

TEST REPORT



Applicant	SZ Telstar CO., LTD
Address	Telstar Technology Park No. 12-14, Gangbei Industrial Zone, Ailian, Longgang Dist, Shenzhen Guangdong 518172 China

Manufacturer or Supplier	SZ Telstar CO.,LTD
Address	Telstar Technology Park No. 12-14, Gangbei Industrial Zone, Ailian, Longgang Dist, Shenzhen Guangdong 518172 China
Product	Projector
Brand Name	miroir, Brookstone
Model	MP300
Additional Model & Model Difference	996166; See items 3.1
Date of tests	Oct. 22, 2015 ~ Nov. 05, 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: Nov. 05, 2015

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Test Report No.: RF151016N038

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF151016N038	Original release	Nov. 05, 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	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	2.66dB
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	Projector
MODEL NO.	MP300
ADDITIONAL MODEL	996166
FCC ID	2AFOW-300BE8888
NOMINAL VOLTAGE	DC 15V From Adapter
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)
PEAK POWER	WLAN: 22.77dBm (Maximum peak Power)
ANTENNA TYPE	Wire Antenna, 1.84dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	HDMI Line: Unshielded, Non-detachable, 0.70m

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
802.11n (40MHz)	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.: 151016N038) for detailed product photo.
5. Additional model 996166 is identical with the test model MP300 except the model no. and brand name for trading purpose.



6. The EUT was powered by the following adapters:

ADAPTER	
BRAND:	N/A
MODEL:	FJ-SW1502400N
INPUT:	AC 100-240V, 50/60Hz, 1.5A
OUTPUT:	DC 15V, 2400mA
CABLE:	Unshielded, Non-detachable, 1.5m

3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n (HT40):

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



3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.

The worst case was found when positioned on X axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	√	√	Powered by 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

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
-	WIFI (2.4G) Link + Adapter

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	OFDM	BPSK	6.0	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, 6, 11	CCK	DBPSK	1.0	X
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5	X
802.11n HT40	3 to 9	3, 6, 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	CCK	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	CCK	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1,6, 11	OFDM	BPSK	6.5
802.11n HT40	3 to 9	3,6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 55%RH	DC 15V From Adapter	Sen He
RE≥1G	25deg. C, 55%RH	DC 15V From Adapter	Sen He
PLC	20deg. C, 56%RH	DC 15V From Adapter	Blue Zheng
APCM	20deg. C, 55%RH	DC 15V From Adapter	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 v03r03

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

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



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (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	ESCI	100962	Mar. 05,15	Mar. 04,16
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	April 25,15	Apr. 24,16
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	April 25,15	Apr. 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

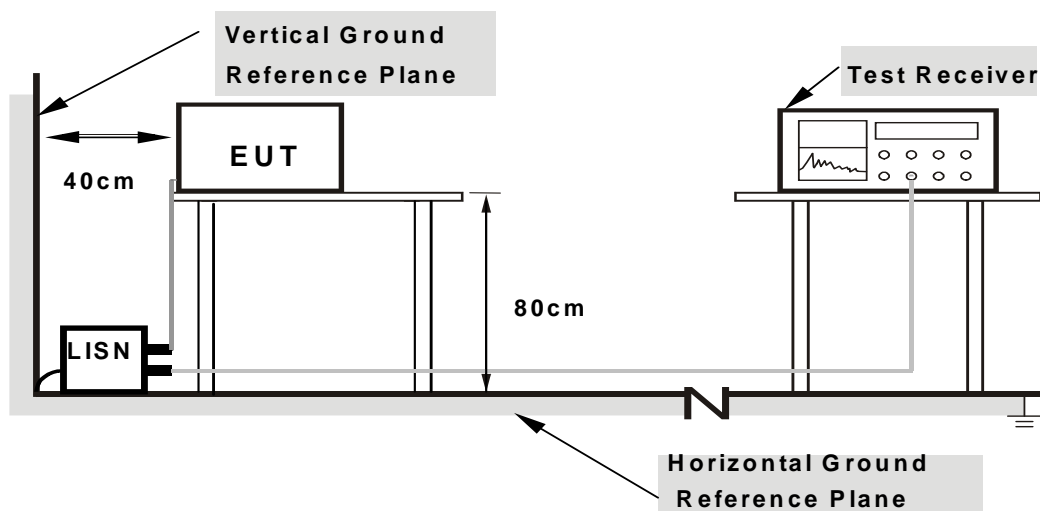
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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



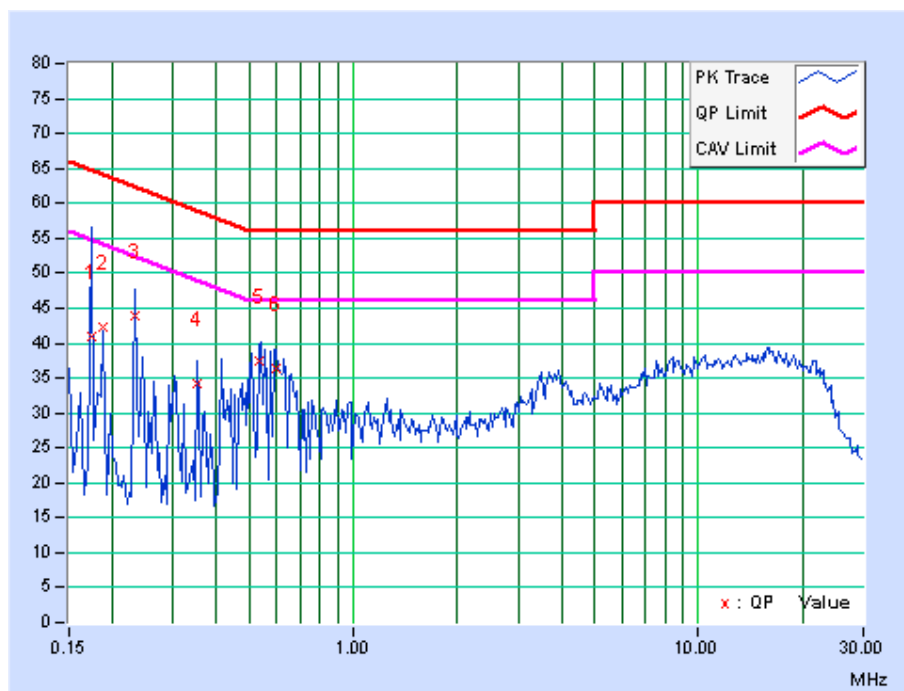
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI LINK

PHASE	Line	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	9.73	31.20	15.82	40.93	25.55	64.79	54.79	-23.86	-29.24
2	0.18906	9.72	32.53	17.58	42.25	27.30	64.08	54.08	-21.83	-26.78
3	0.23203	9.72	34.32	17.44	44.04	27.16	62.38	52.38	-18.34	-25.22
4	0.35313	9.74	24.59	11.24	34.33	20.98	58.89	48.89	-24.56	-27.91
5	0.53281	9.78	27.79	15.42	37.57	25.20	56.00	46.00	-18.43	-20.80
6	0.59531	9.77	26.65	14.37	36.42	24.14	56.00	46.00	-19.58	-21.86

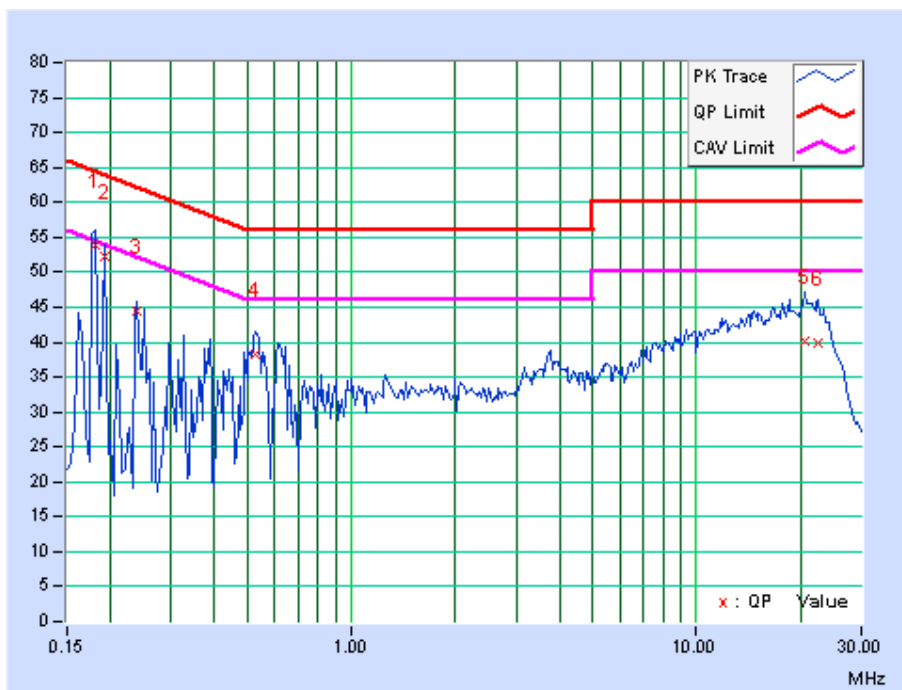
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = 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	0.18125	9.48	44.40	31.47	53.88	40.95	64.43	54.43	-10.55	-13.48
2	0.19297	9.48	42.80	27.50	52.28	36.98	63.91	53.91	-11.63	-16.93
3	0.23984	9.48	35.06	22.62	44.54	32.10	62.10	52.10	-17.56	-20.00
4	0.52891	9.47	28.78	16.44	38.25	25.91	56.00	46.00	-17.75	-20.09
5	20.59766	9.72	30.37	25.57	40.09	35.29	60.00	50.00	-19.91	-14.71
6	22.48828	9.81	30.16	25.52	39.97	35.33	60.00	50.00	-20.03	-14.67

- 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, 15	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, GREGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 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.

