

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	AC750 Wi-Fi Range Extender
Brand Name	tp-link
Model	RE205
Additional Model & Model Difference	N/A
Date of tests	Aug. 01, 2017 ~ Sep. 07, 2017

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: Sep. 28, 2017

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170725N035-1	Original release	Sep. 28, 2017

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	2.16dB
	30MHz ~ 1GMHz	3.83dB
	1GHz ~ 18GHz	4.66dB
	18GHz ~ 40GHz	4.67dB

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	AC750 Wi-Fi Range Extender
MODEL NO.	RE205
FCC ID	TE7RE205
NOMINAL VOLTAGE	AC 100-240V, 50/60Hz, 0.3A
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)
AVERAGE POWER	22.61dBm (MAX.)
ANTENNA TYPE	Dipole Antenna; 2dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two transmitters and two receivers.

MODULATION MODE	FUNCTION
802.11b	2TX/2RX
802.11g	2TX/2RX
802.11n (HT20)	2TX/2RX
802.11n (HT40)	2TX/2RX

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.: 170725N035) 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	
-	√	√	√	√	Powered by AC 120V 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
-	Powered by AC 120V with 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	FUNCTION
802.11g	1 to 11	1	OFDM	BPSK	6.0	X	MIMO

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. The worst case mode was MIMO transmitting mode.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS	FUNCTION
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	X	MIMO
802.11g	1 to 11	1,2, 6,10, 11	OFDM	BPSK	6.0	X	MIMO
802.11n HT20	1 to 11	1,2, 6,10, 11	OFDM	BPSK	MCS0	X	MIMO
802.11n HT40	3 to 9	3,4, 6, 8,9	OFDM	BPSK	MCS0	X	MIMO

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)	FUNCTION
802.11b	1 to 11	1, 11	CCK	DBPSK	1.0	MIMO
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0	MIMO
802.11n HT20	1 to 11	1, 11	OFDM	BPSK	MCS0	MIMO
802.11n HT40	3 to 9	3, 9	OFDM	BPSK	MCS0	MIMO

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)	FUNCTION
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	MIMO
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	MIMO
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	MCS0	MIMO
802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	MCS0	MIMO

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	24deg. C, 55%RH	AC 120V 60Hz	Xue Wang
RE≥1G	24deg. C, 55%RH	AC 120V 60Hz	Xue Wang
PLC	20deg. C, 56%RH	AC 120V 60Hz	Yang
APCM	20deg. C, 55%RH	AC 120V 60Hz	Harry Li

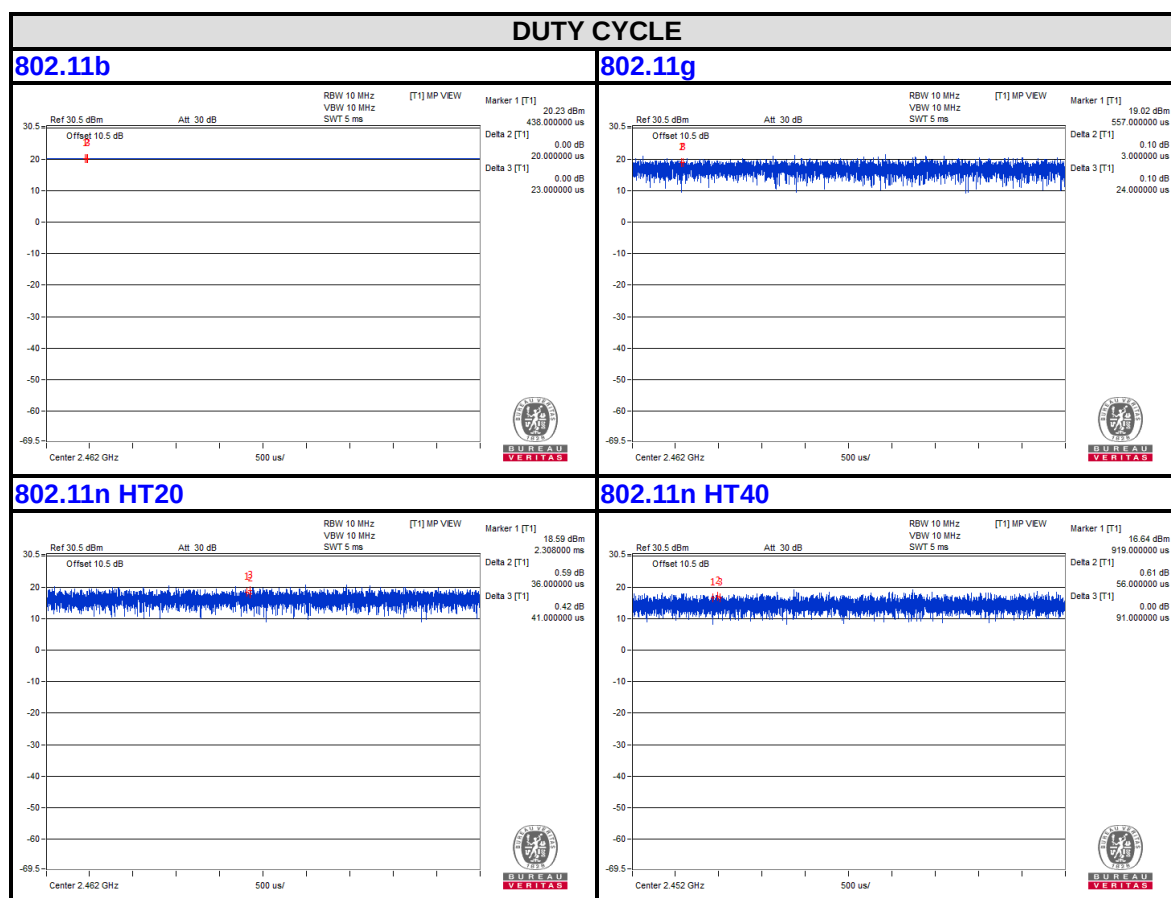
3.3 DUTY CYCLE OF TEST SIGNAL

Chain 0:

Duty cycle of test signal is 100 %

Chain 1:

Duty cycle of test signal is 100 %



**POWER SETTING VALUE:**

Test mode	Test Frequency (MHz)	Power setting	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
11b	2412	1F	CCK	DBPSK	1.0
	2437	20	CCK	DBPSK	1.0
	2462	20	CCK	DBPSK	1.0
11g	2412	1B	OFDM	BPSK	6.0
	2417	20	OFDM	BPSK	6.0
	2437	25	OFDM	BPSK	6.0
	2457	20	OFDM	BPSK	6.0
	2462	19	OFDM	BPSK	6.0
11n 20MHz	2412	18	OFDM	BPSK	MCS0
	2417	20	OFDM	BPSK	MCS0
	2437	25	OFDM	BPSK	MCS0
	2457	20	OFDM	BPSK	MCS0
	2462	18	OFDM	BPSK	MCS0
11n 40MHz	2422	12	OFDM	BPSK	MCS0
	2427	19	OFDM	BPSK	MCS0
	2437	1B	OFDM	BPSK	MCS0
	2447	1A	OFDM	BPSK	MCS0
	2452	13	OFDM	BPSK	MCS0

3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v04

ANSI C63.10:2013

KDB 662911 D01 Multiple Transmitter Output v02r01

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

NOTE: It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B(DoC). The test report has been issued separately.

3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together without other necessary accessories or support units.

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	SCHWARZBECK	TK 9421	TK 9421-176	Jan. 04,17	Jan. 03,18
Test software	ADT	ADT_Cond_V7.3.7	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

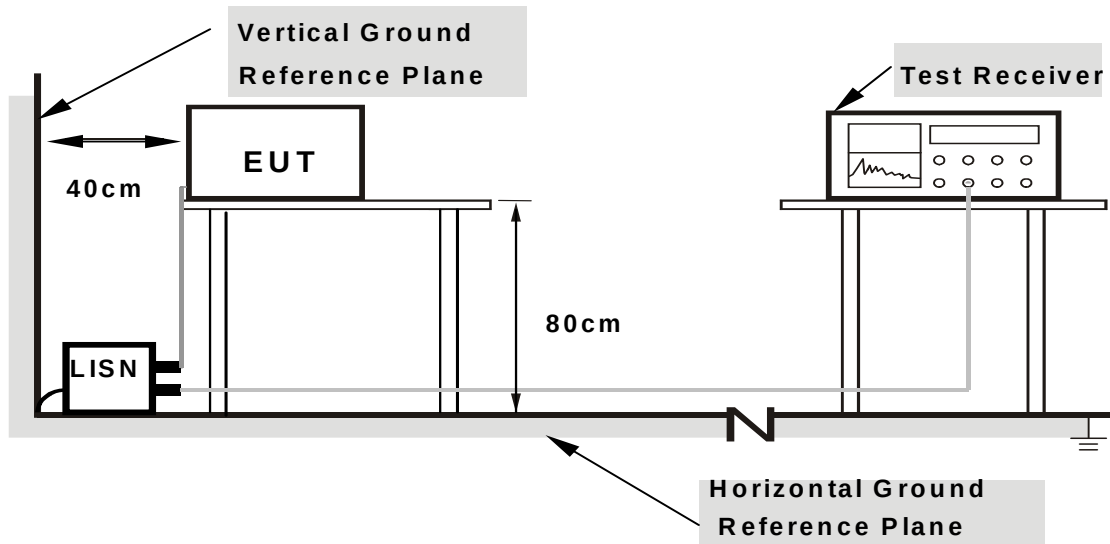
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

- 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.

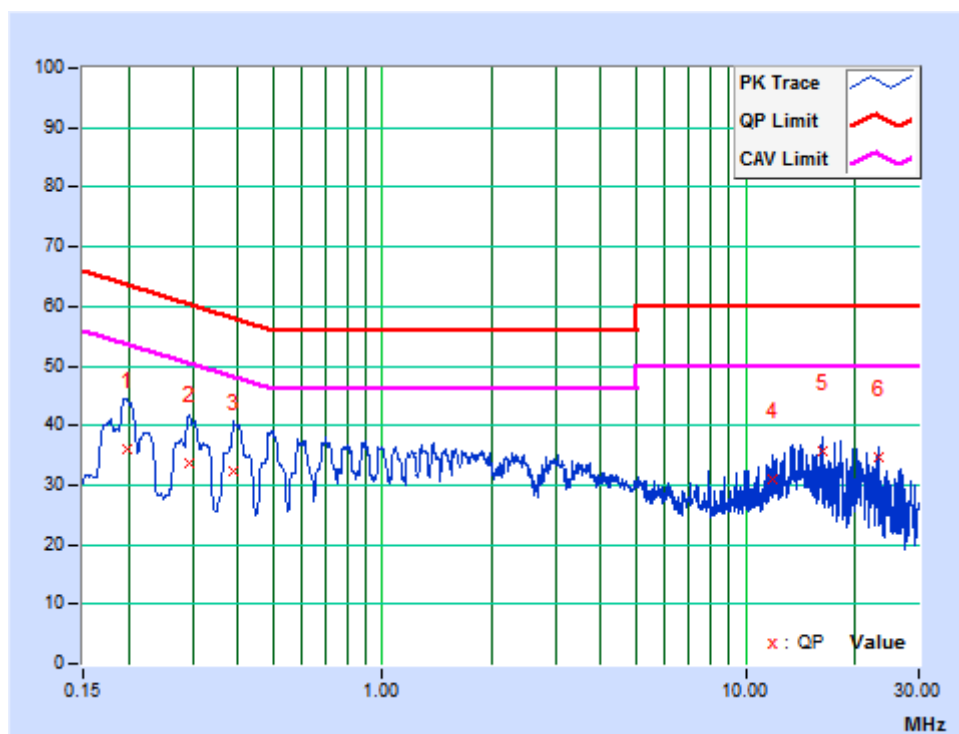
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI link mode

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	0.19725	9.84	26.29	14.21	36.13	24.05	63.73	53.73	-27.60	-29.68
2	0.29304	9.67	23.92	11.66	33.59	21.33	60.44	50.44	-26.84	-29.10
3	0.38871	9.88	22.39	11.77	32.27	21.65	58.09	48.09	-25.82	-26.44
4	11.89275	9.95	21.06	16.75	31.01	26.70	60.00	50.00	-28.99	-23.30
5	16.22850	9.96	25.59	22.41	35.55	32.37	60.00	50.00	-24.45	-17.63
6	23.12925	10.01	24.64	21.84	34.65	31.85	60.00	50.00	-25.35	-18.15

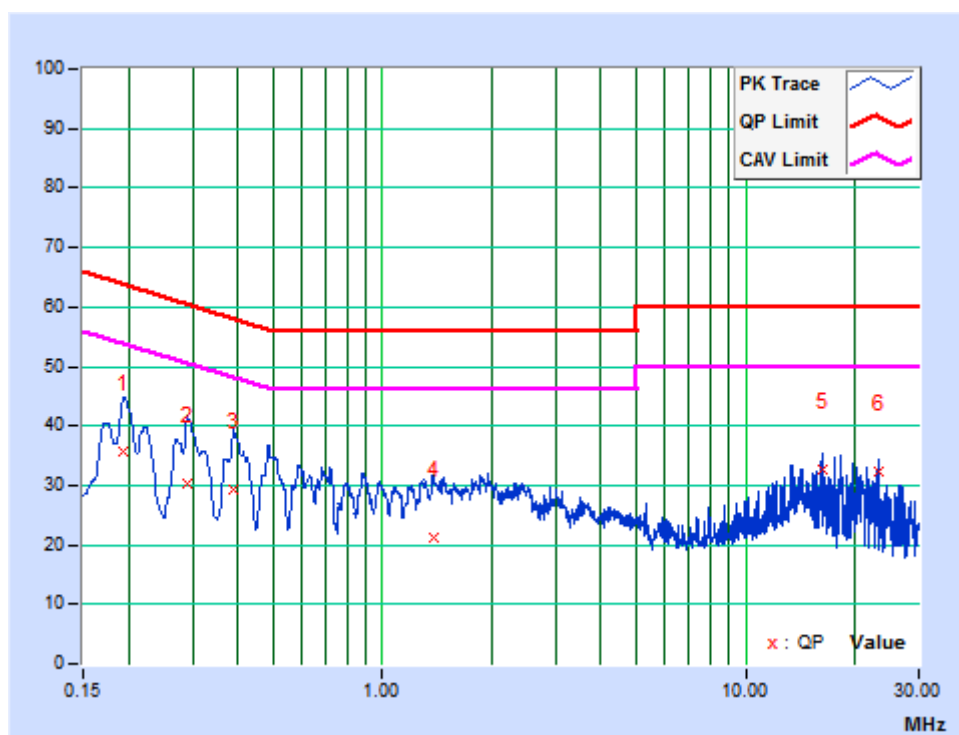
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	0.19462	9.71	25.95	7.02	35.66	16.73	63.84	53.84	-28.18	-37.11
2	0.29073	9.76	20.56	3.74	30.32	13.50	60.50	50.50	-30.18	-37.00
3	0.38850	9.80	19.45	3.52	29.25	13.32	58.10	48.10	-28.85	-34.78
4	1.38050	9.82	11.27	-1.23	21.09	8.59	56.00	46.00	-34.91	-37.41
5	16.22850	9.89	22.80	20.20	32.69	30.09	60.00	50.00	-27.31	-19.91
6	23.12925	9.72	22.49	20.21	32.21	29.93	60.00	50.00	-27.79	-20.07

