Test Report

Product Name	Wireless Mouse
Model No.	MOS18
FCC ID.	FSUGMZJ6

Applicant	KYE SYSTEMS CORP.
Address	No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei Hsien, 24160, Taiwan, R.O.C.

Date of Receipt	Dec. 23, 2009
Issued Date	Feb. 02, 2010
Report No.	09C418R-RFUSP38V01
Report Version	V1.0

Test Report Certification

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Applicant	KYE SYSTEMS CORP.
Address	No. 492, Sec. 5, Chung Hsin Rd., San Chung, Taipei Hsien, 24160, Taiwan, R.O.C.
Manufacturer	KYE SYSTEMS CORP.
Model No.	MOS18
FCC ID.	FSUGMZJ6
EUT Rated Voltage	DC 3V (Power by Battery)
EUT Test Voltage	DC 3V (Power by Battery)
Trade Name	Genius
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2008 ANSI C63.4: 2003
Test Result	Complied

NVLAP Lab Code: 200533-0

The Test Results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Rita Huang
(Engineering Adm. Specialist / Rita Huang)

Tested By : Henk Huang
(Engineer / Henk Huang)

Approved By :
(Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless Mouse
Trade Name	Genius
Model No.	MOS18
FCC ID.	FSUGMZJ6
Frequency Range	300 kHz
Type of Modulation	N/A
Number of Channel	1

Frequency of Each Channel:

Channel	Frequency
1	300 kHz

Note:
1. The EUT is a Wireless Mouse with a built-in 300kHz transmitter.
2. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operational Description

The EUT is Wireless Mouse with a built-in 300kHz transmitter. The operation frequency is from 300kHz. The signal will be transmitted through electromagnetic coupling. DC 3V (Power by Battery) shall be provided for EUT operation.

Test Mode	Mode 1: Transmit

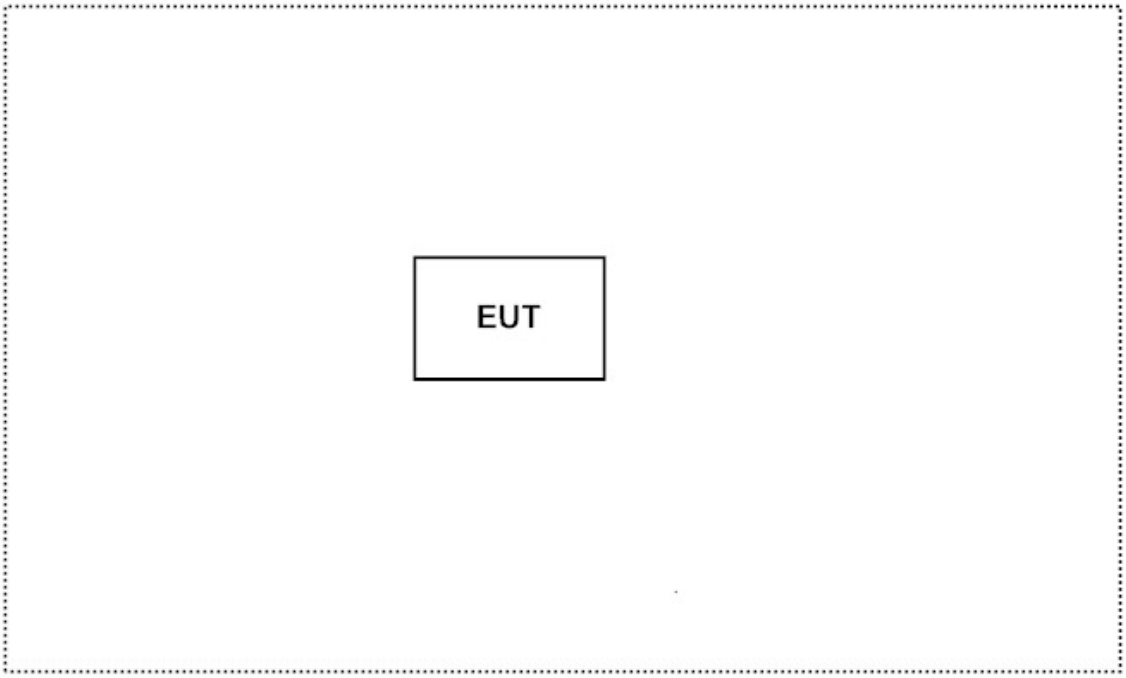
1.3. Test System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	N/A	N/A

1.4. Configuration of Test System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in section 1.3.

(2) Inserts the battery, start continuous transmit

(3) Verify that the EUT works correctly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://tw.quietek.com/tw/emc/accreditations/accreditations.htm

