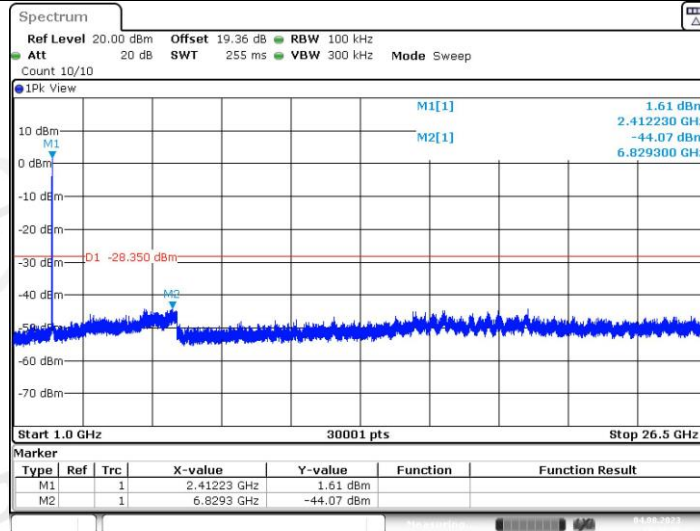
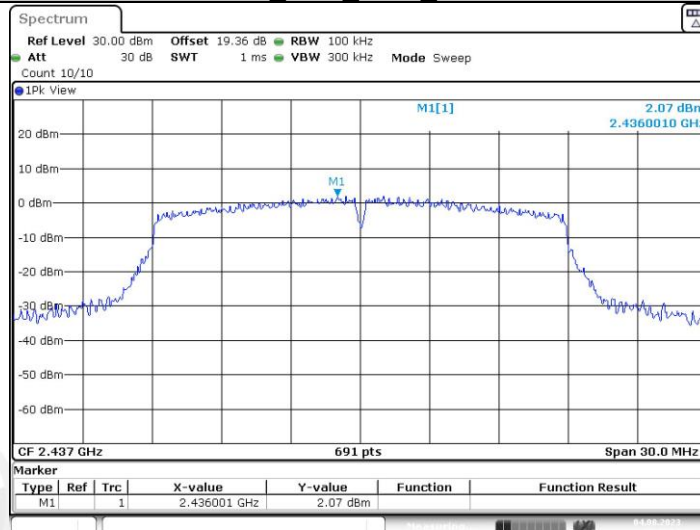


11N20SISO Ant1 2412 1000~26500



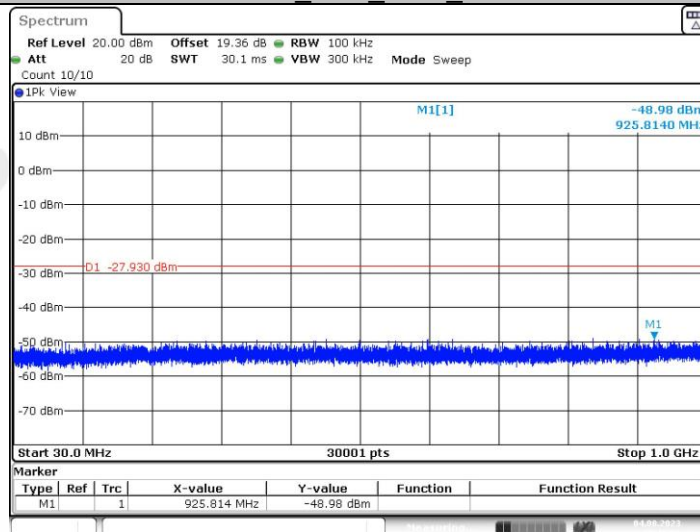
Date: 4 AUG 2023 17:34:00

11N20SISO Ant1 2437 0~Reference



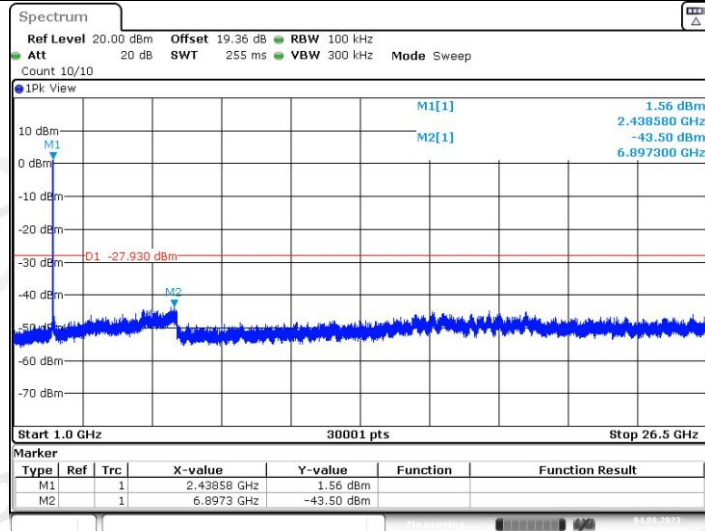
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11N20SISO Ant1 2437 30~1000



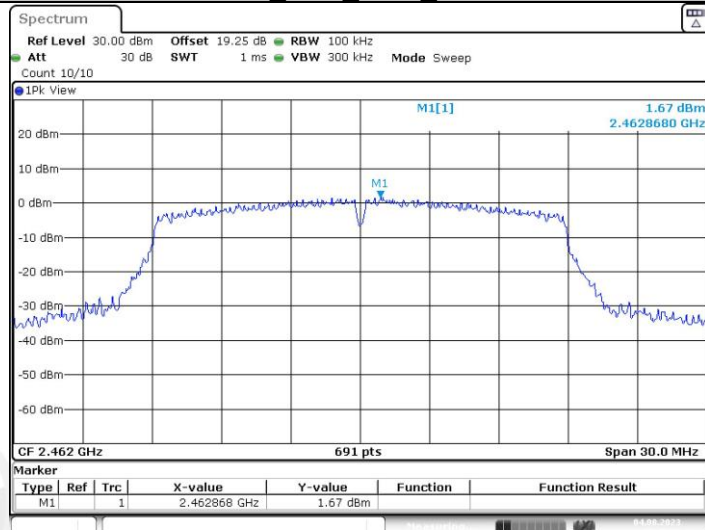
Date: 4 AUG 2023 17:41:02

11N20SISO Ant1 2437 1000~26500



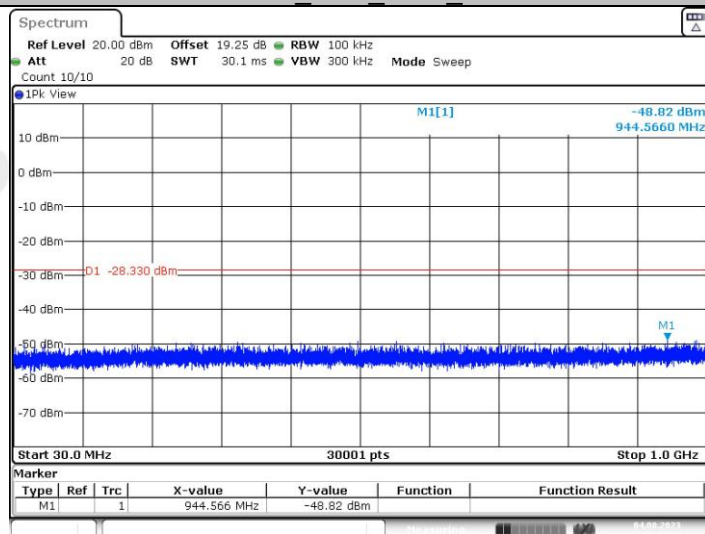
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11N20SISO Ant1 2462 0~Reference



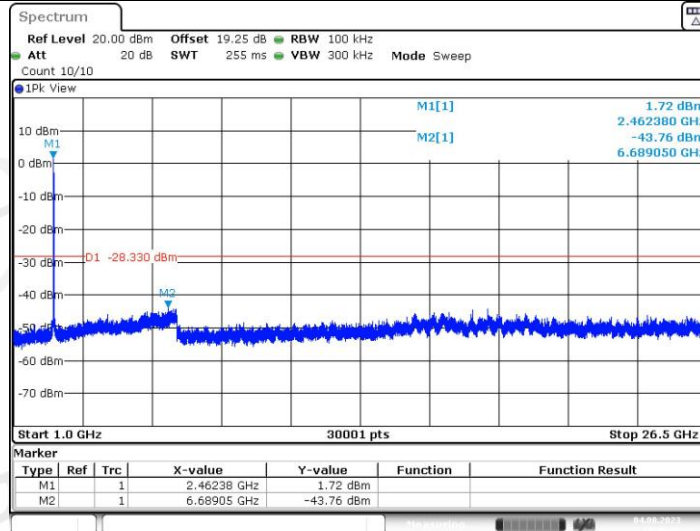
Date: 4 AUG 2023 17:45:59

11N20SISO Ant1 2462 30~1000



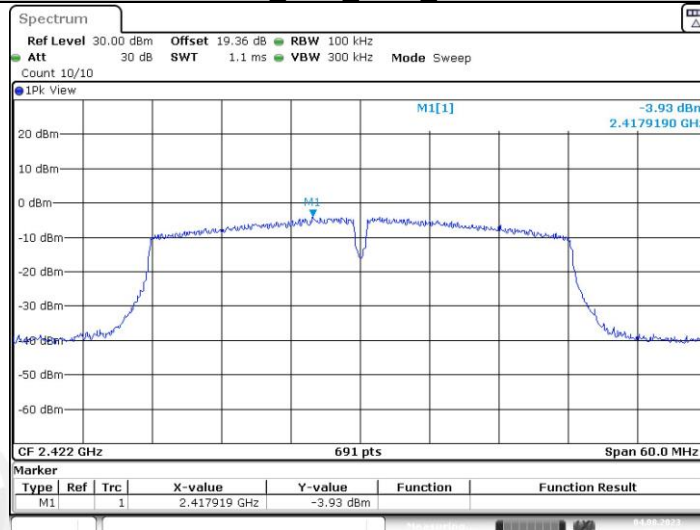
Date: 4 AUG 2023 17:46:04

11N20SISO Ant1 2462 1000~26500



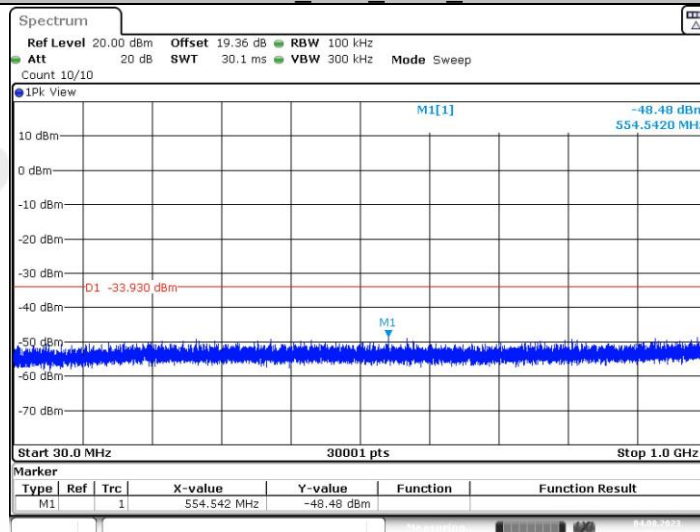
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11N40SISO Ant1 2422 0~Reference



