

APPLICATION CERTIFICATION FCC Part 15B
On Behalf of
Eastern Times Technology Co., Ltd.

Bluetooth Laser Mouse
Model No.: DS-2292(2292-B)

FCC ID: TUV2292

Prepared for : Eastern Times Technology Co., Ltd.
Address : Building 5, Penghua Industry Park, Heping Rd.(W),
Longhua, Shenzhen, Guangdong, China

Prepared by : ACCURATE TECHNOLOGY CO. LTD
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Report Number : ATE20090070
Date of Test : May 12, 2009
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Test Report Certification

Applicant : Eastern Times Technology Co., Ltd.
Manufacturer : Eastern Times Technology Co., Ltd.
EUT Description : Bluetooth Laser Mouse
(A) MODEL NO.: DS-2292(2292-B)
(B) SERIAL NO.: N/A
(C) POWER SUPPLY: 2.4V DC (“AAA” Ni-MH rechargeable batteries 2×)

Measurement Procedure Used:

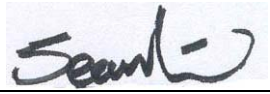
FCC Rules and Regulations Part 15 Subpart B
ANSI C63.4: 2003

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : May 12, 2009

Prepared by : 
(Engineer)

Approved & Authorized Signer : 
(Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Bluetooth Laser Mouse
Model Number	:	DS-2292(2292-B)
Frequency Band	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain	:	0dBi Max.
Power Supply	:	2.4V DC (“AAA” Ni-MH rechargeable batteries 2×)
PC System	:	Manufacturer: DELL M/N: DCNE Serial No.: 6CQSC2X
Printer	:	Manufacturer: Canon Model No.: BJC-1000SP
Applicant	:	Eastern Times Technology Co., Ltd.
Address	:	Building 5, Penghua Industry Park, Heping Rd.(W), Longhua, Shenzhen, Guangdong, China
Manufacturer	:	Eastern Times Technology Co., Ltd.
Address	:	Building 5, Penghua Industry Park, Heping Rd.(W), Longhua, Shenzhen, Guangdong, China
Date of sample received	:	May 10, 2009
Date of Test	:	May 12, 2009

1.2. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC
The Registration Number is 752051

Listed by Industry Canada
The Registration Number is 5077A-2

Accredited by China National Accreditation Committee
for Laboratories
The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

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

1.3. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2
(Above 1GHz)

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	03.28.2010
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	03.28.2010
Spectrum Analyzer	Agilent	E7405A	MY45115511	03.28.2010
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	03.30.2010
Loop Antenna	Schwarzbeck	FMZB1516	1516131	03.28.2010
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	03.28.2010
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	12.19.2009
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	10.09.2009
LISN	Rohde&Schwarz	ESH3-Z5	100305	03.28.2010
LISN	Schwarzbeck	NSLK8126	8126431	03.28.2010

3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

The mode is used: Connect to PC (Charging)

3.2. Configuration and peripherals

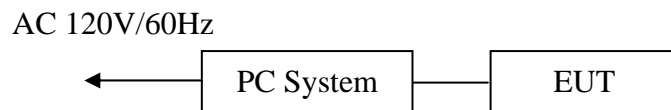


Figure 1 Setup: Connect to PC

(EUT: Bluetooth Laser Mouse)

4. TEST PROCEDURES AND RESULTS

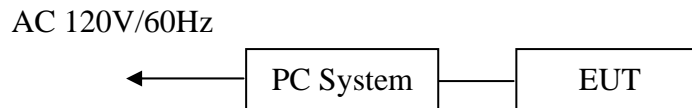
FCC Rules	Description of Test	Result
Section 15.107	Conducted Emission Test	Compliant
Section 15.109	Radiated Emission Test	Compliant

5. CONDUCTED EMISSION FOR FCC PART 15 SECTION

15.107(A)

