

TEST REPORT

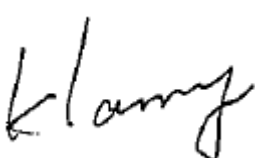
Applicant	TP-Link Technologies Co., Ltd.
Address	Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

Manufacturer or Supplier	TP-Link Technologies Co., Ltd.
Address	Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Product	Smart Wi-Fi Plug, 2-Outlet
Brand Name	tp-link
Model	HS107
Additional Model & Model Difference	N/A
Date of tests	Jan. 05, 2018 ~ Jan. 11, 2018

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 Harry Li Project Engineer/ EMC Department	Approved by Glyn He Supervisor / EMC Department
	 Date: Jan. 29, 2018

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TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS.....	5
2 MEASUREMENT UNCERTAINTY	5
3 GENERAL INFORMATION	6
3.1 GENERAL DESCRIPTION OF EUT.....	6
3.2 DESCRIPTION OF TEST MODES.....	7
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST	8
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	8
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS.....	13
3.4 DESCRIPTION OF SUPPORT UNITS.....	13
4 TEST TYPES AND RESULTS.....	14
4.1 CONDUCTED EMISSION MEASUREMENT	14
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	14
4.1.2 TEST INSTRUMENTS.....	14
4.1.3 TEST PROCEDURES	15
4.1.4 DEVIATION FROM TEST STANDARD	15
4.1.5 TEST SETUP	16
4.1.6 EUT OPERATING CONDITIONS	16
4.1.7 TEST RESULTS	17
4.2 RADIATED EMISSION MEASUREMENT	19
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	19
4.2.2 TEST INSTRUMENTS.....	20
4.2.3 TEST PROCEDURES	21
4.2.4 DEVIATION FROM TEST STANDARD	21
4.2.5 TEST SETUP	22
4.2.6 EUT OPERATING CONDITIONS	23
4.2.7 TEST RESULTS	24
4.3 6DB BANDWIDTH MEASUREMENT	41
4.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT	41
4.3.2 TEST INSTRUMENTS.....	41
4.3.3 TEST PROCEDURE.....	42
4.3.4 DEVIATION FROM TEST STANDARD	42
4.3.5 TEST SETUP	43



4.3.6	EUT OPERATING CONDITIONS	43
4.3.7	TEST RESULTS	44
4.4	CONDUCTED OUTPUT POWER.....	48
4.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	48
4.4.2	TEST SETUP	48
4.4.3	TEST INSTRUMENTS.....	48
4.4.4	TEST PROCEDURES	49
4.4.5	DEVIATION FROM TEST STANDARD	49
4.4.6	EUT OPERATING CONDITIONS	49
4.4.7	TEST RESULTS	50
4.5	POWER SPECTRAL DENSITY MEASUREMENT	51
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	51
4.5.2	TEST SETUP	51
4.5.3	TEST INSTRUMENTS.....	51
4.5.4	TEST PROCEDURE.....	51
4.5.5	DEVIATION FROM TEST STANDARD	52
4.5.6	EUT OPERATING CONDITION	52
4.5.7	TEST RESULTS	53
4.6	OUT OF BAND EMISSION MEASUREMENT	57
4.6.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	57
4.6.2	TEST SETUP	57
4.6.3	TEST INSTRUMENTS.....	57
4.6.4	TEST PROCEDURE.....	57
4.6.5	DEVIATION FROM TEST STANDARD	58
4.6.6	EUT OPERATING CONDITION	58
4.6.7	TEST RESULTS	59
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	65
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	66



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF180105N021	Original release	Jan. 29, 2018



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	No antenna connector is used

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	2.70dB
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GMHz	3.83dB
	1GHz ~ 18GHz	4.93dB
	18GHz ~ 40GHz	4.80dB

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	Smart Wi-Fi Plug, 2-Outlet
MODEL NO.	HS107
FCC ID	TE7HS107
NOMINAL VOLTAGE	AC 100-120V, 60Hz
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
OUTPUT POWER	22.36dBm (Maximum Average Power)
ANTENNA TYPE	PCB antenna; 3dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

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

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

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Please refer to the EUT photo document (Reference No.: 180105N021) 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 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 AC 120V with WIFI function

Where **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission

RE≥1G: Radiated Emission above 1GHz
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
-	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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11b	1 to 11	1	DSSS	DBPSK	1.0	X

**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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11b	1 to 11	1, 2, 6, ,10,11	DSSS	DBPSK	1.0	X
802.11g	1 to 11	1, 2, 6, ,10,11	OFDM	BPSK	6.0	X
802.11n HT20	1 to 11	1, 2, 6, ,10,11	OFDM	BPSK	6.5	X
802.11n HT40	3 to 9	3, 4, 6, 8, 9	OFDM	BPSK	13.5	X

BANDEDGE MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
802.11n HT40	3 to 9	3, 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 55%RH	AC 120V 60Hz	Tank
RE≥1G	25deg. C, 55%RH	AC 120V 60Hz	Tank
PLC	20deg. C, 56%RH	AC 120V 60Hz	Dragon
APCM	20deg. C, 55%RH	AC 120V 60Hz	Robert Cheng



DUTY CYCLE OF SIGNAL

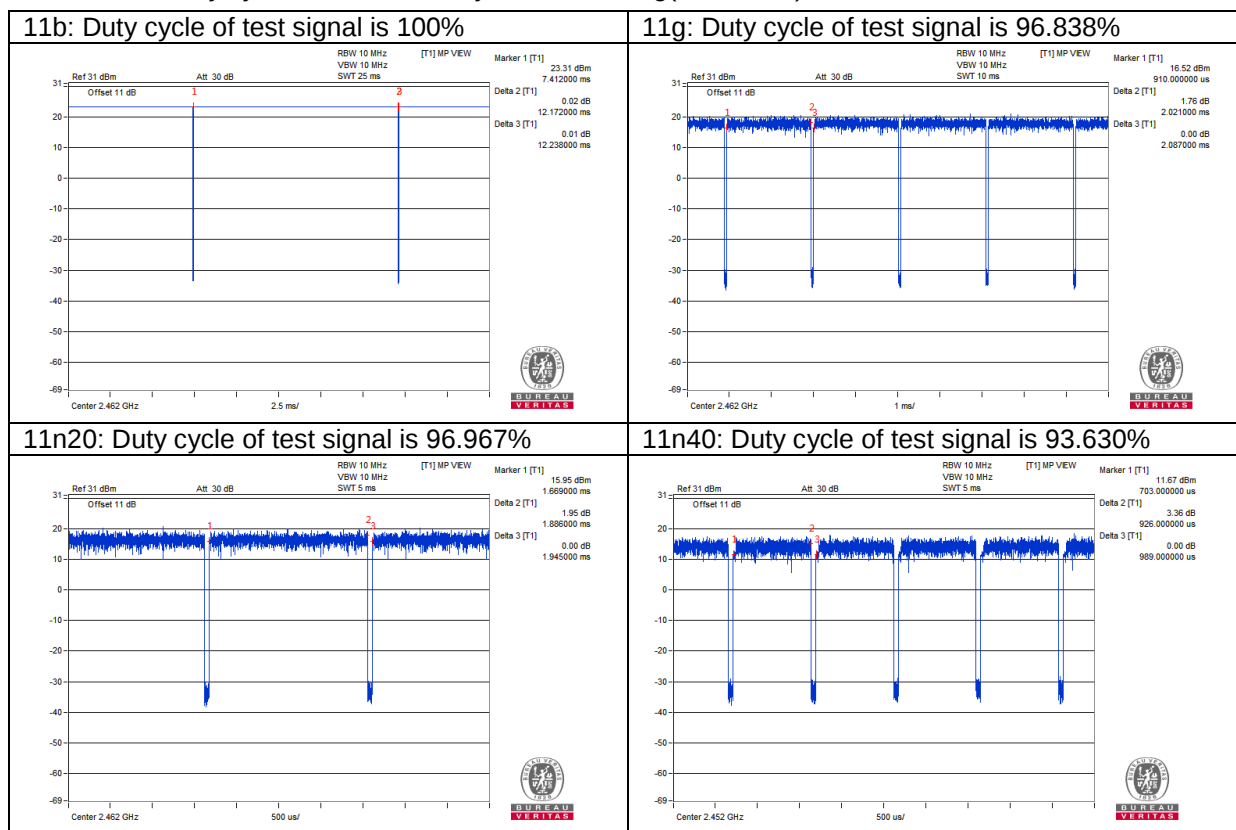
802.11b: Duty cycle of test signal >98%, duty cycle factor is not required.

802.11g/n20/n40: Duty cycle of test signal <98%, duty cycle factor was required and add in the conducted power.

802.11g: Duty cycle =96.838%, Duty factor = $10 \cdot \log(1/0.96838)=0.140\text{dB}$.

802.11n20: Duty cycle =96.967%, Duty factor = $10 \cdot \log(1/0.96967)=0.134\text{dB}$.

802.11n40: Duty cycle =93.630%, Duty factor = $10 \cdot \log(1/0.93630)=0.286\text{dB}$.



**POWER SETTING VALUE:**

Test mode	Test Frequency (MHz)	Power setting	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
11b	2412	22.5	CCK	DBPSK	1.0
	2437	22.5	CCK	DBPSK	1.0
	2462	22.5	CCK	DBPSK	1.0
11g	2412	16.5	OFDM	BPSK	6.0
	2417	19	OFDM	BPSK	6.0
	2437	24	OFDM	BPSK	6.0
	2457	18	OFDM	BPSK	6.0
	2462	15	OFDM	BPSK	6.0
11n HT20	2412	16	OFDM	BPSK	MCS0
	2417	20	OFDM	BPSK	MCS0
	2437	23.5	OFDM	BPSK	MCS0
	2457	18	OFDM	BPSK	MCS0
	2462	14.5	OFDM	BPSK	MCS0
11n HT40	2422	14	OFDM	BPSK	MCS0
	2427	16	OFDM	BPSK	MCS0
	2437	16.5	OFDM	BPSK	MCS0
	2447	16	OFDM	BPSK	MCS0
	2452	14.5	OFDM	BPSK	MCS0



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

558074 D01 DTS Meas Guidance v04

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	Notebook	DELL	E6420	9H12FS1	N/A
2	Voltage Electrical load	CN HYE	TDGC2J-3	AX220V	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.8m; DC Line: Unshielded, Detachable 1.8m;
2	AC Line: Unshielded, Detachable 12m; DC Line: Unshielded, Detachable 2m;

Note: The Voltage Electrical load connected the AC output plug of the UUT.



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Apr. 05,17	Apr. 04,18
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 06,17	Mar. 05,18
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Apr. 05,17	Apr. 04,18
Voltage probe	SCHWARZBEC K	TK 9421	TK 9421-176	Jan. 04,18	Jan. 03,19
Test software	ADT	ADT_Conc_V 7.3.7	N/A	N/A	N/A

- NOTE:**
1. The test was performed in shielded room 553.
 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.



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) were not recorded.

