





## ISO/IEC17025 Accredited Lab.

Report No: FCC0909028-02

File reference No: 2009-10-23

Applicant: Guangzhou Sunday Electronics Co., Ltd.

Product: Wireless Keyboard

Model No: S-KW419G

Brand Name: SUNDAY

Test Standards: FCC Part 15 Subpart C, Paragraph 15.249

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: Oct 23, 2009

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

# SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

East 5/Block 4, Anhua Industrial Zone, No.8, Tairan Rd. CheGongMiao, FuTian District, Shenzhen, CHINA.

Tel (755) 83448688 Fax (755) 83442996

Report No: 0909028-02 Page 2 of 38

Date: 2009-10-23



# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

## **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

# IC- Registration No.: IC5205A-01

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-01.

Date: 2009-10-23



# **Test Report Conclusion** Content

1.0	General Details	4
1.1	Test Lab Details	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration.	4
1.6	Test Uncertainty.	5
1.7	Test By	5
2.0	List of Measurement Equipment	5
3.0	Technical Details.	6
3.1	Summary of Test Results	6
3.2	Test Standards.	6
4.0	EUT Modification.	6
5.0	Power Line Conducted Emission Test.	7
5.1	Schematics of the Test.	7
5.2	Test Method and Test Procedure.	7
5.3	Configuration of the EUT	7
5.4	EUT Operating Condition.	8
5.5	Conducted Emission Limit.	8
5.6	Test Result.	8
6.0	Radiated Emission test.	11
6.1	Test Method and Test Procedure.	11
6.2	Configuration of the EUT.	11
6.3	EUT Operation Condition.	11
6.4	Radiated Emission Limit.	12
6.5	Test Result.	13
7.0	Band Edge	26
7.1	Test Method and Test Procedure.	26
7.2	Radiated Test Setup.	26
7.3	Configuration of the EUT.	26
7.4	EUT Operating Condition.	26
7.5	Band Edge Limit.	26
7.6	Band Edge Test Result.	27
8.0	Antenna Requirement.	29
9.0	20dB bandwidth measurement.	30
10.0	FCC ID Label	33
11.0	Photo of Test Setup and EUT View.	34

Date: 2009-10-23



Page 4 of 38

#### 1.0 General Details

#### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS and 3m semi-anechoic chamber Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-01

For 3m & 10 m OATS 3m semi-anechoic chamber

#### 1.2 Applicant Details

Applicant: Guangzhou Sunday Electronics Co., Ltd.

Address: Building 5, Gaotang Commercial Zone, No. 128, Second Guangshan Rd., Tianhe District

GZ,China

Telephone: +86-20-87071000 Fax: +86-20-87071002

## 1.3 Description of EUT

Product: Wireless Keyboard

Manufacturer: Guangzhou Sunday Electronics Co., Ltd.

Brand Name: SUNDAY
Model Number: S-KW419G

Additional Model Name S-KW3xxxx-S-KW5xxxx

Additional Trade Name N/A

Rating: DC5.0V, By to PC

Modulation Type: GFSK

Operation Frequency 2405-2476MHz

Antenna Designation Printed antenna, which is built-in, designed as an indispensable part of the EUT.

#### 1.4 Submitted Sample

1 Sample

#### 1.5 Test Duration

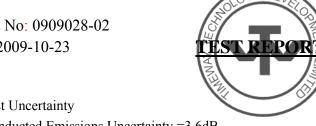
2009-09-27 to 2009-10-23

The report refers only to the sample tested and does not apply to the bulk.

Page 5 of 38

Report No: 0909028-02

Date: 2009-10-23



Test Uncertainty

Conducted Emissions Uncertainty =3.6dB Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by

Print Name: Terry Tang

2.0		Test Equi	pments		
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2008-12-05	2009-12-04
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2008-12-05	2009-12-04
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2008-12-05	2009-12-04
Ultra Broadband ANT	Schwarebeck	VULB9163	9163/340	2009.2.22	2010-02-21
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2009-03-30	2010-03-29
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2009-02-18	2010-02-17
Power meter	Anritsu	ML2487A	6K00003613	2009-02-18	2010-02-17
Power sensor	Anritsu	MA2491A	32263	2009-02-8	2010-02-17
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2009-02-18	2010-02-17
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2009-08-15	2010-08-14
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2009-07-02	2010-07-01

Page 6 of 38

Report No: 0909028-02

Date: 2009-10-23



#### 3.0 **Technical Details**

#### 3.1 **Summary of test results**

The EUT has been tested according to the following specifications:				
Standard	Test Type	Result	Notes	
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS	Complies	
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	PASS	Complies	
FCC Part 15, Paragraph 15.209	Radiated Emission Test	PASS	Complies	
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	PASS	Complies	

#### 3.2 **Test Standards**

FCC Part 15 Subpart C, Paragraph 15.249

#### 4.0 **EUT Modification**

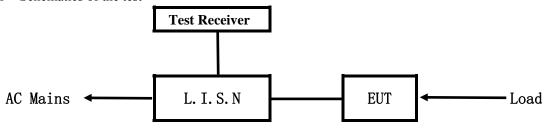
No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

