



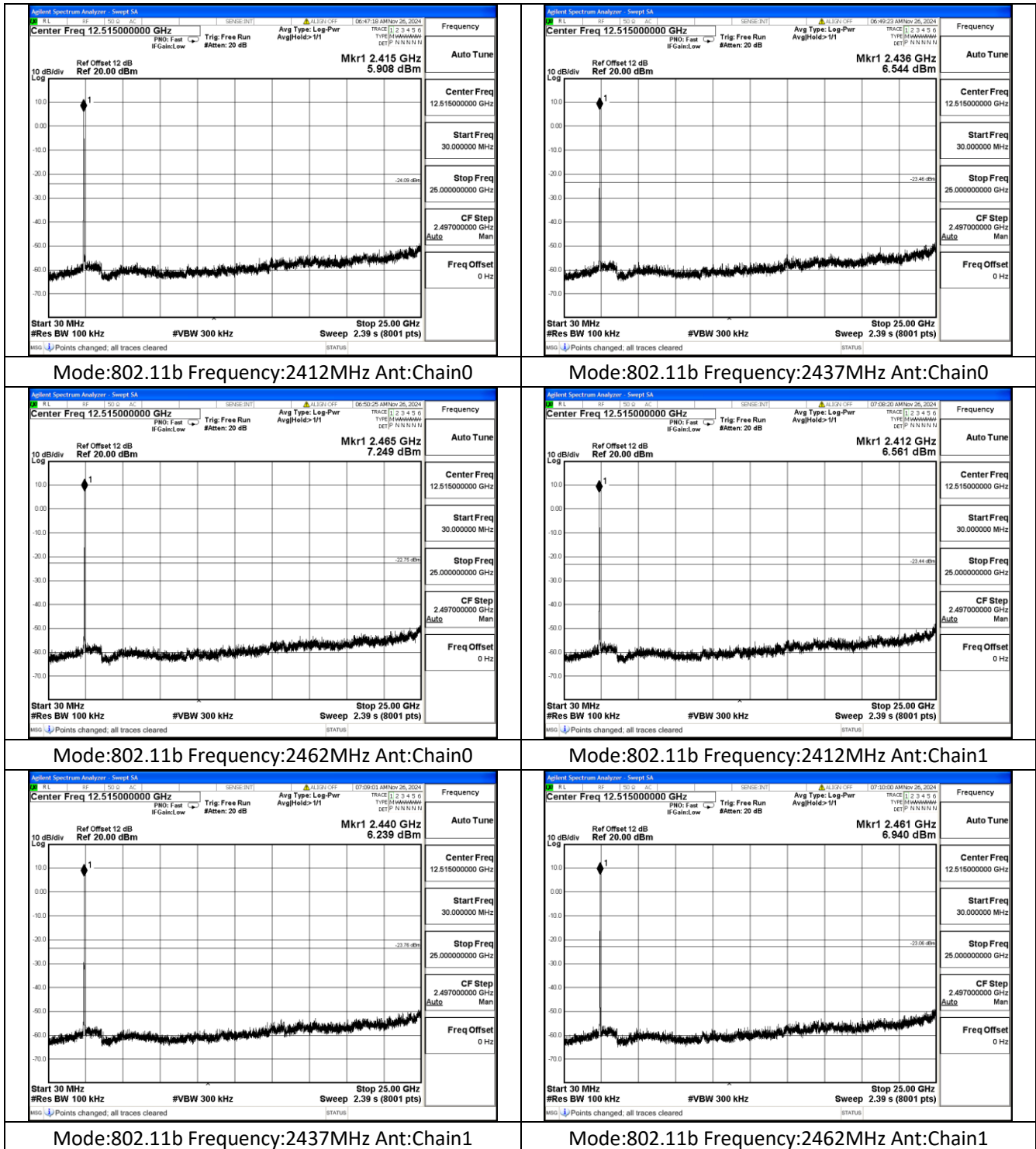
BUREAU
VERITAS

No.: PBJ-NQN2412130113RF03

FCC ID: 2AANY-IR624

Conducted Out of band emission measurement

Test Mode: 802.11b

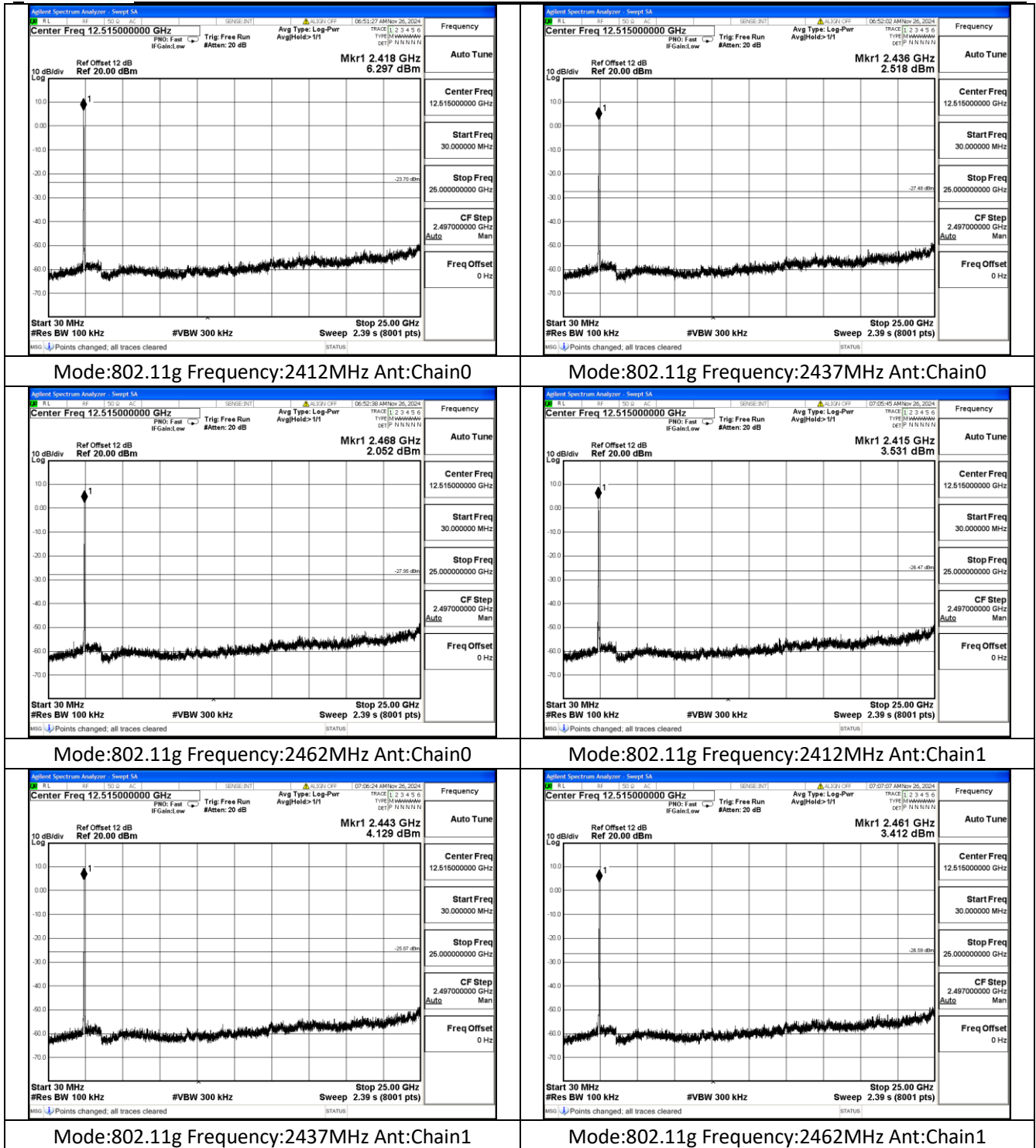


Test Mode: 802.11g



BUREAU
VERITAS

No.: PBJ-NQN2412130113RF03
FCC ID: 2AANY-IR624

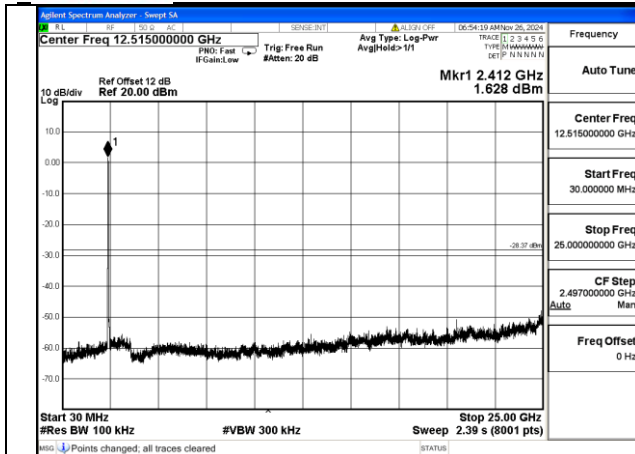


Test Mode: 802.11n HT20

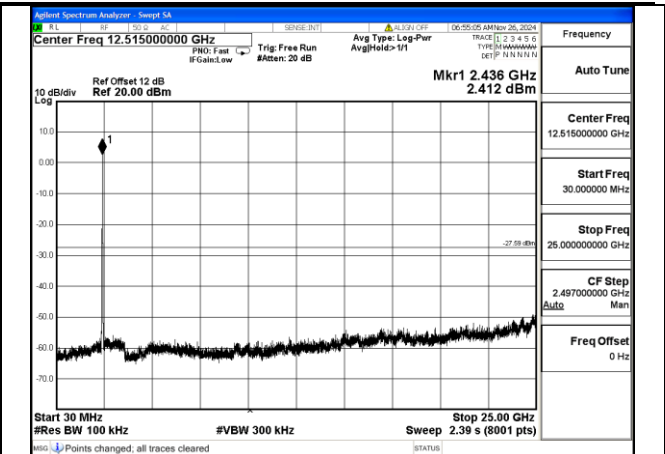


BUREAU
VERITAS

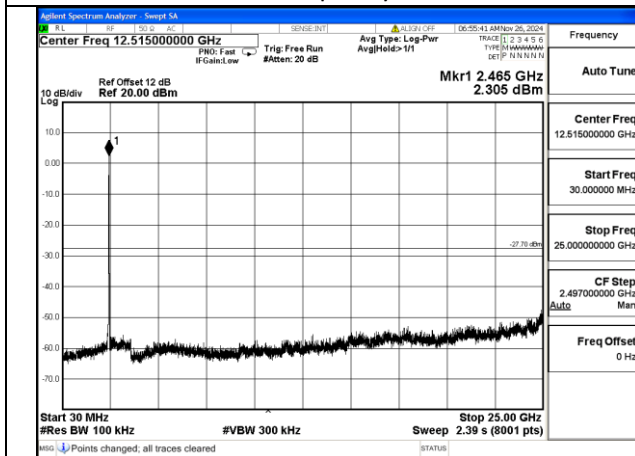
No.: PBJ-NQN2412130113RF03
FCC ID: 2AANY-IR624



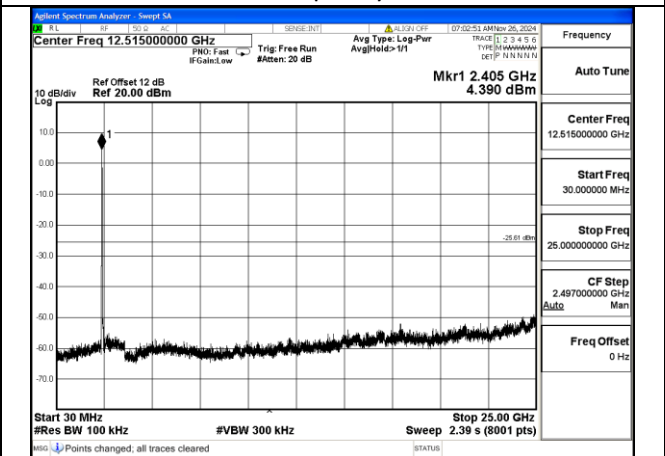
Mode:802.11n HT20 Frequency:2412MHz Ant:Chain0



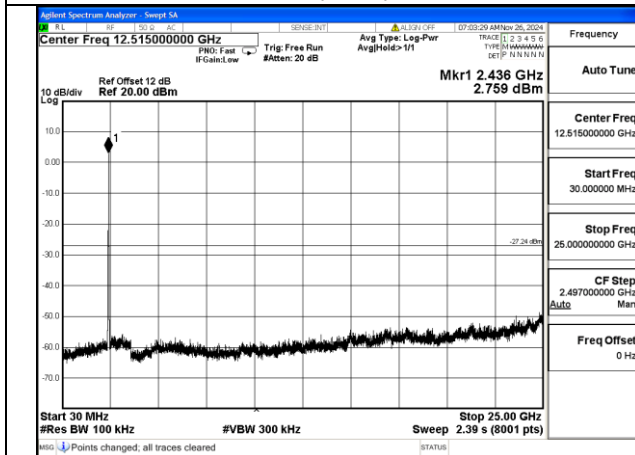
Mode:802.11n HT20 Frequency:2437MHz Ant:Chain0



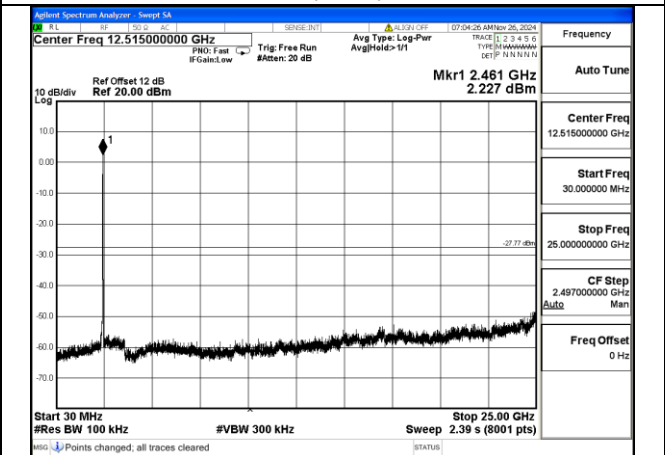
Mode:802.11n HT20 Frequency:2462MHz Ant:Chain0



Mode:802.11n HT20 Frequency:2412MHz Ant:Chain1



Mode:802.11n HT20 Frequency:2437MHz Ant:Chain1



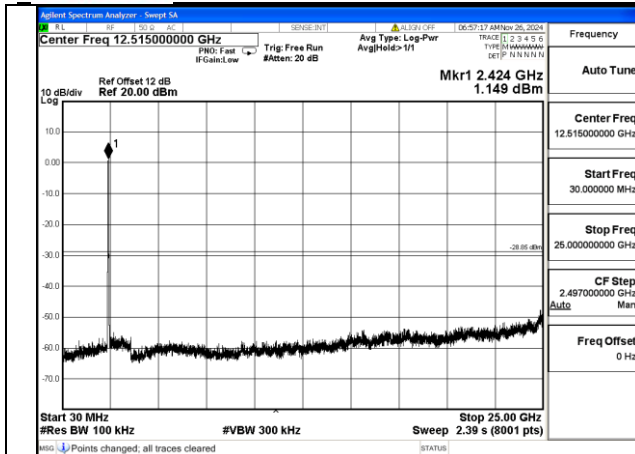
Mode:802.11n HT20 Frequency:2462MHz Ant:Chain1

