Certificate #6613.01

FCC TEST REPORT

(Part 15, Subpart C)

Applicant:	HMD Global Oy
Address:	Bertel Jungin aukio 9 Espoo 02600 Finland

Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9 Espoo 02600 Finland
Product:	Smartphone
Brand Name:	HMD
Model Name:	N159V
FCC ID:	2AJOTTA-1590
Date of tests:	Jan. 02, 2024 ~ Jan. 30, 2024

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

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

☒ **ANSI C63.10-2013**

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: Jan. 30, 2024	Date: Jan. 30, 2024

TABLE OF CONTENTS

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2311090109RF06	Original release	Jan. 30, 2024

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	Compliance	A
15.205 15.209	Radiated Emissions	Compliance	A
15.247(d)	Out of band Emission Measurement	Compliance	A
15.247(a)(2)	6dB bandwidth	Compliance	A
15.247(b)	Conducted Output power	Compliance	A
15.247(e)	Power Spectral Density	Compliance	A
15.203	Antenna Requirement	Compliance	A

Note：1.Except RSE, other data please refer to Appendix 1 (for WIFI-2.4G) and Appendix 2 (for BLE).

***Test Lab Information Reference**

Lab A:

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

Lab Address:

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

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.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	Smartphone
BRAND NAME*	HMD
MODEL NAME*	N159V
NOMINAL VOLTAGE*	5.0Vdc (adapter) 3.87Vdc (battery)
MODULATION *	DSSS, OFDM, GFSK
TRANSMISSION RATE	802.11b: 11/ 5.5/ 2.0 / 1.0 Mbps 802.11g: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n20: up to 144.4 Mbps 802.11n40: up to 300 Mbps BT_LE: 1 Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20/40) 2402-2480MHz for BT-LE(GFSK)
MAX. OUTPUT POWER	WLAN: 215.28 mW (Maximum) BT-LE: 7.36 mW (Maximum)
ANTENNA TYPE*	PIFA Antenna with -0.08dBi gain for BT/WIFI
HW VERSION*	V 1.0
SW VERSION*	02US_0_101
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 MIMO function. Physically, the EUT provides one transmitter and one receiver.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX /1RX
802.11g	1TX /1RX
802.11n (20MHz)	1TX /1RX
802.11n (40MHz)	1TX /1RX
BT_LE(1MHz)	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. For the product of N159V(FCC ID 2AJOTTA-1590), the following components are different between the first and second supply, other parameters are the same.

Component		**First supply**		**Second supply**	
		Supplier	specificatons	Supplier	specificatons
PCBA	3GB LPDDR	Longsys	3GB	biwin	3GB
	64GB EMMC	Longsys	64GB	biwin	64GB
	Charger IC	SGMICRO	3.78A Single Cell Switching Battery Charger IC	Unisemi	3.78A Single Cell Switching Battery Charger IC
LCM	LCD	TCL	LCD a-Si TFT;720*1612	Icetron	LCD a-Si TFT;720*1612
Front camera	Camera	Union Image	5M;FF	Imaging	5M;FF
CAM	Camera	Union Image	13 AF	Sunwin	13 AF
	Camera	SEGA	2M	Imaging	2M
Acoustic	Vibrator	KunWang	0830	HONGZHIFA	0830
	FPC	XINYE	Speaker FPC：	Lat	Speaker FPC：

		32.1*11.46*0.15		32.1*11.46*0.15
LED	Runlite	White LED;500mA;1500mA	latticepower	White LED;500mA;1500mA
Battery	gaoyuan	4000mAh;3.87V;4.45V	highpower	4000mAh;3.87V;4.45V
antenna	Haitong	Omni-directional,Linear,antenna shrapnel	Kexinhuacheng	Omni-directional, Linear,antenna shrapnel
MIC	Gettop	L2.75xW1.85xH0.9 mm	goertek	L2.75xW1.85xH0.9 mm
Data cable	Saibao	5V2A	TorchWay	5V2A

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery 1	Gaoyuan	N/A	CH426385	Power Rating: 15.48Wh
Battery 2	Highpower	N/A	CH426385	Power Rating: 15.48Wh
AC Adapter	BaiJunDa	BaiJunDa	HAD-010U	I/P: 100-240Vac, O/P: 4.8~5.4Vdc, 2.0A
USB Cable 1	Saibao	N/A	SZN-A036A	Signal Line, 1.0meter 5V 2A
USB Cable 2	TorchWay	N/A	JWUB1651-ZN01H	Signal Line, 1.0meter 5V 2A

2.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (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		

7 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422 MHz	7	2442 MHz
4	2427 MHz	8	2447 MHz
5	2432 MHz	9	2452 MHz
6	2437 MHz		

40 channels are provided for BT-LE (GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 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).

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	6	OFDM	MCS0
BT-LE	0 to 39	19	GFSK	1.0

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).

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
802.11n HT40	3 to 9	3,6,9	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	1.0

POWER LINE CONDUCTED EMISSION TEST

☒ 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).

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11n 40	3 to 9	3	OFDM	MCS0

BANDEDGE MEASUREMENT:

☒ 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).

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
802.11n HT40	3 to 9	3,6,9	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	1.0

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ 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).

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	1.0
802.11g	1 to 11	1, 6, 11	OFDM	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS0
802.11n HT40	3 to 9	3,6,9	OFDM	MCS0
BT-LE	0 to 39	0,19, 39	GFSK	1.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 5V By Adapter	Hanwen Xu
RE≥1G	23deg. C, 70%RH	DC 5V By Adapter	Hanwen Xu
PLC	25deg. C, 52%RH	DC 5V By Adapter	Hanwen Xu
APCM	25deg. C, 60%RH	DC 3.85V By Battery	Hanwen Xu

2.3 DUTY CYCLE OF TEST SIGNAL

Please Refer to Appendix1/2 Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1/2
WIFI 2.4GHz	11B	97.36
	11G	98.28
	11N20	98.15
	11N40	94.76
BT LE	BT4.0	86.97

Note:

Duty cycle of test signal is < 98%, duty factor shall be considered.

2.4 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 C63.10-2013

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.

2.5 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	HRSW00024	N/A
2	Adapter	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1.The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	102749	Feb.25,22	Feb.24,24
ELEKTRA test software	Rohde&Schwarz	ELEKTRA	NA	N/A	N/A
LISN network	Rohde&Schwarz	ENV216	102640	Feb.17,22	Feb.16,24
CABLE	Rohde&Schwarz	W61.01	N/A	Apr.28,23	Apr.27,24
CABLE	Rohde&Schwarz	W601	N/A	Apr.28,23	Apr.27,24

NOTE:

1. The test was performed in CE shielded room.
2. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

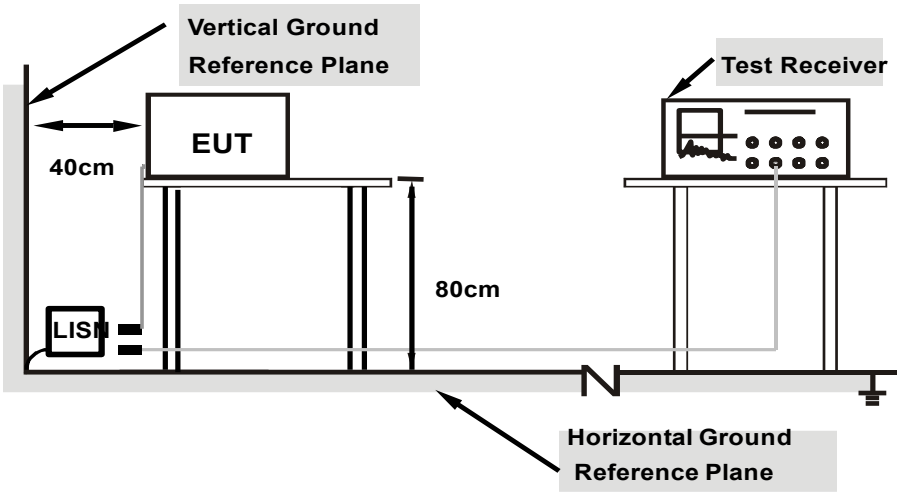
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: 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



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power and connected of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

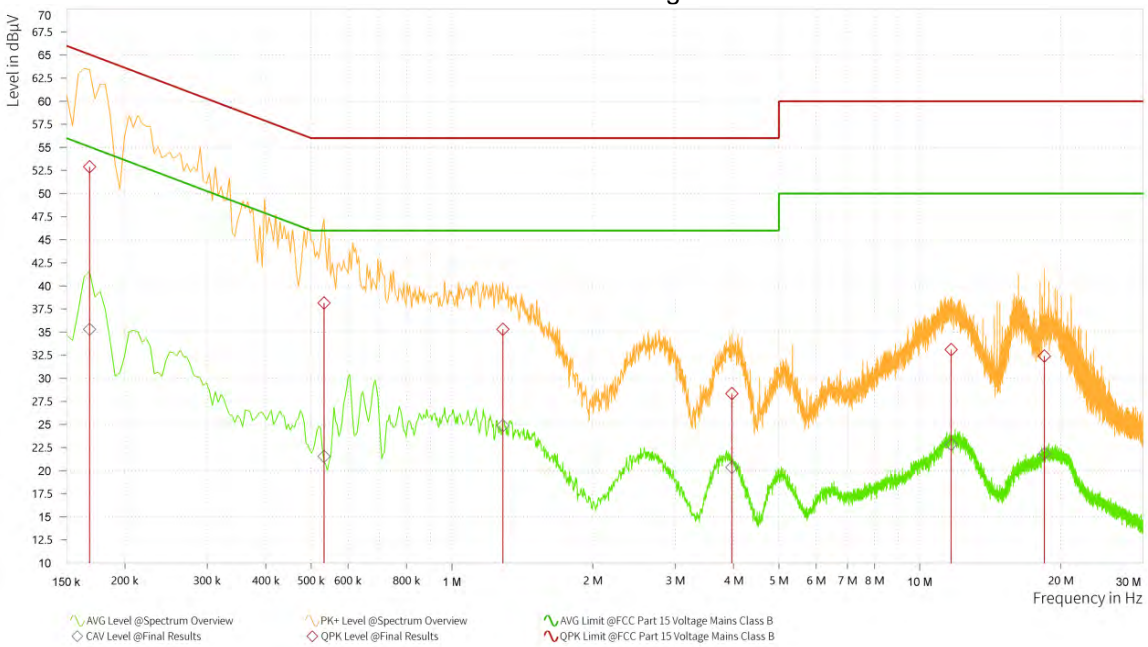
3.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Hanwen Xu		

Rg	Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.168	52.90	65.06	12.15	35.30	55.06	19.76	12.36	L1	9.000
1	0.533	38.16	56.00	17.84	21.55	46.00	24.45	11.75	L1	9.000
1	1.284	35.31	56.00	20.69	24.87	46.00	21.13	11.75	L1	9.000
1	3.966	28.33	56.00	27.67	20.35	46.00	25.65	11.78	L1	9.000
1	11.670	33.11	60.00	26.89	22.83	50.00	27.17	11.83	L1	9.000
1	18.461	32.42	60.00	27.58	21.81	50.00	28.19	11.86	L1	9.000

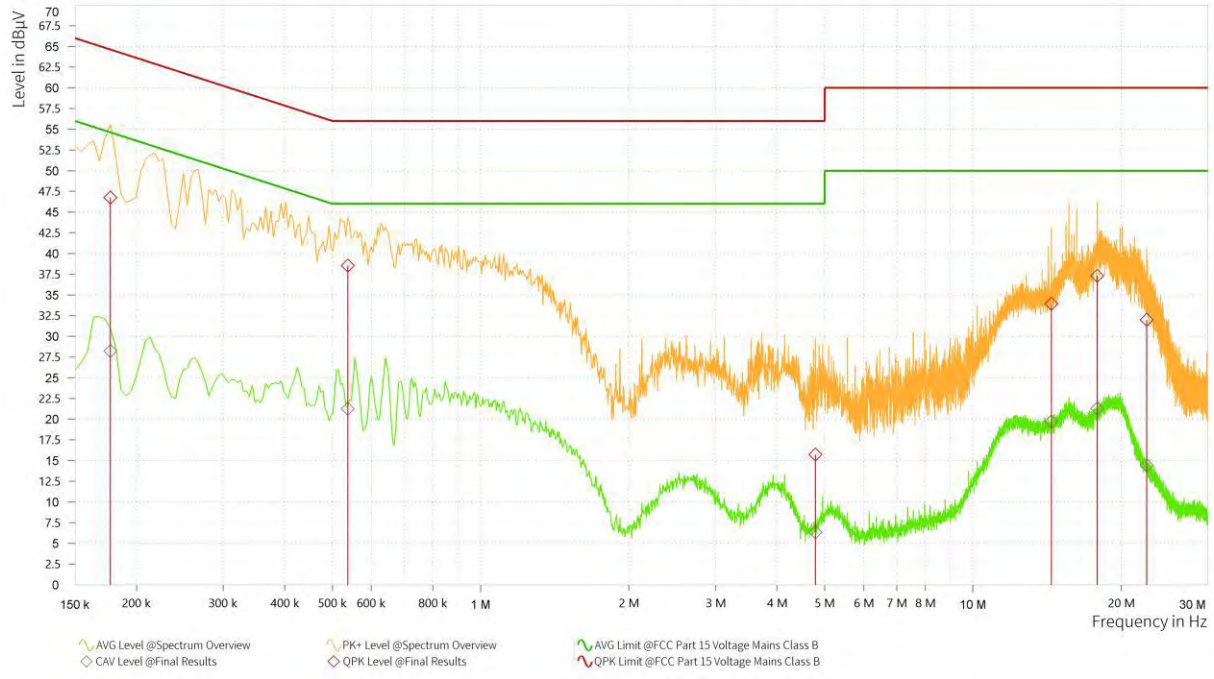
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value -Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Hanwen Xu		

Rg	Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.177	46.76	64.63	17.87	28.22	54.63	26.41	12.22	N	9.000
1	0.537	38.55	56.00	17.45	21.27	46.00	24.74	12.77	N	9.000
1	4.790	15.73	56.00	40.27	6.34	46.00	39.66	12.76	N	9.000
1	14.442	33.93	60.00	26.07	19.71	50.00	30.29	12.82	N	9.000
1	17.889	37.31	60.00	22.69	21.27	50.00	28.73	12.84	N	9.000
1	22.538	31.99	60.00	28.01	14.42	50.00	35.58	12.86	N	9.000

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value -Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 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.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Feb.15,24
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	Feb.25,22	Feb.24,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
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.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
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.28,23	Apr.27,24
CABLE	R&S	W12.14	N/A	Apr.28,23	Apr.27,24

NOTE: 1. The calibration interval of the above test instruments is 12 months or 24 months or 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.

3.2.3 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:

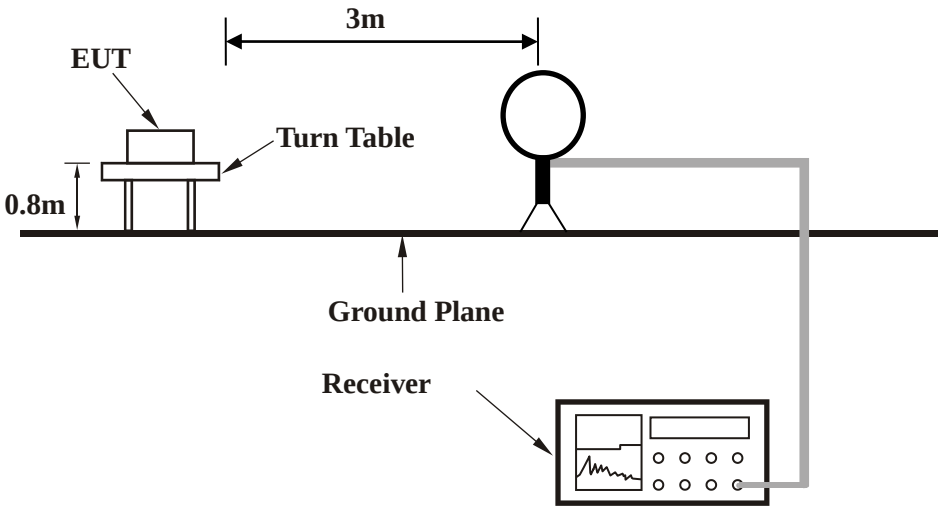
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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.

3.2.4 DEVIATION FROM TEST STANDARD

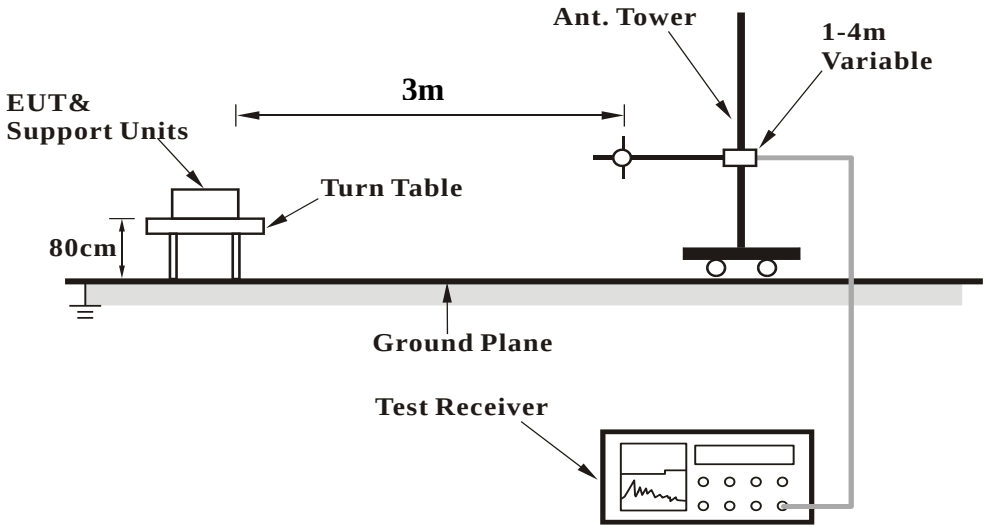
No deviation

3.2.5 TEST SETUP

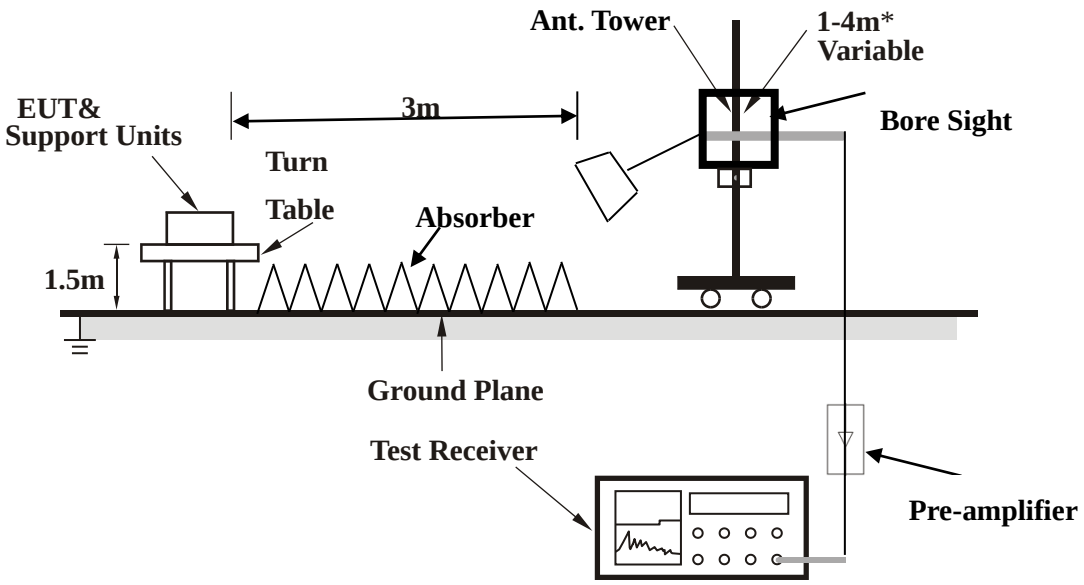
<Frequency Range 9KHz~30MHz >



< 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).

