Test Lab
Cert 2951.01

TEST REPORT

Applicant:	Dongguan Newmen Electronics Technology Co., LTD
Address:	No.5, Xifa Road, Lin Village, Tangxia Town, Dongguan, Guangdong, China

Manufacturer or Supplier	Dongguan Newmen Electronics Technology Co., LTD
Address	No.5, Xifa Road, Lin Village, Tangxia Town, Dongguan, Guangdong, China
Product:	wireless 2.4GHz optical mouse
Brand Name:	GEARHEAD
Model:	MPT4100LPD
Additional Model & Model Difference	MPTXXXXYYY(X=0-9, Y=A-Z); See items 3.1
Date of tests:	Sep. 01, 2015 ~ Sep. 23, 2015

the tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.249(2014-10)**

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
Blue	Date: Sep. 23, 2015

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

TABLE OF CONTENTS

RELEASE CONTROL RECORD **3**

1 SUMMARY OF TEST RESULTS **4**

2 MEASUREMENT UNCERTAINTY **4**

3 GENERAL INFORMATION **5**

3.1 GENERAL DESCRIPTION OF EUT 5
3.2 DESCRIPTION OF TEST MODES 6
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 7
3.4 DESCRIPTION OF SUPPORT UNITS 7

4. TEST TYPES AND RESULTS **8**

4.1 RADIATED EMISSION MEASUREMENT 8
4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT 8
4.1.2 TEST INSTRUMENTS 9
4.1.3 TEST PROCEDURES 10
4.1.4 DEVIATION FROM TEST STANDARD 10
4.1.5 TEST SETUP 11
4.1.6 EUT OPERATING CONDITIONS 11
4.1.7 TEST RESULTS 12
4.2 20dB BANDWIDTH MEASUREMENT 17
4.2.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT 17
4.2.2 TEST INSTRUMENTS 17
4.2.3 TEST PROCEDURE 17
4.2.4 DEVIATION FROM TEST STANDARD 17
4.2.5 TEST SETUP 18
4.2.6 EUT OPERATING CONDITIONS 18
4.2.7 TEST RESULTS 18

5 PHOTOGRAPHS OF THE TEST CONFIGURATION **19**

6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB **22**

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150901N003-1	Original release	Sep. 23, 2015

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.249)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
§15.203	Antenna Requirement	PASS	No antenna connector is used
§15.207 (a)	Conducted Emission	N/A	EUT is powered by battery
§15.205	Restricted Band of Operation	PASS	Compliant
§15.209 §15.249(a)	Radiated Emission	PASS	Compliant
§15.215(c)	20dB Bandwidth Test	PASS	Compliant

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
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GHz	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	wireless 2.4GHz optical mouse
MODEL NO.	MPT4100LPD
ADDITIONAL MDOELS	MPTXXXXYYY (X=0-9, Y=A-Z)
FCC ID	V4P-MS-148HXI
NOMINAL VOLTAGE	DC 3.0V from Battery
MODULATION TECHNOLOGY	GFSK
OPERATING FREQUENCY	2408-2474MHz
ANTENNA TYPE	PCB Antenna, with 1.80dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.: 150901N003-1) for detailed product photo.
4. Additional models MPTXXXXYYY (X=0-9, Y=A-Z) are identical with the test model MPT4100LPD except the model no. and the color about appearance for trading purpose.

3.2 DESCRIPTION OF TEST MODES

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	BW	
-	√	√	-	√	Powered by battery

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **BW:** 20db bandwidth

Following channel(s) was (were) selected for the test as listed below.

TESTED CHANNEL	TESTED FREQUENCY
Low	2408 MHz
Middle	2440 MHz
High	2474 MHz

Note: The more detailed channel, please refer to the product specifications

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 15.249(2014-10)

ANSI C63.10-2009

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 Verification. The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental (milli-volts/meter)	Field strength of harmonics (micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

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.

4.1.2 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 are 12, 24 or 36 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 above1GHz if tested.
4. The FCC Site Registration No. is 494399.