Test Mode: 802.11n HT40

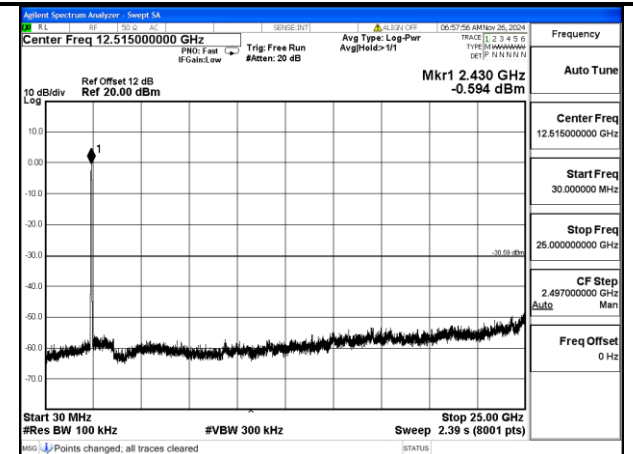


BUREAU
VERITAS

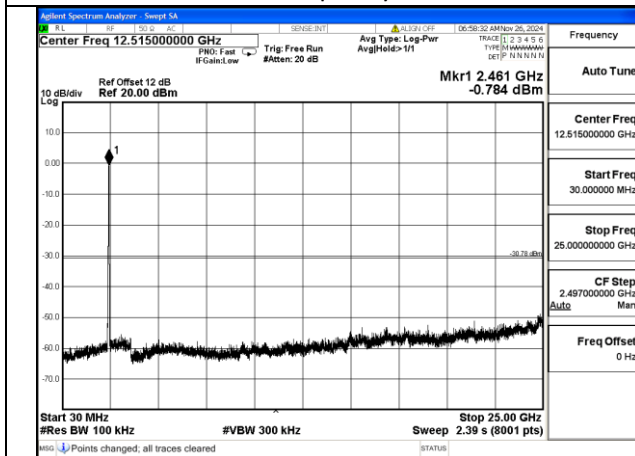
No.: PBJ-NQN2412130113RF03
FCC ID: 2AANY-IR624



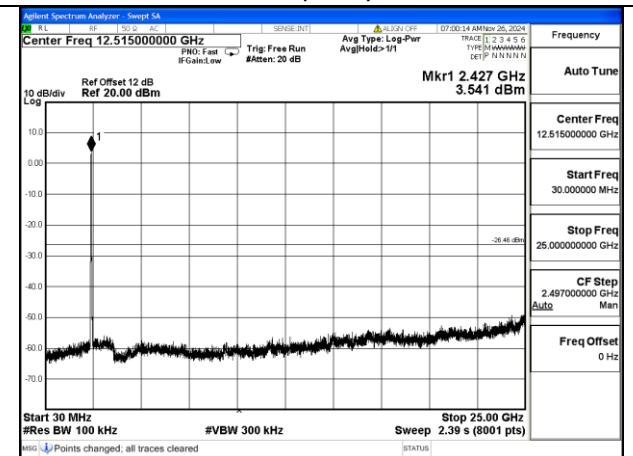
Mode:802.11n HT40 Frequency:2422MHz Ant:Chain0



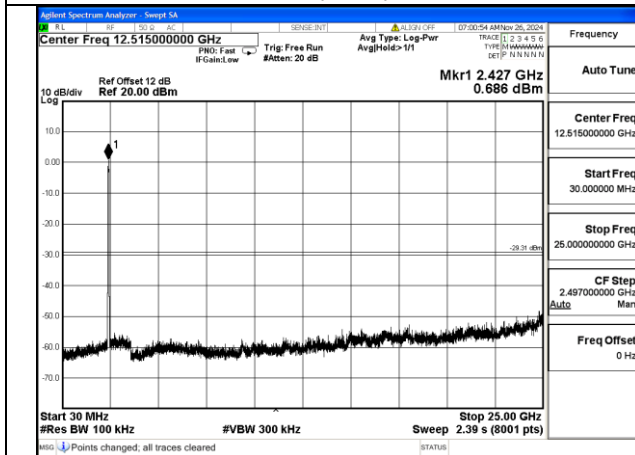
Mode:802.11n HT40 Frequency:2437MHz Ant:Chain0



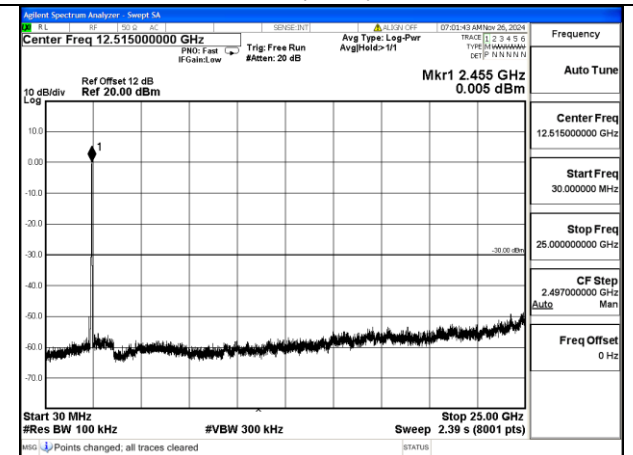
Mode:802.11n HT40 Frequency:2452MHz Ant:Chain0



Mode:802.11n HT40 Frequency:2422MHz Ant:Chain1



Mode:802.11n HT40 Frequency:2437MHz Ant:Chain1

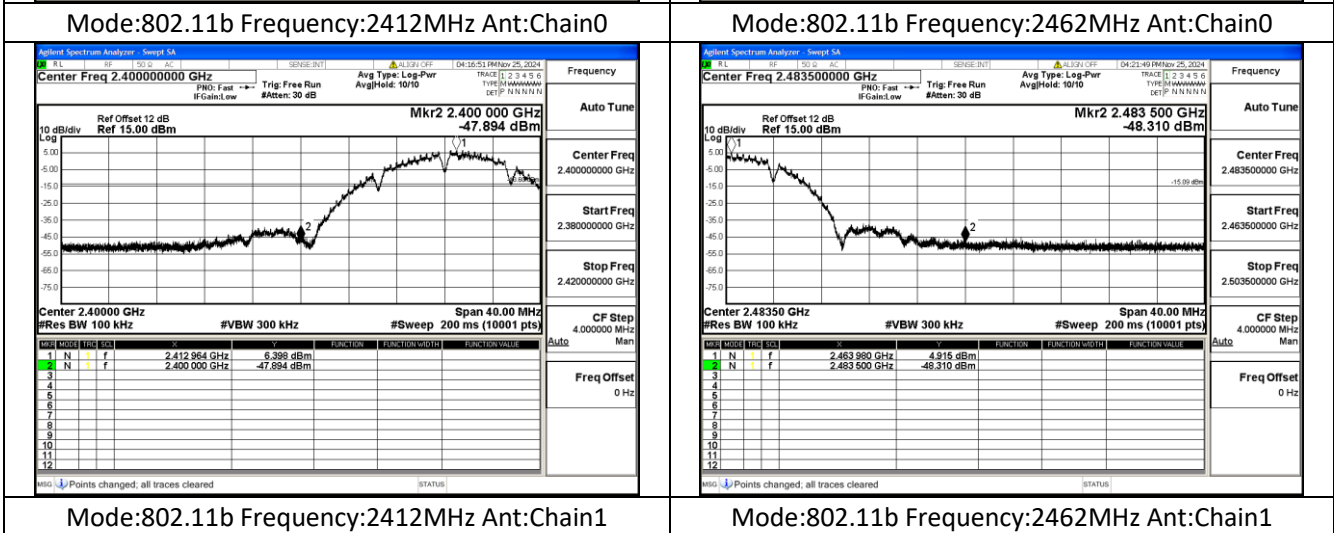
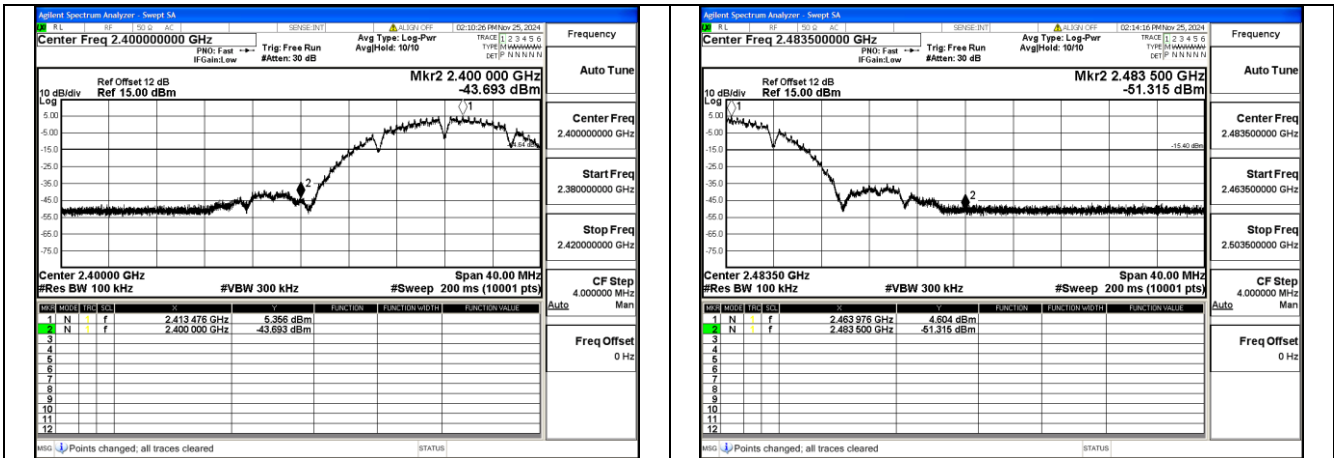


Mode:802.11n HT40 Frequency:2452MHz Ant:Chain1

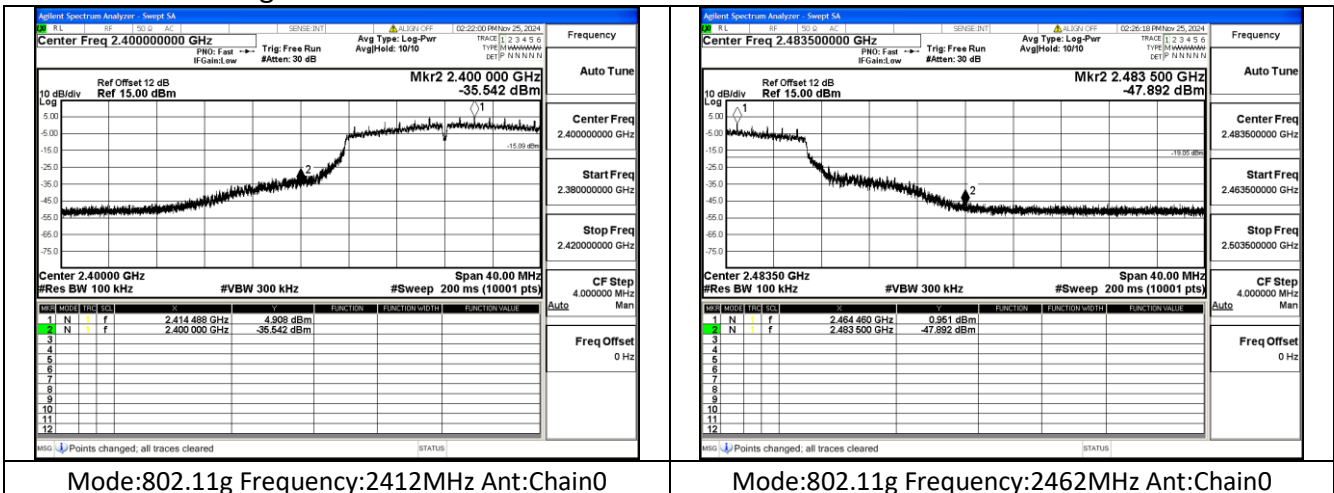


Band edge measurement

Test Mode: 802.11b

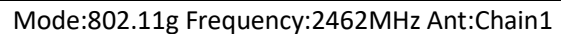
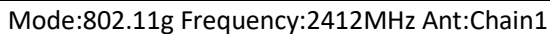


Test Mode: 802.11g

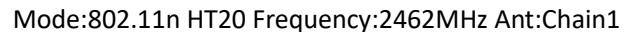
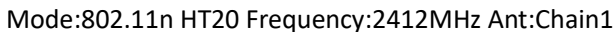




FCC ID: 2AANY-IR624



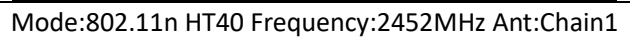
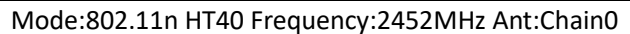
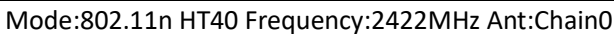
Test Mode: 802.11n HT20



Test Mode: 802.11n HT40



FCC ID: 2AANY-IR624



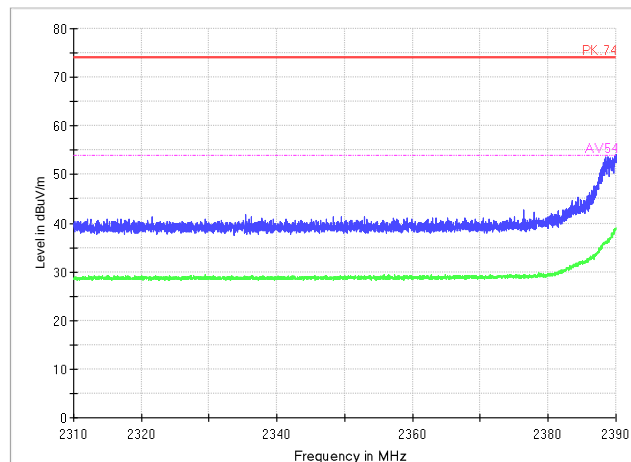


APPENDIX B – TEST DATA OF RADIATED EMISSION

Note: The worst channel results are reflected in the report.

Note: The scanned graph represents the maximum of both horizontal and vertical polarizations and is not a single horizontal or vertical polarization scan.

