

TEST REPORT

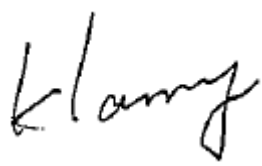
Applicant	TP-Link Technologies Co., Ltd.
Address	Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

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	300Mbps Wireless N Outdoor Access Point
Brand Name	tp-link
Model	EAP110-Outdoor
Additional Model & Model Difference	N/A
Date of tests	Oct. 20, 2017 ~ Nov. 22, 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: Nov. 22, 2017

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF171020N049	Original release	Nov. 22, 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	Unique 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 $k = 2$.



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3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	300Mbps Wireless N Outdoor Access Point
MODEL NO.	EAP110-Outdoor
FCC ID	TE7EAP110ODV3
NOMINAL VOLTAGE	DC 24V from POE
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	23.70dBm (Maximum Average Power)
ANTENNA TYPE	Dipole Antenna, with 3dBi 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 2 transmitter and 2 receiver.

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.: 171020N049) for detailed product photo.
5. The EUT can be powered by adapters as list as attach:

ADAPTER	
BRAND:	tp-link
MODEL:	TL-POE2412G
INPUT:	AC 100-240V 50/60Hz
OUTPUT:	DC 24V/0.5A
AC CABLE:	Unshielded, detachable, 50cm

6.

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, MIMO,SISO mode, 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 Adapter 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:

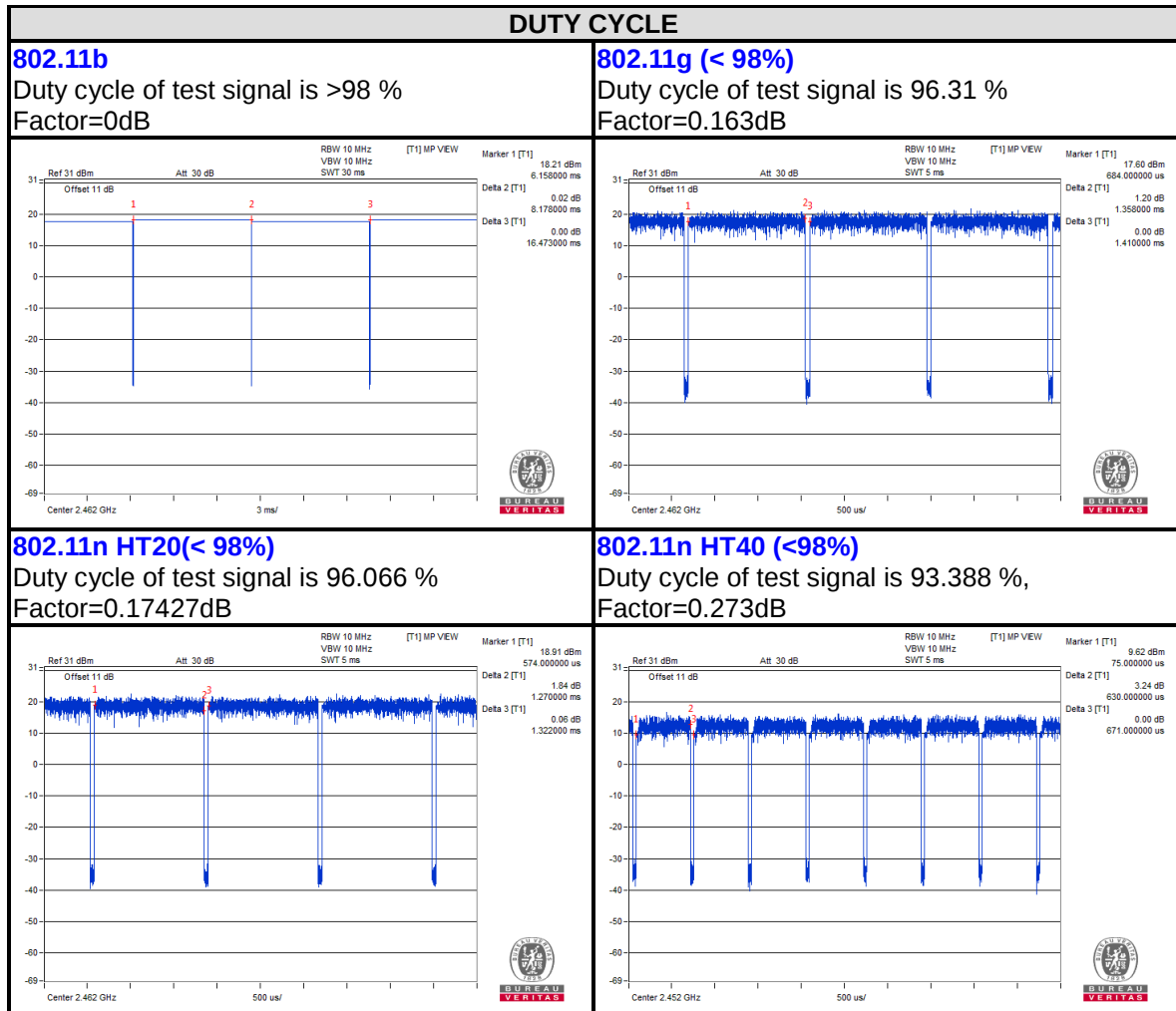
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 53%RH	DC 5V from Adapter	Eric Fang
RE≥1G	25deg. C, 53%RH	DC 5V from Adapter	Eric Fang
PLC	20deg. C, 56%RH	DC 5V from Adapter	Dragon
APCM	20deg. C, 55%RH	DC 5V from Adapter	Robert Cheng



BUREAU
VERITAS

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3.3 DUTY CYCLE OF TEST SIGNAL



POWER SETTING VALUE:

Test mode	Test Frequency (MHz)	Power setting	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
11b	2412	19	CCK	DBPSK	1.0
	2437	22	CCK	DBPSK	1.0
	2462	19	CCK	DBPSK	1.0
11g	2412	18	OFDM	BPSK	6.0
	2437	22	OFDM	BPSK	6.0
	2462	17	OFDM	BPSK	6.0
11n HT20	2412	17	OFDM	BPSK	MCS0
	2437	22	OFDM	BPSK	MCS0
	2462	18	OFDM	BPSK	MCS0
11n HT40	2422	13	OFDM	BPSK	MCS0
	2437	18	OFDM	BPSK	MCS0
	2452	14	OFDM	BPSK	MCS0



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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

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 with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E6420	9H12FS1	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.8m; DC Line: Unshielded, Detachable 1.8m;
2	RJ45 Cable: Unshielded, Detachable 3.0m & 6.0m & 10.0m & 1.2m;

Remarks: Notebook PC is distal 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 (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

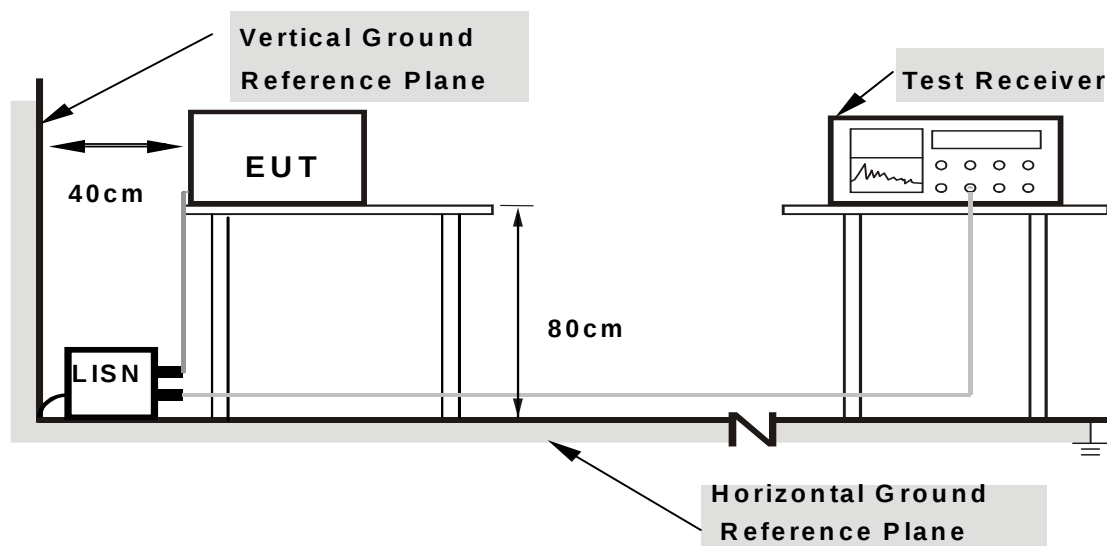
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

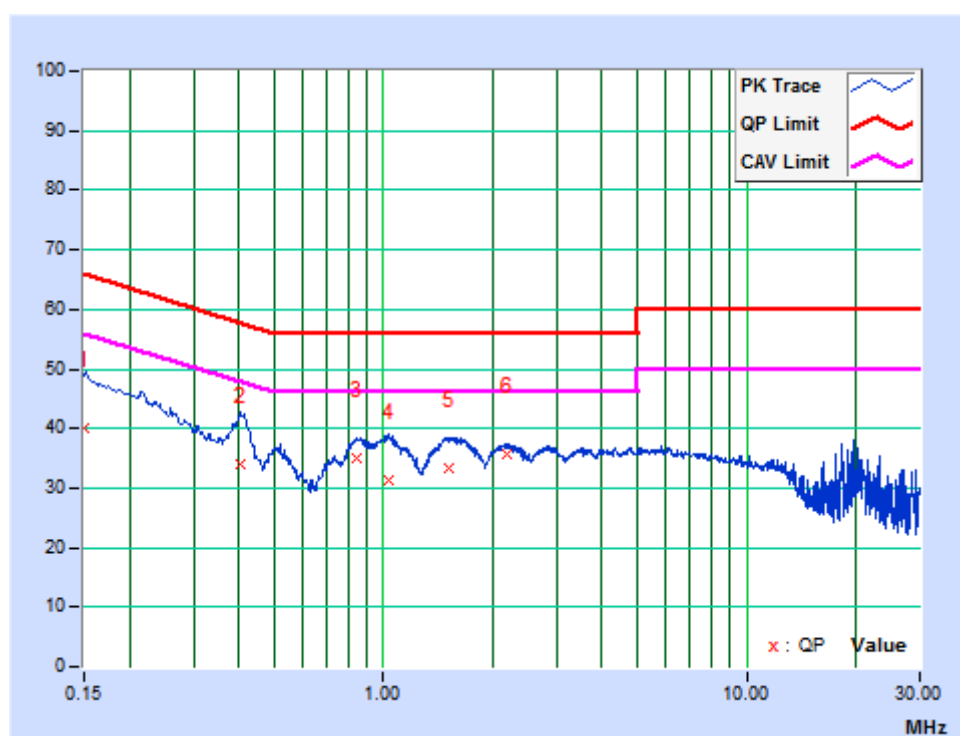
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI LINK

PHASE	Line	6dB BANDWIDTH	9kHz
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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	29.93	22.06	40.15	32.28	66.00	56.00	-25.85	-23.72
2	0.40656	10.22	23.66	15.73	33.88	25.95	57.72	47.72	-23.84	-21.77
3	0.84257	10.23	24.65	17.32	34.88	27.55	56.00	46.00	-21.12	-18.45
4	1.03526	10.23	21.09	18.48	31.32	28.71	56.00	46.00	-24.68	-17.29
5	1.51415	10.22	23.05	14.56	33.27	24.78	56.00	46.00	-22.73	-21.22
6	2.18400	10.22	25.33	10.79	35.55	21.01	56.00	46.00	-20.45	-24.99

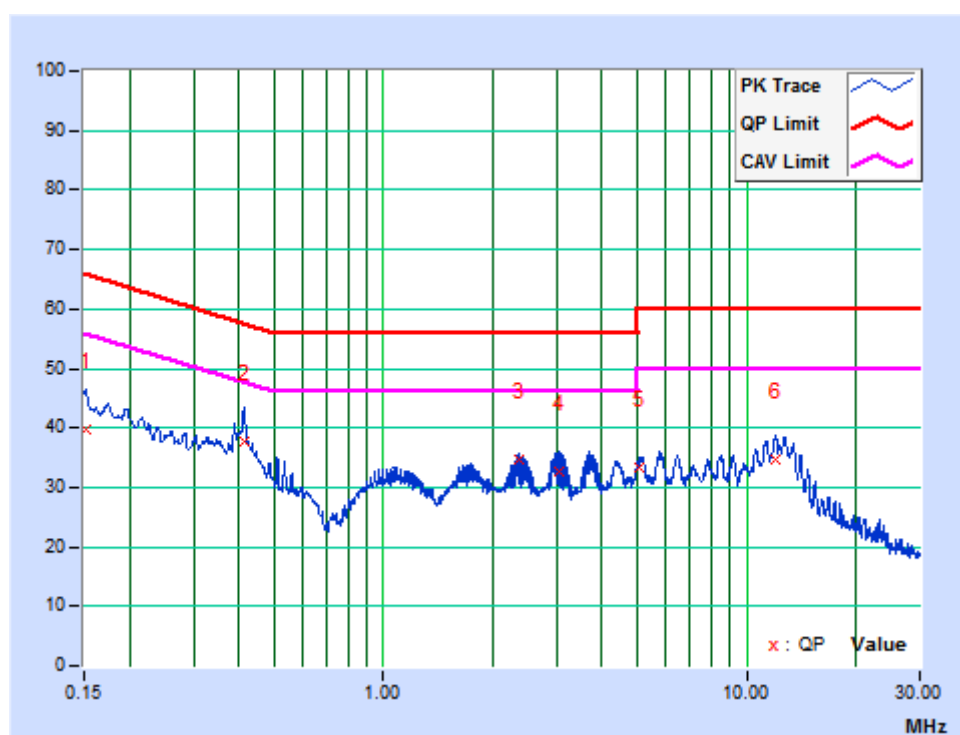
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	0.15225	10.01	29.68	20.72	39.69	30.73	65.88	55.88	-26.19	-25.15
2	0.41305	10.02	27.55	11.25	37.57	21.27	57.59	47.59	-20.01	-26.31
3	2.37300	10.02	24.62	12.28	34.64	22.30	56.00	46.00	-21.36	-23.70
4	3.03000	10.03	22.71	10.80	32.74	20.83	56.00	46.00	-23.26	-25.17
5	5.08741	10.02	23.20	14.28	33.22	24.30	60.00	50.00	-26.78	-25.70
6	11.99850	10.12	24.46	13.67	34.58	23.79	60.00	50.00	-25.42	-26.21

