
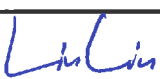
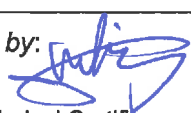


<b>Prüfbericht-Nr.:</b> <i>Test Report No.:</i>	<b>17051456 001</b>	<b>Auftrags-Nr.:</b> <i>Order No.:</i>	<b>164040685</b>	<b>Seite 1 von 57</b> <i>Page 1 of 57</i>
<b>Kunden-Referenz-Nr.:</b> <i>Client Reference No.:</i>	<b>N/A</b>	<b>Auftragsdatum:</b> <i>Order date:</i>	<b>09.07.2015</b>	
<b>Auftraggeber:</b> <i>Client:</i>	<b>Dongguan Newmen Electronics Technology Co.,LTD</b> No.5, Xifa Road, Lin Village, Tangxia Town, Dongguan, Guangdong, China			
<b>Prüfgegenstand:</b> <i>Test item:</i>	<b>Bluetooth mouse</b>			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type No.:</i>	<b>NS-PNM6103-BK</b>			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	<b>FCC Certification</b>			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.209 FCC KDB publication 447498 D01 v05r02			
<b>Wareneingangsdatum:</b> <i>Date of receipt:</i>	<b>10.07.2015</b>			
<b>Prüfmuster-Nr.:</b> <i>Test sample No.:</i>	<b>A000241485-001/002</b>			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	<b>10.07.2015 - 10.08.2015</b>			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	<b>Accurate Technology Co., Ltd.</b>			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	<b>TÜV Rheinland (Shenzhen) Co., Ltd.</b>			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	<b>Pass</b>			
<b>geprüft von / tested by:</b> 		<b>kontrolliert von / reviewed by:</b> 		
<b>08.09.2015</b>	<b>Lin Lin / Project Manager</b>	<b>08.09.2015</b>	<b>Sam Lin / Technical Certifier</b>	
<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>
<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>
<b>Sonstiges / Other:</b> <b>FCC ID: V4P-NSPNM6103BK</b>				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>		<b>Prüfmuster vollständig und unbeschädigt</b> <i>Test item complete and undamaged</i>		
<p>* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft  P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet</p> <p>Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor  P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested</p>				
<p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b>  <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i></p>				

## TEST SUMMARY

**5.1.1 ANTENNA REQUIREMENT***RESULT: Passed***5.1.2 PEAK OUTPUT POWER***RESULT: Passed***5.1.3 20dB BANDWIDTH***RESULT: Passed***5.1.4 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100KHZ BANDWIDTH***RESULT: Passed***5.1.5 SPURIOUS EMISSION***RESULT: Passed***5.1.6 FREQUENCY SEPARATION***RESULT: Passed***5.1.7 NUMBER OF HOPPING FREQUENCY***RESULT: Passed***5.1.8 TIME OF OCCUPANCY***RESULT: Passed***6.1.1 ELECTROMAGNETIC FIELDS***RESULT: Pass*

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## 1. General Remarks

### 1.1 Complementary Materials

None.

## 2. Test Sites

### 2.1 Test Facilities

Accurate Technology Co., Ltd.

F1, Bldg. A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China

FCC Registration No.: 752051

The tests at the test site have been conducted under the supervision of a TÜV engineer.

## 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
<b>Spurious emission and Radiated emission</b>				
Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	2016-01-10
Test Receiver	Rohde & Schwarz	ESCS30	100307	2016-01-10
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	2016-01-10
Loop Antenna	Schwarzbeck	FMZB1516	1516131	2016-01-10
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	2016-01-10
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	2016-01-10
Pre-Amplifier	Rohde & Schwarz	CBLU1183540-01	3791	2016-01-10
<b>Radio Test Suite</b>				
Receiver	Rohde & Schwarz	FSV40	101495	2016-01-10

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

**Table 2: Measurement Uncertainty**

Parameter	Uncertainty
Radiated emission (below 30MHz)	< ± 3.08 dB
Radiated emission (30MHz-1GHz)	< ± 4.42 dB
Radiated emission (above 1GHz)	< ± 4.06 dB

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The Accurate Technology Co., Ltd. test facility located at F1, Bldg. A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

### 3. General Product Information

#### 3.1 Product Function and Intended Use

The EUT is a Wireless 3 button Mouse with Bluetooth wireless technology.  
For details refer to the User Manual, Technical Description and Circuit Diagram.

#### 3.2 Ratings and System Details

**Table 3: Technical Specification of EUT**

Technical Specification	Value
Product Name	Bluetooth mouse
Model number	NS-PNM6103-BK
Operation Bandwidth	2402-2480MHz
Modulation	GFSK
Number of channel	79
Channel spacing	1M
Antenna gain	-1.53dBi
Antenna type	PCB
Rated	1.5Vdc (AA Battery)

#### 3.3 Independent Operation Modes

The basic operation modes are:

- A. Bluetooth Transmitting
  - 1. Lowest channel
  - 2. Middle channel
  - 3. Highest channel
  - 4. Hopping
- B. Off

### **3.4 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.5 Submitted Documents**

- |                         |                      |
|-------------------------|----------------------|
| - Photo Document        | - Circuit Diagram    |
| - Technical Description | - Instruction Manual |
| - Block                 | - Rating Label       |



## **4. Test Set-up and Operation Modes**

### **4.1 Principle of Configuration Selection**

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

### **4.2 Test Operation and Test Software**

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10:2013.

### **4.3 Special Accessories and Auxiliary Equipment**

The EUT was tested with following accessories

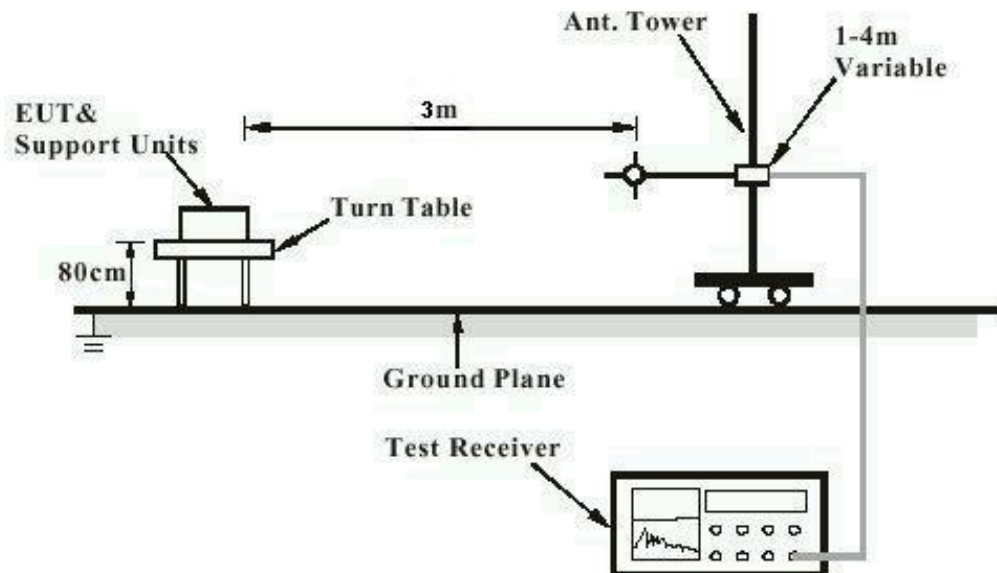
N/A

### **4.4 Countermeasures to achieve EMC Compliance**

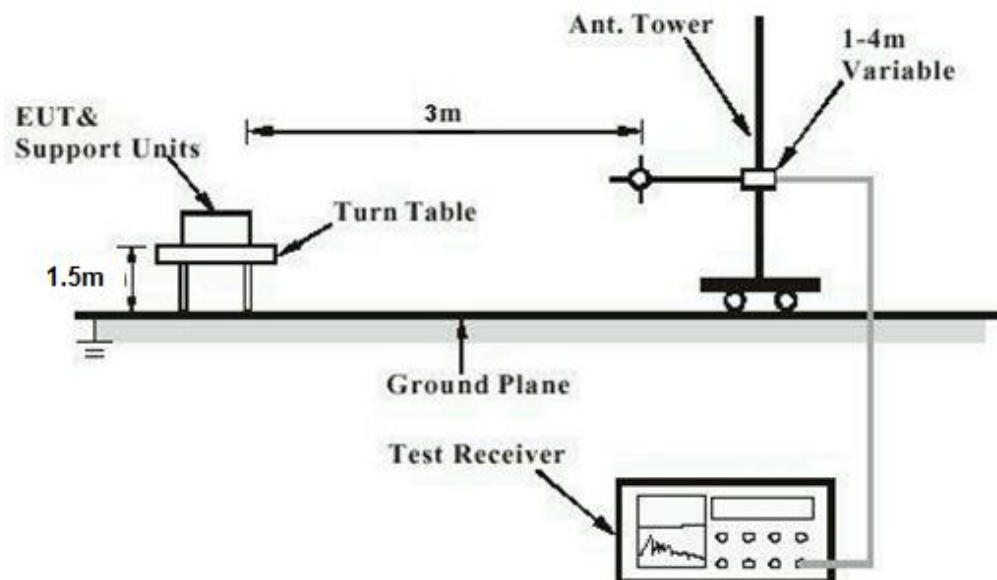
The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

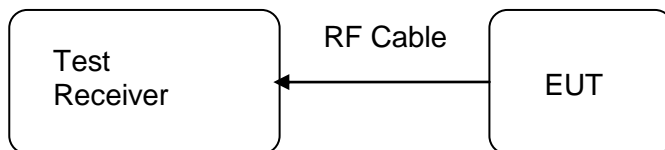
### Diagram of Measurement Configuration for Radiation Test (Below 1GHz)



### Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



**Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement**



## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**RESULT:****Passed**

Test date	:	2015-07-17
Test standard	:	FCC Part 15.247(b)(4) and Part 15.203
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is -1.53dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT photo for details.