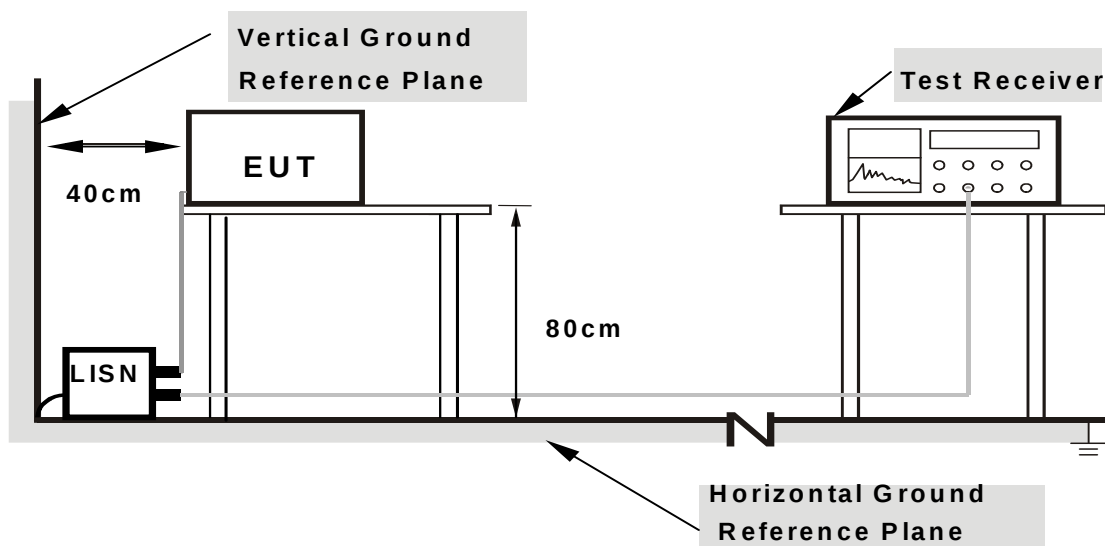
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

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

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



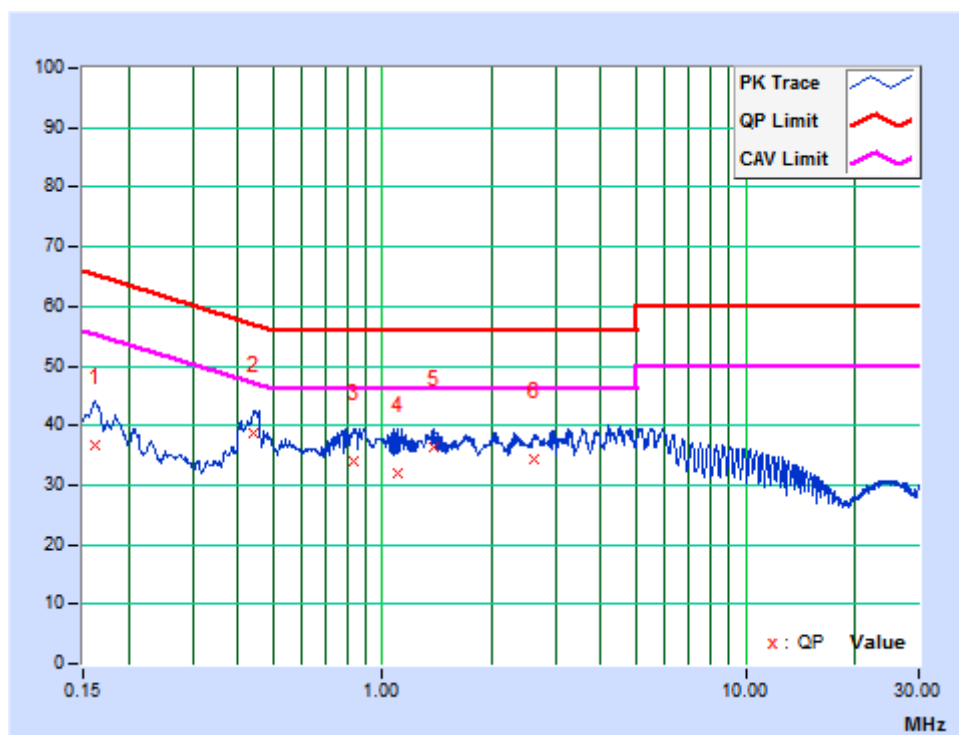
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI LINK

PHASE	Line	6dB BANDWIDTH	9kHz
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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	0.16093	10.22	26.61	16.51	36.83	26.73	65.42	55.42	-28.59	-28.69
2	0.44123	10.23	28.44	16.57	38.67	26.80	57.04	47.04	-18.37	-20.24
3	0.83592	10.23	23.67	12.59	33.90	22.82	56.00	46.00	-22.10	-23.18
4	1.10590	10.23	21.77	11.88	32.00	22.11	56.00	46.00	-24.00	-23.89
5	1.38975	10.22	26.14	14.65	36.36	24.87	56.00	46.00	-19.64	-21.13
6	2.63175	10.22	23.97	11.95	34.19	22.17	56.00	46.00	-21.81	-23.83

- 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.

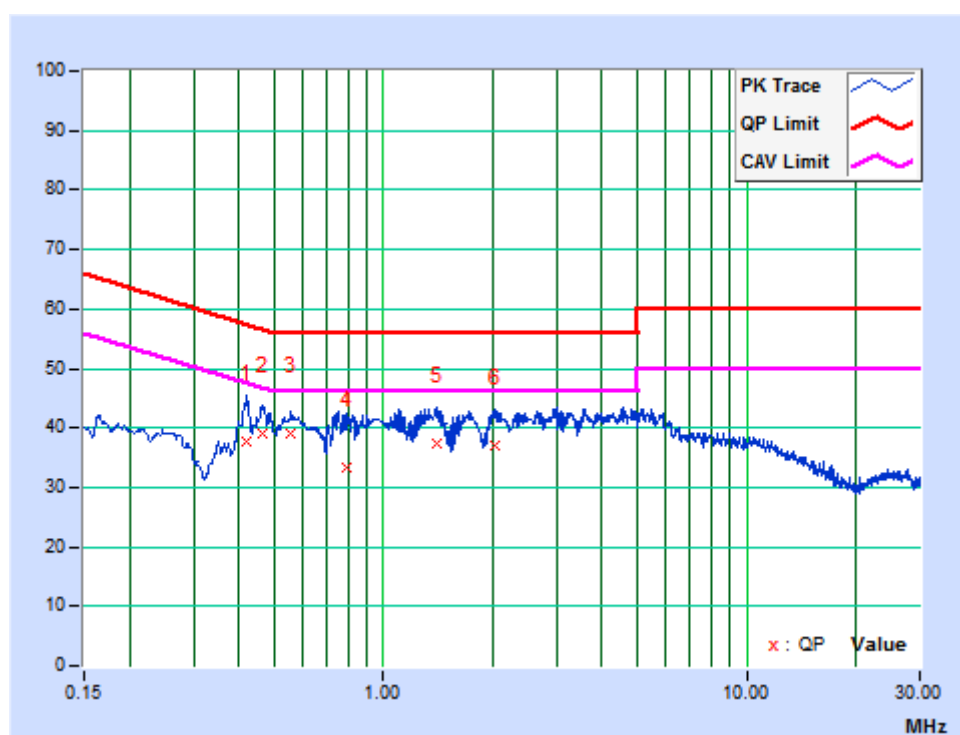




PHASE	Neutral	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.42076	10.02	27.84	16.14	37.86	26.16	57.43	47.43	-19.57	-21.27
2	0.46275	10.03	28.99	19.05	39.02	29.08	56.64	46.64	-17.63	-17.57
3	0.55725	10.02	29.16	18.11	39.18	28.13	56.00	46.00	-16.82	-17.87
4	0.79575	10.02	23.36	12.64	33.38	22.66	56.00	46.00	-22.62	-23.34
5	1.41225	10.01	27.37	16.07	37.38	26.08	56.00	46.00	-18.62	-19.92
6	2.02444	10.01	27.14	15.44	37.15	25.45	56.00	46.00	-18.85	-20.55

- 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

NOTE:

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



4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 11,17	Mar. 10,18
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	May 31,17	May 30,18
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Apr. 05,17	Apr. 04,18
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	30643	Jul. 28, 17	Jul. 27, 18
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 19,17	May 18,18
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 15,17	Mar. 14,18
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 06,17	Mar. 05,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Mar. 06,17	Mar. 05,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 08,17	Nov. 07,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 10,17	Aug. 09,18

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments are 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.



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. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection 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 10Hz 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.

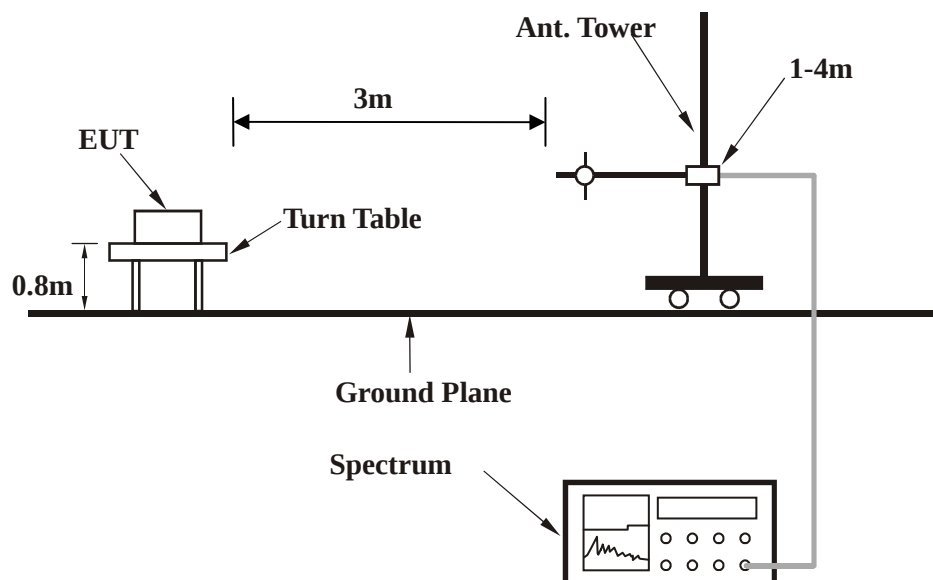
4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



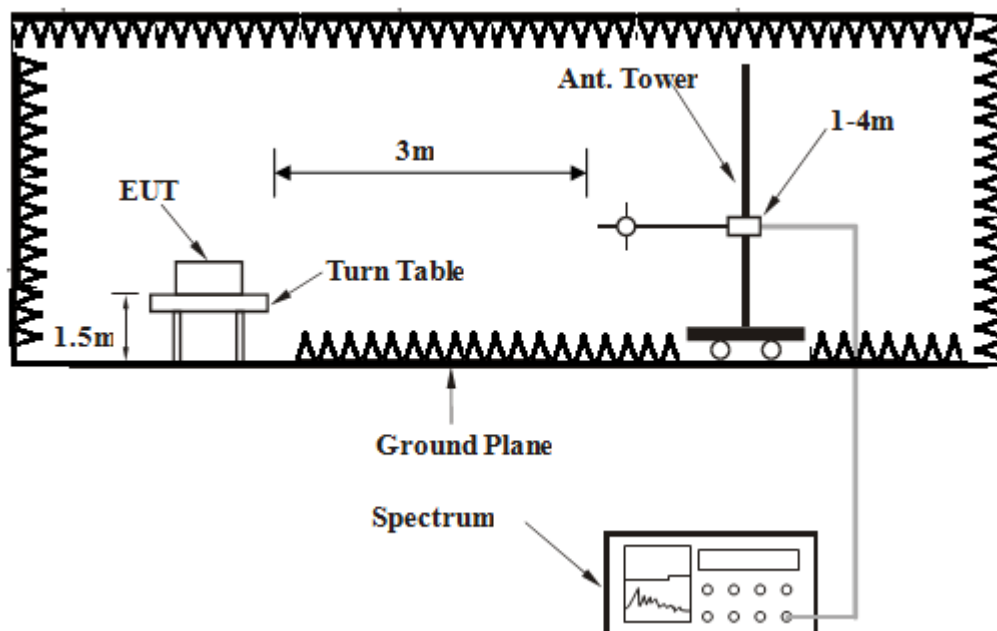
4.2.5 TEST SETUP

Below 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. Set the EUT placed 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:

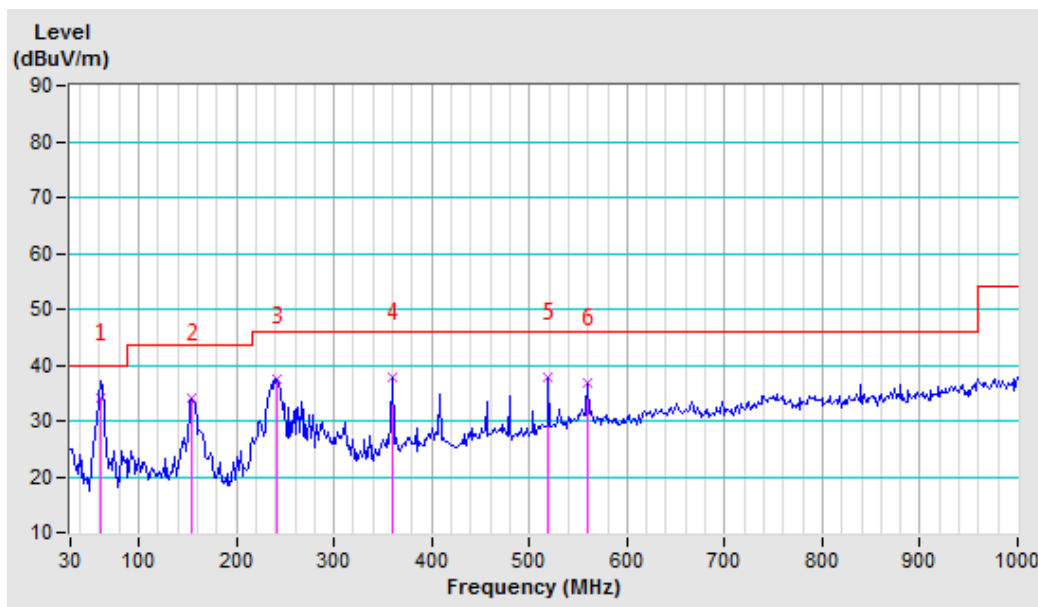
802.11b

CHANNEL	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	61.09	34.10 QP	40.00	-5.90	1.00 H	224	52.75	-18.65
2	154.36	34.20 QP	43.50	-9.30	1.00 H	108	44.65	-10.45
3	241.41	37.37 QP	46.00	-8.63	1.00 H	193	47.28	-9.91
4	359.55	37.86 QP	46.00	-8.14	1.00 H	74	42.04	-4.18
5	519.66	37.92 QP	46.00	-8.08	1.00 H	306	37.50	0.42
6	560.08	36.86 QP	46.00	-9.14	1.00 H	238	34.14	2.72