5.1. Block Diagram of Test Setup

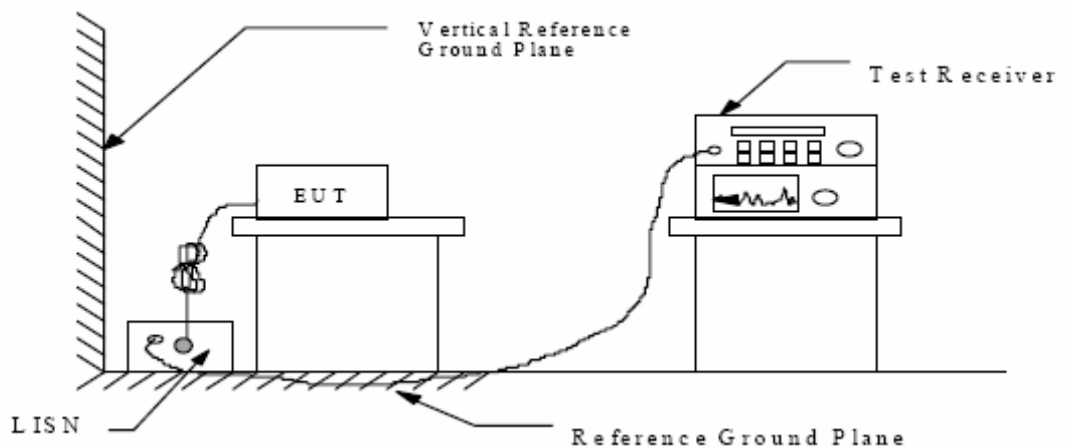
5.1.1. Block diagram of connection between the EUT and simulators



Setup: Connect to PC

(EUT: Bluetooth Laser Mouse)

5.1.2. Shielding Room Test Setup Diagram



(EUT: Bluetooth Laser Mouse)

5.2. The Emission Limit

5.2.1. Conducted Emission Measurement Limits According to Section 15.107(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

5.3.Configuration of EUT on Measurement

The following equipment are installed on the Conducted Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1. Bluetooth Laser Mouse (EUT)

Model Number : DS-2292(2292-B)
Serial Number : N/A
Manufacturer : Eastern Times Technology Co., Ltd.

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in Connect to PC mode measure it.

5.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

5.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Date of Test:	<u>May 12, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Bluetooth Laser Mouse</u>	Humidity:	<u>48%</u>
			<u>Connect to PC use USB terminal</u>
Model No.:	<u>DS-2292(2292-B)</u>	Power Supply:	<u>PC power: AC120V/60Hz</u>
Test Mode:	<u>Connect to PC</u>	Test Engineer:	<u>Joe</u>

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.150000	43.40	11.0	66	22.6	QP	N	GND
1.581000	29.70	11.7	56	26.3	QP	N	GND
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.181500	39.90	11.2	54	14.5	AV	N	GND
0.609000	28.20	12.0	46	17.8	AV	N	GND
1.581000	29.50	11.7	46	16.5	AV	N	GND
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.181500	47.30	11.2	64	17.1	QP	L1	GND
1.765500	28.60	11.7	56	27.4	QP	L1	GND
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.181500	45.50	11.2	54	8.9	AV	L1	GND
0.303000	35.70	11.6	50	14.5	AV	L1	GND
0.366000	34.50	11.7	49	14.1	AV	L1	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are attached as below.