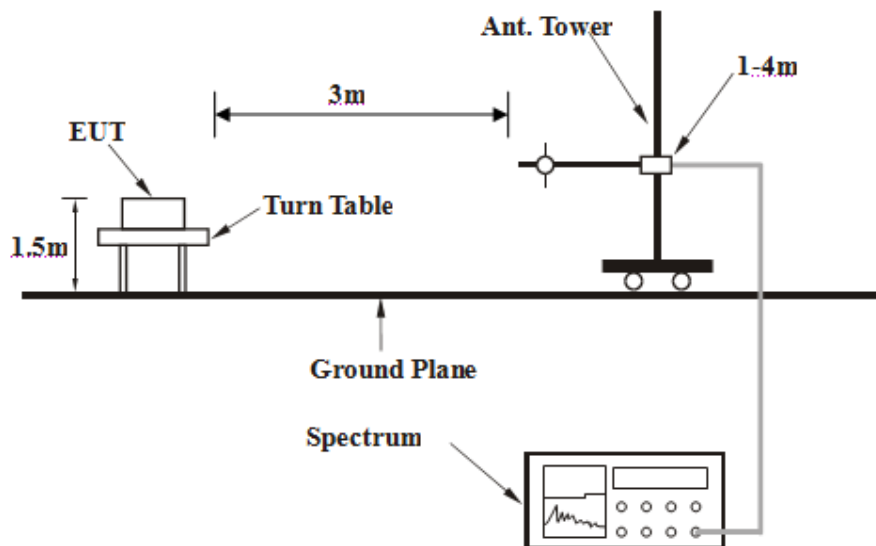
NOTE:

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.
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



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:

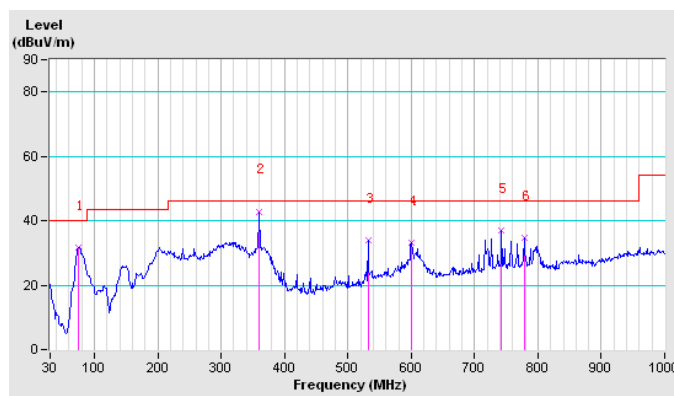
802.11b

CHANNEL	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	74.99	31.79	40.00	-8.21	200	0	55.98	-24.19
2	360.36	42.87	46.00	-3.13	200	0	55.95	-13.08
3	531.87	33.82	46.00	-12.18	200	0	41.40	-7.58
4	600.75	33.27	46.00	-12.73	200	0	39.37	-6.10
5	742.74	36.87	46.00	-9.13	200	0	39.49	-2.62
6	777.88	34.57	46.00	-11.43	200	0	36.98	-2.41

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.

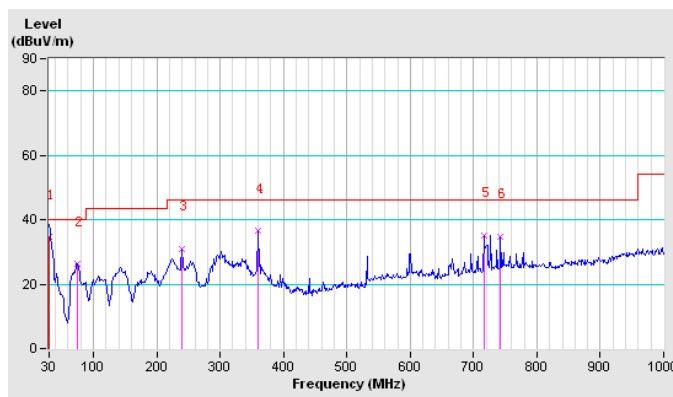


CHANNEL	Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	30.01	34.70	40.00	-5.30	150	125	47.05	-12.35
2	74.99	26.16	40.00	-13.84	100	0	50.35	-24.19
3	239.46	31.06	46.00	-14.94	100	0	49.20	-18.14
4	360.36	36.67	46.00	-9.33	100	0	49.75	-13.08
5	716.03	35.27	46.00	-10.73	100	0	39.13	-3.86
6	742.74	34.86	46.00	-11.14	100	0	37.48	-2.62

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	60.0 PK	74.0	-14.0	1.29 H	132	59.60	0.39
2	2390.00	43.6 AV	54.0	-10.4	1.29 H	132	43.16	0.39
3	*2412.00	107.0 PK			1.29 H	132	106.60	0.44
4	*2412.00	93.9 AV			1.29 H	132	93.41	0.44
5	4824.00	52.4 PK	74.0	-21.6	1.09 H	68	45.85	6.59
6	4824.00	37.8 AV	54.0	-16.2	1.09 H	68	31.24	6.59
7	#7236.00	54.0 PK	87.0	-33.0	1.84 H	25	43.21	10.80
8	#7236.00	40.3 AV	73.9	-33.6	1.84 H	25	29.52	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	60.2 PK	74.0	-13.8	1.00 V	271	59.85	0.39
2	2390.00	39.1 AV	54.0	-14.9	1.00 V	271	38.73	0.39
3	*2412.00	107.5 PK			1.00 V	271	107.07	0.44
4	*2412.00	94.0 AV			1.00 V	271	93.57	0.44
5	4824.00	51.8 PK	74.0	-22.2	1.59 V	248	45.19	6.59
6	4824.00	37.3 AV	54.0	-16.7	1.59 V	248	30.66	6.59
7	#7236.00	54.2 PK	87.5	-33.3	1.14 V	281	43.42	10.80
8	#7236.00	41.0 AV	74.0	-33.0	1.14 V	281	30.23	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.
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	108.7 PK			1.56 H	280	108.17	0.51
2	*2437.00	95.9 AV			1.56 H	280	95.37	0.51
3	4874.00	50.9 PK	74.0	-23.1	1.18 H	247	44.21	6.73
4	4874.00	37.8 AV	54.0	-16.2	1.18 H	247	31.11	6.73
5	7311.00	53.8 PK	74.0	-20.2	1.95 H	314	42.96	10.80
6	7311.00	40.2 AV	54.0	-13.8	1.95 H	314	29.41	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	109.4 PK			1.05 V	276	108.93	0.51
2	*2437.00	96.5 AV			1.05 V	276	96.00	0.51
3	4874.00	51.7 PK	74.0	-22.3	1.55 V	206	44.99	6.73
4	4874.00	38.9 AV	54.0	-15.1	1.55 V	206	32.14	6.73
5	7311.00	53.7 PK	74.0	-20.3	1.12 V	36	42.92	10.80
6	7311.00	39.5 AV	54.0	-14.5	1.12 V	36	28.74	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	108.9 PK			1.76 H	75	108.32	0.56
2	*2462.00	96.7 AV			1.76 H	75	96.15	0.56
3	2483.50	61.4 PK	74.0	-12.6	1.76 H	75	60.81	0.61
4	2483.50	41.0 AV	54.0	-13.0	1.76 H	75	40.43	0.61
5	4924.00	52.3 PK	74.0	-21.7	1.01 H	257	45.43	6.88
6	4924.00	39.1 AV	54.0	-14.9	1.01 H	257	32.24	6.88
7	7386.00	54.3 PK	74.0	-19.7	1.06 H	32	43.52	10.80
8	7386.00	40.2 AV	54.0	-13.8	1.06 H	32	29.38	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	108.4 PK			1.55 V	84	107.85	0.56
2	*2462.00	96.2 AV			1.55 V	84	95.59	0.56
3	2483.50	58.3 PK	74.0	-15.7	1.55 V	84	57.67	0.61
4	2483.50	42.1 AV	54.0	-11.9	1.55 V	84	41.52	0.61
5	4924.00	52.1 PK	74.0	-21.9	1.56 V	187	45.26	6.88
6	4924.00	37.8 AV	54.0	-16.2	1.56 V	187	30.94	6.88
7	7386.00	53.8 PK	74.0	-20.2	1.42 V	218	43.04	10.80
8	7386.00	39.3 AV	54.0	-14.7	1.42 V	218	28.48	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.