Radiated Emission Band Edge

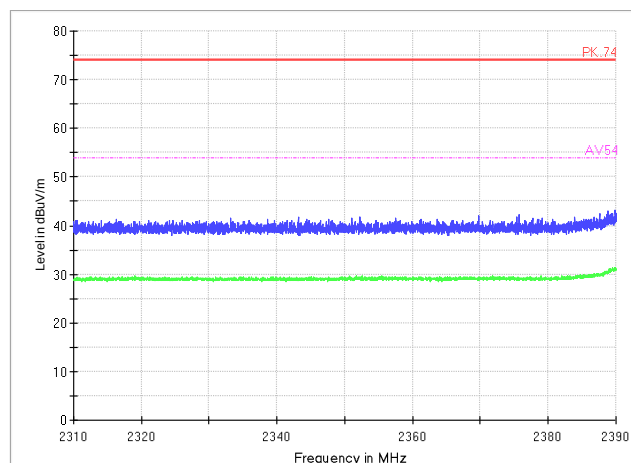


Radiated Emission Band Edge

Channel No.:1

Test Mode: 802.11b

Polarization: V

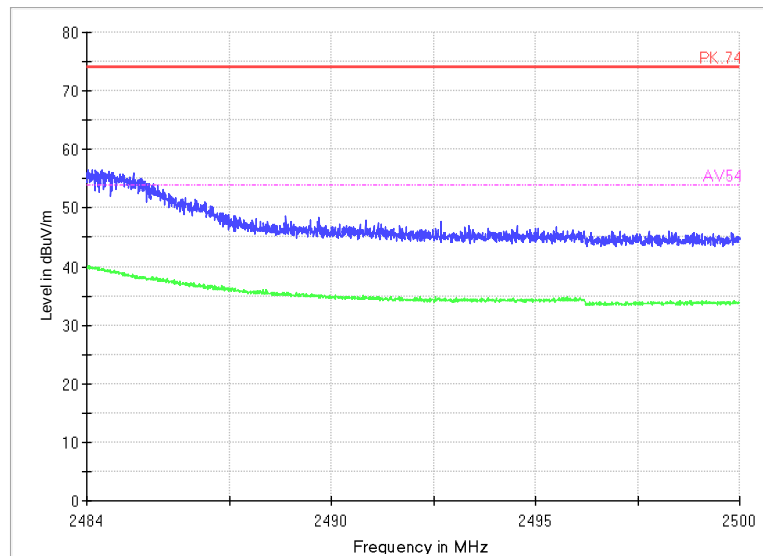


Radiated Emission Band Edge

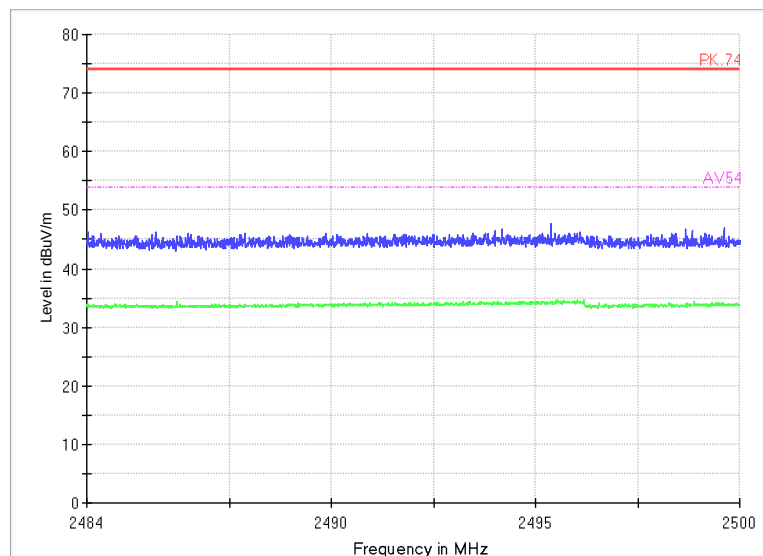
Channel No.:1

Test Mode: 802.11b

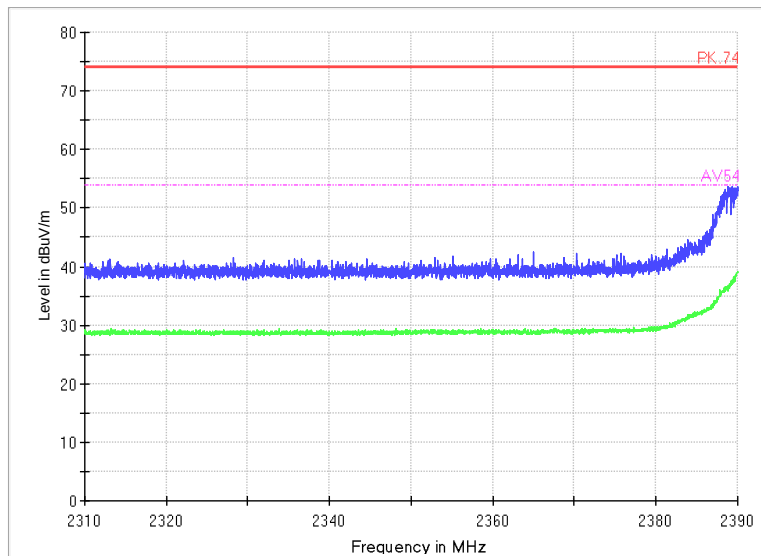
Polarization: H



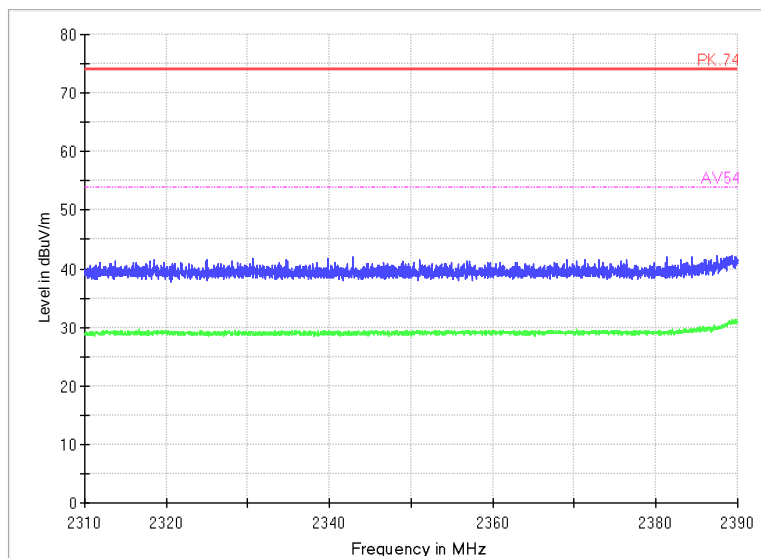
Radiated Emission Band Edge
Channel No.:11
Test Mode: 802.11b
Polarization: V



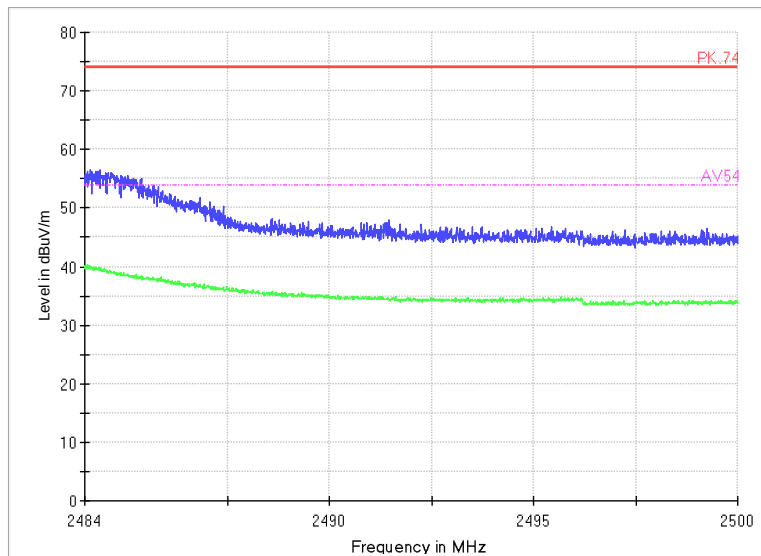
Radiated Emission Band Edge
Channel No.:11
Test Mode: 802.11b
Polarization: H



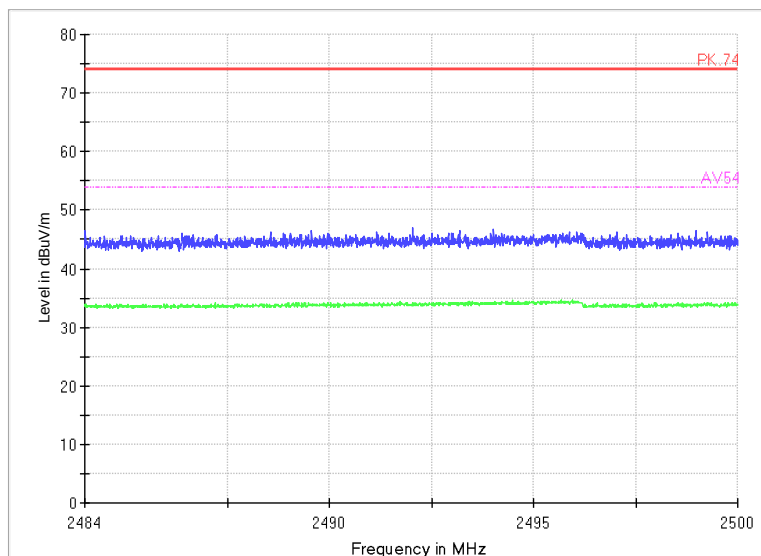
Radiated Emission Band Edge
Channel No.:1
Test Mode: 802.11g
Polarization: V



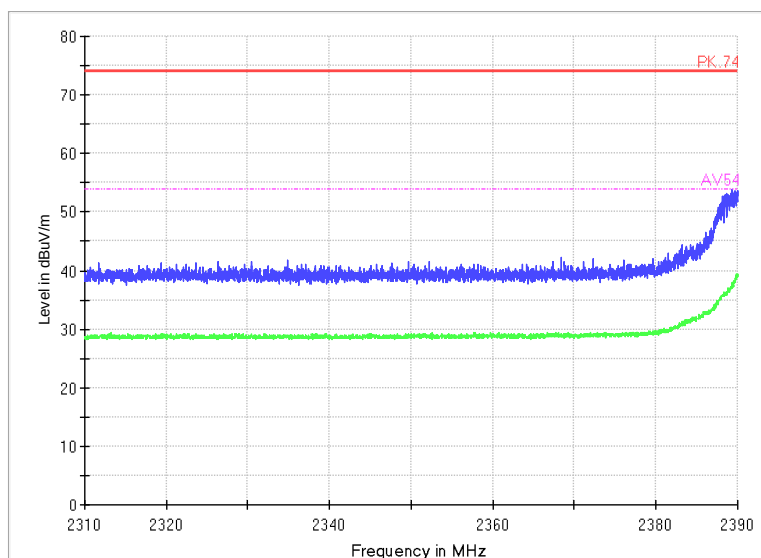
Radiated Emission Band Edge
Channel No.:1
Test Mode: 802.11g
Polarization: H



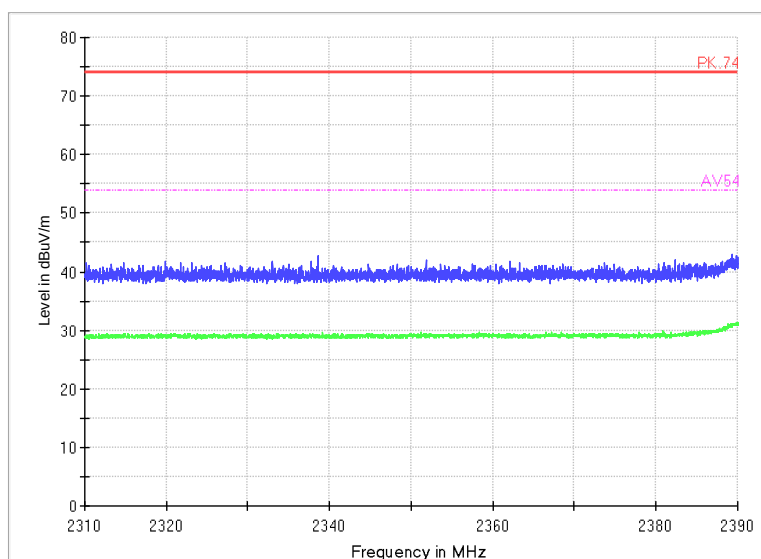
Radiated Emission Band Edge
Channel No.:11
Test Mode: 802.11g
Polarization: V



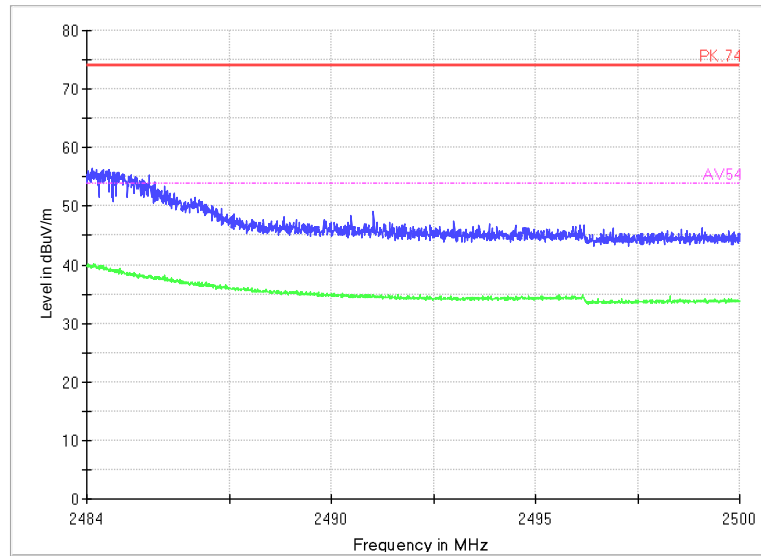
Radiated Emission Band Edge
Channel No.:11
Test Mode: 802.11g
Polarization: H



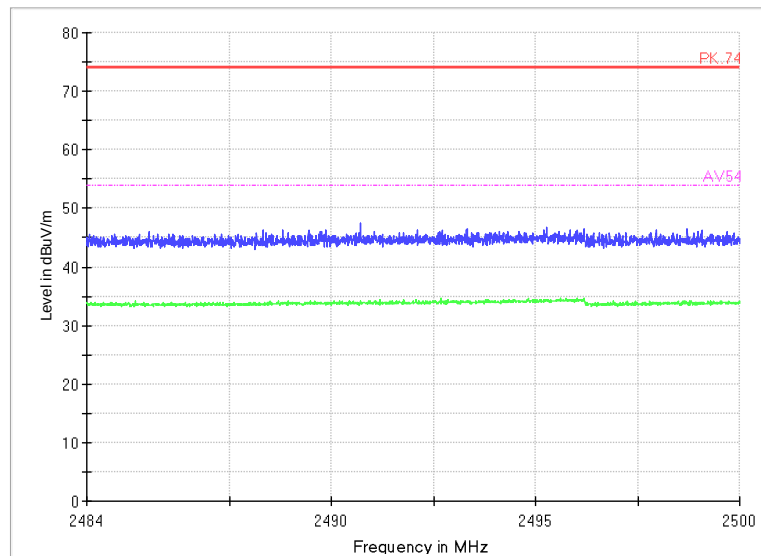
Radiated Emission Band Edge
Channel No.:1
Test Mode: 802.11n(HT20)
Polarization: V



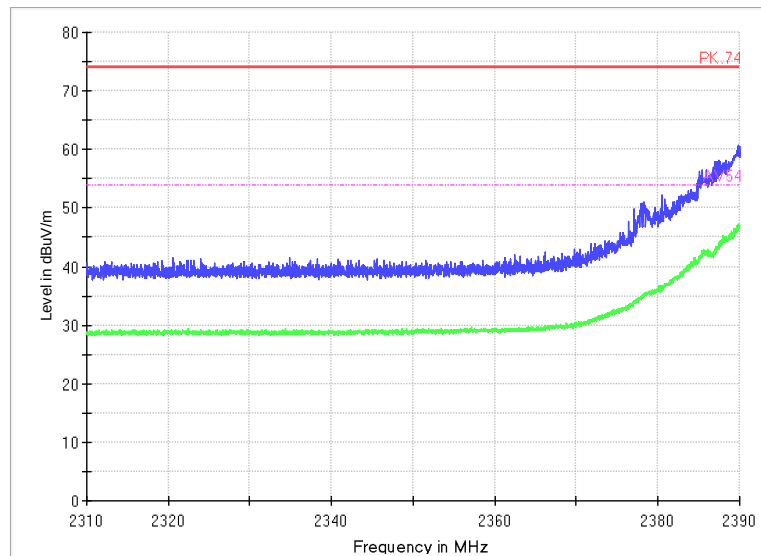
Radiated Emission Band Edge
Channel No.:1
Test Mode: 802.11n(HT20)
Polarization: H



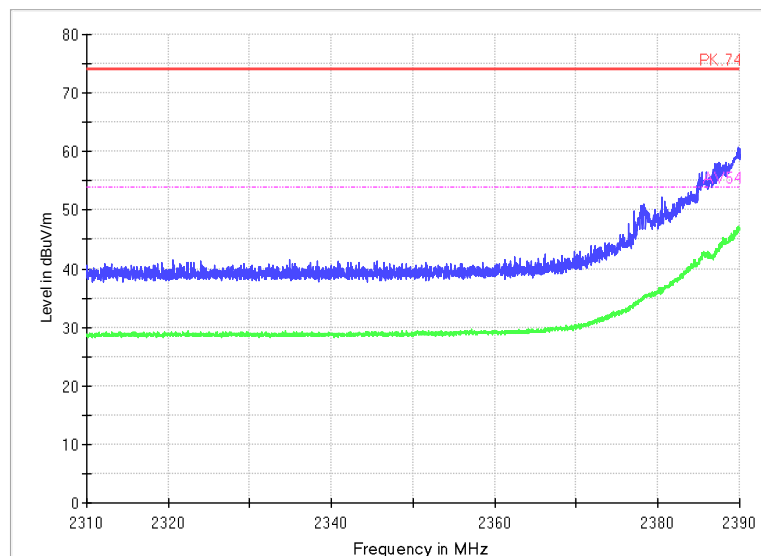
Radiated Emission Band Edge
Channel No.:11
Test Mode: 802.11n(HT20)
Polarization: V