4.1.3 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. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

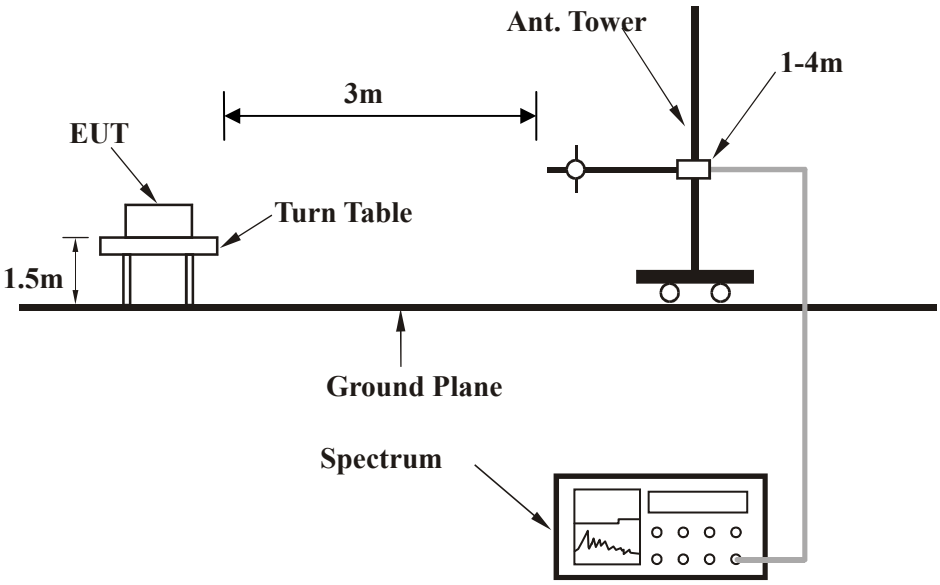
NOTE:

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.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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 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

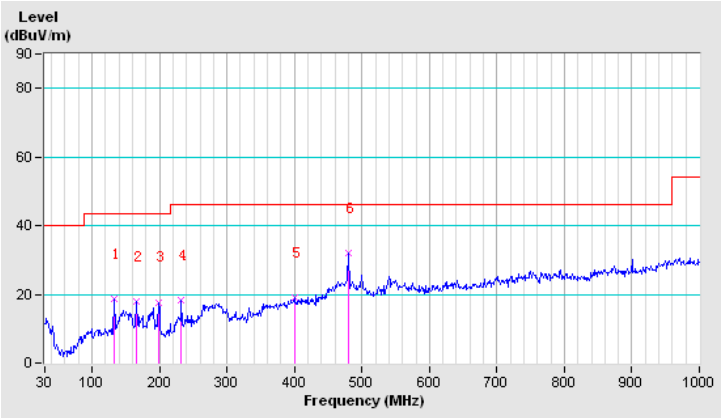
BELOW 1GHz WORST-CASE DATA

CHANNEL	TX Middle Channel	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	132.62	18.57	43.50	-24.93	100	0	36.76	-18.19
2	164.96	17.81	43.50	-25.69	100	0	37.28	-19.47
3	198.70	17.73	43.50	-25.77	100	0	38.64	-20.91
4	232.43	18.33	46.00	-27.67	100	0	37.00	-18.67
5	399.72	18.90	46.00	-27.10	100	0	29.86	-10.96
6	479.86	32.08	46.00	-13.92	100	0	41.14	-9.06

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.

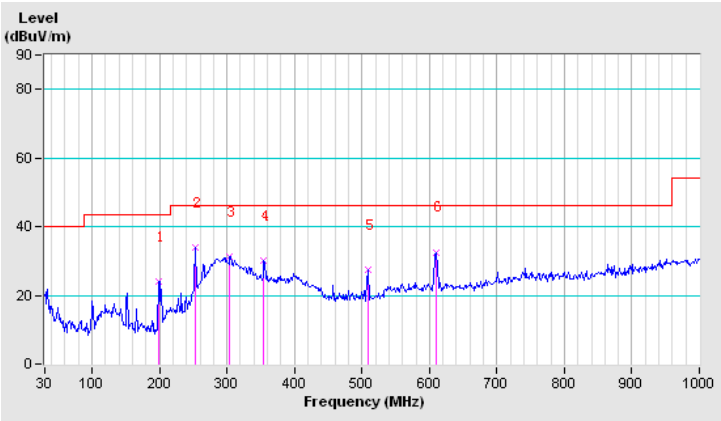


CHANNEL	TX Middle Channel	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	198.70	23.84	43.50	-19.66	100	0	44.75	-20.91
2	**253.52**	**33.85**	**46.00**	**-12.15**	**100**	**0**	**50.03**	**-16.18**
3	304.13	31.29	46.00	-14.71	100	0	46.22	-14.93
4	354.74	30.10	46.00	-15.90	100	0	43.51	-13.41
5	509.38	27.41	46.00	-18.59	100	0	35.61	-8.20
6	609.19	32.59	46.00	-13.41	100	0	38.32	-5.73