802.11g

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	63.0 PK	74.0	-11.0	1.28 H	138	62.62	0.39
2	2390.00	43.8 AV	54.0	-10.2	1.28 H	138	43.40	0.39
3	*2412.00	107.4 PK			1.28 H	138	106.92	0.44
4	*2412.00	92.4 AV			1.28 H	138	91.96	0.44
5	4824.00	51.7 PK	74.0	-22.3	1.44 H	85	45.10	6.59
6	4824.00	37.7 AV	54.0	-16.3	1.44 H	85	31.11	6.59
7	#7236.00	53.7 PK	87.4	-33.7	1.33 H	254	42.89	10.80
8	#7236.00	38.3 AV	72.4	-34.1	1.33 H	254	27.45	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	63.4 PK	74.0	-10.6	1.00 V	279	62.97	0.39
2	2390.00	43.8 AV	54.0	-10.2	1.00 V	279	43.36	0.39
3	*2412.00	106.8 PK			1.00 V	279	106.34	0.44
4	*2412.00	90.8 AV			1.00 V	279	90.31	0.44
5	4824.00	52.1 PK	74.0	-21.9	1.35 V	24	45.54	6.59
6	4824.00	38.8 AV	54.0	-15.2	1.35 V	24	32.19	6.59
7	#7236.00	54.6 PK	86.8	-32.2	1.88 V	203	43.76	10.80
8	#7236.00	39.9 AV	70.8	-30.9	1.88 V	203	29.09	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			1.41 H	281	106.84	0.51
2	*2437.00	91.5 AV			1.41 H	281	90.94	0.51
3	4874.00	51.7 PK	74.0	-22.3	1.74 H	211	44.96	6.73
4	4874.00	38.2 AV	54.0	-15.8	1.74 H	211	31.44	6.73
5	7311.00	54.2 PK	74.0	-19.8	1.02 H	17	43.41	10.80
6	7311.00	40.6 AV	54.0	-13.4	1.02 H	17	29.77	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	107.5 PK			1.02 V	267	106.94	0.51
2	*2437.00	92.4 AV			1.02 V	267	91.88	0.51
3	4874.00	52.7 PK	74.0	-21.3	1.63 V	254	45.92	6.73
4	4874.00	38.6 AV	54.0	-15.4	1.63 V	254	31.84	6.73
5	7311.00	55.2 PK	74.0	-18.8	1.48 V	58	44.41	10.80
6	7311.00	41.0 AV	54.0	-13.0	1.48 V	58	30.18	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	107.7 PK			1.57 H	77	107.10	0.56
2	*2462.00	91.3 AV			1.57 H	77	90.74	0.56
3	2483.50	67.1 PK	74.0	-6.9	1.57 H	77	66.49	0.61
4	2483.50	47.3 AV	54.0	-6.7	1.57 H	77	46.73	0.61
5	4924.00	51.2 PK	74.0	-22.8	1.38 H	84	44.31	6.88
6	4924.00	37.9 AV	54.0	-16.1	1.38 H	84	31.04	6.88
7	7386.00	55.2 PK	74.0	-18.8	1.11 H	2	44.41	10.80
8	7386.00	40.8 AV	54.0	-13.2	1.11 H	2	30.01	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	110.0 PK			1.00 V	275	109.40	0.56
2	*2462.00	93.7 AV			1.00 V	275	93.13	0.56
3	2483.50	69.6 PK	74.0	-4.4	1.00 V	275	69.02	0.61
4	2483.50	49.9 AV	54.0	-4.1	1.00 V	275	49.30	0.61
5	4924.00	52.6 PK	74.0	-21.4	1.45 V	278	45.75	6.88
6	4924.00	39.3 AV	54.0	-14.7	1.45 V	278	32.43	6.88
7	7386.00	54.6 PK	74.0	-19.4	1.59 V	42	43.78	10.80
8	7386.00	40.7 AV	54.0	-13.3	1.59 V	42	29.86	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	62.5 PK	74.0	-11.5	1.14 H	342	62.13	0.39
2	2390.00	38.5 AV	54.0	-15.5	1.14 H	342	38.11	0.39
3	*2412.00	103.4 PK			1.14 H	342	102.96	0.44
4	*2412.00	88.4 AV			1.14 H	342	87.97	0.44
5	4824.00	51.6 PK	74.0	-22.4	1.01 H	147	45.01	6.59
6	4824.00	37.4 AV	54.0	-16.6	1.01 H	147	30.82	6.59
7	#7236.00	53.6 PK	83.4	-29.8	1.01 H	146	42.80	10.80
8	#7236.00	40.0 AV	68.4	-28.4	1.01 H	146	29.20	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	68.6 PK	74.0	-5.4	1.08 V	245	68.21	0.39
2	2390.00	43.7 AV	54.0	-10.3	1.08 V	245	43.32	0.39
3	*2412.00	105.6 PK			1.08 V	245	105.16	0.44
4	*2412.00	89.9 AV			1.08 V	245	89.50	0.44
5	4824.00	51.7 PK	74.0	-22.3	1.03 V	287	45.11	6.59
6	4824.00	37.6 AV	54.0	-16.4	1.03 V	287	31.03	6.59
7	#7236.00	57.9 PK	85.6	-27.7	1.00 V	324	47.09	10.80
8	#7236.00	42.6 AV	69.9	-27.3	1.00 V	324	31.80	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	106.6 PK			1.59 H	77	106.06	0.51
2	*2437.00	89.9 AV			1.59 H	77	89.39	0.51
3	4874.00	51.5 PK	74.0	-22.5	1.08 H	102	44.75	6.73
4	4874.00	37.6 AV	54.0	-16.4	1.08 H	102	30.85	6.73
5	7311.00	53.9 PK	74.0	-20.1	1.87 H	313	43.07	10.80
6	7311.00	40.2 AV	54.0	-13.8	1.87 H	313	29.41	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	105.7 PK			1.18 V	82	105.15	0.51
2	*2437.00	89.2 AV			1.18 V	82	88.66	0.51
3	4874.00	52.4 PK	74.0	-21.6	1.37 V	275	45.63	6.73
4	4874.00	38.1 AV	54.0	-15.9	1.37 V	275	31.41	6.73
5	7311.00	54.7 PK	74.0	-19.3	1.02 V	325	43.89	10.80
6	7311.00	40.6 AV	54.0	-13.4	1.02 V	325	29.83	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 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	106.2 PK			1.55 H	74	105.61	0.56
2	*2462.00	89.1 AV			1.55 H	74	88.55	0.56
3	2483.50	65.2 PK	74.0	-8.8	1.55 H	74	64.58	0.61
4	2483.50	46.0 AV	54.0	-8.0	1.55 H	74	45.36	0.61
5	4924.00	52.7 PK	74.0	-21.3	1.52 H	269	45.81	6.88
6	4924.00	38.1 AV	54.0	-15.9	1.52 H	269	31.24	6.88
7	7386.00	54.8 PK	74.0	-19.2	1.05 H	88	43.95	10.80
8	7386.00	40.5 AV	54.0	-13.5	1.05 H	88	29.73	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	105.5 PK			1.55 V	83	104.95	0.56
2	*2462.00	89.9 AV			1.55 V	83	89.33	0.56
3	2483.50	63.8 PK	74.0	-10.2	1.55 V	83	63.21	0.61
4	2483.50	46.4 AV	54.0	-7.6	1.55 V	83	45.75	0.61
5	4924.00	52.0 PK	74.0	-22.0	1.27 V	53	45.15	6.88
6	4924.00	38.1 AV	54.0	-15.9	1.27 V	53	31.24	6.88
7	7386.00	55.3 PK	74.0	-18.7	1.33 V	155	44.52	10.80
8	7386.00	41.0 AV	54.0	-13.0	1.33 V	155	30.22	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 (40MHz)

