Certificate #6613.01

FCC TEST REPORT

(Part 15, Subpart C)

Applicant:	Endress+Hauser Wetzer GmbH+Co.KG
Address:	Obere Wank 1, 87484 Nesselwang, Germany

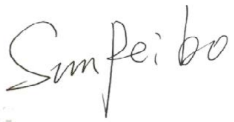
Manufacturer or Supplier:	Endress+Hauser Wetzer GmbH+Co.KG
Address:	Obere Wank 1, 87484 Nesselwang, Germany
Product:	IEEE.802.11b/g/n IoT Module
Brand Name:	Endress+Hauser
Model Name:	FMRU
FCC ID	2ARRT-FMRU
Date of tests:	Apr. 26, 2025 ~ Jun. 16, 2025

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.247**

☒ **ANSI C63.10-2020**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Hanwen Xu	Approved by Peibo Sun
Engineer / Mobile Department	Manager / Mobile Department
	
Date: Jun. 16, 2025	Date: Jun. 16, 2025

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-QSU2504250214RF01	Original release	Jun. 16, 2025

1. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**TEST LAB***
15.207	AC Power Conducted Emission	See note	--
15.205 15.209	Radiated Emissions	Compliance	A
15.247(d)	Out of band Emission Measurement	See note	--
15.247(a)(2)	6dB bandwidth	See note	--
15.247(b)	Conducted Output power	See note	-
15.247(e)	Power Spectral Density	See note	--
15.203	Antenna Requirement	See note	--

NOTE: Based on module reports, this report verify power and RSE worst case. The verify results of conducted power are similar to module, so this report only shows the worst case of RSE (802.11b_CH11) and Band Edge(802.11n20_CH1). For other data, please refer to the module report (Report No: D50909R1, FCC ID: 2ADHKATWILC1000).

***Test Lab Information Reference**

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province, China

Accredited Test Lab Cert 6613.01

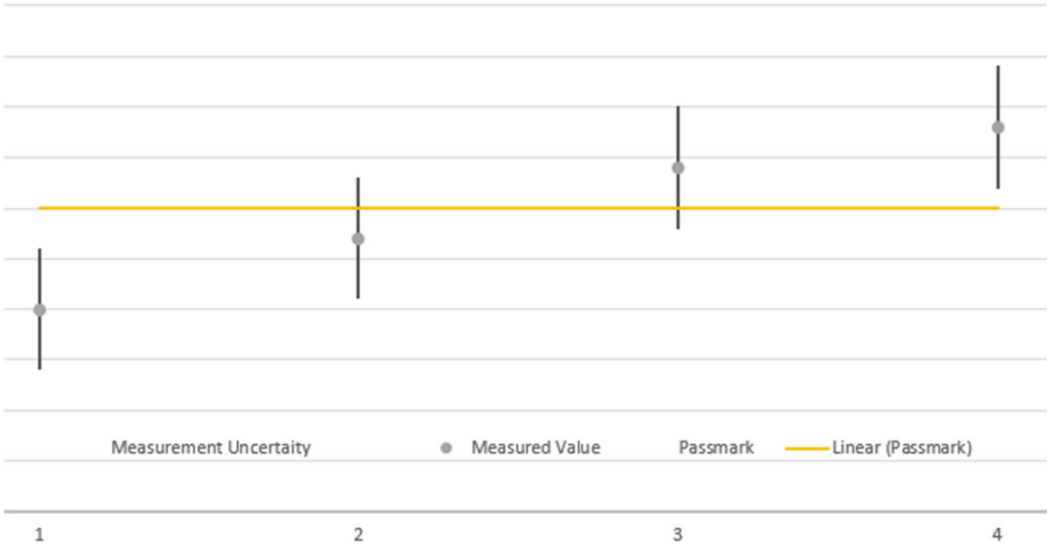
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions (30MHz~1GHz)	±4.98dB
Radiated emissions (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Power Spectral Density	±0.85 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

2 GENERAL INFORMATION

2.2 GENERAL DESCRIPTION OF EUT

PRODUCT*	IEEE.802.11b/g/n IoT Module
BRAND NAME*	Endress+Hauser
MODEL NAME*	FMRU
NOMINAL VOLTAGE*	DC 24V & AC 230V
MODULATION *	DSSS, OFDM
TRANSMISSION RATE*	802.11b: 11/5.5/2.0/1.0 Mbps
	802.11g: 54/48/36/24/18/9/6 Mbps
	802.11n(HT20): up to 72.2 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20)
MAX. OUTPUT POWER	214.78mW (Maximum)
ANTENNA GAIN*	-0.3dBi
ANTENNA TYPE*	PCB antenna
HW VERSION*	01.00
SW VERSION*	16.xx
I/O PORTS*	Refer to user's manual
CABLE SUPPLIED*	N/A

NOTE:

1. ***Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n(HT20)	1TX/1RX

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
5. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

6. The only difference between panel and DinRail and field is the housing, everything else is the same.

2.3 DESCRIPTION OF TEST MODES

11 Channels are provided for 802.11b, 802.11g and 802.11n20 (HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 4 photographs of the test configuration for reference.

2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.
The worst case was found when positioned on Y axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
-	√	√	-	-	-

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ The following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n20	1 to 11	11	OFDM	MCS0

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ The following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n20(HT20)	1 to 11	11	OFDM	MCS0

TEST CONDITION			
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 24V By DC source	Hanwen Xu
RE≥1G	23deg. C, 70%RH	DC 24V By DC source	Hanwen Xu
PLC	25deg. C, 52%RH	DC 24V By DC source	Hanwen Xu
APCM	25deg. C, 60%RH	DC 24V By DC source	Hanwen Xu

2.4 DUTY CYCLE OF TEST SIGNAL

Please refer to the module report (Report No: D50909R1, FCC ID: 2ADHKATWILC1000).

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2020

Note：

1. All test items have been performed and recorded as per the above standards.
2. The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Certification). The test report has been issued separately.

2.6 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Laptop	Lenovo	Thinkpad E14	SL10W47313	N/A
2	DC Source	HYELEC	HY3010B	551016	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable, 1.0m;

3 TEST TYPES AND RESULTS

3.1 RADIATED EMISSION MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,23	Aug.29,25
Pre-Amplifier	R&S	SCU08F1	101028	Jan.22,24	Jan.21,26
Signal Generator	R&S	SMB100A	182185	Mar.29,24	Mar.28,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESW44	101973	Mar.28,24	Mar.27,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Dec.26,23	Dec.25,25
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,23	Aug.21,25
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Jul.15,24	Jul.14,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,23	Aug.21,25
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,25	Feb.21,27
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.19,24	Jun.18,26
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,23	Aug.30,25
Hygrothermograph	DELI	20210528	SZ014	Sep.06,23	Sep.05,25
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.26,25	Apr.25,26
CABLE	R&S	W12.14	N/A	Apr.26,25	Apr.25,26

NOTE:

1. The calibration interval of the above test instruments is 12/ 24 / 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in 3m Chamber.
3. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

3.1.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

Note:

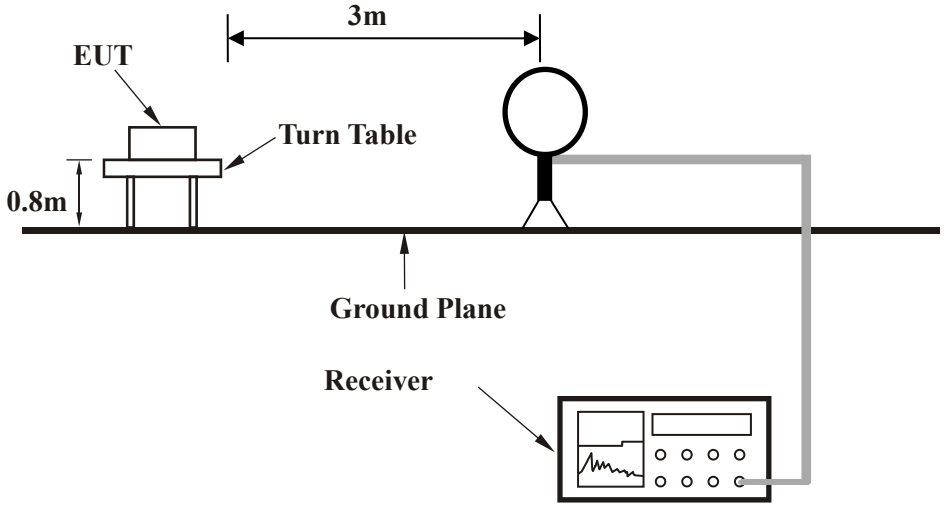
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 DEVIATION FROM TEST STANDARD

