Certificate #6613.01

TEST REPORT

Applicant:	MUNIC
Address:	39 Avenue de Paris 94800 Villejuif – France

Manufacturer or Supplier:	MUNIC
Address:	39 Avenue de Paris 94800 Villejuif – France
Product:	telematics embedded system ALARM.COM CAR CONNECTOR
Brand Name:	MUNIC ALARM.COM
Model Name:	C4D-4MUSAC_V8 ADC-CC110
FCC ID:	A6GC4D-4MUSACV8
Date of tests:	Aug. 23, 2024 ~ Sep. 20, 2024

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

☒ **FCC Part 15, Subpart C, Section 15.247** ☒ **ANSI C63.10-2020**
☒ **FCC Part 15, Subpart E, Section 15.407**
☒ **FCC Part 27** ☒ **ANSI/TIA/EIA-603-D**
☒ **FCC Part 2** ☒ **ANSI/TIA/EIA-603-E** ☒ **ANSI C63.26-2015**

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

Prepared by Hanwen Xu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
Date: Sep. 20, 2024	Date: Sep. 20, 2024

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-QBJ2408220111RF06	Original release	Sep. 20, 2024

1 GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	telematics embedded system ALARM.COM CAR CONNECTOR	
BRAND NAME*	MUNIC ALARM.COM	
MODEL NAME*	C4D-4MUSAC_V8 ADC-CC110	
NOMINAL VOLTAGE*	DC 13.5V/27V	
MODULATION TYPE*	**BT_LE**	GFSK
	Bluetooth	GFSK, π/4-DQPSK, 8DPSK
	WLAN	DSSS, OFDM, OFDMA
	GPS/GALILEO/GLONASS	BPSK
	GSM/GPRS/EDGE	GMSK, 8PSK
	LTE	QPSK/16QAM
OPERATING FREQUENCY	**Bluetooth/BT_LE**	2402MHz ~ 2480MHz
	WLAN	2412 ~ 2462MHz for 11b/g/n(HT20/40)
	GPS/GALILEO/GLONASS	1559MHz ~ 1610MHz
	GSM	824.2MHz ~ 848.8MHz (FOR GSM 850) 1850.2MHz ~ 1909.8MHz (FOR GSM 1900)
	LTE	1850.7MHz ~ 1909.3MHz (FOR LTE Band2) 1710.7MHz ~ 1754.3MHz (FOR LTE Band4) 699.7MHz ~ 715.3MHz (FOR LTE Band12)
HW VERSION*	HC4D-4MUSAC_V8.01	
SW VERSION*	SC4D-4MUSAC_V8.01	
I/O PORTS*	Refer to user's manual	
CABLE SUPPLIED*	N/A	
ACCESSORY DEVICES*	Refer to note as below	

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. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

4. 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.

5. The differences between model C4D-4MUSAC_V8 and ADC-CC110 are as following.

Description	1st	2rd
Product name	Telematic Embedded System	ALARM.COM CAR CONNECTOR
Brand Name	MUNIC	ALARM.COM
Model Name	C4D-4MUSAC_V8	ADC-CC110
Differences	/	Use of a different product name (ALARM.COM CAR CONNECTOR), model name (ADC-CC110) and a different trademark (ALARM.COM) for marketing and client requirements.

6. **List of Accessory:**

ACCESSORIES	BRAND	MODEL	SPECIFICATION
Battery	Howell	Li-polymer 552535H	Capacity：Li-ion, 450mAh

2 SUMMARY OF TEST RESULTS

2.1 TEST RESULTS

TEST TYPE	Result
Radiated Emissions	Pass

***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

Accredited Test Lab Cert 6613.01

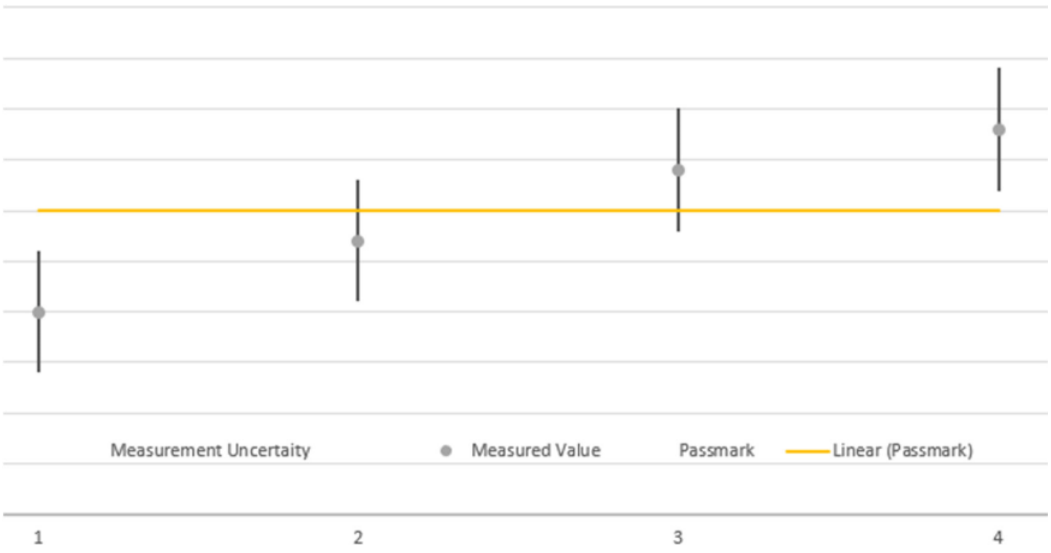
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

2.2 MEASREMENT 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
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB

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.

2.3 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	SCU18F1	100815	Aug.29,24	Aug.28,26
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.15,24	Sep.14,26
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
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
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.21,24	Aug.20,26
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.21,24	Aug.20,26
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,24	Feb.21,26
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.31,22	Aug.30,24
DC Source	HYELEC	HY3010B	551016	Aug.30,24	Aug.29,26
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
Hygrothermograph	DELI	20210528	SZ014	Sep.05,24	Sep.04,26
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.27,24	Apr.26,25
CABLE	R&S	W12.14	N/A	Apr.27,24	Apr.26,25

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 test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

4. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

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

2.4 REFERENCED STANDARDS

The fellowing referenced standards are necessary for the report.For undated references in this report,the cited version applies.

No.	Identify	Note
1	FCC Part 15, Subpart C, Section 15.247	For BT/BLE/2.4G WIFI
2	FCC PART 22, Subpart H	For WWAN
3	FCC PART 24, Subpart E	For WWAN
4	FCC Part 27	For WWAN

Note: More informations and test procedures please refer to 15.247/Part22/Part24/ Part27reports.