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	64.5 PK	74.0	-9.5	1.12 H	166	64.11	0.39
2	2390.00	39.7 AV	54.0	-14.3	1.12 H	166	39.28	0.39
3	*2422.00	104.6 PK			1.12 H	166	104.13	0.47
4	*2422.00	84.1 AV			1.12 H	166	83.63	0.47
5	4844.00	51.7 PK	74.0	-22.3	1.01 H	254	45.04	6.65
6	4844.00	38.7 AV	54.0	-15.3	1.01 H	254	32.05	6.65
7	7266.00	53.7 PK	74.0	-20.3	1.06 H	38	42.90	10.80
8	7266.00	43.6 AV	54.0	-10.4	1.06 H	38	32.80	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	2390.00	65.4 PK	74.0	-8.6	1.33 V	238	65.05	0.39
2	2390.00	41.3 AV	54.0	-12.7	1.33 V	238	40.91	0.39
3	*2422.00	100.2 PK			1.33 V	238	99.69	0.47
4	*2422.00	85.6 AV			1.33 V	238	85.13	0.47
5	4844.00	51.2 PK	74.0	-22.8	1.02 V	316	44.55	6.65
6	4844.00	38.8 AV	54.0	-15.2	1.02 V	316	32.11	6.65
7	7266.00	54.3 PK	74.0	-19.7	1.03 V	247	43.50	10.80
8	7266.00	42.3 AV	54.0	-11.7	1.03 V	247	31.50	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 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	103.4 PK			1.44 H	132	102.87	0.51
2	*2437.00	81.8 AV			1.44 H	132	81.29	0.51
3	4874.00	52.3 PK	74.0	-21.7	1.26 H	98	45.58	6.73
4	4874.00	37.7 AV	54.0	-16.3	1.26 H	98	30.95	6.73
5	7311.00	54.4 PK	74.0	-19.6	1.05 H	244	43.56	10.80
6	7311.00	40.1 AV	54.0	-13.9	1.05 H	244	29.32	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	104.6 PK			1.04 V	269	104.07	0.51
2	*2437.00	81.0 AV			1.04 V	269	80.44	0.51
3	4874.00	52.1 PK	74.0	-21.9	1.48 V	28	45.40	6.73
4	4874.00	38.1 AV	54.0	-15.9	1.48 V	28	31.39	6.73
5	7311.00	54.9 PK	74.0	-19.1	1.57 V	51	44.07	10.80
6	7311.00	40.7 AV	54.0	-13.3	1.57 V	51	29.88	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 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	103.5 PK			1.37 H	76	102.94	0.53
2	*2452.00	79.6 AV			1.37 H	76	79.09	0.53
3	2483.50	64.5 PK	74.0	-9.5	1.37 H	76	63.93	0.61
4	2483.50	45.8 AV	54.0	-8.2	1.37 H	76	45.17	0.61
5	4904.00	51.4 PK	74.0	-22.6	1.55 H	290	44.62	6.82
6	4904.00	37.7 AV	54.0	-16.3	1.55 H	290	30.86	6.82
7	7356.00	53.9 PK	74.0	-20.1	1.43 H	36	43.06	10.80
8	7356.00	40.2 AV	54.0	-13.8	1.43 H	36	29.35	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	*2452.00	105.0 PK			1.01 V	259	104.45	0.53
2	*2452.00	83.4 AV			1.01 V	259	82.84	0.53
3	2483.50	68.5 PK	74.0	-5.5	1.01 V	259	67.84	0.61
4	2483.50	49.4 AV	54.0	-4.6	1.01 V	259	48.77	0.61
5	4904.00	52.4 PK	74.0	-21.6	1.20 V	87	45.54	6.82
6	4904.00	38.9 AV	54.0	-15.1	1.20 V	87	32.09	6.82
7	7356.00	54.8 PK	74.0	-19.2	1.02 V	217	43.98	10.80
8	7356.00	40.7 AV	54.0	-13.3	1.02 V	217	29.89	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.

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
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Sep.07,15	Sep. 06,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Sep.07,15	Sep. 06,16
Signal Generator	Agilent	N5183A	MY50140980	Sep.07,15	Sep. 06,16
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, GRGT/CHINA and NIM/CHINA.

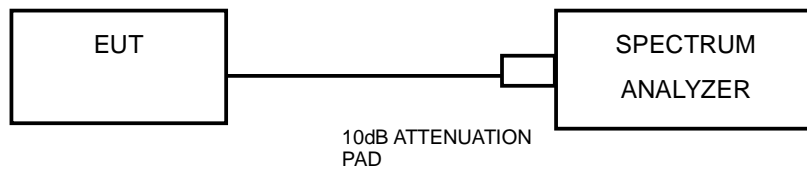
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

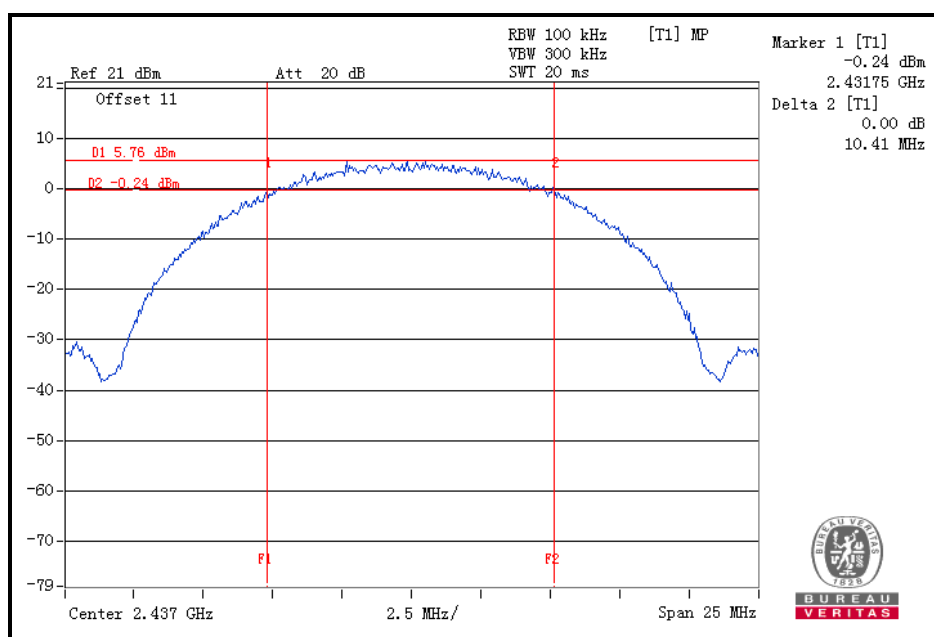
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.3.7 TEST RESULTS

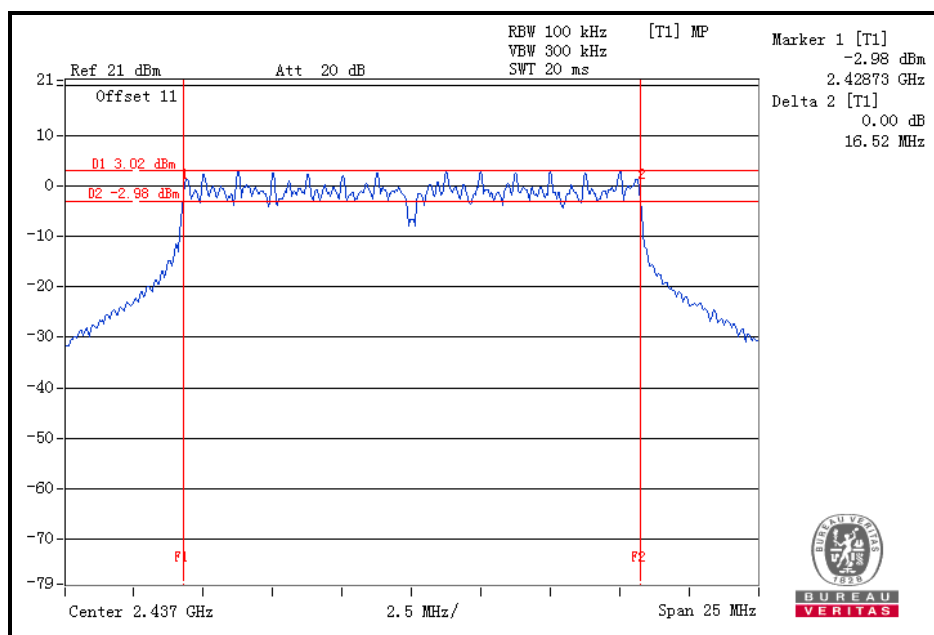
802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.63	0.5	PASS
6	2437	10.41	0.5	PASS
11	2462	9.34	0.5	PASS



802.11g

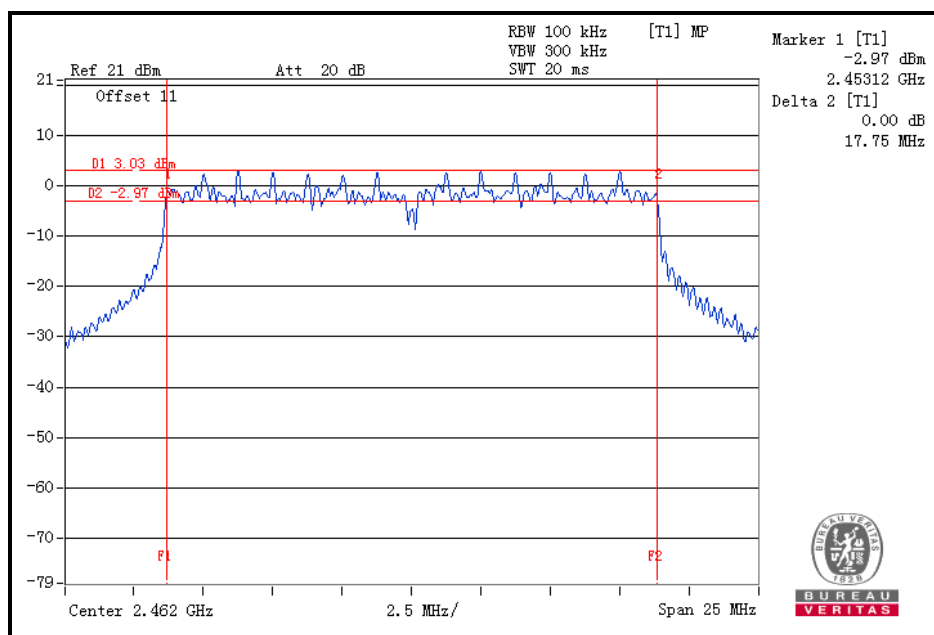
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.49	0.5	PASS
6	2437	16.52	0.5	PASS
11	2462	16.52	0.5	PASS