- 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. 12,17	Mar. 11,18
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Bilog Antenna (30MHz~1GHz)	Teseq	CBL 6111D	30643	Jul. 14, 17	Jul. 13, 18
Loop antenna (9KHz ~30MHz)	Daze	ZN30900A	0708	Mar. 12,17	Mar. 11,18
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 18,17	May 17,18
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 17	Aug. 07, 18
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 12,17	Mar. 11,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna (18GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 15,17	Mar. 14,18
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,17	Mar. 03, 18
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Mar. 09,17	Mar. 08,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 08,17	Aug. 07,18

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments are 12, 24 months and the calibrations are traceable to CEPREI/CHINA, GREGT/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:

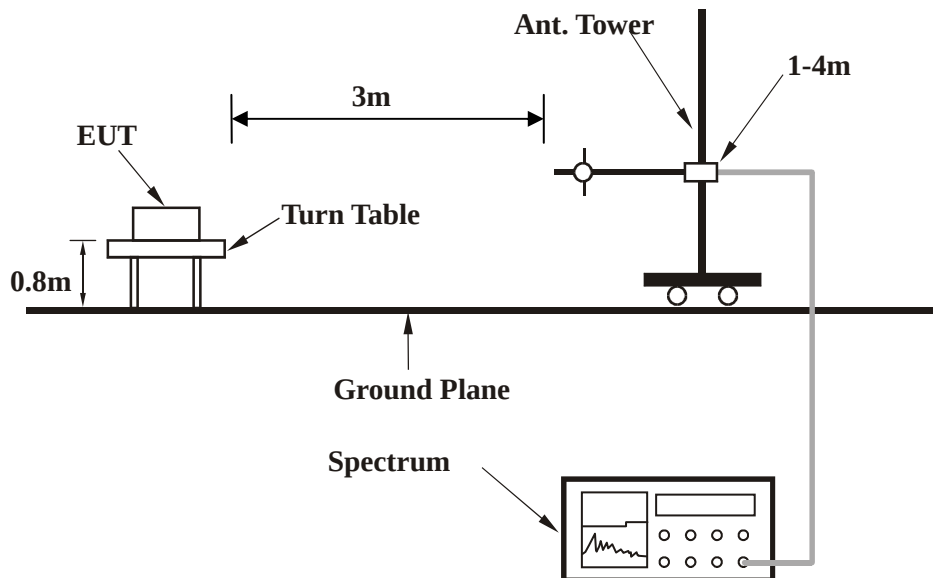
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

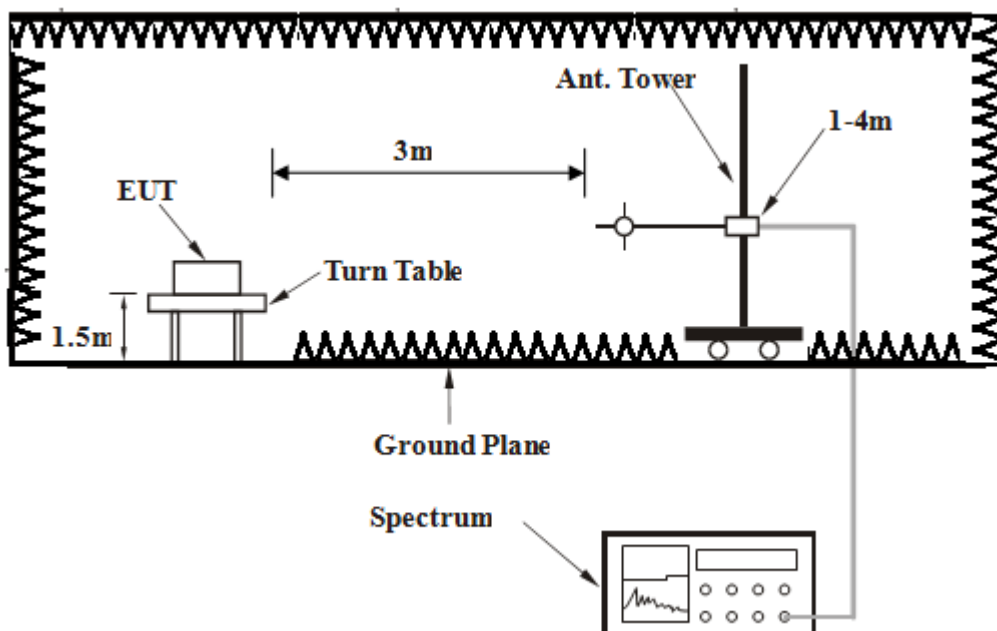
4.2.5 TEST SETUP

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

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

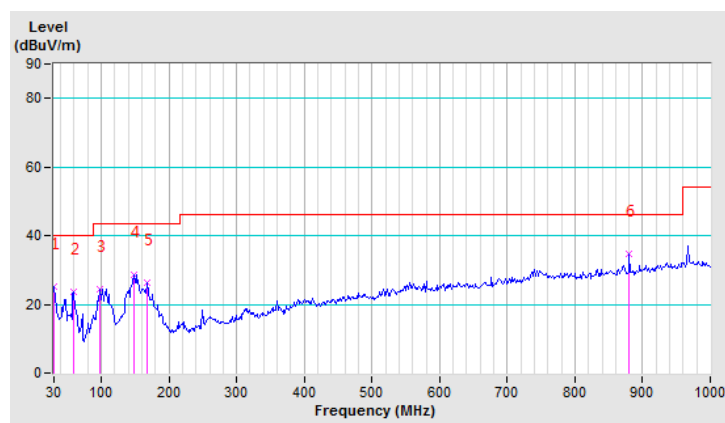
802.11g

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	30.00	25.07 QP	40.00	-14.93	1.00 H	272	36.34	-11.27
2	59.54	23.72 QP	40.00	-16.28	1.00 H	43	48.50	-24.78
3	98.40	24.37 QP	43.50	-19.13	1.00 H	151	43.26	-18.89
4	148.14	28.61 QP	43.50	-14.89	1.00 H	204	45.25	-16.64
5	168.35	26.38 QP	43.50	-17.12	1.00 H	295	44.57	-18.19
6	880.30	34.56 QP	46.00	-11.44	1.00 H	308	33.70	0.86

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.

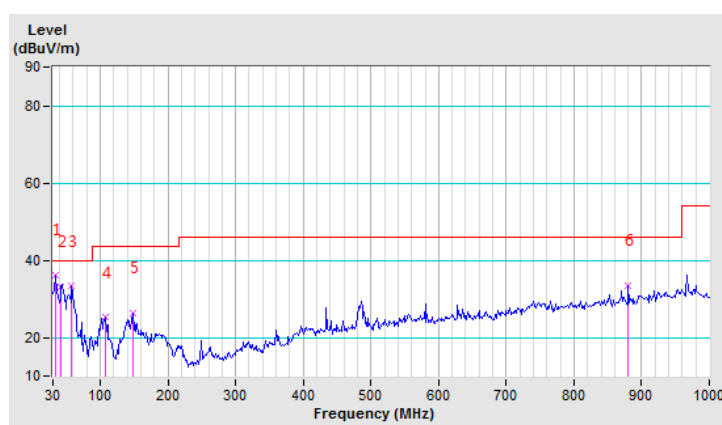


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

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	33.11	36.02 QP	40.00	-3.98	1.00 V	351	48.92	-12.90
2	42.44	33.20 QP	40.00	-6.80	1.00 V	337	51.07	-17.87
3	57.98	33.27 QP	40.00	-6.73	1.00 V	340	57.65	-24.38
4	107.72	25.15 QP	43.50	-18.35	1.00 V	227	43.30	-18.15
5	148.14	26.34 QP	43.50	-17.16	1.00 V	279	42.98	-16.64
6	880.30	33.54 QP	46.00	-12.46	1.00 V	208	32.68	0.86

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	54.78 PK	74.00	-19.22	1.65 H	202	16.78	38.00
2	2390.00	42.59 AV	54.00	-11.41	1.65 H	202	4.59	38.00
3	*2412.00	104.75 PK			1.65 H	202	66.69	38.06
4	*2412.00	100.96 AV			1.65 H	202	62.90	38.06
5	4824.00	55.26 PK	74.00	-18.74	1.00 H	200	49.30	5.96
6	4824.00	45.69 AV	54.00	-8.31	1.00 H	200	39.73	5.96
7	#7236.00	60.12 PK	74.00	-13.88	1.33 H	302	47.81	12.31
8	#7236.00	45.69 AV	54.00	-8.31	1.33 H	302	33.38	12.31
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	61.47 PK	74.00	-12.53	2.69 V	358	23.47	38.00
2	2390.00	53.12 AV	54.00	-0.88	2.69 V	358	15.12	38.00
3	*2412.00	110.25 PK			2.55 V	0	72.19	38.06
4	*2412.00	107.12 AV			2.55 V	0	69.06	38.06
5	4824.00	54.58 PK	74.00	-19.42	1.00 V	266	48.62	5.96
6	4824.00	44.53 AV	54.00	-9.47	1.00 V	266	38.57	5.96
7	#7236.00	61.02 PK	74.00	-12.98	1.44 V	109	48.71	12.31
8	#7236.00	48.14 AV	54.00	-5.86	1.44 V	109	35.83	12.31

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	57.39 PK	74.00	-16.61	2.39 H	286	19.39	38.00
2	2390.00	44.39 AV	54.00	-9.61	2.39 H	286	6.39	38.00
3	*2437.00	106.83 PK			2.39 H	286	68.69	38.14
4	*2437.00	102.73 AV			2.39 H	286	64.59	38.14
5	2483.50	58.64 PK	74.00	-15.36	2.39 H	286	20.36	38.28
6	2483.50	44.97 AV	54.00	-9.03	2.39 H	286	6.69	38.28
7	4874.00	56.70 PK	74.00	-17.30	1.44 H	152	50.65	6.05
8	4874.00	46.32 AV	54.00	-7.68	1.44 H	152	40.27	6.05
9	7311.00	59.66 PK	74.00	-14.34	1.65 H	221	47.02	12.64
10	7311.00	46.21 AV	54.00	-7.79	1.65 H	221	33.57	12.64
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	59.86 PK	74.00	-14.14	2.31 V	345	21.86	38.00
2	2390.00	47.12 AV	54.00	-6.88	2.31 V	345	9.12	38.00
3	*2437.00	114.73 PK			2.32 V	345	76.59	38.14
4	*2437.00	110.90 AV			2.32 V	345	72.76	38.14
5	2483.50	60.14 PK	74.00	-13.86	2.32 V	345	21.86	38.28
6	2483.50	47.60 AV	54.00	-6.40	2.32 V	345	9.32	38.28
7	4874.00	56.05 PK	74.00	-17.95	1.00 V	231	50.00	6.05
8	4874.00	47.25 AV	54.00	-6.75	1.00 V	231	41.20	6.05
9	7311.00	61.78 PK	74.00	-12.22	1.22 V	302	49.14	12.64
10	7311.00	47.11 AV	54.00	-6.89	1.22 V	302	34.47	12.64

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	105.74 PK			3.40 H	23	67.52	38.22
2	*2462.00	101.84 AV			3.40 H	23	63.62	38.22
3	2483.50	55.76 PK	74.00	-18.24	3.40 H	23	17.48	38.28
4	2483.50	42.17 AV	54.00	-11.83	3.40 H	23	3.89	38.28
5	4924.00	51.95 PK	74.00	-22.05	2.55 H	150	45.82	6.13
6	4924.00	45.23 AV	54.00	-8.77	2.55 H	150	39.10	6.13
7	7386.00	58.15 PK	74.00	-15.85	1.00 H	306	45.19	12.96
8	7386.00	46.05 AV	54.00	-7.95	1.00 H	306	33.09	12.96
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	111.58 PK			2.05 V	342	73.36	38.22
2	*2462.00	107.73 AV			2.05 V	342	69.51	38.22
3	2483.50	60.15 PK	74.00	-13.85	1.00 V	140	21.87	38.28
4	2483.50	52.17 AV	54.00	-1.83	1.00 V	140	13.89	38.28
5	4924.00	51.59 PK	74.00	-22.41	1.55 V	268	45.46	6.13
6	4924.00	48.22 AV	54.00	-5.78	1.55 V	268	42.09	6.13
7	7386.00	60.25 PK	74.00	-13.75	1.00 V	205	47.29	12.96
8	7386.00	47.25 AV	54.00	-6.75	1.00 V	205	34.29	12.96

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.

