Test Report No.:
FCC2021-0002-R

RF Test Report

EUT	:	**360 Robot Vacuum Cleaner**
MODEL	:	**S10，S10 MAX，X100 MAX，X100，X10，S10 Pro，2Pro**
BRAND NAME	:	360
CLIENT	:	**Suzhou 360 Robotic Technology Co.,Ltd**
Classification Of Test	:	**Commission Test**

Vkan Certification & Testing Co., Ltd.

Client	**Name : Suzhou 360 Robotic Technology Co.,Ltd** **Address : G3-2101, Artificial Intelligence industrial park, No. 88 Jinjihu Avenue, Suzhou Industrial Park，Suzhou，Jiangsu, China**
Manufacturer	**Name : Suzhou 360 Robotic Technology Co.,Ltd** **Address : G3-2101, Artificial Intelligence industrial park, No. 88 Jinjihu Avenue, Suzhou Industrial Park，Suzhou，Jiangsu, China**
Equipment Under Test	**Name : 360 Robot Vacuum Cleaner** **Model/Type: S10，S10 MAX，X100 MAX，X100，X10，S10 Pro，2Pro** **Trade mark :** 360 **Serial NO.:360CN110101000298** **Sampe NO.:1-1**

Date of Receipt.	**2021.02.24**	Date of Testing	**2021.02.24～2021.04.01**

Test Specification	**Test Result**
FCC Part 15, Subpart C, Section 15.247	PASS

Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. **Issue Date: 2021.04.01**

Tested by: Cheng Xiaochuan Cheng Xiao Chuan Name Signature	Reviewed by: Zhu Cheng Zhu Cheng Name Signature	Approved by: Dong Sanbi Dong San Bi Name Signature

Other Aspects: NONE.

Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.

TABLEOFCONTENTS

RELEASE CONTROL RECORD....4

1 GENERAL INFORMATION....5

1.1 GENERAL PRODUCT INFORMATION....5
1.2 OTHER INFORMATION....6
1.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL....7
1.4 GENERAL DESCRIPTION OF APPLIED STANDARDS....9
1.5 DESCRIPTION OF SUPPORT UNITS....9

2 SUMMARY OF TEST RESULTS....10

2.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS....10
2.2 MEASUREMENT UNCERTAINTY....10
2.3 TEST LOCATION....10

3 TEST TYPES AND RESULTS....11

3.1 CONDUCTED EMISSION MEASUREMENT....11
3.1.1 LIMIT....11
3.1.2 MEASUREMENT PROCEDURE....11
3.1.3 TEST SETUP....11
3.1.4 TEST RESULTS....12
3.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT....14
3.2.1 LIMIT....14
3.2.2 MEASUREMENT PROCEDURE....14
3.2.3 TEST SETUP....15
3.2.4 TEST RESULTS....17
3.3 6DB BANDWIDTH MEASUREMENT....71
3.3.1 LIMITS....71
3.3.2 MEASUREMENT PROCEDURE....71
3.3.3 TEST SETUP....71
3.3.4 TEST RESULT....72
3.4 CONDUCTED OUTPUT POWER....77
3.4.1 LIMITS....77
3.4.2 MEASUREMENT PROCEDURE....77
3.4.3 TEST SETUP....77
3.4.4 TEST RESULT....78
3.5 POWER SPECTRAL DENSITY MEASUREMENT....80
3.5.1 LIMITS....80
3.5.2 MEASUREMENT PROCEDURE....80
3.5.3 TEST SETUP....80
3.5.4 TEST RESULT....81
3.6 OUT OF BAND EMISSION MEASUREMENT....86
3.6.1 LIMITS....86
3.6.2 MEASUREMENT PROCEDURE....86
3.6.3 TEST SETUP....86
3.6.4 TEST RESULT....87

4 PHOTOGRAPHS OF TEST SETUP....94

APPENDIX A....95

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2021-0002-R	Original release	2021.04.01

1 GENERAL INFORMATION

1.1 GENERAL PRODUCT INFORMATION

PRODUCT	360 Robot Vacuum Cleaner
BRAND	360
MODEL	S10
ADDITIONAL MODEL	S10 MAX，X100 MAX，X100，X10，S10 Pro，2Pro
FCC ID	2AZD5-S10
POWER SUPPLY	DC 24V From Adapter or DC 14.52V From Li-ion Battery
MODULATIONTECHNOLOGY	DSSS, OFDM, DTS
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM GFSK for DTS
OPERATING FREQUENCY	2412MHz ~ 2462MHz for 11b/g/n(HT20) 2422MHz ~ 2452MHz for 11n(HT40) 2402MHz ~ 2480MHz for BT-LE(GFSK)
NUMBER OF CHANNEL	802.11b/g/n (HT20): 11 802.11n (HT40): 7 BT-LE GFSK (1 Mbps): 40
PEAK OUTPUT POWER	WLAN: 22.06dBm (Maximum) BT-LE: 4.65dBm (Maximum)
ANTENNA TYPE	WLAN: PCB Antenna, 3.2dBi Gain BT-LE: PCB Antenna, -1dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

Remark:

1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. Additional models (see about table)are identical with the test model S10 except the color of the appearance and model name for trading purpose.
4. Please refer to the EUT photo document (Reference No.: FCC2021-0002) for detailed product photo.
5. The EUT have SISO function, provides 1 completed transmitter and 1 receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (HT20)	1TX/1RX
802.11n (HT40)	1TX/1RX

1.2 Description of Accessories

Adapter	
BRAND	N/A
Model No.:	SK03T-2400100Z
Input:	100-240 V~50/60 Hz 0.6 A Max
Output:	24.0 V ⎓ 1 A
AC Cable:	N/A
DC Cable:	1.80 Meter, Unshielded without ferrite

1.3 OTHER INFORMATION

Operating frequency of each channel

2.4G WIFI					
802.11b/g/n (HT20)					
CHANNEL	**FREQ. (MHz)**	**CHANNEL**	**FREQ. (MHz)**	**CHANNEL**	**FREQ. (MHz)**
1	**2412**	5	2432	9	2452
2	2417	**6**	**2437**	10	2457
3	2422	7	2442	**11**	**2462**
4	2427	8	2447		
802.11n (HT40)					
3	**2422**	**6**	**2437**	**9**	**2452**
4	2427	7	2442		
5	2432	8	2447		

BT-LE(1 Mbps)							
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**

Note:

1. The channels which were indicated in bold type of the above channel list were selected as representative test channel. Therefore only the data of the test channels were recorded in this report.

1.4 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

EUT CONFIGURE MODE	APPLICABLE TEST ITEMS				DESCRIPTION
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	√	√	2.4G WIFI Function
B	√	√	√	√	BT-LE Function

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

RADIATED EMISSION TEST (BELOW 1 GHz):

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

☒ The worst case was found when positioned on x axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	6	DSSS	DBPSK	6.0
B	BT-LE	0 to 39	19	DTS	GFSK	1.0

For the test results, only the worst case was shown in test report.

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

☒ The worst case was found when positioned on x axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5
B	BT-LE	0 to 39	0, 19, 39	DTS	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, antenna ports (if EUT with antenna diversity architecture), and packet types.

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

EUT CONFIGURE MODE	TESTED CONDITION
-	BT Link+ WIFI (2.4G) Link

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, antenna ports (if EUT with antenna diversity architecture), and packet types.

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5
B	BT-LE	0 to 39	0, 19, 39	DTS	GFSK	1.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE (SYSTEM)	TESTED BY
RE<1G	25deg. C, 55%RH	AC 120V/60Hz	Robert Cheng
RE≥1G	25deg. C, 55%RH	AC 120V/60Hz	Robert Cheng
PLC	25deg. C, 55%RH	AC 120V/60Hz	Robert Cheng
APCM	25deg. C, 60%RH	DC 14.52V	Robert Cheng

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC PART 15, Subpart C. Section 15.247
KDB 558074 D01 15.247 Meas Guidance v05r02
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards

1.6 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.

Support Equipment					
NO	Description	Brand	Model No.	Serial Number	Supplied by
N/A	N/A	N/A	N/A	N/A	N/A

Support Cable							
NO	Description	Quantity (Number)	Length (cm)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

PPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Meet the requirement of limit.

2.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Refer to Appendix A.

2.2 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:

No.	ITEM	FREQUENCY	UNCERTAINTY
1	Conducted emissions	9kHz~30MHz	2.7dB
2	Radiated emissions	9KHz ~ 30MHz	5.6dB
		30MHz ~ 1GMHz	4.6dB
		1GHz ~ 18GHz	4.4dB
		18GHz ~ 40GHz	4.6dB

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

2.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of
Vkan Certification & Testing Co., Ltd.
Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China
Post Code：510663 Tel：020-32293888
FAX：020-32293889 E-mail：office@cvc.org.cn

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 Limit

Frequency (MHz)	Conducted Limits(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. NOTE: 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.		

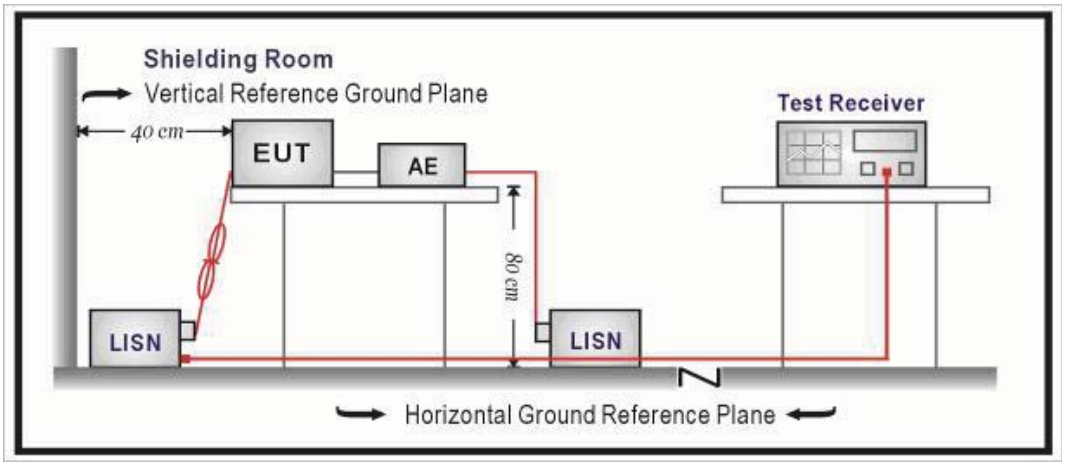
3.1.2 Measurement procedure

a. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the Test photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.The equipment under test shall be placed on a support of non-metallic material, the height of which shall be1.5m above the ground,

b. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

c. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

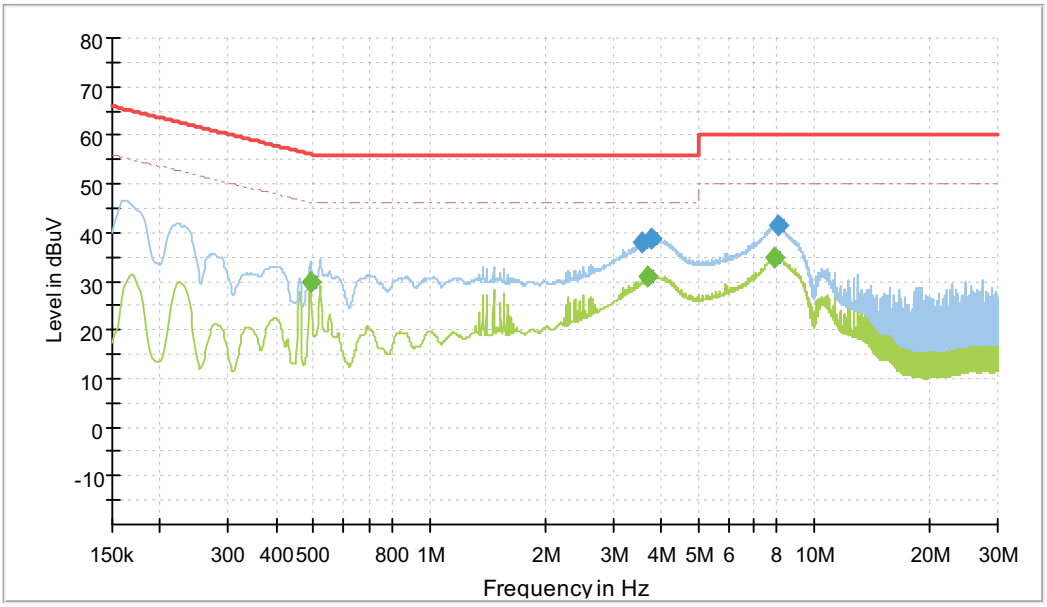
3.1.3 Test setup



3.1.4 Test results

CONDUCTED WORST-CASE DATA: BT Link+ WIFI (2.4G) Link

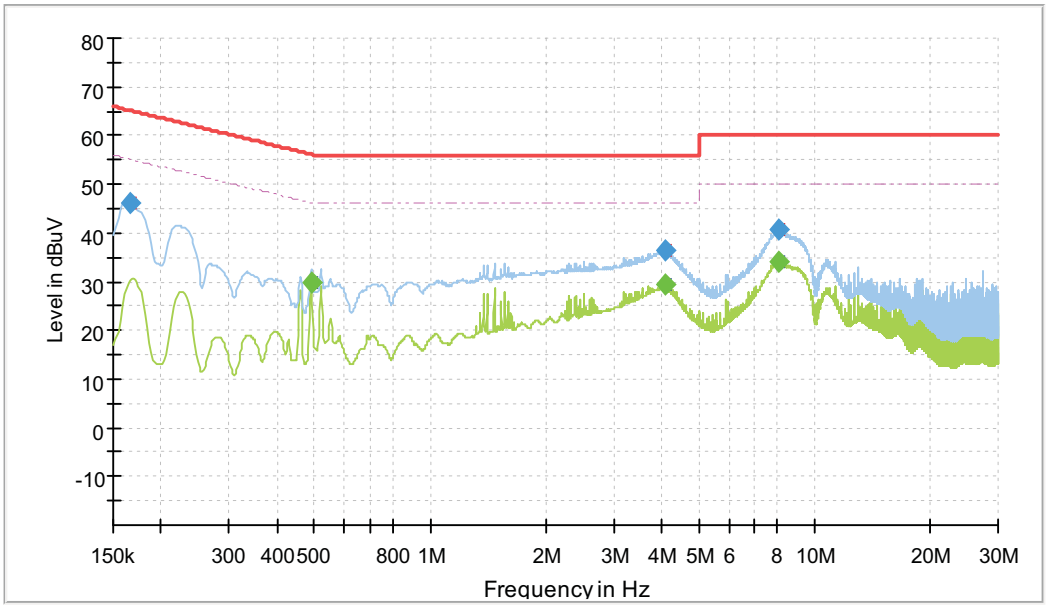
Test Mode	BT Link+ WIFI (2.4G) Link		
Frequency Range	150KHz ~ 30MHz	PHASE	Line (L)



NO.	Frequency (MHz)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Corr. (dB)	Remark
1	0.490	29.7	46.2	16.5	19.5	AVG
2	3.554	38.0	56.0	18.0	19.6	QP
3	**3.707**	**30.9**	**46.0**	**15.1**	**19.6**	**AVG**
4	3.800	38.6	56.0	17.4	19.6	QP
5	7.877	34.9	50.0	15.1	19.7	AVG
6	8.088	41.5	60.0	18.5	19.7	QP

Remark: The emission levels of other frequencies were very low against the limit.

Test Mode	BT Link+ WIFI (2.4G) Link		
Frequency Range	150KHz ~ 30MHz	PHASE	Line (N)



NO.	Frequency (MHz)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Corr. (dB)	Remark
1	0.166	46.0	65.2	19.1	19.5	QP
2	0.490	29.7	46.2	16.5	19.6	AVG
3	4.076	29.4	46.0	16.6	19.7	AVG
4	4.076	36.5	56.0	19.5	19.7	QP
5	8.090	34.2	50.0	15.8	19.8	AVG
6	8.090	40.6	60.0	19.4	19.8	QP

Remark: The emission levels of other frequencies were very low against the limit.

3.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.2.1 Limit

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.
NOTE: 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
NOTE: 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 Measurement procedure

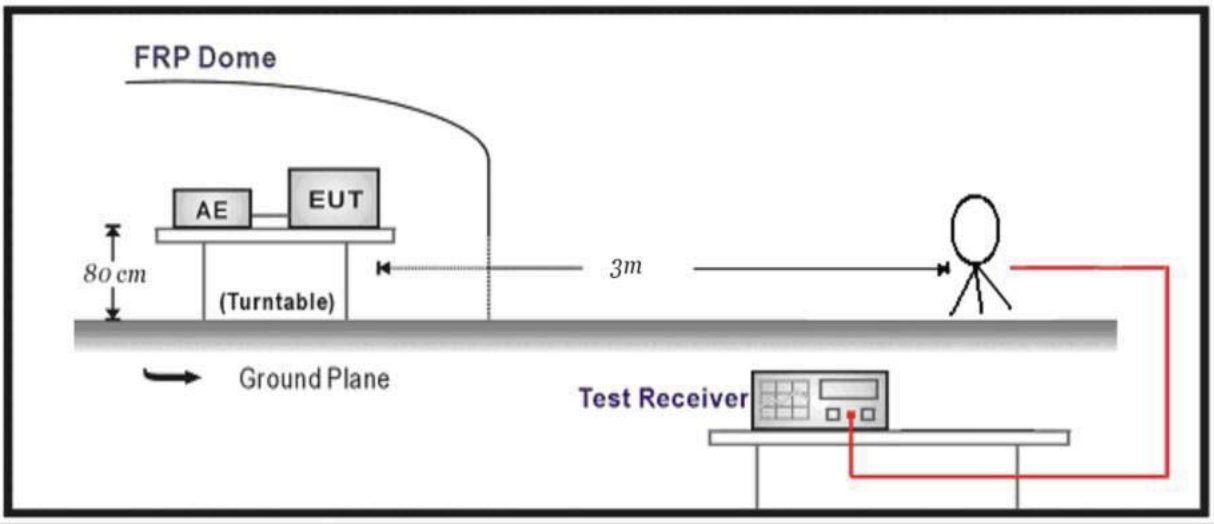
a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. For below 1GHz was used bilog antenna, and above 1GHz was used horn 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. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
g. 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:

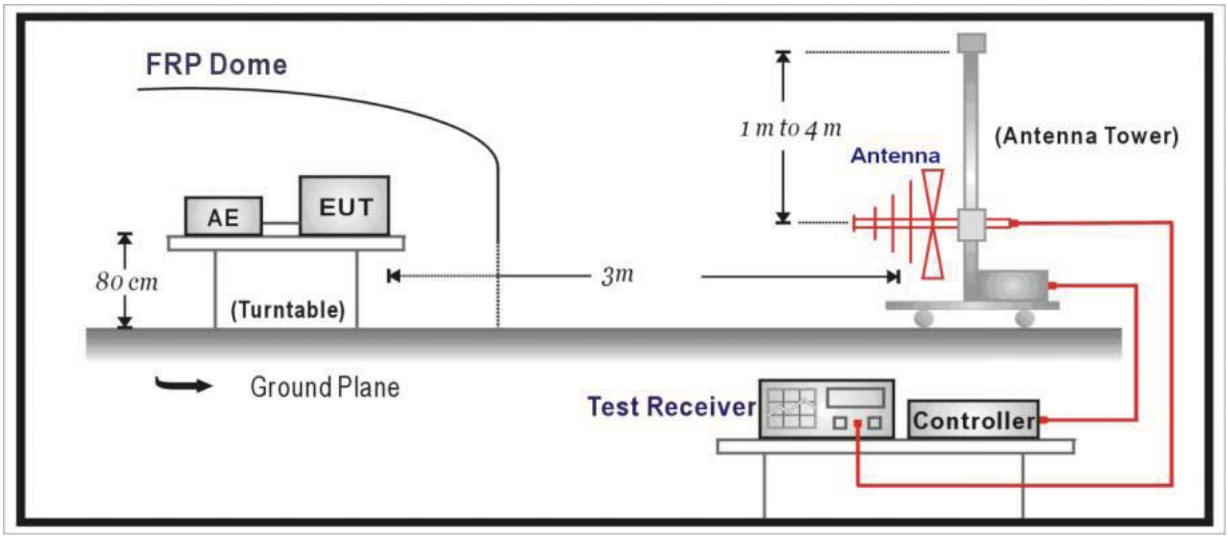
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ⩾ 1/T (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

3.2.3 Test setup

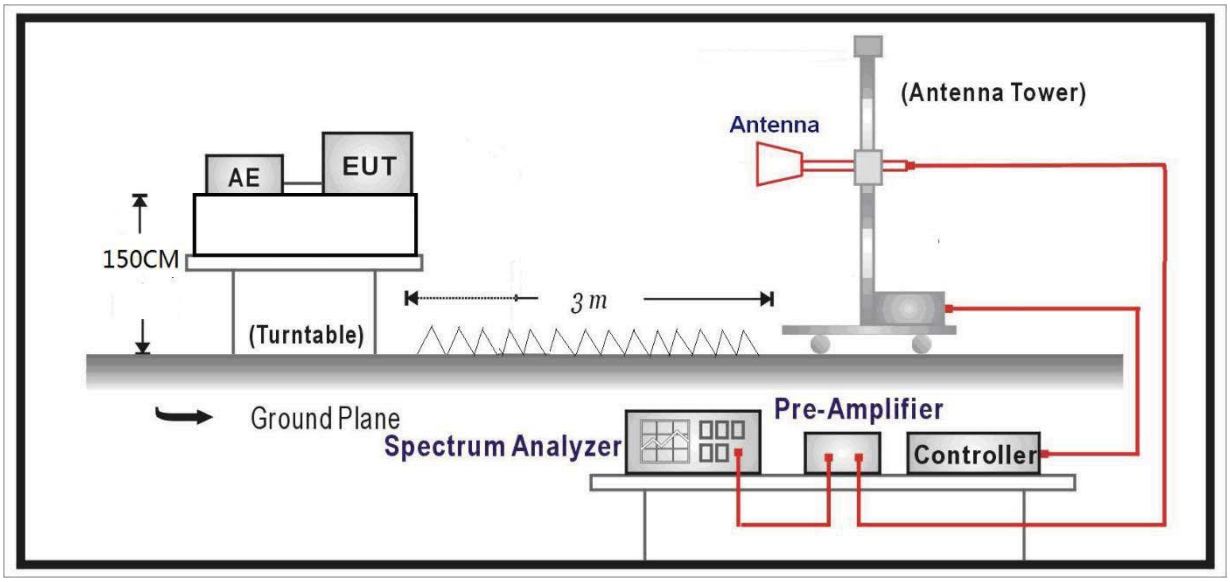
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:

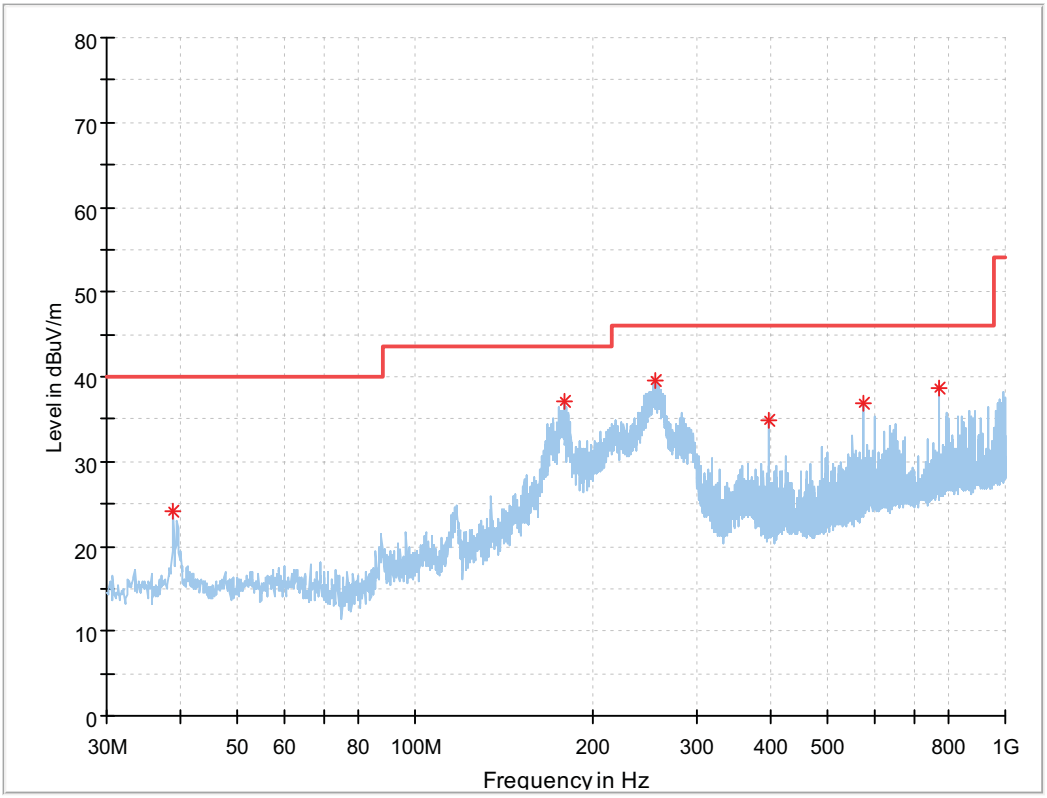


3.2.4 Test results

BELOW 1GHz WORST-CASE DATA:

Worst Test Mode	802.11b	Worst Test Channel	CH 6
Frequency Range	9KHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Horizontal

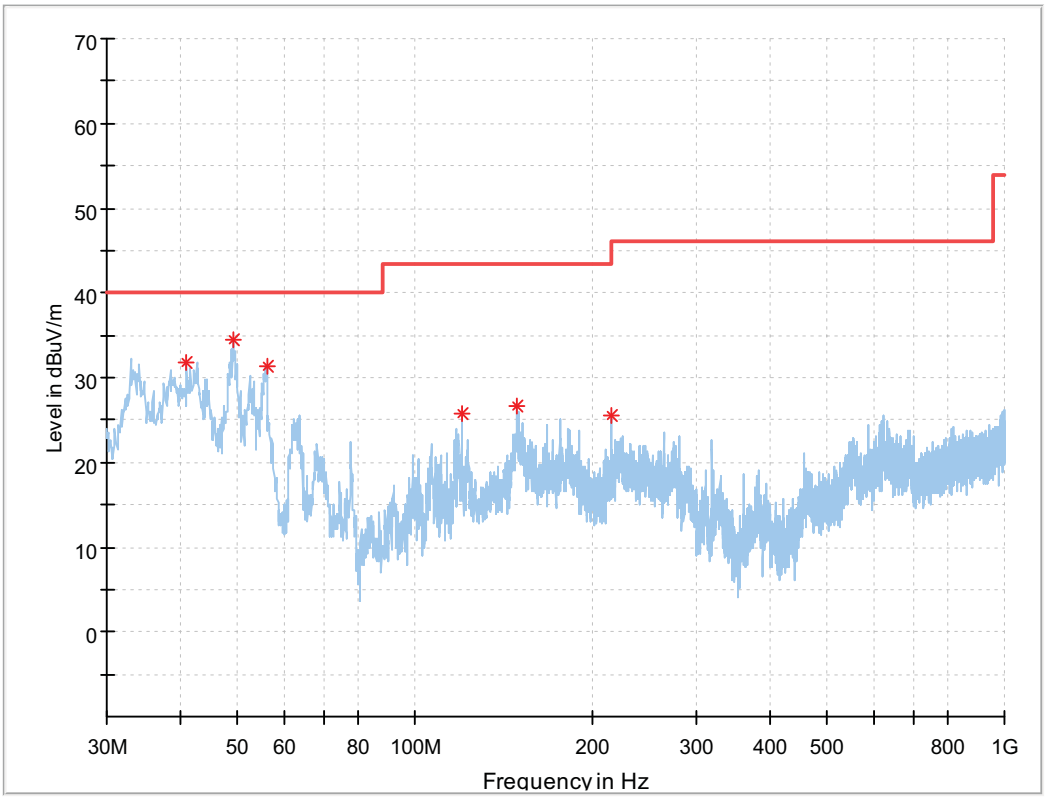


NO.	Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Azimuth (deg)	Remark
1	38.924	24.0	40.0	16.0	100.0	351.0	QP
2	179.574	37.0	43.5	6.5	200.0	185.0	QP
3	255.622	39.5	46.0	6.5	200.0	100.0	QP
4	398.697	34.8	46.0	11.2	200.0	116.0	QP
5	576.013	37.0	46.0	9.0	100.0	0.0	QP
6	772.050	38.6	46.0	7.4	100.0	103.0	QP

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.

Worst Test Mode	802.11b	Worst Test Channel	CH 6
Frequency Range	9KHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Vertical

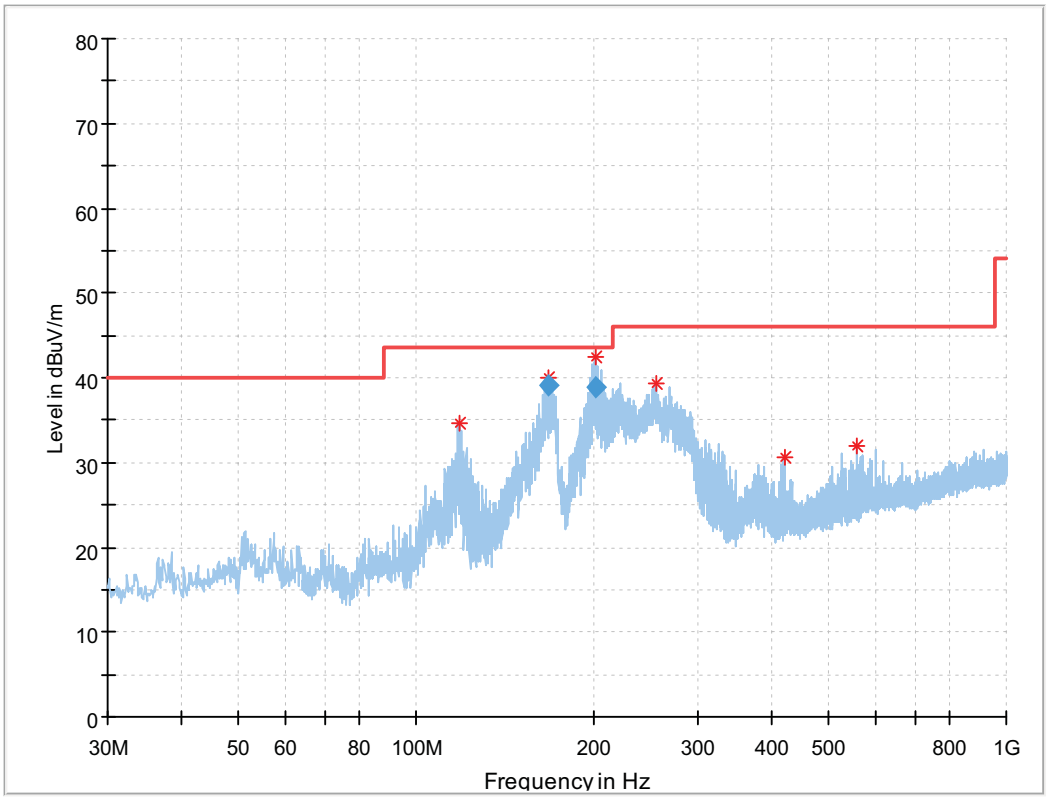


NO.	Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Azimuth (deg)	Remark
1	39.409	29.7	40.0	10.3	100.0	259.0	QP
2	94.408	27.9	43.5	15.6	100.0	358.0	QP
3	197.325	35.1	43.5	8.4	100.0	0.0	QP
4	258.241	38.1	46.0	7.9	100.0	319.0	QP
5	576.013	33.7	46.0	12.3	100.0	130.0	QP
6	978.563	36.8	54.0	17.2	200.0	169.0	QP

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.

Test Mode	BT-LE (GFSK)	Worst Test Channel	CH 19
Frequency Range	9KHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Horizontal

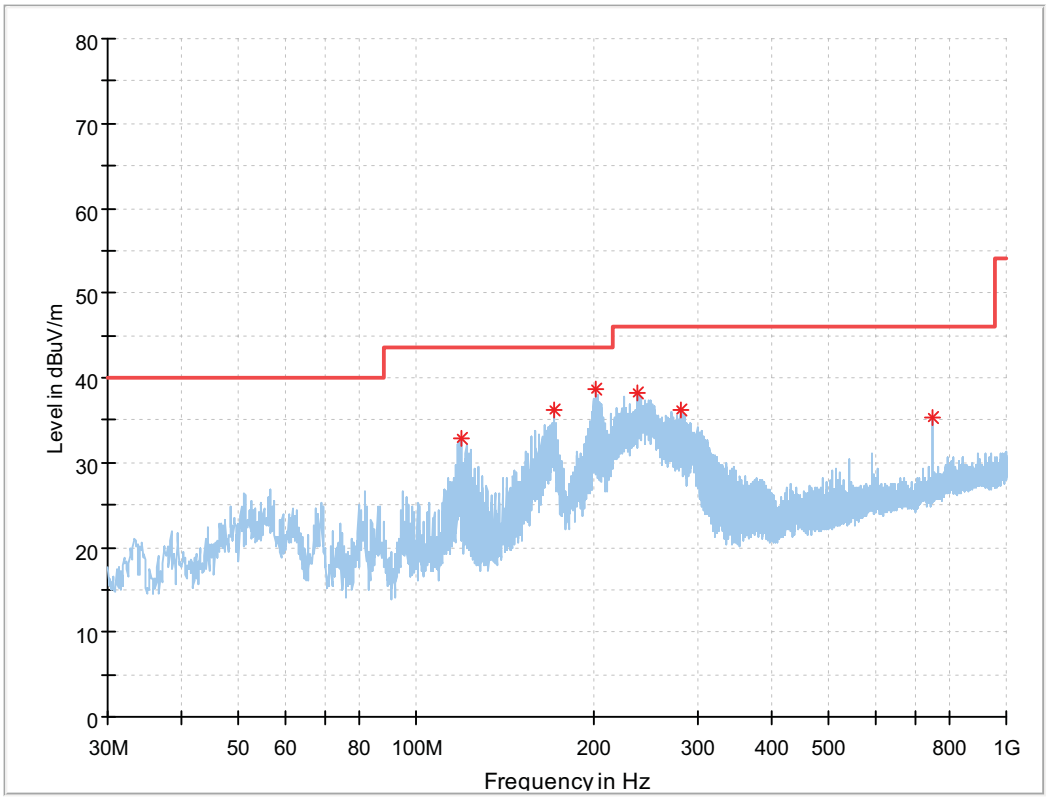


NO.	Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Azimuth (deg)	Remark
1	118.173	34.7	43.5	8.8	300.0	278.0	QP
2	167.352	39.1	43.5	4.4	220.0	180.0	QP
3	200.914	38.9	43.5	4.6	210.0	0.0	QP
4	254.458	39.2	46.0	6.8	200.0	98.0	QP
5	421.589	30.7	46.0	15.3	200.0	261.0	QP
6	556.516	31.9	46.0	14.1	200.0	176.0	QP

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.

Test Mode	BT-LE (GFSK)	Worst Test Channel	CH 19
Frequency Range	9KHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Vertical



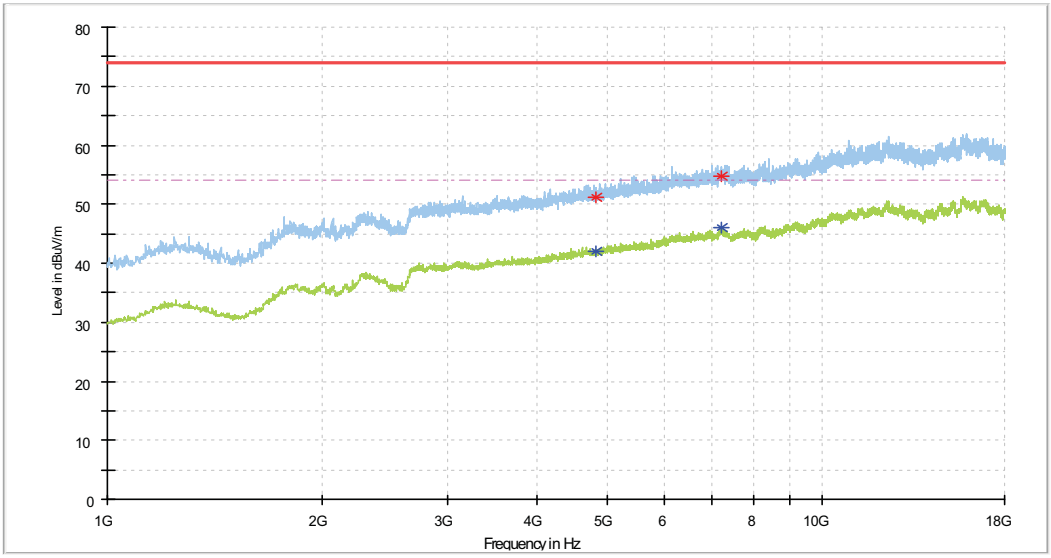
NO.	Frequency (MHz)	Result (dBm)	Limit (dBm)	Margin (dB)	Height (cm)	Azimuth (deg)	Remark
1	119.434	32.8	43.5	10.7	100.0	164.0	QP
2	171.426	36.2	43.5	7.3	100.0	242.0	QP
3	202.175	38.7	43.5	4.8	100.0	101.0	QP
4	236.319	38.3	46.0	7.7	100.0	320.0	QP
5	279.872	36.2	46.0	9.8	100.0	340.0	QP
6	750.128	35.3	46.0	10.7	100.0	268.0	QP

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.