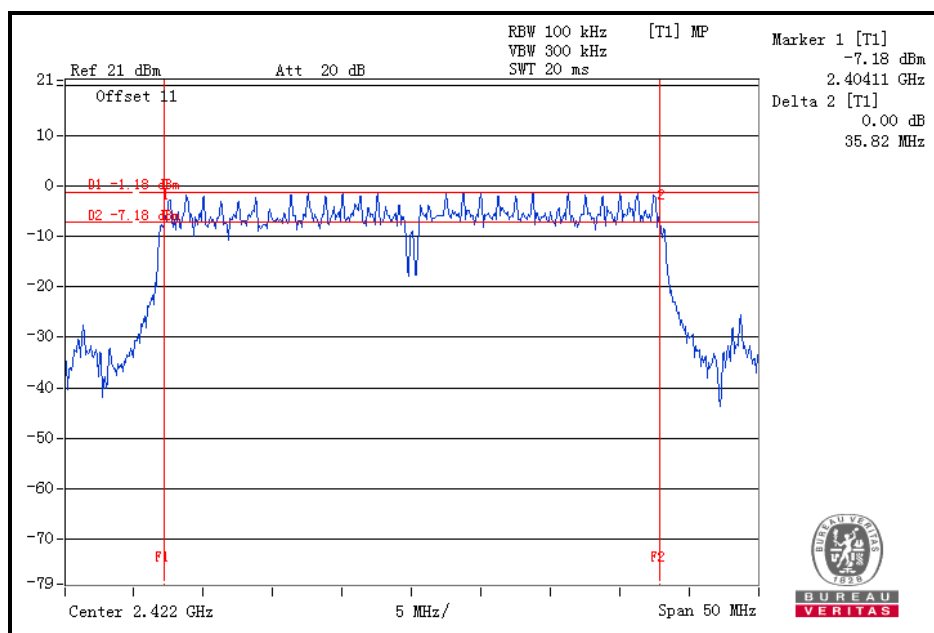
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.68	0.5	PASS
6	2437	17.74	0.5	PASS
11	2462	17.75	0.5	PASS



802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.82	0.5	PASS
6	2437	35.75	0.5	PASS
9	2452	35.81	0.5	PASS

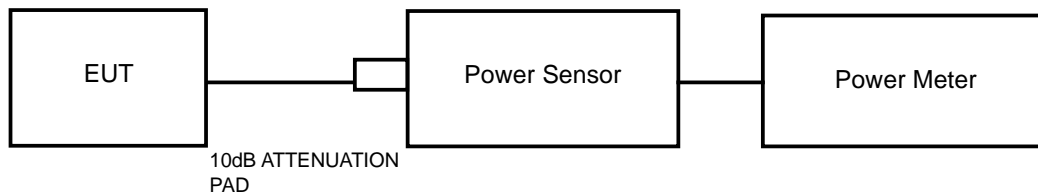


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Feb. 18,15	Feb. 17,16
Power Sensor	Keysight	U2021XA	MY55060018	Feb. 18,15	Feb. 17,16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Sep.07,15	Sep. 06,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Sep.07,15	Sep. 06,16
Signal Generator	Agilent	N5183A	MY50140980	Sep.07,15	Sep. 06,16
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, 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	20.79	119.950	1	PASS
6	2437	21.32	135.519	1	PASS
11	2462	21.63	145.546	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	21.46	139.959	1	PASS
6	2437	22.48	177.011	1	PASS
11	2462	22.77	189.234	1	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	21.67	146.893	1	PASS
6	2437	21.76	149.968	1	PASS
11	2462	21.93	155.955	1	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	20.47	111.429	1	PASS
6	2437	20.88	122.462	1	PASS
9	2452	20.24	105.682	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	14.63
6	2437	14.83
11	2462	15.26

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	13.64
6	2437	14.73
11	2462	14.86

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	14.16
6	2437	14.07
11	2462	14.41

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
3	2422	11.42
6	2437	11.75
9	2452	11.46

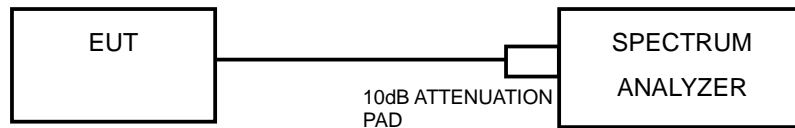


4.5 POWER SPECTRAL DENSITY MEASUREMENT

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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Use the peak marker function to determine the maximum amplitude level.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.



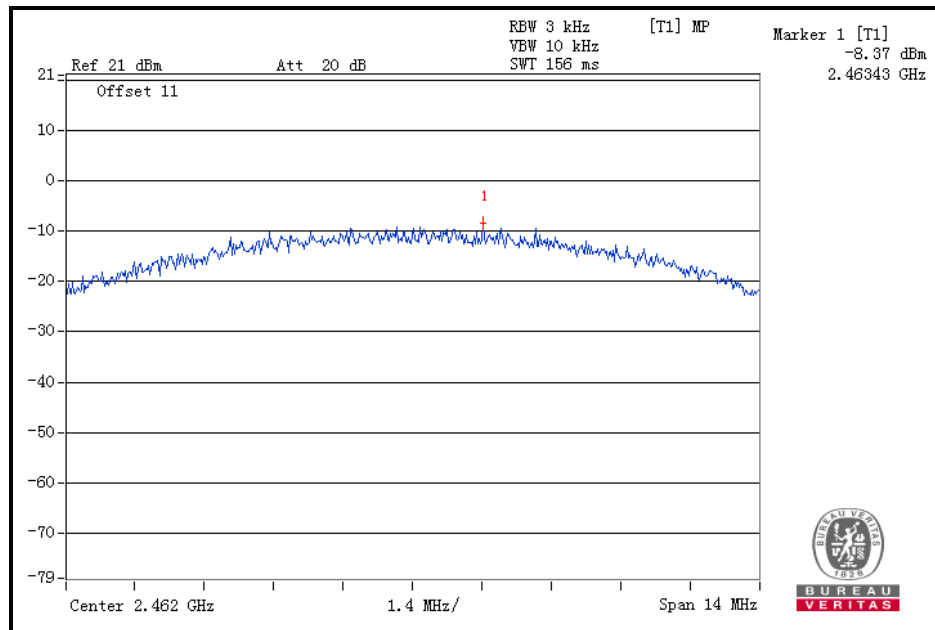
4.5.6 EUT OPERATING CONDITION

Same as item 4.3.6

4.5.7 TEST RESULTS

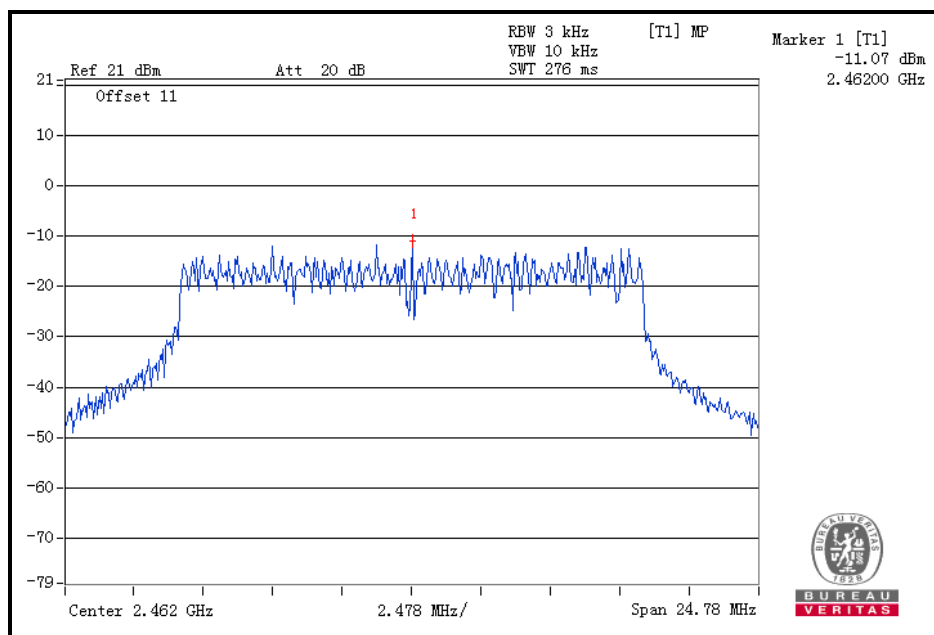
802.11b

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-9.45	8	PASS
6	2437	-9.24	8	PASS
11	2462	-8.37	8	PASS



