TEST REPORT

Applicant	Zhiwei Robotics Corp.
Address	Room 603, 2 Boyun Road, Pudong, Shanghai P.R. China

Manufacturer or Supplier	Zhiwei Robotics Corp.
Address	Room 603, 2 Boyun Road, Pudong, Shanghai P.R. China
Product	UNIHIKER
Brand Name	N/A
Model	DFR0706
Additional Model & Model Difference	N/A
Date of tests	Dec. 12, 2022 ~ Feb. 06, 2023

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

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

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

Tested by Andy Zhu Supervisor / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
Andy	Date: Mar. 09, 2023

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2211WDG0121-3	Original release	Mar. 09, 2023

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**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	Antenna connector is i-pex not a standard connector.

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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.67dB
Radiated emissions	9KHz ~ 30MHz	2.72dB
	30MHz ~ 1GMHz	4.24dB
	1GHz ~ 18GHz	4.78dB
	18GHz ~ 40GHz	4.50dB

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	UNIHIKER
BRAND	N/A
MODEL NO.	DFR0706
ADDITIONAL NO.	N/A
FCC ID	2AIDMUNIHIKER13
NOMINAL VOLTAGE	DC 5V from USB host unit
MODULATION TECHNOLOGY	DSSS, OFDM
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
PEAK OUTPUT POWER	241.546mW (Measured Max.)
ANTENNA TYPE	PCB Antenna, -2.34dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB Line: Unshielded, detachable, 1.0m

NOTES:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or 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. Please refer to the EUT photo document (Reference No.: 2211WDG0121) for detailed product photo.

3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	√	√	**Powered by notebook with WIFI function**

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

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	TESTED CONDITION
A	WIFI (2.4G) Link

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
☒ 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	DSSS	DBPSK	1.0

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

RADIATED EMISSION TEST (ABOVE 1GHz):

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

☒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

ANTENNA PORT CONDUCTED MEASUREMENT:

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

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

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

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	25deg. C, 54%RH	DC 5V from notebook	Jelly
RE≥1G	25deg. C, 54%RH	DC 5V from notebook	Jelly
PLC	25deg. C, 58% RH	DC 5V from notebook	Ryker
APCM	25deg. C, 60% RH	DC 5V from notebook	Ryker

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Tablet PC	DELL	T03H	127710614	E2K-T03H003
2	Wireless router	LINKSYS	WRT3200ACM	19811609800584	Q87-WRT3200ACM
3	TF Card(8G)	Kingston	SDC4/8GB	J4L8F-9P6T27-8XBD6	N/A
4	USB Driver 3.0(16G)	Kingston	DTSE9G2/16GB	YVLP9-B8HTAQ-XXAYB	N/A
5	IO Extender	N/A	N/A	N/A	N/A
6	LED Module *5	N/A	N/A	N/A	N/A
7	Rotation Sensor	N/A	N/A	N/A	N/A
8	Digital Push Button	N/A	N/A	N/A	N/A
9	IR Ther mometer	N/A	N/A	N/A	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.0m;DC Line: Unshielded, Detachable 2.0m.
2	AC Line: Unshielded, Detachable 0.8m;DC Line: Unshielded, Detachable 1.2m.
3-5	N/A
6-9	Input/Output Line: Unshielded,Detachable 0.2m

4 TEST TYPES AND RESULTS

4.1. CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

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

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

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	100666	Jun. 14, 23
Artificial Mains Network	Rohde&Schwarz	ENV216	102477	Jun. 19, 23
Artificial Mains Network	SCHWARZBECK	NSLK 8127	8127713	Apr. 18, 23
Voltage Probe	SCHWARZBECK	TK 9421	9421-0332	Jun. 23, 23
Current Probe	Rohde&Schwarz	EZ-17	0816.2063.02	Apr. 19, 23
ISN	Rohde&Schwarz	ENY81-CA6	101928	Jun. 14, 23
ISN	TESEQ	ISN T800	34373	Feb. 16, 23
Coaxial RF Cable	COMMATE	CFD300-NL	5D-001	Oct. 19, 23
Shielding Room	Burgeon	5m*4m*3m	D3040008DG-1	July 22, 24
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A

NOTES:

1. The test was performed in shielded room 543.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. Test site: No. 122, Houjie Avenue West Houjie Town, Dongguan City Guangdong Province, 523960, People's Republic of China.

4.1.3 TEST PROCEDURES

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

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

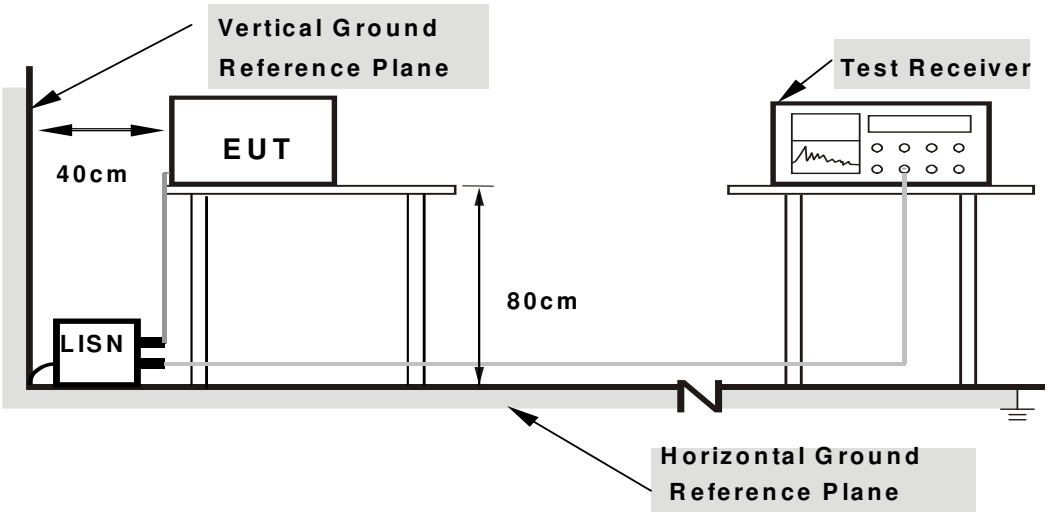
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

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

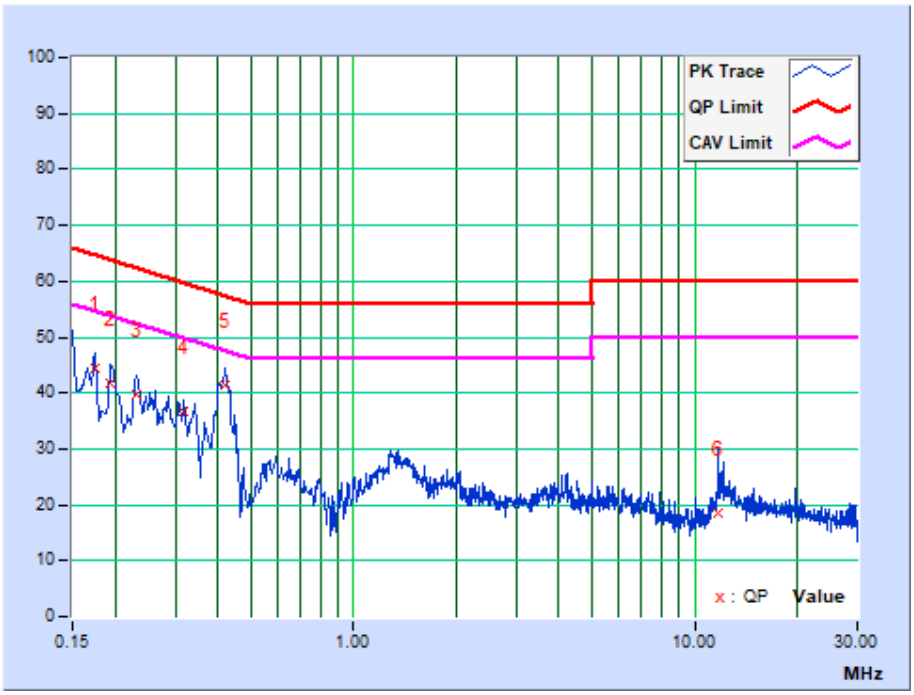
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI Link

PHASE	Line	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17400	9.78	34.82	23.83	44.60	33.61	64.77	54.77	-20.17	-21.16
2	0.19418	9.79	32.07	21.67	41.86	31.46	63.86	53.86	-21.99	-22.39
3	0.23000	9.80	29.89	19.66	39.69	29.46	62.45	52.45	-22.76	-22.99
4	0.31800	9.79	27.07	19.24	36.86	29.03	59.76	49.76	-22.90	-20.73
5	0.42200	9.80	31.50	24.06	41.30	33.86	57.41	47.41	-16.11	-13.55
6	11.78600	9.90	8.69	2.61	18.59	12.51	60.00	50.00	-41.41	-37.49

