

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 Light Switch
Brand Name	tp-link
Model	HS200
Additional Model & Model Difference	N/A
Date of tests	Jun. 10, 2017 ~ Jun. 30, 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: Aug. 31, 2017
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170525N047	Original release	Aug. 31, 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	2.90dB
	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 Light Switch
MODEL NO.	HS200
FCC ID	TE7HS200V3
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	19.27dBm (Maximum Average Power)
ANTENNA TYPE	Omni Directional antenna; 2.8dBi 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.: 170525N047) 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):

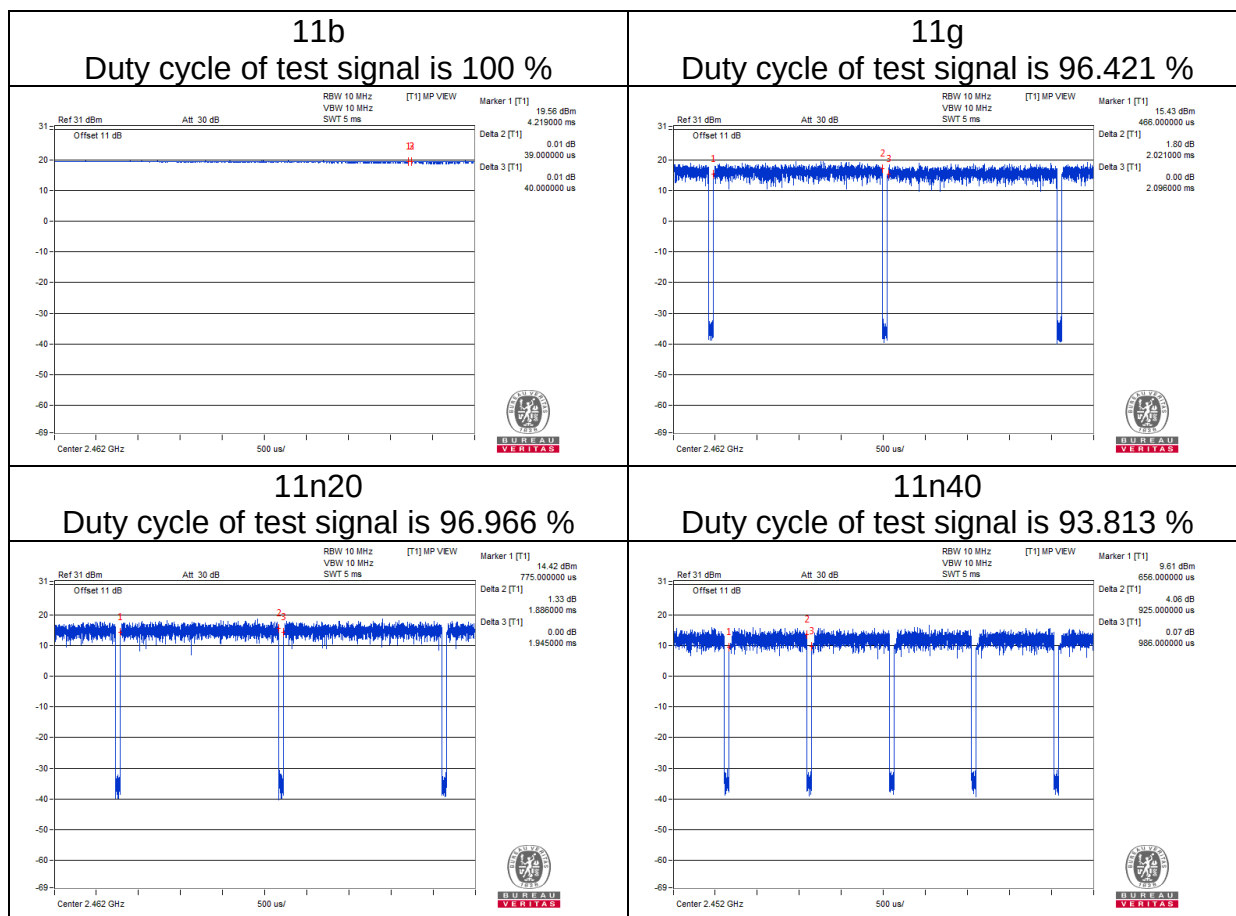
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		



**BUREAU
VERITAS**

Test Report No.: RF170525N047

DUTY CYCLE OF SIGNAL



Note:

- 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 =96.421%, Duty factor = $10 \cdot \log(1/0.96421) = 0.158\text{dB}$.
- 802.11n20:** Duty cycle =96.996%, Duty factor = $10 \cdot \log(1/0.96996) = 0.132\text{dB}$.
- 802.11n40:** Duty cycle =93.813%, Duty factor = $10 \cdot \log(1/0.93813) = 0.277\text{dB}$.

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
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
-	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, 53%RH	AC 230V 50Hz	Eric Fang
RE≥1G	25deg. C, 53%RH	AC 230V 50Hz	Eric Fang
PLC	20deg. C, 56%RH	AC 230V 50Hz	Yang
APCM	20deg. C, 55%RH	AC 230V 50Hz	Robert Cheng

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	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- 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. 04,17	Jan. 03,18
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

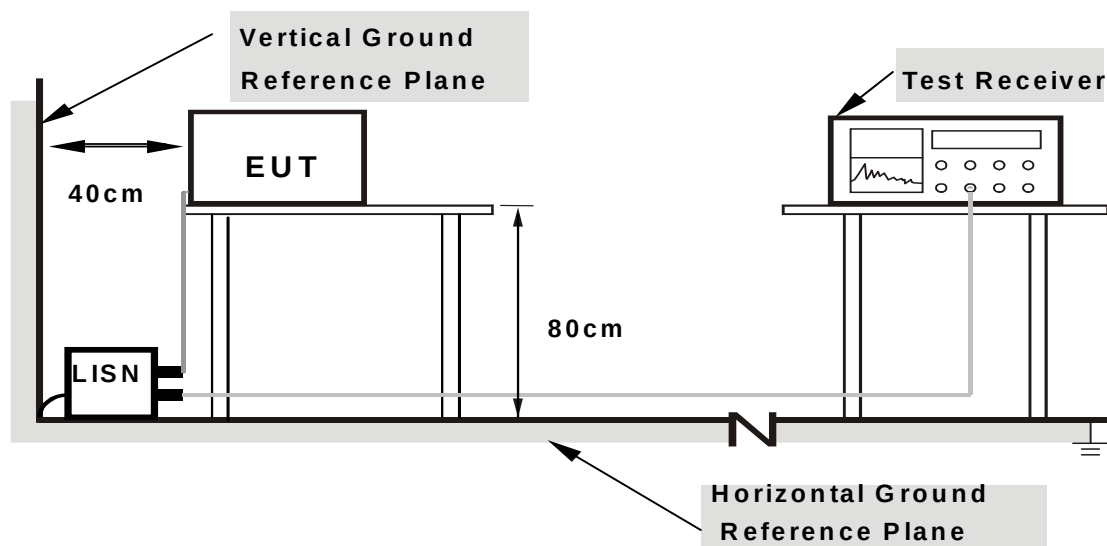
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

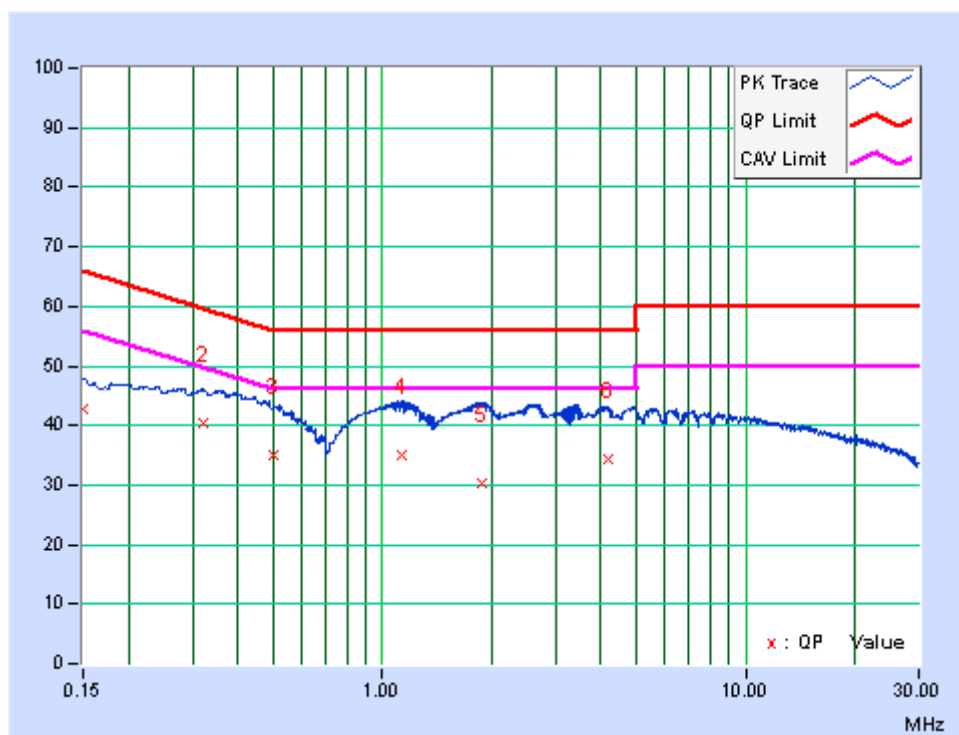
4.1.7 TEST RESULTS

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	0.15000	10.22	32.53	16.18	42.75	26.40	66.00	56.00	-23.25	-29.60
2	0.32312	10.22	30.20	14.50	40.42	24.72	59.63	49.63	-19.21	-24.91
3	0.50000	10.22	24.94	11.75	35.16	21.97	56.00	46.00	-20.84	-24.03
4	1.13249	10.22	24.83	12.80	35.05	23.02	56.00	46.00	-20.95	-22.98
5	1.88017	10.22	20.01	7.74	30.23	17.96	56.00	46.00	-25.77	-28.04
6	4.16245	10.22	24.23	13.48	34.45	23.70	56.00	46.00	-21.55	-22.30