## 5.1.2 Peak Output Power

**RESULT:****Passed**

Test date : 2015-07-17  
Test standard : FCC Part 15.247(b)(1)  
Basic standard : ANSI C63.10: 2013  
Limit : 125mW  
Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
Operation Mode : A  
Ambient temperature : 25°C  
Relative humidity : 55%  
Atmospheric pressure : 101 kPa

**Table 4: Test result of Peak Output Power**

Channel	Channel Frequency (MHz)	Peak Output Power		Limit
		(dBm)	(W)	(mW)
Low Channel	2402	-4.26	0.37	125
Middle Channel	2441	-3.86	0.41	125
High Channel	2480	-3.82	0.41	125

### 5.1.3 20dB Bandwidth

**RESULT:****Passed**

Date of testing : 2015-07-17  
Test standard : FCC Part 15.247(a)(1)  
Basic standard : ANSI C63.10: 2013  
Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
Operation Mode : A  
Ambient temperature : 25°C  
Relative humidity : 55%  
Atmospheric pressure : 101 kPa

**Table 5: Test result of 20dB Bandwidth**

Channel	Channel Frequency (MHz)	20dB Bandwidth (kHz)	Limit (MHz)	Result
Low Channel	2402	703.3	/	Pass
Mid Channel	2441	703.3	/	Pass
High Channel	2480	703.3	/	Pass

### 5.1.4 Conducted spurious emissions measured in 100kHz Bandwidth

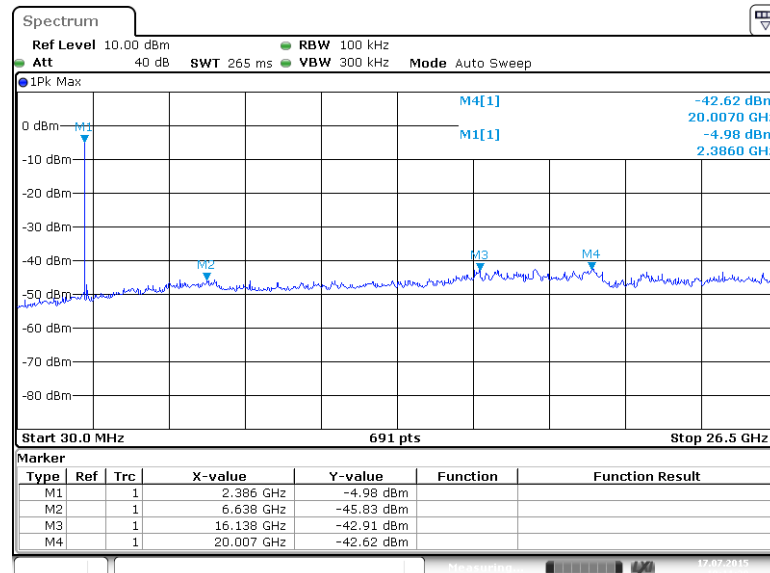
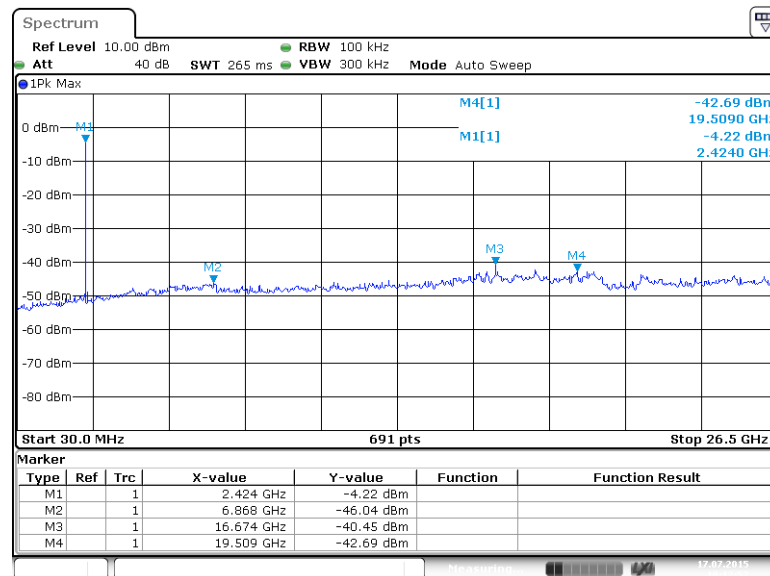
**RESULT:****Passed**

Date of testing : 2015-07-17  
Test standard : FCC part 15.247(d)  
Basic standard : ANSI C63.10: 2013  
Limit : 20dB (below that in the 100kHz bandwidth within  
the band that contains the highest level of the  
desired power);  
In addition, radiated emissions which fall in the  
restricted bands, must also comply with the radiated  
emission limits specified in 15.209(a)  
Kind of test site : Shield room

**Test setup**

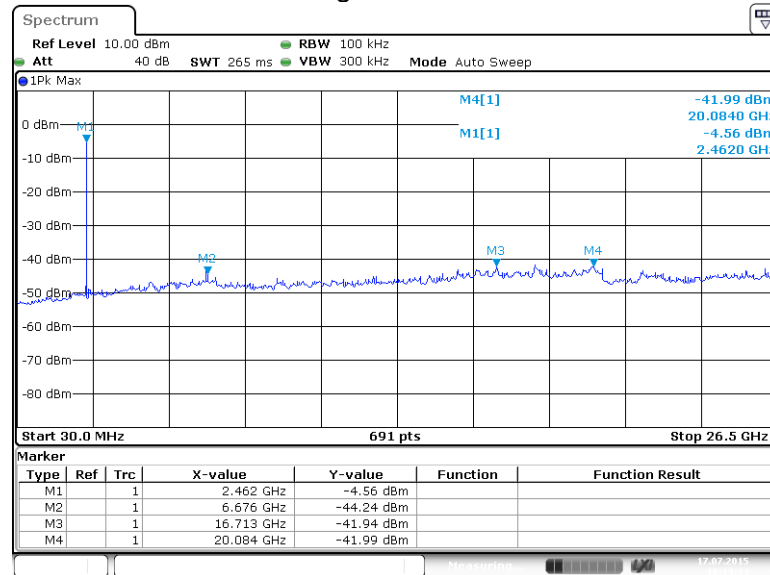
Test Channel : Low/ Middle/ High  
Operation mode : A  
Ambient temperature : 25°C  
Relative humidity : 55%  
Atmospheric pressure : 101 kPa

Remark: all emissions are more than 20dB below fundamental.