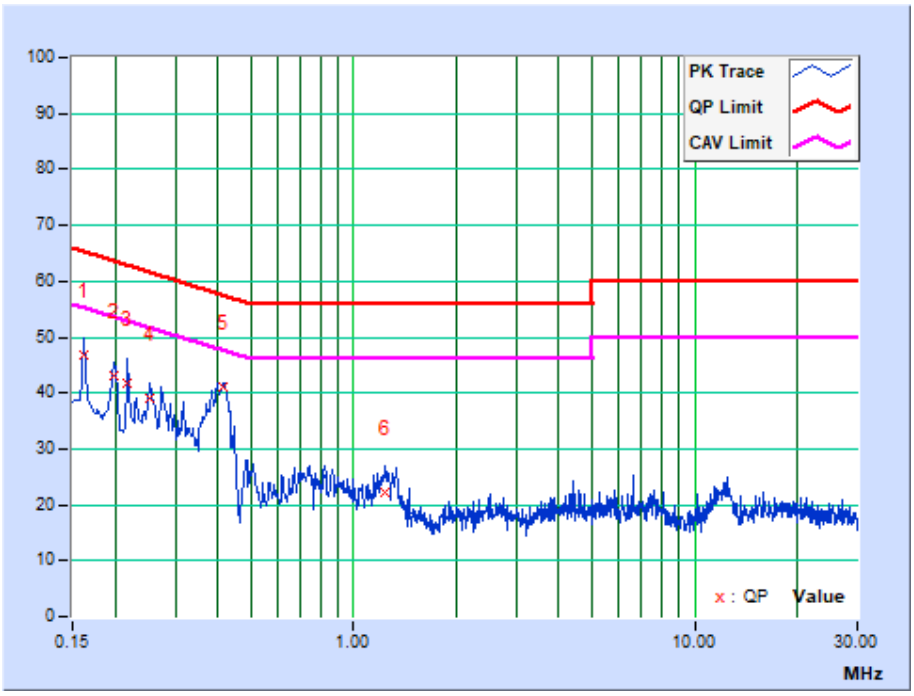
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	9.74	36.93	23.16	46.67	32.90	65.36	55.36	-18.69	-22.46
2	0.19832	9.78	33.16	21.17	42.94	30.95	63.68	53.68	-20.74	-22.73
3	0.21800	9.78	31.81	19.64	41.59	29.42	62.89	52.89	-21.31	-23.48
4	0.25405	9.77	29.15	19.58	38.92	29.35	61.62	51.62	-22.70	-22.27
5	0.41470	9.78	31.45	23.55	41.23	33.33	57.55	47.55	-16.32	-14.22
6	1.24200	9.79	12.33	6.29	22.12	16.08	56.00	46.00	-33.88	-29.92

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



4.2. RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTES:

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

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Spectrum Analyzer	Rohde&Schwarz	FSV3044	101326	July 20, 23
Bilog Antenna	SCHWARZBECK	VULB 9168	01281	Jun. 19, 23
Pre-Amplifier	Agilent	8447D	2944A10488	Aug. 03, 23
3m Semi-anechoic Chamber	ETS-Lindgren	9m*6m*6m	D3040003DG-1	July 30, 24
Coaxial RF Cable	Joinfront	JFAA6-NMNM-8000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAR-NMBNCM-2000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAR-BNCMSMM-500	2100033742	July. 11, 23
Test software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A
Horn Antenna	ETS-Lindgren	3117	00240041	Jun. 19, 23
Horn Antenna	SCHWARZBECK	BBHA 9170	01024	Oct. 16, 23
Pre-Amplifier (1GHz-18GHz)	SCHWARZBECK	BBV 9718C	00142	Jun. 14, 23
Pre-Amplifier (18GHz-40GHz)	Rohde&Schwarz	SCU40	100437	Oct. 27, 23
Coaxial RF Cable	Joinfront	JFAA6-NMNM-8000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAA6-NMSMM-2000	2100033742	July. 11, 23
Coaxial RF Cable	Joinfront	JFAA6-NMSMM-800	2100033742	July. 11, 23

NOTES:

1. The test was performed in 966 Chamber-3.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 749762.
5. Test site: No. 122, Houjie Avenue West Houjie Town, Dongguan City Guangdong Province, 523960, People's Republic of China.

4.2.3 TEST PROCEDURES

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 1.3m 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.

NOTES:

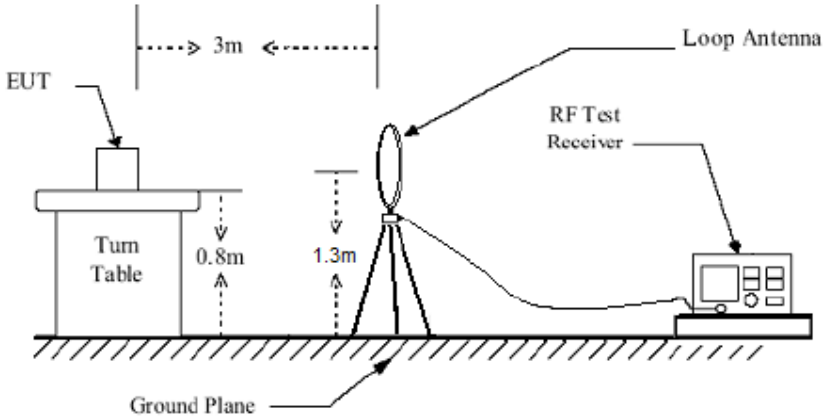
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.2.4 DEVIATION FROM TEST STANDARD

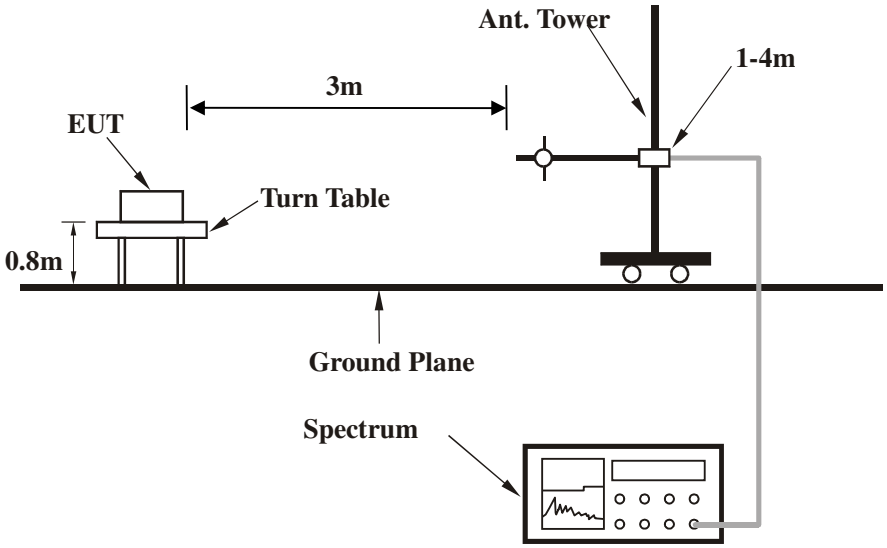
No deviation.

4.2.5 TEST SETUP

Below 30MHz test setup

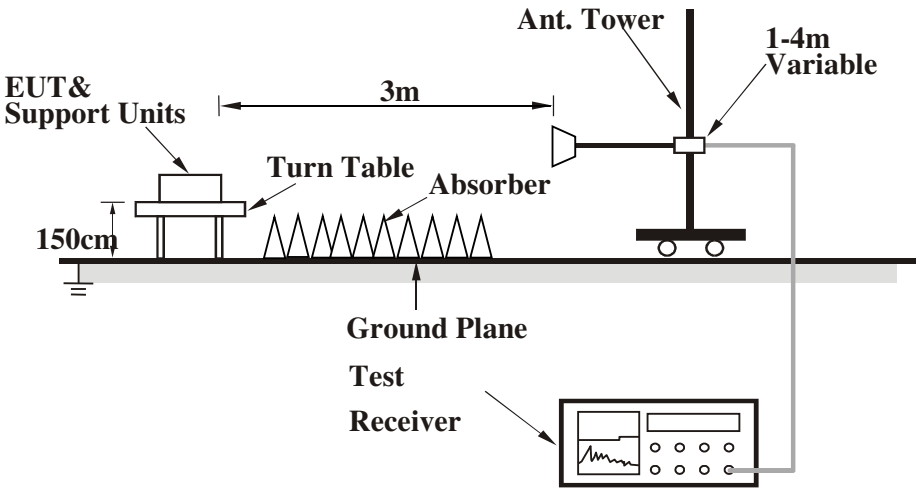


Below 1GHz test setup



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

Above 1GHz test setup



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

4.2.6 EUT OPERATING CONDITIONS

a. Placed the EUT on a testing table.
b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
c. The necessary accessories enable the EUT in full functions.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

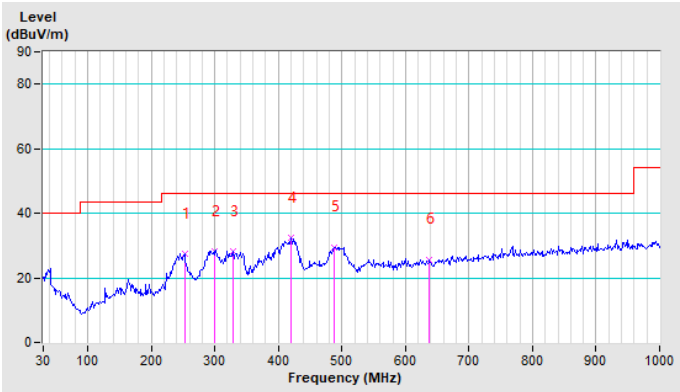
802.11b

CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	252.29	27.45 QP	46.00	-18.55	1.00 H	187	43.62	-16.17
2	298.93	28.07 QP	46.00	-17.93	1.00 H	203	42.53	-14.46
3	328.46	28.07 QP	46.00	-17.93	1.00 H	217	41.81	-13.74
4	**420.18**	**32.29 QP**	**46.00**	**-13.71**	**1.00 H**	**233**	**43.40**	**-11.11**
5	487.02	29.55 QP	46.00	-16.45	1.00 H	171	39.02	-9.47
6	637.80	25.73 QP	46.00	-20.27	1.00 H	151	32.01	-6.28

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.

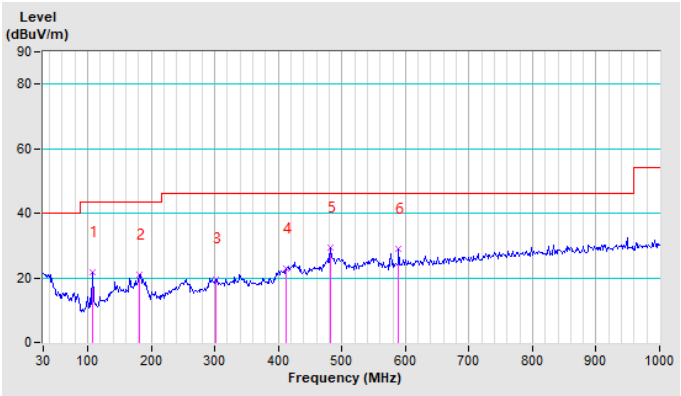


CHANNEL	TX Channel 1	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	107.72	21.84 QP	43.50	-21.66	1.00 V	59	41.41	-19.57
2	180.79	20.94 QP	43.50	-22.56	1.00 V	178	38.25	-17.31
3	302.04	19.63 QP	46.00	-26.37	1.00 V	103	34.00	-14.37
4	412.40	22.99 QP	46.00	-23.01	1.00 V	47	34.38	-11.39
5	482.36	29.21 QP	46.00	-16.79	1.00 V	219	38.76	-9.55
6	589.62	29.09 QP	46.00	-16.91	1.00 V	56	36.12	-7.03

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.