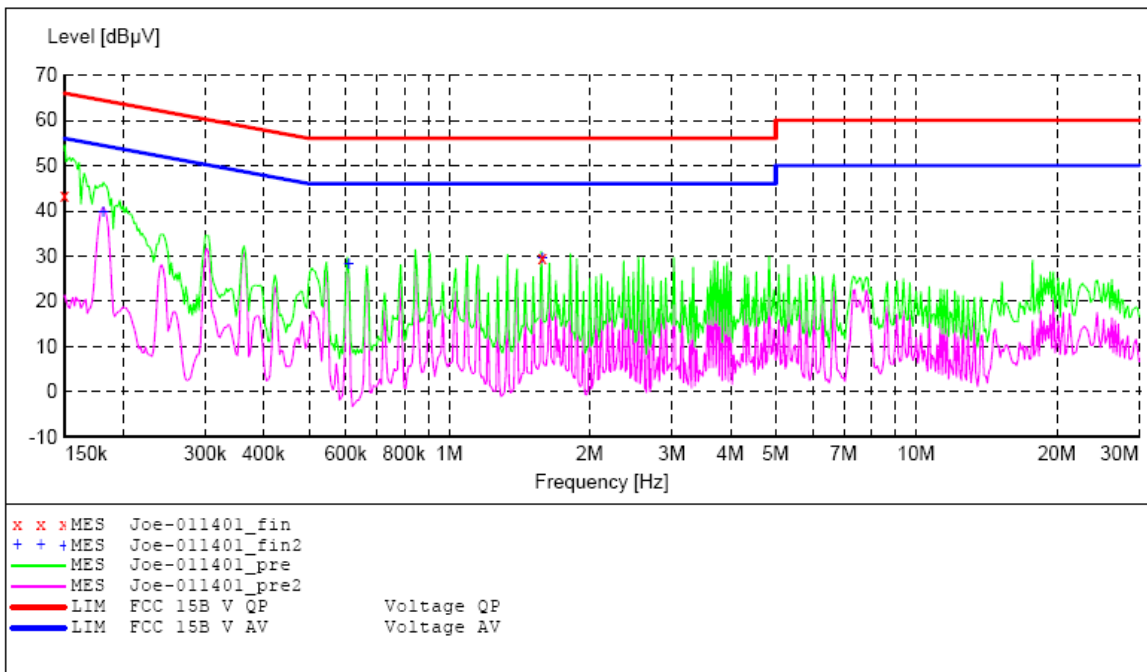
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Laser Mouse M/N:DS-2292(2292-B)
 Manufacturer: Eastern Times
 Operating Condition: Connect to PC
 Test Site: 1#Shielding Room
 Operator: Joe
 Test Specification: Va 120V/60Hz
 Comment: Sample No.:090072 Report No.:ATE20090070
 Start of Test: 5/12/2009 / 10:28:47AM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "Joe-011401_fin"

1/14/2009 10:30AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	43.40	11.0	66	22.6	QP	N	GND
1.581000	29.70	11.7	56	26.3	QP	N	GND

MEASUREMENT RESULT: "Joe-011401_fin2"

1/14/2009 10:30AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.181500	39.90	11.2	54	14.5	AV	N	GND
0.609000	28.20	12.0	46	17.8	AV	N	GND
1.581000	29.50	11.7	46	16.5	AV	N	GND

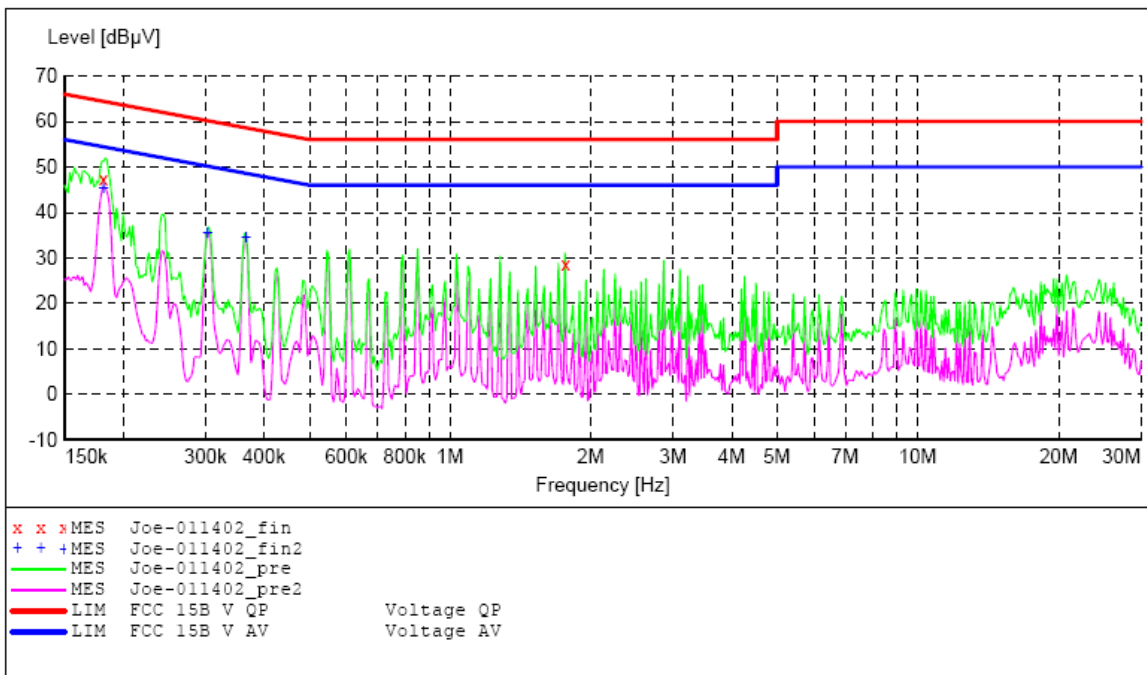
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Bluetooth Laser Mouse M/N:DS-2292 (2292-B)
 Manufacturer: Eastern Times
 Operating Condition: Connect to PC
 Test Site: 1#Shielding Room
 Operator: Joe
 Test Specification: Vb 120V/60Hz
 Comment: Sample No.:090072 Report No.:ATE20090070
 Start of Test: 5/12/2009 / 10:31:35AM

