

TEST REPORT

Applicant	HON HAI PRECISION IND.Co.,LTD.
Address	No. 2, Zihyou St., Tucheng City, Taipei Hsien 23680 Taiwan

Manufacturer or Supplier	HON HAI PRECISION IND.Co.,LTD.
Address	No. 2, Zihyou St., Tucheng City, Taipei Hsien 23680 Taiwan
Product	Action Cam
Brand Name	Mofily
Model	Yocam
Additional Model & Model Difference	N/A
Date of tests	Oct. 22, 2015 ~ Oct. 30, 2015

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 Blue Zheng Project Engineer/ EMC Department	Approved by Chris Chen Assistant Manager / EMC Department
	
	Date: Oct. 30, 2015

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Test Report No.: RF150923N055

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150923N055	Original release	Oct. 30, 2015

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	2.66dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GMHz	3.55dB
	1GHz ~ 18GHz	4.84dB
	18GHz ~ 40GHz	4.84dB

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	Action Cam
MODEL NO.	Yocam
FCC ID	YE5-YOCAM001
NOMINAL VOLTAGE	DC 3.7V by Li-on Battery or DC 5V From USB Adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM BT-LE(GFSK) for DTS
MODULATION TECHNOLOGY	DSSS, OFDM, DTS
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2402-2480MHz for BT-LE(GFSK)
PEAK POWER	WLAN: 23.01dBm (Maximum) BT-LE: 8.86dBm (Maximum)
ANTENNA TYPE	FPC Antenna, 0.2dBi Gain for BT FPC Antenna, 2.1dBi Gain for WIFI
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 (20MHz)	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.: 150923N055) 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		

40 channels are provided for BT-LE(GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480



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 battery with WiFi/LTE function
B	-	-	√	-	Powered by USB with WiFi/LTE function

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

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

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
-	BT Link+ WIFI (2.4G) Link

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11g	1 to 11	1	OFDM	BPSK	6.0	X
A	BT-LE	0 to 39	39	DTS	GFSK	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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	X
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5	X
A	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0	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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
A	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0



ANTENNA PORT CONDUCTED MEASUREMENT:

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1,6, 11	OFDM	BPSK	6.5
A	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	26deg. C, 67%RH	DC 3.7V from Battery	Kery He
RE≥1G	26deg. C, 67%RH	DC 3.7V from Battery	Kery He
PLC	20deg. C, 56%RH	DC 5V from USB	Kery He
APCM	20deg. C, 55%RH	DC 3.7V from Battery	Blue Zheng

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 v03r04

ANSI C63.10-2013

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.

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	Lenovo	A14R40	140532021	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: unshielded, detachable, 1.5m

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCS30	100340	May 11,15	May 10,16
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	April 25,15	April 24,16
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	April 25,15	April 24,16
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A	N/A

- NOTE:**
1. The test was performed in shielded room 553.
 2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.1.3 TEST PROCEDURES

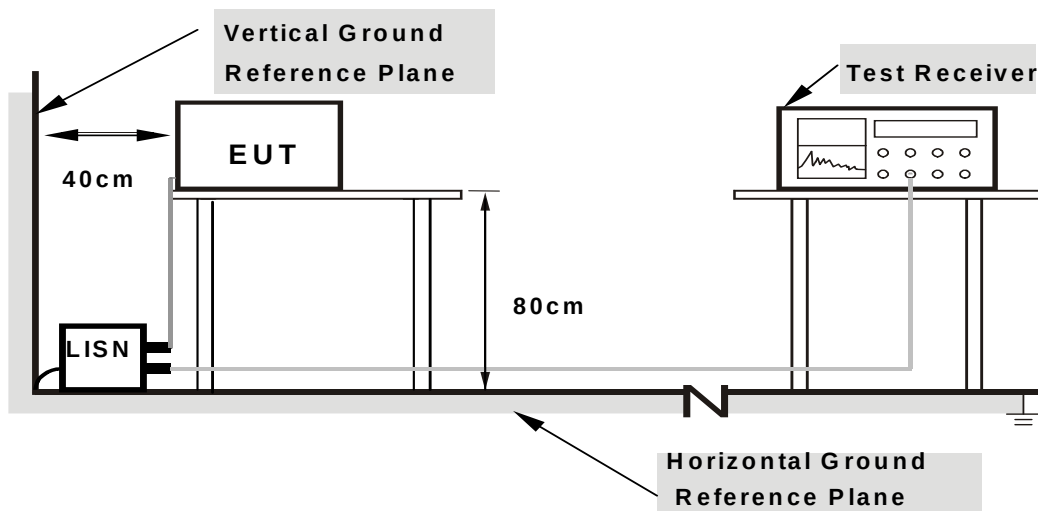
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

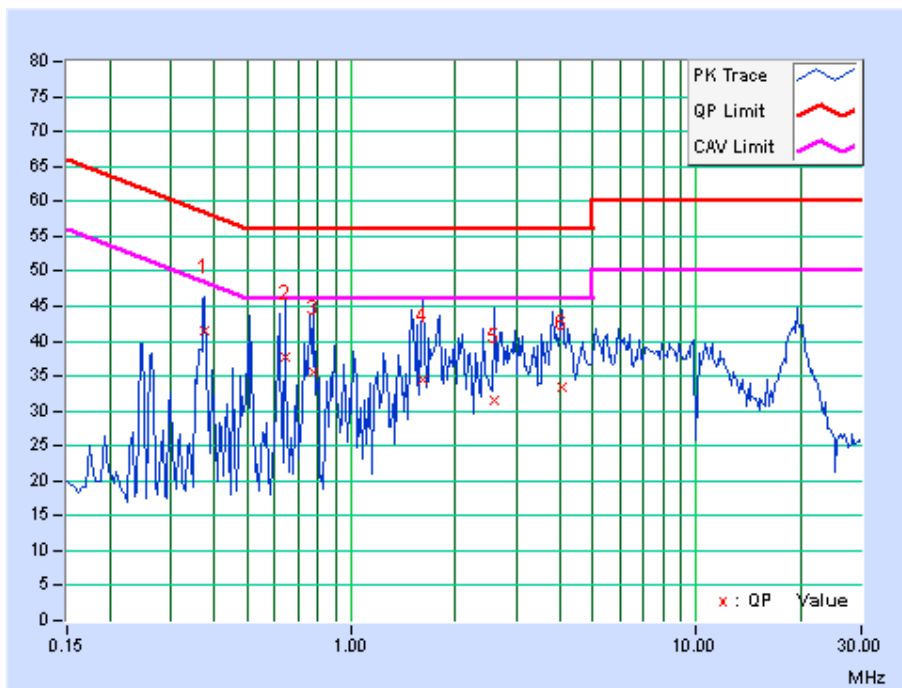
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: BT Link+ WIFI (2.4G) 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	0.37656	9.75	31.60	19.00	41.35	28.75	58.35	48.35	-17.00	-19.60
2	0.64219	9.77	27.83	12.96	37.60	22.73	56.00	46.00	-18.40	-23.27
3	0.77891	9.75	25.86	9.45	35.61	19.20	56.00	46.00	-20.39	-26.80
4	1.61719	9.75	24.69	10.05	34.44	19.80	56.00	46.00	-21.56	-26.20
5	2.60938	9.76	21.74	8.89	31.50	18.65	56.00	46.00	-24.50	-27.35
6	4.05859	9.79	23.61	12.28	33.40	22.07	56.00	46.00	-22.60	-23.93

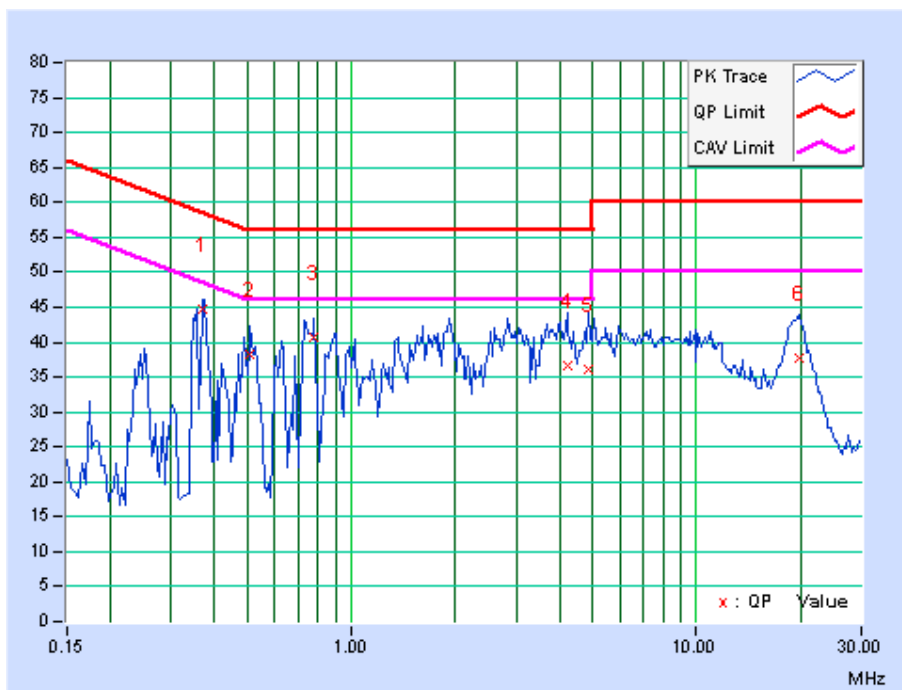
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	0.37266	9.47	35.35	30.23	44.82	39.70	58.44	48.44	-13.62	-8.74
2	0.50938	9.47	28.84	22.08	38.31	31.55	56.00	46.00	-17.69	-14.45
3	0.77891	9.48	31.14	21.52	40.62	31.00	56.00	46.00	-15.38	-15.00
4	4.21484	9.52	27.00	17.64	36.52	27.16	56.00	46.00	-19.48	-18.84
5	4.84375	9.52	26.53	17.97	36.05	27.49	56.00	46.00	-19.95	-18.51
6	19.88281	9.69	28.14	20.46	37.83	30.15	60.00	50.00	-22.17	-19.85

- 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	ESR7	101494	Apr. 27,15	Apr. 26,16
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Apr. 23,15	Apr. 22,16
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 16, 15	Jul. 15, 16
Horn Antenna	ETS-Lindgren	3117	00062558	May 30,14	May 29,16
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,15	Mar. 03, 16
Pre-Amplifier (0.5~18GHz)	SCHWARZBECK	BBV 9718	9718-266	Mar 26,14	Mar 25,16
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 14	Aug. 07, 16
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Apr. 19,14	Apr. 18,16
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Jan. 21,14	Jan. 20,17
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 20,14	Nov. 19,15

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 494399.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters 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.