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 WORST-CASE DATA:

CHANNEL	TX Low Channel	**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	2400.00	47.5 PK	74.0	-26.5	3.44 H	191	47.08	0.41
2	2400.00	35.7 AV	54.0	-18.3	3.44 H	191	35.27	0.41
3	2408.00	85.9 PK	114.0	-28.1	3.44 H	191	85.43	0.44
4	2408.00	83.4 AV	94.0	-10.6	3.44 H	191	82.92	0.44
5	4816.00	56.8 PK	74.0	-17.2	1.55 H	307	50.22	6.56
6	4816.00	46.0 AV	54.0	-8.0	1.55 H	307	39.47	6.56
7	7224.00	55.5 PK	74.0	-18.5	1.21 H	181	44.74	10.80
8	7224.00	41.8 AV	54.0	-12.2	1.21 H	181	31.04	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	2400.00	43.7 PK	74.0	-30.3	3.93 V	241	43.26	0.41
2	2400.00	31.6 AV	54.0	-22.4	3.93 V	241	31.15	0.41
3	2408.00	75.4 PK	114.0	-38.6	3.93 V	241	74.94	0.44
4	2408.00	72.5 AV	94.0	-21.5	3.93 V	241	72.03	0.44
5	4816.00	56.7 PK	74.0	-17.3	1.00 V	97	50.16	6.56
6	4816.00	46.2 AV	54.0	-7.8	1.00 V	97	39.60	6.56
7	7224.00	55.4 PK	74.0	-18.6	1.53 V	56	44.56	10.80
8	7224.00	42.1 AV	54.0	-11.9	1.53 V	56	31.27	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.

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

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	89.2 PK	114.0	-24.8	1.78 H	81	88.69	0.51
2	2440.00	86.9 AV	94.0	-7.1	1.78 H	81	86.38	0.51
3	4880.00	57.6 PK	74.0	-16.4	1.33 H	306	50.85	6.75
4	4880.00	47.4 AV	54.0	-6.6	1.33 H	306	40.62	6.75
5	7320.00	55.8 PK	74.0	-18.2	1.50 H	36	44.99	10.80
6	7320.00	42.7 AV	54.0	-11.3	1.50 H	36	31.86	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	78.7 PK	114.0	-35.3	1.31 V	204	78.15	0.51
2	2440.00	76.3 AV	94.0	-17.7	1.31 V	204	75.82	0.51
3	4880.00	59.5 PK	74.0	-14.5	1.13 V	90	52.71	6.75
4	**4880.00**	**49.5 AV**	**54.0**	**-4.5**	**1.13 V**	**90**	**42.74**	**6.75**
5	7320.00	54.7 PK	74.0	-19.3	1.89 V	220	43.87	10.80
6	7320.00	41.0 AV	54.0	-13.0	1.89 V	220	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.

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

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	2474.00	90.9 PK	114.0	-23.1	1.82 H	281	90.35	0.59
2	2474.00	88.6 AV	94.0	-5.5	1.82 H	281	87.96	0.59
3	2483.50	53.9 PK	74.0	-20.1	1.82 H	281	53.31	0.61
4	2483.50	43.0 AV	54.0	-11.0	1.82 H	281	42.39	0.61
5	4950.00	56.8 PK	74.0	-17.2	1.44 H	1	49.83	6.96
6	4950.00	45.5 AV	54.0	-8.5	1.44 H	1	38.58	6.96
7	7425.00	55.6 PK	74.0	-18.4	1.34 H	21	44.82	10.80
8	7425.00	41.2 AV	54.0	-12.8	1.34 H	21	30.42	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	2474.00	79.7 PK	114.0	-34.3	1.05 V	28	79.08	0.59
2	2474.00	77.2 AV	94.0	-16.8	1.05 V	28	76.58	0.59
3	2483.50	46.8 PK	74.0	-27.2	1.05 V	28	46.18	0.61
4	2483.50	34.7 AV	54.0	-19.3	1.05 V	28	34.07	0.61
5	4950.00	58.5 PK	74.0	-15.5	1.66 V	257	51.53	6.96
6	4950.00	48.5 AV	54.0	-5.5	1.66 V	257	41.52	6.96
7	7425.00	55.6 PK	74.0	-18.4	1.26 V	63	44.76	10.80
8	7425.00	40.9 AV	54.0	-13.1	1.26 V	63	30.11	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.

