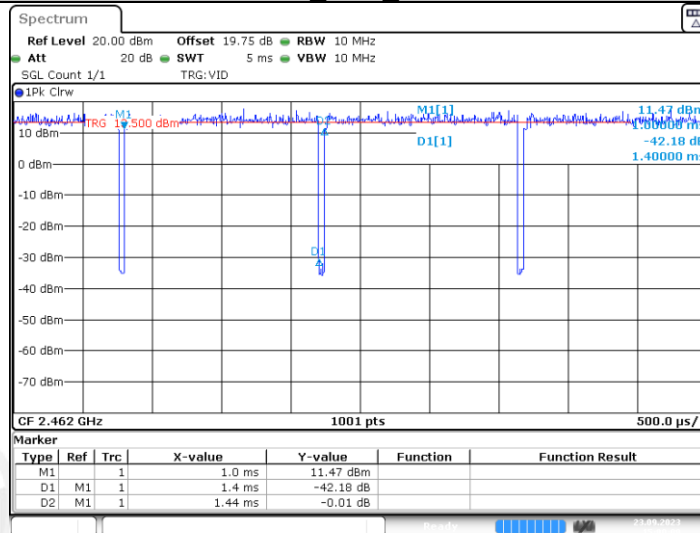
11G_Ant1_2412



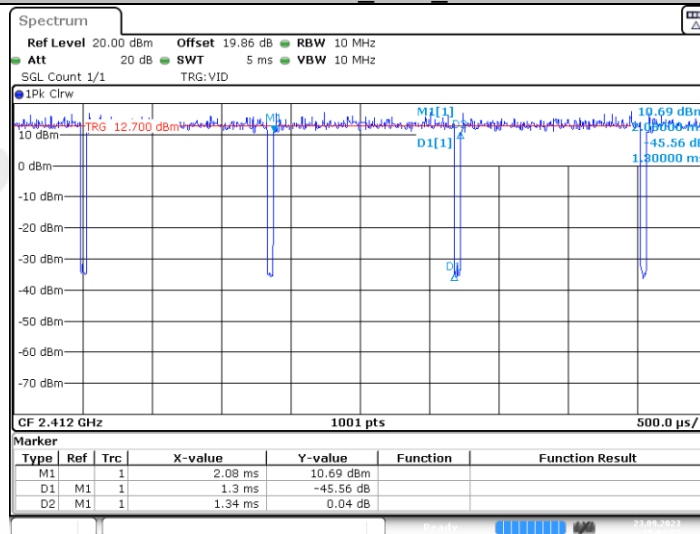
11G_Ant1_2437



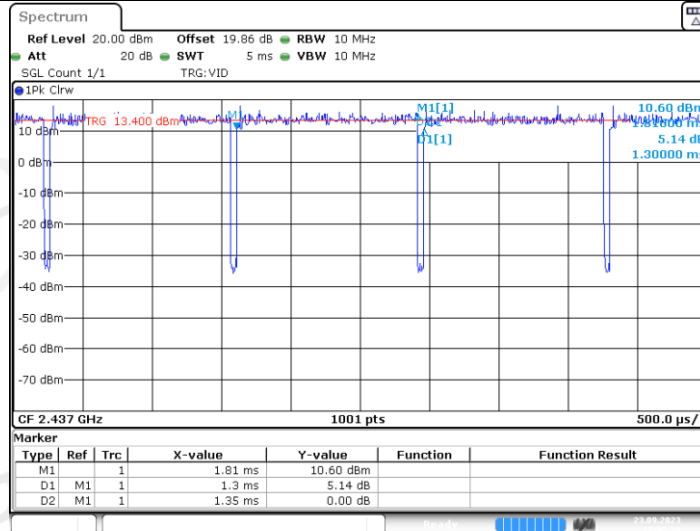
11G_Ant1_2462



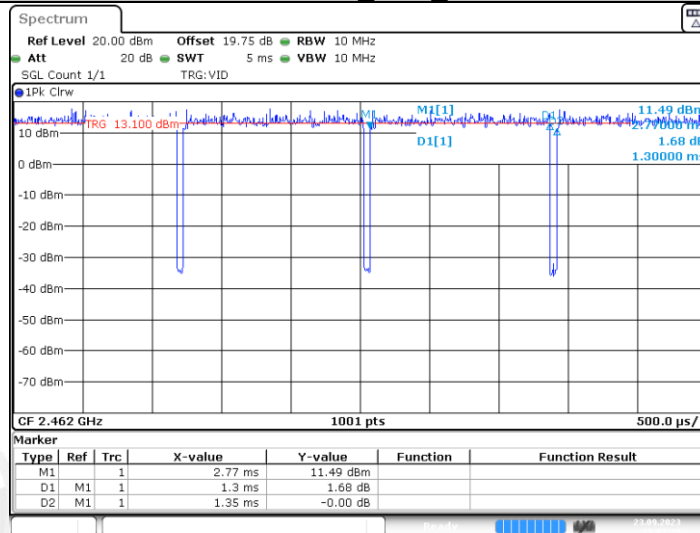
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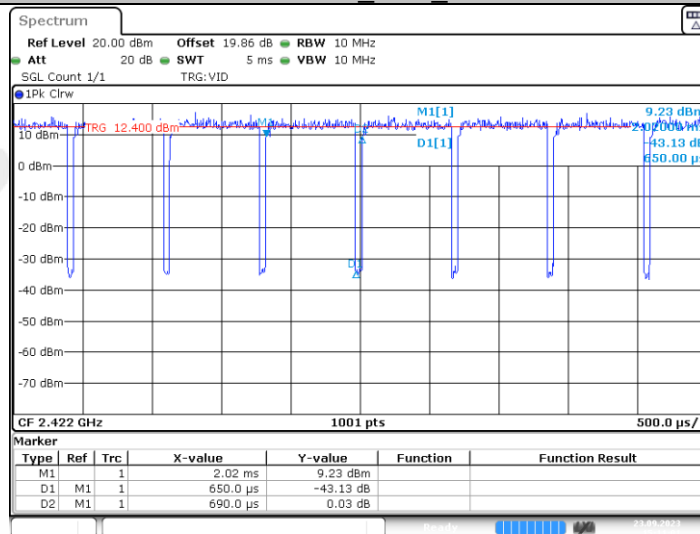
11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