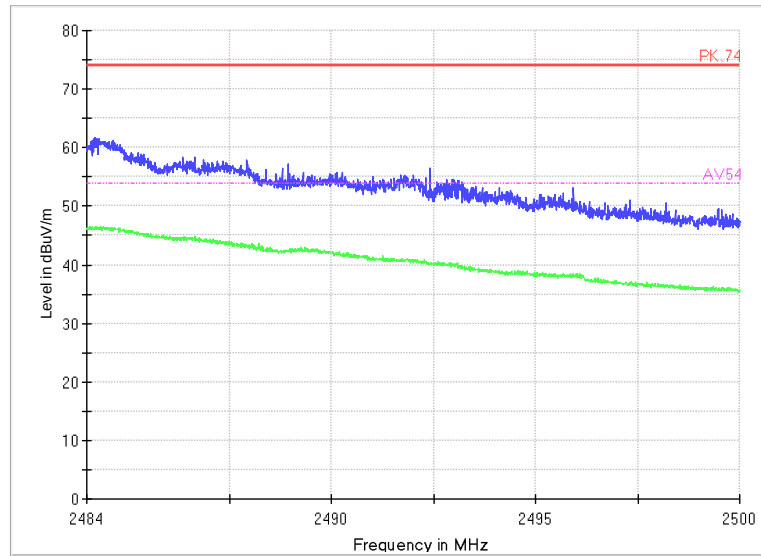
Radiated Emission Band Edge
Channel No.:11
Test Mode: 802.11n(HT20)
Polarization: H



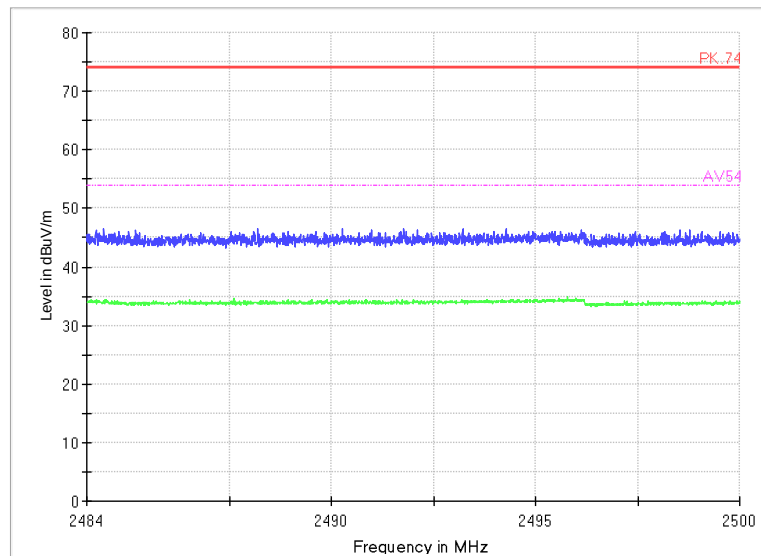
Radiated Emission Band Edge
Channel No.:3
Test Mode: 802.11n(HT40)
Polarization: V



Radiated Emission Band Edge
Channel No.:3
Test Mode: 802.11n(HT40)
Polarization: H



Radiated Emission Band Edge
Channel No.:9
Test Mode: 802.11n(HT40)
Polarization: V



Radiated Emission Band Edge
Channel No.:9
Test Mode: 802.11n(HT40)
Polarization: H



Sample Calculations

After comparison, the worst case attitude is EUT lay down.

Determining Spurious Emissions Levels

A “reference path loss” is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

Result = $P_{mea} + A_{Rpl}$

Sample calculation: $(8.91 \text{ dB}\mu\text{V/m}) = (24.11 \text{ dB}\mu\text{V}) + (-15.2 \text{ dB/m})$, the corresponding frequency is 46.878 MHz.

For 802.11b Channel No.:1

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
46.878	8.91	-15.2	24.11	Vertical	40	31.09
54.25	8.13	-15.2	23.33	Vertical	40	31.87
148.4855	18.84	-20	38.84	Vertical	43.5	24.66
256.7375	24.06	-14.6	38.66	Vertical	46	21.94
374.9805	21.48	-11.5	32.98	Vertical	46	24.52
706.575	16.36	-4.7	21.06	Vertical	46	29.64

For 802.11g Channel No.:1

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
45.4715	8.97	-15.5	24.47	Vertical	40	31.03
59.003	8.47	-15.9	24.37	Vertical	40	31.53
157.6035	18.64	-19.7	38.34	Vertical	43.5	24.86
255.04	23.81	-14.7	38.51	Vertical	46	22.19
374.9805	21.25	-11.5	32.75	Vertical	46	24.75
898.1015	19.77	-1.1	20.87	Vertical	46	26.23

For 802.11n(HT20) Channel No.:1

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
44.8895	9.01	-15.5	24.51	Vertical	40	30.99
55.608	8.27	-15.4	23.67	Vertical	40	31.73
163.957	17.77	-19.4	37.17	Vertical	43.5	25.73
252.9545	23.16	-14.7	37.86	Vertical	46	22.84
374.9805	21.16	-11.5	32.66	Vertical	46	24.84
934.6705	20.21	-0.3	20.51	Vertical	46	25.79

For 802.11b Channel No.:6

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
40.7185	7.57	-16.5	24.07	Vertical	40	32.43
57.548	8.99	-15.6	24.59	Vertical	40	31.01



150.474	17.73	-20.2	37.93	Vertical	43.5	25.77
257.659	23.41	-14.6	38.01	Vertical	46	22.59
374.9805	21.21	-11.5	32.71	Vertical	46	24.79
904.746	19.69	-1	20.69	Vertical	46	26.31

For 802.11g Channel No.:6

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
52.019	9.65	-15.1	24.75	Vertical	40	30.35
57.16	8.9	-15.6	24.5	Vertical	40	31.1
148.825	15.44	-20	35.44	Vertical	43.5	28.06
254.6035	23.51	-14.7	38.21	Vertical	46	22.49
374.9805	20.83	-11.5	32.33	Vertical	46	25.17
932.5365	20.42	-0.2	20.62	Vertical	46	25.58

For 802.11n(HT20) Channel No.:6

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
52.9405	9.14	-15	24.14	Vertical	40	30.86
53.9105	8.24	-15.2	23.44	Vertical	40	31.76
163.472	18.69	-19.4	38.09	Vertical	43.5	24.81
270.948	22.5	-14.2	36.7	Vertical	46	23.5
374.9805	20.75	-11.5	32.25	Vertical	46	25.25
935.4465	20.14	-0.3	20.44	Vertical	46	25.86

For 802.11b Channel No.:11

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
49.497	9.2	-15.2	24.4	Vertical	40	30.8
58.1785	9.22	-15.7	24.92	Vertical	40	30.78
148.631	17.75	-20	37.75	Vertical	43.5	25.75
182.096	20.36	-18.1	38.46	Vertical	43.5	23.14
374.9805	20.68	-11.5	32.18	Vertical	46	25.32
920.169	20.43	-0.3	20.73	Vertical	46	25.57

For 802.11g Channel No.:11

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
51.1945	9.54	-15.3	24.84	Vertical	40	30.46
57.4995	9.68	-15.6	25.28	Vertical	40	30.32
149.019	19.99	-19.9	39.89	Vertical	43.5	23.51
182.872	21.01	-17.9	38.91	Vertical	43.5	22.49
482.408	15.69	-8.8	24.49	Vertical	46	30.31
722.2405	16.4	-4.1	20.5	Vertical	46	29.6



For 802.11n(HT20) Channel No.:11

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
52.989	9.01	-15	24.01	Vertical	40	30.99
56.384	8.74	-15.5	24.24	Vertical	40	31.26
163.9085	16.38	-19.4	35.78	Vertical	43.5	27.12
181.4655	21.86	-18.3	40.16	Vertical	43.5	21.64
529.744	16.1	-7.8	23.9	Vertical	46	29.9
921.2845	20.37	-0.3	20.67	Vertical	46	25.63

For 802.11n(HT40) Channel No.:3

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
52.7465	9.24	-15	24.24	Vertical	40	30.76
57.16	9.62	-15.6	25.22	Vertical	40	30.38
166.5275	18.42	-19.2	37.62	Vertical	43.5	25.08
181.805	21.85	-18.2	40.05	Vertical	43.5	21.65
374.9805	20.66	-11.5	32.16	Vertical	46	25.34
879.429	19.65	-1	20.65	Vertical	46	26.35

For 802.11n(HT40) Channel No.:6

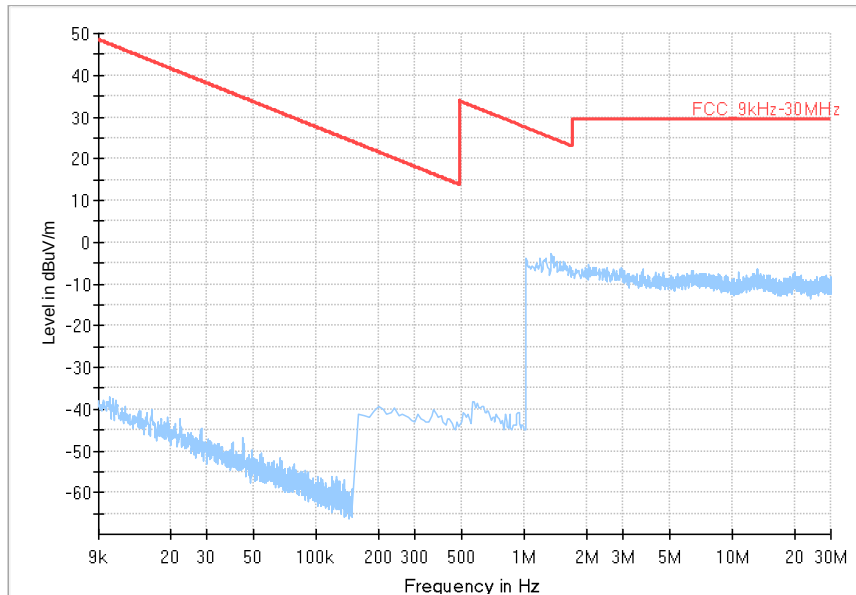
Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
53.668	8.42	-15.1	23.52	Vertical	40	31.58
56.772	9	-15.5	24.5	Vertical	40	31
165.315	15.41	-19.3	34.71	Vertical	43.5	28.09
254.7975	23.67	-14.7	38.37	Vertical	46	22.33
374.9805	20.56	-11.5	32.06	Vertical	46	25.44
921.1875	20.45	-0.3	20.75	Vertical	46	25.55

For 802.11n(HT40) Channel No.:9

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)	Margin (dB)
49.594	9.27	-15.2	24.47	Vertical	40	30.73
57.8875	9.36	-15.6	24.96	Vertical	40	30.64
154.8875	18.53	-19.9	38.43	Vertical	43.5	24.97
182.387	18.07	-18.1	36.17	Vertical	43.5	25.43
374.9805	20.71	-11.5	32.21	Vertical	46	25.29
876.1795	19.72	-0.9	20.62	Vertical	46	26.28



Full Spectrum



Frequency Range: 9kHz -30MHz

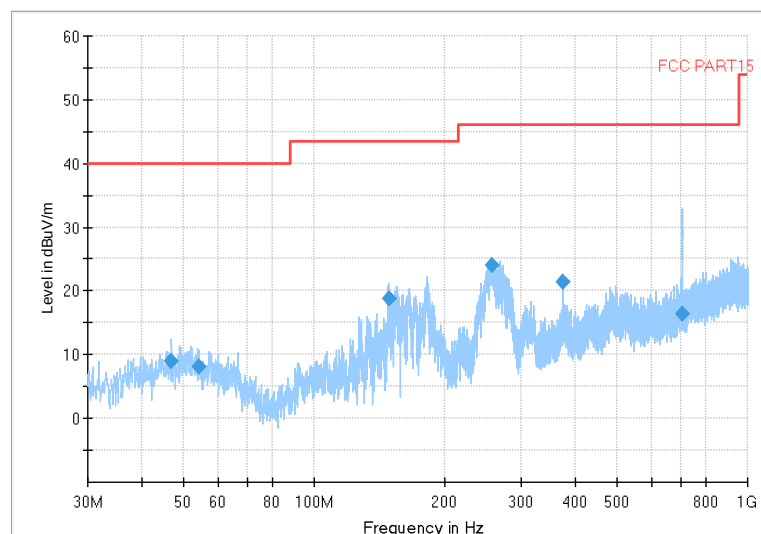
Detector: QP mode

Note: The relevant tests have been performed in order to verify in which mode would have the worst features, the result show above is the worst case.

Carrier frequency (MHz): 2412

Channel No.:1

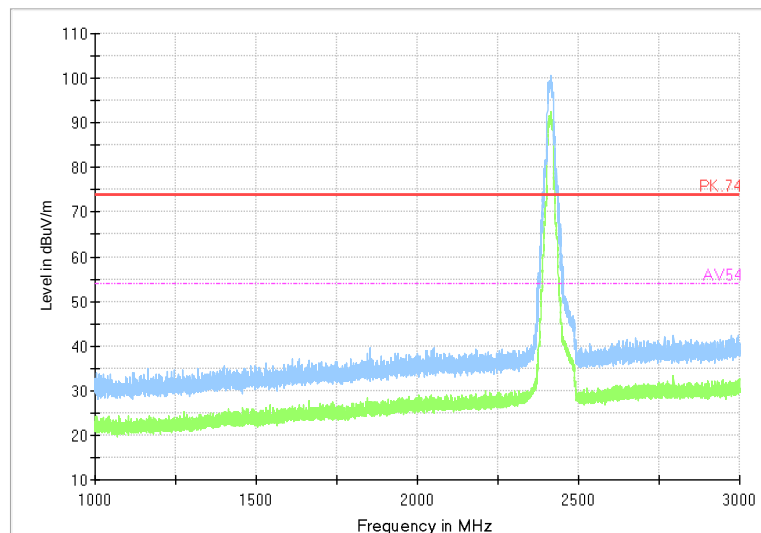
Full Spectrum





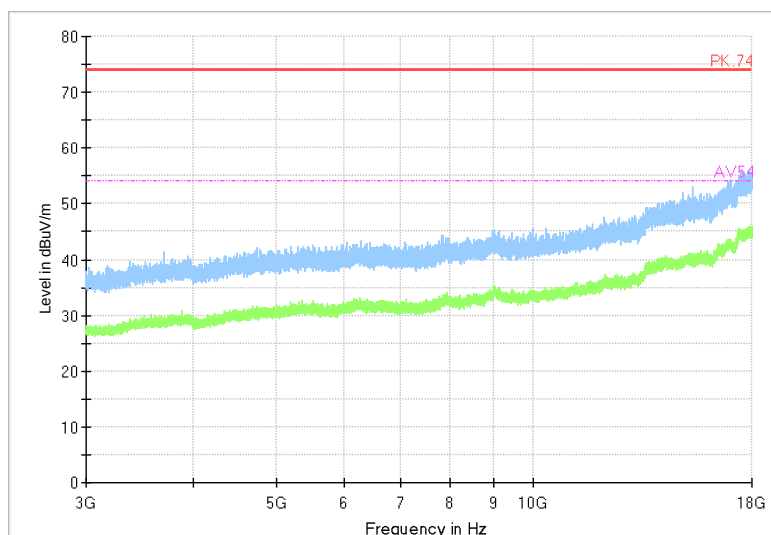
Frequency Range 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11b

Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: QP mode
Modulation type: 802.11b

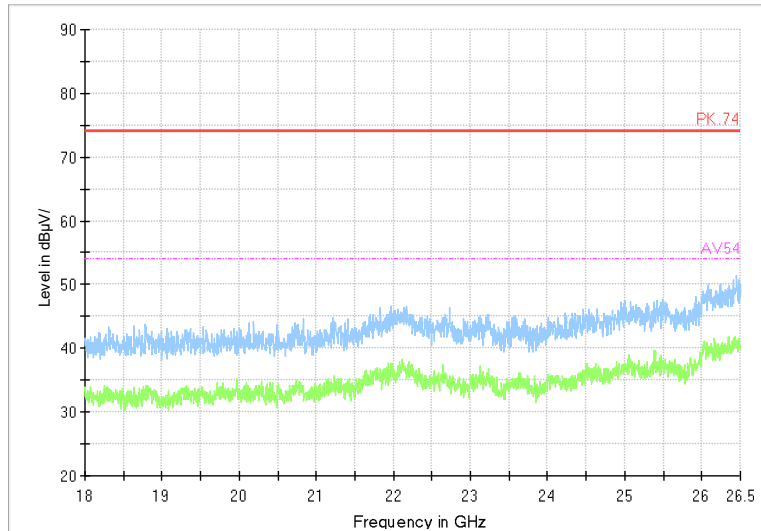
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