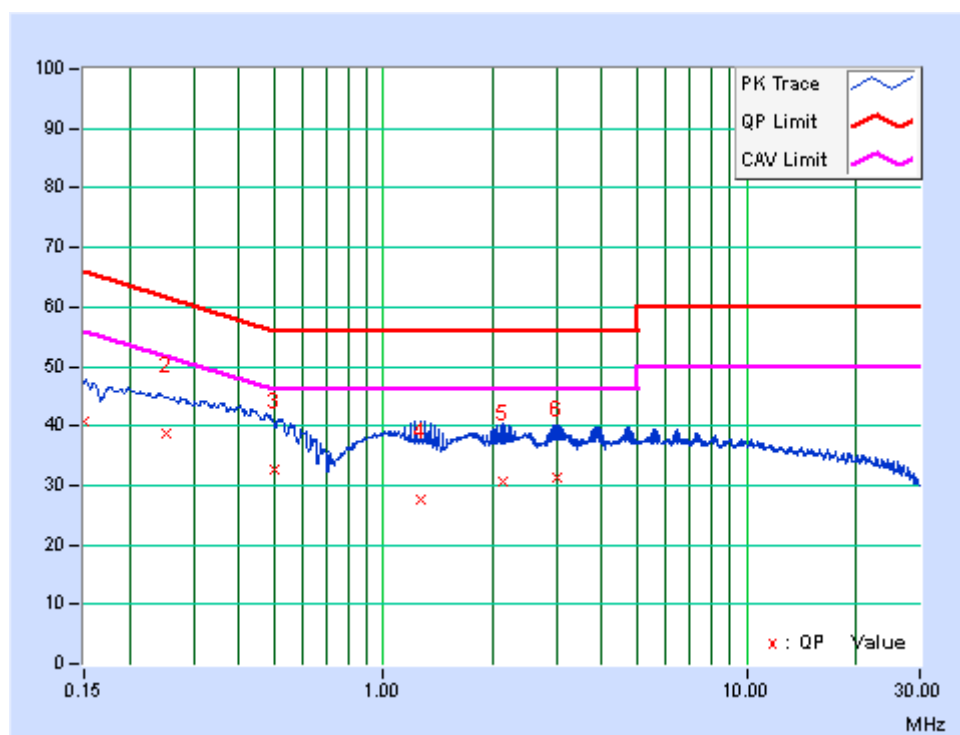
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	0.15000	10.01	30.77	14.35	40.78	24.36	66.00	56.00	-25.22	-31.64
2	0.25144	10.01	28.81	15.08	38.82	25.09	61.71	51.71	-22.89	-26.62
3	0.50000	10.02	22.73	12.02	32.75	22.04	56.00	46.00	-23.25	-23.96
4	1.26531	10.02	17.48	5.31	27.50	15.33	56.00	46.00	-28.50	-30.67
5	2.13450	10.02	20.52	12.54	30.54	22.56	56.00	46.00	-25.46	-23.44
6	3.00525	10.03	21.18	14.37	31.21	24.40	56.00	46.00	-24.79	-21.60

- 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 (20MHz~2GHz)	Teseq	CBL 6111D	30643	Jul. 14, 16	Jul. 13, 17
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, 16	Aug. 07, 17
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 (15GHz-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

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:

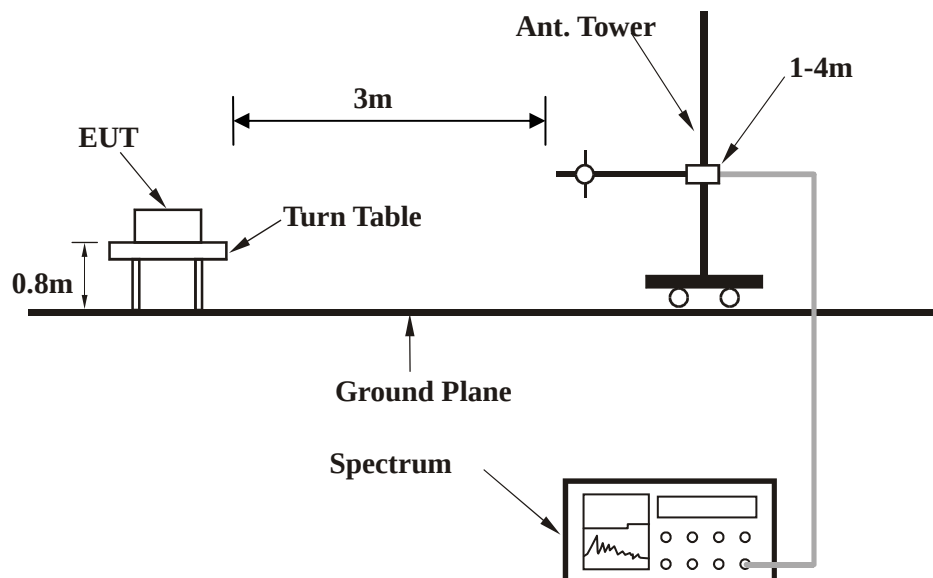
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

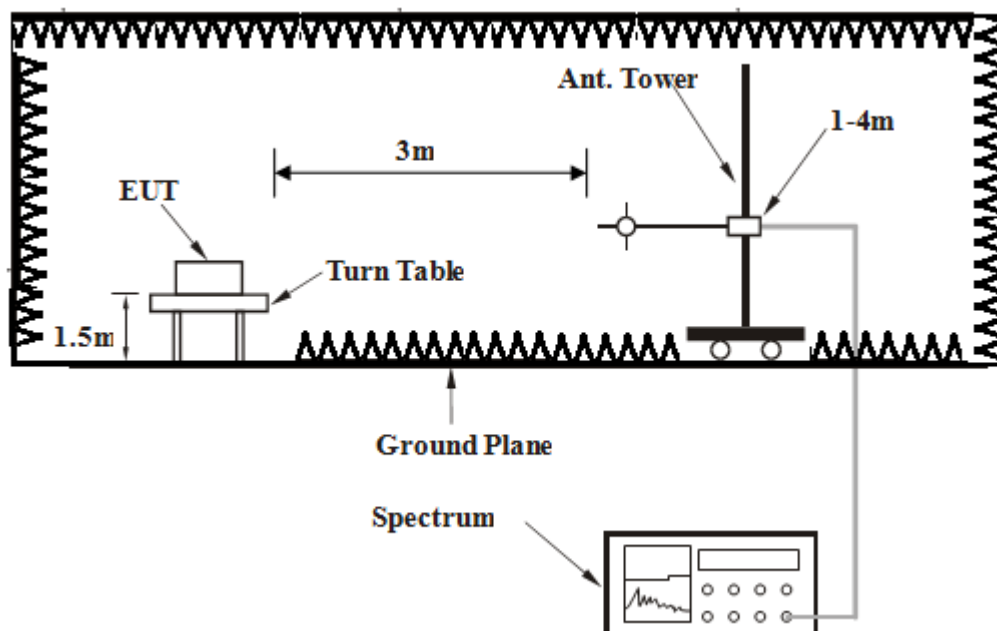
4.2.5 TEST SETUP

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:

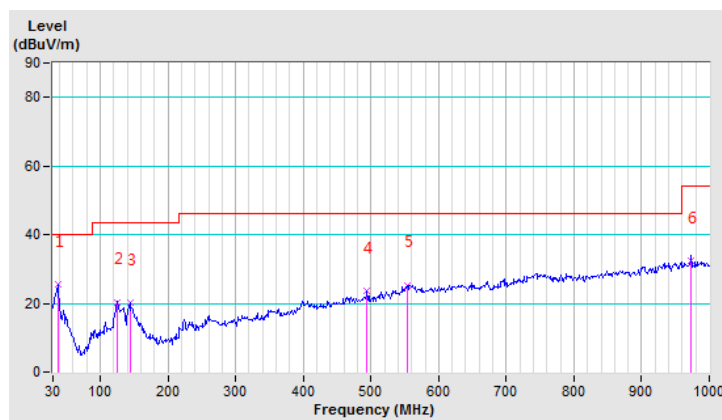
802.11b

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	36.93	25.65 QP	40.00	-14.35	1.00 H	337	40.40	-14.75
2	124.23	20.40 QP	43.50	-23.10	1.00 H	271	37.10	-16.70
3	143.63	20.30 QP	43.50	-23.20	1.00 H	317	37.35	-17.05
4	494.21	23.48 QP	46.00	-22.52	1.00 H	303	29.92	-6.44
5	553.80	25.35 QP	46.00	-20.65	1.00 H	290	29.14	-3.79
6	972.29	32.51 QP	54.00	-21.49	1.00 H	334	29.23	3.28

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.





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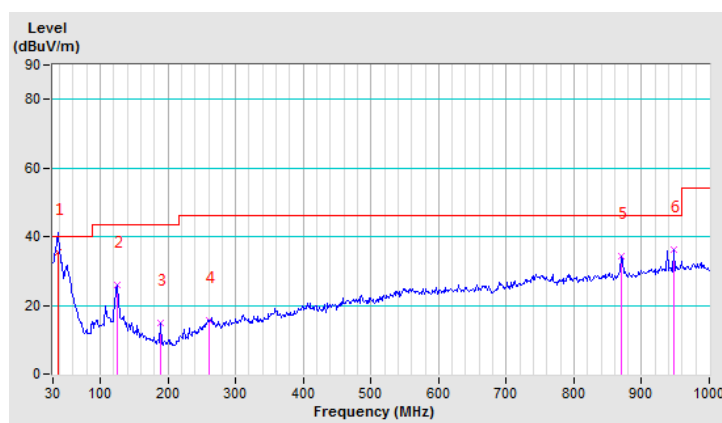
Test Report No.: RF170525N047

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	38.07	35.50 QP	40.00	-4.50	1.00 V	152	50.85	-15.35
2	124.23	26.01 QP	43.50	-17.49	1.00 V	117	42.71	-16.70
3	189.36	14.76 QP	43.50	-28.74	1.00 V	185	34.47	-19.71
4	260.03	15.65 QP	46.00	-30.35	1.00 V	124	28.16	-12.51
5	869.74	34.43 QP	46.00	-11.57	1.00 V	133	32.94	1.49
6	947.34	36.33 QP	46.00	-9.67	1.00 V	152	33.87	2.46

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	53.21 PK	74.00	-20.79	3.00 H	166	50.07	3.14
2	2390.00	43.69 AV	54.00	-10.31	3.00 H	166	40.55	3.14
3	*2412.00	106.19 PK			3.00 H	166	103.02	3.17
4	*2412.00	103.27 AV			3.00 H	166	100.10	3.17
5	4824.00	48.92 PK	74.00	-25.08	2.31 H	164	42.45	6.47
6	4824.00	47.01 AV	54.00	-6.99	2.31 H	164	40.54	6.47
7	#7236.00	45.89 PK	74.00	-28.11	1.00 H	155	33.76	12.13
8	#7236.00	34.01 AV	54.00	-19.99	1.00 H	155	21.88	12.13
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	53.23 PK	74.00	-20.77	1.15 V	171	50.09	3.14
2	2390.00	43.90 AV	54.00	-10.10	1.15 V	171	40.76	3.14
3	*2412.00	105.20 PK			1.15 V	171	102.03	3.17
4	*2412.00	102.69 AV			1.15 V	171	99.52	3.17
5	4824.00	46.19 PK	74.00	-27.81	1.57 V	257	39.72	6.47
6	4824.00	42.83 AV	54.00	-11.17	1.57 V	257	36.36	6.47
7	#7236.00	47.38 PK	74.00	-26.62	1.13 V	231	35.25	12.13
8	#7236.00	34.07 AV	54.00	-19.93	1.13 V	231	21.94	12.13

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.