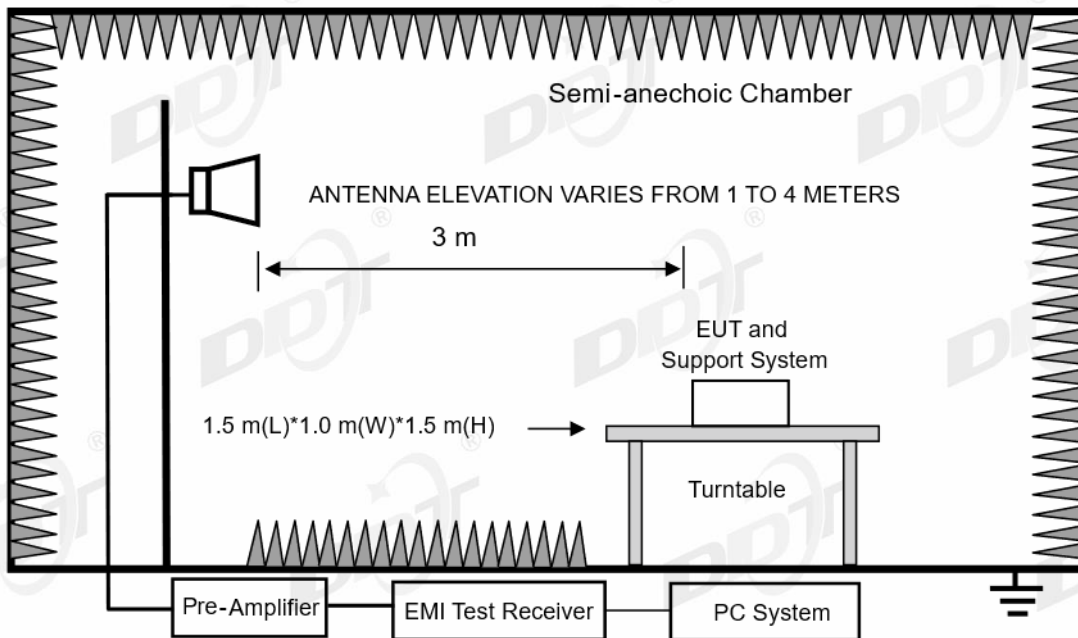
11N40SISO_Ant1_2422





12. Radiated Band Edge Compliance

12.1. Block diagram of test setup



12.2. Limit

All restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400 MHz to 2483.5 MHz shall be at least 20dB below the fundamental emissions or comply with RSS-Gen Issue 5 clause 6.13.2 (Same as FCC 15.209) limits.

12.3. Test procedure

Same with clause 9.3 except change investigated frequency range from 2310 MHz to 2430 MHz and 2445 MHz to 2500 MHz, 2310 MHz to 2445 MHz and 2425 MHz to 2500 MHz.

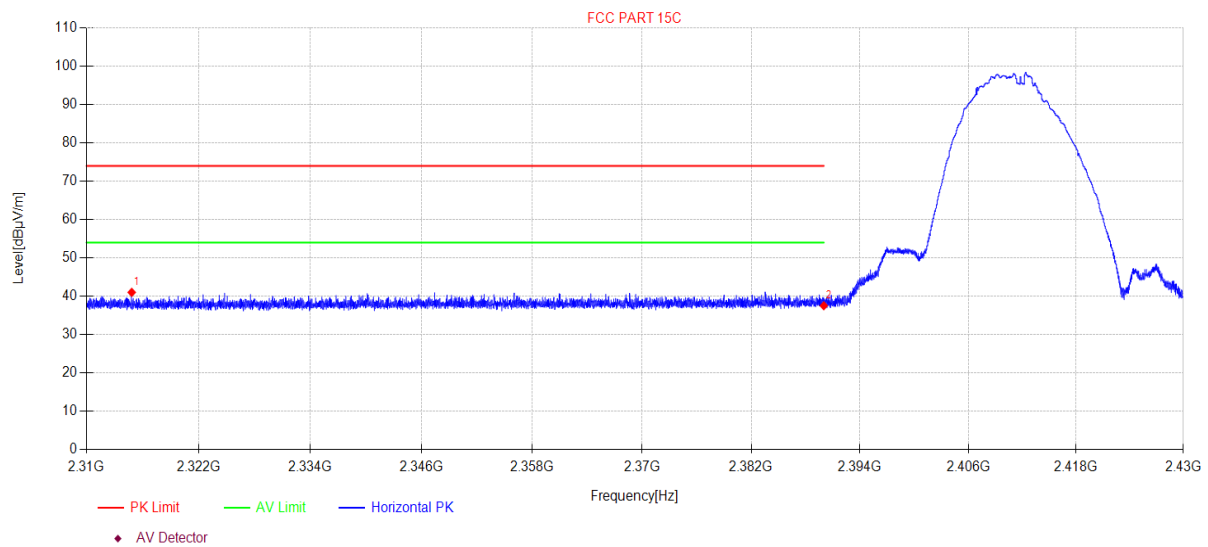
12.4. Test result

Pass. (See below detailed test result)

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11B TX 2412MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWiFi\11
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2314.84	47.79	3.81	27.33	-37.90	41.03	74.00	32.97	PK	Horizontal
2	2390.00	44.30	3.87	27.48	-38.11	37.54	74.00	36.46	PK	Horizontal