4.2 20dB BANDWIDTH MEASUREMENT

4.2.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT

According to FCC 15.215(c), must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.2.2 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. 27,14	Oct. 26,15
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Oct. 17, 14	Oct. 16, 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, GRGT/CHINA and NIM/CHINA.

4.2.3 TEST PROCEDURE

a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.

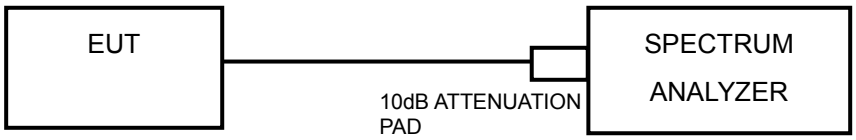
c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.

d. Repeat above procedures until all frequencies measured were complete.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

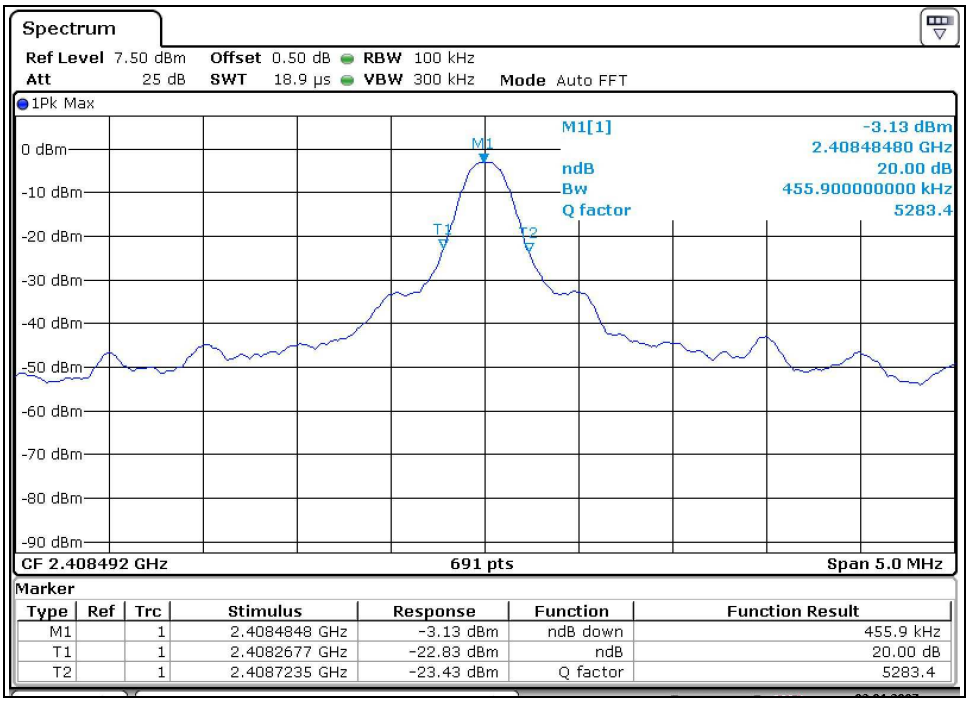
a) Turned on the power of all equipment.

b) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

4.2.7 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
Low	2408	0.456
Middle	2440	0.449
High	2474	0.420