SCAN TABLE: "V 150K-30MHz fin"

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	0.8 %	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
Average						



MEASUREMENT RESULT: "Joe-011402_fin"

1/14/2009 10:35AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.181500	47.30	11.2	64	17.1	QP	L1	GND
1.765500	28.60	11.7	56	27.4	QP	L1	GND

MEASUREMENT RESULT: "Joe-011402_fin2"

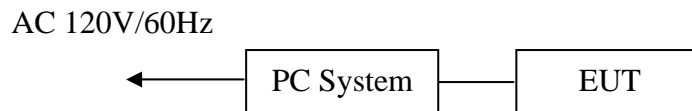
1/14/2009 10:35AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.181500	45.50	11.2	54	8.9	AV	L1	GND
0.303000	35.70	11.6	50	14.5	AV	L1	GND
0.366000	34.50	11.7	49	14.1	AV	L1	GND

6. RADIATED EMISSION FOR FCC PART 15 SECTION 15.109(A)

6.1. Block Diagram of Test Setup

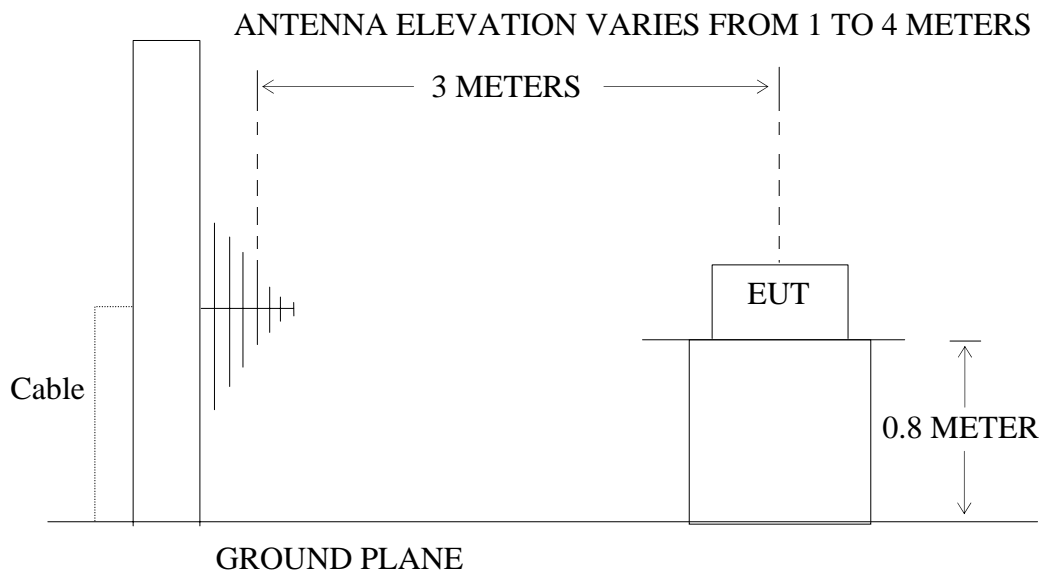
6.1.1. Block diagram of connection between the EUT and simulators