ABOVE 1GHz DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	50.00 PK	74.00	-24.00	1.00 H	147	48.44	1.56
2	2390.00	39.00 AV	54.00	-15.00	1.00 H	147	37.44	1.56
3	*2412.00	105.00 PK			1.00 H	147	103.44	1.56
4	*2412.00	102.00 AV			1.00 H	147	100.44	1.56
5	4824.00	51.47 PK	74.00	-22.53	1.00 H	133	44.13	7.34
6	4824.00	42.44 AV	54.00	-11.56	1.00 H	133	35.10	7.34
7	#7236.00	54.00 PK	74.00	-20.00	1.00 H	33	42.51	11.49
8	#7236.00	44.69 AV	54.00	-9.31	1.00 H	33	33.20	11.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	42.00 PK	74.00	-32.00	1.00 V	125	40.44	1.56
2	2390.00	36.00 AV	54.00	-18.00	1.00 V	125	34.44	1.56
3	*2412.00	102.00 PK			1.00 V	125	100.44	1.56
4	*2412.00	100.00 AV			1.00 V	125	98.44	1.56
5	4824.00	51.25 PK	74.00	-22.75	1.00 V	125	43.91	7.34
6	4824.00	42.36 AV	54.00	-11.64	1.00 V	125	35.02	7.34
7	#7236.00	54.44 PK	74.00	-19.56	1.00 V	147	42.95	11.49
8	#7236.00	45.00 AV	54.00	-9.00	1.00 V	147	33.51	11.49

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	106.32 PK			1.00 H	145	104.75	1.57
2	*2437.00	102.00 AV			1.00 H	145	100.43	1.57
3	4874.00	51.46 PK	74.00	-22.54	1.00 H	147	43.85	7.61
4	4874.00	42.36 AV	54.00	-11.64	1.00 H	147	34.75	7.61
5	7311.00	54.45 PK	74.00	-19.55	1.00 H	167	42.87	11.58
6	7311.00	45.00 AV	54.00	-9.00	1.00 H	167	33.42	11.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	101.02 PK			1.00 V	145	99.45	1.57
2	*2437.00	97.12 AV			1.00 V	145	95.55	1.57
3	4874.00	51.65 PK	74.00	-22.35	1.00 V	147	44.04	7.61
4	4874.00	42.01 AV	54.00	-11.99	1.00 V	147	34.40	7.61
5	7311.00	54.00 PK	74.00	-20.00	1.00 V	360	42.42	11.58
6	7311.00	44.65 AV	54.00	-9.35	1.00 V	360	33.07	11.58

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2462.00	109.25 PK			1.00 H	125	107.67	1.58
2	*2462.00	104.77 AV			1.00 H	125	103.19	1.58
3	2483.50	52.33 PK	74.00	-21.67	1.00 H	125	50.74	1.59
4	2483.50	41.00 AV	54.00	-13.00	1.00 H	125	39.41	1.59
5	4924.00	52.14 PK	74.00	-21.86	1.00 H	145	44.27	7.87
6	4924.00	42.33 AV	54.00	-11.67	1.00 H	145	34.46	7.87
7	7386.00	54.45 PK	74.00	-19.55	1.00 H	147	42.78	11.67
8	7386.00	45.14 AV	54.00	-8.86	1.00 H	147	33.47	11.67
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2462.00	101.00 PK			1.00 V	125	99.42	1.58
2	*2462.00	97.00 AV			1.00 V	125	95.42	1.58
3	2483.50	51.00 PK	74.00	-23.00	1.00 V	125	49.41	1.59
4	2483.50	39.00 AV	54.00	-15.00	1.00 V	125	37.41	1.59
5	4924.00	51.01 PK	74.00	-22.99	1.00 V	147	43.14	7.87
6	4924.00	42.00 AV	54.00	-12.00	1.00 V	147	34.13	7.87
7	7386.00	54.33 PK	74.00	-19.67	1.00 V	132	42.66	11.67
8	7386.00	41.78 AV	54.00	-12.22	1.00 V	132	30.11	11.67

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.00 PK	74.00	-13.00	1.00 H	135	59.44	1.56
2	2390.00	45.00 AV	54.00	-9.00	1.00 H	135	43.44	1.56
3	*2412.00	106.02 PK			1.00 H	135	104.46	1.56
4	*2412.00	96.45 AV			1.00 H	135	94.89	1.56
5	4824.00	52.36 PK	74.00	-21.64	1.00 H	158	45.02	7.34
6	4824.00	42.69 AV	54.00	-11.31	1.00 H	158	35.35	7.34
7	#7236.00	55.07 PK	74.00	-18.93	1.00 H	136	43.58	11.49
8	#7236.00	45.60 AV	54.00	-8.40	1.00 H	136	34.11	11.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.47 PK	74.00	-17.53	1.00 V	125	54.91	1.56
2	2390.00	40.15 AV	54.00	-13.85	1.00 V	125	38.59	1.56
3	*2412.00	101.00 PK			1.00 V	125	99.44	1.56
4	*2412.00	90.00 AV			1.00 V	125	88.44	1.56
5	4824.00	53.00 PK	74.00	-21.00	1.00 V	154	45.66	7.34
6	4824.00	42.68 AV	54.00	-11.32	1.00 V	154	35.34	7.34
7	#7236.00	55.00 PK	74.00	-19.00	1.00 V	136	43.51	11.49
8	#7236.00	45.65 AV	54.00	-8.35	1.00 V	136	34.16	11.49

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	106.84 PK			1.00 H	155	105.27	1.57
2	*2437.00	96.47 AV			1.00 H	155	94.90	1.57
3	4874.00	51.45 PK	74.00	-22.55	1.00 H	157	43.84	7.61
4	4874.00	42.09 AV	54.00	-11.91	1.00 H	157	34.48	7.61
5	7311.00	54.44 PK	74.00	-19.56	1.00 H	157	42.86	11.58
6	7311.00	42.69 AV	54.00	-11.31	1.00 H	157	31.11	11.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	101.21 PK			1.00 V	154	99.64	1.57
2	*2437.00	92.00 AV			1.00 V	154	90.43	1.57
3	4874.00	52.00 PK	74.00	-22.00	1.00 V	157	44.39	7.61
4	4874.00	42.01 AV	54.00	-11.99	1.00 V	157	34.40	7.61
5	7311.00	54.62 PK	74.00	-19.38	1.00 V	125	43.04	11.58
6	7311.00	45.10 AV	54.00	-8.90	1.00 V	125	33.52	11.58

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2462.00	108.50 PK			1.00 H	145	106.92	1.58
2	*2462.00	99.00 AV			1.00 H	145	97.42	1.58
3	2483.50	70.00 PK	74.00	-4.00	1.00 H	145	68.41	1.59
4	2483.50	50.84 AV	54.00	-3.16	1.00 H	145	49.25	1.59
5	4924.00	53.14 PK	74.00	-20.86	1.00 H	145	45.27	7.87
6	4924.00	44.25 AV	54.00	-9.75	1.00 H	145	36.38	7.87
7	7386.00	57.00 PK	74.00	-17.00	1.00 H	147	45.33	11.67
8	7386.00	46.00 AV	54.00	-8.00	1.00 H	147	34.33	11.67
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2462.00	103.54 PK			1.00 V	144	101.96	1.58
2	*2462.00	93.54 AV			1.00 V	144	91.96	1.58
3	2483.50	62.00 PK	74.00	-12.00	1.00 V	144	60.41	1.59
4	2483.50	45.00 AV	54.00	-9.00	1.00 V	144	43.41	1.59
5	4924.00	51.25 PK	74.00	-22.75	1.00 V	147	43.38	7.87
6	4924.00	42.25 AV	54.00	-11.75	1.00 V	147	34.38	7.87
7	7386.00	54.45 PK	74.00	-19.55	1.00 V	147	42.78	11.67
8	7386.00	45.00 AV	54.00	-9.00	1.00 V	147	33.33	11.67

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

802.11n HT20

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.54 PK	74.00	-8.46	1.00 H	154	63.98	1.56
2	2390.00	43.21 AV	54.00	-10.79	1.00 H	154	41.65	1.56
3	*2412.00	106.33 PK			1.00 H	154	104.77	1.56
4	*2412.00	96.54 AV			1.00 H	154	94.98	1.56
5	4824.00	51.24 PK	74.00	-22.76	1.00 H	125	43.90	7.34
6	4824.00	42.00 AV	54.00	-12.00	1.00 H	125	34.66	7.34
7	#7236.00	55.54 PK	74.00	-18.46	1.00 H	158	44.05	11.49
8	#7236.00	45.69 AV	54.00	-8.31	1.00 H	158	34.20	11.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.58 PK	74.00	-19.42	1.00 V	125	53.02	1.56
2	2390.00	42.00 AV	54.00	-12.00	1.00 V	125	40.44	1.56
3	*2412.00	101.00 PK			1.00 V	125	99.44	1.56
4	*2412.00	91.54 AV			1.00 V	125	89.98	1.56
5	4824.00	52.09 PK	74.00	-21.91	1.00 V	166	44.75	7.34
6	4824.00	43.05 AV	54.00	-10.95	1.00 V	166	35.71	7.34
7	#7236.00	54.69 PK	74.00	-19.31	1.00 V	187	43.09	11.60
8	#7236.00	45.77 AV	54.00	-8.23	1.00 V	187	34.17	11.60