ABOVE 1GHz DATA

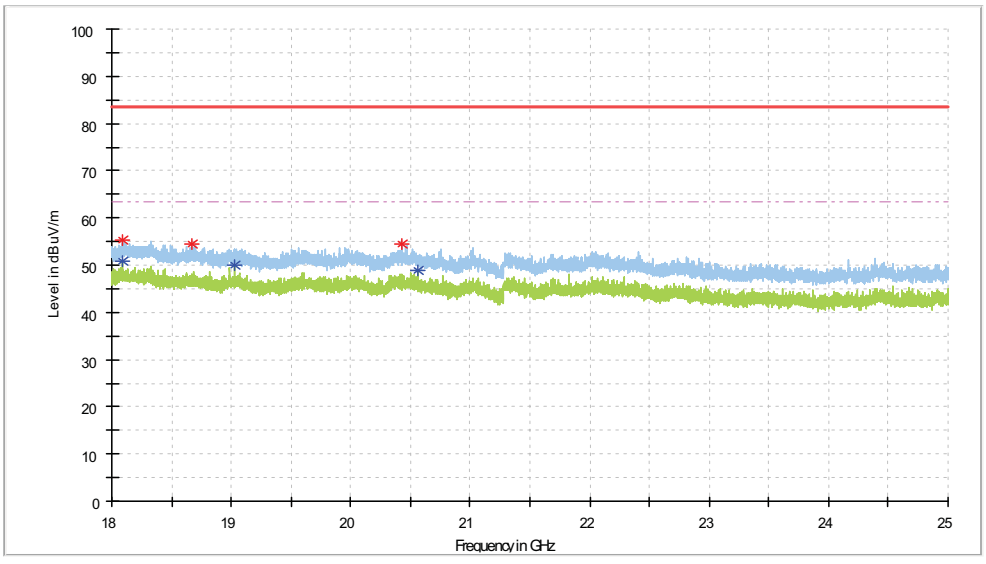
Test Mode	802.11b	Channel	CH 1
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4825.000	51.2	74.0	22.8	200.0	308.0	6.9	Peak
2	4825.000	42.0	54.0	12.0	200.0	308.0	6.9	Avg
3	7235.600	46.1	54.0	7.9	100.0	274.0	10.2	Avg
4	7235.600	54.8	74.0	19.2	200.0	254.0	10.2	Peak

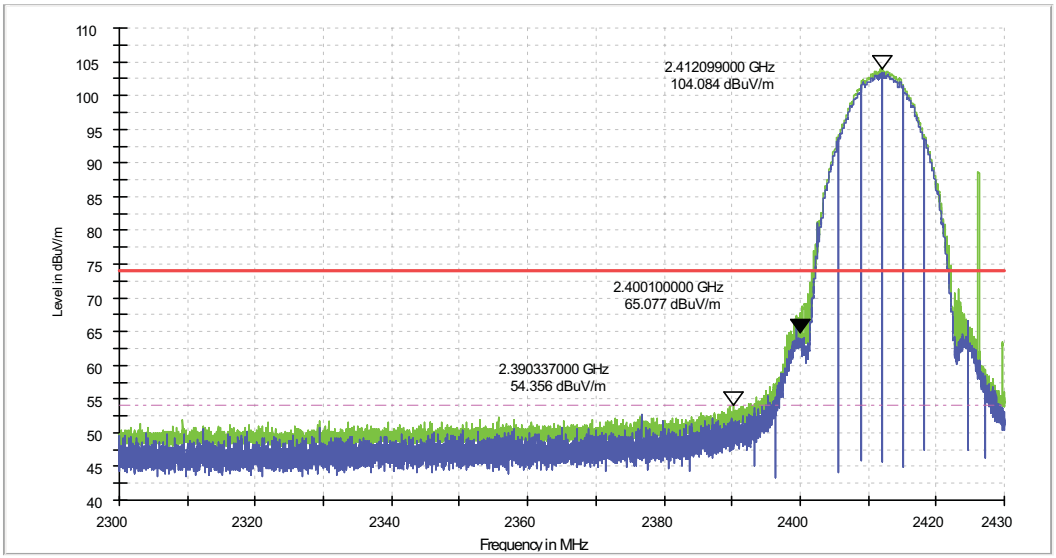
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

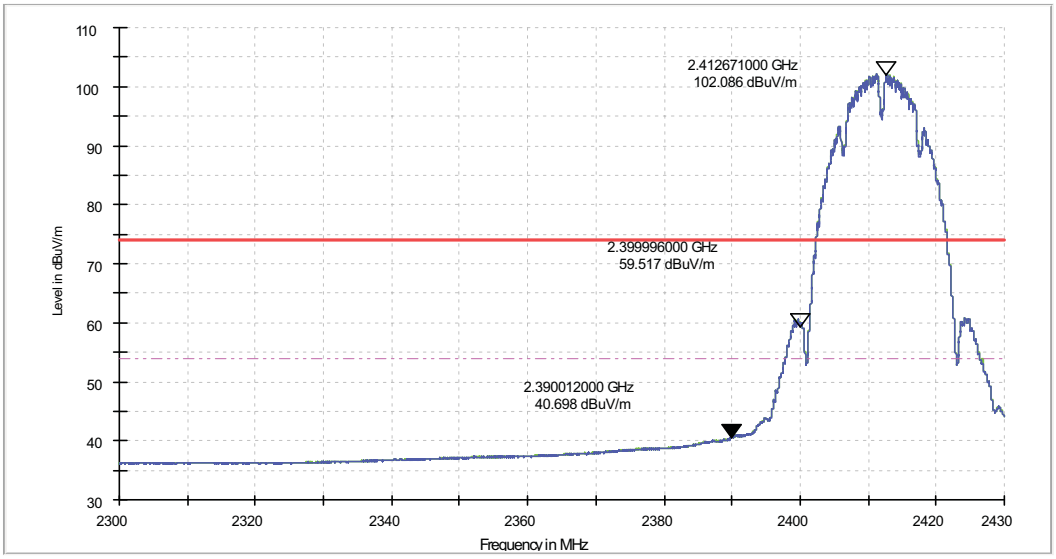
Test Mode	802.11b	Channel	CH 1
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



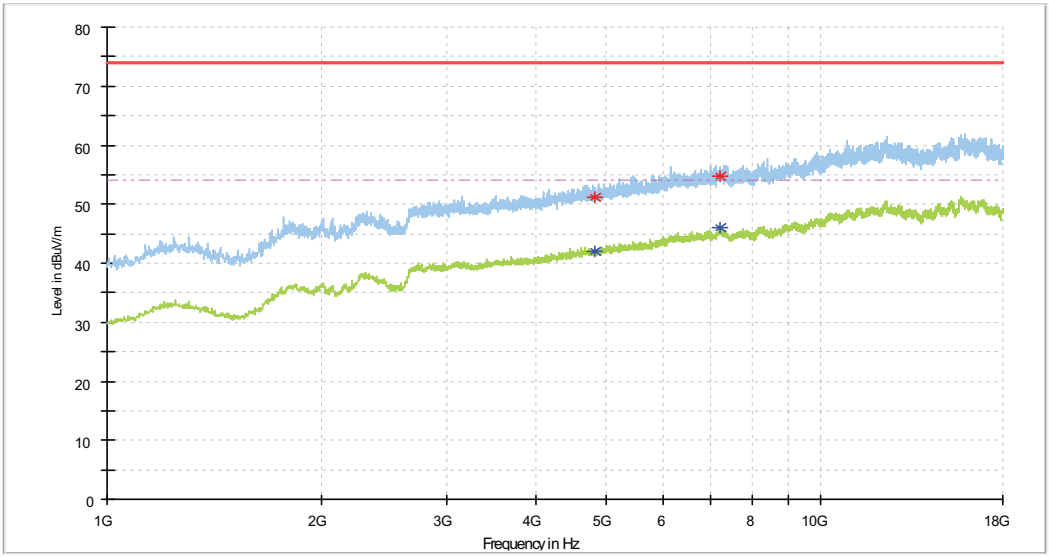
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



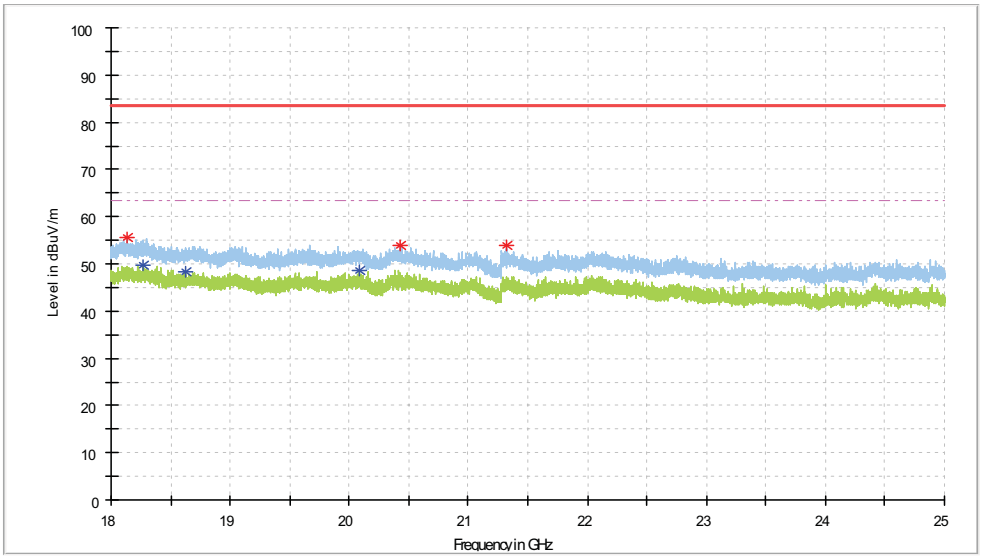
Test Mode	802.11b	Channel	CH 1
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4825.000	41.4	54.0	12.6	100.0	62.0	6.9	Avg
2	4825.000	52.0	74.0	22.0	200.0	354.0	6.9	Peak
3	7233.900	46.3	54.0	7.7	100.0	0.0	10.2	Avg
4	7235.600	55.6	74.0	18.4	200.0	322.0	10.2	Peak

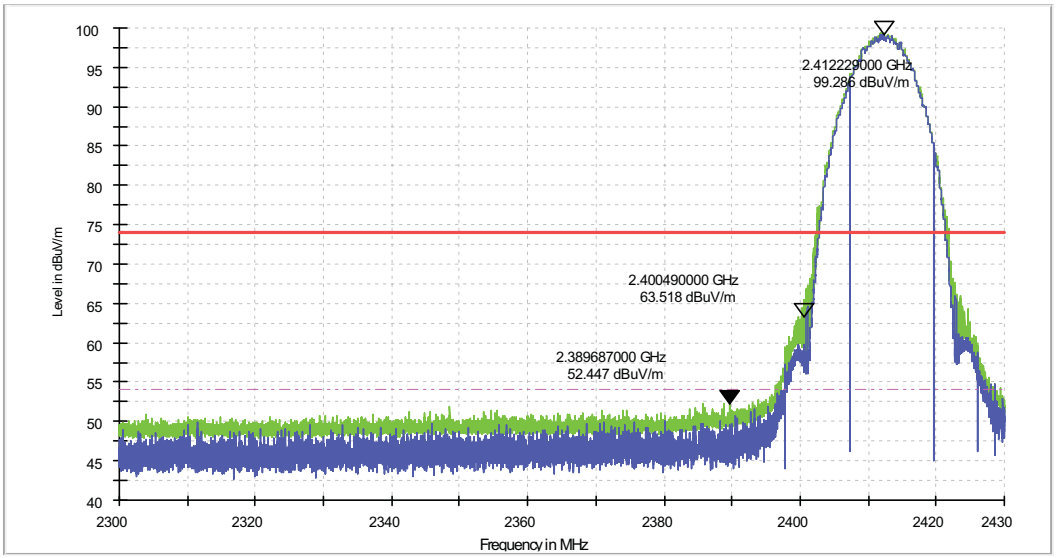
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

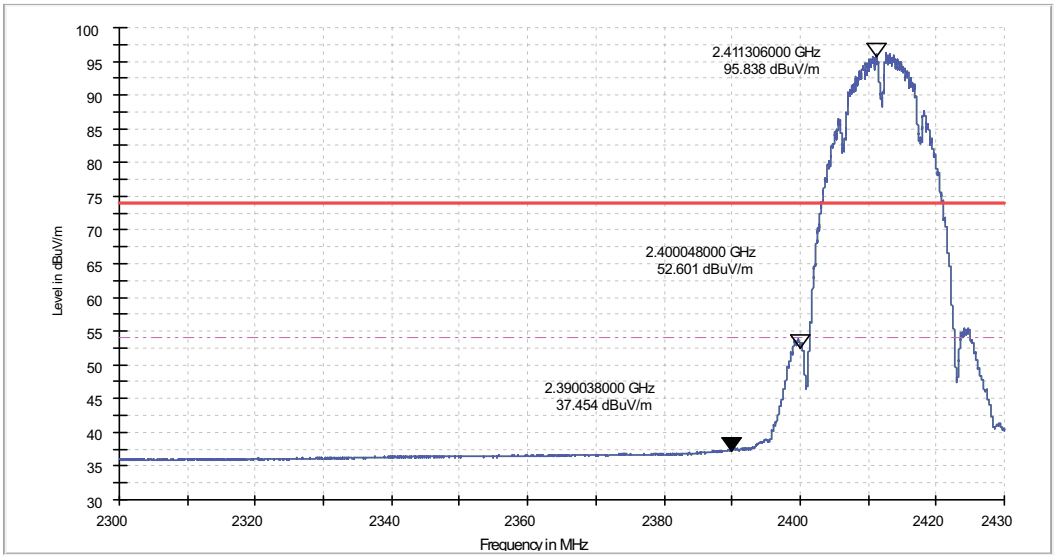
Test Mode	802.11b	Channel	CH 1
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



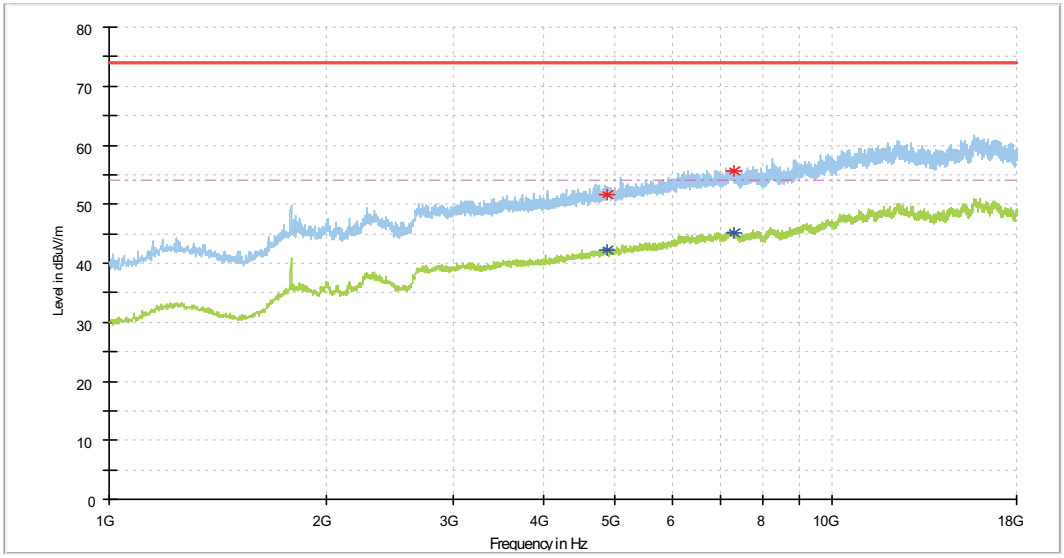
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



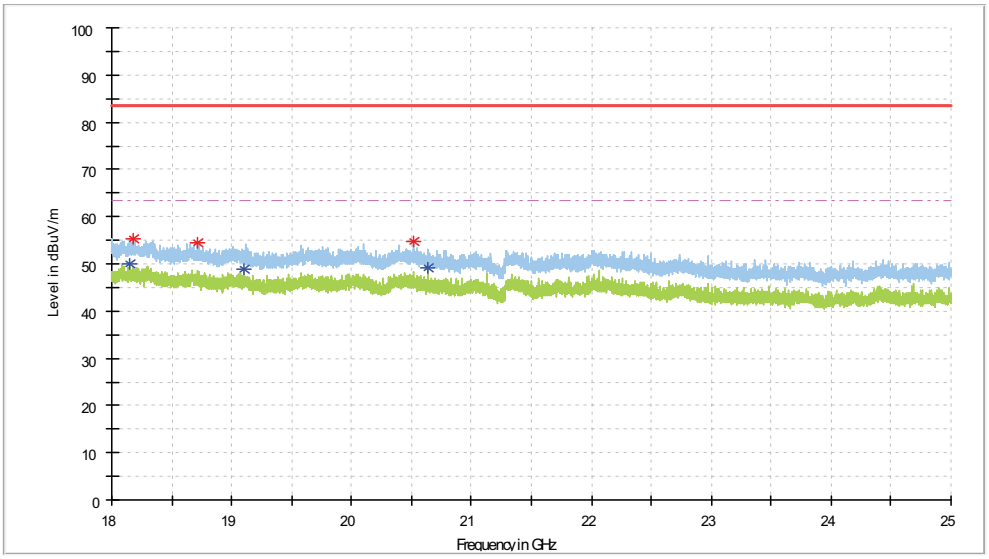
Test Mode	802.11b	Channel	CH 6
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4874.300	42.2	74.00	54.0	11.8	100.0	228.0	Peak
2	4874.300	51.7	54.00	74.0	22.3	100.0	228.0	Avg
3	7310.400	45.2	54.00	54.0	8.8	200.0	312.0	Avg
4	7310.400	55.6	74.00	74.0	18.4	200.0	312.0	Peak

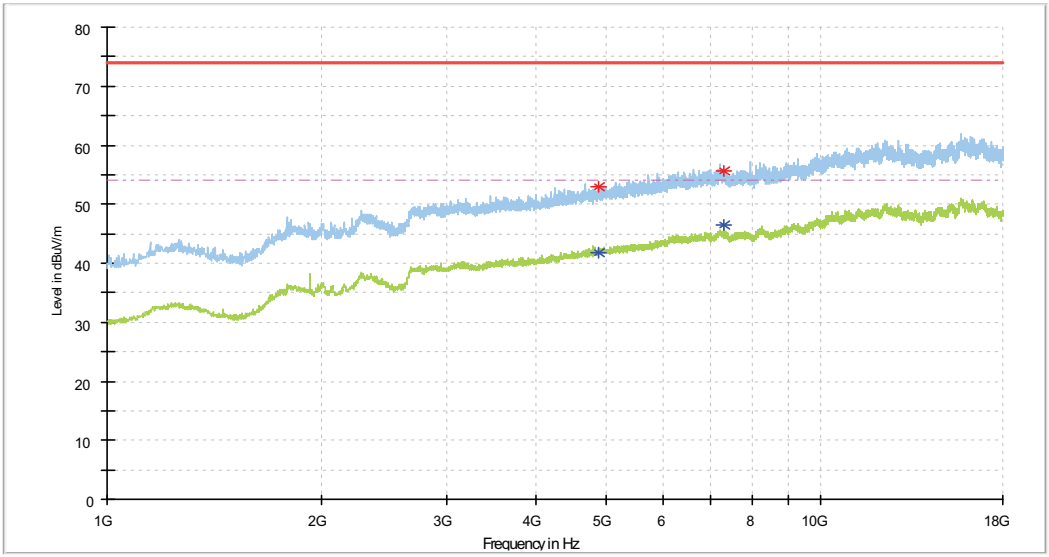
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

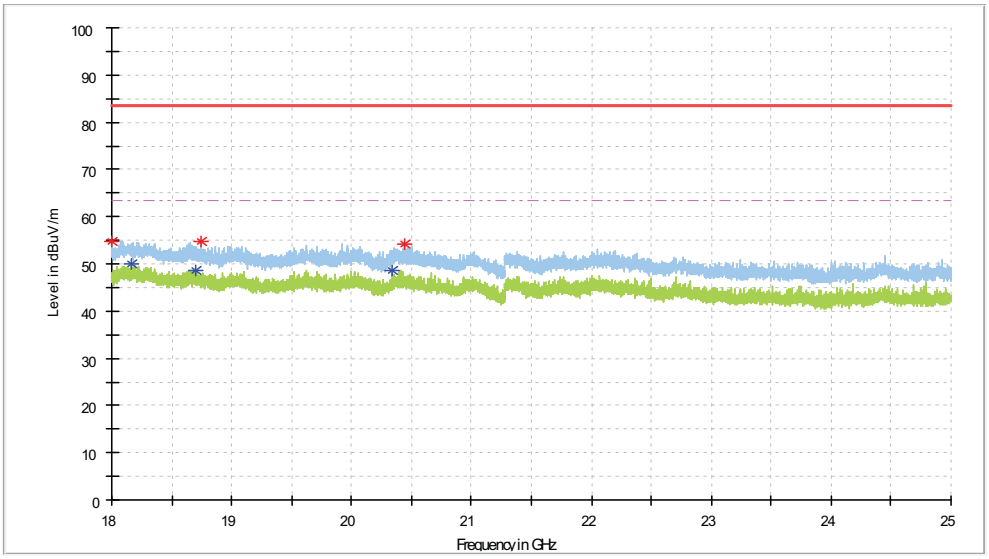
Test Mode	802.11b	Channel	CH 6
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4874.300	41.8	54.0	12.2	200.0	91.0	6.9	Avg
2	4874.300	52.9	74.0	21.1	100.0	13.0	6.9	Peak
3	7312.100	55.7	74.0	18.3	100.0	113.0	9.9	Peak
4	7312.100	46.6	54.0	7.4	100.0	113.0	9.9	Avg

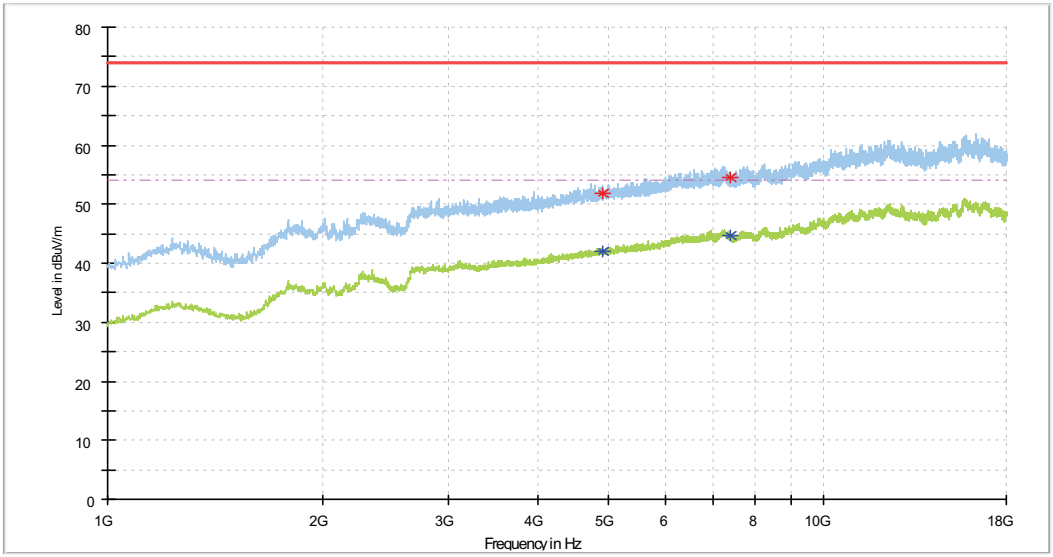
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

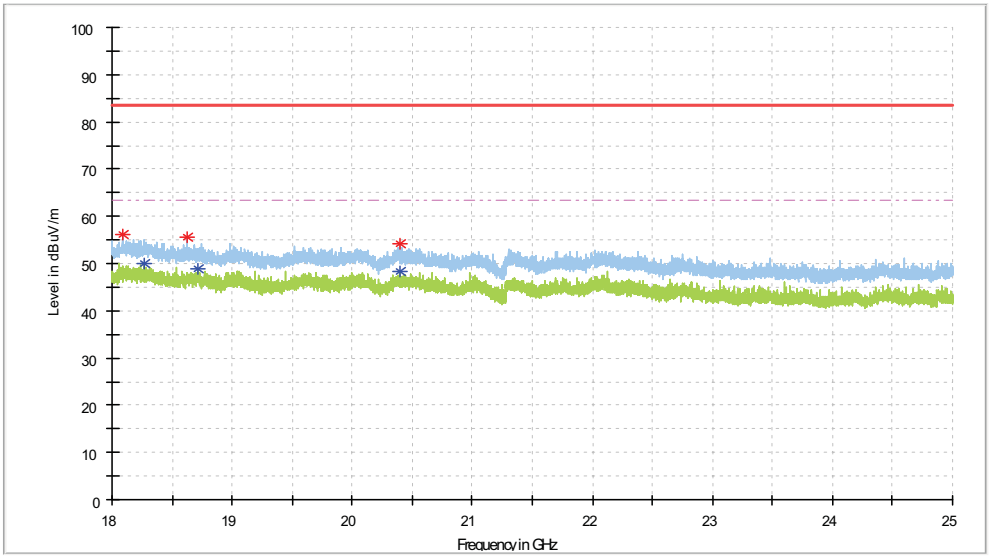
Test Mode	802.11b	Channel	CH 11
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4923.600	42.1	54.0	11.9	100.0	31.0	7.1	Avg
2	4923.600	51.9	74.0	22.1	200.0	172.0	7.1	Peak
3	7385.200	44.8	54.0	9.2	200.0	320.0	10.1	Avg
4	7385.200	54.5	74.0	19.5	100.0	18.0	10.1	Peak

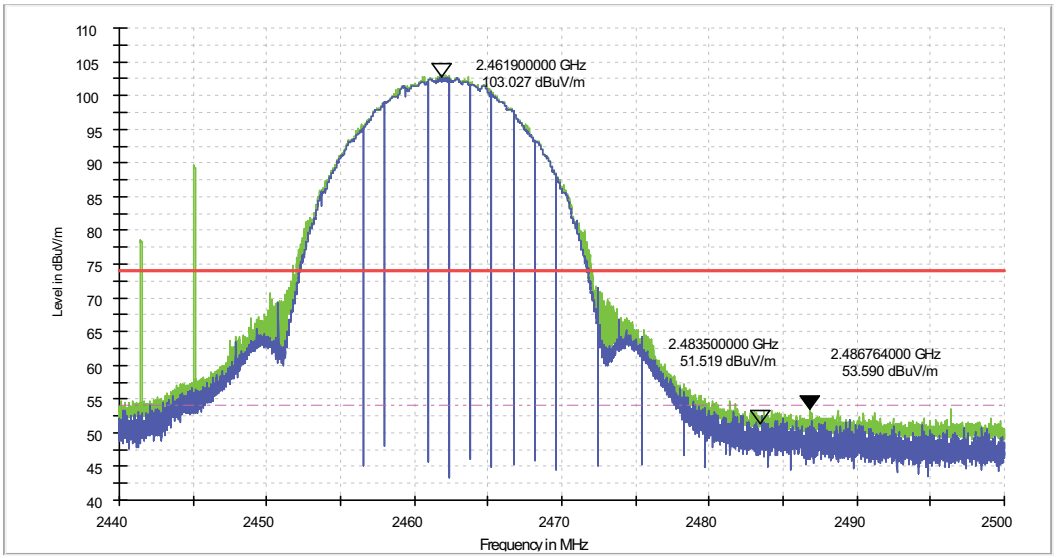
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

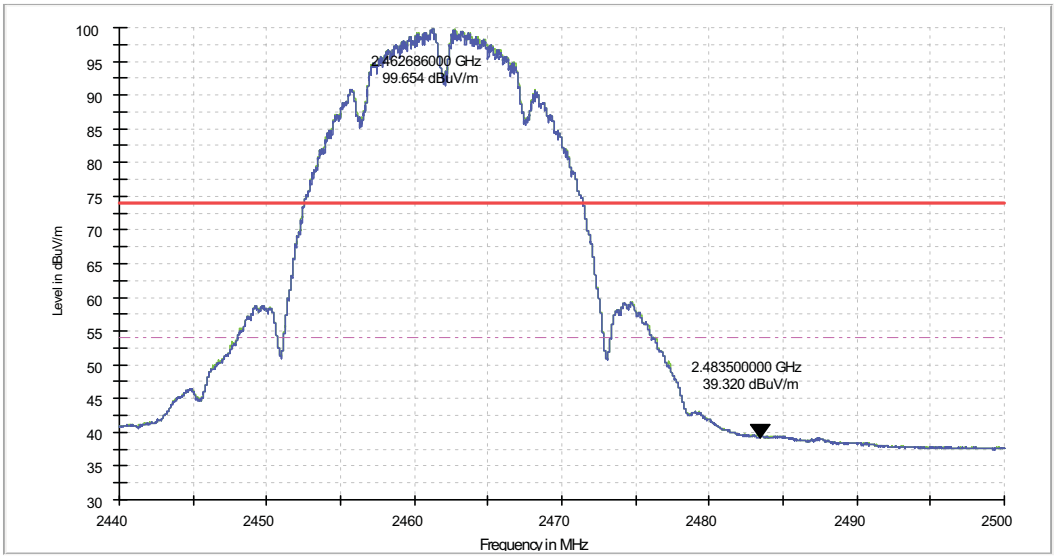
Test Mode	802.11b	Channel	CH 11
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



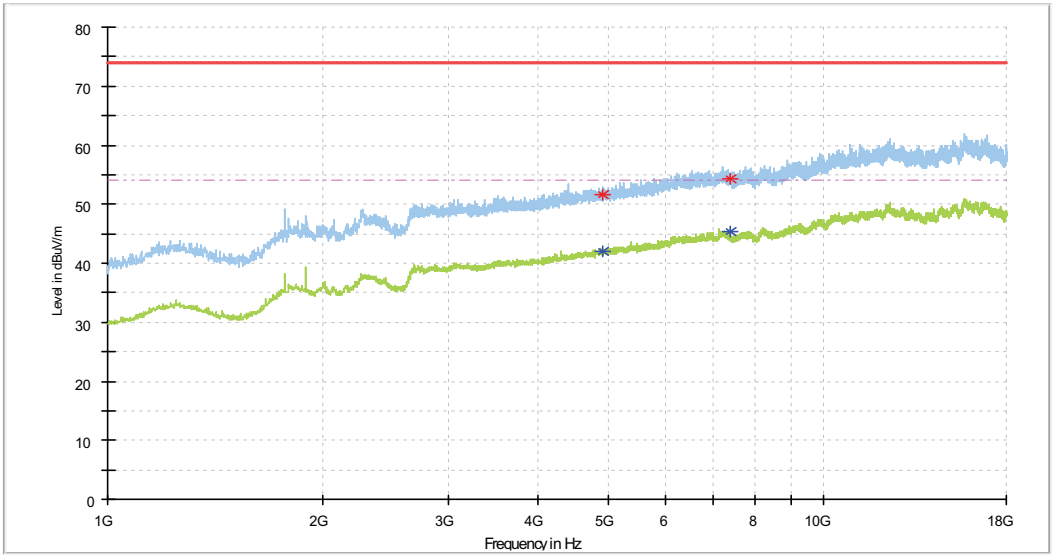
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



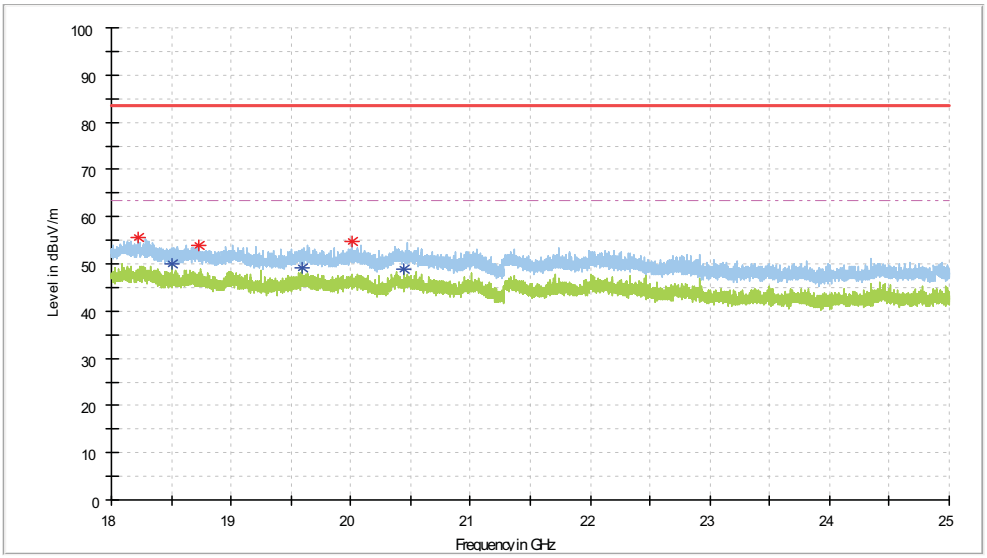
Test Mode	802.11b	Channel	CH 11
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4923.600	42.1	54.0	11.9	200.0	226.0	7.1	Avg
2	4923.600	51.6	74.0	22.4	100.0	175.0	7.1	Peak
3	7386.900	45.3	54.0	8.7	100.0	0.0	10.1	Avg
4	7386.900	54.2	74.0	19.8	100.0	0.0	10.1	Peak

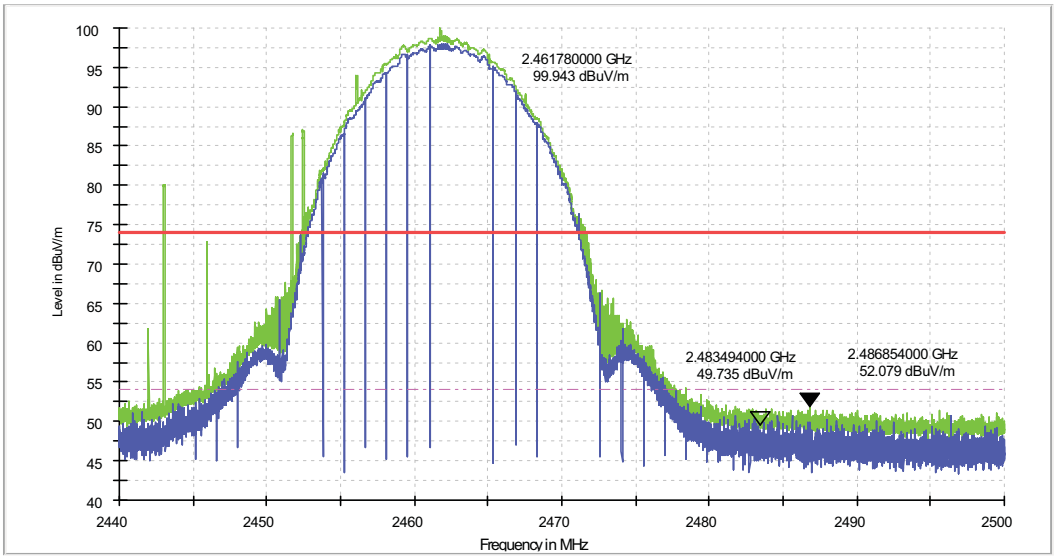
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

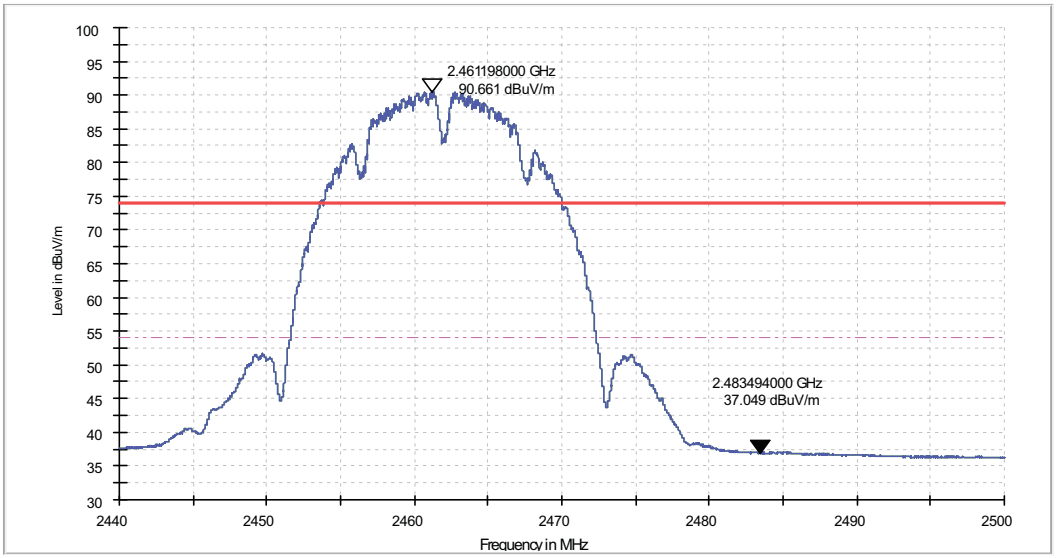
Test Mode	802.11b	Channel	CH 11
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



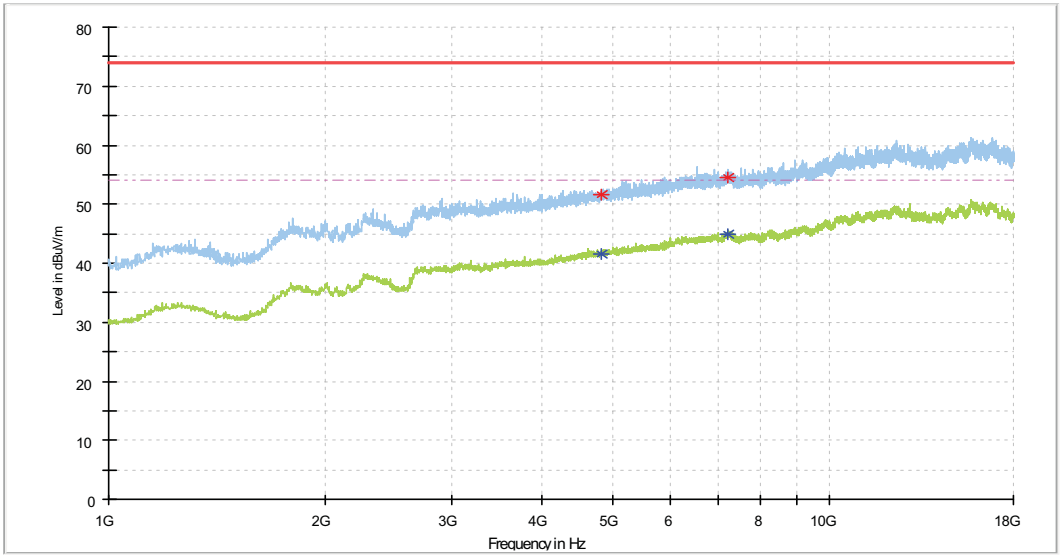
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