Date: 2009-10-23



#### 5. Power Line Conducted Emission Test

#### 5.1 Schematics of the test

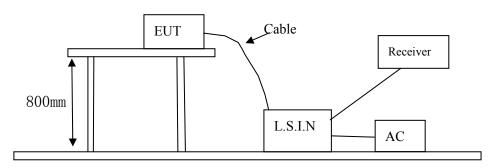


**EUT: Equipment Under Test** 

## 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

#### Block diagram of Test setup



# 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

#### A. EUT

Device	Manufacturer	Model	FCC ID
Wireless	Guangzhou Sunday Electronics Co., Ltd.	S-KW419G	XQLSD0909421
keyboard			

#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

Report No: 0909028-02 Page 8 of 38

Date: 2009-10-23



# C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

#### 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Eraguanay (MHz)	Class A Lir	nits (dB µ V)	Class B Limits (dB $\mu$ V)	
Frequency(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
$0.15 \sim 0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*
$0.50 \sim 5.00$	73.0	60.0	56.0	46.0
$5.00 \sim 30.00$	73.0	60.0	60.0	50.0

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

#### 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

30.000

Report No: 0909028-02

Date: 2009-10-23



# **EUT Operating Environment**

Temperature: 25°C Humidity: 75%RH Atmospheric Pressure: 101 KPa

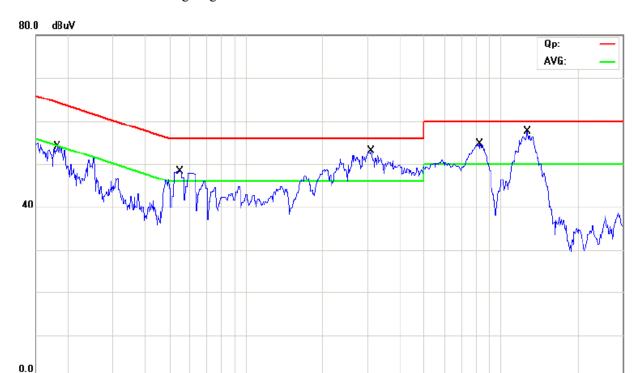
**EUT set Condition: Normal operation mode** 

**Equipment Level: Class B** 

**Results: Pass** 

0.150

Please refer to following diagram for individual



Frequency	Line	Reading(dBμV)		Limit(dBµV)	
(MHz)	LIIIC	Quasi-peak	Average	Quasi-peak	Average
0.183	Live	55.12	36.57	64.31	54.31
0.546	Live	47.82	36.02	56.00	46.00
3.080	Live	48.63	38.73	56.00	46.00
8.210	Live	52.05	45.65	60.00	50.00
12.787	Live	52.64	45.74	60.00	50.00

(MHz)

0.5

Date: 2009-10-23



# B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

# **EUT Operating Environment**

Temperature: 25°C Humidity: 75%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Normal operation mode** 

**Equipment Level: Class B** 

**Results: Pass** 

Please refer to following diagram for individual



Frequency	Lina	Line Reading(dBµV)		Limit(dBµV)	
(MHz)	Line	Quasi-peak	Average	Quasi-peak	Average
0.183	Neutral	57.54	49.69	64.35	54.35
0.556	Neutral	52.43	42.23	56.00	46.00
1.899	Neutral	52.66	40.86	56.00	46.00
12.915	Neutral	49.34	42.74	60.00	50.00

Page 11 of 38

Report No: 0909028-02

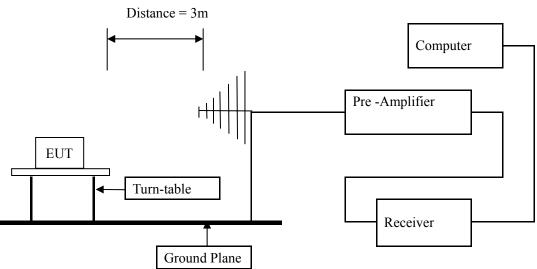
Date: 2009-10-23



#### **6** Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

# **Block diagram of Test setup**



- 6.2 Configuration of The EUT

  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.

Page 12 of 38

Report No: 0909028-02

Date: 2009-10-23



## 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

#### A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency	Field Stre	Field Strength of Fundamental (3m)			trength of Harmo	onics (3m)
(MHz)	mV/m	dBuV/m		uV/m	dBu	V/m
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

Note:

- 1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
- 2.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. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

## B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB µ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 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 EUT
- 4. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
- 5. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK and AV detector.

Report No: 0909028-02 Page 13 of 38

Date: 2009-10-23



#### 6.5 Test result

#### $\mathbf{A}$ **Fundamental & Harmonics Radiated Emission Data**

Product:	Wireless Keyboard	Test Mode:	Low Channel
Test Item:	Fundamental Radiated Emission Data	Temperature:	25℃
Test Voltage:	5.0VDC	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2405	64.5(PK)	Н	114/94	-29.5
2405	66.2(PK)	V	114/94	-27.8
4810		H/V	74/54	
7215		H/V	74/54	
9620		H/V	74/54	
12025		H/V	74/54	
14430		H/V	74/54	
16835		H/V	74/54	
19240		H/V	74/54	
21645		H/V	74/54	
24050		H/V	74/54	