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Test Report No.: RF170525N047

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	54.14 PK	74.00	-19.86	3.21 H	319	51.00	3.14
2	*2437.00	106.03 PK			3.21 H	319	102.82	3.21
3	*2437.00	102.40 AV			3.21 H	319	99.19	3.21
4	2483.50	56.00 PK	74.00	-18.00	3.21 H	319	52.71	3.29
5	4874.00	46.78 PK	74.00	-27.22	2.57 H	152	40.30	6.48
6	4874.00	43.32 AV	54.00	-10.68	2.57 H	152	36.84	6.48
7	7311.00	47.75 PK	74.00	-26.25	1.69 H	254	35.54	12.21
8	7311.00	34.09 AV	54.00	-19.91	1.69 H	254	21.88	12.21
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	52.46 PK	74.00	-21.54	2.08 V	301	49.32	3.14
2	*2437.00	104.99 PK			2.08 V	301	101.78	3.21
3	*2437.00	101.86 AV			2.08 V	301	98.65	3.21
4	2483.50	51.19 PK	74.00	-22.81	2.08 V	301	47.90	3.29
5	4874.00	45.52 PK	74.00	-28.48	1.00 V	251	39.04	6.48
6	4874.00	42.66 AV	54.00	-11.34	1.00 V	251	36.18	6.48
7	7311.00	47.00 PK	74.00	-27.00	1.26 V	302	34.79	12.21
8	7311.00	34.19 AV	54.00	-19.81	1.26 V	302	21.98	12.21

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	109.02 PK			3.12 H	169	105.76	3.26
2	*2462.00	105.79 AV			3.12 H	169	102.53	3.26
3	2483.50	55.65 PK	74.00	-18.35	3.12 H	169	52.36	3.29
4	2483.50	45.44 AV	54.00	-8.56	3.12 H	169	42.15	3.29
5	4924.00	53.17 PK	74.00	-20.83	1.67 H	227	46.68	6.49
6	4924.00	51.56 AV	54.00	-2.44	1.67 H	227	45.07	6.49
7	7386.00	47.57 PK	74.00	-26.43	1.00 H	0	35.27	12.30
8	7386.00	34.32 AV	54.00	-19.68	1.00 H	0	22.02	12.30
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	107.12 PK			3.12 V	187	103.86	3.26
2	*2462.00	104.08 AV			3.12 V	187	100.82	3.26
3	2483.50	55.40 PK	74.00	-18.60	3.12 V	187	52.11	3.29
4	2483.50	46.45 AV	54.00	-7.55	3.12 V	187	43.16	3.29
5	4924.00	52.35 PK	74.00	-21.65	1.00 V	246	45.86	6.49
6	4924.00	50.86 AV	54.00	-3.14	1.00 V	246	44.37	6.49
7	7386.00	45.82 PK	74.00	-28.18	1.00 V	158	33.52	12.30
8	7386.00	34.25 AV	54.00	-19.75	1.00 V	158	21.95	12.30

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	62.84 PK	74.00	-11.16	1.54 H	258	59.70	3.14
2	2390.00	47.22 AV	54.00	-6.78	1.54 H	258	44.08	3.14
3	*2412.00	106.93 PK			1.38 H	197	103.76	3.17
4	*2412.00	94.93 AV			1.38 H	197	91.76	3.17
5	4824.00	42.38 PK	74.00	-31.62	1.00 H	252	35.91	6.47
6	4824.00	33.24 AV	54.00	-20.76	1.00 H	252	26.77	6.47
7	#7236.00	47.34 PK	74.00	-26.66	1.21 H	352	35.21	12.13
8	#7236.00	35.07 AV	54.00	-18.93	1.21 H	352	22.94	12.13
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	68.56 PK	74.00	-5.44	1.87 V	280	65.42	3.14
2	2390.00	50.34 AV	54.00	-3.66	1.87 V	280	47.20	3.14
3	*2412.00	104.64 PK			1.00 V	87	101.47	3.17
4	*2412.00	95.96 AV			1.00 V	87	92.79	3.17
5	4824.00	43.02 PK	74.00	-30.98	1.12 V	242	36.55	6.47
6	4824.00	32.84 AV	54.00	-21.16	1.12 V	242	26.37	6.47
7	#7236.00	46.69 PK	74.00	-27.31	1.00 V	151	34.56	12.13
8	#7236.00	33.73 AV	54.00	-20.27	1.00 V	151	21.60	12.13

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	56.75 PK	74.00	-17.25	1.46 H	285	53.61	3.14
2	*2437.00	108.55 PK			1.46 H	285	105.34	3.21
3	*2437.00	99.56 AV			1.46 H	285	96.35	3.21
4	2483.50	57.28 PK	74.00	-16.72	1.46 H	285	53.99	3.29
5	4874.00	46.94 PK	74.00	-27.06	1.16 H	238	40.46	6.48
6	4874.00	35.69 AV	54.00	-18.31	1.16 H	238	29.21	6.48
7	7311.00	47.56 PK	74.00	-26.44	1.49 H	328	35.35	12.21
8	7311.00	33.85 AV	54.00	-20.15	1.49 H	328	21.64	12.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.39 PK	74.00	-19.61	2.29 V	282	51.25	3.14
2	*2437.00	108.62 PK			2.29 V	282	105.41	3.21
3	*2437.00	99.80 AV			2.29 V	282	96.59	3.21
4	2483.50	55.24 PK	74.00	-18.76	2.29 V	282	51.95	3.29
5	4874.00	47.85 PK	74.00	-26.15	1.82 V	126	41.37	6.48
6	4874.00	33.84 AV	54.00	-20.16	1.82 V	126	27.36	6.48
7	7311.00	46.98 PK	74.00	-27.02	1.74 V	223	34.77	12.21
8	7311.00	33.95 AV	54.00	-20.05	1.74 V	223	21.74	12.21

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	105.66 PK			3.18 H	190	102.40	3.26
2	*2462.00	96.94 AV			3.18 H	190	93.68	3.26
3	2483.50	68.77 PK	74.00	-5.23	3.18 H	190	65.48	3.29
4	2483.50	47.60 AV	54.00	-6.40	3.18 H	190	44.31	3.29
5	4924.00	45.87 PK	74.00	-28.13	1.25 H	266	39.38	6.49
6	4924.00	32.24 AV	54.00	-21.76	1.25 H	266	25.75	6.49
7	7386.00	45.40 PK	74.00	-28.60	1.94 H	234	33.10	12.30
8	7386.00	33.29 AV	54.00	-20.71	1.94 H	234	20.99	12.30
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	105.04 PK			1.00 V	91	101.78	3.26
2	*2462.00	96.94 AV			1.00 V	91	93.68	3.26
3	2483.50	68.94 PK	74.00	-5.06	1.91 V	280	65.65	3.29
4	2483.50	48.85 AV	54.00	-5.15	1.91 V	280	45.56	3.29
5	4924.00	42.36 PK	74.00	-31.64	1.62 V	235	35.87	6.49
6	4924.00	34.63 AV	54.00	-19.37	1.62 V	235	28.14	6.49
7	7386.00	47.31 PK	74.00	-26.69	1.85 V	263	35.01	12.30
8	7386.00	33.90 AV	54.00	-20.10	1.85 V	263	21.60	12.30

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	63.53 PK	74.00	-10.47	1.58 H	149	60.39	3.14
2	2390.00	47.23 AV	54.00	-6.77	1.58 H	149	44.09	3.14
3	*2412.00	104.25 PK			1.33 H	200	101.08	3.17
4	*2412.00	95.19 AV			1.33 H	200	92.02	3.17
5	4824.00	45.35 PK	74.00	-28.65	1.94 H	285	38.88	6.47
6	4824.00	32.59 AV	54.00	-21.41	1.94 H	285	26.12	6.47
7	#7236.00	46.85 PK	74.00	-27.15	1.49 H	243	34.72	12.13
8	#7236.00	33.56 AV	54.00	-20.44	1.49 H	243	21.43	12.13
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	70.45 PK	74.00	-3.55	1.88 V	286	67.31	3.14
2	2390.00	53.30 AV	54.00	-0.70	1.88 V	286	50.16	3.14
3	*2412.00	104.79 PK			2.15 V	89	101.62	3.17
4	*2412.00	95.97 AV			2.15 V	89	92.80	3.17
5	4824.00	42.27 PK	74.00	-31.73	1.52 V	311	35.80	6.47
6	4824.00	31.89 AV	54.00	-22.11	1.52 V	311	25.42	6.47
7	#7236.00	47.80 PK	74.00	-26.20	1.19 V	326	35.67	12.13
8	#7236.00	33.66 AV	54.00	-20.34	1.19 V	326	21.53	12.13

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	55.26 PK	74.00	-18.74	1.84 H	80	52.12	3.14
2	*2437.00	105.94 PK			1.84 H	280	102.73	3.21
3	*2437.00	96.94 AV			1.84 H	280	93.73	3.21
4	2483.50	56.26 PK	74.00	-17.74	1.84 H	280	52.97	3.29
5	4874.00	46.35 PK	74.00	-27.65	2.65 H	329	39.87	6.48
6	4874.00	33.81 AV	54.00	-20.19	2.65 H	329	27.33	6.48
7	7311.00	47.26 PK	74.00	-26.74	1.99 H	273	35.05	12.21
8	7311.00	32.87 AV	54.00	-21.13	1.99 H	273	20.66	12.21
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	57.08 PK	74.00	-16.92	1.00 V	90	53.94	3.14
2	*2437.00	107.24 PK			1.00 V	90	104.03	3.21
3	*2437.00	98.69 AV			1.00 V	90	95.48	3.21
4	2483.50	55.65 PK	74.00	-18.35	1.00 V	90	52.36	3.29
5	4874.00	47.91 PK	74.00	-26.09	1.49 V	235	41.43	6.48
6	4874.00	33.26 AV	54.00	-20.74	1.49 V	235	26.78	6.48
7	7311.00	45.96 PK	74.00	-28.04	1.49 V	235	33.75	12.21
8	7311.00	33.86 AV	54.00	-20.14	1.49 V	235	21.65	12.21

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			1.49 H	226	100.85	3.26
2	*2462.00	95.35 AV			1.49 H	226	92.09	3.26
3	2483.50	70.00 PK	74.00	-4.00	1.49 H	226	66.71	3.29
4	2483.50	48.13 AV	54.00	-5.87	1.49 H	226	44.84	3.29
5	4924.00	50.62 PK	74.00	-23.38	1.25 H	224	44.13	6.49
6	4924.00	33.59 AV	54.00	-20.41	1.25 H	224	27.10	6.49
7	7386.00	48.95 PK	74.00	-25.05	1.49 H	236	36.65	12.30
8	7386.00	33.65 AV	54.00	-20.35	1.49 H	236	21.35	12.30
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	111.01 PK			1.86 V	279	107.75	3.26
2	*2462.00	101.70 AV			1.86 V	279	98.44	3.26
3	2483.50	73.52 PK	74.00	-0.48	1.00 V	91	70.23	3.29
4	2483.50	53.11 AV	54.00	-0.89	1.00 V	91	49.82	3.29
5	4924.00	48.26 PK	74.00	-25.74	1.49 V	255	41.77	6.49
6	4924.00	33.59 AV	54.00	-20.41	1.49 V	255	27.10	6.49
7	7386.00	48.19 PK	74.00	-25.81	1.47 V	235	35.89	12.30
8	7386.00	31.26 AV	54.00	-22.74	1.47 V	235	18.96	12.30