- 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. 04,17	Nov. 03,18
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. 04,17	Nov. 03,18
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 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:

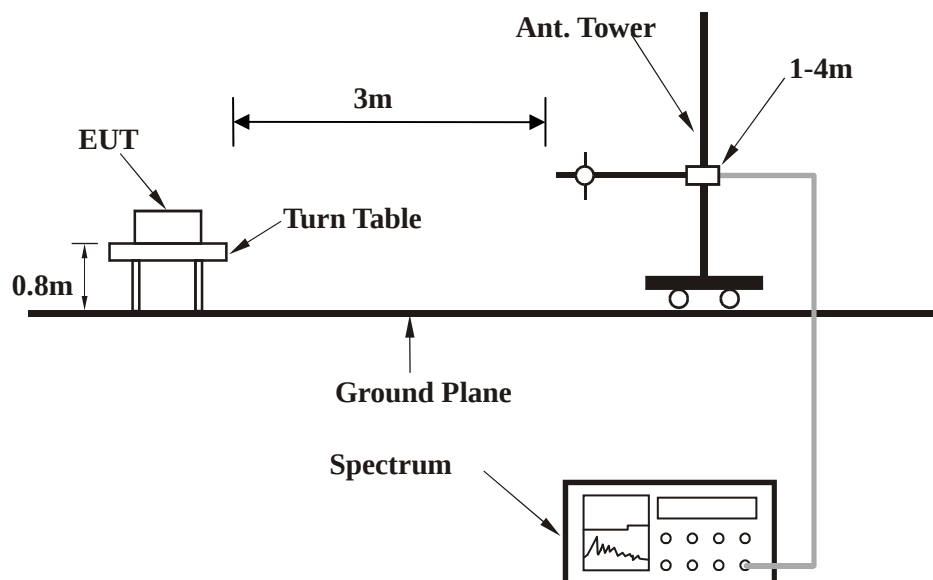
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

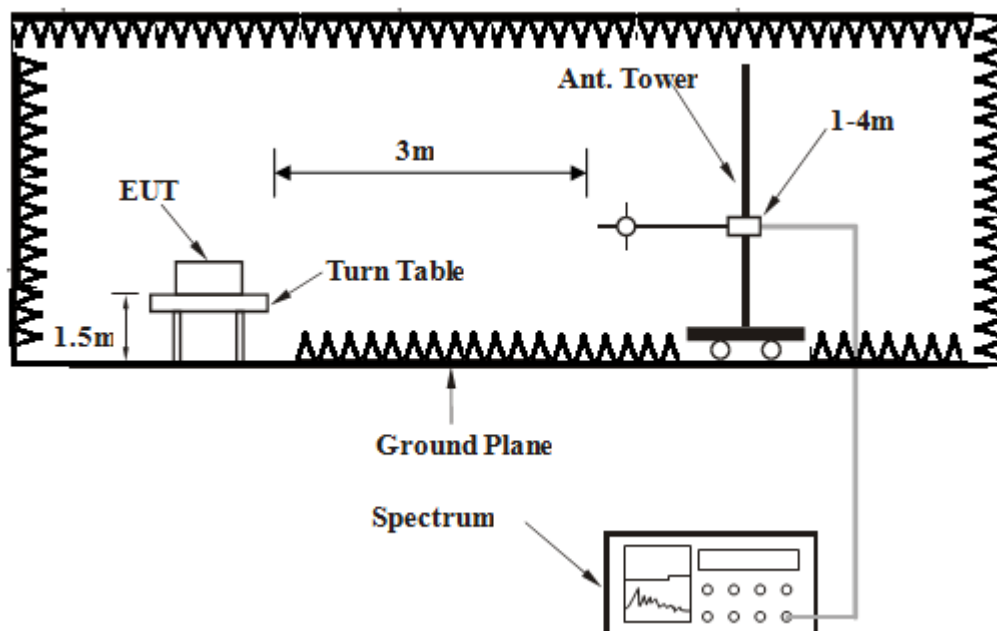
4.2.5 TEST SETUP

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).



Test Report No.: RF171020N049

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:

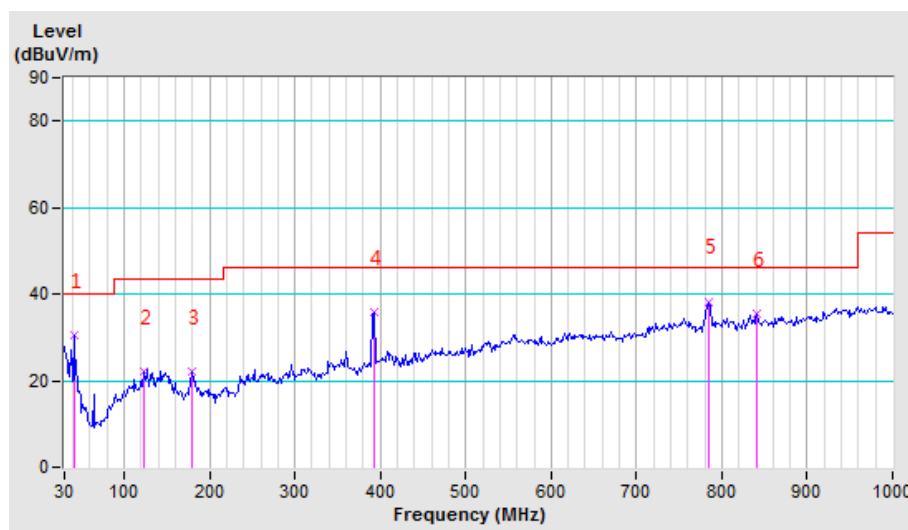
802.11b

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	40.88	30.51 QP	40.00	-9.49	2.00 H	221	42.54	-12.03
2	123.27	22.25 QP	43.50	-21.25	2.00 H	72	34.15	-11.90
3	179.23	22.09 QP	43.50	-21.41	2.00 H	93	35.92	-13.83
4	392.20	35.99 QP	46.00	-10.01	2.00 H	279	40.51	-4.52
5	785.48	38.31 QP	46.00	-7.69	2.00 H	158	33.52	4.79
6	841.44	35.35 QP	46.00	-10.65	2.00 H	273	30.00	5.35

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

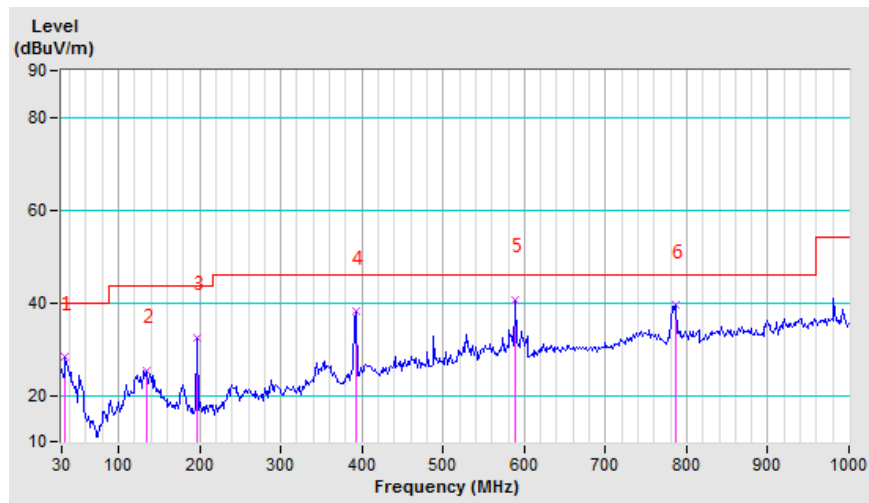


CHANNEL	Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	34.66	28.22 QP	40.00	-11.78	1.00 V	132	37.06	-8.84
2	135.71	25.27 QP	43.50	-18.23	1.00 V	204	37.46	-12.19
3	196.33	32.30 QP	43.50	-11.20	1.00 V	0	46.66	-14.36
4	392.20	37.98 QP	46.00	-8.02	1.00 V	20	42.50	-4.52
5	589.62	40.65 QP	46.00	-5.35	1.00 V	309	39.87	0.78
6	787.04	39.35 QP	46.00	-6.65	1.00 V	211	34.39	4.96

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.