Report No: 0909028-02 Page 14 of 38

Product:	Wireless Keyboard	Test Mode:	Middle Channel
Test Item:	Fundamental Radiated Emission Data	Temperature:	25℃
Test Voltage:	5.0VDC	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2439	65.6 (PK)	Н	114/94	-28.4
2439	66.7(PK)	V	114/94	-27.3
4878		H/V	74/54	
7317		H/V	74/54	
9756		H/V	74/54	
12195		H/V	74/54	
14634		H/V	74/54	
17073		H/V	74/54	
19512		H/V	74/54	
21951		H/V	74/54	
24390		H/V	74/54	

Page 15 of 38

Report No: 0909028-02

Date: 2009-10-23

Product:	Wireless Keyboard	Test Mode:	High Channel
Test Item:	Fundamental Radiated Emission Data	Temperature:	25℃
Test Voltage:	5.0VDC	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2476	65.2(PK)	Н	114/94	-28.8
2476	67.1(PK)	V	114/94	-26.9
4952		H/V	74/54	
7428		H/V	74/54	
9904		H/V	74/54	
12380		H/V	74/54	
14856		H/V	74/54	
17332		H/V	74/54	
19808		H/V	74/54	
22284		H/V	74/54	
24760		H/V	74/54	

Note: (1) PK

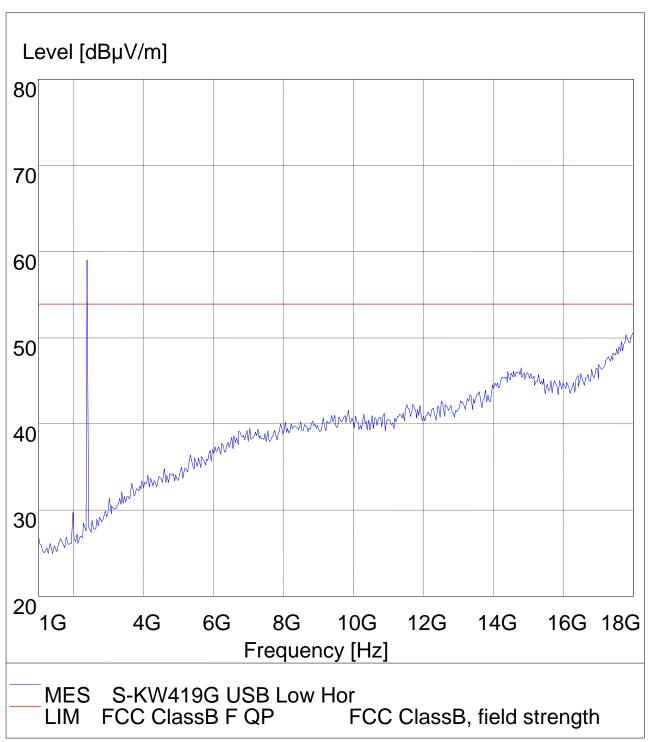
- (1) PK= Peak, AV= Average
- (2) Emission Level = Reading Level + Probe Factor + Cable Loss.
- (3)Margin=Emission-Limits
- (4)According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (5) The measured PK value less than the AV limit.