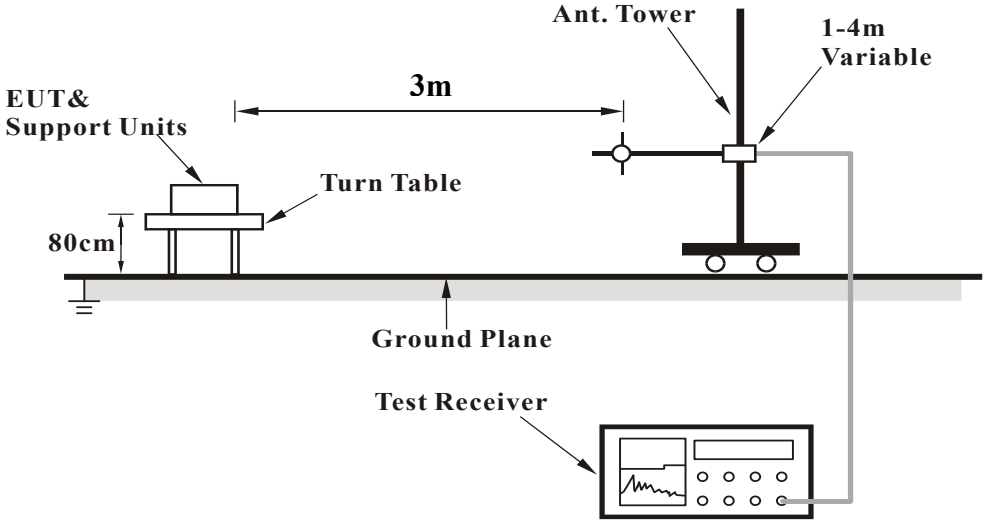
No deviation

3.1.5 TEST SETUP

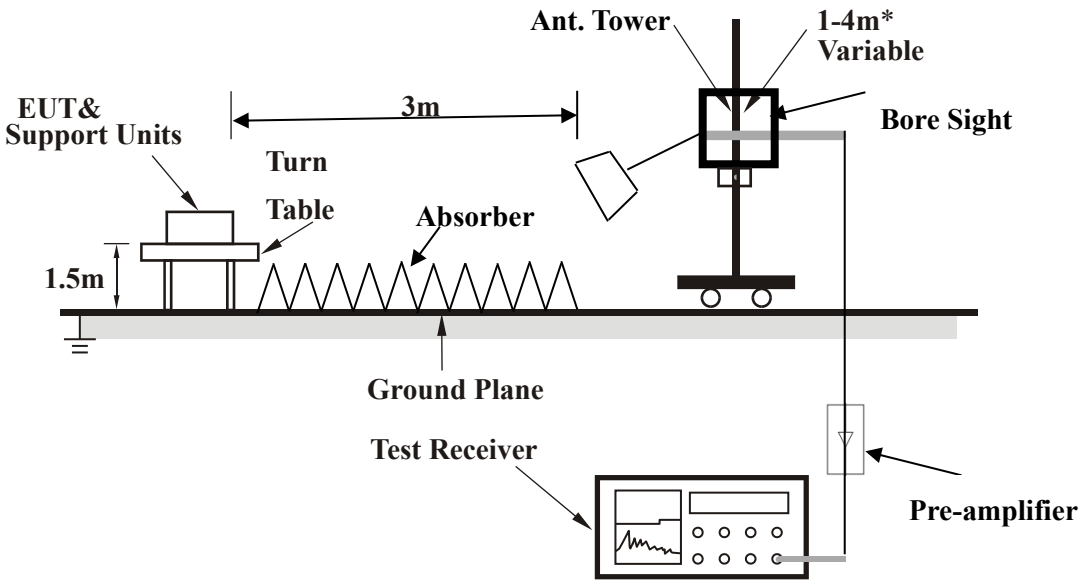
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.6 EUT OPERATING CONDITIONS

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

3.1.7 TEST RESULTS

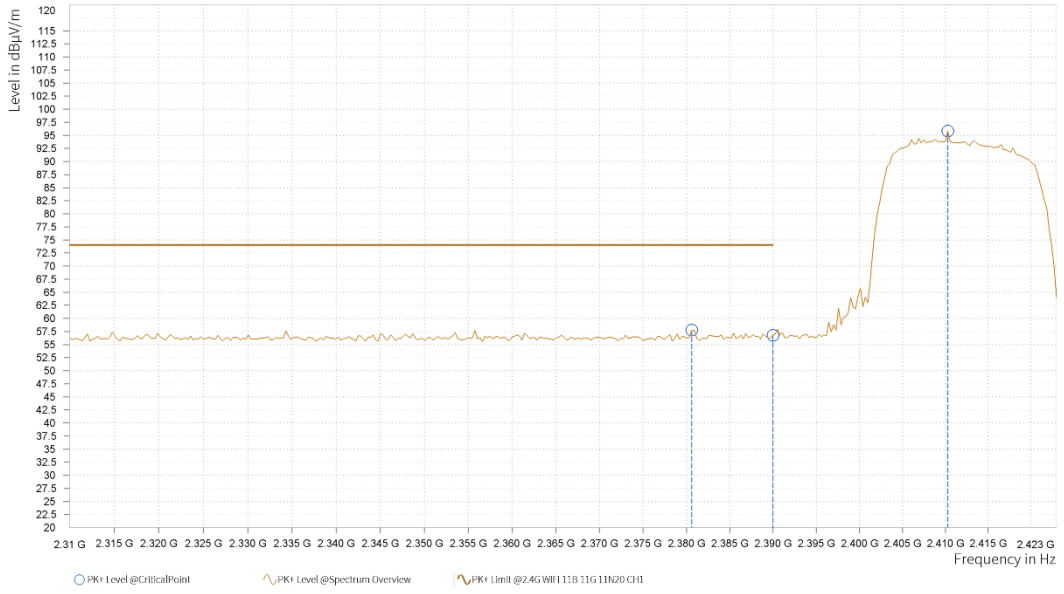
panel:

BAND EDGE MEASUREMENT

802.11n (20MHz)			
CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

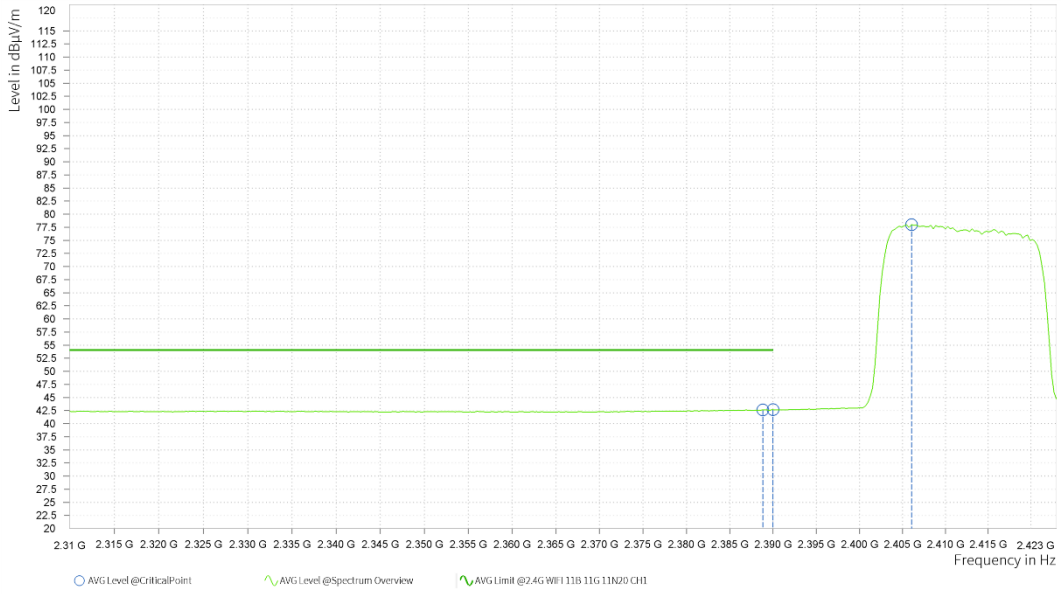
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,380.625	57.77	74.00	16.23	36.97	H	345	1.00
1	2,390.000	56.74	74.00	17.26	37.10	H	345	1.00
1	2,410.288	95.83			37.37	H	231.4	2.00