ABOVE 1GHz DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.21 PK	74.00	-16.79	1.22 H	347	19.21	38.00
2	2390.00	43.26 AV	54.00	-10.74	1.22 H	347	5.26	38.00
3	*2412.00	104.73 PK			1.22 H	347	66.67	38.06
4	*2412.00	94.63 AV			1.22 H	347	56.57	38.06
5	4824.00	49.36 PK	74.00	-24.64	2.01 H	360	43.40	5.96
6	4824.00	36.26 AV	54.00	-17.74	2.01 H	360	30.30	5.96
7	#7236.00	56.26 PK	74.00	-17.74	1.22 H	10	43.95	12.31
8	#7236.00	42.19 AV	54.00	-11.81	1.22 H	10	29.88	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	59.29 PK	74.00	-14.71	2.10 V	110	21.29	38.00
2	2390.00	46.31 AV	54.00	-7.69	2.10 V	110	8.31	38.00
3	*2412.00	113.42 PK			1.55 V	58	75.36	38.06
4	*2412.00	103.33 AV			1.55 V	58	65.27	38.06
5	4824.00	49.26 PK	74.00	-24.74	1.00 V	204	43.30	5.96
6	4824.00	36.33 AV	54.00	-17.67	1.00 V	204	30.37	5.96
7	#7236.00	55.26 PK	74.00	-18.74	2.01 V	45	42.95	12.31
8	#7236.00	42.19 AV	54.00	-11.81	2.01 V	45	29.88	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 other emission levels were very low 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	55.03 PK	74.00	-18.97	1.00 H	28	17.03	38.00
2	2390.00	42.20 AV	54.00	-11.80	1.00 H	28	4.20	38.00
3	*2437.00	109.88 PK			1.00 H	28	71.74	38.14
4	*2437.00	99.17 AV			1.00 H	28	61.03	38.14
5	2483.50	57.36 PK	74.00	-16.64	1.00 H	28	19.08	38.28
6	2483.50	42.84 AV	54.00	-11.16	1.00 H	28	4.56	38.28
7	4874.00	55.26 PK	74.00	-18.74	2.01 H	332	49.21	6.05
8	4874.00	40.36 AV	54.00	-13.64	2.01 H	332	34.31	6.05
9	7311.00	64.25 PK	74.00	-9.75	1.02 H	145	51.61	12.64
10	7311.00	50.78 AV	54.00	-3.22	1.02 H	145	38.14	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	67.38 PK	74.00	-6.62	2.10 V	120	29.38	38.00
2	2390.00	50.39 AV	54.00	-3.61	2.10 V	120	12.39	38.00
3	*2437.00	119.57 PK			2.00 V	79	81.43	38.14
4	*2437.00	109.36 AV			2.00 V	79	71.22	38.14
5	2483.50	63.91 PK	74.00	-10.09	2.10 V	245	25.63	38.28
6	2483.50	50.17 AV	54.00	-3.83	2.10 V	245	11.89	38.28
7	4874.00	64.08 PK	74.00	-9.92	1.55 V	170	58.03	6.05
8	4874.00	50.63 AV	54.00	-3.37	1.55 V	170	44.58	6.05
9	7311.00	60.12 PK	74.00	-13.88	1.20 V	214	47.48	12.64
10	7311.00	46.84 AV	54.00	-7.16	1.20 V	214	34.20	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 other emission levels were very low 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	102.97 PK			1.22 H	10	64.75	38.22
2	*2462.00	92.14 AV			1.22 H	10	53.92	38.22
3	2483.50	55.33 PK	74.00	-18.67	1.22 H	10	17.05	38.28
4	2483.50	42.75 AV	54.00	-11.25	1.22 H	10	4.47	38.28
5	4924.00	50.55 PK	74.00	-23.45	2.01 H	360	44.42	6.13
6	4924.00	36.16 AV	54.00	-17.84	2.01 H	360	30.03	6.13
7	7386.00	54.59 PK	74.00	-19.41	1.33 H	20	41.63	12.96
8	7386.00	43.88 AV	54.00	-10.12	1.33 H	20	30.92	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	114.23 PK			1.00 V	280	76.01	38.22
2	*2462.00	104.13 AV			1.00 V	280	65.91	38.22
3	2483.50	68.04 PK	74.00	-5.96	1.00 V	162	29.76	38.28
4	2483.50	51.35 AV	54.00	-2.65	1.00 V	162	13.07	38.28
5	4924.00	48.99 PK	74.00	-25.01	1.88 V	49	42.86	6.13
6	4924.00	36.82 AV	54.00	-17.18	1.88 V	49	30.69	6.13
7	7386.00	56.59 PK	74.00	-17.41	3.01 V	214	43.63	12.96
8	7386.00	42.26 AV	54.00	-11.74	3.01 V	214	29.30	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 other emission levels were very low 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	55.90 PK	74.00	-18.10	2.38 H	8	17.90	38.00
2	2390.00	43.56 AV	54.00	-10.44	2.38 H	8	5.56	38.00
3	*2412.00	104.20 PK			2.38 H	8	66.14	38.06
4	*2412.00	93.30 AV			2.38 H	8	55.24	38.06
5	4824.00	48.49 PK	74.00	-25.51	1.00 H	288	42.53	5.96
6	4824.00	36.19 AV	54.00	-17.81	1.00 H	288	30.23	5.96
7	#7236.00	55.59 PK	74.00	-18.41	2.01 H	110	43.28	12.31
8	#7236.00	42.16 AV	54.00	-11.84	2.01 H	110	29.85	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	60.25 PK	74.00	-13.75	2.32 V	239	22.25	38.00
2	2390.00	49.46 AV	54.00	-3.54	2.32 V	239	12.46	38.00
3	*2412.00	113.41 PK			2.66 V	49	75.35	38.06
4	*2412.00	102.58 AV			2.66 V	49	64.52	38.06
5	4824.00	50.15 PK	74.00	-23.85	2.01 V	200	44.19	5.96
6	4824.00	36.46 AV	54.00	-17.54	2.01 V	200	30.50	5.96
7	#7236.00	55.26 PK	74.00	-18.74	2.01 V	30	42.95	12.31
8	#7236.00	42.95 AV	54.00	-11.05	2.01 V	30	30.64	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 other emission levels were very low 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	57.54 PK	74.00	-16.46	2.15 H	27	19.54	38.00
2	2390.00	42.65 AV	54.00	-11.35	2.15 H	27	4.65	38.00
3	*2437.00	107.89 PK			2.15 H	27	69.75	38.14
4	*2437.00	97.43 AV			2.15 H	27	59.29	38.14
5	2483.50	55.56 PK	74.00	-18.44	2.15 H	27	17.28	38.28
6	2483.50	41.73 AV	54.00	-12.27	2.15 H	27	3.45	38.28
7	4874.00	52.01 PK	74.00	-21.99	1.00 H	155	45.96	6.05
8	4874.00	41.75 AV	54.00	-12.25	1.00 H	155	35.70	6.05
9	7311.00	64.56 PK	74.00	-9.44	1.99 H	50	51.92	12.64
10	7311.00	50.99 AV	54.00	-3.01	1.99 H	50	38.35	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	67.43 PK	74.00	-6.57	1.22 V	112	29.43	38.00
2	2390.00	50.92 AV	54.00	-3.08	1.22 V	112	12.92	38.00
3	*2437.00	119.63 PK			1.00 V	94	81.49	38.14
4	*2437.00	110.07 AV			1.00 V	94	71.93	38.14
5	2483.50	66.87 PK	74.00	-7.13	1.00 V	251	28.59	38.28
6	2483.50	51.49 AV	54.00	-2.51	1.00 V	251	13.21	38.28
7	4874.00	63.09 PK	74.00	-10.91	1.55 V	179	57.04	6.05
8	4874.00	50.78 AV	54.00	-3.22	1.55 V	179	44.73	6.05
9	7311.00	59.26 PK	74.00	-14.74	2.01 V	20	46.62	12.64
10	7311.00	47.12 AV	54.00	-6.88	2.01 V	20	34.48	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 other emission levels were very low 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	102.26 PK			2.11 H	357	64.04	38.22
2	*2462.00	91.76 AV			2.11 H	357	53.54	38.22
3	2483.50	56.02 PK	74.00	-17.98	2.11 H	357	17.74	38.28
4	2483.50	42.46 AV	54.00	-11.54	2.11 H	357	4.18	38.28
5	4924.00	48.69 PK	74.00	-25.31	1.55 H	200	42.56	6.13
6	4924.00	36.59 AV	54.00	-17.41	1.55 H	200	30.46	6.13
7	7386.00	56.25 PK	74.00	-17.75	1.00 H	144	43.29	12.96
8	7386.00	42.19 AV	54.00	-11.81	1.00 H	144	29.23	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	113.48 PK			2.01 V	272	75.26	38.22
2	*2462.00	103.00 AV			2.01 V	272	64.78	38.22
3	2483.50	68.46 PK	74.00	-5.54	1.00 V	255	30.18	38.28
4	2483.50	51.40 AV	54.00	-2.60	1.00 V	255	13.12	38.28
5	4924.00	49.59 PK	74.00	-24.41	2.01 V	48	43.46	6.13
6	4924.00	36.49 AV	54.00	-17.51	2.01 V	48	30.36	6.13
7	7386.00	56.26 PK	74.00	-17.74	2.01 V	144	43.30	12.96
8	7386.00	42.20 AV	54.00	-11.80	2.01 V	144	29.24	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 other emission levels were very low 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	54.59 PK	74.00	-19.41	2.92 H	356	16.59	38.00
2	2390.00	41.78 AV	54.00	-12.22	2.92 H	356	3.78	38.00
3	*2412.00	103.33 PK			2.92 H	356	65.27	38.06
4	*2412.00	91.72 AV			2.92 H	356	53.66	38.06
5	4824.00	50.15 PK	74.00	-23.85	1.55 H	40	44.19	5.96
6	4824.00	36.27 AV	54.00	-17.73	1.55 H	40	30.31	5.96
7	#7236.00	55.49 PK	74.00	-18.51	1.00 H	303	43.18	12.31
8	#7236.00	42.85 AV	54.00	-11.15	1.00 H	303	30.54	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	68.04 PK	74.00	-5.96	2.55 V	140	30.04	38.00
2	2390.00	52.87 AV	54.00	-1.13	2.55 V	140	14.87	38.00
3	*2412.00	112.00 PK			1.00 V	233	73.94	38.06
4	*2412.00	101.42 AV			1.00 V	233	63.36	38.06
5	4824.00	51.01 PK	74.00	-22.99	1.77 V	301	45.05	5.96
6	4824.00	36.13 AV	54.00	-17.87	1.77 V	301	30.17	5.96
7	#7236.00	56.26 PK	74.00	-17.74	2.11 V	80	43.95	12.31
8	#7236.00	42.16 AV	54.00	-11.84	2.11 V	80	29.85	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 other emission levels were very low 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	54.89 PK	74.00	-19.11	3.13 H	359	16.89	38.00
2	2390.00	41.59 AV	54.00	-12.41	3.13 H	359	3.59	38.00
3	*2437.00	107.15 PK			1.88 H	360	69.01	38.14
4	*2437.00	95.43 AV			1.88 H	360	57.29	38.14
5	2483.50	55.49 PK	74.00	-18.51	3.13 H	360	17.21	38.28
6	2483.50	42.00 AV	54.00	-12.00	3.13 H	360	3.72	38.28
7	4874.00	55.01 PK	74.00	-18.99	2.01 H	47	48.96	6.05
8	4874.00	41.90 AV	54.00	-12.10	2.01 H	47	35.85	6.05
9	7311.00	65.86 PK	74.00	-8.14	1.50 H	196	53.22	12.64
10	7311.00	51.03 AV	54.00	-2.97	1.50 H	196	38.39	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	68.82 PK	74.00	-5.18	1.55 V	137	30.82	38.00
2	2390.00	52.03 AV	54.00	-1.97	1.55 V	137	14.03	38.00
3	*2437.00	118.78 PK			2.01 V	359	80.64	38.14
4	*2437.00	108.06 AV			2.01 V	359	69.92	38.14
5	2483.50	63.89 PK	74.00	-10.11	1.00 V	54	25.61	38.28
6	2483.50	48.29 AV	54.00	-5.71	1.00 V	54	10.01	38.28
7	4874.00	62.08 PK	74.00	-11.92	2.04 V	179	56.03	6.05
8	4874.00	48.95 AV	54.00	-5.05	2.04 V	179	42.90	6.05
9	7311.00	59.11 PK	74.00	-14.89	1.88 V	80	46.47	12.64
10	7311.00	46.78 AV	54.00	-7.22	1.88 V	80	34.14	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 other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.



Test Report No.: RF171020N049

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	100.21 PK			2.37 H	214	61.99	38.22
2	*2462.00	88.68 AV			2.37 H	214	50.46	38.22
3	2483.50	54.93 PK	74.00	-19.07	2.37 H	214	16.65	38.28
4	2483.50	41.60 AV	54.00	-12.40	2.37 H	214	3.32	38.28
5	4924.00	50.34 PK	74.00	-23.66	2.01 H	200	44.21	6.13
6	4924.00	36.12 AV	54.00	-17.88	2.01 H	200	29.99	6.13
7	7386.00	55.69 PK	74.00	-18.31	1.00 H	204	42.73	12.96
8	7386.00	43.85 AV	54.00	-10.15	1.00 H	204	30.89	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	113.27 PK			2.14 V	123	75.05	38.22
2	*2462.00	102.01 AV			2.14 V	123	63.79	38.22
3	2483.50	65.73 PK	74.00	-8.27	2.08 V	66	27.45	38.28
4	2483.50	51.42 AV	54.00	-2.58	2.08 V	66	13.14	38.28
5	4924.00	48.26 PK	74.00	-25.74	1.00 V	311	42.13	6.13
6	4924.00	35.16 AV	54.00	-18.84	1.00 V	311	29.03	6.13
7	7386.00	56.29 PK	74.00	-17.71	1.55 V	199	43.33	12.96
8	7386.00	42.36 AV	54.00	-11.64	1.55 V	199	29.40	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 other emission levels were very low 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	54.84 PK	74.00	-19.16	1.00 H	356	16.84	38.00
2	2390.00	41.32 AV	54.00	-12.68	1.00 H	356	3.32	38.00
3	*2422.00	99.09 PK			2.92 H	356	61.00	38.09
4	*2422.00	86.52 AV			2.92 H	356	48.43	38.09
5	4844.00	50.16 PK	74.00	-23.84	1.44 H	25	44.17	5.99
6	4844.00	36.49 AV	54.00	-17.51	1.44 H	25	30.50	5.99
7	7266.00	56.26 PK	74.00	-17.74	2.04 H	133	43.82	12.44
8	7266.00	42.19 AV	54.00	-11.81	2.04 H	133	29.75	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	68.56 PK	74.00	-5.44	1.98 V	168	30.56	38.00
2	2390.00	52.80 AV	54.00	-1.20	1.98 V	168	14.80	38.00
3	*2422.00	106.79 PK			2.56 V	54	68.70	38.09
4	*2422.00	95.94 AV			2.56 V	54	57.85	38.09
5	4844.00	50.13 PK	74.00	-23.87	2.01 V	52	44.14	5.99
6	4844.00	37.62 AV	54.00	-16.38	2.01 V	52	31.63	5.99
7	7266.00	56.26 PK	74.00	-17.74	1.00 V	288	43.82	12.44
8	7266.00	43.19 AV	54.00	-10.81	1.00 V	288	30.75	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 other emission levels were very low 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	54.59 PK	74.00	-19.41	1.44 H	26	16.59	38.00
2	2390.00	41.48 AV	54.00	-12.52	1.44 H	26	3.48	38.00
3	*2437.00	100.69 PK			1.44 H	26	62.55	38.14
4	*2437.00	88.37 AV			1.44 H	26	50.23	38.14
5	2483.50	55.24 PK	74.00	-18.76	2.59 H	26	16.96	38.28
6	2483.50	42.14 AV	54.00	-11.86	2.59 H	26	3.86	38.28
7	4874.00	49.11 PK	74.00	-24.89	1.22 H	306	43.06	6.05
8	4874.00	37.48 AV	54.00	-16.52	1.22 H	306	31.43	6.05
9	7311.00	55.26 PK	74.00	-18.74	3.01 H	188	42.62	12.64
10	7311.00	42.36 AV	54.00	-11.64	3.01 H	188	29.72	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	66.59 PK	74.00	-7.41	1.97 V	228	28.59	38.00
2	2390.00	52.89 AV	54.00	-1.11	1.97 V	228	14.89	38.00
3	*2437.00	110.48 PK			2.01 V	93	72.34	38.14
4	*2437.00	99.51 AV			2.01 V	93	61.37	38.14
5	2483.50	68.41 PK	74.00	-5.59	2.01 V	179	30.13	38.28
6	2483.50	52.09 AV	54.00	-1.91	2.01 V	179	13.81	38.28
7	4874.00	50.26 PK	74.00	-23.74	1.55 V	40	44.21	6.05
8	4874.00	36.54 AV	54.00	-17.46	1.55 V	40	30.49	6.05
9	7311.00	55.59 PK	74.00	-18.41	1.22 V	84	42.95	12.64
10	7311.00	42.69 AV	54.00	-11.31	1.22 V	84	30.05	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 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	96.07 PK			1.00 H	14	57.88	38.19
2	*2452.00	83.96 AV			1.00 H	14	45.77	38.19
3	2483.50	55.17 PK	74.00	-18.83	1.00 H	14	16.89	38.28
4	2483.50	41.84 AV	54.00	-12.16	1.00 H	14	3.56	38.28
5	4904.00	49.04 PK	74.00	-24.96	1.22 H	41	42.94	6.10
6	4904.00	35.89 AV	54.00	-18.11	1.22 H	41	29.79	6.10
7	7356.00	54.15 PK	74.00	-19.85	2.01 H	360	41.32	12.83
8	7356.00	42.19 AV	54.00	-11.81	2.01 H	360	29.36	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	106.96 PK			2.01 V	144	68.77	38.19
2	*2452.00	96.21 AV			2.01 V	144	58.02	38.19
3	2483.50	67.18 PK	74.00	-6.82	1.55 V	58	28.90	38.28
4	2483.50	53.42 AV	54.00	-0.58	1.55 V	58	15.14	38.28
5	4904.00	47.89 PK	74.00	-26.11	1.00 V	214	41.79	6.10
6	4904.00	35.62 AV	54.00	-18.38	1.00 V	214	29.52	6.10
7	7356.00	55.48 PK	74.00	-18.52	2.15 V	45	42.65	12.83
8	7356.00	42.36 AV	54.00	-11.64	2.15 V	45	29.53	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 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

802.11b

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	59.07 PK	74	-14.93	1.35 H	302	21.07	38.00
2	2390.00	45.42 AV	54	-8.58	1.35 H	302	7.42	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	61.58 PK	74	-12.42	2.00 V	140	23.58	38.00
2	2390.00	50.72 AV	54	-3.28	2.00 V	140	12.72	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)
1	2483.50	58.21 PK	74	-15.79	1.50 H	295	19.93	38.28
2	2483.50	46.87 AV	54	-7.13	1.50 H	295	8.59	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	61.36 PK	74	-12.64	1.10 V	174	23.08	38.28
2	2483.50	51.59 AV	54	-2.41	1.10 V	174	13.31	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