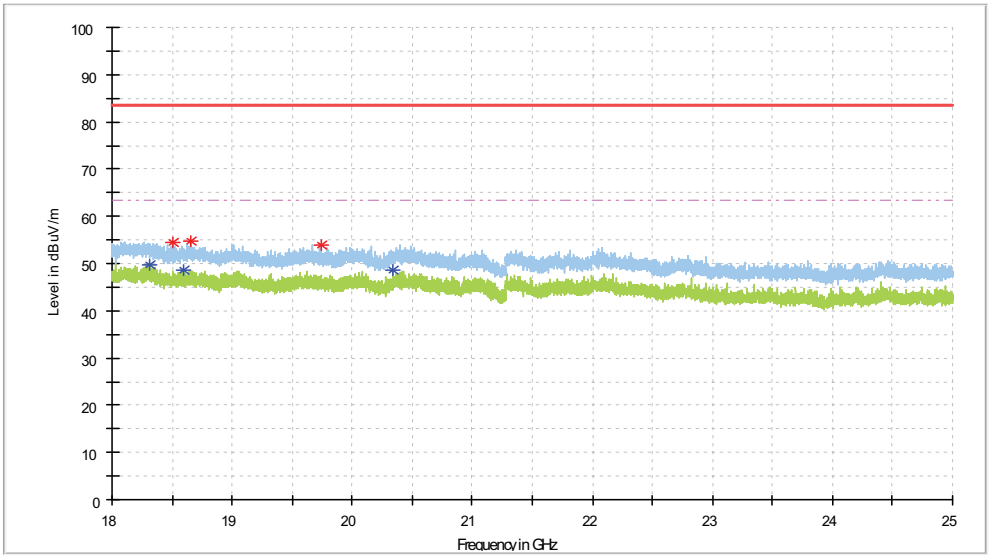
Test Mode	802.11g	Channel	CH 1
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4823.300	41.6	54.0	12.4	100.0	29.0	6.9	Avg
2	4825.000	51.6	74.0	22.4	100.0	76.0	6.9	Peak
3	7222.000	54.6	74.0	19.4	100.0	69.0	10.3	Peak
4	7223.700	44.9	54.0	9.1	200.0	320.0	10.3	Avg

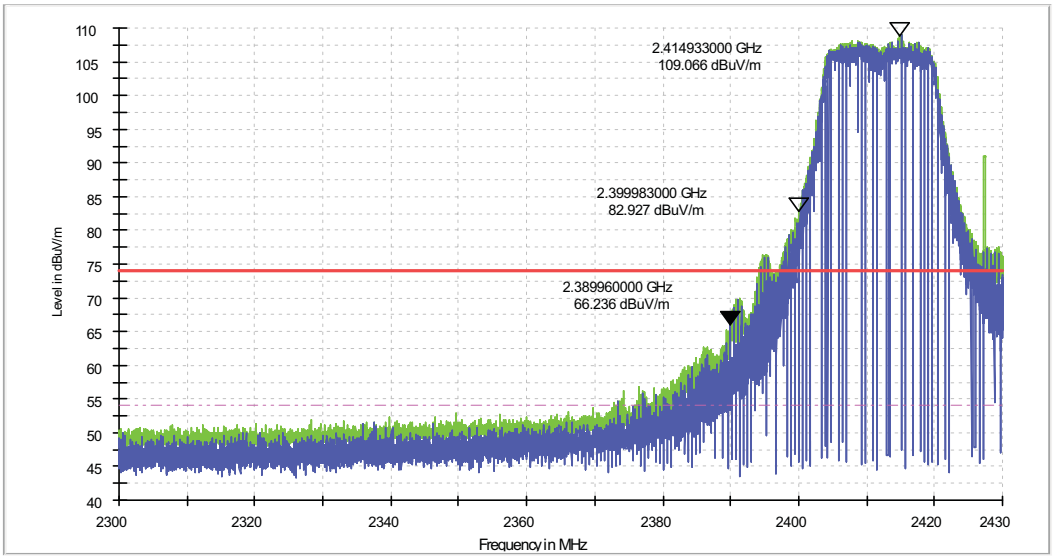
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

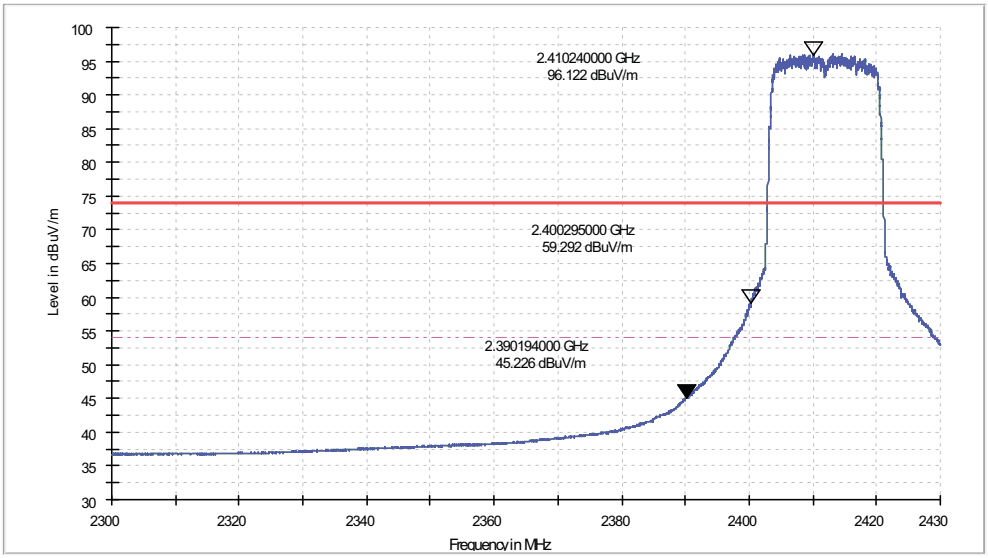
Test Mode	802.11g	Channel	CH 1
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



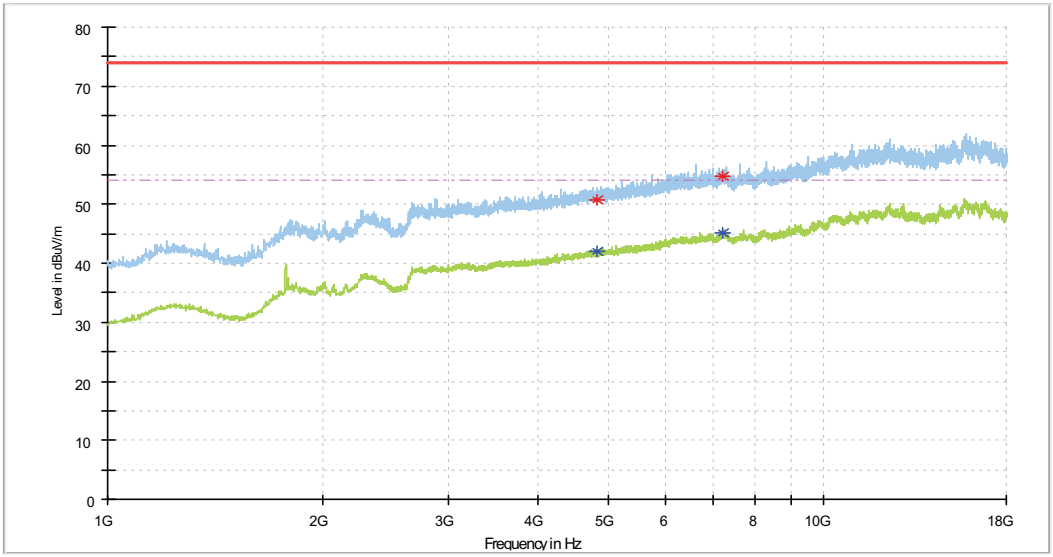
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



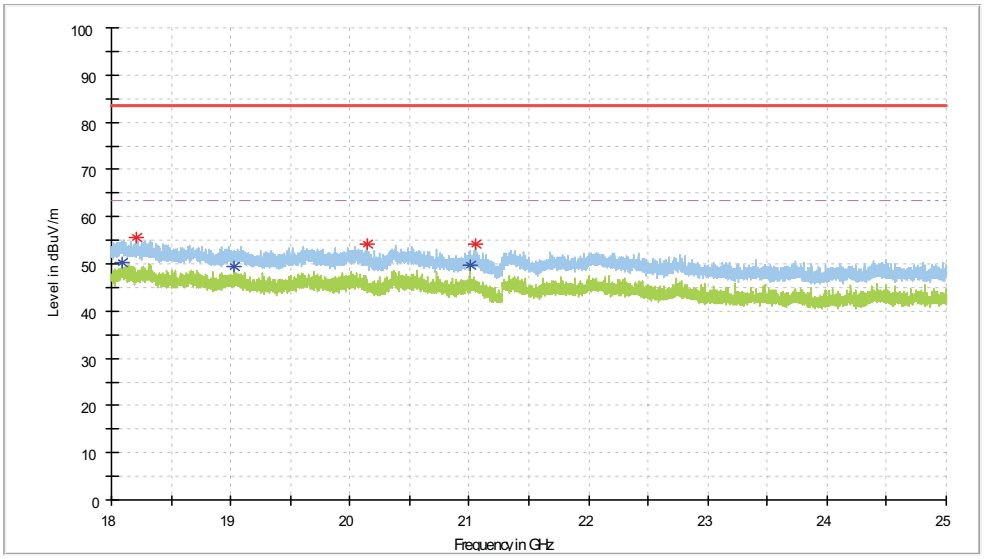
Test Mode	802.11g	Channel	CH 1
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4823.300	41.9	54.0	12.1	200.0	51.0	6.9	Avg
2	4823.300	50.7	74.0	23.3	100.0	295.0	6.9	Peak
3	7235.600	54.7	74.0	19.3	100.0	0.0	10.2	Peak
4	7237.300	45.1	54.0	8.9	100.0	0.0	10.2	Avg

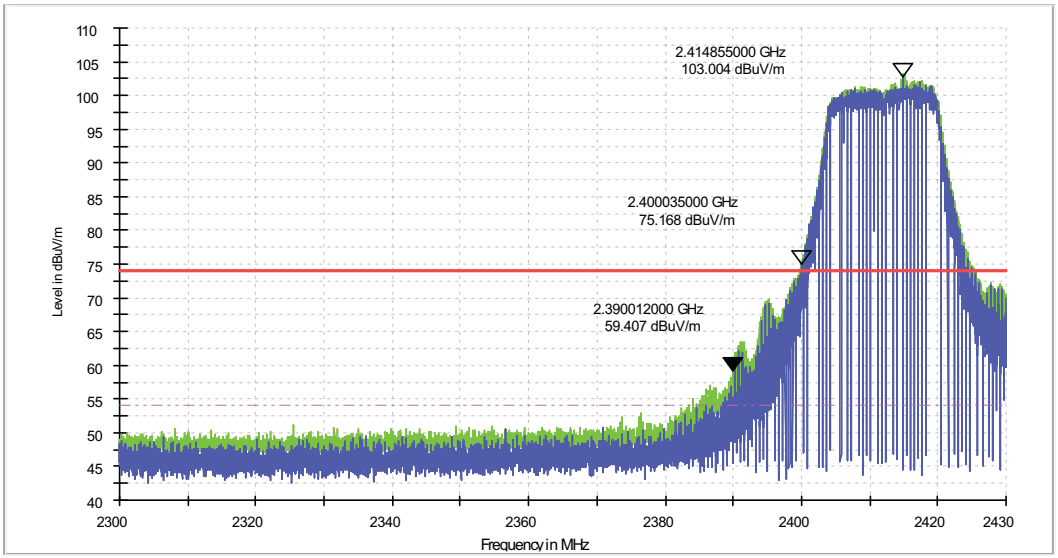
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

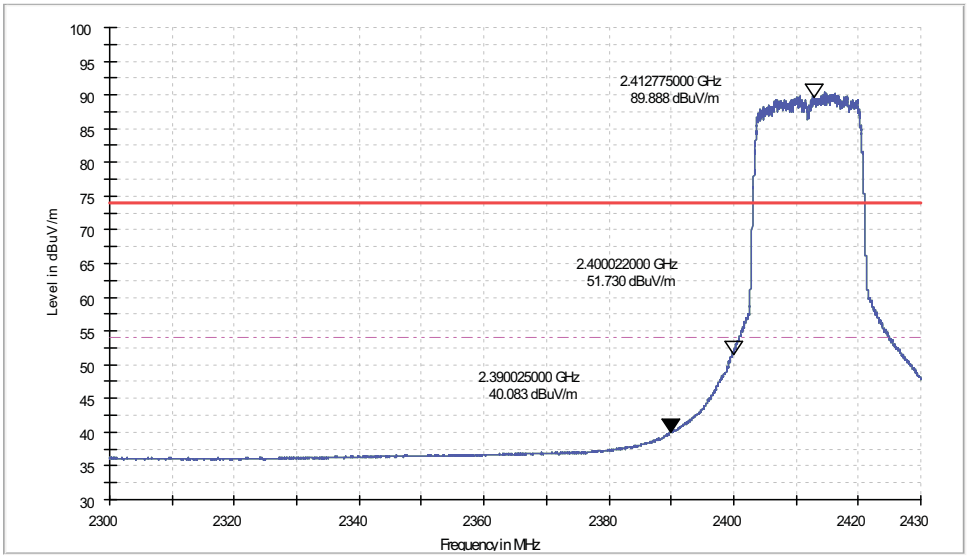
Test Mode	802.11g	Channel	CH 1
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



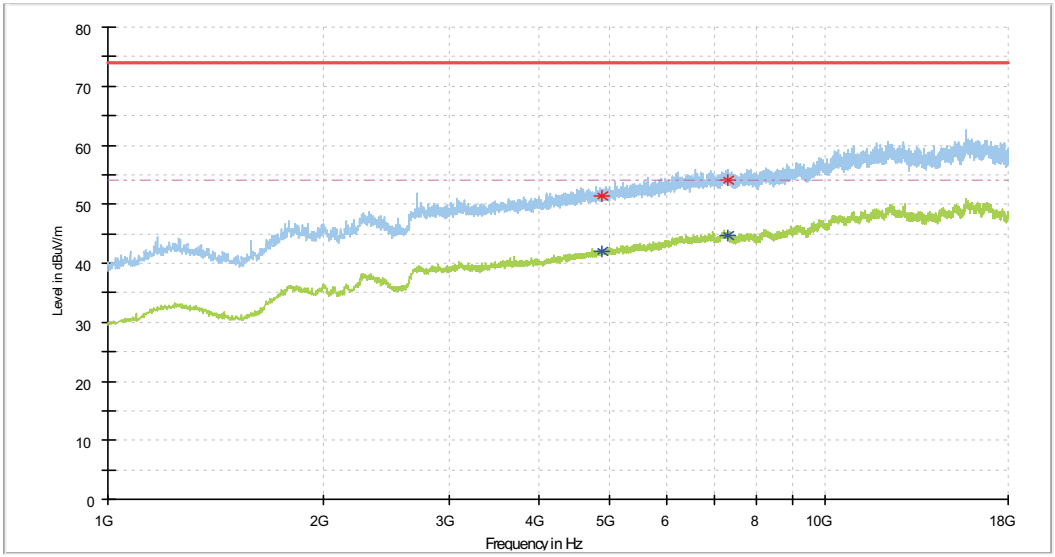
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



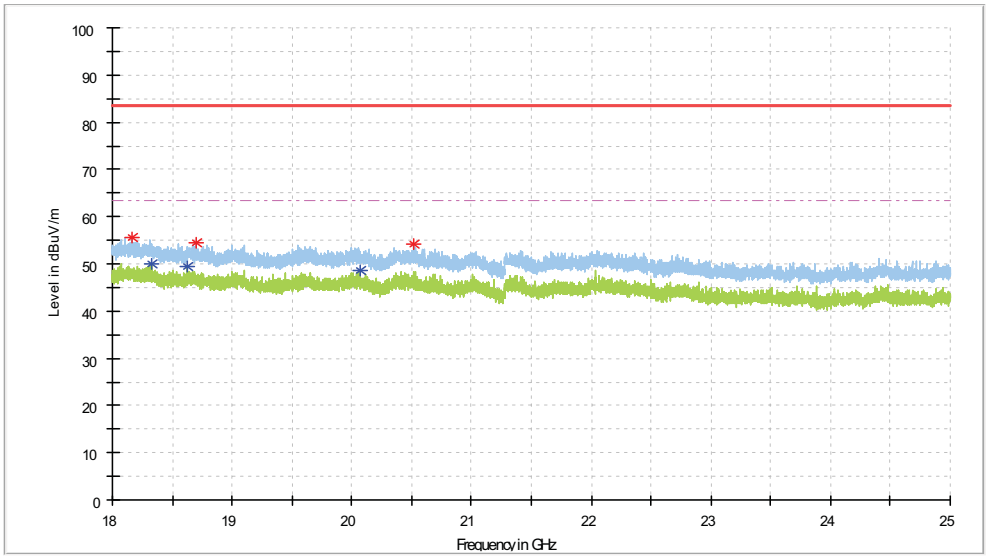
Test Mode	802.11g	Channel	CH 6
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4874.300	42.0	54.0	12.0	100.0	261.0	6.9	Avg
2	4874.300	51.4	74.0	22.6	100.0	261.0	6.9	Peak
3	7310.400	44.8	54.0	9.2	200.0	203.0	9.9	Avg
4	7310.400	54.1	74.0	19.9	100.0	107.0	9.9	Peak

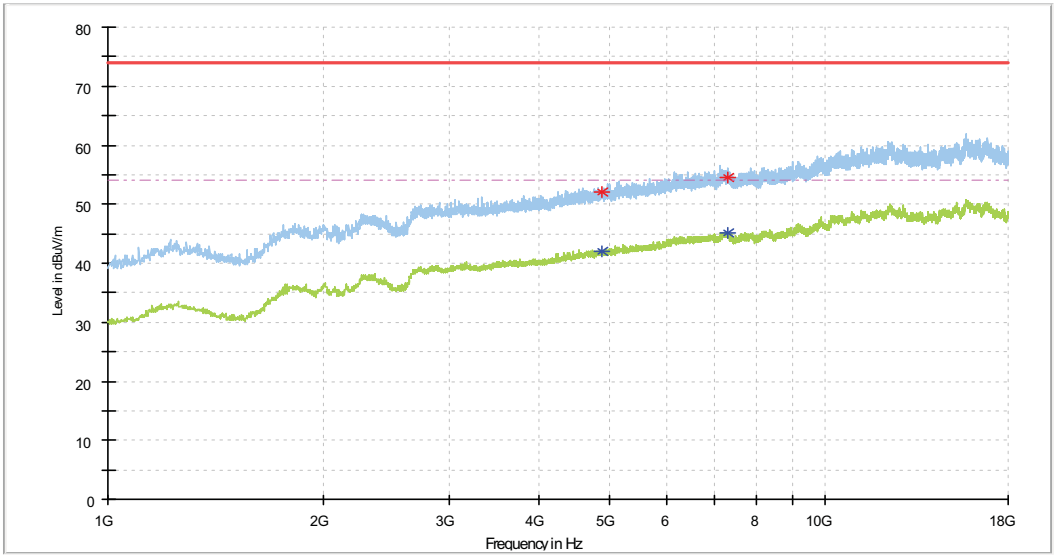
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

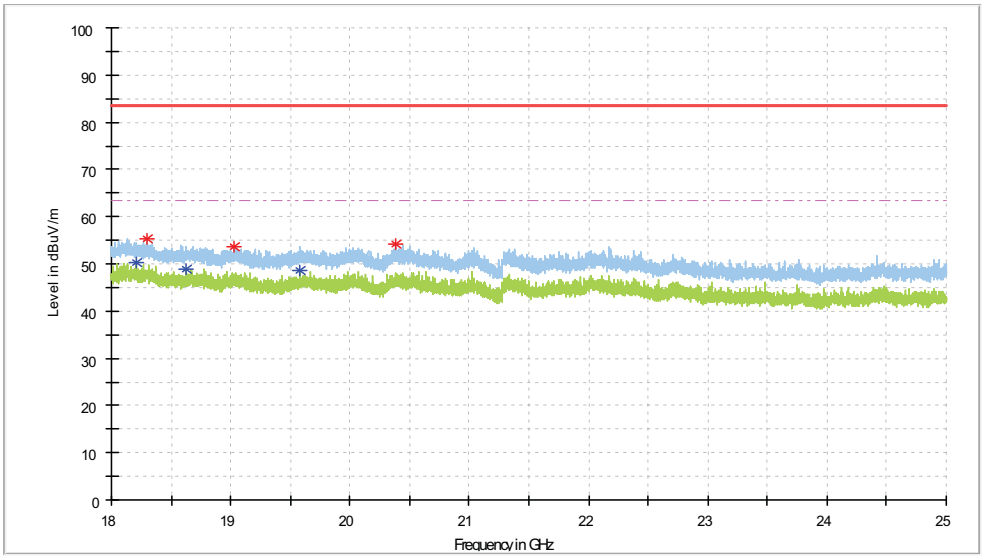
Test Mode	802.11g	Channel	CH 6
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4872.600	42.0	54.0	12.0	100.0	148.0	6.9	Avg
2	4874.300	52.1	74.0	21.9	100.0	93.0	6.9	Peak
3	7310.400	54.5	74.0	19.5	200.0	339.0	9.9	Peak
4	7312.100	45.2	54.0	8.8	100.0	1.0	9.9	Avg

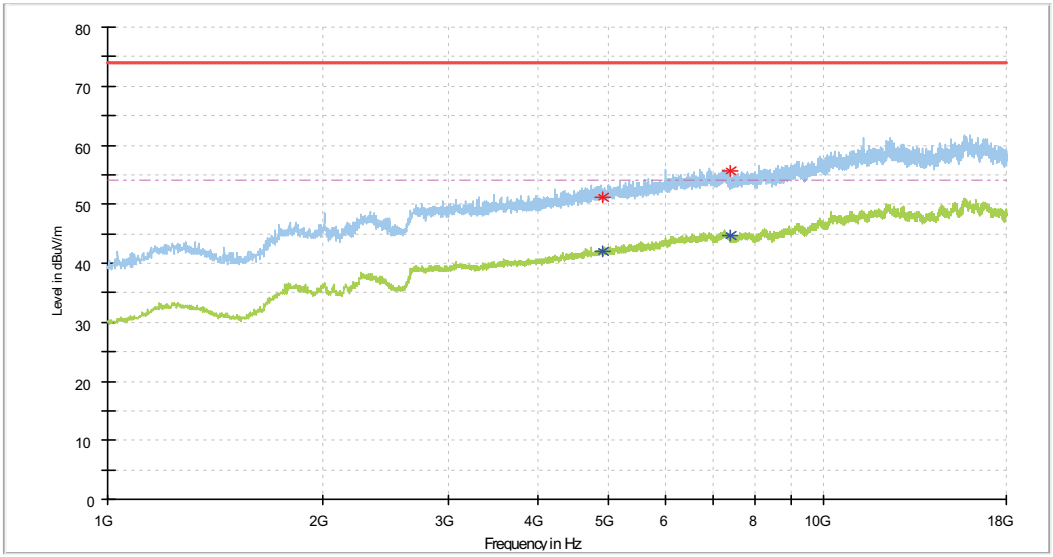
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

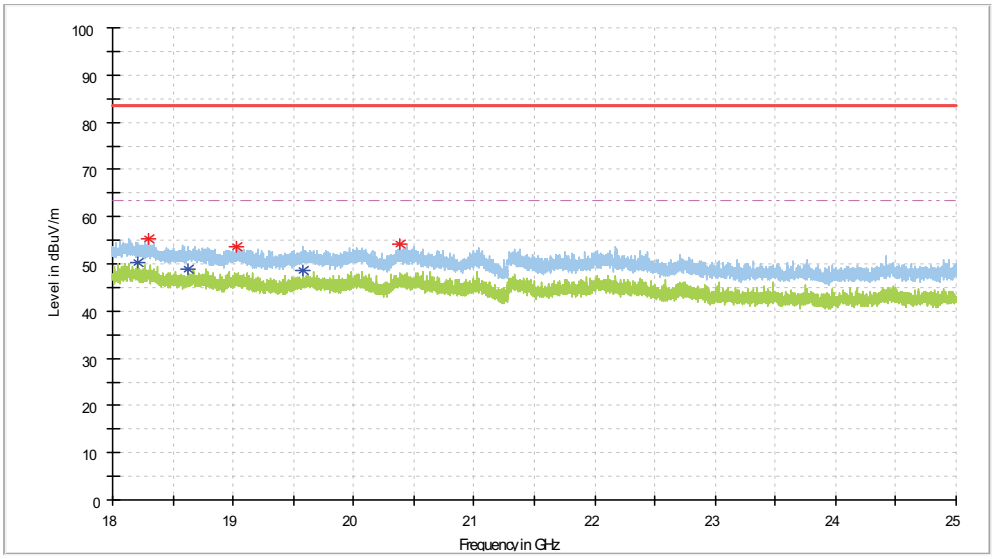
Test Mode	802.11g	Channel	CH 11
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4925.300	42.0	54.0	12.0	200.0	77.0	7.1	Avg
2	4925.300	51.1	74.0	22.9	200.0	77.0	7.1	Peak
3	7386.900	44.8	54.0	9.2	200.0	131.0	10.1	Avg
4	7386.900	55.5	74.0	18.5	200.0	131.0	10.1	Peak

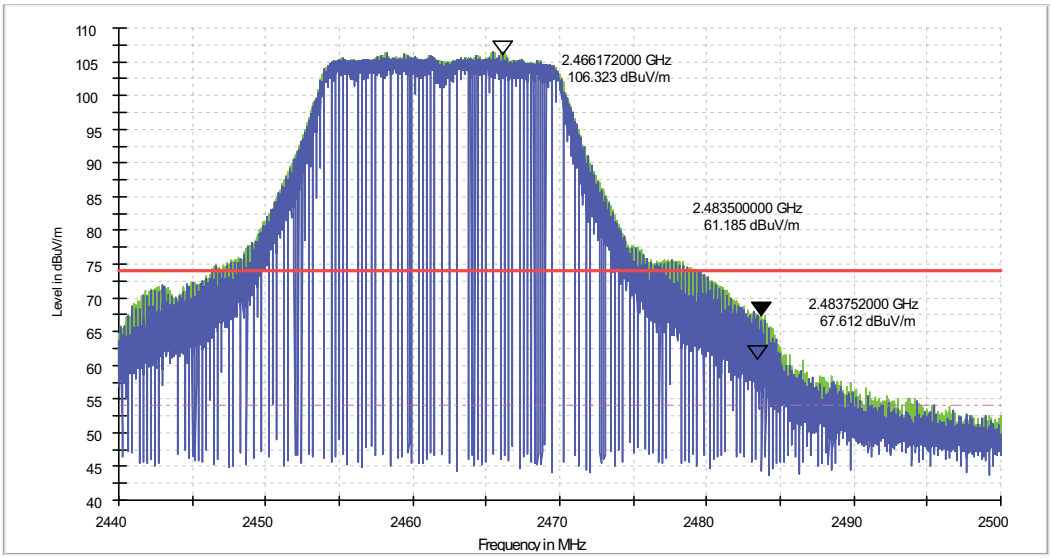
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

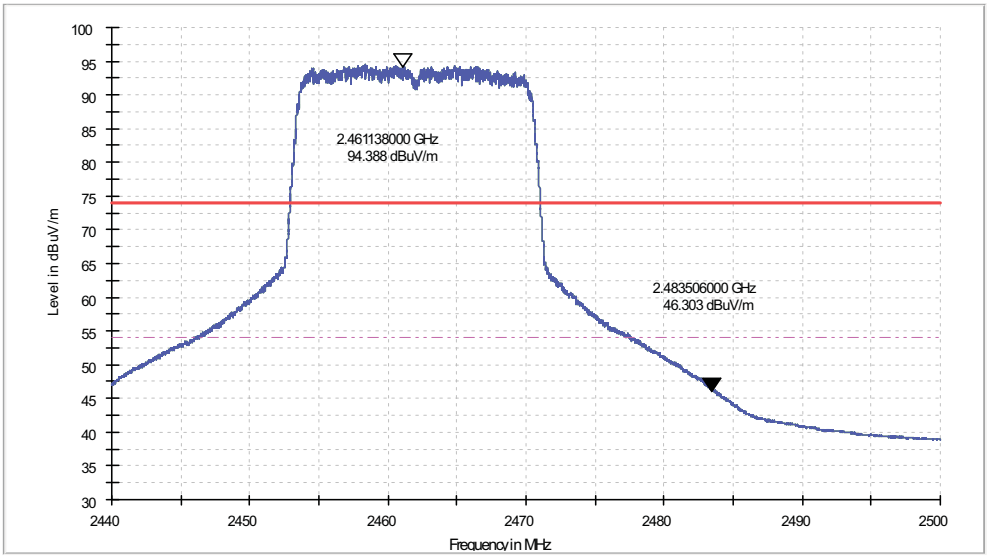
Test Mode	802.11g	Channel	CH 11
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



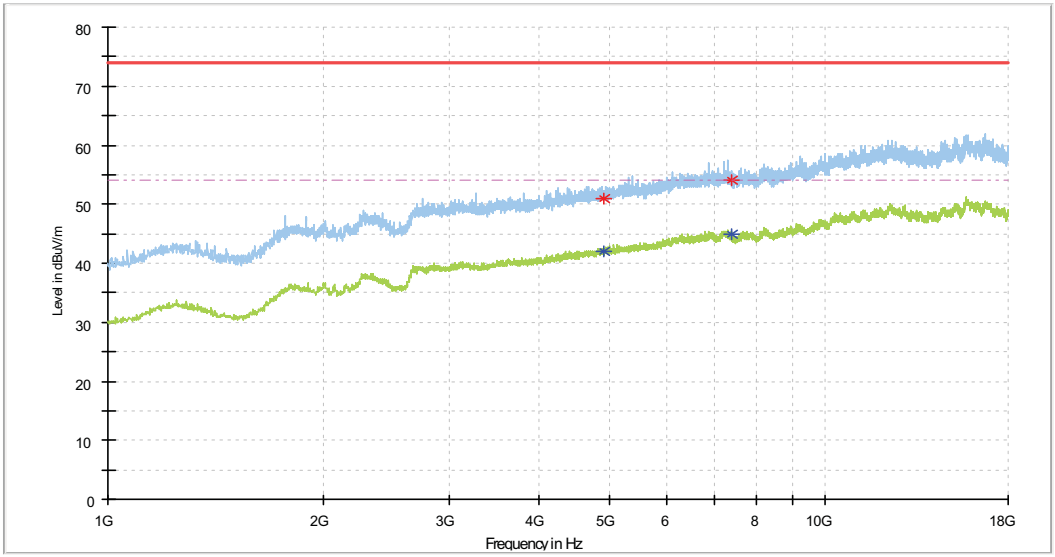
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



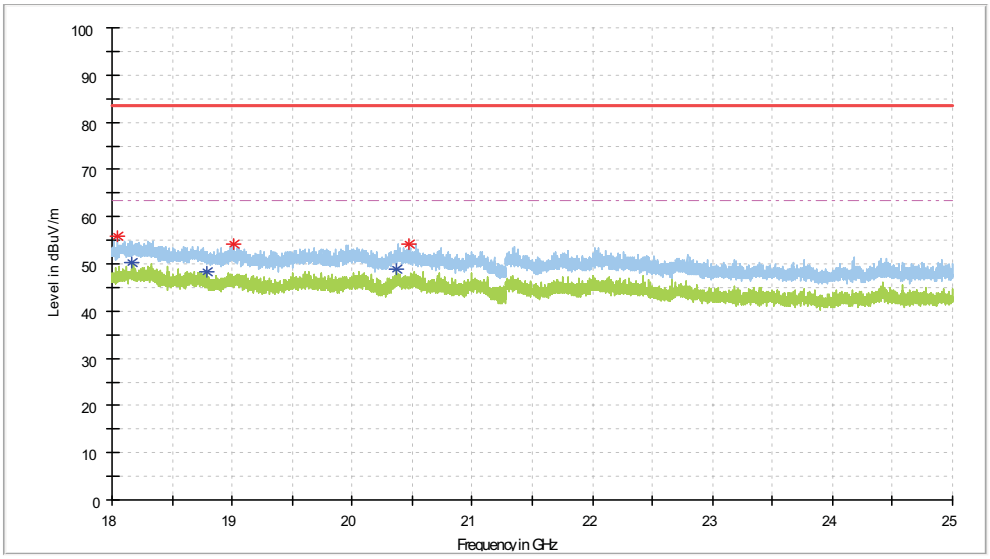
Test Mode	802.11g	Channel	CH 11
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4923.600	42.0	54.0	12.0	100.0	275.0	7.1	Avg
2	4923.600	51.1	74.0	22.9	200.0	92.0	7.1	Peak
3	7386.900	44.9	54.0	9.1	200.0	348.0	10.1	Avg
4	7386.900	54.1	74.0	19.9	100.0	14.0	10.1	Peak

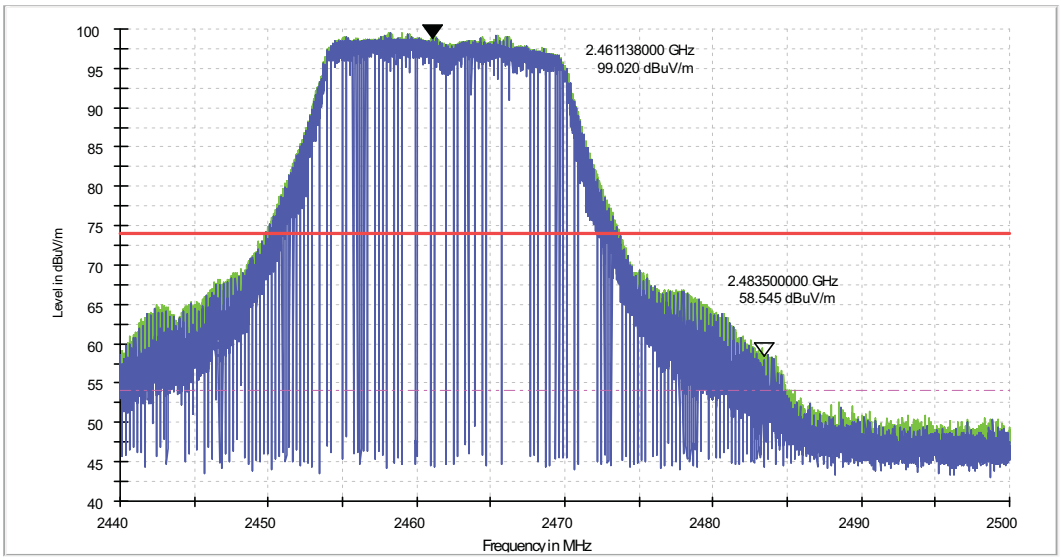
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

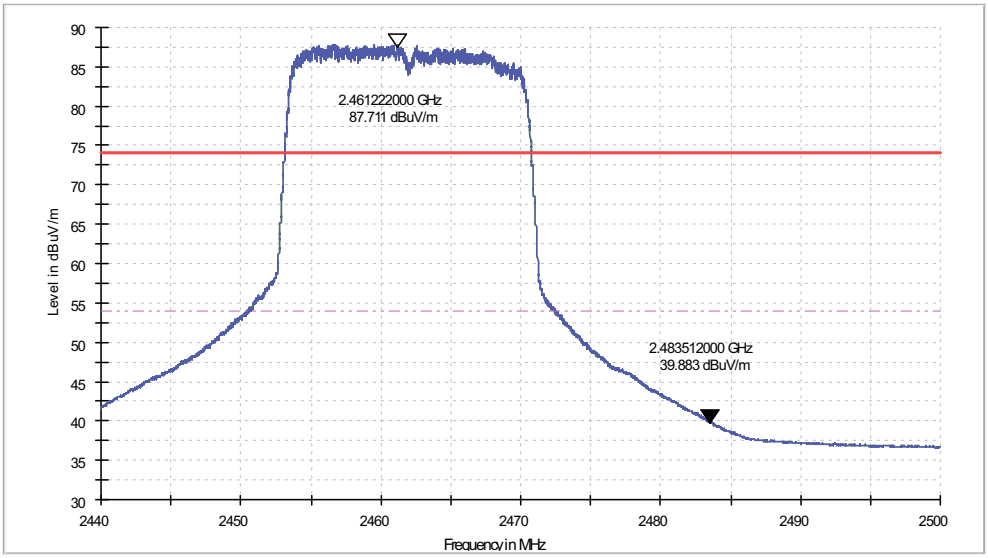
Test Mode	802.11g	Channel	CH 11
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