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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	59.13 PK	74.00	-14.87	3.83 H	40	21.13	38.00
2	2390.00	43.03 AV	54.00	-10.97	3.83 H	40	5.03	38.00
3	*2412.00	105.64 PK			3.83 H	40	67.58	38.06
4	*2412.00	95.69 AV			3.83 H	40	57.63	38.06
5	4824.00	53.67 PK	74.00	-20.33	1.00 H	58	47.71	5.96
6	4824.00	41.59 AV	54.00	-12.41	1.00 H	58	35.63	5.96
7	#7236.00	59.59 PK	74.00	-14.41	1.00 H	50	47.28	12.31
8	#7236.00	46.25 AV	54.00	-7.75	1.00 H	50	33.94	12.31
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	69.96 PK	74.00	-4.04	2.41 V	35	31.96	38.00
2	2390.00	52.53 AV	54.00	-1.47	2.41 V	35	14.53	38.00
3	*2412.00	113.50 PK			2.01 V	360	75.44	38.06
4	*2412.00	104.03 AV			2.01 V	360	65.97	38.06
5	4824.00	52.32 PK	74.00	-21.68	1.00 V	255	46.36	5.96
6	4824.00	41.45 AV	54.00	-12.55	1.00 V	255	35.49	5.96
7	#7236.00	59.69 PK	74.00	-14.31	1.00 V	205	47.38	12.31
8	#7236.00	46.36 AV	54.00	-7.64	1.00 V	205	34.05	12.31

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	58.87 PK	74.00	-15.13	2.39 H	290	20.87	38.00
2	2390.00	45.39 AV	54.00	-8.61	2.39 H	290	7.39	38.00
3	*2437.00	108.51 PK			2.39 H	290	70.37	38.14
4	*2437.00	98.60 AV			2.39 H	290	60.46	38.14
5	2483.50	59.33 PK	74.00	-14.67	2.39 H	290	21.05	38.28
6	2483.50	45.79 AV	54.00	-8.21	2.39 H	290	7.51	38.28
7	4874.00	54.86 PK	74.00	-19.14	1.55 H	40	48.81	6.05
8	4874.00	40.15 AV	54.00	-13.85	1.55 H	40	34.10	6.05
9	7311.00	60.23 PK	74.00	-13.77	1.33 H	302	47.59	12.64
10	7311.00	45.26 AV	54.00	-8.74	1.33 H	302	32.62	12.64
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	61.41 PK	74.00	-12.59	3.73 V	10	23.41	38.00
2	2390.00	48.69 AV	54.00	-5.31	3.73 V	10	10.69	38.00
3	*2437.00	117.83 PK			3.97 V	10	79.69	38.14
4	*2437.00	107.63 AV			3.97 V	10	69.49	38.14
5	2483.50	60.87 PK	74.00	-13.13	3.55 V	178	22.59	38.28
6	2483.50	46.87 AV	54.00	-7.13	3.55 V	178	8.59	38.28
7	4874.00	55.01 PK	74.00	-18.99	1.55 V	60	48.96	6.05
8	4874.00	42.98 AV	54.00	-11.02	1.55 V	60	36.93	6.05
9	7311.00	59.36 PK	74.00	-14.64	2.01 V	199	46.72	12.64
10	7311.00	46.99 AV	54.00	-7.01	2.01 V	199	34.35	12.64

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	107.21 PK			3.94 H	170	68.99	38.22
2	*2462.00	97.17 AV			3.94 H	170	58.95	38.22
3	2483.50	61.29 PK	74.00	-12.71	3.94 H	170	23.01	38.28
4	2483.50	46.37 AV	54.00	-7.63	3.94 H	170	8.09	38.28
5	4924.00	54.85 PK	74.00	-19.15	1.45 H	200	48.72	6.13
6	4924.00	41.05 AV	54.00	-12.95	1.45 H	200	34.92	6.13
7	7386.00	59.64 PK	74.00	-14.36	1.00 H	204	46.68	12.96
8	7386.00	46.88 AV	54.00	-7.12	1.00 H	204	33.92	12.96
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	112.50 PK			1.55 V	157	74.28	38.22
2	*2462.00	102.11 AV			1.55 V	157	63.89	38.22
3	2483.50	70.30 PK	74.00	-3.70	1.00 V	177	32.02	38.28
4	2483.50	52.52 AV	54.00	-1.48	1.00 V	177	14.24	38.28
5	4924.00	53.69 PK	74.00	-20.31	1.00 V	302	47.56	6.13
6	4924.00	41.45 AV	54.00	-12.55	1.00 V	302	35.32	6.13
7	7386.00	59.64 PK	74.00	-14.36	1.66 V	301	46.68	12.96
8	7386.00	46.28 AV	54.00	-7.72	1.66 V	301	33.32	12.96

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	58.38 PK	74.00	-15.62	1.65 H	69	20.38	38.00
2	2390.00	45.89 AV	54.00	-8.11	1.65 H	69	7.89	38.00
3	*2412.00	102.95 PK			1.65 H	69	64.89	38.06
4	*2412.00	92.95 AV			1.65 H	69	54.89	38.06
5	4824.00	53.66 PK	74.00	-20.34	1.22 H	14	47.70	5.96
6	4824.00	40.59 AV	54.00	-13.41	1.22 H	14	34.63	5.96
7	#7236.00	60.71 PK	74.00	-13.29	3.00 H	201	48.40	12.31
8	#7236.00	46.25 AV	54.00	-7.75	3.00 H	201	33.94	12.31
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	68.69 PK	74.00	-5.31	2.71 V	10	30.69	38.00
2	2390.00	53.01 AV	54.00	-0.99	2.71 V	10	15.01	38.00
3	*2412.00	110.07 PK			2.55 V	355	72.01	38.06
4	*2412.00	100.95 AV			2.55 V	355	62.89	38.06
5	4824.00	54.85 PK	74.00	-19.15	1.55 V	360	48.89	5.96
6	4824.00	41.27 AV	54.00	-12.73	1.55 V	360	35.31	5.96
7	#7236.00	59.48 PK	74.00	-14.52	1.00 V	208	47.17	12.31
8	#7236.00	46.66 AV	54.00	-7.34	1.00 V	208	34.35	12.31

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	55.09 PK	74.00	-18.91	4.00 H	198	17.09	38.00
2	2390.00	41.61 AV	54.00	-12.39	4.00 H	198	3.61	38.00
3	*2437.00	108.23 PK			4.00 H	198	70.09	38.14
4	*2437.00	98.18 AV			4.00 H	198	60.04	38.14
5	2483.50	55.32 PK	74.00	-18.68	4.00 H	198	17.04	38.28
6	2483.50	42.26 AV	54.00	-11.74	4.00 H	198	3.98	38.28
7	4874.00	54.25 PK	74.00	-19.75	1.00 H	201	48.20	6.05
8	4874.00	41.18 AV	54.00	-12.82	1.00 H	201	35.13	6.05
9	7311.00	58.49 PK	74.00	-15.51	1.00 H	266	45.85	12.64
10	7311.00	40.95 AV	54.00	-13.05	1.00 H	266	28.31	12.64
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	59.21 PK	74.00	-14.79	3.70 V	355	21.21	38.00
2	2390.00	47.22 AV	54.00	-6.78	3.70 V	355	9.22	38.00
3	*2437.00	115.03 PK			3.68 V	360	76.89	38.14
4	*2437.00	104.82 AV			3.68 V	360	66.68	38.14
5	2483.50	58.07 PK	74.00	-15.93	1.00 V	110	19.79	38.28
6	2483.50	44.93 AV	54.00	-9.07	1.00 V	110	6.65	38.28
7	4874.00	53.60 PK	74.00	-20.40	1.99 V	60	47.55	6.05
8	4874.00	40.87 AV	54.00	-13.13	1.99 V	60	34.82	6.05
9	7311.00	60.05 PK	74.00	-13.95	1.00 V	108	47.41	12.64
10	7311.00	46.59 AV	54.00	-7.41	1.00 V	108	33.95	12.64

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	104.11 PK			3.68 H	78	65.89	38.22
2	*2462.00	93.91 AV			3.68 H	78	55.69	38.22
3	2483.50	59.87 PK	74.00	-14.13	3.68 H	78	21.59	38.28
4	2483.50	44.97 AV	54.00	-9.03	3.68 H	78	6.69	38.28
5	4924.00	52.25 PK	74.00	-21.75	1.88 H	40	46.12	6.13
6	4924.00	40.11 AV	54.00	-13.89	1.88 H	40	33.98	6.13
7	7386.00	59.46 PK	74.00	-14.54	1.00 H	205	46.50	12.96
8	7386.00	46.25 AV	54.00	-7.75	1.00 H	205	33.29	12.96
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	108.98 PK			2.05 V	0	70.76	38.22
2	*2462.00	98.94 AV			2.05 V	0	60.72	38.22
3	2483.50	68.94 PK	74.00	-5.06	4.00 V	359	30.66	38.28
4	2483.50	52.56 AV	54.00	-1.44	4.00 V	359	14.28	38.28
5	4924.00	53.26 PK	74.00	-20.74	1.88 V	80	47.13	6.13
6	4924.00	40.07 AV	54.00	-13.93	1.88 V	80	33.94	6.13
7	7386.00	59.66 PK	74.00	-14.34	1.00 V	55	46.70	12.96
8	7386.00	47.01 AV	54.00	-6.99	1.00 V	55	34.05	12.96

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	61.89 PK	74.00	-12.11	1.68 H	67	23.89	38.00
2	2390.00	47.68 AV	54.00	-6.32	1.68 H	67	9.68	38.00
3	*2422.00	98.34 PK			1.68 H	67	60.25	38.09
4	*2422.00	88.20 AV			1.68 H	67	50.11	38.09
5	4844.00	54.19 PK	74.00	-19.81	1.32 H	206	48.20	5.99
6	4844.00	40.36 AV	54.00	-13.64	1.32 H	206	34.37	5.99
7	7266.00	59.15 PK	74.00	-14.85	1.00 H	305	46.71	12.44
8	7266.00	46.32 AV	54.00	-7.68	1.00 H	305	33.88	12.44
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	66.69 PK	74.00	-7.31	1.48 V	327	28.69	38.00
2	2390.00	52.35 AV	54.00	-1.65	1.48 V	327	14.35	38.00
3	*2422.00	106.93 PK			3.84 V	355	68.84	38.09
4	*2422.00	95.97 AV			3.84 V	355	57.88	38.09
5	4844.00	54.59 PK	74.00	-19.41	1.88 V	40	48.60	5.99
6	4844.00	41.27 AV	54.00	-12.73	1.88 V	40	35.28	5.99
7	7266.00	60.14 PK	74.00	-13.86	1.00 V	211	47.70	12.44
8	7266.00	45.69 AV	54.00	-8.31	1.00 V	211	33.25	12.44

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	56.13 PK	74.00	-17.87	3.97 H	323	18.13	38.00
2	2390.00	43.36 AV	54.00	-10.64	3.97 H	323	5.36	38.00
3	*2437.00	101.50 PK			3.94 H	323	63.36	38.14
4	*2437.00	91.73 AV			3.94 H	323	53.59	38.14
5	2483.50	57.86 PK	74.00	-16.14	3.97 H	323	19.58	38.28
6	2483.50	43.53 AV	54.00	-10.47	3.97 H	323	5.25	38.28
7	4874.00	52.26 PK	74.00	-21.74	1.66 H	30	46.21	6.05
8	4874.00	40.59 AV	54.00	-13.41	1.66 H	30	34.54	6.05
9	7311.00	59.48 PK	74.00	-14.52	3.11 H	107	46.84	12.64
10	7311.00	45.07 AV	54.00	-8.93	3.11 H	107	32.43	12.64
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	68.20 PK	74.00	-5.80	3.69 V	360	30.20	38.00
2	2390.00	52.14 AV	54.00	-1.86	3.69 V	360	14.14	38.00
3	*2437.00	109.73 PK			3.97 V	0	71.59	38.14
4	*2437.00	99.09 AV			3.97 V	0	60.95	38.14
5	2483.50	63.96 PK	74.00	-10.04	2.81 V	356	25.68	38.28
6	2483.50	48.62 AV	54.00	-5.38	2.81 V	356	10.34	38.28
7	4874.00	52.49 PK	74.00	-21.51	1.00 V	54	46.44	6.05
8	4874.00	40.60 AV	54.00	-13.40	1.00 V	54	34.55	6.05
9	7311.00	60.11 PK	74.00	-13.89	1.00 V	203	47.47	12.64
10	7311.00	45.26 AV	54.00	-8.74	1.00 V	203	32.62	12.64

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	99.21 PK			3.75 H	301	61.02	38.19
2	*2452.00	89.46 AV			3.75 H	301	51.27	38.19
3	2483.50	63.52 PK	74.00	-10.48	3.75 H	301	25.24	38.28
4	2483.50	47.24 AV	54.00	-6.76	3.75 H	301	8.96	38.28
5	4904.00	53.26 PK	74.00	-20.74	1.55 H	60	47.16	6.10
6	4904.00	40.63 AV	54.00	-13.37	1.55 H	60	34.53	6.10
7	7356.00	59.79 PK	74.00	-14.21	1.66 H	304	46.96	12.83
8	7356.00	45.58 AV	54.00	-8.42	1.66 H	304	32.75	12.83
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	106.08 PK			1.45 V	8	67.89	38.19
2	*2452.00	96.14 AV			1.45 V	8	57.95	38.19
3	2483.50	70.32 PK	74.00	-3.68	1.00 V	172	32.04	38.28
4	2483.50	53.16 AV	54.00	-0.84	1.00 V	172	14.88	38.28
5	4904.00	53.05 PK	74.00	-20.95	1.55 V	208	46.95	6.10
6	4904.00	40.73 AV	54.00	-13.27	1.55 V	208	34.63	6.10
7	7356.00	59.25 PK	74.00	-14.75	1.00 V	20	46.42	12.83
8	7356.00	46.30 AV	54.00	-7.70	1.00 V	20	33.47	12.83

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			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	60.73 PK	74.00	-13.27	3.20 H	15	22.73	38.00
2	2390.00	46.04 AV	54.00	-7.96	3.20 H	15	8.04	38.00
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	68.57 PK	74.00	-5.43	2.40 V	200	30.57	38.00
2	2390.00	51.47 AV	54.00	-2.53	2.40 V	200	13.47	38.00

CHANNEL		TX Channel 10			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)
3	2483.50	61.59 PK	74.00	-12.41	2.77 H	190	23.31	38.28
4	2483.50	47.35 AV	54.00	-6.65	2.77 H	190	9.07	38.28
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)
3	2483.50	72.35 PK	74.00	-1.65	1.10 V	181	34.07	38.28
4	2483.50	52.76 AV	54.00	-1.24	1.10 V	181	14.48	38.28

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 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		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	58.40 PK	74.00	-15.60	1.61 H	263	20.4	38.00
2	2390.00	45.04 AV	54.00	-8.96	1.61 H	263	7.04	38.00
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	67.04 PK	74.00	-6.96	2.03 V	314	29.04	38.00
2	2390.00	52.07 AV	54.00	-1.93	2.03 V	314	14.07	38.00

CHANNEL		TX Channel 10			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)
3	2483.50	60.99 PK	74.00	-13.01	1.27 H	182	22.71	38.28
4	2483.50	46.37 AV	54.00	-7.63	1.27 H	182	8.09	38.28
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)
3	2483.50	68.35 PK	74.00	-5.65	2.04 V	276	30.07	38.28
4	2483.50	52.00 AV	54.00	-2.00	2.04 V	276	13.72	38.28

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 less than 20dB margin against the limit.