802.11g

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	57.82 PK	74	-16.18	2.15 H	300	19.82	38.00
2	2390.00	45.79 AV	54	-8.21	2.15 H	300	7.79	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	61.93 PK	74	-12.07	1.70 V	204	23.93	38.00
2	2390.00	50.29 AV	54	-3.71	1.70 V	204	12.29	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)
1	2483.50	59.47 PK	74	-14.53	1.80 H	83	21.19	38.28
2	2483.50	46.02 AV	54	-7.98	1.80 H	83	7.74	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	65.42 PK	74	-8.58	1.20 V	173	27.14	38.28
2	2483.50	51.36 AV	54	-2.64	1.20 V	173	13.08	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			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	56.04 PK	74	-17.96	1.80 H	42	18.04	38.00
2	2390.00	42.49 AV	54	-11.51	1.80 H	42	4.49	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	66.83 PK	74	-7.17	1.50 V	193	28.83	38.00
2	2390.00	52.01 AV	54	-1.99	1.50 V	193	14.01	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)
1	2483.50	56.21 PK	74	-17.79	1.75 H	148	17.93	38.28
2	2483.50	43.67 AV	54	-10.33	1.75 H	148	5.39	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	68.32 PK	74	-5.68	2.20 V	263	30.04	38.28
2	2483.50	51.87 AV	54	-2.13	2.20 V	263	13.59	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			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	56.93 PK	74	-17.07	1.20 H	294	18.93	38.00
2	2390.00	44.64 AV	54	-9.36	1.20 H	294	6.64	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	69.71 PK	74	-4.29	1.90 V	109	31.71	38.00
2	2390.00	52.47 AV	54	-1.53	1.90 V	109	14.47	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)
1	2483.50	58.19 PK	74	-15.81	1.50 H	283	19.91	38.28
2	2483.50	44.12 AV	54	-9.88	1.50 H	283	5.84	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	68.62 PK	74	-5.38	1.40 V	130	30.34	38.28
2	2483.50	53.29 AV	54	-0.71	1.40 V	130	15.01	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 19,17	May 18,18
Power Sensor	Keysight	U2021XA	MY55060018	May 19,17	May 18,18
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 17	Oct.12, 18
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,17	Sep. 04,18
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,17	Nov. 03,18
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,17	Nov. 03,18
Agile Signal Generator	Agilent	8645A	Agilent	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

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

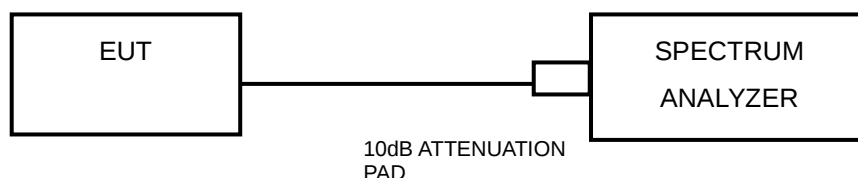
Refer to "ANSI C63.10-2013 " 11.8.2 Option 2

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	10.06	10.07	0.5	PASS
6	2437	10.10	10.09	0.5	PASS
11	2462	10.06	10.08	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	15.15	15.14	0.5	PASS
6	2437	15.16	15.16	0.5	PASS
11	2462	15.15	15.13	0.5	PASS

802.11n HT20

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	15.17	15.15	0.5	PASS
6	2437	15.12	15.15	0.5	PASS
11	2462	15.15	15.14	0.5	PASS

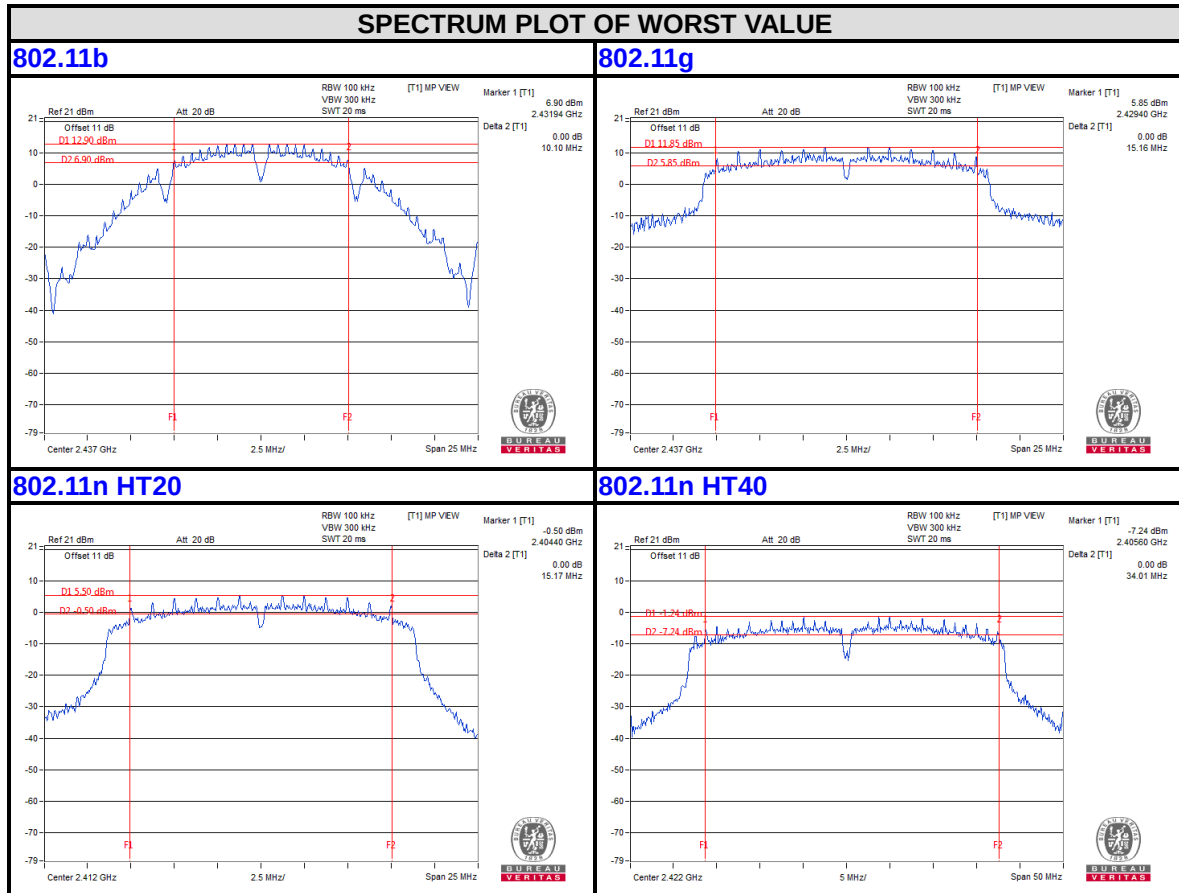
802.11n HT40

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	34.01	33.88	0.5	PASS
6	2437	33.89	33.87	0.5	PASS
9	2452	33.89	33.87	0.5	PASS



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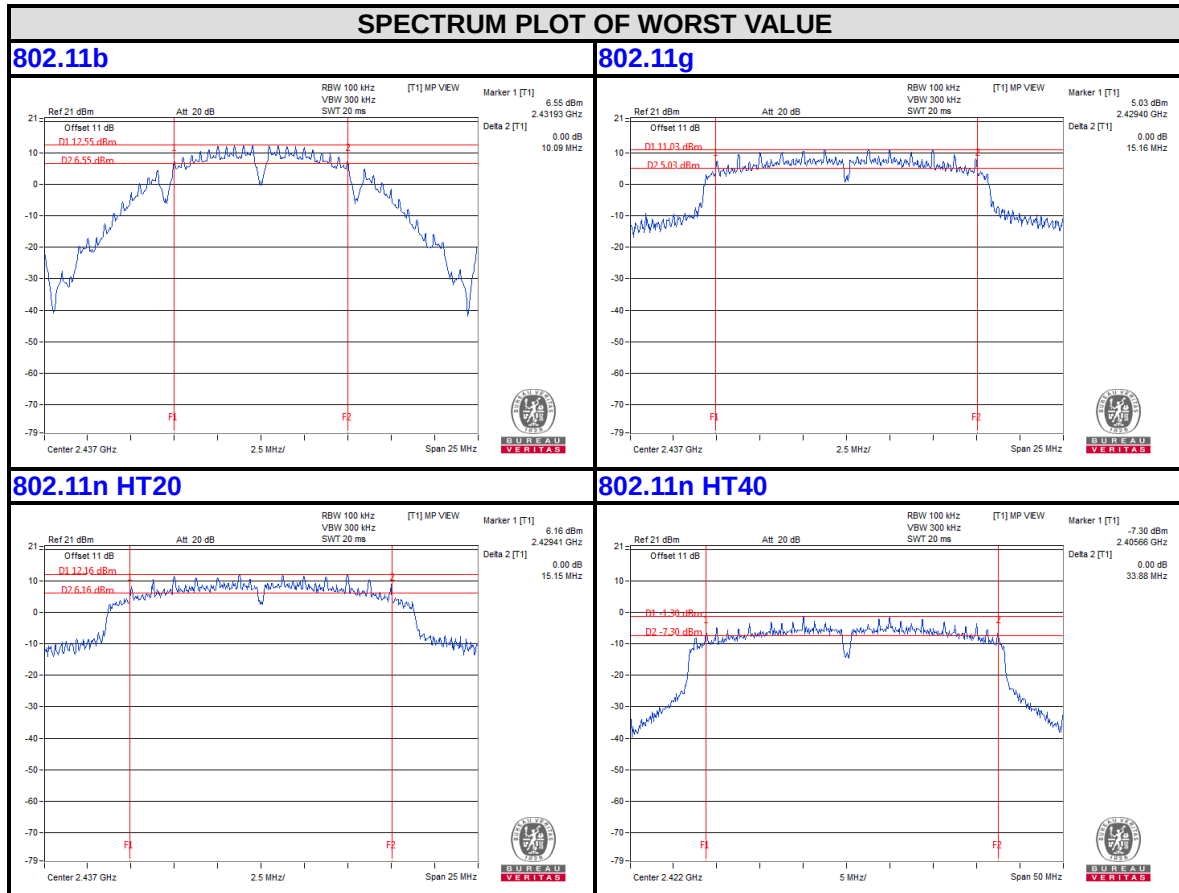
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Test Report No.: RF171020N049

CHAIN 1

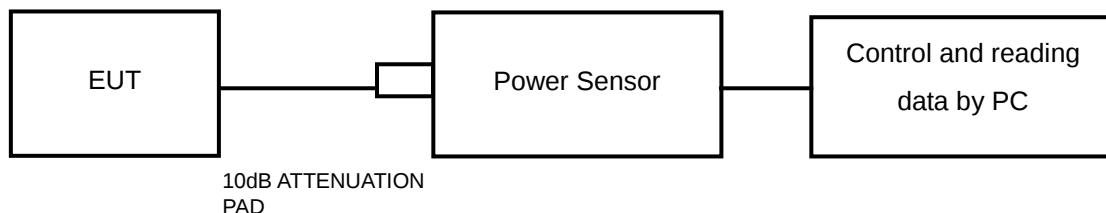


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	May 19,17	May 18,18
Power Sensor	Keysight	U2021XA	MY55060018	May 19,17	May 18,18
Test Software	Keysight	Power Analyzer 3.9	Power Analyzer 3.9	N/A	N/A
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 17	Oct.12, 18
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,17	Sep. 04,18
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,17	Nov. 03,18
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,17	Nov. 03,18
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,17	Nov. 03,18
Agile Signal Generator	Agilent	8645A	Agilent	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.



Test Report No.: RF171020N049

4.4.4 TEST PROCEDURES

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

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

4.4.7 TEST RESULTS

802.11b

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	18.64	18.91	73.11	77.80	150.92	21.79	30	PASS
6	2437	20.73	20.64	118.30	115.88	234.18	23.70	30	PASS
11	2462	18.47	18.87	70.31	77.09	147.40	21.68	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	16.63	16.86	46.03	48.53	94.55	19.76	30	PASS
6	2437	20.52	20.22	112.72	105.20	217.92	23.38	30	PASS
11	2462	16.03	16.14	40.09	41.11	81.20	19.10	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	15.75	16.12	37.58	40.93	78.51	18.95	30	PASS
6	2437	20.48	20.50	111.69	112.20	223.89	23.50	30	PASS
11	2462	16.14	16.27	41.11	42.36	83.48	19.22	30	PASS

802.11n HT40

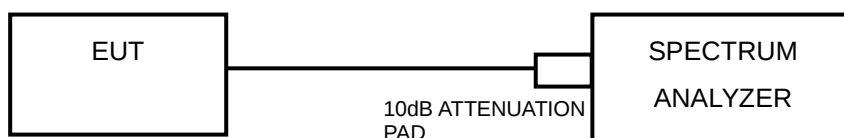
CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
3	2422	11.86	11.99	15.35	15.81	31.16	14.94	30	PASS
6	2437	16.25	16.35	42.17	43.15	85.32	19.31	30	PASS
9	2452	12.64	12.58	18.37	18.11	36.48	15.62	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

Refer to KDB 558074 D01 DTS Meas Guidance v04 Chapter 10.2

Refer to ANSI C63.10-2013 Chapter 11.10.2

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

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	-9.25	3.01	-6.24	7.99	PASS
	6	2437	-1.78	3.01	1.23	7.99	PASS
	11	2462	-7.28	3.01	-4.27	7.99	PASS
1	1	2412	-9.90	3.01	-6.89	7.99	PASS
	6	2437	-2.07	3.01	0.94	7.99	PASS
	11	2462	-7.58	3.01	-4.57	7.99	PASS

Remark: Due ANT gain less than 6dBi [$3 + 10\log(N=2)=6.01 < 6$], so limit 7.99dBm, Limit need to be reduce 0.01dB.

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

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	-10.09	3.01	-7.08	7.99	PASS
	6	2437	-1.71	3.01	1.30	7.99	PASS
	11	2462	-9.45	3.01	-6.44	7.99	PASS
1	1	2412	-9.70	3.01	-6.69	7.99	PASS
	6	2437	-3.12	3.01	-0.11	7.99	PASS
	11	2462	-9.25	3.01	-6.24	7.99	PASS

Remark: Due ANT gain less than 6dBi [$3 + 10\log(N=2)=6.01 < 6$], so limit 7.99dBm, Limit need to be reduce 0.01dB.

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

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	-9.53	3.01	-6.52	7.99	PASS
	6	2437	-3.36	3.01	-0.35	7.99	PASS
	11	2462	-8.40	3.01	-5.39	7.99	PASS
1	1	2412	-9.90	3.01	-6.89	7.99	PASS
	6	2437	-2.40	3.01	0.61	7.99	PASS
	11	2462	-8.35	3.01	-5.34	7.99	PASS

Remark: Due ANT gain less than 6dBi [$3 + 10\log(N=2)=6.01 < 6$], so limit 7.99dBm, Limit need to be reduce 0.01dB.

