佳和集團
怡 安 科 技
CHIA HEIR GROUP
RF-LINK SYSTEMS INC.

FCC ID.: MIBRF50202

EXHIBIT 3

Test Report With Eut Photograph

Test report

FCC Test Report
Application for Certification
On Behalf Of
RF-Link Systems Inc.
WL 3D Mouse for 900MHz (Receiver)
Model # : RF 50202

FCC ID : MIBRF50202

#1

TESTED AS COMPUTER PERIPHERAL DEVICE

Prepared For:

RF-Link Systems Inc.
1F, No.9, Chan Yeh Road 1, Science-Based Industrial Park, HsinChu, Taiwan, R.O.C.

Report By : **QuieTek Corporation**
No.75-1, Wang-Yeh Valley, Yung-Hsing Tsuen, Chiung-Lin, Hsin-Chu County, Taiwan, R.O.C.
Tel : (03) 592-8858
Fax : (03) 592-8859

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1. Test Report Certification

QTK98-F013

Applicant : RF-Link Systems Inc.

Manufacturer : RF-Link Systems Inc.

EUT Description

Model Name : WL 3D Mouse for 900MHz (Receiver)

Model No. : RF 50202

Serial Number : N/A

FCC ID. : MIBRF50202

Power : 120V/60Hz AC

TESTED IN COMPUTER SYSTEM AS PERIPHERAL DEVICE

MEASUREMENT STANDARD USED :

CFR 47, Part 15 Radio Frequency Device Subpart B Unintentional Radiators Class B :1996

MEASUREMENT PROCEDURE USED :

ANSI C63.4 Methods of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9kHz to 40GHz. :1992

The device described above was tested by QuieTek Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 Subpart B limits for both radiated and conducted emissions.
The measurement results are contained in this test report and QuieTek Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC Part 15 Subpart B limits.
And there are no deviation from the above measurement process.

Sample Received Date : December 9, 1998

Test Date : December 9, 1998

Documented by : Kathy Lee

NVLAP®

Test Engineer:

Jeff Chen

Approve & Authorized Signer:

Gene Chang

2. General Information

2.1 Production Description

Description	:	WL 3D Mouse for 900MHz (Receiver)
Model Number	:	RF 50202
Serial Number	:	N/A
FCC ID.	:	MIBRF50202
Applicant	:	RF-Link Systems Inc.
Address	:	1F, No.9, Chan Yeh Road 1, Science-Based Industrial Park, HsinChu, Taiwan, R.O.C.
Manufacturer	:	RF-Link Systems Inc.
Address	:	1F, No.9, Chan Yeh Road 1, Science-Based Industrial Park, HsinChu, Taiwan, R.O.C.
		Industrial Park, HsinChu, Taiwan, R.O.C.
Data Cable	:	Shielded, Undetachable, 1.5m

Note:

1. The data show in this test report reflects the worst-case data for each operation mode.
2. The EUT which is a wireless receiver is used with wireless 3D mouse(transmitter), FCC ID.: MIBRF50202.

2.2 Tested System Details

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

☒ Host Personal Computer

Model Number	:	PIIL97
Manufacturer	:	ASUS
Serial Number	:	AS10228
FCC ID	:	DoC
Power Cord	:	Unshielded, Detachable, 1.8m

☒ Keyboard

Model Number	:	6311-TW2C
Serial Number	:	N/A
FCC ID	:	DoC
Manufacturer	:	ACER
Data Cable	:	Shielded, Non-detachable, 1.8m

☒ Monitor

Model Number	:	CM752ET-311
Serial Number	:	T8F006364
FCC ID	:	DoC
Manufacturer	:	HITACHI
Data Cable	:	Shielded, Non-Detachable 1.5m
Power Cord	:	Shielded, Detachable 1.8m