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	106.58 PK			1.00 H	125	105.01	1.57
2	*2437.00	96.78 AV			1.00 H	125	95.21	1.57
3	4874.00	52.78 PK	74.00	-21.22	1.00 H	165	45.17	7.61
4	4874.00	43.58 AV	54.00	-10.42	1.00 H	165	35.97	7.61
5	7311.00	55.75 PK	74.00	-18.25	1.00 H	166	44.17	11.58
6	7311.00	45.23 AV	54.00	-8.77	1.00 H	166	33.65	11.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	101.04 PK			1.00 V	125	99.47	1.57
2	*2437.00	91.25 AV			1.00 V	125	89.68	1.57
3	4874.00	52.60 PK	74.00	-21.40	1.00 V	165	44.99	7.61
4	4874.00	43.15 AV	54.00	-10.85	1.00 V	165	35.54	7.61
5	7311.00	55.01 PK	74.00	-18.99	1.00 V	166	43.43	11.58
6	7311.00	45.76 AV	54.00	-8.24	1.00 V	166	34.18	11.58

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2462.00	108.47 PK			1.00 H	154	106.89	1.58
2	*2462.00	98.98 AV			1.00 H	154	97.40	1.58
3	2483.50	70.00 PK	74.00	-4.00	1.00 H	154	68.41	1.59
4	2483.50	50.00 AV	54.00	-4.00	1.00 H	154	48.41	1.59
5	4924.00	52.41 PK	74.00	-21.59	1.00 H	154	44.54	7.87
6	4924.00	43.01 AV	54.00	-10.99	1.00 H	154	35.14	7.87
7	7386.00	54.48 PK	74.00	-19.52	1.00 H	138	42.81	11.67
8	7386.00	45.62 AV	54.00	-8.38	1.00 H	138	33.95	11.67
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2462.00	101.25 PK			1.00 V	125	99.67	1.58
2	*2462.00	91.80 AV			1.00 V	125	90.22	1.58
3	2483.50	63.00 PK	74.00	-11.00	1.00 V	125	61.41	1.59
4	2483.50	43.00 AV	54.00	-11.00	1.00 V	125	41.41	1.59
5	4924.00	52.57 PK	74.00	-21.43	1.00 V	158	44.70	7.87
6	4924.00	42.54 AV	54.00	-11.46	1.00 V	158	34.67	7.87
7	7386.00	54.66 PK	74.00	-19.34	4.00 V	156	42.99	11.67
8	7386.00	45.66 AV	54.00	-8.34	4.00 V	156	33.99	11.67

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.00 PK	74.00	-6.00	1.00 H	125	66.44	1.56
2	2390.00	47.00 AV	54.00	-7.00	1.00 H	125	45.44	1.56
3	*2422.00	104.20 PK			1.00 H	125	102.63	1.57
4	*2422.00	95.00 AV			1.00 H	125	93.43	1.57
5	4844.00	52.74 PK	74.00	-21.26	1.00 H	120	45.28	7.46
6	4844.00	42.55 AV	54.00	-11.45	1.00 H	120	35.09	7.46
7	7266.00	54.74 PK	74.00	-19.26	1.00 H	135	43.22	11.52
8	7266.00	45.65 AV	54.00	-8.35	1.00 H	135	34.13	11.52
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.00 PK	74.00	-9.00	1.00 V	135	63.44	1.56
2	2390.00	43.00 AV	54.00	-11.00	1.00 V	135	41.44	1.56
3	*2422.00	100.75 PK			1.00 V	135	99.18	1.57
4	*2422.00	90.47 AV			1.00 V	135	88.90	1.57
5	4844.00	52.71 PK	74.00	-21.29	1.00 V	135	45.25	7.46
6	4844.00	42.56 AV	54.00	-11.44	1.00 V	135	35.10	7.46
7	7266.00	54.84 PK	74.00	-19.16	1.00 V	125	43.32	11.52
8	7266.00	45.77 AV	54.00	-8.23	1.00 V	125	34.25	11.52

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	103.56 PK			1.00 H	125	101.99	1.57
2	*2437.00	94.77 AV			1.00 H	125	93.20	1.57
3	4874.00	52.45 PK	74.00	-21.55	1.00 H	120	44.84	7.61
4	4874.00	42.66 AV	54.00	-11.34	1.00 H	120	35.05	7.61
5	7311.00	54.58 PK	74.00	-19.42	1.00 H	124	43.00	11.58
6	7311.00	45.88 AV	54.00	-8.12	1.00 H	124	34.30	11.58
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2437.00	100.98 PK			1.00 V	125	99.41	1.57
2	*2437.00	91.00 AV			1.00 V	125	89.43	1.57
3	4874.00	52.47 PK	74.00	-21.53	1.00 V	156	44.86	7.61
4	4874.00	43.01 AV	54.00	-10.99	1.00 V	156	35.40	7.61
5	7311.00	54.66 PK	74.00	-19.34	1.00 V	158	43.08	11.58
6	7311.00	45.08 AV	54.00	-8.92	1.00 V	158	33.50	11.58

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2452.00	104.00 PK			1.00 H	125	102.42	1.58
2	*2452.00	94.01 AV			1.00 H	125	92.43	1.58
3	2483.50	67.00 PK	74.00	-7.00	1.00 H	125	65.41	1.59
4	2483.50	50.56 AV	54.00	-3.44	1.00 H	125	48.97	1.59
5	4904.00	52.74 PK	74.00	-21.26	1.00 H	128	44.97	7.77
6	4904.00	43.14 AV	54.00	-10.86	1.00 H	128	35.37	7.77
7	7356.00	54.88 PK	74.00	-19.12	1.00 H	129	43.25	11.63
8	7356.00	45.72 AV	54.00	-8.28	1.00 H	129	34.09	11.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*2452.00	99.21 PK			1.00 V	135	97.63	1.58
2	*2452.00	89.00 AV			1.00 V	135	87.42	1.58
3	2483.50	54.65 PK	74.00	-19.35	1.00 V	128	53.06	1.59
4	2483.50	43.56 AV	54.00	-10.44	1.00 V	128	41.97	1.59
5	4904.00	52.45 PK	74.00	-21.55	1.00 V	127	44.68	7.77
6	4904.00	42.77 AV	54.00	-11.23	1.00 V	127	35.00	7.77
7	7356.00	55.33 PK	74.00	-18.67	1.00 V	156	43.70	11.63
8	7356.00	45.21 AV	54.00	-8.79	1.00 V	156	33.58	11.63

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Wireless Connectivity Tester	Rohde&Schwarz	CMW270	101601	Nov. 01, 23
MXA signal analyzer	Agilent	N9020A	MY49100060	Apr. 18, 23
Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Jan. 16, 24
Frequency Analyzer	Keysight	N9010B	MY60240432	Nov. 01, 23
Progammble Temperature&Humidity Chamber	Hongjin	HYC-TH-225DH	DG-180746	Feb. 16, 23
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Agilent	E3640A	MY40004013	Feb. 23, 23
Test software	ADT	ADT_RF Test Software V6.6.5.3	N/A	N/A
Test software	ADT	ADT_RF Test Software V6.6.5.4	N/A	N/A

NOTES: 1. The test was performed in RF Test Shielded Room.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3. Test site: No. 122, Houjie Avenue West Houjie Town, Dongguan City Guangdong Province, 523960, People's Republic of China.

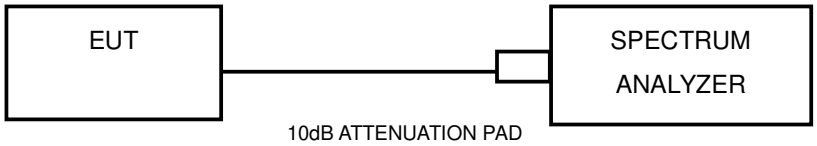
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	10.09	0.5	PASS
6	2437	10.10	0.5	PASS
11	2462	10.11	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.60	0.5	PASS
6	2437	16.60	0.5	PASS
11	2462	16.60	0.5	PASS

802.11n HT20

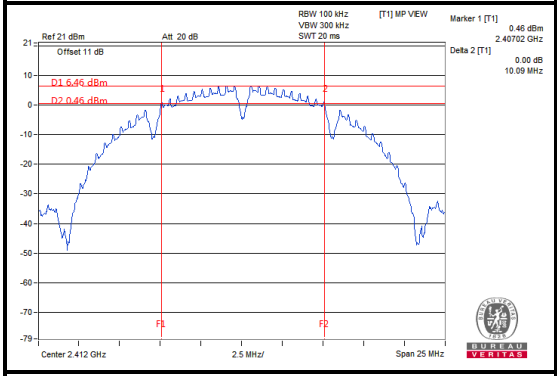
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.74	0.5	PASS
6	2437	17.74	0.5	PASS
11	2462	17.73	0.5	PASS

802.11n HT40

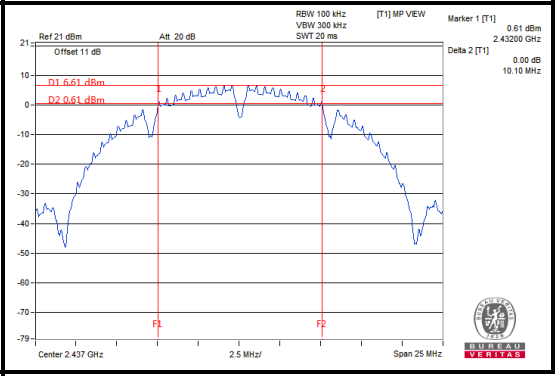
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.50	0.5	PASS
6	2437	36.51	0.5	PASS
9	2452	36.49	0.5	PASS