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	61.26 PK	74.00	-12.74	1.49 H	235	58.12	3.14
2	2390.00	47.55 AV	54.00	-6.45	1.49 H	235	44.41	3.14
3	*2422.00	99.27 PK			1.49 H	235	96.03	3.24
4	*2422.00	90.08 AV			1.49 H	235	86.84	3.24
5	4844.00	41.52 PK	74.00	-32.48	1.79 H	206	35.05	6.47
6	4844.00	32.59 AV	54.00	-21.41	1.79 H	206	26.12	6.47
7	7266.00	45.59 PK	74.00	-28.41	1.49 H	254	33.44	12.15
8	7266.00	33.84 AV	54.00	-20.16	1.49 H	254	21.69	12.15
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	67.74 PK	74.00	-6.26	1.19 V	235	64.60	3.14
2	2390.00	53.61 AV	54.00	-0.39	1.19 V	235	50.47	3.14
3	*2422.00	99.83 PK			1.04 V	90	96.59	3.24
4	*2422.00	90.62 AV			1.04 V	90	87.45	3.24
5	4844.00	40.20 PK	74.00	-33.80	1.95 V	263	33.73	6.47
6	4844.00	28.54 AV	54.00	-25.46	1.95 V	263	22.07	6.47
7	7266.00	44.88 PK	74.00	-29.12	1.49 V	285	32.73	12.15
8	7266.00	33.43 AV	54.00	-20.57	1.49 V	285	21.28	12.15

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	62.38 PK	74.00	-11.62	1.84 H	226	59.24	3.14
2	*2437.00	103.18 PK			1.84 H	226	99.97	3.21
3	*2437.00	94.26 AV			1.84 H	226	91.05	3.21
4	2483.50	63.29 PK	74.00	-10.71	1.84 H	226	60.00	3.29
5	4874.00	41.52 PK	74.00	-32.48	1.75 H	295	35.04	6.48
6	4874.00	28.65 AV	54.00	-25.35	1.75 H	295	22.17	6.48
7	7311.00	44.32 PK	74.00	-29.68	1.19 H	246	32.11	12.21
8	7311.00	32.51 AV	54.00	-21.49	1.19 H	246	20.30	12.21
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	68.15 PK	74.00	-5.85	1.17 V	89	65.01	3.14
2	*2437.00	109.14 PK			1.17 V	89	105.93	3.21
3	*2437.00	97.58 AV			1.17 V	89	94.37	3.21
4	2483.50	70.69 PK	74.00	-3.31	1.17 V	89	67.40	3.29
5	4874.00	41.62 PK	74.00	-32.38	1.54 V	236	35.14	6.48
6	4874.00	30.52 AV	54.00	-23.48	1.54 V	236	24.04	6.48
7	7311.00	47.35 PK	74.00	-26.65	1.49 V	214	35.14	12.21
8	7311.00	33.56 AV	54.00	-20.44	1.49 V	214	21.35	12.21

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 other emission levels were very low 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	101.49 PK			1.46 H	214	98.23	3.26
2	*2452.00	92.66 AV			1.46 H	214	89.40	3.26
3	2483.50	68.60 PK	74.00	-5.40	1.46 H	214	65.31	3.29
4	2483.50	50.93 AV	54.00	-3.07	1.46 H	214	47.64	3.29
5	4904.00	41.05 PK	74.00	-32.95	1.82 H	201	34.52	6.53
6	4904.00	29.07 AV	54.00	-24.93	1.82 H	201	22.54	6.53
7	7356.00	42.88 PK	74.00	-31.12	1.54 H	218	30.59	12.29
8	7356.00	32.01 AV	54.00	-21.99	1.54 H	218	19.72	12.29
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	102.75 PK			1.82 V	54	99.49	3.26
2	*2452.00	94.04 AV			1.82 V	54	90.78	3.26
3	2483.50	72.13 PK	74.00	-1.87	1.74 V	192	68.84	3.29
4	2483.50	52.97 AV	54.00	-1.03	1.74 V	192	49.68	3.29
5	4904.00	42.51 PK	74.00	-31.49	1.18 V	237	35.98	6.53
6	4904.00	29.63 AV	54.00	-24.37	1.18 V	237	23.10	6.53
7	7356.00	43.55 PK	74.00	-30.45	1.64 V	219	31.26	12.29
8	7356.00	31.26 AV	54.00	-22.74	1.64 V	219	18.97	12.29

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 other emission levels were very low 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	59.56 PK	74.00	-14.44	1.40 H	274	21.56	38.00
2	2390.00	46.46 AV	54.00	-7.54	1.40 H	274	8.46	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	1	2390.00	68.52 PK	74.00	-5.48	1.40 H	274	30.52
2	2	2390.00	53.21 AV	54.00	-0.79	1.40 H	274	15.21

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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Test Report No.: RF170525N047

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	68.38 PK	74.00	-5.62	2.32 H	206	30.10	38.28
2	2483.50	49.88 AV	54.00	-4.12	2.32 H	206	11.60	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)
1	2483.50	71.10 PK	74.00	-2.90	1.70 V	229	32.82	38.28
2	2483.50	53.81 AV	54.00	-0.19	1.70 V	229	15.53	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 other emission levels were very low 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	66.59 PK	74.00	-7.41	1.09 H	205	28.59	38.00
2	2390.00	49.58 AV	54.00	-4.42	1.09 H	205	11.58	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	68.73 PK	74.00	-5.27	4.00 V	205	30.73	38.00
2	2390.00	53.58 AV	54.00	-0.42	4.00 V	205	15.58	38.00

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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	68.41 PK	74.00	-5.59	1.22 H	55	30.13	38.28
2	2483.50	49.26 AV	54.00	-4.74	1.22 H	55	10.98	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)
1	2483.50	69.96 PK	74.00	-4.04	1.58 V	48	31.68	38.28
2	2483.50	52.67 AV	54.00	-1.33	1.58 V	48	14.39	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 other emission levels were very low 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	69.83 PK	74.00	-4.17	3.72 H	64	31.83	38.00
2	2390.00	51.46 AV	54.00	-2.54	3.72 H	64	13.46	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	67.62 PK	74.00	-6.33	1.50 V	306	29.62	38.00
2	2390.00	53.68 AV	54.00	-0.32	1.50 V	306	15.68	38.00

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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



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Test Report No.: RF170525N047

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	66.91 PK	74.00	-7.09	1.90 H	227	28.63	38.28
2	2483.50	47.20 AV	54.00	-6.70	1.90 H	227	8.92	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)
1	2483.50	68.98 PK	74.00	-4.02	1.55 V	209	30.70	38.28
2	2483.50	53.11 AV	54.00	-0.89	1.55 V	209	14.83	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 other emission levels were very low 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 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, 16	Aug.07, 17
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, 16	Aug.07, 17
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.

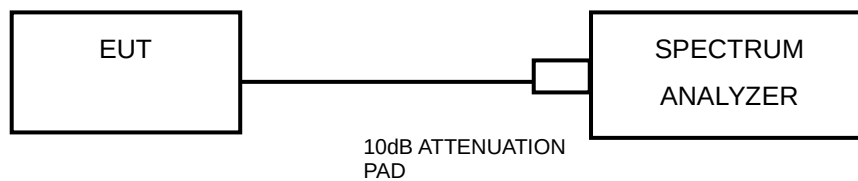
4.3.3 TEST PROCEDURE

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



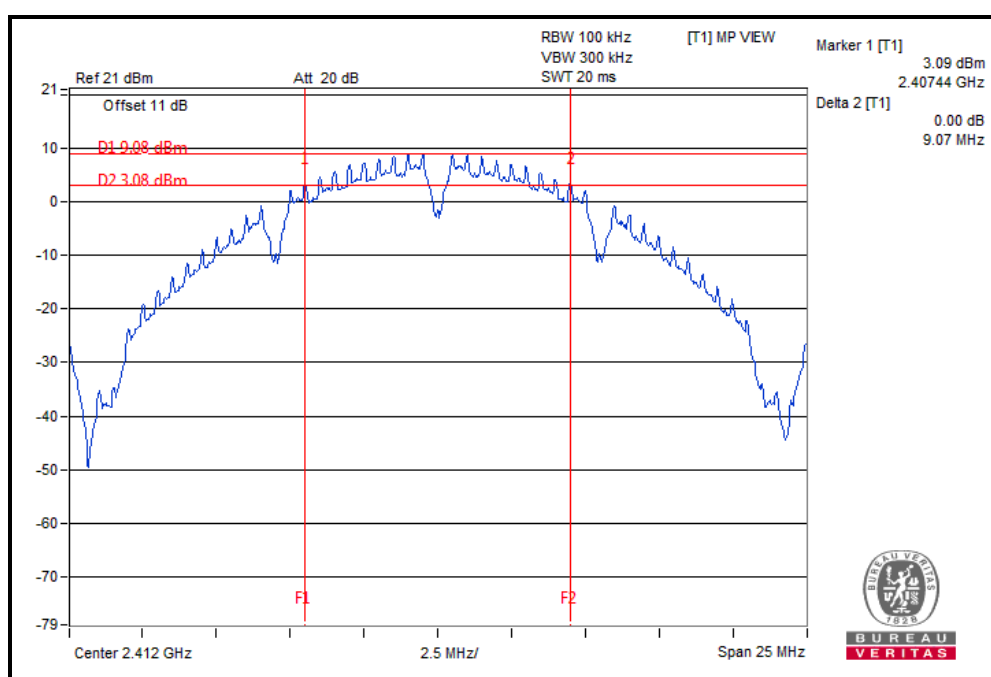
4.3.6 EUT OPERATING CONDITIONS

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

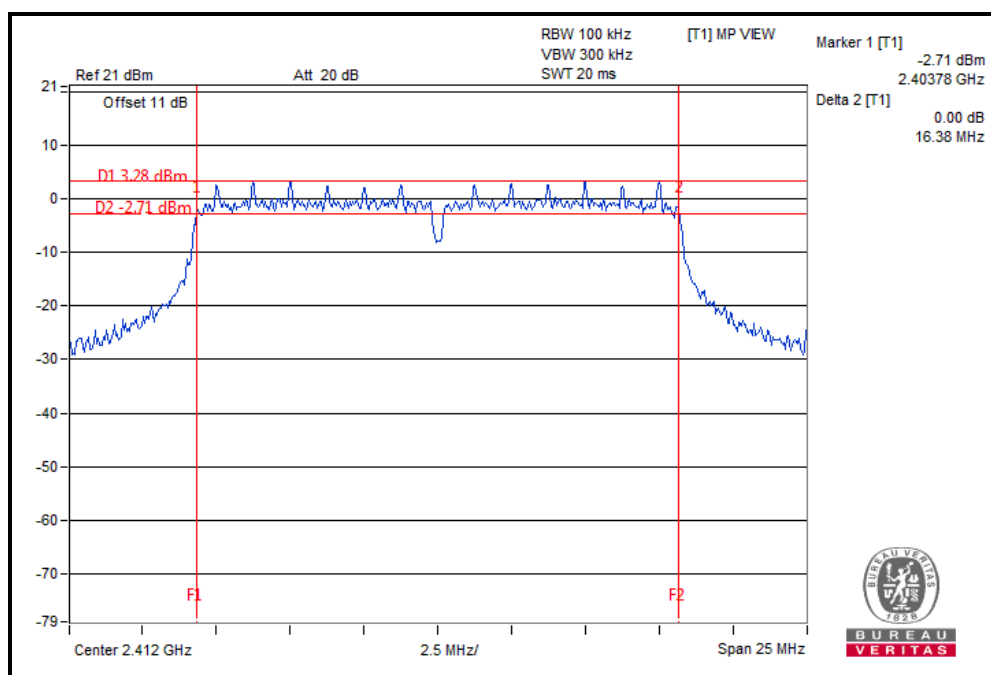
802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.07	0.5	PASS
6	2437	9.06	0.5	PASS
11	2462	9.06	0.5	PASS