☒ Printer

Model Number	:	C2642A
Serial Number	:	MY75J1D1D0
FCC ID	:	B94C2642X
Manufacturer	:	HP
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	NMB, M/N: C2175A Cable for AC IN: Unshielded, Non-detachable, 0.7m Cable for AC Out: Unshielded, Non-detachable, 1.5m

☒ Modem

Model Number	:	1414
Serial Number	:	980033038
FCC ID	:	IFAXDM1414
Manufacturer	:	ACEEX
Data Cable	:	Shielded, Detachable, 1.5m
Power Adapter	:	ACCEX, M/N: SCP41-91000A Cable Output : Shielded, Non-detachable, 1.5m

☒ Modem

Model Number	:	1414
Serial Number	:	980033041
FCC ID	:	IFAXDM1414
Manufacturer	:	ACEEX
Data Cable	:	Shielded, Detachable, 1.5m
Power Adapter	:	ACCEX, M/N: SCP41-91000A Cable Output : Shielded, Non-detachable, 1.5m

☒ WL 3D Mouse for 900MHz (Receiver) (EUT)

Model Number	:	RF 50202
Serial Number	:	N/A
FCC ID	:	MIBRF50202
Manufacturer	:	RF-Link Systems Inc.
Data Cable	:	Shielded, Undetachable, 1.5m

☒ Joystick

Model Number	:	JPD110
Serial Number	:	9814A15646
FCC ID	:	DoC
Manufacturer	:	Maxxtro
Data Cable	:	Shielded, Non-detachable, 1.7m

☒ Mouse

Model Number	:	M-S34
Serial Number	:	LZB75078428
FCC ID	:	DZL211029
Manufacturer	:	HP
Data Cable	:	Shielded, Non-detachable, 1.8m

2.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4-1992.

Radiated testing was performed at an antenna to EUT distance of __3__meters.

2.4 Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	24-27
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description : November 3, 1998 File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Reference 31040/SIT1300F2

NVLAP Lab Code: 200347-0
United Stated Department of commerce
National Institute of Standards and Technology
National Voluntary Laboratory Accreditation Program

Name of firm : QuieTek Corporation

Site location : No.75-1, Wang-Yeh Valley, Yung-Hsing Tsuen,
Chiung-Lin, Hsin-Chu County, Taiwan, R.O.C.