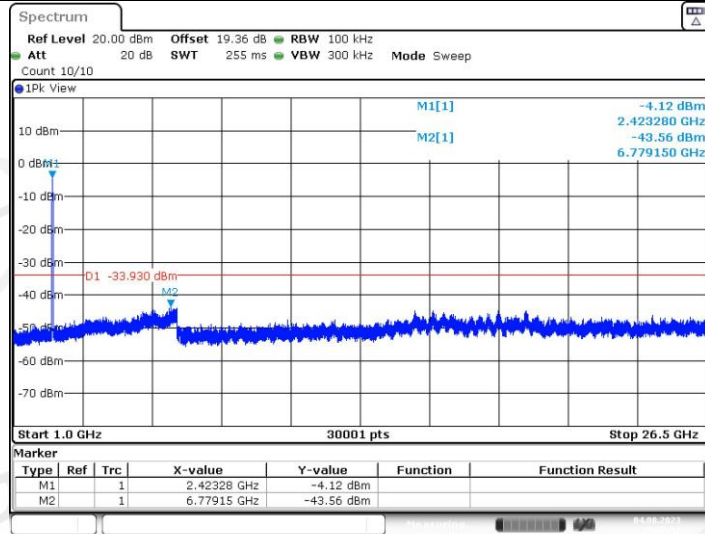
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11N40SISO Ant1 2422 30~1000



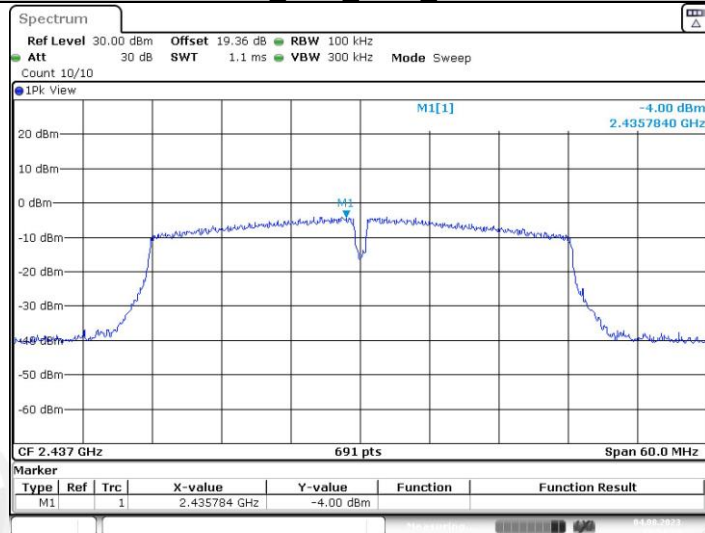
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11N40SISO_Ant1_2422_1000~26500



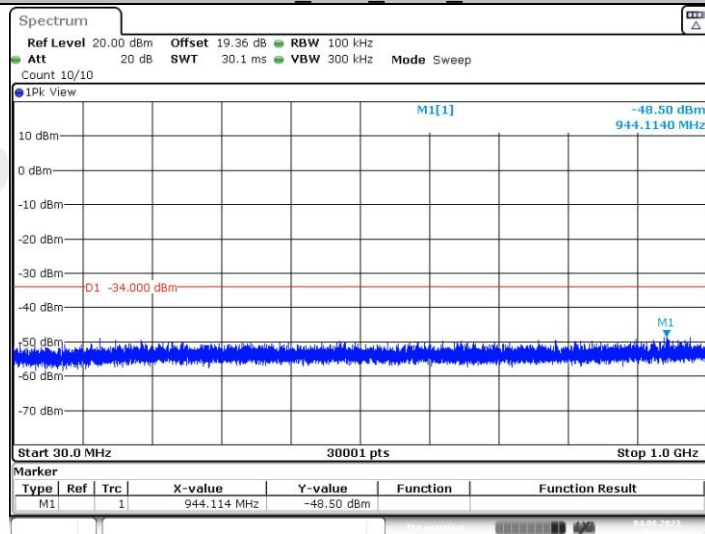
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11N40SISO_Ant1_2437_0~Reference



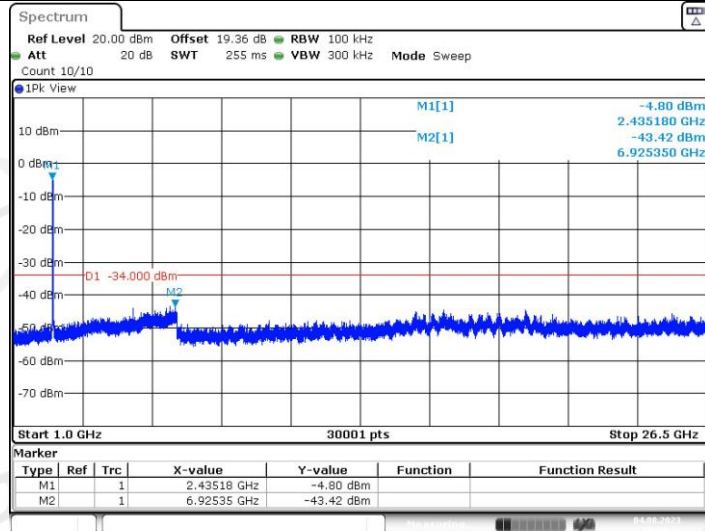
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11N40SISO_Ant1_2437_30~1000

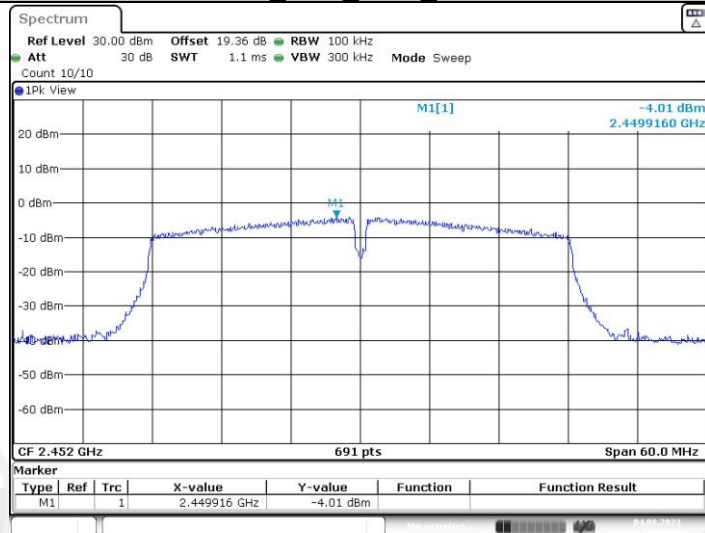


Date: 4 AUG 2023 18:04:19

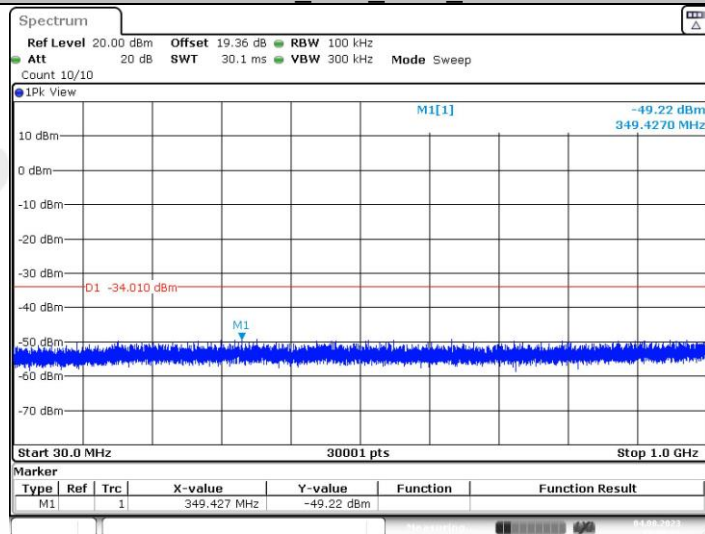
11N40SISO_Ant1_2437_1000~26500

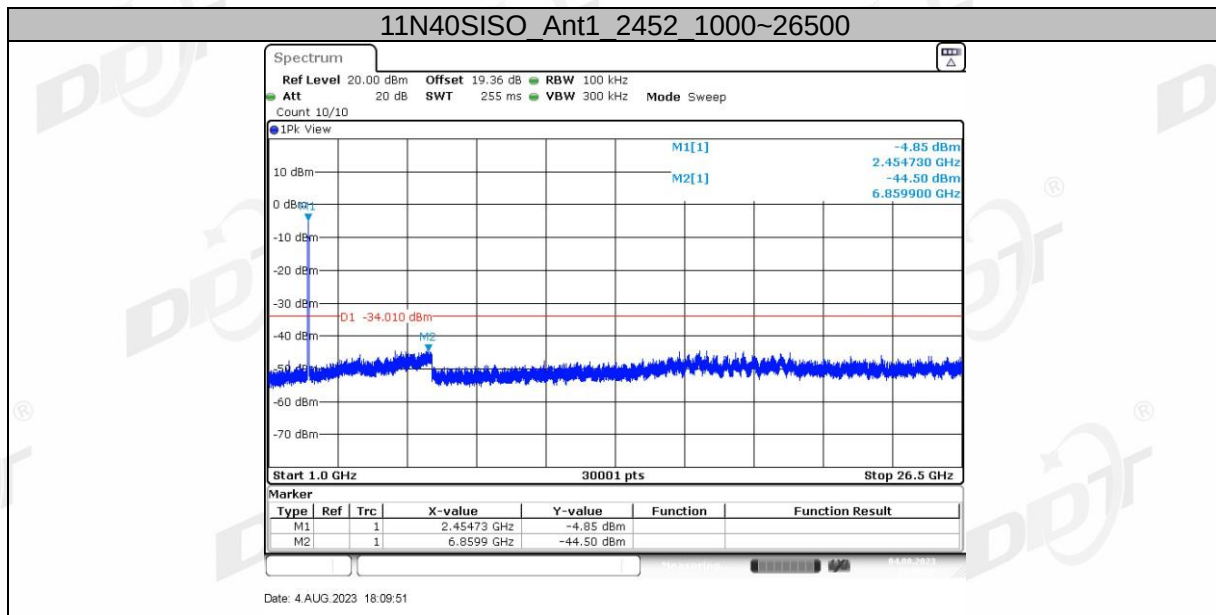


11N40SISO_Ant1_2452_0~Reference



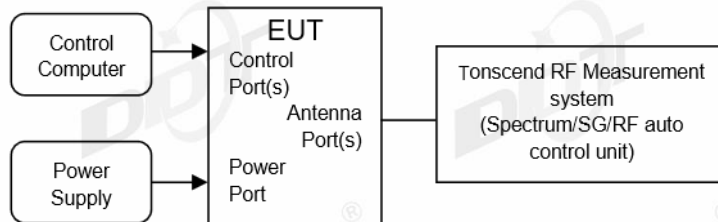
11N40SISO_Ant1_2452_30~1000





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.