Date: 2009-10-23



Please refer to the following test plots for details

**Low Channel: Horizontal** 



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

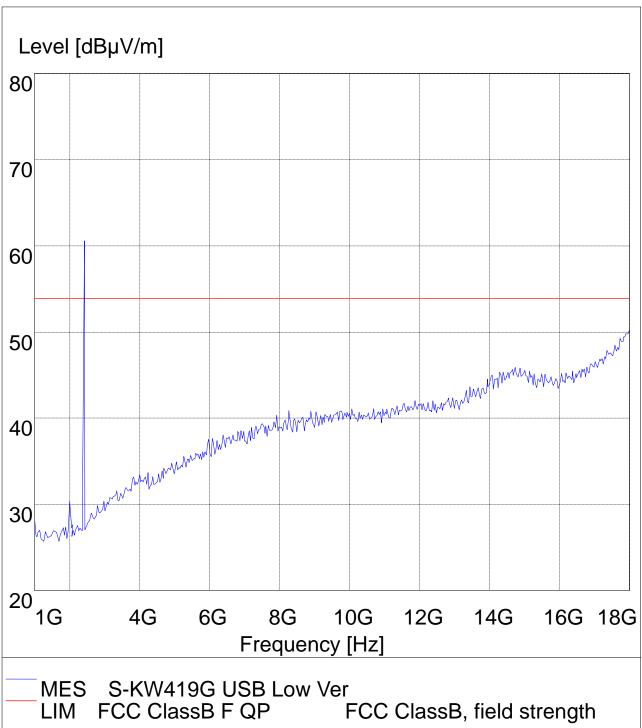
Page 17 of 38

Report No: 0909028-02

Date: 2009-10-23



**Low Channel: Vertical** 



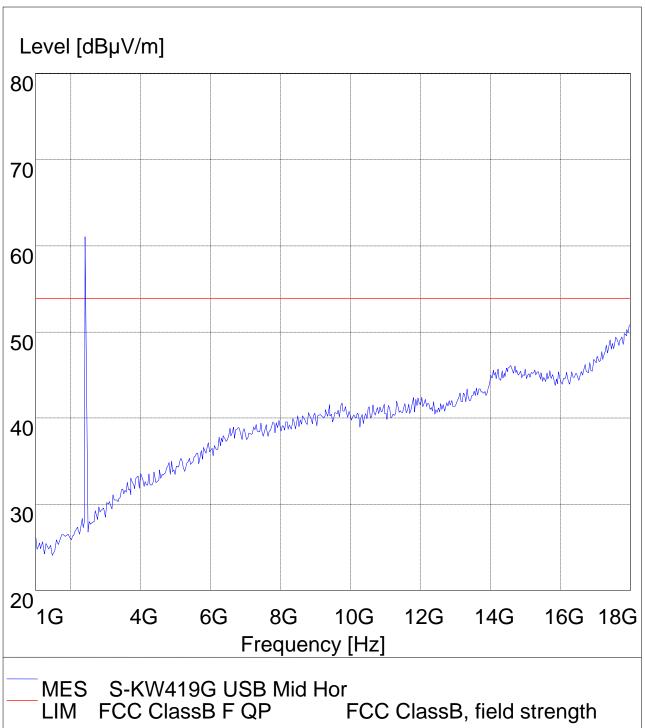
Page 18 of 38

Report No: 0909028-02

Date: 2009-10-23



**Middle Channel : Horizontal** 



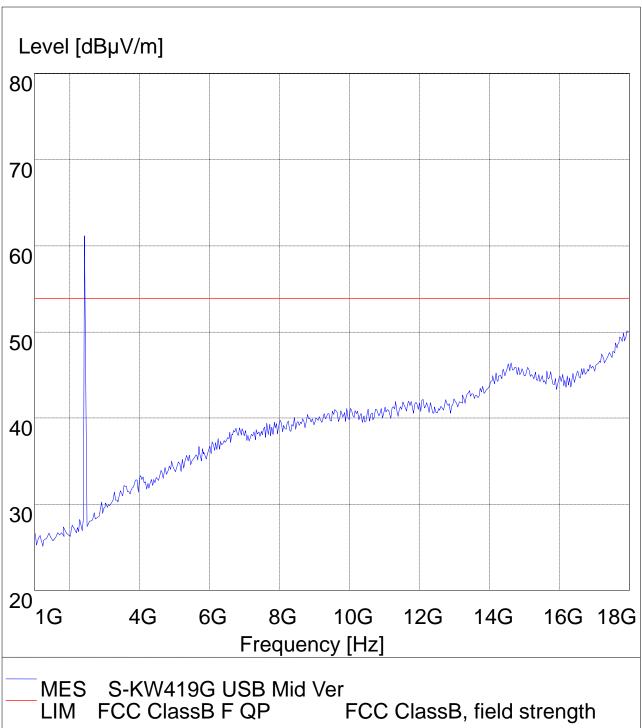
The report refers only to the sample tested and does not apply to the bulk.