3. Conducted Power Line Test

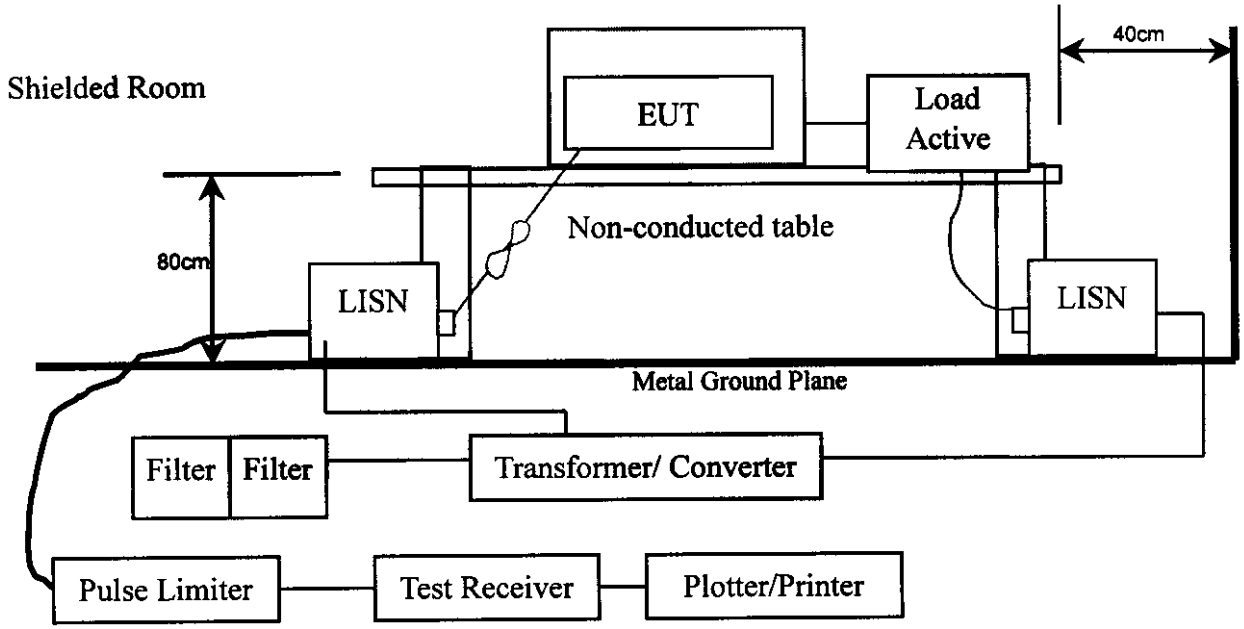
3.1 Test Equipments

The following test equipments are used during the conducted power line tests:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal..	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 1998	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 1998	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 1998	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	N/A	
5	N0.2 Shielded Room			N/A	

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2 Block Diagram of Test Setup



3.3 Conducted Powerline Emission Limit

➢ **FCC Part 15 Subpart B Limits**

Frequency	Maximum RF Line Voltage			
	Class A		Class B	
MHz	UV	DBuV	uV	dBuV
0.45 - 1.705	1000	60.0	250	48.0
1.705 - 30	3000	69.5	250	48.0

Remarks : 1. RF Line Voltage (dBuV) = 20 log RF Line Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.

3.4 EUT Configuration on Measurement

The equipments which is listed 3.2 are installed on Conducted Power Line Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.5 EUT Exercise Software

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to a typical use. The exercise sequence is listed as below:

3.5.1 Setup the EUT and simulators as shown on 3.2

3.5.2 Turn on the power of all equipment.

3.5.3 PC reads data from disk.

3.5.4 PC sends "H" pattern to printer, the printer will print "H" pattern on paper.

3.5.5 PC reads and writes data into and from modem.

3.5.6 PC will read data from floppy disk and then writes the data into floppy disk , same operation for hard disk.

3.5.7 The wireless receiver mouse (EUT) will be stand by for waiting to receive the data from the wireless transmitting mouse.

3.5.7 Repeat the above procedure 3.5.4 to 3.5.7

3.6 Test Procedure

The EUT is 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 refer 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 equipments and all of the interface cables must be changed according to ANSI C63.4-1992 on conducted measurement.

The bandwidth of the field strength meter (R & S Test Receiver ESCS 30) is set at 10Khz.

The frequency range from **0.45 MHz to 30 MHz** is checked.

3.7 Conducted Emission Data

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range for all the test modes. Then the worst modes were reported the following data pages.

The uncertainty is calculated in accordance with NAMAS NIS 81. The total uncertainty for this test is as follows:
• Uncertainty in the field strength measured: < ± 2.0 dB

CONDUCTED EMISSION DATA

Date of Test	:	December 9, 1998	Temperature	:	25 ℃
EUT	:	WL 3D Mouse for 900MHz	Humidity	:	61 %
Test Mode	:	Normal	Display Pattern	:	H Pattern
Detector Mode	:	Quasi-Peak			

Frequency	Cable Loss	LISN Factor	Reading Level Linel	Measurement Level Linel		Limits
MHz	dB	dB	dBuV	dBuV	uV	uV
0.495	0.06	0.10	20.69	20.85	11.0	250.0
2.669	0.16	0.14	21.16	21.46	11.8	250.0
7.973	0.25	0.19	29.00	29.44	29.7	250.0
15.999	0.33	0.37	28.84	29.54	30.0	250.0
23.274	0.37	0.51	31.39	32.27	41.1	250.0
* 27.692	0.39	0.57	33.39	34.35	52.2	250.0

Remarks :