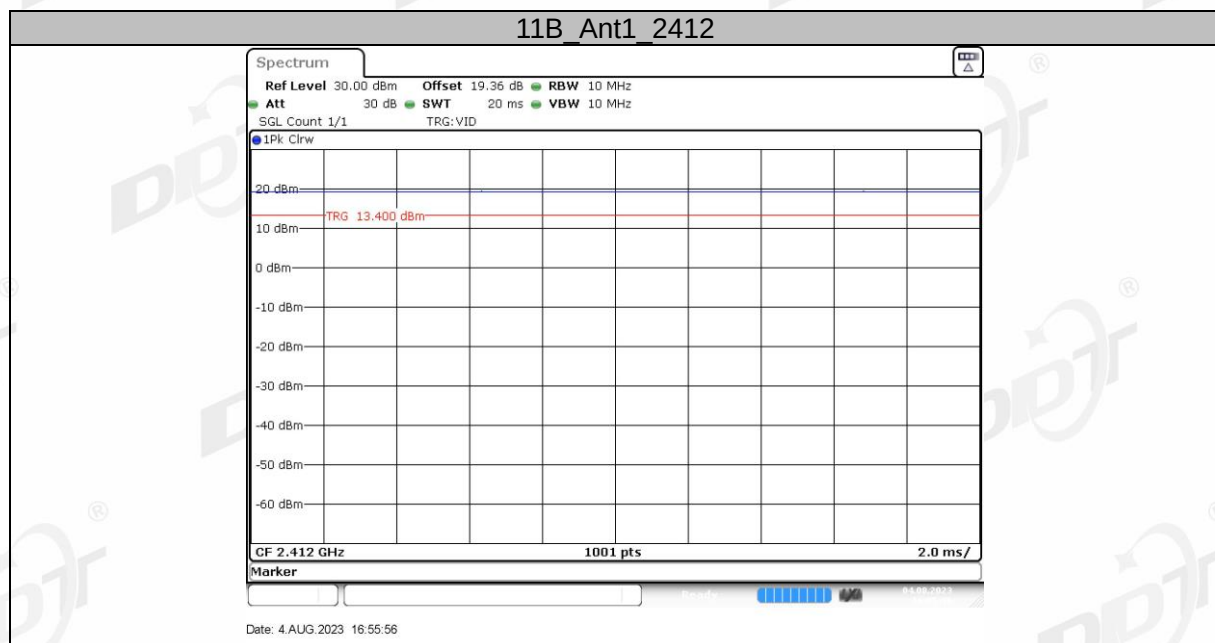
(4) Calculate dwell time follow below formula:

Duty cycle= Pulse's on time / Burst cycle

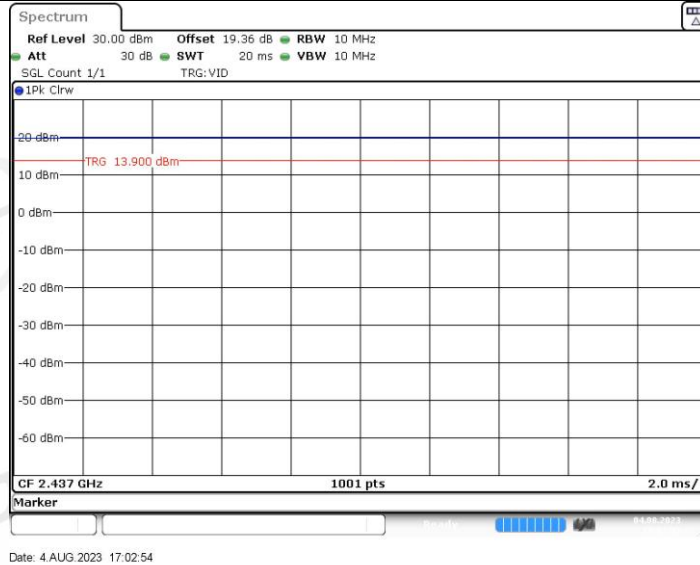
11.4. Test result

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant1	2412	20.00	20.00	100.00
		2437	20.00	20.00	100.00
		2462	20.00	20.00	100.00
11G	Ant1	2412	20.00	20.00	100.00
		2437	20.00	20.00	100.00
		2462	20.00	20.00	100.00
11N20SISO	Ant1	2412	20.00	20.00	100.00
		2437	20.00	20.00	100.00
		2462	20.00	20.00	100.00
11N40SISO	Ant1	2422	20.00	20.00	100.00
		2437	20.00	20.00	100.00
		2452	20.00	20.00	100.00