2.5 TEST CONFIGURATIONS

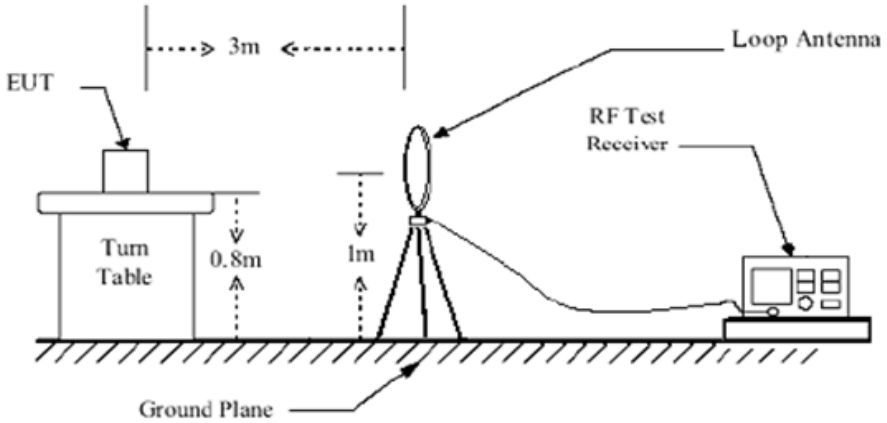
Test Configurations	Description
Worst case test Mode	
1	WLAN-BT-2DH5-CH78+GSM850-LOW
2	WLAN-2.4G-11N40-CH9+LTE-B2-MID-1.4M
3	WLAN-2.4G-11N40-CH9+LTE-B4-HIGH-3M

Note: 1. Test equipment and site refer to Referenced Standards report

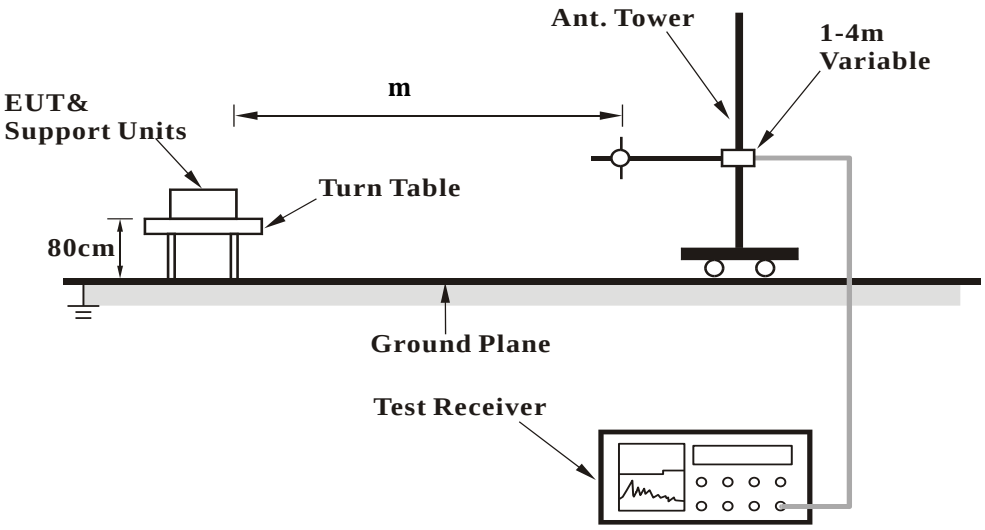
2. For higher frequency, the emission is 20dB below the limit was not record

2.6 TEST DATA

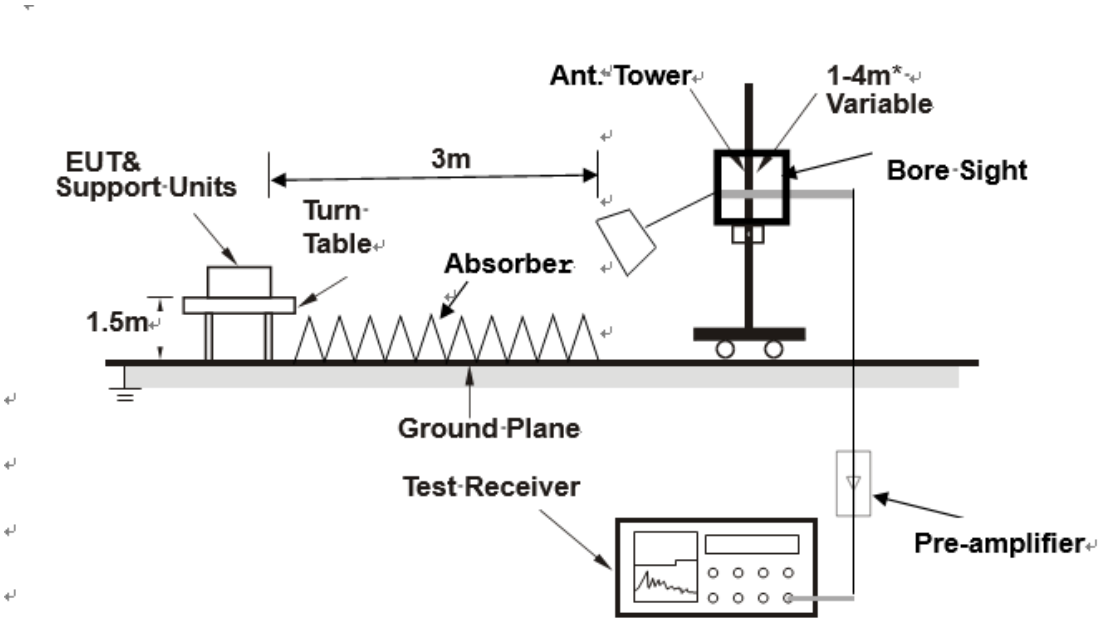
<Frequency Range 9KHz~30MHz >



< 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).

2.6.1 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.

2.6.2 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.