802.11n (HT40)

CHANNEL			TX Channel 4		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	60.01 PK	74.00	-13.99	1.60 H	263	22.01	38.00
2	2390.00	49.74 AV	54.00	-4.26	1.60 H	263	11.74	38.00
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	68.70 PK	74.00	-5.30	1.30 V	208	30.70	38.00
2	2390.00	53.04 AV	54.00	-0.96	1.30 V	208	15.04	38.00

CHANNEL		TX Channel 8			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)
3	2483.50	62.29 PK	74.00	-11.71	1.50 H	43	24.01	38.28
4	2483.50	46.50 AV	54.00	-7.50	1.50 H	43	8.22	38.28
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)
3	2483.50	70.00 PK	74.00	-4.00	1.00 V	174	31.72	38.28
4	2483.50	52.57 AV	54.00	-1.43	1.00 V	174	14.29	38.28

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 less than 20dB margin against the limit.

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. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,16	Sep. 04,17
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 17	Aug.07, 18
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 10,17	Apr. 09,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.08, 17	Aug.07, 18
Attenuator	MINI	BW-S10W2 +	S130129FGE2	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.

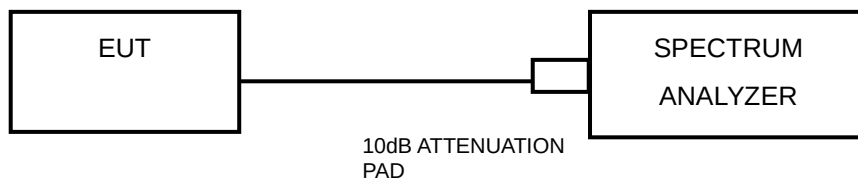
4.3.3 TEST PROCEDURE

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	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	9.56	9.58	0.5	PASS
6	2437	9.56	10.06	0.5	PASS
11	2462	10.04	10.02	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.30	16.29	0.5	PASS
6	2437	16.34	16.37	0.5	PASS
11	2462	16.11	16.35	0.5	PASS

802.11n HT20

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.39	17.58	0.5	PASS
6	2437	17.63	17.35	0.5	PASS
11	2462	17.58	17.30	0.5	PASS

802.11n HT40

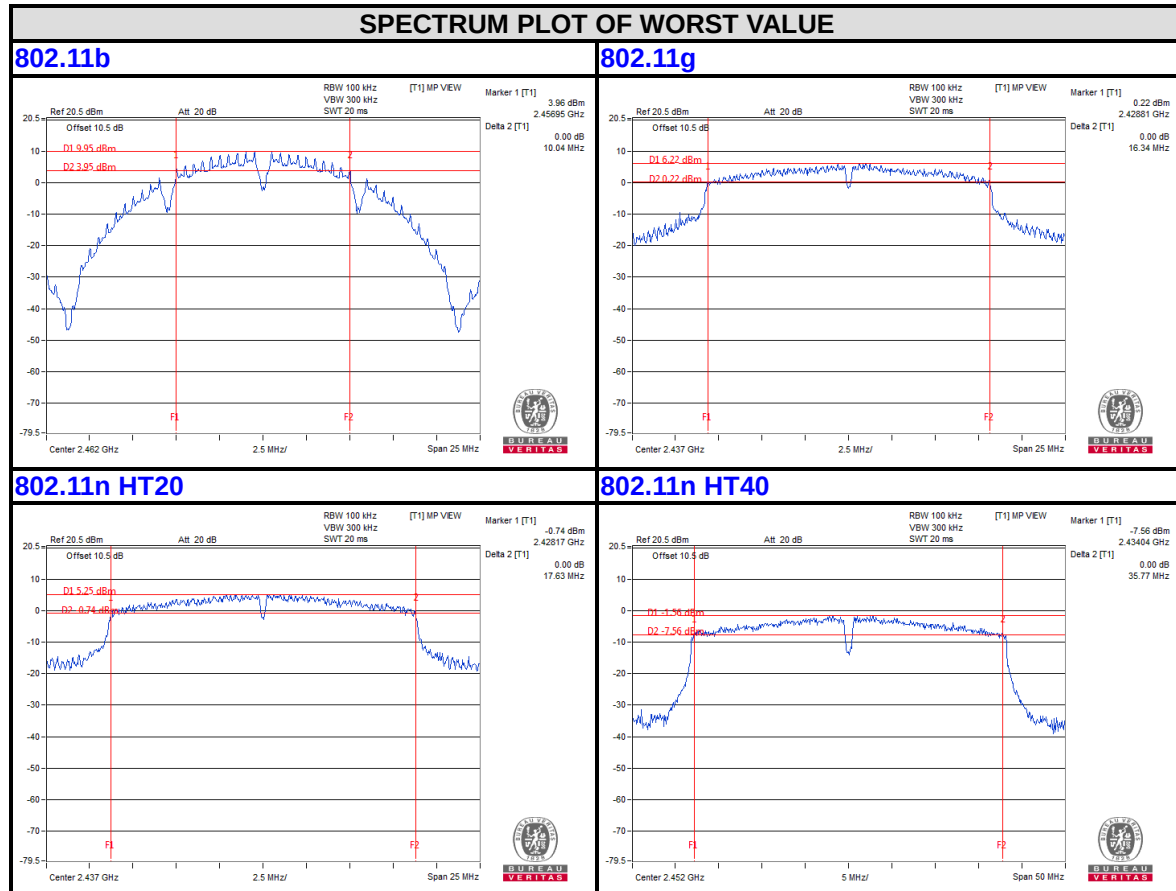
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.82	35.76	0.5	PASS
6	2437	36.10	36.15	0.5	PASS
9	2452	35.77	35.86	0.5	PASS



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CHAIN 0



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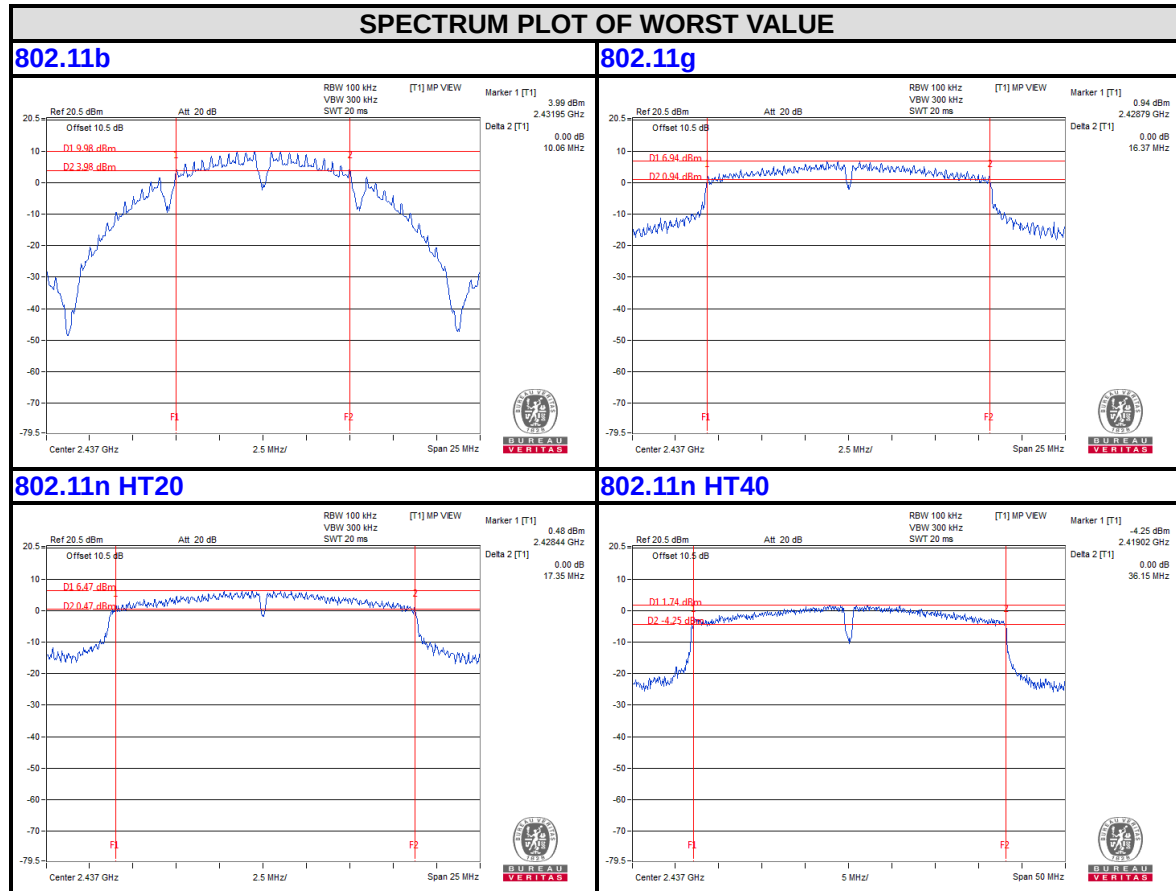
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CHAIN 1



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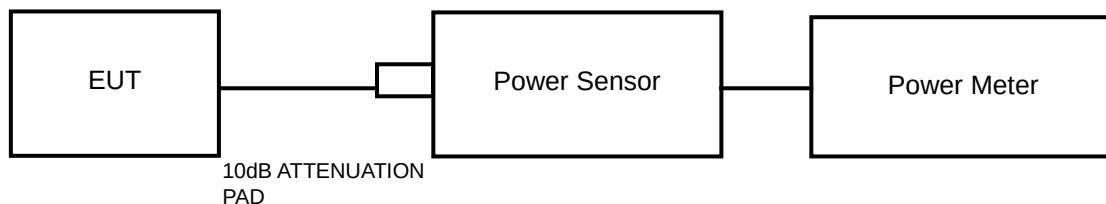
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4.4 CONDUCTED OUTPUT POWER

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 04,17	May 03,18
Power Sensor	Keysight	U2021XA	MY55060018	May 04,17	May 03,18
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,16	Sep. 04,17
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 18	Aug.07, 18
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 05,17	Apr. 04,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.08, 17	Aug.07, 18

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. An Average power meter was used to read the response of the Average power sensor. Record the Average 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

802.11b

CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	18.43	18.41	69.663	69.343	139.005	21.43	30	PASS
6	2437	18.54	18.47	71.450	70.307	141.757	21.52	30	PASS
11	2462	18.52	18.53	71.121	71.285	142.407	21.54	30	PASS

802.11g

CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	15.47	15.53	35.237	35.727	70.964	18.51	30	PASS
2	2417	18.16	18.19	65.464	65.917	131.381	21.19	30	PASS
6	2437	19.51	19.44	89.331	87.902	177.233	22.49	30	PASS
10	2457	18.04	18.13	63.680	65.013	128.693	21.10	30	PASS
11	2462	14.90	14.86	30.903	30.620	61.523	17.89	30	PASS

802.11n HT20

CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	14.43	14.40	27.733	27.542	55.275	17.43	30	PASS
2	2417	18.31	18.30	67.764	67.608	135.372	21.32	30	PASS
6	2437	19.58	19.61	90.782	91.411	182.193	22.61	30	PASS
10	2457	18.24	18.29	66.681	67.453	134.133	21.28	30	PASS
11	2462	14.12	14.09	25.823	25.645	51.467	17.12	30	PASS

802.11n HT40

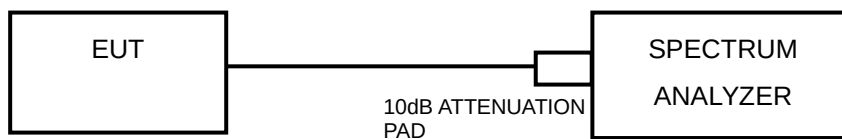
CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
3	2422	13.65	13.39	23.174	21.827	45.001	16.53	30	PASS
4	2427	14.72	14.63	29.648	29.040	58.689	17.69	30	PASS
6	2437	17.40	17.27	54.954	53.333	108.288	20.35	30	PASS
8	2447	15.12	15.17	32.509	32.885	65.394	18.16	30	PASS
9	2452	13.91	13.98	24.604	25.003	49.607	16.96	30	PASS

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

- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: 3 kHz.
- Set VBW $\geq 3 \times$ RBW.
- Detector = peak
- Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- Sweep time = auto couple.
- 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

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-5.26	3.01	-2.25	8.00	PASS
	6	2437	-4.54	3.01	-1.53	8.00	PASS
	11	2462	-4.43	3.01	-1.42	8.00	PASS
1	1	2412	-4.18	3.01	-1.17	8.00	PASS
	6	2437	-3.49	3.01	-0.48	8.00	PASS
	11	2462	-4.61	3.01	-1.60	8.00	PASS

Remark: Due ANT gain less than 6dBi [$2 + 10\log(N=2)=5.01 < 6$], so limit 8dBm does not need to be changed.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-8.94	3.01	-5.93	8.00	PASS
	6	2437	-5.32	3.01	-2.32	8.00	PASS
	11	2462	-9.99	3.01	-6.98	8.00	PASS
1	1	2412	-8.16	3.01	-5.15	8.00	PASS
	6	2437	-6.10	3.01	-3.09	8.00	PASS
	11	2462	-9.32	3.01	-6.31	8.00	PASS

Remark: Due ANT gain less than 6dBi [$2 + 10\log(N=2)=5.01 < 6$], so limit 8dBm does not need to be changed.