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

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	-16.19	3.01	-13.18	7.99	PASS
	6	2437	-11.29	3.01	-8.28	7.99	PASS
	9	2452	-15.24	3.01	-12.23	7.99	PASS
1	3	2422	-16.55	3.01	-13.54	7.99	PASS
	6	2437	-11.33	3.01	-8.32	7.99	PASS
	9	2452	-15.12	3.01	-12.11	7.99	PASS

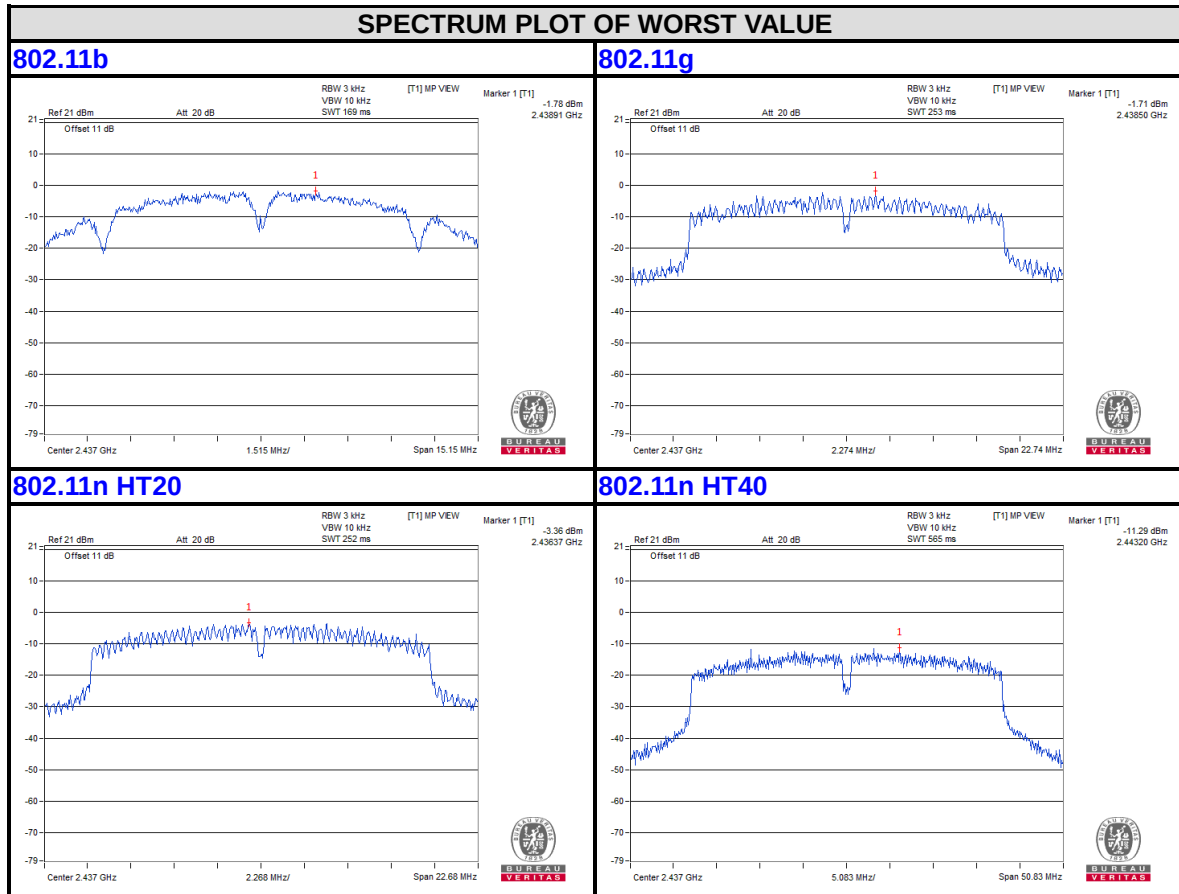
Remark: Due ANT gain less than 6dBi [$3 + 10\log(N=2)=6.01 < 6$], so limit 7.99dBm, Limit need to be reduce 0.01dB.

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.



Test Report No.: RF171020N049

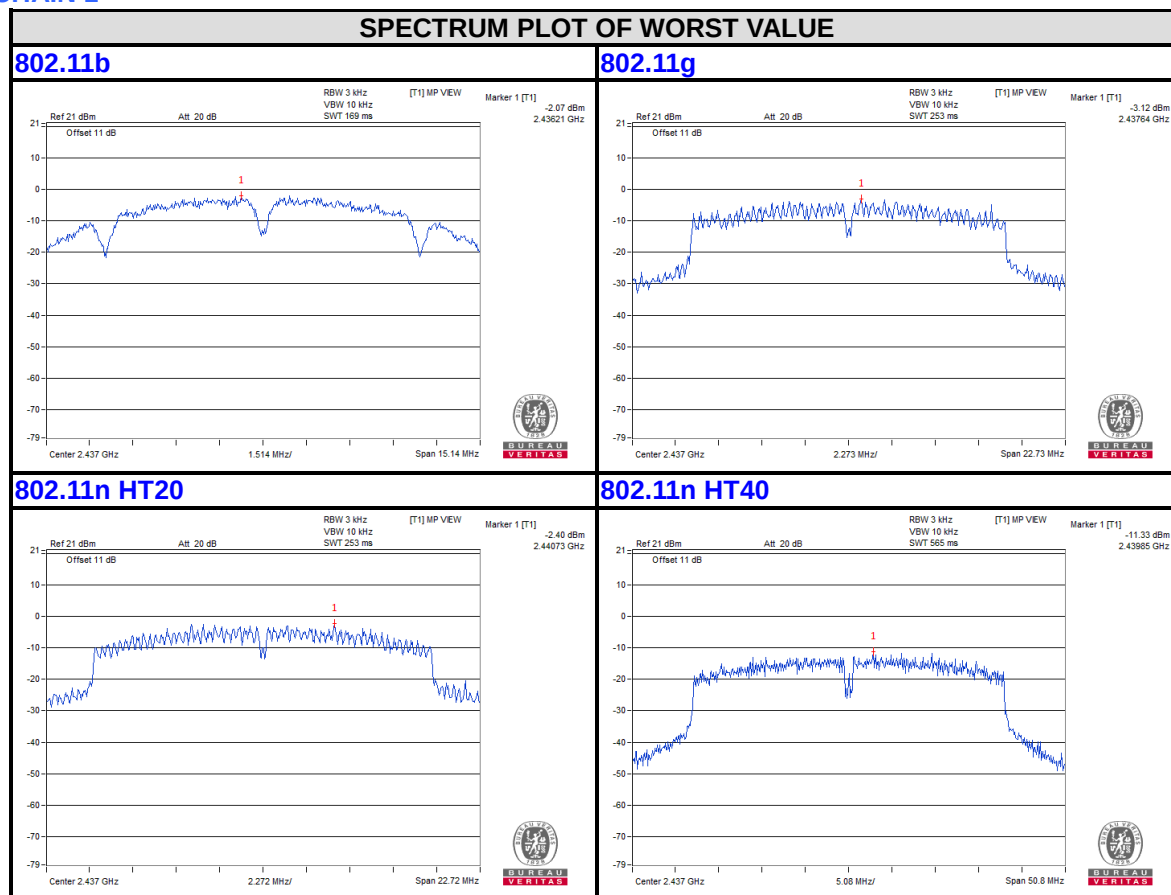
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Test Report No.: RF171020N049

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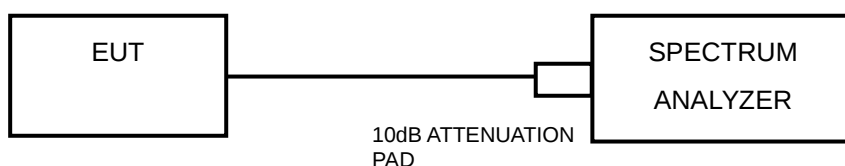


4.6 OUT OF BAND EMISSION MEASUREMENT

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.



Test Report No.: RF171020N049

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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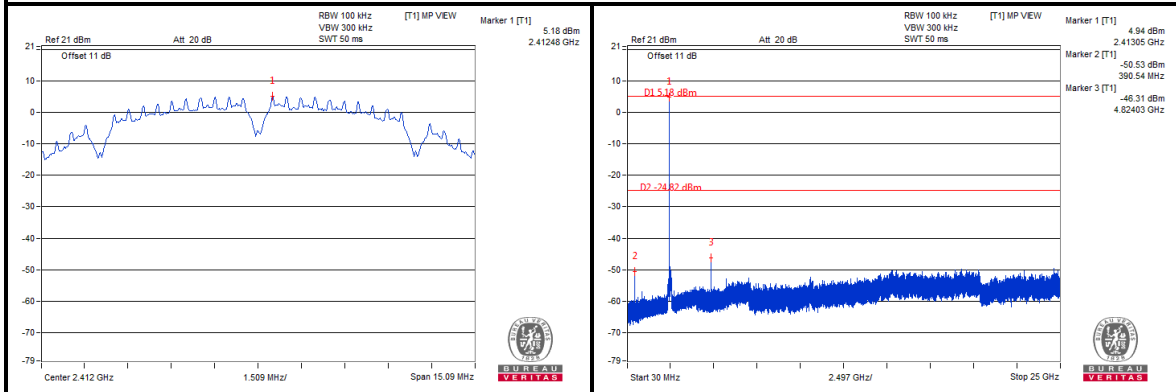
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4.6.7 TEST RESULTS

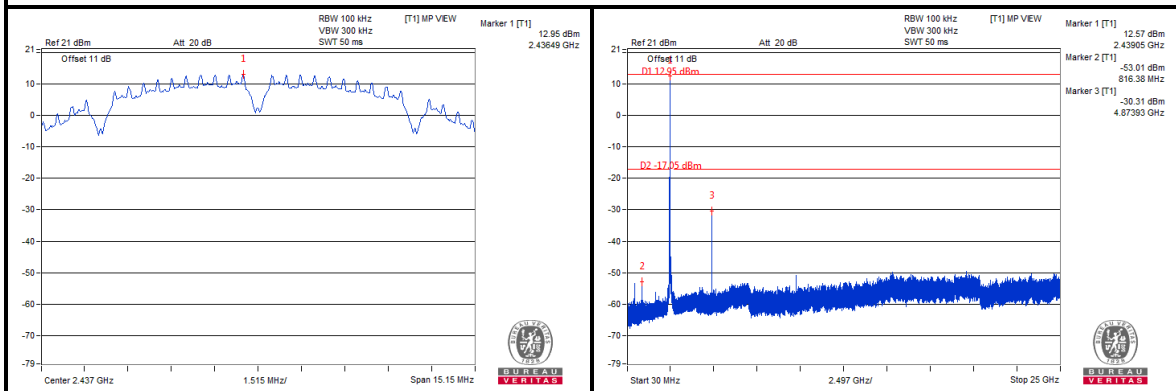
802.11b

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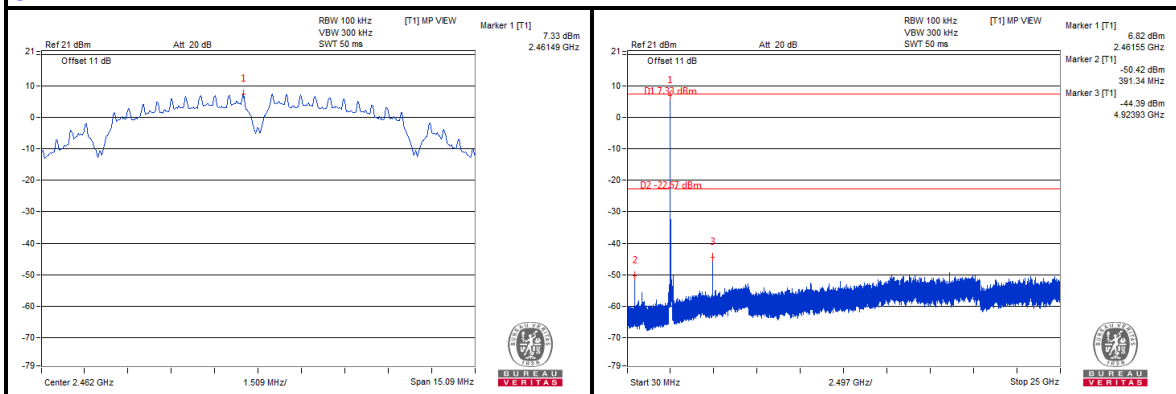
CH 1



CH 6



CH 11



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Dongguan Branch

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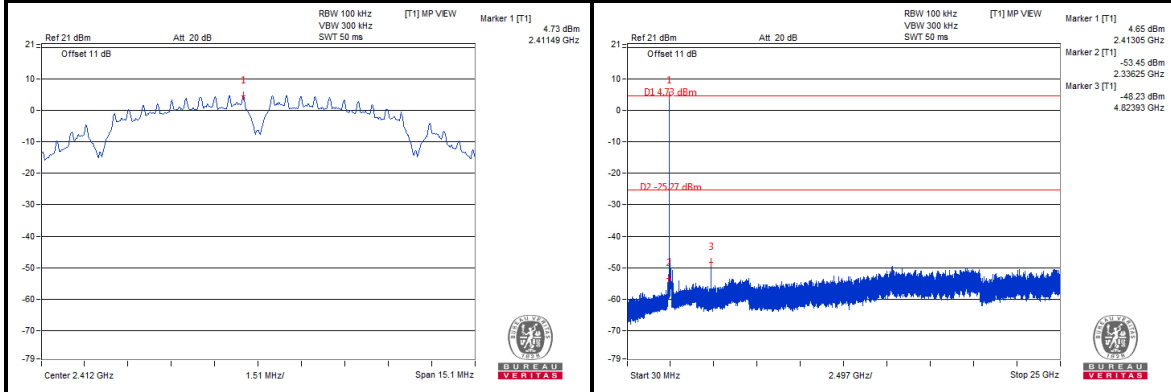
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