SPECTRUM PLOT OF 6dB BANDWIDTH

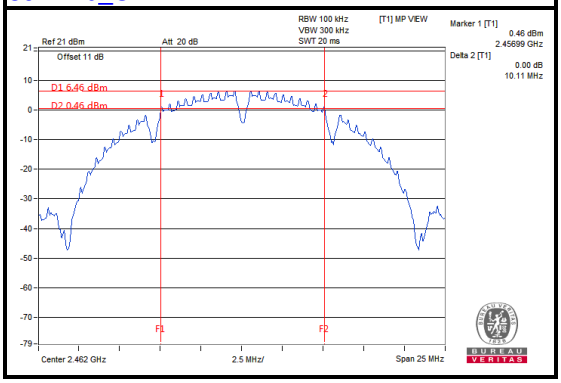
802.11b_CH1



802.11b_CH6

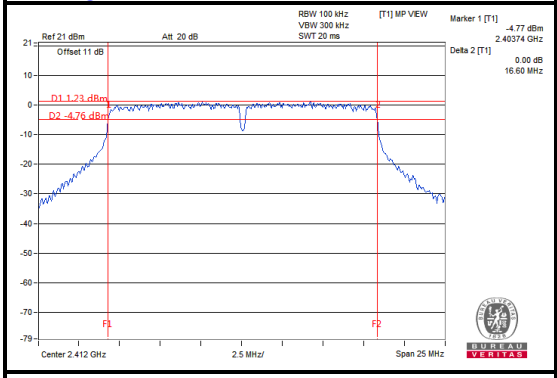


802.11b_CH11

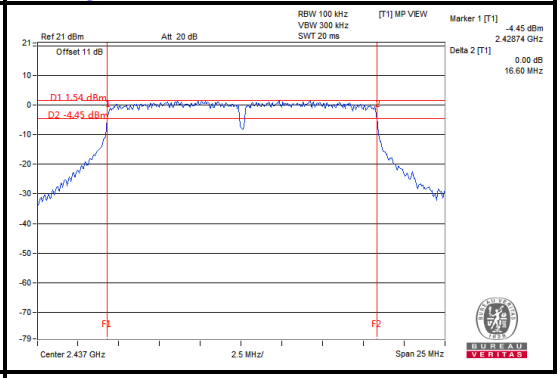


SPECTRUM PLOT OF 6dB BANDWIDTH

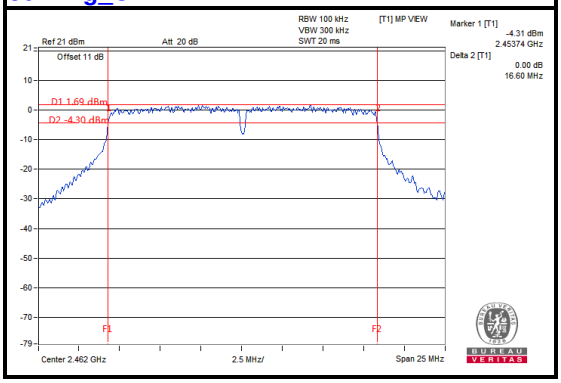
802.11g_CH1



802.11g_CH6

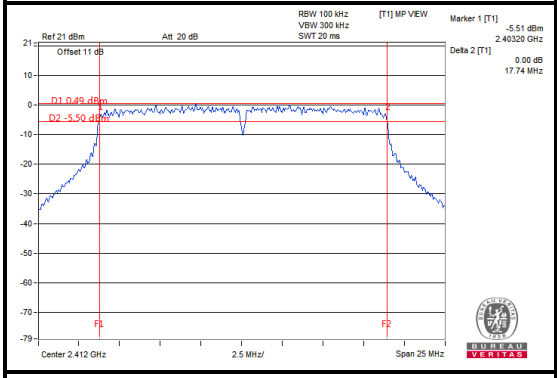


802.11g_CH11

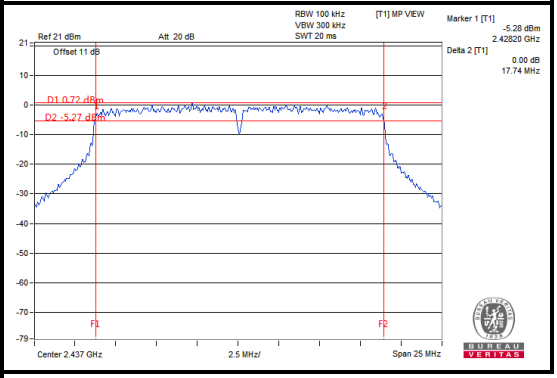


SPECTRUM PLOT OF 6dB BANDWIDTH

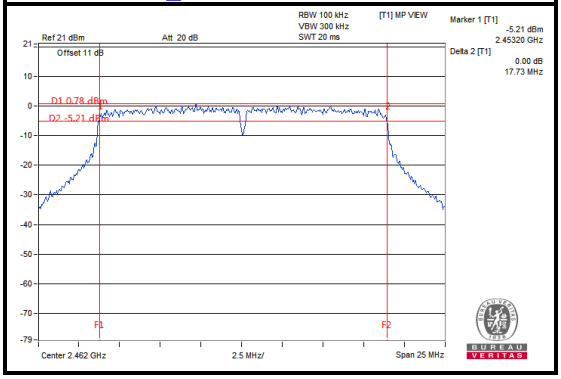
802.11n HT20_CH1



802.11n HT20_CH6

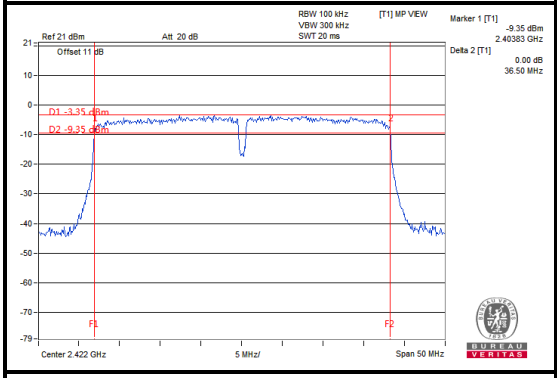


802.11n HT20_CH11

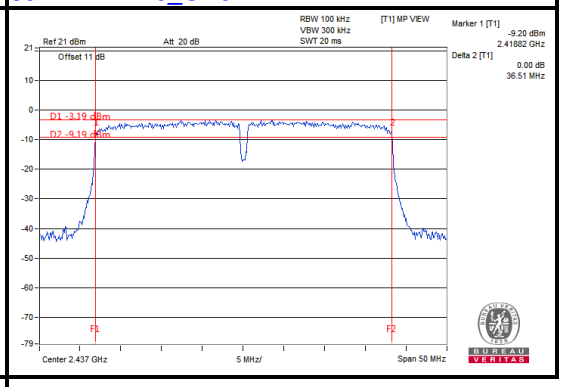


SPECTRUM PLOT OF 6dB BANDWIDTH

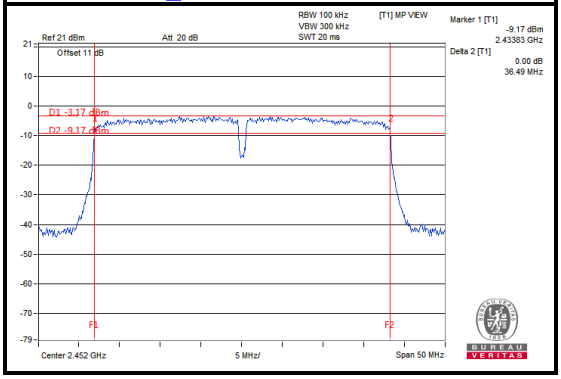
802.11n HT40_CH3



802.11n HT40_CH6



802.11n HT40_CH9

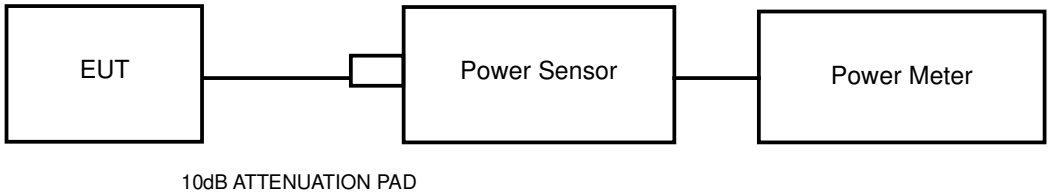


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.4.4 TEST PROCEDURES

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.4.7 TEST RESULTS

MAXIMUM PEAK OUTPUT POWER

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	19.28	84.723	1	PASS
6	2437	19.64	92.045	1	PASS
11	2462	19.68	**92.897**	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	23.34	215.774	1	PASS
6	2437	23.66	232.274	1	PASS
11	**2462**	**23.83**	**241.546**	**1**	**PASS**

802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	22.34	171.396	1	PASS
6	2437	22.57	180.717	1	PASS
11	2462	22.68	**185.353**	1	PASS

02.11n HT40

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	22.84	192.309	1	PASS
6	2437	22.97	198.153	1	PASS
9	2452	23.12	**205.116**	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.

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	16.21	41.783
6	2437	16.46	44.259
11	2462	**16.49**	44.566

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	15.56	35.975
6	2437	15.87	38.637
11	2462	**16.12**	40.926

802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	14.45	27.861
6	2437	14.63	29.04
11	2462	**14.81**	30.269

802.11n HT40

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
3	2422	13.95	24.831
6	2437	14.08	25.586
9	2452	**14.24**	26.546

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

4.5.2 TEST SETUP

4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

a) Set instrument center frequency to DTS channel center frequency.
b) Set 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.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as item 4.3.6.