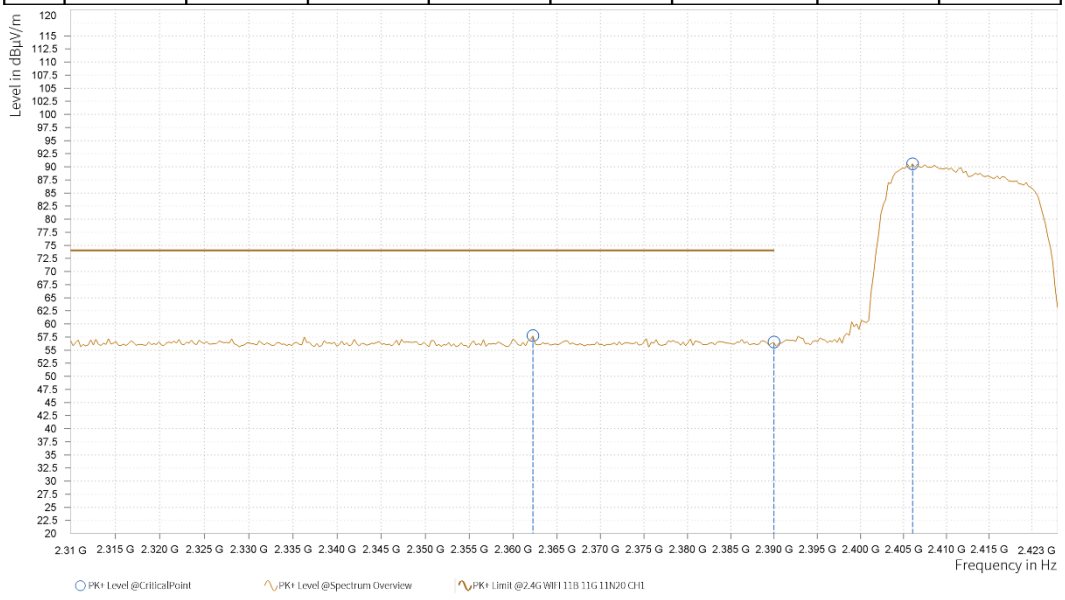
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,388.818	42.63	54.00	11.37	37.08	H	346.5	1.00
1	2,390.000	42.67	54.00	11.33	37.10	H	1	1.00
1	2,406.050	78.00			37.32	H	0.9	2.00

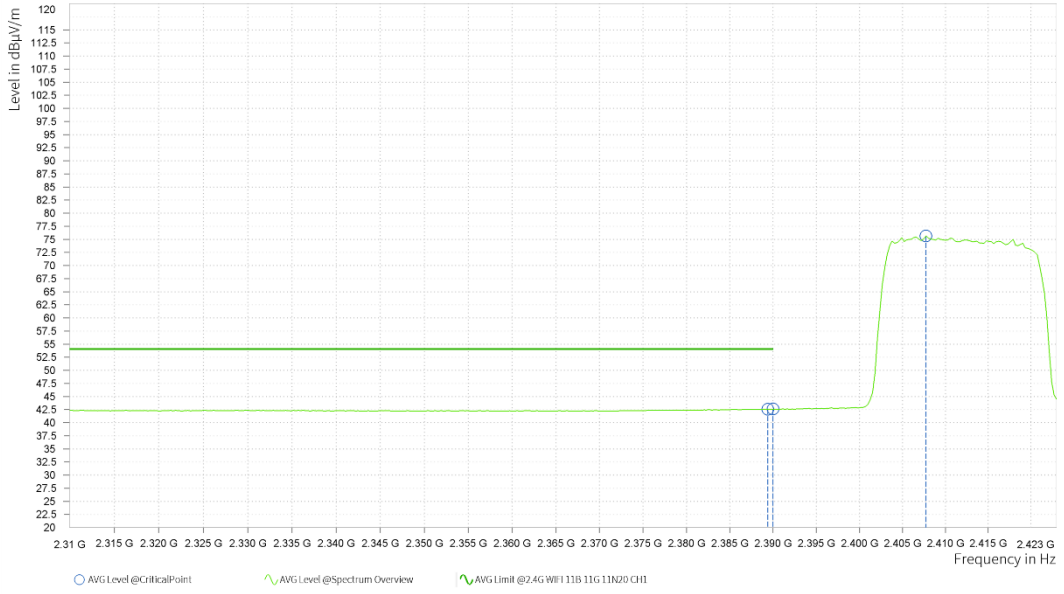


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,362.263	57.74	74.00	16.26	36.85	V	359	2.00
1	2,390.000	56.52	74.00	17.48	37.10	V	321.1	2.00
1	2,406.050	90.58			37.32	V	230.3	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.383	42.59	54.00	11.41	37.09	V	347.9	1.00
1	2,390.000	42.60	54.00	11.40	37.10	V	229.1	2.00
1	2,407.745	75.65			37.34	V	229.1	2.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value- Emission level.
3. 2412MHz: Fundamental frequency.

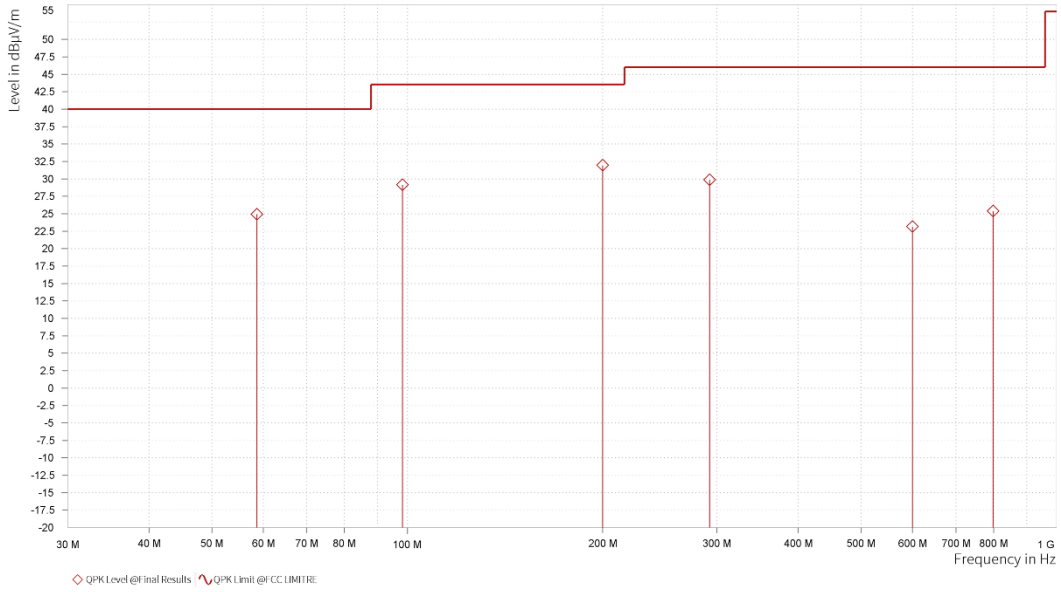
RADIATED EMISSION

BELOW 1GHz WORST-CASE DATA			
NOTE: The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.			
802.11b			
CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	58.664	24.93	40.00	15.07	-9.76	H	82.2	2.00	120.000
1	98.337	29.14	43.50	14.36	-11.40	H	355.1	2.00	120.000
1	200.041	31.94	43.50	11.56	-10.11	H	292.2	1.00	120.000
1	292.094	29.85	46.00	16.15	-6.47	H	140.3	1.00	120.000
1	599.778	23.15	46.00	22.85	-1.38	H	5	1.00	120.000
1	798.725	25.36	46.00	20.64	0.43	H	5	1.00	120.000

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value- Emission level.



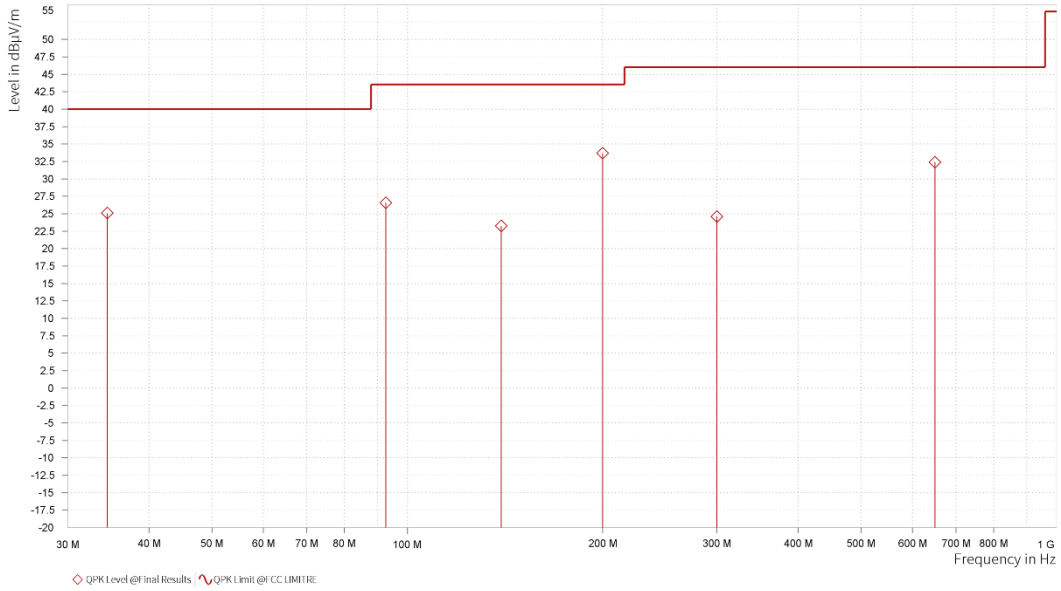
CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	34.511	25.07	40.00	14.93	-13.56	V	282.6	1.00	120.000
1	92.614	26.56	43.50	16.94	-12.21	V	1	1.00	120.000
1	139.562	23.25	43.50	20.25	-13.87	V	220.9	2.00	120.000
1	199.993	33.67	43.50	9.83	-10.74	V	77.4	2.00	120.000
1	299.951	24.58	46.00	21.42	-6.40	V	220.9	2.00	120.000
1	649.976	32.39	46.00	13.61	-1.98	V	1	1.00	120.000

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value- Emission level.