802.11n HT20

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-9.01	3.01	-6.00	8.00	PASS
	6	2437	-6.17	3.01	-3.17	8.00	PASS
	11	2462	-11.13	3.01	-8.12	8.00	PASS
1	1	2412	-10.71	3.01	-7.70	8.00	PASS
	6	2437	-5.32	3.01	-2.32	8.00	PASS
	11	2462	-10.60	3.01	-7.59	8.00	PASS

Remark: Due ANT gain less than 6dBi [$2 + 10\log(N=2)=5.01 < 6$], so limit 8dBm does not need to be changed.

802.11n HT40

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-13.46	3.01	-10.45	8.00	PASS
	6	2437	-8.96	3.01	-5.96	8.00	PASS
	9	2452	-13.36	3.01	-10.35	8.00	PASS
1	3	2422	-13.79	3.01	-10.78	8.00	PASS
	6	2437	-10.13	3.01	-7.13	8.00	PASS
	9	2452	-12.77	3.01	-9.76	8.00	PASS

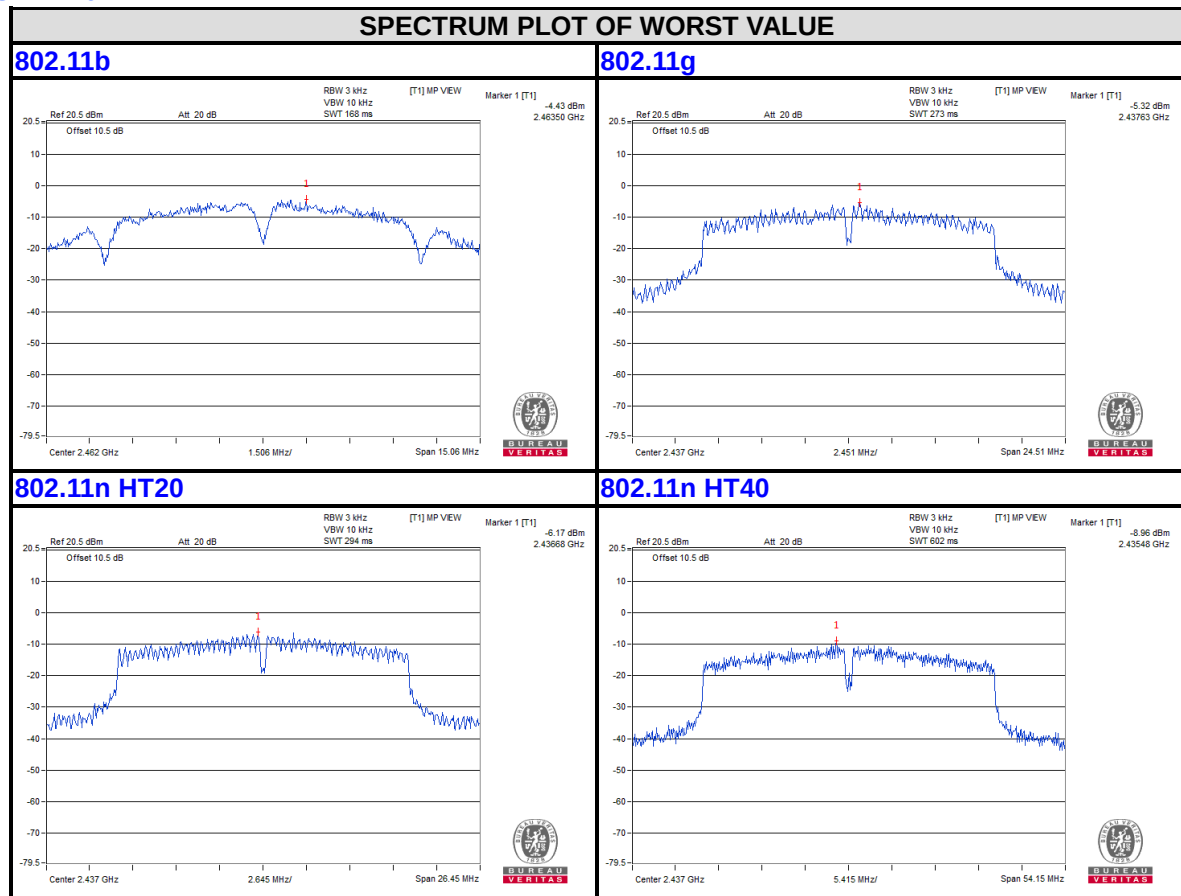
Remark: Due ANT gain less than 6dBi [$2 + 10\log(N=2)=5.01 < 6$], so limit 8dBm does not need to be changed.



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CHAIN 0

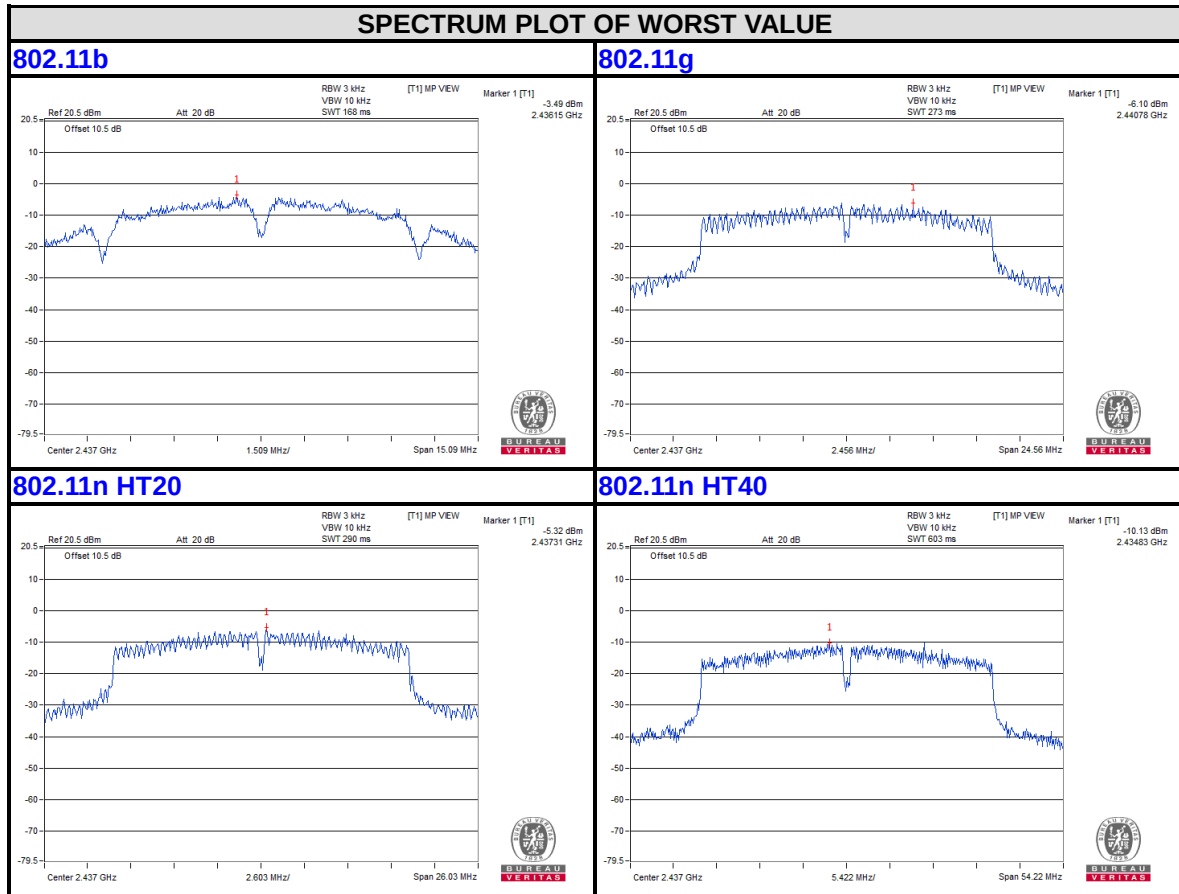




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CHAIN 1



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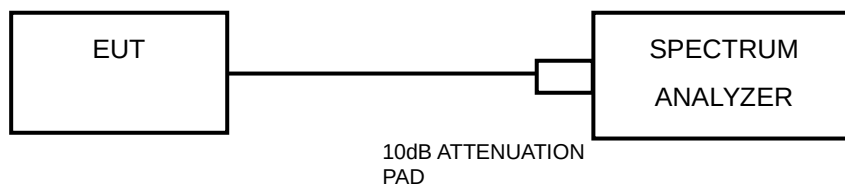
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4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below –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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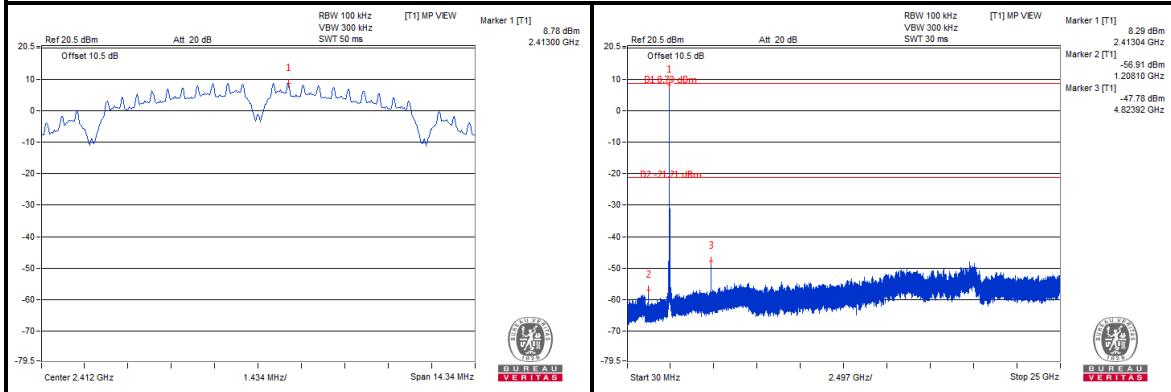
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4.6.7 TEST RESULTS

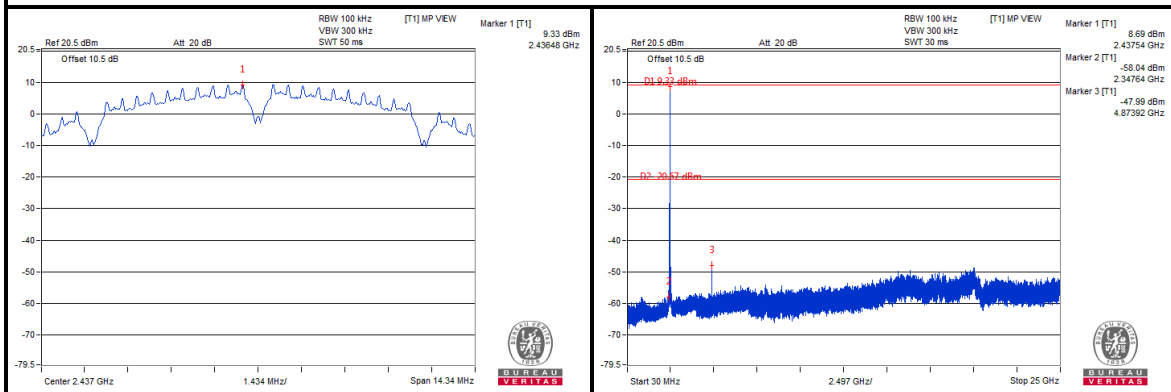
802.11b

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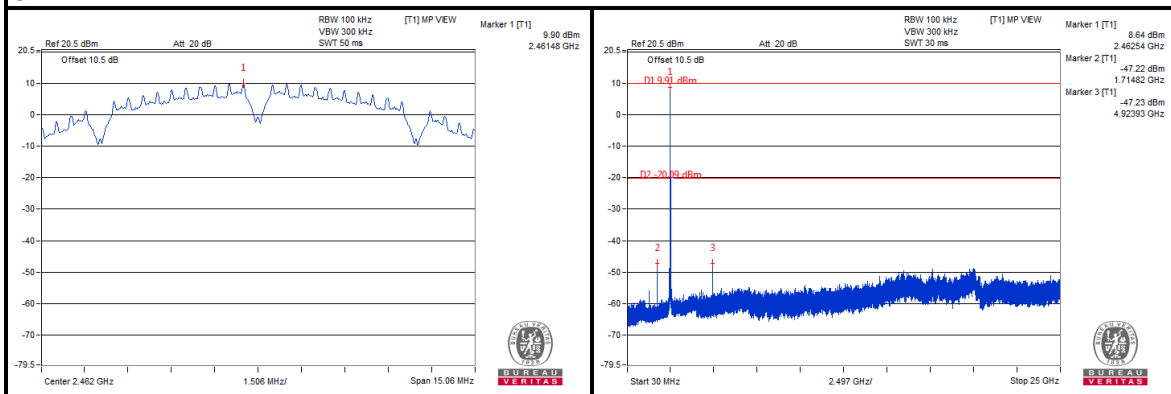
CH 1