3.2.6 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.

3.2.7 TEST RESULTS

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

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

802.11b:

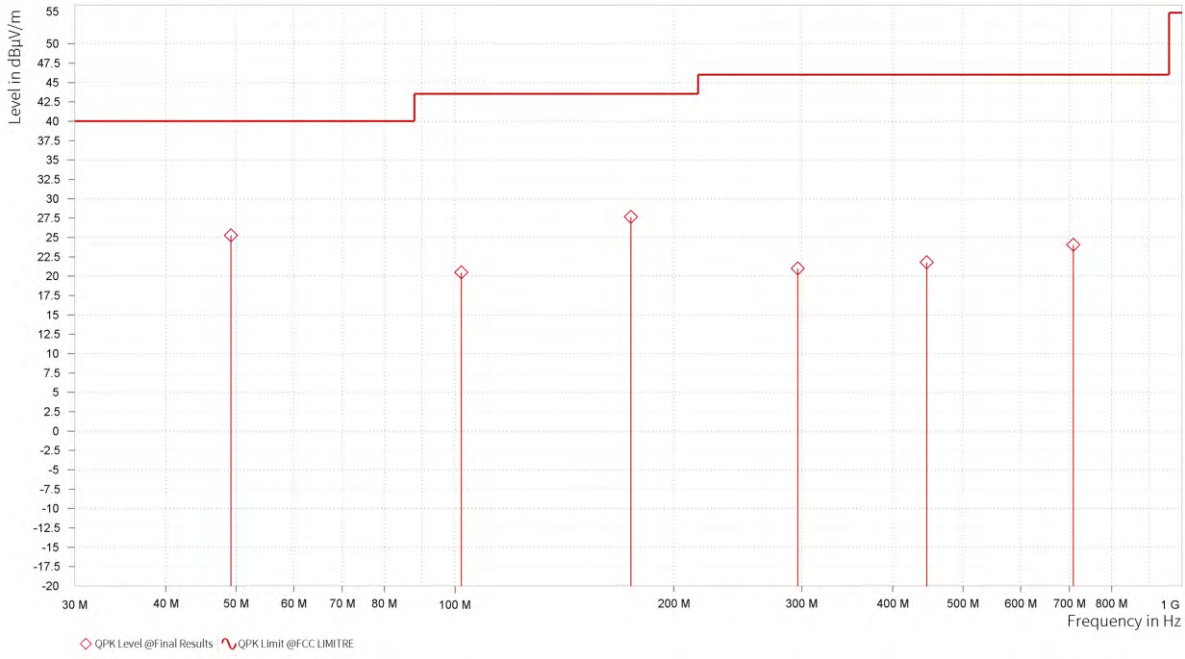
CHANNEL	TX Channel 6	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	49.206	25.25	40.00	14.75	-9.47	H	70.2	2.00	120.000
1	102.023	20.47	43.50	23.03	-11.76	H	355	2.00	120.000
1	174.627	27.62	43.50	15.88	-13.76	H	70.2	2.00	120.000
1	296.120	20.99	46.00	25.01	-6.80	H	4.2	1.00	120.000
1	445.500	21.77	46.00	24.23	-2.33	H	218.5	2.00	120.000
1	708.709	24.04	46.00	21.96	-1.26	H	359.1	1.00	120.000

REMARKS:

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



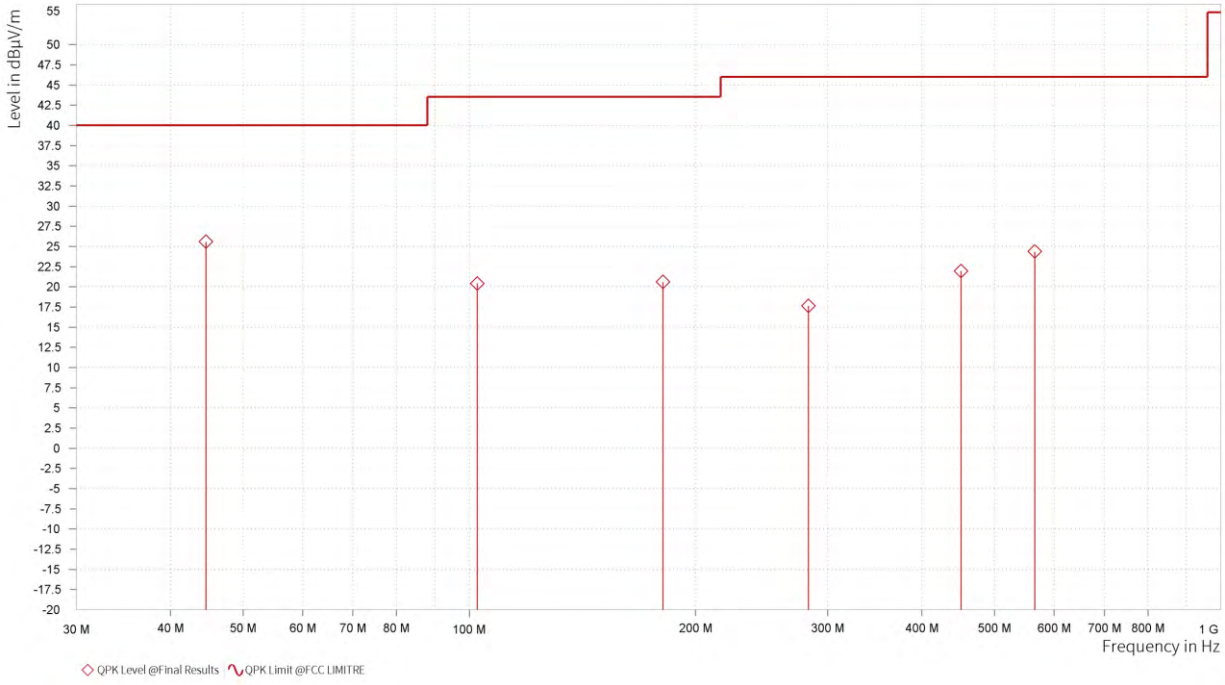
CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	44.599	25.58	40.00	14.42	-10.87	V	359	1.00	120.000
1	102.459	20.41	43.50	23.09	-11.79	V	72.6	2.00	120.000
1	180.981	20.59	43.50	22.91	-12.83	V	359	2.00	120.000
1	282.540	17.64	46.00	28.36	-7.63	V	218.4	2.00	120.000
1	450.883	21.95	46.00	24.05	-2.58	V	5	1.00	120.000
1	565.440	24.37	46.00	21.63	-3.53	V	359	1.00	120.000

REMARKS:

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

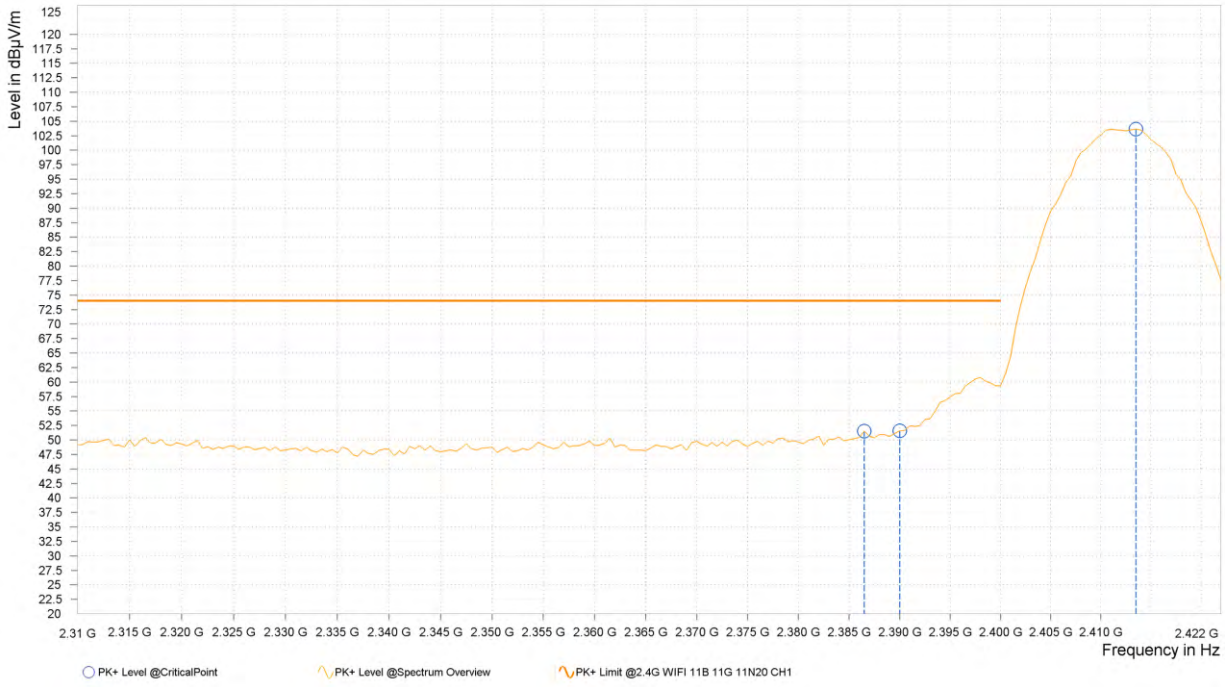
2. All other emissions were greater than 20dB below the limit was not recorded

802.11b:

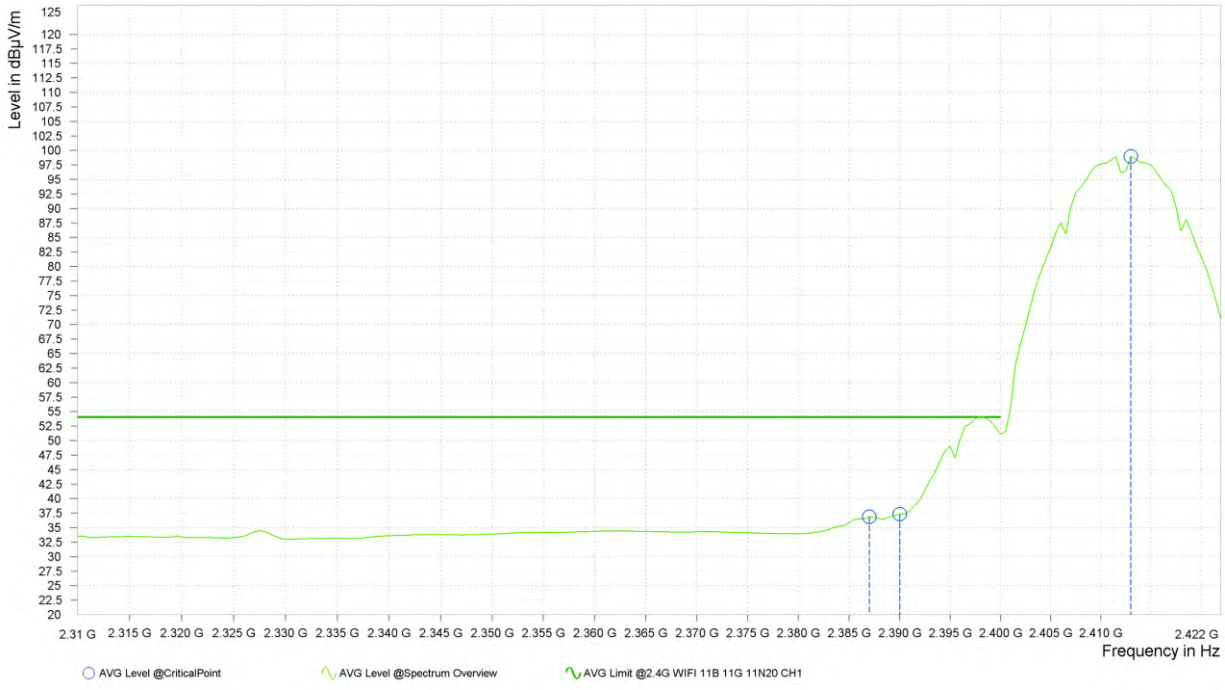
CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	2,386.500	51.52	74.00	22.48	7.08	H	222.1	2.00
1	2,390.000	51.56	74.00	22.44	7.08	H	1	2.00
1	2,413.500	103.64			7.19	H	1	2.00

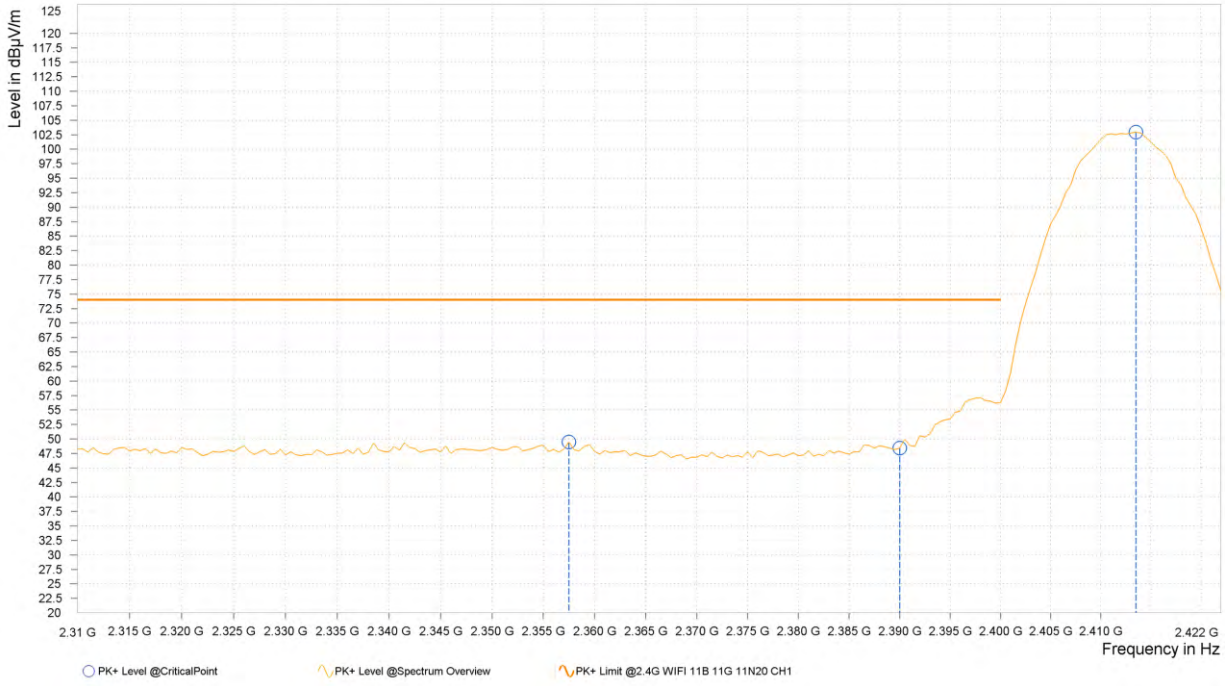


Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.000	36.86	54.00	17.14	7.08	H	359	2.00
1	2,390.000	37.33	54.00	16.67	7.08	H	355	2.00
1	2,413.000	98.97			7.19	H	0.9	2.00

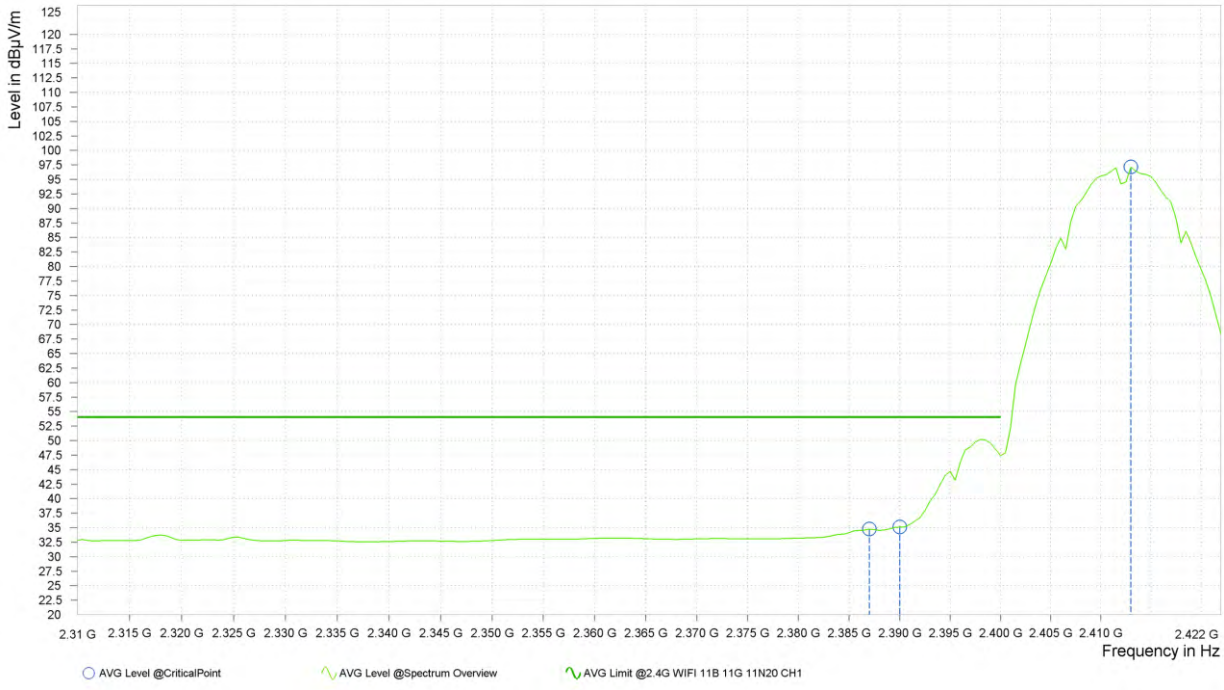


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,357.500	49.46	74.00	24.54	7.10	V	5	1.00
1	2,390.000	48.41	74.00	25.59	7.08	V	1	2.00
1	2,413.500	102.95			7.19	V	265.9	1.00



Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,387.000	34.74	54.00	19.26	7.08	V	355	2.00
1	2,390.000	35.12	54.00	18.88	7.08	V	0.9	2.00
1	2,413.000	97.15			7.19	V	0.9	2.00



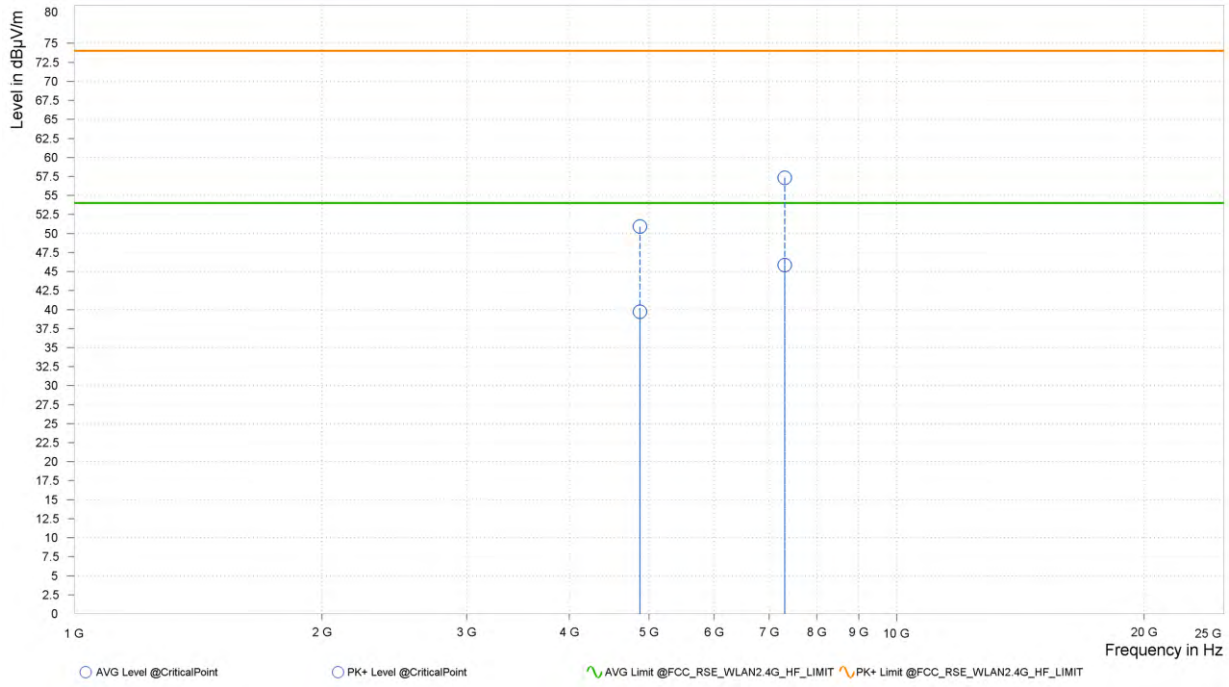
REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