ABOVE 1GHz WORST-CASE DATA

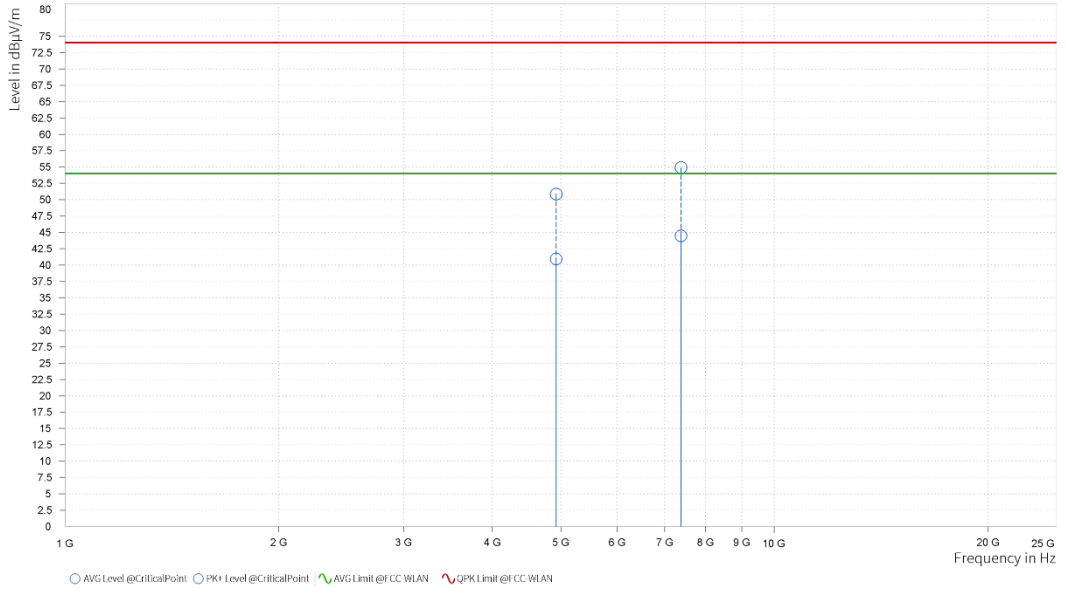
Note:

1. For radiated emissions testing，the full testing range of different modes have been scanned，only the worst case harmonic data is reported in the sheet.
2. All other emissions were greater than 20dB below the limit was not recorded

802.11b			
CHANNEL	TX Channel 11	**DETECTOR**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	**FUNCTION**	Average (AV)

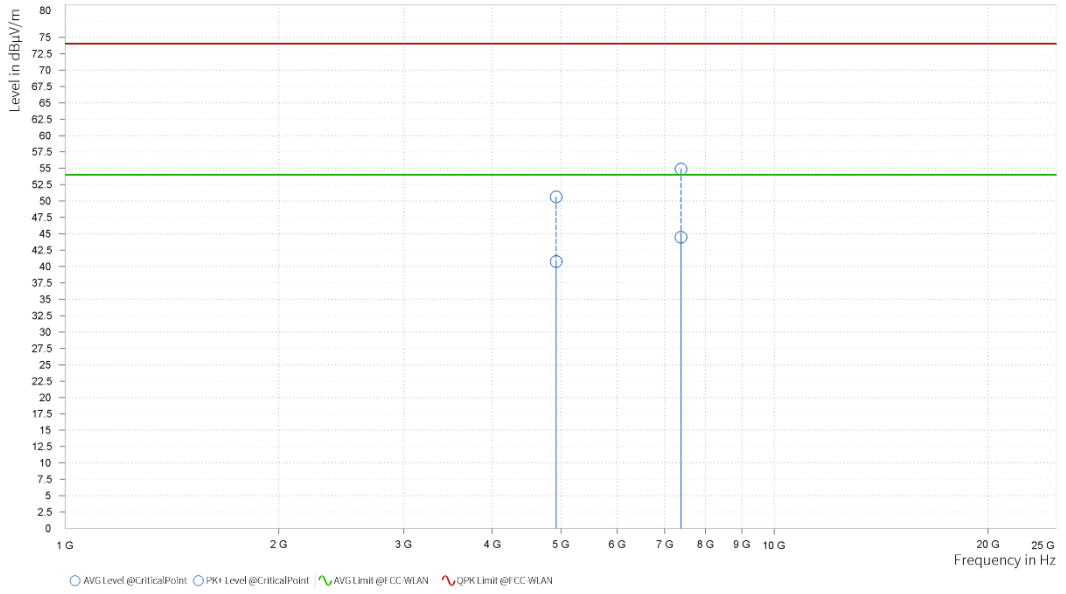
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,924.000	50.88	74.00	23.12	40.93	54.00	13.07	18.70	H	125	2.00
3	7,386.000	54.92	74.00	19.08	44.47	54.00	9.53	24.51	H	125	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,924.000	50.65	74.00	23.35	40.76	54.00	13.24	18.70	V	1	2.00
3	7,386.000	54.88	74.00	19.12	44.46	54.00	9.54	24.51	V	359	2.00



REMARKS:

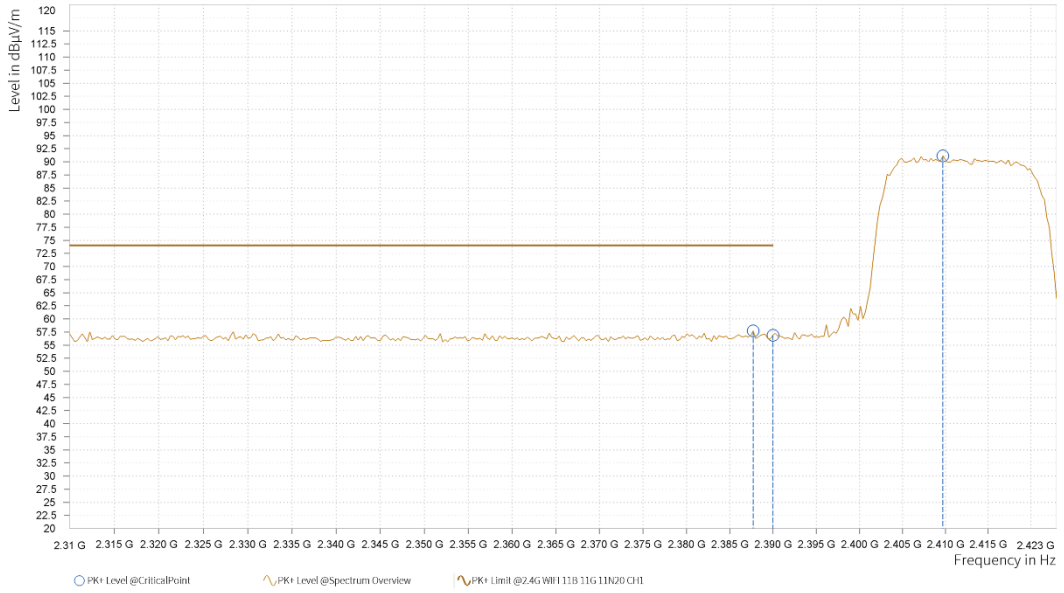
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value- Emission level.
3. 2412MHz: Fundamental frequency.

DinRail:

BAND EDGE MEASUREMENT

802.11n (20MHz)			
CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.688	57.72	74.00	16.28	37.07	H	1	1.00
1	2,390.000	56.88	74.00	17.12	37.10	H	1.8	2.00
1	2,409.723	91.14			37.37	H	1.8	2.00

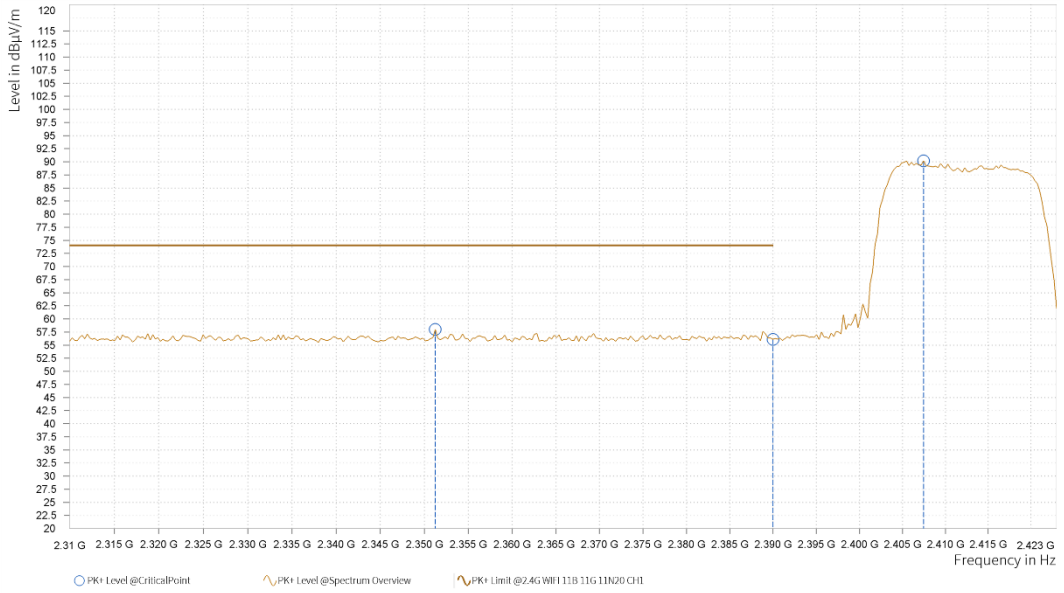


ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.665	42.66	54.00	11.34	37.09	H	1.5	2.00
1	2,390.000	42.64	54.00	11.36	37.10	H	0.9	2.00
1	2,410.570	77.58			37.38	H	1.5	2.00

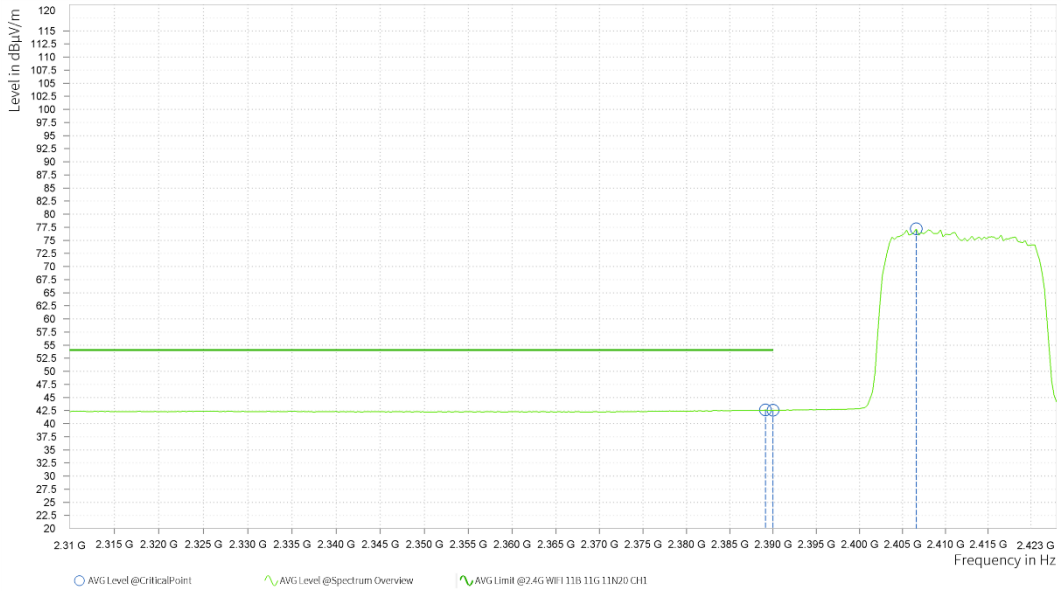
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,351.245	57.99	74.00	16.01	36.87	V	5.8	1.00
1	2,390.000	56.09	74.00	17.91	37.10	V	221.8	1.00
1	2,407.463	90.19			37.34	V	98.8	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.100	42.61	54.00	11.39	37.09	V	0.9	2.00
1	2,390.000	42.57	54.00	11.43	37.10	V	355	2.00
1	2,406.615	77.20			37.32	V	101.2	2.00



REMARKS:

4. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
5. Margin value = Limit value- Emission level.
6. 2412MHz: Fundamental frequency.

RADIATED EMISSION

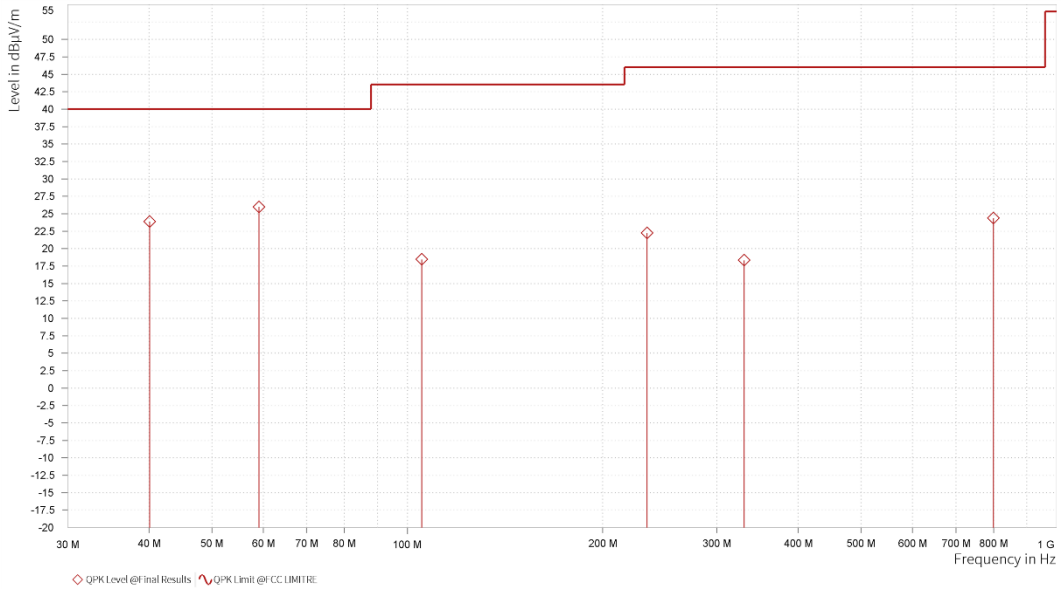
BELOW 1GHz WORST-CASE DATA			
NOTE: The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.			
802.11b			
CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	40.088	23.88	40.00	16.12	-9.99	H	76.2	2.00	120.000
1	59.100	25.97	40.00	14.03	-9.90	H	0.9	2.00	120.000
1	105.272	18.45	43.50	25.05	-10.75	H	280.2	1.00	120.000
1	234.137	22.21	46.00	23.79	-8.43	H	76.2	2.00	120.000
1	330.167	18.32	46.00	27.68	-5.07	H	4.3	1.00	120.000
1	799.550	24.36	46.00	21.64	0.43	H	4.3	1.00	120.000

REMARKS:

1 Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor

2 Margin value = Limit value- Emission level.



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

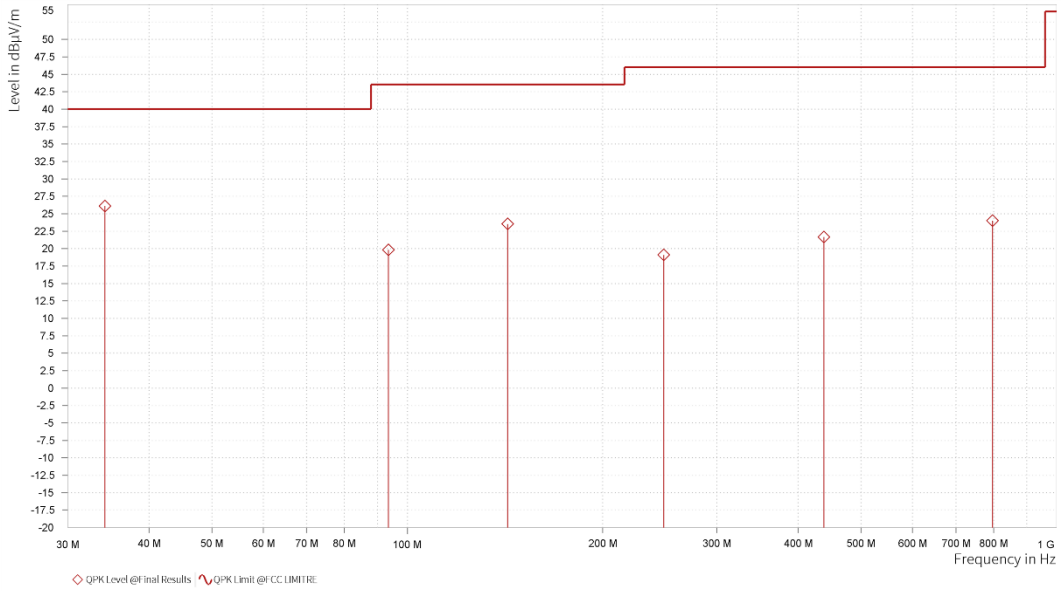
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	34.220	26.10	40.00	13.90	-13.62	V	359.1	1.00	120.000
1	93.487	19.81	43.50	23.69	-12.06	V	359.1	1.00	120.000
1	142.763	23.52	43.50	19.98	-13.89	V	219.7	2.00	120.000
1	248.299	19.08	46.00	26.92	-8.69	V	0.9	2.00	120.000
1	438.176	21.66	46.00	24.34	-2.70	V	1	1.00	120.000
1	796.882	24.02	46.00	21.98	0.07	V	5	1.00	120.000