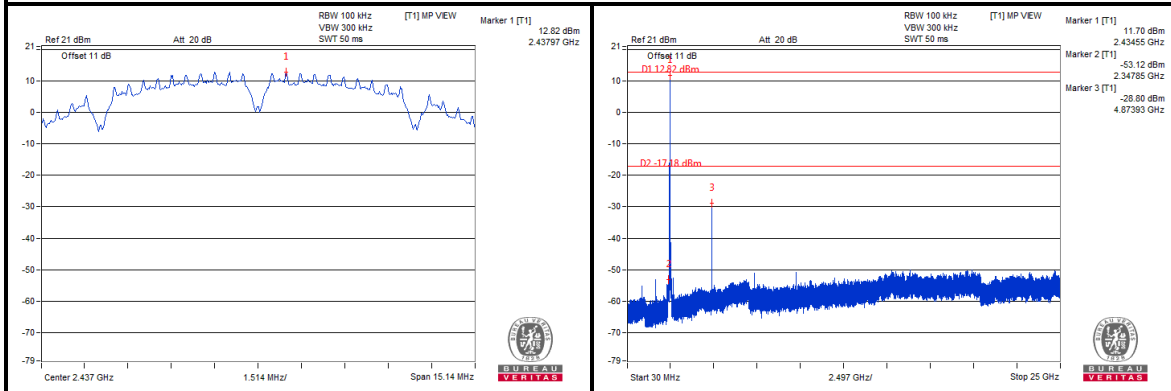
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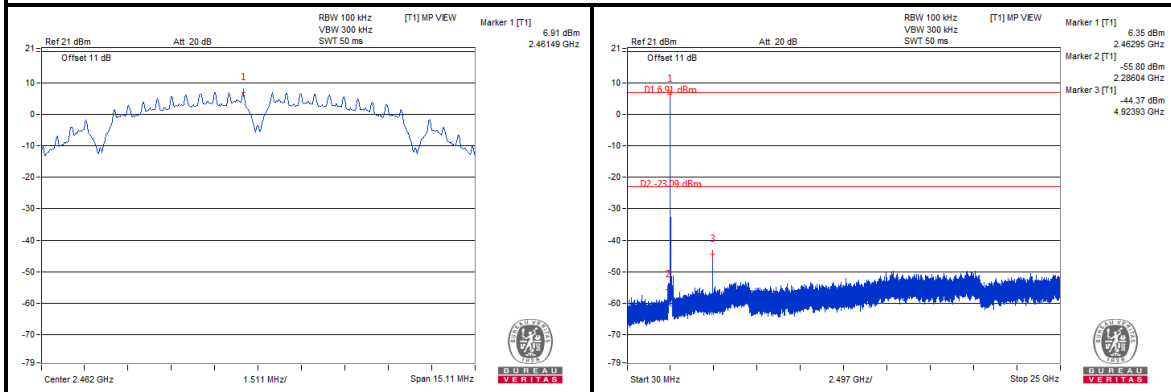
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CH 6



CH 11



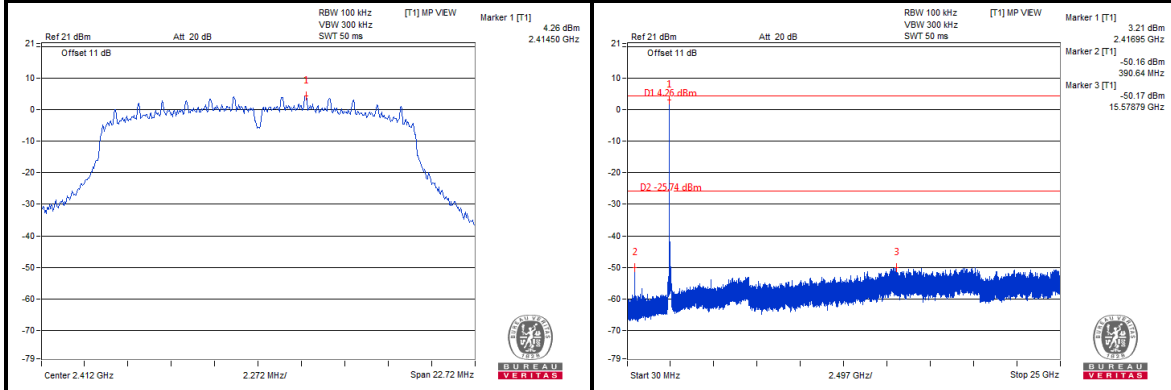


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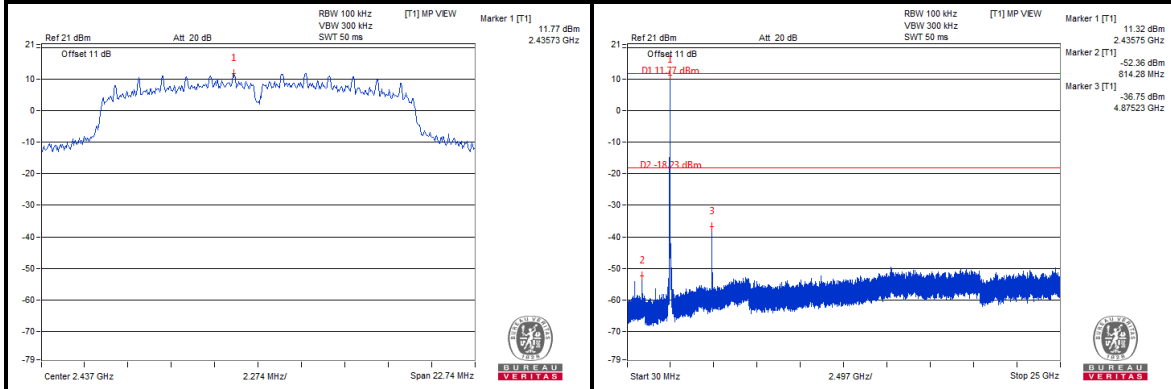
802.11g

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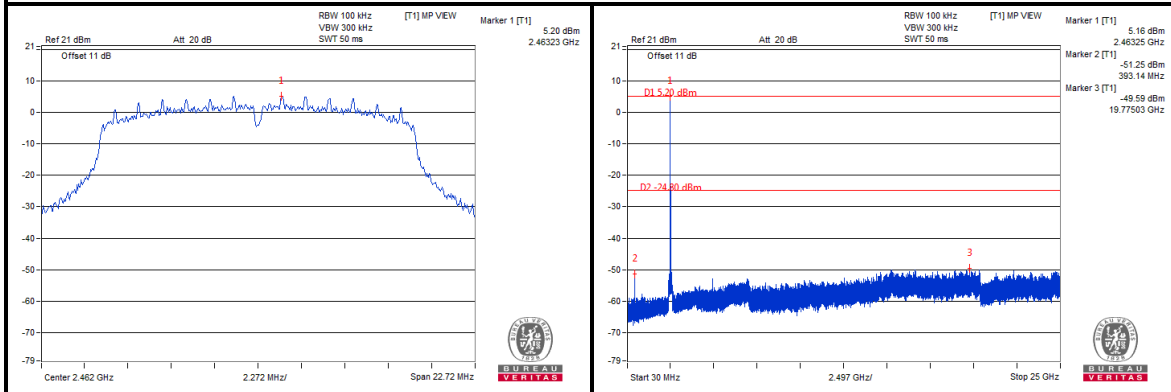
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CH 6



CH 11

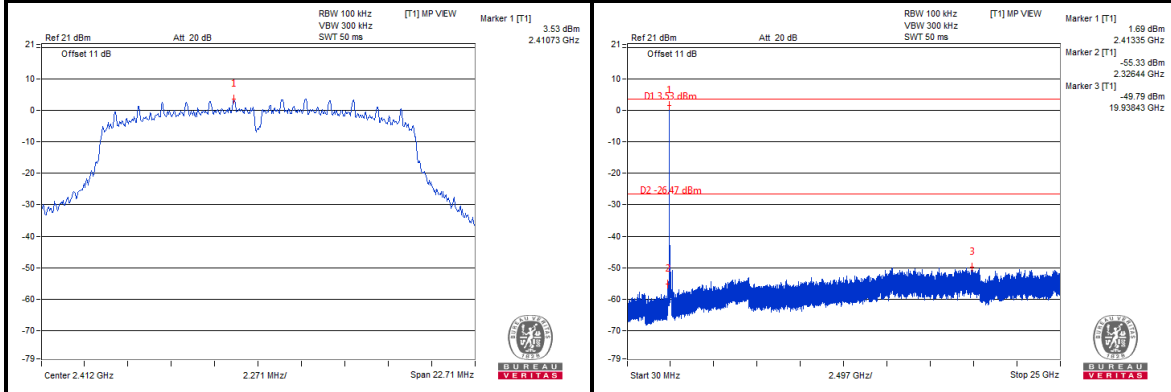




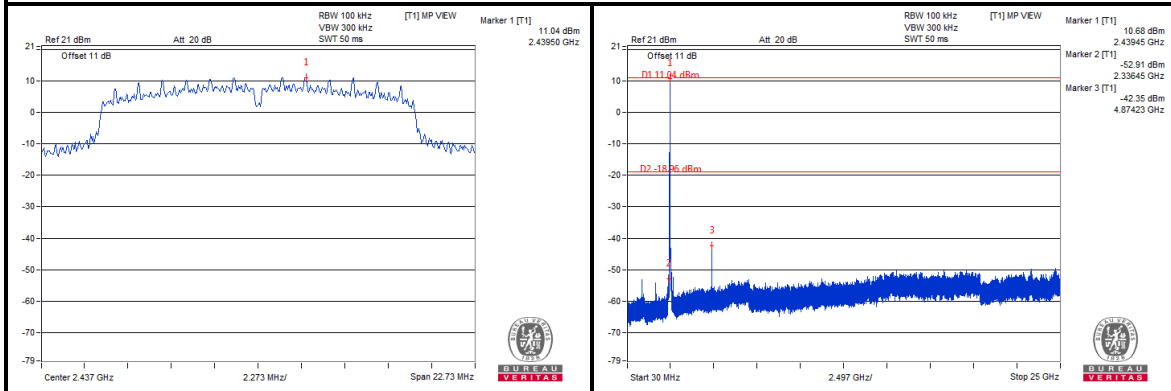
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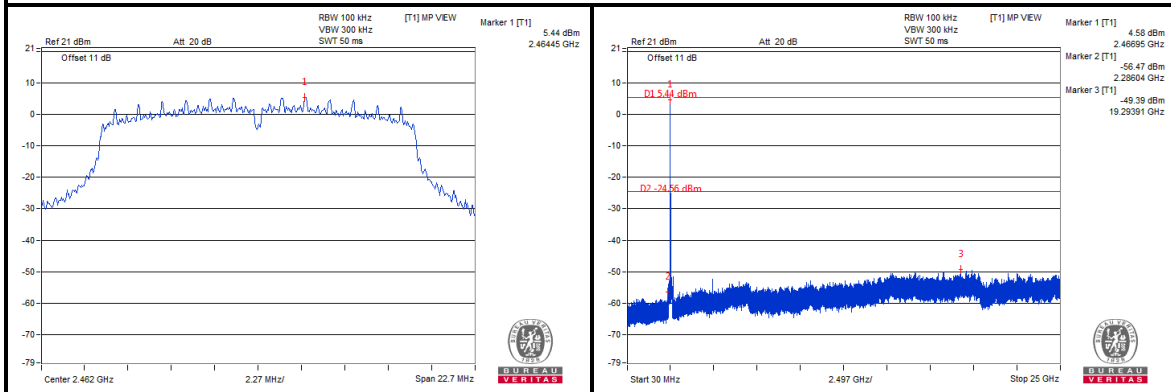
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CH 6



CH 11



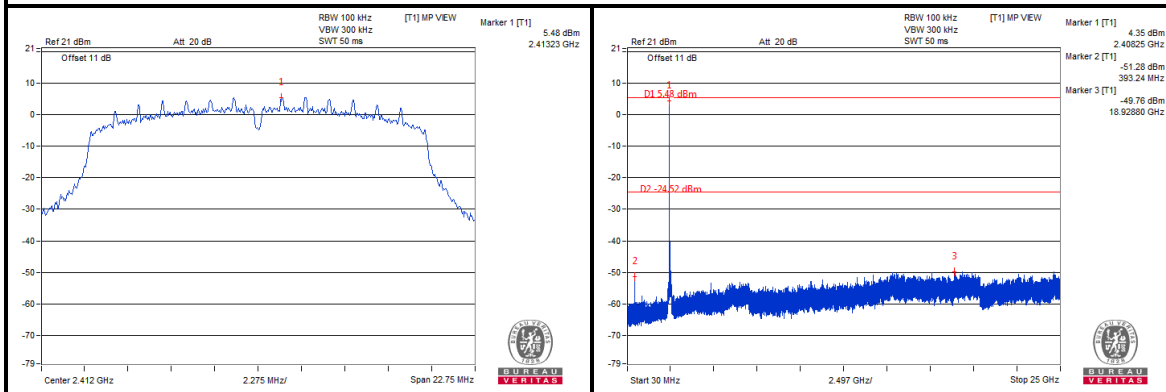


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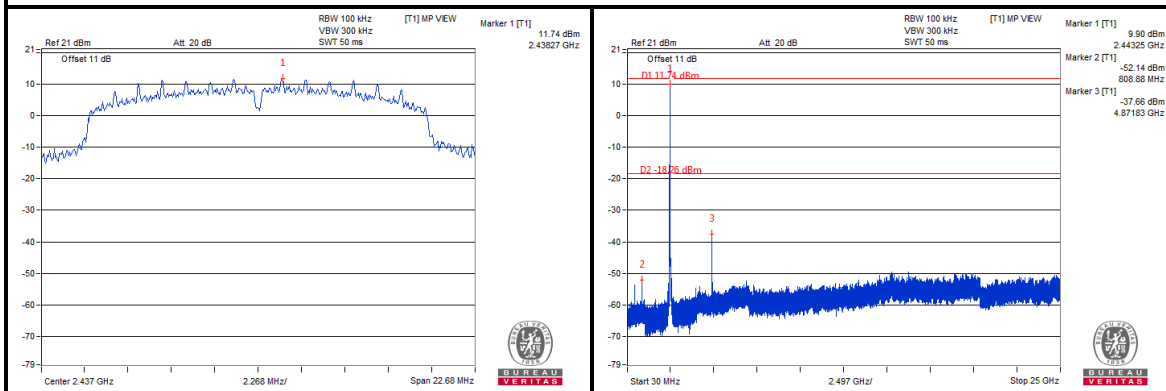
802.11n HT20