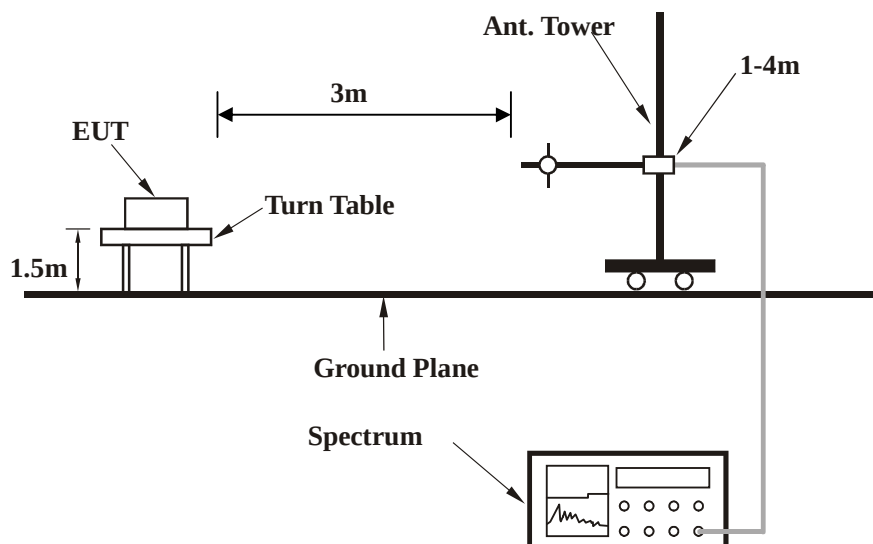
NOTE:

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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

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



4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

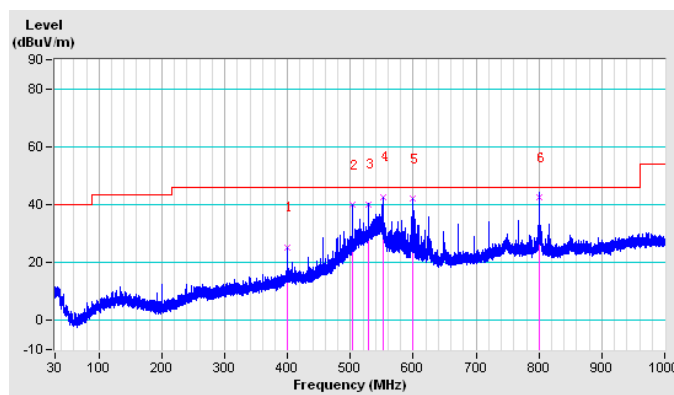
802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL 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	399.96	25.29	46.00	-20.71	100	0	36.21	-10.92
2	504.00	39.80	46.00	-6.20	100	0	48.09	-8.29
3	527.97	40.05	46.00	-5.95	100	0	47.99	-7.94
4	552.01	42.57	46.00	-3.43	100	0	48.65	-6.08
5	600.00	41.95	46.00	-4.05	100	0	48.08	-6.13
6	800.00	42.40	46.00	-3.60	100	179	45.26	-2.86

REMARKS:

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

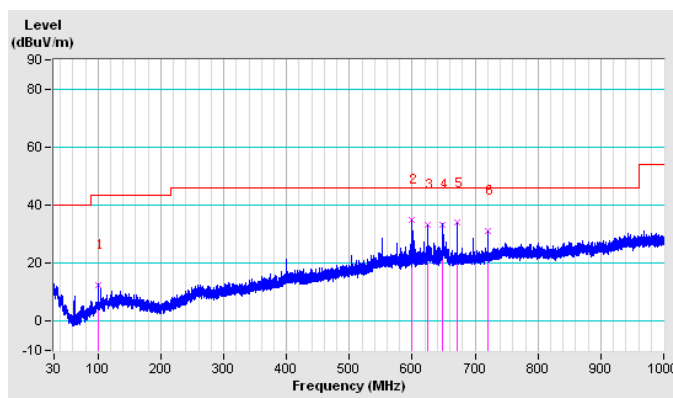


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	100.72	12.62	43.50	-30.88	100	0	32.66	-20.04
2	600.00	34.97	46.00	-11.03	100	0	41.10	-6.13
3	624.00	33.15	46.00	-12.85	100	0	38.53	-5.38
4	647.98	33.39	46.00	-12.61	100	0	38.80	-5.41
5	671.99	33.93	46.00	-12.07	100	0	38.79	-4.86
6	720.00	31.10	46.00	-14.90	100	0	34.81	-3.71

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.





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	55.5 PK	74.0	-18.5	1.26 H	153	55.11	0.39
2	2390.00	40.8 AV	54.0	-13.2	1.26 H	153	40.45	0.39
3	*2412.00	109.8 PK			1.26 H	153	109.40	0.44
4	*2412.00	100.3 AV			1.26 H	153	99.82	0.44
5	4824.00	52.0 PK	74.0	-22.0	1.82 H	116	45.36	6.59
6	4824.00	37.6 AV	54.0	-16.4	1.82 H	116	31.00	6.59
7	#7236.00	54.3 PK	89.8	-35.5	1.51 H	21	43.51	10.80
8	#7236.00	39.7 AV	80.3	-40.6	1.51 H	21	28.87	10.80
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	53.8 PK	74.0	-20.2	1.00 V	72	53.45	0.39
2	2390.00	39.7 AV	54.0	-14.3	1.00 V	72	39.34	0.39
3	*2412.00	110.1 PK			1.00 V	72	109.69	0.44
4	*2412.00	100.5 AV			1.00 V	72	100.05	0.44
5	4824.00	52.5 PK	74.0	-21.5	1.02 V	178	45.88	6.59
6	4824.00	38.0 AV	54.0	-16.0	1.02 V	178	31.44	6.59
7	#7236.00	54.9 PK	90.1	-35.2	1.42 V	218	44.05	10.80
8	#7236.00	40.0 AV	80.5	-40.5	1.42 V	218	29.21	10.80

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	*2437.00	110.5 PK			1.13 H	49	109.97	0.51
2	*2437.00	101.1 AV			1.13 H	49	100.57	0.51
3	4874.00	52.5 PK	74.0	-21.5	1.24 H	51	45.75	6.73
4	4874.00	37.5 AV	54.0	-16.5	1.24 H	51	30.73	6.73
5	7311.00	53.6 PK	74.0	-20.4	1.54 H	313	42.84	10.80
6	7311.00	37.4 AV	54.0	-16.6	1.54 H	313	26.55	10.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	108.5 PK			1.00 V	72	108.02	0.51
2	*2437.00	98.9 AV			1.00 V	72	98.36	0.51
3	4874.00	52.9 PK	74.0	-21.1	1.48 V	213	46.18	6.73
4	4874.00	38.1 AV	54.0	-15.9	1.48 V	213	31.40	6.73
5	7311.00	54.8 PK	74.0	-19.2	1.04 V	84	44.01	10.80
6	7311.00	39.0 AV	54.0	-15.0	1.04 V	84	28.21	10.80

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	110.2 PK			1.12 H	162	109.65	0.56
2	*2462.00	100.4 AV			1.12 H	162	99.83	0.56
3	2483.50	54.6 PK	74.0	-19.4	1.12 H	162	54.00	0.61
4	2483.50	41.6 AV	54.0	-12.4	1.12 H	162	41.02	0.61
5	4924.00	53.0 PK	74.0	-21.0	1.39 H	334	46.07	6.88
6	4924.00	37.8 AV	54.0	-16.2	1.39 H	334	30.93	6.88
7	7386.00	54.6 PK	74.0	-19.4	1.04 H	256	43.77	10.80
8	7386.00	38.5 AV	54.0	-15.5	1.04 H	256	27.74	10.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.7 PK			2.16 V	87	108.09	0.56
2	*2462.00	99.2 AV			2.16 V	87	98.60	0.56
3	2483.50	52.9 PK	74.0	-21.1	2.16 V	87	52.31	0.61
4	2483.50	39.0 AV	54.0	-15.0	2.16 V	87	38.41	0.61
5	4924.00	51.7 PK	74.0	-22.3	1.86 V	46	44.79	6.88
6	4924.00	36.5 AV	54.0	-17.5	1.86 V	46	29.57	6.88
7	7386.00	54.6 PK	74.0	-19.4	1.76 V	208	43.81	10.80
8	7386.00	39.1 AV	54.0	-14.9	1.76 V	208	28.33	10.80

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.