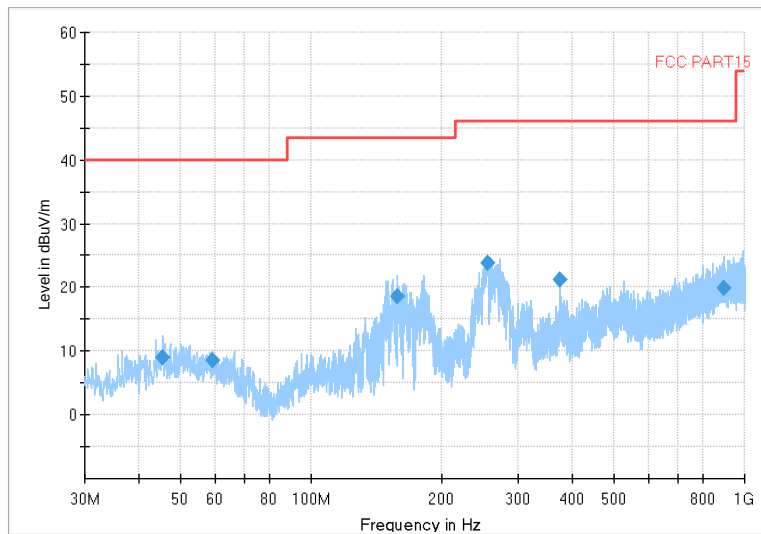


Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

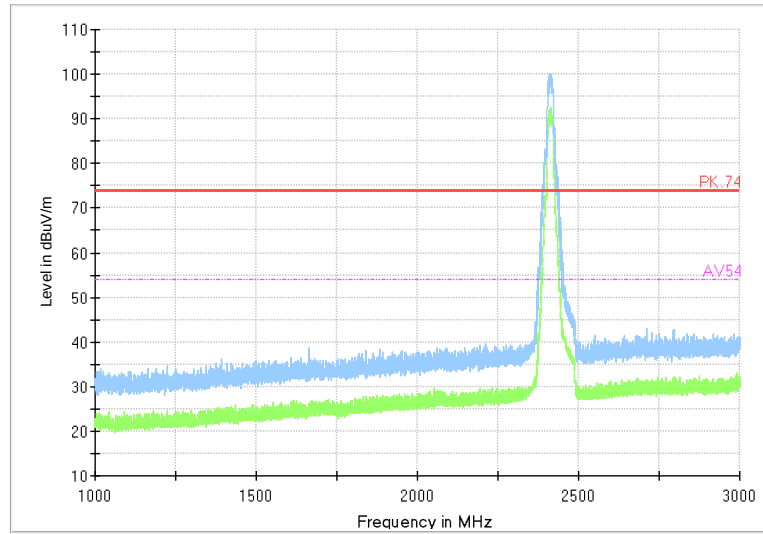
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11g

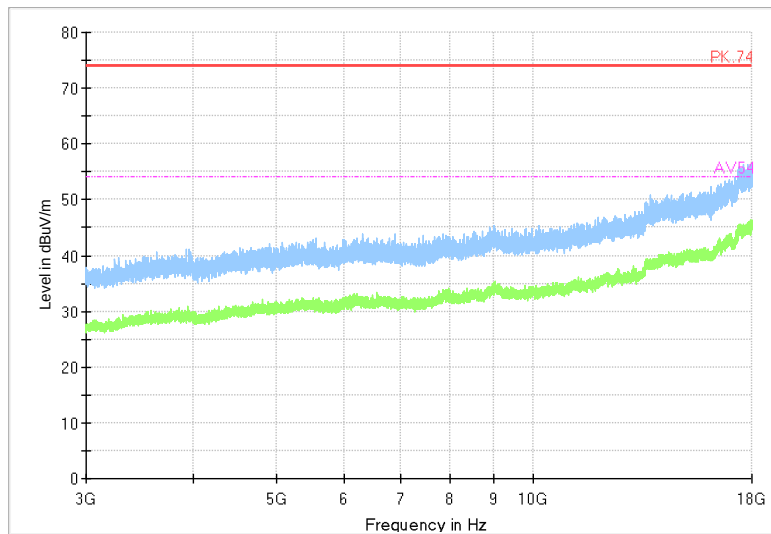


Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

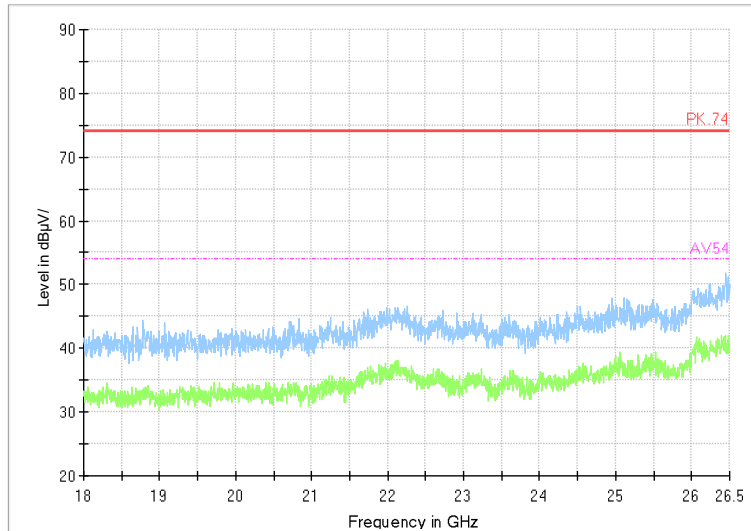
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

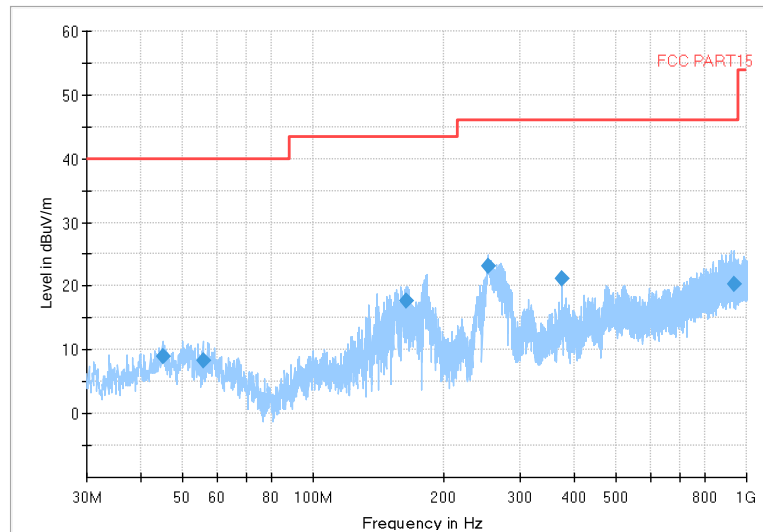


Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

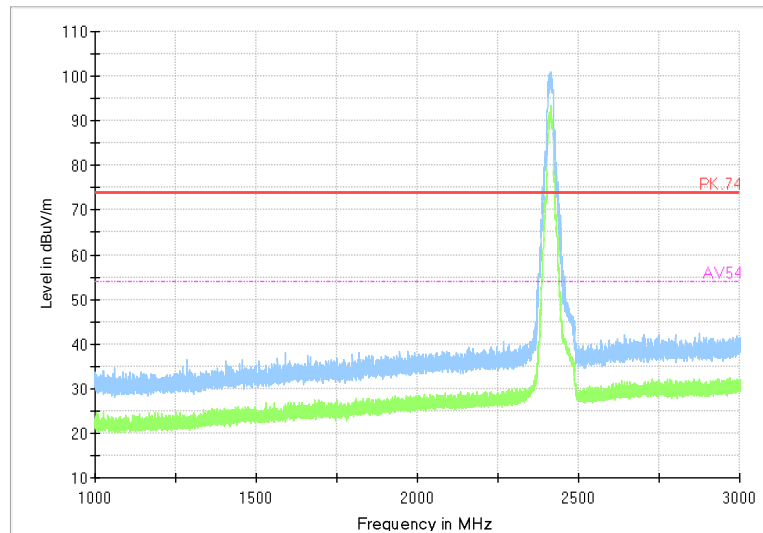
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector:QP mode
Modulation type: 802.11n(HT20)

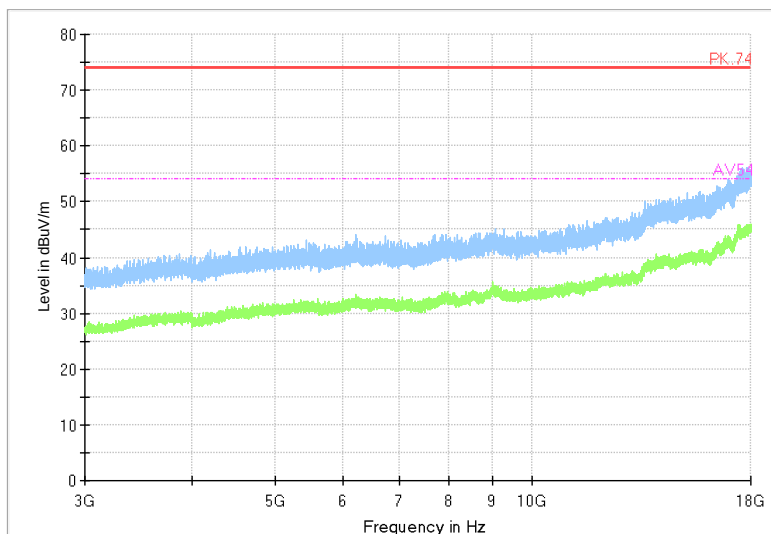


Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

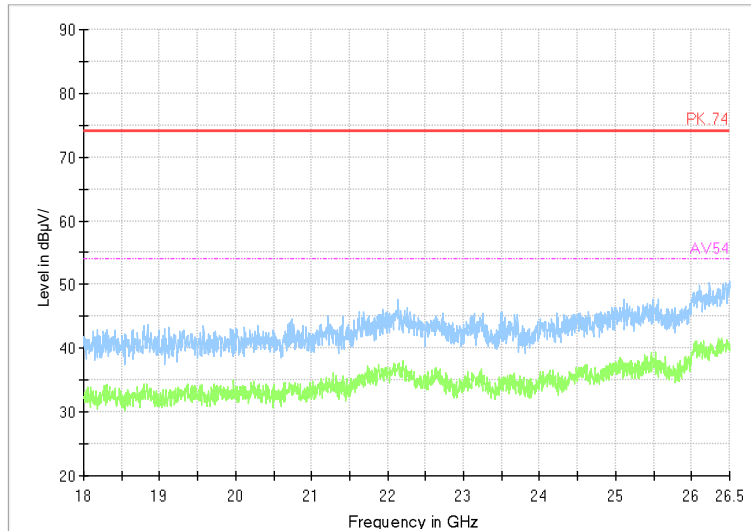
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)



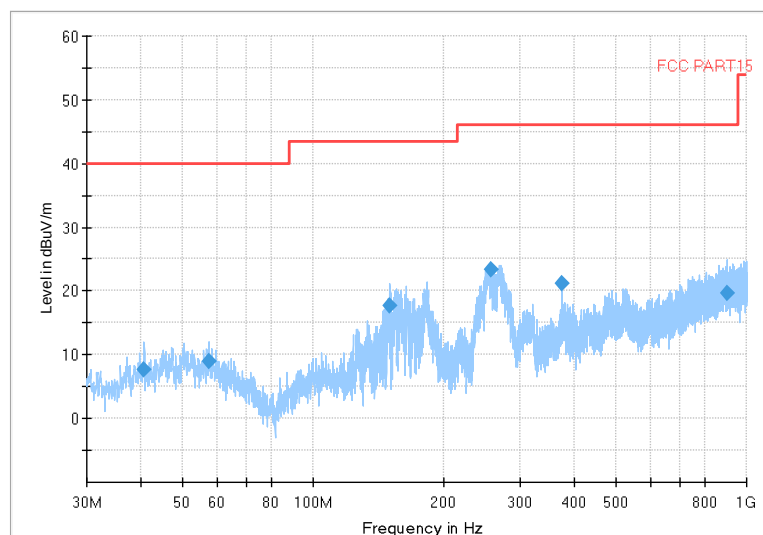
Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

Carrier frequency (MHz): 2437
Channel No.:6

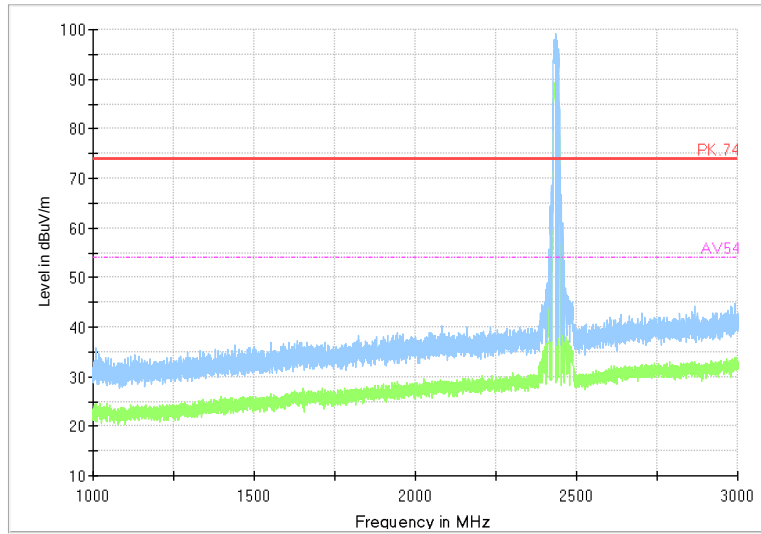
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector:QP mode
Modulation type: 802.11b

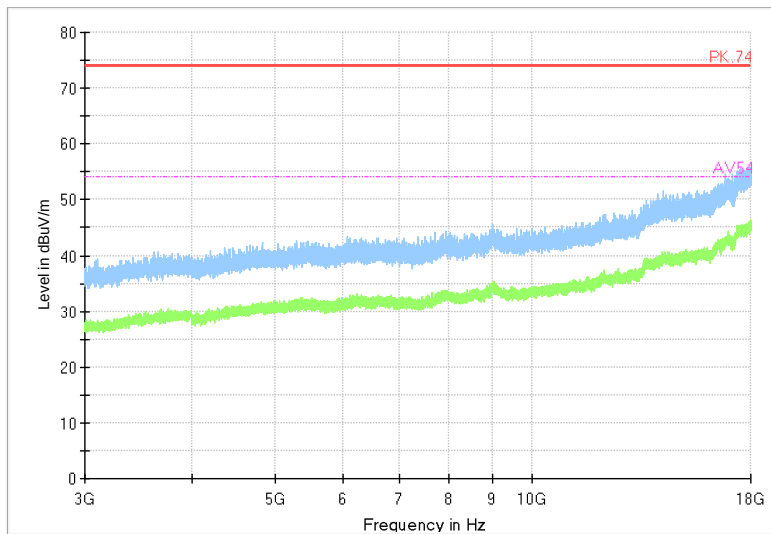


Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

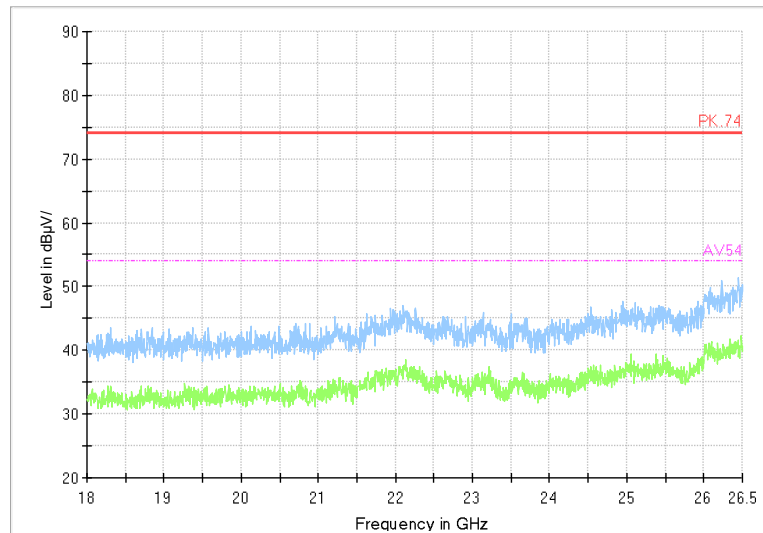
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