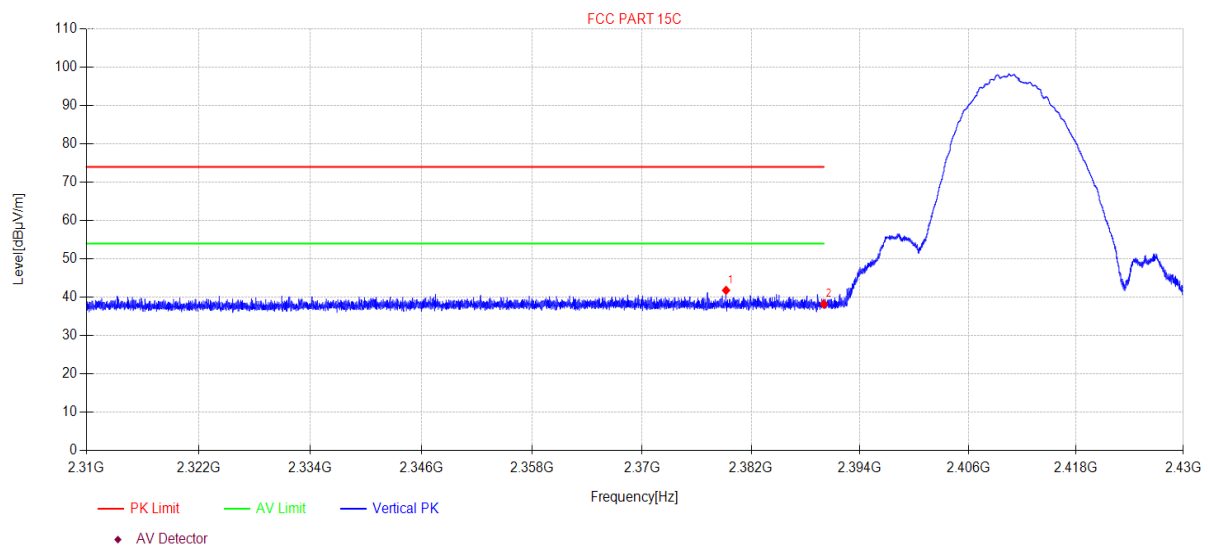
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11B TX 2412MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\12
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2379.24	48.58	3.86	27.46	-38.08	41.82	74.00	32.18	PK	Vertical
2	2390.00	44.99	3.87	27.48	-38.11	38.23	74.00	35.77	PK	Vertical

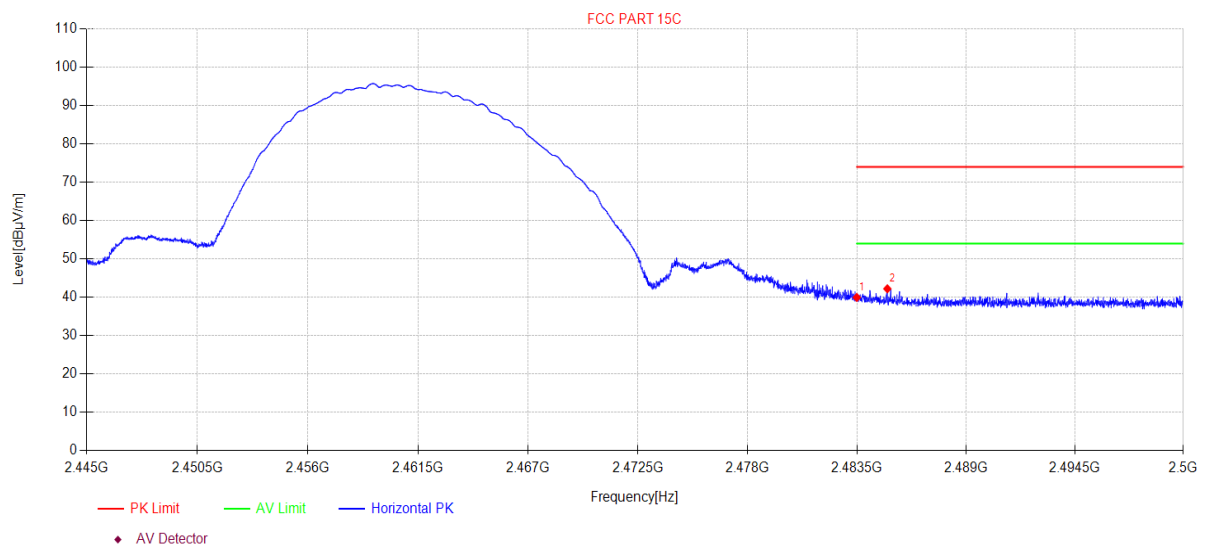
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11B TX 2462MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\13
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	46.67	3.94	27.73	-38.38	39.96	74.00	34.04	PK	Horizontal
2	2485.04	48.91	3.94	27.74	-38.38	42.21	74.00	31.79	PK	Horizontal

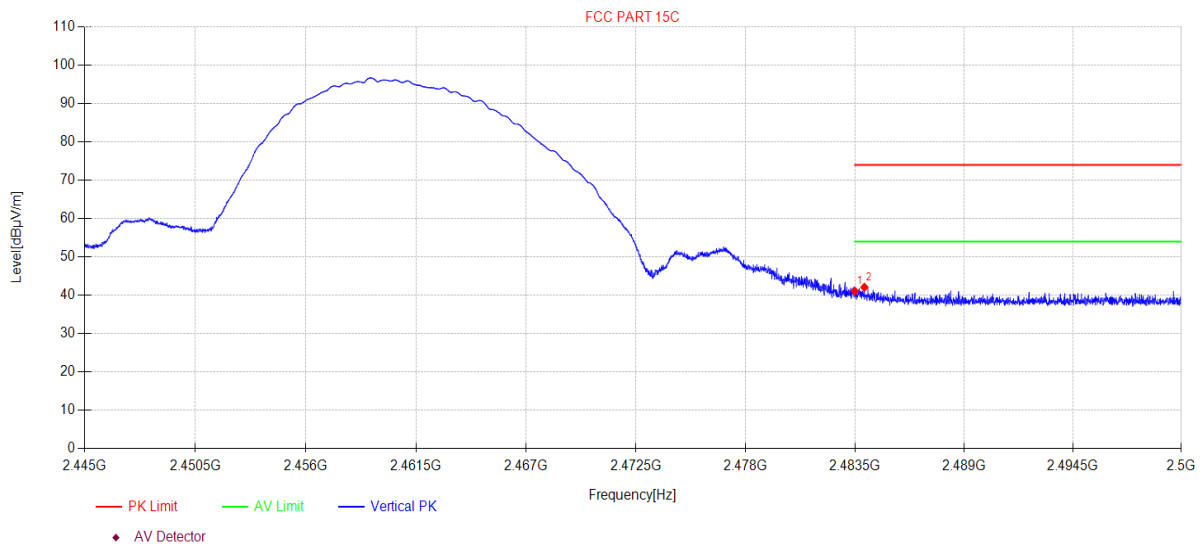
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11B TX 2462MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\14
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	47.78	3.94	27.73	-38.38	41.07	74.00	32.93	PK	Vertical
2	2483.98	48.79	3.94	27.74	-38.38	42.09	74.00	31.91	PK	Vertical