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Test Report No.: RF150923N055

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	72.6 PK	74.0	-1.4	1.34 H	153	72.24	0.39
2	2390.00	48.4 AV	54.0	-5.6	1.34 H	153	47.99	0.39
3	*2412.00	110.1 PK			1.34 H	153	109.69	0.44
4	*2412.00	89.8 AV			1.34 H	153	89.31	0.44
5	4824.00	53.6 PK	74.0	-20.4	1.13 H	75	47.02	6.59
6	4824.00	38.7 AV	54.0	-15.3	1.13 H	75	32.08	6.59
7	#7236.00	55.6 PK	90.1	-34.5	1.48 H	24	44.82	10.80
8	#7236.00	40.1 AV	69.8	-29.7	1.48 H	24	29.33	10.80
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	67.4 PK	74.0	-6.6	1.01 V	87	67.00	0.39
2	2390.00	44.1 AV	54.0	-9.9	1.01 V	87	43.66	0.39
3	*2412.00	106.9 PK			1.01 V	87	106.41	0.44
4	*2412.00	86.0 AV			1.01 V	87	85.59	0.44
5	4824.00	52.6 PK	74.0	-21.4	1.05 V	38	46.05	6.59
6	4824.00	37.5 AV	54.0	-16.5	1.05 V	38	30.92	6.59
7	#7236.00	54.4 PK	86.9	-32.5	1.77 V	255	43.56	10.80
8	#7236.00	39.0 AV	66.0	-27.0	1.77 V	255	28.24	10.80

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.

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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	*2437.00	108.5 PK			1.30 H	154	108.01	0.51
2	*2437.00	88.5 AV			1.30 H	154	87.98	0.51
3	4874.00	52.4 PK	74.0	-21.6	1.53 H	304	45.70	6.73
4	4874.00	37.6 AV	54.0	-16.4	1.53 H	304	30.85	6.73
5	7311.00	54.6 PK	74.0	-19.4	1.13 H	43	43.81	10.80
6	7311.00	38.7 AV	54.0	-15.3	1.13 H	43	27.88	10.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	107.3 PK			1.00 V	69	106.80	0.51
2	*2437.00	86.5 AV			1.00 V	69	86.02	0.51
3	4874.00	53.0 PK	74.0	-21.0	1.03 V	158	46.22	6.73
4	4874.00	37.9 AV	54.0	-16.1	1.03 V	158	31.16	6.73
5	7311.00	54.1 PK	74.0	-19.9	1.18 V	76	43.33	10.80
6	7311.00	38.0 AV	54.0	-16.0	1.18 V	76	27.23	10.80

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	108.6 PK			1.27 H	175	108.03	0.56
2	*2462.00	87.9 AV			1.27 H	175	87.36	0.56
3	2483.50	70.4 PK	74.0	-3.6	1.27 H	175	69.81	0.61
4	2483.50	47.1 AV	54.0	-6.9	1.27 H	175	46.49	0.61
5	4924.00	53.0 PK	74.0	-21.0	1.43 H	225	46.13	6.88
6	4924.00	37.5 AV	54.0	-16.5	1.43 H	225	30.63	6.88
7	7386.00	55.2 PK	74.0	-18.8	1.83 H	99	44.43	10.80
8	7386.00	40.5 AV	54.0	-13.5	1.83 H	99	29.71	10.80
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	107.4 PK			2.17 V	89	106.83	0.56
2	*2462.00	88.4 AV			2.17 V	89	87.81	0.56
3	2483.50	67.6 PK	74.0	-6.4	2.17 V	89	66.99	0.61
4	2483.50	43.2 AV	54.0	-10.8	2.17 V	89	42.59	0.61
5	4924.00	52.3 PK	74.0	-21.7	1.35 V	248	45.43	6.88
6	4924.00	37.2 AV	54.0	-16.8	1.35 V	248	30.28	6.88
7	7386.00	54.7 PK	74.0	-19.3	1.18 V	198	43.89	10.80
8	7386.00	38.7 AV	54.0	-15.3	1.18 V	198	27.89	10.80

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 (20MHz)

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	70.9 PK	74.0	-3.1	1.15 H	153	70.48	0.39
2	2390.00	47.2 AV	54.0	-6.8	1.15 H	153	46.79	0.39
3	*2412.00	107.1 PK			1.15 H	153	106.68	0.44
4	*2412.00	86.8 AV			1.15 H	153	86.38	0.44
5	4824.00	53.2 PK	74.0	-20.8	1.03 H	358	46.65	6.59
6	4824.00	37.9 AV	54.0	-16.1	1.03 H	358	31.30	6.59
7	#7236.00	55.3 PK	87.1	-31.8	1.28 H	54	44.46	10.80
8	#7236.00	38.7 AV	66.8	-28.1	1.28 H	54	27.89	10.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.4 PK	74.0	-8.6	1.00 V	70	65.02	0.39
2	2390.00	43.6 AV	54.0	-10.4	1.00 V	70	43.21	0.39
3	*2412.00	105.6 PK			1.00 V	70	105.12	0.44
4	*2412.00	85.1 AV			1.00 V	70	84.66	0.44
5	4824.00	52.3 PK	74.0	-21.7	1.65 V	35	45.75	6.59
6	4824.00	38.1 AV	54.0	-15.9	1.65 V	35	31.53	6.59
7	#7236.00	55.0 PK	85.6	-30.6	1.26 V	324	44.15	10.80
8	#7236.00	38.6 AV	65.1	-26.5	1.26 V	324	27.77	10.80

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	*2437.00	107.4 PK			1.09 H	25	106.89	0.51
2	*2437.00	87.9 AV			1.09 H	25	87.39	0.51
3	4874.00	52.1 PK	74.0	-21.9	1.03 H	332	45.38	6.73
4	4874.00	37.1 AV	54.0	-16.9	1.03 H	332	30.32	6.73
5	7311.00	54.2 PK	74.0	-19.8	1.49 H	65	43.42	10.80
6	7311.00	37.7 AV	54.0	-16.3	1.49 H	65	26.88	10.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.4 PK			1.33 V	76	103.93	0.51
2	*2437.00	84.7 AV			1.33 V	76	84.21	0.51
3	4874.00	52.6 PK	74.0	-21.4	1.57 V	226	45.88	6.73
4	4874.00	38.2 AV	54.0	-15.8	1.57 V	226	31.51	6.73
5	7311.00	54.7 PK	74.0	-19.3	1.65 V	330	43.88	10.80
6	7311.00	39.1 AV	54.0	-14.9	1.65 V	330	28.27	10.80

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	108.5 PK			1.99 H	176	107.91	0.56
2	*2462.00	87.9 AV			1.99 H	176	87.33	0.56
3	2483.50	67.9 PK	74.0	-6.1	1.99 H	176	67.25	0.61
4	2483.50	47.1 AV	54.0	-6.9	1.99 H	176	46.46	0.61
5	4924.00	52.3 PK	74.0	-21.7	1.08 H	168	45.46	6.88
6	4924.00	37.5 AV	54.0	-16.5	1.08 H	168	30.57	6.88
7	7386.00	54.6 PK	74.0	-19.4	1.48 H	92	43.77	10.80
8	7386.00	38.5 AV	54.0	-15.5	1.48 H	92	27.72	10.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.5 PK			1.00 V	88	103.98	0.56
2	*2462.00	84.9 AV			1.00 V	88	84.31	0.56
3	2483.50	62.6 PK	74.0	-11.4	1.00 V	88	62.02	0.61
4	2483.50	43.9 AV	54.0	-10.1	1.00 V	88	43.25	0.61
5	4924.00	52.9 PK	74.0	-21.1	1.24 V	336	46.06	6.88
6	4924.00	37.7 AV	54.0	-16.3	1.24 V	336	30.81	6.88
7	7386.00	54.3 PK	74.0	-19.7	1.36 V	199	43.46	10.80
8	7386.00	39.2 AV	54.0	-14.8	1.36 V	199	28.44	10.80

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.

BELOW 1GHz WORST-CASE DATA:

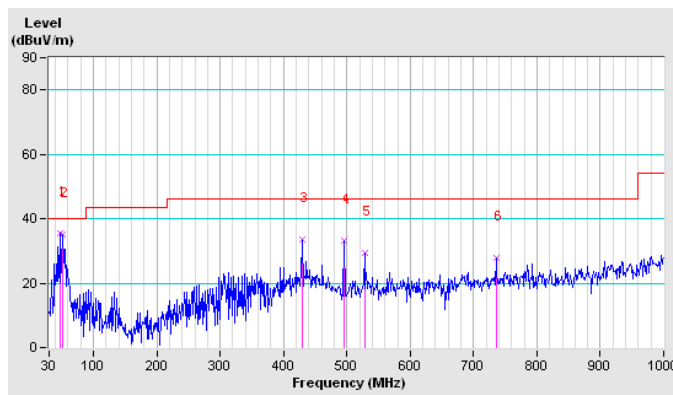
BT-LE (GFSK)

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL 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	46.87	35.43	40.00	-4.57	100	0	56.24	-20.81
2	51.09	35.23	40.00	-4.77	100	0	58.00	-22.77
3	429.25	33.44	46.00	-12.56	100	0	44.32	-10.88
4	495.32	32.99	46.00	-13.01	100	0	41.48	-8.49
5	527.65	29.34	46.00	-16.66	100	0	37.29	-7.95
6	735.71	27.75	46.00	-18.25	100	0	30.60	-2.85