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



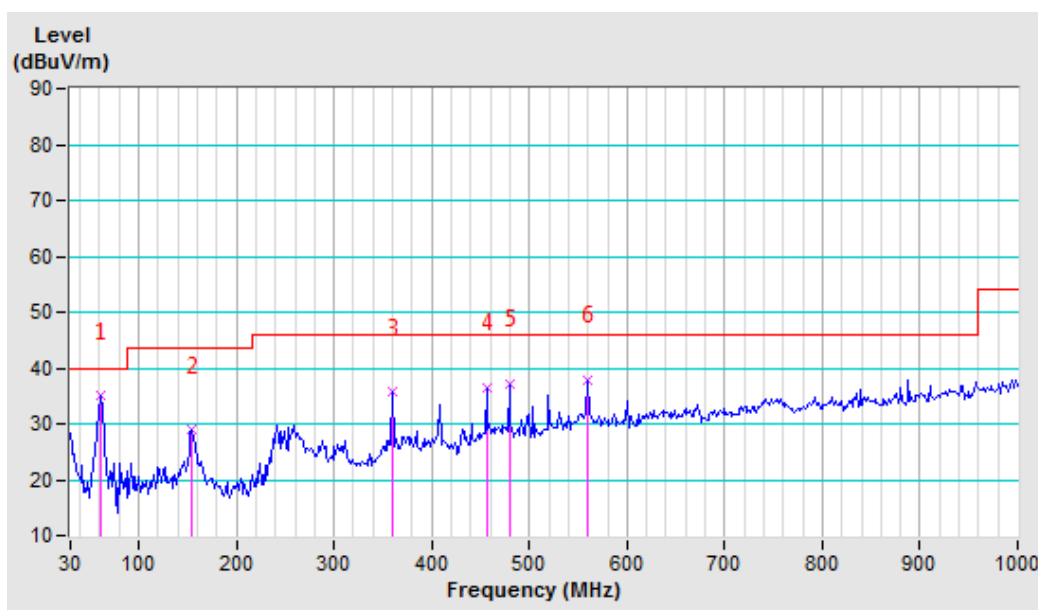


CHANNEL	Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	61.09	34.95 QP	40.00	-5.05	2.00 V	142	53.60	-18.65
2	154.36	28.82 QP	43.50	-14.68	2.00 V	83	39.27	-10.45
3	359.55	35.60 QP	46.00	-10.40	2.00 V	297	39.78	-4.18
4	455.93	36.50 QP	46.00	-9.50	2.00 V	353	38.23	-1.73
5	479.25	37.04 QP	46.00	-8.96	2.00 V	43	38.40	-1.36
6	560.08	37.72 QP	46.00	-8.28	2.00 V	220	35.00	2.72

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.





ABOVE 1GHz DATA

802.11b

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	57.83 PK	74.00	-16.17	2.03 H	66	19.79	38.04
2	2390.00	48.27 AV	54.00	-5.73	2.03 H	66	10.23	38.04
3	*2412.00	112.55 PK			2.03 H	61	74.44	38.11
4	*2412.00	108.87 AV			2.03 H	61	70.76	38.11
5	4824.00	53.67 PK	74.00	-20.33	1.00 H	120	47.57	6.10
6	4824.00	51.78 AV	54.00	-2.22	1.00 H	120	45.68	6.10
7	#7236.00	59.18 PK	74.00	-14.82	1.17 H	278	47.67	11.51
8	#7236.00	44.34 AV	54.00	-9.66	1.17 H	278	32.83	11.51
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	55.41 PK	74.00	-18.59	1.00 V	226	17.37	38.04
2	2390.00	43.75 AV	54.00	-10.25	1.00 V	226	5.71	38.04
3	*2412.00	106.45 PK			1.46 V	238	68.34	38.11
4	*2412.00	103.01 AV			1.46 V	238	64.90	38.11
5	4824.00	53.99 PK	74.00	-20.01	2.45 V	159	47.89	6.10
6	4824.00	48.28 AV	54.00	-5.72	2.45 V	159	42.18	6.10
7	#7236.00	59.92 PK	74.00	-14.08	1.24 V	274	48.41	11.51
8	#7236.00	44.90 AV	54.00	-9.10	1.24 V	274	33.39	11.51

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 less than 20dB margin against the limit.
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)
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	56.30 PK	74.00	-17.70	2.47 H	114	18.26	38.04
2	2390.00	44.34 AV	54.00	-9.66	2.47 H	114	6.30	38.04
3	*2437.00	116.58 PK			3.09 H	39	78.38	38.20
4	*2437.00	112.80 AV			3.09 H	39	74.60	38.20
5	2483.50	57.69 PK	74.00	-16.31	1.57 H	58	19.33	38.36
6	2483.50	47.07 AV	54.00	-6.93	1.57 H	58	8.71	38.36
7	4874.00	56.33 PK	74.00	-17.67	2.36 H	205	50.13	6.20
8	4874.00	52.70 AV	54.00	-1.30	2.36 H	205	46.50	6.20
9	7311.00	56.28 PK	74.00	-17.72	1.54 H	159	44.56	11.72
10	7311.00	45.43 AV	54.00	-8.57	1.54 H	159	33.71	11.72
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	55.55 PK	74.00	-18.45	1.37 V	239	17.51	38.04
2	2390.00	42.59 AV	54.00	-11.41	1.37 V	239	4.55	38.04
3	*2437.00	108.99 PK			1.32 V	228	70.79	38.20
4	*2437.00	103.35 AV			1.32 V	228	65.15	38.20
5	2483.50	57.19 PK	74.00	-16.81	2.57 V	223	18.83	38.36
6	2483.50	43.38 AV	54.00	-10.62	2.57 V	223	5.02	38.36
7	4874.00	55.65 PK	74.00	-18.35	2.27 V	167	49.45	6.20
8	4874.00	51.58 AV	54.00	-2.42	2.27 V	167	45.38	6.20
9	7311.00	56.09 PK	74.00	-17.91	3.09 V	172	44.37	11.72
10	7311.00	46.17 AV	54.00	-7.83	3.09 V	172	34.45	11.72

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



CHANNEL	TX Channel 11	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	*2462.00	112.29 PK			1.00 H	39	74.00	38.29
2	*2462.00	108.79 AV			1.00 H	39	70.50	38.29
3	2483.50	60.26 PK	74.00	-13.74	1.94 H	58	21.90	38.36
4	2483.50	49.28 AV	54.00	-4.72	1.94 H	58	10.92	38.36
5	4924.00	53.75 PK	74.00	-20.25	1.13 H	198	47.44	6.31
6	4924.00	49.32 AV	54.00	-4.68	1.13 H	198	43.01	6.31
7	7386.00	56.29 PK	74.00	-17.71	2.76 H	319	44.36	11.93
8	7386.00	43.51 AV	54.00	-10.49	2.76 H	319	31.58	11.93
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	105.94 PK			1.64 V	236	67.65	38.29
2	*2462.00	101.73 AV			1.64 V	236	63.44	38.29
3	2483.50	58.33 PK	74.00	-15.67	1.87 V	226	19.97	38.36
4	2483.50	43.69 AV	54.00	-10.31	1.87 V	226	5.33	38.36
5	4924.00	53.56 PK	74.00	-20.44	2.13 V	169	47.25	6.31
6	4924.00	52.33 AV	54.00	-1.67	2.13 V	169	46.02	6.31
7	7386.00	57.92 PK	74.00	-16.08	1.97 V	323	45.99	11.93
8	7386.00	45.15 AV	54.00	-8.85	1.97 V	323	33.22	11.93

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



802.11g

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	69.57 PK	74.00	-4.43	3.79 H	38	31.53	38.04
2	2390.00	52.25 AV	54.00	-1.75	3.79 H	38	14.21	38.04
3	*2412.00	111.96 PK			3.77 H	62	73.85	38.11
4	*2412.00	101.86 AV			3.77 H	62	63.75	38.11
5	4824.00	52.10 PK	74.00	-21.90	3.76 H	143	46.00	6.10
6	4824.00	39.07 AV	54.00	-14.93	3.76 H	143	32.97	6.10
7	#7236.00	56.65 PK	74.00	-17.35	2.57 H	216	45.14	11.51
8	#7236.00	42.70 AV	54.00	-11.30	2.57 H	216	31.19	11.51
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	63.25 PK	74.00	-10.75	1.00 V	211	25.21	38.04
2	2390.00	46.51 AV	54.00	-7.49	1.00 V	211	8.47	38.04
3	*2412.00	106.91 PK			1.78 V	239	68.80	38.11
4	*2412.00	95.64 AV			1.78 V	239	57.53	38.11
5	4824.00	52.54 PK	74.00	-21.46	2.47 V	321	46.44	6.10
6	4824.00	38.51 AV	54.00	-15.49	2.47 V	321	32.41	6.10
7	#7236.00	56.89 PK	74.00	-17.11	1.31 V	99	45.38	11.51
8	#7236.00	42.69 AV	54.00	-11.31	1.31 V	99	31.18	11.51

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 less than 20dB margin against the limit.
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)
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	72.00 PK	74.00	-2.00	2.20 H	68	33.96	38.04
2	2390.00	53.05 AV	54.00	-0.95	2.20 H	68	15.01	38.04
3	*2437.00	119.18 PK			3.08 H	37	80.98	38.20
4	*2437.00	108.26 AV			3.08 H	37	70.06	38.20
5	2483.50	70.78 PK	74.00	-3.22	2.14 H	62	32.42	38.36
6	2483.50	53.47 AV	54.00	-0.53	2.14 H	62	15.11	38.36
7	4874.00	56.12 PK	74.00	-17.88	1.00 H	206	49.92	6.20
8	4874.00	43.11 AV	54.00	-10.89	1.00 H	206	36.91	6.20
9	7311.00	56.77 PK	74.00	-17.23	1.84 H	241	45.05	11.72
10	7311.00	43.94 AV	54.00	-10.06	1.84 H	241	32.22	11.72
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	64.57 PK	74.00	-9.43	2.19 V	206	26.53	38.04
2	2390.00	47.18 AV	54.00	-6.82	2.19 V	206	9.14	38.04
3	*2437.00	110.76 PK			1.34 V	227	72.56	38.20
4	*2437.00	99.76 AV			1.34 V	227	61.56	38.20
5	2483.50	63.29 PK	74.00	-10.71	1.18 V	225	24.93	38.36
6	2483.50	46.69 AV	54.00	-7.31	1.18 V	225	8.33	38.36
7	4874.00	58.08 PK	74.00	-15.92	2.79 V	162	51.88	6.20
8	4874.00	44.20 AV	54.00	-9.80	2.79 V	162	38.00	6.20
9	7311.00	57.06 PK	74.00	-16.94	2.83 V	54	45.34	11.72
10	7311.00	45.20 AV	54.00	-8.80	2.83 V	54	33.48	11.72