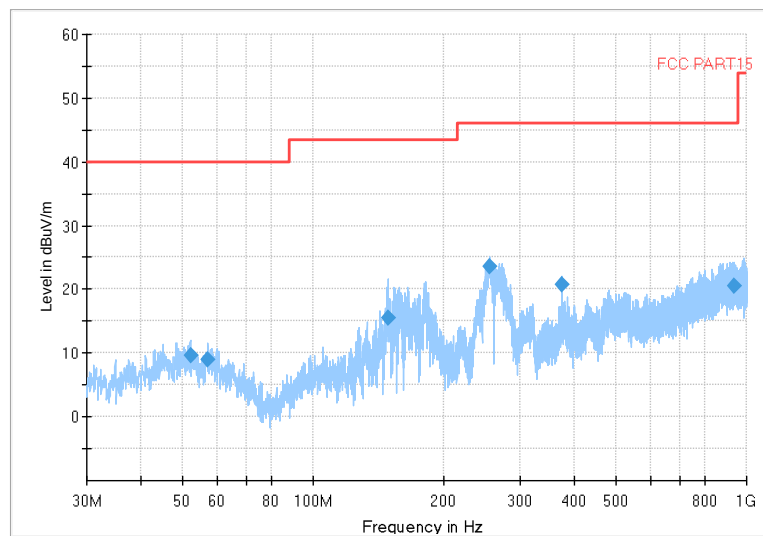


Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

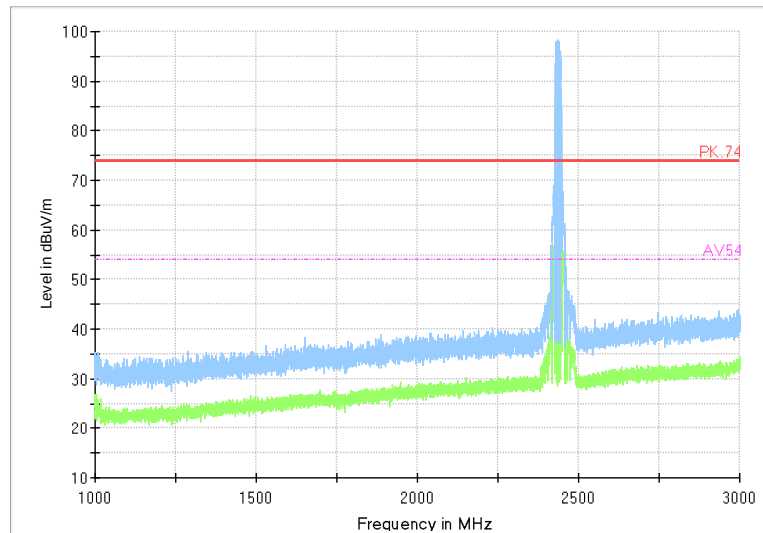
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11g

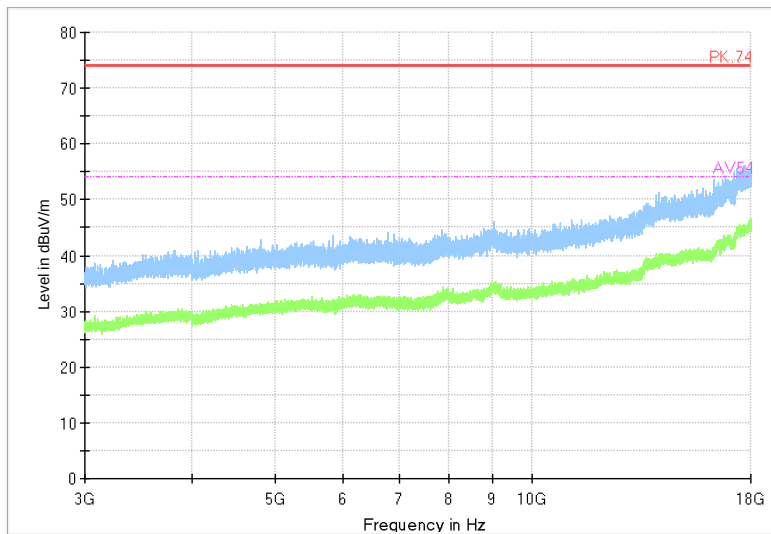


Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

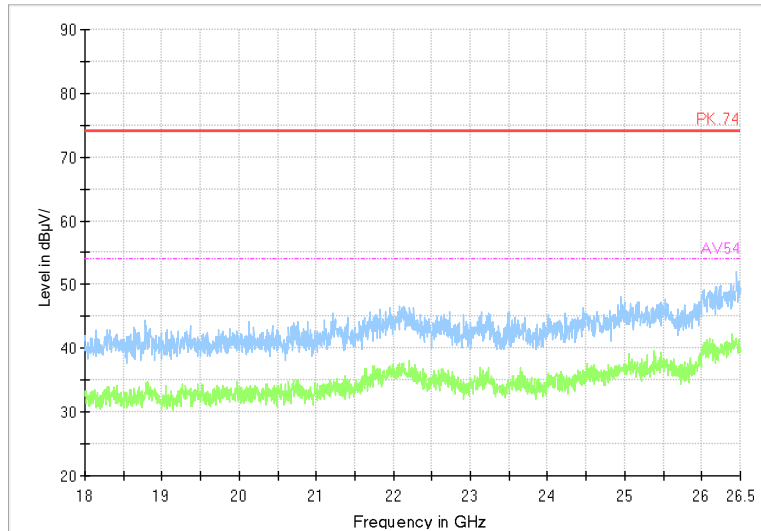
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

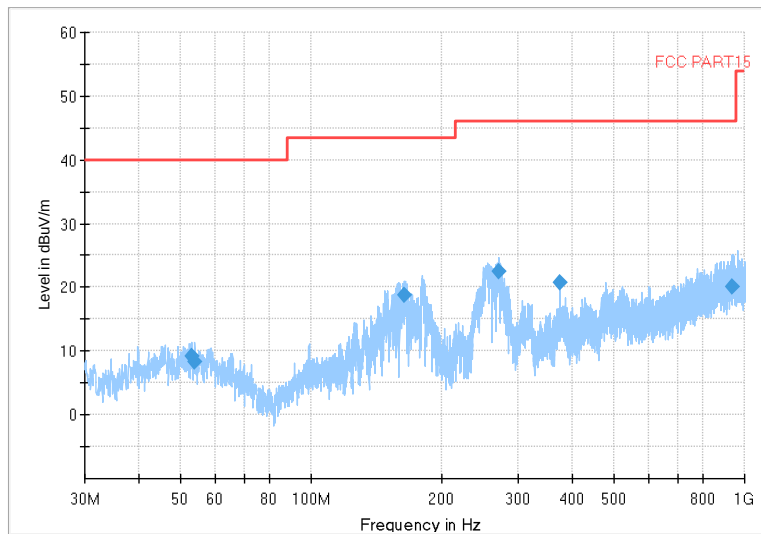


Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

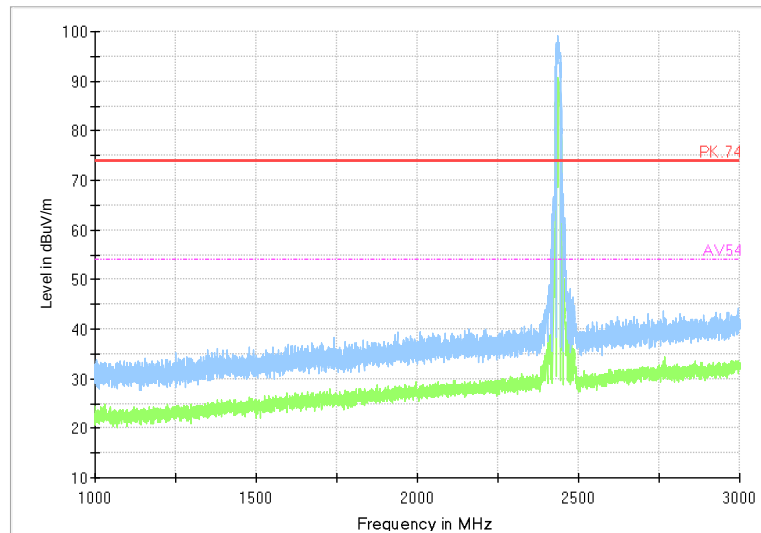
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11n(HT20)

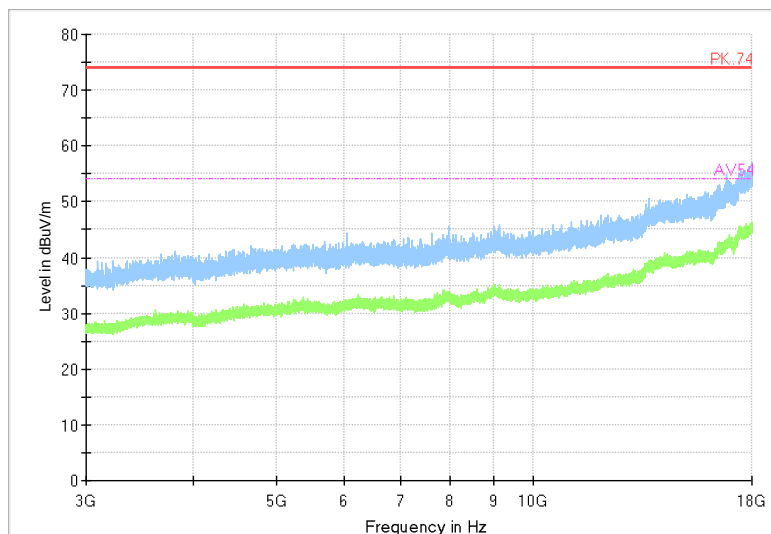


Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

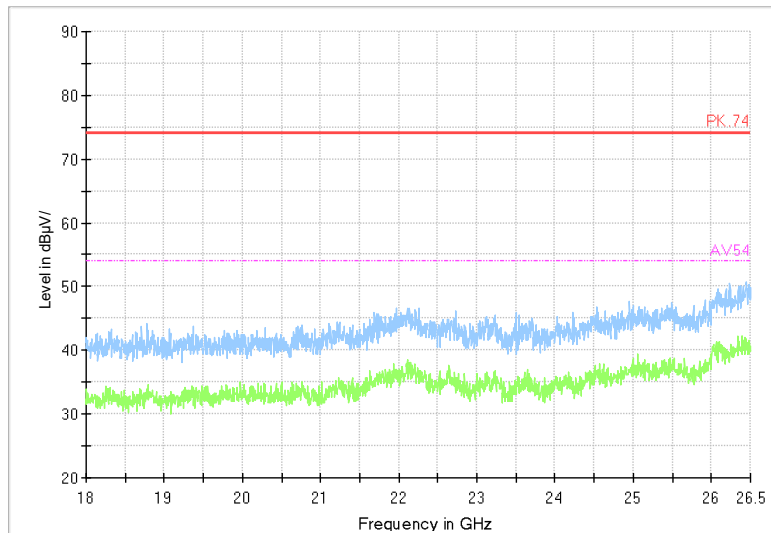
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)



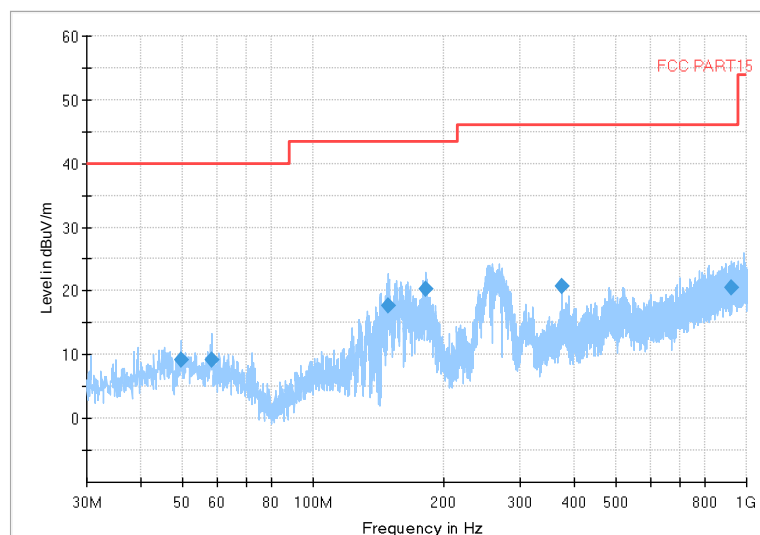
Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

Carrier frequency (MHz): 2462
Channel No.:11

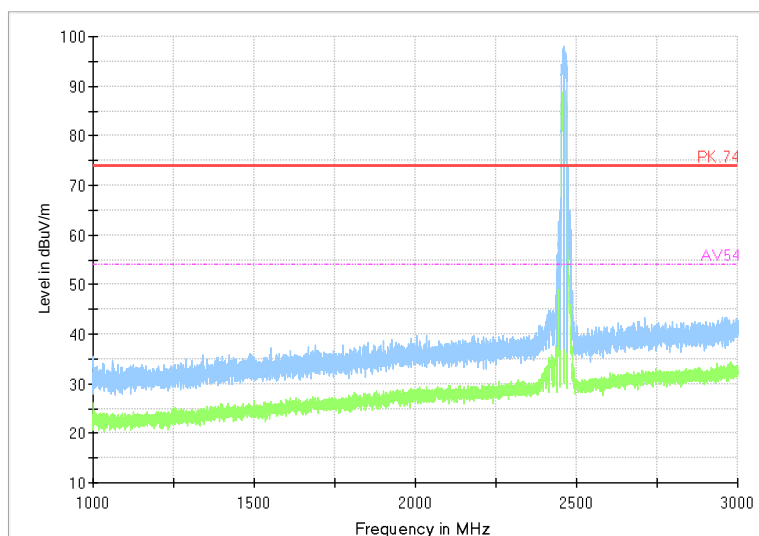
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11b