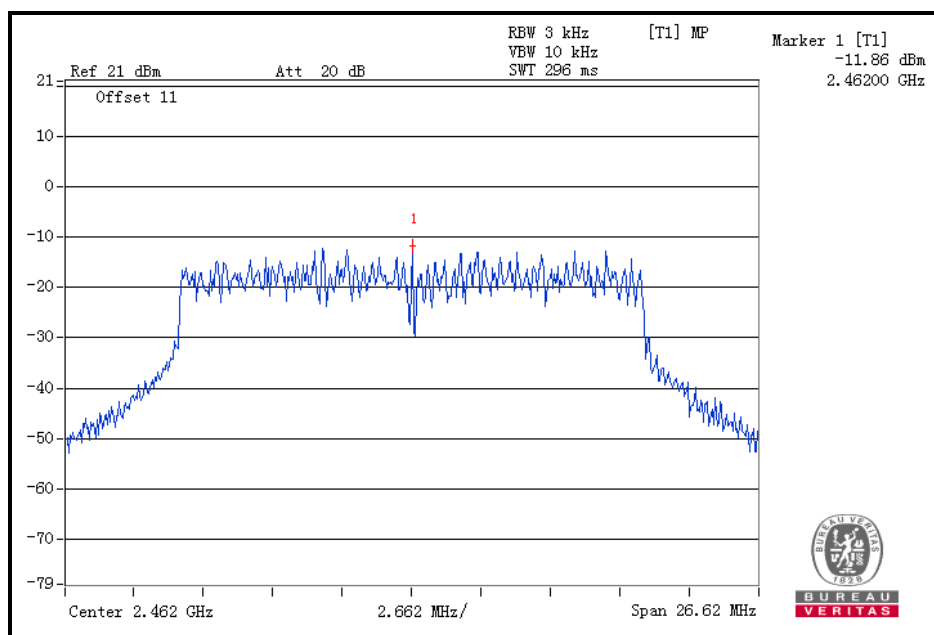
802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-13.75	8	PASS
6	2437	-11.27	8	PASS
11	2462	-11.07	8	PASS



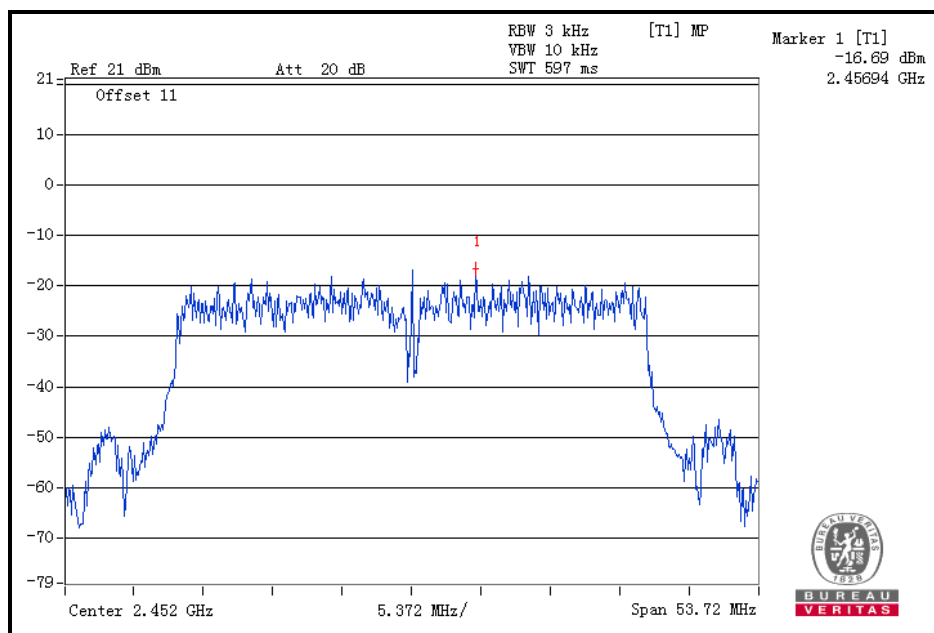
802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-12.77	8	PASS
6	2437	-12.42	8	PASS
11	2462	-11.86	8	PASS



802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-17.53	8	PASS
6	2437	-17.12	8	PASS
9	2452	-16.69	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.



Test Report No.: RF151016N038

Measurement Procedure –Unwanted Emission Level

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as item 4.3.6

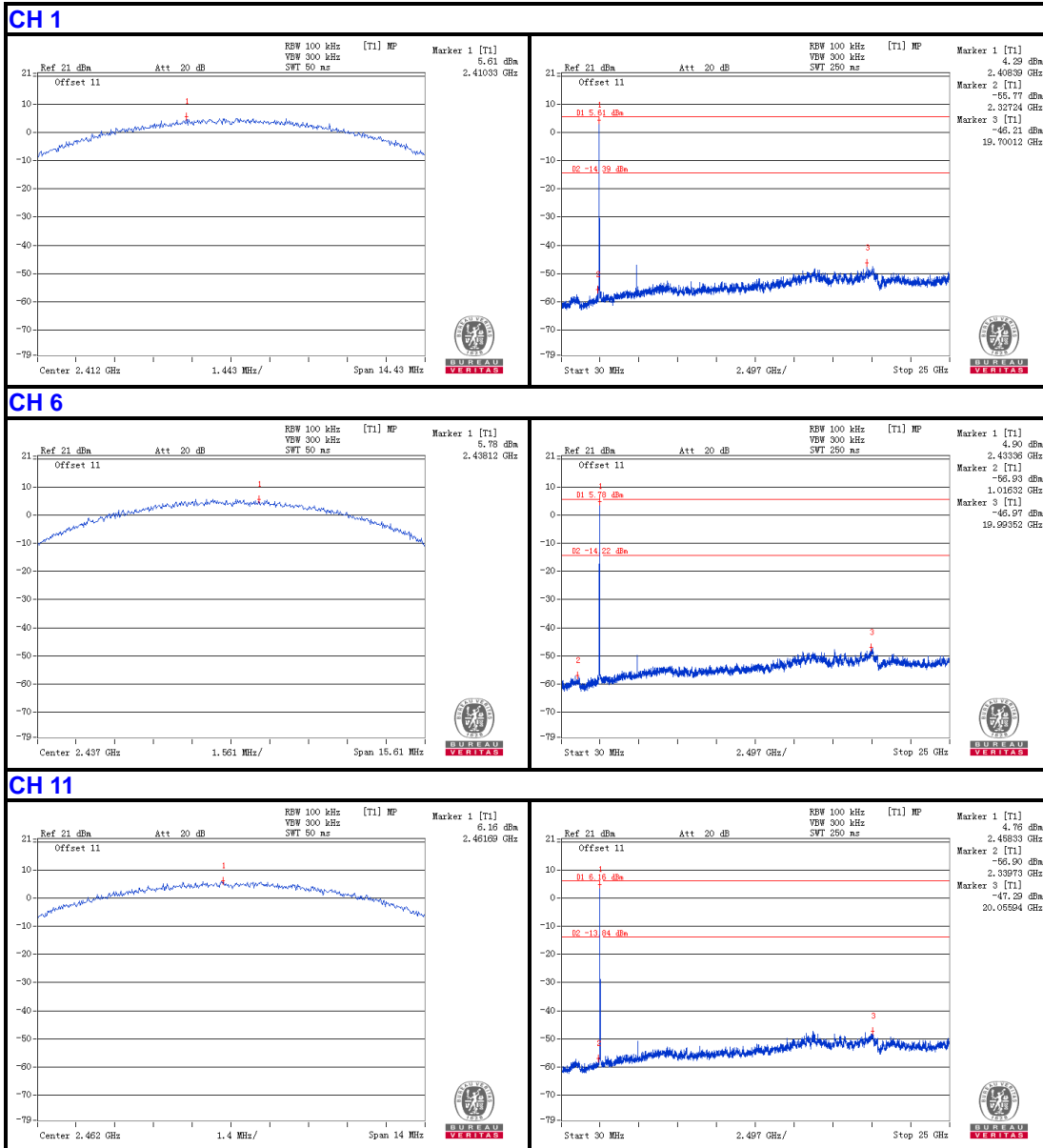


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Test Report No.: RF151016N038