Setup: Connect to PC

(EUT: Bluetooth Laser Mouse)

6.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: Bluetooth Laser Mouse)

6.2.The Emission Limit For Section 15.109 (a)

6.2.1.Radiation Emission Measurement Limits According to Section 15.109 (a).

Frequency (MHz)	Limit	
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dB μ V/m)
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

6.3.EUT Configuration on Measurement

The following equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.3.1.Bluetooth Laser Mouse (EUT)

Model Number : DS-2292(2292-B)
 Serial Number : N/A
 Manufacturer : Eastern Times Technology Co., Ltd.

6.4.Operating Condition of EUT

6.4.1.Setup the EUT and simulator as shown as Section 6.1.

6.4.2.Turn on the power of all equipment.

6.4.3. Let the EUT work in Connect to PC mode measure it.

6.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz.

The frequency range from 30MHz to 1000MHz is checked.

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

6.6.The Emission Measurement Result

PASS.

Date of Test:	<u>May 12, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Bluetooth Laser Mouse</u>	Humidity:	<u>48%</u>
Model No.:	<u>DS-2292(2292-B)</u>	Power Supply:	<u>Connect to PC use USB terminal PC power: AC120V/60Hz</u>
Test Mode:	<u>Connect to PC</u>	Test Engineer:	<u>Joe</u>

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
71.9990	23.07	13.02	36.09	40.00	-3.91	Vertical
191.9970	16.27	14.89	31.16	43.50	-12.34	Vertical
71.9990	21.61	13.02	34.63	40.00	-5.37	Horizontal
167.9960	18.17	14.70	32.87	43.50	-10.63	Horizontal
191.9970	20.44	14.89	35.33	43.50	-8.17	Horizontal

The spectral diagrams are attached as below display the measurement of peak values.

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$



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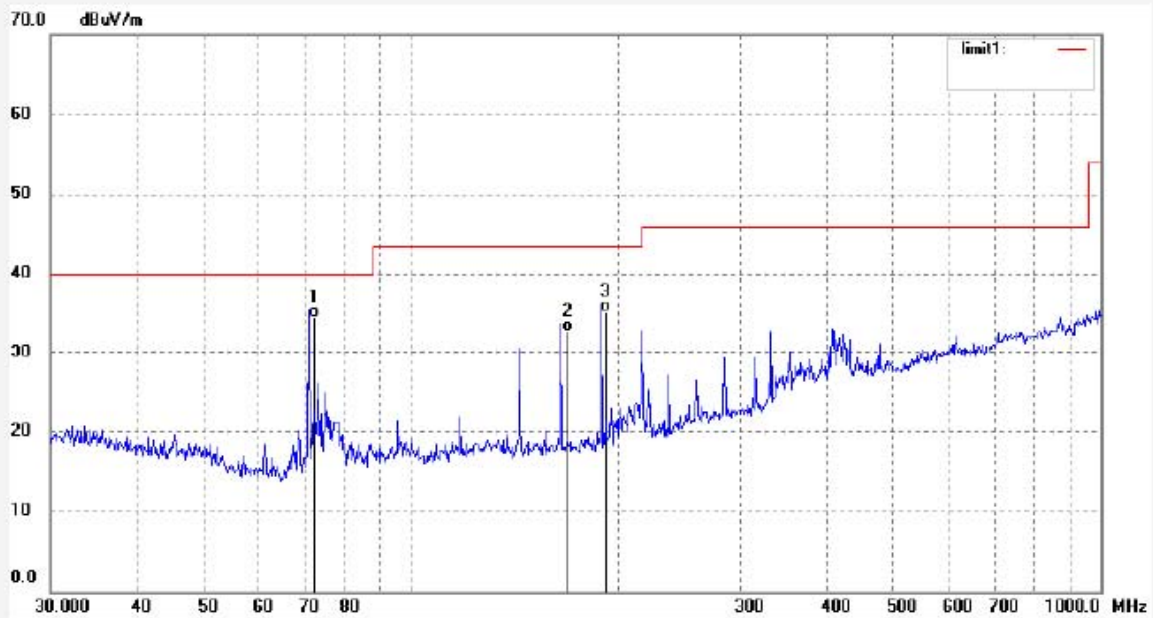
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #1110
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 49 %
EUT: Bluetooth Laser Mouse
Mode: Connect to PC
Model: DS-2292(2292-B)
Manufacturer: Eastern Times