1. " * " means that this data is the worse emission level.
2. All readings are Quasi-peak

CONDUCTED EMISSION DATA

Date of Test	:	December 9, 1998	Temperature	:	25 ℃
EUT	:	WL 3D Mouse for 900MHz	Humidity	:	61 %
Test Mode	:	Normal	Display Pattern	:	H Pattern
Detector Mode	:	Quasi-Peak			

	Frequency	Cable Loss	LISN Factor	Reading Level Line2	Measurement Level Line2		Limits
	MHz	dB	dB	dBuV	dBuV	uV	uV
	2.670	0.16	0.14	21.30	21.60	12.0	250.0
	6.582	0.23	0.18	27.92	28.33	26.1	250.0
	7.970	0.25	0.19	30.09	30.53	33.6	250.0
	8.637	0.26	0.19	28.42	28.87	27.8	250.0
	15.999	0.33	0.37	27.24	27.94	24.9	250.0
*	27.691	0.39	0.57	33.17	34.13	50.9	250.0

Remarks :

1. " * " means that this data is the worse emission level.
2. All readings are Quasi-peak

4. Radiation Emission Test

QTK98-F013

4.1 Test Equipment

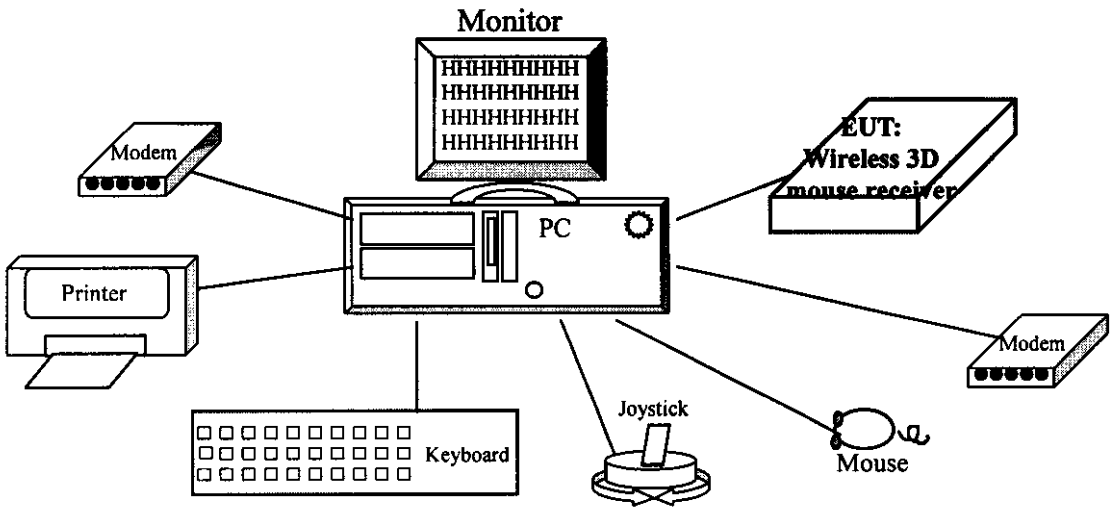
The following test equipments are used during the radiated emission tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
SITE # 1	X	Test Receiver	R & S	ESCS 30 / 825442/14	May, 1998
		Spectrum Analyzer	Advantest	R3261C / 71720140	May, 1998
		Pre-Amplifier	HP	8447D/3307A01812	May, 1998
	X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 1998
	X	Horn Antenna	EM	EM6917 / 103325	May, 1998
SITE # 2	X	Test Receiver	R & S	ESCS 30 / 825442/17	May, 1998
		Spectrum Analyzer	Advantest	R3261C / 71720609	May, 1998
		Pre-Amplifier	HP	8447D/3307A01814	May, 1998
	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 1998
	X	Horn Antenna	EM	EM6917 / 103325	May, 1998