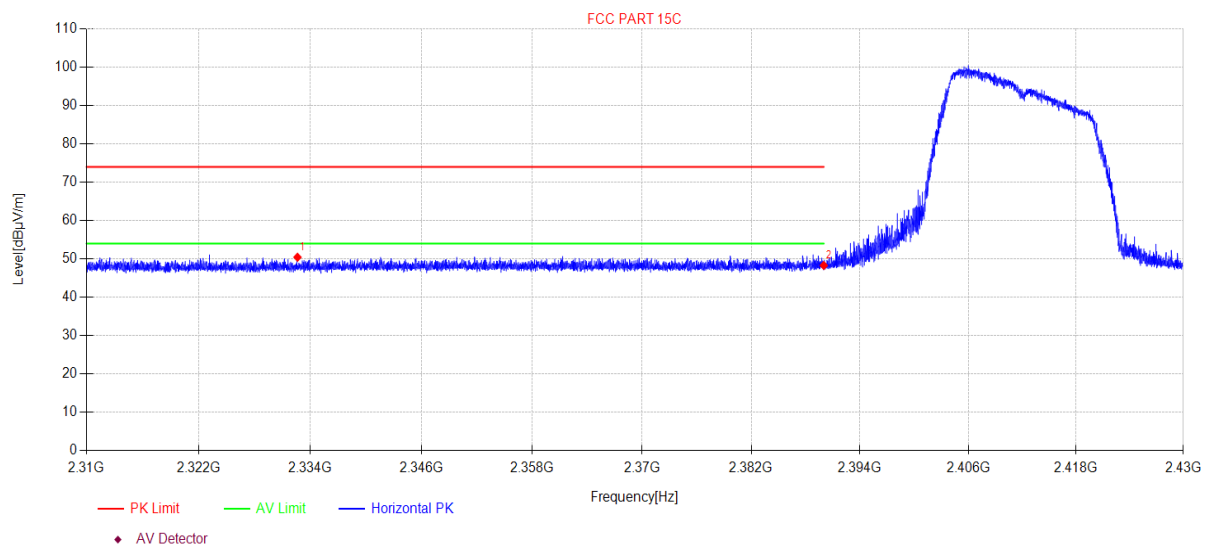
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11G TX 2412MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\15
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2332.62	47.20	3.82	27.37	-27.95	50.44	74.00	23.56	PK	Horizontal
2	2390.00	45.05	3.87	27.48	-28.11	48.29	74.00	25.71	PK	Horizontal

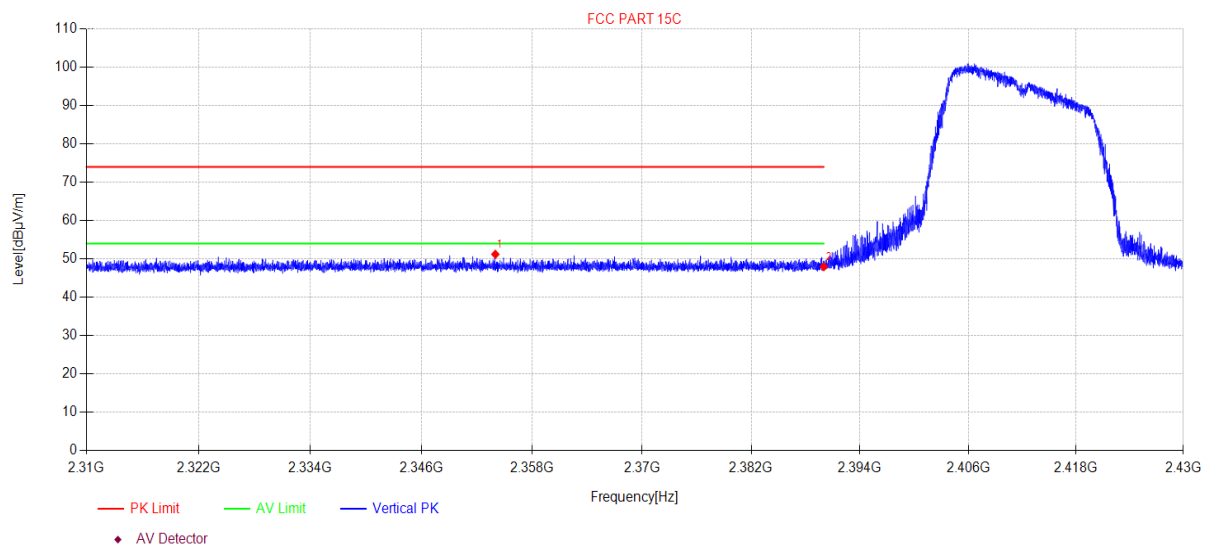
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11G TX 2412MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\16
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2354.03	47.97	3.84	27.41	-28.01	51.21	74.00	22.79	PK	Vertical
2	2390.00	44.73	3.87	27.48	-28.11	47.97	74.00	26.03	PK	Vertical

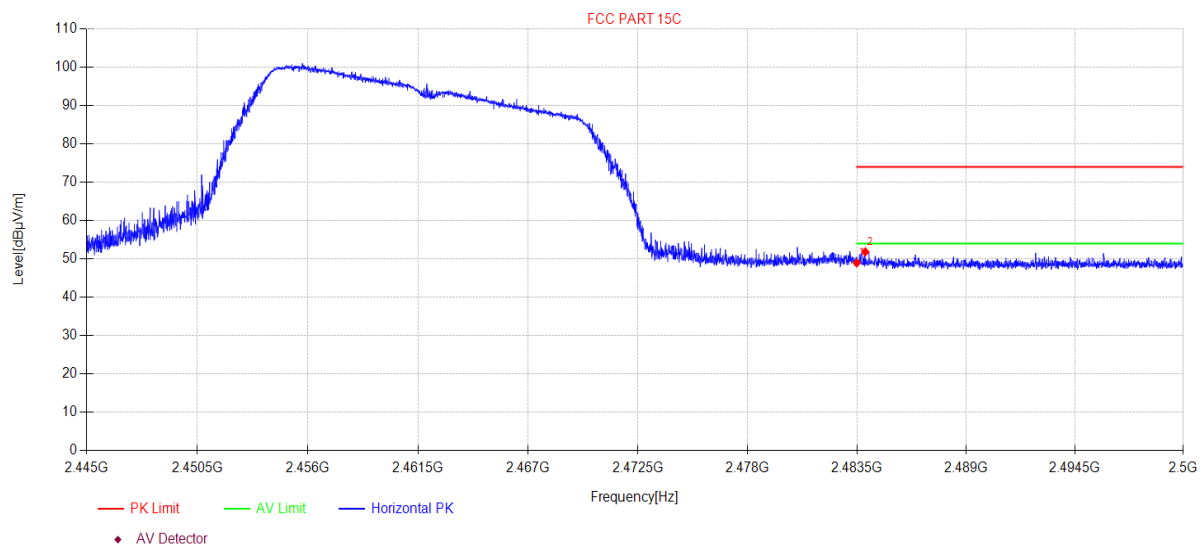
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11G TX 2462MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\17
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	45.69	3.94	27.73	-28.38	48.98	74.00	25.02	PK	Horizontal
2	2483.93	48.55	3.94	27.74	-28.38	51.85	74.00	22.15	PK	Horizontal