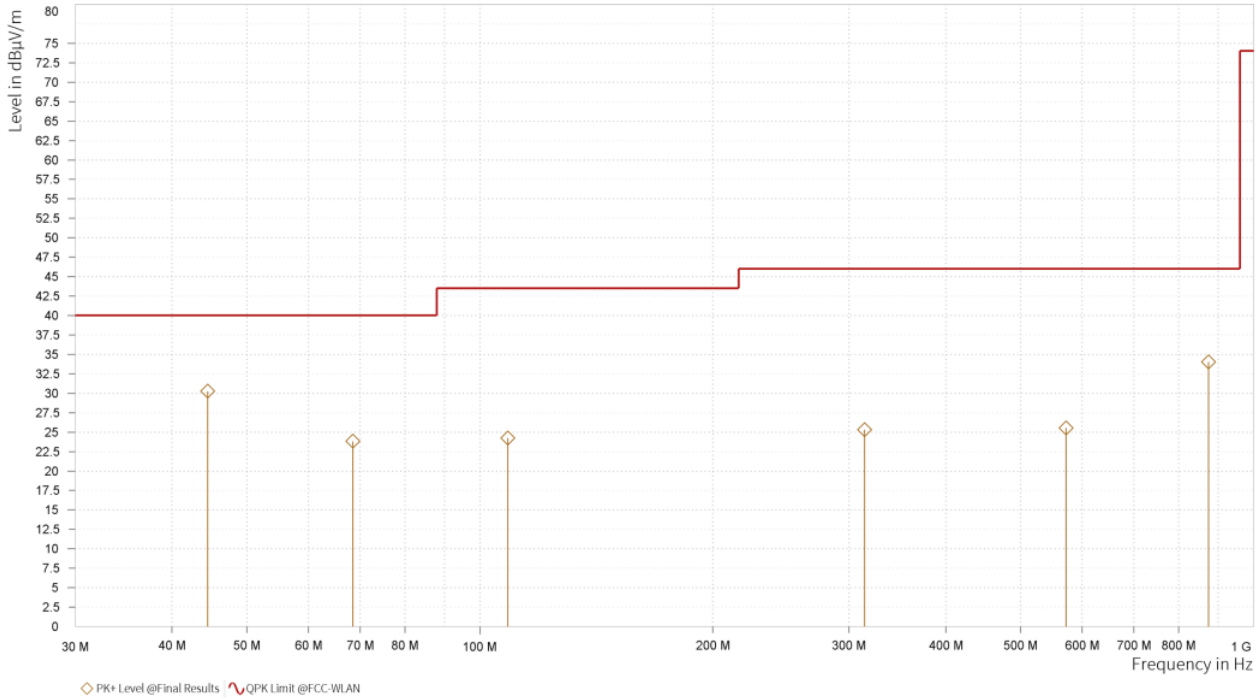
WLAN-BT-2DH5-CH78+GSM850-LOW:

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

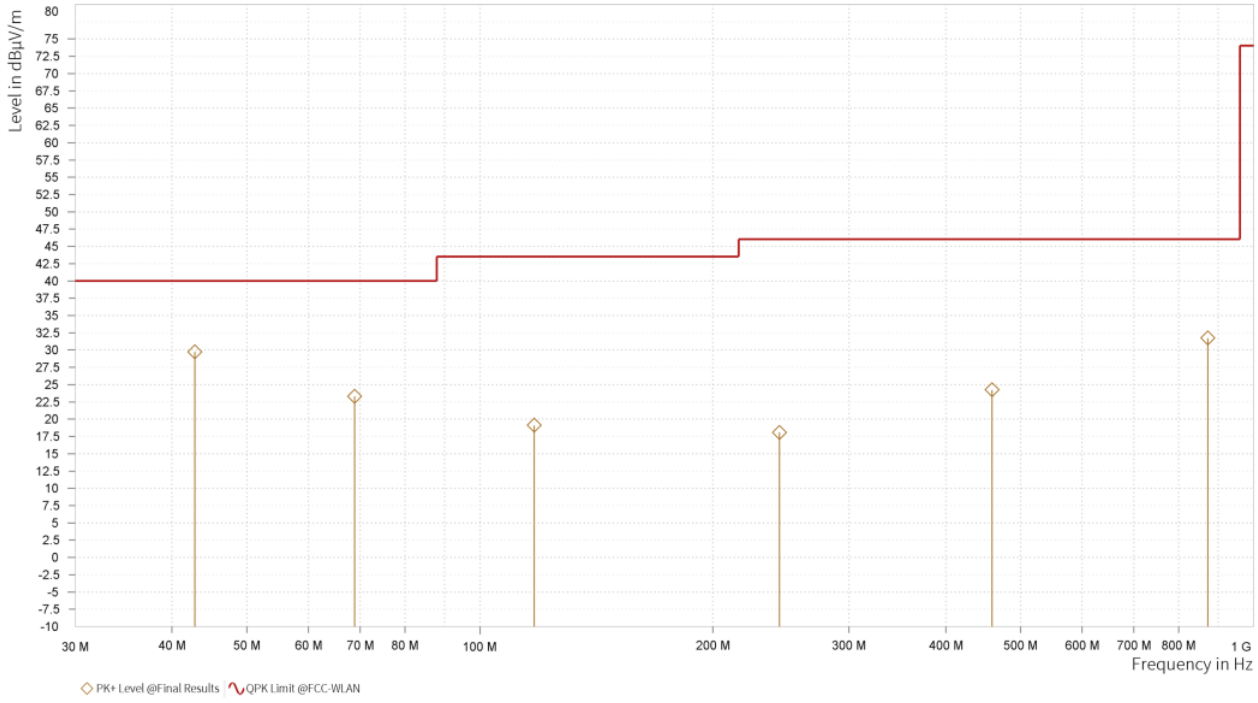
CHANNEL	WLAN-BT-2DH5-CH78+GSM850-LOW	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	44.502	30.25	40.0	9.75	-11.96	H	359.0	2.0
1	68.509	23.8	40.0	16.2	-15.68	H	230.2	2.0
1	108.619	24.24	43.5	19.26	-13.63	H	280.4	1.0
1	314.307	25.3	46.0	20.7	-10.82	H	280.4	1.0
1	572.424	25.52	46.0	20.48	-7.02	H	359.0	1.0
1	874.579	34.03	46.0	11.97	-2.13	H	359.0	1.0



CHANNEL	WLAN-BT-2DH5-CH78+G SM850-LOW	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	42.804	29.74	40.0	10.26	-11.95	V	359.0	2.0
1	68.897	23.29	40.0	16.71	-15.81	V	359.0	2.0
1	117.494	19.1	43.5	24.4	-14.54	V	0.9	2.0
1	243.885	18.08	46.0	27.92	-11.82	V	359.1	1.0
1	458.983	24.23	46.0	21.77	-8.83	V	132.2	1.0
1	872.348	31.72	46.0	14.28	-2.13	V	359.1	1.0