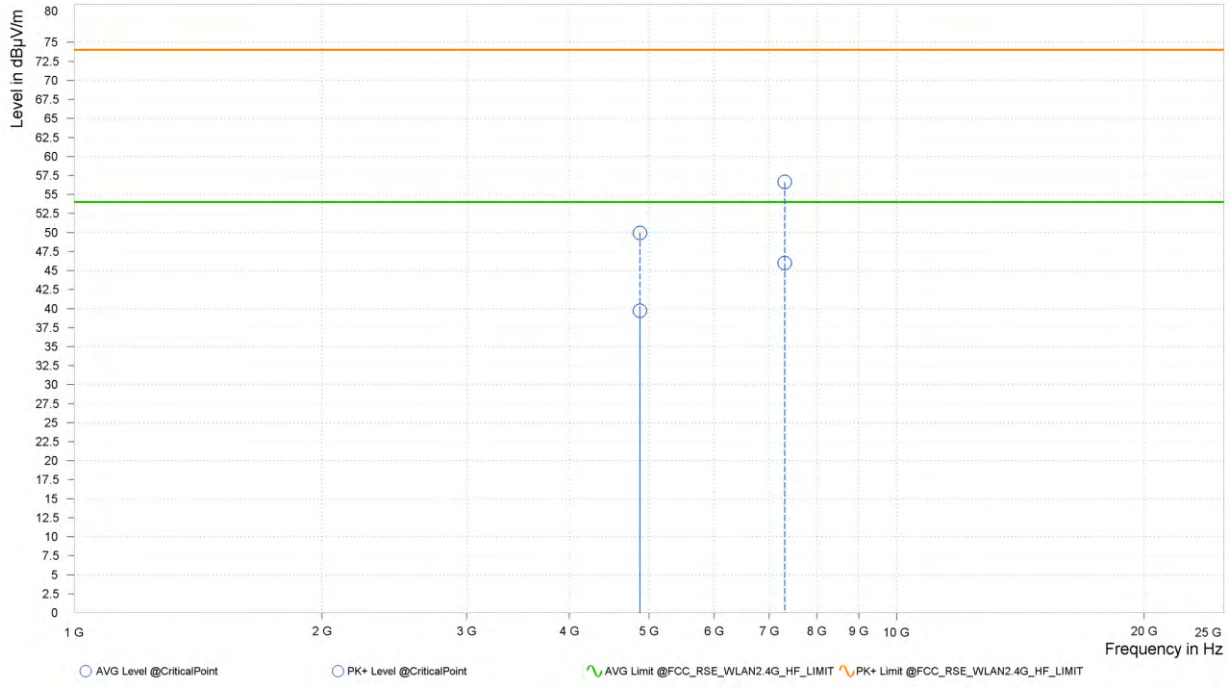
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	50.91	74.00	23.09	39.72	54.00	14.28	15.25	H	90.1	2.00
2	7,311.000	57.34	74.00	16.66	45.83	54.00	8.17	21.10	H	359.1	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	4,874.000	49.94	74.00	24.06	39.72	54.00	14.28	15.25	V	88.9	2.00
2	7,311.000	56.64	74.00	17.36	45.96	54.00	8.04	21.10	V	359	2.00



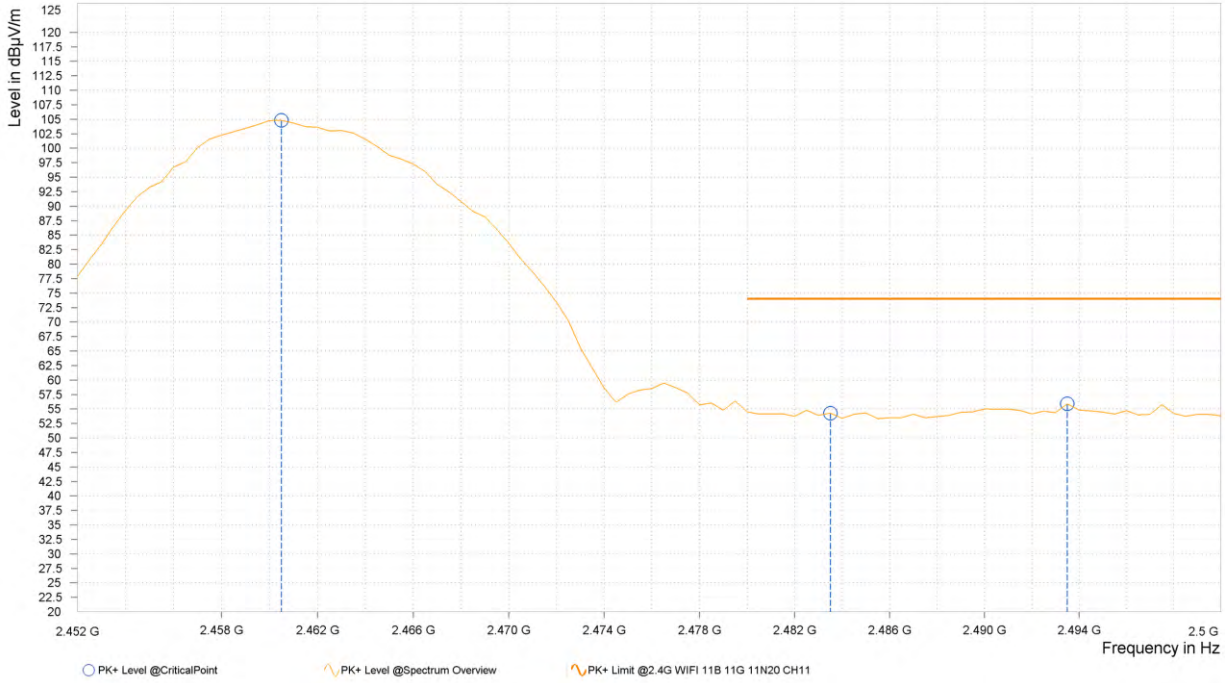
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 2437MHz: Fundamental frequency.

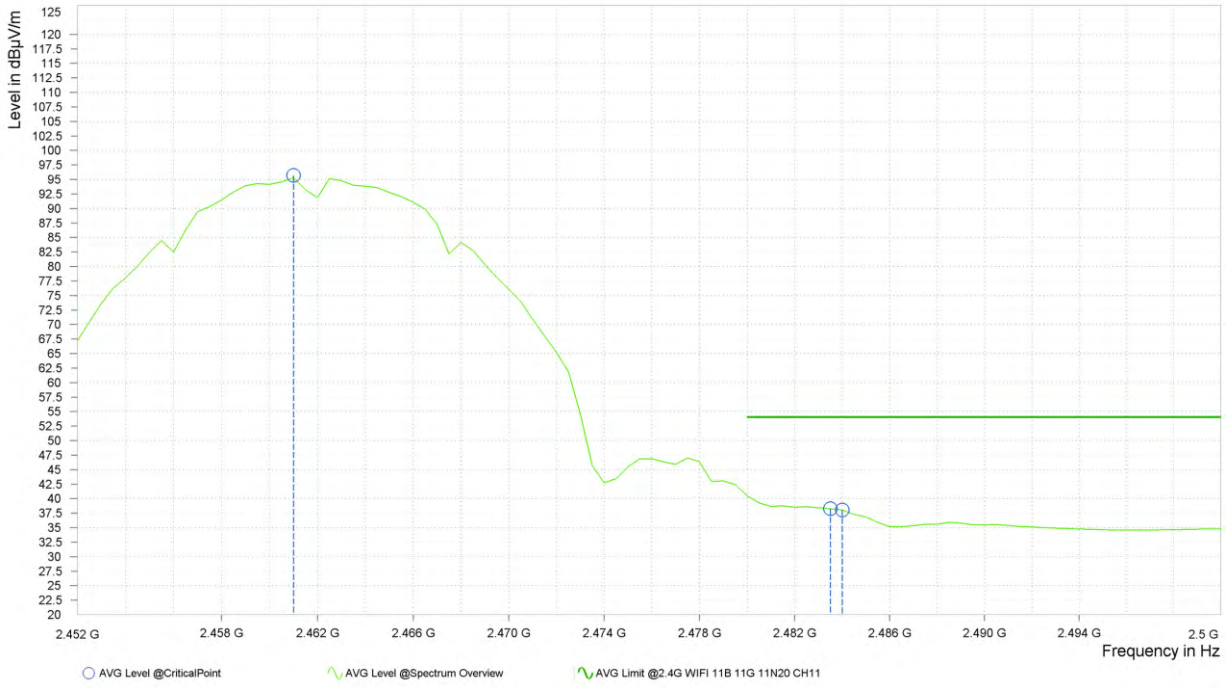
CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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]
2	2,460.500	104.79			7.40	H	77.4	2.00
2	2,483.500	54.28	74.00	19.72	7.36	H	4.3	1.00
2	2,493.500	55.88	74.00	18.12	7.37	H	4.3	1.00

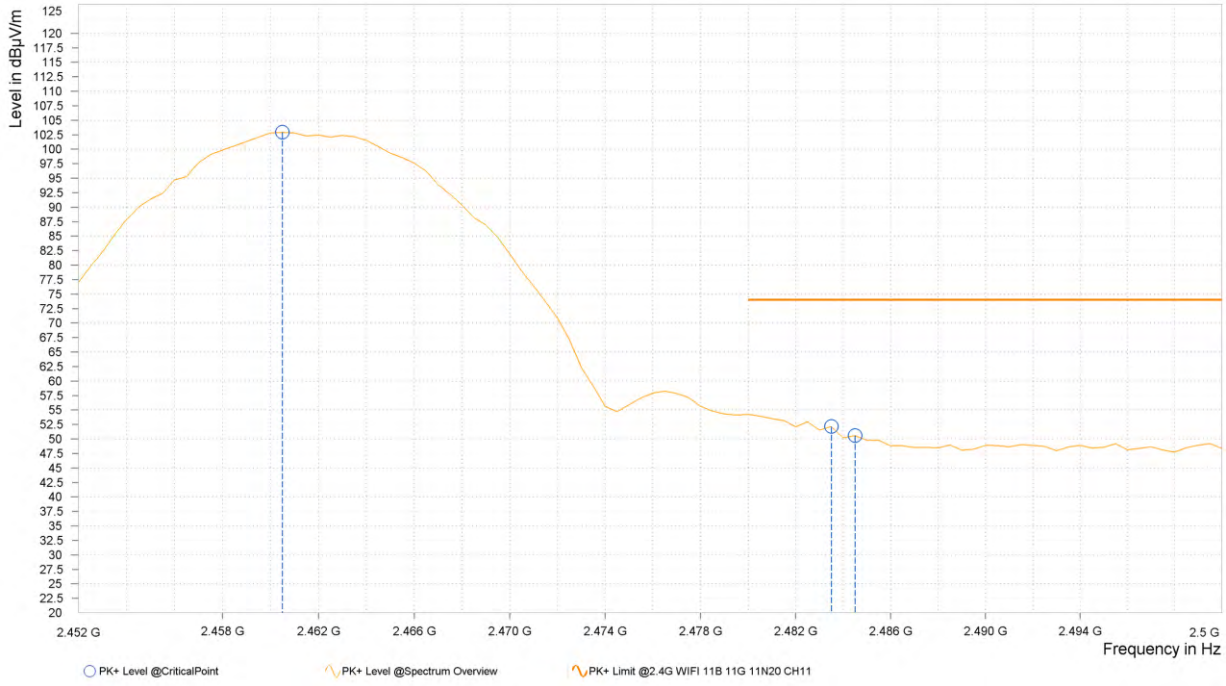


Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,461.000	95.70			7.40	H	0.9	2.00
2	2,483.500	38.26	54.00	15.74	7.36	H	355	2.00
2	2,484.000	38.04	54.00	15.96	7.36	H	355	2.00



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]
2	2,460.500	102.91			7.40	V	12.1	2.00
2	2,483.500	52.14	74.00	21.86	7.36	V	47.1	1.00
2	2,484.500	50.57	74.00	23.43	7.36	V	47.1	1.00



Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,461.000	97.44			7.40	V	1	2.00
2	2,483.500	35.66	54.00	18.34	7.36	V	355.6	2.00
2	2,488.000	35.51	54.00	18.49	7.36	V	355.6	2.00

REMARKS:

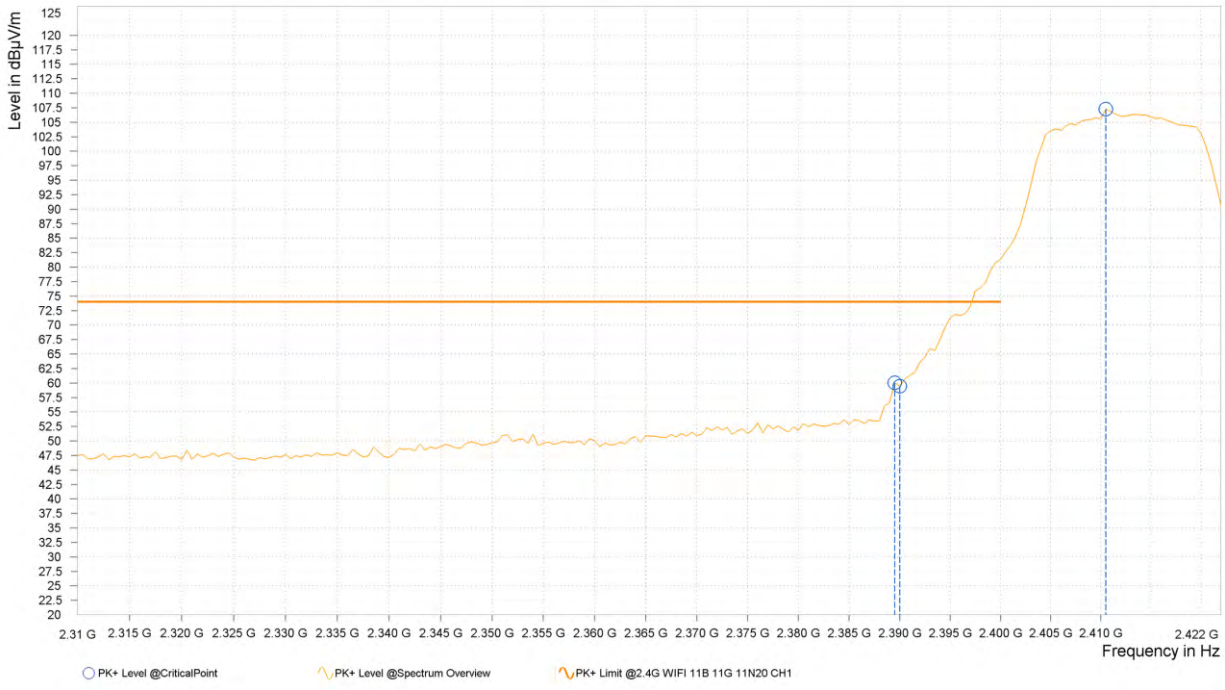
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 2462MHz: Fundamental frequency.

802.11g

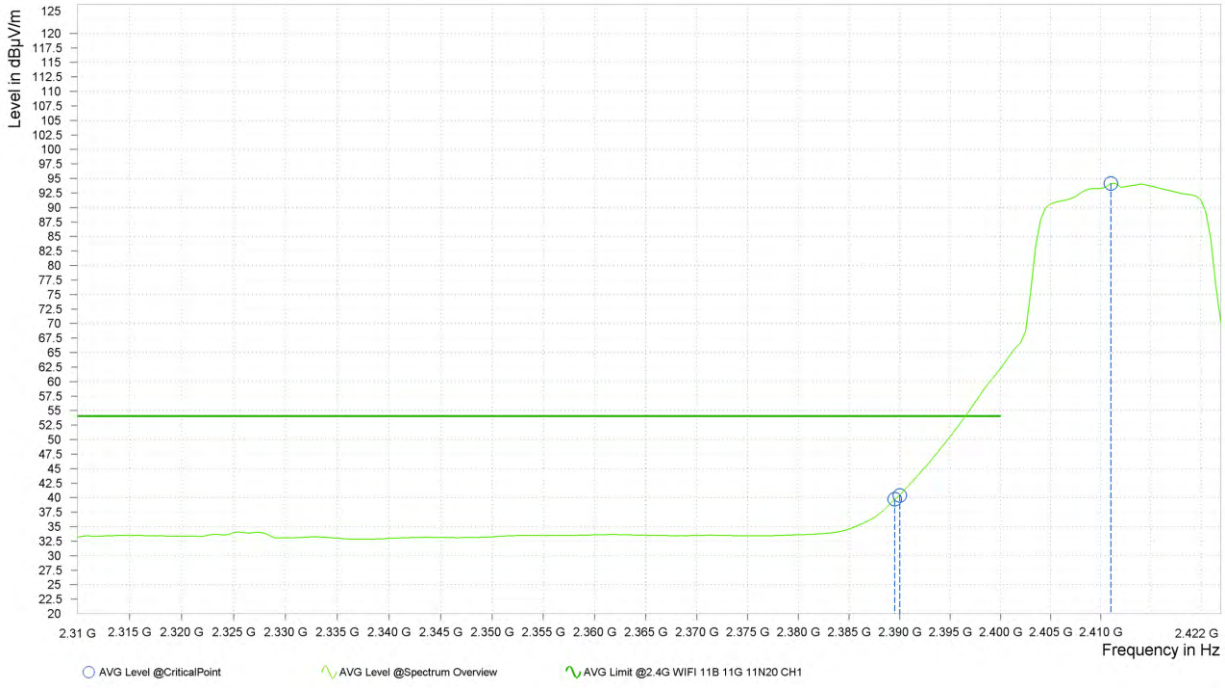
CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	2,389.500	60.04	74.00	13.96	7.08	H	76.2	2.00
1	2,390.000	59.45	74.00	14.55	7.08	H	76.2	2.00
1	2,410.500	107.27			7.16	H	359	2.00