4.6.7 TEST RESULTS

802.11b

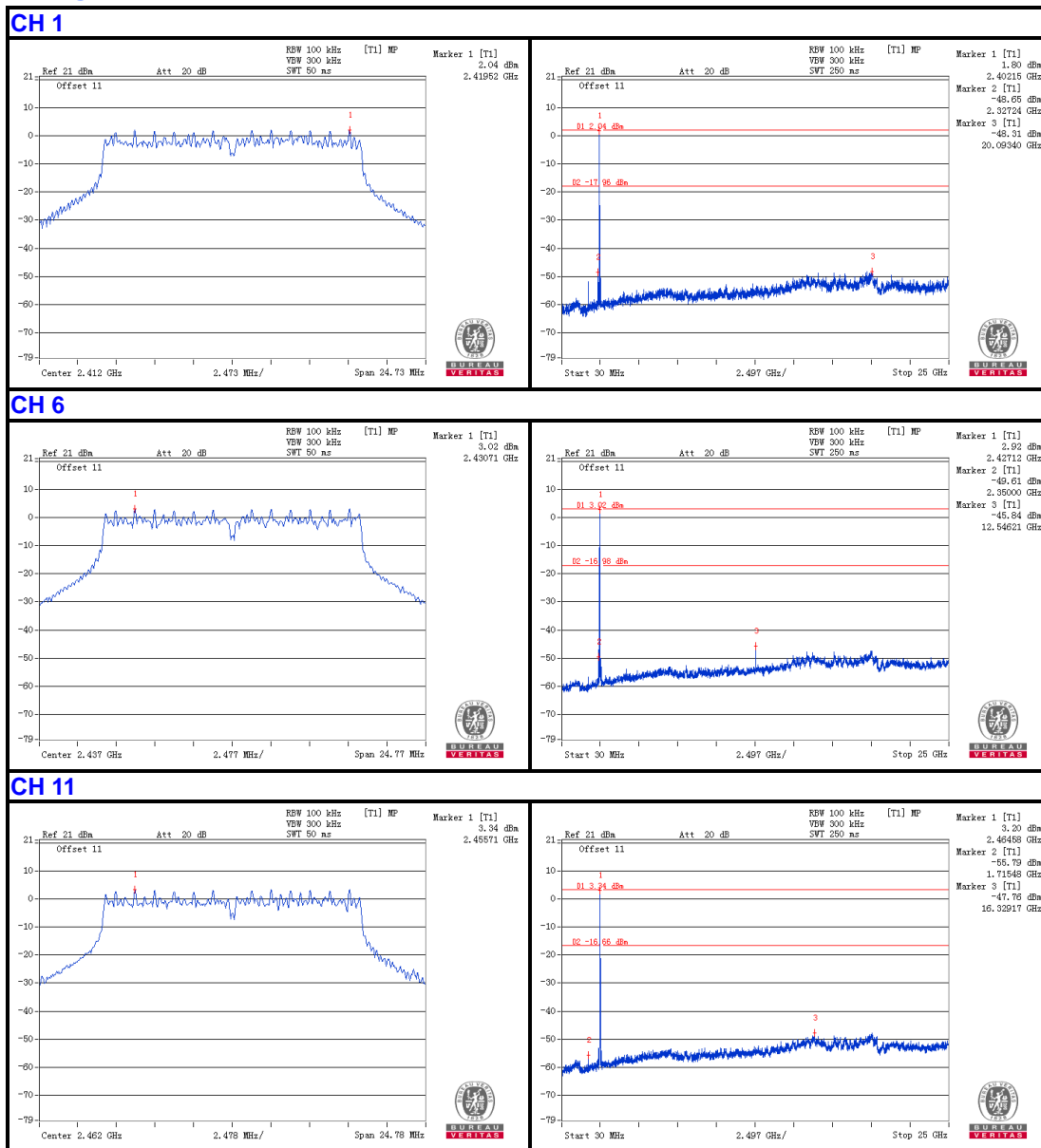




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Test Report No.: RF151016N038

802.11g



Bureau Veritas Shenzhen Co., Ltd.
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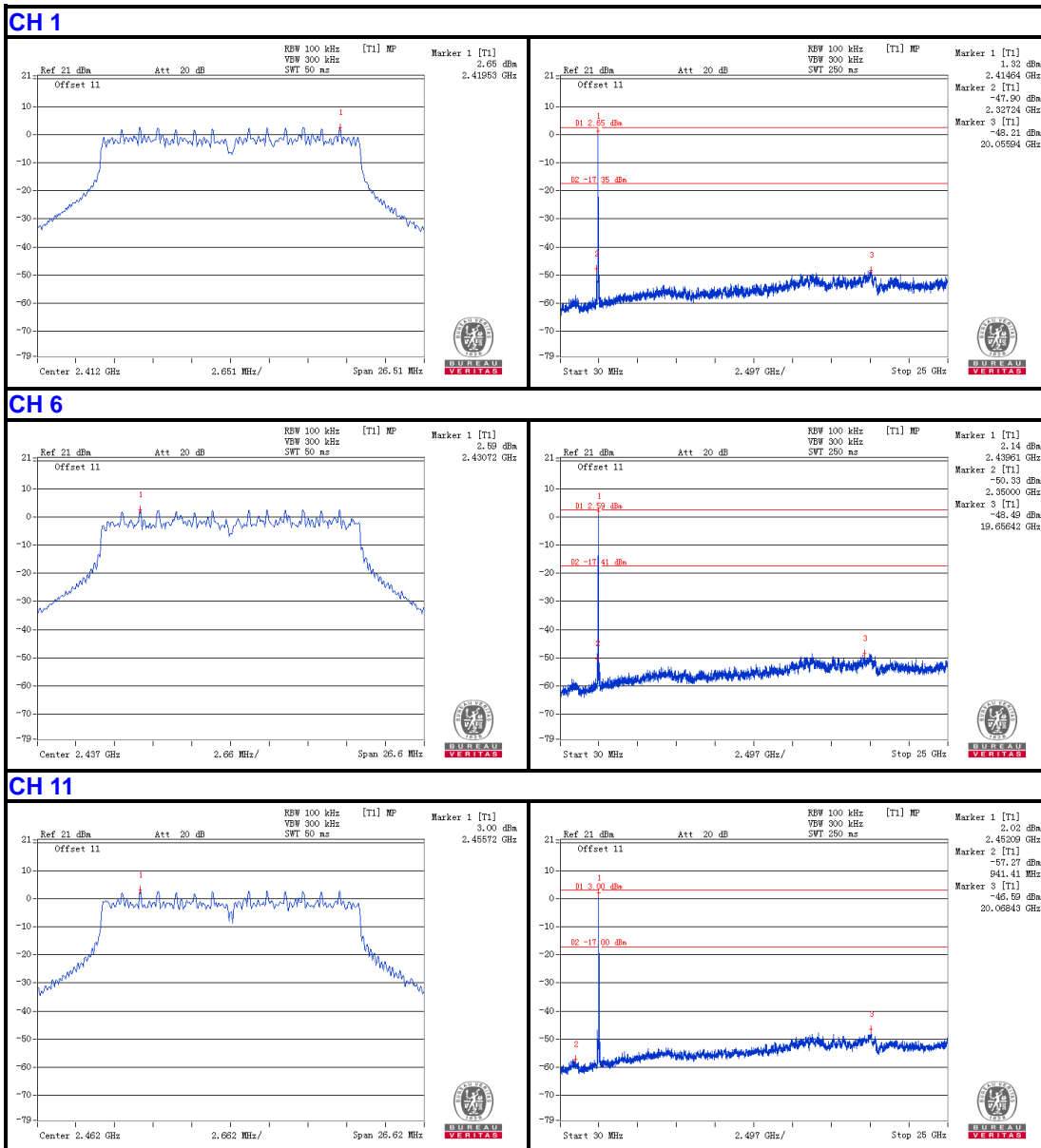
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802.11n (20MHz)



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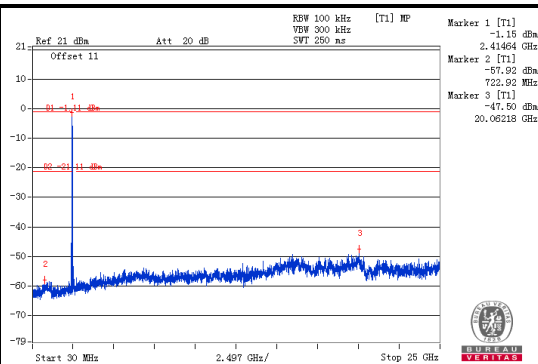
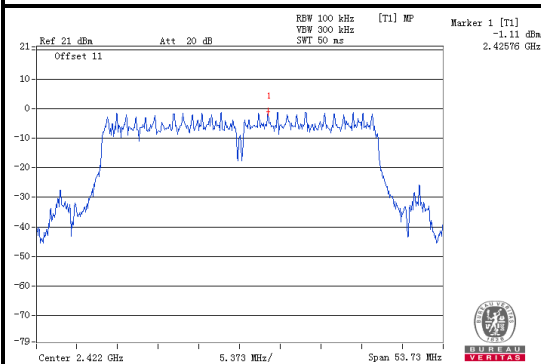