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



CHANNEL	TX Channel 11	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	*2462.00	111.14 PK			3.67 H	55	72.85	38.29
2	*2462.00	100.34 AV			3.67 H	55	62.05	38.29
3	2483.50	69.06 PK	74.00	-4.94	1.93 H	59	30.70	38.36
4	2483.50	52.77 AV	54.00	-1.23	1.93 H	59	14.41	38.36
5	4924.00	52.15 PK	74.00	-21.85	2.81 H	227	45.84	6.31
6	4924.00	38.54 AV	54.00	-15.46	2.81 H	227	32.23	6.31
7	7386.00	57.42 PK	74.00	-16.58	1.14 H	303	45.49	11.93
8	7386.00	43.03 AV	54.00	-10.97	1.14 H	303	31.10	11.93
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	104.06 PK			1.50 V	232	65.77	38.29
2	*2462.00	93.27 AV			1.50 V	232	54.98	38.29
3	2483.50	59.32 PK	74.00	-14.68	2.05 V	210	20.96	38.36
4	2483.50	45.60 AV	54.00	-8.40	2.05 V	210	7.24	38.36
5	4924.00	53.50 PK	74.00	-20.50	1.47 V	229	47.19	6.31
6	4924.00	38.51 AV	54.00	-15.49	1.47 V	229	32.20	6.31
7	7386.00	56.99 PK	74.00	-17.01	2.93 V	214	45.06	11.93
8	7386.00	43.13 AV	54.00	-10.87	2.93 V	214	31.20	11.93

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 less than 20dB margin against the limit.
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	66.85 PK	74.00	-7.15	2.75 H	39	28.81	38.04
2	2390.00	52.42 AV	54.00	-1.58	2.75 H	39	14.38	38.04
3	*2412.00	110.09 PK			1.98 H	64	71.98	38.11
4	*2412.00	99.48 AV			1.98 H	64	61.37	38.11
5	4824.00	52.40 PK	74.00	-21.60	1.39 H	340	46.30	6.10
6	4824.00	38.94 AV	54.00	-15.06	1.39 H	340	32.84	6.10
7	#7236.00	57.00 PK	74.00	-17.00	2.98 H	47	45.49	11.51
8	#7236.00	43.03 AV	54.00	-10.97	2.98 H	47	31.52	11.51
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	59.29 PK	74.00	-14.71	1.14 V	218	21.25	38.04
2	2390.00	45.90 AV	54.00	-8.10	1.14 V	218	7.86	38.04
3	*2412.00	106.67 PK			1.73 V	256	68.56	38.11
4	*2412.00	97.74 AV			1.73 V	256	59.63	38.11
5	4824.00	52.10 PK	74.00	-21.90	1.54 V	316	46.00	6.10
6	4824.00	38.48 AV	54.00	-15.52	1.54 V	316	32.38	6.10
7	#7236.00	56.88 PK	74.00	-17.12	2.77 V	97	45.37	11.51
8	#7236.00	43.12 AV	54.00	-10.88	2.77 V	97	31.61	11.51

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 less than 20dB margin against the limit.
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)
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	70.92 PK	74.00	-3.08	3.84 H	61	32.88	38.04
2	2390.00	53.33 AV	54.00	-0.67	3.84 H	61	15.29	38.04
3	*2437.00	118.25 PK			2.46 H	62	80.05	38.20
4	*2437.00	107.18 AV			2.46 H	62	68.98	38.20
5	2483.50	68.58 PK	74.00	-5.42	2.01 H	45	30.22	38.36
6	2483.50	52.23 AV	54.00	-1.77	2.01 H	45	13.87	38.36
7	4874.00	58.55 PK	74.00	-15.45	1.67 H	319	52.35	6.20
8	4874.00	45.05 AV	54.00	-8.95	1.67 H	319	38.85	6.20
9	7311.00	57.35 PK	74.00	-16.65	2.41 H	287	45.63	11.72
10	7311.00	43.62 AV	54.00	-10.38	2.41 H	287	31.90	11.72
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	64.23 PK	74.00	-9.77	1.49 V	217	26.19	38.04
2	2390.00	46.74 AV	54.00	-7.26	1.49 V	217	8.70	38.04
3	*2437.00	111.13 PK			3.83 V	129	72.93	38.20
4	*2437.00	99.80 AV			3.83 V	129	61.60	38.20
5	2483.50	60.61 PK	74.00	-13.39	1.37 V	221	22.25	38.36
6	2483.50	45.05 AV	54.00	-8.95	1.37 V	221	6.69	38.36
7	4874.00	56.56 PK	74.00	-17.44	2.31 V	176	50.36	6.20
8	4874.00	43.24 AV	54.00	-10.76	2.31 V	176	37.04	6.20
9	7311.00	58.56 PK	74.00	-15.44	1.43 V	352	46.84	11.72
10	7311.00	44.87 AV	54.00	-9.13	1.43 V	352	33.15	11.72

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



CHANNEL	TX Channel 11	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	*2462.00	110.59 PK			2.75 H	43	72.30	38.29
2	*2462.00	99.46 AV			2.75 H	43	61.17	38.29
3	2483.50	68.64 PK	74.00	-5.36	3.52 H	59	30.28	38.36
4	2483.50	53.19 AV	54.00	-0.81	3.52 H	59	14.83	38.36
5	4924.00	52.71 PK	74.00	-21.29	3.78 H	217	46.40	6.31
6	4924.00	38.45 AV	54.00	-15.55	3.78 H	217	32.14	6.31
7	7386.00	57.10 PK	74.00	-16.90	2.53 H	178	45.17	11.93
8	7386.00	43.14 AV	54.00	-10.86	2.53 H	178	31.21	11.93
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	105.27 PK			1.74 V	244	66.98	38.29
2	*2462.00	91.44 AV			1.74 V	244	53.15	38.29
3	2483.50	60.54 PK	74.00	-13.46	2.73 V	220	22.18	38.36
4	2483.50	45.92 AV	54.00	-8.08	2.73 V	220	7.56	38.36
5	4924.00	52.44 PK	74.00	-21.56	1.47 V	351	46.13	6.31
6	4924.00	38.55 AV	54.00	-15.45	1.47 V	351	32.24	6.31
7	7386.00	57.18 PK	74.00	-16.82	2.31 V	77	45.25	11.93
8	7386.00	43.18 AV	54.00	-10.82	2.31 V	77	31.25	11.93

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



802.11n (HT40)

CHANNEL	TX Channel 3	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	67.23 PK	74.00	-6.77	3.77 H	64	29.19	38.04
2	2390.00	52.88 AV	54.00	-1.12	3.77 H	64	14.84	38.04
3	*2422.00	107.81 PK			3.76 H	65	69.66	38.15
4	*2422.00	96.04 AV			3.76 H	65	57.89	38.15
5	4844.00	52.88 PK	74.00	-21.12	2.24 H	247	46.74	6.14
6	4844.00	38.27 AV	54.00	-15.73	2.24 H	247	32.13	6.14
7	7266.00	57.32 PK	74.00	-16.68	1.47 H	305	45.73	11.59
8	7266.00	42.85 AV	54.00	-11.15	1.47 H	305	31.26	11.59
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	60.81 PK	74.00	-13.19	1.00 V	218	22.77	38.04
2	2390.00	46.62 AV	54.00	-7.38	1.00 V	218	8.58	38.04
3	*2422.00	106.12 PK			2.73 V	249	67.97	38.15
4	*2422.00	89.11 AV			2.73 V	249	50.96	38.15
5	4844.00	53.16 PK	74.00	-20.84	2.39 V	172	47.02	6.14
6	4844.00	39.35 AV	54.00	-14.65	2.39 V	172	33.21	6.14
7	7266.00	56.62 PK	74.00	-17.38	3.47 V	156	45.03	11.59
8	7266.00	42.80 AV	54.00	-11.20	3.47 V	156	31.21	11.59

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



CHANNEL	TX Channel 6	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	68.58 PK	74.00	-5.42	3.77 H	63	30.54	38.04
2	2390.00	52.92 AV	54.00	-1.08	3.77 H	63	14.88	38.04
3	*2437.00	110.21 PK			3.76 H	64	72.01	38.20
4	*2437.00	99.07 AV			3.76 H	64	60.87	38.20
5	2483.50	61.82 PK	74.00	-12.18	2.67 H	45	23.46	38.36
6	2483.50	47.88 AV	54.00	-6.12	2.67 H	45	9.52	38.36
7	4874.00	53.68 PK	74.00	-20.32	1.00 H	297	47.48	6.20
8	4874.00	38.39 AV	54.00	-15.61	1.00 H	297	32.19	6.20
9	7311.00	58.07 PK	74.00	-15.93	1.96 H	273	46.35	11.72
10	7311.00	43.04 AV	54.00	-10.96	1.96 H	273	31.32	11.72
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	60.32 PK	74.00	-13.68	1.00 V	216	22.28	38.04
2	2390.00	45.84 AV	54.00	-8.16	1.00 V	216	7.80	38.04
3	*2437.00	103.29 PK			3.67 V	128	65.09	38.20
4	*2437.00	91.64 AV			3.67 V	128	53.44	38.20
5	2483.50	56.53 PK	74.00	-17.47	1.84 V	201	18.17	38.36
6	2483.50	44.16 AV	54.00	-9.84	1.84 V	201	5.80	38.36
7	4874.00	52.20 PK	74.00	-21.80	2.47 V	348	46.00	6.20
8	4874.00	39.51 AV	54.00	-14.49	2.47 V	348	33.31	6.20
9	7311.00	55.91 PK	74.00	-18.09	3.47 V	111	44.19	11.72
10	7311.00	43.00 AV	54.00	-11.00	3.47 V	111	31.28	11.72

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



CHANNEL	TX Channel 9	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	*2452.00	109.37 PK			3.64 H	65	71.12	38.25
2	*2452.00	97.93 AV			3.64 H	65	59.68	38.25
3	2483.50	65.97 PK	74.00	-8.03	2.62 H	44	27.61	38.36
4	2483.50	52.59 AV	54.00	-1.41	2.62 H	44	14.23	38.36
5	4904.00	54.30 PK	74.00	-19.70	2.86 H	324	48.03	6.27
6	4904.00	38.12 AV	54.00	-15.88	2.86 H	324	31.85	6.27
7	7356.00	59.77 PK	74.00	-14.23	2.98 H	314	47.93	11.84
8	7356.00	43.05 AV	54.00	-10.95	2.98 H	314	31.21	11.84
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	100.11 PK			1.35 V	214	61.86	38.25
2	*2452.00	89.38 AV			1.35 V	214	51.13	38.25
3	2483.50	59.33 PK	74.00	-14.67	2.31 V	219	20.97	38.36
4	2483.50	45.62 AV	54.00	-8.38	2.31 V	219	7.26	38.36
5	4904.00	54.41 PK	74.00	-19.59	1.47 V	307	48.14	6.27
6	4904.00	37.76 AV	54.00	-16.24	1.47 V	307	31.49	6.27
7	7356.00	59.92 PK	74.00	-14.08	2.76 V	107	48.08	11.84
8	7356.00	43.07 AV	54.00	-10.93	2.76 V	107	31.23	11.84

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



Additional test for other channel of radiated emission

ABOVE 1GHz DATA

802.11g

CHANNEL			TX Channel 2		DETECTOR FUNCTION		Peak (PK)	
FREQUENCY RANGE			2417MHz				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	70.56 PK	74.00	-3.44	2.75 H	41	32.52	38.04
2	2390.00	53.40 AV	54.00	-0.60	2.75 H	41	15.36	38.04
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	63.84 PK	74.00	-10.16	2.17 V	216	25.80	38.04
2	2390.00	48.25 AV	54.00	-5.75	2.17 V	216	10.21	38.04

CHANNEL			TX Channel 10		DETECTOR FUNCTION		Peak (PK)	
FREQUENCY RANGE			2457MHz				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	2483.50	70.69 PK	74.00	-3.31	1.78 H	40	32.33	38.36
2	2483.50	52.18 AV	54.00	-1.82	1.78 H	40	13.82	38.36
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	2483.50	64.04 PK	74.00	-9.96	2.87 V	210	25.68	38.36
2	2483.50	47.00 AV	54.00	-7.00	2.87 V	210	8.64	38.36

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



802.11n (HT20)

CHANNEL		TX Channel 2			DETECTOR FUNCTION		Peak (PK)	
FREQUENCY RANGE		2417MHz					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	72.09 PK	74.00	-1.91	2.43 H	38	34.05	38.04
2	2390.00	52.43 AV	54.00	-1.57	2.43 H	38	14.39	38.04
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	68.06 PK	74.00	-5.94	1.74 V	215	30.02	38.04
2	2390.00	51.70 AV	54.00	-2.30	1.74 V	215	13.66	38.04