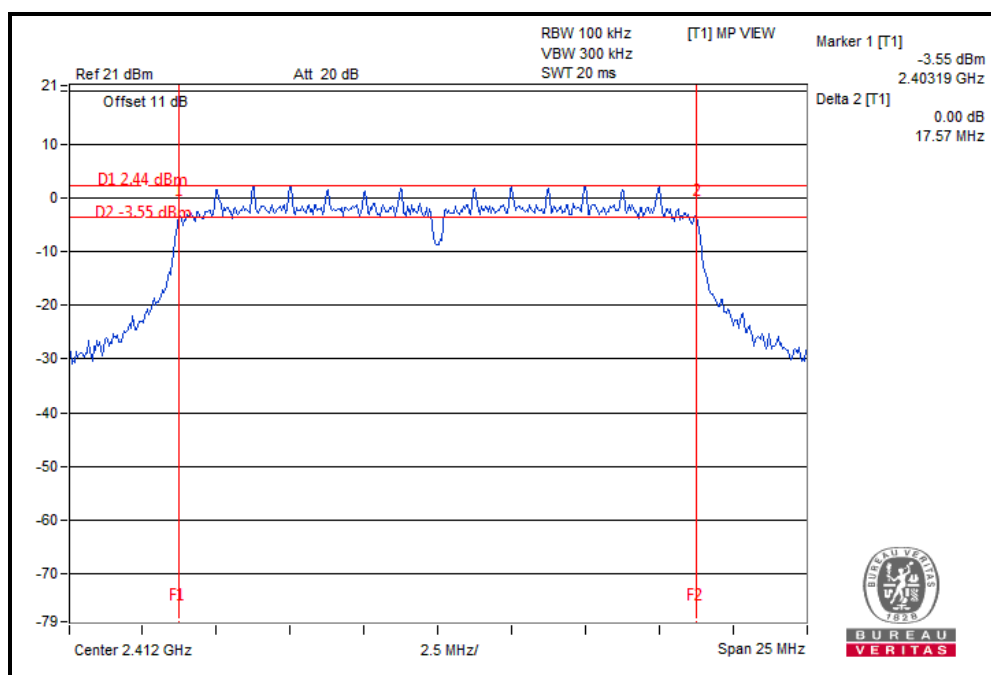
802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.38	0.5	PASS
6	2437	16.37	0.5	PASS
11	2462	16.34	0.5	PASS



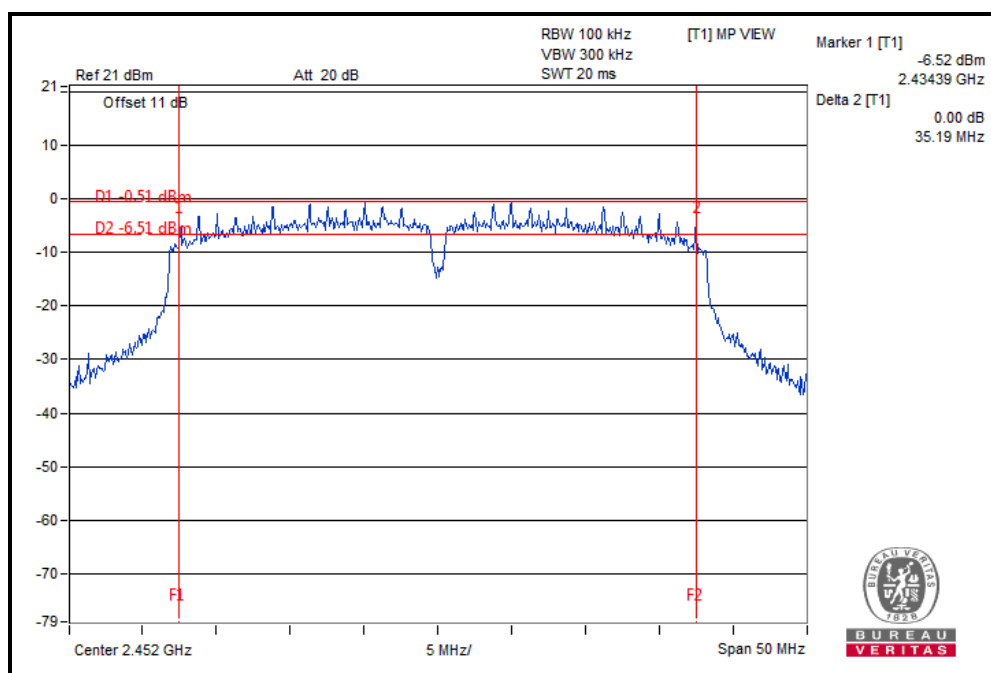
802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.57	0.5	PASS
6	2437	17.08	0.5	PASS
11	2462	17.53	0.5	PASS



802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.18	0.5	PASS
6	2437	35.12	0.5	PASS
9	2452	35.19	0.5	PASS

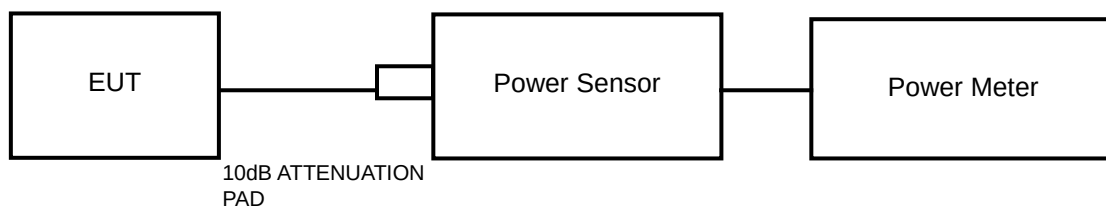


4.4 CONDUCTED OUTPUT POWER

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 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, 16	Aug.07, 17
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
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.

4.4.4 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

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	18.27	67.14
6	2437	18.32	67.92
11	2462	18.29	67.45

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	14.12	25.82
2	2417	16.35	43.15
6	2437	19.27	84.53
10	2457	16.43	43.95
11	2462	14.47	27.99

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
1	2412	13.39	21.83
2	2417	15.39	34.59
6	2437	19.16	82.41
10	2457	16.04	40.18
11	2462	13.92	24.66

802.11n (HT40)

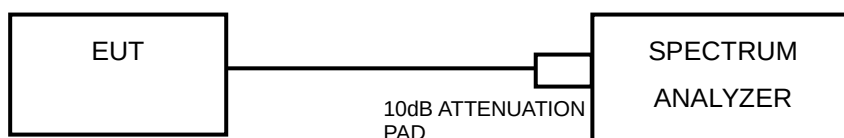
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVERAGE POWER (mW)
3	2422	12.64	18.37
4	2427	13.63	23.07
6	2437	16.39	43.55
8	2447	14.12	25.82
9	2452	13.31	21.43

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW to: 3 kHz.
- d) Set VBW $\geq 3 \times$ RBW.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Use the peak marker function to determine the maximum amplitude level.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