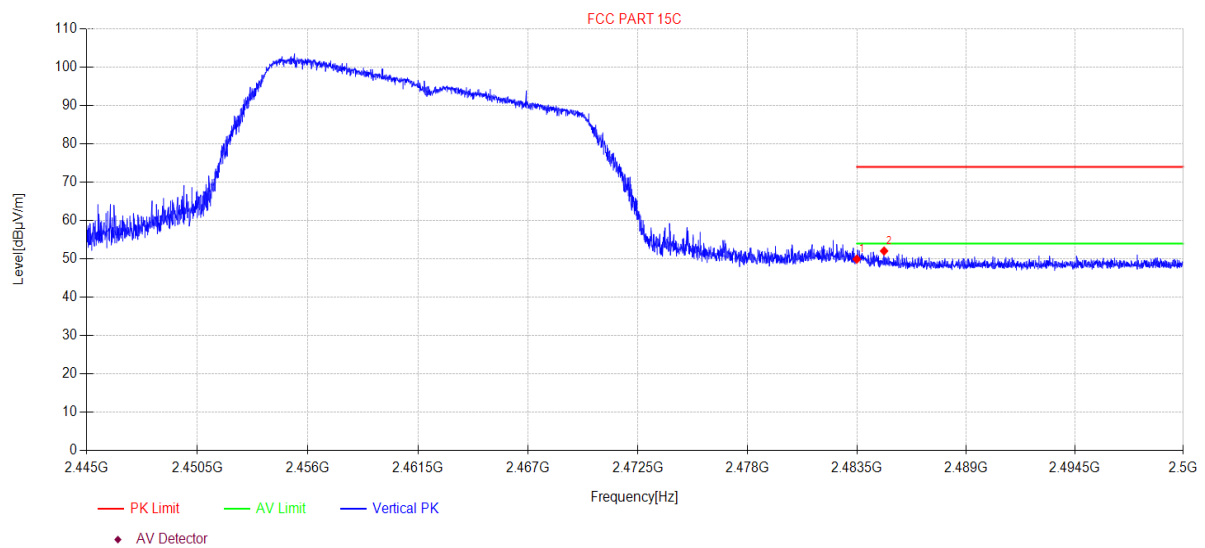
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11G TX 2462MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\18
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	46.65	3.94	27.73	-28.38	49.94	74.00	24.06	PK	Vertical
2	2484.88	48.77	3.94	27.74	-28.38	52.07	74.00	21.93	PK	Vertical

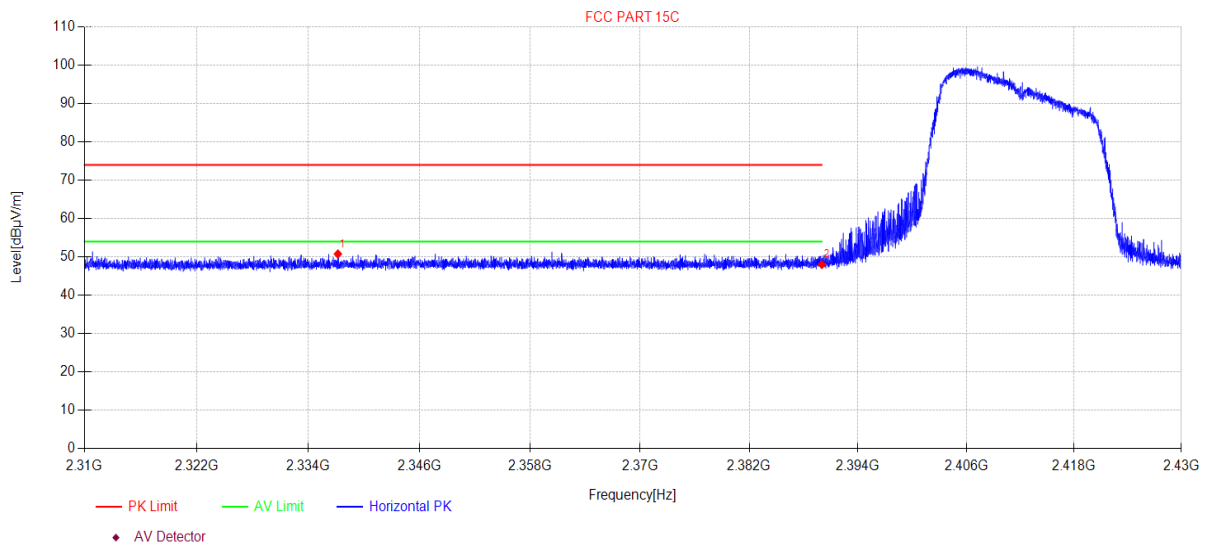
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N20 TX 2412MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\19
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2337.19	47.52	3.83	27.37	-27.96	50.76	74.00	23.24	PK	Horizontal
2	2390.00	44.76	3.87	27.48	-28.11	48.00	74.00	26.00	PK	Horizontal