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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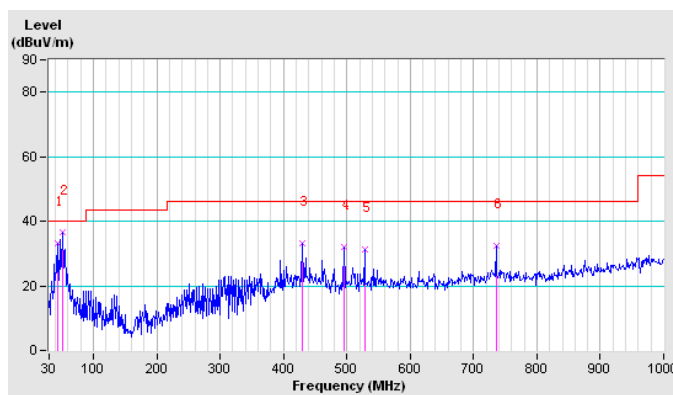
Test Report No.: RF150923N055

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	42.65	33.11	40.00	-6.89	100	0	51.63	-18.52
2	51.09	36.56	40.00	-3.44	100	0	59.33	-22.77
3	429.25	33.26	46.00	-12.74	100	0	44.14	-10.88
4	495.32	32.16	46.00	-13.84	100	0	40.65	-8.49
5	527.65	31.39	46.00	-14.61	100	0	39.34	-7.95
6	735.71	32.23	46.00	-13.77	100	0	35.08	-2.85

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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ABOVE 1GHz TEST DATA:

BT-LE (GFSK)

CHANNEL	TX Channel 0	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	50.5 PK	74.0	-23.5	1.88 H	291	50.07	0.39
2	2390.00	36.2 AV	54.0	-17.8	1.88 H	291	35.79	0.39
3	*2402.00	103.1 PK			1.88 H	291	102.70	0.42
4	*2402.00	78.9 AV			1.88 H	291	78.44	0.42
5	4804.00	53.6 PK	74.0	-20.4	1.24 H	91	47.10	6.52
6	4804.00	41.3 AV	54.0	-12.7	1.24 H	91	34.73	6.52
7	#7206.00	55.7 PK	83.1	-27.4	1.53 H	117	44.93	10.80
8	#7206.00	43.0 AV	58.9	-15.9	1.53 H	117	32.22	10.80
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	50.4 PK	74.0	-23.6	1.57 V	59	50.00	0.39
2	2390.00	35.9 AV	54.0	-18.1	1.57 V	59	35.51	0.39
3	*2402.00	93.2 PK			1.57 V	59	92.82	0.42
4	*2402.00	72.3 AV			1.57 V	59	71.84	0.42
5	4804.00	52.6 PK	74.0	-21.4	1.69 V	301	46.04	6.52
6	4804.00	40.9 AV	54.0	-13.1	1.69 V	301	34.38	6.52
7	#7206.00	55.9 PK	73.2	-17.3	1.03 V	152	45.09	10.80
8	#7206.00	42.2 AV	52.3	-10.1	1.03 V	152	31.35	10.80

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 19	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	*2440.00	103.9 PK			1.85 H	107	103.41	0.51
2	*2440.00	79.7 AV			1.85 H	107	79.20	0.51
3	4880.00	57.8 PK	74.0	-16.2	2.01 H	99	51.05	6.75
4	4880.00	41.6 AV	54.0	-12.4	2.01 H	99	34.87	6.75
5	7320.00	57.9 PK	74.0	-16.1	1.43 H	254	47.08	10.80
6	7320.00	43.4 AV	54.0	-10.6	1.43 H	254	32.56	10.80
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	*2440.00	98.0 PK			1.99 V	233	97.45	0.51
2	*2440.00	75.4 AV			1.99 V	233	74.90	0.51
3	4880.00	55.1 PK	74.0	-18.9	1.20 V	10	48.38	6.75
4	4880.00	41.3 AV	54.0	-12.7	1.20 V	10	34.55	6.75
5	7320.00	57.1 PK	74.0	-16.9	1.65 V	223	46.29	10.80
6	7320.00	42.6 AV	54.0	-11.4	1.65 V	223	31.83	10.80

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 39	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	*2480.00	103.8 PK			1.00 H	206	103.21	0.60
2	*2480.00	79.1 AV			1.00 H	206	78.46	0.60
3	2483.50	59.2 PK	74.0	-14.8	1.00 H	206	58.62	0.61
4	2483.50	41.8 AV	54.0	-12.2	1.00 H	206	41.14	0.61
5	4960.00	55.3 PK	74.0	-18.7	1.45 H	42	48.33	6.99
6	4960.00	43.1 AV	54.0	-10.9	1.45 H	42	36.15	6.99
7	7440.00	57.0 PK	74.0	-17.0	1.67 H	327	46.19	10.80
8	7440.00	42.6 AV	54.0	-11.4	1.67 H	327	31.80	10.80
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	*2480.00	96.3 PK			1.92 V	234	95.65	0.60
2	*2480.00	74.4 AV			1.92 V	234	73.76	0.60
3	2483.50	56.3 PK	74.0	-17.7	1.92 V	234	55.73	0.61
4	2483.50	37.5 AV	54.0	-16.5	1.92 V	234	36.87	0.61
5	4960.00	54.4 PK	74.0	-19.6	1.47 V	108	47.42	6.99
6	4960.00	41.5 AV	54.0	-12.5	1.47 V	108	34.52	6.99
7	7440.00	57.2 PK	74.0	-16.8	1.02 V	131	46.42	10.80
8	7440.00	43.1 AV	54.0	-10.9	1.02 V	131	32.30	10.80

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.

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	Feb. 18,15	Feb. 17,16
Power Sensor	Keysight	U2021XA	MY55060018	Feb. 18,15	Feb. 17,16
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 28,14	Nov. 27,15
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 05,14	Nov. 04,15
Signal Generator	Agilent	N5183A	MY50140980	Nov. 05,14	Nov. 04,15
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Apr. 22, 15	Apr. 21, 16
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 01,15	Aug. 31,16

NOTE:

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

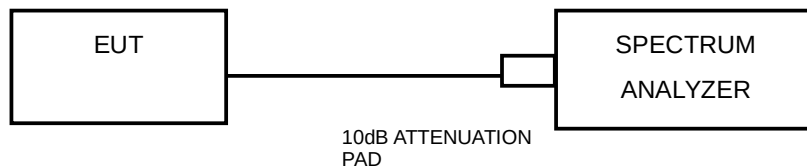
4.3.3 TEST PROCEDURE

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

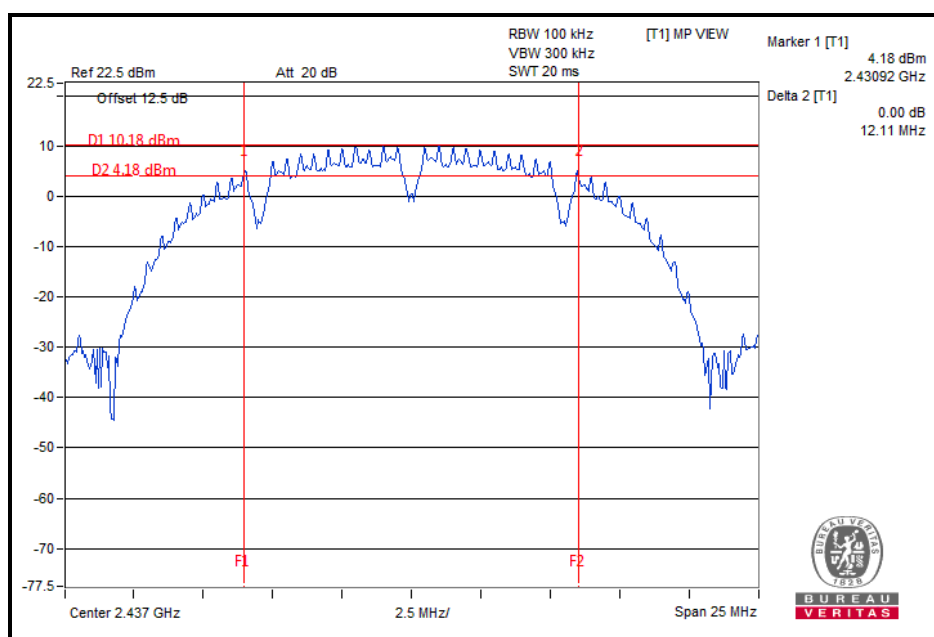
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.3.7 TEST RESULTS

802.11b

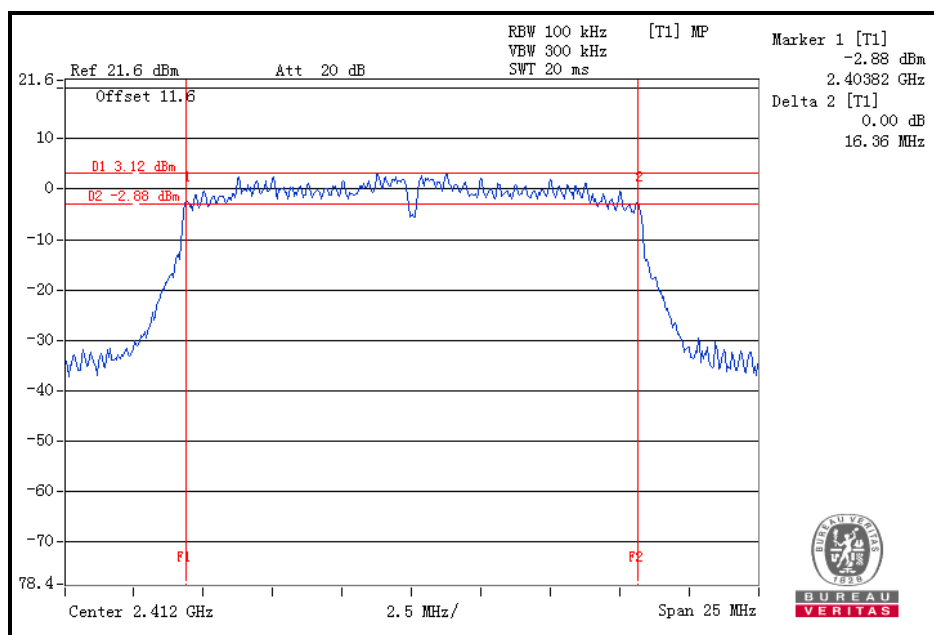
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.09	0.5	PASS
6	2437	12.11	0.5	PASS
11	2462	12.11	0.5	PASS