REMARKS:

1 Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor

2 Margin value = Limit value- Emission level.



ABOVE 1GHz WORST-CASE DATA

Note:

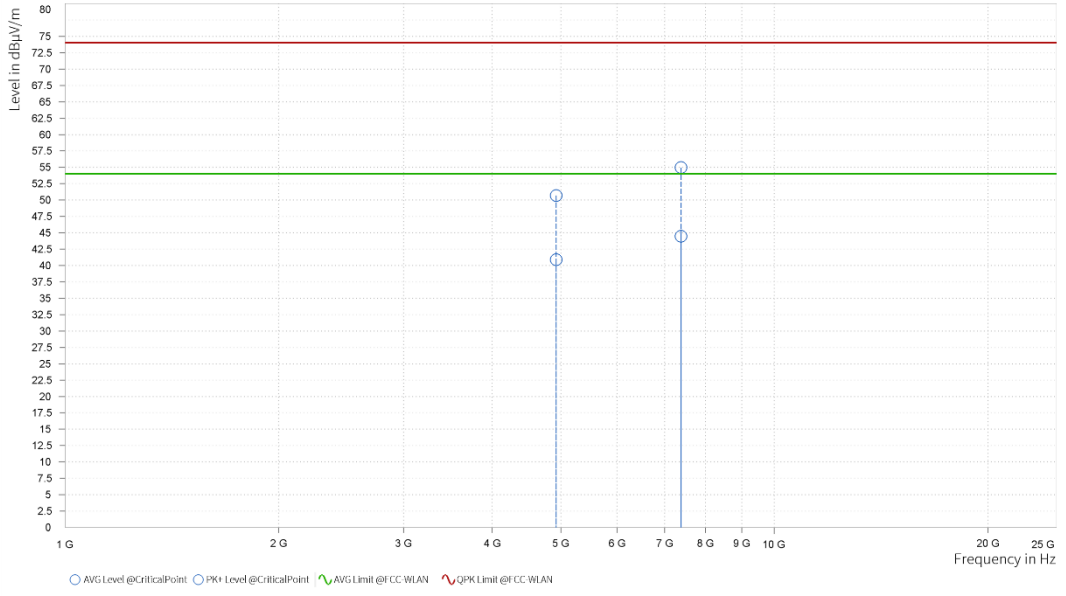
1 For radiated emissions testing，the full testing range of different modes have been scanned，only the worst case harmonic data is reported in the sheet.

2 All other emissions were greater than 20dB below the limit was not recorded

802.11b			
CHANNEL	TX Channel 11	**DETECTOR**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	**FUNCTION**	Average (AV)

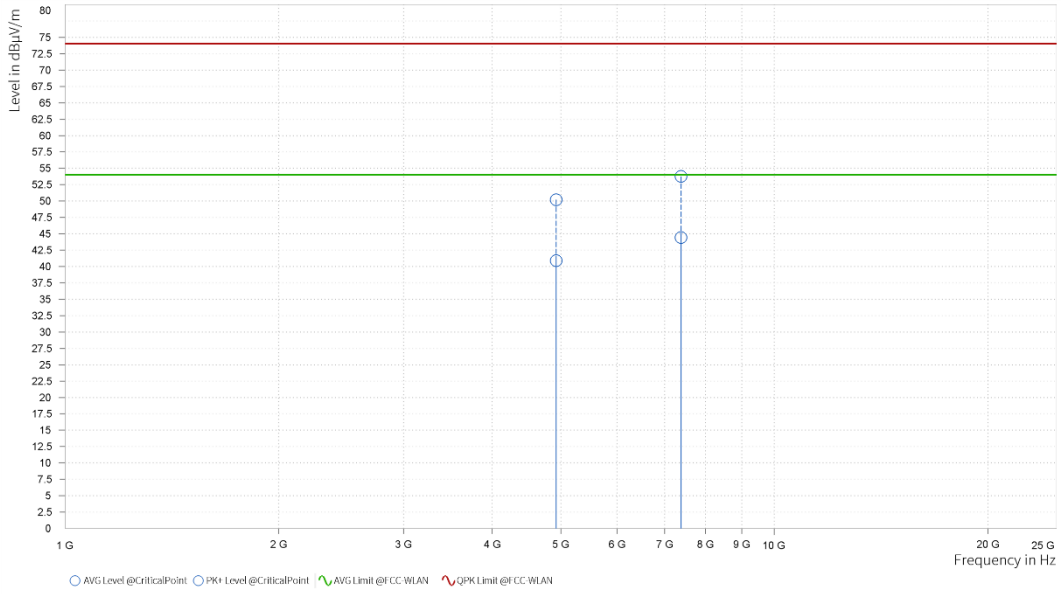
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,924.000	50.69	74.00	23.31	40.90	54.00	13.10	18.70	H	359.1	1.00
3	7,386.000	54.96	74.00	19.04	44.48	54.00	9.52	24.51	H	0.9	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,924.000	50.20	74.00	23.80	40.89	54.00	13.11	18.70	V	0.9	2.00
3	7,386.000	53.75	74.00	20.25	44.43	54.00	9.57	24.51	V	236.2	1.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value- Emission level.
3. 2412MHz: Fundamental frequency.

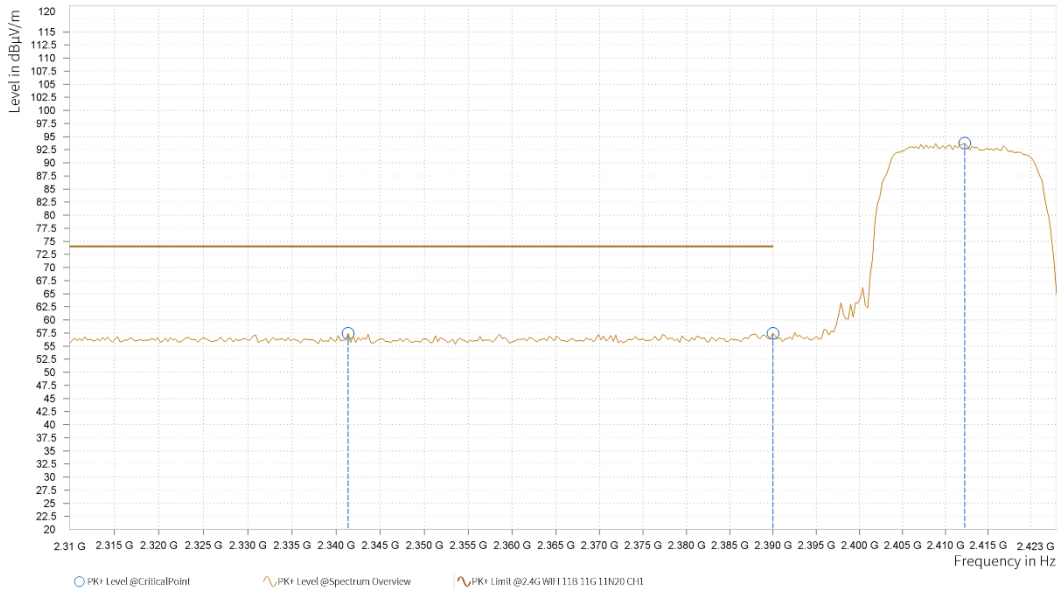
field:

BAND EDGE MEASUREMENT

802.11n (20MHz)			
CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

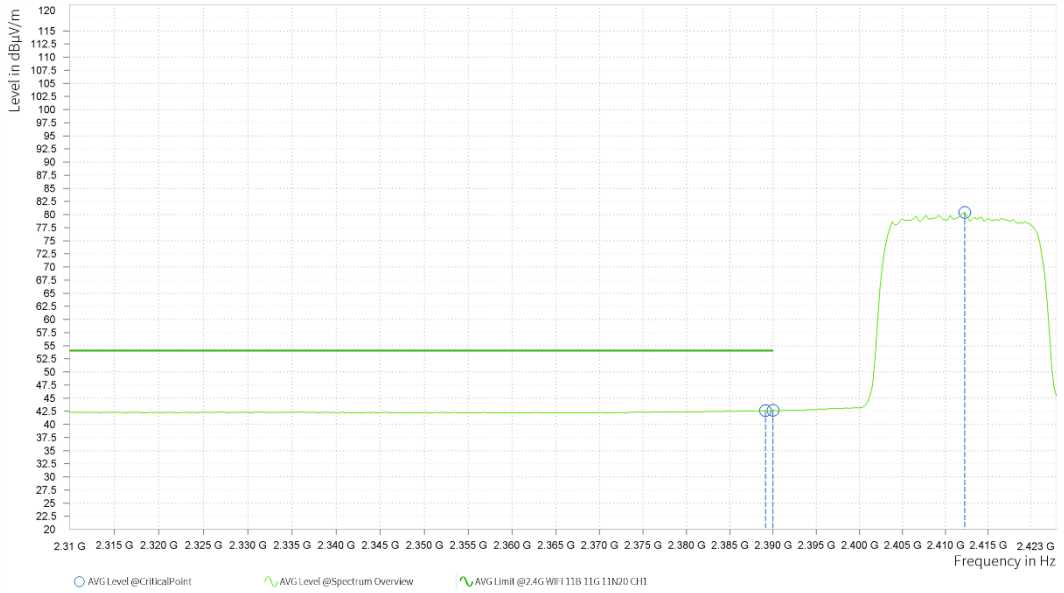
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,341.358	57.44	74.00	16.56	36.90	H	345.1	1.00
1	2,390.000	57.42	74.00	16.58	37.10	H	355.6	2.00
1	2,412.265	93.73			37.40	H	40.2	1.00



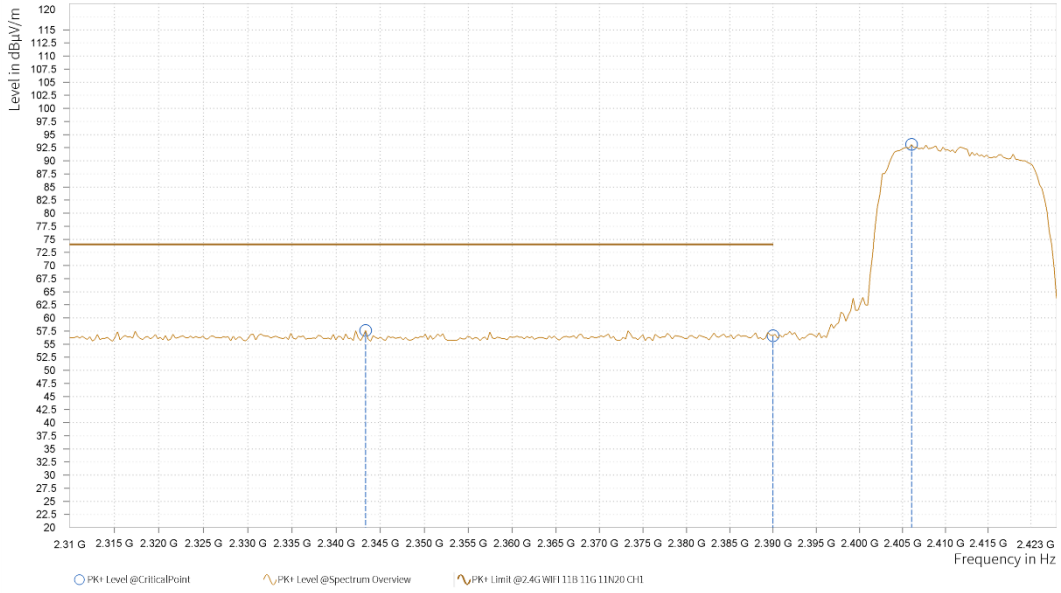
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.100	42.63	54.00	11.37	37.09	H	41.4	1.00
1	2,390.000	42.67	54.00	11.33	37.10	H	41.4	1.00
1	2,412.265	80.40			37.40	H	5.8	1.00



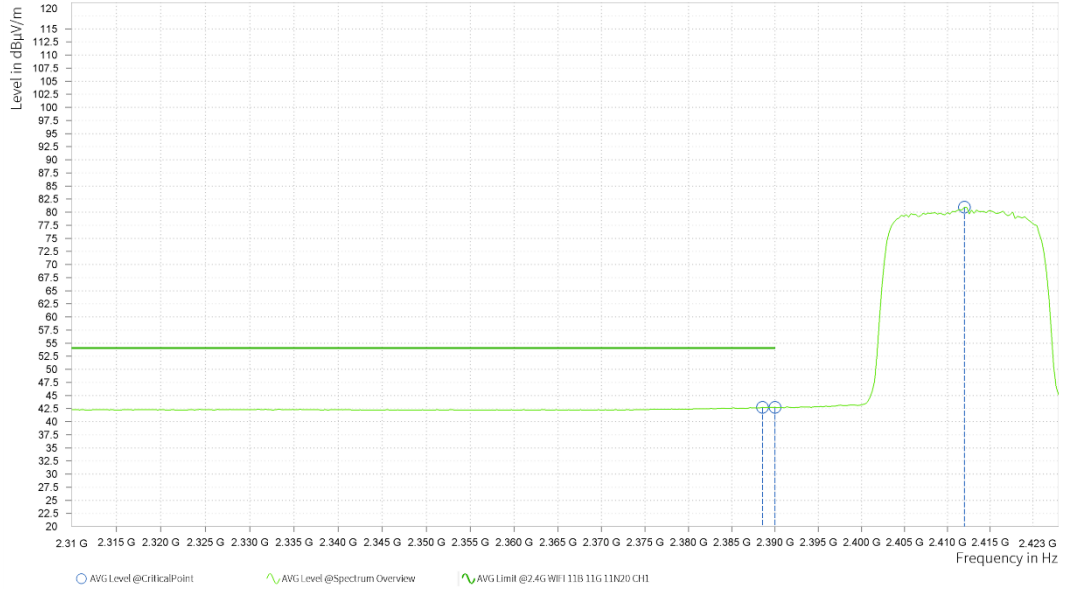
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,343.335	57.60	74.00	16.40	36.89	V	5.8	1.00
1	2,390.000	56.61	74.00	17.39	37.10	V	48.5	2.00
1	2,406.050	93.12			37.32	V	183.7	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,388.535	42.73	54.00	11.27	37.08	V	188.4	2.00
1	2,390.000	42.73	54.00	11.27	37.10	V	188.4	2.00
1	2,411.983	80.97			37.40	V	231.6	2.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
2. Margin value = Limit value- Emission level.
3. 2412MHz: Fundamental frequency.

RADIATED EMISSION

BELOW 1GHz WORST-CASE DATA

NOTE: The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

802.11b			
CHANNEL	TX Channel 11	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

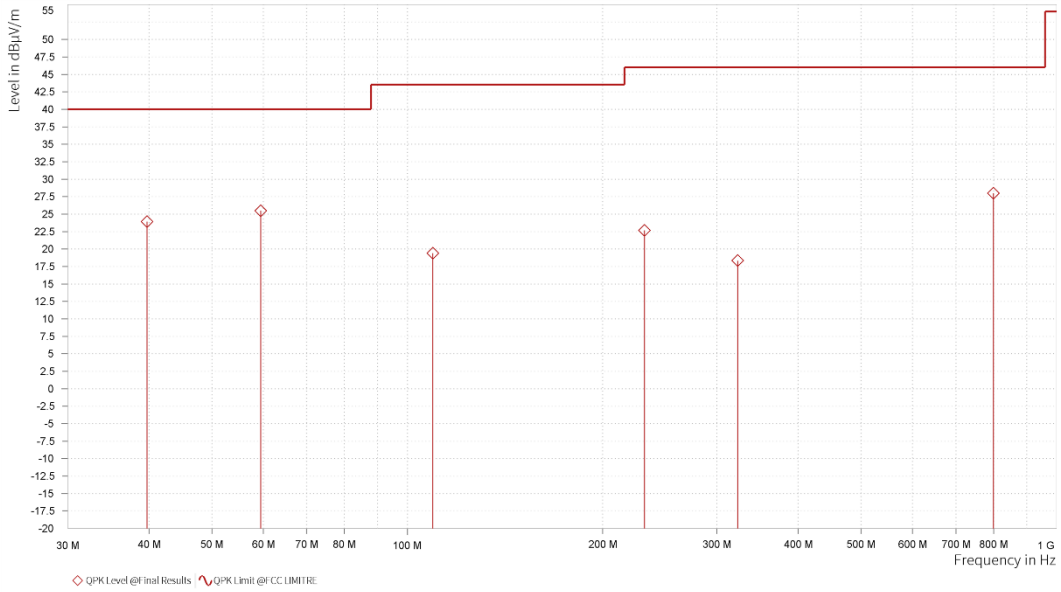
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	39.749	23.93	40.00	16.07	-10.03	H	359	1.00	120.000
1	59.488	25.48	40.00	14.52	-10.02	H	222	2.00	120.000
1	109.540	19.41	43.50	24.09	-11.17	H	140.3	1.00	120.000
1	231.906	22.67	46.00	23.33	-8.60	H	78.6	2.00	120.000
1	322.746	18.32	46.00	27.68	-6.35	H	5.6	1.00	120.000
1	799.792	27.98	46.00	18.02	0.43	H	222	2.00	120.000