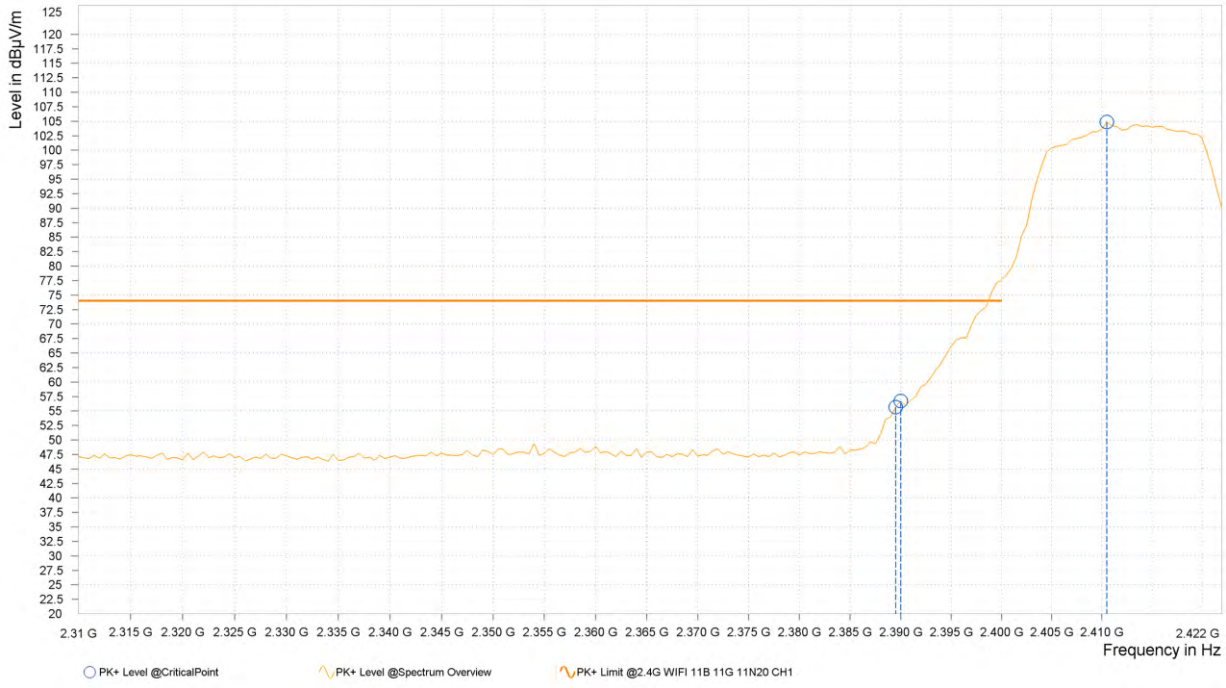


Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.500	39.72	54.00	14.28	7.08	H	359	2.00
1	2,390.000	40.38	54.00	13.62	7.08	H	1	1.00
1	2,411.000	94.15			7.17	H	359	2.00

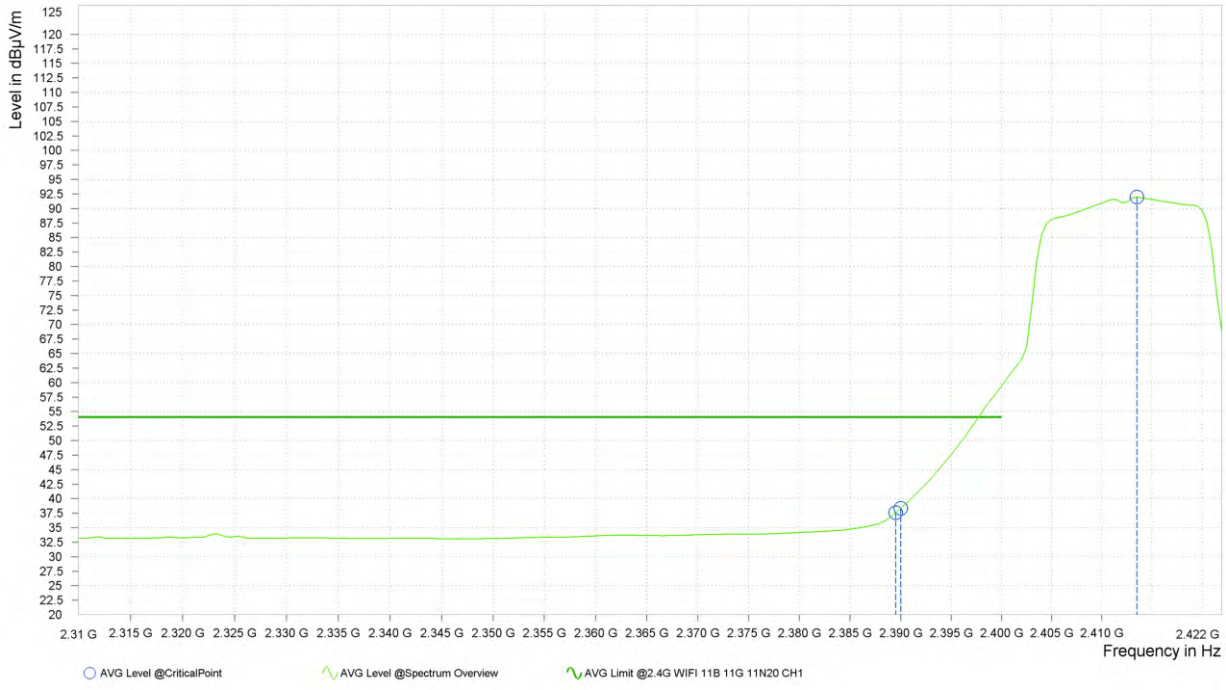


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.500	55.66	74.00	18.34	7.08	V	359	2.00
1	2,390.000	56.70	74.00	17.30	7.08	V	9.3	2.00
1	2,410.500	104.88			7.16	V	9.3	2.00



Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.500	37.58	54.00	16.42	7.08	V	1	2.00
1	2,390.000	38.33	54.00	15.67	7.08	V	1	2.00
1	2,413.500	91.97			7.19	V	1	2.00



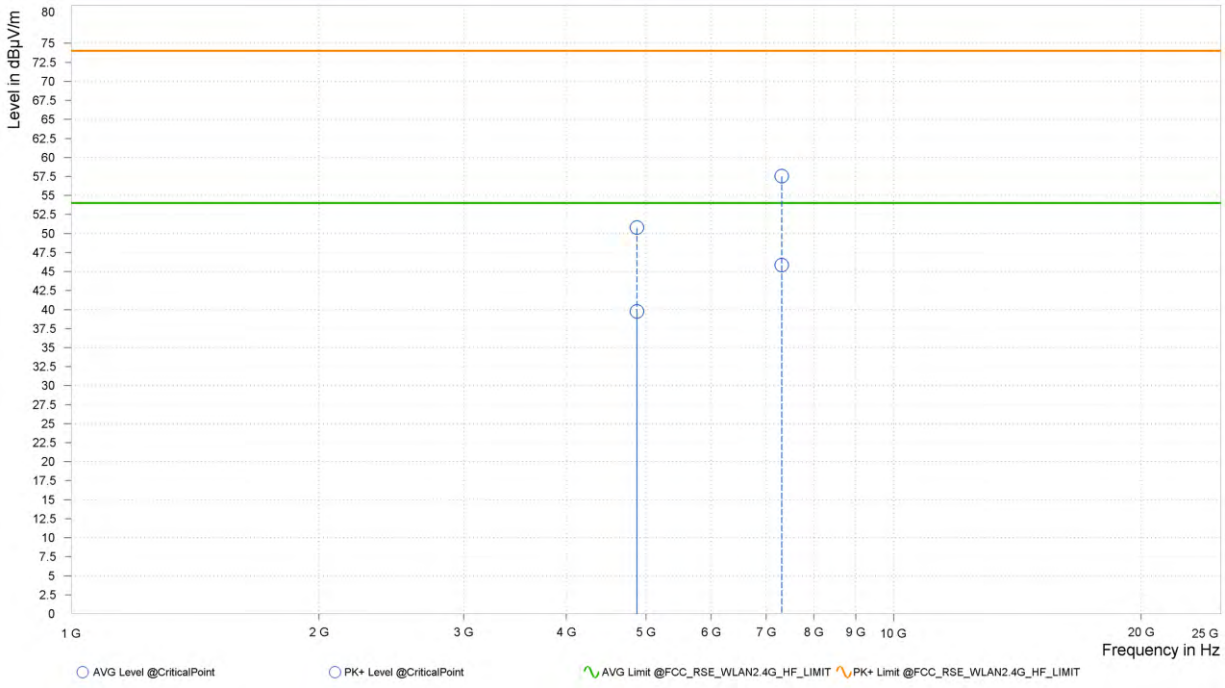
REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

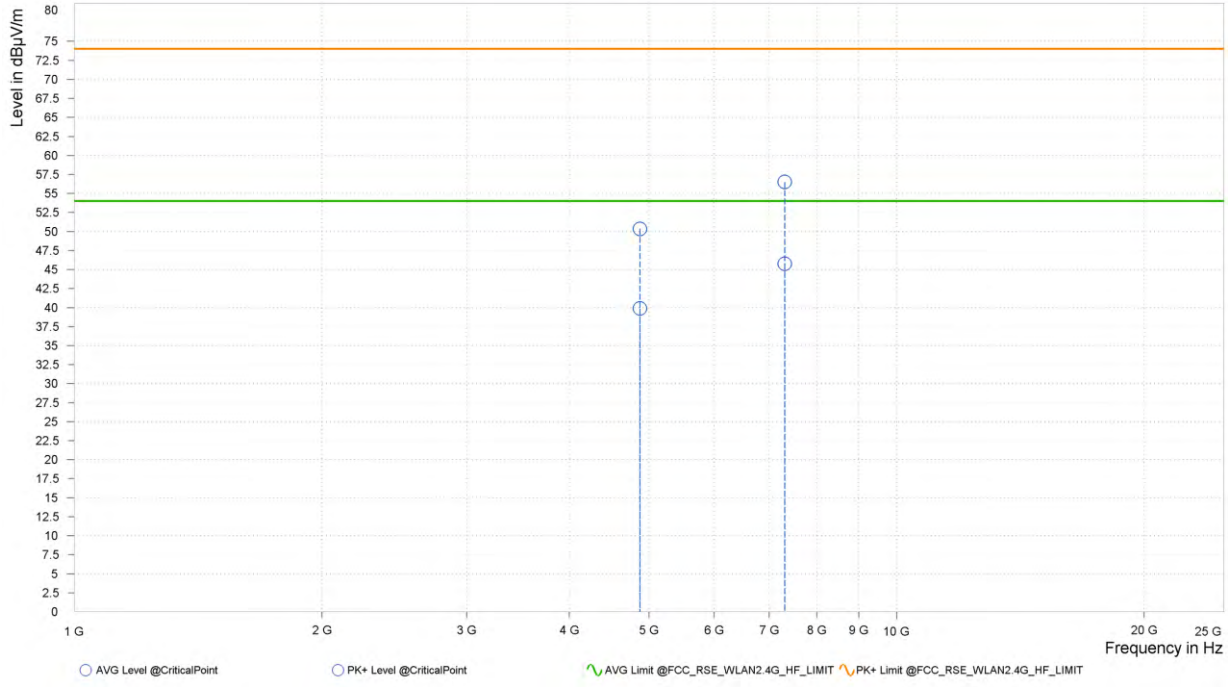
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	50.76	74.00	23.24	39.74	54.00	14.26	15.25	H	90.2	2.00
2	7,311.000	57.54	74.00	16.46	45.83	54.00	8.17	21.10	H	332.9	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	50.35	74.00	23.65	39.87	54.00	14.13	15.25	V	332.9	2.00
2	7,311.000	56.52	74.00	17.48	45.77	54.00	8.23	21.10	V	332.9	2.00



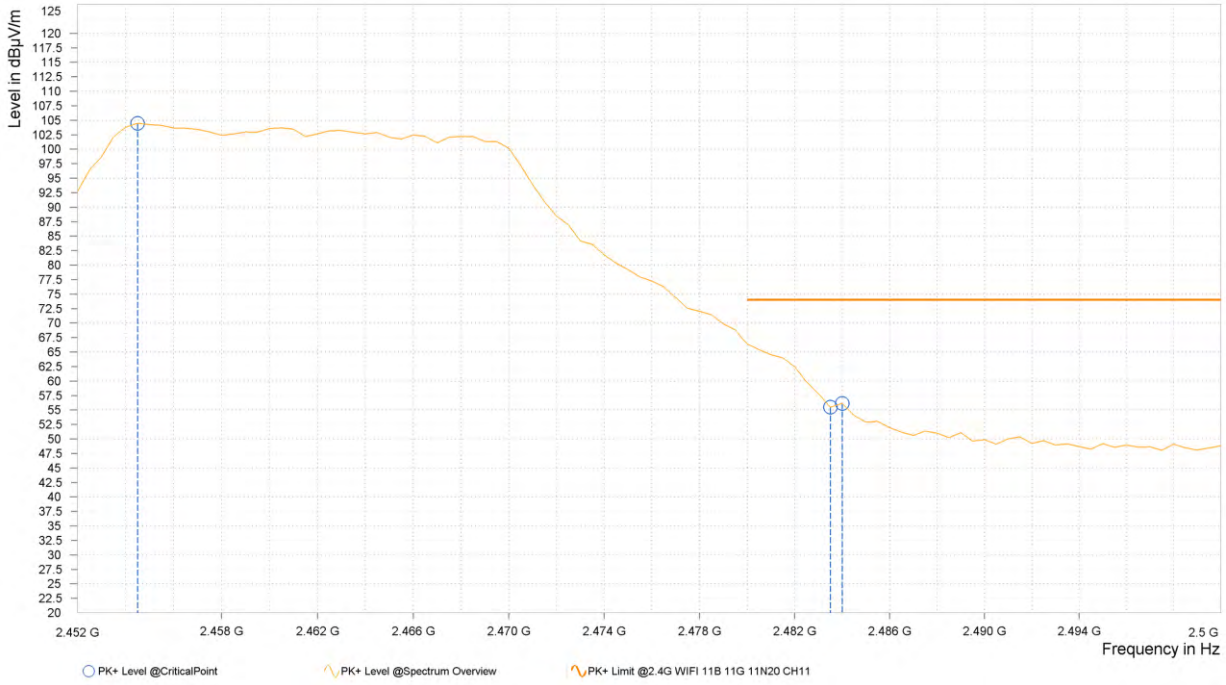
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
   2. 2437MHz: Fundamental frequency.

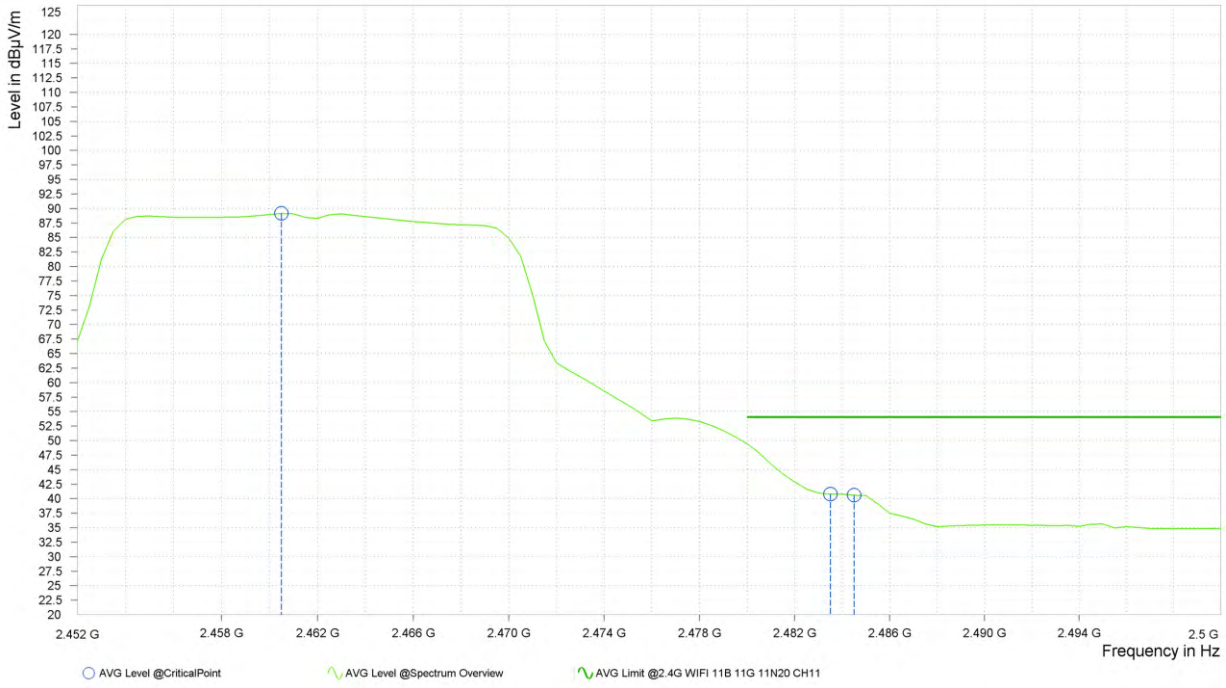
CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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]
2	2,454.500	104.47			7.43	H	75	2.00
2	2,483.500	55.47	74.00	18.53	7.36	H	219.6	2.00
2	2,484.000	56.14	74.00	17.86	7.36	H	219.6	2.00

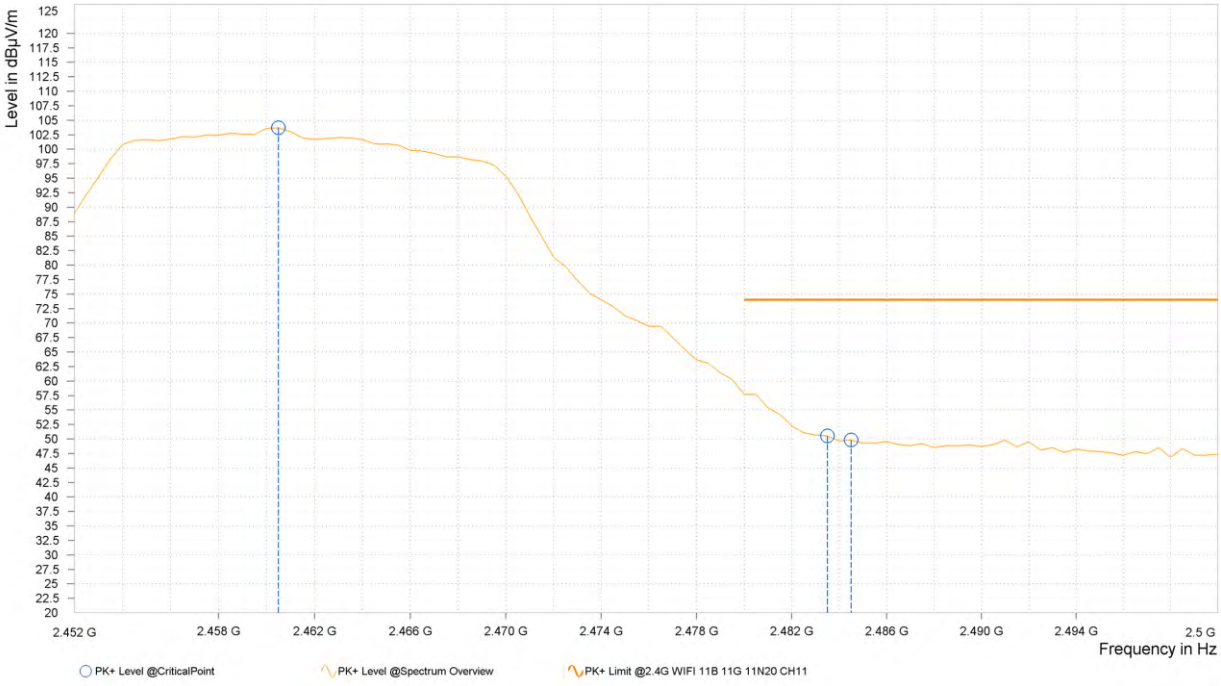


Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.500	89.14			7.40	H	1	1.00
2	2,483.500	40.79	54.00	13.21	7.36	H	355	2.00
2	2,484.500	40.58	54.00	13.42	7.36	H	355	2.00

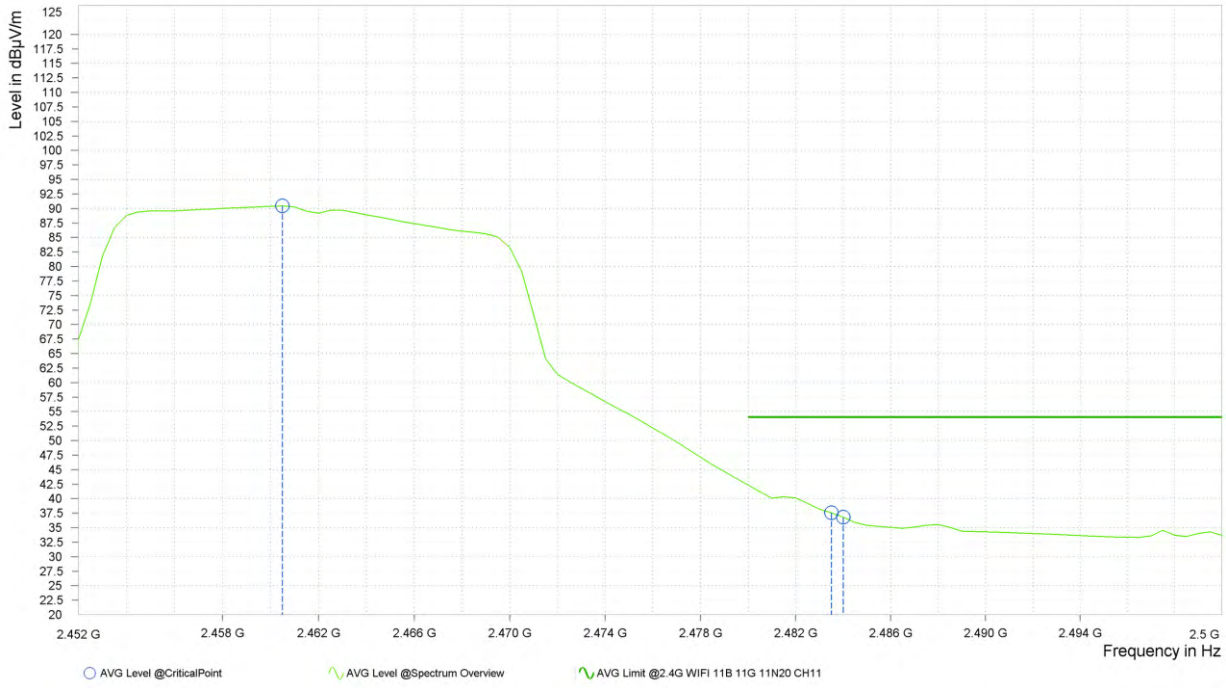


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.500	103.69			7.40	V	10.6	2.00
2	2,483.500	50.51	74.00	23.49	7.36	V	357.4	1.00
2	2,484.500	49.80	74.00	24.20	7.36	V	78.2	1.00



Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.500	90.45			7.40	V	1	2.00
2	2,483.500	37.56	54.00	16.44	7.36	V	355	2.00
2	2,484.000	36.80	54.00	17.20	7.36	V	355	2.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 2462MHz: Fundamental frequency.

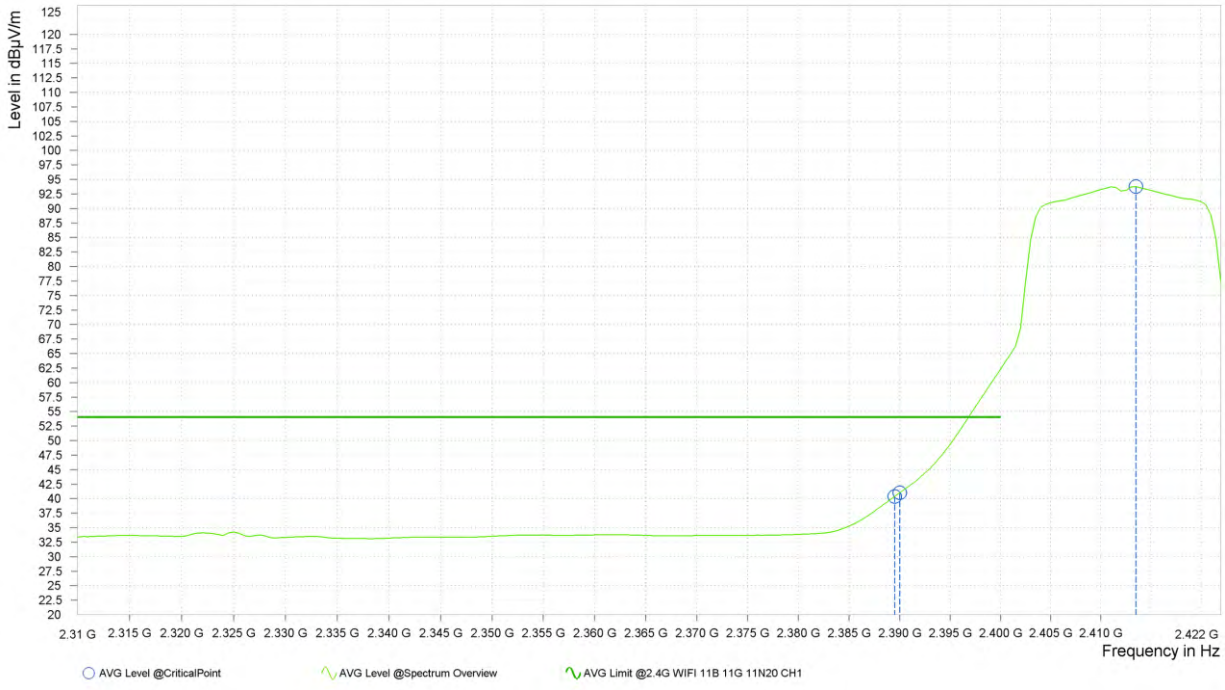
802.11n (20MHz)

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	2,389.500	58.67	74.00	15.33	7.08	H	69	2.00
1	2,390.000	57.71	74.00	16.29	7.08	H	69	2.00
1	2,413.500	106.47			7.19	H	359	2.00

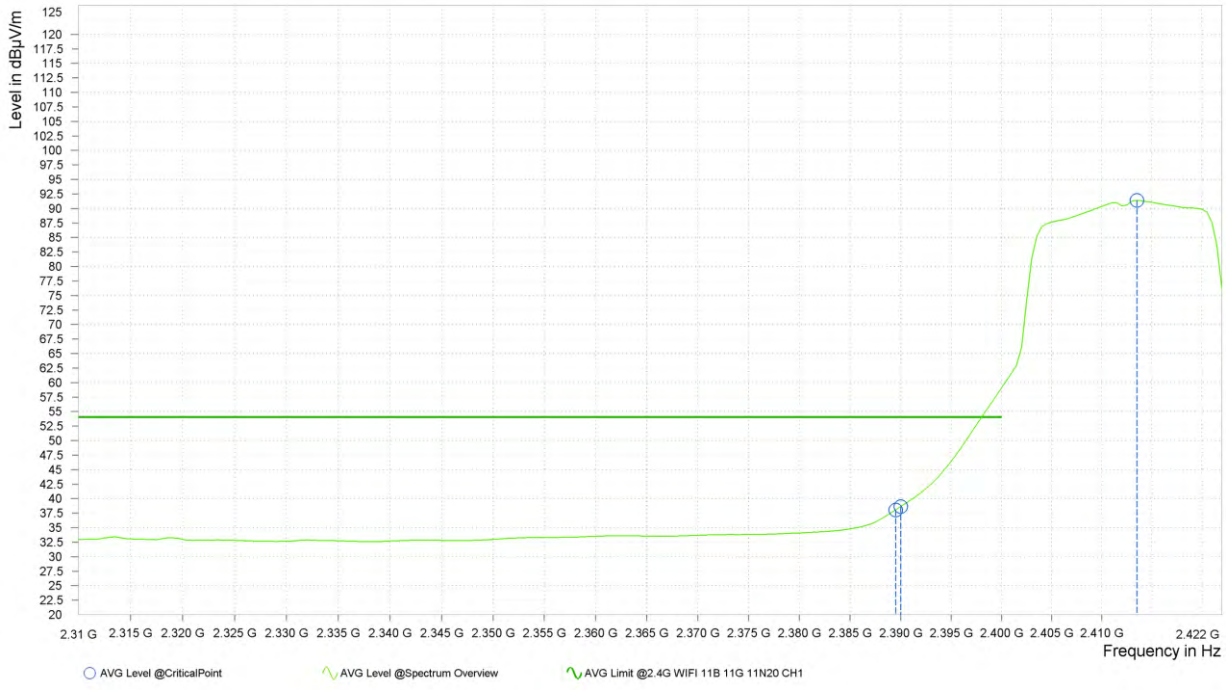
Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.500	40.38	54.00	13.62	7.08	H	359	2.00
1	2,390.000	41.00	54.00	13.00	7.08	H	359	2.00
1	2,413.500	93.78			7.19	H	359	2.00



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	2,389.500	52.54	74.00	21.46	7.08	V	359	2.00
1	2,390.000	53.29	74.00	20.71	7.08	V	1	2.00
1	2,414.000	104.17			7.20	V	1	2.00

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	2,389.500	38.05	54.00	15.95	7.08	V	355.1	2.00
1	2,390.000	38.64	54.00	15.36	7.08	V	0.9	2.00
1	2,413.500	91.41			7.19	V	0.9	2.00



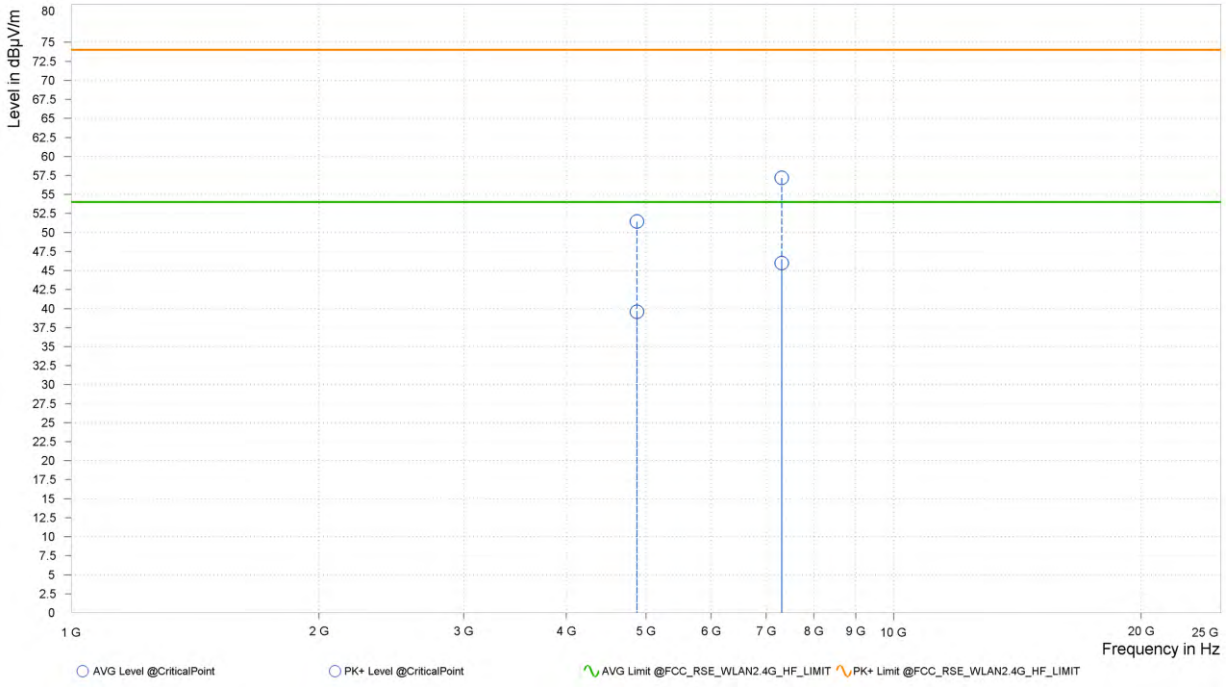
REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

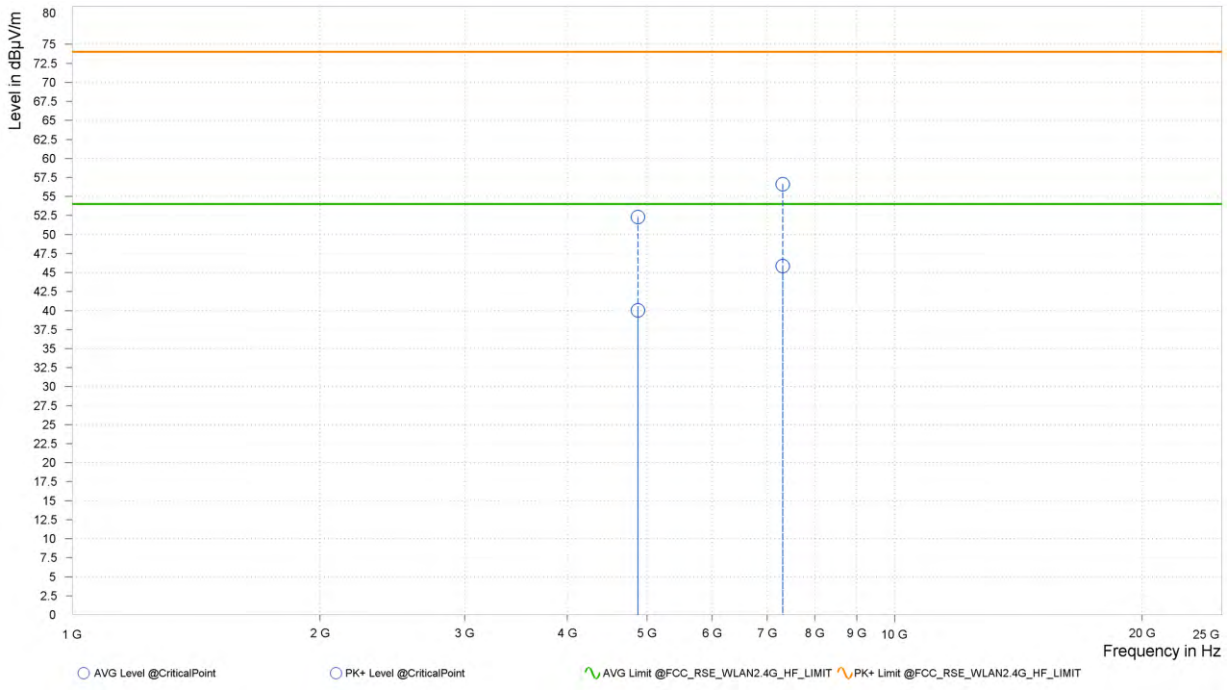
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	51.43	74.00	22.57	39.57	54.00	14.43	15.25	H	27.2	2.00
2	7,311.000	57.19	74.00	16.81	45.98	54.00	8.02	21.10	H	27.2	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	4,874.000	52.30	74.00	21.70	40.00	54.00	14.00	15.25	V	0.9	2.00
2	7,311.000	56.62	74.00	17.38	45.83	54.00	8.17	21.10	V	28.4	2.00



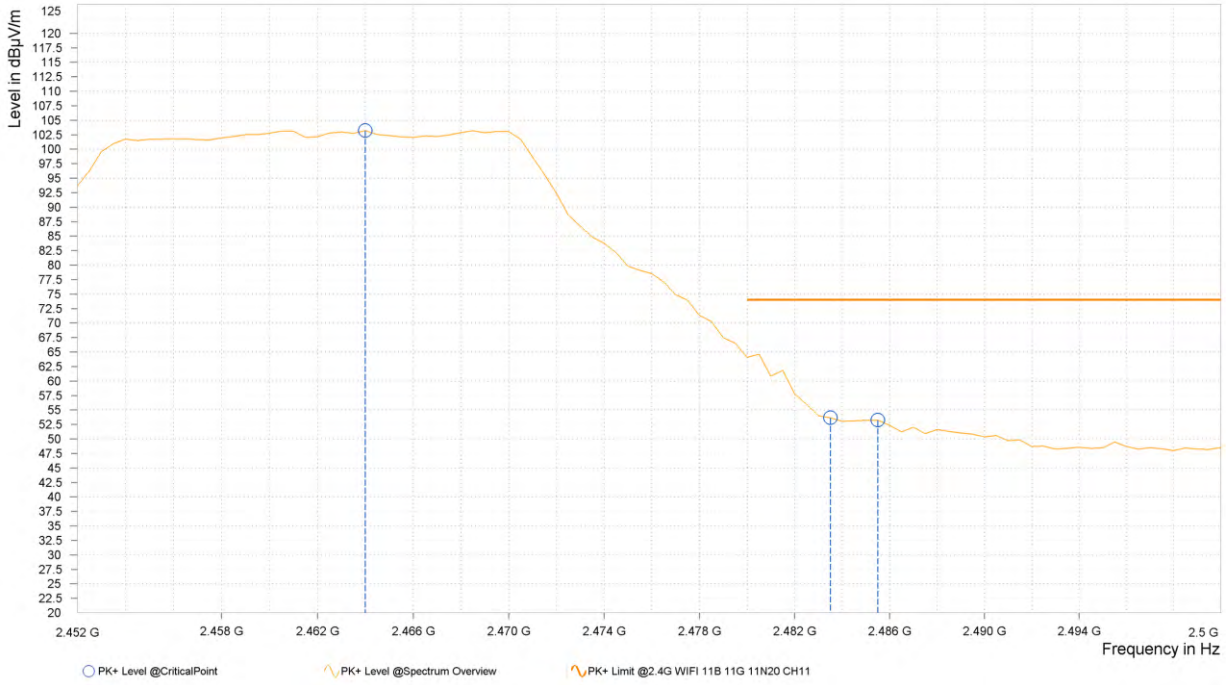
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value–Emission level.
   2. 2437MHz: Fundamental frequency.

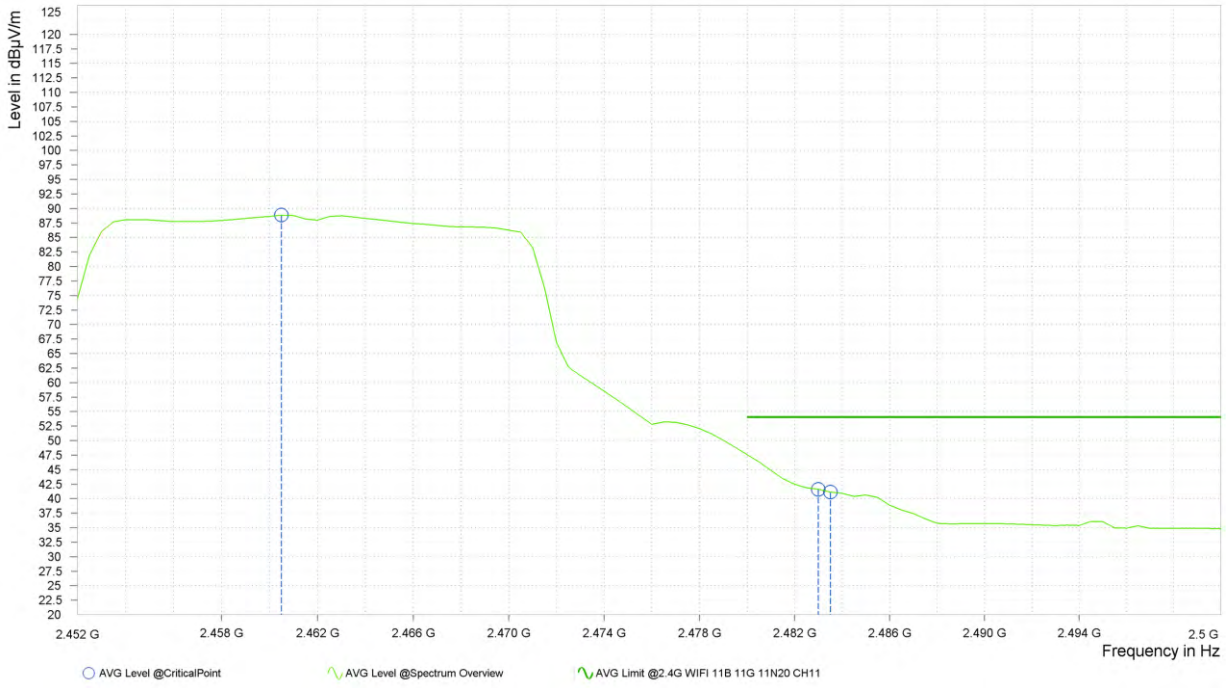
CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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]
2	2,464.000	103.20			7.39	H	4.3	1.00
2	2,483.500	53.65	74.00	20.35	7.36	H	4.3	1.00
2	2,485.500	53.24	74.00	20.76	7.36	H	4.3	1.00

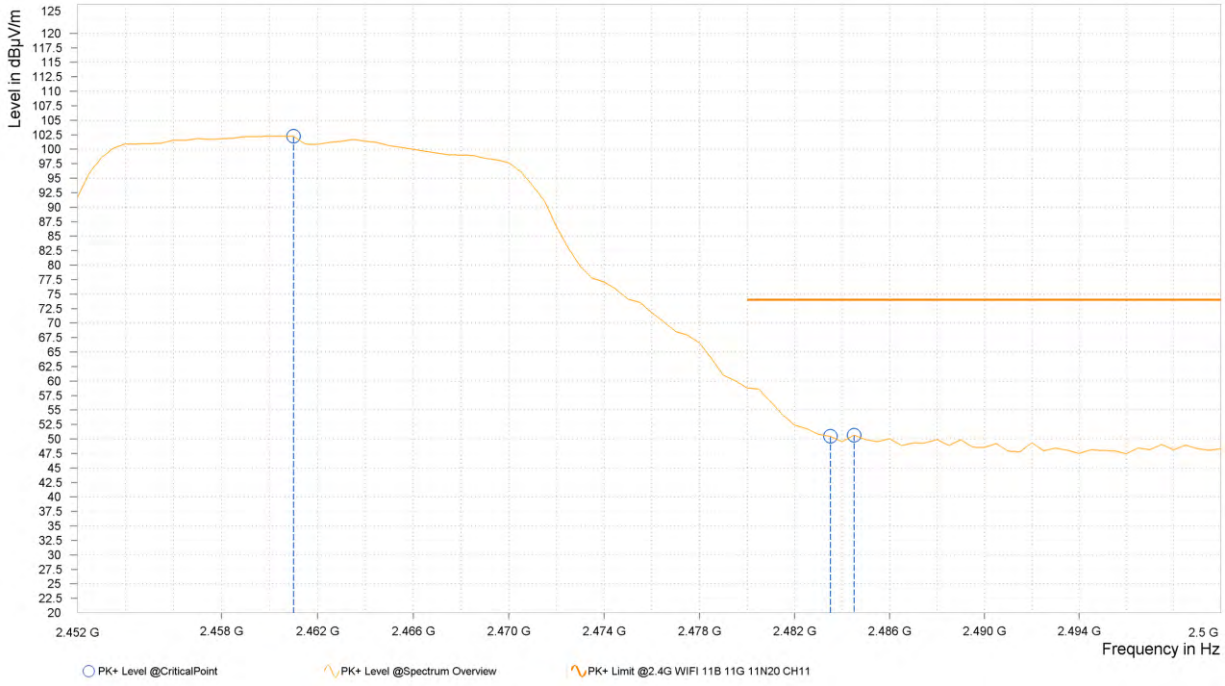


Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.500	88.84			7.40	H	1	1.00
2	2,483.000	41.62	54.00	12.38	7.36	H	355.7	2.00
2	2,483.500	41.13	54.00	12.87	7.36	H	355.7	2.00

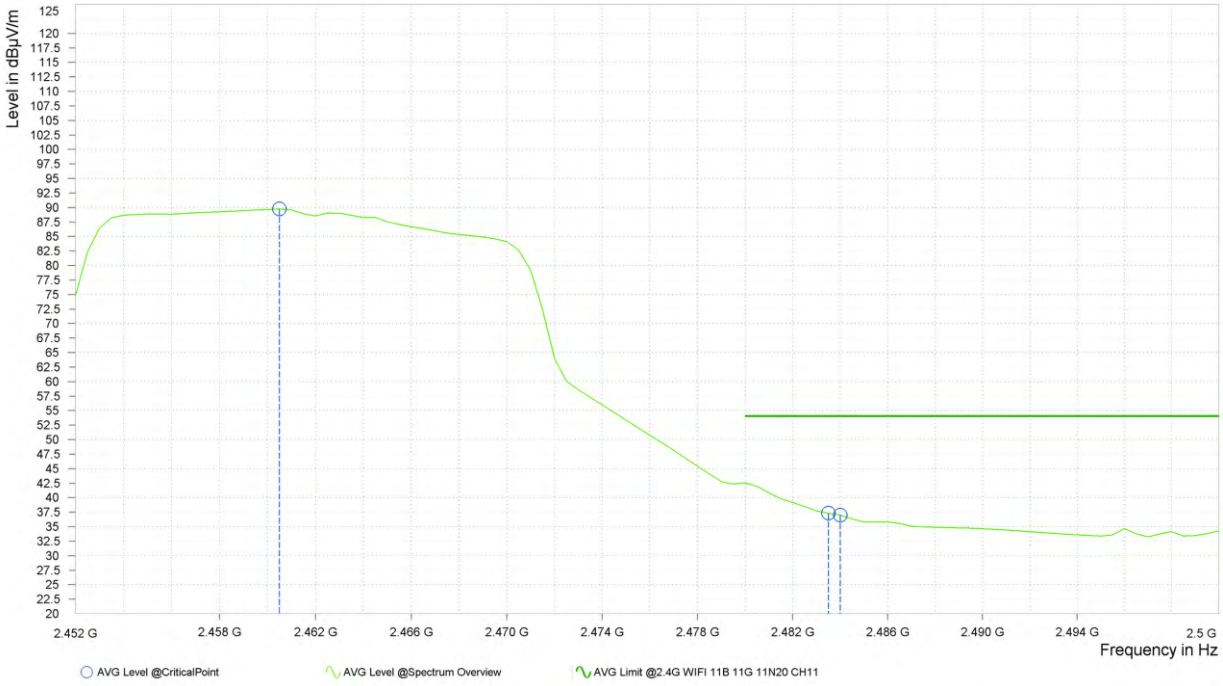


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,461.000	102.21			7.40	V	1	2.00
2	2,483.500	50.44	74.00	23.56	7.36	V	5.6	1.00
2	2,484.500	50.65	74.00	23.35	7.36	V	5.6	1.00



Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	2,460.500	89.75			7.40	V	0.9	2.00
2	2,483.500	37.31	54.00	16.69	7.36	V	349.4	2.00
2	2,484.000	37.00	54.00	17.00	7.36	V	349.4	2.00



REMARKS:

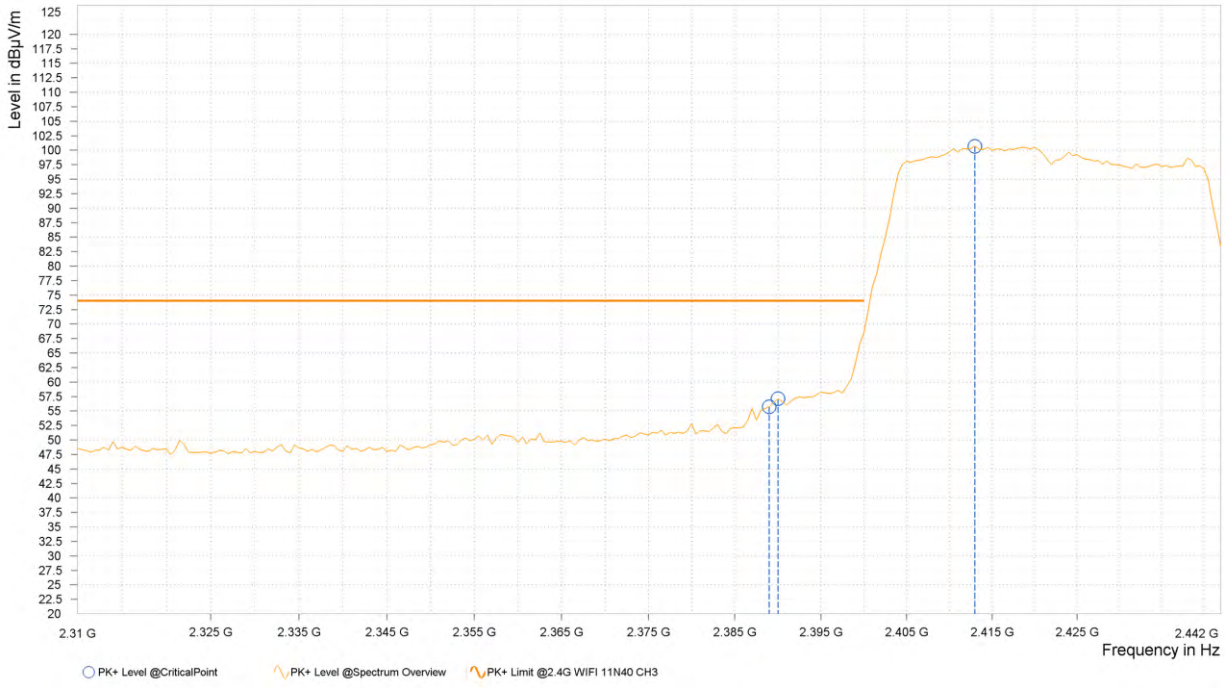
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value–Emission level .
2. 2462MHz: Fundamental frequency.

802.11n (40MHz)

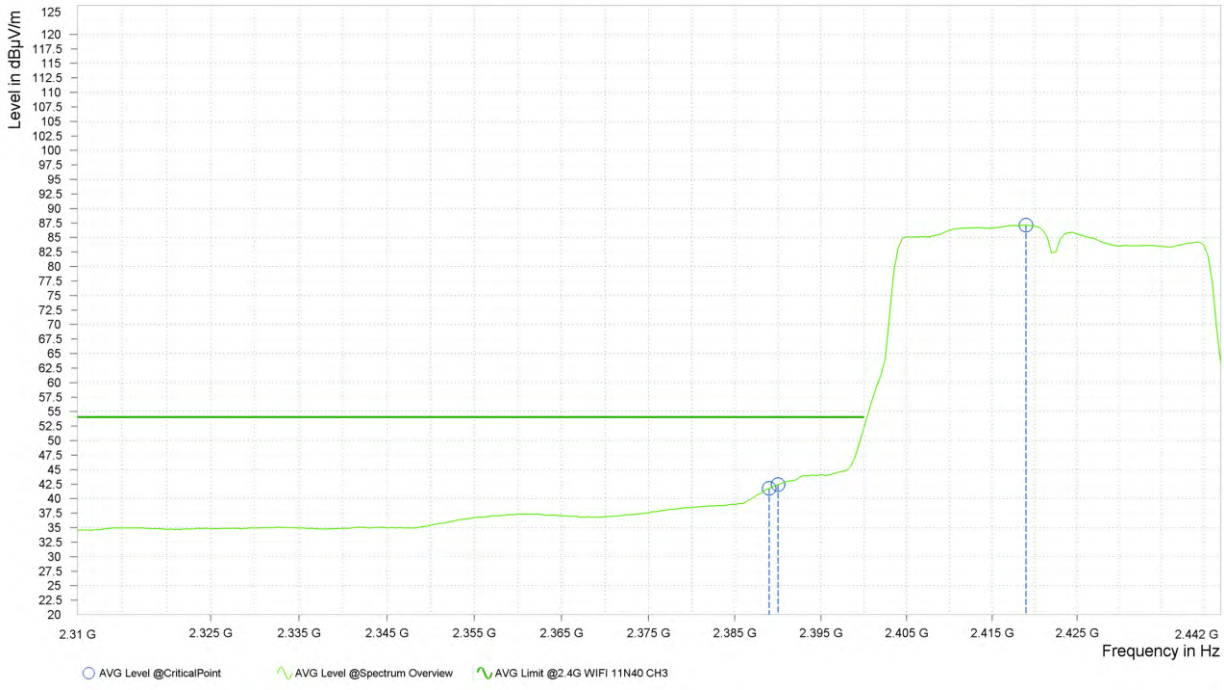
CHANNEL	TX Channel 3	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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]
3	2,389.000	55.74	74.00	18.26	7.08	H	70.2	2.00
3	2,390.000	57.09	74.00	16.91	7.08	H	70.2	2.00
3	2,413.000	100.69			7.19	H	359	2.00

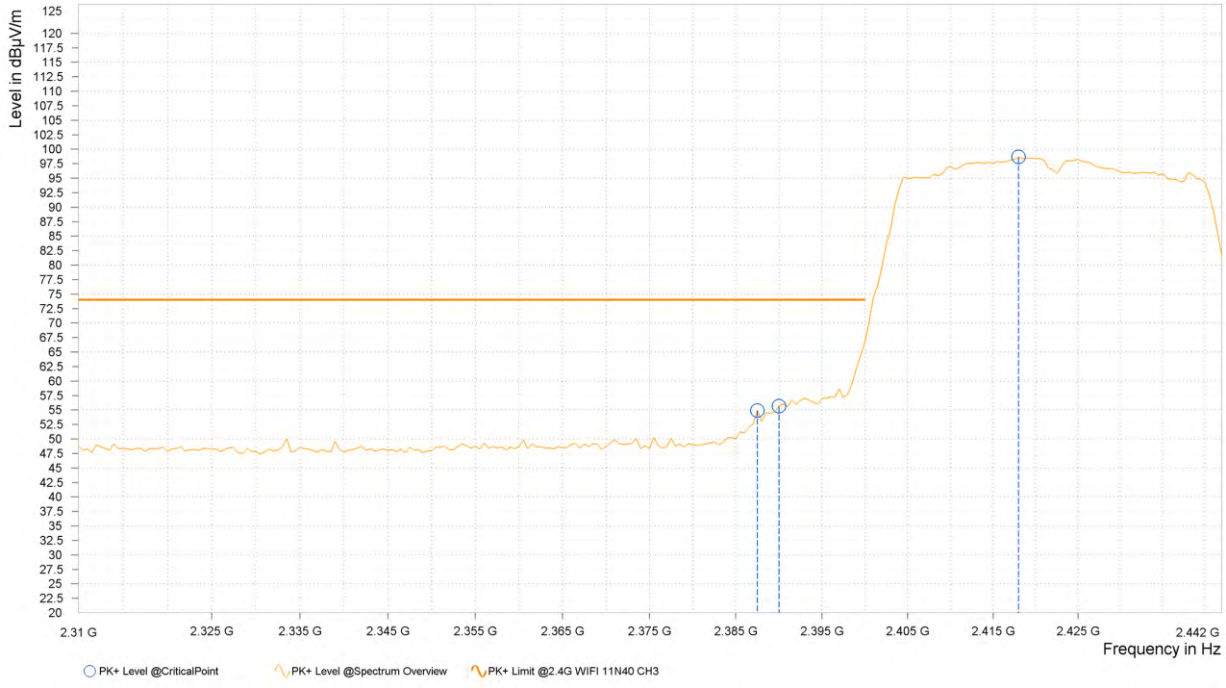


Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	2,389.000	41.77	54.00	12.23	7.08	H	69	2.00
3	2,390.000	42.42	54.00	11.58	7.08	H	69	2.00
3	2,419.000	87.14			7.24	H	359	2.00

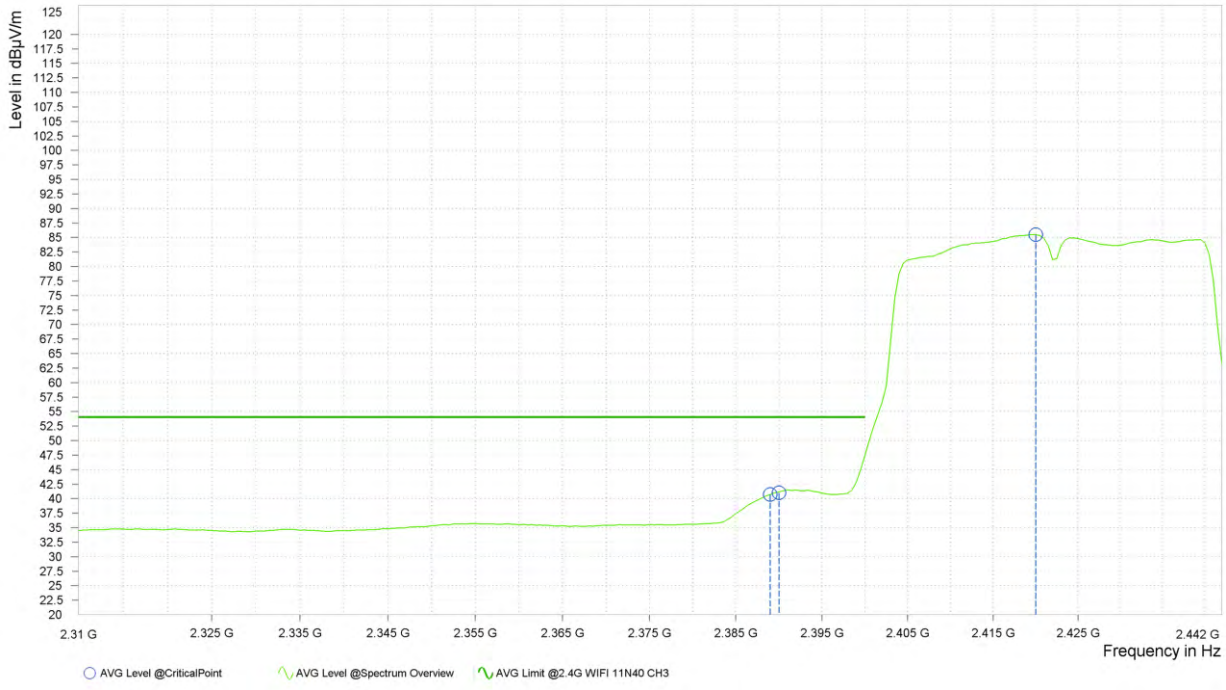


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	2,387.500	54.91	74.00	19.09	7.08	V	4.9	1.00
3	2,390.000	55.65	74.00	18.35	7.08	V	4.9	1.00
3	2,418.000	98.66			7.23	V	0.9	2.00



Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	2,389.000	40.71	54.00	13.29	7.08	V	6.4	1.00
3	2,390.000	41.00	54.00	13.00	7.08	V	6.4	1.00
3	2,420.000	85.48			7.25	V	0.9	2.00



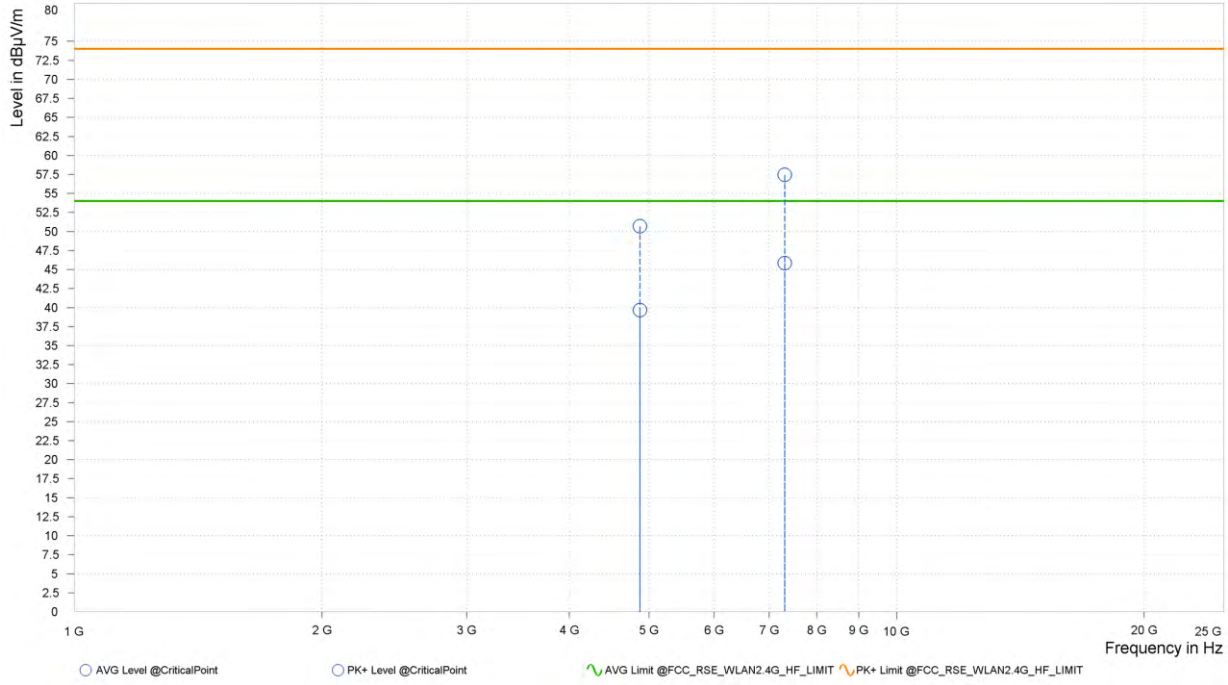
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value–Emission level.
2. 2422MHz: Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