802.11g

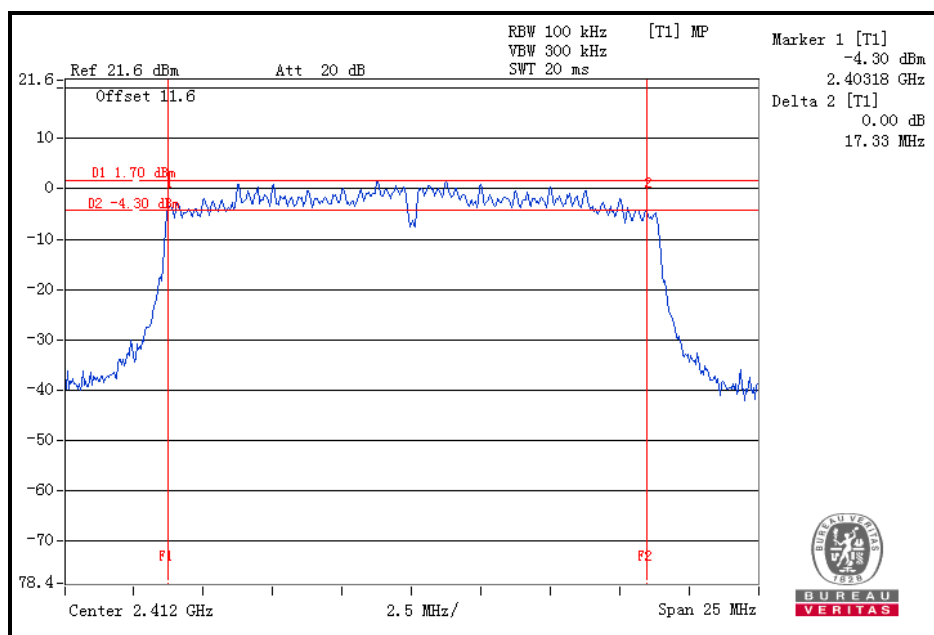
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.36	0.5	PASS
6	2437	16.36	0.5	PASS
11	2462	16.36	0.5	PASS





802.11n (20MHz)

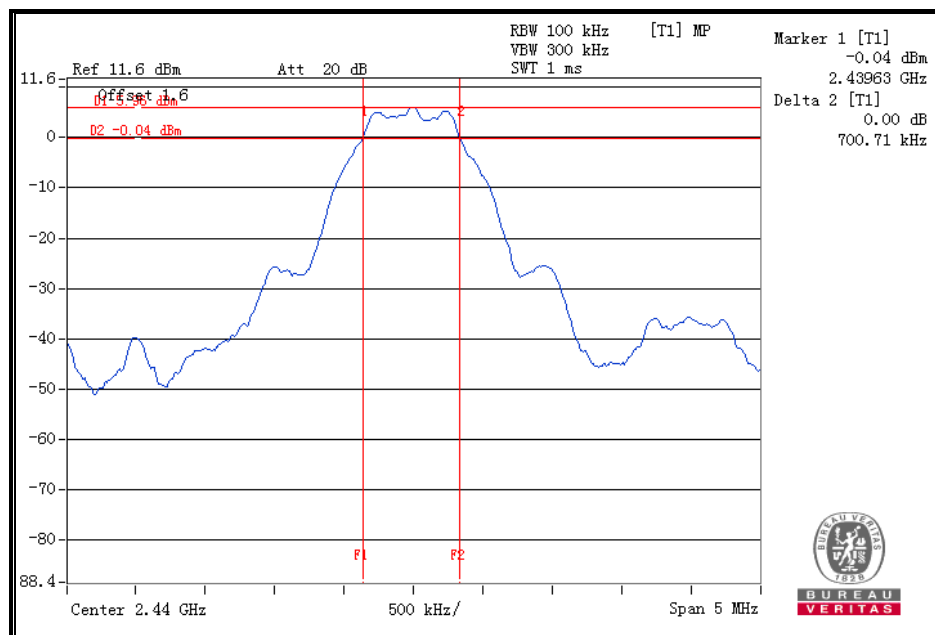
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.33	0.5	PASS
6	2437	17.29	0.5	PASS
11	2462	17.32	0.5	PASS





BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2402	0.69	0.5	PASS
19	2440	0.70	0.5	PASS
39	2480	0.70	0.5	PASS

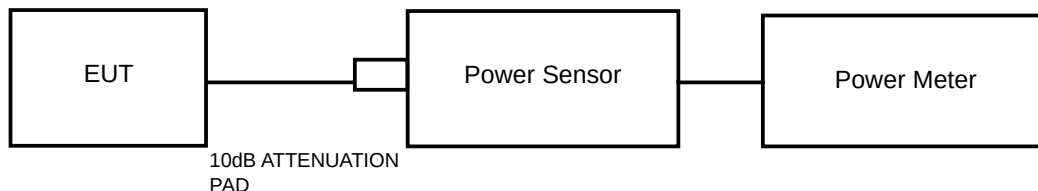


4.4 CONDUCTED OUTPUT POWER

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

5	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
	Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 07,15	Apr. 06,16
	Power Meter	Anritsu	ML2495A	1139001	Feb. 20,15	Feb. 19,16
	Power Sensor	Anritsu	MA2411B	1126068	Feb. 20,15	Feb. 19,16
	Power Sensor	Keysight	U2021XA	MY55060016	Feb. 18,15	Feb. 17,16
	Power Sensor	Keysight	U2021XA	MY55060018	Feb. 18,15	Feb. 17,16
	Digital Multimeter	FLUKE	15B	A1220010D G	Oct. 12, 15	Oct.11, 16

NOTE:

1. The test was performed in RF Ovenroom.
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

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

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

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

4.4.7 TEST RESULTS

4.4.7.1 MAXIMUM PEAK OUTPUT POWER

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	22.83	191.867	1	PASS
6	2437	22.63	183.231	1	PASS
11	2462	22.43	174.985	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	23.01	199.986	1	PASS
6	2437	22.74	187.932	1	PASS
11	2462	22.86	193.197	1	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	21.43	138.995	1	PASS
6	2437	20.95	124.451	1	PASS
11	2462	20.78	119.674	1	PASS

BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2402	7.48	5.598	1	PASS
19	2440	8.19	6.592	1	PASS
39	2480	8.86	7.691	1	PASS

4.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

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

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	15.73
6	2437	15.65
11	2462	15.69

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	14.16
6	2437	13.85
11	2462	14.05

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	12.13
6	2437	12.08
11	2462	11.94

BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
0	2402	5.78
19	2440	6.47
39	2480	7.16

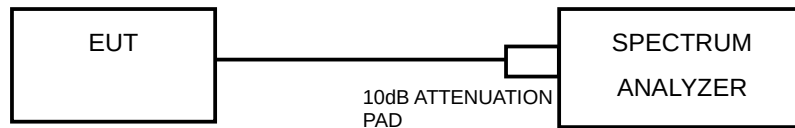


4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

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

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

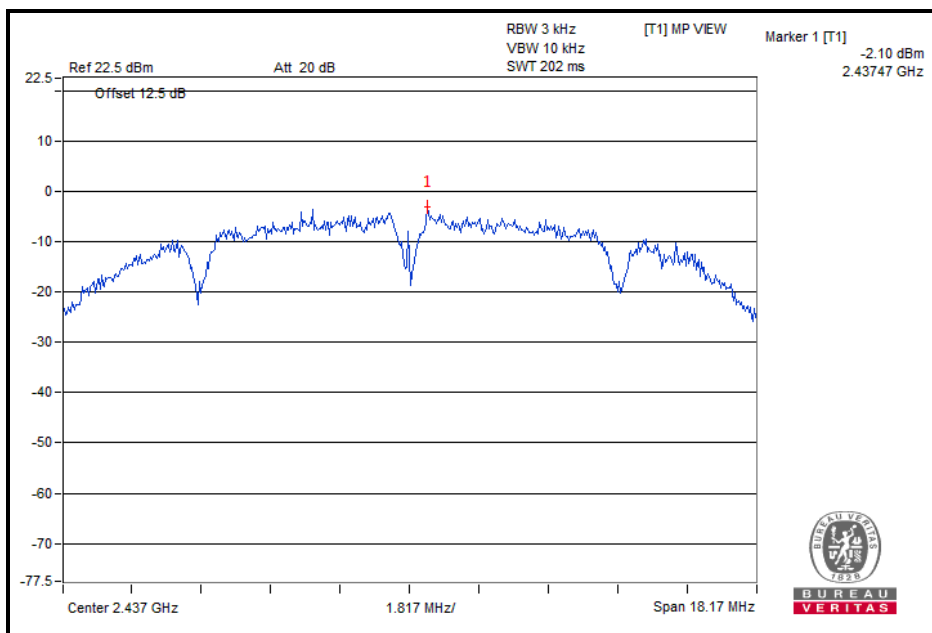
4.5.6 EUT OPERATING CONDITION

Same as item 4.3.6.