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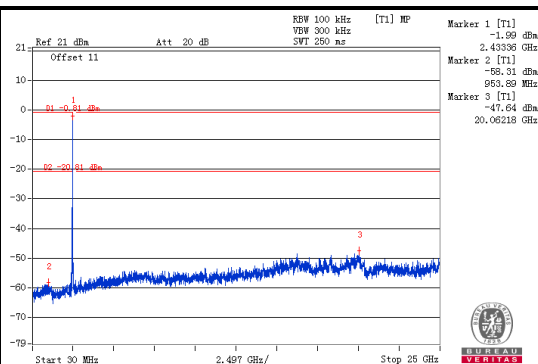
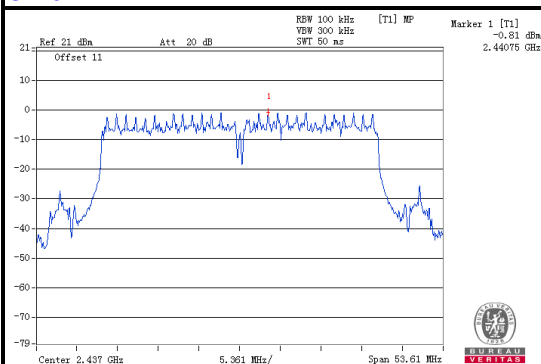
Test Report No.: RF151016N038

802.11n (40MHz)

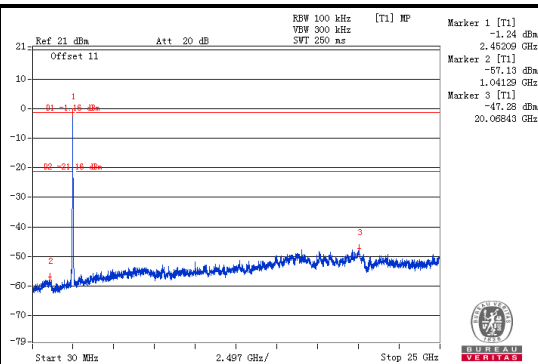
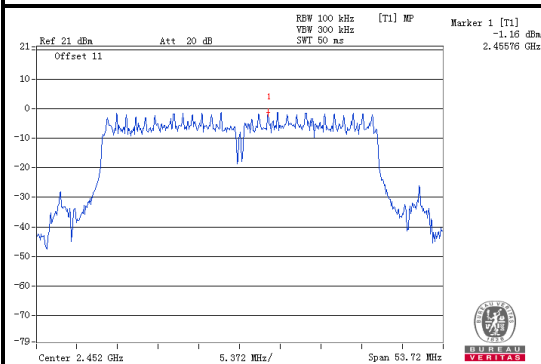
CH 3



CH 6



CH 9

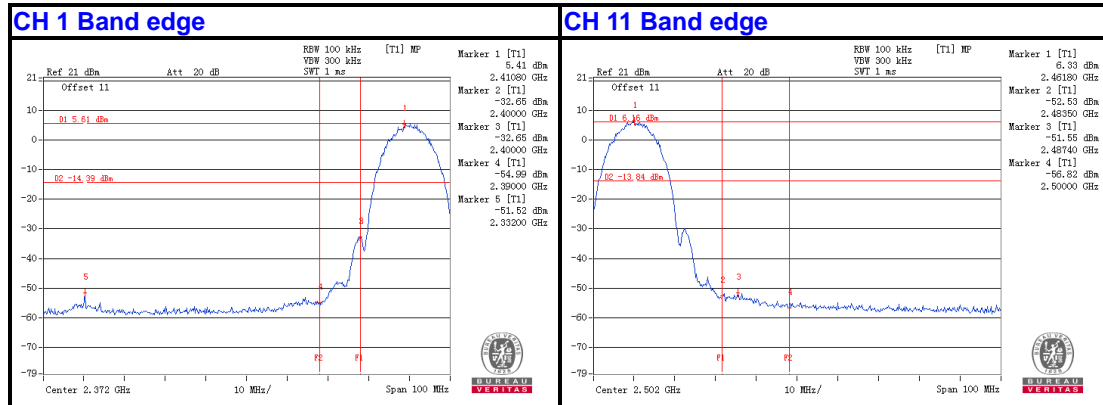




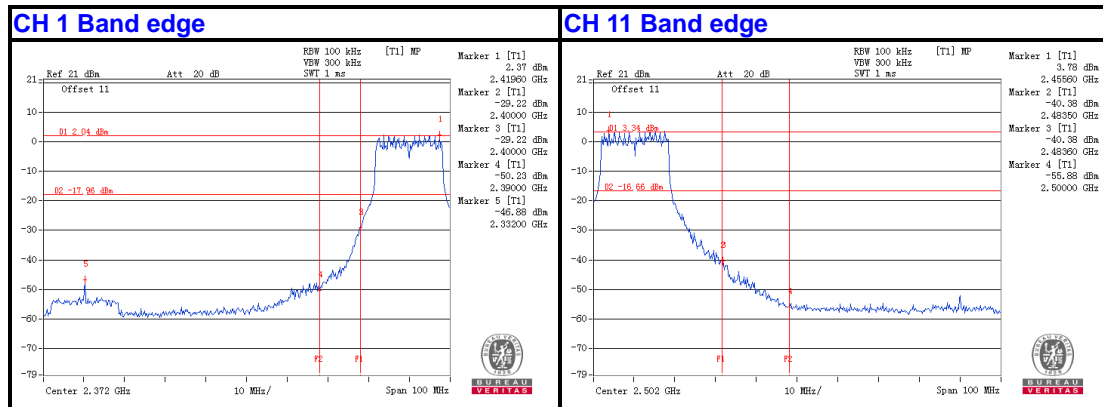
BUREAU
VERITAS

Test Report No.: RF151016N038

802.11b



802.11g



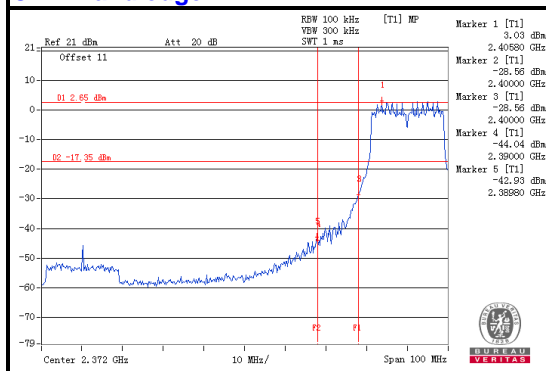


BUREAU
VERITAS

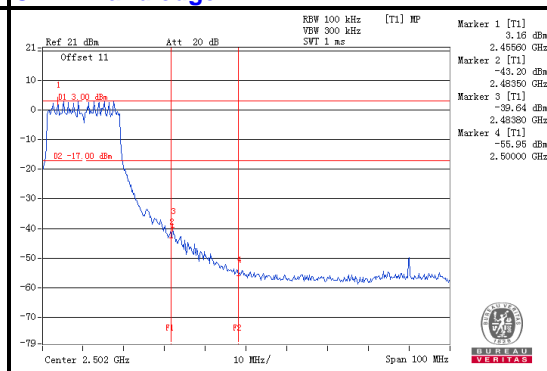
Test Report No.: RF151016N038

802.11n (20MHz)

CH 1 Band edge

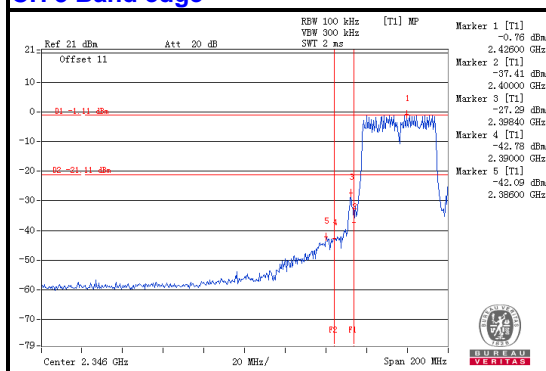


CH 11 Band edge

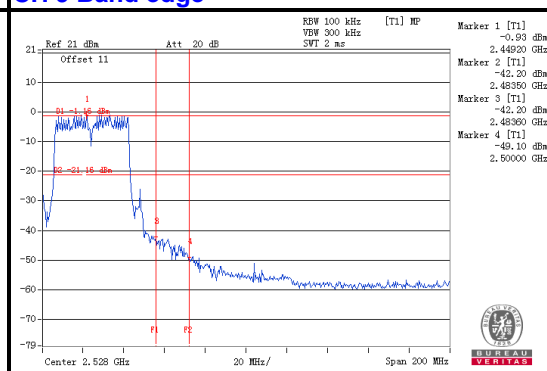


802.11n (40MHz)

CH 3 Band edge



CH 9 Band edge





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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.

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