**Test Plot of Conducted spurious emissions measured in 100kHz Bandwidth**
**Low Channel**

**Middle Channel**


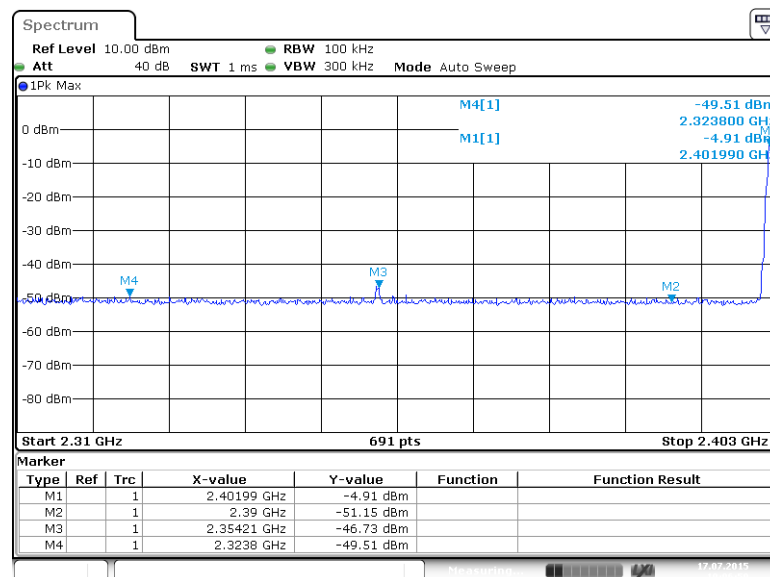


### High Channel

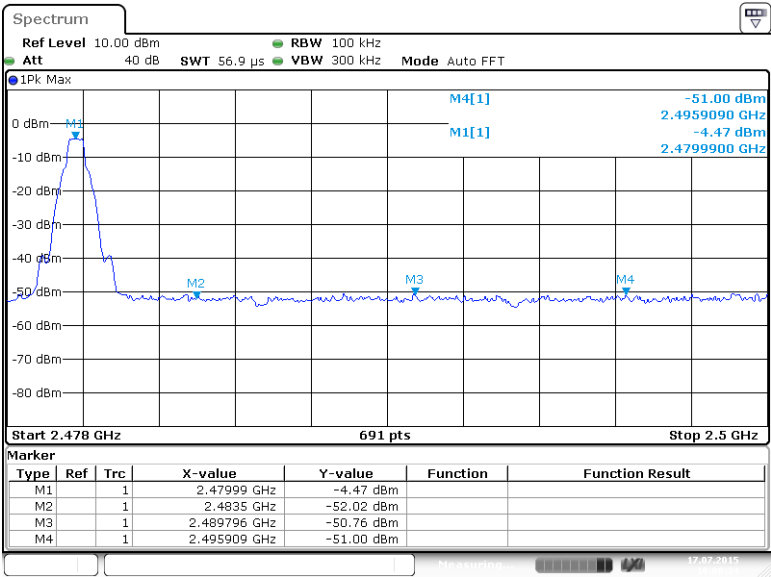


Date: 17.JUL.2015 10:14:34

### Test Plot of Conducted spurious emissions measured in 100kHz Bandwidth Bandedge



Date: 17.JUL.2015 10:06:59



Date: 17.JUL.2015 10:08:34

### 5.1.5 Spurious Emission

**RESULT:****Passed**

Date of testing	:	2015-07-21 to 2015-07-22
Test standard	:	FCC part 15.247(d) FCC Part 15.205 FCC Part 15.209
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	:	3m Semi-Anechoic Chamber

**Test setup**

Test Channel	:	Low/ Middle/ High
Operation mode	:	A
Ambient temperature	:	25°C
Relative humidity	:	55%
Atmospheric pressure	:	101 kPa

**Remark:**

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test setup photos.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

## Test Plot of Spurious Emission

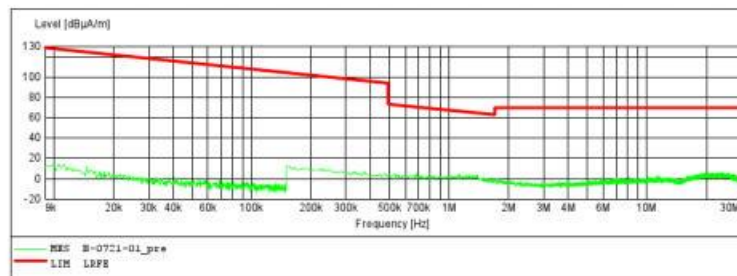
**ACCURATE TECHNOLOGY CO., LTD**

**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-ENM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 2402MHz  
 Test Site: C# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: X  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			SUB_STD_VTERM 1.70			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M

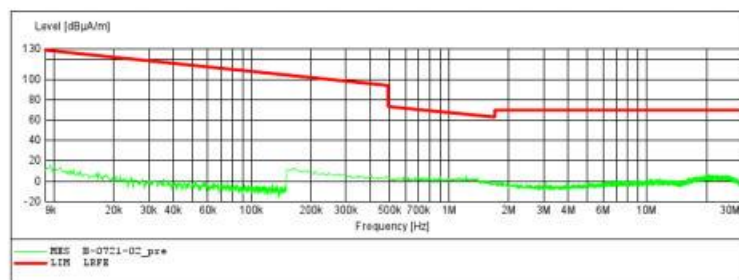


**ACCURATE TECHNOLOGY CO., LTD**
**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 2402MHz  
 Test Site: C# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: Y  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			_SUB_STD VTERM 1.70			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M

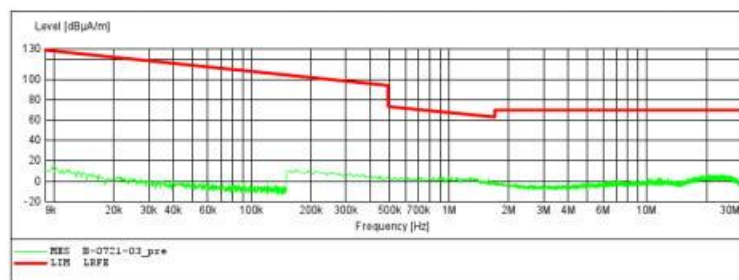


**ACCURATE TECHNOLOGY CO., LTD**
**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 2402MHz  
 Test Site: 2# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: Z  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			_SUB_STD VTERM 1.70			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M

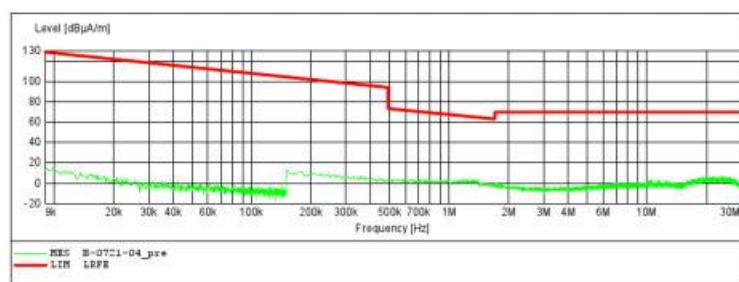


**ACCURATE TECHNOLOGY CO., LTD**
**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 241MHz  
 Test Site: 2# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: X  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			_SUB_STD VTERM 1.70		IF		Transducer	
Start	Stop	Step	Detector	Meas.	Time	Bandw.		
Frequency	Frequency	Width						
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M		
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M		

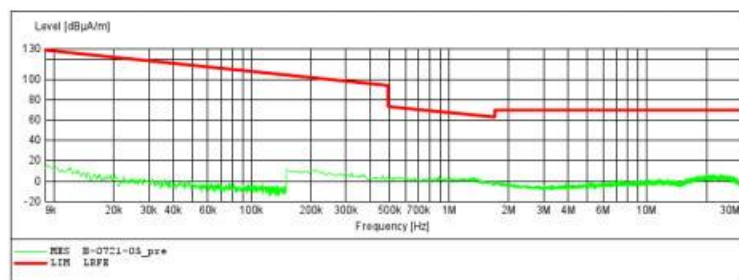


**ACCURATE TECHNOLOGY CO., LTD**
**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 241MHz  
 Test Site: C# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: Y  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			_SUB_STD VTERM 1.70			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



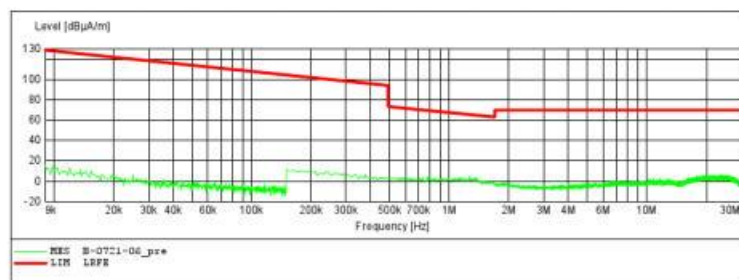


**ACCURATE TECHNOLOGY CO., LTD**
**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 241MHz  
 Test Site: 2# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: Z  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			_SUB_STD VTERM 1.70			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M

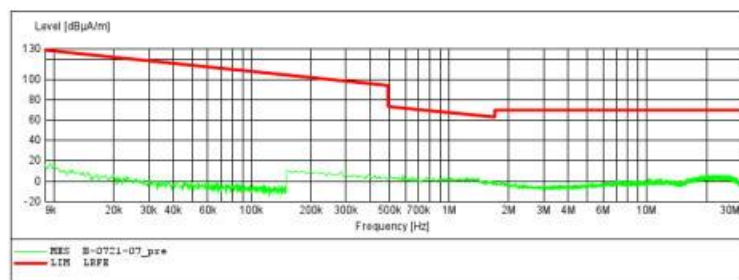


**ACCURATE TECHNOLOGY CO., LTD**
**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 2480MHz  
 Test Site: C# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: X  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			_SUB_STD VTERM 1.70					
Start	Stop	Step	Detector	Meas.	IF	Transducer		
Frequency	Frequency	Width		Time	Bandw.			
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M		
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M		