4.5.7 TEST RESULTS

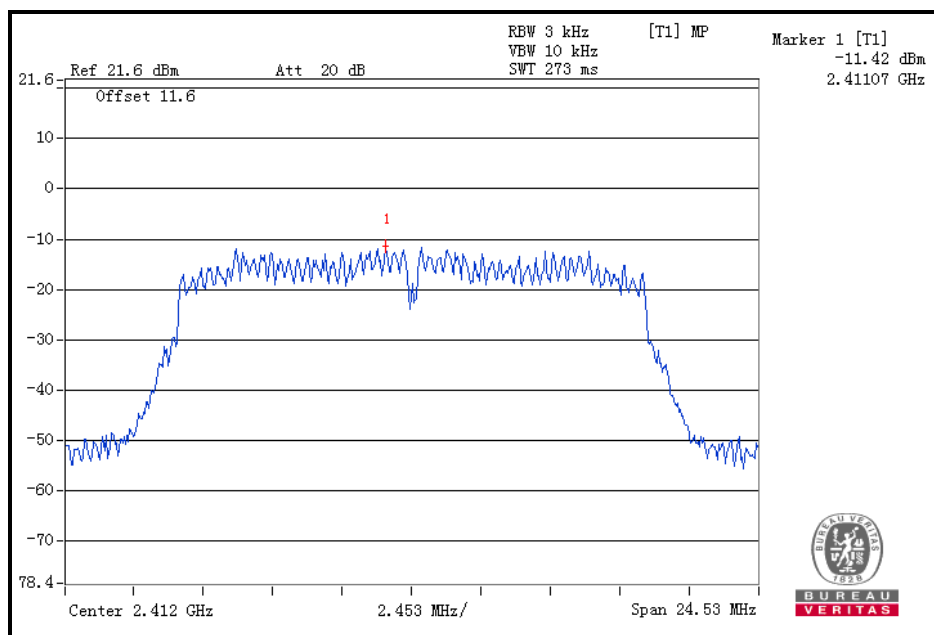
802.11b

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-4.36	8	PASS
6	2437	-2.10	8	PASS
11	2462	-3.95	8	PASS



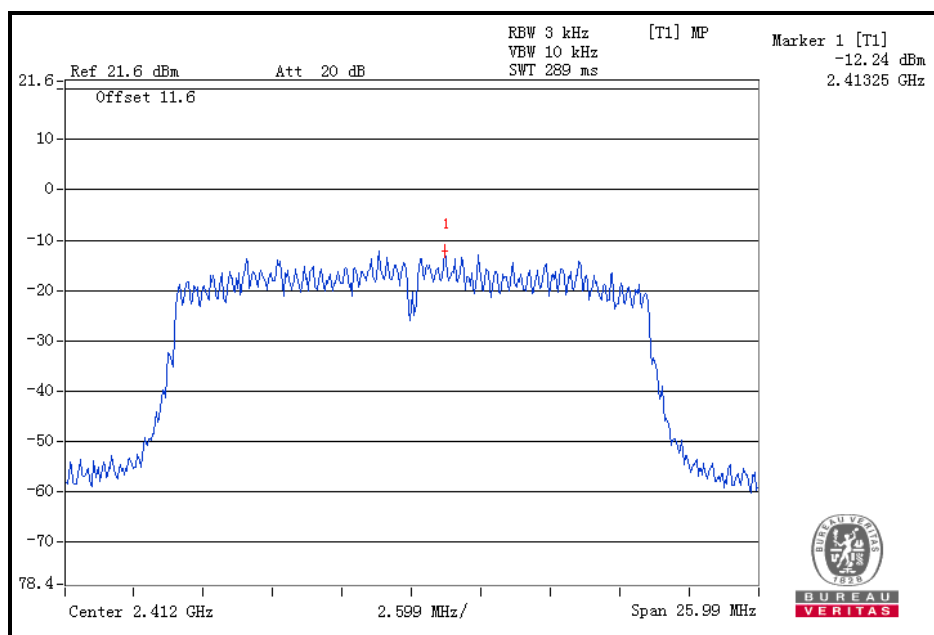
802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-11.42	8	PASS
6	2437	-11.81	8	PASS
11	2462	-12.19	8	PASS



802.11n (20MHz)

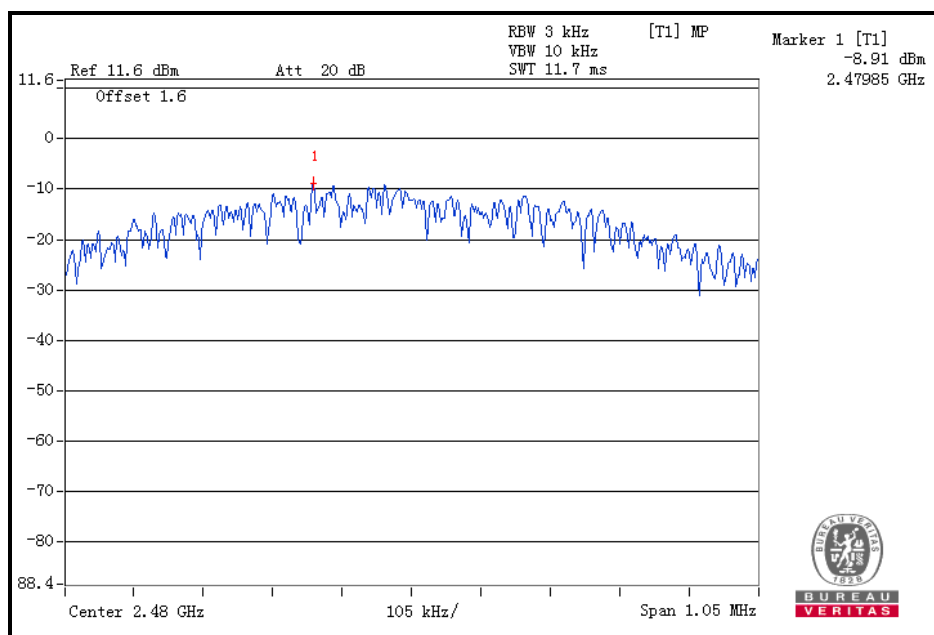
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.24	8	PASS
6	2437	-12.59	8	PASS
11	2462	-13.11	8	PASS





BT-LE (GFSK)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	-10.16	8	PASS
19	2440	-9.55	8	PASS
39	2480	-8.91	8	PASS