Page 19 of 38

Report No: 0909028-02 Date: 2009-10-23



**Middle Channel :: Vertical** 



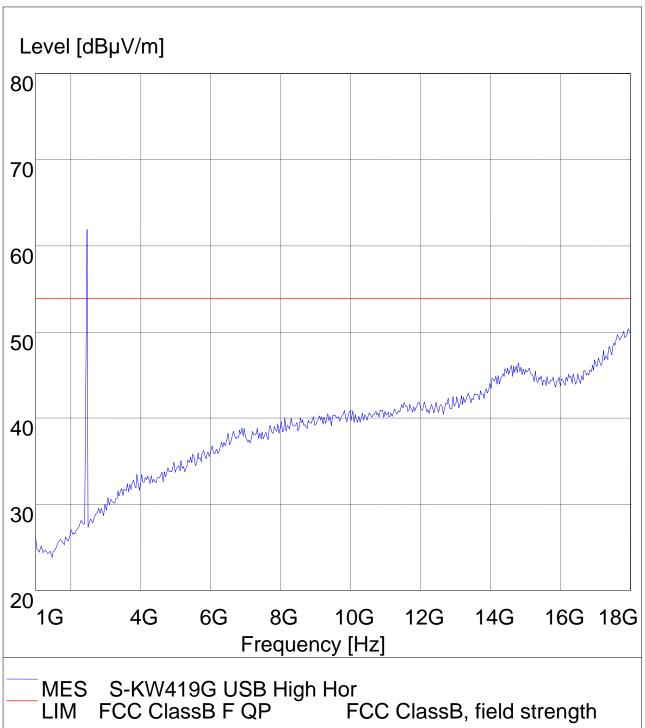
Page 20 of 38

Report No: 0909028-02

Date: 2009-10-23



**High Channel: Horizontal** 



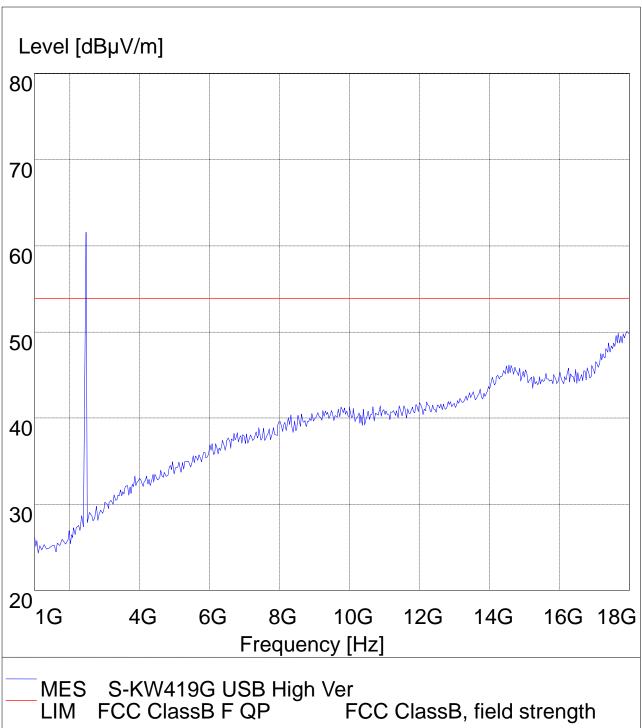
Page 21 of 38

Report No: 0909028-02

Date: 2009-10-23



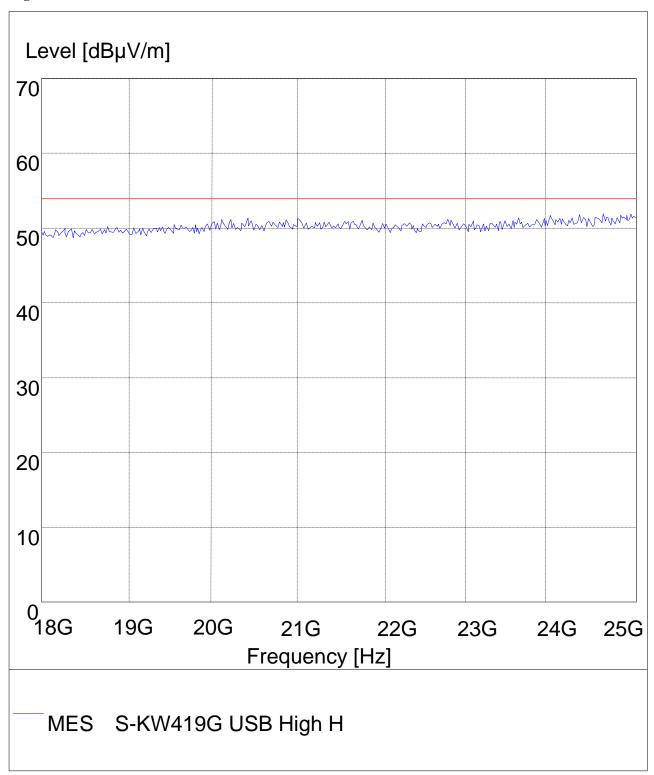
**High Channel: Vertical** 



Date: 2009-10-23



18-25G High Channel



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co.,Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co.,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co.,Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

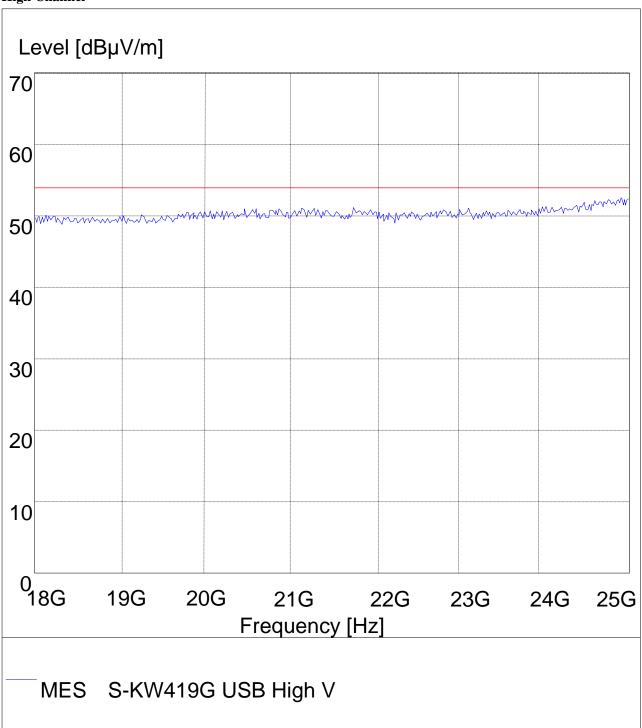
Page 23 of 38

Report No: 0909028-02

Date: 2009-10-23



18-25G High Channel



The report refers only to the sample tested and does not apply to the bulk.

Date: 2009-10-23

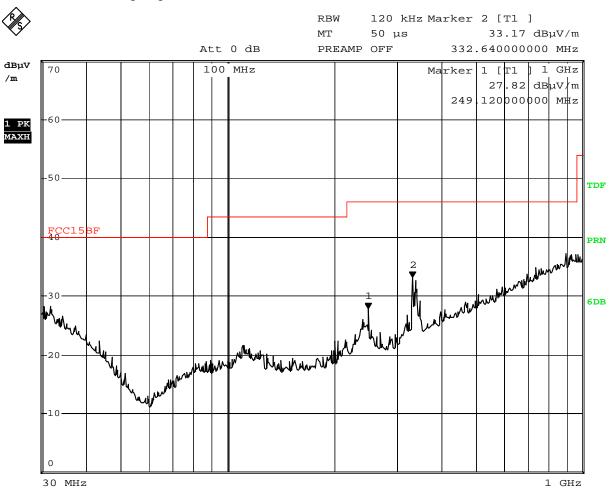


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep transmitting Mode: Low Channel