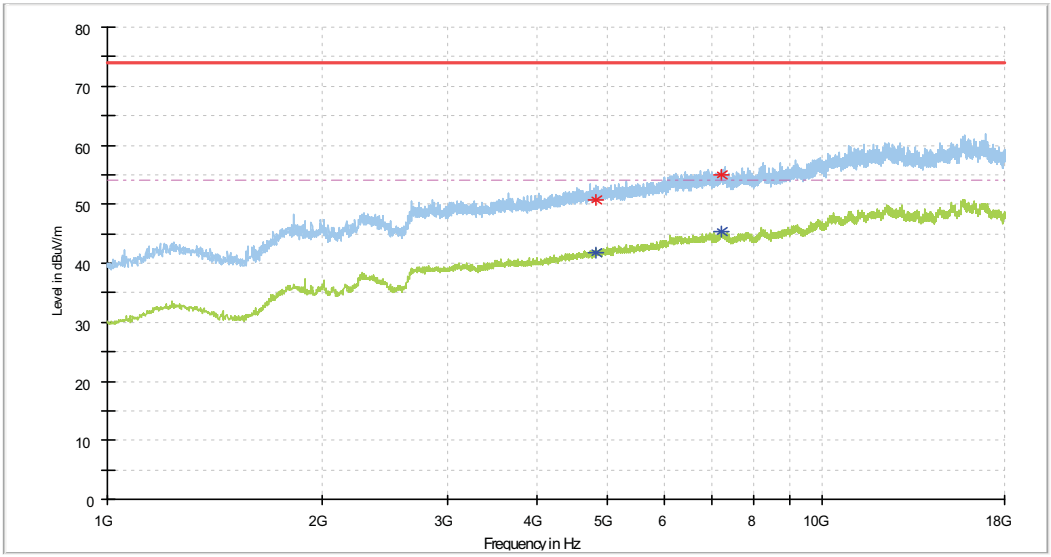
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



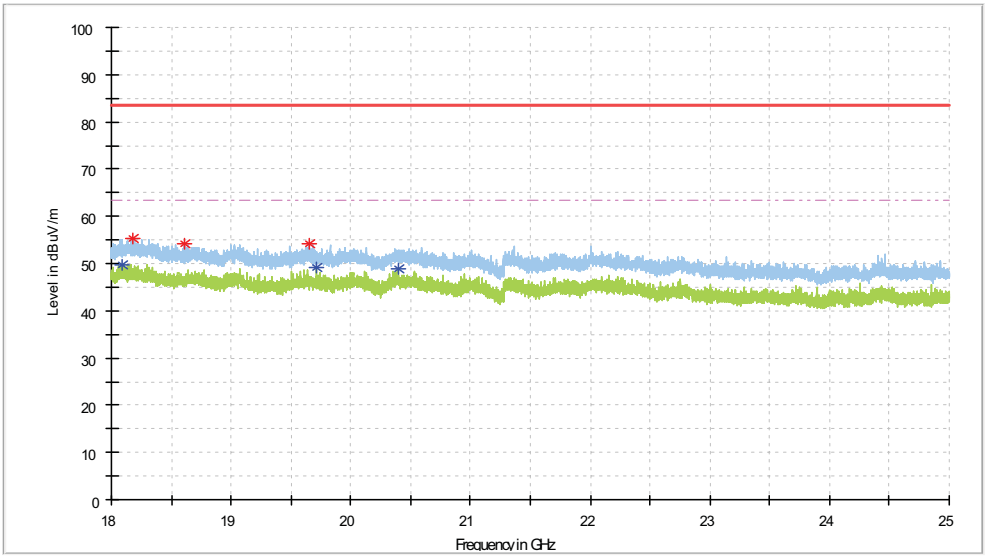
Test Mode	802.11n(HT20)	Channel	CH 1
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4825.000	41.8	54.0	12.2	100.0	137.0	6.9	Avg
2	4825.000	50.8	74.0	23.2	200.0	210.0	6.9	Peak
3	7235.600	55.0	74.0	19.0	100.0	42.0	10.2	Peak
4	7237.300	45.3	54.0	8.7	200.0	257.0	10.2	Avg

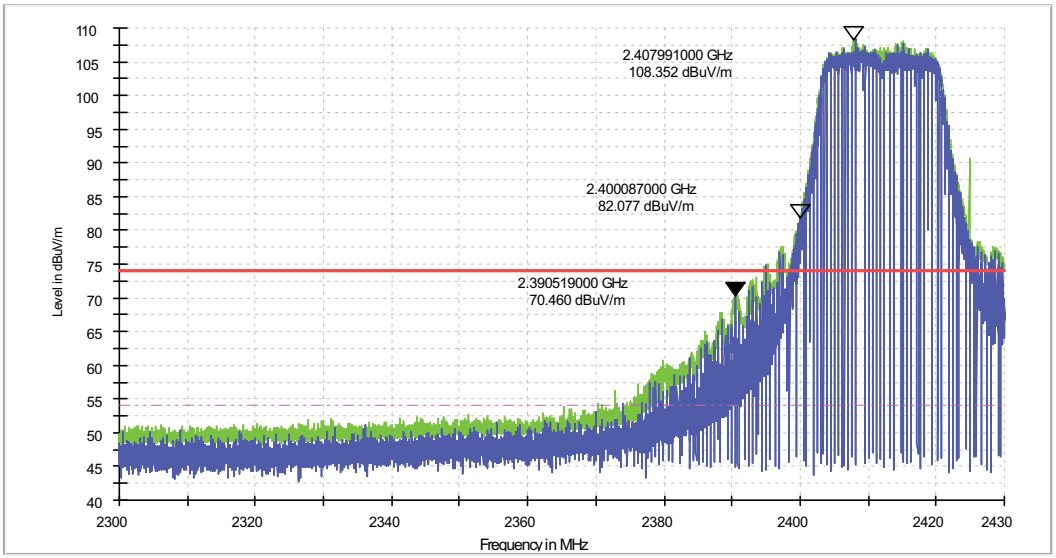
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

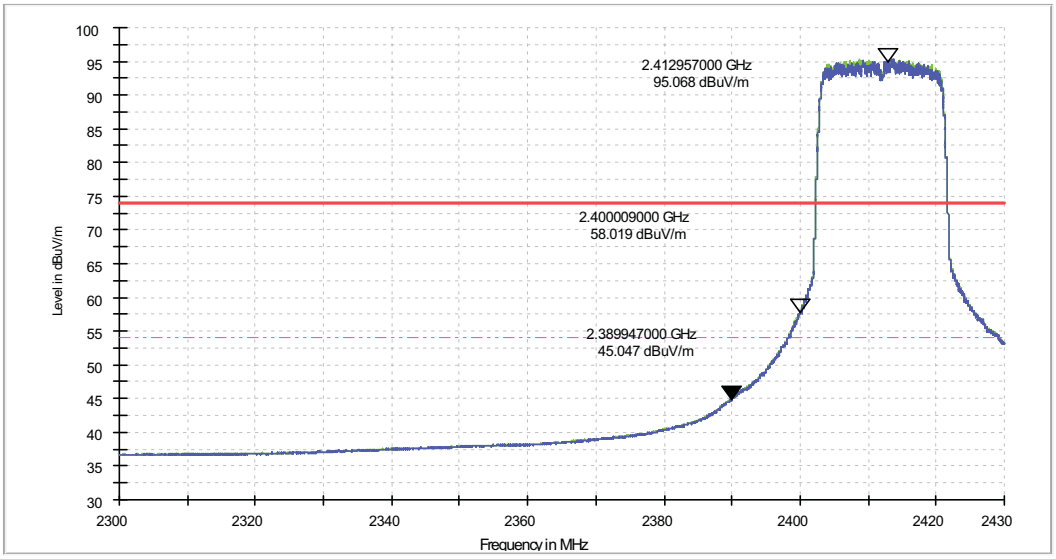
Test Mode	802.11n(HT20)	Channel	CH 1
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



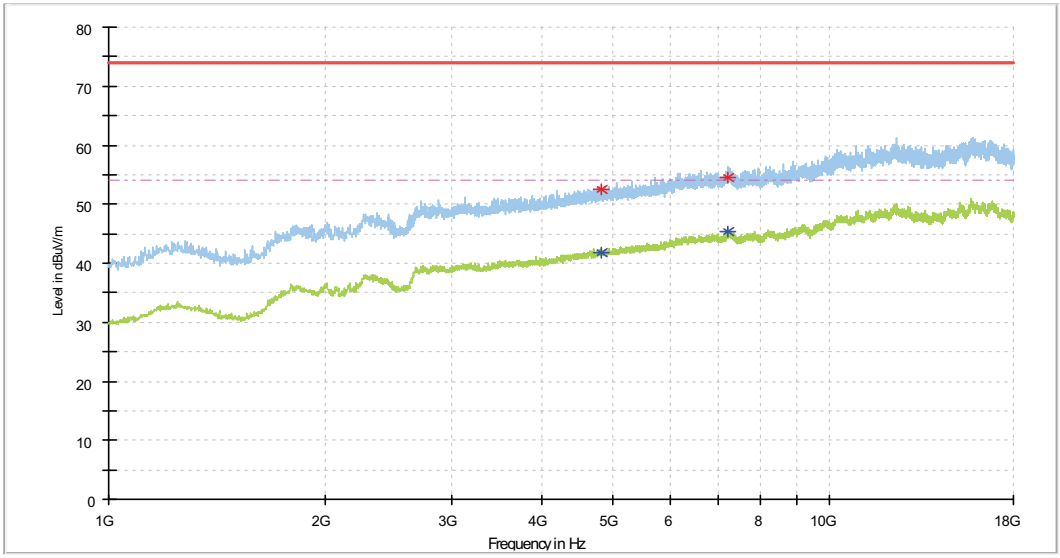
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



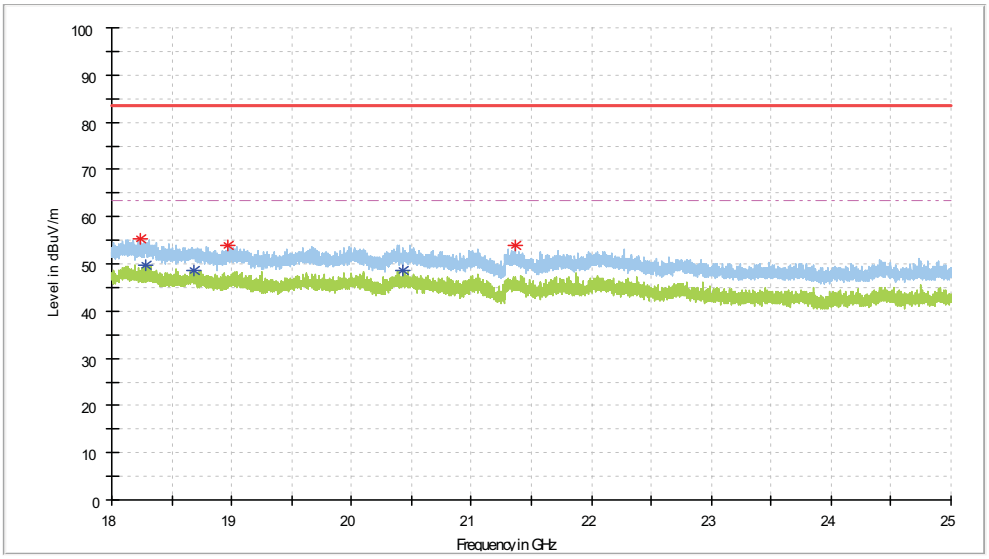
Test Mode	802.11n(HT20)	Channel	CH 1
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4825.000	41.8	54.0	12.2	200.0	195.0	6.9	Avg
2	4825.000	52.6	74.0	21.4	200.0	195.0	6.9	Peak
3	7235.600	45.4	54.0	8.6	100.0	1.0	10.2	Avg
4	7235.600	54.6	74.0	19.4	100.0	1.0	10.2	Peak

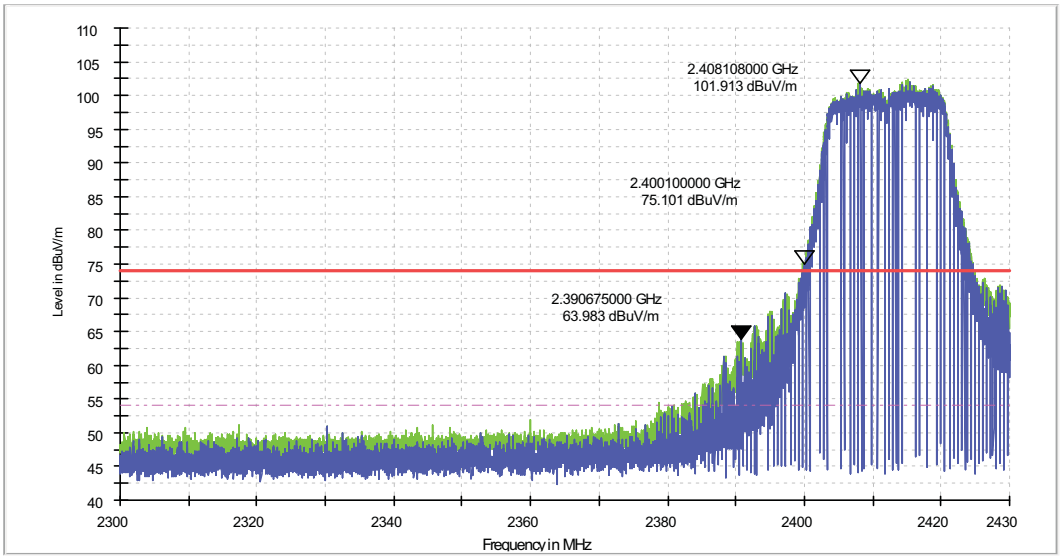
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

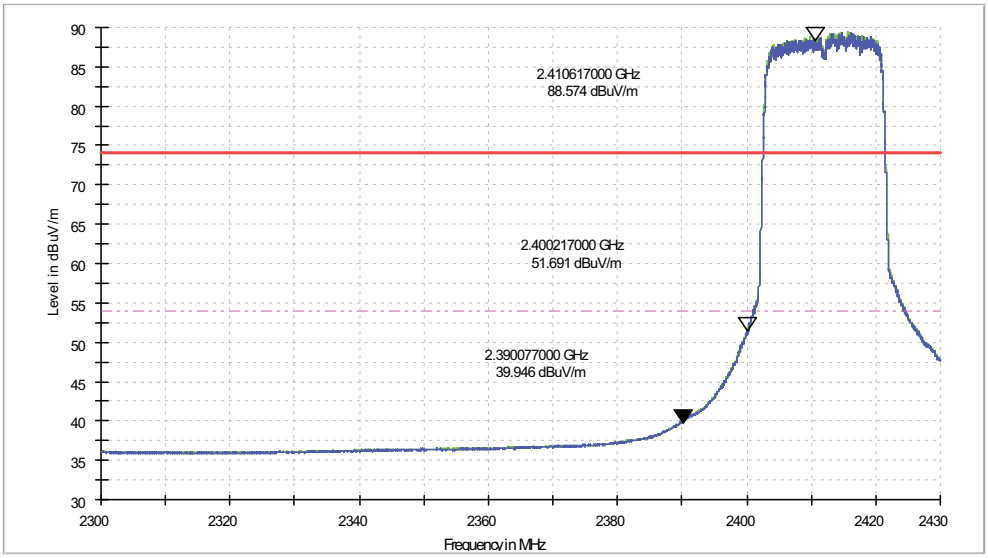
Test Mode	802.11n(HT20)	Channel	CH 1
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



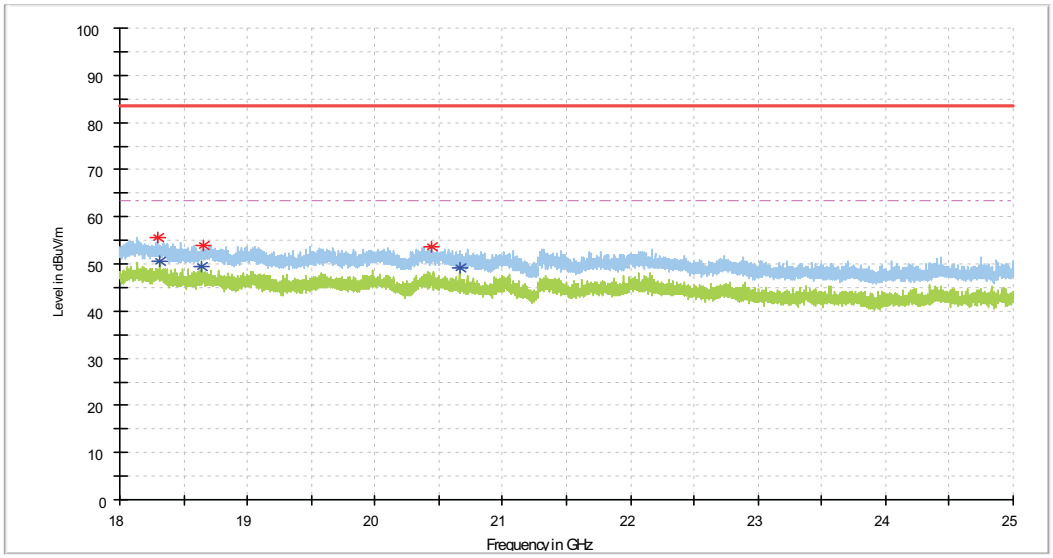
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



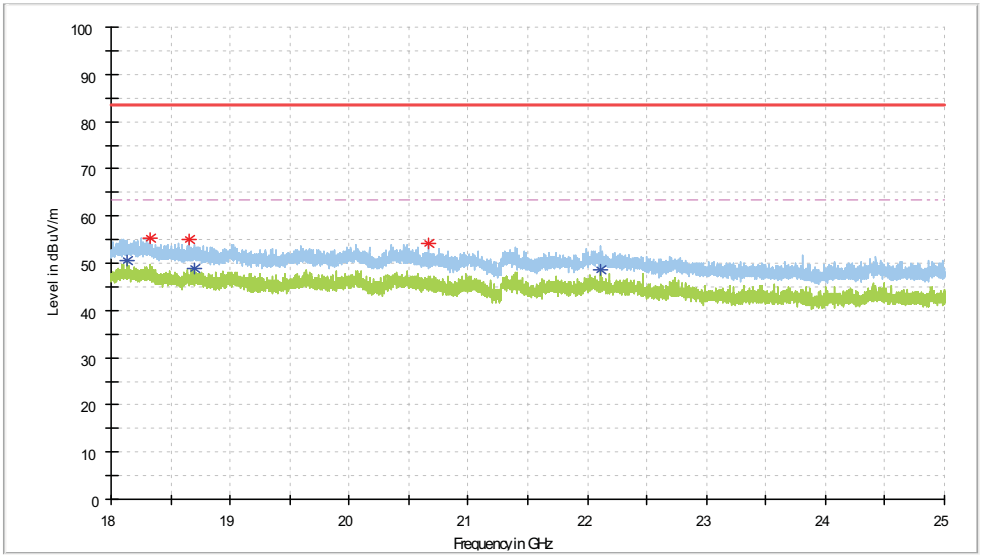
Test Mode	802.11n(HT20)	Channel	CH 6
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4874.300	41.9	54.0	12.1	100.0	0.0	6.9	Avg
2	4874.300	51.4	74.0	22.6	200.0	334.0	6.9	Peak
3	7310.400	54.8	74.0	19.2	200.0	334.0	9.9	Peak
4	7312.100	44.2	54.0	9.8	100.0	174.0	9.9	Avg

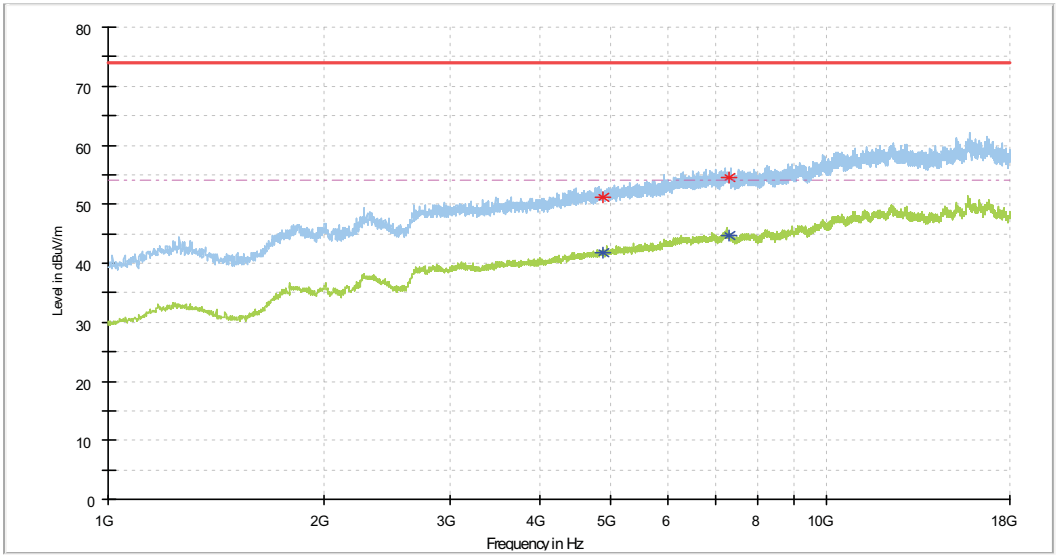
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

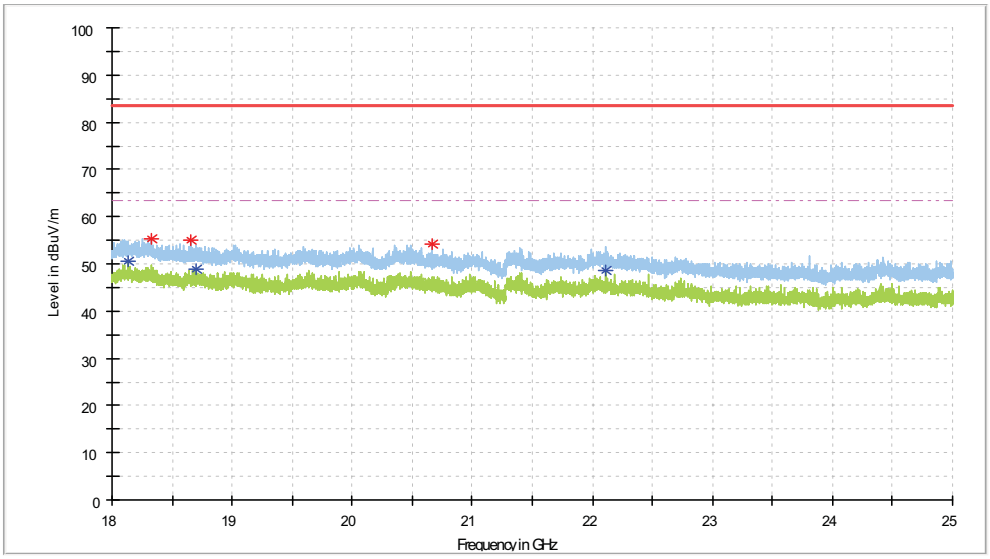
Test Mode	802.11n(HT20)	Channel	CH 6
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4874.300	51.2	74.0	22.8	100.0	15.0	6.9	Peak
2	4876.000	41.8	54.0	12.2	200.0	0.0	6.9	Avg
3	7310.400	44.6	54.0	9.4	200.0	244.0	9.9	Avg
4	7312.100	54.6	74.0	19.4	200.0	225.0	9.9	Peak

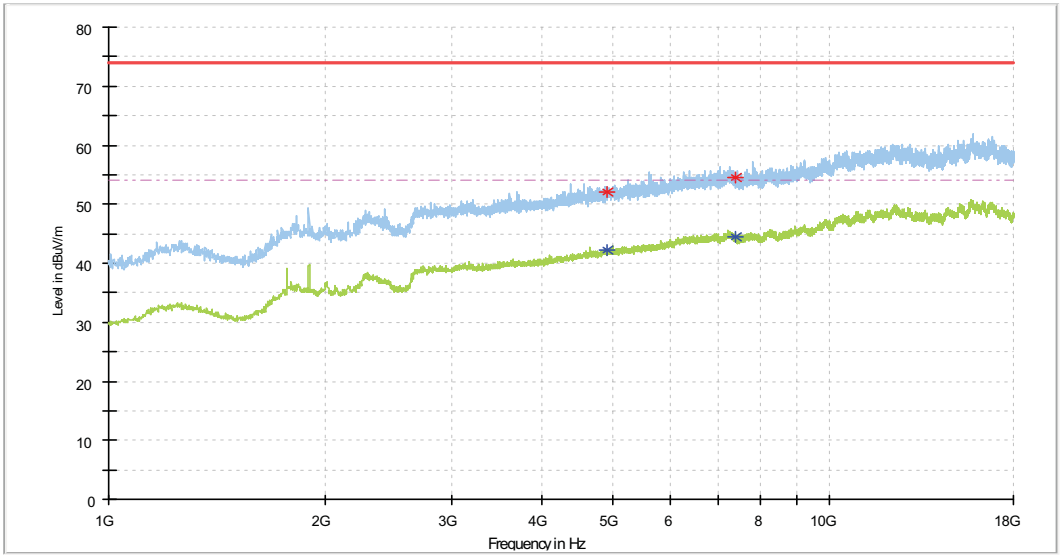
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

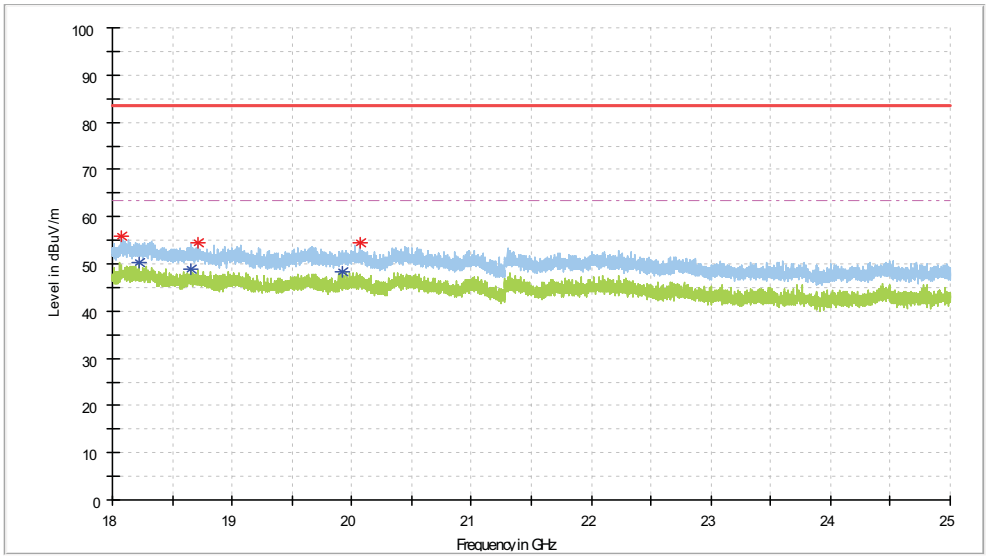
Test Mode	802.11n(HT20)	Channel	CH 11
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4923.600	42.2	54.0	11.8	200.0	199.0	7.1	Avg
2	4923.600	52.1	74.0	21.9	100.0	200.0	7.1	Peak
3	7385.200	54.4	74.0	19.6	100.0	17.0	10.1	Peak
4	7388.600	44.4	54.0	9.6	200.0	77.0	10.1	Avg

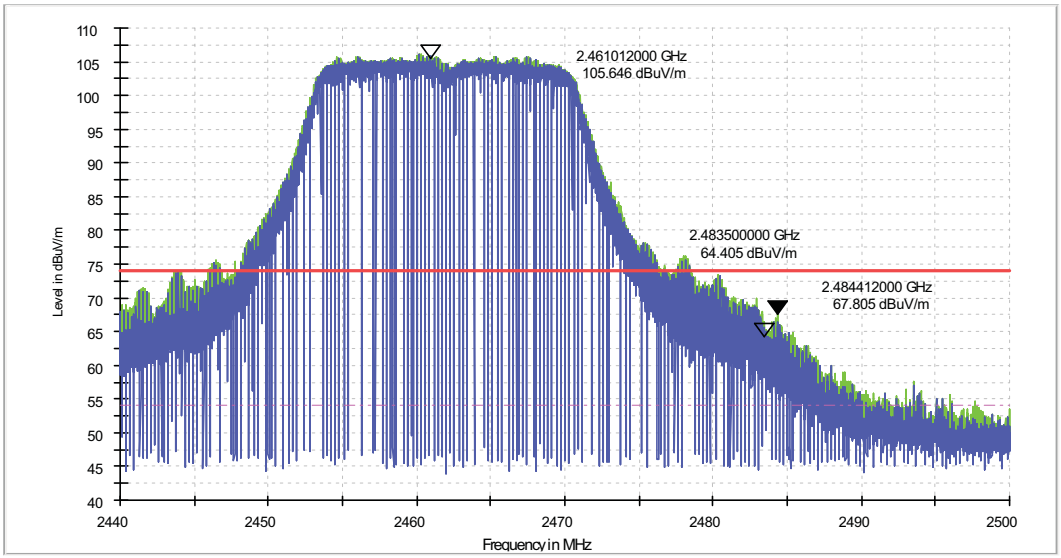
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

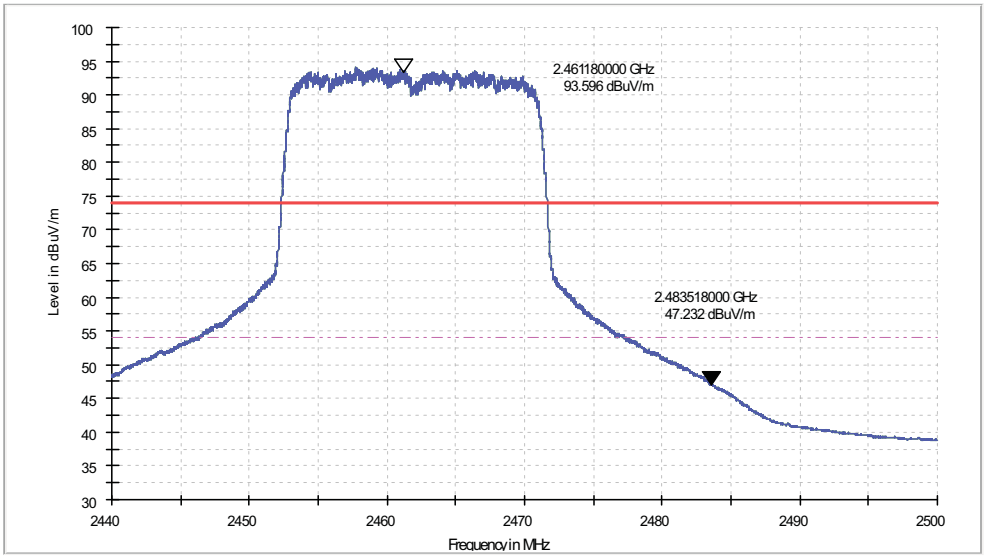
Test Mode	802.11n(HT20)	Channel	CH 11
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



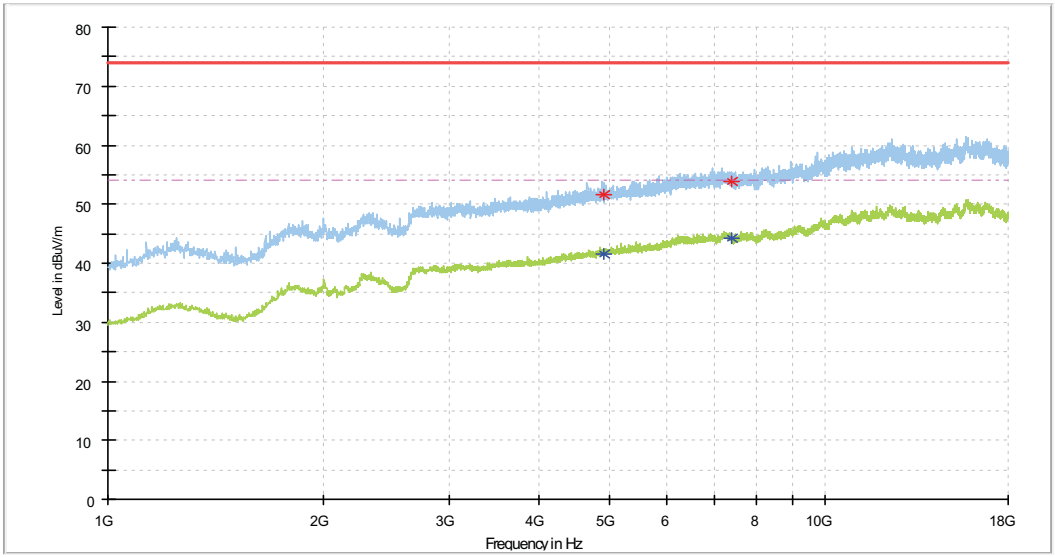
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



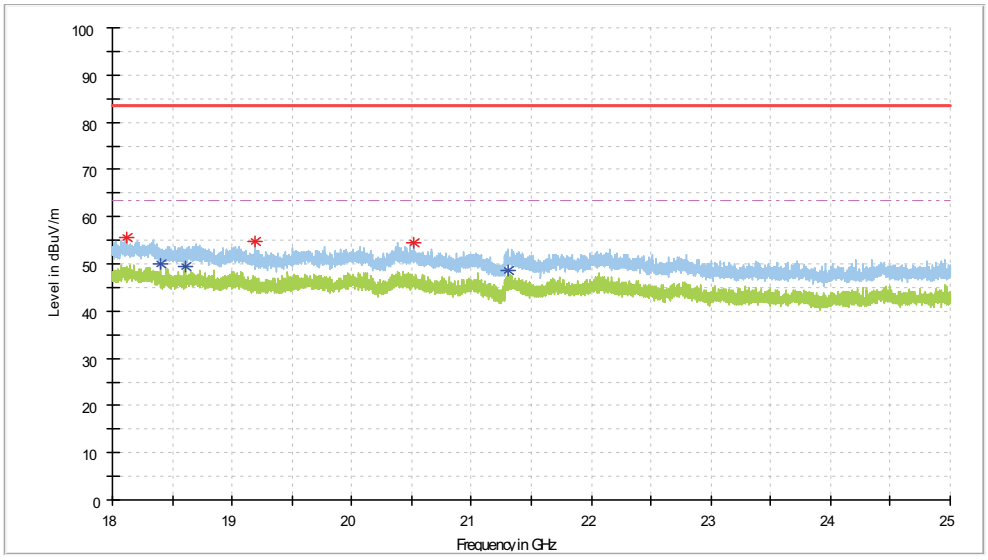
Test Mode	802.11n(HT20)	Channel	CH 11
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4923.600	51.5	74.0	22.5	100.0	143.0	7.1	Peak
2	4925.300	41.6	54.0	12.4	200.0	164.0	7.1	Avg
3	7386.900	44.3	54.0	9.7	100.0	269.0	10.1	Avg
4	7388.600	53.9	74.0	20.1	100.0	82.0	10.1	Peak

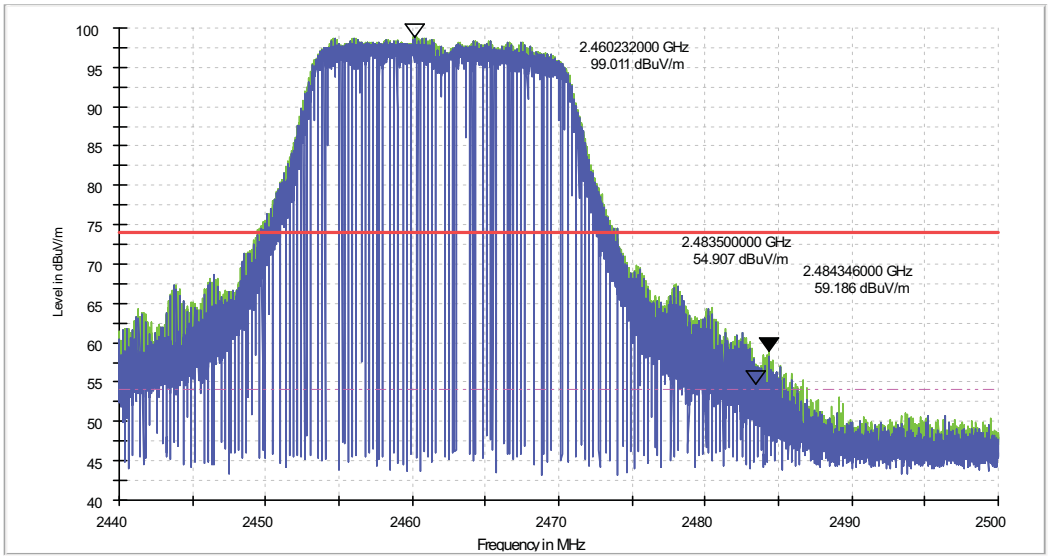
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

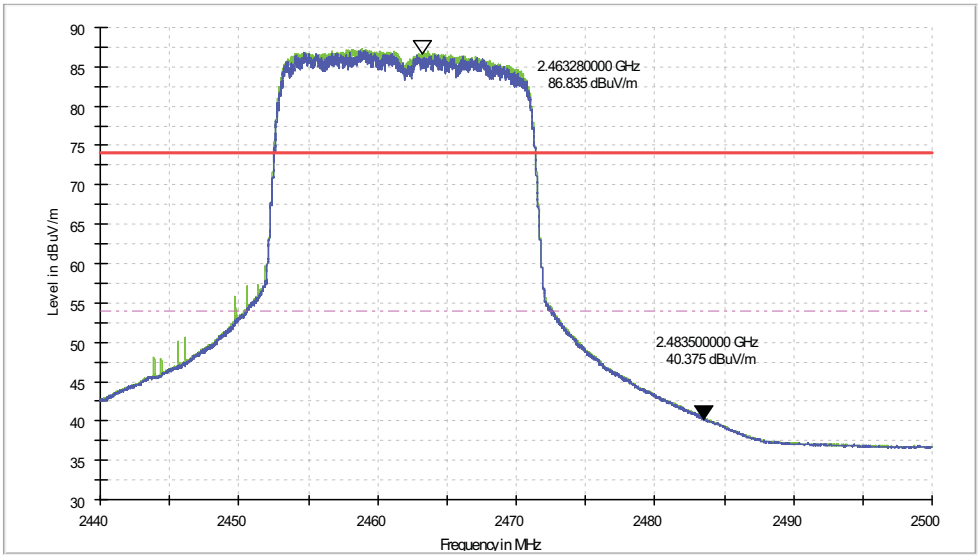
Test Mode	802.11n(HT20)	Channel	CH 11
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