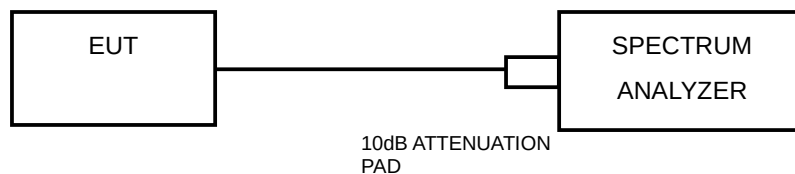


4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

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

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

Measurement Procedure - Reference Level

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



Measurement Procedure –Unwanted Emission Level

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as item 4.3.6

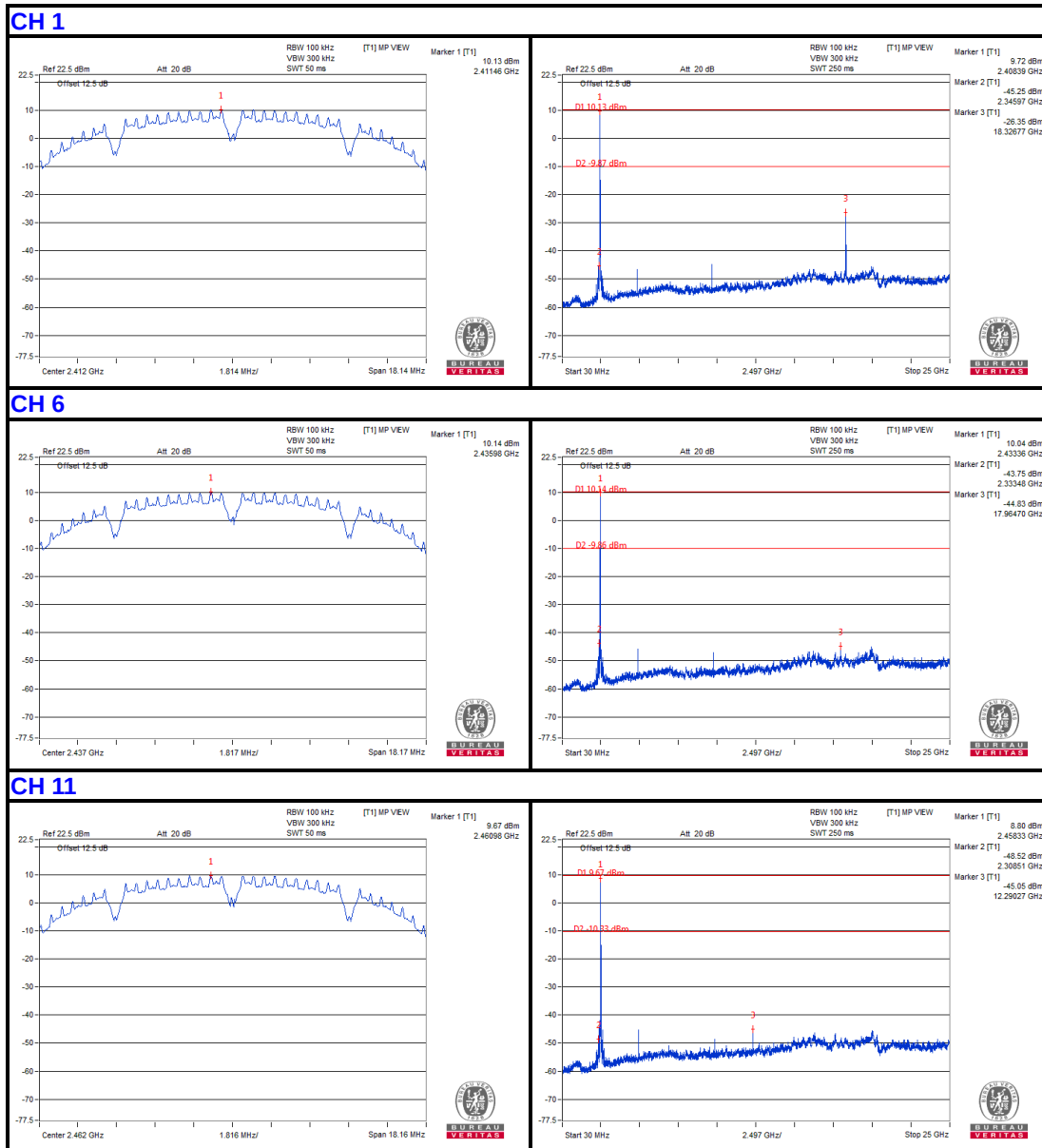


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4.6.7 TEST RESULTS

802.11b



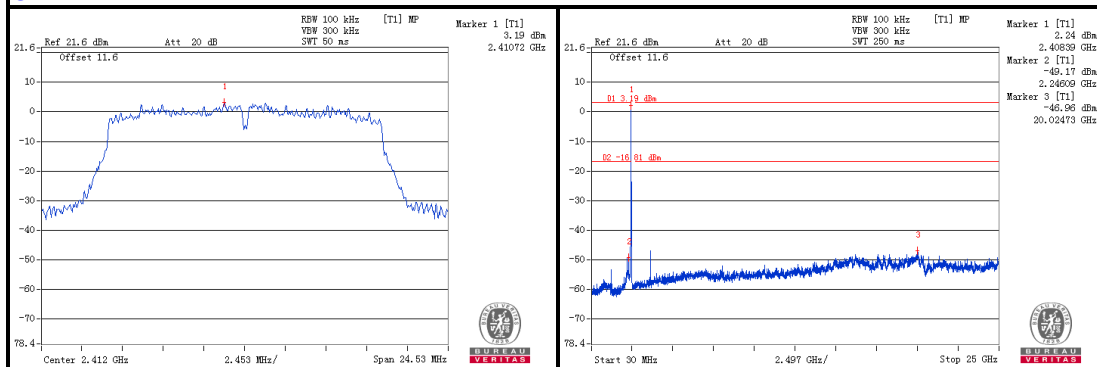


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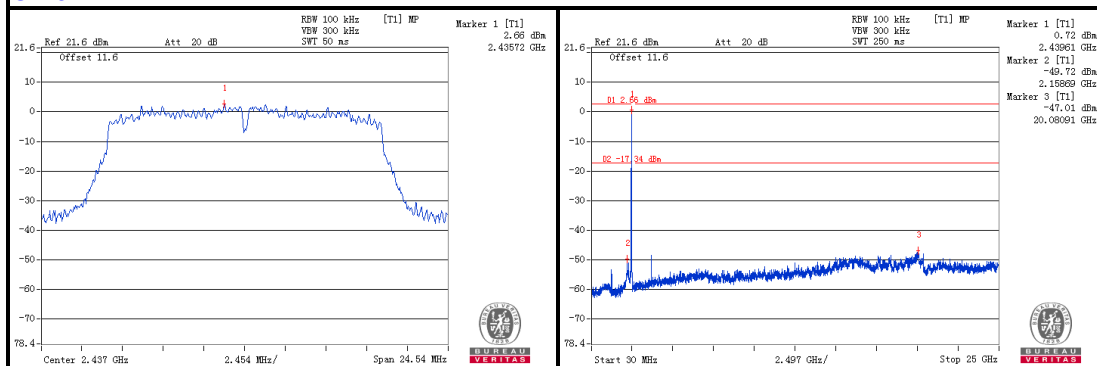
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802.11g

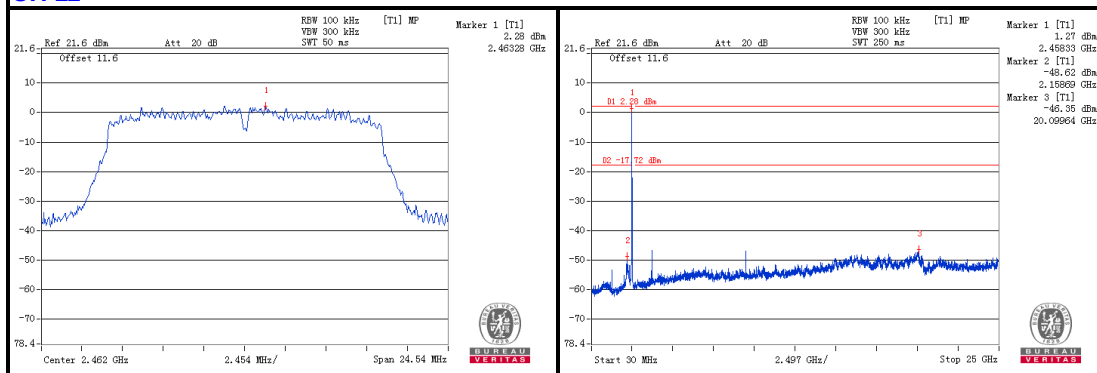
CH 1



CH 6



CH 11



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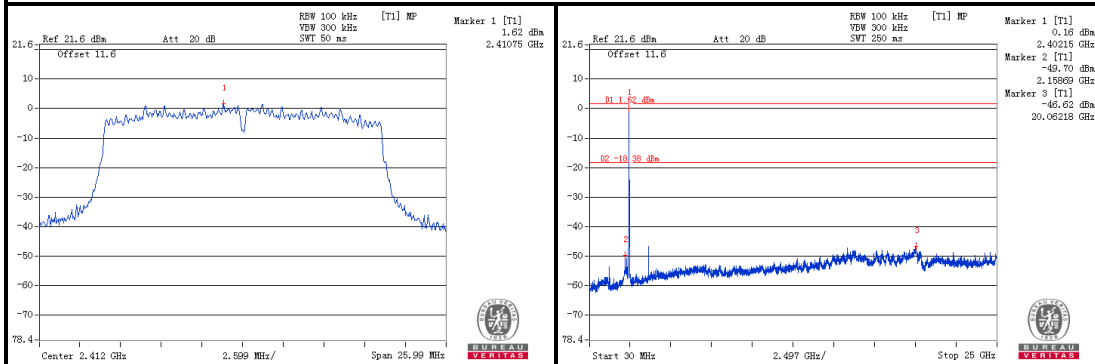


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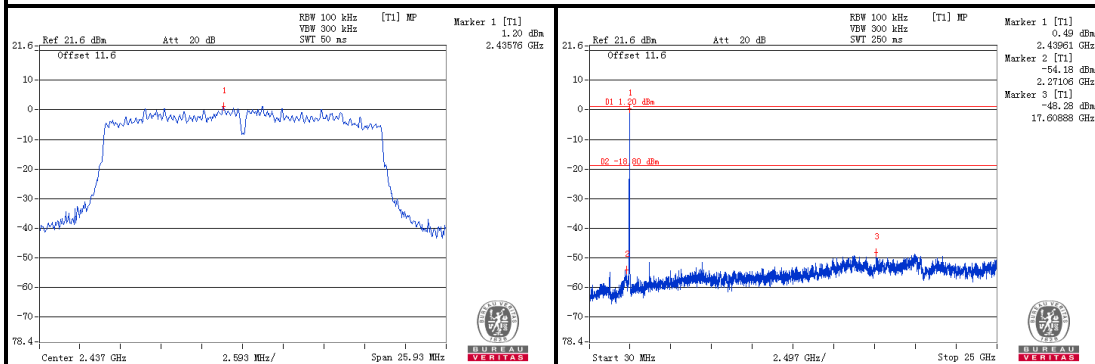
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802.11n (20MHz)

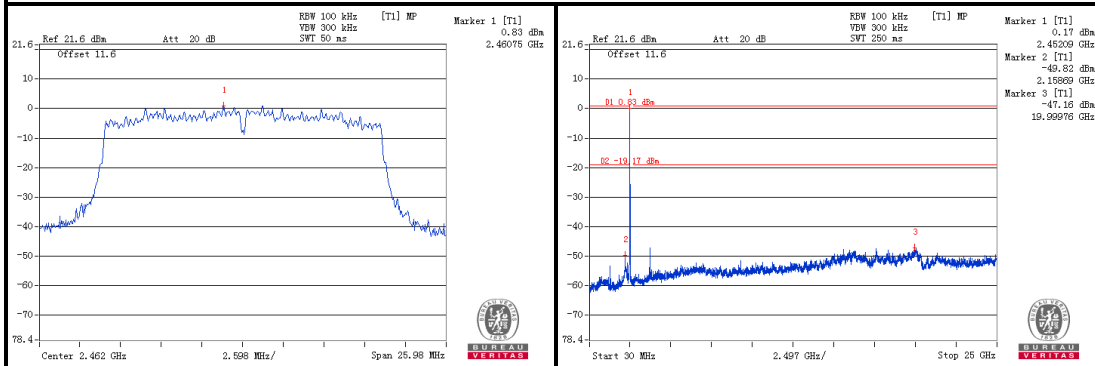
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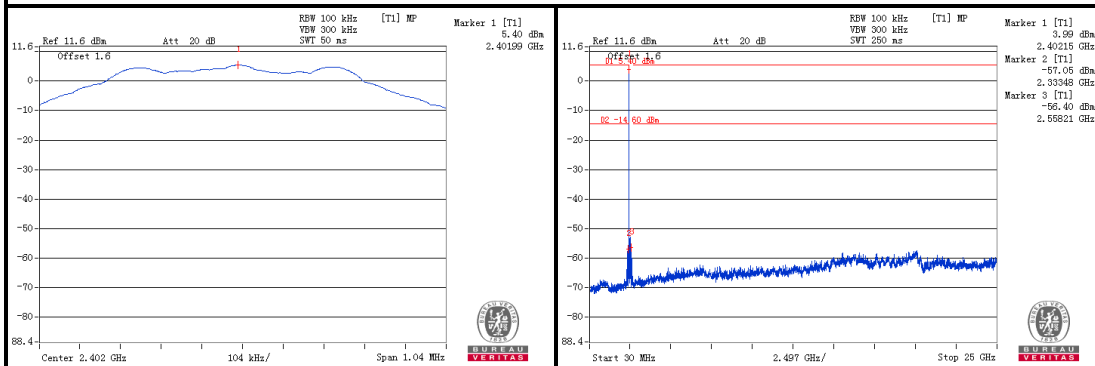