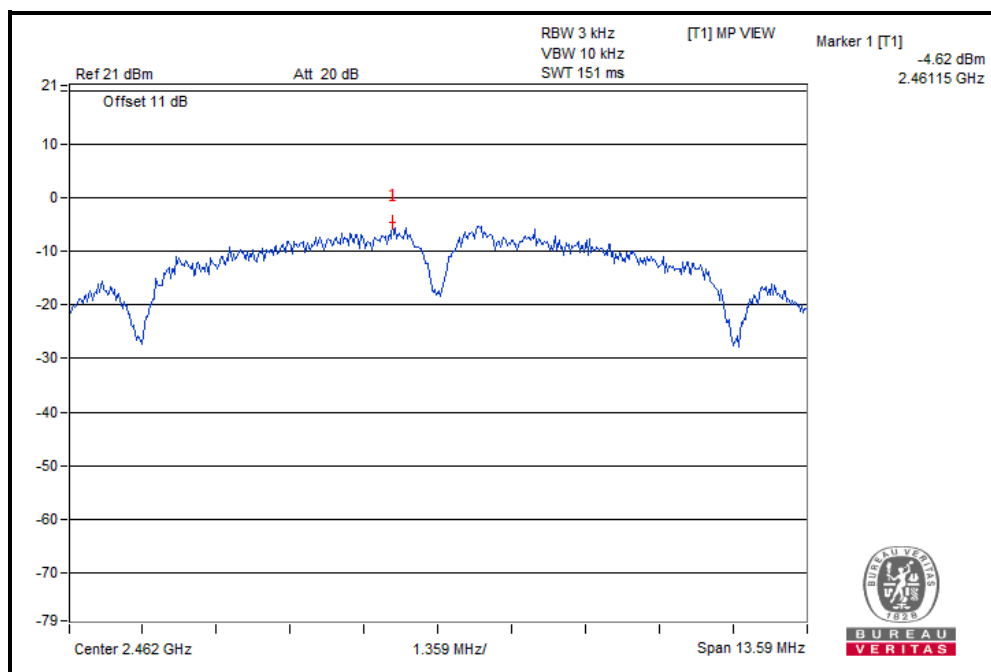
4.5.6 EUT OPERATING CONDITION

Same as item 4.3.6

4.5.7 TEST RESULTS

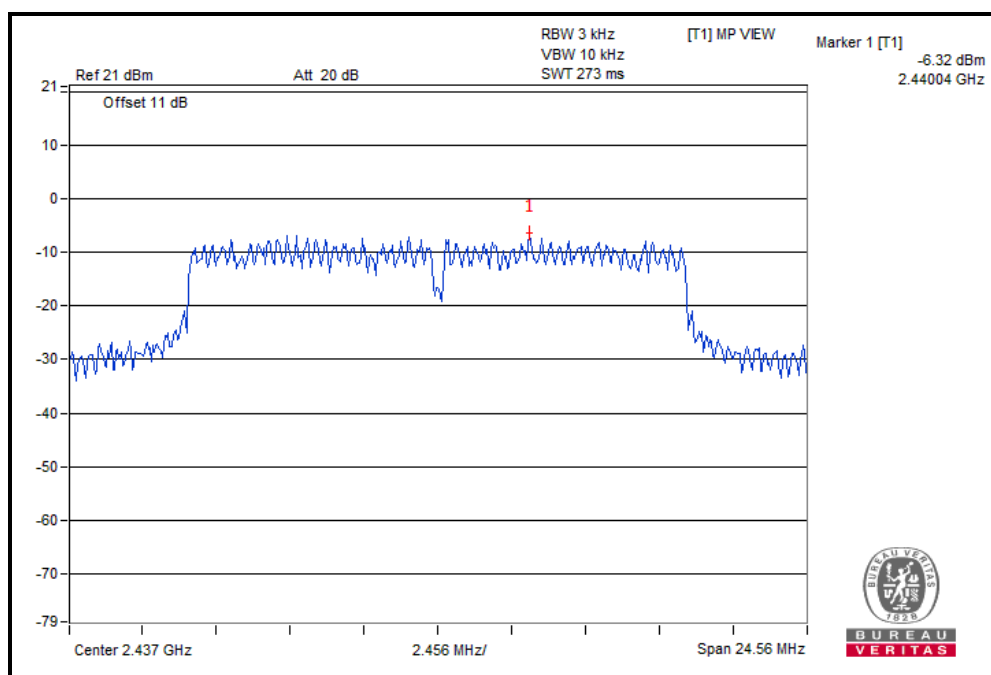
802.11b

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-4.84	8	PASS
6	2437	-5.01	8	PASS
11	2462	-4.62	8	PASS



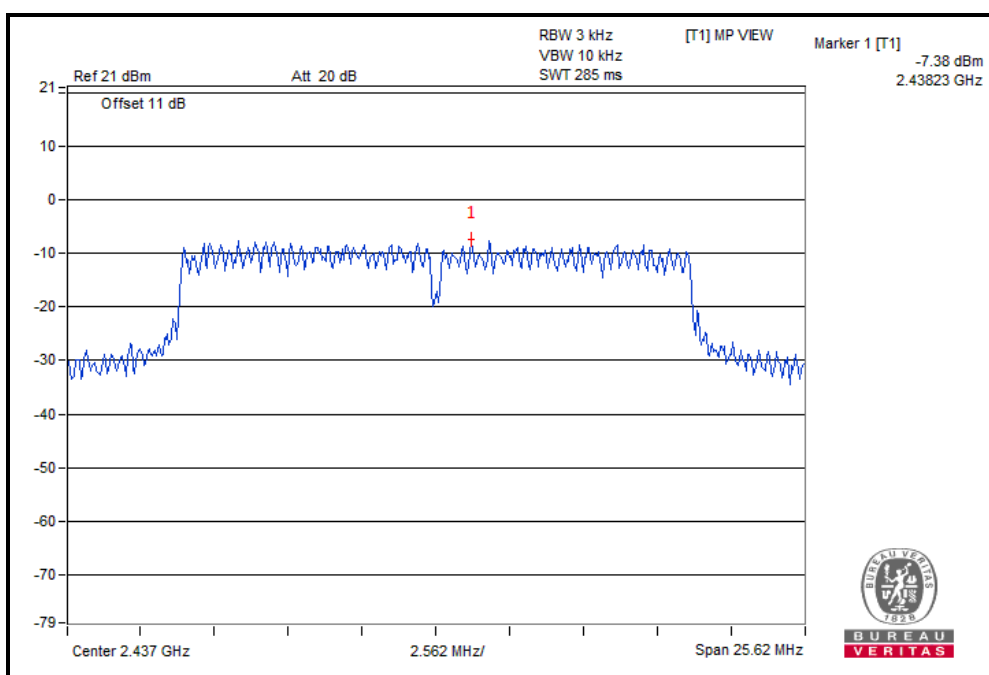
802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-11.59	8	PASS
6	2437	-6.32	8	PASS
11	2462	-10.55	8	PASS



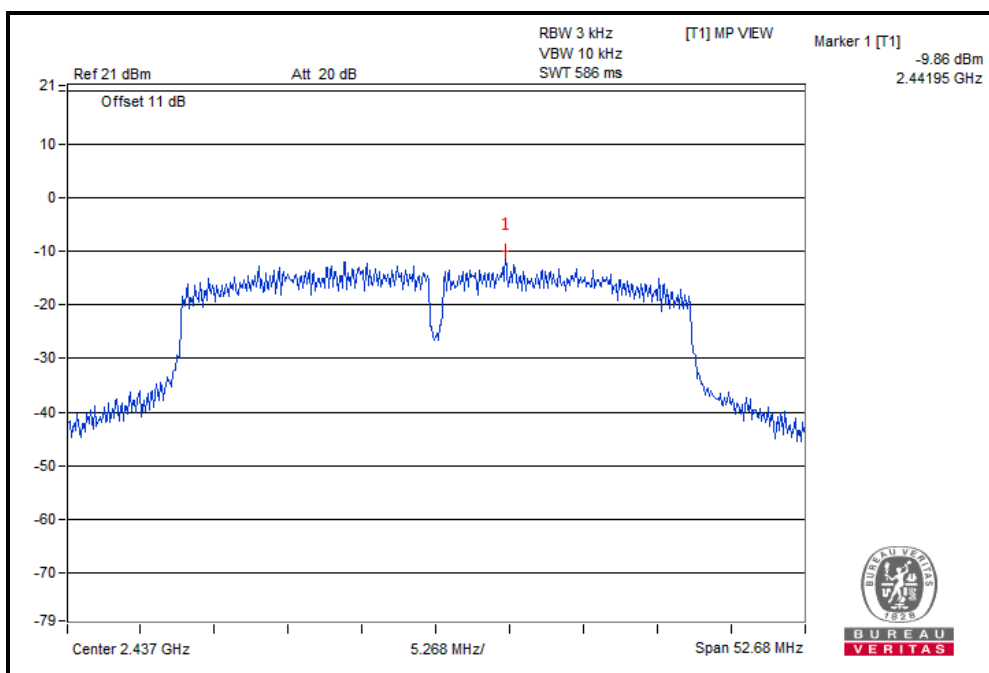
802.11n (HT20)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.02	8	PASS
6	2437	-7.38	8	PASS
11	2462	-12.68	8	PASS



802.11n (HT40)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-15.85	8	PASS
6	2437	-9.86	8	PASS
9	2452	-15.51	8	PASS