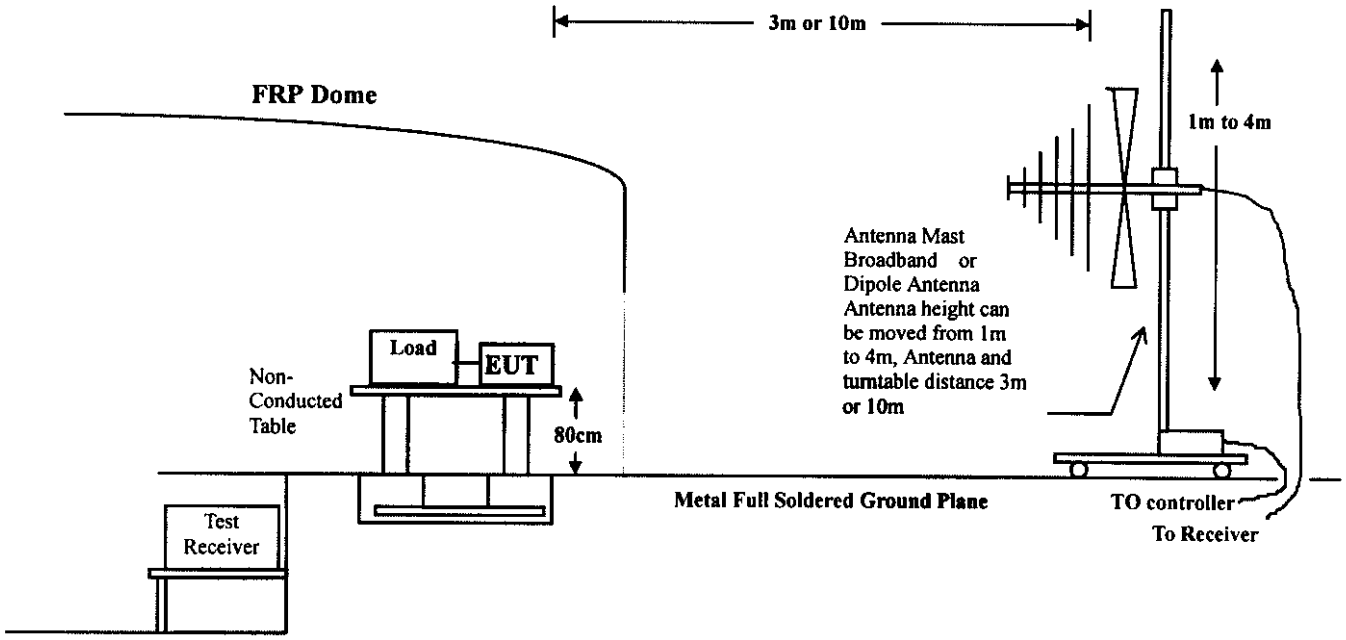
Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
2. Mark "X" test instruments are used to measure the final test results.
2. Test Site : ☒ Site #1 , ☐ Site #2

4.2 Test Setup

4.2.1 Block Diagram of Connections between EUT and simulators



4.2.2 Open Test Site Setup Diagram



4.3 Radiated Emission Limit

➢ **FCC Part 15 Subpart B Limits**

Frequency	Maximum RF Line Voltage			
	Class A		Class B	
MHz	UV	DBuV	uV	dBuV
0.45 - 1.705	1000	60.0	250	48.0
1.705 - 30	3000	69.5	250	48.0

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

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

4.4 EUT Configuration

The equipments which is listed 4.2.1 are installed on Radiated Emission Test to meet the Commission requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

4.5 Operating Condition of EUT

Same as Conducted Power Line Test which is listed in 3.5.

4.6 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. EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Broadband antenna (calibrated bi-log and horn antenna) are used as a eceiving antenna. 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 C63.4-1992 on radiated measurement.

The bandwidth below 1Ghz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 KHz, above 1Ghz are 1 MHz.