4.5.7 TEST RESULTS

802.11b

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.58	8.00	PASS
6	2437	**-13.46**	8.00	PASS
11	2462	-13.53	8.00	PASS

802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.21	8.00	PASS
6	2437	-13.13	8.00	PASS
11	2462	**-12.79**	8.00	PASS

802.11n HT20

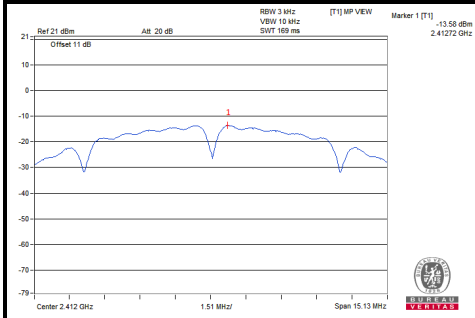
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.88	8.00	PASS
6	2437	**-13.63**	8.00	PASS
11	2462	-13.65	8.00	PASS

802.11n HT40

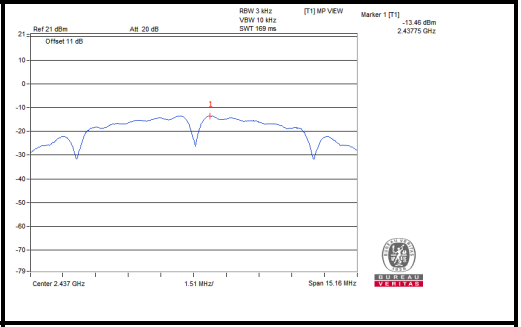
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	**-14.47**	8.00	PASS
6	2437	-15.15	8.00	PASS
9	2452	-14.87	8.00	PASS

SPECTRUM PLOT OF VALUE

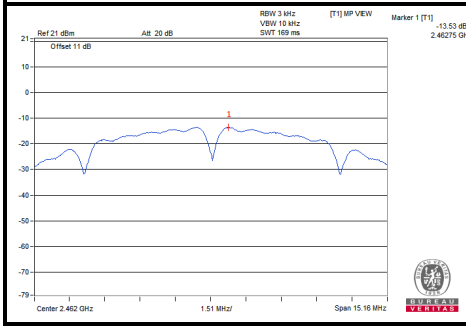
802.11b



802.11b

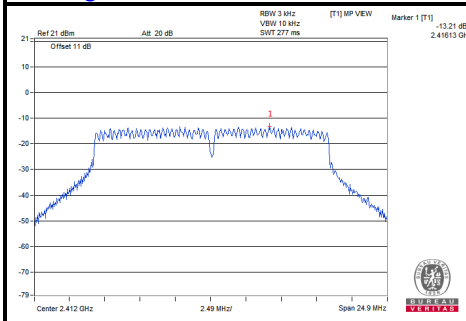


802.11b

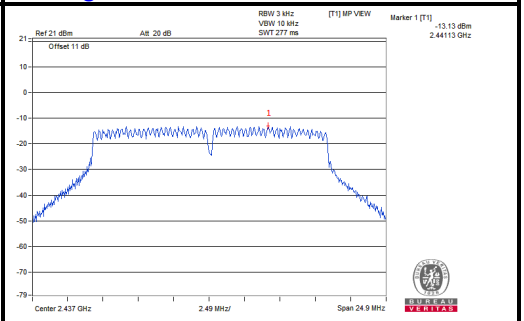


SPECTRUM PLOT OF VALUE

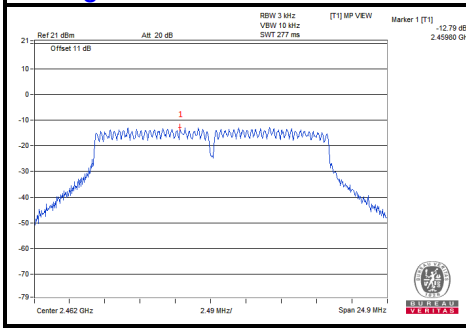
802.11g



802.11g

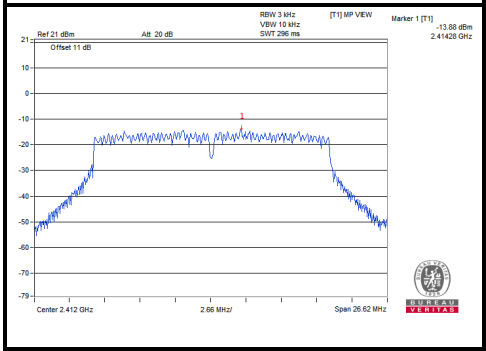


802.11g

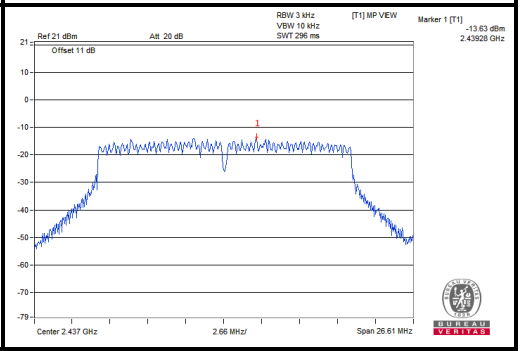


SPECTRUM PLOT OF VALUE

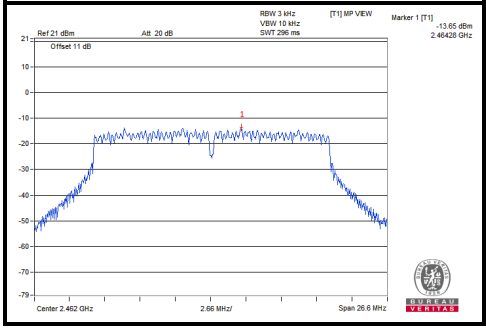
802.11n HT20



802.11n HT20

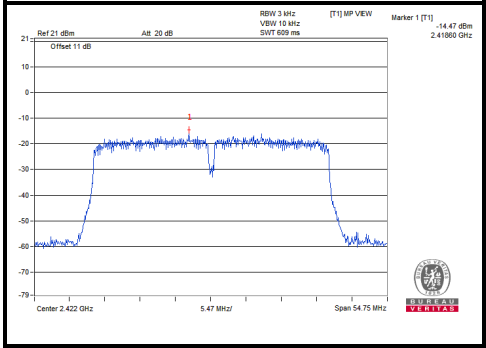


802.11n HT20



SPECTRUM PLOT OF VALUE

802.11n HT40



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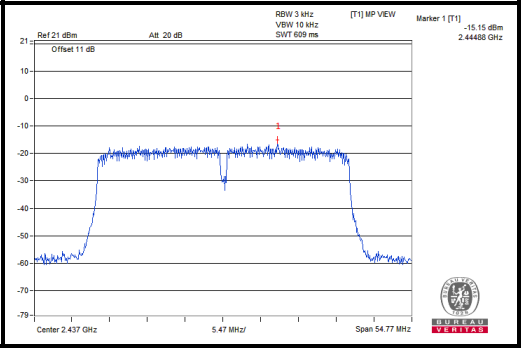

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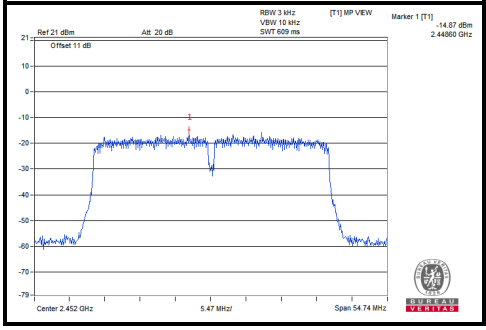
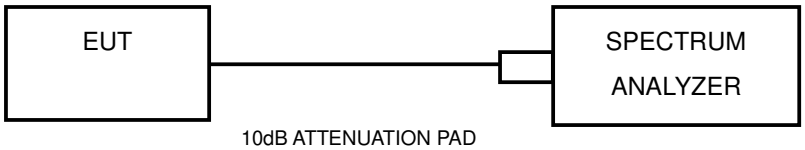