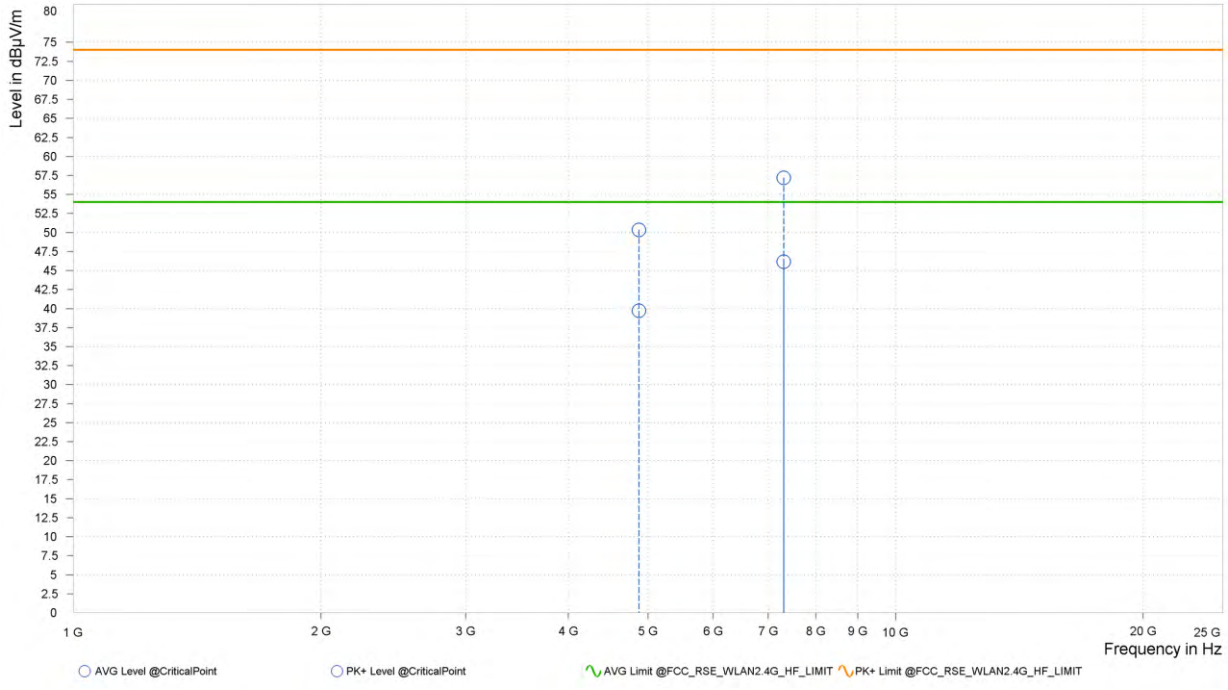
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,874.000	50.70	74.00	23.30	39.67	54.00	14.33	15.25	H	359	1.00
2	7,311.000	57.45	74.00	16.55	45.83	54.00	8.17	21.10	H	1	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	4,874.000	50.36	74.00	23.64	39.71	54.00	14.29	15.25	V	359	2.00
2	7,311.000	57.19	74.00	16.81	46.18	54.00	7.82	21.10	V	0.9	2.00



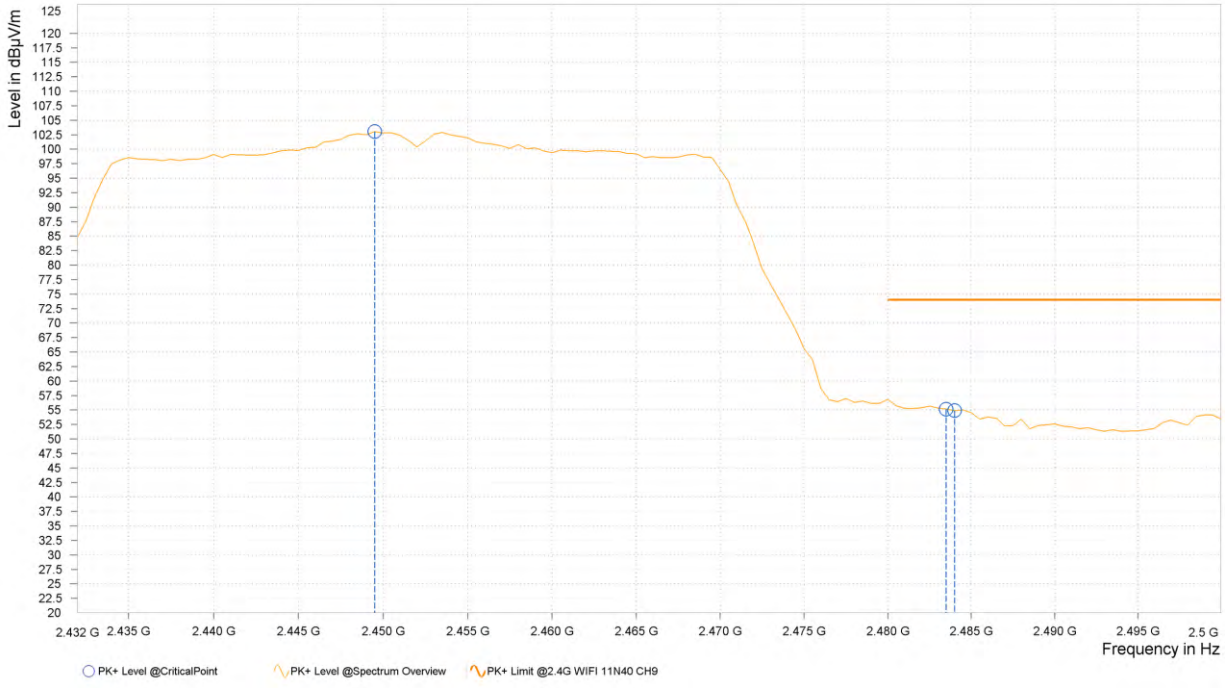
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value–Emission level.
   2. 2437MHz: Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

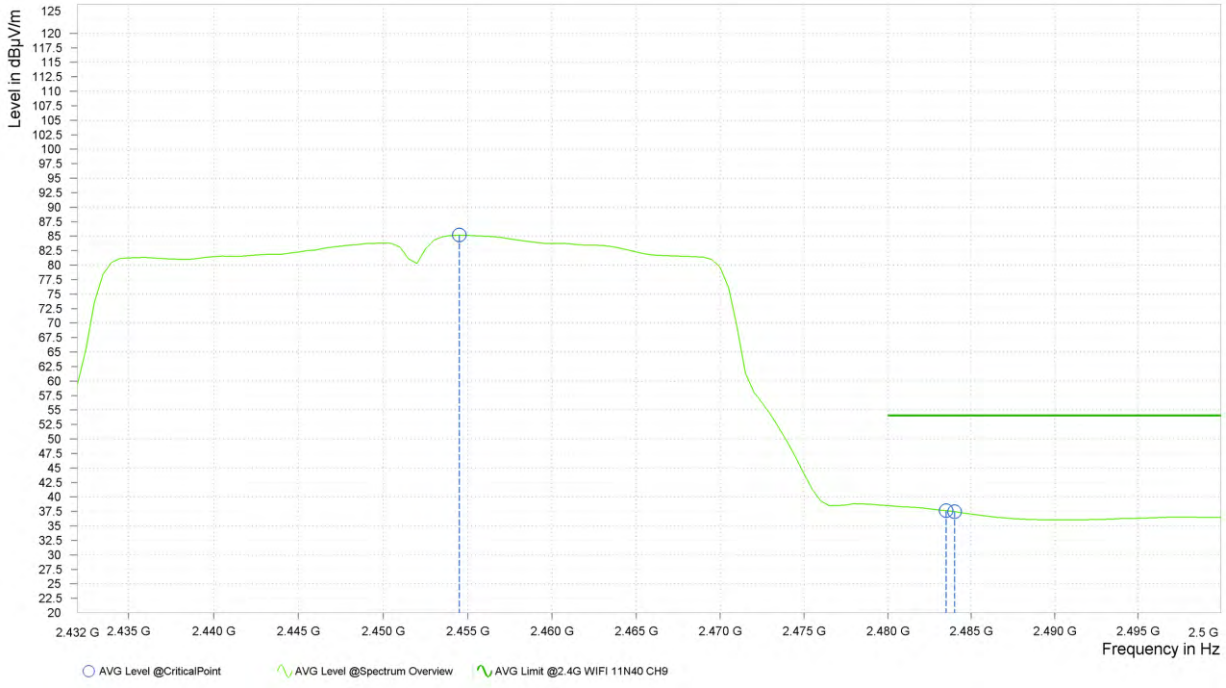
Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	2,449.500	103.03			7.44	H	72.6	2.00
4	2,483.500	55.15	74.00	18.85	7.36	H	217.2	2.00
4	2,484.000	54.89	74.00	19.11	7.36	H	217.2	2.00



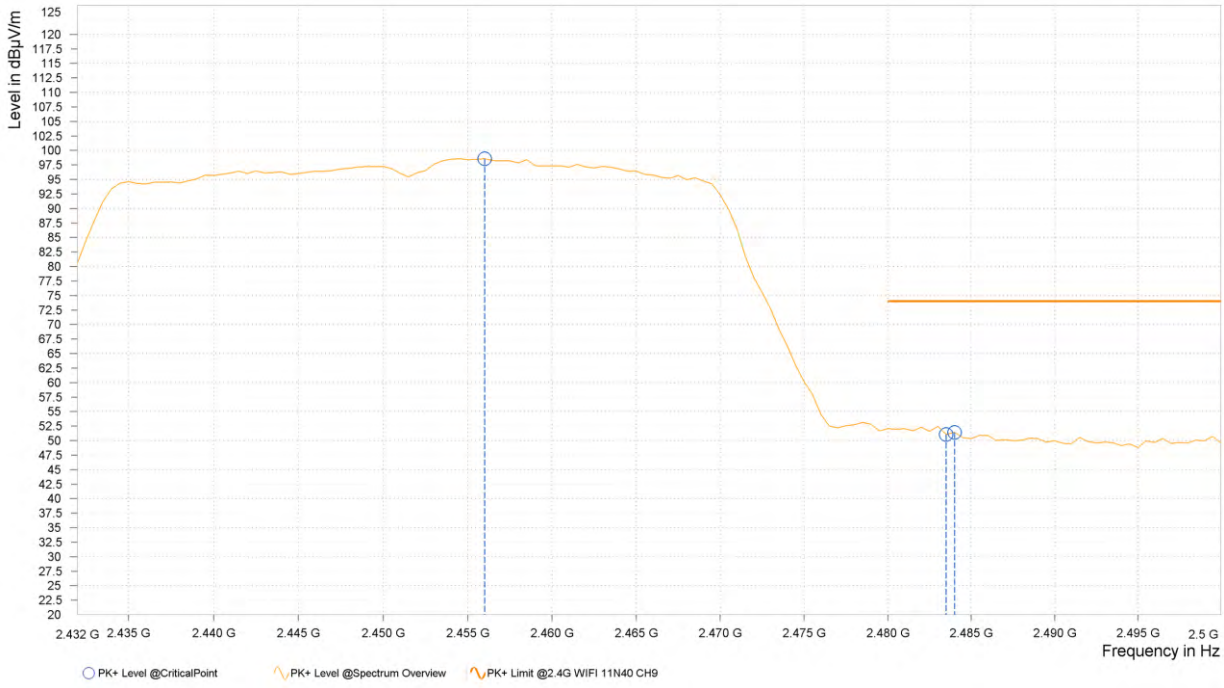
Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	2,454.500	88.62			7.43	H	75	2.00
4	2,483.500	40.09	54.00	13.91	7.36	H	218.4	2.00
4	2,484.000	39.88	54.00	14.12	7.36	H	218.4	2.00

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]
4	2,454.500	85.17			7.43	V	68.6	1.00
4	2,483.500	37.61	54.00	16.39	7.36	V	68.6	1.00
4	2,484.000	37.46	54.00	16.54	7.36	V	68.6	1.00



Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	2,456.000	98.57			7.42	V	68.6	1.00
4	2,483.500	51.08	74.00	22.92	7.36	V	5	1.00
4	2,484.000	51.42	74.00	22.58	7.36	V	68.6	1.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value–Emission level.
2. 2452MHz: Fundamental frequency.

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

BT-LE _1M

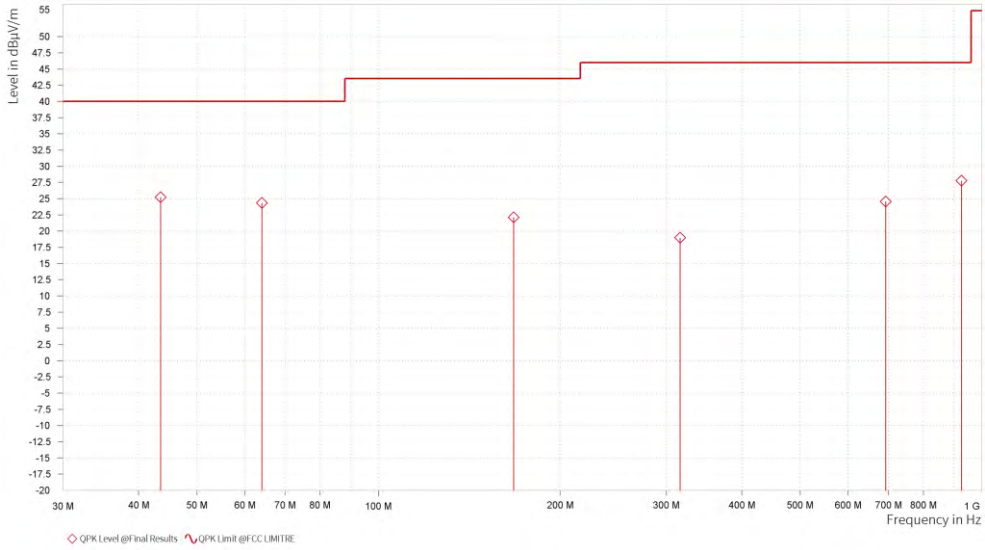
CHANNEL	TX Channel 19	**0DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	43.532	25.22	40.00	14.78	-9.85	H	0.9	2.00	120.000
1	64.047	24.33	40.00	15.67	-11.76	H	145.2	1.00	120.000
1	167.401	22.11	43.50	21.39	-14.01	H	145.2	1.00	120.000
1	316.102	18.95	46.00	27.05	-7.00	H	145.2	1.00	120.000
1	692.898	24.55	46.00	21.45	-1.58	H	214.9	2.00	120.000
1	924.971	27.75	46.00	18.25	2.40	H	145.2	1.00	120.000

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



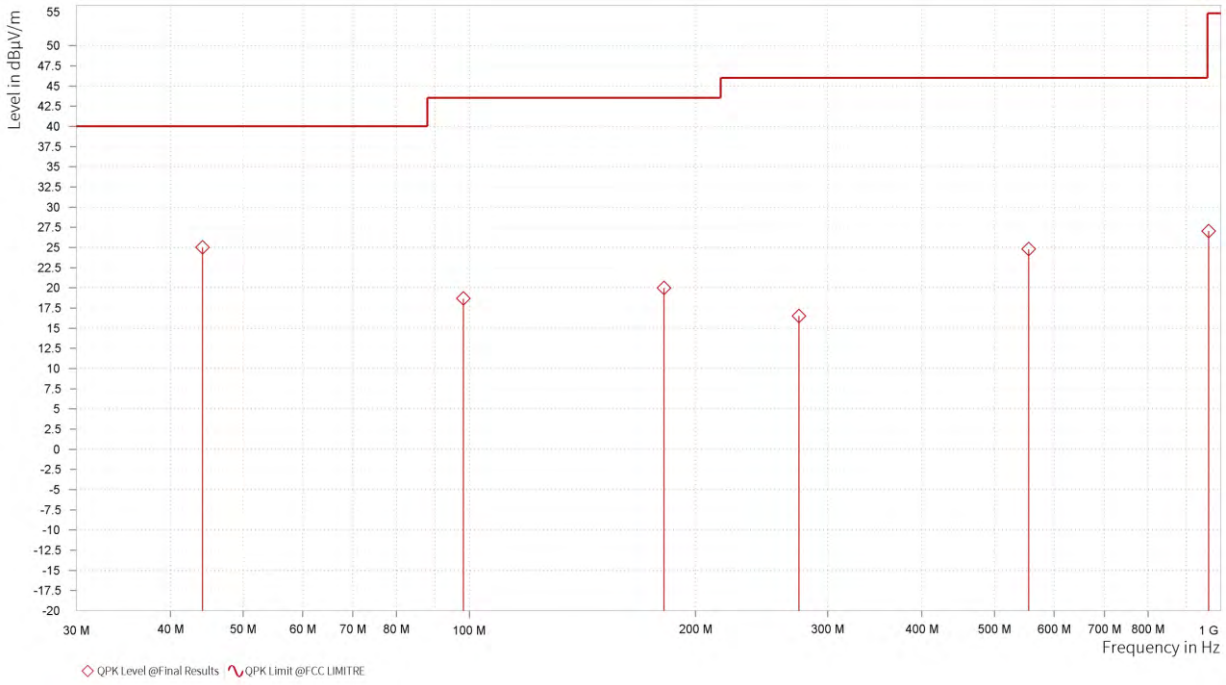
CHANNEL	TX Channel 19	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	44.162	25.00	40.00	15.00	-10.98	V	1	1.00	120.000
1	98.191	18.66	43.50	24.84	-12.23	V	0.9	2.00	120.000
1	181.514	19.97	43.50	23.53	-12.78	V	0.9	2.00	120.000
1	274.586	16.51	46.00	29.49	-8.05	V	214.9	2.00	120.000
1	554.916	24.77	46.00	21.23	-3.48	V	359.1	1.00	120.000
1	962.995	27.02	54.00	26.98	2.31	V	143.9	1.00	120.000

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



ABOVE 1GHz TEST 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.

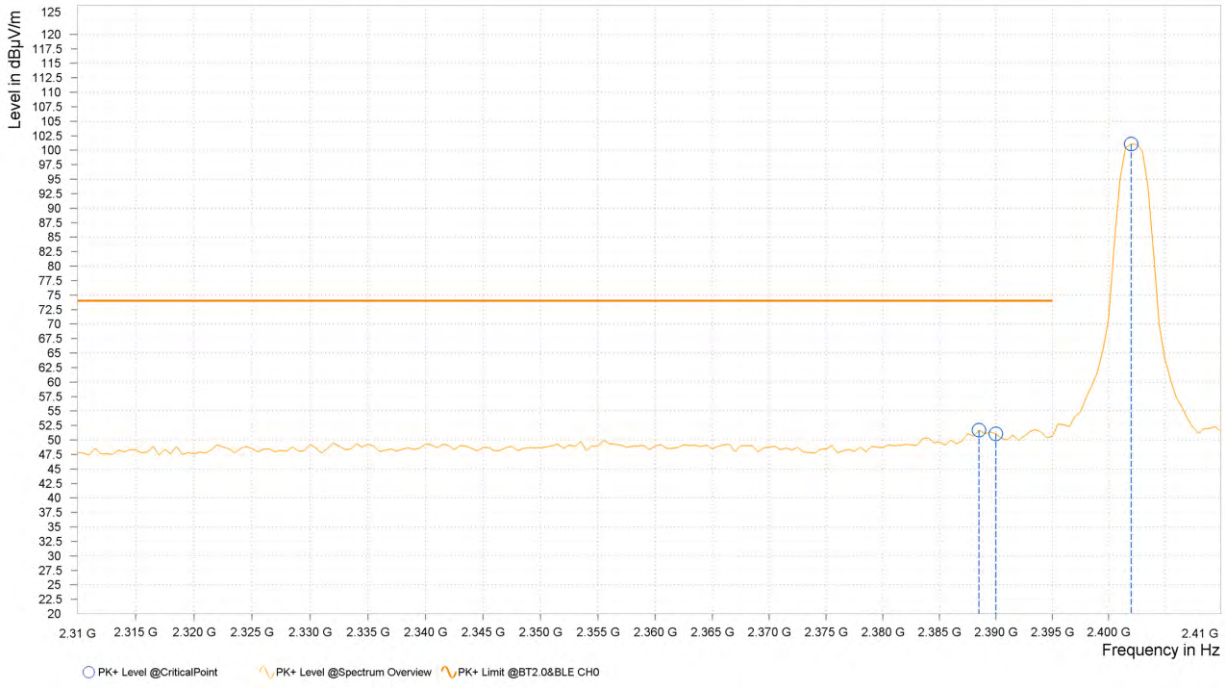
2. All other emissions were greater than 20dB below the limit was not recorded

BT-LE _1M

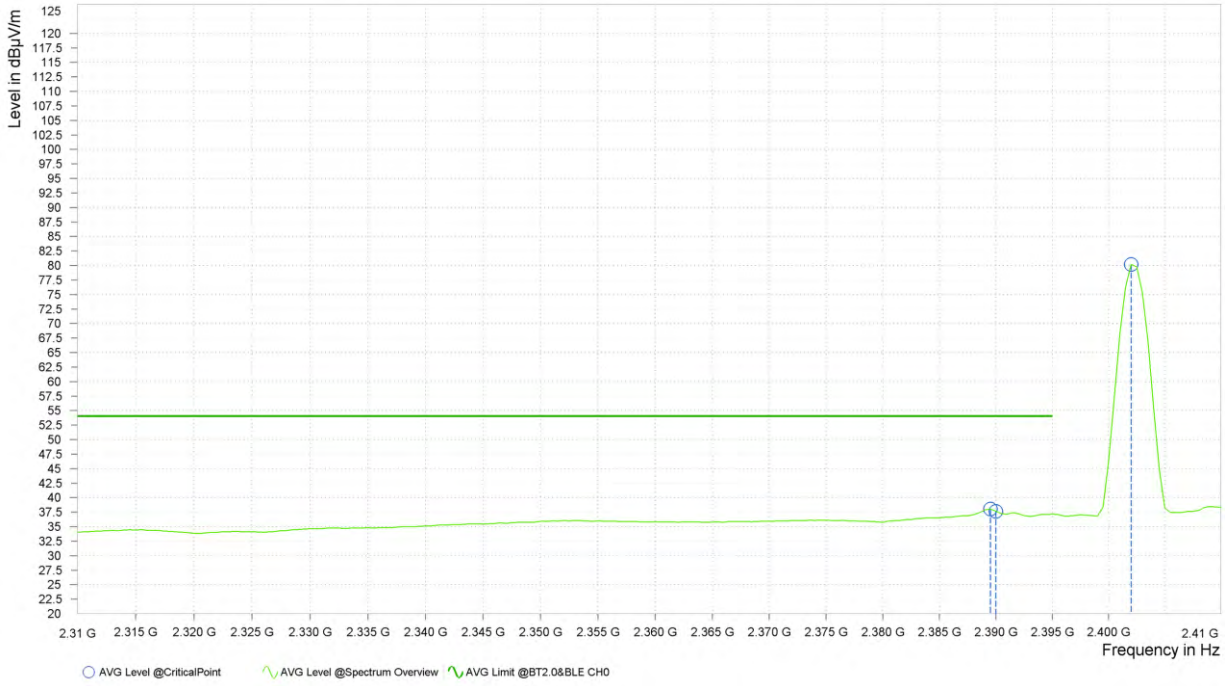
CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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]
5	2,388.500	51.69	74.00	22.31	7.08	H	216	2.00
5	2,390.000	51.08	74.00	22.92	7.08	H	216	2.00
5	2,402.000	101.06			7.08	H	216	2.00

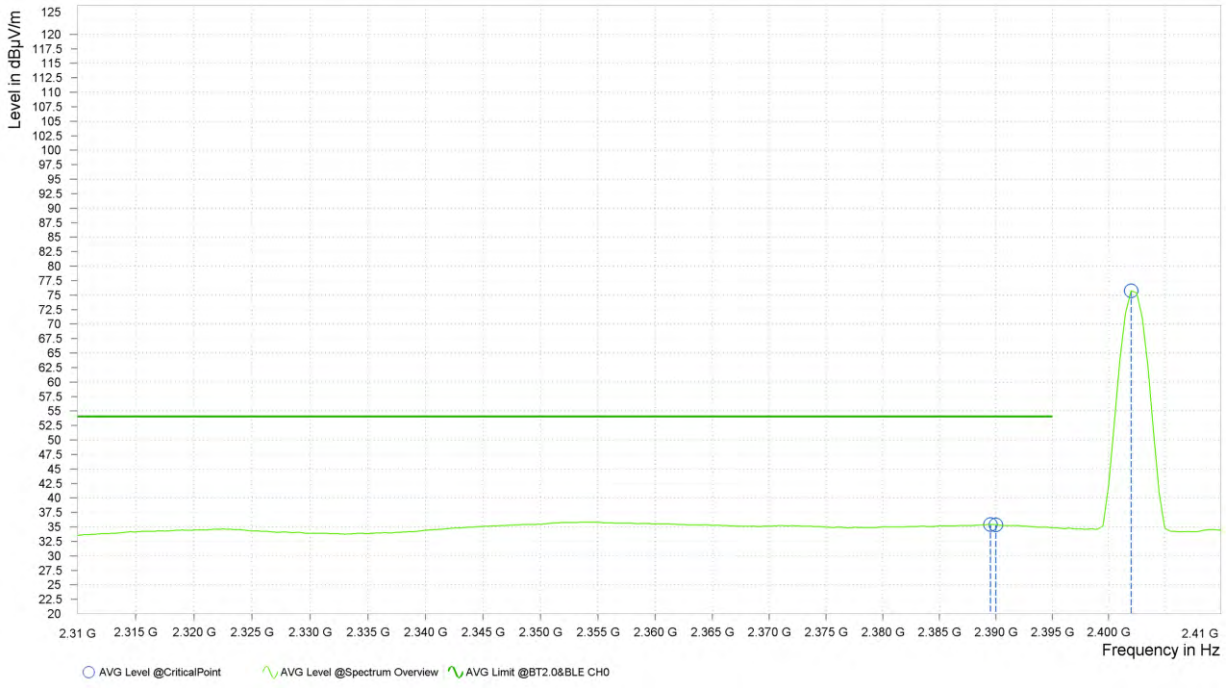


Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,389.500	38.03	54.00	15.97	7.08	H	214.9	2.00
5	2,390.000	37.65	54.00	16.35	7.08	H	214.9	2.00
5	2,402.000	80.19			7.08	H	214.9	2.00

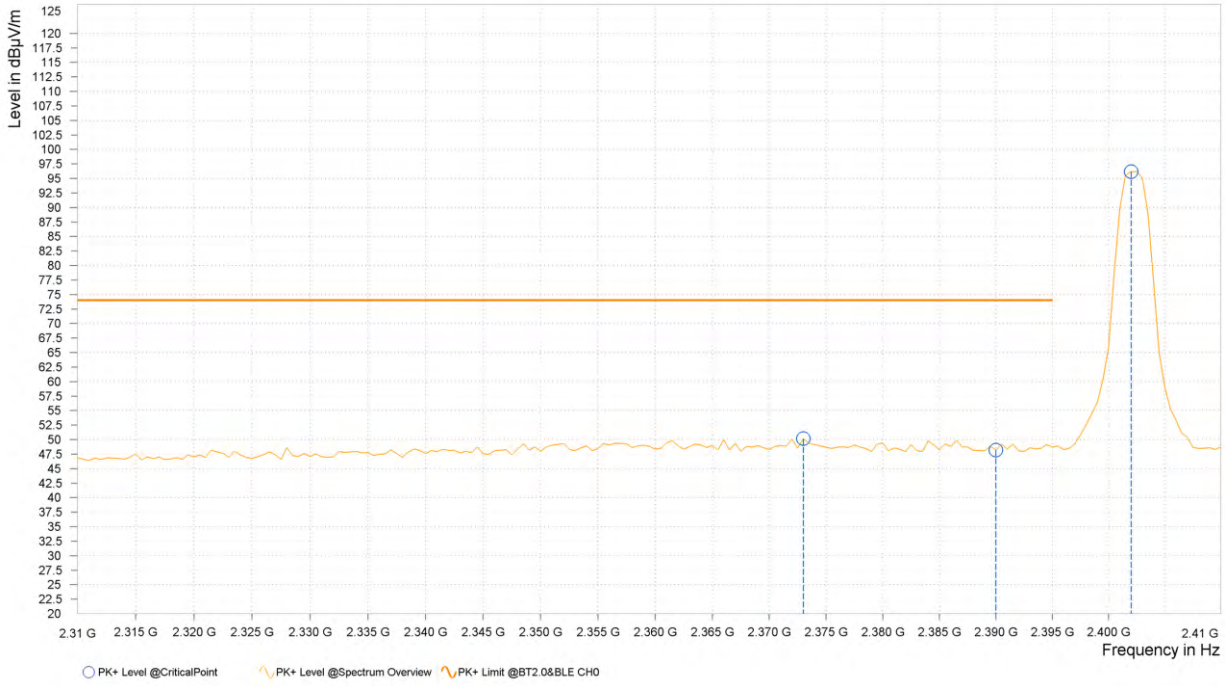


ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,389.500	35.41	54.00	18.59	7.08	V	152.2	1.00
5	2,390.000	35.37	54.00	18.63	7.08	V	152.2	1.00
5	2,402.000	75.76			7.08	V	4.9	1.00



Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	2,373.000	50.17	74.00	23.83	7.09	V	149.9	1.00
5	2,390.000	48.21	74.00	25.79	7.08	V	149.9	1.00
5	2,402.000	96.19			7.08	V	5	1.00



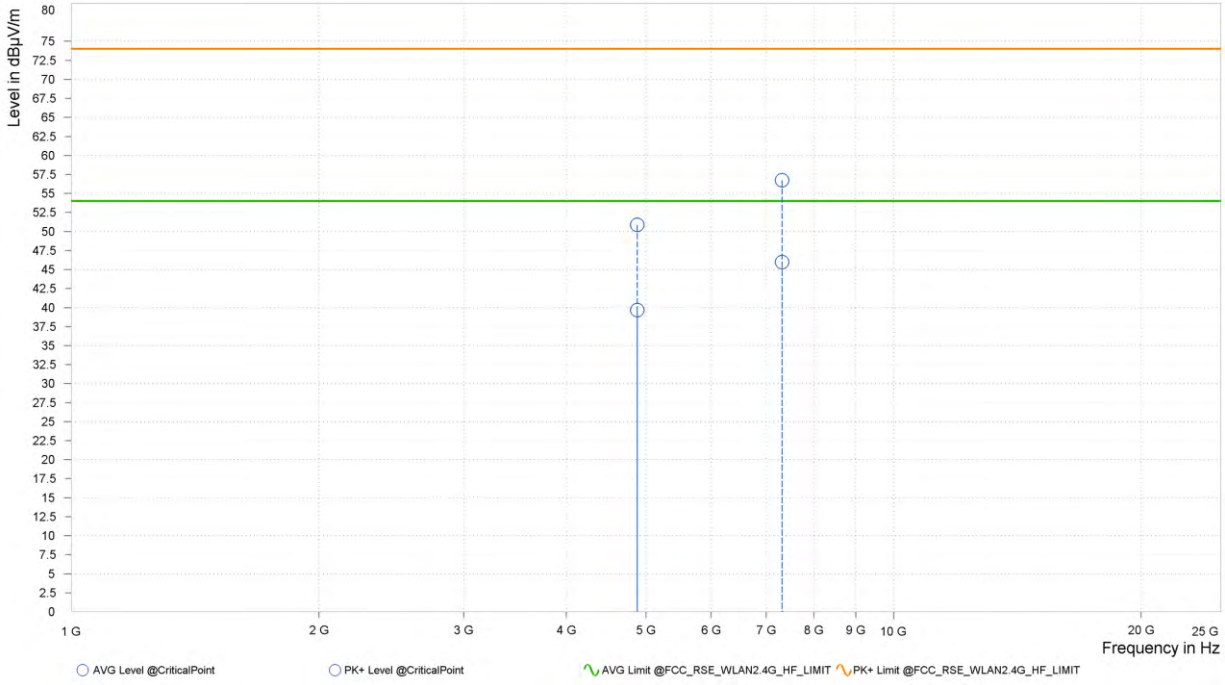
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value–Emission level.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

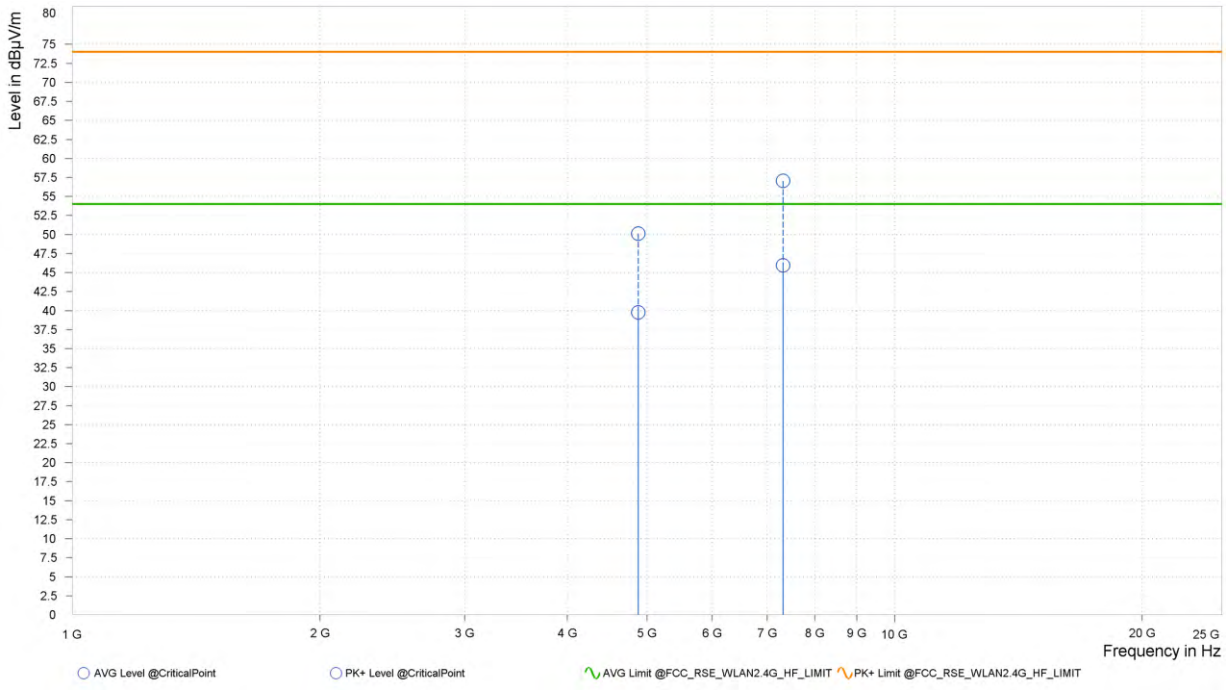
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	4,880.000	50.85	74.00	23.15	39.69	54.00	14.31	15.30	H	24.7	2.00
2	7,320.000	56.74	74.00	17.26	45.99	54.00	8.01	21.10	H	334	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	4,880.000	50.12	74.00	23.88	39.75	54.00	14.25	15.30	V	1	2.00
2	7,320.000	57.03	74.00	16.97	45.92	54.00	8.08	21.10	V	359	2.00



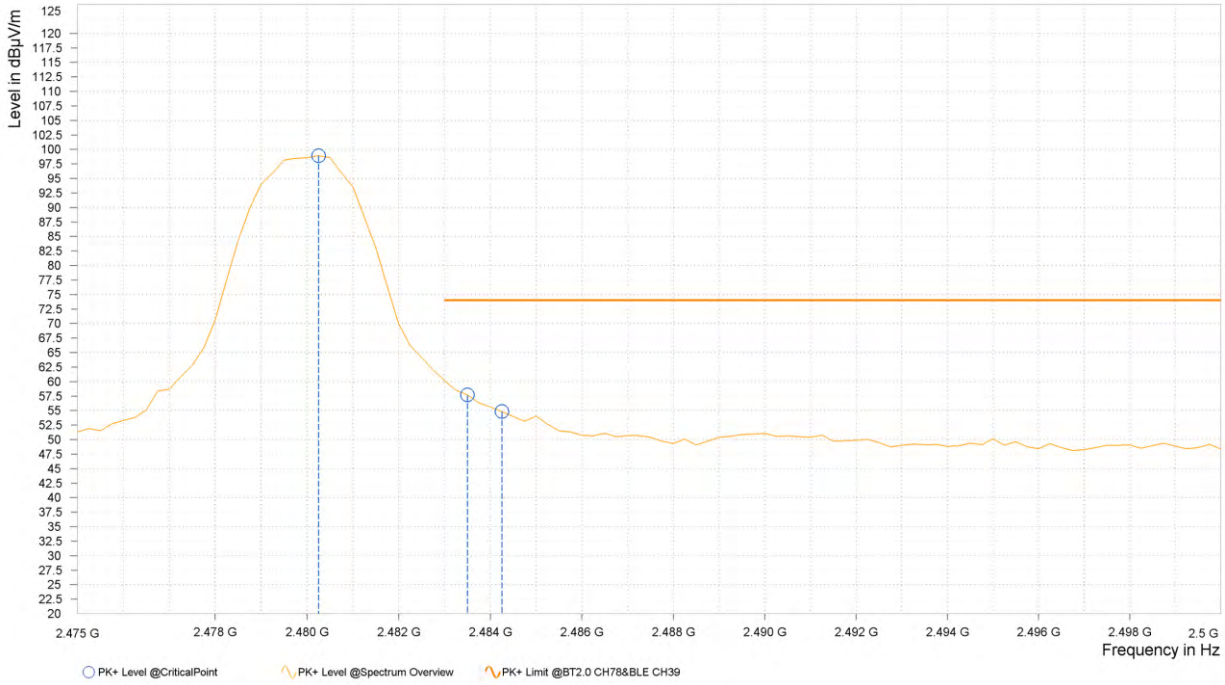
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value–Emission level.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	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]
6	2,480.250	98.91			7.36	H	5.6	1.00
6	2,483.500	57.69	74.00	16.31	7.36	H	146.3	1.00
6	2,484.250	54.82	74.00	19.18	7.36	H	146.3	1.00



Rg	Frequency [MHz]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	2,480.000	78.79			7.36	H	4.9	1.00
6	2,483.500	36.38	54.00	17.62	7.36	H	213.7	2.00
6	2,490.000	37.03	54.00	16.97	7.37	H	213.7	2.00