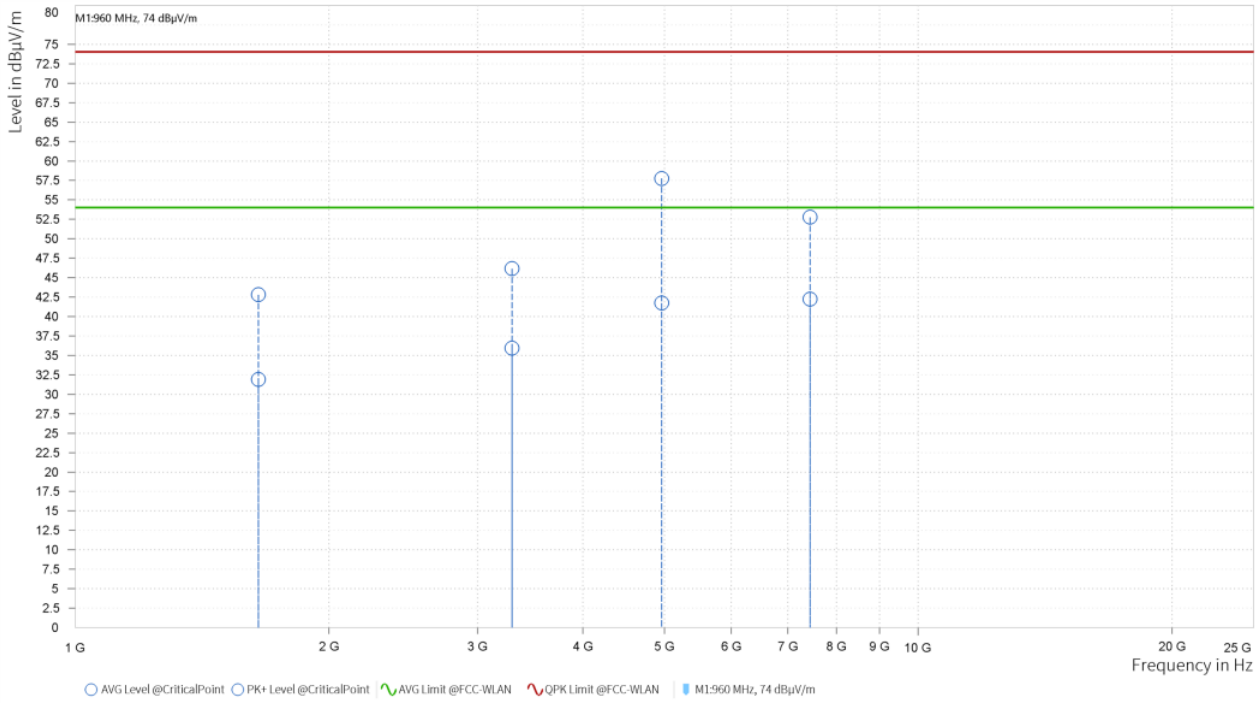
ABOVE 1GHz WORST-CASE DATA:

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 that more than 20dB below the limit were not recorded

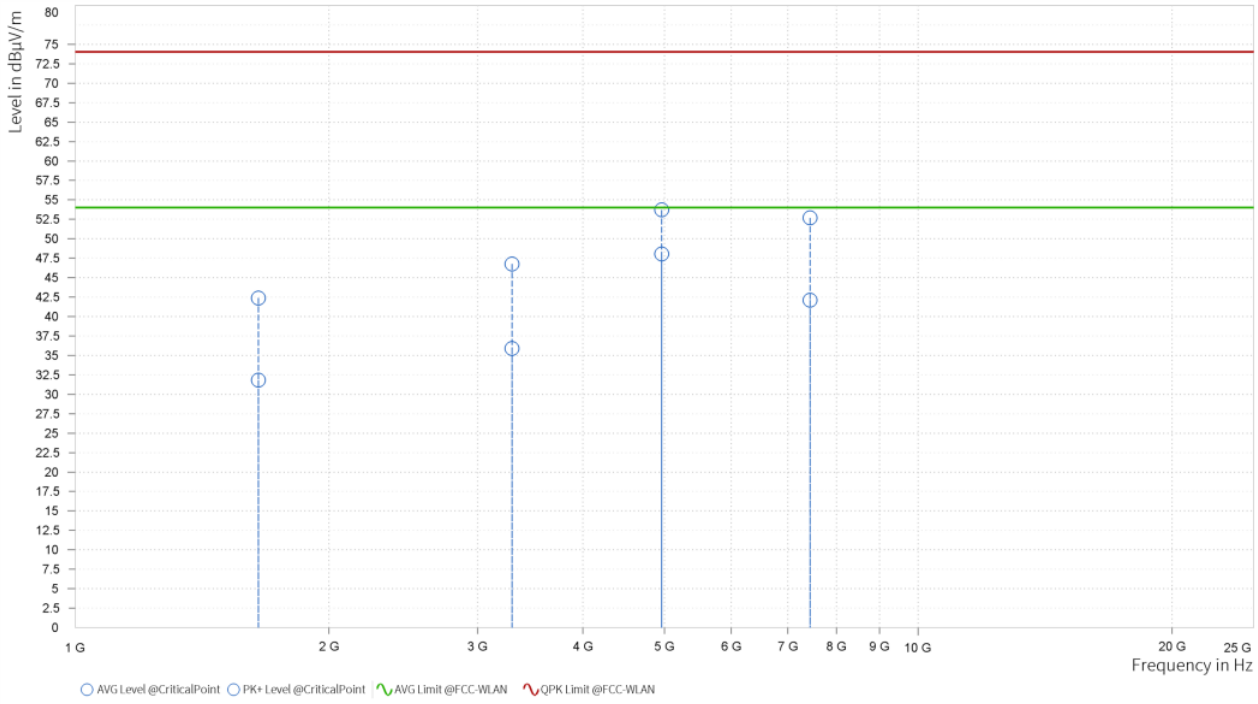
CHANNEL	WLAN-BT-2DH5-CH78+GSM850-LOW	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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]
1	1,648.400	42.8	74.0	31.2	31.9	54.0	22.1	6.21	H	359.0	2.0
3	3,296.800	46.15	74.0	27.85	35.92	54.0	18.08	12.01	H	359.1	1.0
3	4,960.000	57.74	74.0	16.26	41.74	54.0	12.26	13.52	H	248.2	1.0
3	7,440.000	52.76	74.0	21.24	42.25	54.0	11.75	18.23	H	113.1	2.0



CHANNEL	WLAN-BT-2DH5-CH78+GSM850-LOW	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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]
1	1,648.400	42.38	74.0	31.62	31.81	54.0	22.19	6.21	V	355	2.0
3	3,296.800	46.76	74.0	27.24	35.89	54.0	18.11	12.01	V	359	2.0
3	4,960.000	53.71	74.0	20.29	48.05	54.0	5.96	13.52	V	359	2.0
3	7,440.000	52.69	74.0	21.31	42.1	54.0	11.9	18.23	V	247	1.0