CH 6



CH 11



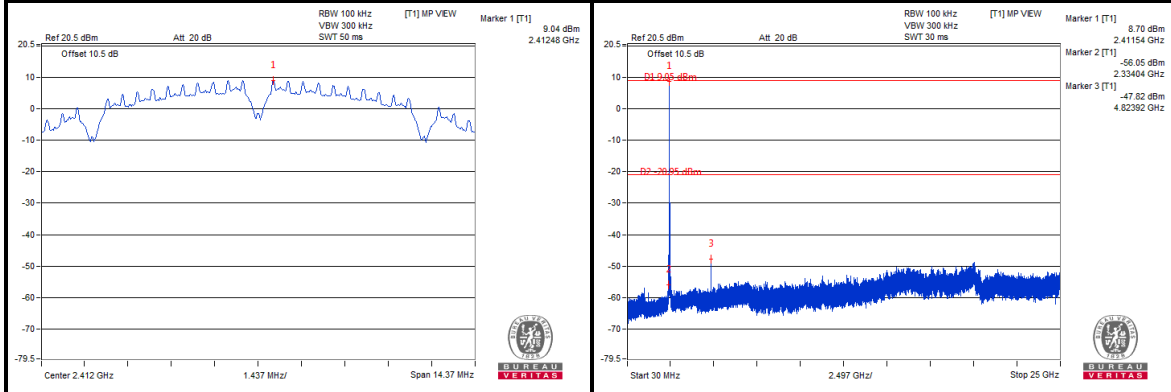


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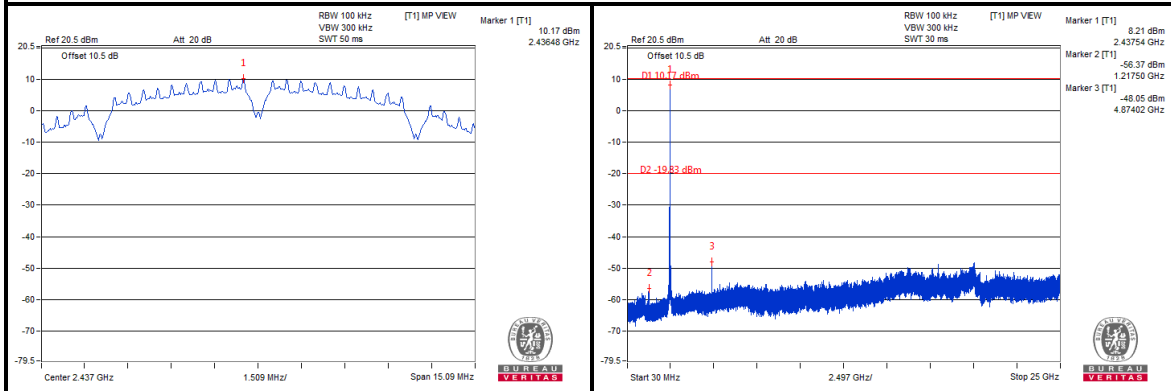
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CHAIN 1

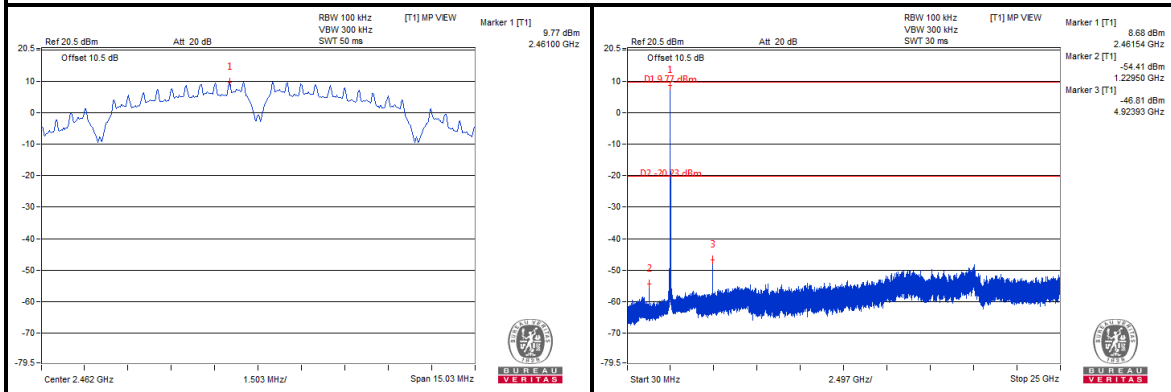
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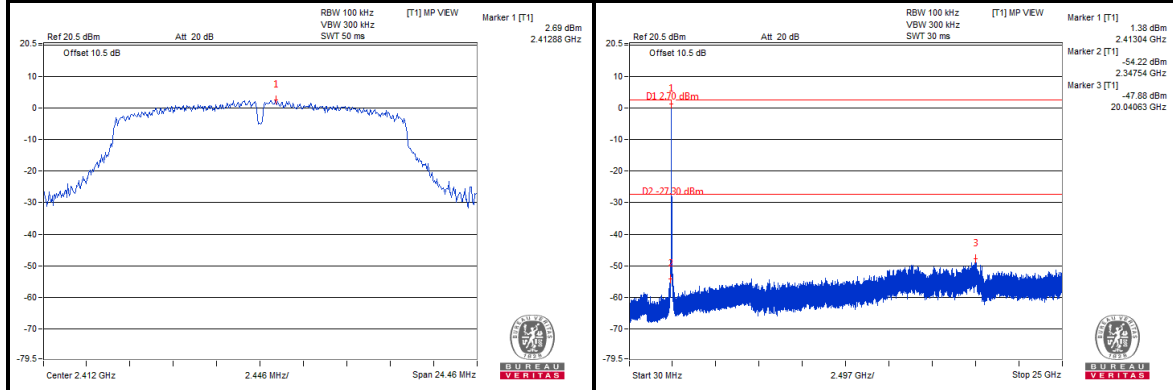
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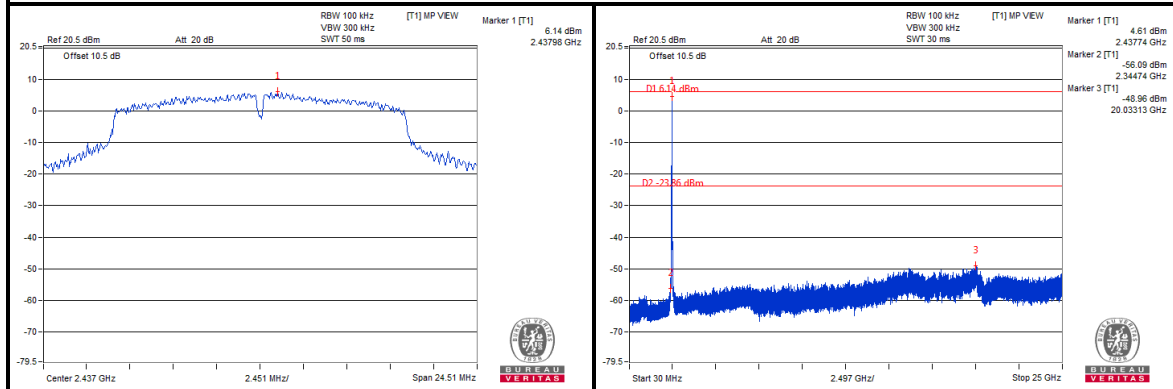
802.11g

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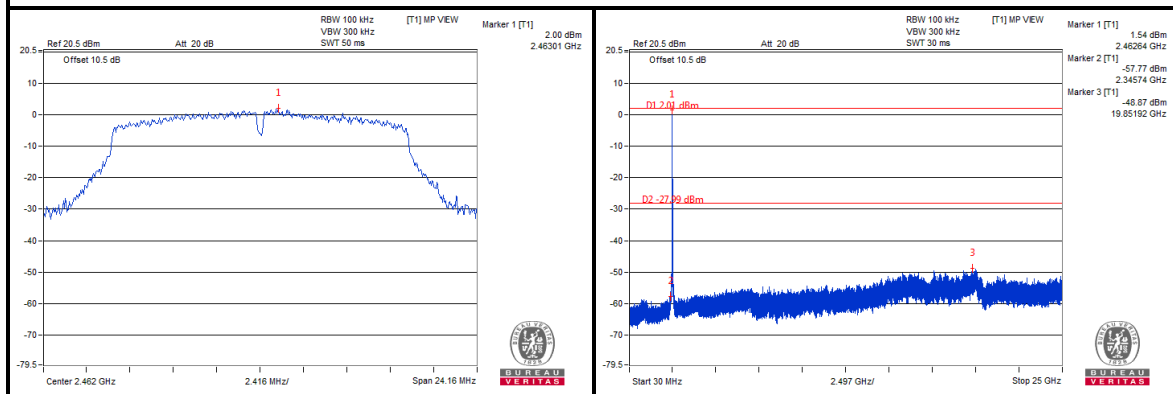
CH 1



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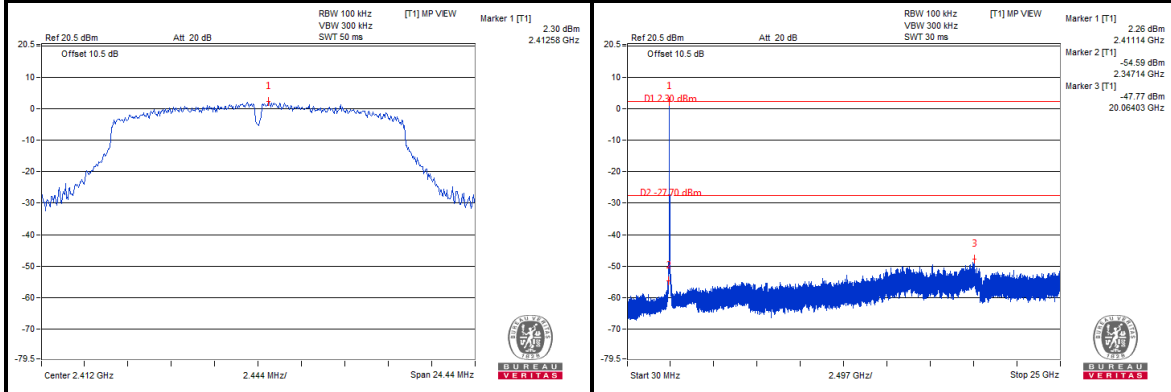


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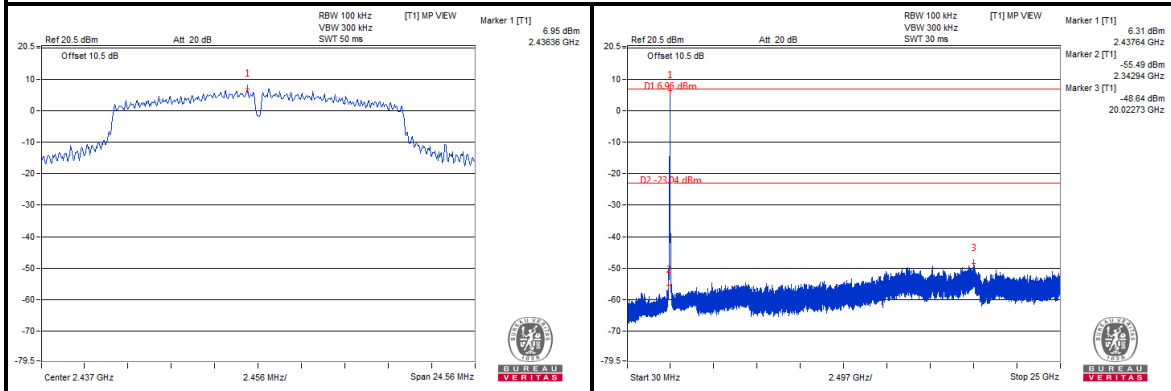
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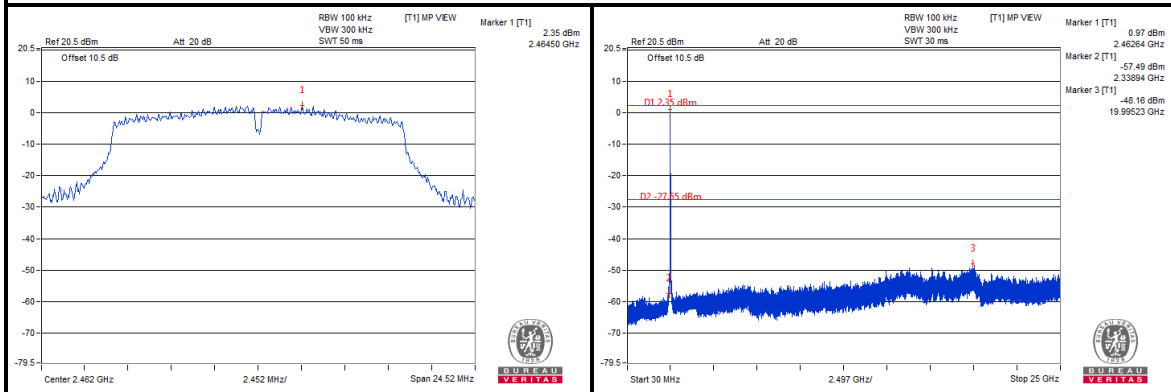
CH 1



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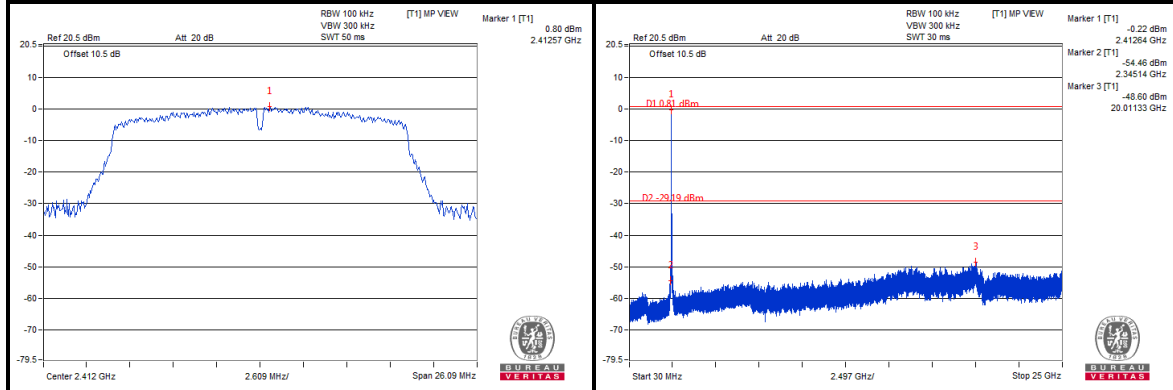
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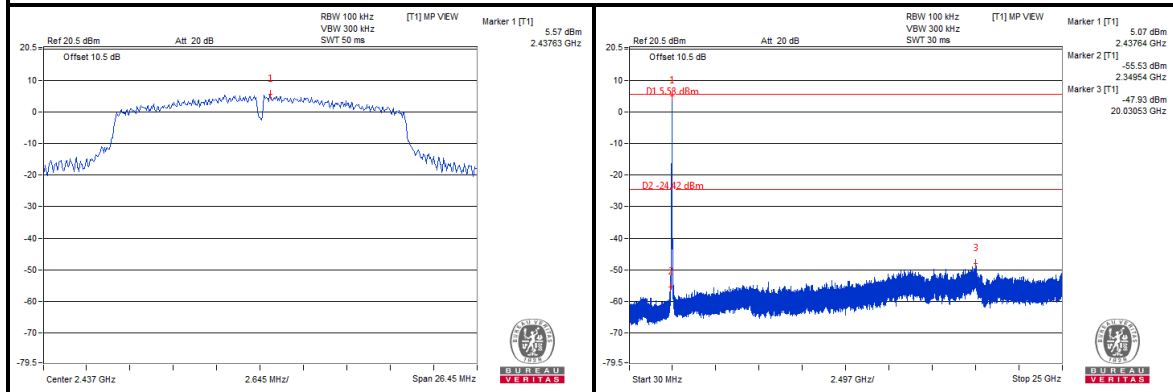
802.11n HT20