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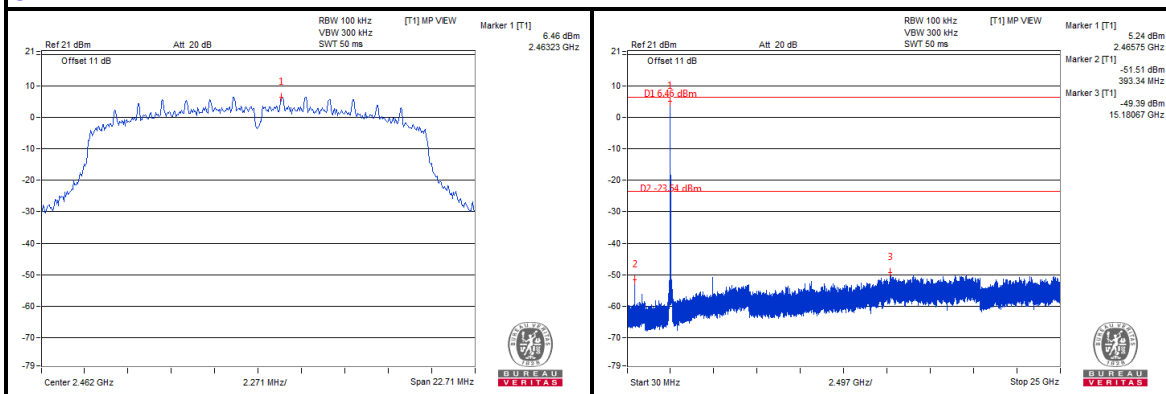
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CH 6



CH 11

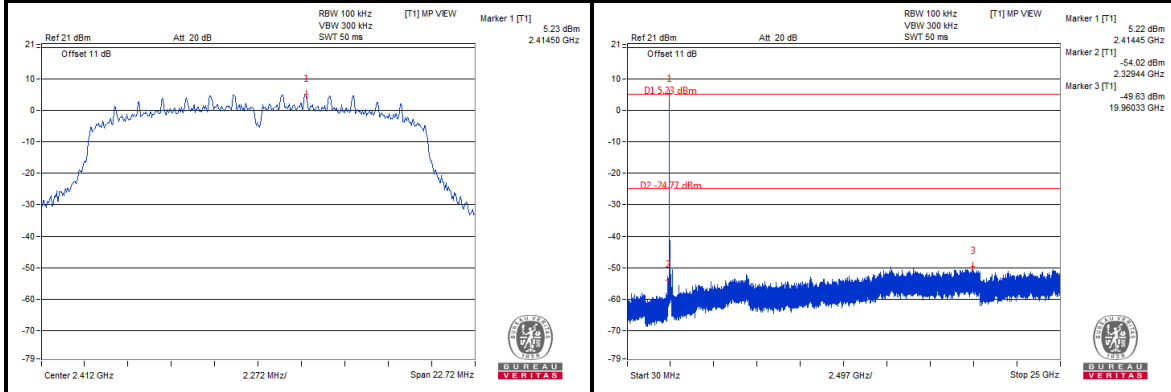




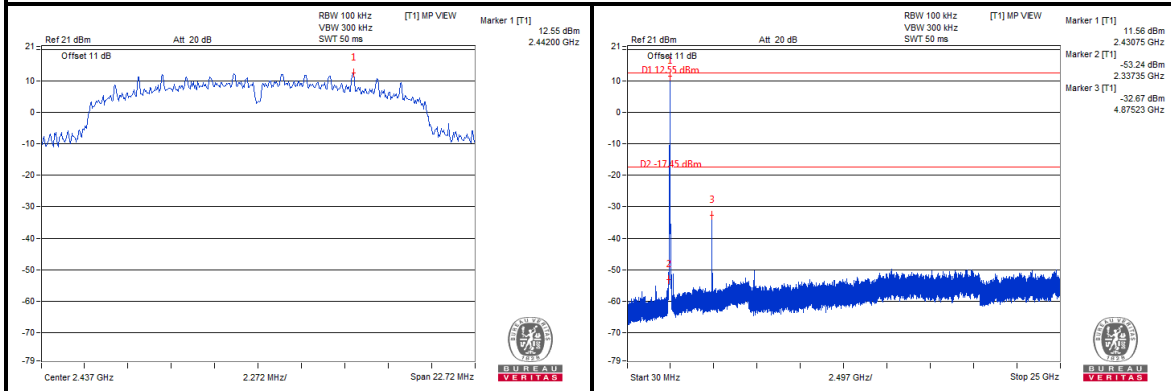
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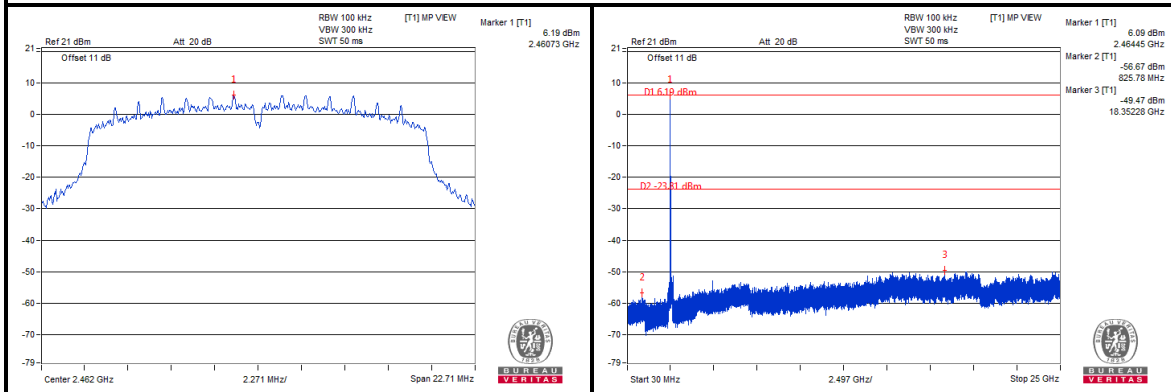
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CH 6



CH 11





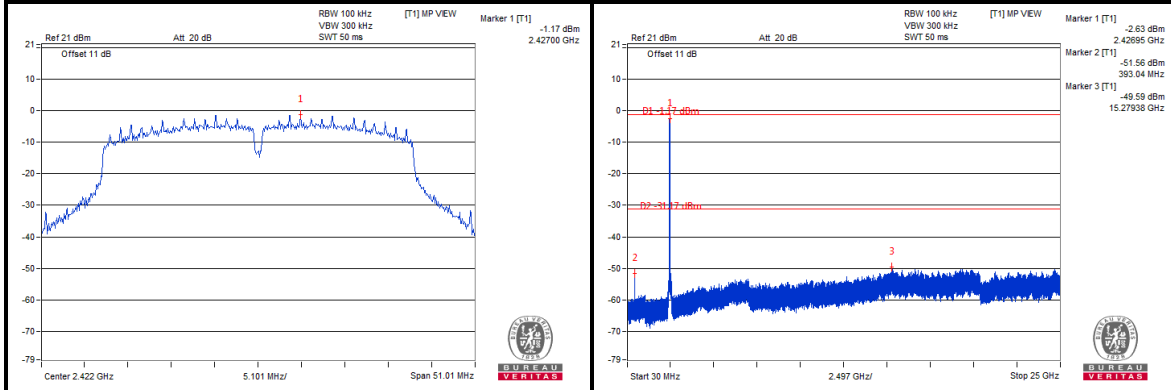
BUREAU
VERITAS

Test Report No.: RF171020N049

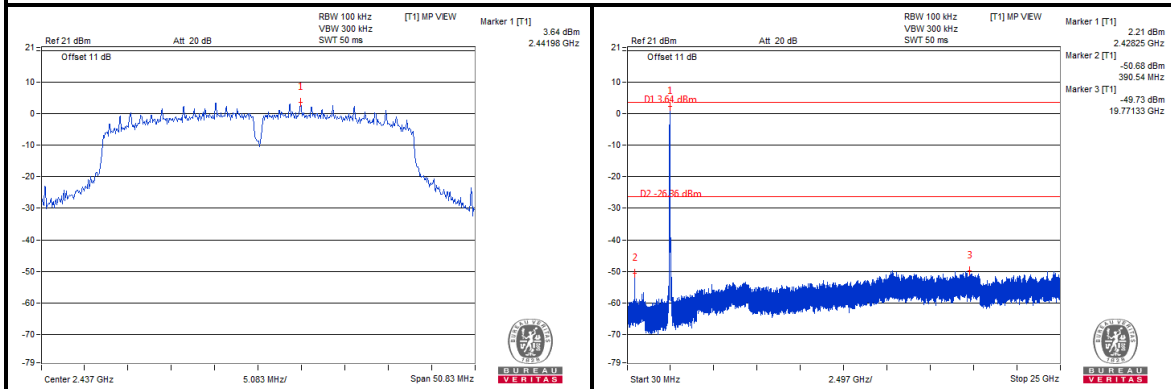
802.11n HT40

CHAIN 0

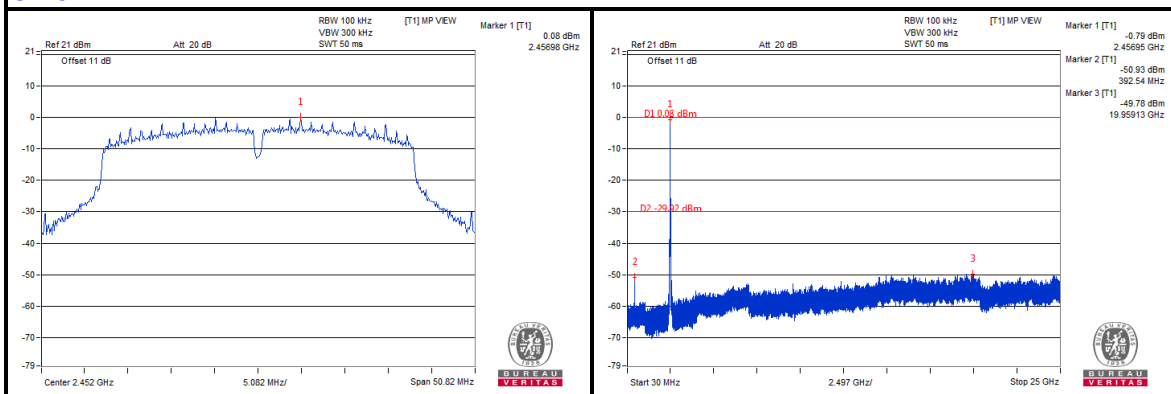
CH 3



CH 6



CH 9



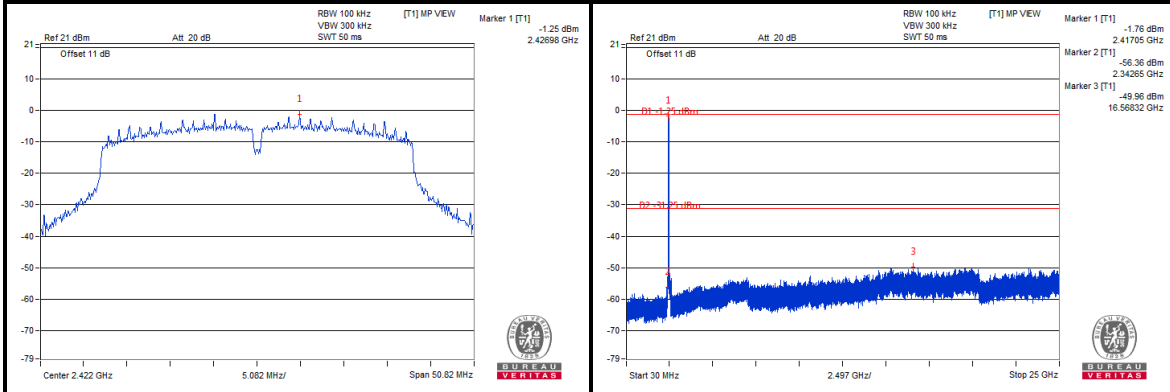
Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie
Town, Dongguan City,
Guangdong 523942, China

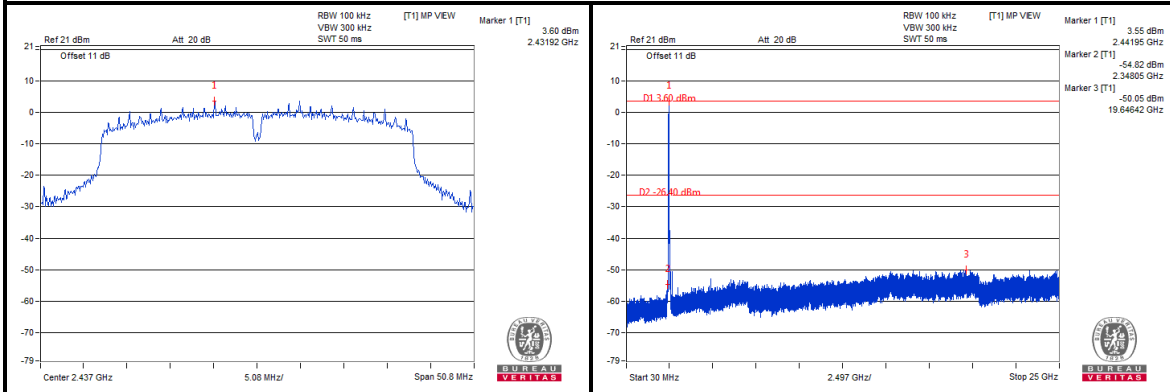
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

CHAIN 1

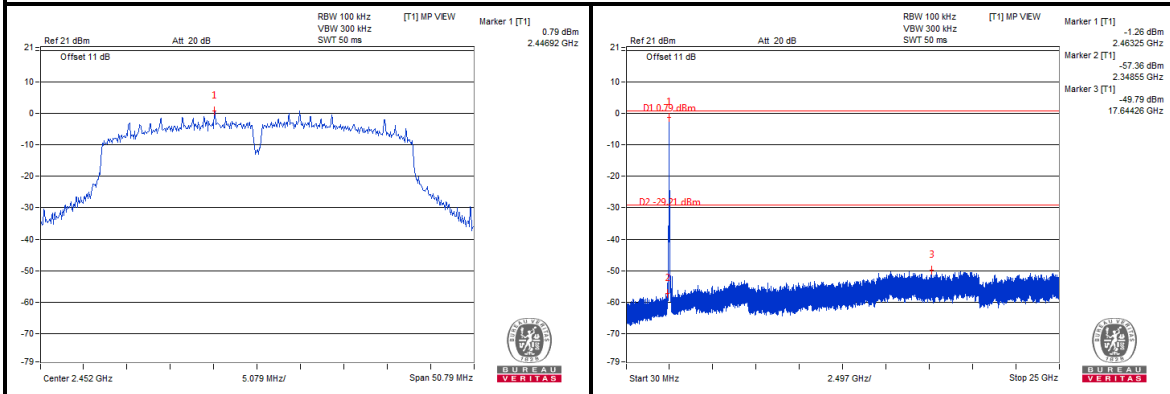
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CH 6