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

Site Description: Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

Testing Laboratory
0914

2. Conducted Emission

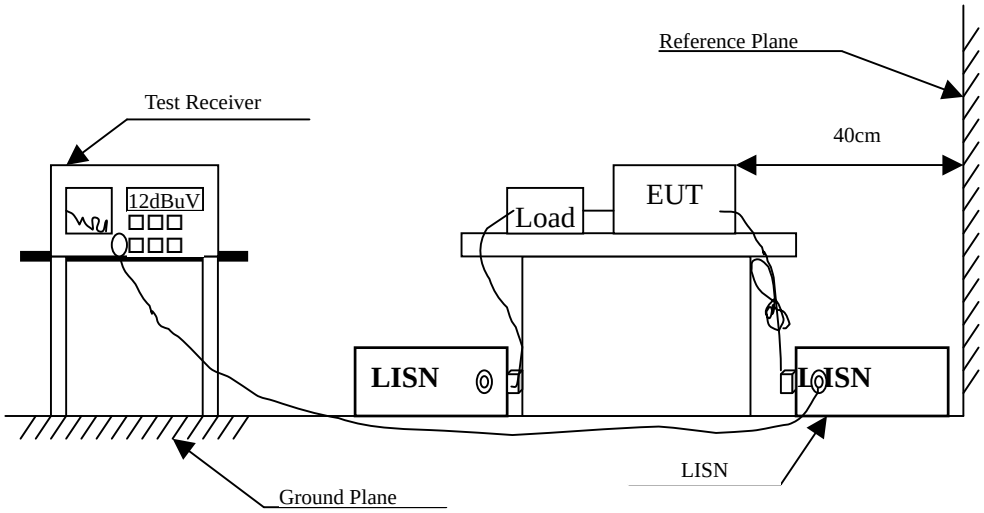
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/014	Feb., 2010	
2	L.I.S.N.	R & S	ESH3-Z5/825562/002	Feb., 2010	EUT
3	L.I.S.N.	R & S	ENV4200/848411/010	Feb., 2010	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2/100410	July, 2009	
5	No.1 Shielded Room			N/A	

Note: All equipments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart B Paragraph 15.107 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Owing to the DC operation of EUT, this test item is not performed.

3. Radiated Emission

3.1. Test Equipment

The following test equipment are used during the radiated emission test:

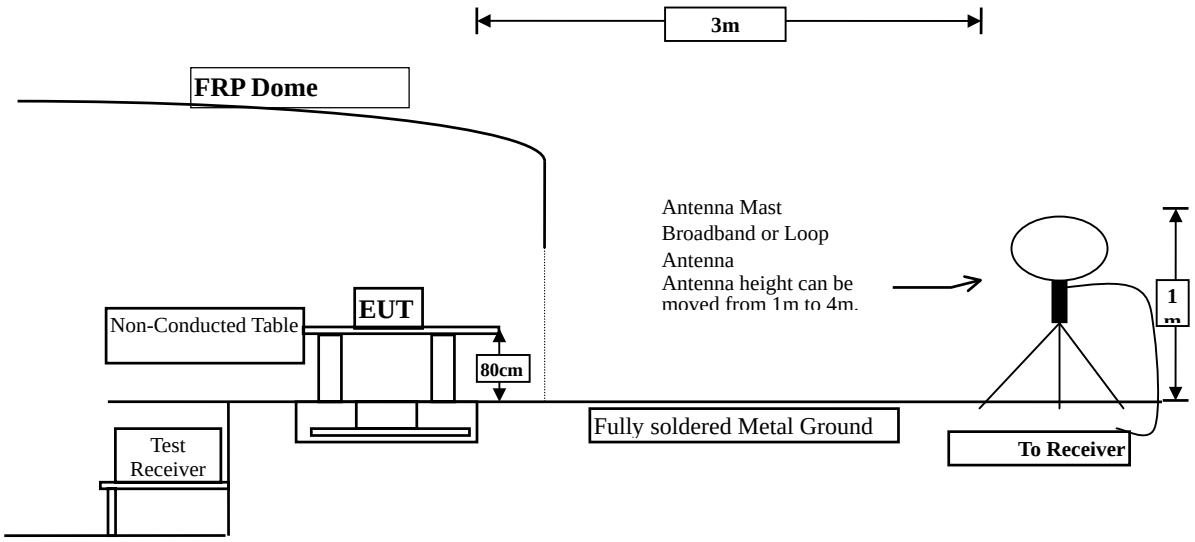
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2009
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2009
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2010
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated every one year.