**Results:** Pass

Please refer to following diagram for individual



Date: 23.OCT.2009 11:46:19

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)
		Н	

Date: 2009-10-23

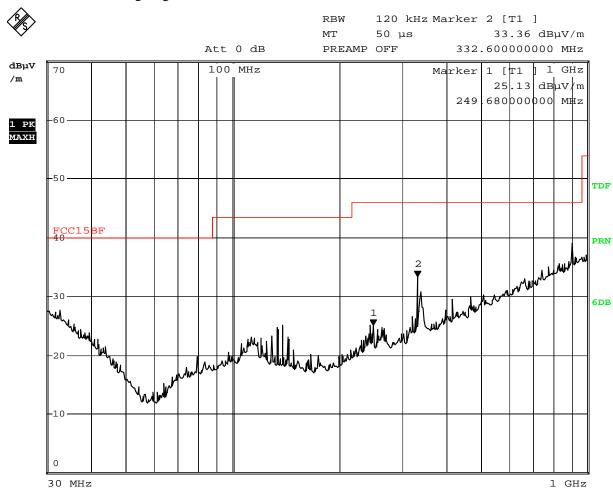


# Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep transmitting Mode: Low Channel

Results: Pass

Please refer to following diagram for individual



Date: 23.OCT.2009 11:47:52

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
		V	

Date: 2009-10-23

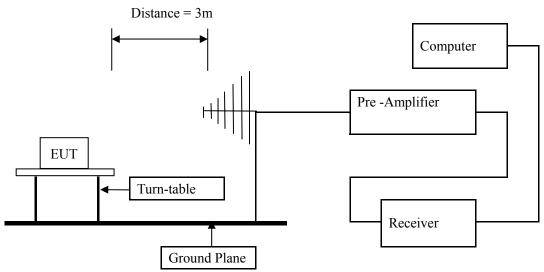


# 7. Band Edge

#### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) Set Spectrum as RBW=VBW=100kHz and Peak detector used
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

# 7. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

## 7.3 Configuration of The EUT

Same as section 5.3 of this report

## 7.4 EUT Operating Condition

Same as section 5.4 of this report.

#### 7.5 Band Edge Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Page 27 of 38

Report No: 0909028-02

Date: 2009-10-23



#### 7.6 Test Result

Product:	Wireless	Keyboard Test Mode:		Low Channel				
Mode	Keeping Transmitting Test Voltage  24 deg. C Humidity  Pass Detector		Test	t Voltage		DC	C5V	
Temperature			24 deg. C Humidity 56% RH		Humidity 56% RH		56% RH	
Test Result:			etector	PK				
220(MII-	PK (dBμV/m)	43.2		r ::4		74(dB	μV/m)	
2396MHz	$AV(dB\mu V/m)$			Limit		54(dB	μV/m)	
	Marker (	3 [T1]	RBW	1 MH	Hz R	F Att	10 dB	
Ref Lvl		$49.11~\mathrm{dB}\mu\mathrm{V}$	VBW	1 MH				
87 dBμV	2	.39597194 GHz	SWT	100 ms	s U	nit	$\mathrm{dB}\mu\mathrm{V}$	
87				<b>▼</b> 3	[T1]	49	.11 dBμV	Α
80				_		<del>2.3959</del>	<del>7194 GHz</del>	
				$\triangledown_1$	[T1]	65 2.4050	.40 dBμV 1002 GHz	
70				∇ <sub>2</sub>	[T1]	36	.83 dBµV	
60						$\nabla$	0000 GHz	
1MAX								1 M
50					$\frac{3}{x}$		1	111
40					$\bigwedge$		4	
40	manner when	Juhan Mura	, Lun	······································	~~~N	V	Windowsky	
30								
20								
20								
10								
10								
0								
10								
-10 -13								
Start 2.3	1 GHz	11	MHz/			Stop 2	2.42 GHz	

Note: Field Strength in restrict band measured in conventional manner

Page 28 of 38

Report No: 0909028-02 Date: 2009-10-23

Product:	2.4	G wireles	ss optica	l mouse	Tes	t Mode:		High C	hannel	
Mode			Transmit			Test Voltage		DC		
Temperature			deg. C,			Humidity		56% RH		
Test Result:			Pass			etector		P	K	
2402.51.61	PK (	dBμV/m)		30.5		· • •,		74(dB)	μV/m)	
2483.5MHz		dBμV/m)			1	Limit		54(dB)	μV/m)	
		Marker	1 [T1]		RBW	1 MH	tz R	F Att	10 dB	
Ref Lvl			62.5	58 dBμV	VBW	1 MH				
87 dBμV		2	.476112	222 GHz	SWT	100 ms	s U	nit	dB $\mu$ V	'
87						<b>v</b> <sub>1</sub>	[T1]	62.	$58  \mathrm{dB}\mu\mathrm{V}$	Α
80						∇2	[T1]	36. 2.48350	<del>222 bHz</del> 50 dB <i>µ</i> V 000 GHz	
70			(	my						
1MAX 50				V A						1MA
40	M	m		4						
40	JU.	ham	mb		Maynon	~Men/~~l~l	-Mulh-	mundan	madu	,
30										
20										
10										
0										
4.0										
-10 -13										1
Start 2.4 Date: 28	6 GHz SEP.2	009 12	:02:45	4 M	Hz/			Stop	2.5 GHz	

Note: Field Strength in restrict band measured in conventional manner

Report No: 0909028-02 Page 29 of 38

Date: 2009-10-23



## 8.0 Antenna Requirement

## **Applicable Standard**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has a PCB permanent antenna, fulfill the requirement of this section.

Test Result: Pass

Page 30 of 38

Report No: 090902 Date: 2009-10-23

28-02	TEST REPORT

.0 20dB Bandwidth M				. 3.6. 1		G1 1	
Product:	Wireless Keybo			t Mode:		Channel	
Mode	Keeping Transmit	tting	Test V			5.0V	
Temperature	24 deg. C,		Humidity		56% RH		
Test Result:	Pass		De	etector	]	PK	
20dB Bandwidth	2.275MHz						
	Marker 1 [T1 r		RBW	100 kH		10 dB	
Ref Lvl		.00 dB	VBW	100 kH			
-20 dBm	BW 2.274549	∃10 MHz	SWT	100 ms	Unit	dBm	
20				<b>▼</b> 1 [	T1] -4	1.30 dBm	
20					2.4048	3467 GHz	
-30				ndb	2	0.00 dB	
		1		BW ∇⊤1	2.2745 [T1]6		
-40		Marin Marin	ly		2.4042		
		New Market		<b>∀</b> T2	[T1] -6		
-50 <b>AMAY</b>	<del>∥</del> ال ا		<del>-\</del> \_	~~~~~	2.4065	2806 GHz	
1MAX	_ \			Jane V	Mu	1M	
-60	lan.				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Munder	
-اير					· ·		
-70							
you was a few or							
-80							
-90							
- 100							
-110							
110							
-120							
Center 2.405	GHz	500 k	Hz/		Sp	an 5 MHz	

Page 31 of 38

Report No: 0909028-02	
Date: 2009-10-23	

Product: Wireless Keyboard		ard	Test Mode:		Middle Channel				
Mode		Keeping Transmitting 24 deg. C, Pass 2.776MHz			Test Voltage Humidity Detector		DC5.0V 56% RH PK 		
Temperature	2								
Test Result:									
OdB Bandwidth	2								
Ref Lvl -20 dBm	Marker ndB BW	1 [T1 r 20. 2.775551	.00 dB	RBW VBW SWT	100 kH 100 kH 100 ms	łz	Att nit	10 dB dBm	1
-20					<b>v</b> 1	[ T 1 ]	-42 2.43900	2.31 dBm 1501 GHz	Α
-40			,		ndb BW ∇T1	[T1]	20 2.77555 -62	1.00 dB 110 MHz 2.26 dBm	
-50		- Longle	and the same	~\ <u>\</u>	∇ <u>1</u> 2	[T1]	2.43785 -62	.77 dBm	
1MAX -60		M		V.	hanne	rhandhar.	2.44U62	2826 GHz	1 M
-70							W. W.	home	
-80 -80	I/W "								
-90									
100									
110									
120 Center 2.4			500 k					an 5 MHz	

Page 32 of 38

Report No: 0909028-02 Date: 2009-10-23

TEST REPORT

9.2 20dB Bandwidth N	Measurement						
Product: Wireless Keyboard		board	Test Mode:		High Channel		
Mode			Test V	oltage	DC5.0V		
Temperature	24 deg. (	24 deg. C,			56% RH		
Test Result:	Test Result: Pass		D	etector	PK		
20dB Bandwidth	2.204MH	[z					
	Marker 1 [T	1 ndB]	RBW	100 kH		10 dB	
Ref Lvl		20.00 dB	VBW	100 kH		15	
-20 dBm -20 <b></b>	BW 2.204	40882 MHz	SWT	100 ms	Unit	dBm	
				<b>▼</b> 1 [	T1] -4	A	
-30					2.4760		
				ndb BW	2.2044	2U.UU dB 10882 MHz	
-40				∇ <sub>T 1</sub>	[T1]E	64.23 dBm	
		\	`		2.4754		
-50			<u> </u>	VT2	[T1] -E		
1MAX			who	W The same	2.4778	1MA	
-60		N			12		
		7			of my my		
-70	www.	<b>/</b> F'			Whi	Wan .	
and and a	_Lan_~abduban_					The same of the sa	
-80							
-90							
-100						+	
-110						+	
-120 <b>L</b> Center 2.470		<b>  </b> 500	/ U ¬ /			an 5 MHz	
			\IIZ/		⊃Ļ	JAII Ο ΠΠΖ	
Date: 28.SE	P.2009 11:52:4	łb					