CH 9

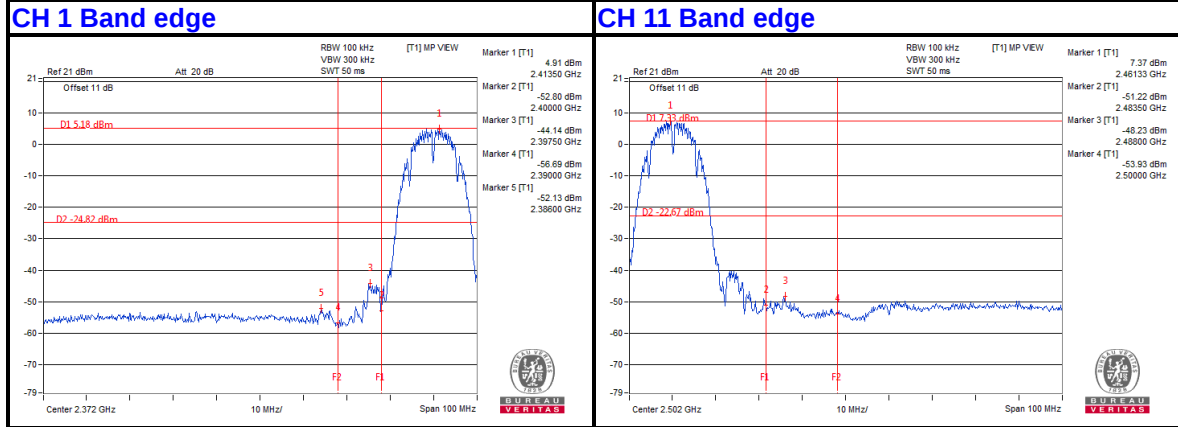




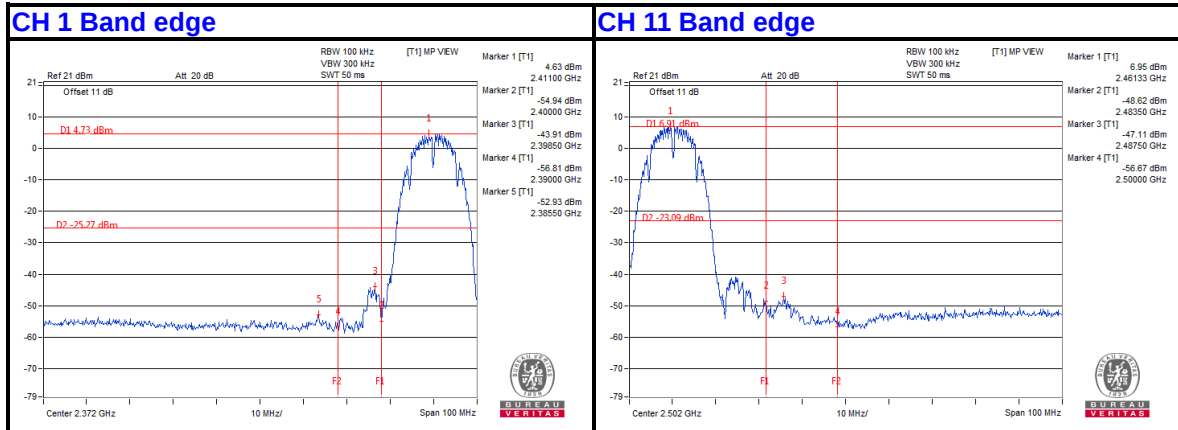
Test Report No.: RF171020N049

802.11b

CHAIN 0



CHAIN 1





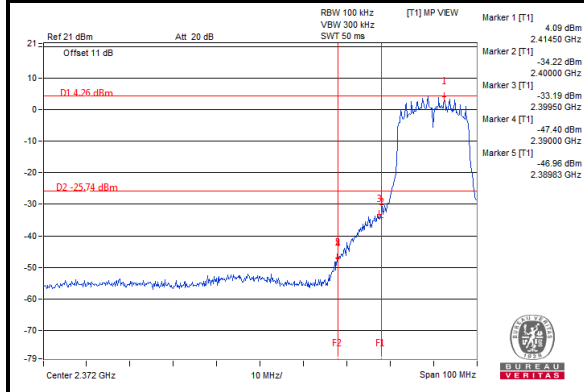
BUREAU
VERITAS

Test Report No.: RF171020N049

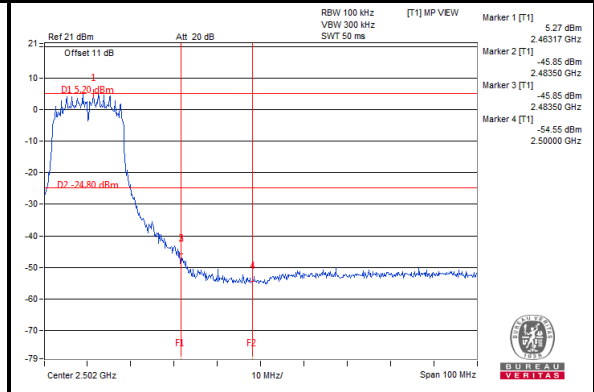
802.11g

CHAIN 0

CH 1 Band edge

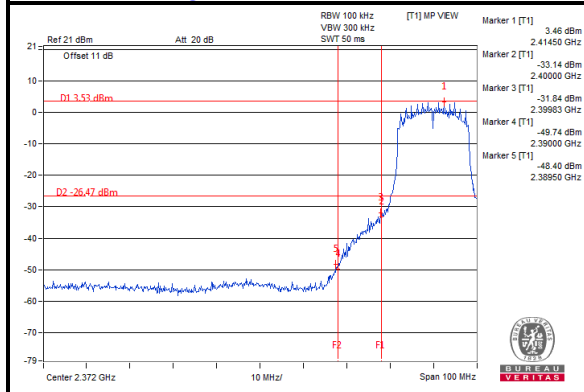


CH 11 Band edge

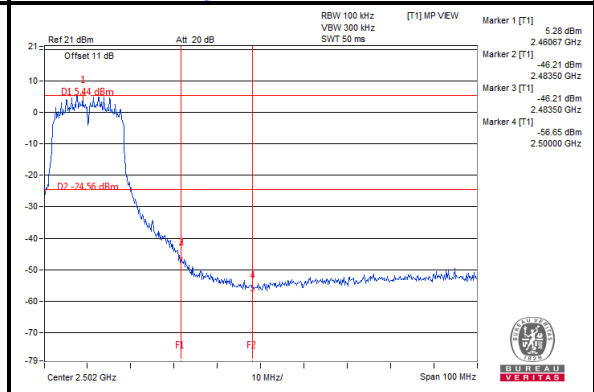


CHAIN 1

CH 1 Band edge



CH 11 Band edge



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Guangdong 523942, China

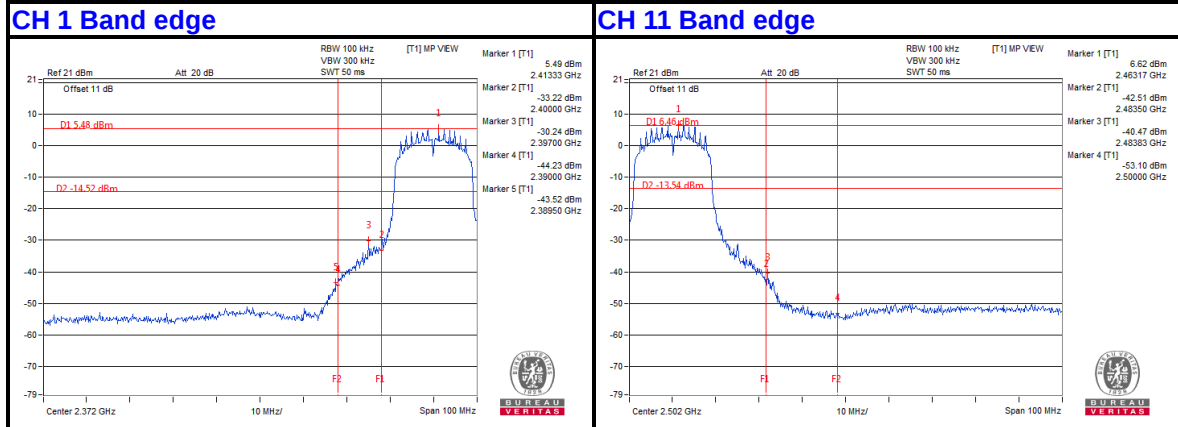
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



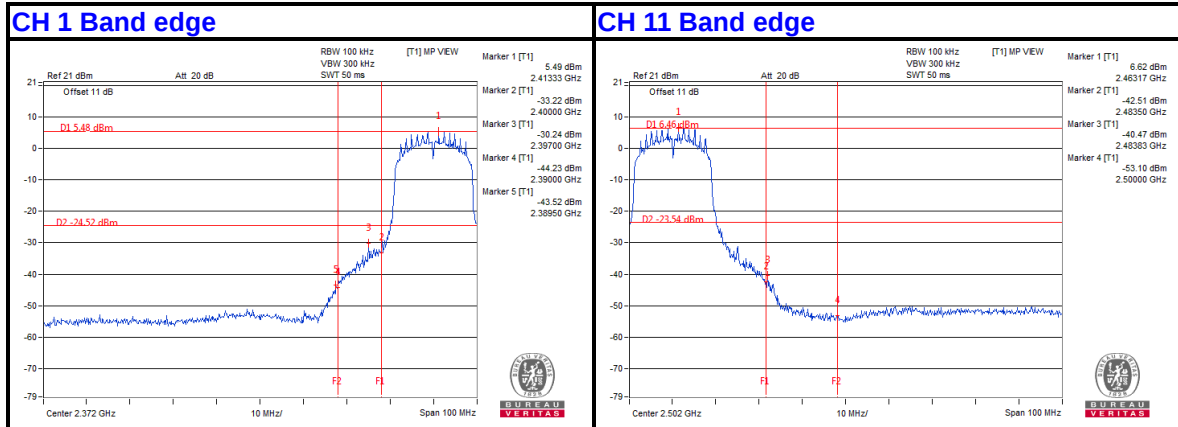
Test Report No.: RF171020N049

802.11n HT20

CHAIN 0



CHAIN 1

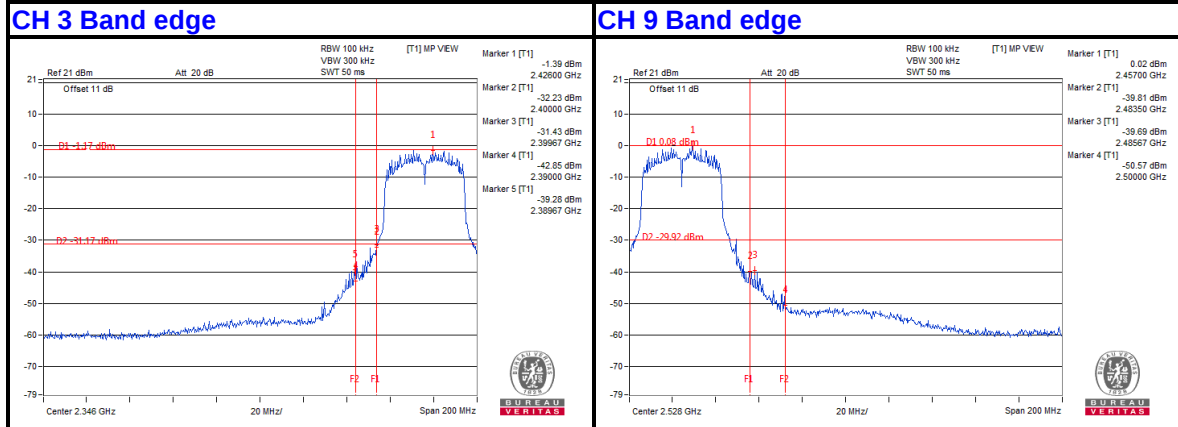




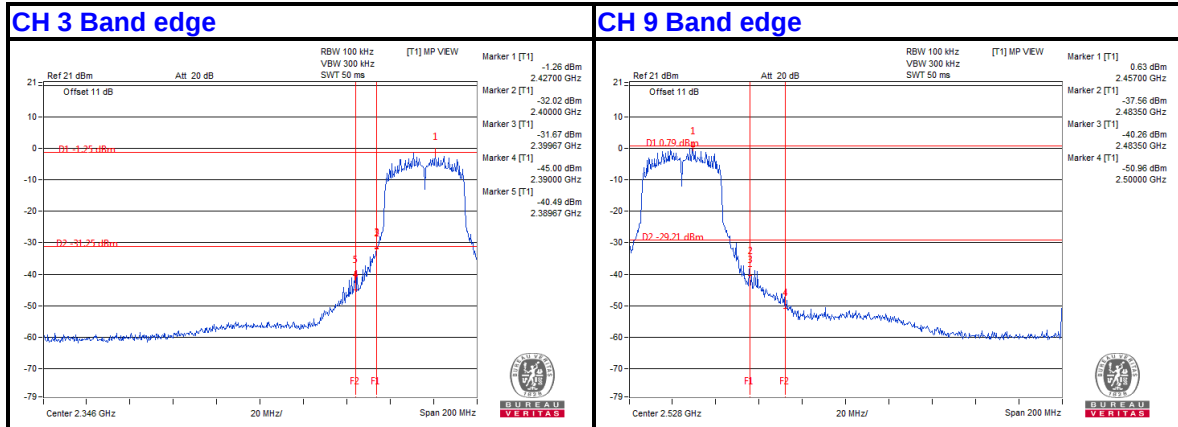
Test Report No.: RF171020N049

802.11n HT40

CHAIN 0



CHAIN 1





Test Report No.: RF171020N049

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: RF171020N049

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---