4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

Measurement Procedure - Reference Level

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

Measurement Procedure –Unwanted Emission Level

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

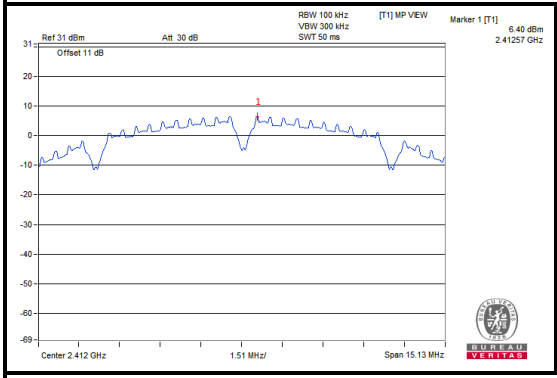
4.6.6 EUT OPERATING CONDITION

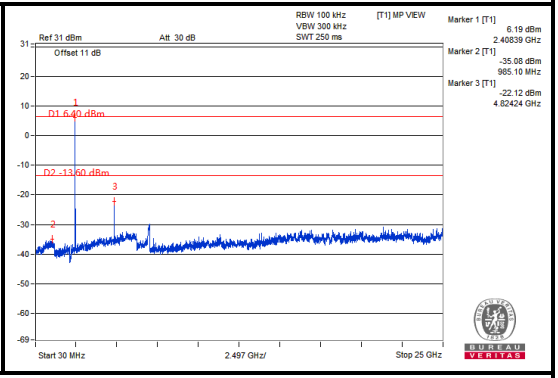
Same as item 4.3.6

4.6.7 TEST RESULTS

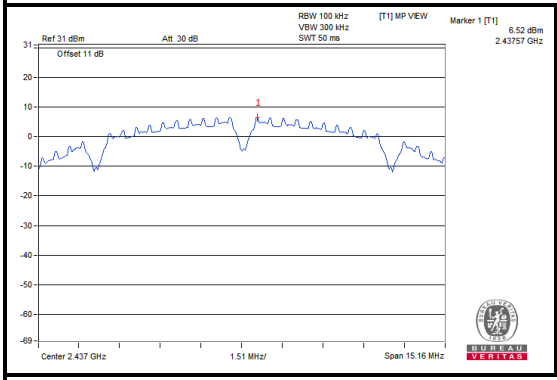
802.11b

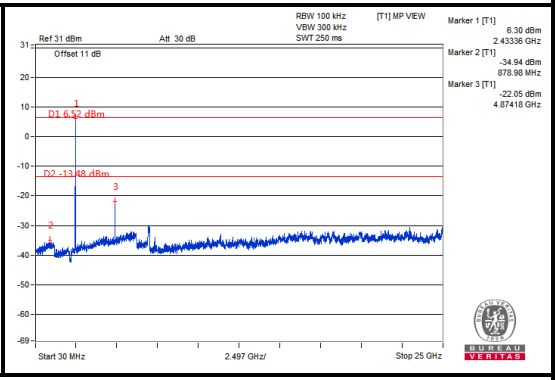
CH 1



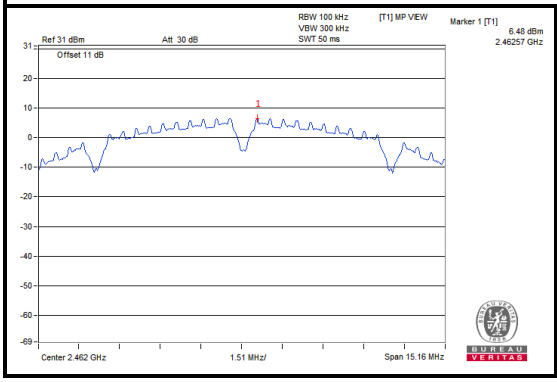


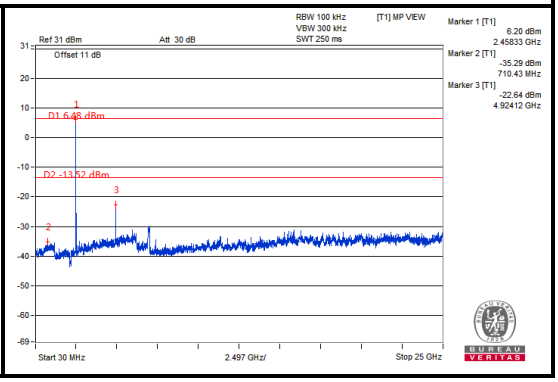
CH 6





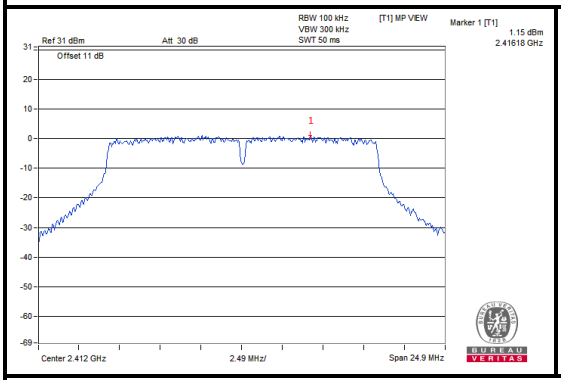
CH 11

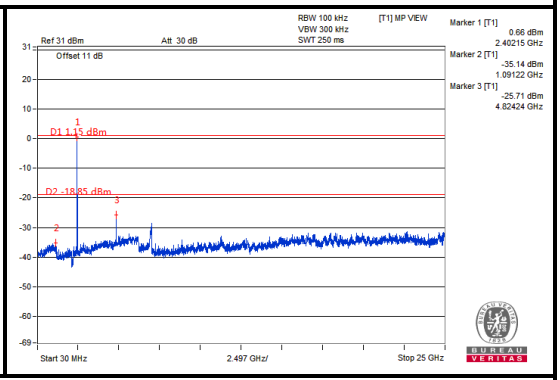




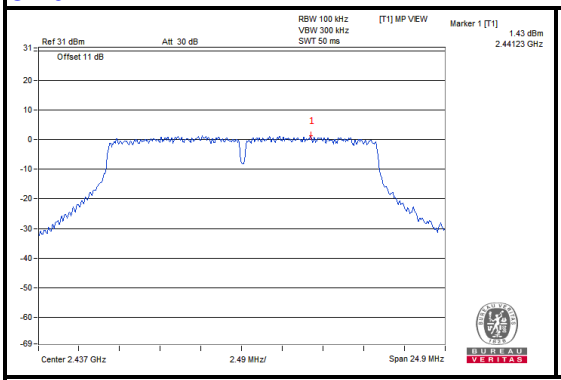
802.11g

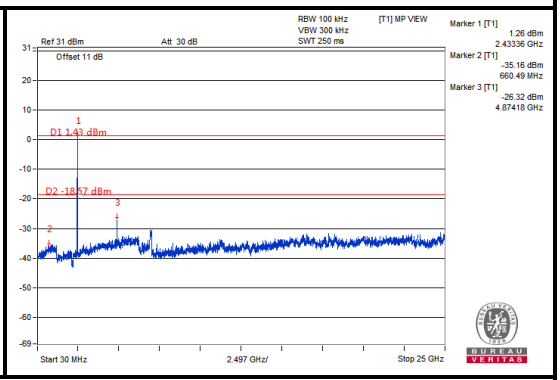
CH 1



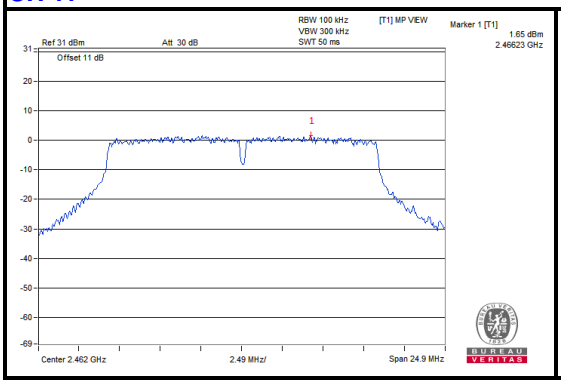


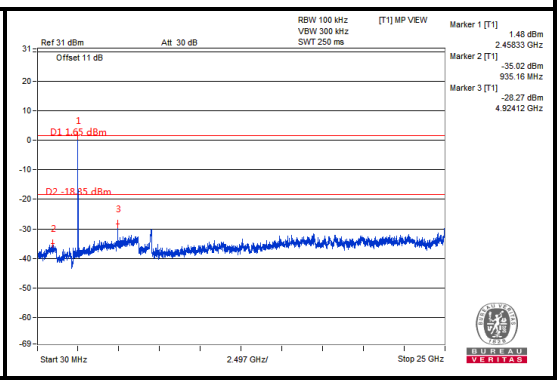
CH 6





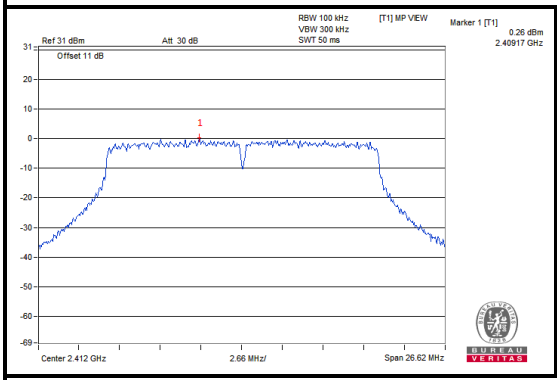
CH 11

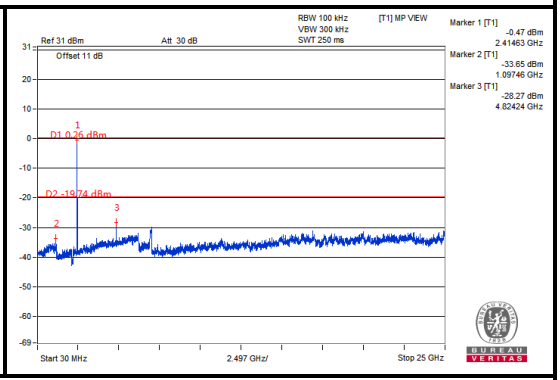




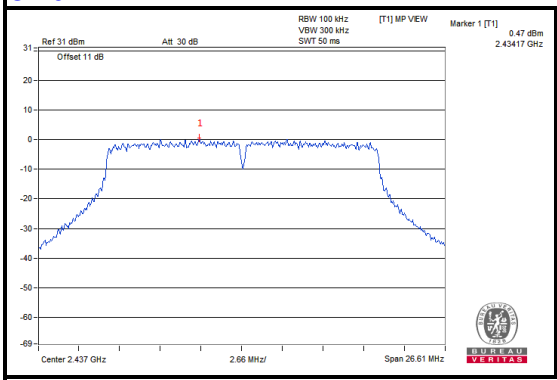
802.11n HT20

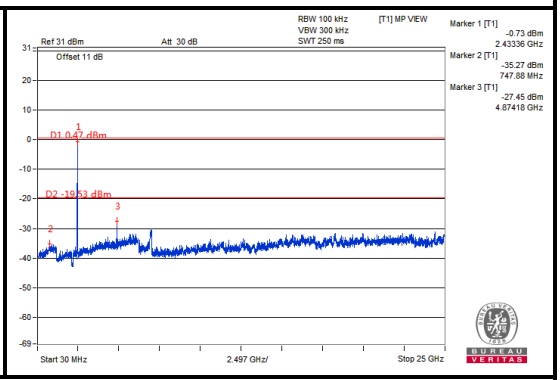