Note: For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

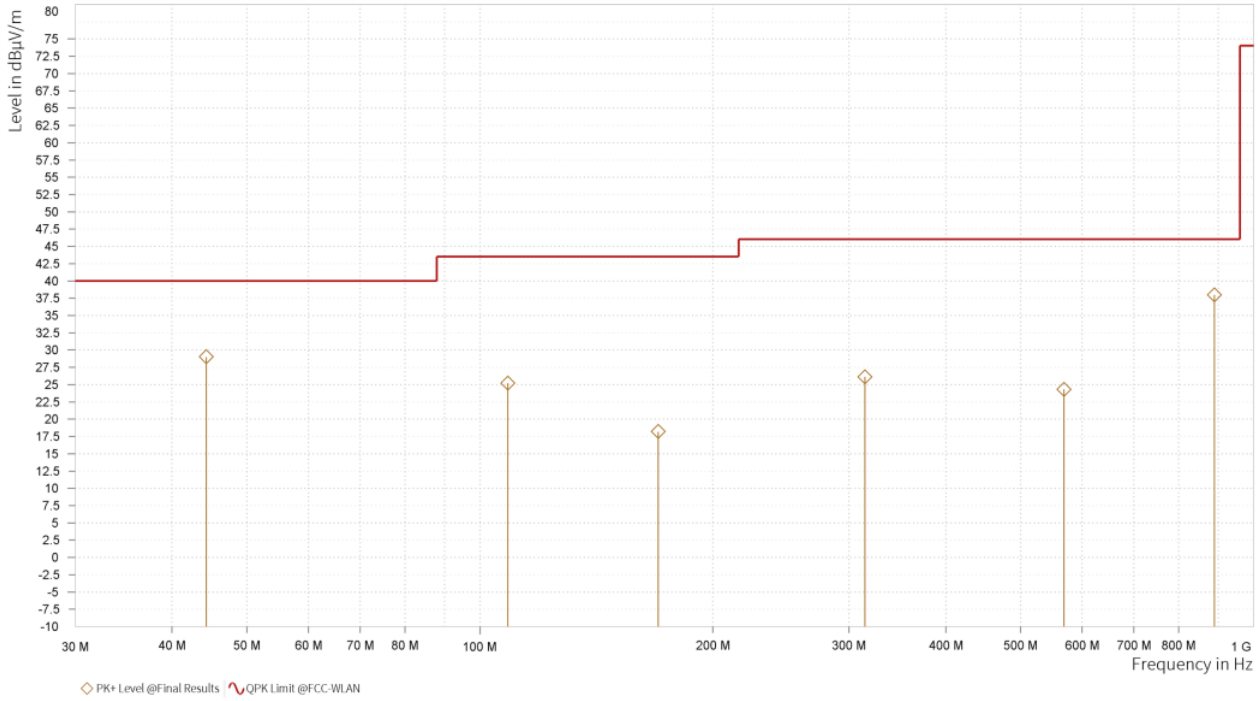
W**LAN-2.4G-11N40-CH9+LTE-B2-MID-1.4M:**

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

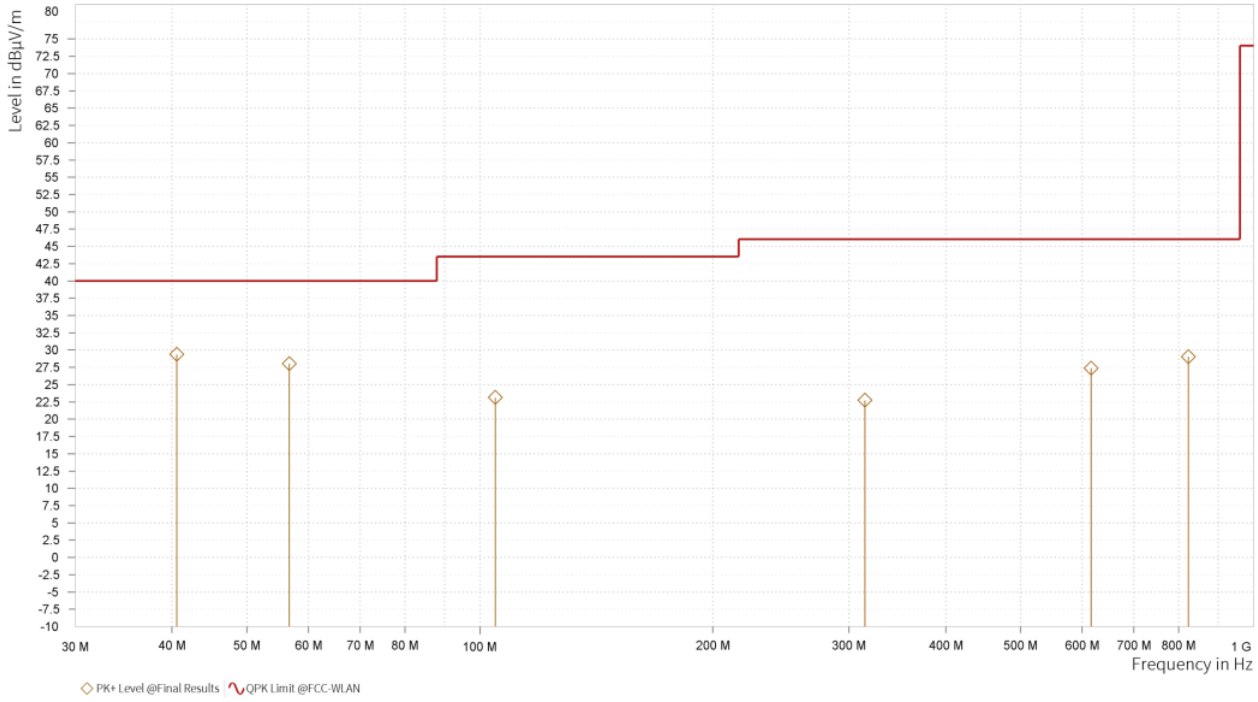
CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B2-MID-1.4M	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	44.308	29.01	40.0	10.99	-11.97	H	226.7	2.0
1	108.619	25.2	43.5	18.3	-13.63	H	144.1	1.0
1	170.02	18.19	43.5	25.31	-15.76	H	359.1	1.0
1	314.356	26.1	46.0	19.9	-10.82	H	281.6	1.0
1	568.544	24.31	46.0	21.69	-7.35	H	359.0	2.0
1	889.711	37.99	46.0	8.01	-1.22	H	0.9	2.0



CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B2-MID-1.4M	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	40.573	29.35	40.0	10.65	-12.58	V	226.6	2.0
1	56.724	28.02	40.0	11.98	-13.09	V	359.0	1.0
1	104.739	23.11	43.5	20.39	-13.55	V	5.1	1.0
1	314.598	22.71	46.0	23.29	-10.81	V	91.6	2.0
1	616.123	27.37	46.0	18.63	-5.71	V	5.1	1.0
1	823.751	29.02	46.0	16.98	-2.59	V	5.1	1.0