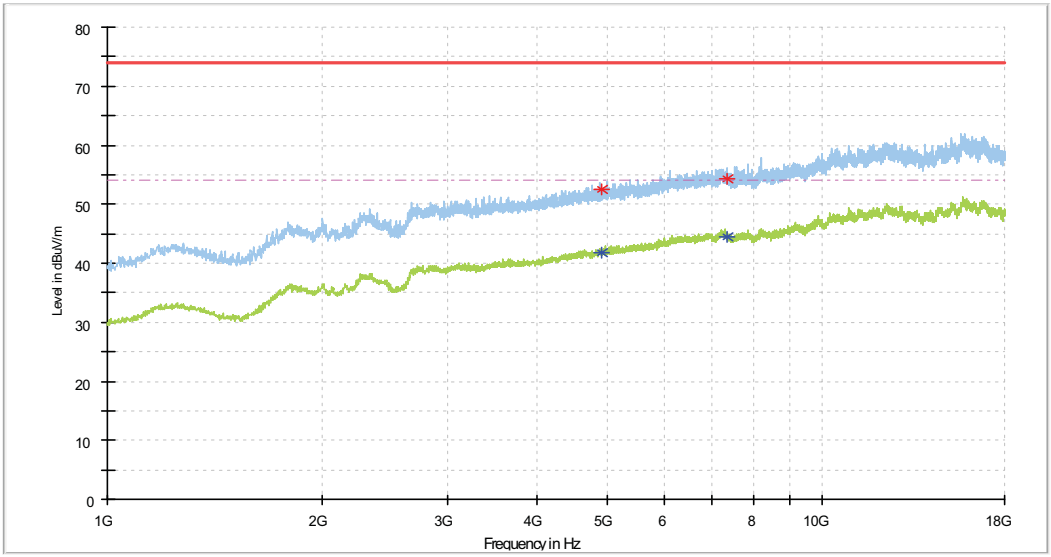
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



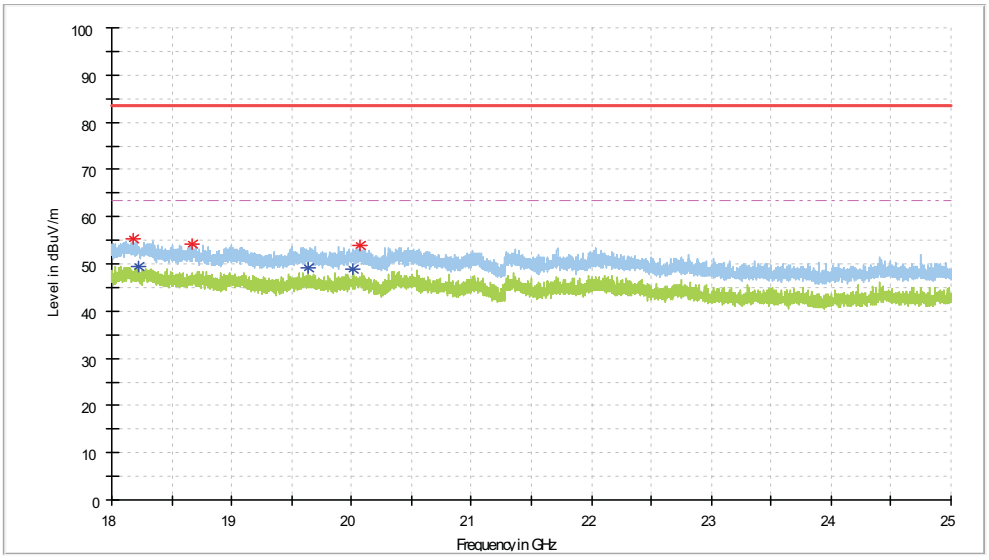
Test Mode	802.11n(HT40)	Channel	CH 3
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4904.900	41.7	54.0	12.3	200.0	80.0	7.0	Avg
2	4904.900	52.4	74.0	21.6	200.0	80.0	7.0	Peak
3	7356.300	44.5	54.0	9.5	100.0	231.0	10.0	Avg
4	7356.300	54.3	74.0	19.7	100.0	231.0	10.0	Peak

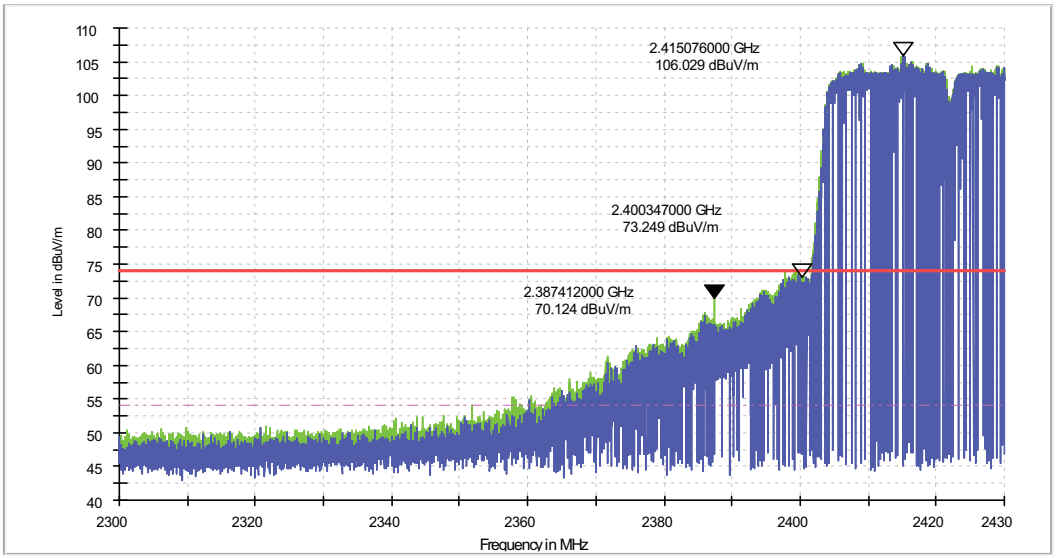
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

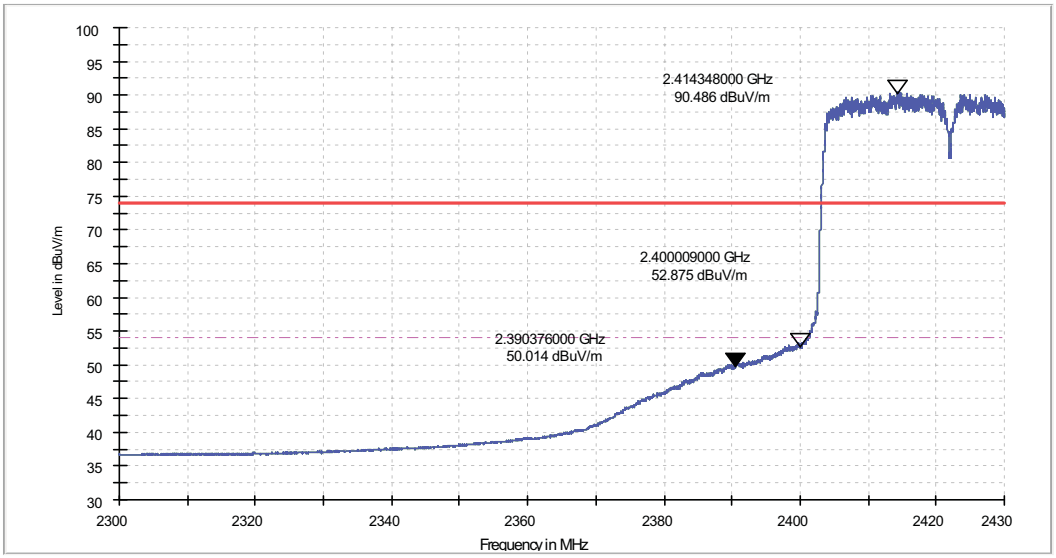
Test Mode	802.11n(HT40)	Channel	CH 3
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



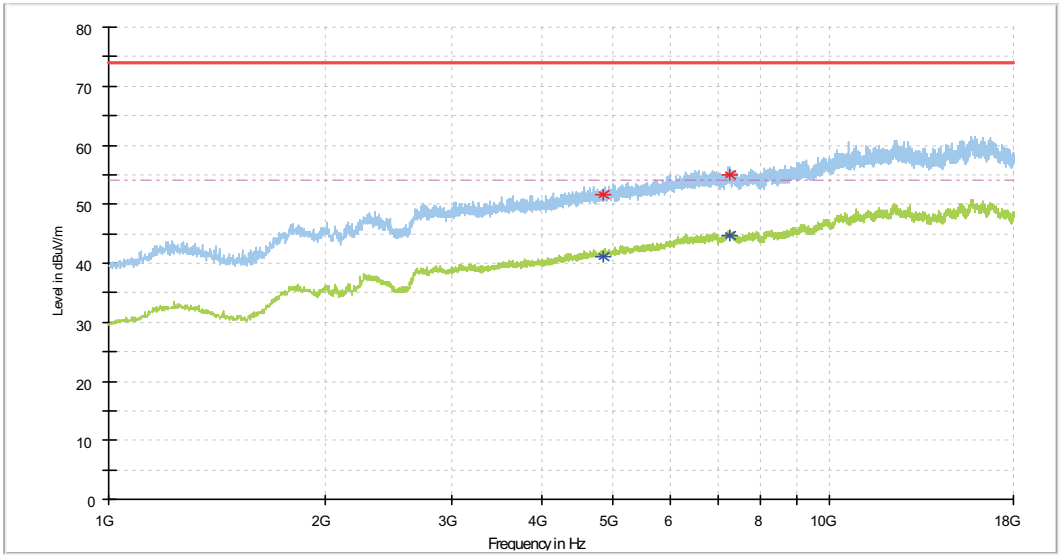
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



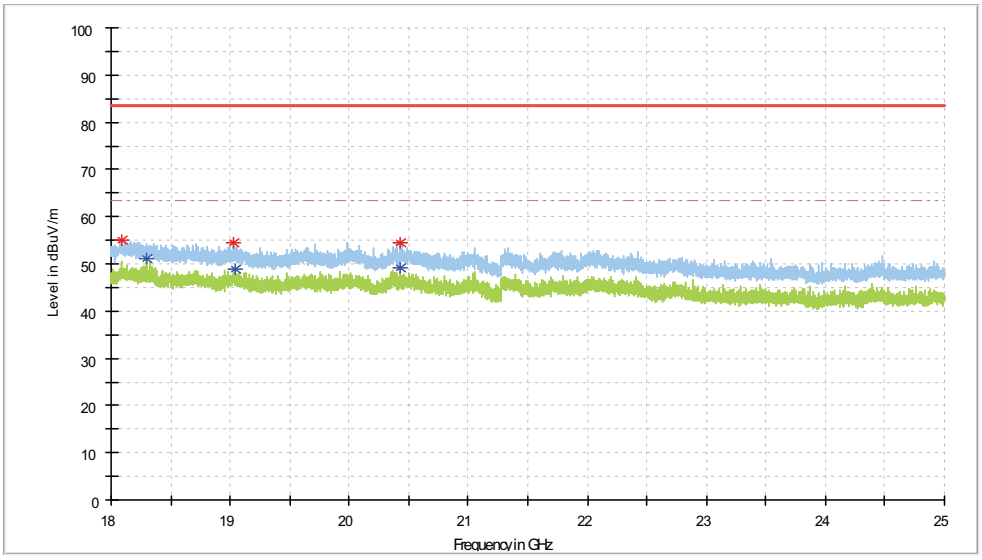
Test Mode	802.11n(HT40)	Channel	CH 3
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4845.400	41.0	54.0	13.0	100.0	158.0	6.9	Avg
2	4845.400	51.6	74.0	22.4	200.0	0.0	6.9	Peak
3	7266.200	44.7	54.0	9.3	200.0	206.0	10.1	Avg
4	7266.200	55.0	74.0	19.0	100.0	37.0	10.1	Peak

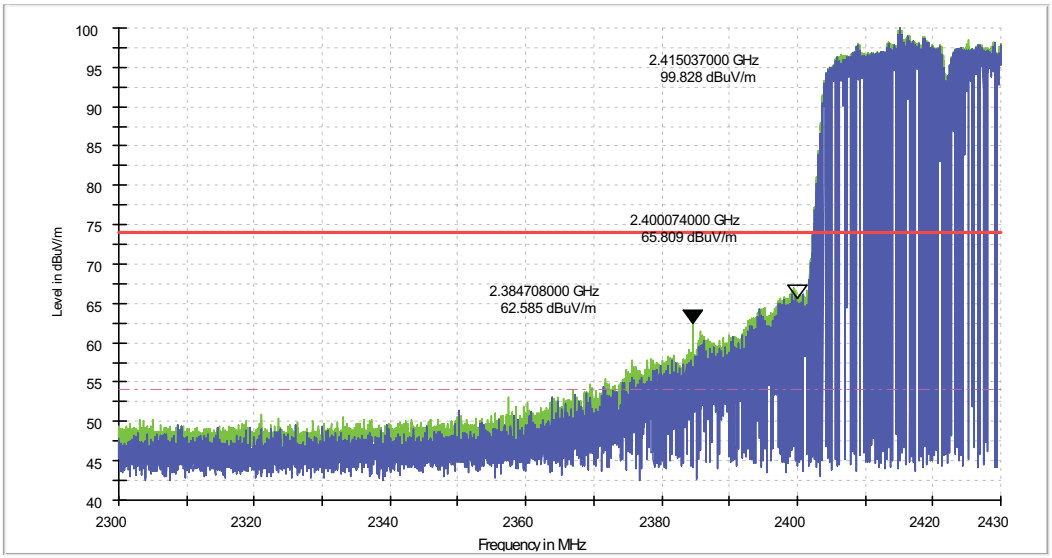
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

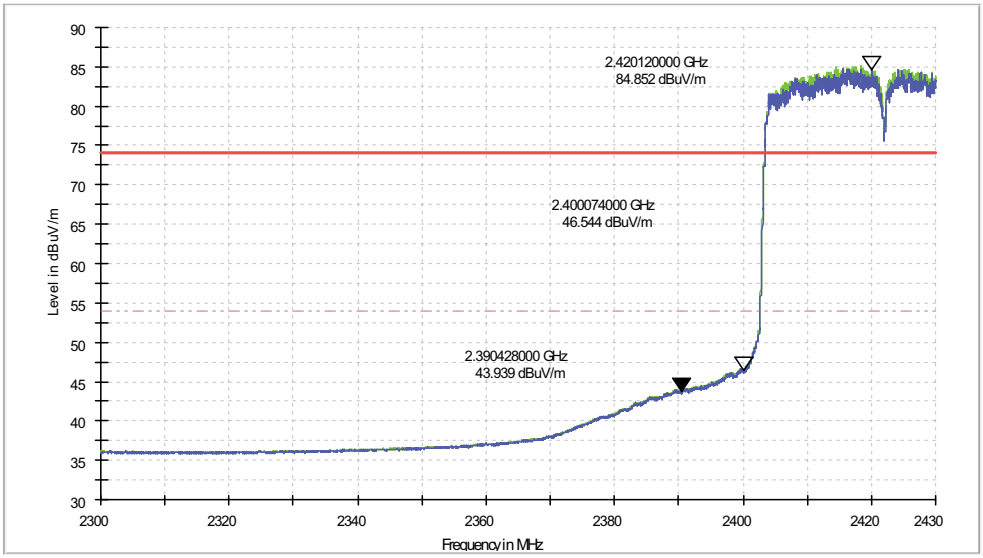
Test Mode	802.11n(HT40)	Channel	CH 3
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2430MHz



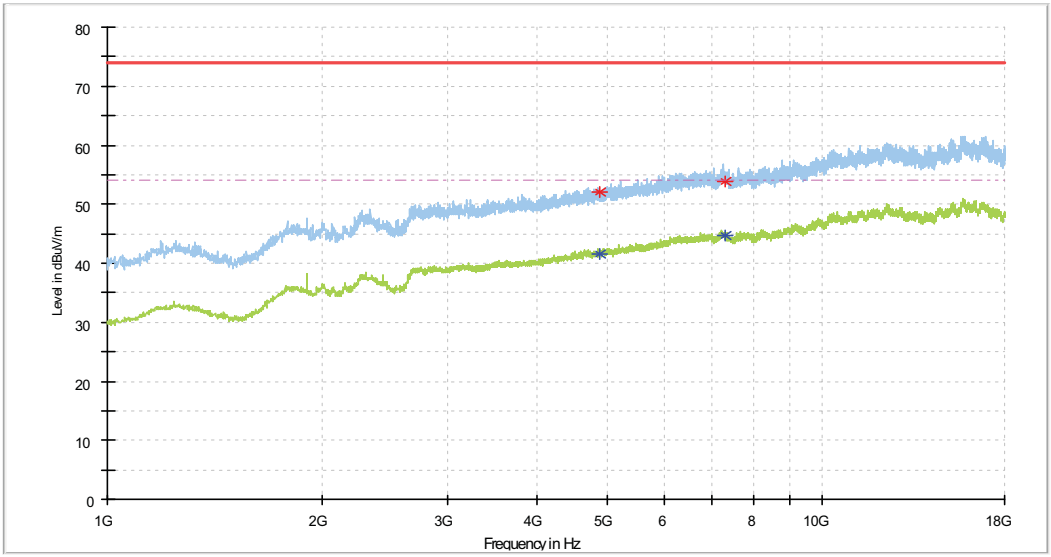
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2430MHz



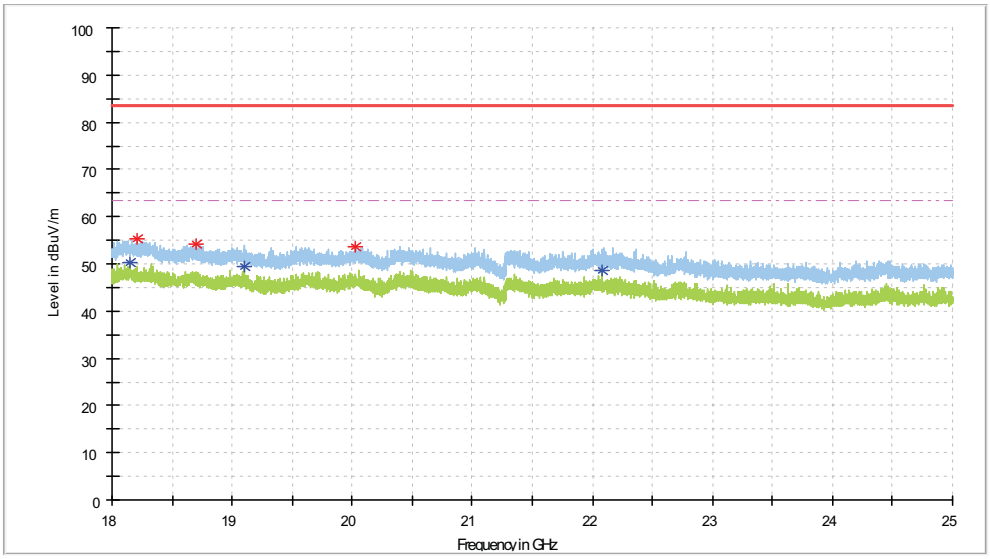
Test Mode	802.11n(HT40)	Channel	CH 6
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4874.300	41.5	54.0	12.5	100.0	120.0	6.9	Avg
2	4874.300	52.1	74.0	21.9	100.0	120.0	6.9	Peak
3	7310.400	44.7	54.0	9.3	200.0	5.0	9.9	Avg
4	7310.400	53.9	74.0	20.1	200.0	5.0	9.9	Peak

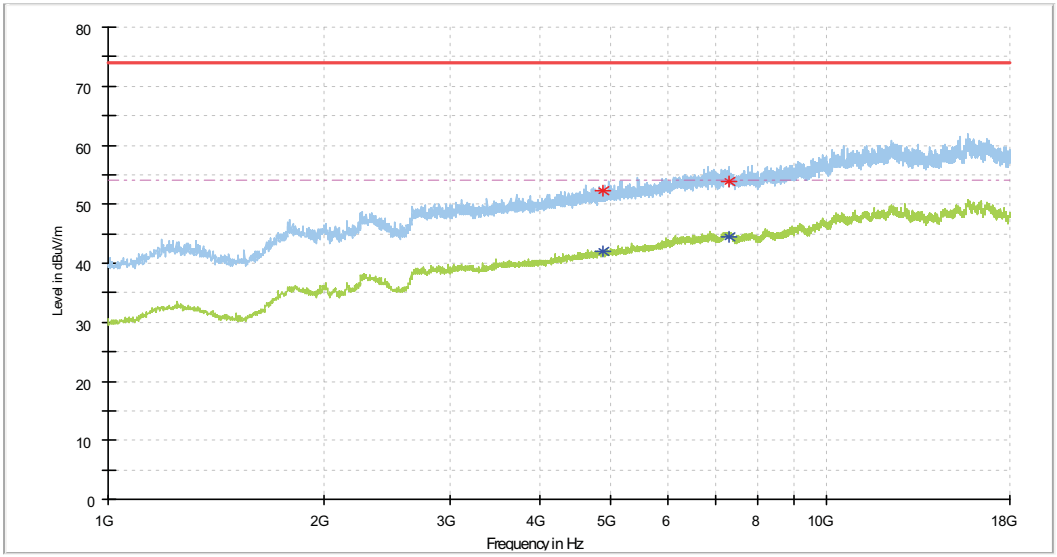
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

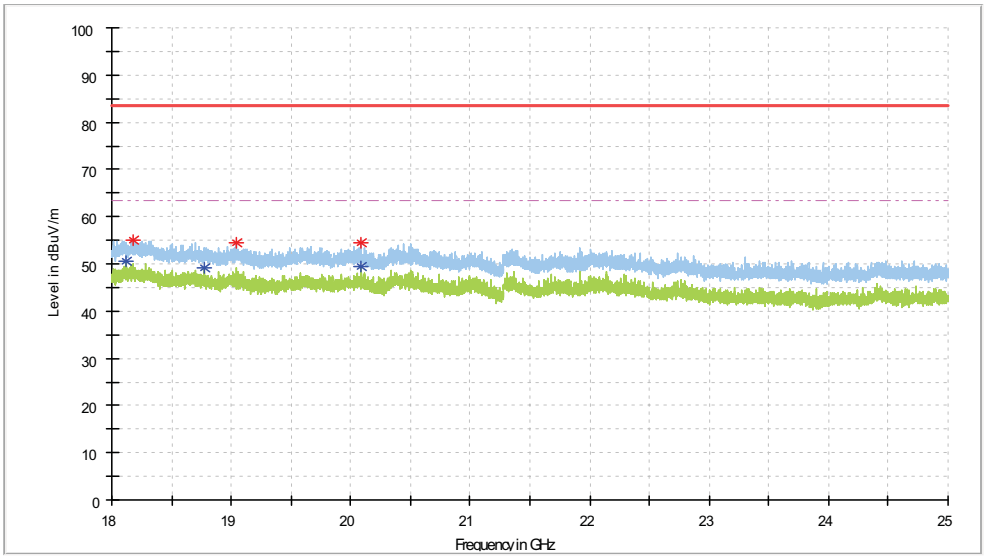
Test Mode	802.11n(HT40)	Channel	CH 6
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4874.300	42.1	54.0	11.9	200.0	80.0	6.9	Avg
2	4874.300	52.3	74.0	21.7	200.0	80.0	6.9	Peak
3	7312.100	44.5	54.0	9.5	200.0	281.0	9.9	Avg
4	7312.100	54.0	74.0	20.0	200.0	281.0	9.9	Peak

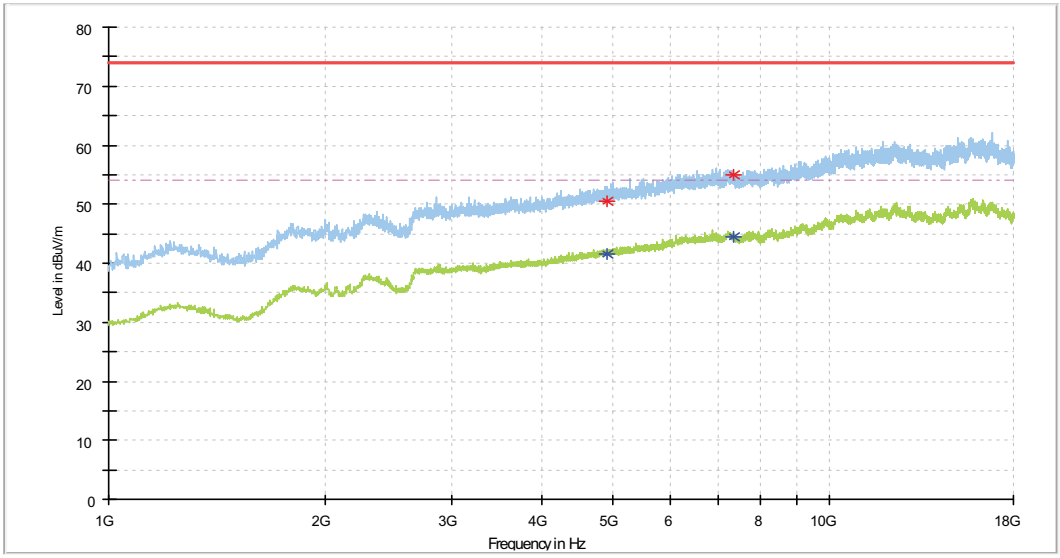
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

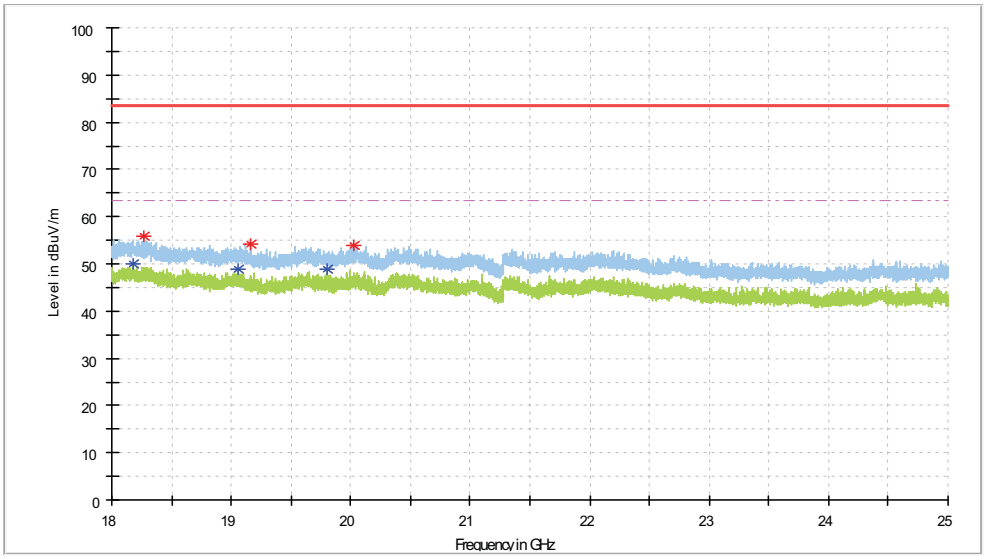
Test Mode	802.11n(HT40)	Channel	CH 9
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4903.200	41.6	54.0	12.4	100.0	279.0	7.0	Avg
2	4904.900	50.6	74.0	23.4	200.0	12.0	7.0	Peak
3	7352.900	44.5	54.0	9.5	100.0	0.0	10.0	Avg
4	7354.600	54.9	74.0	19.1	200.0	330.0	10.0	Peak

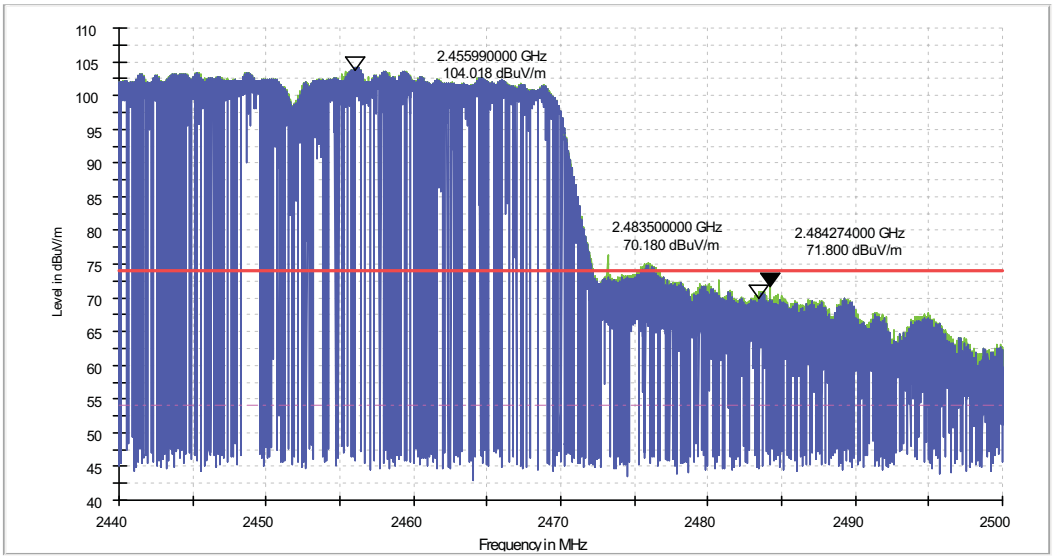
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

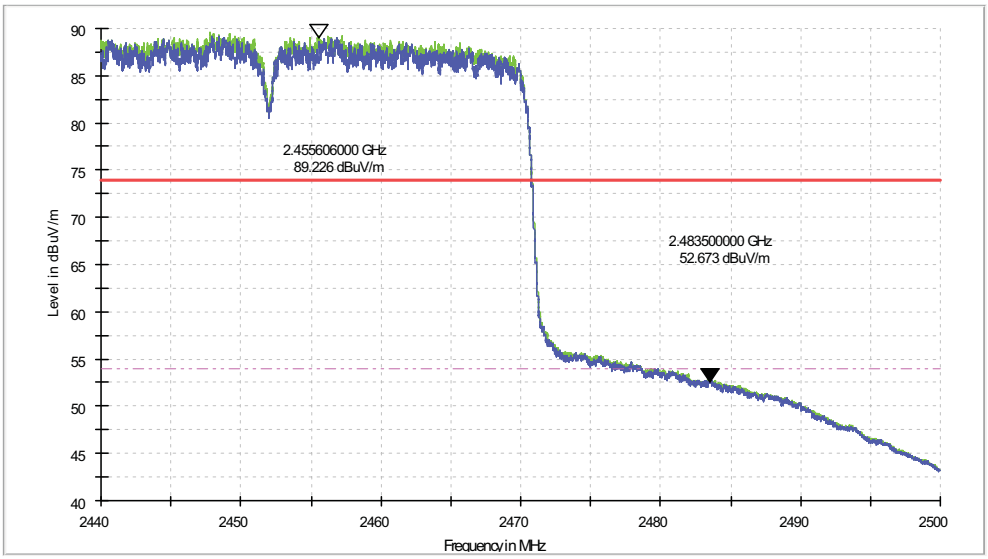
Test Mode	802.11n(HT40)	Channel	CH 9
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



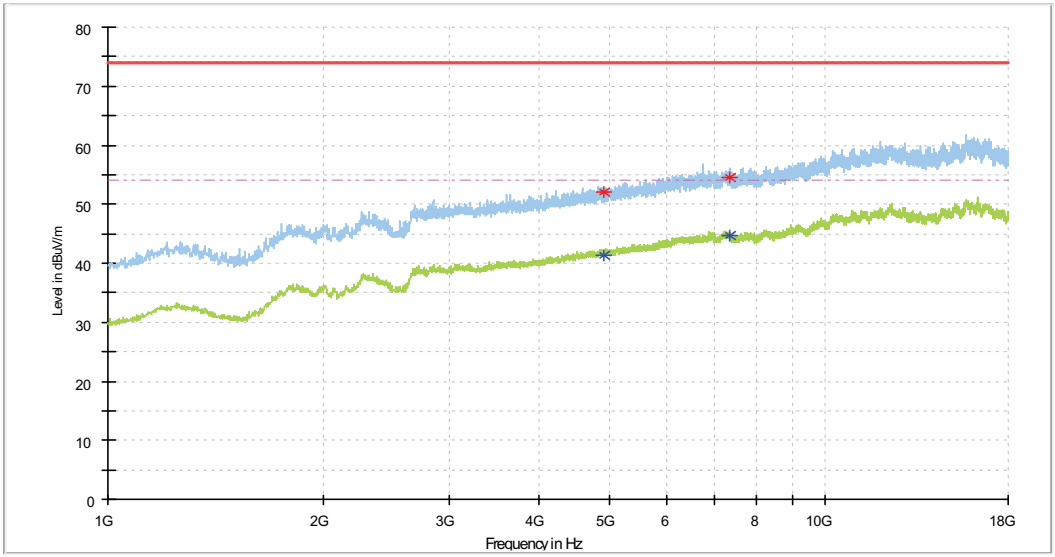
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



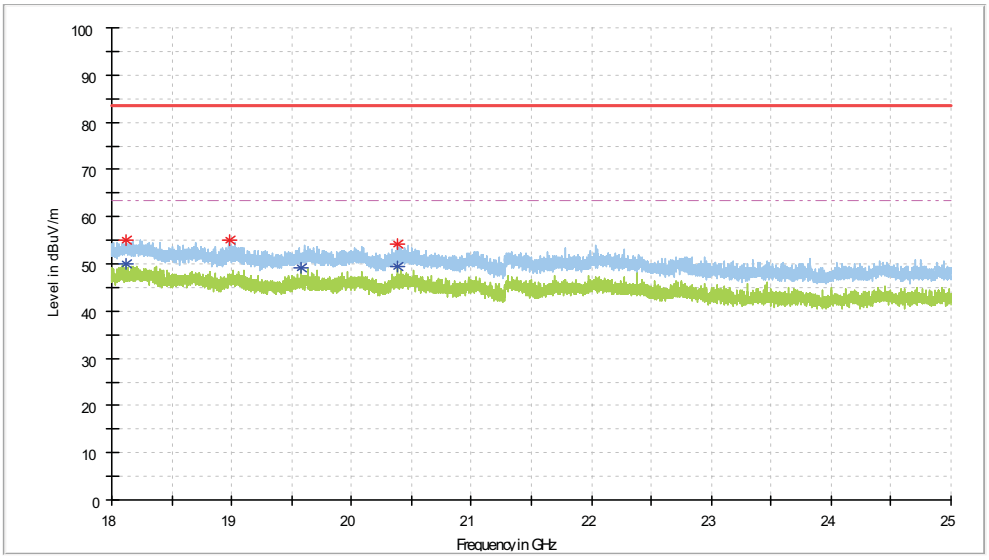
Test Mode	802.11n(HT40)	Channel	CH 9
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4904.900	41.4	54.0	12.6	200.0	96.0	7.0	Avg
2	4904.900	52.0	74.0	22.0	200.0	96.0	7.0	Peak
3	7356.300	44.7	54.0	9.3	200.0	11.0	10.0	Avg
4	7356.300	54.6	74.0	19.4	200.0	11.0	10.0	Peak

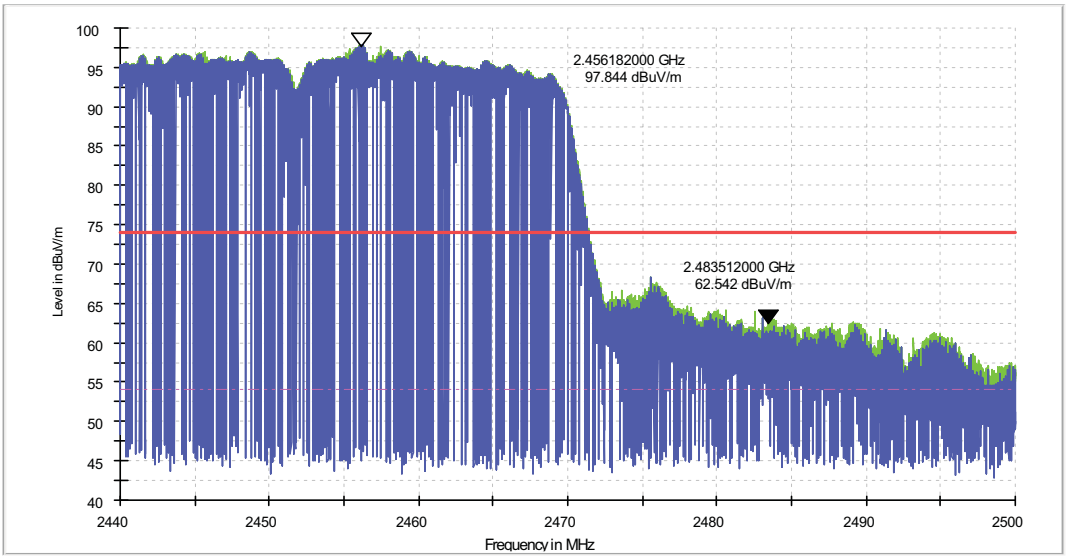
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

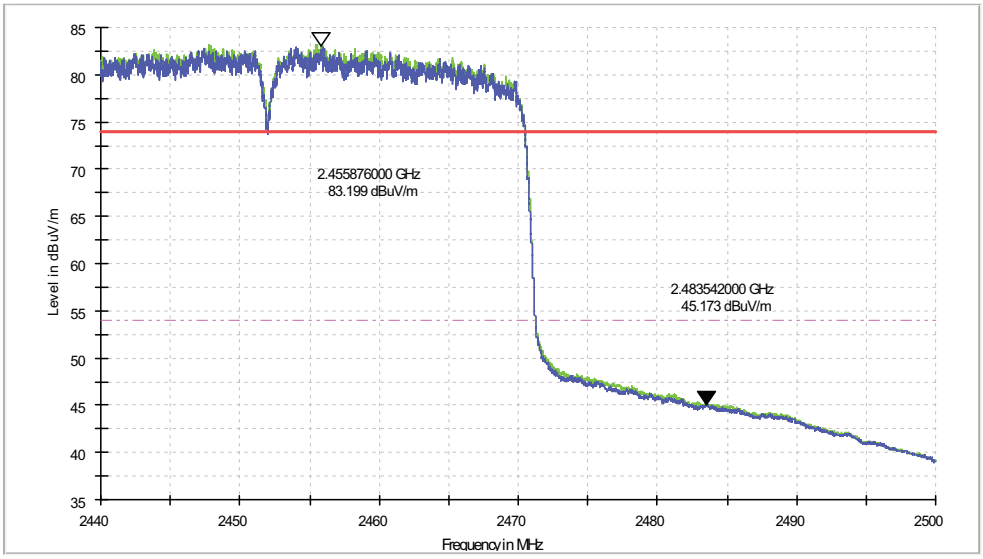
Test Mode	802.11n(HT40)	Channel	CH 9
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2440 MHz-2500MHz