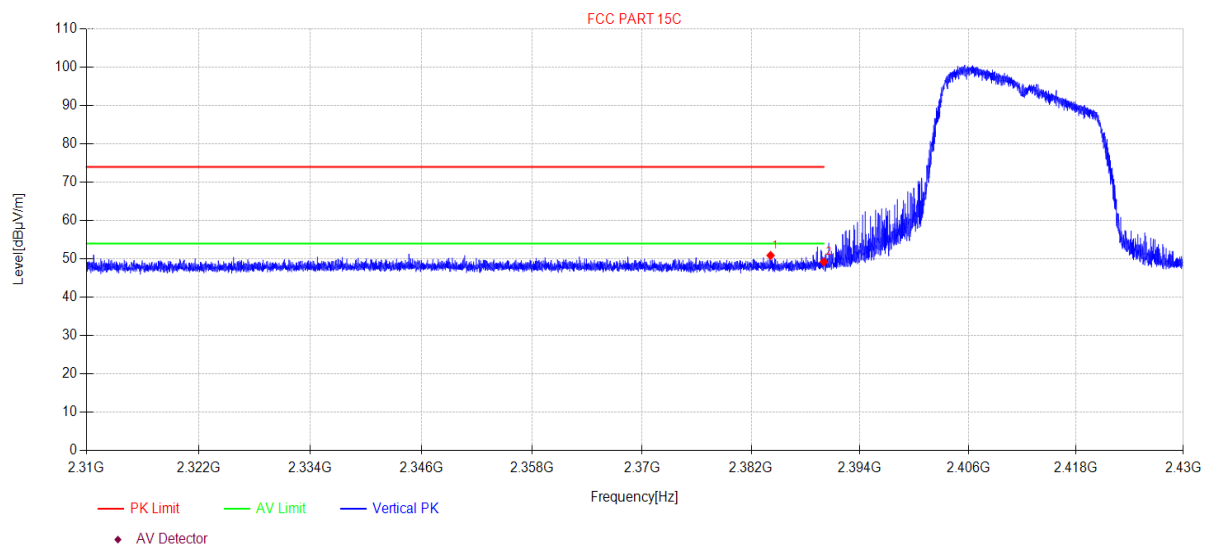
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N20 TX 2412MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\20
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2384.14	47.67	3.86	27.47	-28.10	50.90	74.00	23.10	PK	Vertical
2	2390.00	45.98	3.87	27.48	-28.11	49.22	74.00	24.78	PK	Vertical

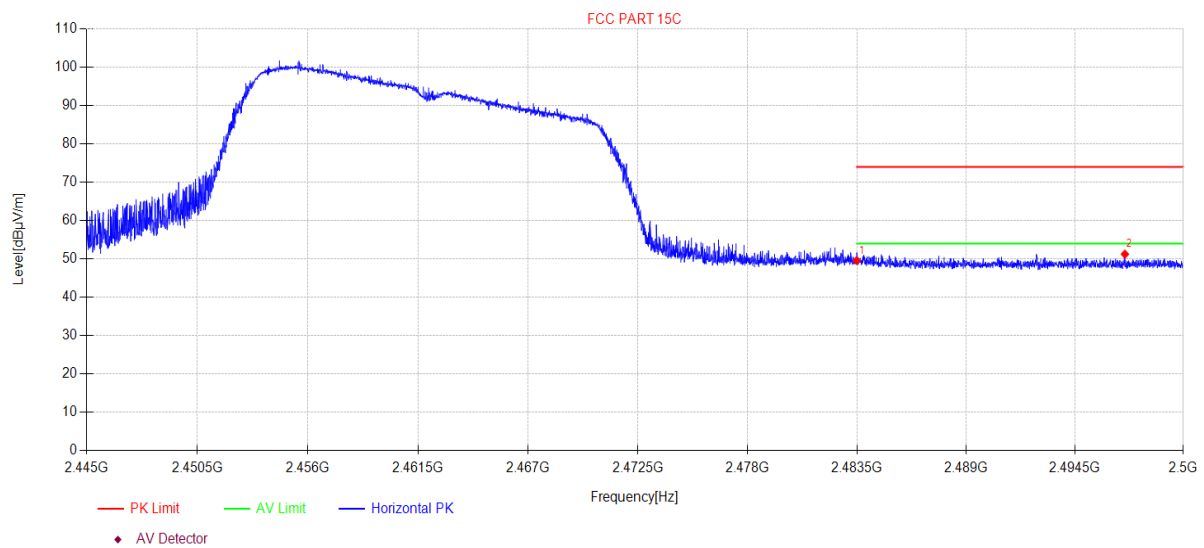
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N20 TX 2462MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\21
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	46.29	3.94	27.73	-28.38	49.58	74.00	24.42	PK	Horizontal
2	2497.04	47.92	3.95	27.79	-28.42	51.24	74.00	22.76	PK	Horizontal

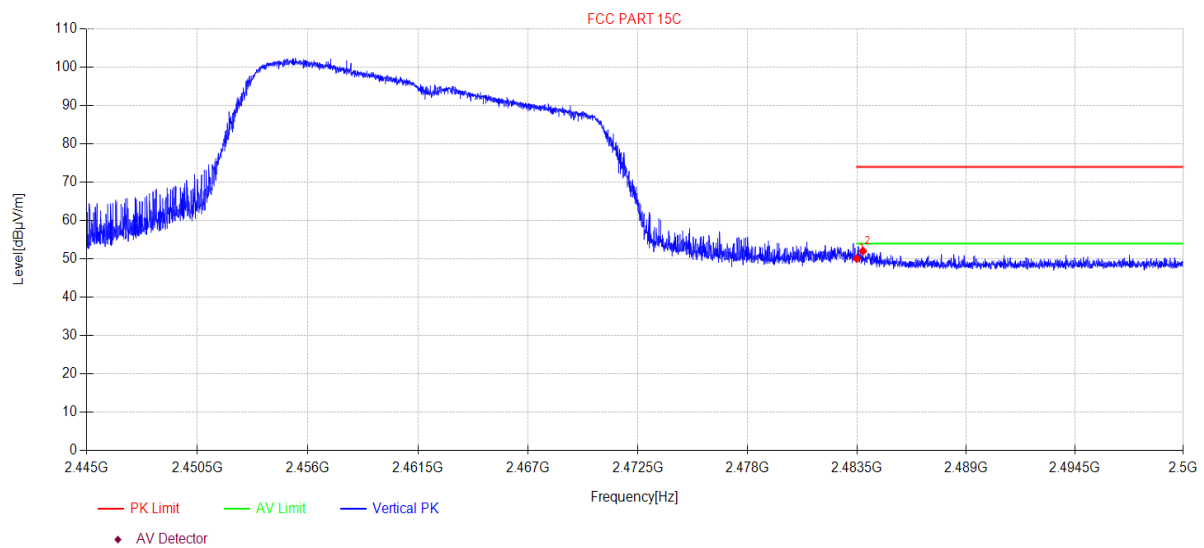
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N20 TX 2462MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\22
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	46.82	3.94	27.73	-28.38	50.11	74.00	23.89	PK	Vertical
2	2483.81	48.74	3.94	27.74	-28.38	52.04	74.00	21.96	PK	Vertical