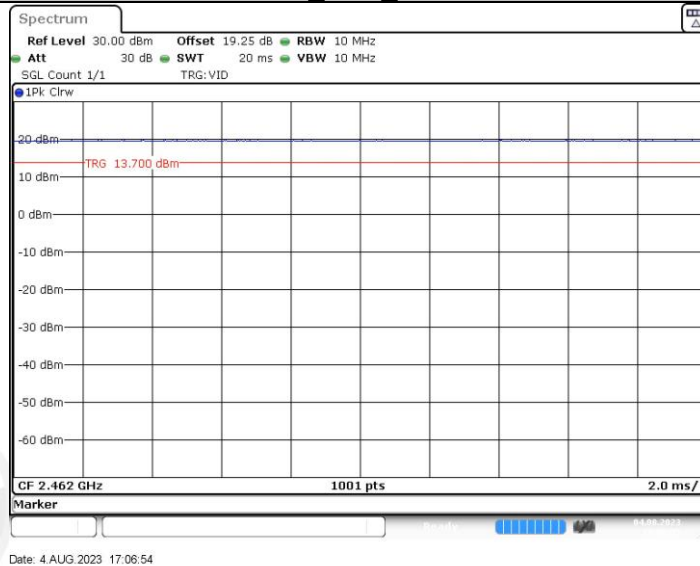
11.5. Test graphs



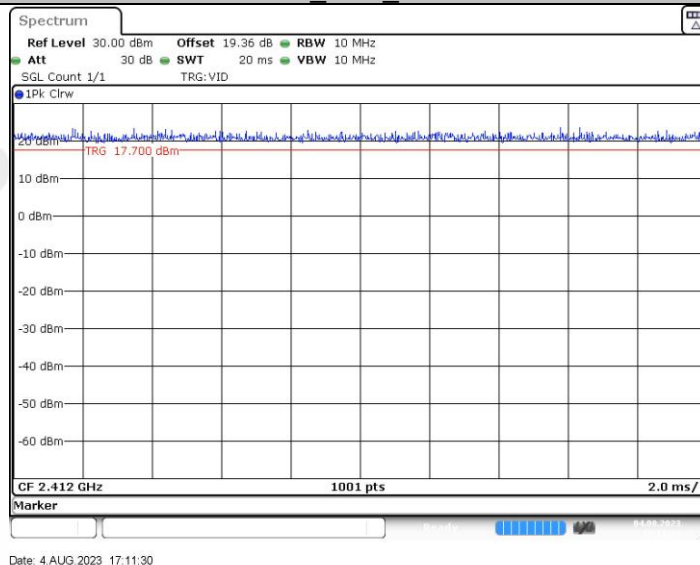
11B_Ant1_2437



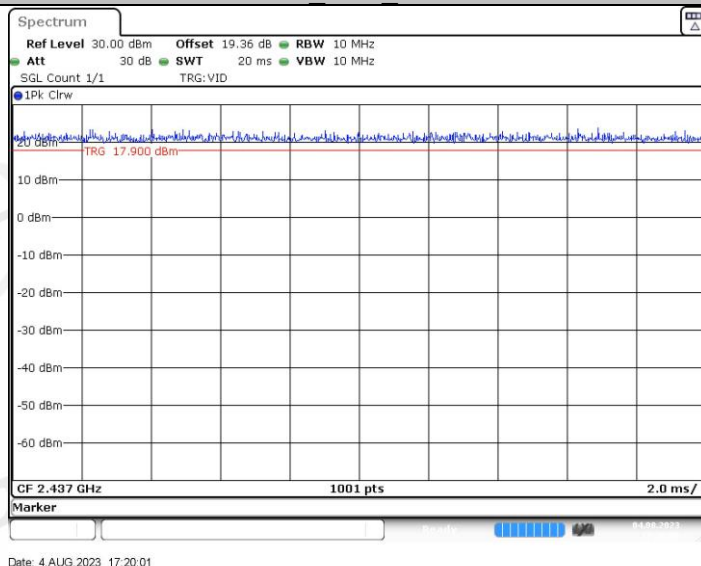
11B_Ant1_2462



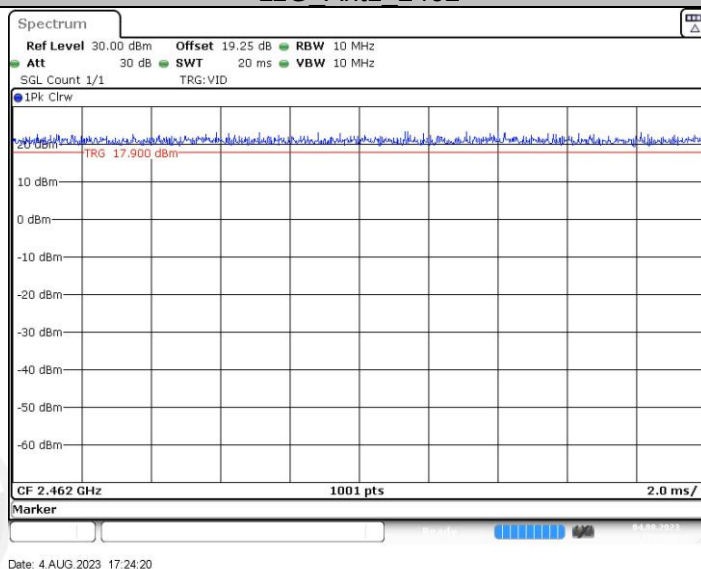
11G_Ant1_2412



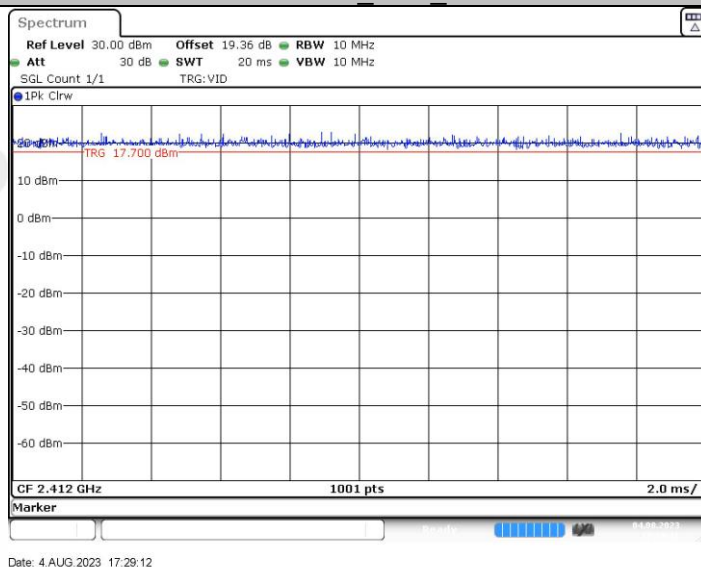
11G_Ant1_2437

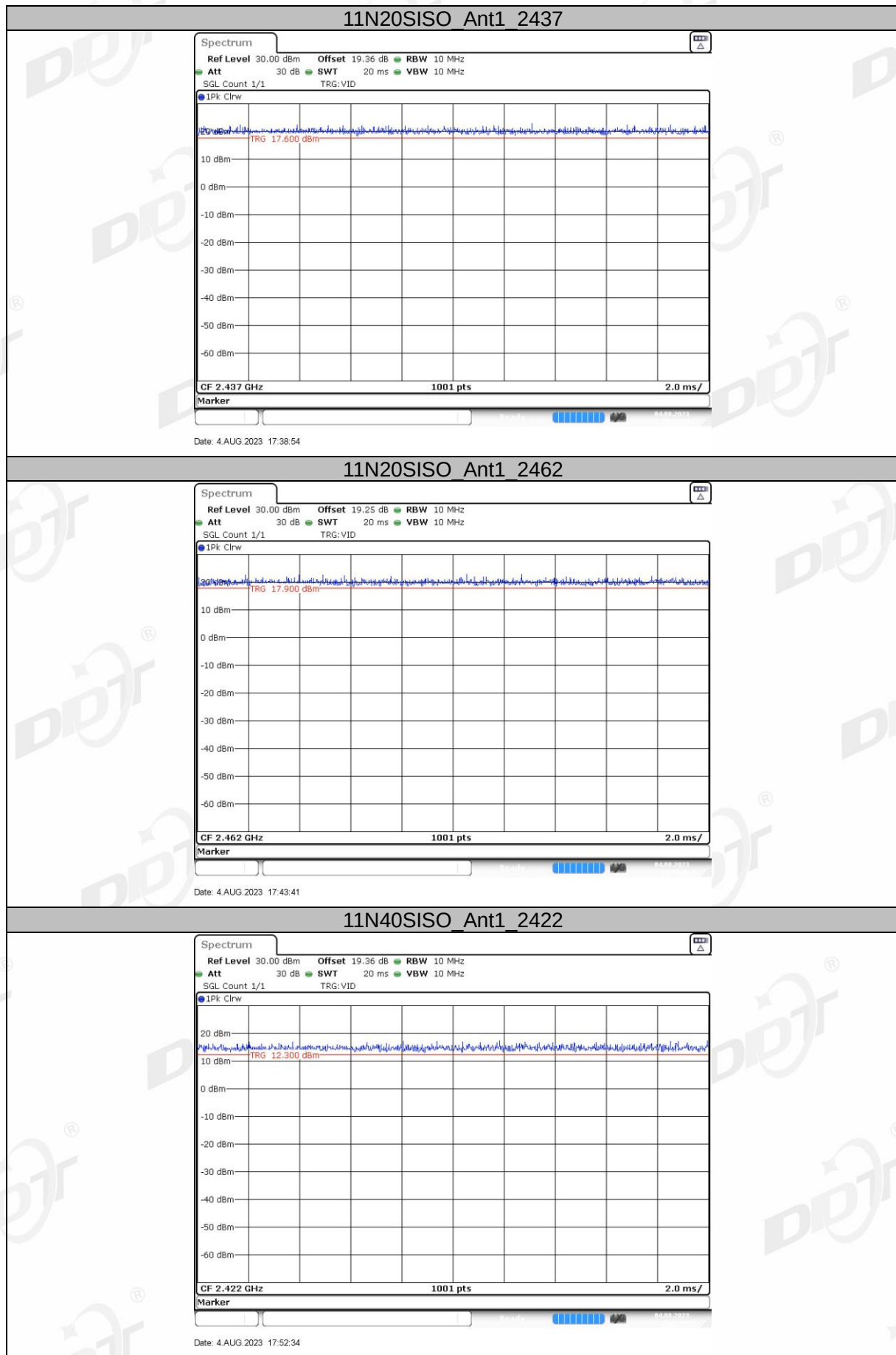


11G_Ant1_2462



11N20SISO_Ant1_2412

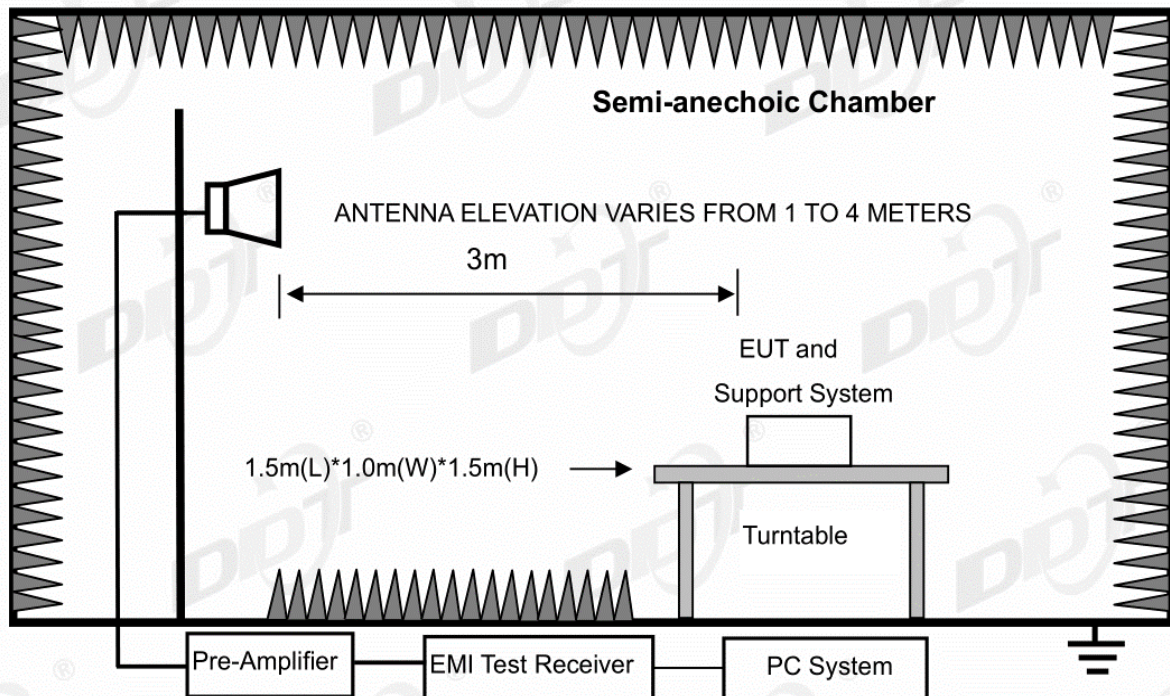






12. Radiated Band Edge Compliance

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

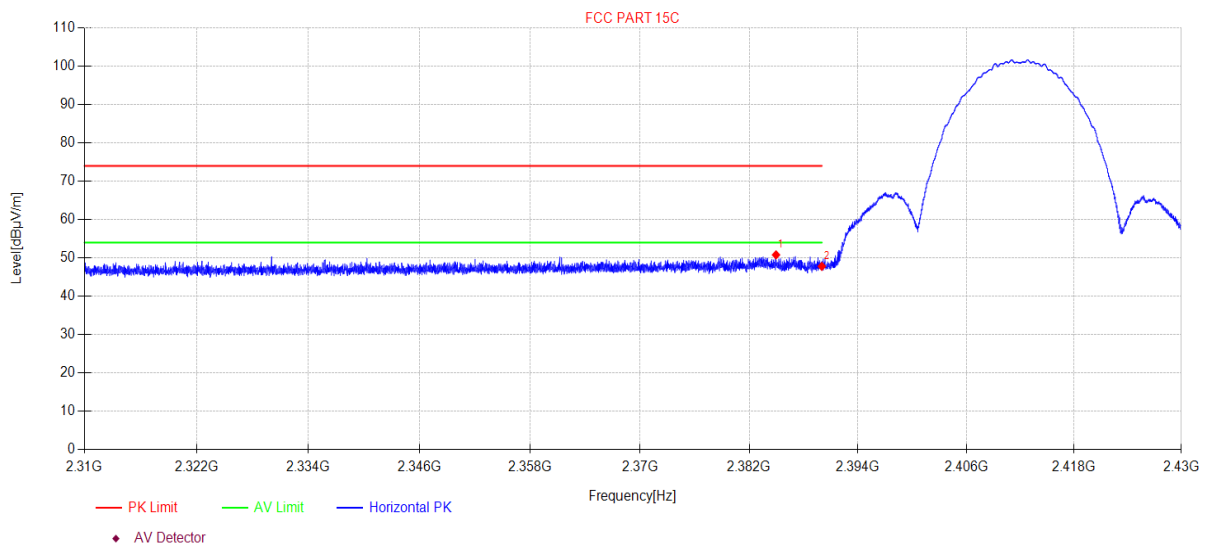
Pass. (See below detailed test result)

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-08-01
EUT: Phyn Protect
Test Mode: TX Mode
Condition: Temp:22.8°C;Humi:58.5%
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\9
Memo: 11B 2412 POWER 30

Tested By: Liaowanrong
Model Number: PHYPF011
Power Supply: AC 120V/60Hz
Test Site: DDT 3# Chamber

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	2384.95	49.58	3.86	27.47	-30.12	50.79	74.00	23.21	PK	Horizontal
2	2390.00	46.58	3.87	27.48	-30.13	47.80	74.00	26.20	PK	Horizontal

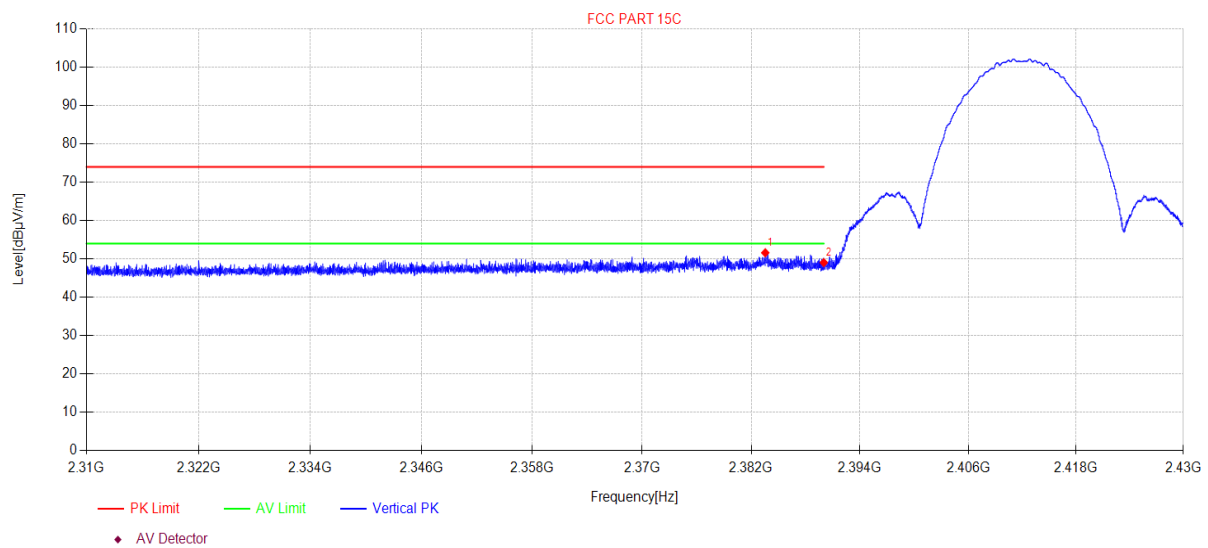
Note:

- 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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\10
Memo: 11B 2412 POWER 30

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	2383.55	50.39	3.86	27.47	-30.12	51.60	74.00	22.40	PK	Vertical
2	2390.00	47.82	3.87	27.48	-30.13	49.04	74.00	24.96	PK	Vertical