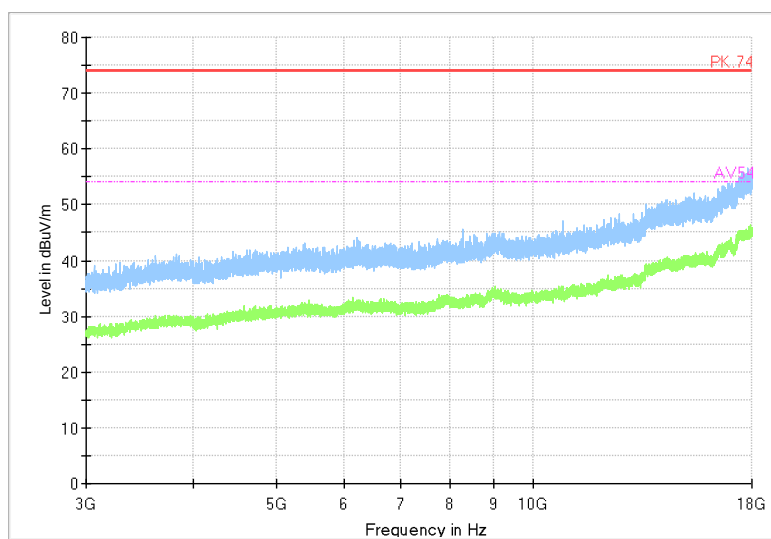


Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

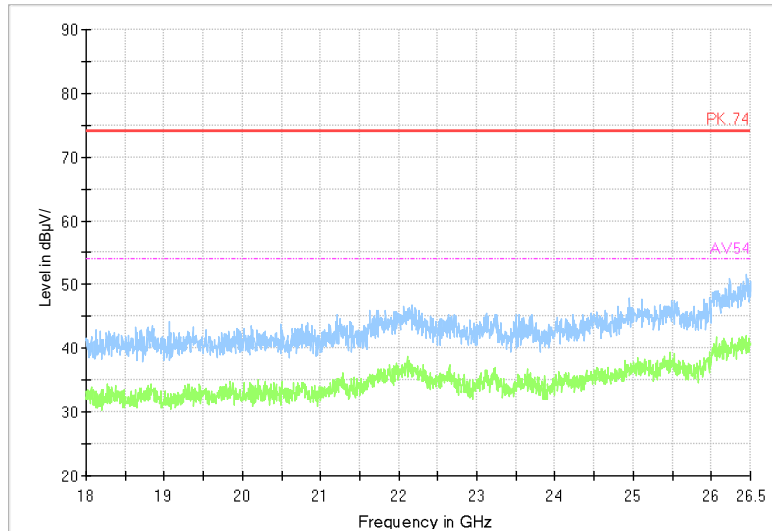
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

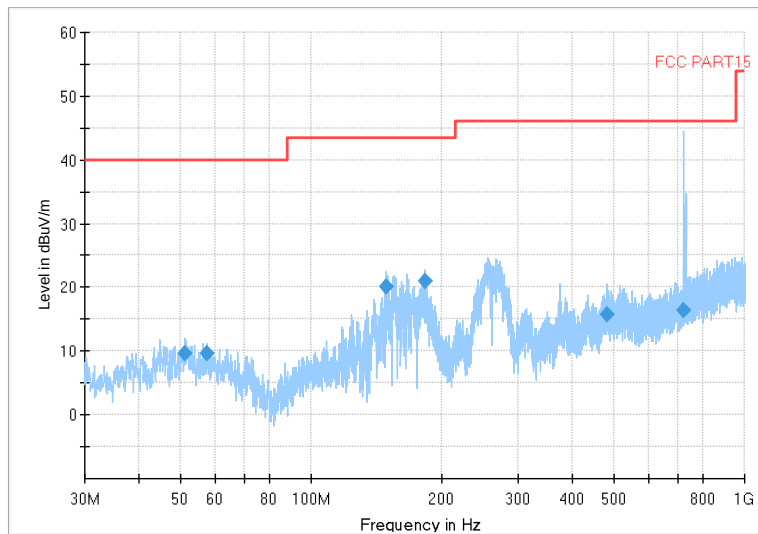


Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11b

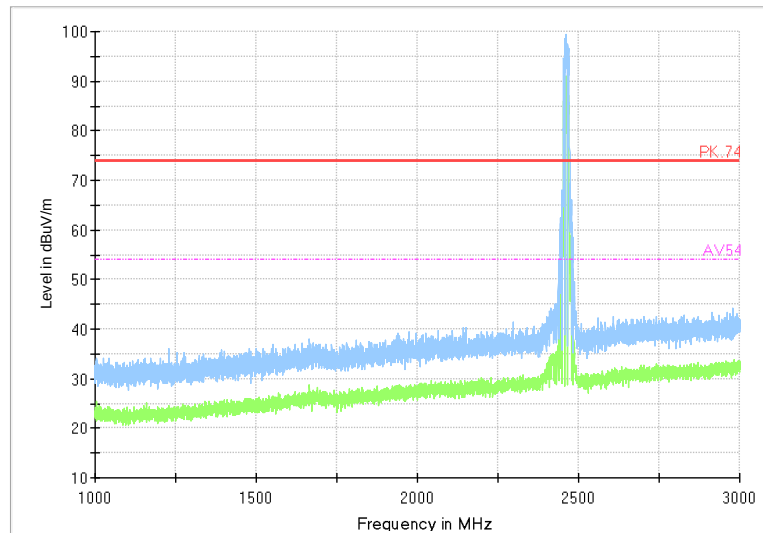
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11g

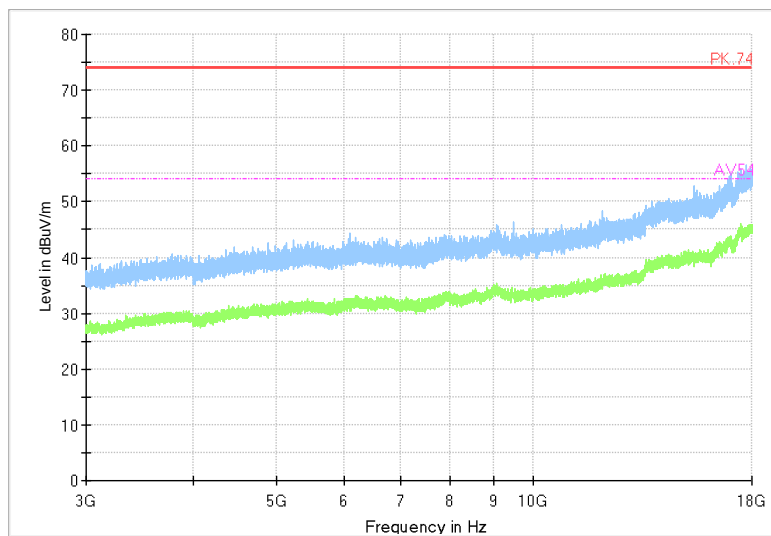


Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

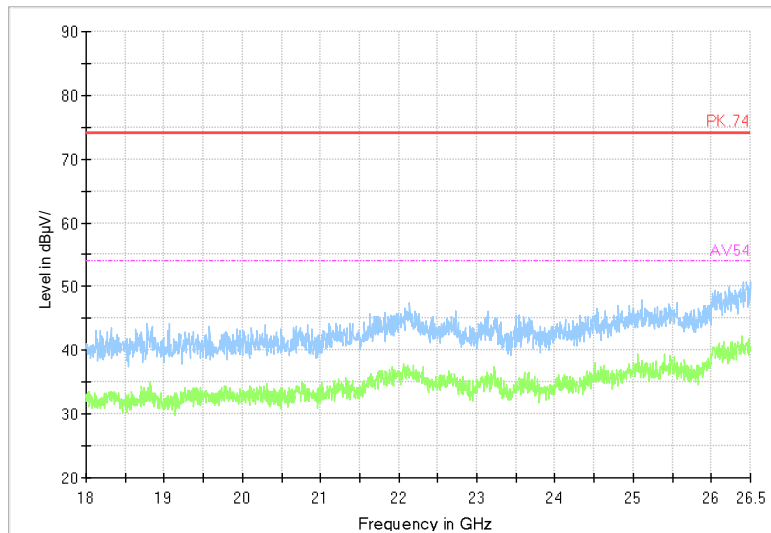
Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11g



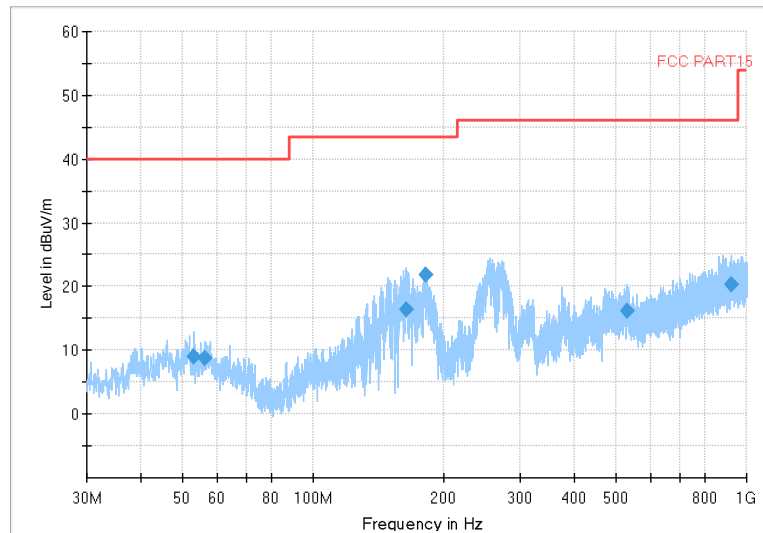
Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11g

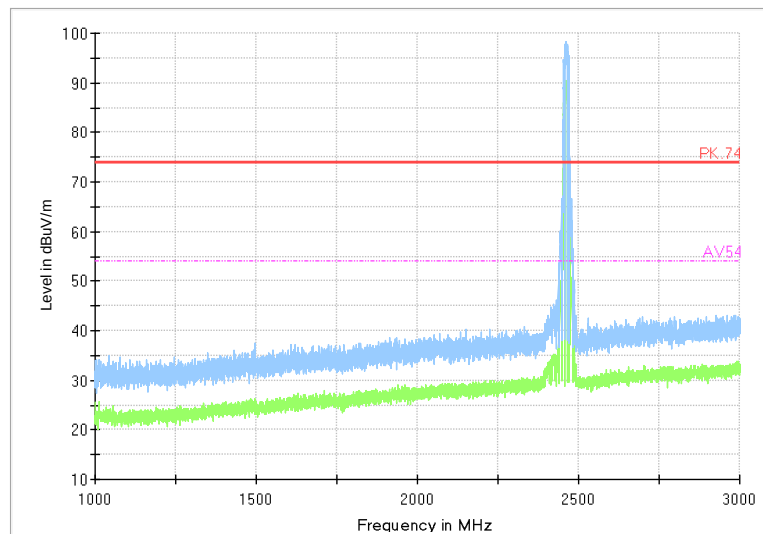


Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11n(HT20)

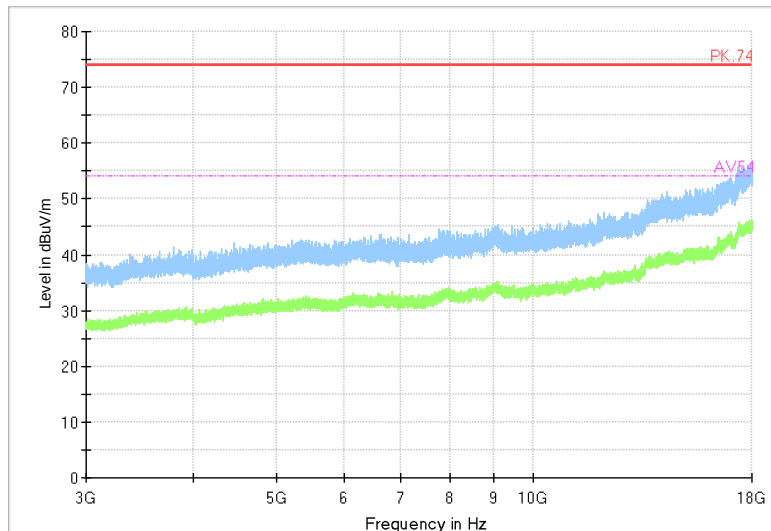
Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

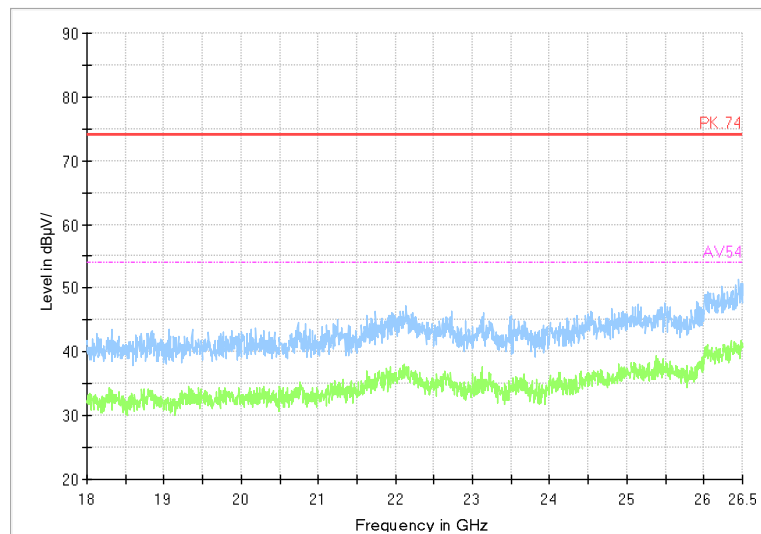


Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)

Full Spectrum

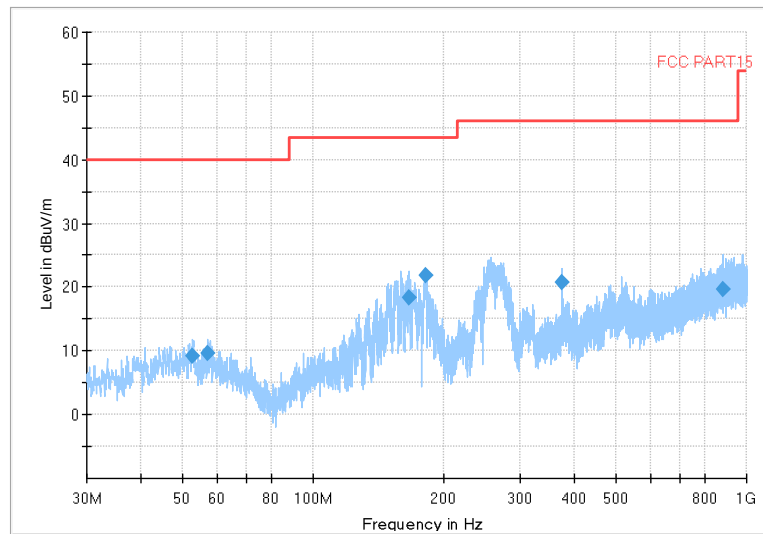


Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT20)



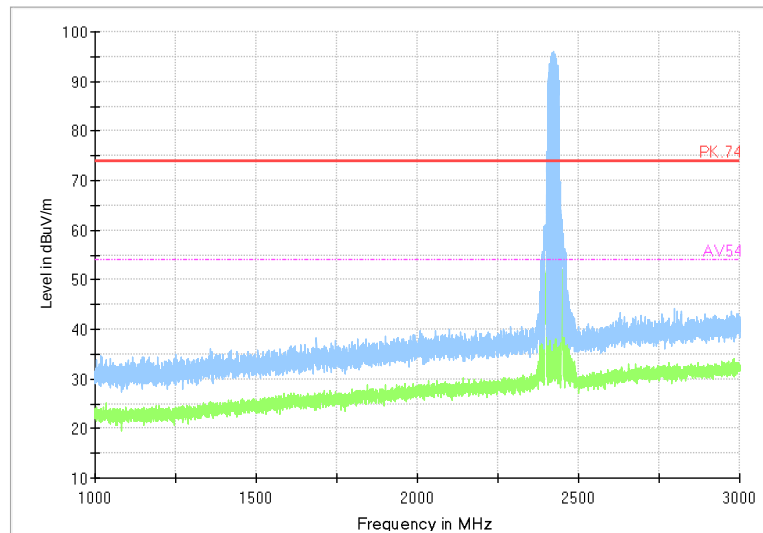
Carrier frequency (MHz): 2422
Channel No.:3

Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11n(HT40)

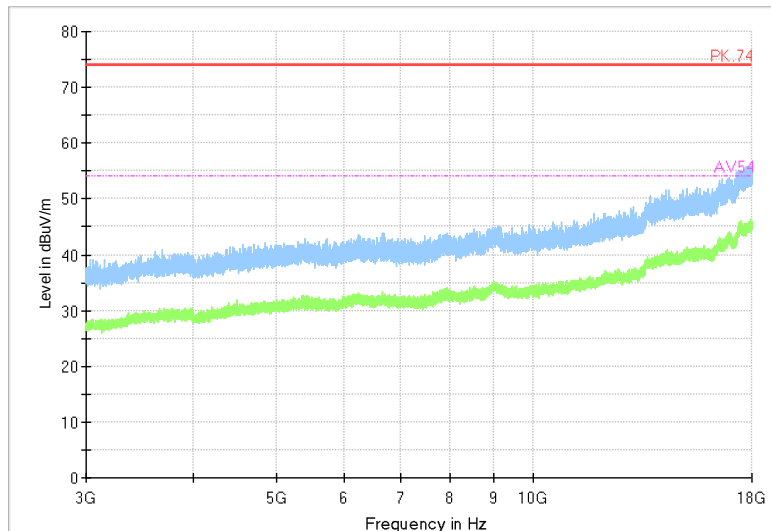
Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