The frequency range from **30Mhz to 1000Mhz** is checked.

4.7 Radiated Emission Data

The initial step in collecting radiated data is a spectrum analyzer peak scan of the measurement range for all the test modes. Then the worst modes were reported the following data pages.

The uncertainty is calculated in accordance with Namas NIS 81.The total uncertainty for this test is as follows:
• Uncertainty in the field strength measured: $< \pm 4.0$ dB

Radiated Emission Data

Date of Test	:	December 9, 1998	Temperature	:	25 ℃
EUT	:	WL 3D Mouse for 900MHz	Humidity	:	61 %
Test Mode	:	Normal	Display Pattern	:	H Pattern

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Reading Level Horizontal dBuV/m	Emission Level Horizontal dBuV/m	Emission Level Horizontal uV/m	Limits uV/m	Ant Pos cm	Table Pos deg
72.015	1.55	7.56	22.19	31.30	36.74	100	213	60
171.315	2.51	10.72	13.12	26.36	20.79	150	174	72
210.669	2.89	10.29	16.50	29.68	30.49	150	147	165
331.716	3.92	14.54	17.52	35.97	62.90	200	259	30
558.996	5.10	18.96	12.66	36.72	68.53	200	118	68
* 894.897	6.85	20.91	15.38	43.14	143.54	200	99	138

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worse emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss

Radiated Emission Data

Date of Test	:	December 9, 1998	Temperature	:	25 ℃
EUT	:	WL 3D Mouse for 900MHz	Humidity	:	61 %
Test Mode	:	Normal	Display Pattern	:	**H Pattern**

Frequency	Cable Loss	Ant Factor	Reading Level Vertical	Emission Level Vertical		Limits	Ant Pos	Table Pos
MHz	dB	dB/m	dBuV/m	dBuV/m	uV/m	uV/m	cm	deg
72.015	1.55	8.53	25.06	35.14	57.17	100	191	103
171.318	2.51	8.99	9.86	21.37	11.70	150	99	130
210.669	2.89	9.69	15.12	27.70	24.26	150	99	104
331.711	3.92	14.18	14.93	33.03	44.82	200	225	10
558.995	5.10	18.75	10.80	34.65	54.02	200	99	201
* 894.901	6.85	21.12	10.77	38.74	86.49	200	99	121

Remarks:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. " * ", means this data is the worse emission level.
3. Emission Level = Reading Level + Antenna Factor + Cable loss

5. Summarization of Test Results

The test results in the conducted and radiated emission were performed according to the requirements of measurement standard and process. QuieTek Corporation is assumed full responsibility for the accuracy and completeness of these measurements. The summarization of the worst value of conducted and radiated emission test is described as below:

➢ The worse value of Conducted Emission Test

Frequency (MHz)	Line	Measurement Level dB(uV)	Limit Level dB(uV)	Comment
27.692	L1	34.35	48	Pass
27.691	L2	33.17	48	Pass

➢ The worse value of Radiated Emission Test

Frequency (MHz)	Polarization	Measurement Level dB(uV)	Limit Level dB(uV)	Comment
894.897	H	43.14	46	Pass
894.901	V	38.74	46	Pass

6. EMI Reduction Method During Compliance Testing

No modification was made during testing.

FCC Test Report
Application for Certification
(Additional Test Data)

On Behalf Of

RF-Link Systems Inc.

WL 3D Mouse for 900MHz (Receiver)

Model # : RF 50202

#2

TESTED AS RECEIVER

FCC ID : MIBRF50202

Prepared For:

RF-Link Systems Inc.
1F, No.9, Chan Yeh Road 1, Science-Based Industrial Park, HsinChu, Taiwan, R.O.C.

Report By : **QuieTek Corporation**
No.75-1, Wang-Yeh Valley, Yung-Hsing Tsuen, Chiung-Lin, Hsin-Chu County, Taiwan, R.O.C.
Tel : (03) 592-8858
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