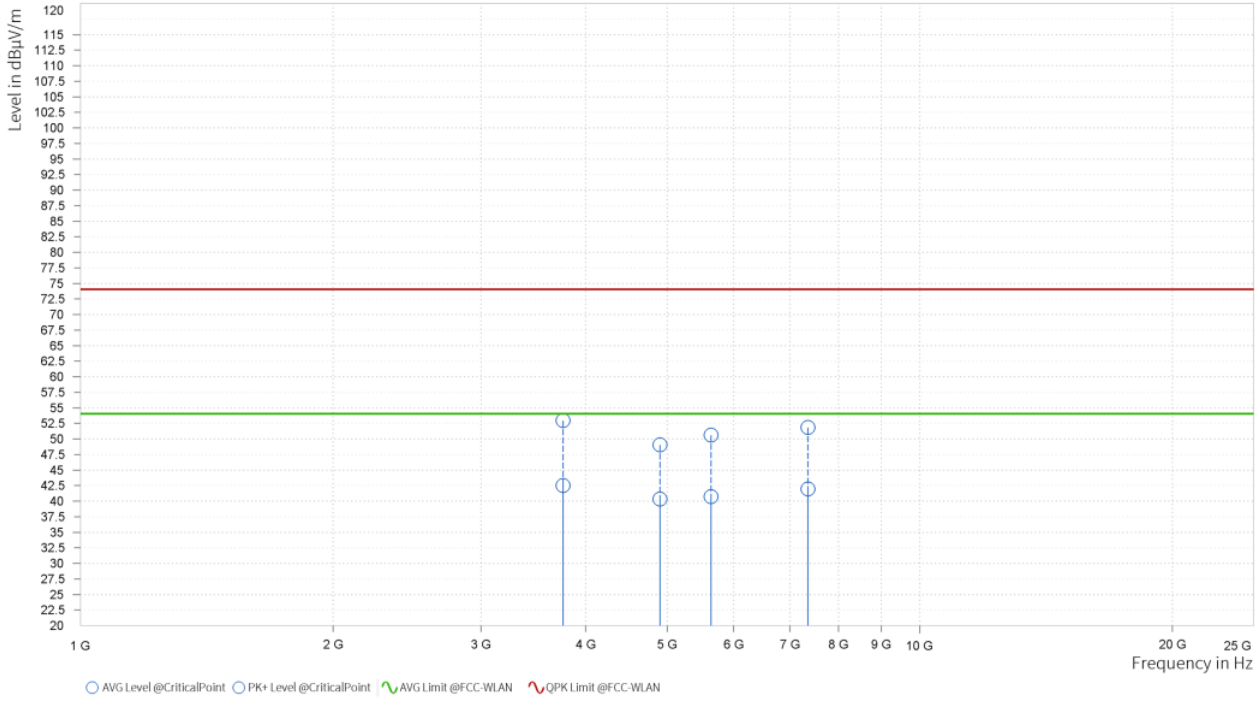
ABOVE 1GHz WORST-CASE DATA:

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 that more than 20dB below the limit were not recorded

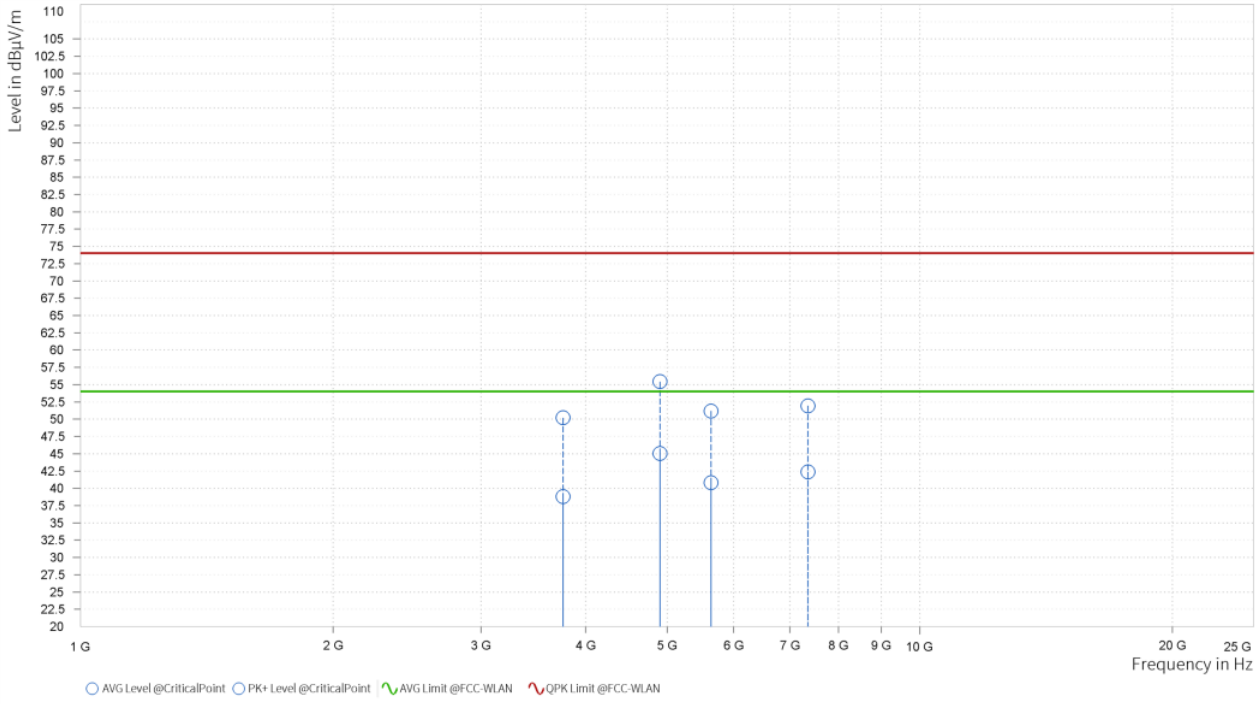
CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B2-MID-1.4M	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	3,760.000	52.95	74.0	21.05	42.52	54.0	11.48	12.45	H	359.1	1.0
3	4,904.000	49.04	74.0	24.96	40.31	54.0	13.69	13.62	H	0.9	2.0
3	5,638.110	50.6	74.0	23.4	40.75	54.0	13.25	17.22	H	1.0	1.0
3	7,356.000	51.82	74.0	22.18	41.96	54.0	12.04	18.04	H	117.8	2.0



CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B2-MID-1.4M	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	3,760.000	50.21	74.0	23.79	38.78	54.0	15.22	12.45	V	250.6	1.0
3	4,904.000	55.44	74.0	18.56	45.02	54.0	8.98	13.62	V	250.6	1.0
3	5,638.110	51.18	74.0	22.82	40.8	54.0	13.2	17.22	V	1.0	2.0
3	7,356.000	51.93	74.0	22.07	42.38	54.0	11.62	18.04	V	1.0	2.0