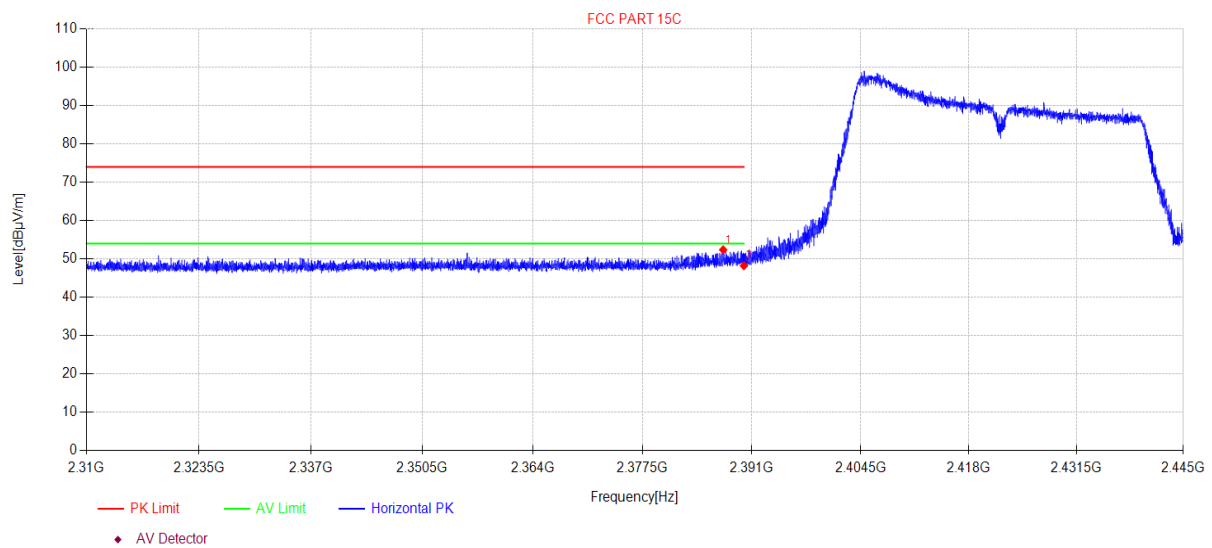
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N40 TX 2422MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\23
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2387.44	49.15	3.86	27.47	-28.11	52.37	74.00	21.63	PK	Horizontal
2	2390.00	44.99	3.87	27.48	-28.11	48.23	74.00	25.77	PK	Horizontal

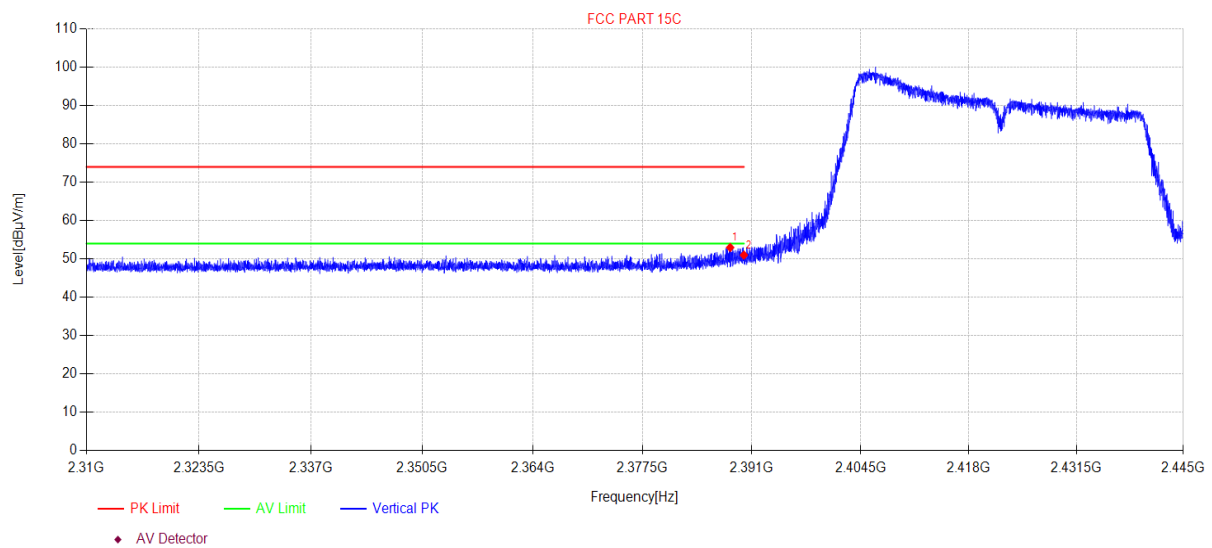
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N40 TX 2422MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\24
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2388.30	49.74	3.87	27.48	-28.11	52.98	74.00	21.02	PK	Vertical
2	2390.00	47.75	3.87	27.48	-28.11	50.99	74.00	23.01	PK	Vertical

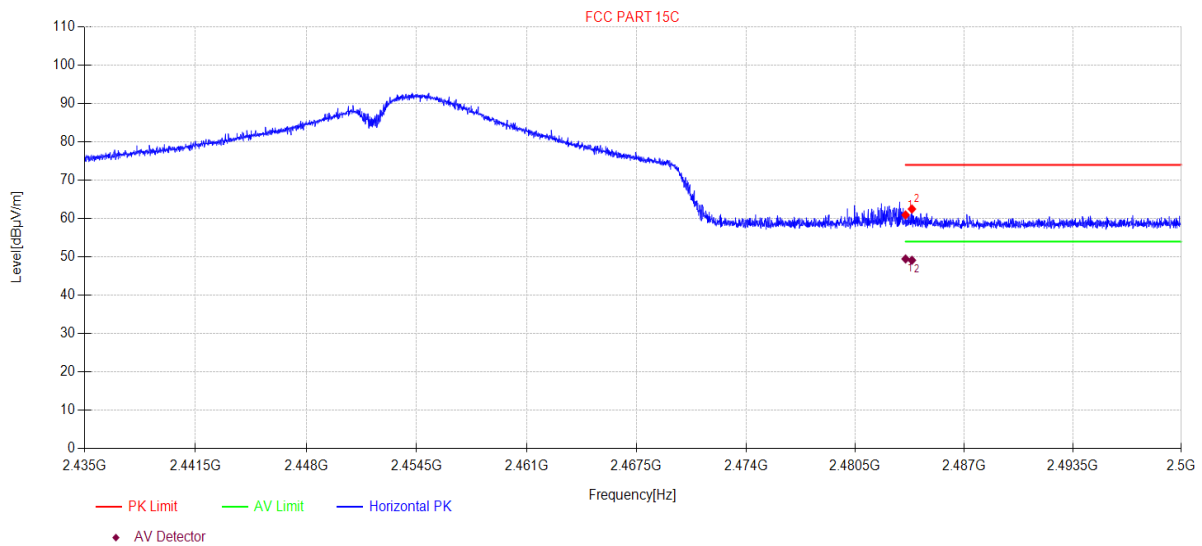
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N40 TX 2452MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\25
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	47.66	3.94	27.73	-18.38	60.95	74.00	13.05	PK	Horizontal
2	2483.88	49.18	3.94	27.74	-18.38	62.48	74.00	11.52	PK	Horizontal

Final Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	36.18	3.94	27.73	-18.38	49.47	54.00	4.53	AV	Horizontal
2	2483.88	35.82	3.94	27.74	-18.38	49.12	54.00	4.88	AV	Horizontal

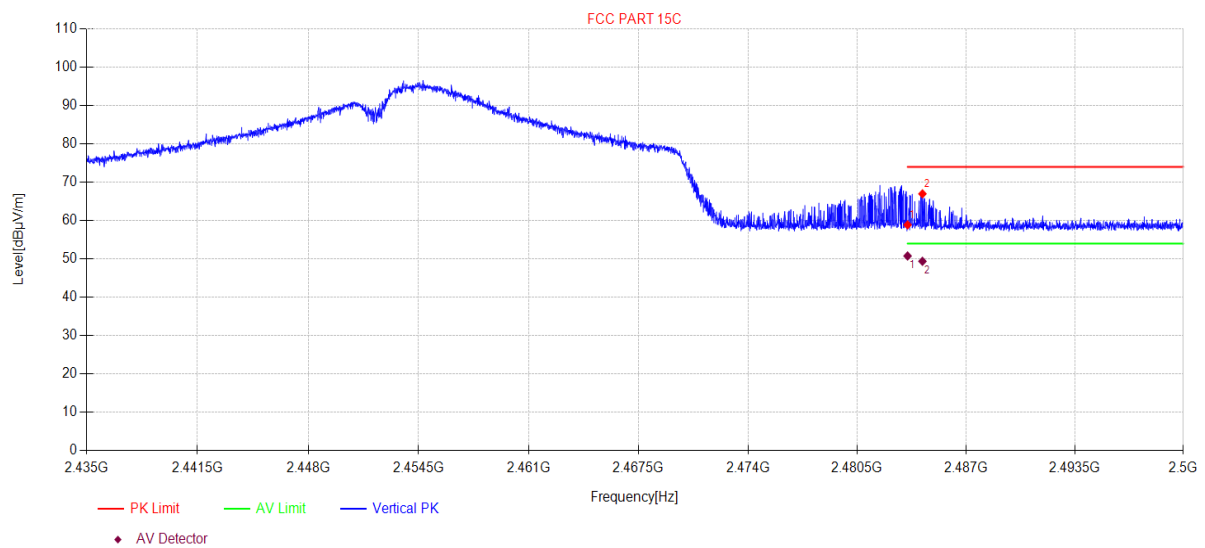
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-09-13 **Tested By:** Bairong
EUT: Multimedia **Model Number:** Kansas City 100
Test Mode: 11N40 TX 2452MHz **Power Supply:** DC 12V
Condition: Temp:20.7°C;Humi:60.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23082411-2E\FCC ABOVE 1G 2.4GWIFI\26
Memo: Sample Number:S23082411-02 Power Setting:12

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	45.57	3.94	27.73	-18.38	58.86	74.00	15.14	PK	Vertical
2	2484.39	53.66	3.94	27.74	-18.38	66.96	74.00	7.04	PK	Vertical

Final Data List

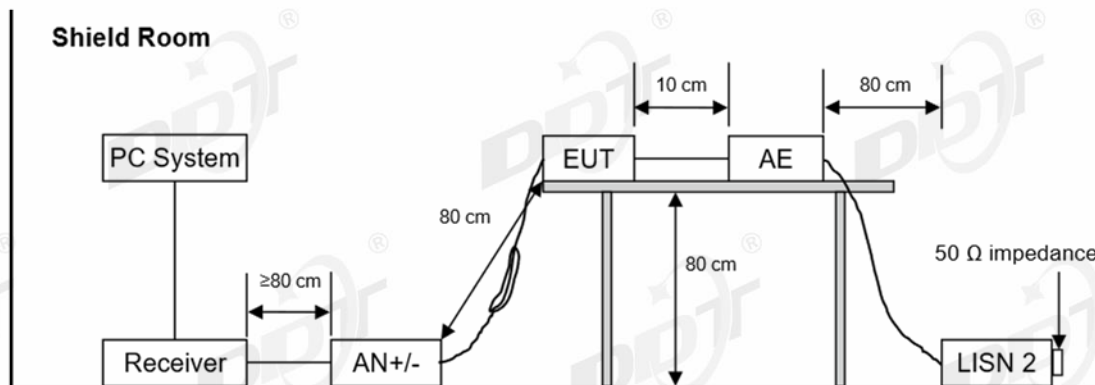
NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	37.48	3.94	27.73	-18.38	50.77	54.00	3.23	AV	Vertical
2	2484.39	36.08	3.94	27.74	-18.38	49.38	54.00	4.62	AV	Vertical

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

13. Power Line Conducted Emission

13.1. Block diagram of test setup



13.2. Power Line Conducted Emission Limits (Class B)

Frequency	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

13.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

13.4. Test result

Not applicable, EUT is powered by DC power.

14. Antenna Requirements

14.1. Limit

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

14.2. Result

The product is that no other antennas shall be used except the antennas furnished by the responsible party, the maximum peak gain of the transmit antenna is 0.75 dBi, external antenna.

16. Photos of the EUT

Please refer to Appendix I: Photos of the EUT.

END OF REPORT