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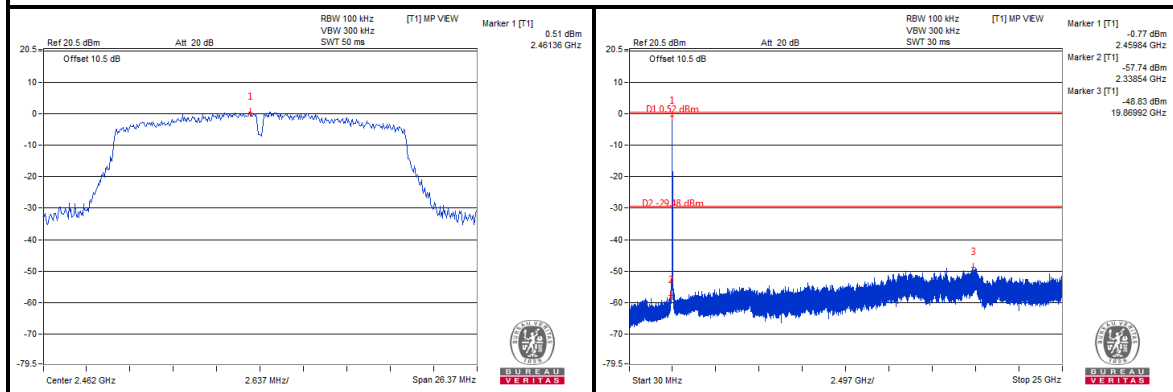
CH 1



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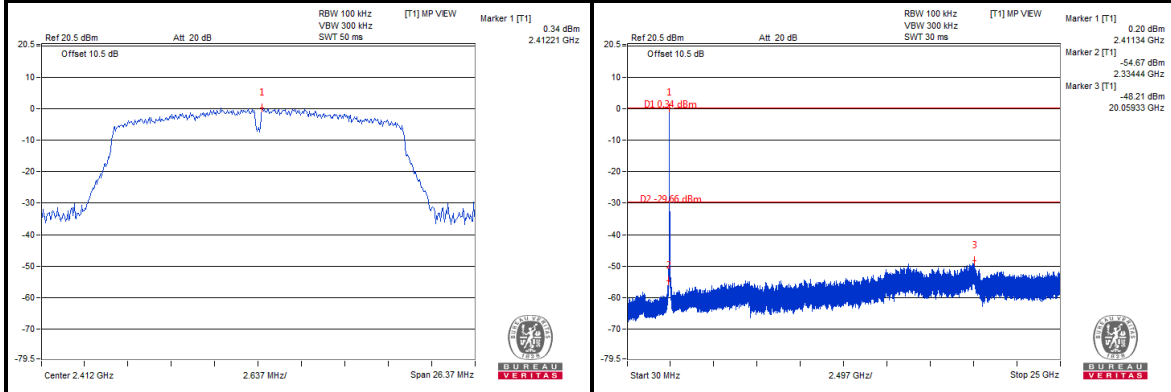


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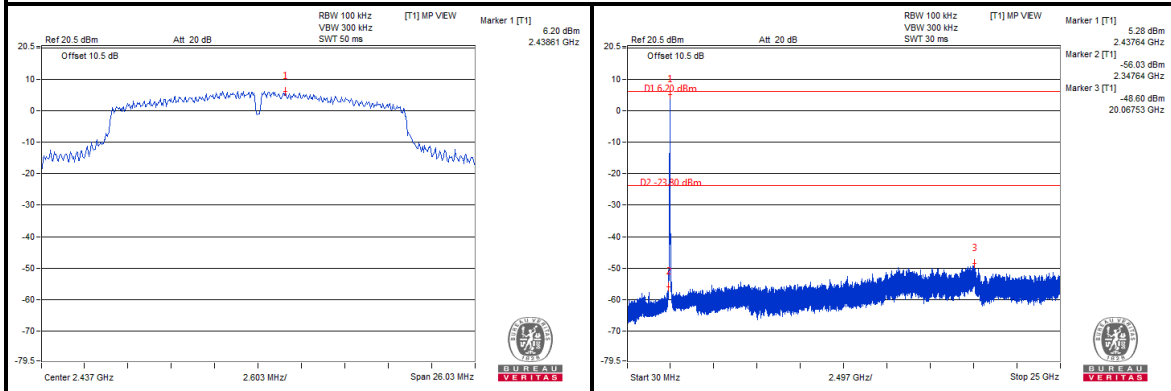
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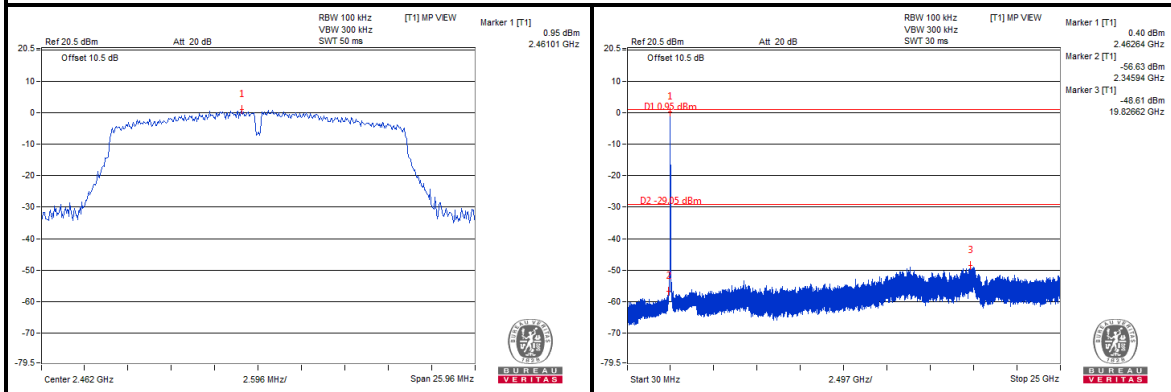
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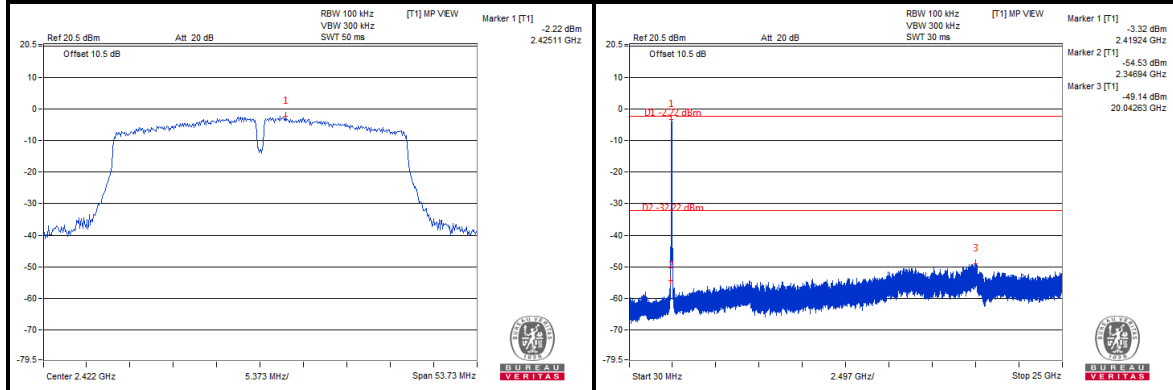
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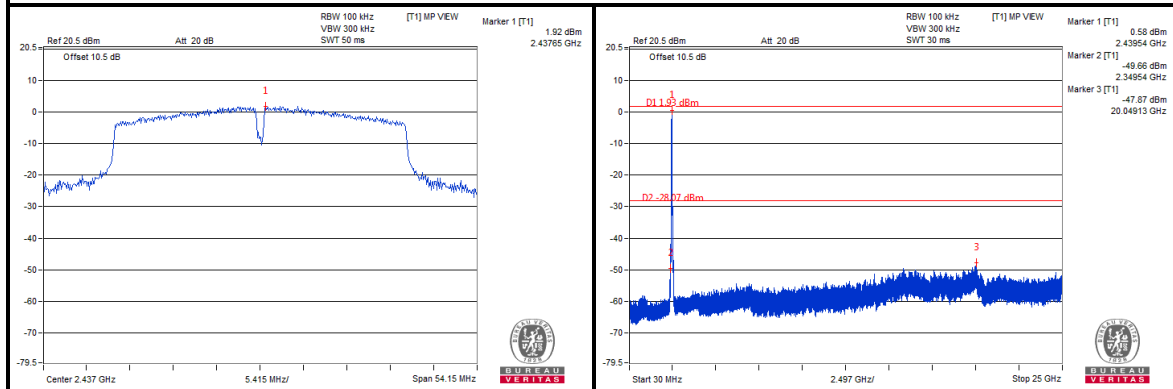
802.11n HT40

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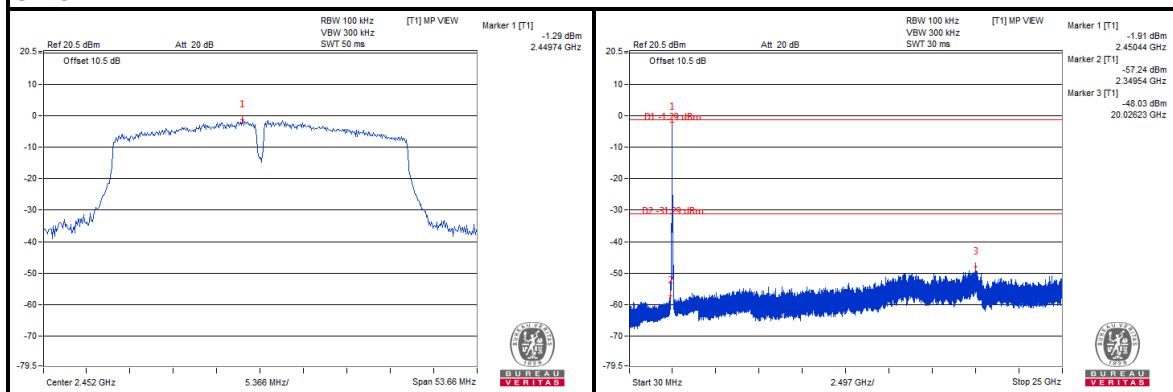
CH 3



CH 6



CH 9



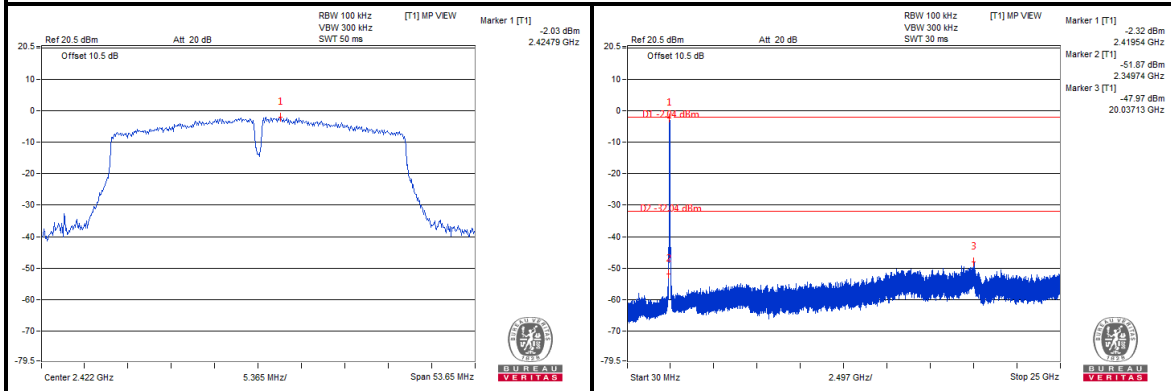
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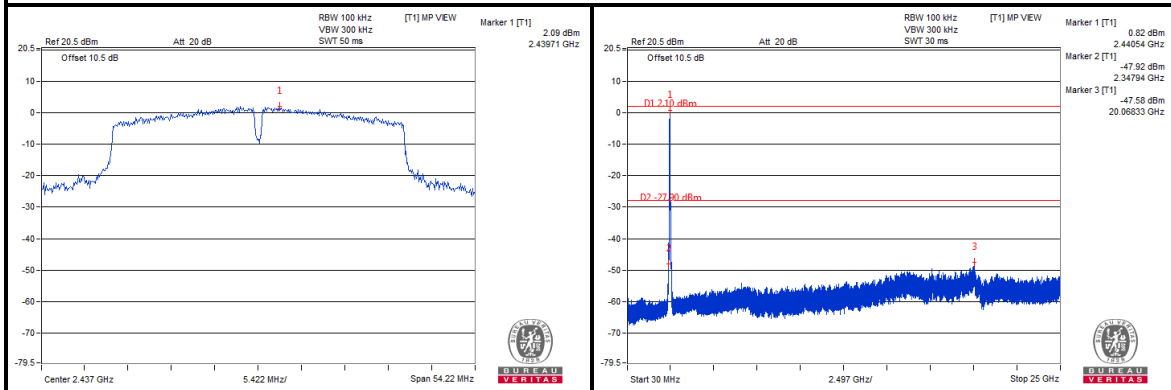
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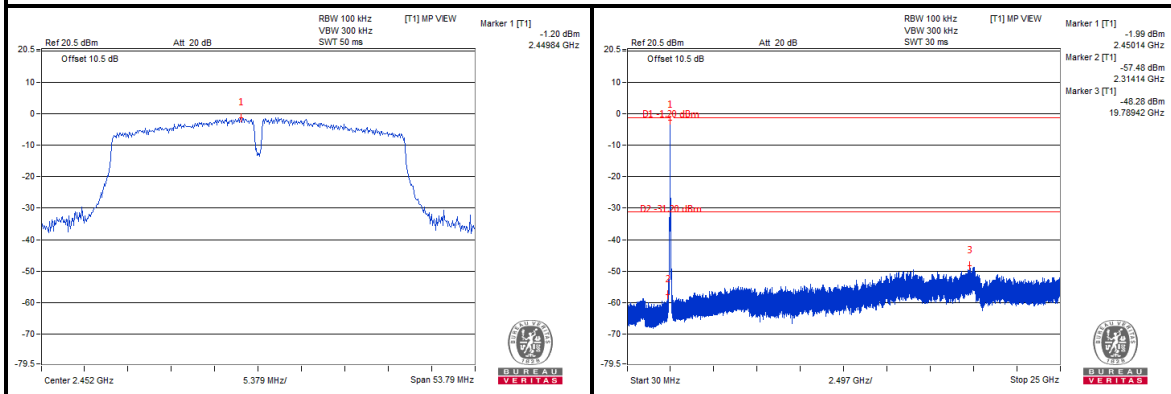
CH 3