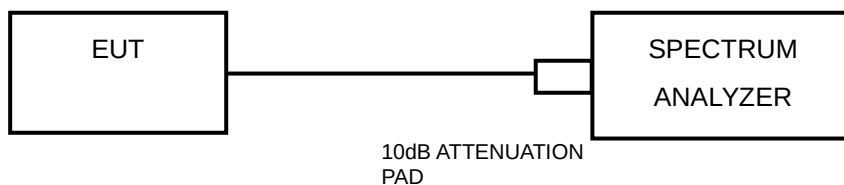


4.6 OUT OF BAND EMISSION MEASUREMENT

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



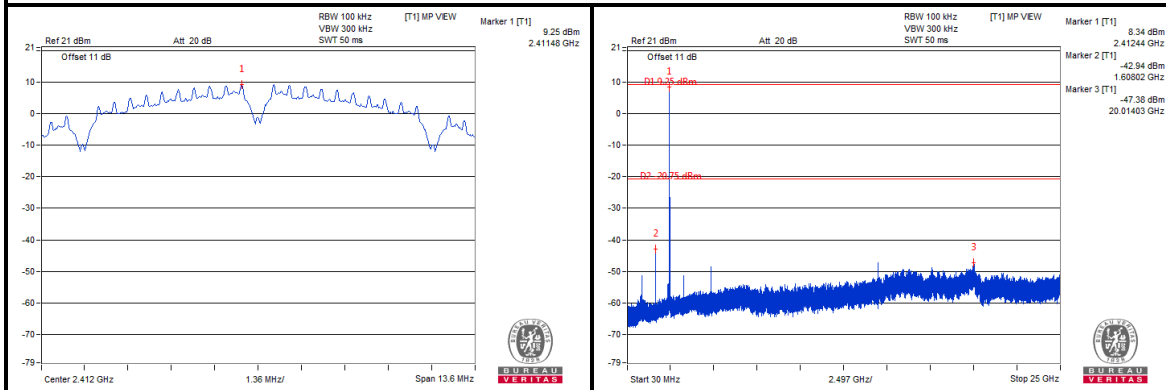
BUREAU
VERITAS

Test Report No.: RF170525N047

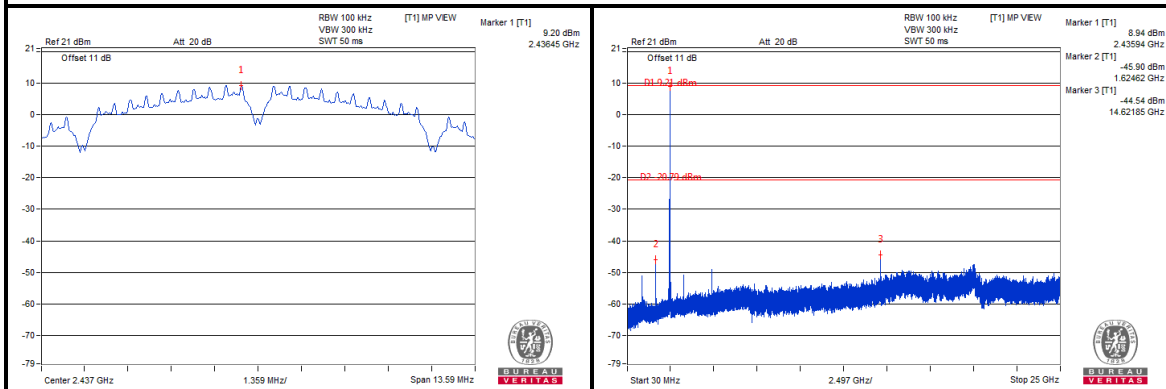
4.6.7 TEST RESULTS

802.11b

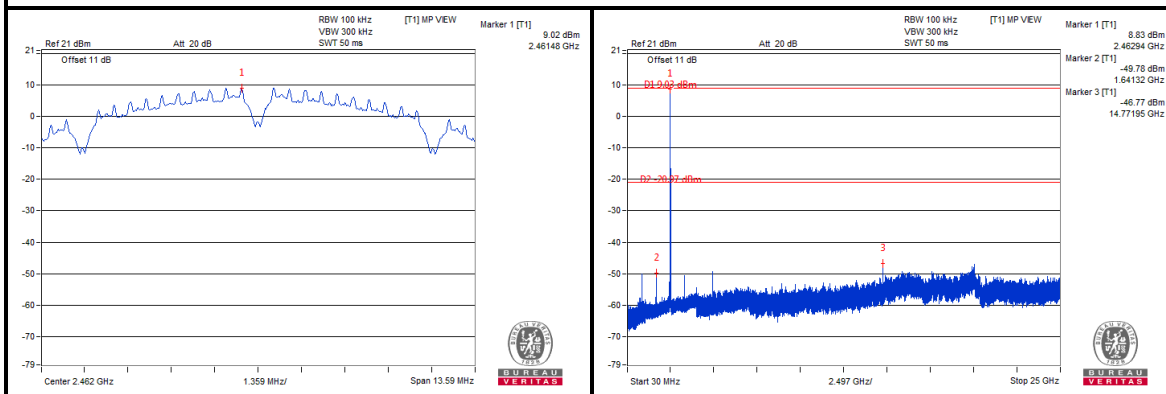
CH 1



CH 6



CH 11



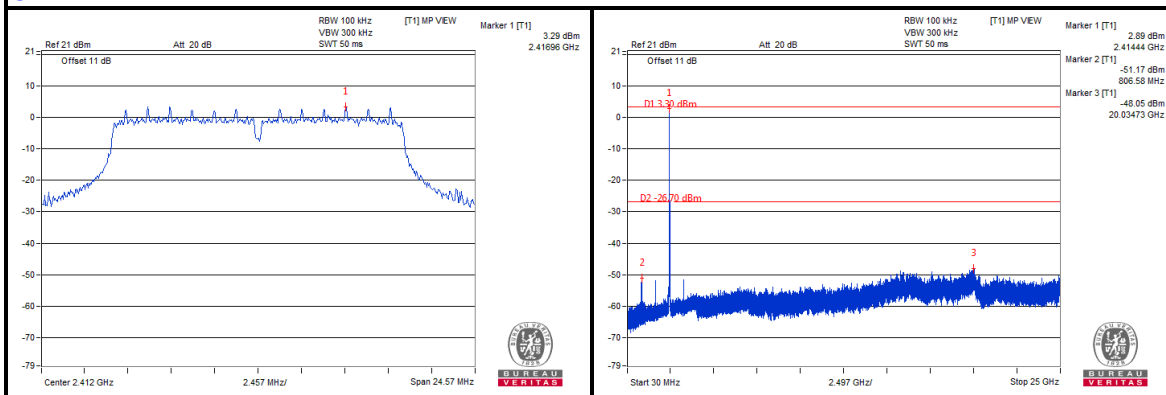


BUREAU
VERITAS

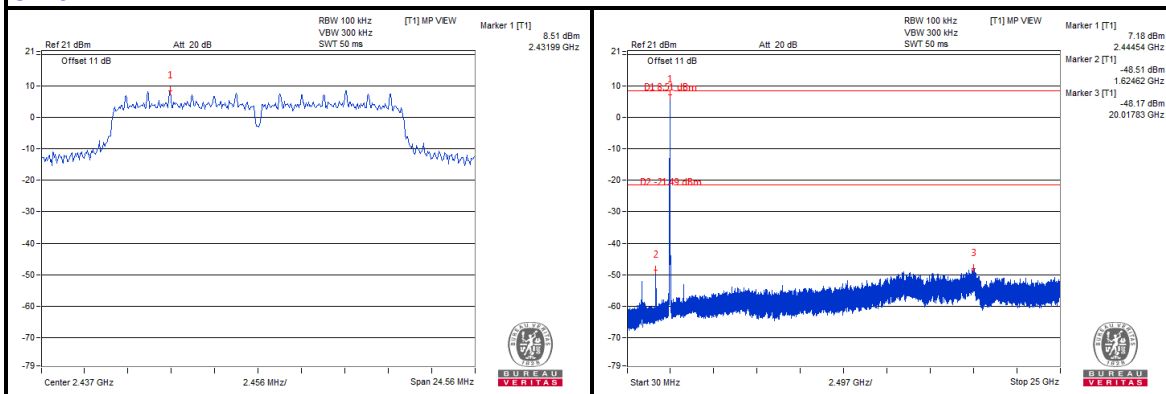
Test Report No.: RF170525N047

802.11g

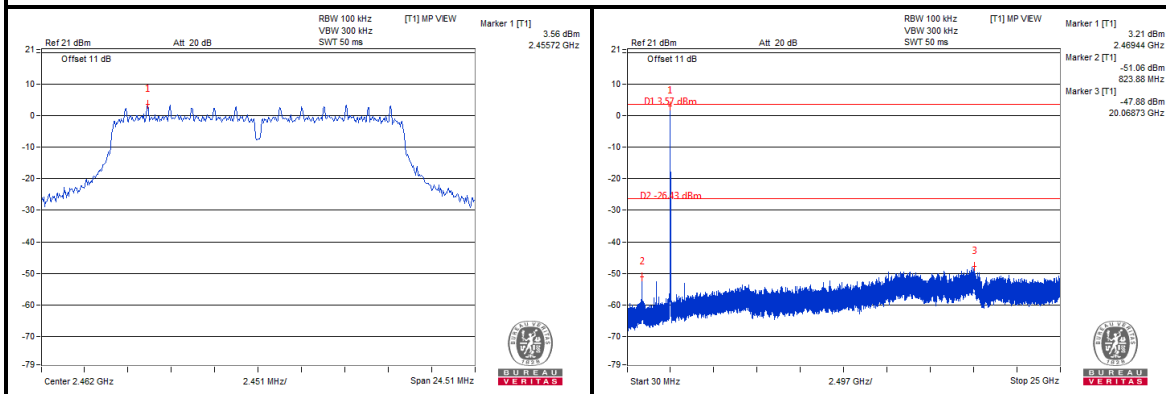
CH 1



CH 6



CH 11



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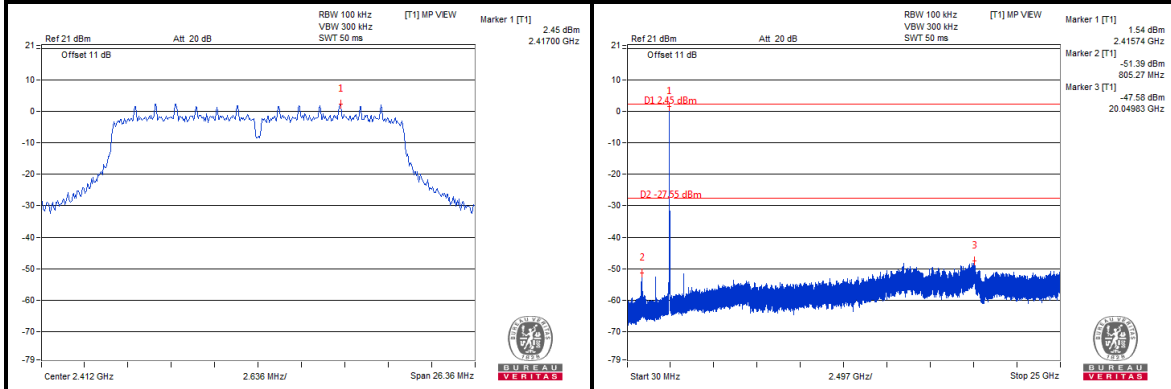


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VERITAS

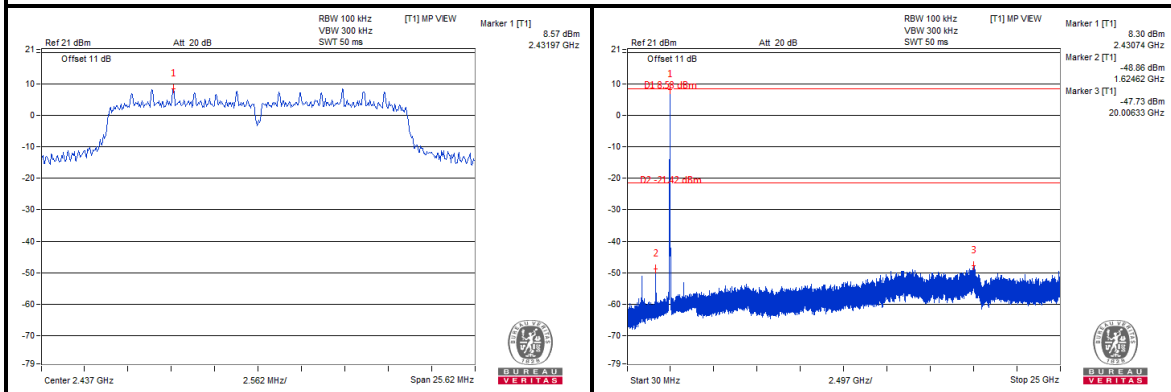
Test Report No.: RF170525N047

802.11n (HT20)

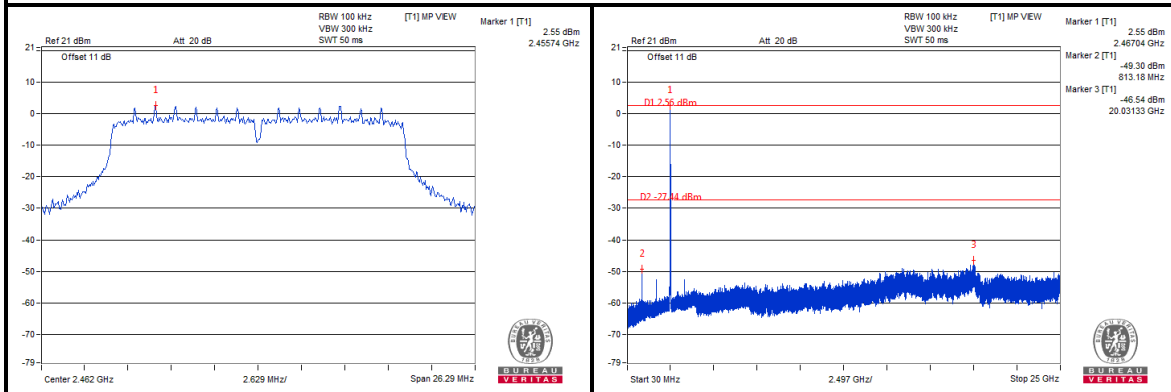
CH 1



CH 6



CH 11



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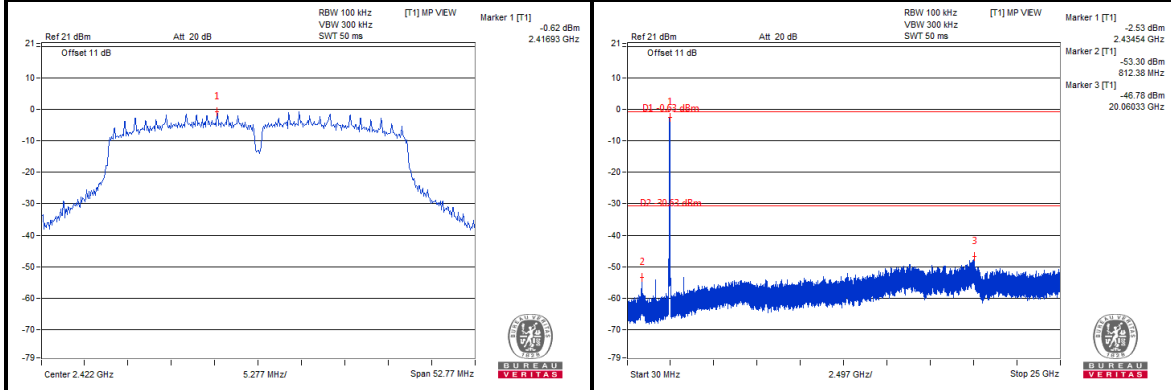