Note: For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

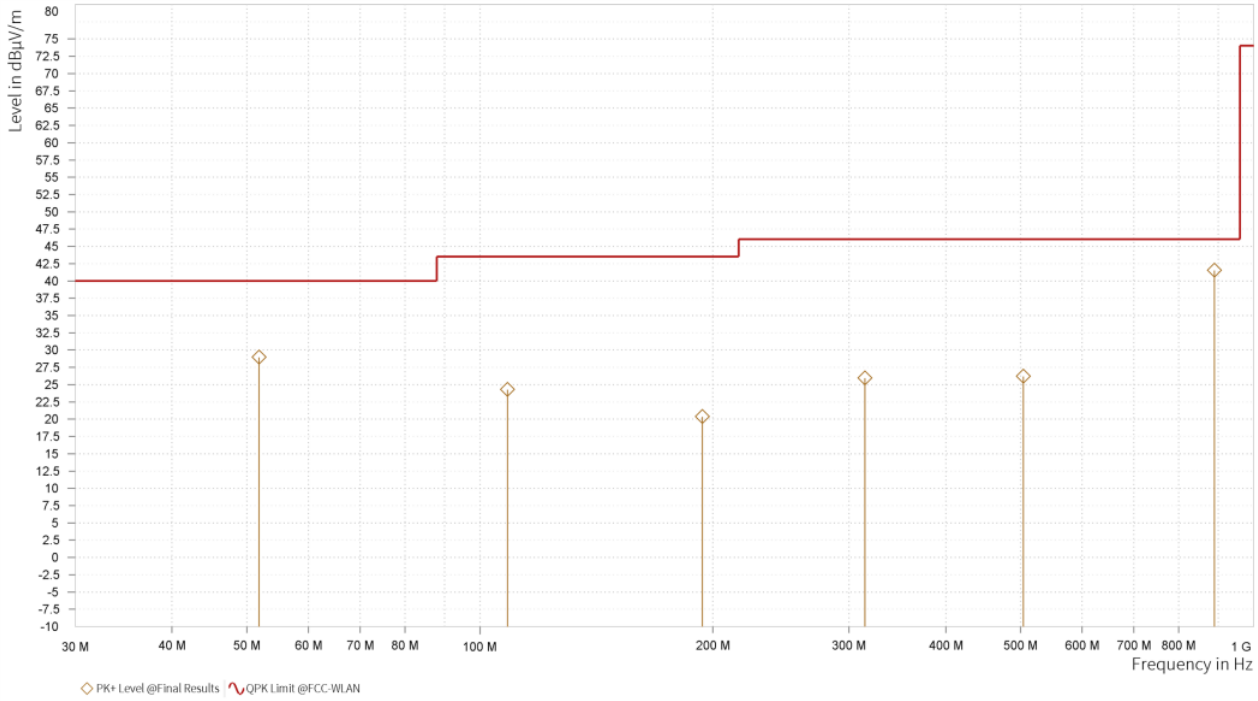
WLAN-2.4G-11N40-CH9+LTE-B4-HIGH-3M:

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

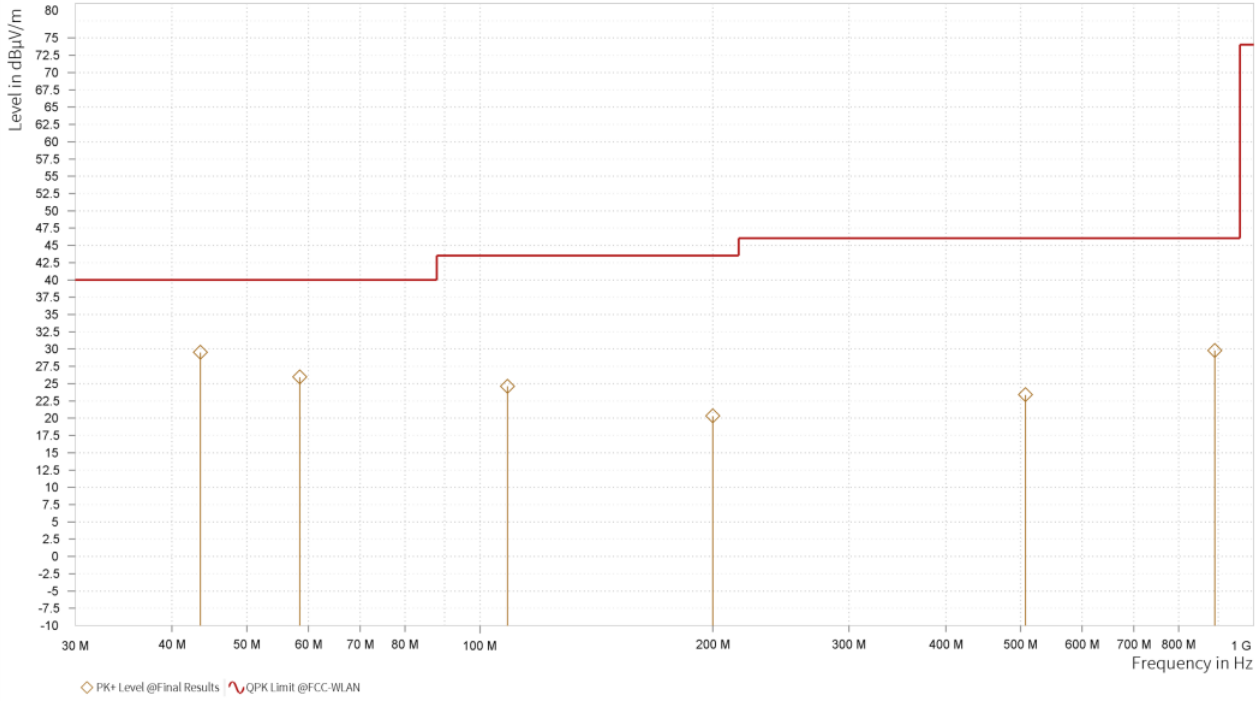
CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B4-HIGH-3M	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	51.825	28.96	40.0	11.04	-12.12	H	1.0	2.0
1	108.57	24.27	43.5	19.23	-13.63	H	131.0	1.0
1	193.882	20.36	43.5	23.14	-13.28	H	1.0	2.0
1	314.453	25.92	46.0	20.08	-10.81	H	269.6	1.0
1	503.797	26.18	46.0	19.82	-7.88	H	227.9	2.0
1	889.614	41.52	46.0	4.48	-1.23	H	1.0	2.0



CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B4-HIGH-3M	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	43.532	29.5	40.0	10.5	-11.93	V	131.0	1.0
1	58.518	25.93	40.0	14.07	-13.59	V	359.1	1.0
1	108.57	24.61	43.5	18.89	-13.63	V	359.0	2.0
1	199.944	20.3	43.5	23.2	-12.94	V	92.8	2.0
1	506.804	23.38	46.0	22.62	-7.83	V	359.0	2.0
1	890.73	29.79	46.0	16.21	-1.19	V	358.6	1.0