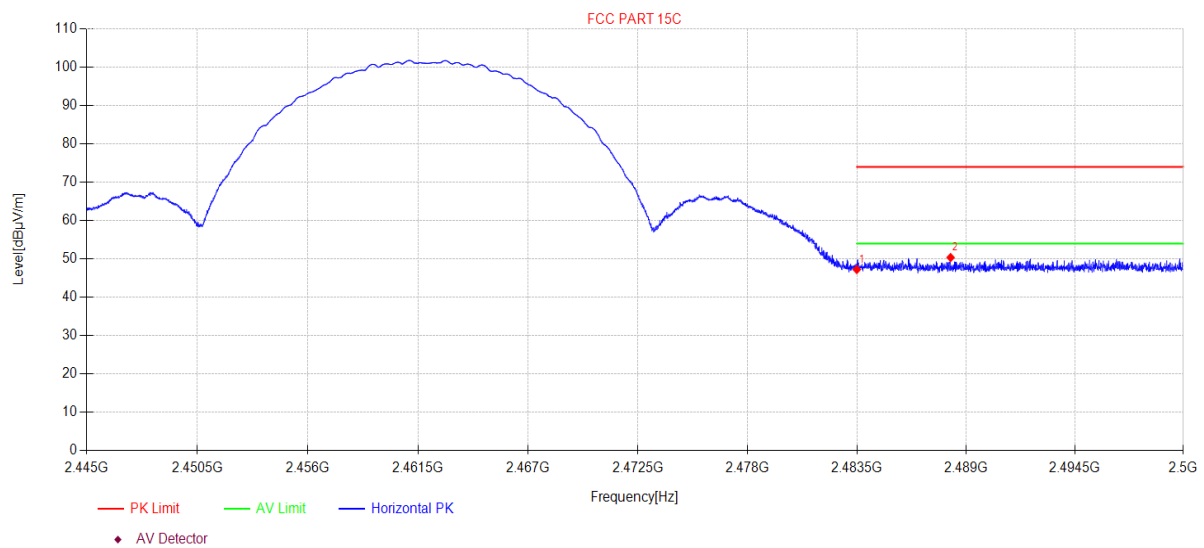
Note:

- 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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\11
Memo: 11B 2462 POWER 30

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	45.79	3.94	27.73	-30.23	47.23	74.00	26.77	PK	Horizontal
2	2488.23	48.92	3.94	27.75	-30.24	50.37	74.00	23.63	PK	Horizontal

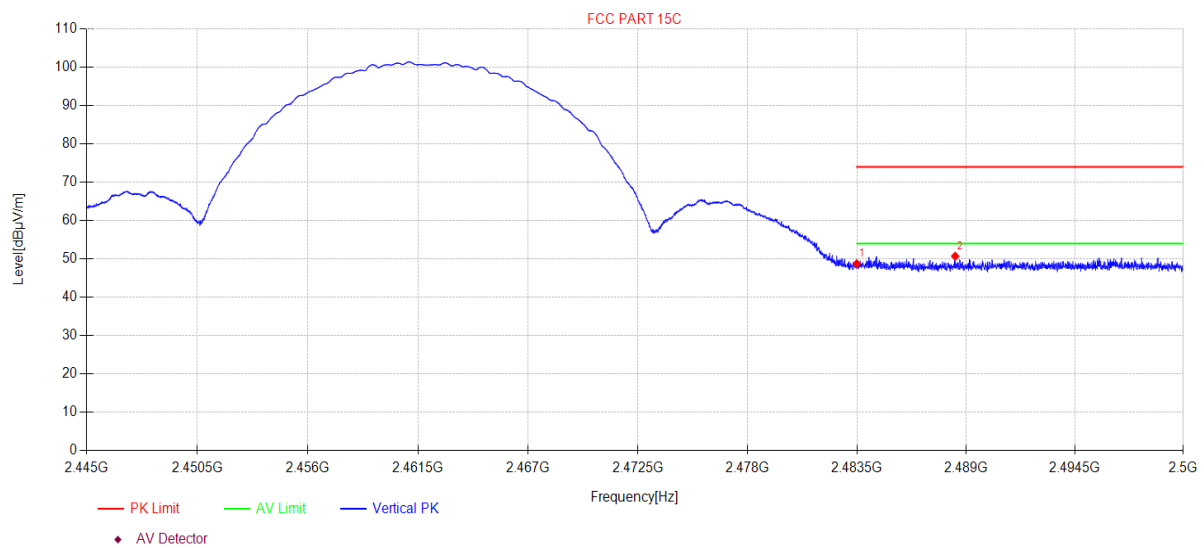
Note:

- 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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\12
Memo: 11B 2462 POWER 30

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	47.31	3.94	27.73	-30.23	48.75	74.00	25.25	PK	Vertical
2	2488.46	49.25	3.94	27.75	-30.24	50.70	74.00	23.30	PK	Vertical

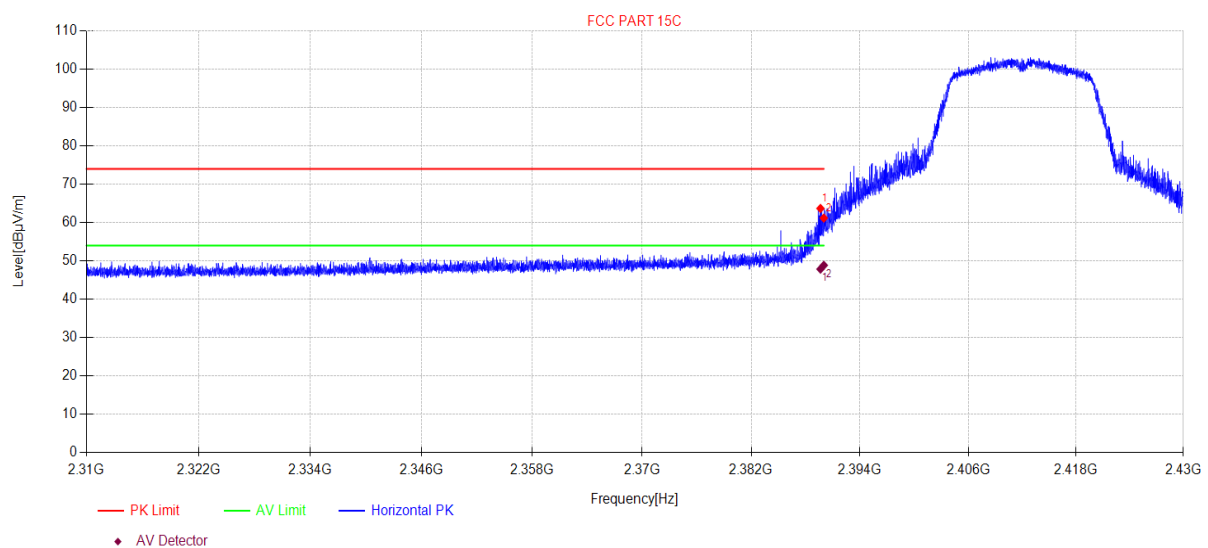
Note:

- 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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\15
Memo: 11G 2412 POWER 28

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	2389.63	62.45	3.87	27.48	-30.13	63.67	74.00	10.33	PK	Horizontal
2	2390.00	59.95	3.87	27.48	-30.13	61.17	74.00	12.83	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	2389.63	46.65	3.87	27.48	-30.13	47.87	54.00	6.13	AV	Horizontal
2	2390.00	47.64	3.87	27.48	-30.13	48.86	54.00	5.14	AV	Horizontal

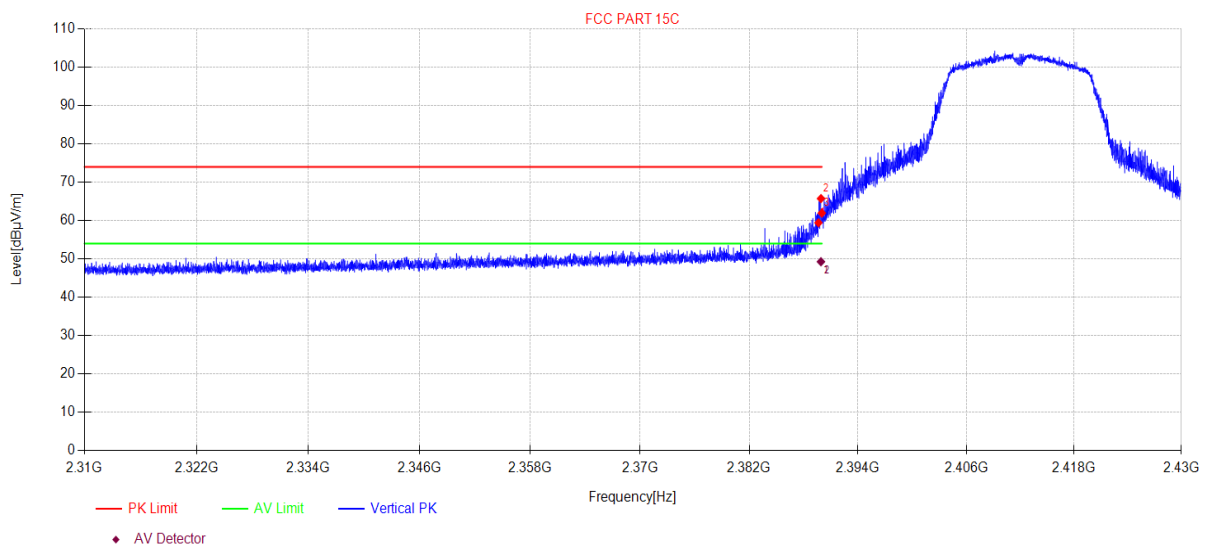
Note:

- 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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\16
Memo: 11G 2412 POWER 28

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	2389.63	58.20	3.87	27.48	-30.13	59.42	74.00	14.58	PK	Vertical
2	2389.91	64.51	3.87	27.48	-30.13	65.73	74.00	8.27	PK	Vertical
3	2390.00	60.72	3.87	27.48	-30.13	61.94	74.00	12.06	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	2389.91	48.05	3.87	27.48	-30.13	49.27	54.00	4.73	AV	Vertical
2	2390.00	48.14	3.87	27.48	-30.13	49.36	54.00	4.64	AV	Vertical

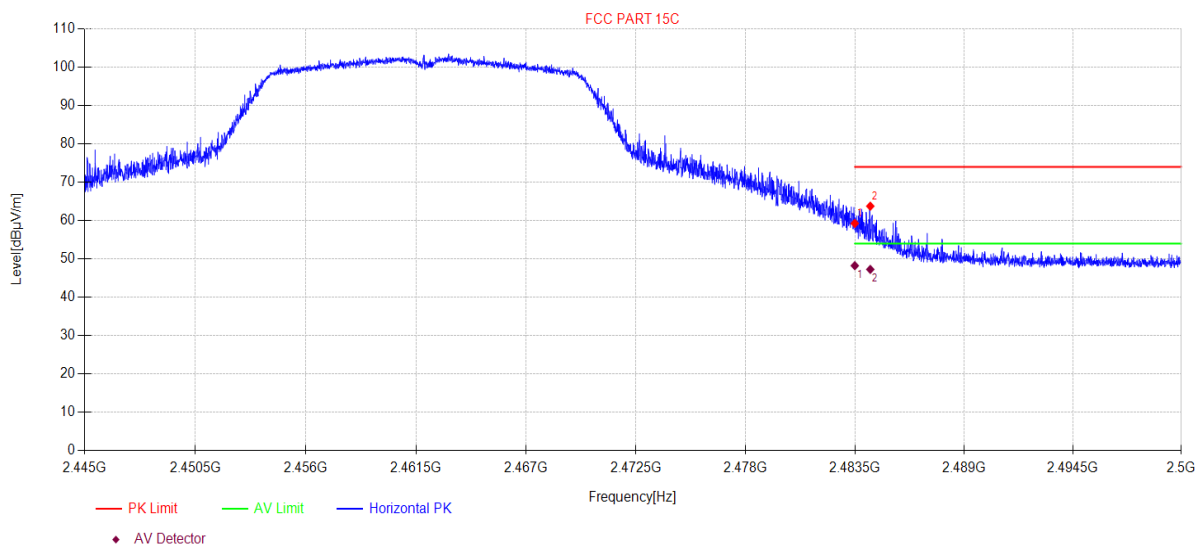
Note:

- 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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\17
Memo: 11G 2462 POWER 28

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	57.82	3.94	27.73	-30.23	59.26	74.00	14.74	PK	Horizontal
2	2484.28	62.29	3.94	27.74	-30.23	63.74	74.00	10.26	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	46.79	3.94	27.73	-30.23	48.23	54.00	5.77	AV	Horizontal
2	2484.28	45.82	3.94	27.74	-30.23	47.27	54.00	6.73	AV	Horizontal

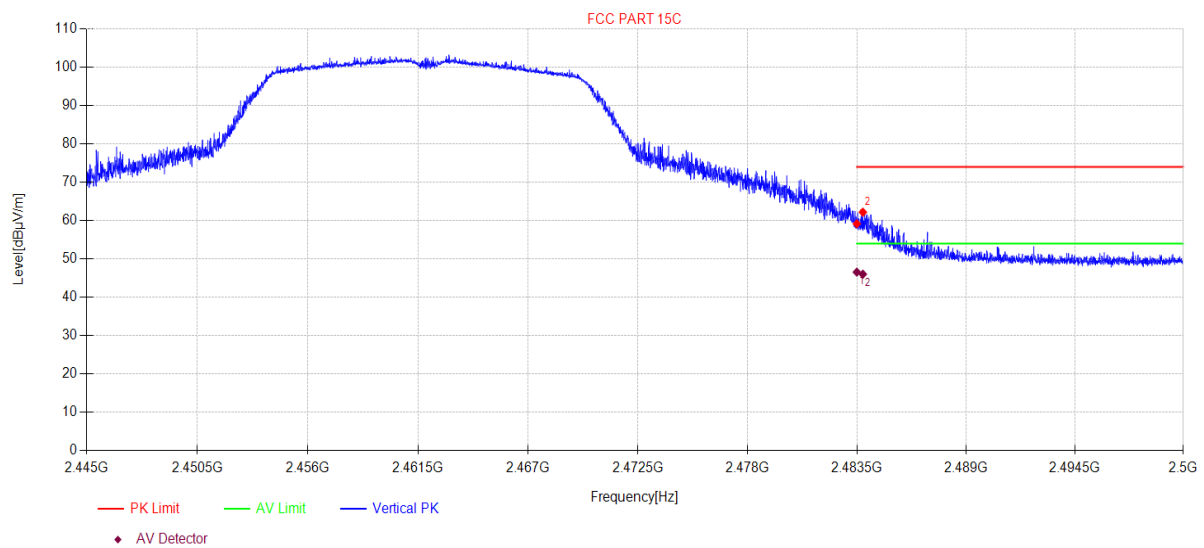
Note:

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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\18
Memo: 11G 2462 POWER 28

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	57.72	3.94	27.73	-30.23	59.16	74.00	14.84	PK	Vertical
2	2483.81	60.73	3.94	27.74	-30.23	62.18	74.00	11.82	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	45.12	3.94	27.73	-30.23	46.56	54.00	7.44	AV	Vertical
2	2483.81	44.57	3.94	27.74	-30.23	46.02	54.00	7.98	AV	Vertical

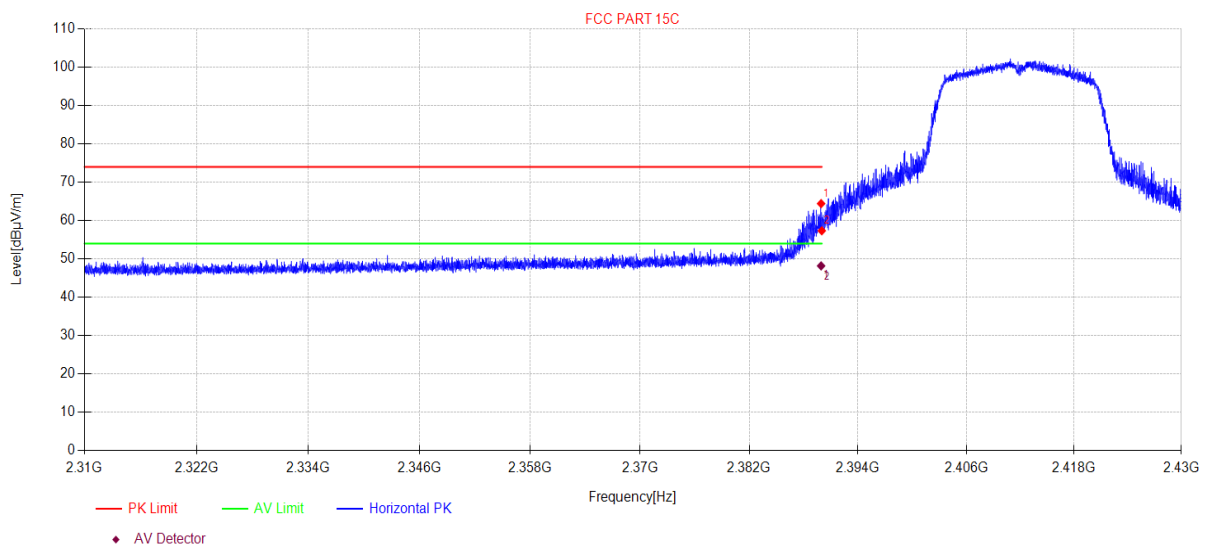
Note:

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.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\19
Memo: 11N20 SISO 2412 POWER 30

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	2389.92	63.19	3.87	27.48	-30.13	64.41	74.00	9.59	PK	Horizontal
2	2390.00	56.12	3.87	27.48	-30.13	57.34	74.00	16.66	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	2389.92	46.97	3.87	27.48	-30.13	48.19	54.00	5.81	AV	Horizontal
2	2390.00	46.60	3.87	27.48	-30.13	47.82	54.00	6.18	AV	Horizontal

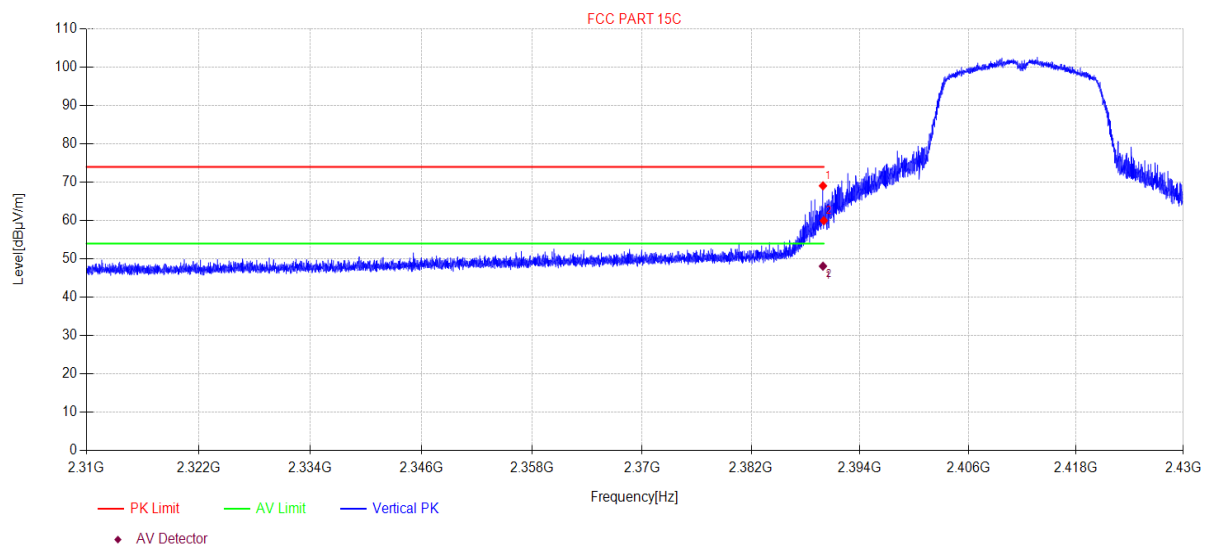
Note:

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: 2023-08-01 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\20
Memo: 11N20 SISO 2412 POWER 30

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	2389.91	67.83	3.87	27.48	-30.13	69.05	74.00	4.95	PK	Vertical
2	2390.00	58.76	3.87	27.48	-30.13	59.98	74.00	14.02	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	2389.91	46.88	3.87	27.48	-30.13	48.10	54.00	5.90	AV	Vertical
2	2390.00	47.27	3.87	27.48	-30.13	48.49	54.00	5.51	AV	Vertical

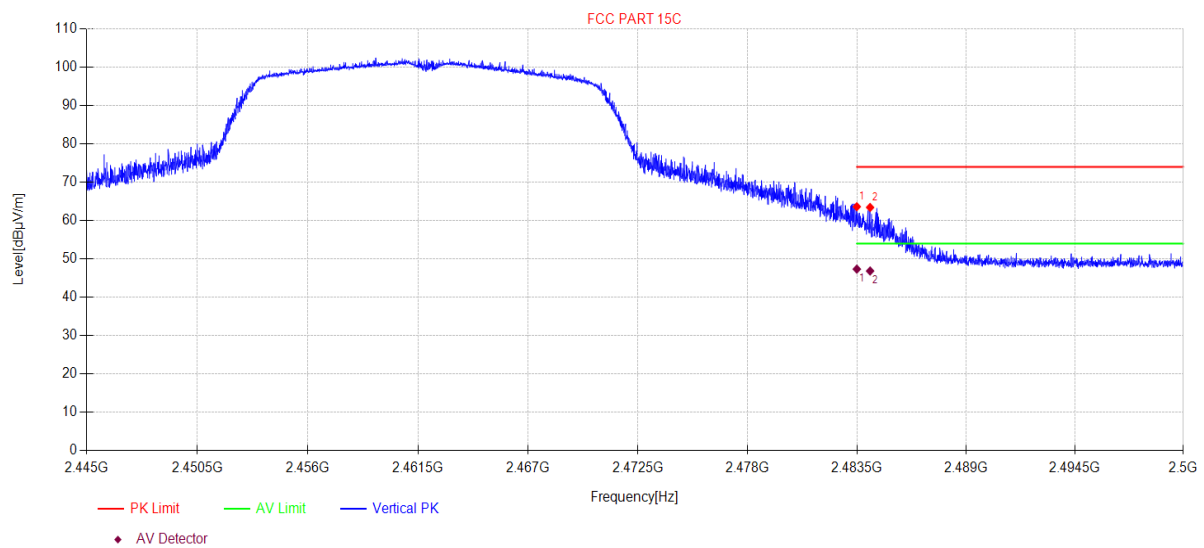
Note:

- 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: 2023-08-03 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\21
Memo: 11N20 SISO 2462 POWER 30

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	62.17	3.94	27.73	-30.23	63.61	74.00	10.39	PK	Vertical
2	2484.17	61.97	3.94	27.74	-30.23	63.42	74.00	10.58	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	45.90	3.94	27.73	-30.23	47.34	54.00	6.66	AV	Vertical
2	2484.17	45.40	3.94	27.74	-30.23	46.85	54.00	7.15	AV	Vertical