CHANNEL		TX Channel 10			DETECTOR FUNCTION		Peak (PK)	
FREQUENCY RANGE		2457MHz					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	2483.50	71.27 PK	74.00	-2.73	1.00 H	43	32.91	38.36
2	2483.50	52.70 AV	54.00	-1.30	1.00 H	43	14.34	38.36
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	2483.50	62.43 PK	74.00	-11.57	1.97 V	212	24.07	38.36
2	2483.50	46.84 AV	54.00	-7.16	1.97 V	212	8.48	38.36

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



802.11n (HT40)

CHANNEL		TX Channel 4			DETECTOR FUNCTION		Peak (PK)	
FREQUENCY RANGE		2427MHz					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	71.72 PK	74.00	-2.28	2.78 H	38	33.68	38.04
2	2390.00	52.99 AV	54.00	-1.01	2.78 H	38	14.95	38.04
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	65.91 PK	74.00	-8.09	1.59 V	217	27.87	38.04
2	2390.00	53.20 AV	54.00	-0.80	1.59 V	217	15.16	38.04

CHANNEL		TX Channel 8			DETECTOR FUNCTION		Peak (PK)	
FREQUENCY RANGE		2447MHz					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	2483.50	63.89 PK	74.00	-10.11	2.21 H	49	25.53	38.36
2	2483.50	52.73 AV	54.00	-1.27	2.21 H	49	14.37	38.36
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	2483.50	60.07 PK	74.00	-13.93	2.36 V	200	21.71	38.36
2	2483.50	49.89 AV	54.00	-4.11	2.36 V	200	11.53	38.36

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 less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



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.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	May 19,17	May 18,18
Power Sensor	Keysight	U2021XA	MY55060018	May 19,17	May 18,18
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 21, 17	Oct.20, 18
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,17	Sep. 04,18
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 08,17	Nov. 07,18
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,17	Nov. 03,18
Agile Signal Generator	Agilent	8645A	Agilent	Sep.01, 17	Aug.31, 18
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 10,17	Apr. 09,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 17	Dec. 04,18
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.10, 17	Aug.09,18
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A
DC Source	Keysight	E3642A	MY56146098	N/A	N/A

NOTE:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GREGT/CHINA and NIM/CHINA.



4.3.3 TEST PROCEDURE

Refer to "KDB 558074 D01 DTS Meas Guidance v04 " 8.1 Option 2

Refer to "ANSI C63.10-2013 " 11.8.2 Option 2

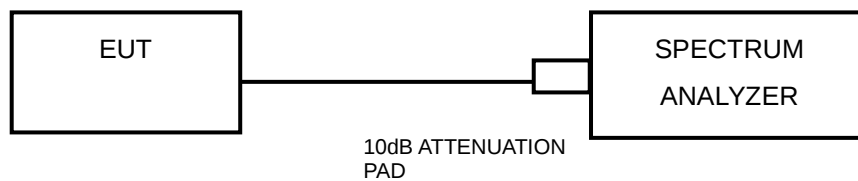
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) 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

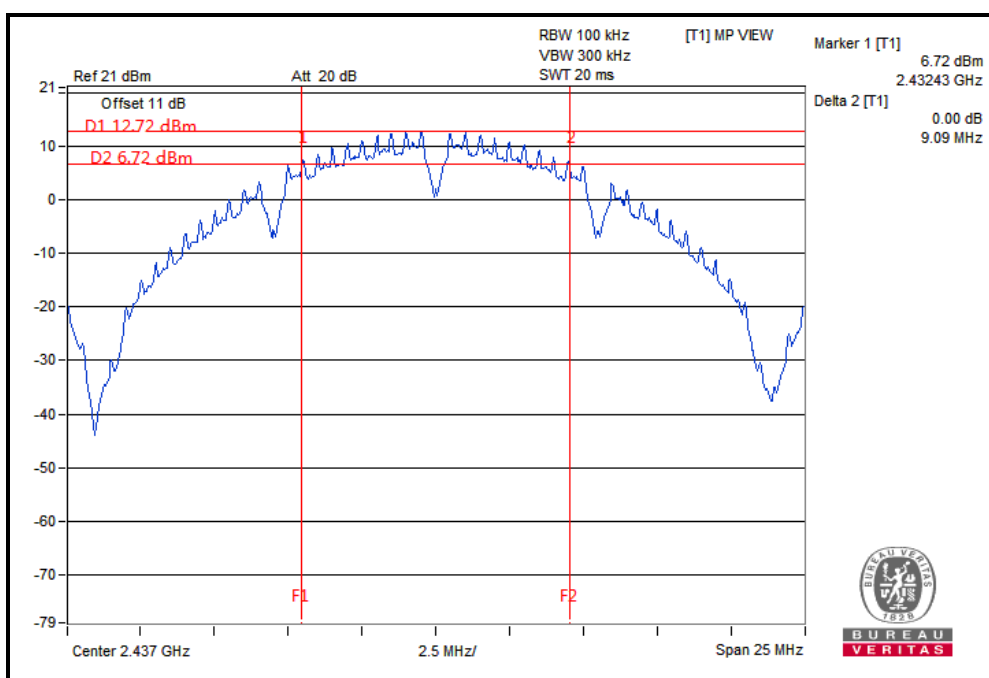
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.06	0.5	PASS
6	2437	9.09	0.5	PASS
11	2462	9.09	0.5	PASS



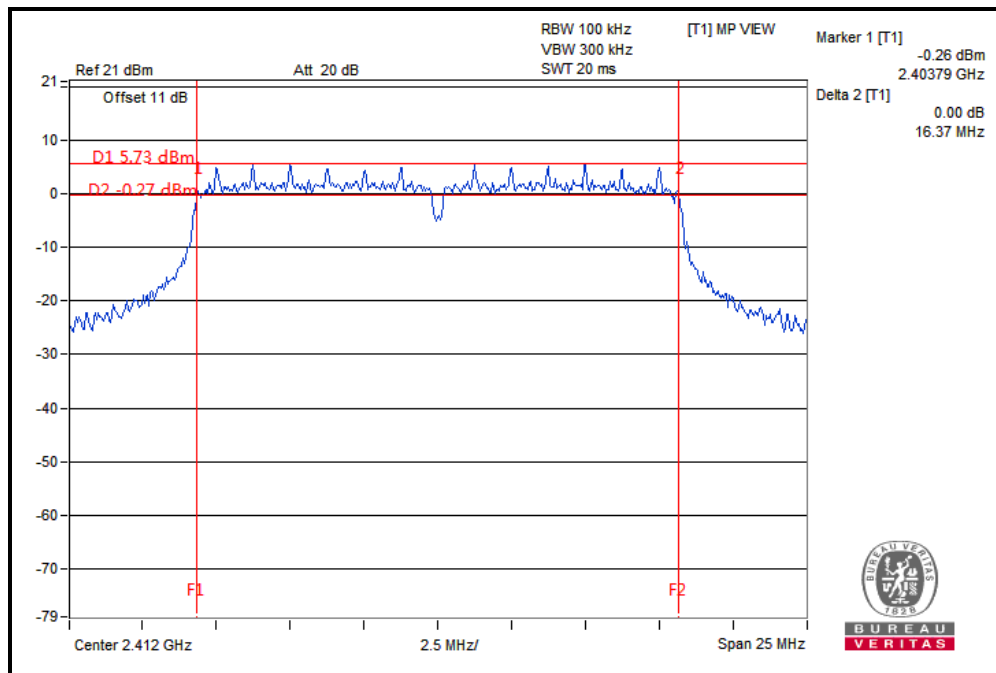


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Test Report No.: RF180105N021

802.11g

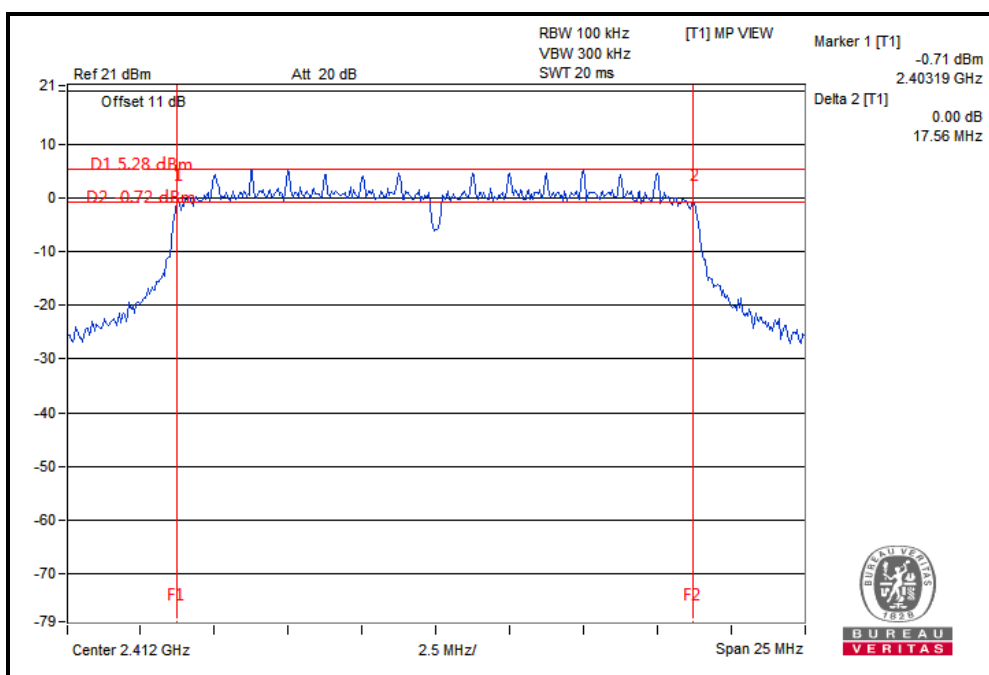
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.37	0.5	PASS
6	2437	16.37	0.5	PASS
11	2462	16.36	0.5	PASS





802.11n (HT20)

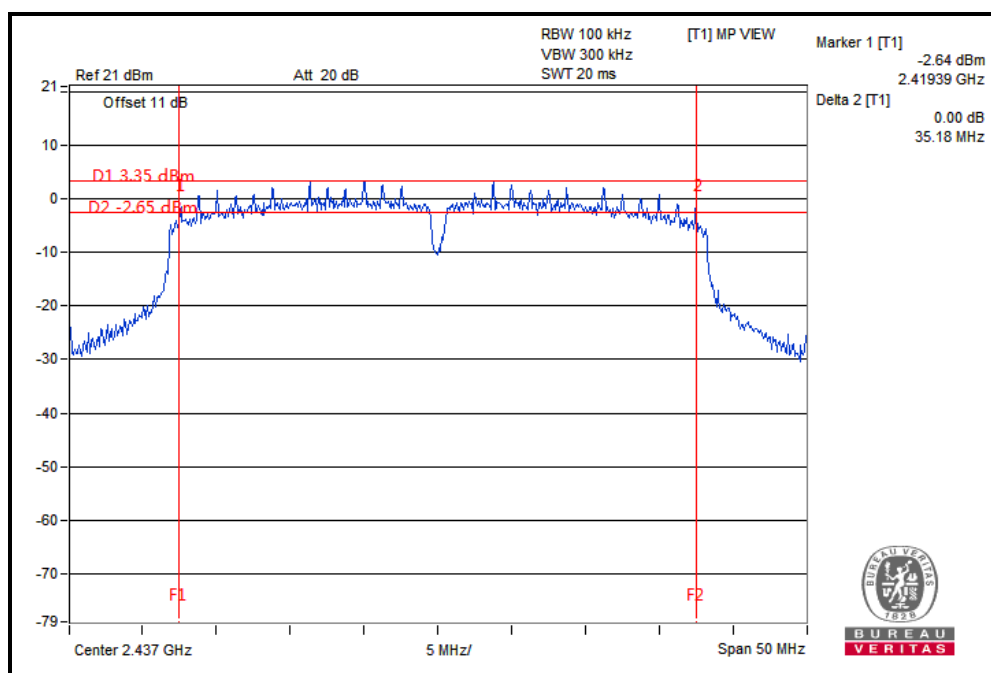
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.56	0.5	PASS
6	2437	17.56	0.5	PASS
11	2462	17.27	0.5	PASS





802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.15	0.5	PASS
6	2437	35.18	0.5	PASS
9	2452	35.13	0.5	PASS



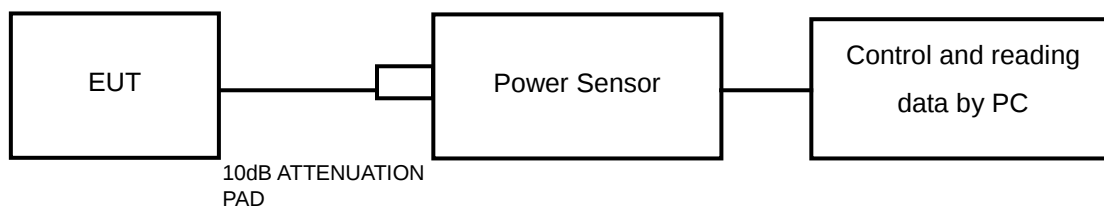


4.4 CONDUCTED OUTPUT POWER

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

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	May 19,17	May 18,18
Power Sensor	Keysight	U2021XA	MY55060018	May 19,17	May 18,18
Test Software	Keysight	Power Analyzer 3.9	Power Analyzer 3.9	N/A	N/A
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 21, 17	Oct.20, 18
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,17	Sep. 04,18
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 08,17	Nov. 07,18
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,17	Nov. 03,18
Agile Signal Generator	Agilent	8645A	Agilent	Sep.01, 17	Aug.31, 18
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 10,17	Apr. 09,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 17	Dec. 04, 18
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.10, 17	Aug.09, 18
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A
DC Source	Keysight	E3642A	MY56146098	N/A	N/A

NOTE:

1. The test was performed in RF Oven 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.



4.4.4 TEST PROCEDURES

An average power sensor was used on the output port of the EUT. The test software was installed in PC used to read the response of the average power sensor. Record the average power level. The Maximum Conducted Output Power was tested based on KDB 558074 D01 DTS Meas Guidance v04 "Chapter 9.2.3.1 and "ANSI C63.10-2013" Chapter 11.9.2.3.1

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

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	21.32	135.519
6	2437	21.48	140.605
11	2462	21.34	136.144

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	16.43	43.954
6	2437	22.36	172.187
11	2462	15.84	38.371

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	15.83	38.282
6	2437	22.31	170.216
11	2462	14.88	30.761

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
3	2422	14.11	25.763
6	2437	16.93	49.317
9	2452	15.10	32.359

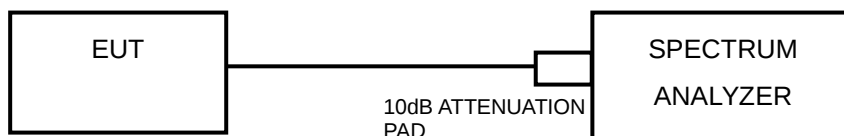


4.5 POWER SPECTRAL DENSITY MEASUREMENT

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

Refer to KDB 558074 D01 DTS Meas Guidance v04 Chapter 10.2

Refer to ANSI C63.10-2013 Chapter 11.10.2

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to $1.5 \times \text{DTS bandwidth}$.
- c) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set the VBW $\geq 3 \times \text{RBW}$.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Test Report No.: RF180105N021

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

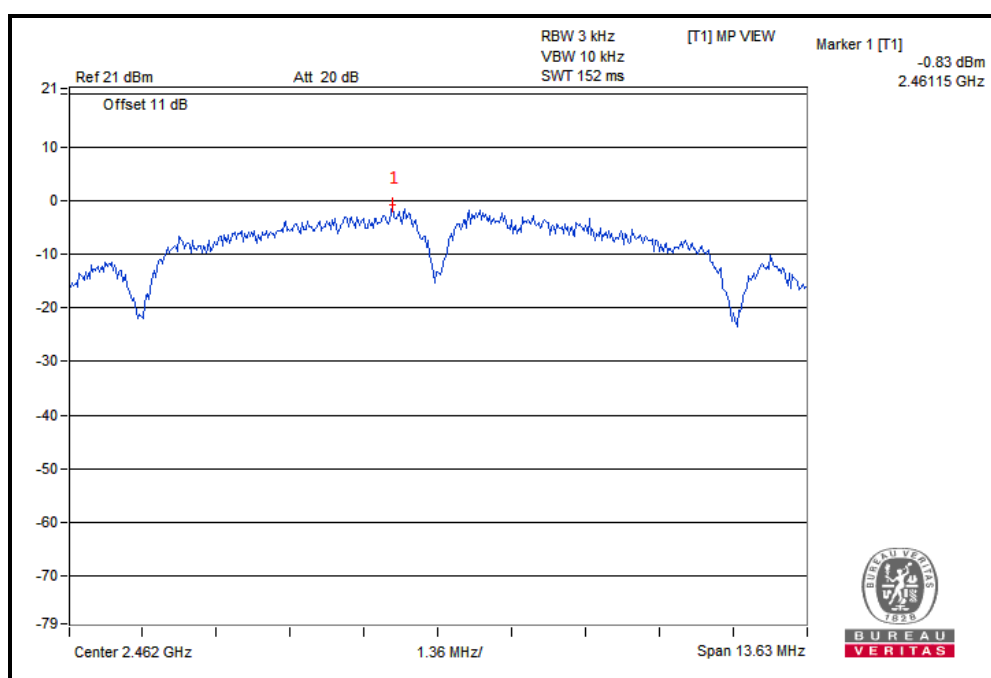
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4.5.7 TEST RESULTS

802.11b

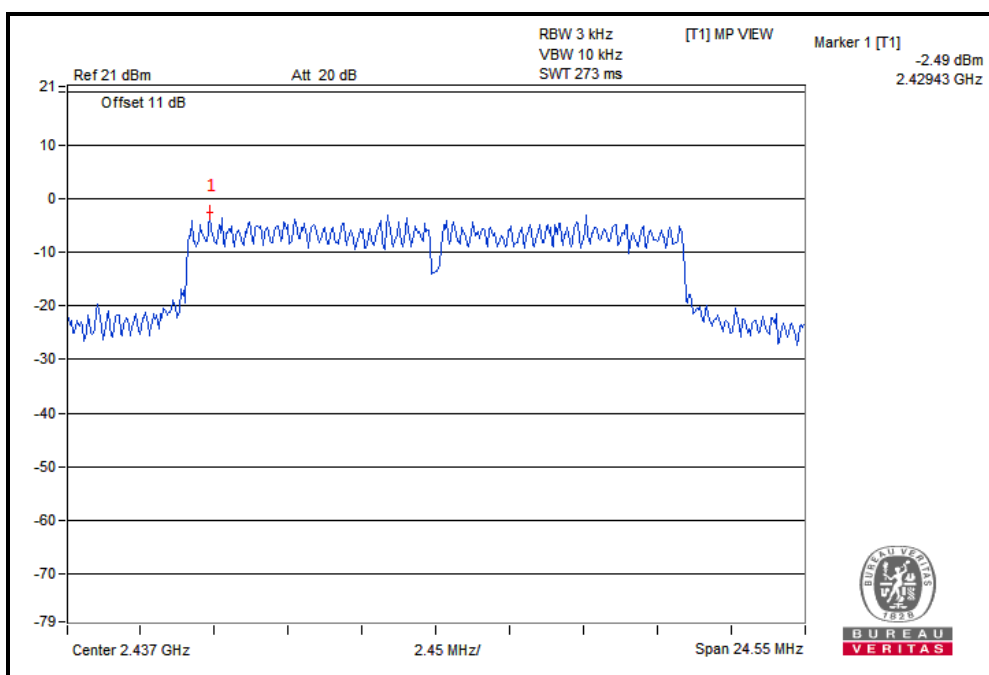
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-1.24	8	PASS
6	2437	-1.01	8	PASS
11	2462	-0.83	8	PASS





802.11g

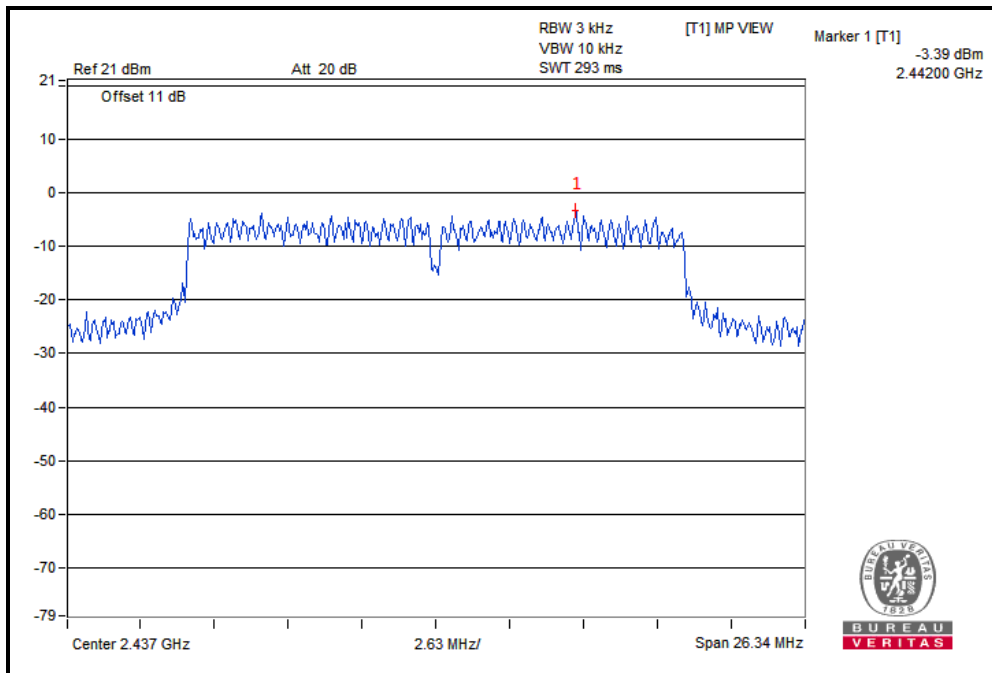
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-8.75	8	PASS
6	2437	-2.49	8	PASS
11	2462	-9.79	8	PASS





802.11n (HT20)

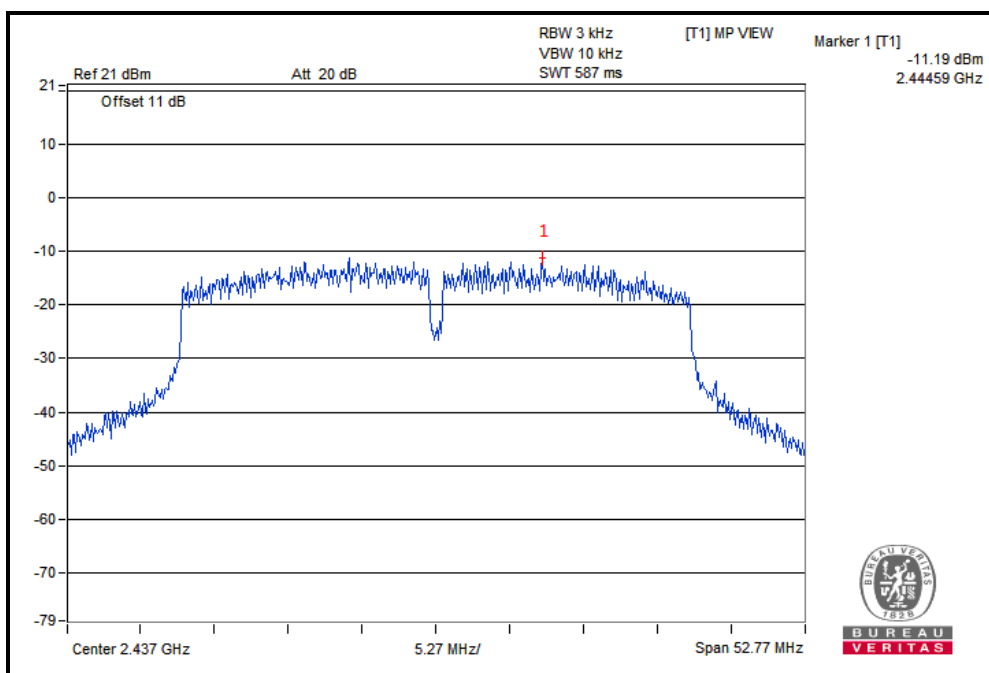
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-9.33	8	PASS
6	2437	-3.39	8	PASS
11	2462	-10.55	8	PASS





802.11n (HT40)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-14.38	8	PASS
6	2437	-11.19	8	PASS
9	2452	-12.98	8	PASS



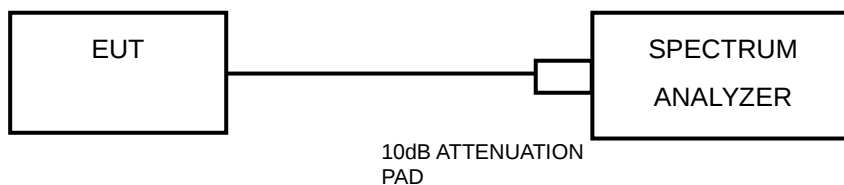


4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -30dB 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 $\geq$ 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 $\geq$ 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



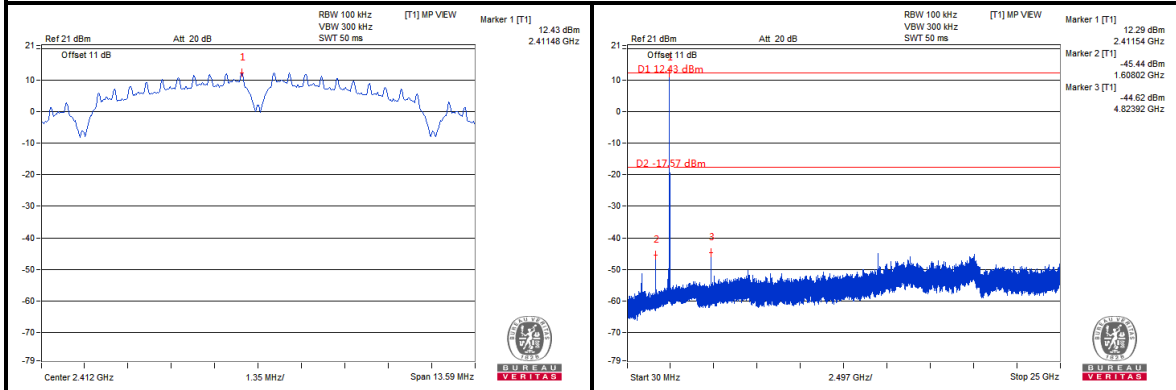
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Test Report No.: RF180105N021

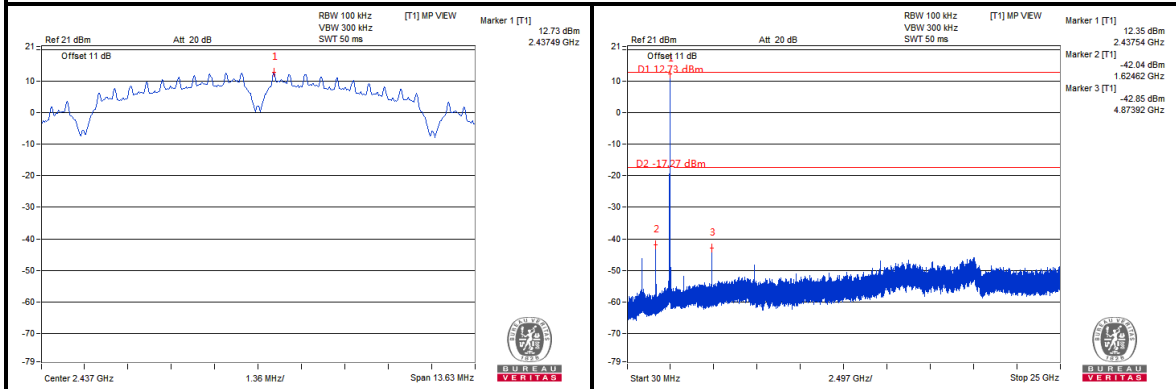
4.6.7 TEST RESULTS

802.11b

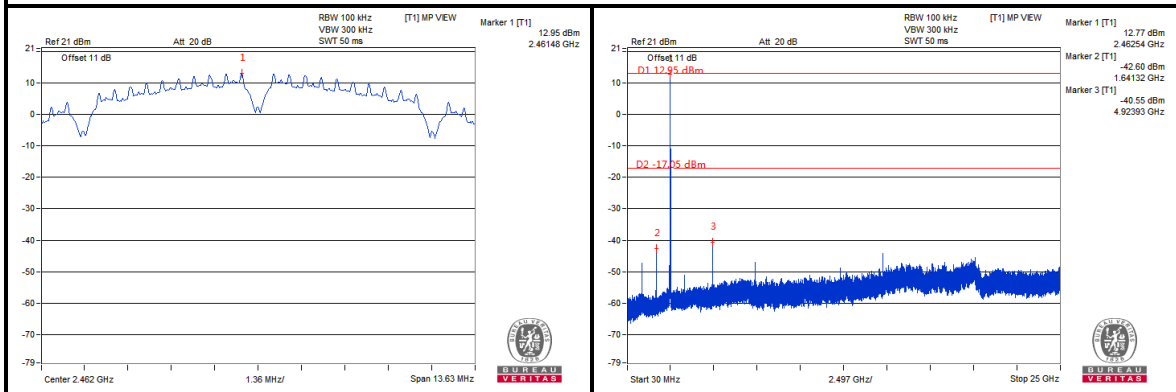
CH 1



CH 6



CH 11



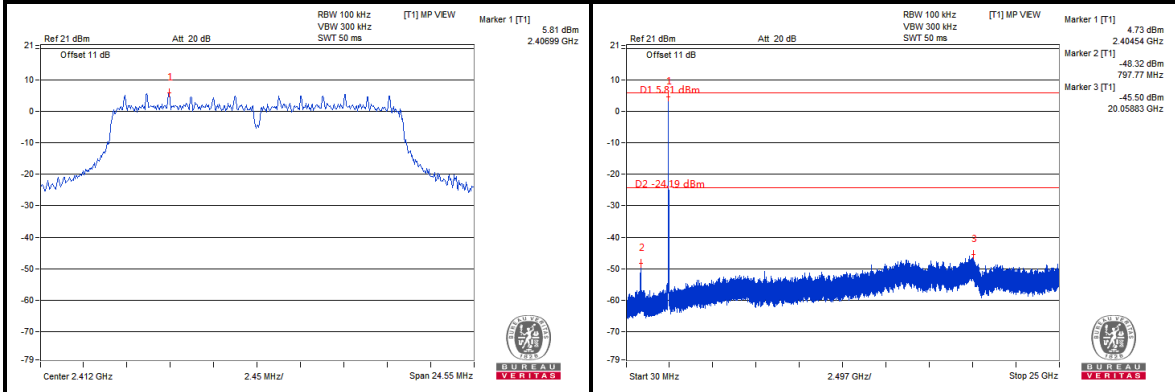


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VERITAS

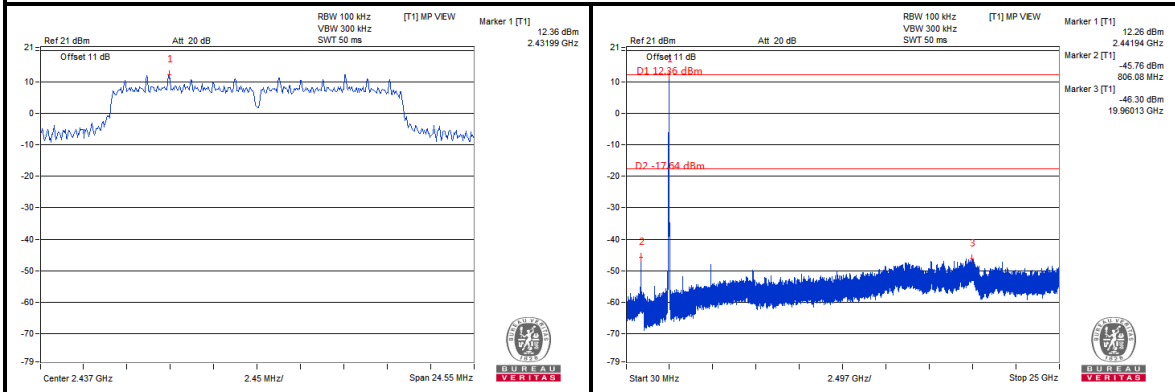
Test Report No.: RF180105N021

802.11g

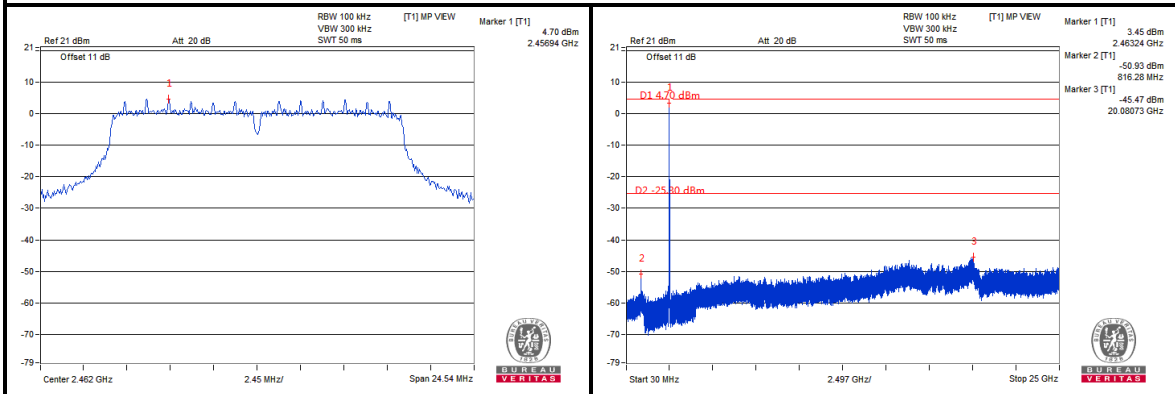
CH 1



CH 6



CH 11



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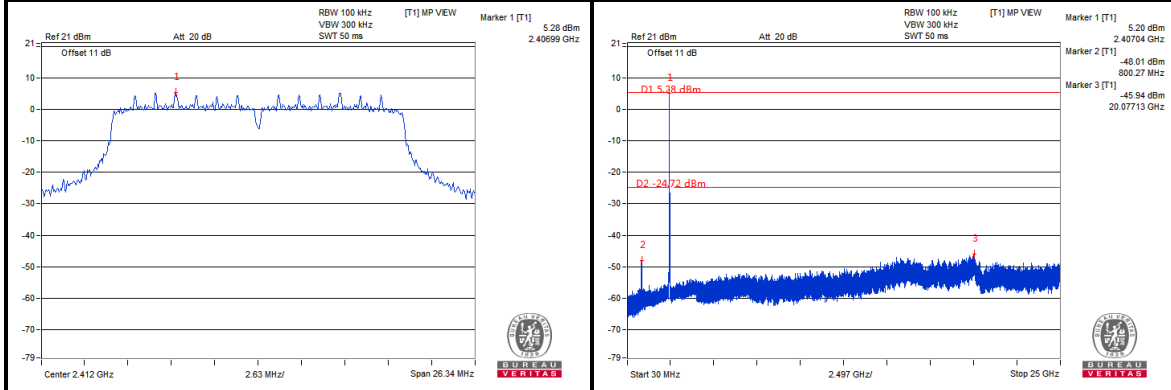


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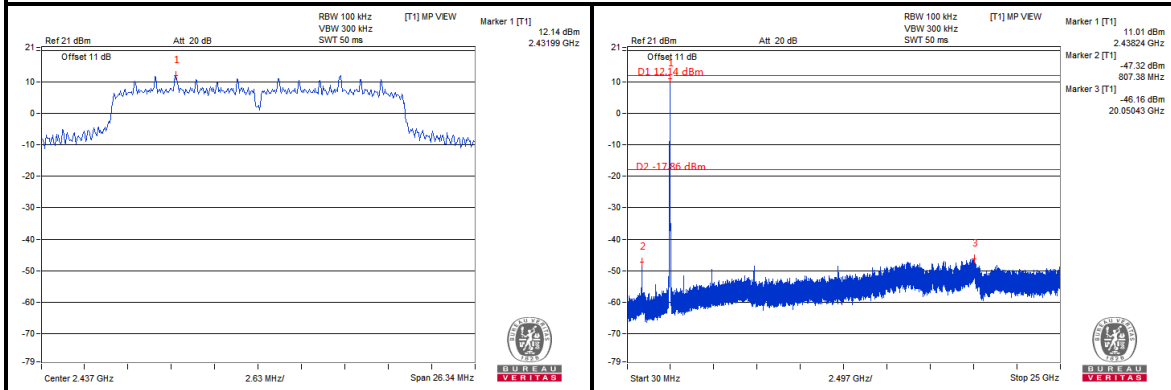
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802.11n (HT20)