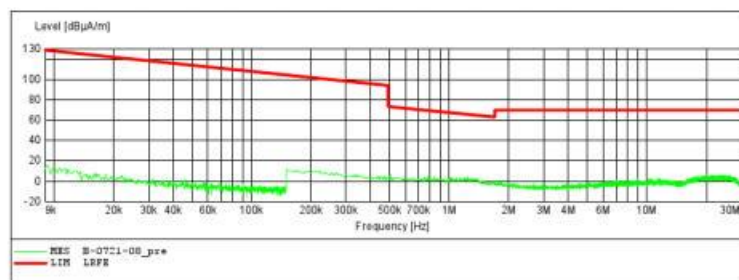
**ACCURATE TECHNOLOGY CO., LTD**

**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
Operating Condition: TX 2480MHz  
Test Site: 2# Chamber  
Operator: LAN  
Test Specification: DC 1.5V  
Comment: Y  
Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Start	Stop	Step	_SUB STD	VTERM	1.70	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width					Time	Bandw.	
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M			
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M			

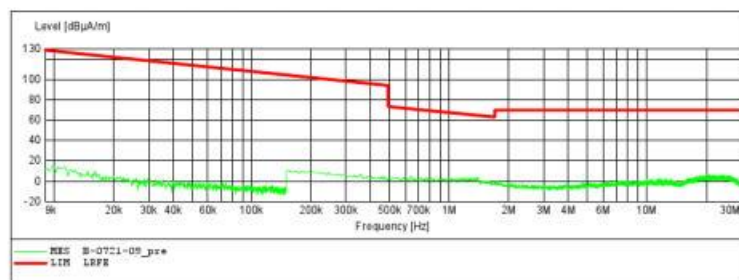


**ACCURATE TECHNOLOGY CO., LTD**
**FCC Class B 3M Radiated**

EUT: Bluetooth Mouse M/N: NS-PNM6103-BK  
 Manufacturer: Dongguan Newmen Electronics Technology Co., LTD  
 Operating Condition: TX 2480MHz  
 Test Site: 2# Chamber  
 Operator: LAN  
 Test Specification: DC 1.5V  
 Comment: Z  
 Start of Test: 2015-07-21 /

**SCAN TABLE: "LFRE Fin"**

Short Description:			_SUB_STD VTERM 1.70					
Start	Stop	Step	Detector	Meas.	IF	Transducer		
Frequency	Frequency	Width		Time	Bandw.			
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M		
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M		




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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #855

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2402MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Vertical

Power Source: DC 1.5V

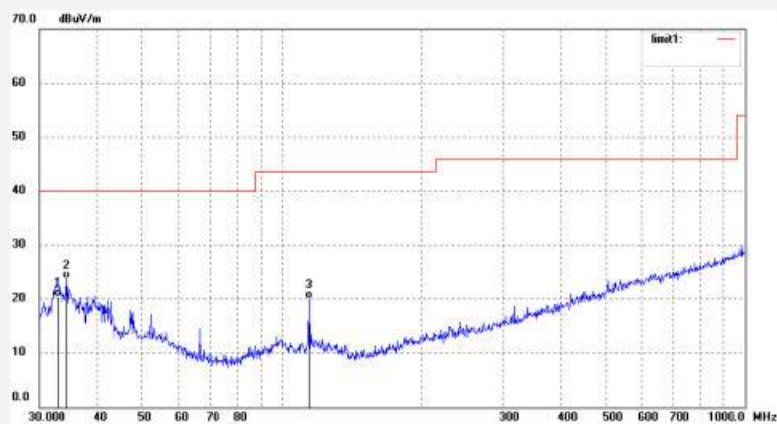
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.8637	30.18	-9.79	20.39	40.00	-19.61	QP			
2	34.3962	33.99	-10.24	23.75	40.00	-16.25	QP			
3	114.5146	34.33	-14.23	20.10	43.50	-23.40	QP			


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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #856

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2402MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal

Power Source: DC 1.5V

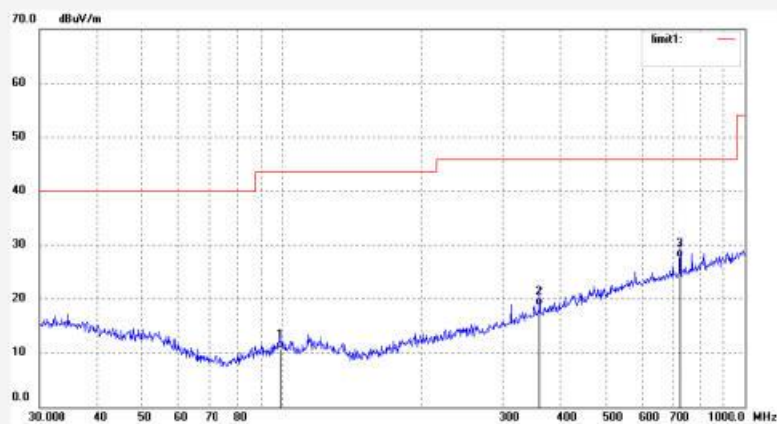
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Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	99.5279	24.97	-14.28	10.69	43.50	-32.81	QP			
2	360.4476	27.50	-8.60	18.90	46.00	-27.10	QP			
3	721.7259	30.12	-2.46	27.66	46.00	-18.34	QP			


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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #857

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2441MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal

Power Source: DC 1.5V

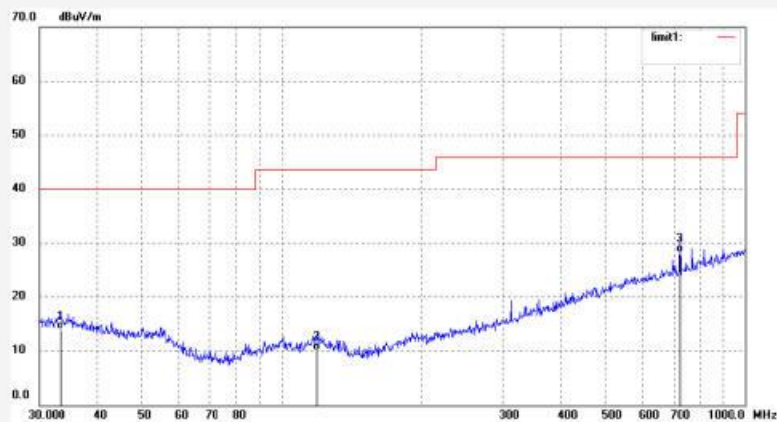
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Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.3278	24.24	-10.25	13.99	40.00	-26.01	QP			
2	119.0180	24.22	-14.15	10.07	43.50	-33.43	QP			
3	721.7259	30.66	-2.46	28.20	46.00	-17.80	QP			


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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #858

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2441MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Vertical

Power Source: DC 1.5V

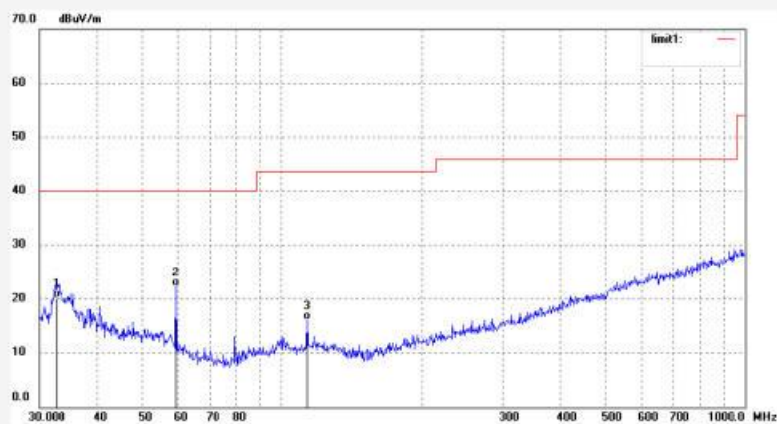
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Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.7486	30.05	-9.75	20.30	40.00	-19.70	QP			
2	59.2325	36.09	-13.79	22.30	40.00	-17.70	QP			
3	113.3162	30.67	-14.41	16.26	43.50	-27.24	QP			




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Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #859

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2480MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Vertical