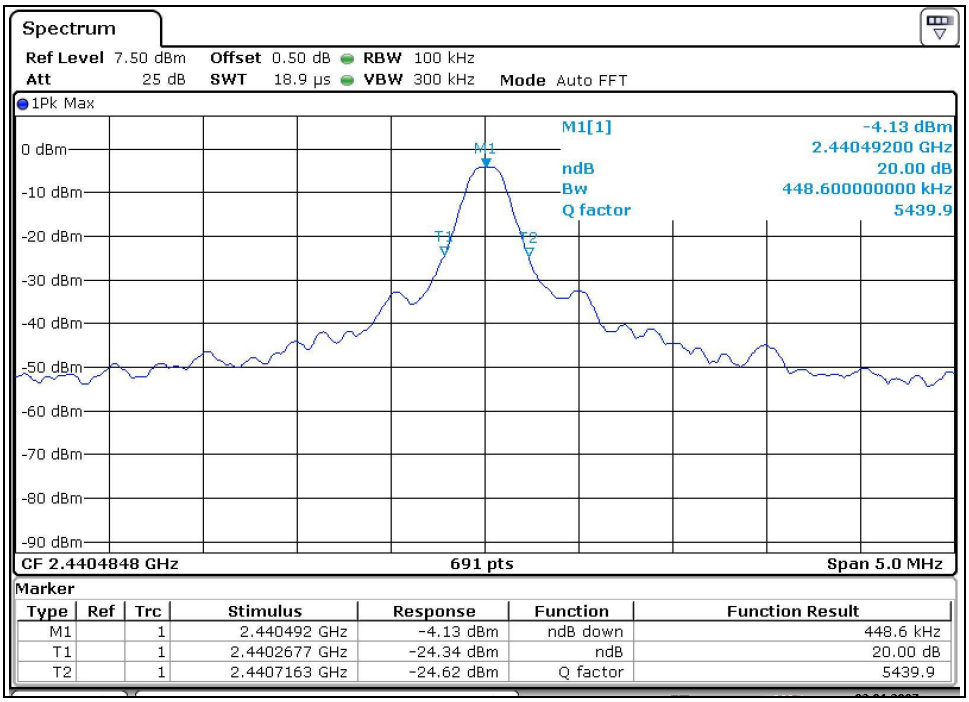
Test Data: Low channel



Marker

Type	Ref	Trc	Stimulus	Response	Function	Function Result
M1		1	2.4084848 GHz	-3.13 dBm	ndB down	455.9 kHz
T1		1	2.4082677 GHz	-22.83 dBm	ndB	20.00 dB
T2		1	2.4087235 GHz	-23.43 dBm	Q factor	5283.4

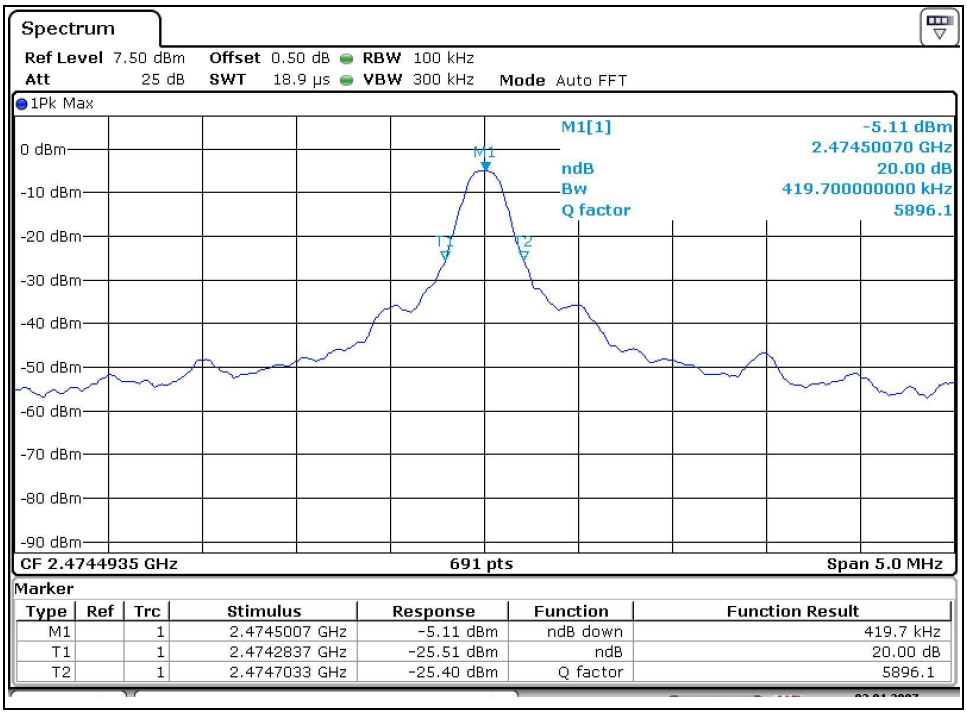
Test Data: Middle channel



Marker

Type	Ref	Trc	Stimulus	Response	Function	Function Result
M1		1	2.440492 GHz	-4.13 dBm	ndB down	448.6 kHz
T1		1	2.4402677 GHz	-24.34 dBm	ndB	20.00 dB
T2		1	2.4407163 GHz	-24.62 dBm	Q factor	5439.9

Test Data: High channel



Marker

Type	Ref	Trc	Stimulus	Response	Function	Function Result
M1		1	2.4745007 GHz	-5.11 dBm	ndB down	419.7 kHz
T1		1	2.4742837 GHz	-25.51 dBm	ndB	20.00 dB
T2		1	2.4747033 GHz	-25.40 dBm	Q factor	5896.1

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---