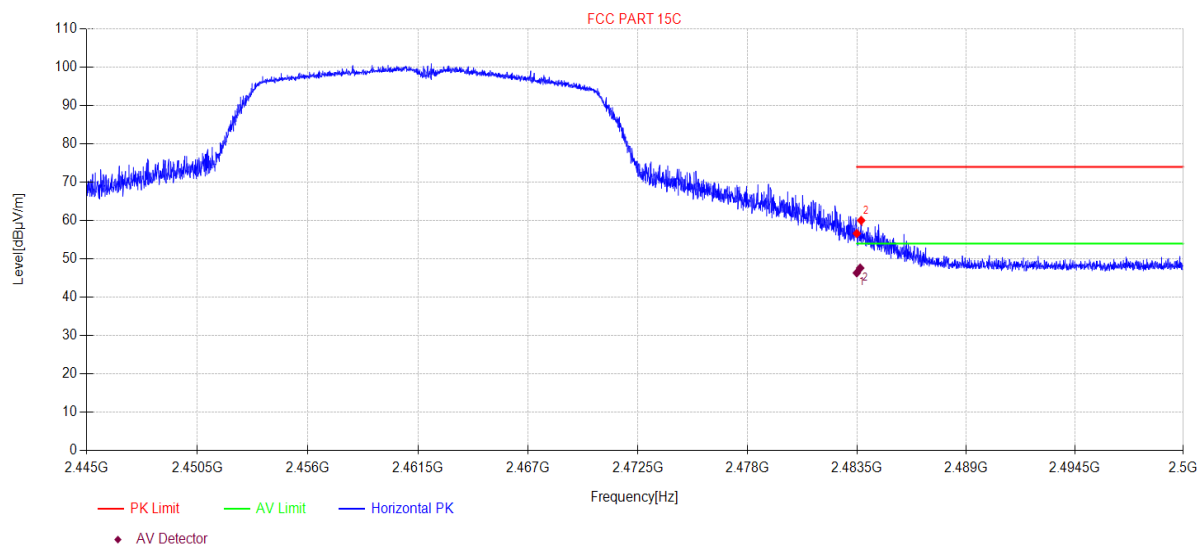
Note:

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.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-08-03 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\22
Memo: 11N20 SISO 2462 POWER 30

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	55.18	3.94	27.73	-30.23	56.62	74.00	17.38	PK	Horizontal
2	2483.72	58.59	3.94	27.73	-30.23	60.03	74.00	13.97	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	44.92	3.94	27.73	-30.23	46.36	54.00	7.64	AV	Horizontal
2	2483.67	44.25	5.86	27.73	-30.23	47.61	54.00	6.39	AV	Horizontal

Note:

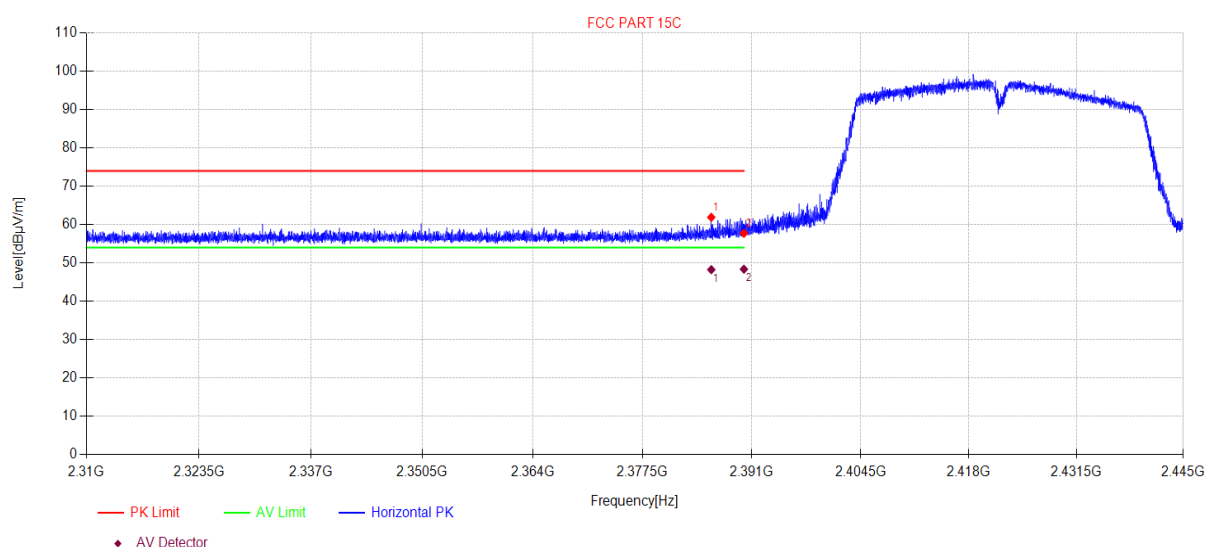
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-08-03
EUT: Phyn Protect
Test Mode: TX Mode
Condition: Temp:22.8°C;Humi:58.5%
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\31
Memo: 11N40 SISO 2422 POWER 18

Tested By: Liaowanrong
Model Number: PHYPF011
Power Supply: AC 120V/60Hz
Test Site: DDT 3# Chamber

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	2385.96	50.68	3.86	27.47	-20.12	61.89	74.00	12.11	PK	Horizontal
2	2390.00	46.50	3.87	27.48	-20.13	57.72	74.00	16.28	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	2385.96	37.03	3.86	27.47	-20.12	48.24	54.00	5.76	AV	Horizontal
2	2390.00	37.14	3.87	27.48	-20.13	48.36	54.00	5.64	AV	Horizontal

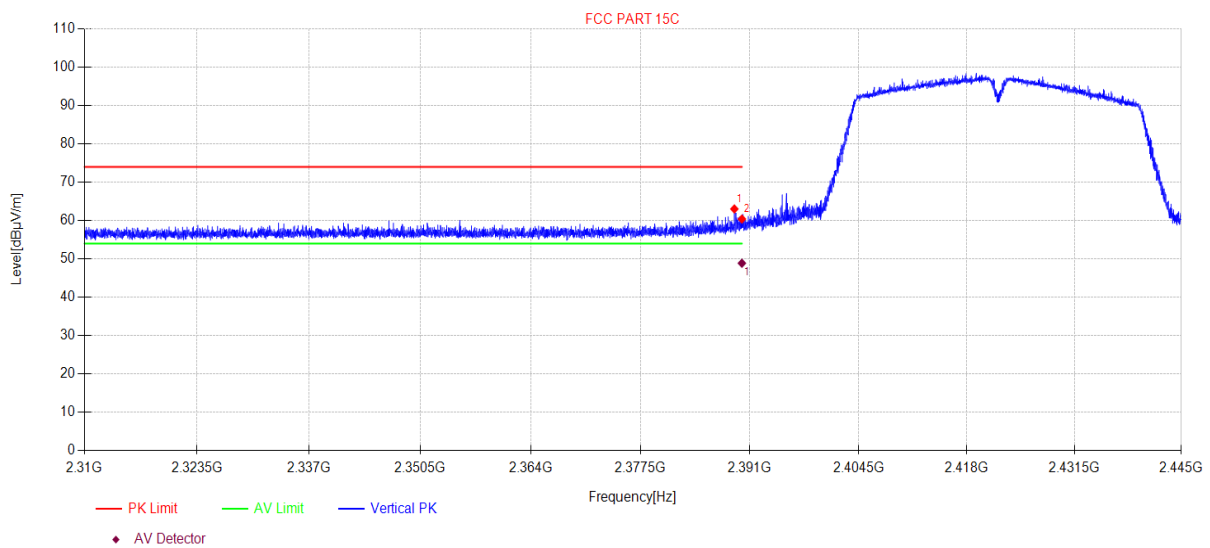
Note:

- 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: 2023-08-03 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\32
Memo: 11N40 SISO 2422 POWER 18

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	2389.07	51.80	3.87	27.48	-20.13	63.02	74.00	10.98	PK	Vertical
2	2390.00	49.18	3.87	27.48	-20.13	60.40	74.00	13.60	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	2390.00	37.66	3.87	27.48	-20.13	48.88	54.00	5.12	AV	Vertical

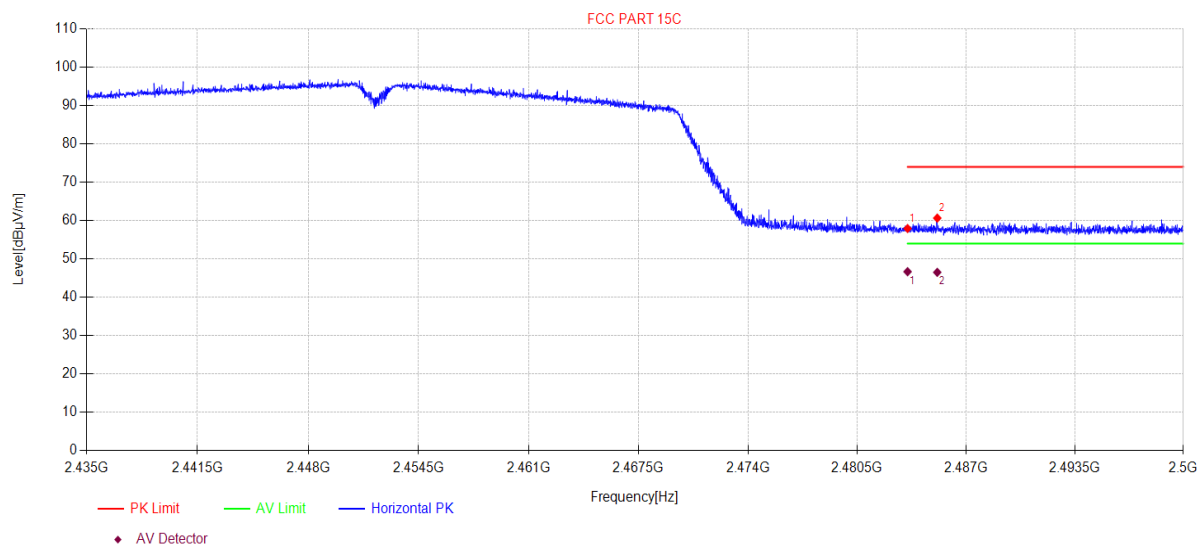
Note:

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.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-08-03 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\33
Memo: 11N40 SISO 2452 POWER 18

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	46.49	3.94	27.73	-20.23	57.93	74.00	16.07	PK	Horizontal
2	2485.27	49.19	3.94	27.74	-20.23	60.64	74.00	13.36	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	35.24	3.94	27.73	-20.23	46.68	54.00	7.32	AV	Horizontal
2	2485.27	35.06	3.94	27.74	-20.23	46.51	54.00	7.49	AV	Horizontal

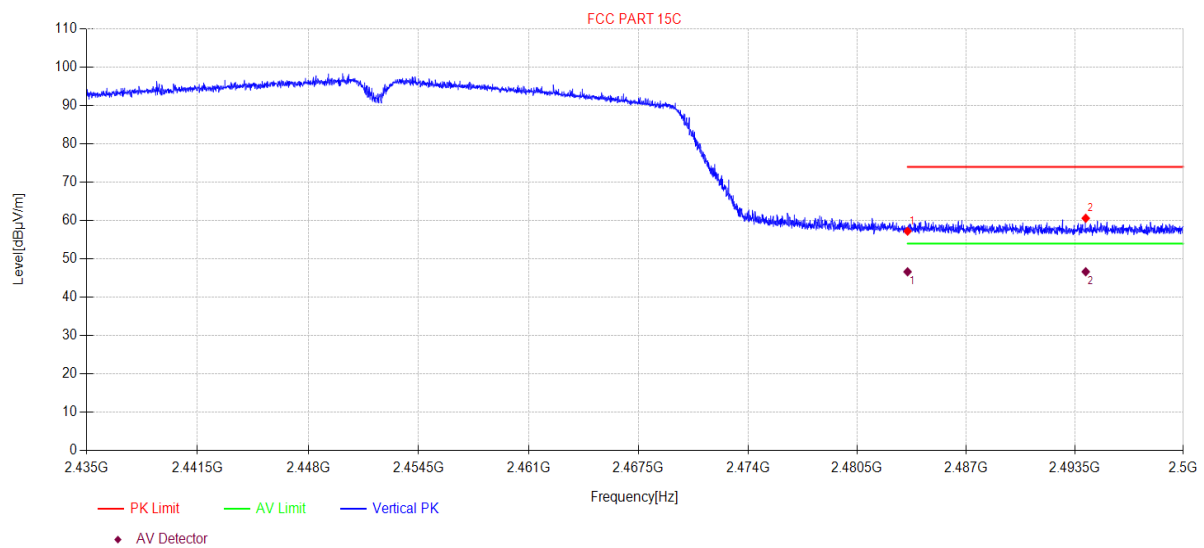
Note:

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: 2023-08-03 **Tested By:** Liaowanrong
EUT: Phyn Protect **Model Number:** PHYPF011
Test Mode: TX Mode **Power Supply:** AC 120V/60Hz
Condition: Temp:22.8°C;Humi:58.5% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23072112-2E PHYPF011\FCC ABOVE 1G\34
Memo: 11N40 SISO 2452 POWER 18

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	45.79	3.94	27.73	-20.23	57.23	74.00	16.77	PK	Vertical
2	2494.15	49.10	3.95	27.78	-20.24	60.59	74.00	13.41	PK	Vertical

Final Data List

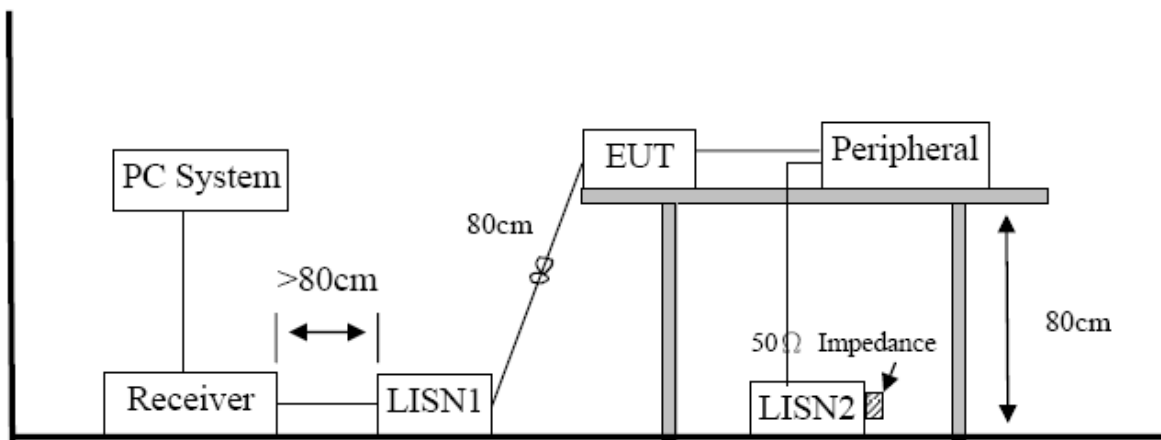
NO.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2483.50	35.21	3.94	27.73	-20.23	46.65	54.00	7.35	AV	Vertical
2	2494.15	35.17	3.95	27.78	-20.24	46.66	54.00	7.34	AV	Vertical

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

Pass. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

Note2: "----" means peak detection; "----" means average detection

Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/60Hz, recorded worse case.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room

D:\2023 CE report data\Q23072112-2E\FCC CE.EM6

Test Date : 2023-08-02

Tested By : Junchang Du

EUT : Phyn Protect

Model Number : PHYPF011

Power Supply : AC 120V/60Hz

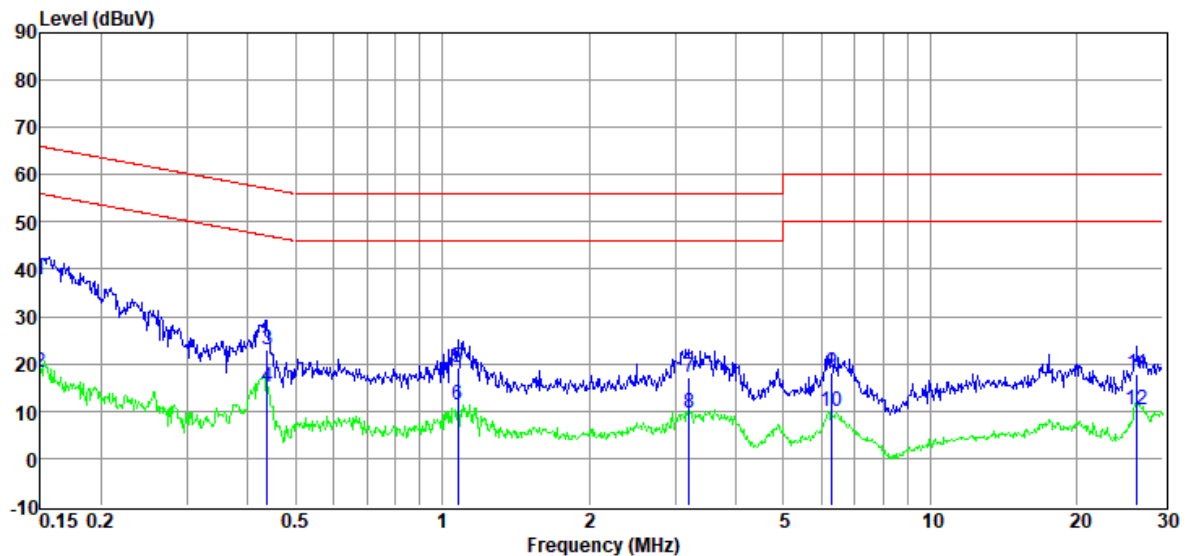
Test Mode : TX mode

Condition : TEMP:24.1°C, RH:66.3%

LISN : 2022 1# ENV216/LINE

Memo : 2.4G WiFi

Data: 2



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.15	18.30	9.60	0.01	9.94	37.85	66.00	-28.15	QP	LINE
2	0.15	-1.44	9.60	0.01	9.94	18.11	56.00	-37.89	Average	LINE
3	0.44	3.42	9.71	0.01	9.92	23.06	57.11	-34.05	QP	LINE
4	0.44	-4.41	9.71	0.01	9.92	15.23	47.11	-31.88	Average	LINE
5	1.08	-0.34	9.51	0.02	9.91	19.10	56.00	-36.90	QP	LINE
6	1.08	-8.11	9.51	0.02	9.91	11.33	46.00	-34.67	Average	LINE
7	3.21	-2.41	9.53	0.04	9.91	17.07	56.00	-38.93	QP	LINE
8	3.21	-9.79	9.53	0.04	9.91	9.69	46.00	-36.31	Average	LINE
9	6.29	-1.30	9.58	0.06	9.92	18.26	60.00	-41.74	QP	LINE
10	6.29	-9.75	9.58	0.06	9.92	9.81	50.00	-40.19	Average	LINE
11	26.56	-1.98	9.64	0.16	9.99	17.81	60.00	-42.19	QP	LINE
12	26.56	-9.67	9.64	0.16	9.99	10.12	50.00	-39.88	Average	LINE

Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room

D:\2023 CE report data\Q23072112-2E\FCC CE.EM6

Test Date : 2023-08-02

Tested By : Junchang Du

EUT : Phyn Protect

Model Number : PHYPF011

Power Supply : AC 120V/60Hz

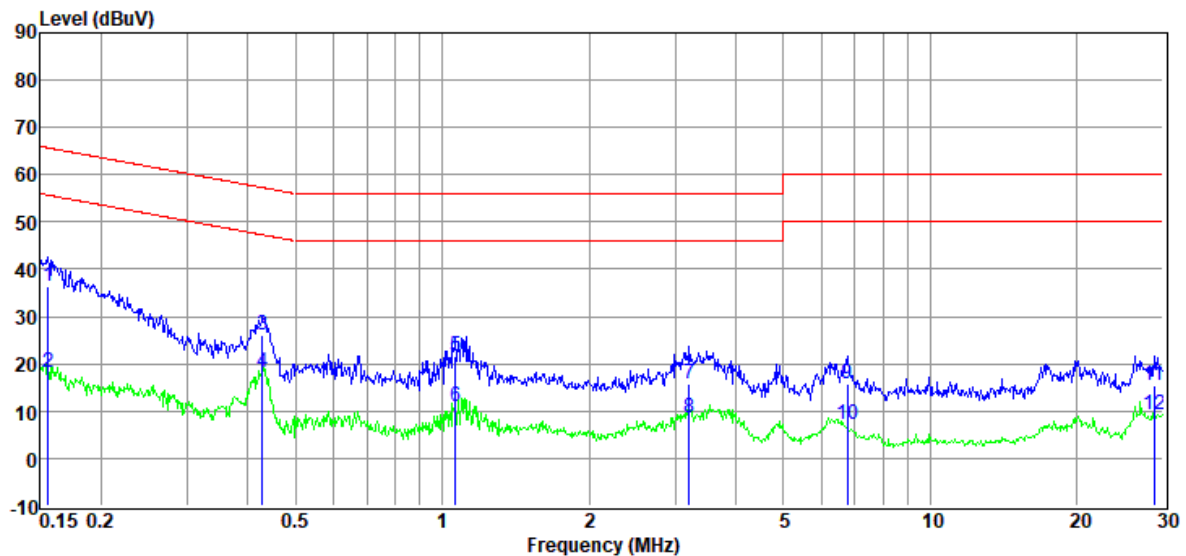
Test Mode : TX mode

Condition : TEMP:24.1°C, RH:66.3%

LISN : 2022 1# ENV216/NEUTRAL

Memo : 2.4G WiFi

Data: 4



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBUV)	(dB)	(dB)	(dB)	(dBUV)	(dBUV)	(dB)		
1	0.16	16.74	9.81	0.01	9.93	36.49	65.69	-29.20	QP	NEUTRAL
2	0.16	-1.40	9.81	0.01	9.93	18.35	55.69	-37.34	Average	NEUTRAL
3	0.43	6.65	9.65	0.01	9.92	26.23	57.29	-31.06	QP	NEUTRAL
4	0.43	-1.57	9.65	0.01	9.92	18.01	47.29	-29.28	Average	NEUTRAL
5	1.07	2.10	9.70	0.02	9.91	21.73	56.00	-34.27	QP	NEUTRAL
6	1.07	-8.69	9.70	0.02	9.91	10.94	46.00	-35.06	Average	NEUTRAL
7	3.21	-3.96	9.70	0.04	9.91	15.69	56.00	-40.31	QP	NEUTRAL
8	3.21	-11.22	9.70	0.04	9.91	8.43	46.00	-37.57	Average	NEUTRAL
9	6.77	-3.97	9.61	0.07	9.92	15.63	60.00	-44.37	QP	NEUTRAL
10	6.77	-12.48	9.61	0.07	9.92	7.12	50.00	-42.88	Average	NEUTRAL
11	28.76	-4.70	9.80	0.16	10.00	15.26	60.00	-44.74	QP	NEUTRAL
12	28.76	-10.74	9.80	0.16	10.00	9.22	50.00	-40.78	Average	NEUTRAL

Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

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.

For intentional device, according to RSS-Gen issue 5 section 6.8.

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

14.2. Result

The device support 1T1R SISO, the antennas both used for this product are FPC antennas and no other antennas shall be used except the antennas furnished by the responsible party, maximum antenna gain 3.84 dBi.

16. Photos of the EUT

Please refer to Appendix I: Photos of the EUT.

END OF REPORT