CH 6



CH 9





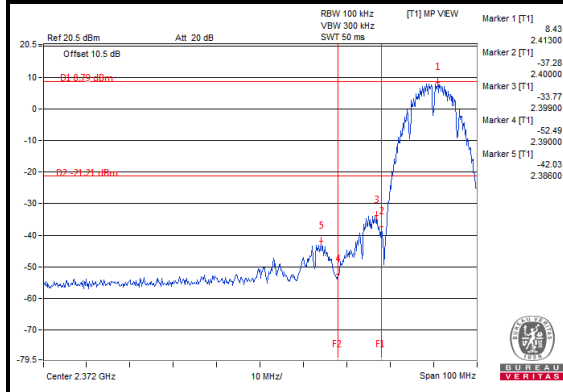
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VERITAS

Test Report No.: RF170725N035-1

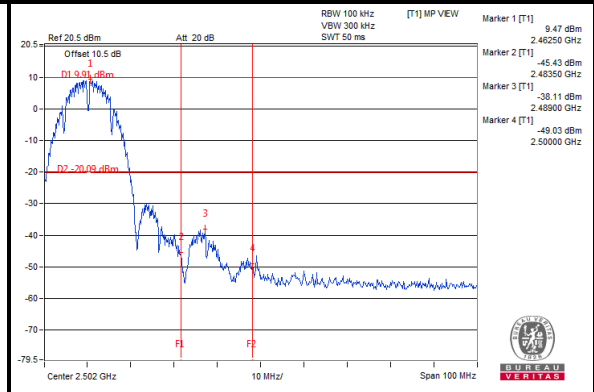
802.11b

CHAIN 0

CH 1 Band edge

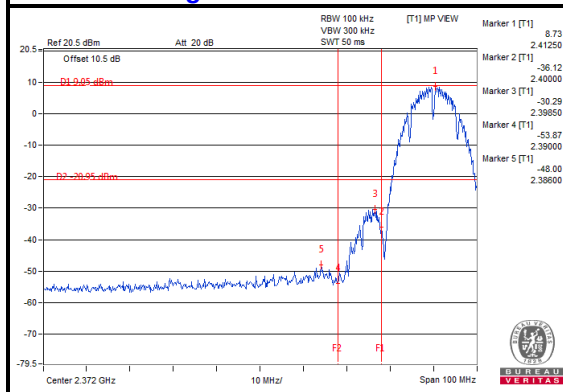


CH 11 Band edge

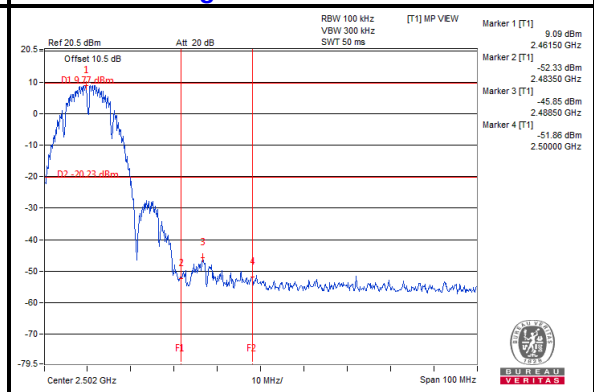


CHAIN 1

CH 1 Band edge

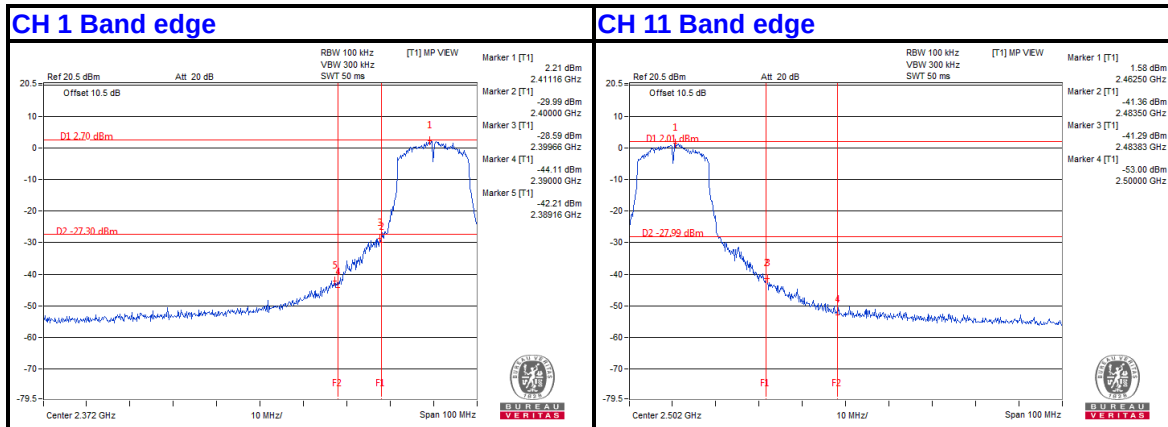


CH 11 Band edge

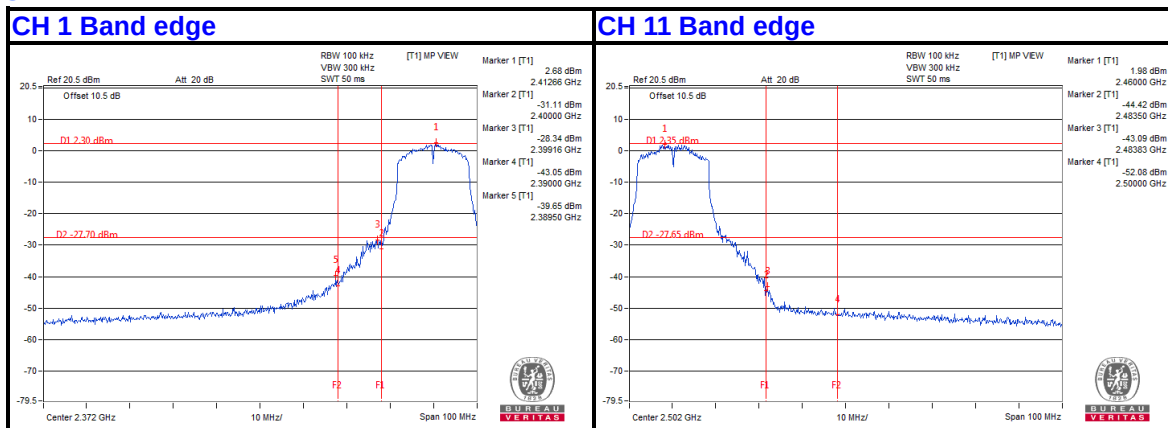


802.11g

CHAIN 0

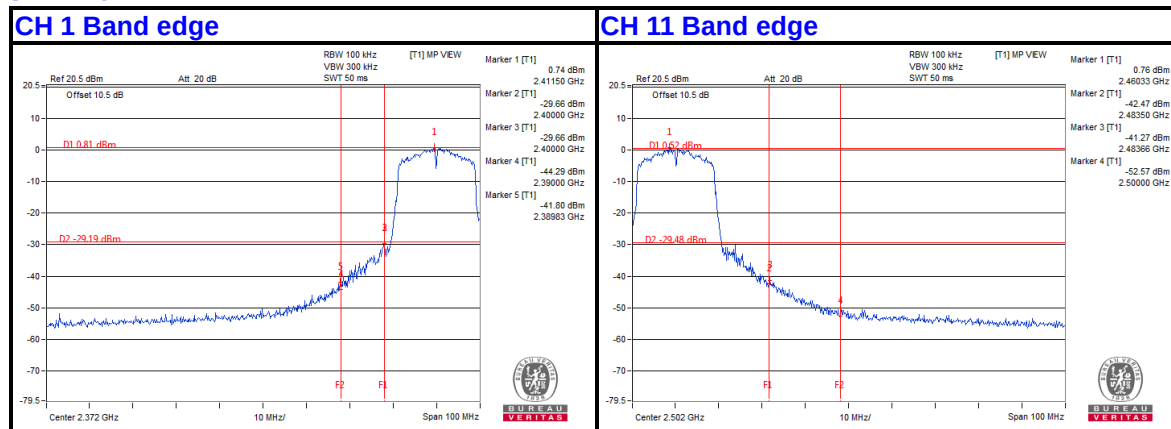


CHAIN 1

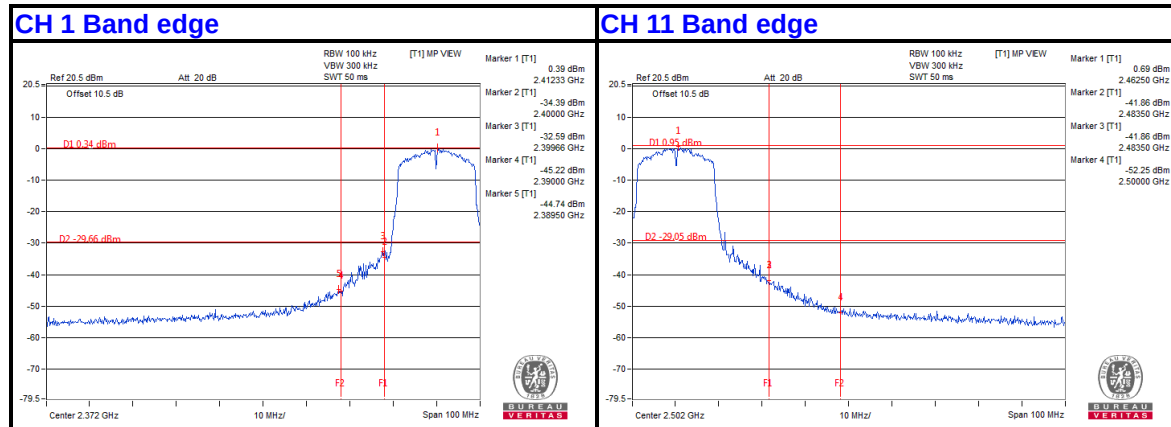


802.11n HT20

CHAIN 0

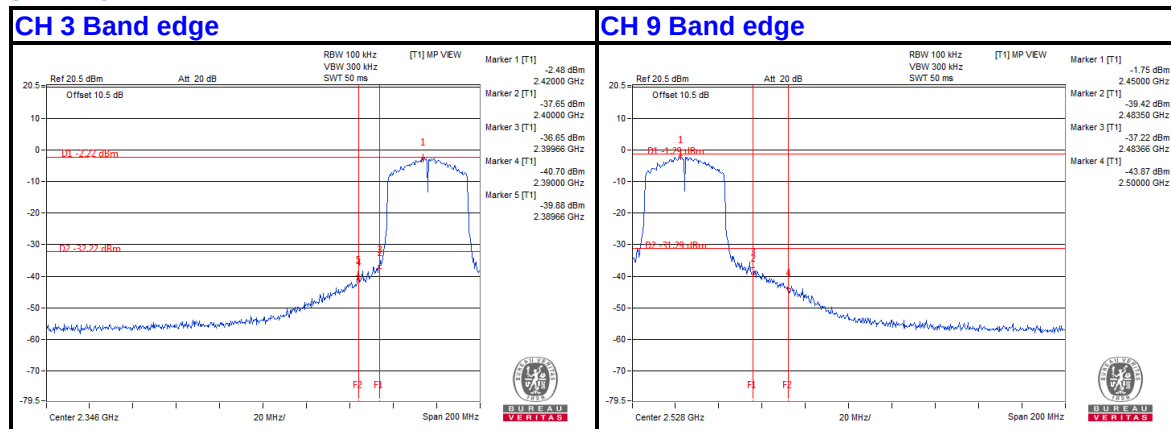


CHAIN 1

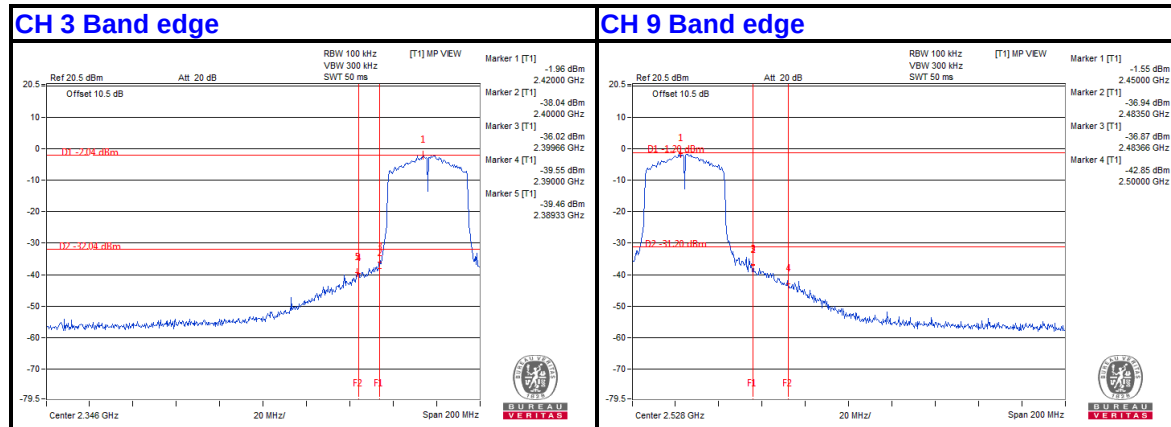


802.11n HT40

CHAIN 0



CHAIN 1



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---