Polarization: Horizontal
Power Source: DC 5V
Date: 09/05/12/
Time: 9/19/41
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:090072 Report No.:ATE20090070



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	71.9990	21.61	13.02	34.63	40.00	-5.37	QP			
2	167.9960	18.17	14.70	32.87	43.50	-10.63	QP			
3	191.9970	20.44	14.89	35.33	43.50	-8.17	QP			



ACCURATE TECHNOLOGY CO., LTD.

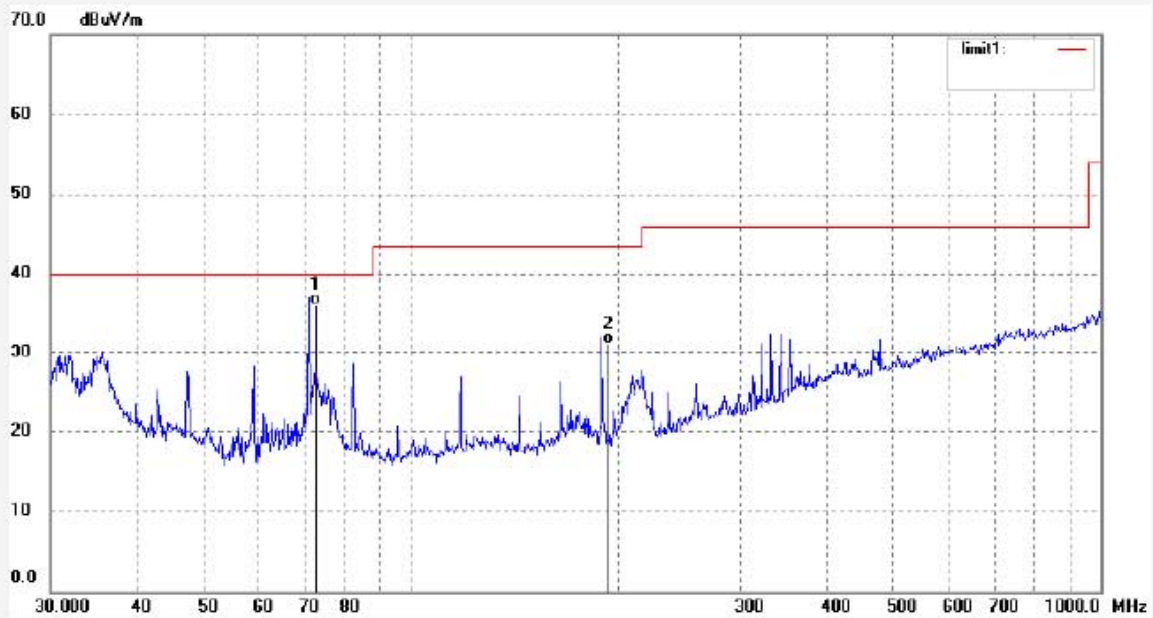
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #1111
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 49 %
EUT: Bluetooth Laser Mouse
Mode: Connect to PC
Model: DS-2292(2292-B)
Manufacturer: Eastern Times

Polarization: Vertical
Power Source: DC 5V
Date: 09/05/12/
Time: 9/22/29
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:090072 Report No.:ATE20090070



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	71.9990	23.07	13.02	36.09	40.00	-3.91	QP			
2	191.9970	16.27	14.89	31.16	43.50	-12.34	QP			