Power Source: DC 1.5V

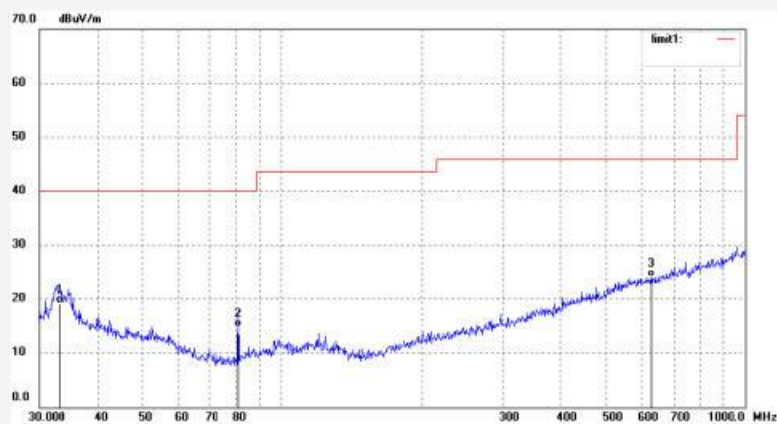
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Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.0949	29.02	-9.86	19.16	40.00	-20.84	QP			
2	80.6441	32.13	-17.36	14.77	40.00	-25.23	QP			
3	627.2738	27.65	-3.61	24.04	46.00	-21.96	QP			


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Site: 2# Chamber

Tel: +86-0755-26503290

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Job No.: LGW2015 #860

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2480MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal

Power Source: DC 1.5V

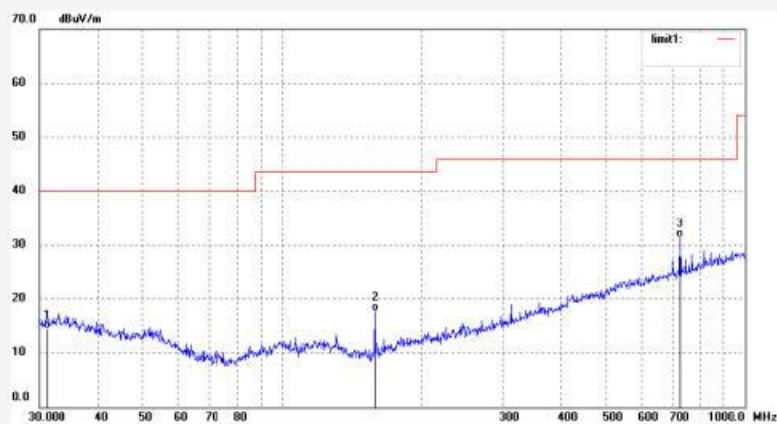
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Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.1798	24.53	-10.04	14.49	40.00	-25.51	QP			
2	159.2250	33.32	-15.64	17.68	43.50	-25.82	QP			
3	721.7259	33.83	-2.46	31.37	46.00	-14.63	QP			


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Job No.: LGW2015 #881

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp. (C)/Hum. (%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2402MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co., LTD

Polarization: Vertical

Power Source: DC 1.5V

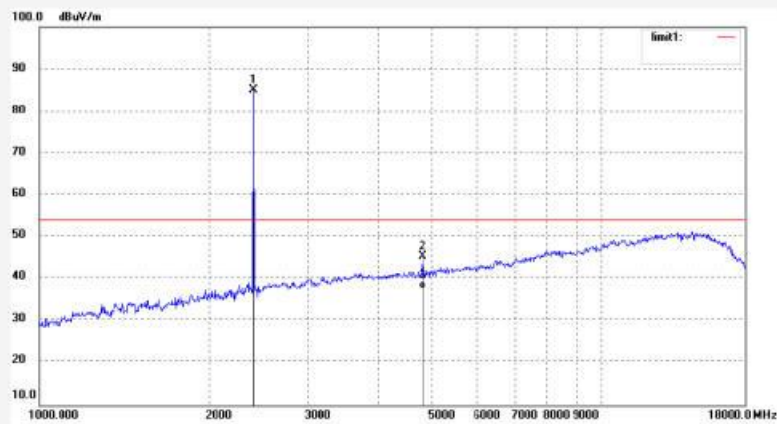
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Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	92.58	-7.45	85.13	/	/	peak			
2	4804.023	45.71	-0.30	45.41	74.00	-28.59	peak			
3	4804.023	37.85	-0.30	37.55	54.00	-16.45	AVG			


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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #862

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2402MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal

Power Source: DC 1.5V

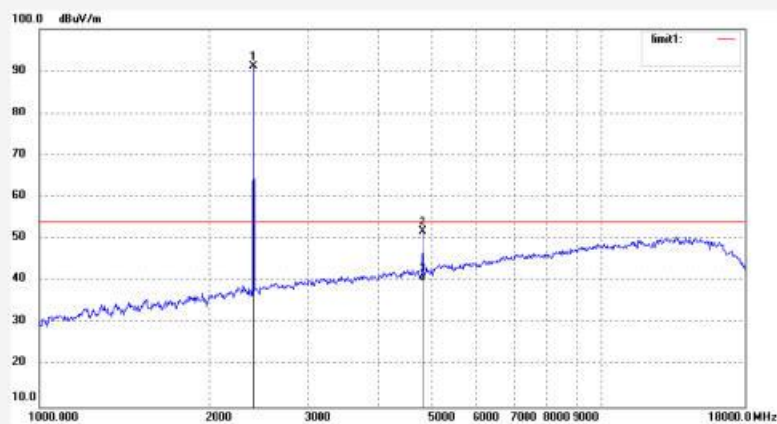
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	98.67	-7.45	91.22	/	/	peak			
2	4804.026	52.01	-0.30	51.71	74.00	-22.29	peak			
3	4804.026	40.12	-0.30	39.82	54.00	-14.18	AVG			


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Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #865

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2441MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Vertical

Power Source: DC 1.5V

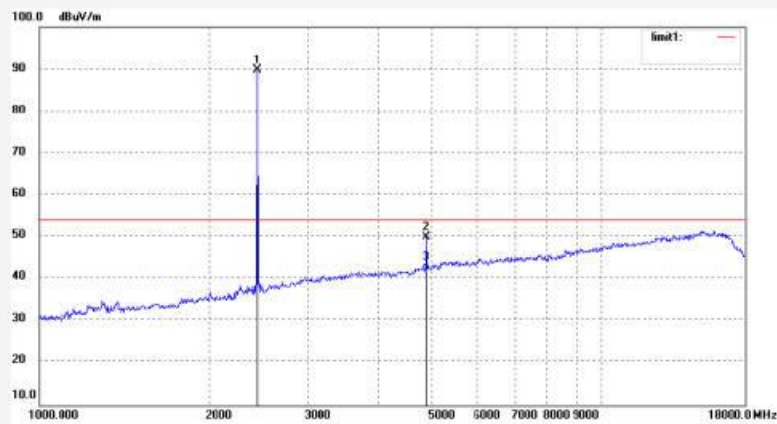
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	97.08	-7.35	89.73	/	/	peak			
2	4882.027	49.85	0.14	49.99	74.00	-24.01	peak			
3	4882.027	41.93	0.14	42.07	54.00	-11.93	AVG			


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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #886

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp. (C)/Hum. (%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2441MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co., LTD

Polarization: Horizontal

Power Source: DC 1.5V

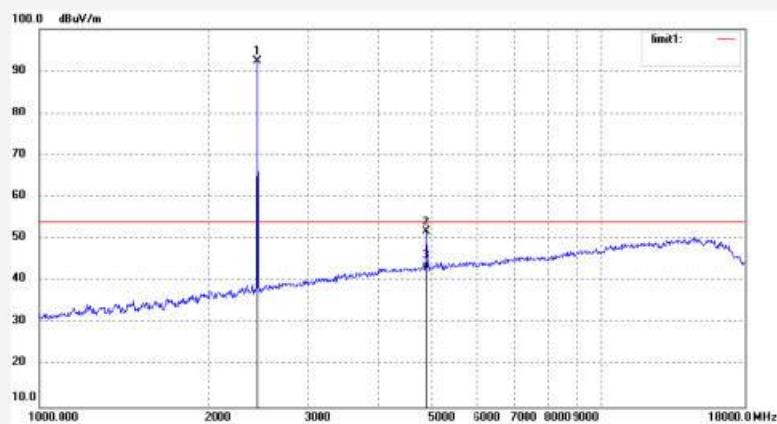
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	99.74	-7.35	92.39	/	/	peak			
2	4882.021	51.52	0.14	51.66	74.00	-22.34	peak			
3	4882.021	42.75	0.14	42.89	54.00	-11.11	AVG			


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Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #867

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2480MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal

Power Source: DC 1.5V

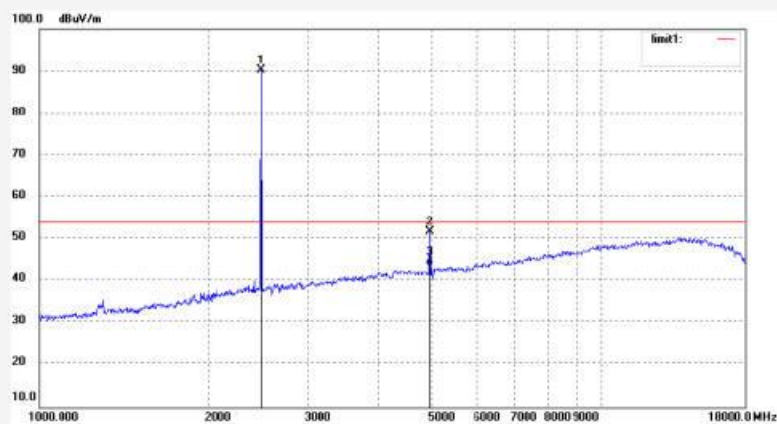
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	97.51	-7.37	90.14	/	/	peak			
2	4960.027	51.12	0.52	51.64	74.00	-22.36	peak			
3	4960.027	43.20	0.52	43.72	54.00	-10.28	AVG			




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Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #868

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2480MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Vertical

Power Source: DC 1.5V

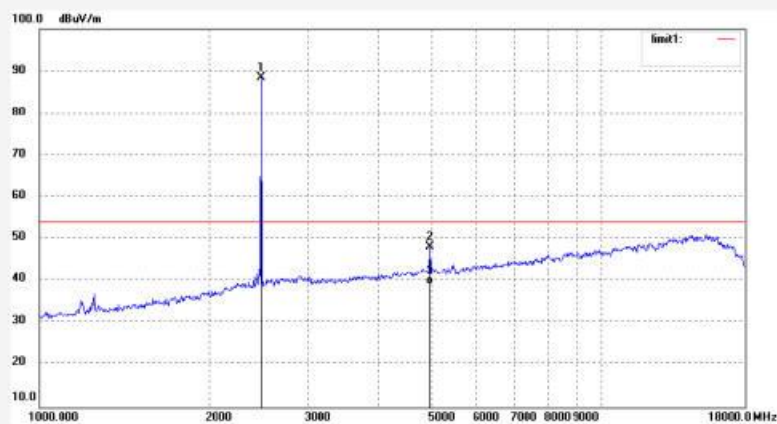
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	95.77	-7.37	88.40	/	/	peak			
2	4960.025	47.58	0.52	48.10	74.00	-25.90	peak			
3	4960.025	38.62	0.52	39.14	54.00	-14.86	AVG			




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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #887

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp. (C)/Hum. (%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2402MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co., LTD

Polarization: Vertical

Power Source: DC 1.5V

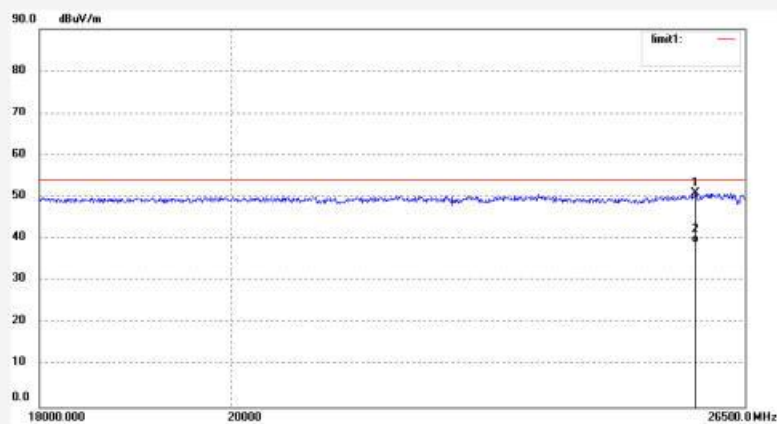
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	25792.161	34.40	16.50	50.90	74.00	-23.10	peak			
2	25792.161	22.56	16.50	39.06	54.00	-14.94	AVG			


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F1 Bldg A, Changyuan New Material Port Keyuan Rd,  
Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #888

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp. (C)/Hum. (%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2402MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co., LTD

Polarization: Horizontal

Power Source: DC 1.5V

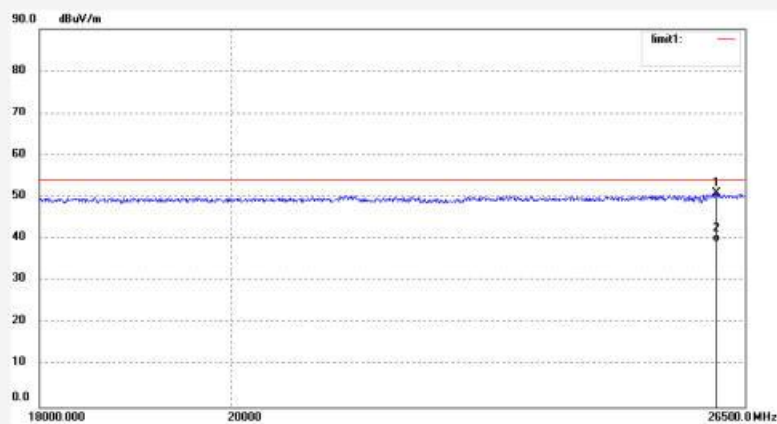
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	26083.086	34.56	16.50	51.06	74.00	-22.94	peak			
2	26083.086	22.86	16.50	39.36	54.00	-14.64	AVG			


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F1 Bldg A, Changyuan New Material Port Keyuan Rd,  
Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #889

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2441MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal

Power Source: DC 1.5V

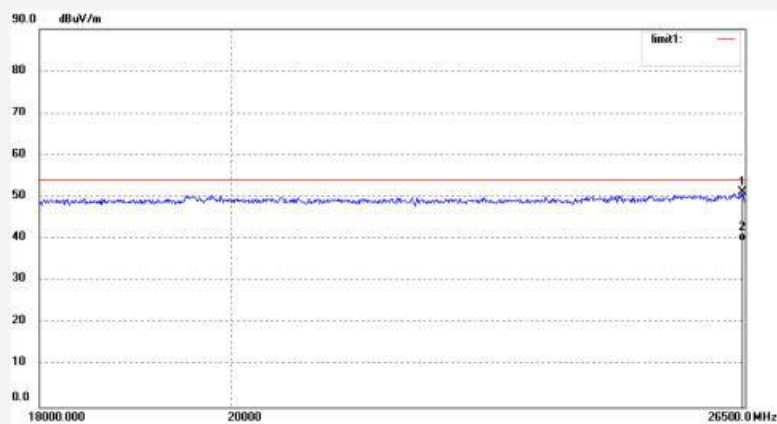
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	26469.269	34.66	16.50	51.16	74.00	-22.84	peak			
2	26469.269	22.97	16.50	39.47	54.00	-14.53	AVG			


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Science & Industry Park, Nanshan Shenzhen, P.R. China

Site: 2# Chamber

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Fax: +86-0755-26503396

Job No.: LGW2015 #890

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp. (C)/Hum. (%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2441MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co., LTD

Polarization: Vertical

Power Source: DC 1.5V

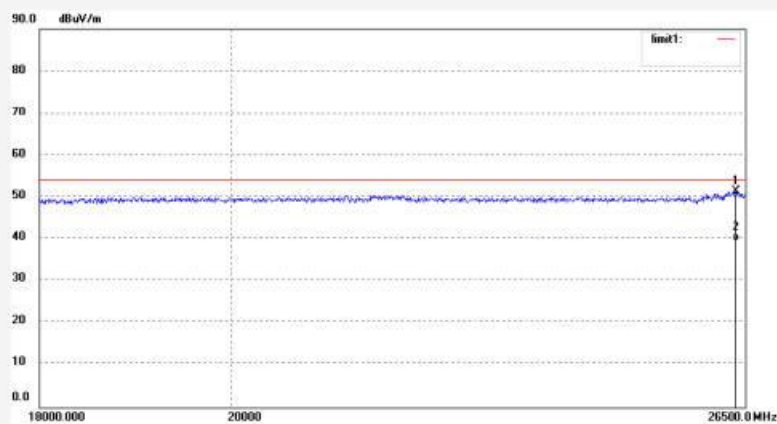
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	26367.091	34.86	16.50	51.36	74.00	-22.64	peak			
2	26367.091	23.09	16.50	39.59	54.00	-14.41	AVG			


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Site: 2# Chamber

Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #891

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp. (C)/Hum. (%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2480MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co., LTD