REMARKS:

1 Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor

2 Margin value = Limit value- Emission level.



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

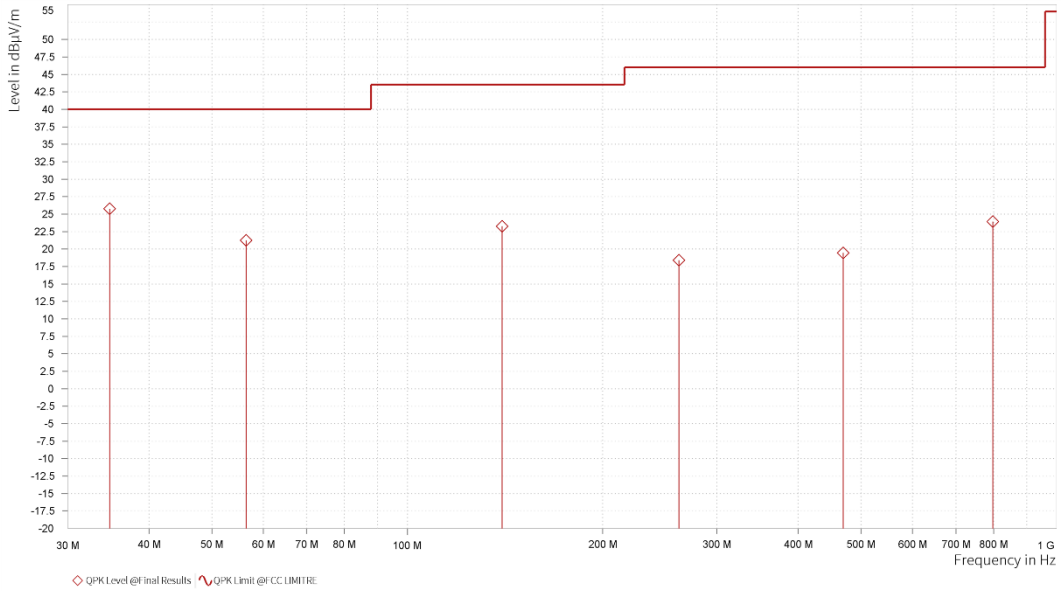
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	34.802	25.73	40.00	14.27	-13.48	V	140.3	1.00	120.000
1	56.481	21.24	40.00	18.76	-11.37	V	285	1.00	120.000
1	139.998	23.26	43.50	20.24	-13.90	V	220.9	2.00	120.000
1	262.024	18.40	46.00	27.60	-7.95	V	359	2.00	120.000
1	469.459	19.44	46.00	26.56	-2.91	V	285	1.00	120.000
1	797.464	23.91	46.00	22.09	0.07	V	5.6	1.00	120.000

REMARKS:

1 Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor

2 Margin value = Limit value- Emission level.



ABOVE 1GHz WORST-CASE DATA

Note:

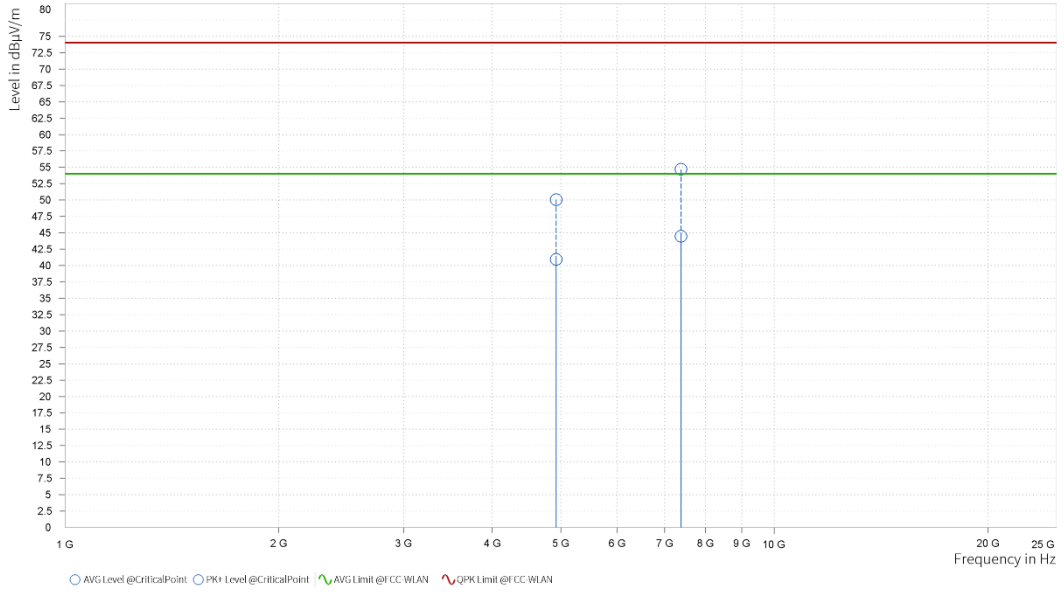
1 For radiated emissions testing，the full testing range of different modes have been scanned，only the worst case harmonic data is reported in the sheet.

2 All other emissions were greater than 20dB below the limit was not recorded

802.11b			
CHANNEL	TX Channel 11	**DETECTOR**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	**FUNCTION**	Average (AV)

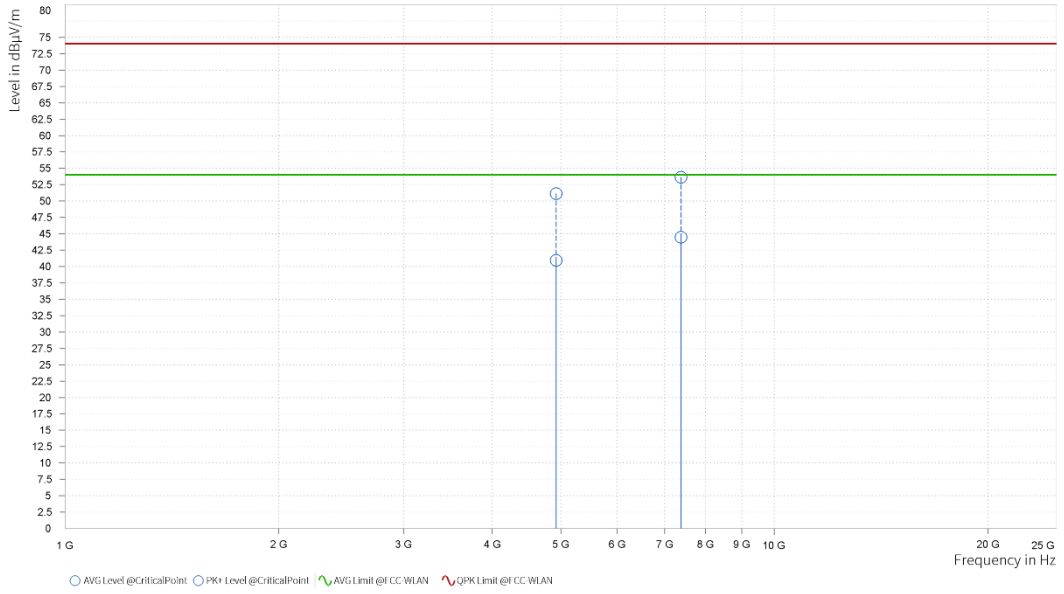
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,924.000	50.07	74.00	23.93	40.96	54.00	13.04	18.70	H	359.1	1.00
3	7,386.000	54.69	74.00	19.31	44.45	54.00	9.55	24.51	H	1	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,924.000	51.15	74.00	22.85	40.96	54.00	13.04	18.70	V	359	2.00
3	7,386.000	53.65	74.00	20.35	44.45	54.00	9.55	24.51	V	1	1.00



REMARKS:

4. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
5. Margin value = Limit value- Emission level.
6. 2412MHz: Fundamental frequency.

3 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

4 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

--END--