Page 33 of 38

Report No: 0909028-02

Date: 2009-10-23



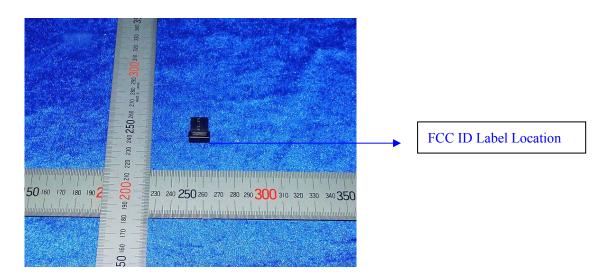
#### 10.0 FCC ID Label

# **FCC ID: XQLSD0909421**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### **Mark Location:**



Date: 2009-10-23

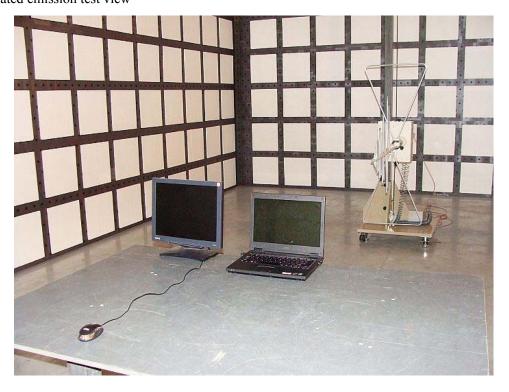


#### 11.0 Photo of testing

#### 11.1 Conducted test View--



#### 11.2 Radiated emission test view



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen Timeway Technology Consulting Co., Ltd. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the Shenzhen Timeway Technology Consulting co .,Ltd to his customer. Supplier or others persons directly concerned. Shenzhen Timeway Technology Consulting co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The Shenzhen Timeway Technology Consulting co .,Ltd reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

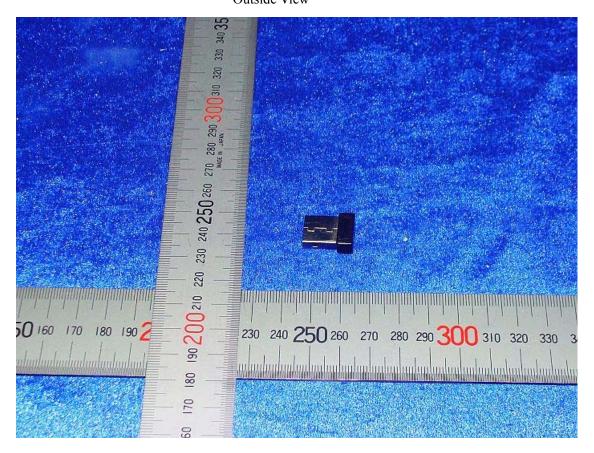
Page 35 of 38

Report No: 0909028-02

Date: 2009-10-23



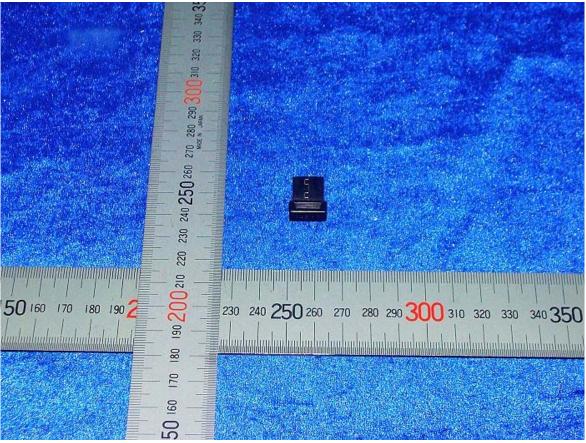
#### 11.3 Photo for the EUT



Page 36 of 38

Report No: 0909028-02

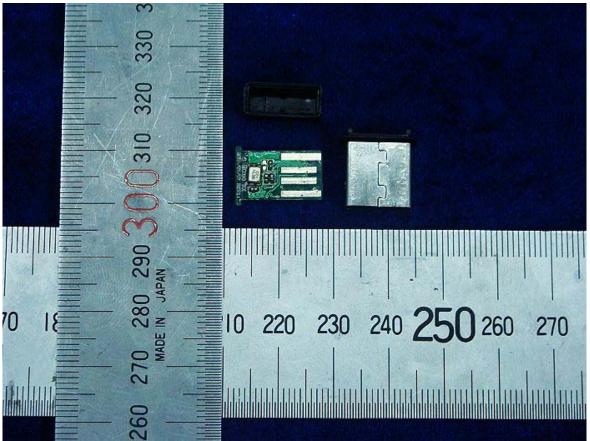




Page 37 of 38

Report No: 0909028-02

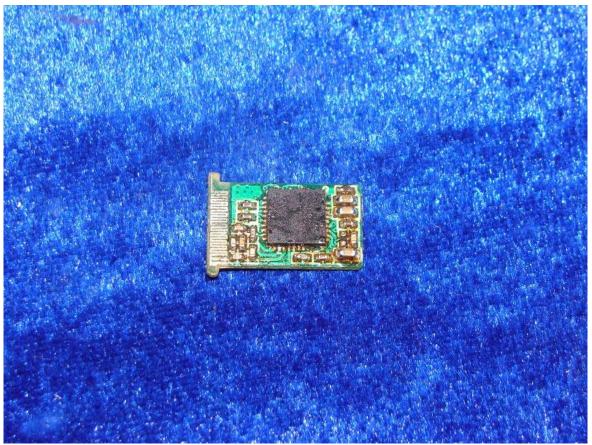




Page 38 of 38

Report No: 0909028-02





-- End of the report--