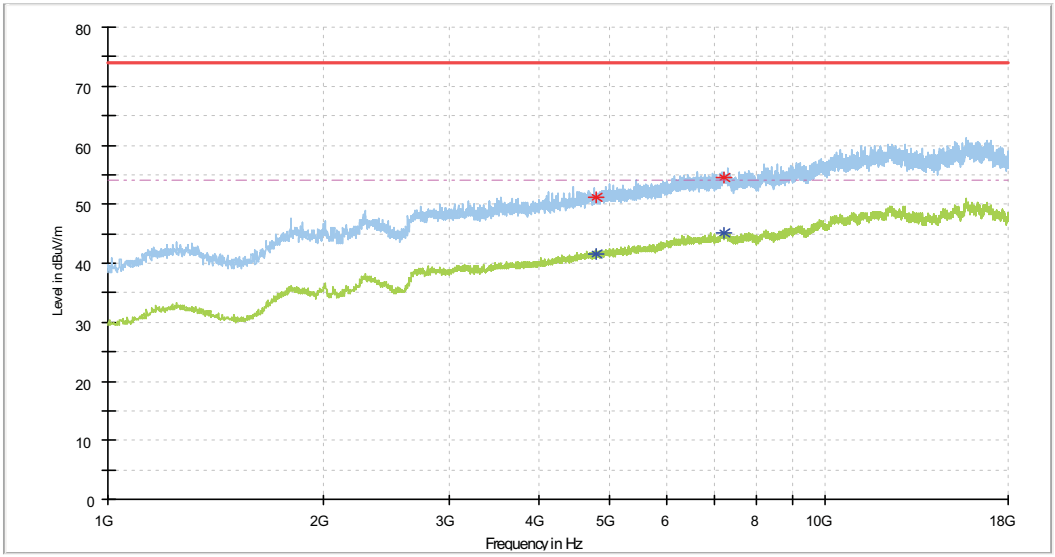
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2440 MHz-2500MHz



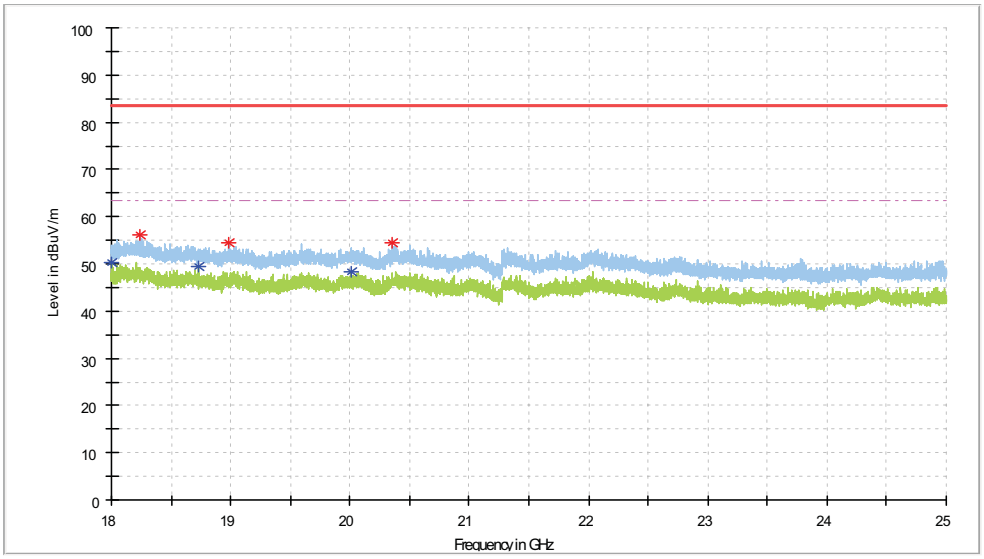
Test Mode	BT-LE (GFSK)	Channel	CH 0
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4804.600	41.6	54.0	12.4	100.0	159.0	6.9	Avg
2	4804.600	51.1	74.0	22.9	100.0	159.0	6.9	Peak
3	7206.700	45.1	54.0	8.9	100.0	320.0	10.3	Avg
4	7206.700	54.6	74.0	19.4	100.0	320.0	10.3	Peak

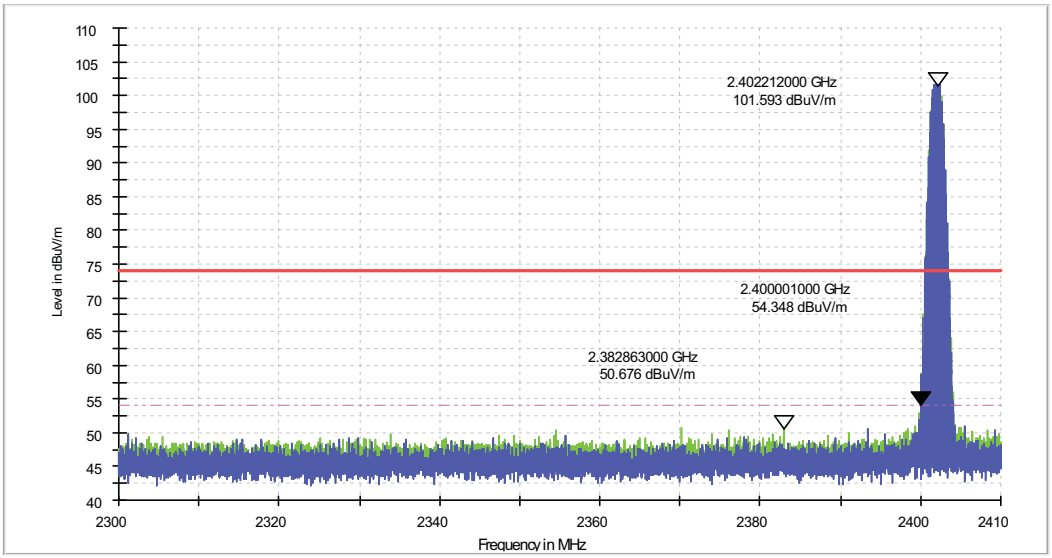
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

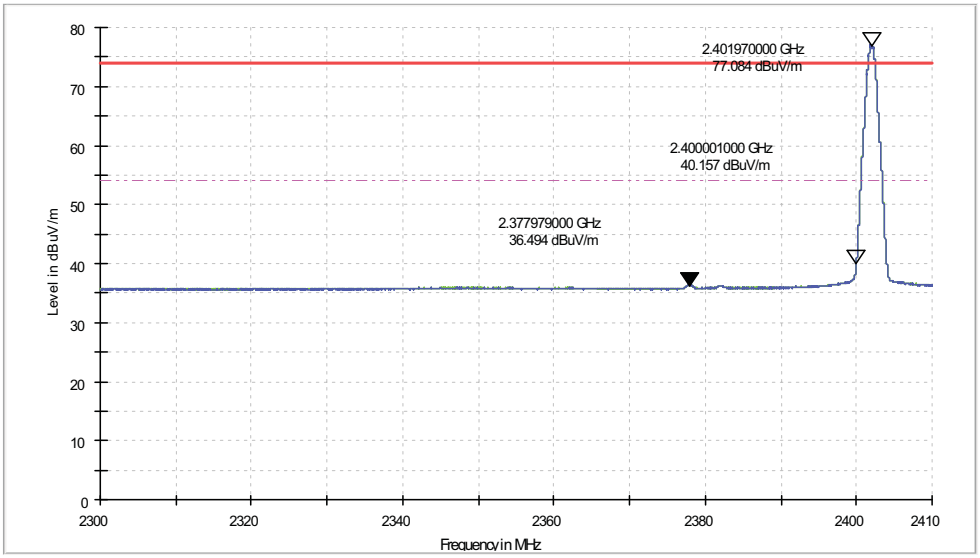
Test Mode	BT-LE (GFSK)	Channel	CH 0
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2410MHz



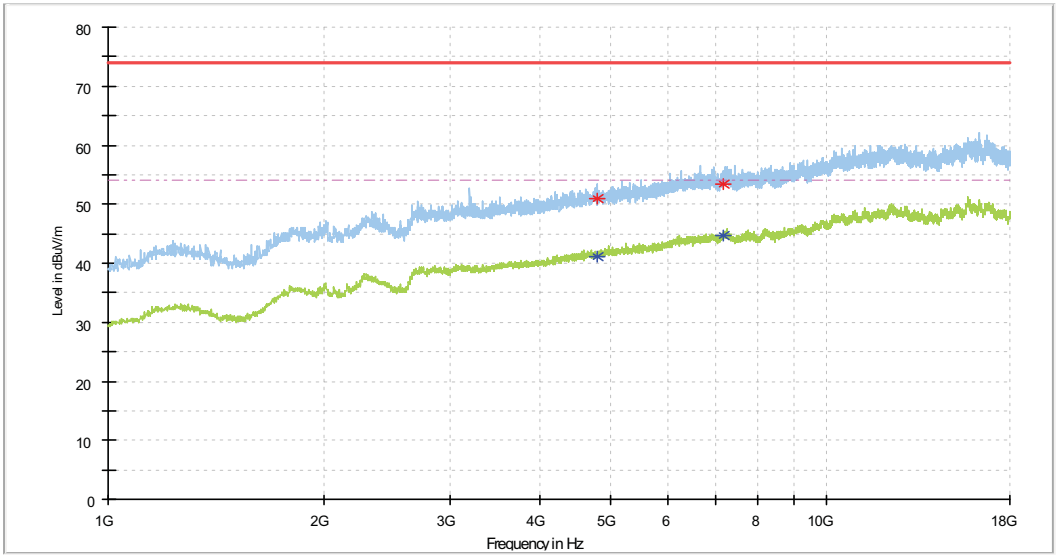
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2410MHz



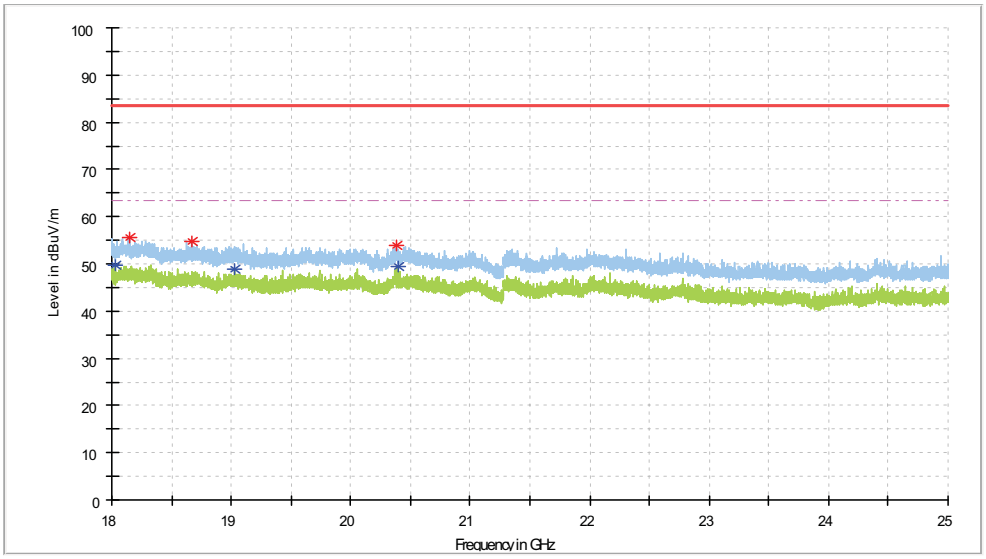
Test Mode	BT-LE (GFSK)	Channel	CH 0
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4804.600	41.2	54.0	12.8	100.0	258.0	6.9	Avg
2	4804.600	51.0	74.0	23.0	100.0	258.0	6.9	Peak
3	7205.000	53.4	74.0	20.6	100.0	138.0	10.3	Peak
4	7205.000	44.7	54.0	9.3	100.0	138.0	10.3	Avg

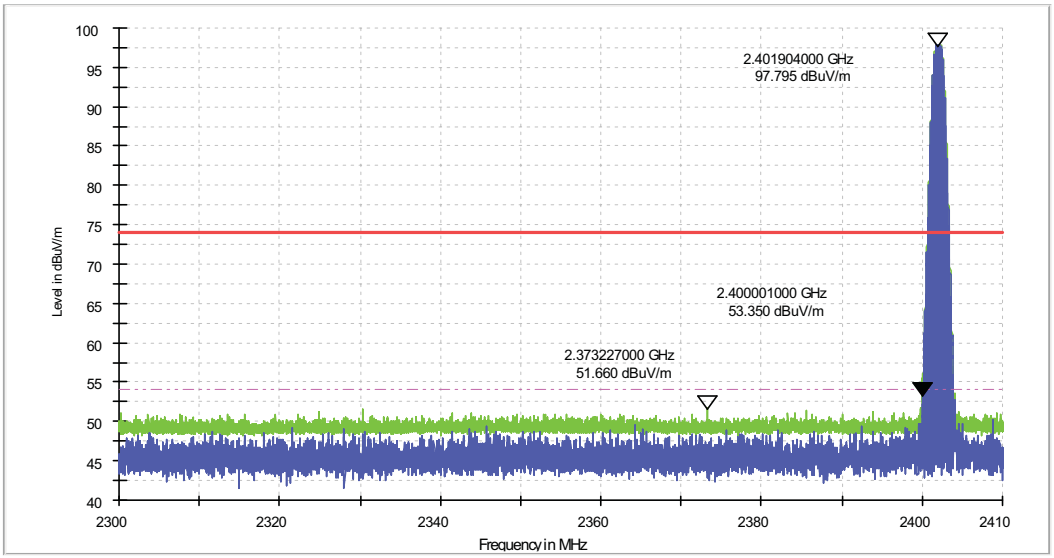
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

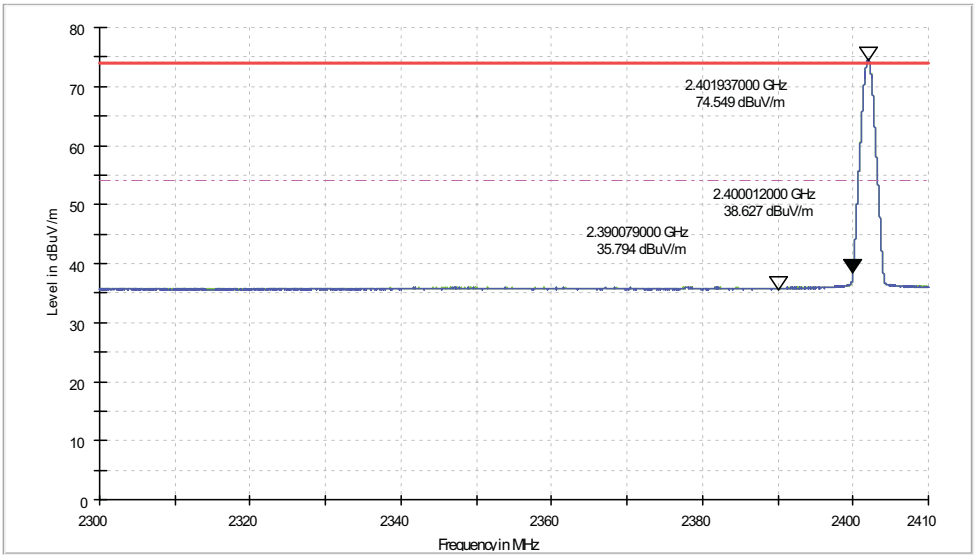
Test Mode	BT-LE (GFSK)	Channel	CH 0
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2300 MHz-2410MHz



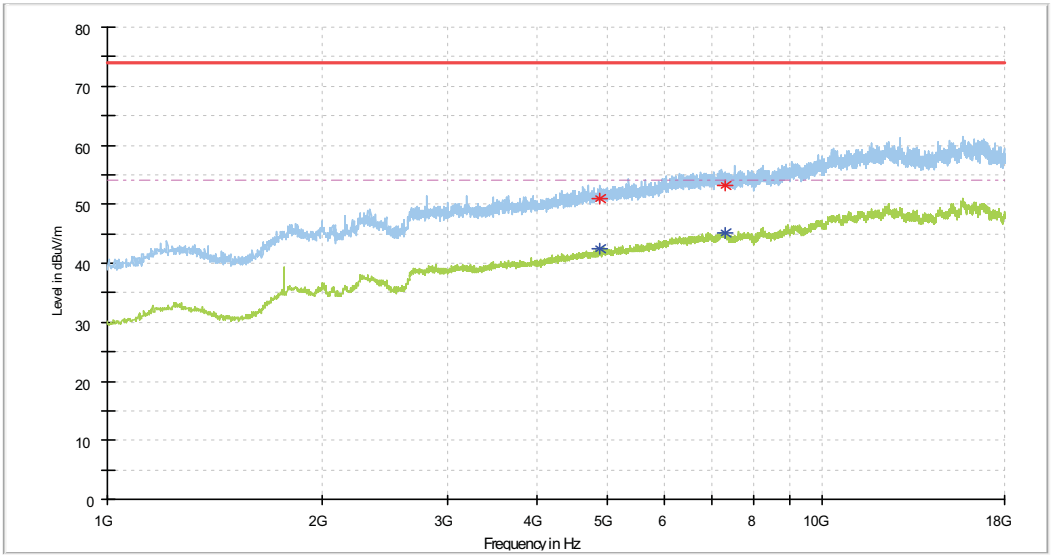
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2300 MHz-2410MHz



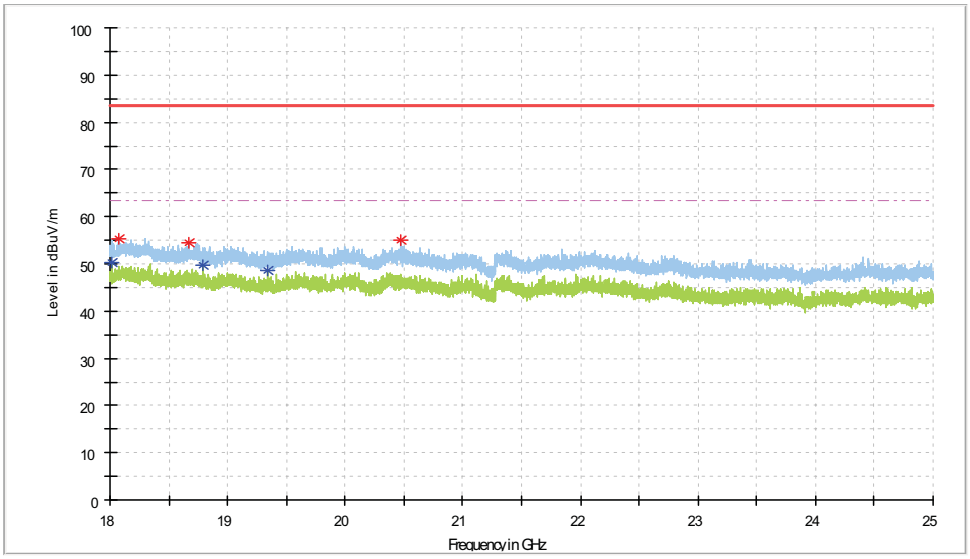
Test Mode	BT-LE (GFSK)	Channel	CH 19
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4879.400	42.5	54.0	11.5	200.0	57.0	6.9	Avg
2	4879.400	51.0	74.0	23.0	200.0	57.0	6.9	Peak
3	7320.600	45.1	54.0	8.9	100.0	156.0	9.9	Avg
4	7320.600	53.2	74.0	20.8	100.0	156.0	9.9	Peak

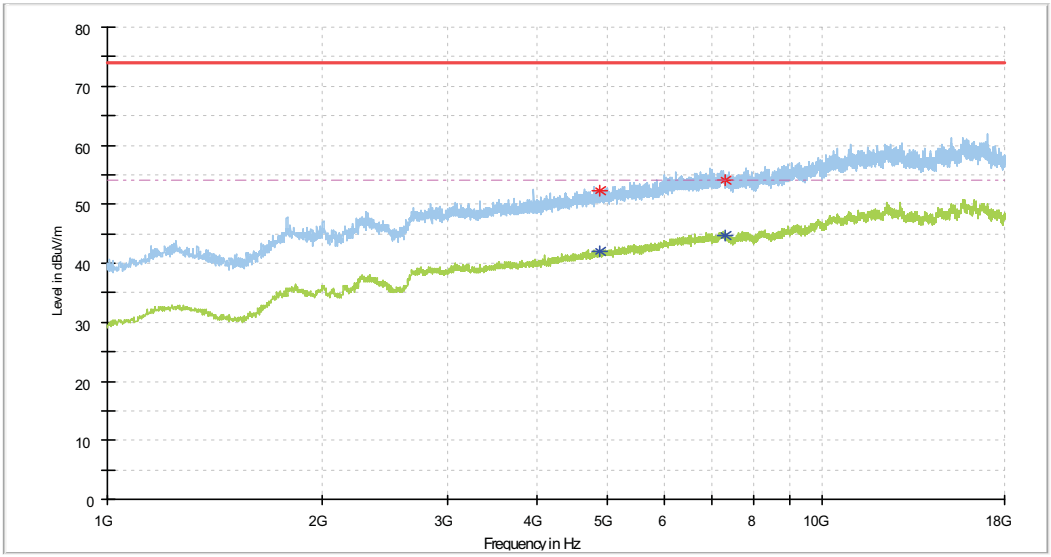
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

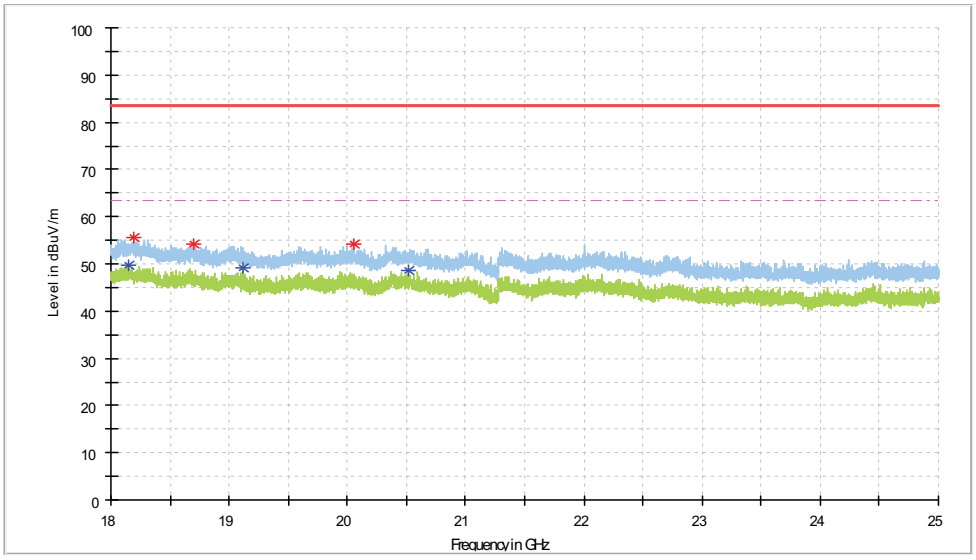
Test Mode	BT-LE (GFSK)	Channel	CH 19
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4879.400	41.9	54.0	12.1	100.0	342.0	6.9	Avg
2	4879.400	52.2	74.0	21.8	100.0	342.0	6.9	Peak
3	7320.600	44.6	54.0	9.4	100.0	211.0	9.9	Avg
4	7320.600	54.1	74.0	19.9	100.0	211.0	9.9	Peak

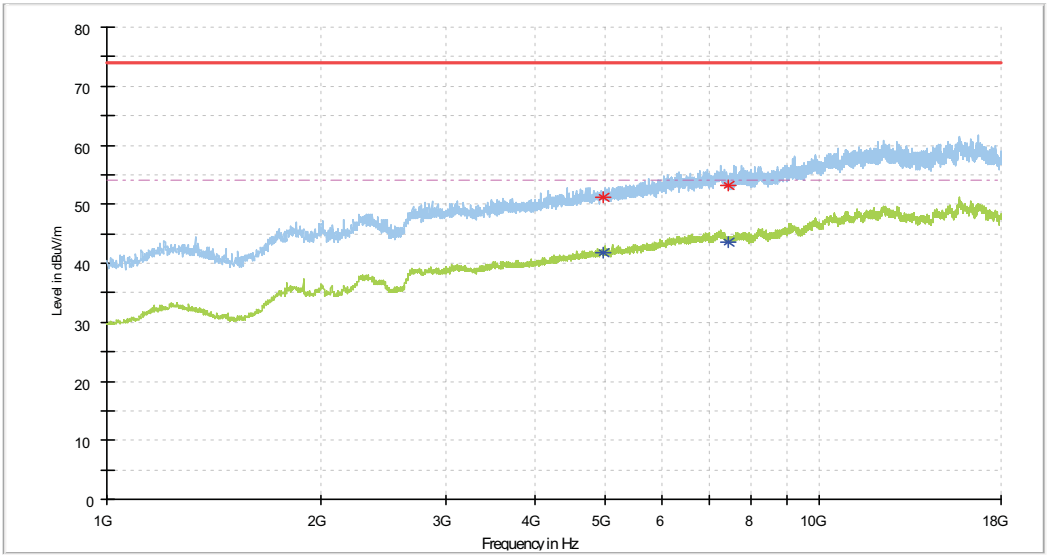
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

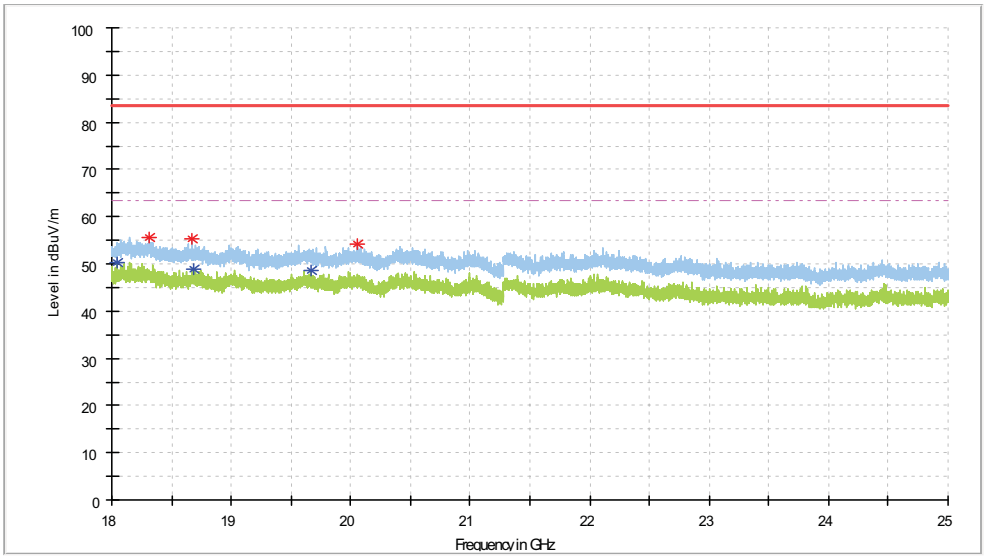
Test Mode	BT-LE (GFSK)	Channel	CH 39
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4961.000	41.8	54.0	12.2	100.0	65.0	7.0	Avg
2	4961.000	51.2	74.0	22.8	200.0	218.0	7.0	Peak
3	7441.300	43.6	54.0	10.4	100.0	272.0	9.9	Avg
4	7441.300	53.1	74.0	20.9	100.0	272.0	9.9	Peak

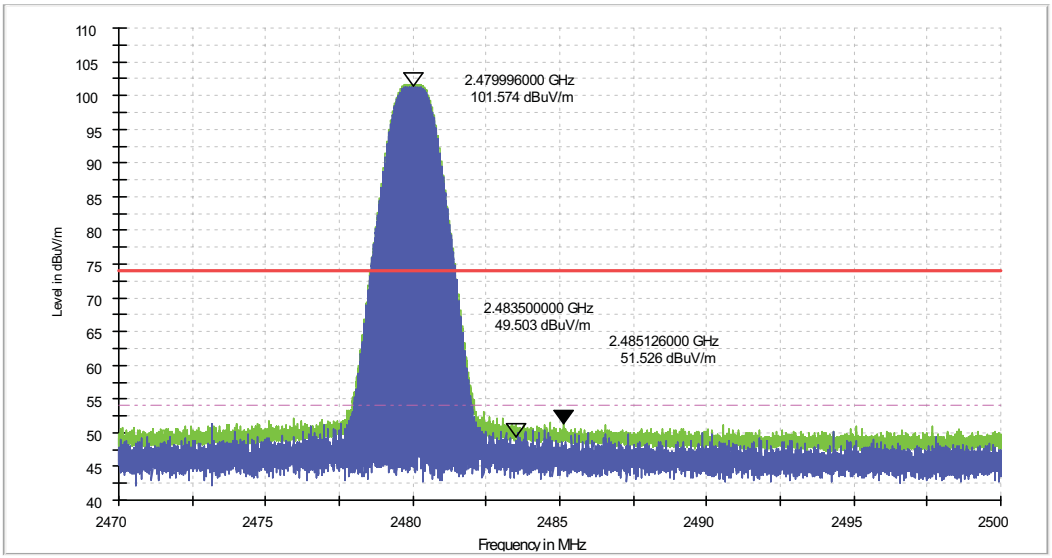
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

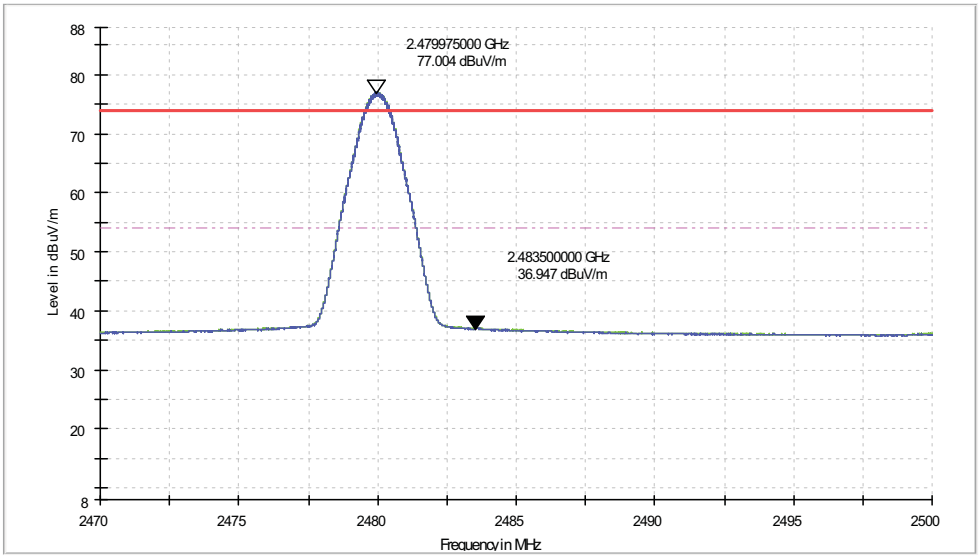
Test Mode	BT-LE (GFSK)	Channel	CH 39
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Peak (PK)

Test frequency range :2470 MHz-2500MHz



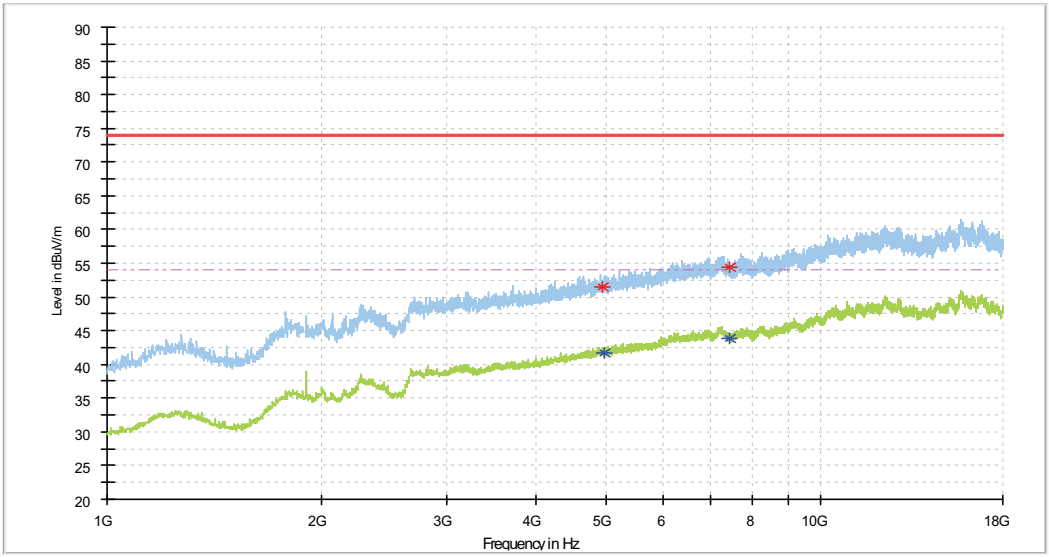
Antenna Polarity & Test Distance	Horizontal at 3m	Detector Function	Average (AV)

Test frequency range :2470 MHz-2500MHz



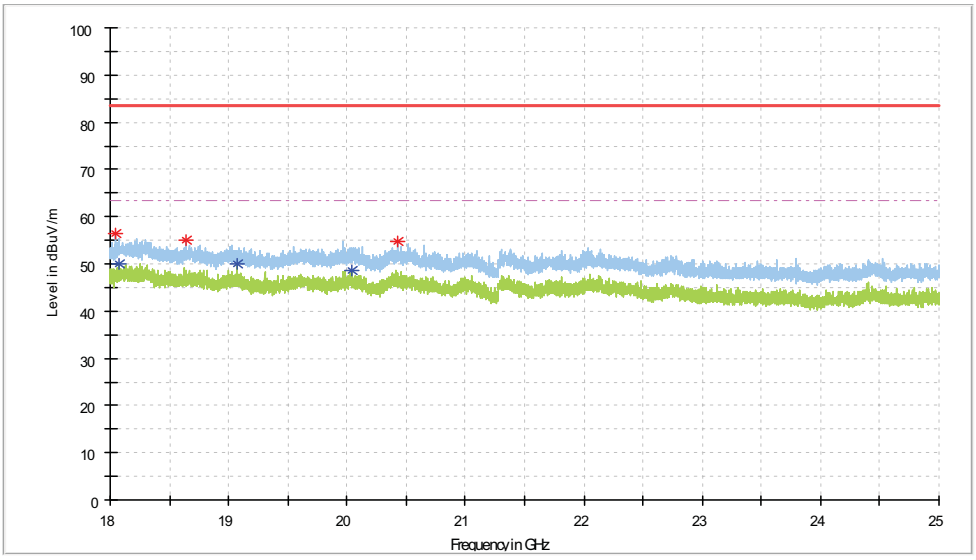
Test Mode	BT-LE (GFSK)	Channel	CH 39
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK) Average (AV)

Test frequency range :1G-18G



NO.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Remark
1	4959.300	51.5	74.0	22.5	200.0	215.0	7.0	Peak
2	4961.000	41.7	54.0	12.3	200.0	12.0	7.0	Avg
3	7441.300	43.9	54.0	10.1	100.0	236.0	9.9	Avg
4	7441.300	54.4	74.0	19.6	100.0	236.0	9.9	Peak

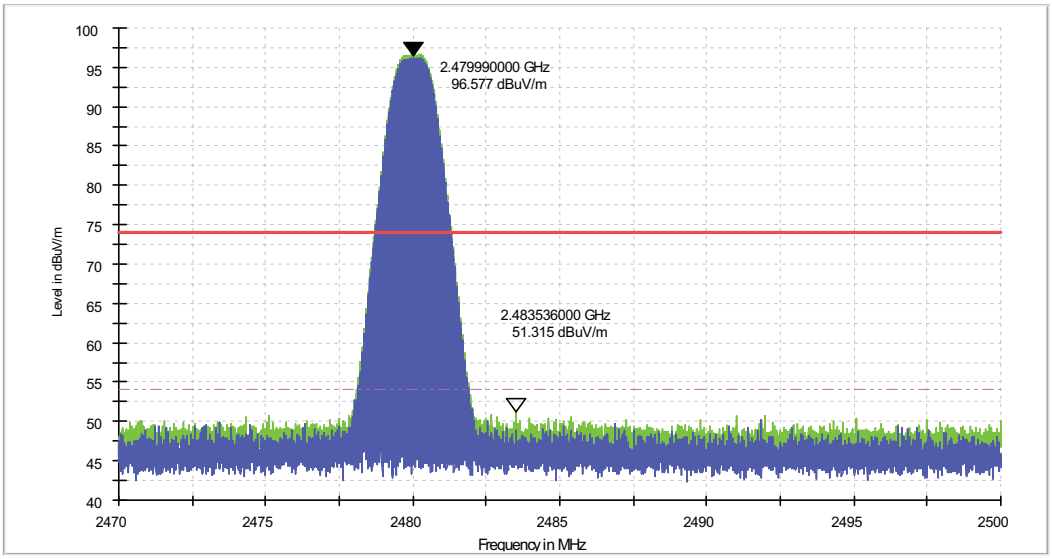
Test frequency range :18G-25G



Remark: The emission levels of other frequencies were greater than 10dB margin.

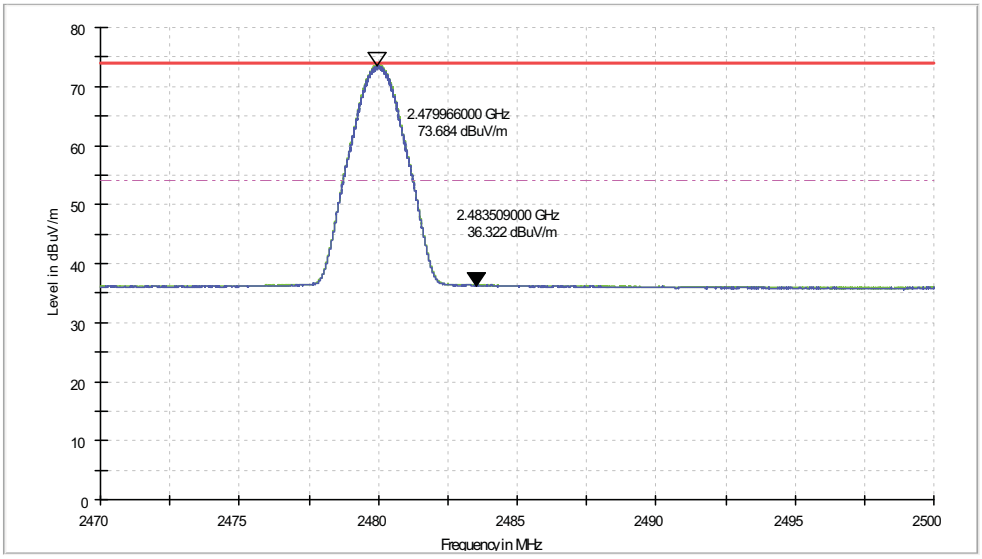
Test Mode	BT-LE (GFSK)	Channel	CH 39
Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Peak (PK)

Test frequency range :2470 MHz-2500MHz



Antenna Polarity & Test Distance	Vertical at 3m	Detector Function	Average (AV)

Test frequency range :2470 MHz-2500MHz



3.3 6dB BANDWIDTH MEASUREMENT

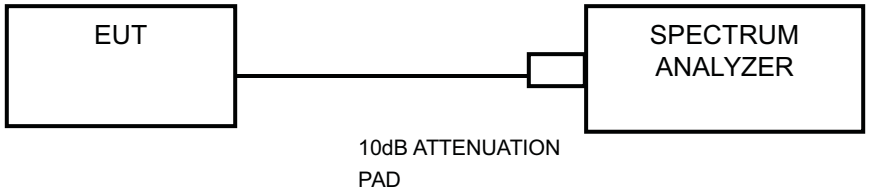
3.3.1 Limits

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 Measurement procedure

a. Set resolution bandwidth (RBW) = 100KHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associatedwith the two amplitude points (upper and lower) that are attenuated by 6 dB relative to themaximum level measured in the fundamental emission.

3.3.3 Test setup

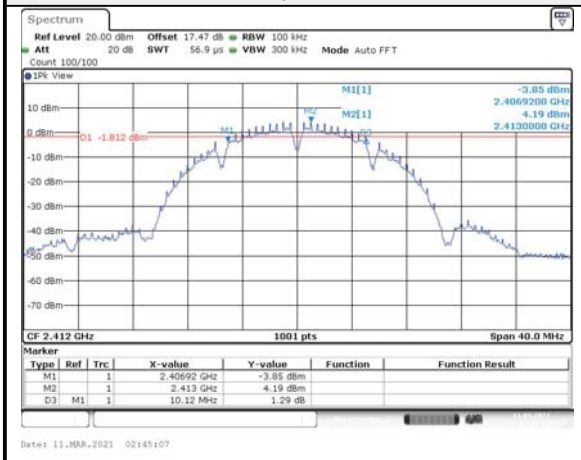


3.3.4 Test result

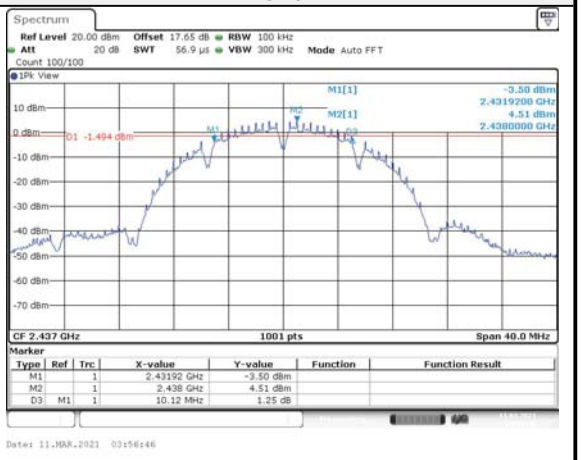
802.11b

Channel	Channel Frequency (MHz)	6dB BANDWIDTH (MHz)	Measured Frequencies		MINIMUM LIMIT (MHz)	Verdict
			FL (MHz)	FH (MHz)		
1	2412	10.120	2406.920	2417.040	0.5	PASS
6	2437	10.120	2431.920	2442.040	0.5	PASS
11	2462	10.120	2456.920	2467.040	0.5	PASS

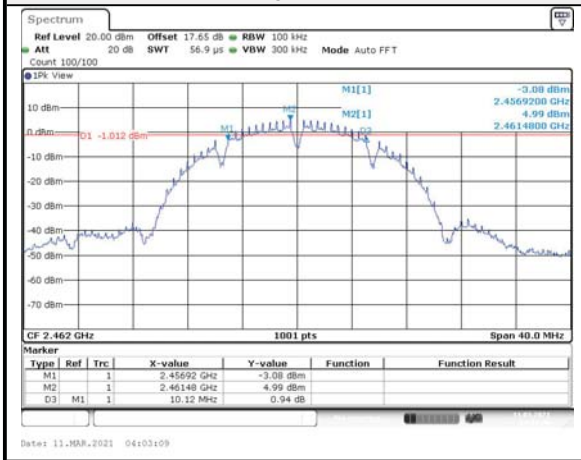
CH1



CH6



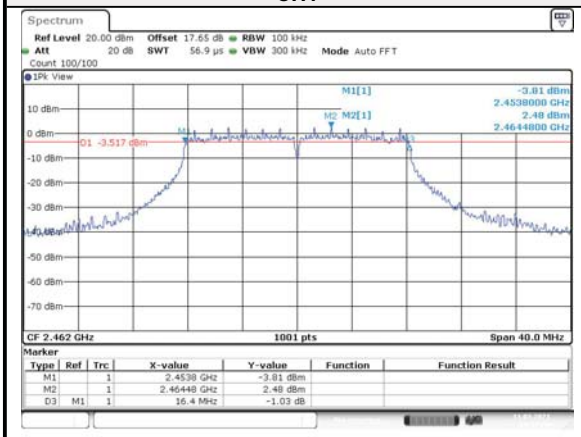
CH11



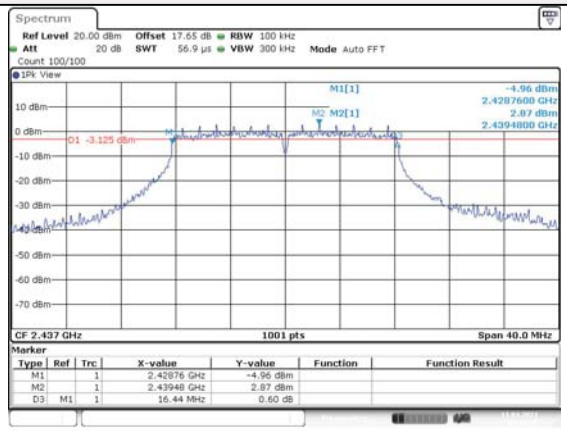
802.11g

Channel	Channel Frequency (MHz)	6dB BANDWIDTH (MHz)	Measured Frequencies			Verdict
			FL (MHz)	FH (MHz)	MINIMUM LIMIT (MHz)	
1	2412	16.400	2403.800	2420.200	0.5	PASS
6	2437	16.440	2428.760	2445.200	0.5	PASS
11	2462	16.400	2453.800	2470.200	0.5	PASS

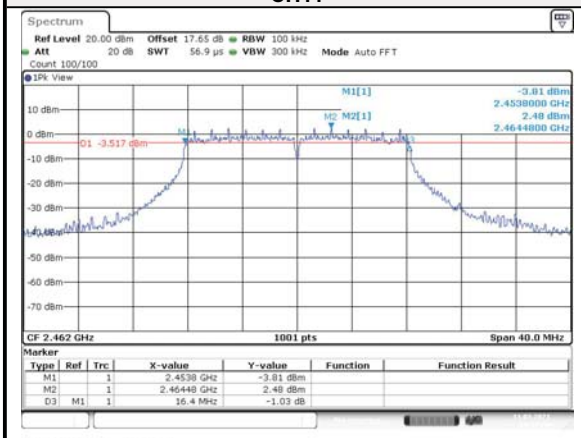
CH1



CH6



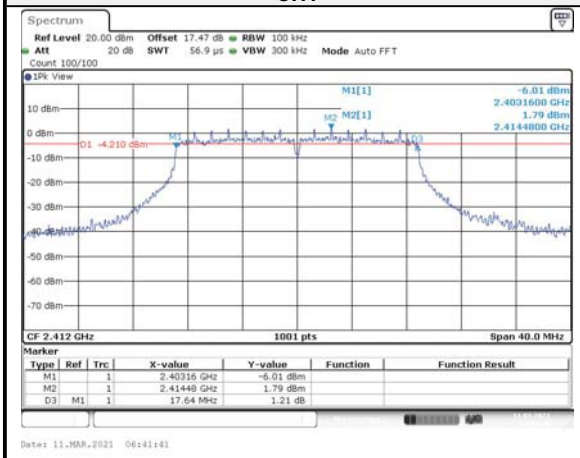
CH11



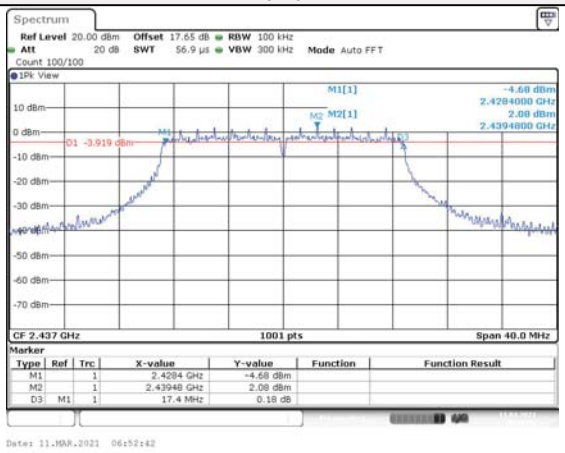
802.11n(HT20)

Channel	Channel Frequency (MHz)	6dB BANDWIDTH (MHz)	Measured Frequencies			Verdict
			FL (MHz)	FH (MHz)	MINIMUM LIMIT (MHz)	
1	2412	17.640	2403.160	2420.800	0.5	PASS
6	2437	17.400	2428.400	2445.800	0.5	PASS
11	2462	17.600	2453.200	2470.800	0.5	PASS

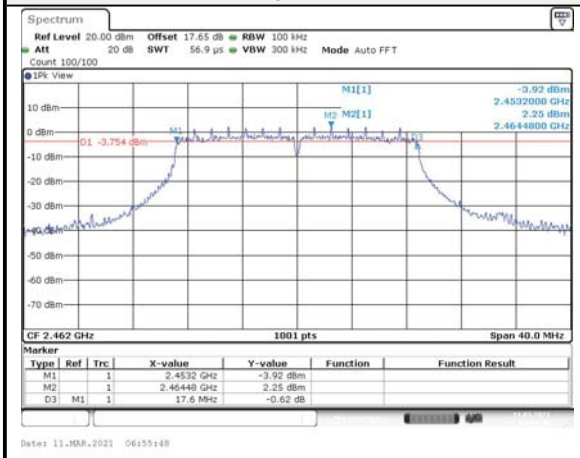
CH1



CH6



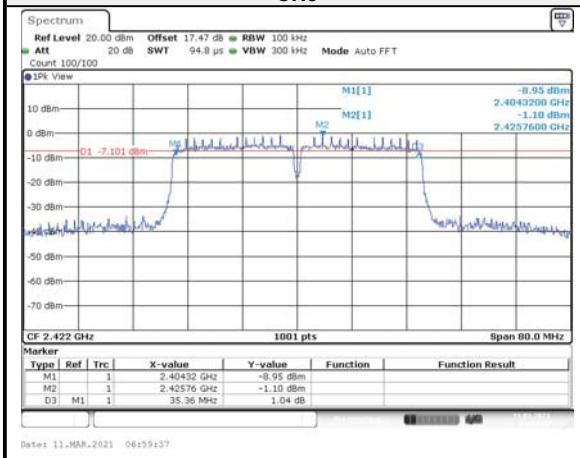
CH11



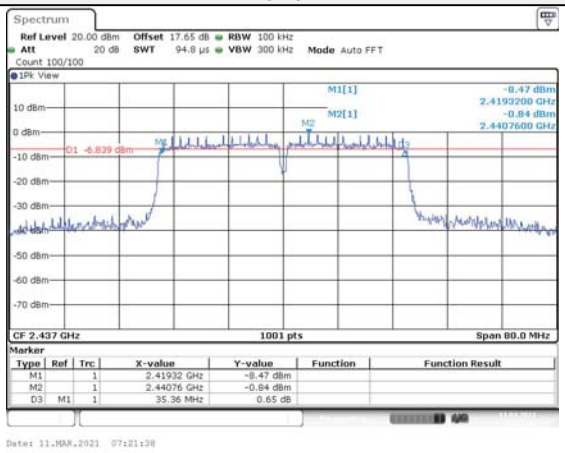
802.11n(HT40)

Channel	Channel Frequency (MHz)	6dB BANDWIDTH (MHz)	Measured Frequencies			Verdict
			FL (MHz)	FH (MHz)	MINIMUM LIMIT (MHz)	
3	2422	35.360	2404.320	2439.680	0.5	PASS
6	2437	35.360	2419.320	2454.680	0.5	PASS
9	2452	35.520	2434.320	2469.840	0.5	PASS

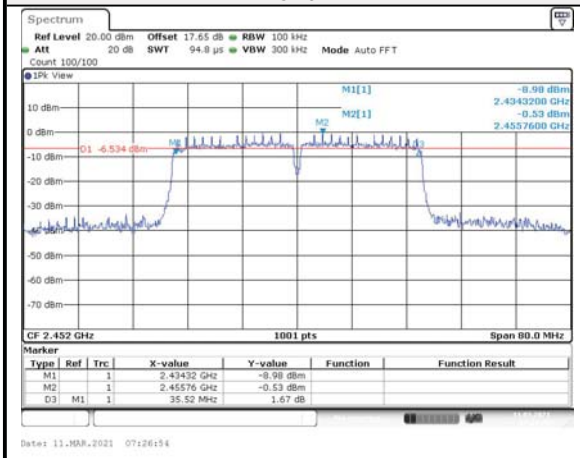
CH3



CH6



CH9



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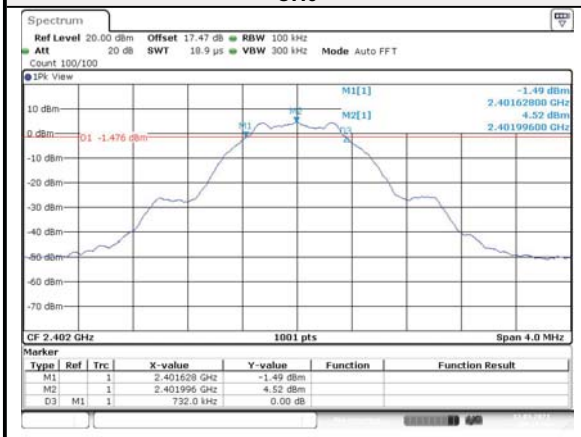
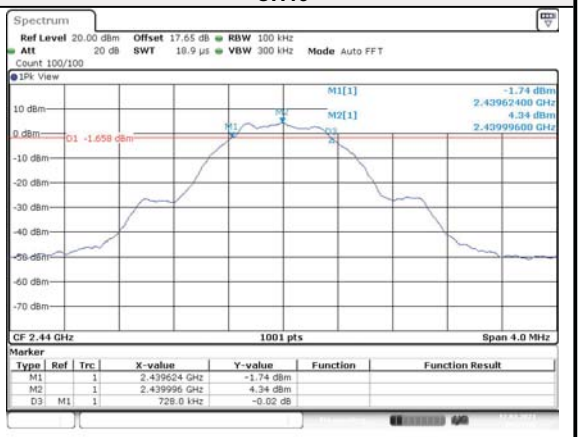
BT-LE (GFSK)

Channel	Channel Frequency (MHz)	6dB BANDWIDTH (MHz)	Measured Frequencies			Verdict
			FL (MHz)	FH (MHz)	MINIMUM LIMIT (MHz)	
0	2402	0.732	2401.628	2402.360	0.5	PASS
19	2440	0.728	2439.624	2440.352	0.5	PASS
39	2480	0.724	2479.636	2480.360	0.5	PASS

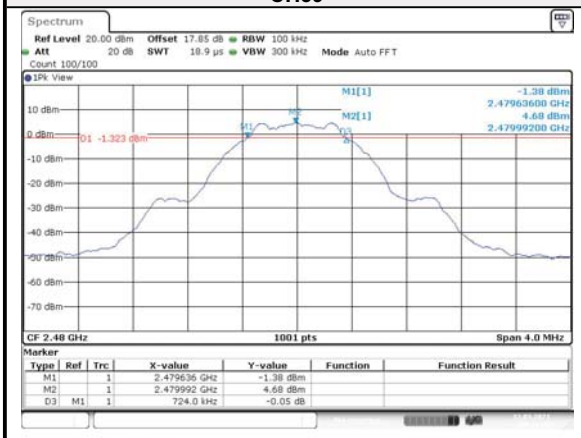
CH0



CH19



CH39



3.4 CONDUCTED OUTPUT POWER

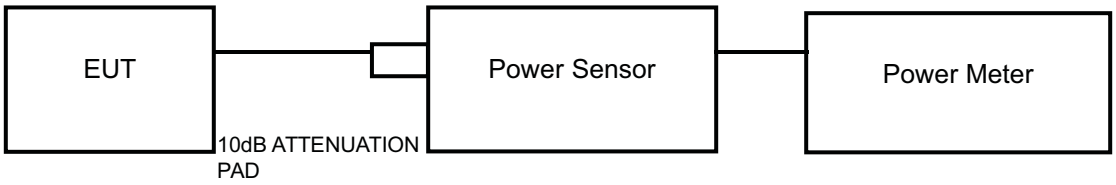
3.4.1 Limits

Forsystems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm).

3.4.2 Measurement procedure

a. A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor and set the detector to PEAK. Record the power level.
b. Anaverage power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power senso and set the detector to AVERAGE. Record the power level.

3.4.3 Test setup



3.4.4 Test result

MAXIMUM PEAK OUTPUT POWER

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	VERDICT
802.11b					
1	2412	16.51	44.77	1	PASS
6	2437	16.32	42.85	1	PASS
11	2462	16.5	44.67	1	PASS
802.11g					
1	2412	21.53	142.23	1	PASS
6	2437	22.06	160.69	1	PASS
11	2462	21.79	151.01	1	PASS
802.11n(HT20)					
1	2412	21.06	127.64	1	PASS
6	2437	21.52	141.91	1	PASS
11	2462	21.68	147.23	1	PASS
802.11n(HT40)					
3	2422	21.51	141.58	1	PASS
6	2437	21.82	152.05	1	PASS
9	2452	21.71	148.25	1	PASS
BT-LE (GFSK)					
0	2402	6.67	4.65	1	PASS
19	2440	6.92	4.92	1	PASS
39	2480	7.21	5.26	1	PASS

Average Output Power (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

CHANNEL	CHANNEL FREQUENCY(MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
802.11b			
1	2412	13.28	21.28
6	2437	13.21	20.94
11	2462	13.47	22.23
802.11g			
1	2412	13.49	22.34
6	2437	14.13	25.88
11	2462	14.09	25.64
802.11n(HT20)			
1	2412	13.26	21.18
6	2437	13.59	22.86
11	2462	13.87	24.38
802.11n(HT40)			
3	2422	13.26	21.18
6	2437	13.54	22.59
9	2452	13.44	22.08
BT-LE (GFSK)			
0	2402	3.09	2.04
19	2440	3.17	2.07
39	2480	3.65	2.32

3.5 POWER SPECTRAL DENSITY MEASUREMENT

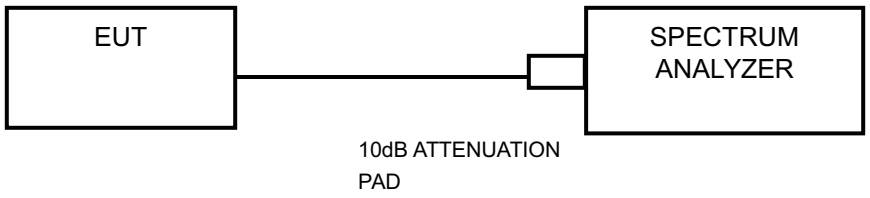
3.5.1 Limits

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

3.5.2 Measurement procedure

a. Set instrument center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set RBW to: 3KHz
d. Set VBW ≥3 x RBW.
e. Detector = peak
f. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g. Sweep time = auto couple.
h. Use the peak marker function to determine the maximum amplitude level.

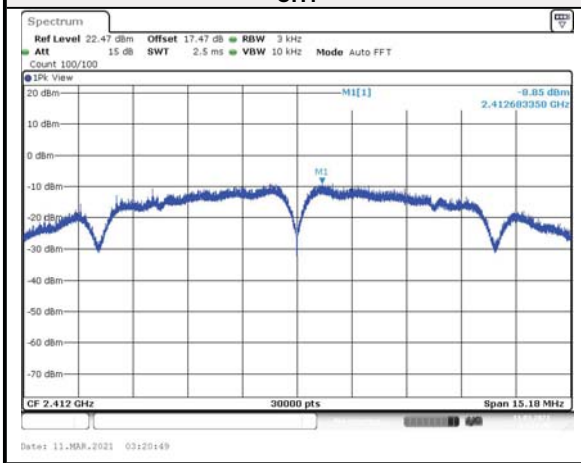
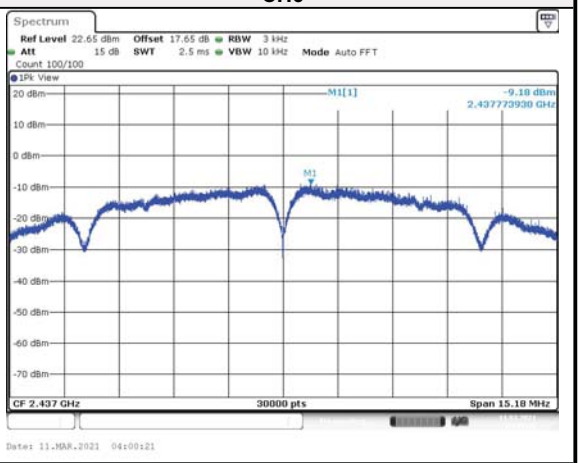
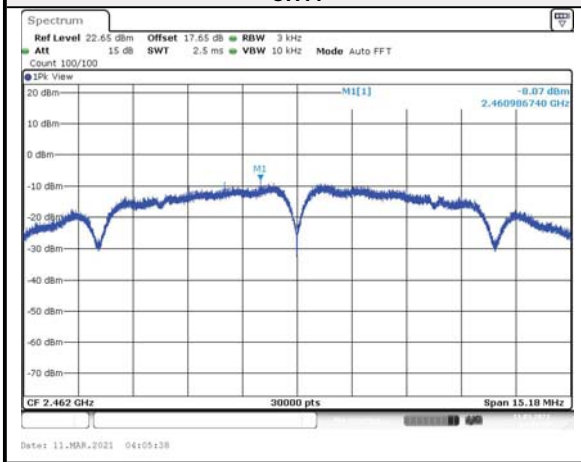
3.5.3 Test setup



3.5.4 Test result

802.11b

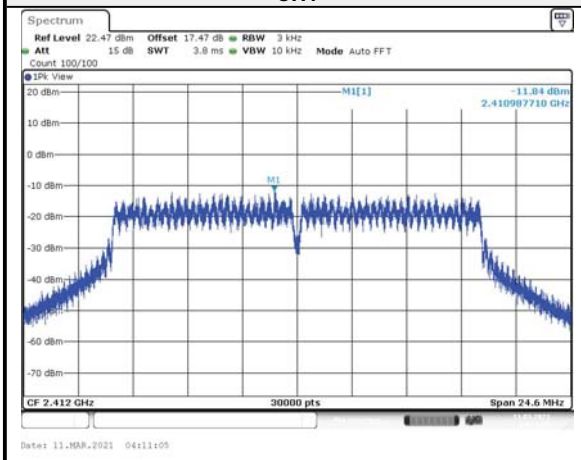
CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	VERDICT
1	2412	-8.85	8	PASS
6	2437	-9.18	8	PASS
11	2462	-8.07	8	PASS

CH1	CH6
	
CH11	
	

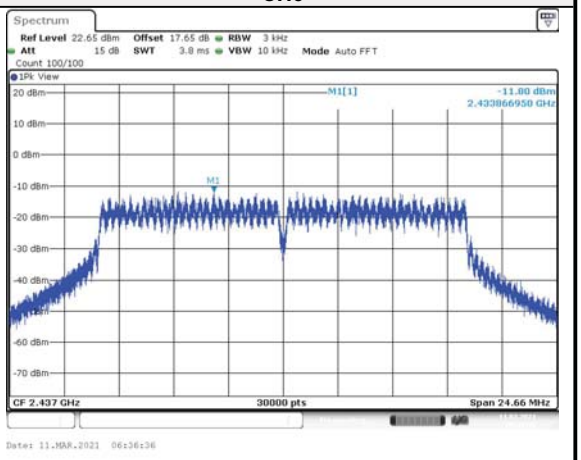
802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	VERDICT
1	2412	-11.84	8	PASS
6	2437	-11.8	8	PASS
11	2462	-11.06	8	PASS

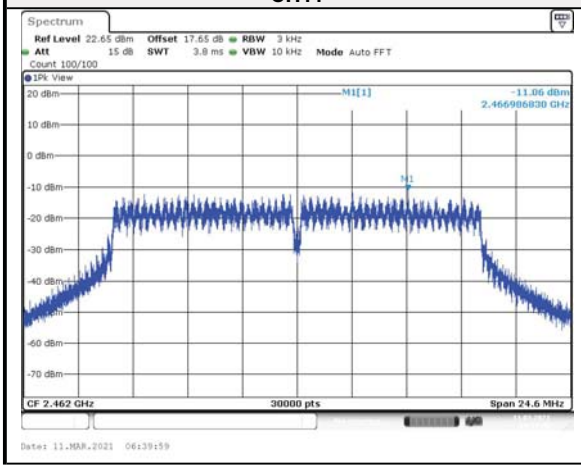
CH1



CH6



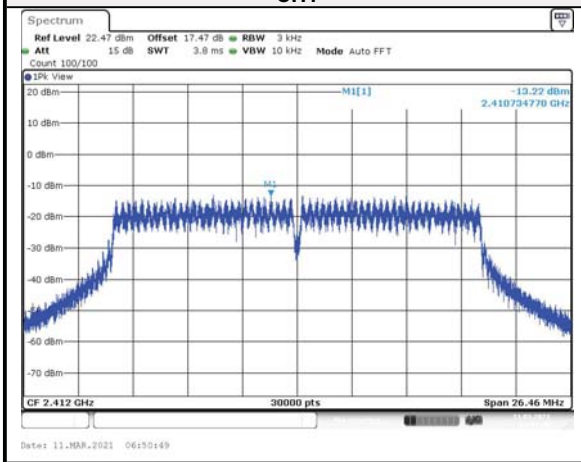
CH11



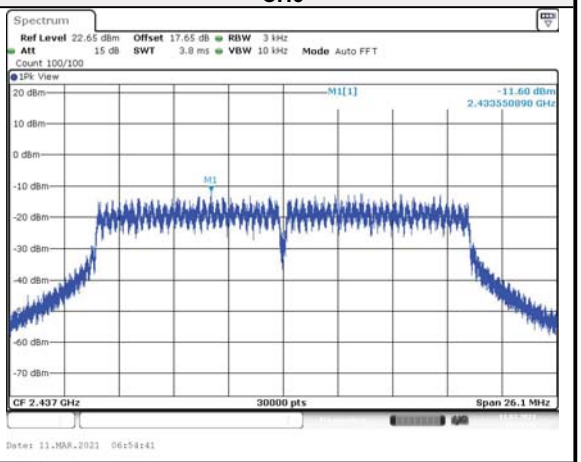
802.11n(HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	VERDICT
1	2412	-13.22	8	PASS
6	2437	-11.6	8	PASS
11	2462	-11.72	8	PASS

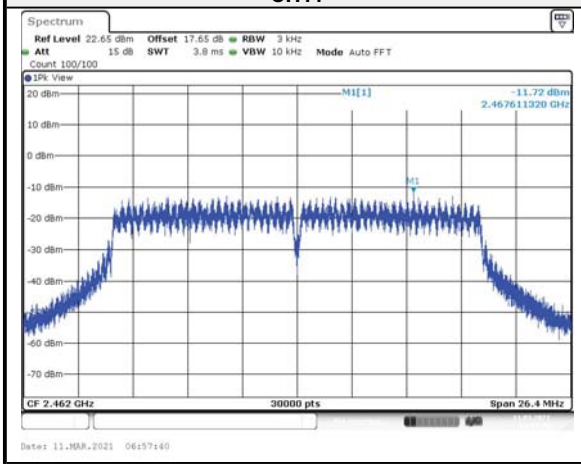
CH1



CH6



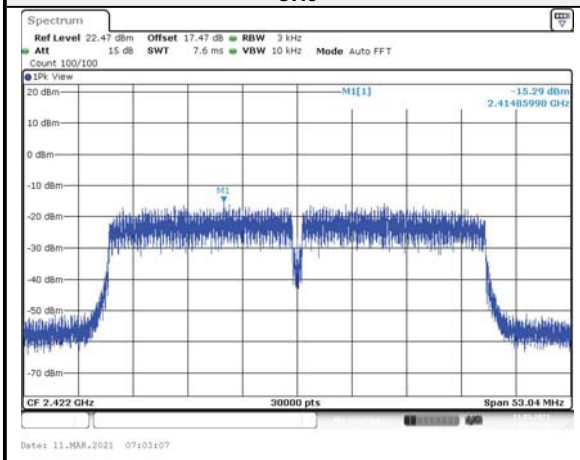
CH11



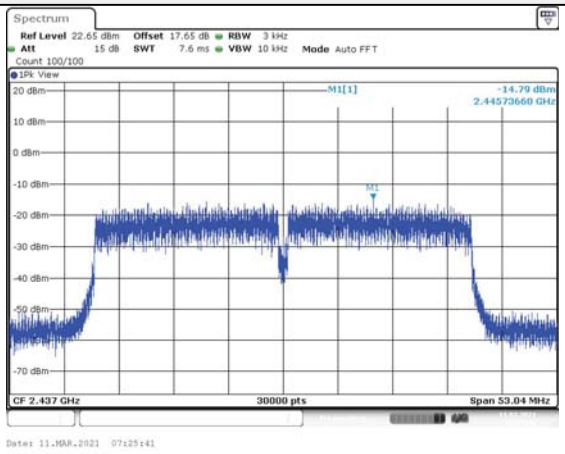
802.11n(HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	VERDICT
3	2422	-15.29	8	PASS
6	2437	-14.79	8	PASS
9	2452	-15.32	8	PASS

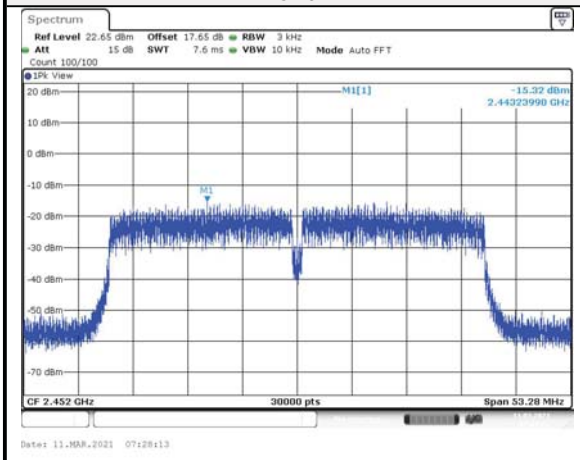
CH3



CH6



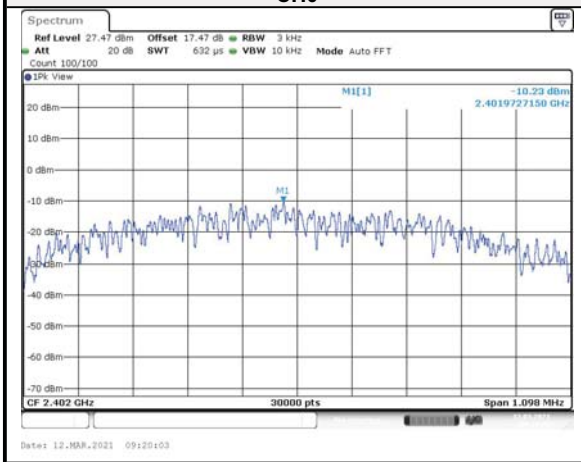
CH9



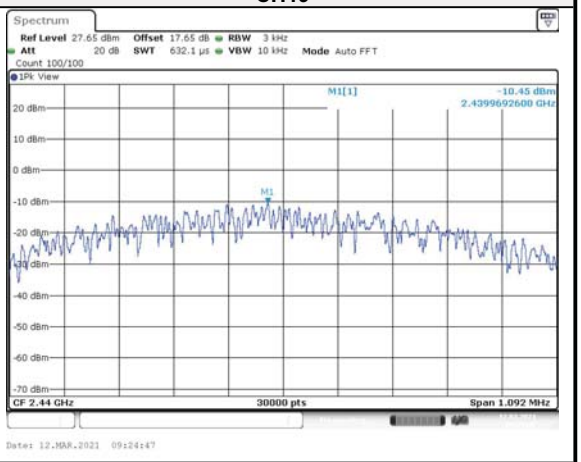
BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	VERDICT
0	2402	-10.23	8	PASS
19	2440	-10.45	8	PASS
39	2480	-10.55	8	PASS

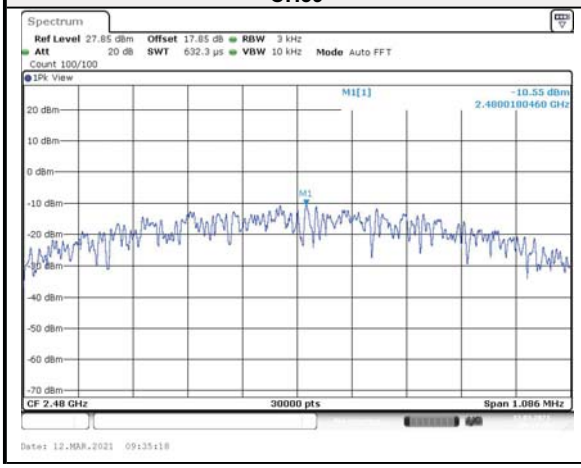
CH0



CH19



CH39



3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 Limits

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 Measurement procedure

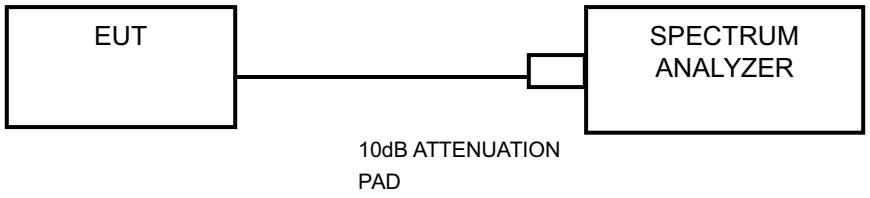
Measurement Procedure -Reference Level

a. Set the RBW = 100 kHz.
b. Set the VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep time = auto couple.
e. Trace mode = max hold.
f. Allow trace to fully stabilize.
g. Use the peak marker function to determine the maximum power level in any 100 kHzband segment within the fundamental EBW.

Measurement Procedure –Unwanted Emission Level

a. Set RBW = 100 kHz.
b. Set VBW ≥ 300 kHz.
c. Set span to encompass the spectrum to be examined
d. Detector = peak.
e. Trace Mode = max hold.
f. Sweep = auto couple.