Polarization: Vertical

Power Source: DC 1.5V

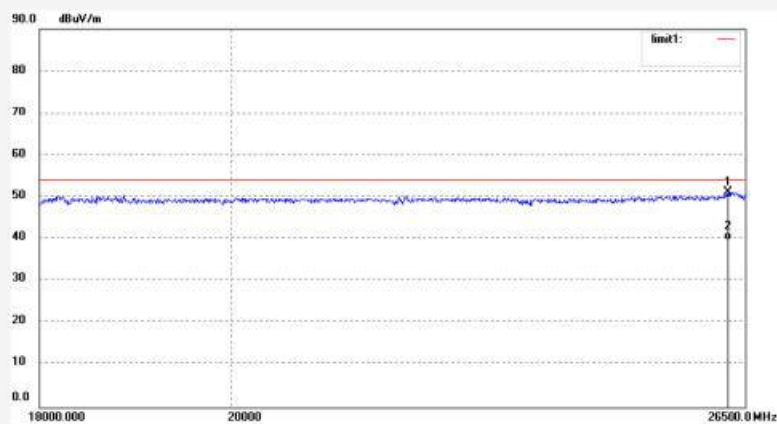
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	26244.998	34.70	16.50	51.20	74.00	-22.80	peak			
2	26244.998	23.26	16.50	39.76	54.00	-14.24	AVG			


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Job No.: LGW2015 #892

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2480MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal

Power Source: DC 1.5V

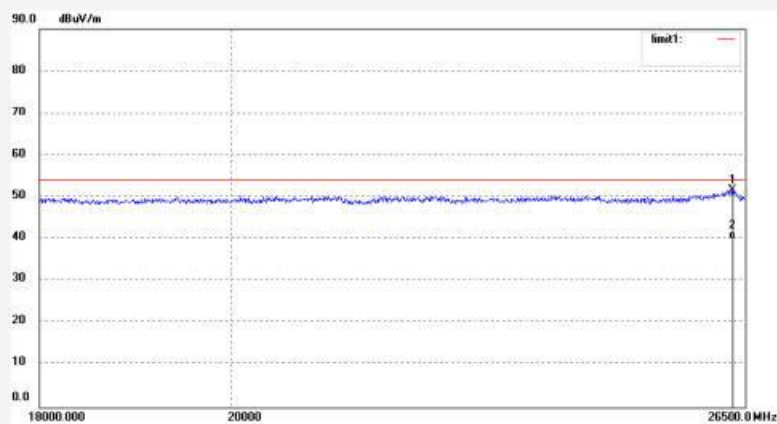
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	26316.150	35.17	16.50	51.67	74.00	-22.33	peak			
2	26316.150	23.55	16.50	40.05	54.00	-13.95	AVG			


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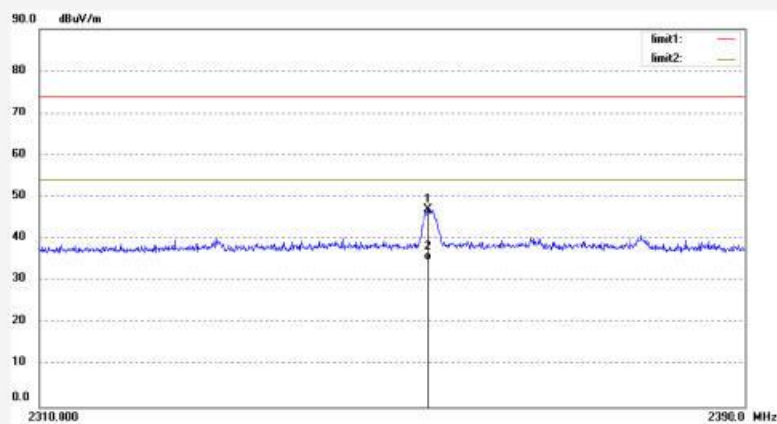
Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #863  
Standard: FCC (Band Edge)  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 23 C / 48 %  
EUT: Bluetooth Mouse  
Mode: TX 2402MHz  
Model: NS-PNM6103-BK  
Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal  
Power Source: DC 1.5V  
Date: 15/07/22/  
Time:  
Engineer Signature:  
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2353.760	54.99	-7.76	47.23	74.00	-26.77	peak			
2	2353.760	42.86	-7.76	35.10	54.00	-18.90	AVG			


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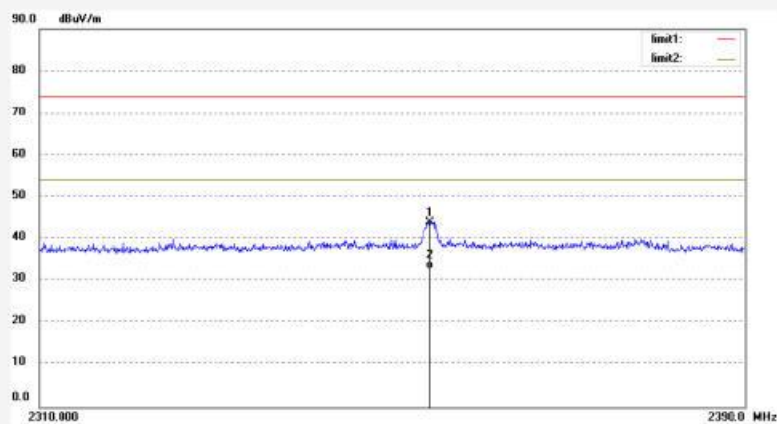
Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #884  
Standard: FCC (Band Edge)  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 23 C / 48 %  
EUT: Bluetooth Mouse  
Mode: TX 2402MHz  
Model: NS-PNM6103-BK  
Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Vertical  
Power Source: DC 1.5V  
Date: 15/07/22/  
Time:  
Engineer Signature:  
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2354.000	51.67	-7.76	43.91	74.00	-30.09	peak			
2	2354.000	40.76	-7.76	33.00	54.00	-21.00	AVG			




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Fax: +86-0755-26503396

Job No.: LGW2015 #889

Standard: FCC (Band Edge)

Test item: Radiation Test

Temp. (C)/Hum. (%) 23 C / 48 %

EUT: Bluetooth Mouse

Mode: TX 2480MHz

Model: NS-PNM6103-BK

Manufacturer: Dongguan Newmen Electronics Technology Co., LTD

Polarization: Vertical

Power Source: DC 1.5V

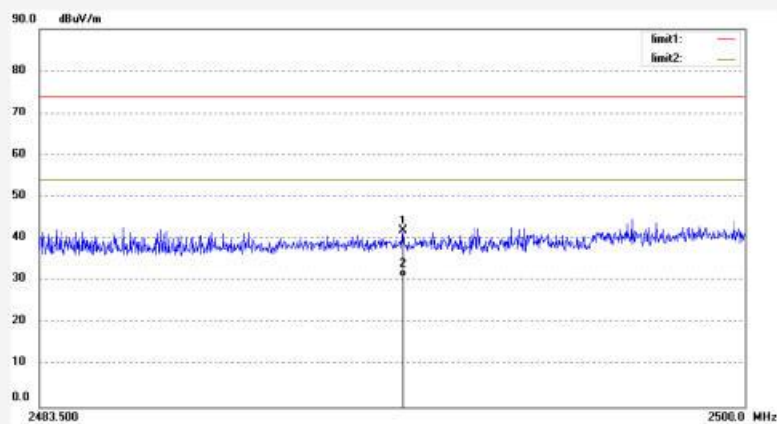
Date: 15/07/22/

Time:

Engineer Signature:

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2491.997	49.26	-7.39	41.87	74.00	-32.13	peak			
2	2491.997	38.32	-7.39	30.93	54.00	-23.07	AVG			


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Site: 2# Chamber

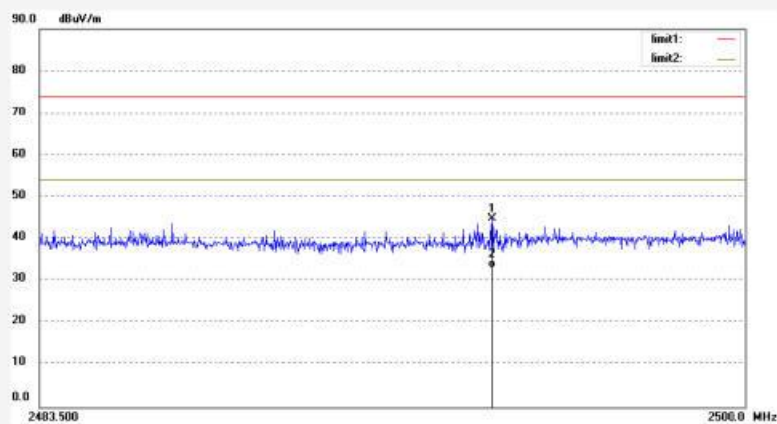
Tel: +86-0755-26503290

Fax: +86-0755-26503396

Job No.: LGW2015 #870  
Standard: FCC (Band Edge)  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 23 C / 48 %  
EUT: Bluetooth Mouse  
Mode: TX 2480MHz  
Model: NS-PNM6103-BK  
Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD

Polarization: Horizontal  
Power Source: DC 1.5V  
Date: 15/07/22/  
Time:  
Engineer Signature:  
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2494.093	52.33	-7.40	44.93	74.00	-29.07	peak			
2	2494.093	40.52	-7.40	33.12	54.00	-20.88	AVG			

## 5.1.6 Frequency Separation

**RESULT:****Passed**

Date of testing : 2015-07-17  
Test standard : FCC part 15.247(a)(1)  
Basic standard : ANSI C63.10: 2013  
Limit :  $\geq 25\text{kHz}$  or  $2/3$  of  $20\text{dB}$  bandwidth, whichever is greater

**Test setup**

Test Channel : Low/ Middle/ High  
Operation Mode : A  
Ambient temperature :  $25^{\circ}\text{C}$   
Relative humidity : 55%  
Atmospheric pressure : 101 kPa

**Table 6: Test result of Frequency Separation**

Channel	Channel Frequency (MHz)	Measured Channel Separation (MHz)	Limit (kHz)	Result
Low Channel	2402	1	$\geq 25\text{kHz}$ or $2/3$ of $20\text{dB}$ bandwidth	Pass
Adjacency Channel	2403			
Mid Channel	2441	1	$\geq 25\text{kHz}$ or $2/3$ of $20\text{dB}$ bandwidth	Pass
Adjacency Channel	2442			
High Channel	2480	1	$\geq 25\text{kHz}$ or $2/3$ of $20\text{dB}$ bandwidth	Pass
Adjacency Channel	2479			

### 5.1.7 Number of hopping frequency

**RESULT:****Passed**

Date of testing : 2015-07-17  
Test standard : FCC part 15.247(a)(1)(iii)  
Basic standard : ANSI C63.10: 2013  
Limits :  $\geq 15$  non-overlapping channels  
Kind of test site : Shield room

**Test setup**

Test Channel : Hopping  
Operation Mode : A  
Ambient temperature : 25°C  
Relative humidity : 55%  
Atmospheric pressure : 101 kPa

**Table 7: Test result of Number of hopping frequency**

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
2400 to 2483.5 MHz	79	$\geq 15$	Pass

## 5.1.8 Time of Occupancy

### RESULT:

**Passed**

Date of testing : 2015-07-17  
 Test standard : FCC part 15.247(a)(1)(iii)  
 Basic standard : ANSI C63.10: 2013  
 Limits : 0.4s  
 Kind of test site : Shield room

### Test setup

Test Channel : Low/ Middle/ High  
 Operation Mode : A  
 Ambient temperature : 25°C  
 Relative humidity : 55%  
 Atmospheric pressure : 101 kPa

**Table 8: Test result of Time of Occupancy**

Modulation Type	Packet	Max Dwell Time				Limit (s)	Result
GFSK	DH1	0.42	ms * 320=	134.4	ms	0.4	Pass
	DH3	1.70	ms * 160=	272.0	ms	0.4	Pass
	DH5	2.96	ms * 107=	316.7	ms	0.4	Pass

Note:

The maximum number of hopping channels in 31.6s for DH1  
 $=1600 / 2 / 79 * 31.6=320$

The maximum number of hopping channels in 31.6s for DH3  
 $=1600 / 4 / 79 * 31.6=160$

The maximum number of hopping channels in 31.6s for DH5  
 $=1600 / 6 / 79 * 31.6=107$

## 6. Safety Human Exposure

### 6.1 Radio Frequency Exposure Compliance

#### 6.1.1 Electromagnetic Fields

**RESULT:****Pass**

Test standard : FCC KDB Publication 447498 D01 v05r02

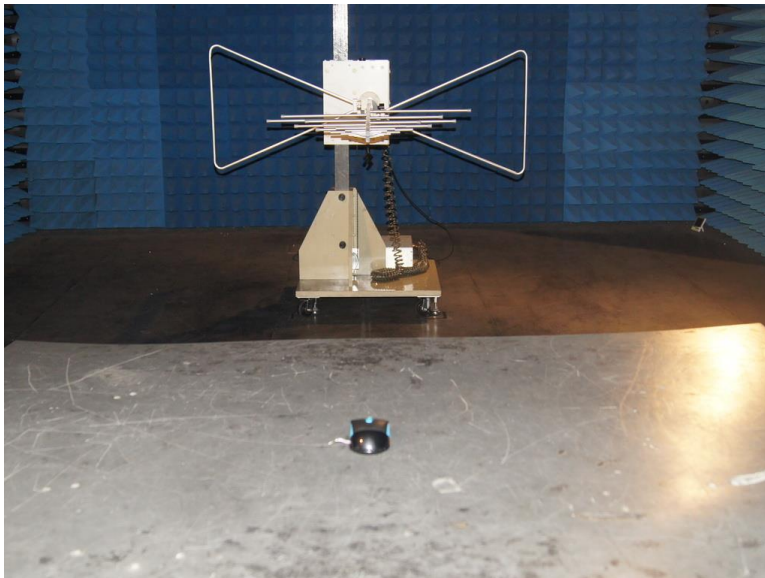
The separation distance of the NS-PNM6103-BK should be 5mm. The measured maximum peak output power of the NS-PNM6103-BK is -3.82dBm (0.41mW, antenna gain:-1.53dBi), which is far below the SAR exclusion threshold level 10 mW (Appendix A, SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and  $\leq 50$  mm), hence the EUT is excluded from SAR evaluation according to FCC KDB publication 447498 D01: Mobile and Portable RF Exposure. Guidance v05r02.

## 7. Photographs of the Test Set-Up

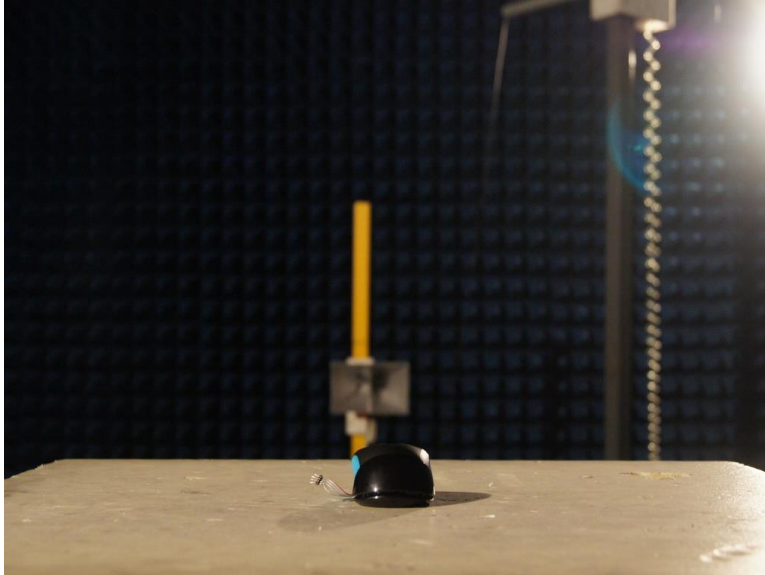
**Photograph 1: Set-up for Spurious Emissions (9kHz-30MHz)**



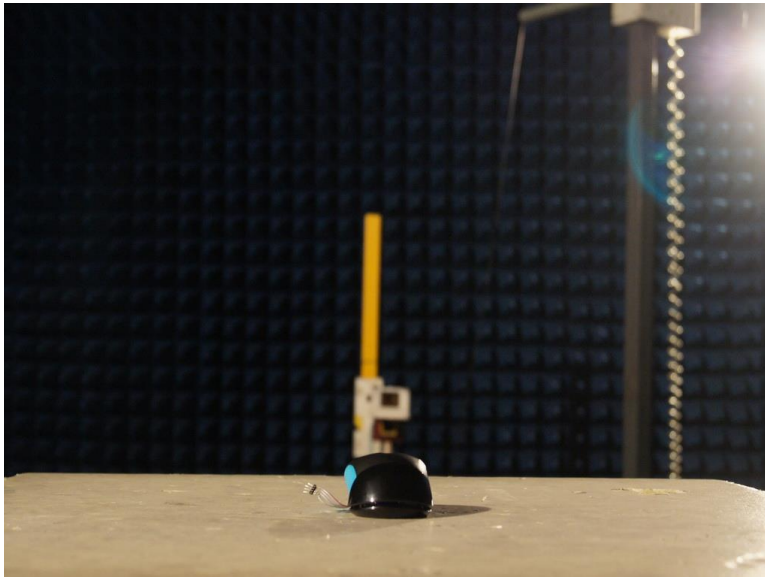
**Photograph 2: Set-up for Spurious Emissions (30MHz-1GHz)**



**Photograph 3: Set-up for Spurious Emissions (1GHz-18GHz)**



**Photograph 4: Set-up for Spurious Emissions (18GHz-26GHz)**





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