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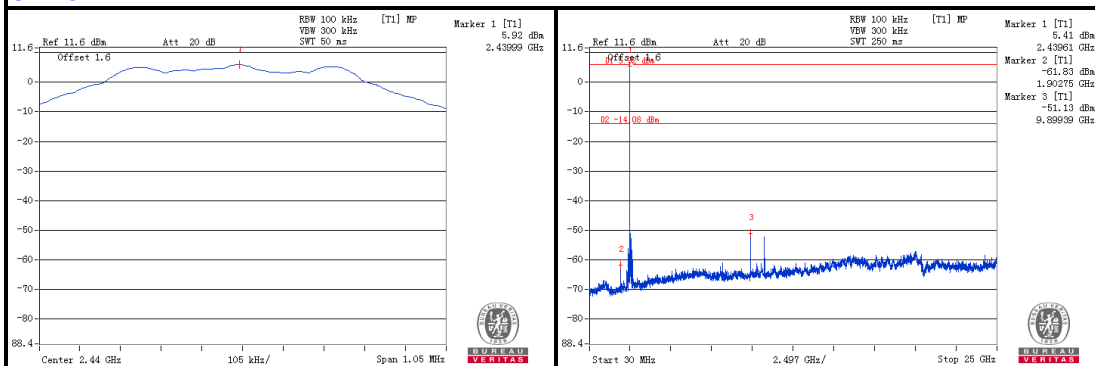
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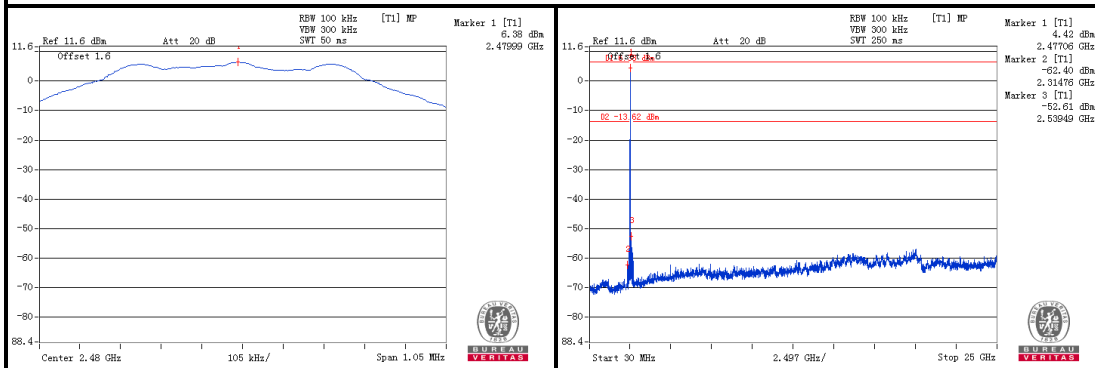
CH 0



CH 19



CH 39

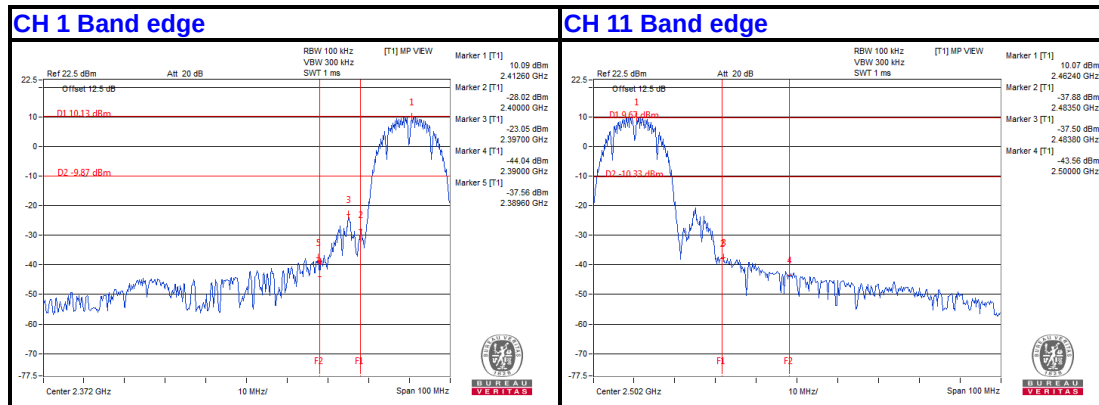


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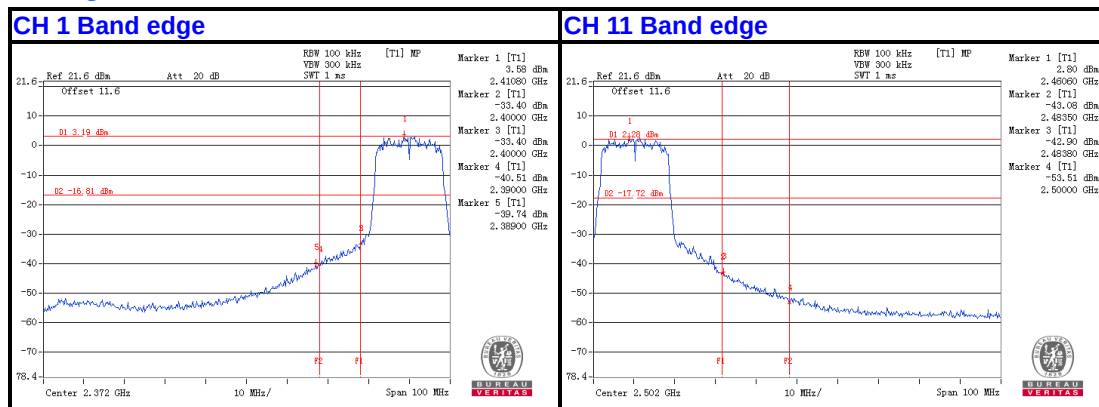
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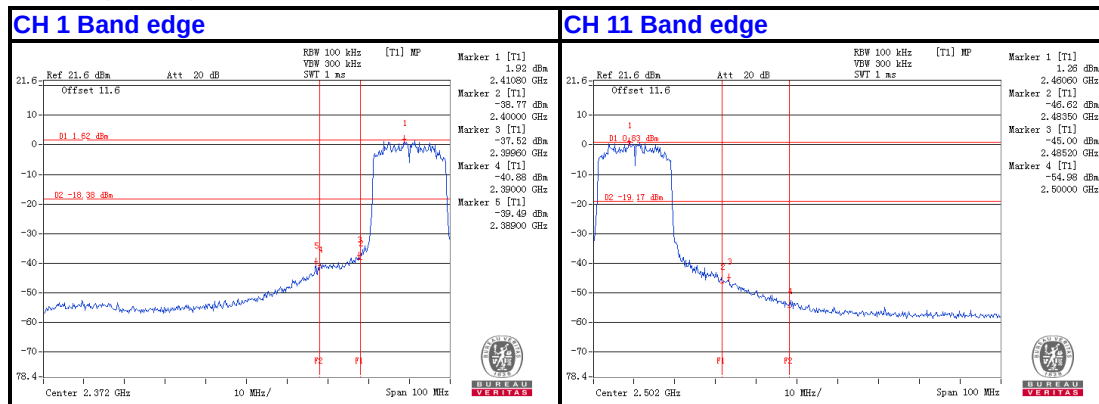
802.11b



802.11g



802.11n (20MHz)

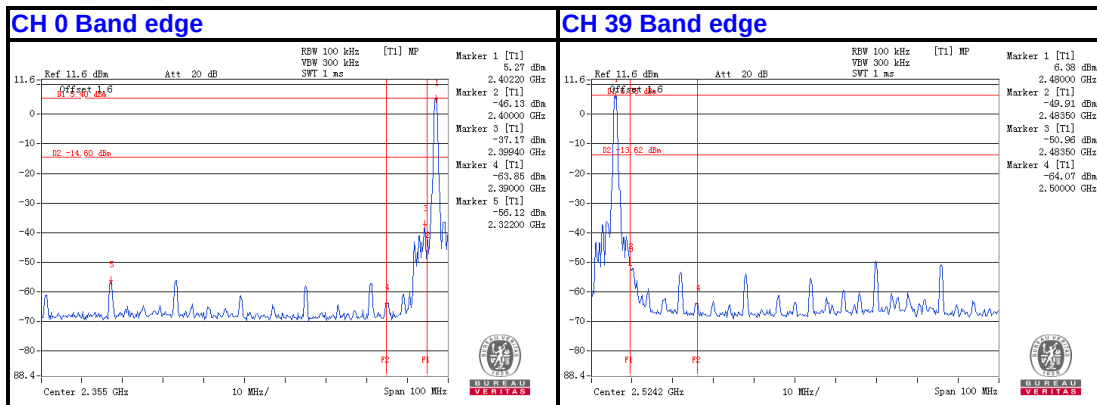




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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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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---