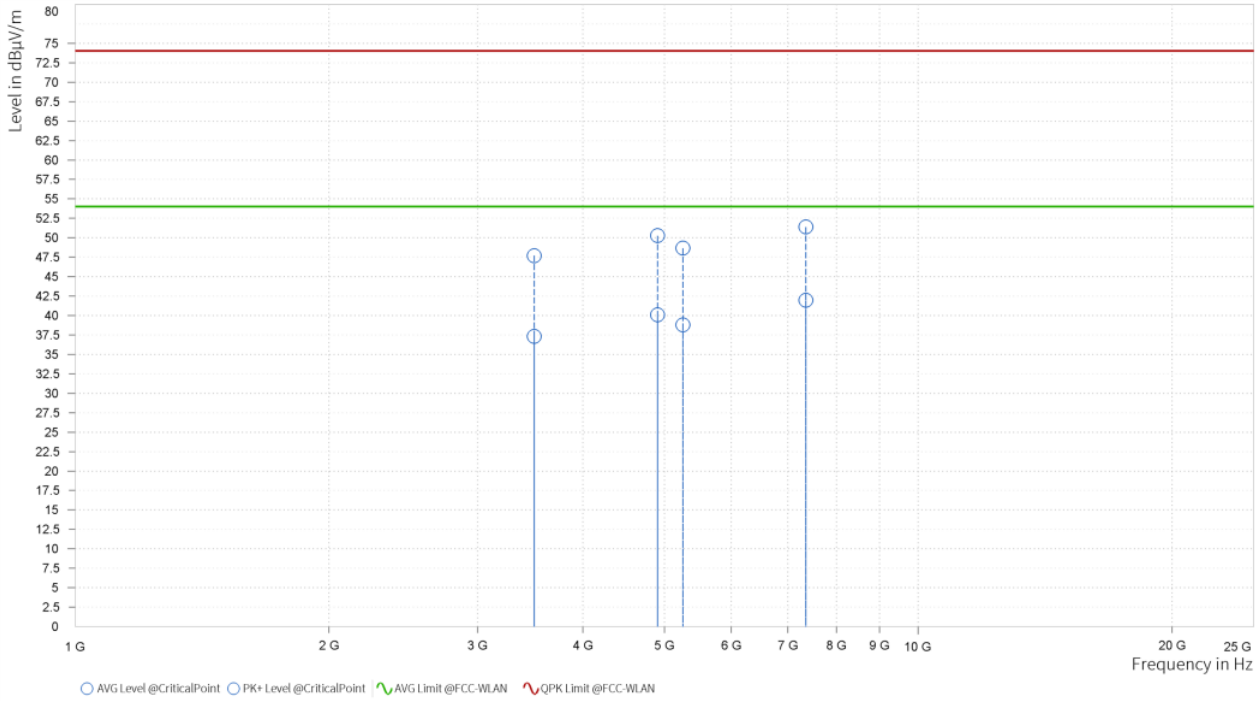
ABOVE 1GHz WORST-CASE DATA:

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 that more than 20dB below the limit were not recorded

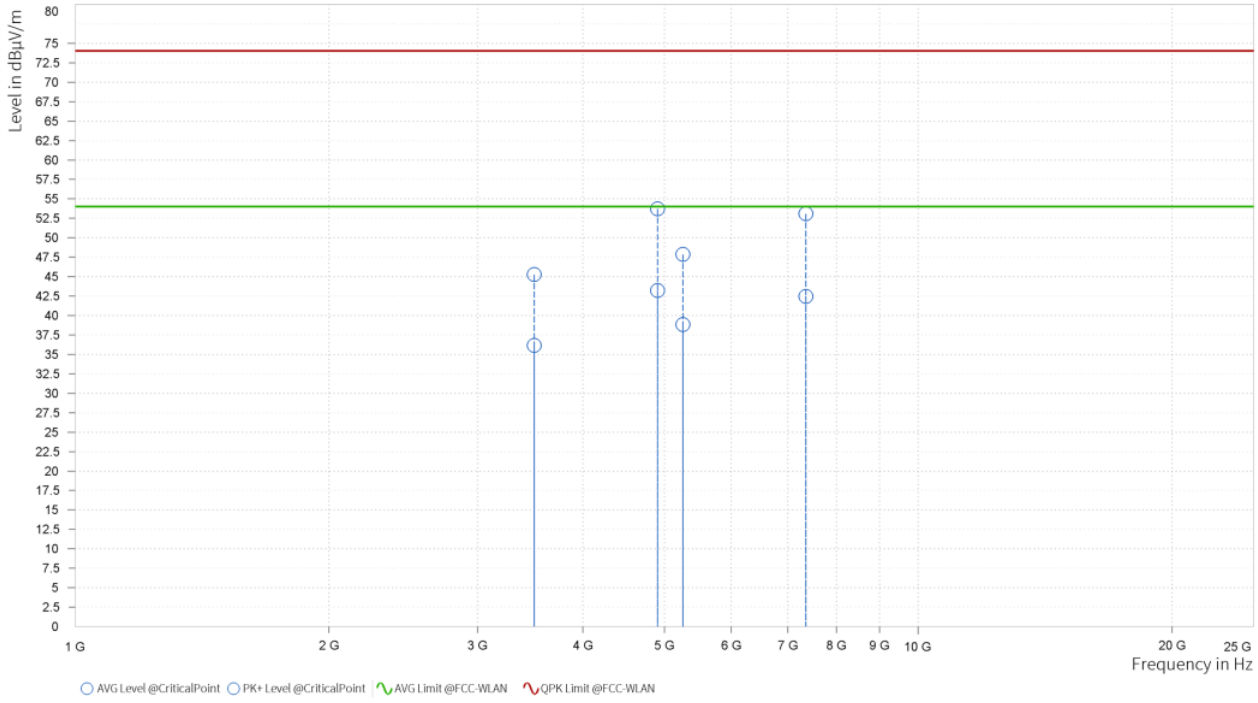
CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B4-HIGH-3M	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	3,504.000	47.7	74.0	26.3	37.33	54.0	16.67	12.38	H	1	2.0
3	4,904.000	50.27	74.0	23.73	40.09	54.0	13.91	13.62	H	359	2.0
3	5,256.450	48.67	74.0	25.33	38.81	54.0	15.19	14.8	H	1	2.0
3	7,356.000	51.39	74.0	22.61	41.96	54.0	12.04	18.04	H	1	2.0



CHANNEL	WLAN-2.4G-11N40-CH9+LTE-B4-HIGH-3M	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	3,504.300	45.25	74.0	28.75	36.17	54.0	17.83	12.38	V	1	1.0
3	4,904.000	53.7	74.0	20.3	43.21	54.0	10.79	13.62	V	1	2.0
3	5,256.450	47.86	74.0	26.14	38.84	54.0	15.16	14.8	V	359	1.0
3	7,356.000	53.09	74.0	20.91	42.46	54.0	11.54	18.04	V	1	2.0



Note: For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

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