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VERITAS

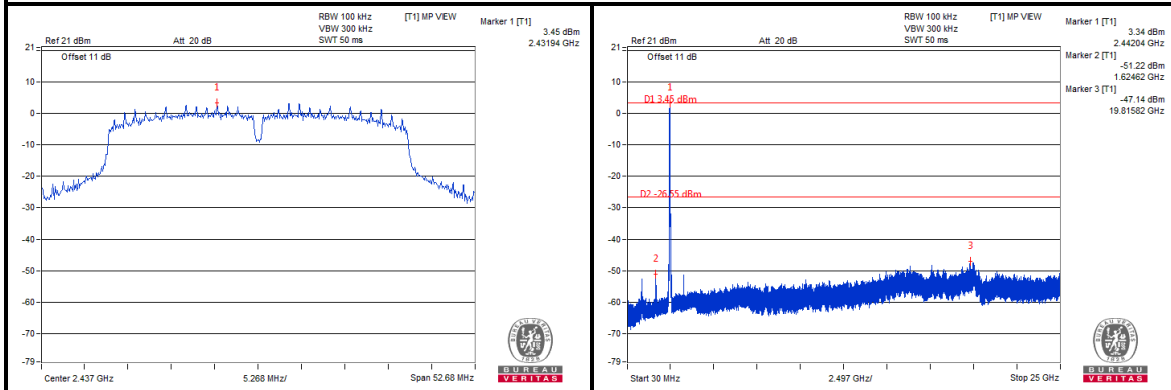
Test Report No.: RF170525N047

802.11n (HT40)

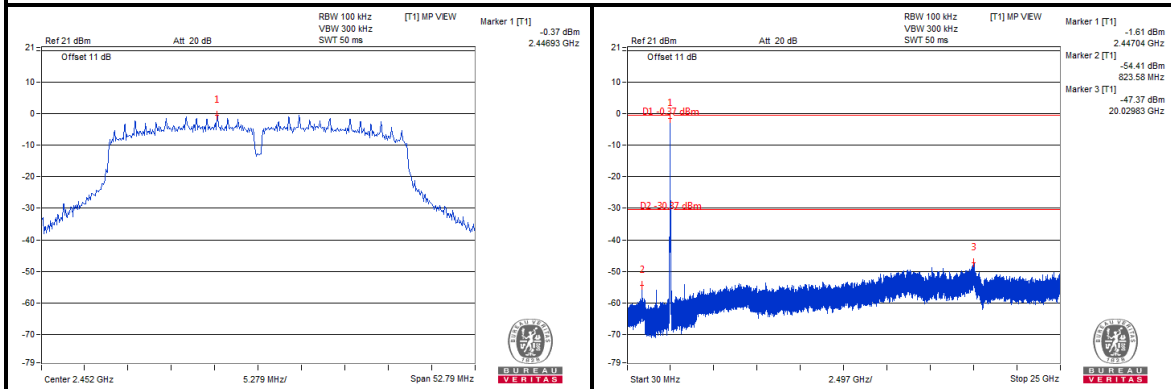
CH 3



CH 6



CH 9

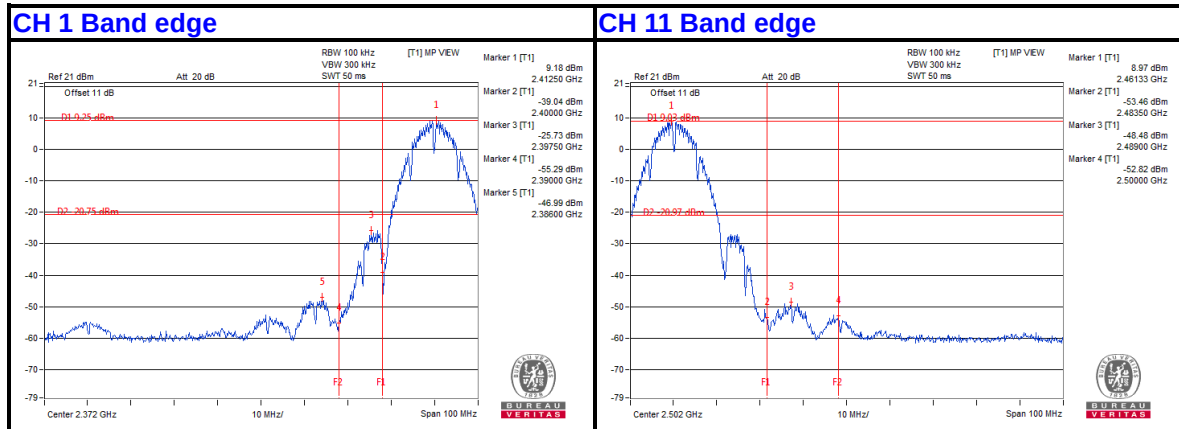




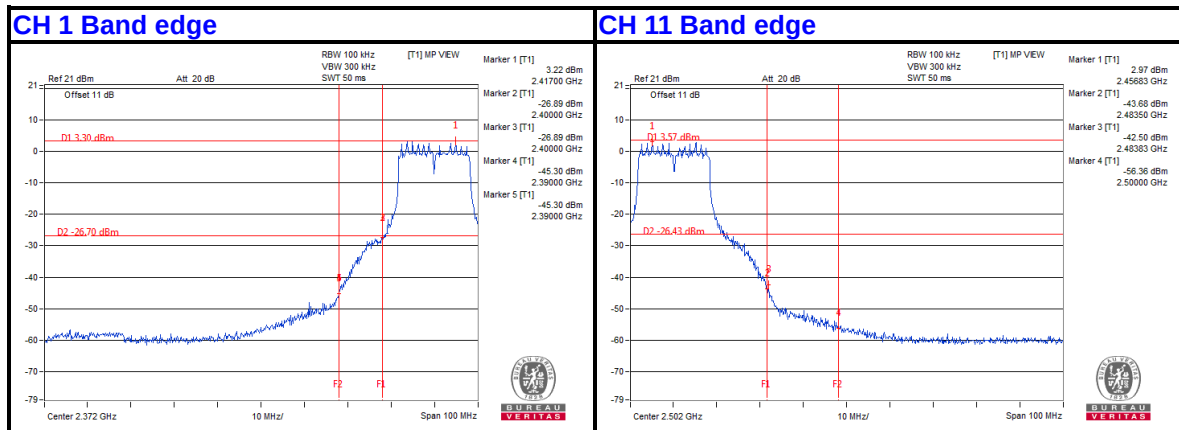
BUREAU
VERITAS

Test Report No.: RF170525N047

802.11b



802.11g

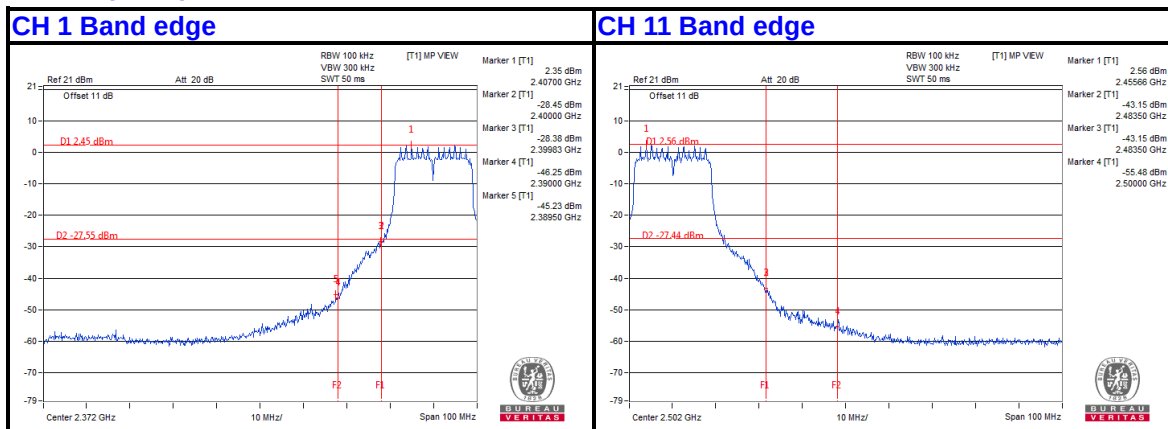




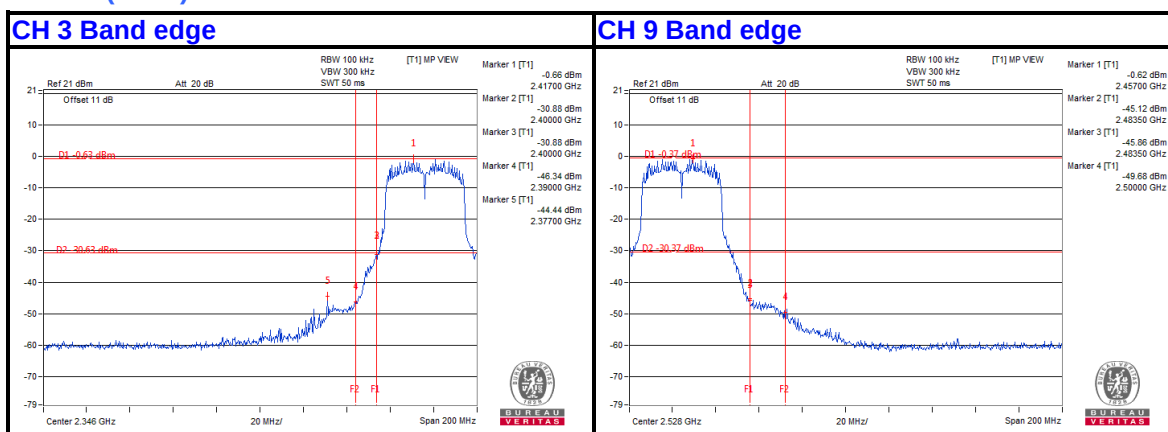
BUREAU
VERITAS

Test Report No.: RF170525N047

802.11n (HT20)



802.11n (HT40)



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---