3.6.3 Test setup

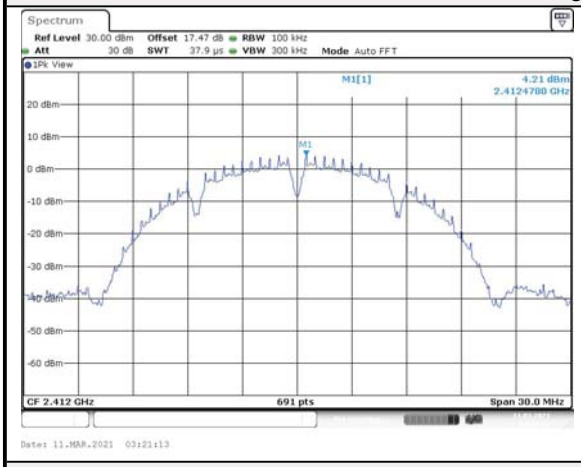


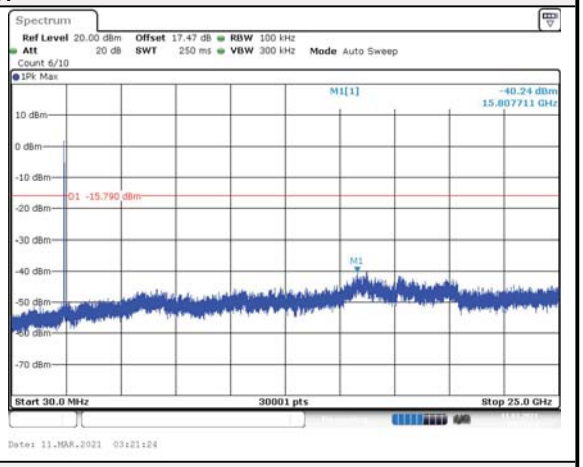
3.6.4 Test result

Conducted Spurious Emission

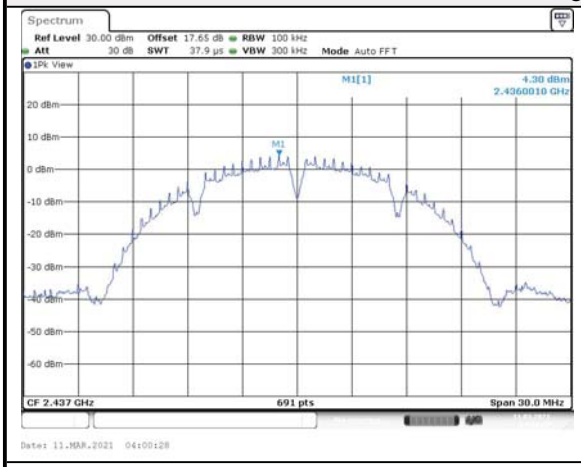
802.11b

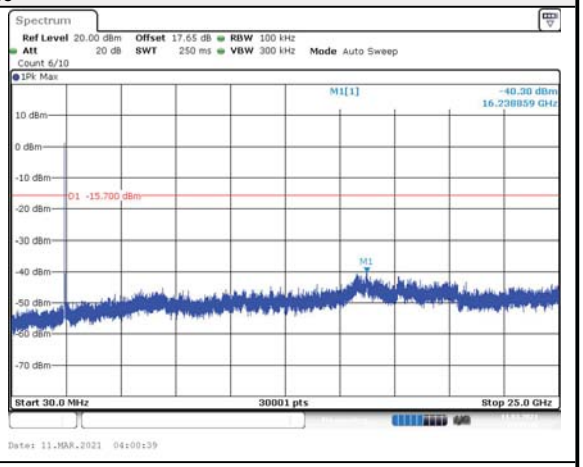
CH1





CH6





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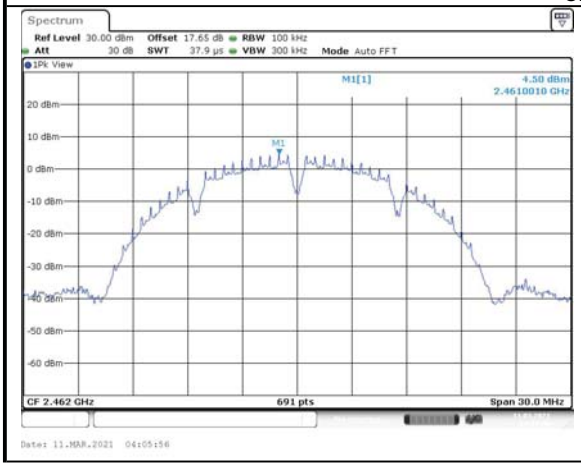
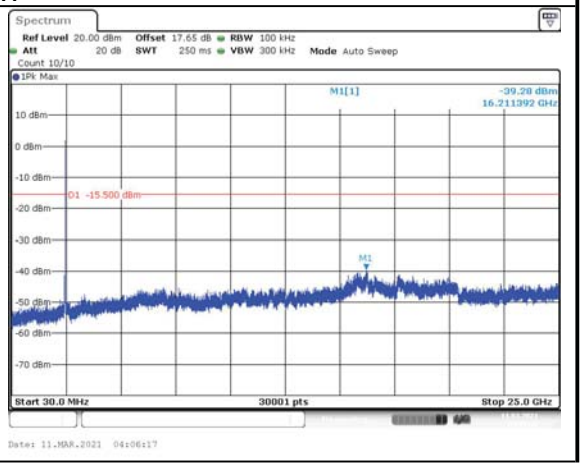
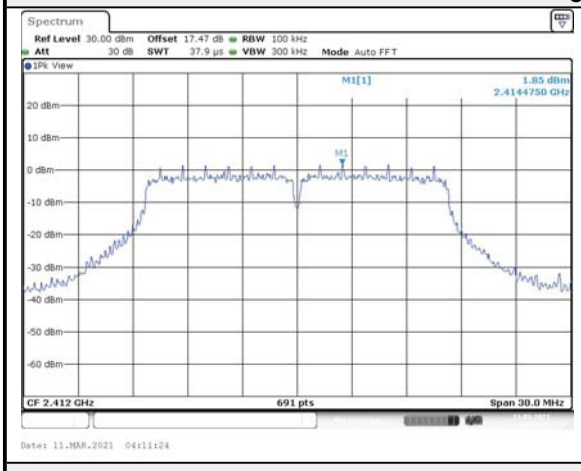
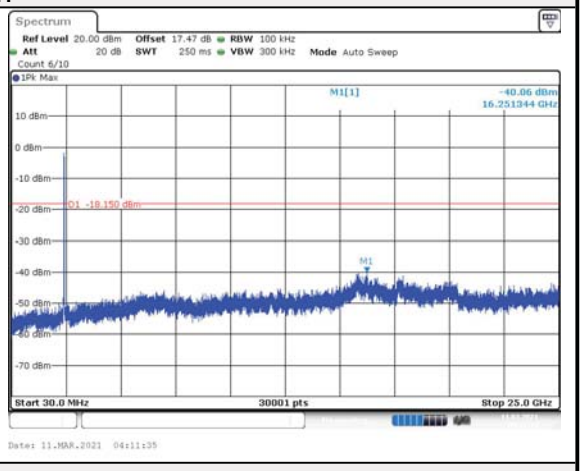




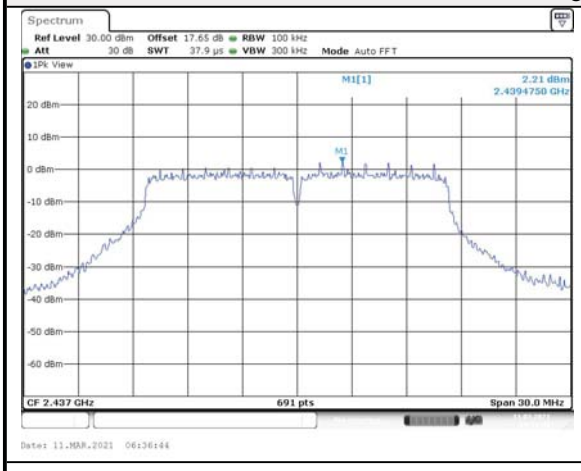
802.11g

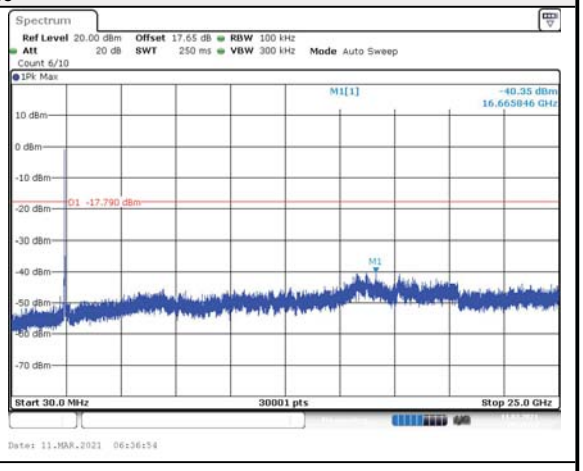
CH1



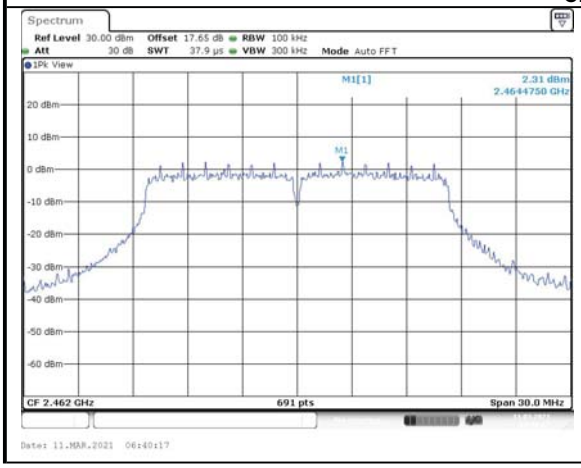


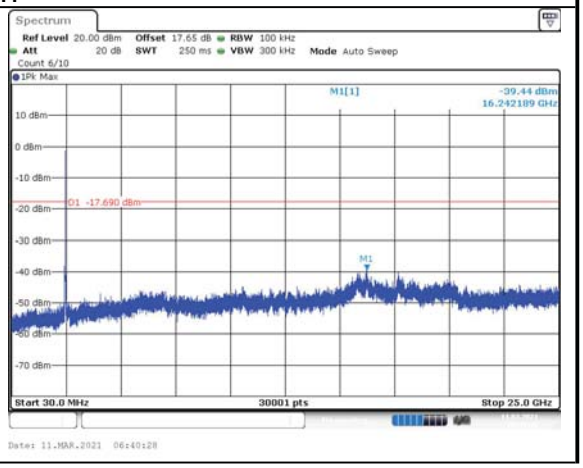
CH6





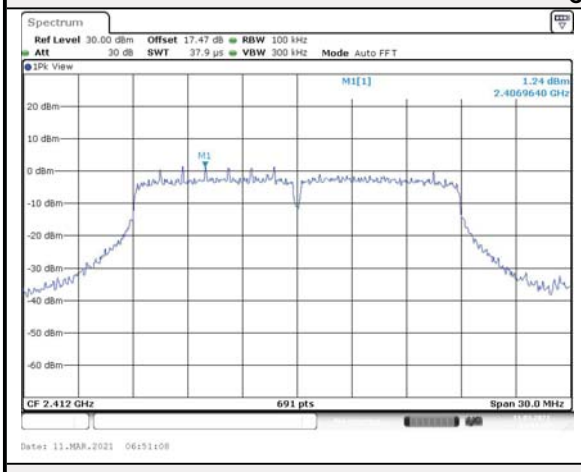
CH11

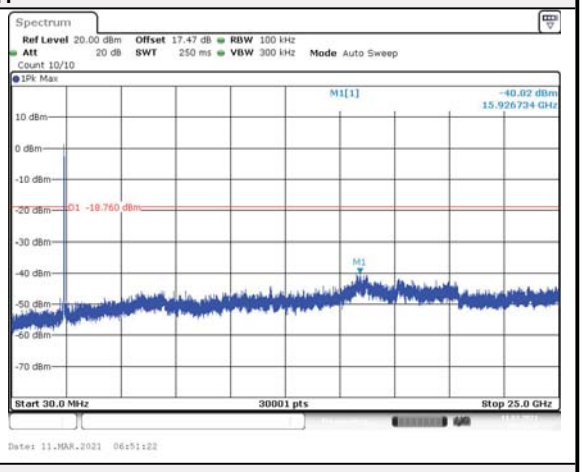




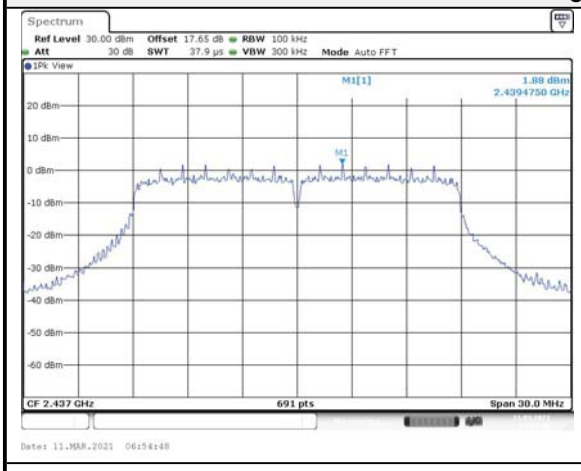
802.11n(HT20)

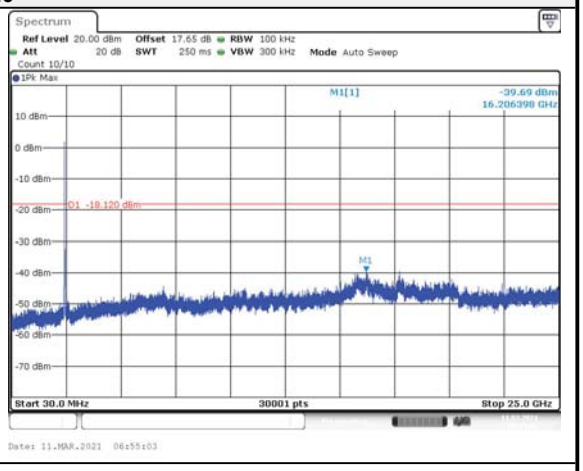
CH1



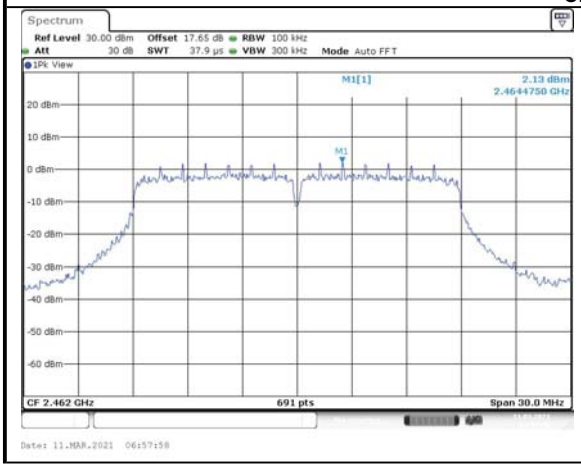


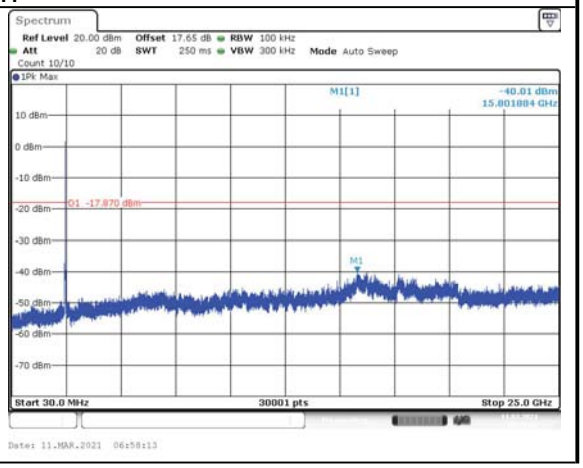
CH6





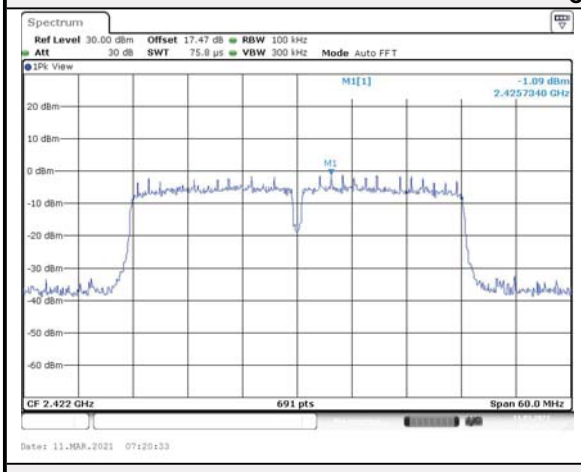
CH11

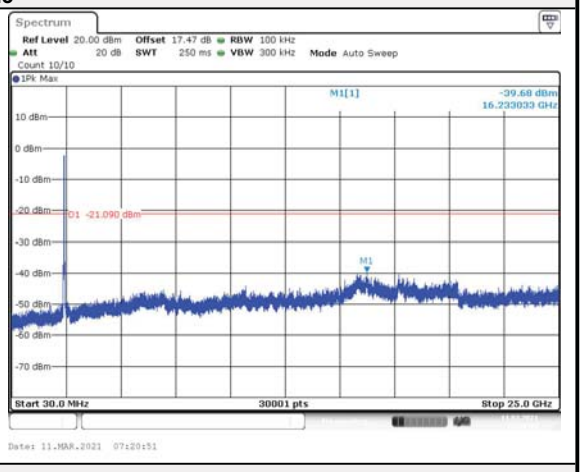




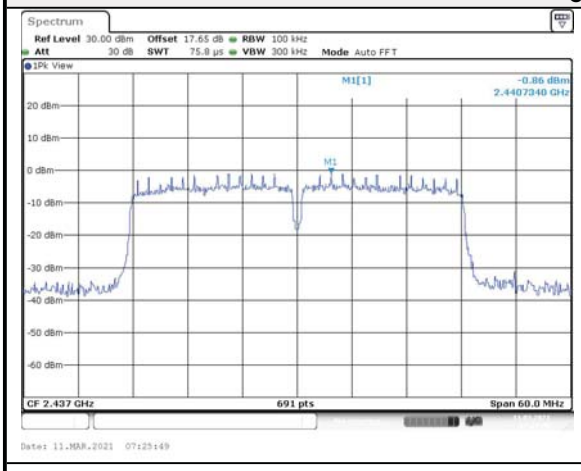
802.11n(HT40)

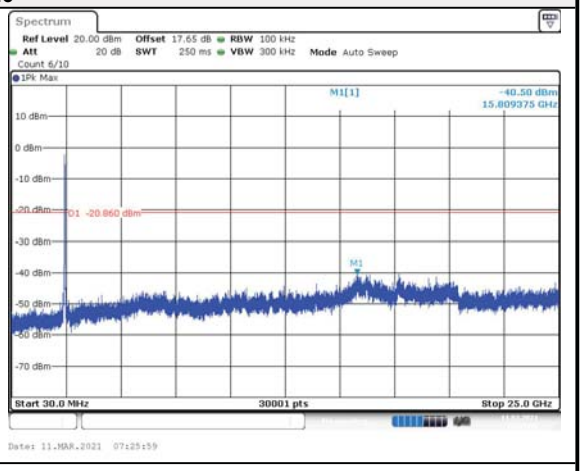
CH3



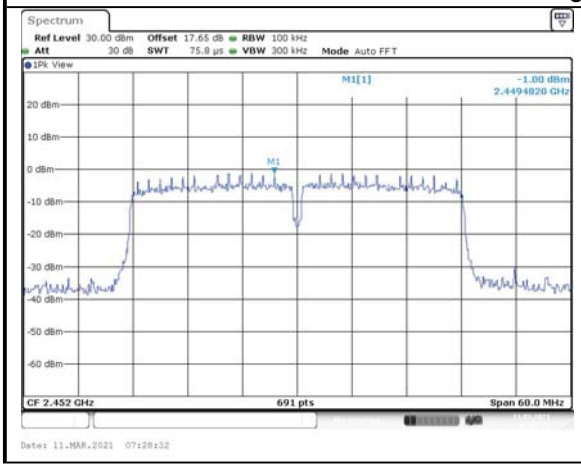


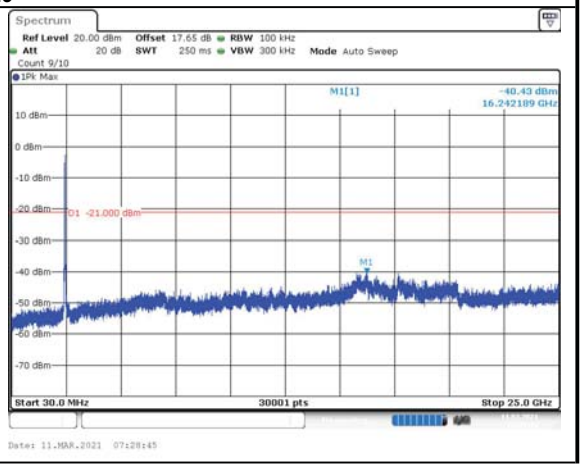
CH6





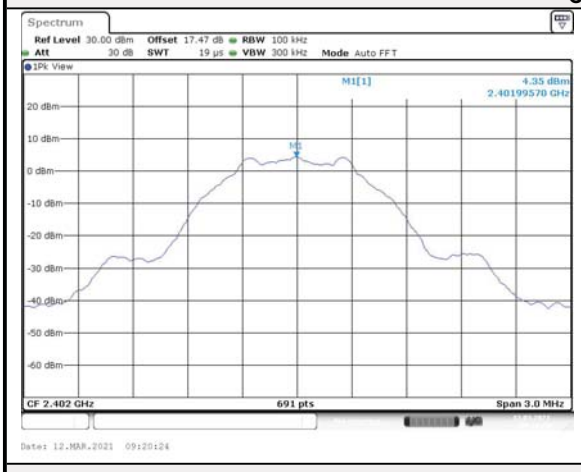
CH9

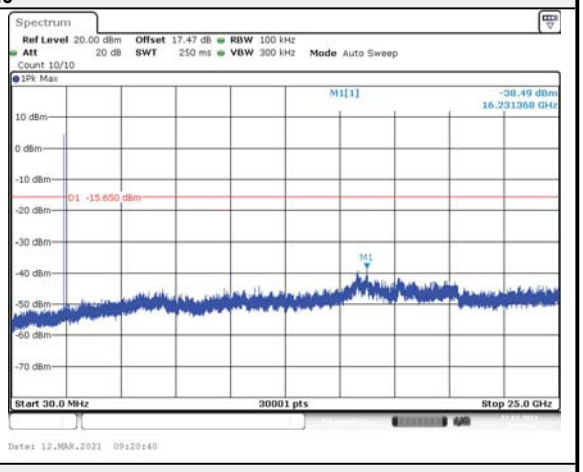




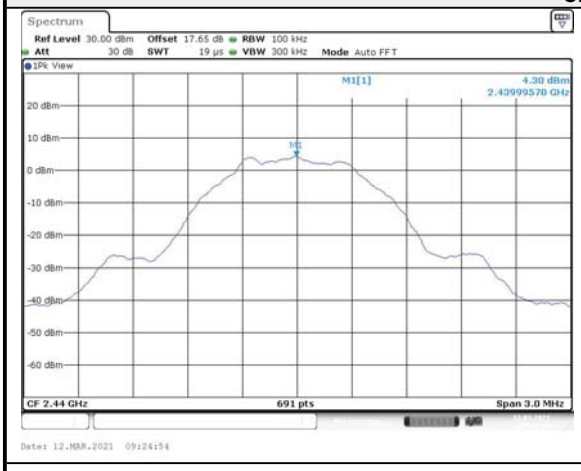
BT-LE (GFSK)

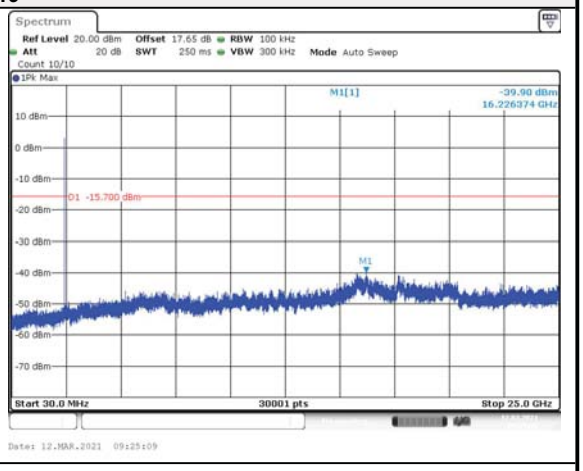
CH0



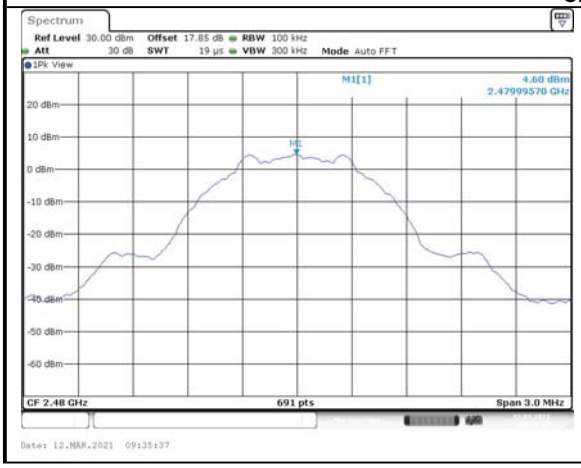


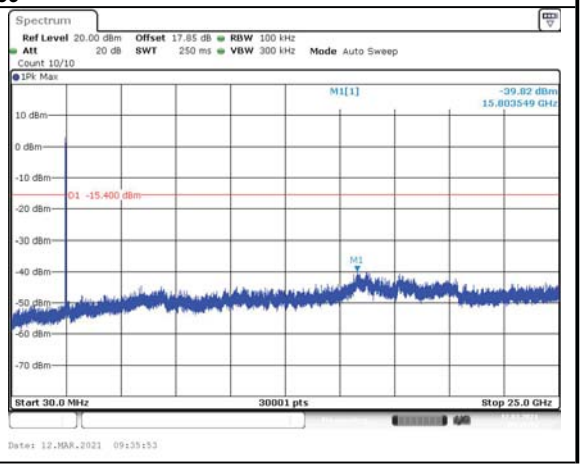
CH19





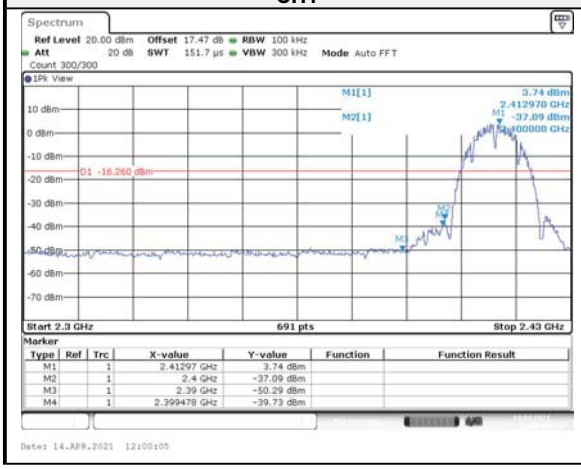
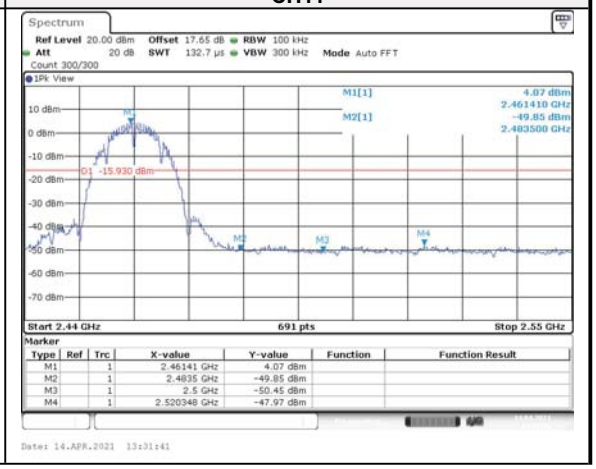
CH39



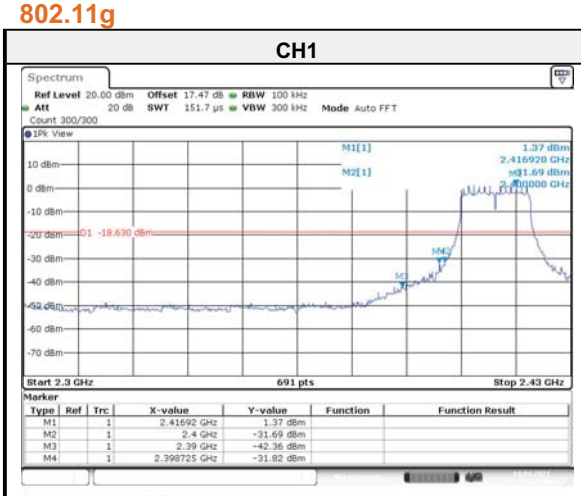
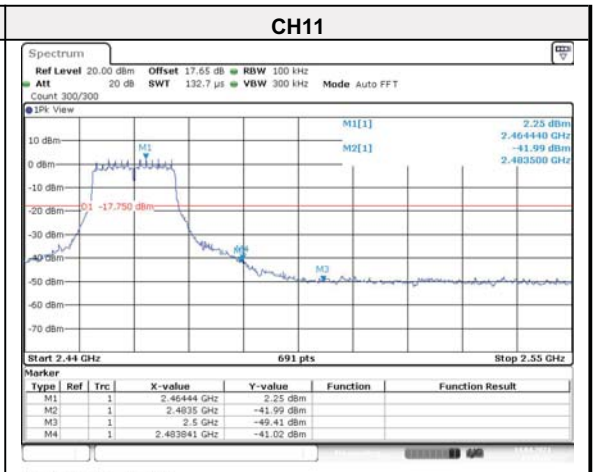


Band edge

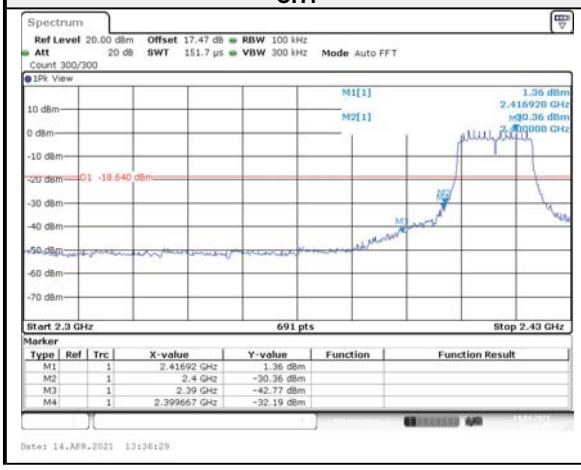
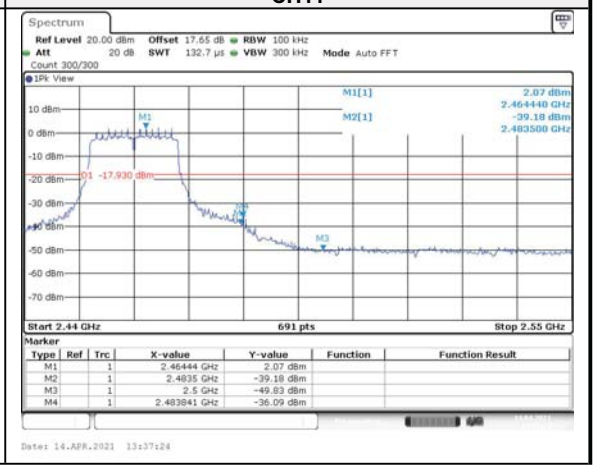
802.11b

CH1	CH11
	

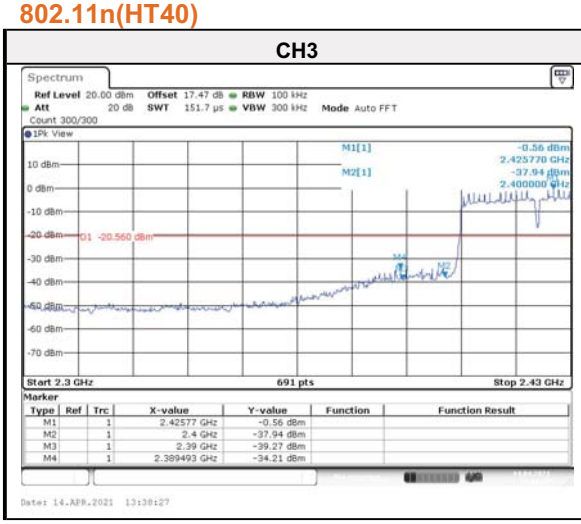
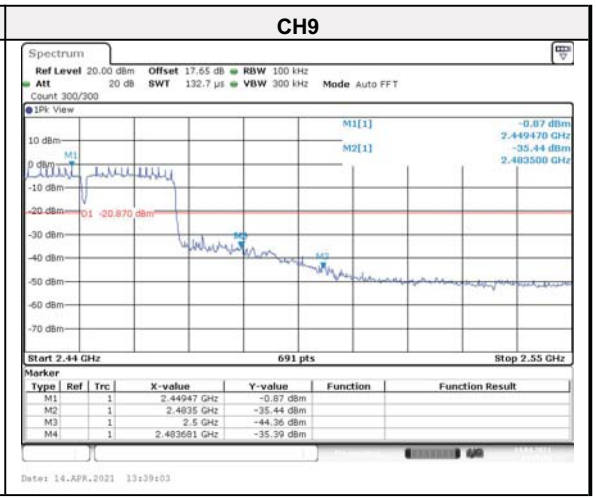
802.11g

CH1	CH11
	

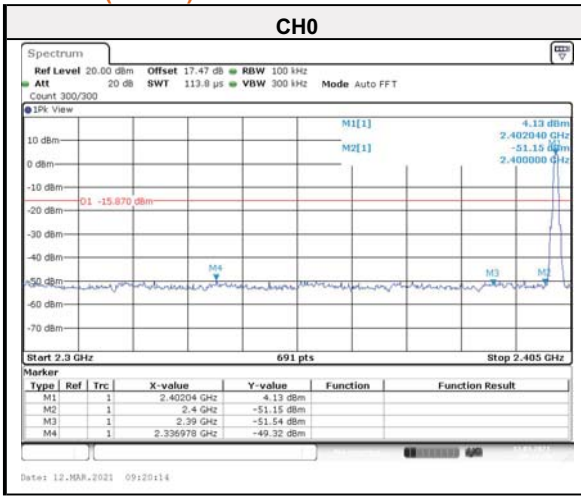
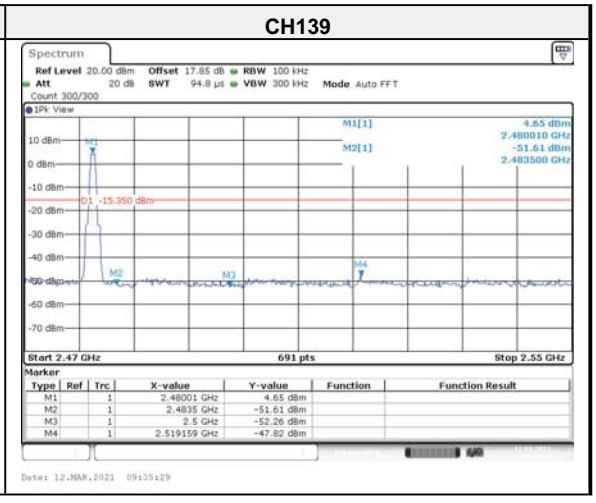
802.11n(HT20)

CH1	CH11
	

802.11n(HT40)

CH3	CH9
	

BT-LE (GFSK)

CH0	CH139
	

4 PHOTOGRAPHS OF TEST SETUP

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

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Appendix A

Conducted Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Due**	**Used**
EMI Test Receiver	Rohde&Schwarz	ESR3	102694	2021-05-19	☒
LISN	Rohde&Schwarz	ENV216	102569	2021-05-21	☒
LISN	SCHWARZBECK	NSLK 8129	5021	2021-05-21	☐
ISN	Rohde&Schwarz	ENV 81	100401	2021-05-19	☐
ISN	Rohde&Schwarz	ENV 81 Cat6	101896	2021-05-19	☐
Plus Limiter	Rohde&Schwarz	ESH3-Z2	102824	2021-05-19	☒
Plus Limiter	AEROFLEX	37-10-34	CF3049	2021-11-08	☐
Impedance Stabilization Network	Rohde&Schwarz	MATCHING	/	2021-12-11	☐
Digital signal generator	TELEVIEW	DTV800	/	2021-05-19	☐
AudioSignalGenerator	GW	GAG-810	EK871591	2021-12-11	☐
Shielding Room(#1)	MORI	854	/	2023-05-19	☒

Radiated Emission Test - 3M Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Due**	**Used**
EMI Test Receiver	Rohde&Schwarz	ESR 26	101718	2021.5.19	☒
Loop antenna	Rohde&Schwarz	HFH2-Z2E	100951	2021.5.16	☒
Rod antenna	Rohde&Schwarz	HFH2-Z6E	101268	2021.5.24	☒
Double cone antenna	Rohde&Schwarz	HK116E	10359	2021.5.24	☒
Log periodic antenna	Rohde&Schwarz	HL223	100936	2021.5.24	☒
antenna(30MHz~1000MHz)	SCHWARZBECK	VULB 9168	1132	2021.5.16	☒
Horn antenna(1GHz-6GHz)	SCHWARZBECK	BBHA 9120E	947	2023.5.19	☒
Horn antenna(1GHz-18GHz)	ETS	3117	227634	2022.1.14	☒
Horn antenna(18GHz-40GHz)	SCHWARZBECK	BBHA 9170	1003	2021.5.16	☒
3m anechoic chamber	MORI	966	N/A	2023.5.19	☒
10m anechoic chamber	Albatross	P25904	P25904	2024.06.30	☒
LISN（single-phase ）	Rohde&Schwarz	ESH3-Z6	102152/102156	2021.5.21	☒
Preamplifier	Rohde&Schwarz	SCU-01F	100298	2021.5.19	☒
Preamplifier	Rohde&Schwarz	SCU-18F	100799	2021.5.19	☒

Antenna Port Conducted Test					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Due**	**Used**
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 40	101898	2021.5.19	☒
Wideband radio communication tester	Rohde&Schwarz	CMW 500	168778	2021.5.19	☐
Automatic control unit(RSE)	Rohde&Schwarz	OSP220	101742	2021.5.19	☐
Filter group(RSE-BT/WiFi)	Rohde&Schwarz	WiFi /BT Variant 1	100820	2021.5.19	☒
Filter group(RSE-Cellular)	Rohde&Schwarz	Cellular Variant 1	100768	2021.5.19	☒
Signal&Spectrum Analyzer	Rohde&Schwarz	FSVA 3044	101013	2021.5.19	☒
signal Generator(100kHz～40GHz)	Rohde&Schwarz	SMB 100A	CS0300015	2021.05.19	☐
signal Generator(100kHz～12.75GHz)	Rohde&Schwarz	SMB 100A	CS0300016	2021.5.19	☐

Important

(1) The test report is valid with the official seal of the laboratory and the signatures of Test engineer, Author and Reviewer simultaneously.

(2) The test report is invalid if altered.

(3) Any photocopies or part photocopies in the test report are forbidden without the written permission from the laboratory.

(4) Objections to the test report must be submitted to the laboratory within 15 days.

(5) Generally, commission test is responsible for the tested samples only.

Address of the laboratory:
Vkan Certification & Testing Co., Ltd.
Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China
Post Code：510663 Tel：020-32293888
FAX：020-32293889 E-mail：office@cvc.org.cn