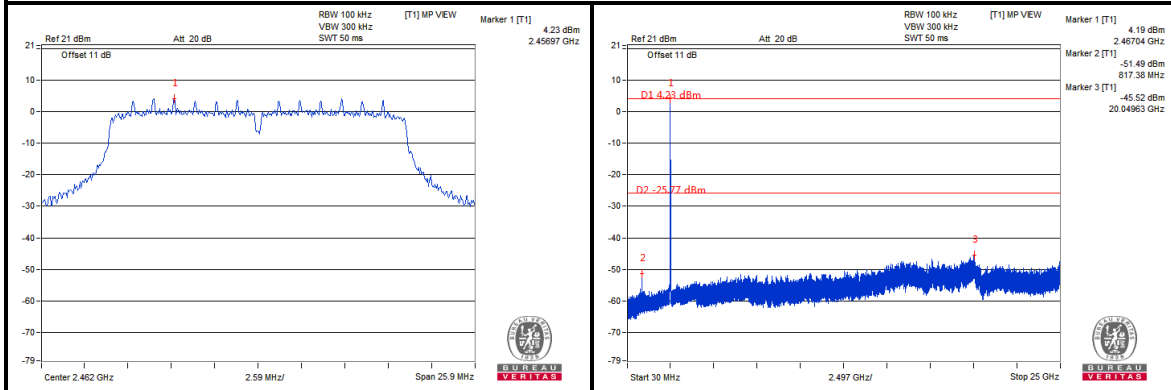
CH 1



CH 6



CH 11



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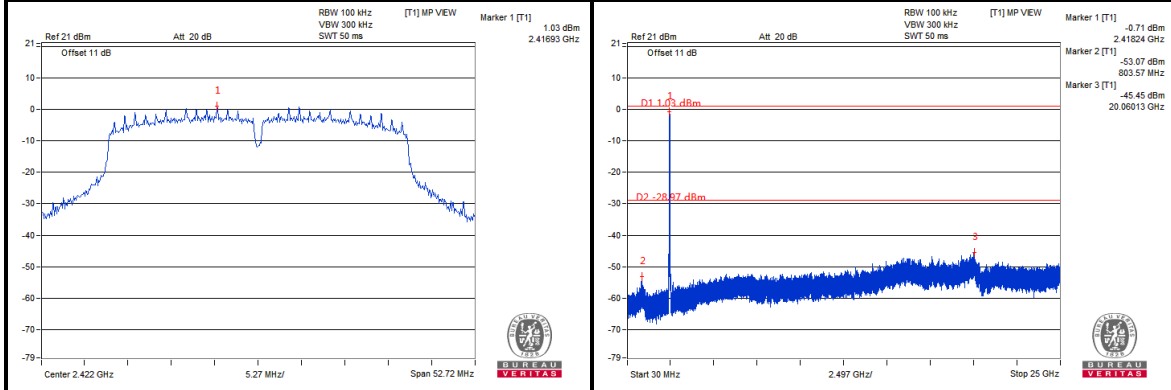


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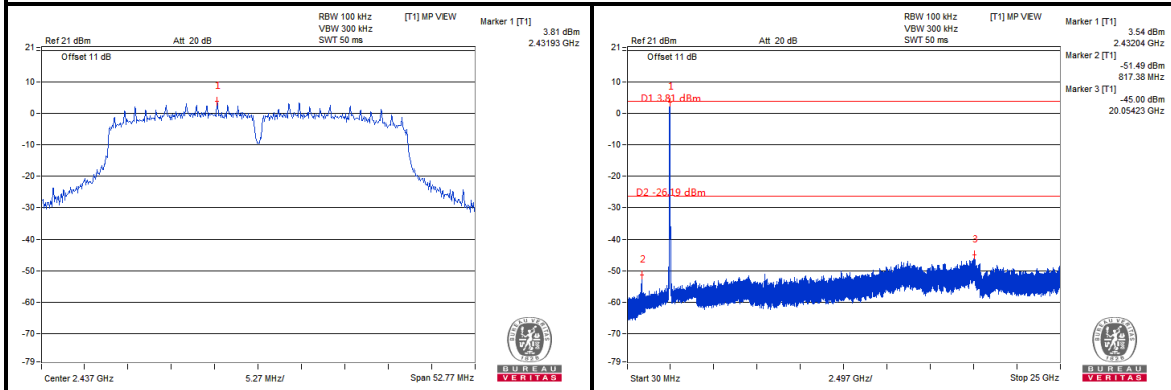
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802.11n (HT40)

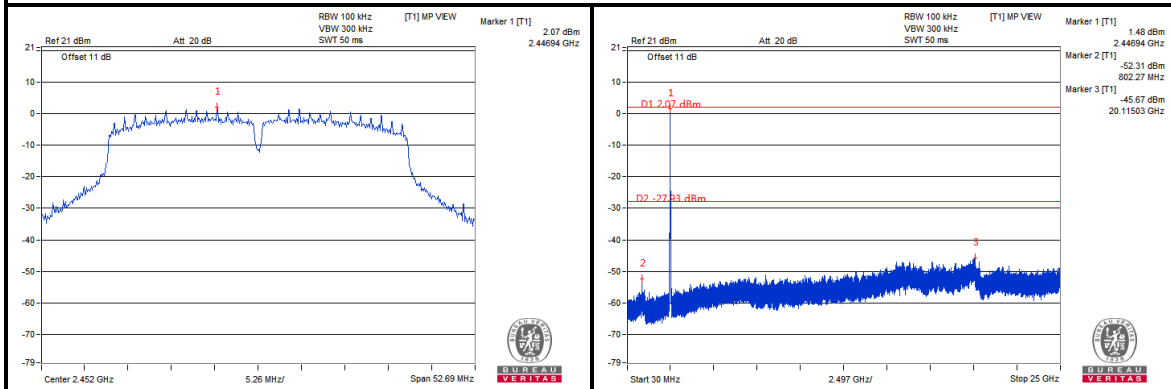
CH 3



CH 6



CH 9



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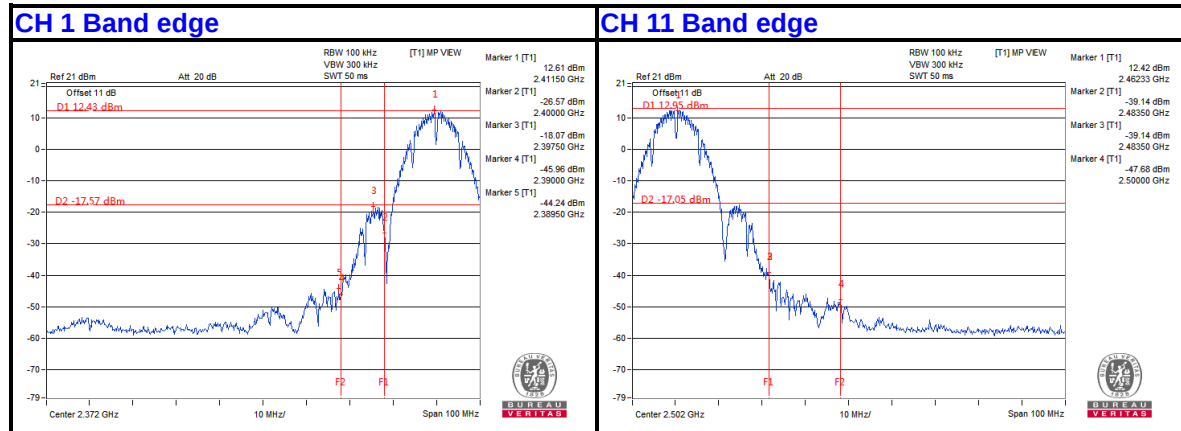
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
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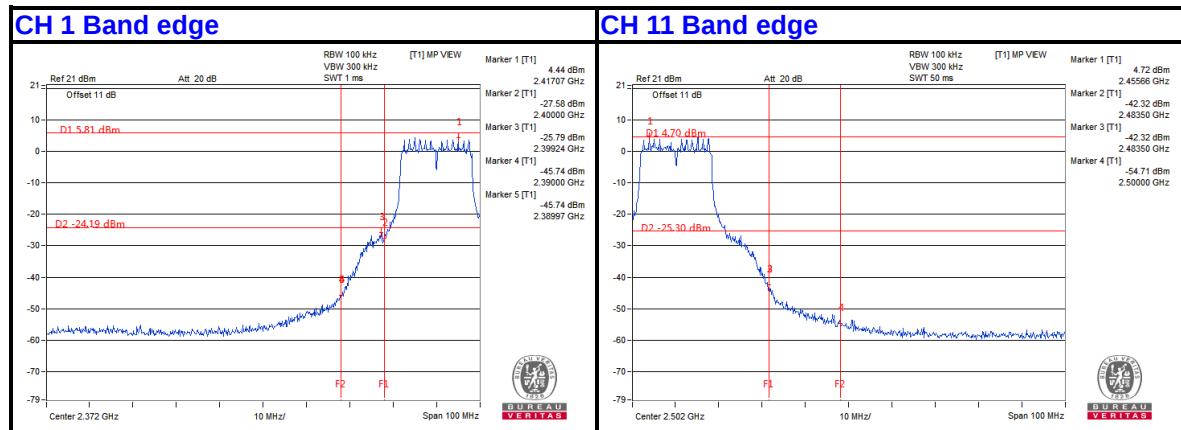
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Test Report No.: RF180105N021

802.11b



802.11g



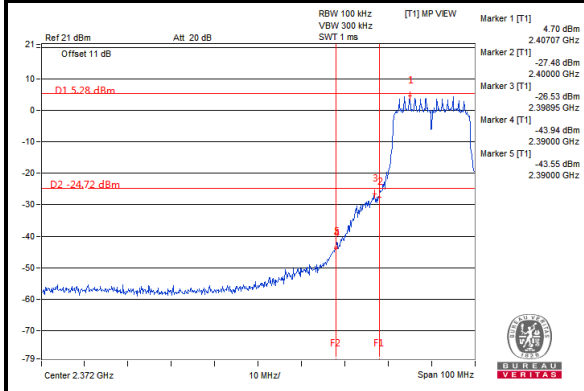


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VERITAS

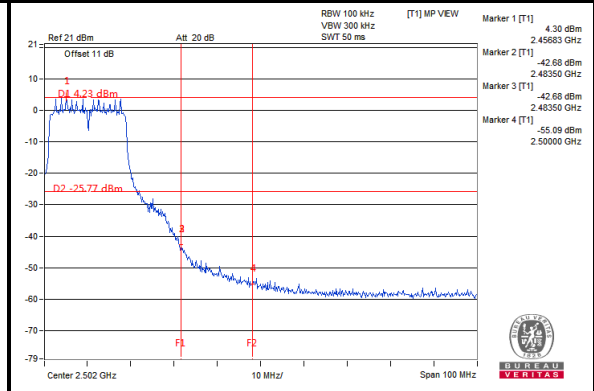
Test Report No.: RF180105N021

802.11n (HT20)

CH 1 Band edge

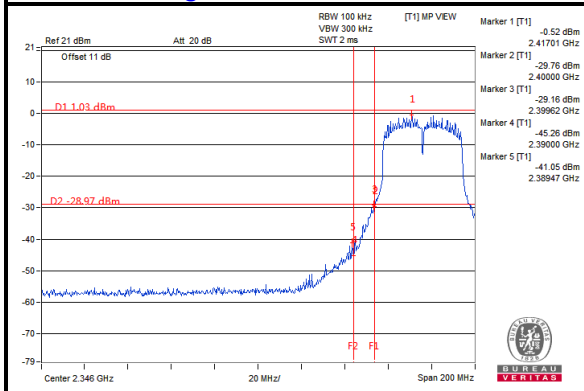


CH 11 Band edge

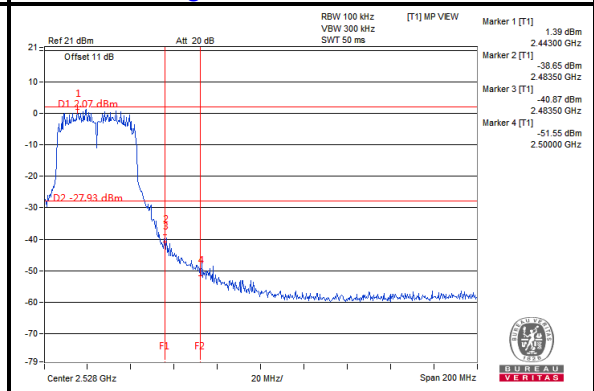


802.11n (HT40)

CH 3 Band edge



CH 9 Band edge





Test Report No.: RF180105N021

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---