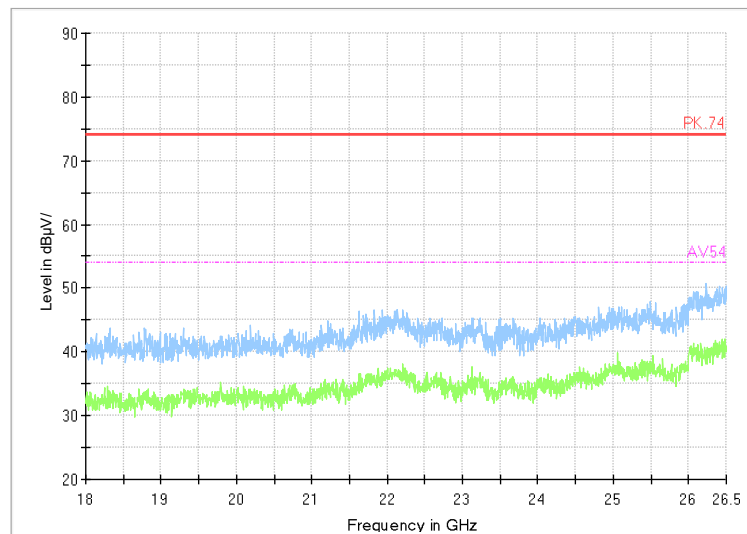


Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

Full Spectrum



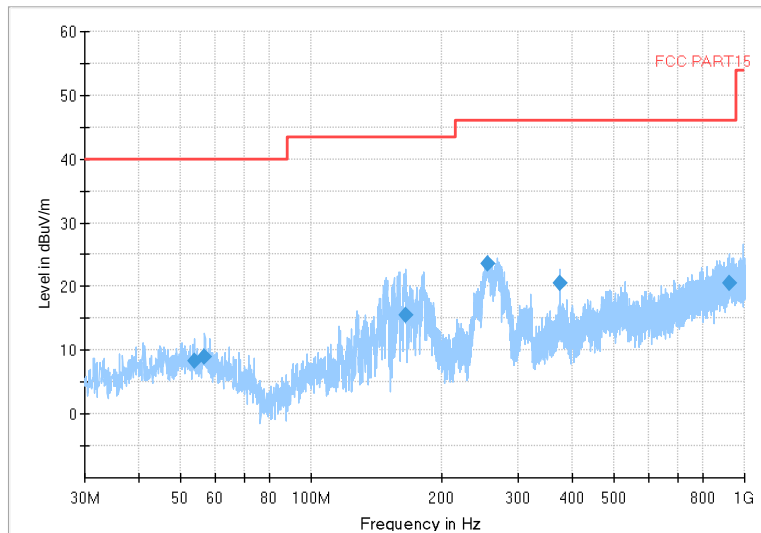
Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

Carrier frequency (MHz): 2437
Channel No.:6

BV 7Layers Communications Technology (Shenzhen) Co., Ltd
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Fax: +86 755 8869 6577

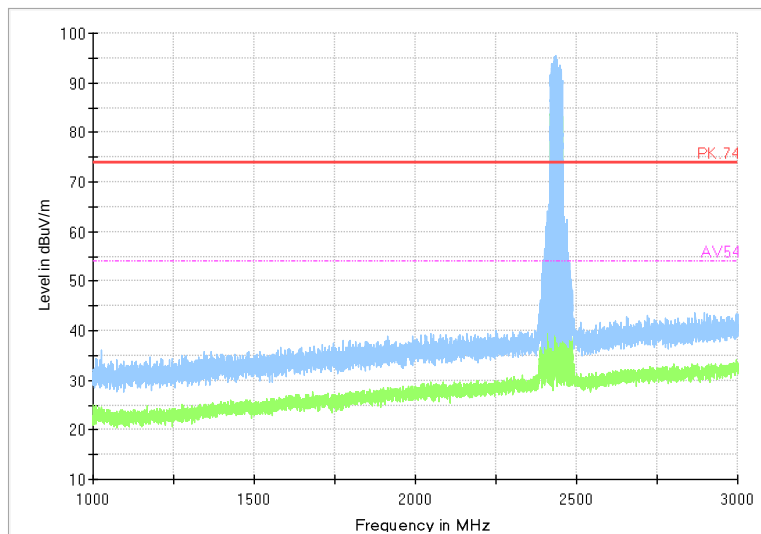


Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11n(HT40)

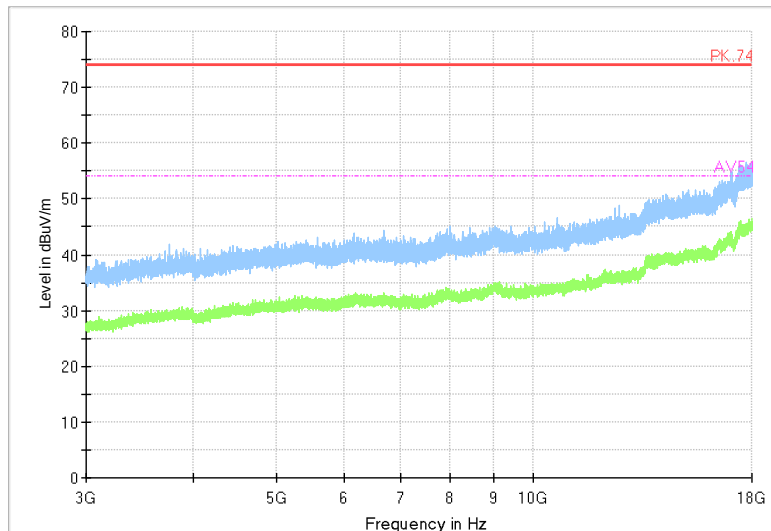
Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

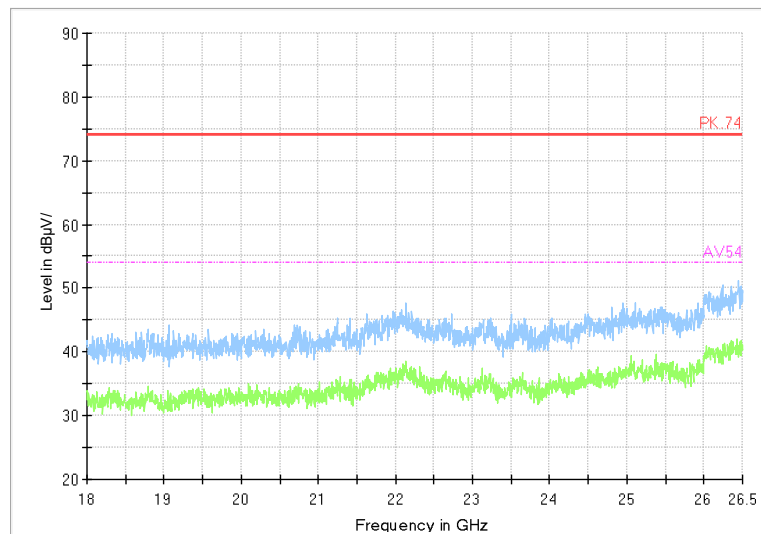


Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

Full Spectrum



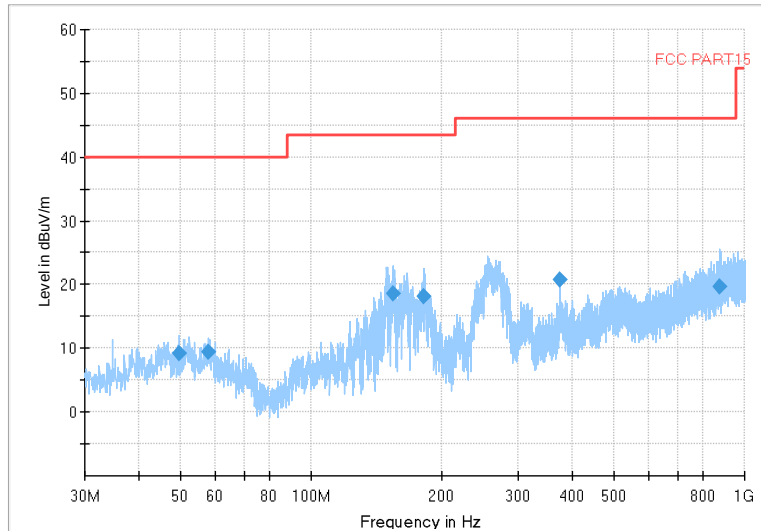
Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

Carrier frequency (MHz): 2452
Channel No.:9

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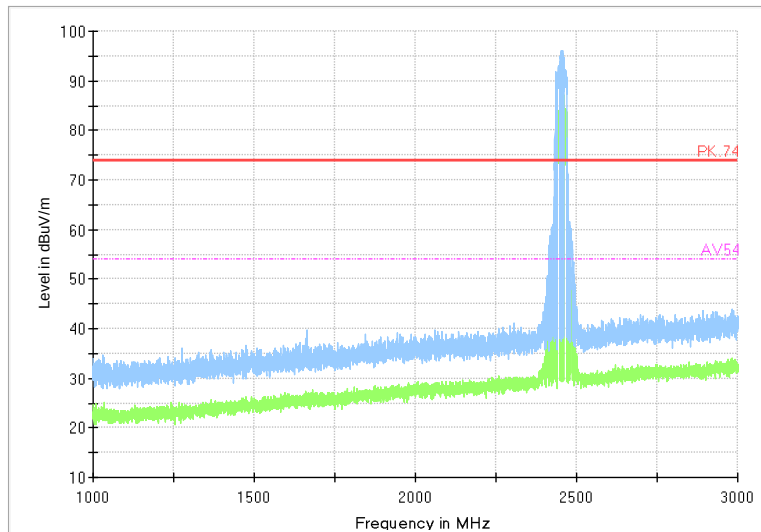


Full Spectrum



Frequency Range: 30MHz -1GHz
Detector:QP mode
Modulation type: 802.11n(HT40)

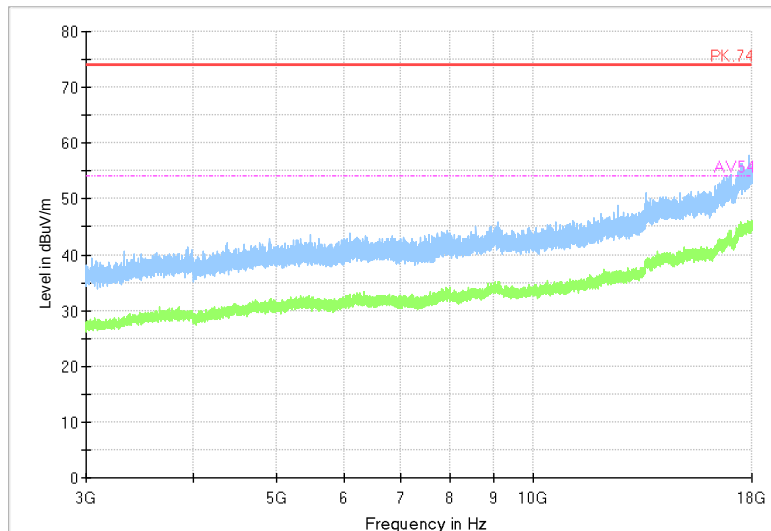
Full Spectrum



Frequency Range: 1GHz -3GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

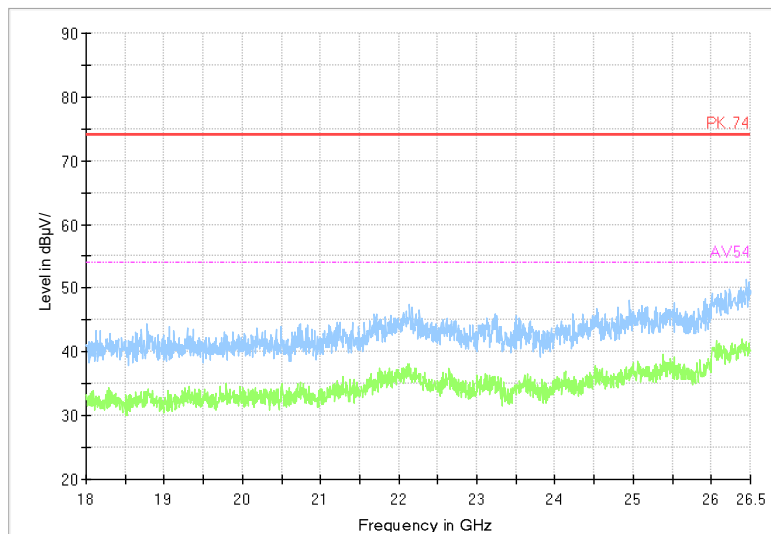


Full Spectrum



Frequency Range: 3GHz -18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

Full Spectrum



Frequency Range: 18GHz -26GHz
Detector: Av mode and PK mode
Modulation type: 802.11n(HT40)

**AC Power line Conducted Emission**

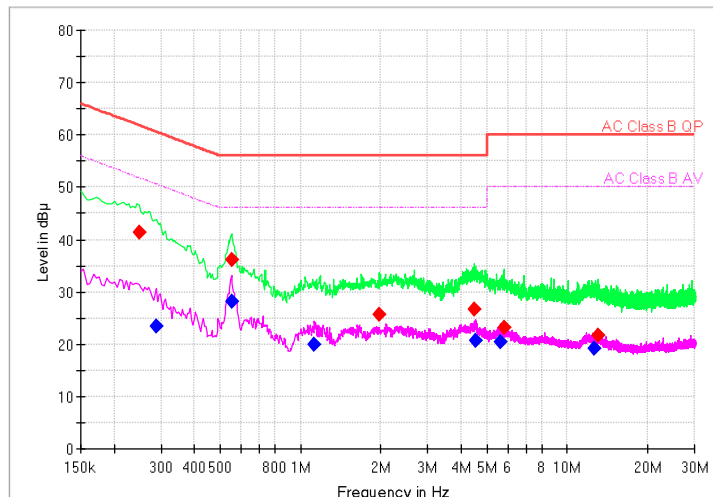
A "reference path loss" Corr.(dB) is established and the $L_{\text{cable}} + \text{ATT} + \text{VDF}$ is the attenuation of "reference path loss", and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.

The measurement results are obtained as described below:

$$P_{\text{result}} = P_{\text{mea}} + \text{Corr. (dB)}$$

Sample calculation: $(41.34\text{dB}\mu\text{V}) = (11.74\text{dB}\mu\text{V}) + (29.6\text{dB})$, the corresponding frequency is 0.248079MHz.

Full Spectrum

**L+N Line****MEASUREMENT RESULT:**

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	PmeaQuasiPeak (dBμV)	PmeaAverage (dBμV)
0.248079	41.34	---	61.82	20.48	L1	29.6	11.74	---
0.286457	---	23.35	50.63	27.28	N	29.6	---	-6.25
0.550843	36.19	---	56	19.81	N	29.6	6.59	---
0.550843	---	28.14	46	17.86	L1	29.6	---	-1.46
1.126522	---	19.85	46	26.15	L1	29.6	---	-9.75
1.97085	25.68	---	56	30.32	L1	29.6	-3.92	---
4.491043	26.63	---	56	29.37	L1	29.7	-3.07	---
4.520893	---	20.64	46	25.36	L1	29.7	---	-9.06
5.629607	---	20.47	50	29.53	L1	29.7	---	-9.23
5.774593	23.2	---	60	36.8	L1	29.7	-6.5	---
12.64862	---	19.18	50	30.82	L1	29.9	---	-10.72
13.05799	21.62	---	60	38.38	L1	29.9	-8.28	---

---End of Test Report---