CH 1



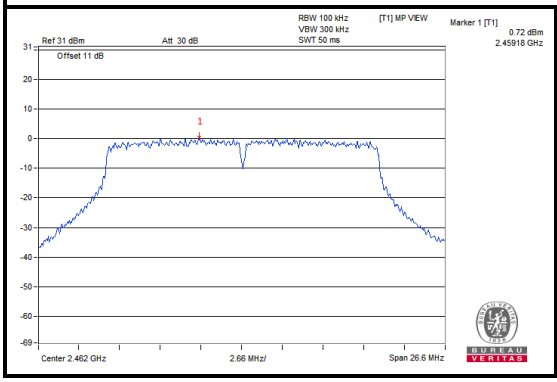


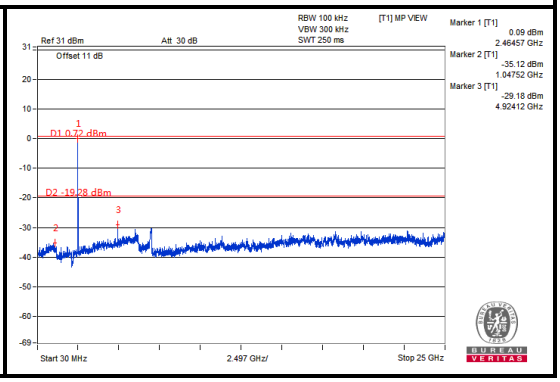
CH 6





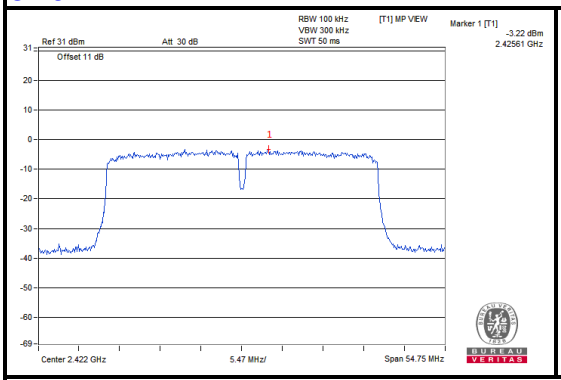
CH 11

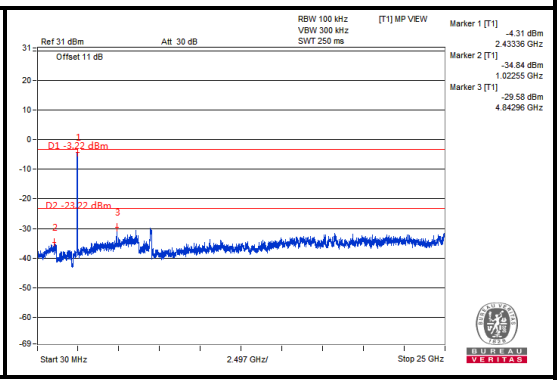




802.11n HT40

CH 3





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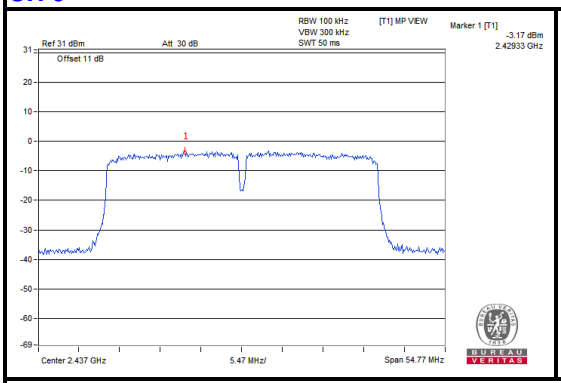

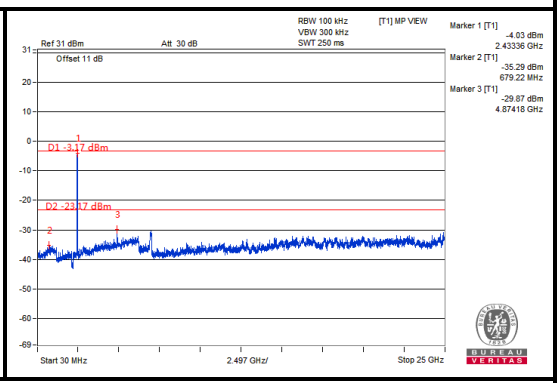

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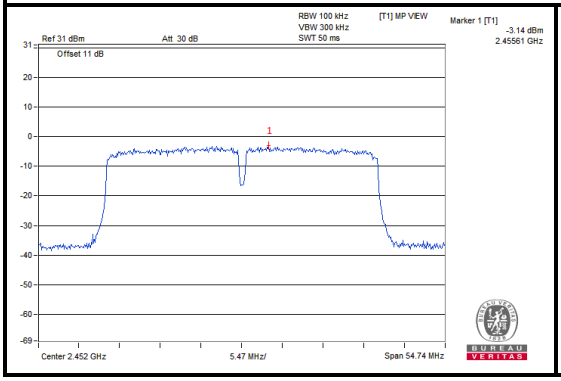
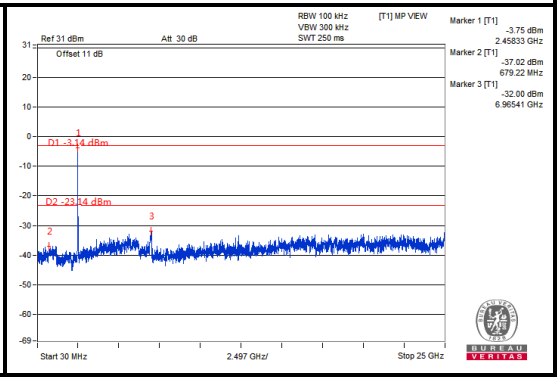
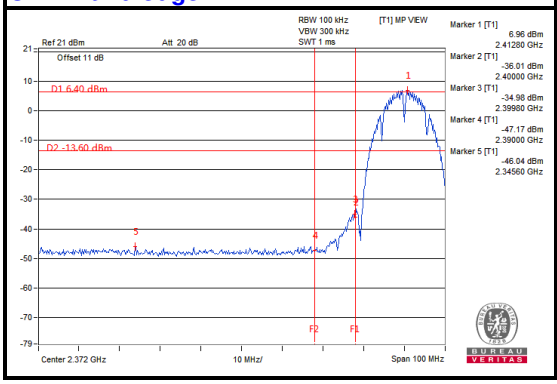
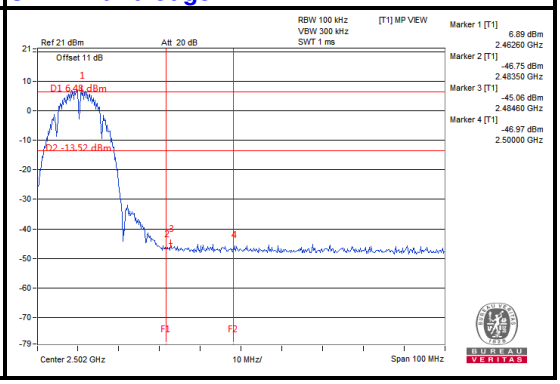
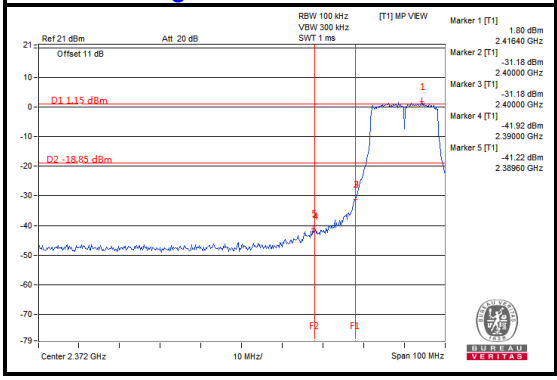
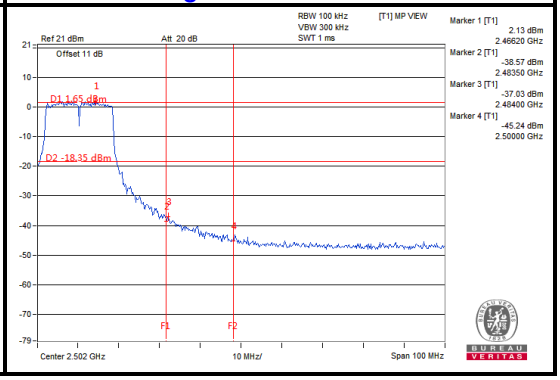




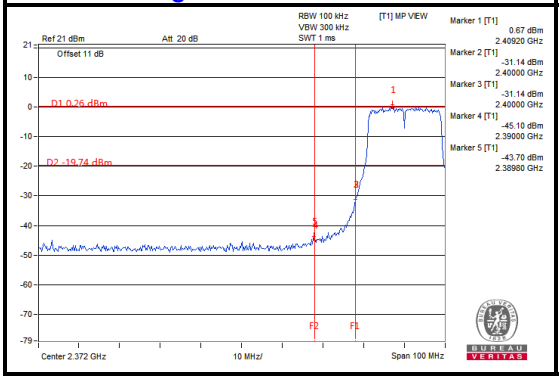
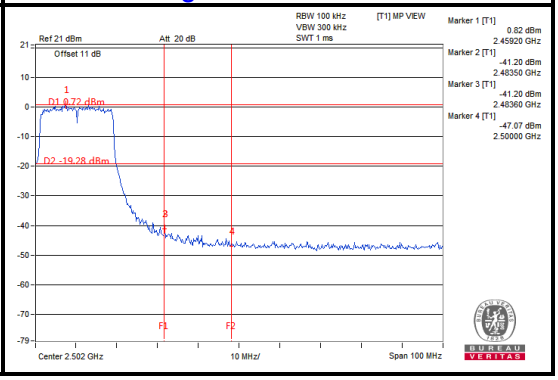
802.11b

CH 1 Band edge	CH 11 Band edge
	

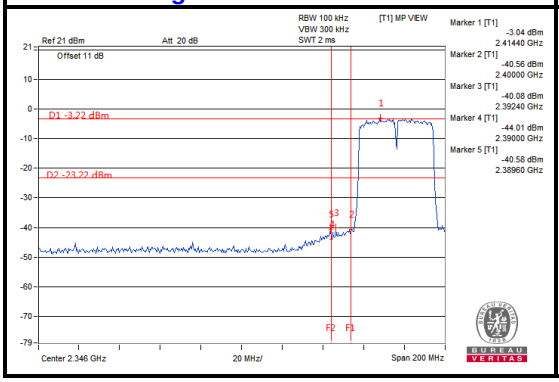
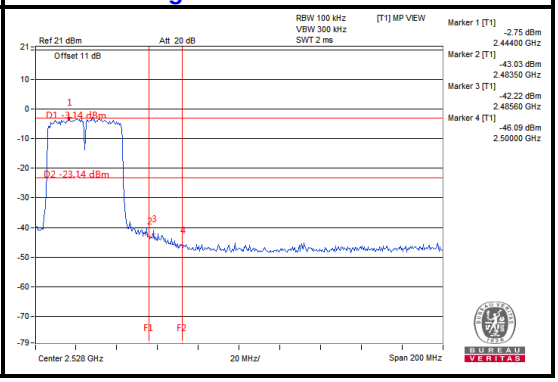
802.11g

CH 1 Band edge	CH 11 Band edge
	

802.11n HT20

CH 1 Band edge	CH 11 Band edge
	

802.11n HT40

CH 3 Band edge	CH 9 Band edge
	

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

---END---