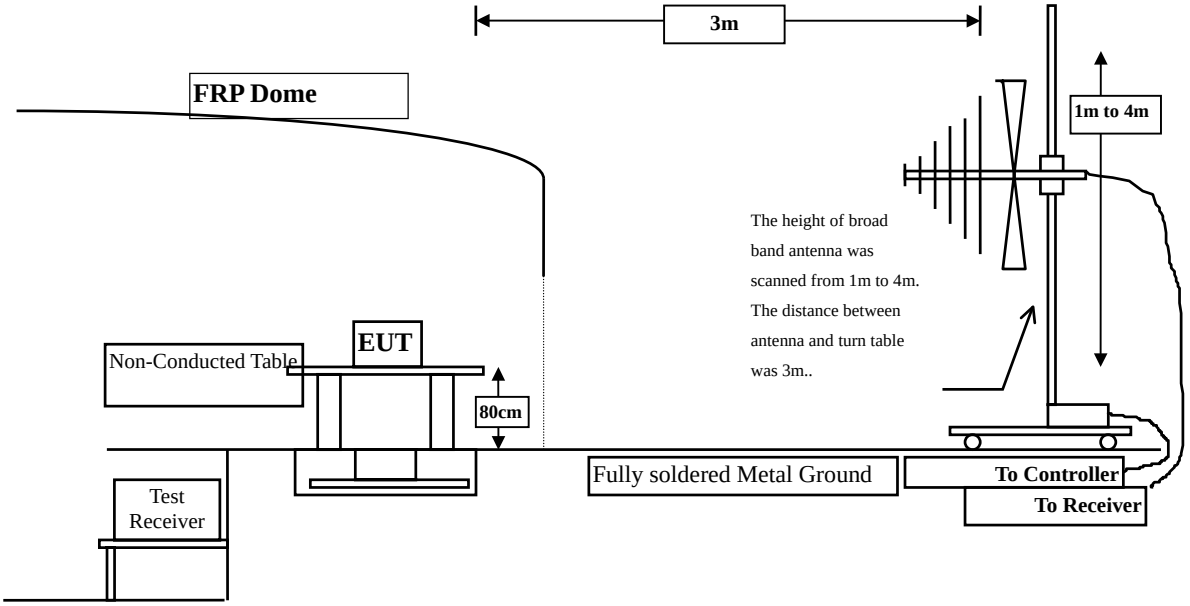
2. The test equipments marked by "X" are used to measure the final test results.

3.2. Test Setup

Under 30MHz Test Setup



Radiated Emission Below 1GHz



3.3. Limits

FCC Part 15 Subpart B Paragraph 15.209 Limits		
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2,400/F(kHz)	300
0.490– 1.705	24,000/F(kHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz. Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The measurement frequency range form 30MHz - 10th Harmonic of fundamental was investigated.

3.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : Wireless Mouse
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

X Axis

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
0.300	19.600	21.120	40.720	-66.823	107.543

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters (300 meters transform 3 meters), using the square of an inverse linear distance extrapolation factor (40dB/decade).

Product : Wireless Mouse
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

Y Axis

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
0.300	19.600	18.620	38.220	-69.323	107.543

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters (300 meters transform 3 meters), using the square of an inverse linear distance extrapolation factor (40dB/decade).

Product : Wireless Mouse
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

Z Axis

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
0.300	19.600	25.870	45.470	-62.073	107.543

Note:

1. Measurement Level = Reading Level + Correct Factor.
2. Correct Factor = Antenna Factor + Cable Loss – PreAMP.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters (300 meters transform 3 meters), using the square of an inverse linear distance extrapolation factor (40dB/decade).

Product : Wireless Mouse
Test Item : Harmonic Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit

LOOP ANTENNA (9kHz-30MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
1.654	19.531	3.010	22.541	-40.926	63.467
1.775	19.560	2.040	21.600	-47.940	69.540
5.650	19.730	2.040	21.770	-47.770	69.540
9.650	19.890	1.110	21.000	-48.540	69.540
11.000	19.940	2.010	21.950	-47.590	69.540
16.000	20.100	1.790	21.890	-47.650	69.540

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:20MHz.
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
6. The EUT was positioned such that the distance from antenna to the EUT was 3 meters (300 or 30 meters transform 3 meters), using the square of an inverse linear distance extrapolation factor (40dB/decade).

Product : Wireless Mouse
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
463.487	-0.790	22.987	22.197	-23.803	46.000
607.335	4.174	22.590	26.764	-19.236	46.000
720.080	3.332	23.227	26.559	-19.441	46.000
817.275	4.780	22.206	26.986	-19.014	46.000
904.750	4.156	23.456	27.612	-18.388	46.000
961.122	5.214	23.162	28.376	-25.624	54.000
Vertical					
642.325	1.415	22.635	24.049	-21.951	46.000
737.575	1.827	23.084	24.911	-21.089	46.000
803.667	3.113	23.796	26.909	-19.091	46.000
840.604	3.950	21.704	25.654	-20.346	46.000
914.469	5.426	22.665	28.091	-17.909	46.000
955.291	5.930	23.192	29.122	-16.878	46.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

4. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs