

TEST REPORT

Report No: ECR1712120R-01

Applicant: Couso Technology Co., Ltd.

Address: No.26#, MinYe Street, TangXia Town, Dongguang City, GuangDong Province, China

Product: Wireless Keyboard & Mouse SET

Brand Name: COUSO, BANRUO

Model No: CS1000G, please see page 4 for mode list

Test Standards: ETSI EN 300 440 v 2.1.1 (2017-03)

Test result: The Testing has been performed on the submitted samples and found in compliance with the RED Directive 2014/53/EU requirements

Reviewer by

Approved by

James Wu



Date of Report: Dec. 08, 2017

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 SETEK Technology Co., Ltd.

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Test Report Conclusion

Content

1.0	General Details
1.1	Notes.....
1.2	Test Laboratory.....
1.3	Details of Applicant.....
1.4	Application Details.....
1.5	Test Item.....
1.6	Test Standards.....
1.7	Configuration of The EUT.....
1.8	EUT Modification.....
1.9	Test By.....
2.0	Technical Test
2.1	Summary of Test Result.....
2.2	Test Report.....
	Clause4.2.1 Transmitter Requirements.....
	Clause4.2.2Equivalent Isotropically Radiated Power (eirp).....
	Clause4.2.3 Permitted Range of Operating Frequencies.....
	Clause4.2.4 Unwanted Emissions in the spurious domain.....
	Clause4.2.5 Duty Cycle.....
	Clause 4.3 Receiver Requirements.....
	Clause 4.3.3 Adjacent channel Selectivity.....
	Clause 4.3.4 Blocking or Desensitization.....
	Clause 4.3.5 Spurious radiations.....
3.0	CE Label
4.0	Photograph-EUT
5.0	Test Equipment
6.0	Measurement Uncertainty

1. General Information

1.1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The SETEK Lab does not assume Responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the SETEK Lab.

1.2 Testing Laboratory

Shenzhen SETEK Technology Co., Ltd.

1003, C Bldg, Fuyuan Business Trade Center, 44 District Bao'an, Shenzhen, China

Website: www.setek.com.cn E-mail: service@setek.com.cn

TEL: 86-755-26966362

FAX: 86-755-26966270

1.3 Details of Applicant

Name: Couso Technology Co., Ltd.

Address: No. 26#, MinYe Street, TangXia Town, DongGuang City, GuangDong Province, China

1.4 Application Details

Date of Receipt of Application: Dec. 01, 2017

Date of Receipt of Test Item: Dec. 01, 2017

Date of Test: Dec. 01, 2017~ Dec. 07, 2017

1.5 Test Item

Manufacturer: Couso Technology Co., Ltd.

Address: No. 26#, MinYe Street, TangXia Town, DongGuang City, GuangDong Province, China

Brand Name: COUSO, BANRUO

Model No.: CS1000G, CS2000G, CS3000G, CS4000G, CS4100G, CS4200G, CS4300G, CS4400G, CS4500G, CS4515G, CS4550G, CS4600G, CS4700G, CS4800G, CS4900G, CS5000G, CS5100G, CS5200G, CS5300G, CS5400G, CS5500G, CS5600G, CS5700G, CS5800G, CS5900G, CS-6000G, CS6100G, CS6200G, CS6300G, CS6400G, CS-6500G, CS6600G, CS6700G, CS6800G, CS6900G, CS7000G, CS7100G, CS7200G, CS7300G, CS7400G, CS7500G, CS7600G, CS7700G, CS7800G, CS7900G, CS8000G, CS8100G, CS8200G, CS8300G, CS8400G, CS8500G, CS8600G, CS8700G, CS8800G, CS8900G, CS-9000G, CS9100G, CS9200G, CS9300G, CS9400G, CS9500G, CS9600G, CS9700G, CS9800G, CS9900G, CX100LD, CX120LD, CX130LD, CX140LD, CX150LD, CX160LD, CX170LD, CX180LD, CX190LD, CK410B, CK910B, CS9100L, CS9200L, CS6500LD, CK470TL, CS4570G, CS4380G, CK400G, CK410G, CK420G, CK430G, CK440G, CK450G, CK460G, CK470T, CK480G, CK490G, CK510G, CK520G, CK530G, CK540G, CK550G, CK560G, CK570G, CK580G, CK590G, CK600G, CK601G, CK700G, CK710G, CK720G, CK730G, CK740G, CK750G, CK760G, CK770G, CK780G, CK790G, CM701G, CM702G, CM703G, CM704G, CM705G, CM706G, CM707G, CM708G, CM709G, CM710G, CM720G, CM730G, CM740G, CM750G, CM760G, CM770G, CM780G, CM790G, CM800LD, CM810LD, CM820LD, CM830LD, CM840LD, CM850LD, CM860LD, CM870LD, CM880G, CM890LD, CK920G, CK921G,

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CK923G, CK927G, CG10LD, CG11LD, CG12LD, CG13LD, CG14LD, CG15LD, CG16LD, CG17LD, CG18LD, CG19LD, CM610LD, CM620LD, CM630LD, CM640LD, CM650LD, CM660LD, CM670LD, CM680LD, CM690LD, CM610B, CM620B, CM630B, CM640B, CM650B, CM660B, CM670B, CM680B, CM690B, CM700B, CM710B, CM720B, CM730B, CM740B, CM750B, CM760B, CM770B, CM780B, CM790B, CM840B, CM850B, CM860B, CM870B, CM880B, CM890B, CM610G, CM620G, CM630G, CM640G, CM650G, CM660G, CM670G, CM680G, CM690G, CM810G, CM815G, CM820G, CM830G, CM840G, CM850G, CM860G, CM870G, CM880G, CM890G, CM891G, CM892G, CM893G, CM894G, CM895G, CM896G, CM897G, CM898G, CM898GL, CNS-HSETW3-RU, CNS-HSETW3-US, CNS-HSETW3-SK, CNS-HSETW3-LT, CNS-HSETW3-HU, CNS-HSETW3-BG, CNS-HSETW3-AD, CNS-HSETW3-CZ, CNS-HSETW3-UK, CNS-HKBW2-RU, CNS-HKBW2-US, CNS-HKBW2-SK, CNS-HKBW2-LT, CNS-HKBW2-HU, CNS-HKBW2-AD, CNS-HKBW2-CZ, CNS-HKBW2-EE, CNS-HKBW4-UK, CNS-HSETW4-RU, CNS-HSETW4-CS, CNS-HSETW4-US, CNS-HSETW4-BG, CNS-HSETW4-HU, CNS-HSETW4-LT, CNS-HSETW4-EE

The model(s) are all identical in interior structure, electrical circuits and components, and just the model names are different for the marketing requirement.

We prepare CS1000G for the test.

Description: 2.4GHz Wireless Keyboard & Mouse set

Additional Information

Frequency: 2408MHz-2474MHz for USB dongle and 2408MHz-2474MHz for keyboard Part and mouse Part

Channels: 34

Channel Separation: 2MHz

Modulation Type: GFSK

Antenna Designation: PCB Printed Antenna with maximum gain 1.2dBi for Keyboard/Mouse part and 1.0dBi for USB dongle part

Power Supply: DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)

Operation Distance: N/A

Resolution: N/A

Extreme Temp. Tolerance: -10°C to 55°C

Note: Classification according to CEPT/ERC Recommendation 70-03

1.6 Test Standards

ETSI EN 300 440 v 2.1.1 (2017-03)

Short Range Devices (SRD);

Radio equipment to be used in the 1 GHz to 40 GHz frequency range;

Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

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1.7 Configuration of The EUT

The EUT was configured according to **CISPR16**. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Basic Model
Wireless Keyboard & Mouse set	Couso Technology Co., Ltd.	CS1000G

B. Internal Devices

Device	Manufacturer	Model
N/A		

C. Peripherals

Device	Manufacturer	Model	Cable
N/A			

1.8 EUT Modifications

No modification by SHENZHEN SETEK TECHNOLOGY CO., LTD..

1.9 Tests or Witness Test Engineering

Test By: Terry Tang
Printing Name: Terry Tang



2. Technical Test

2.1 Summary of Test Results

No deviations from the technical specification(s) were ascertained in the course of the tests Performed	
Final Verdict: (Only “Passed” if all Measurements are “Passed”)	Pass

2.2 Test Report

Test Report Reference

List of Measurements	
Parameter to be measured	Clause
Transmitter Parameters	
Transmitter Requirements	Clause 4.2.1
Equivalent Isotropically Radiated Power (eirp)	Clause 4.2.2
Permitted Range of Operating Frequencies	Clause 4.2.3
Unwanted emissions in the spurious domain	Clause 4.2.4
Duty Cycle	Clause 4.2.5
Receiver Parameters	
Receiver Requirements	Clause 4.3
Adjacent Band Selectivity	Clause 4.3.3
Blocking or Desensitisation	Clause 4.3.4
Receiver Spurious Emissions	Clause 4.3.5

Note: The clause numbers are referenced to ETSI EN 300 440 v 2.1.1 (2017-03).

Clause 4.2.1 Transmitter Requirements

The transmitter with a dedicated antenna.

Clause 4.2.2 Equivalent Isotropically Radiated Power (eirp)

For Transmitter

EIRP is calculated by method described under EN 300 440 sub clause 4.2.2.3

Conducted measurements

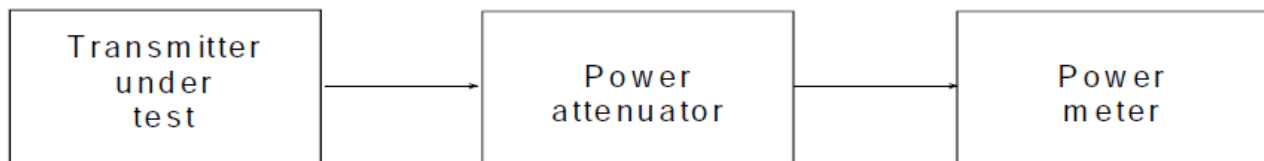


Figure 2: Measurement arrangement

For practical reasons, measurements shall be performed only at the highest power level at which the transmitter is intended to operate. The measurement arrangement in figure 2 shall be used.

The measurement shall be performed preferably in the absence of modulation.

When it is not possible to measure it in the absence of modulation, this fact shall be stated in test reports.

The transmitter shall be set in continuous transmission mode. If this is not possible, the measurements shall be carried out in a period shorter than the duration of the transmitted burst. It may be necessary to extend the duration of the burst.

The transmitter shall be connected to an artificial antenna (see clause 5.8.2) and the power delivered to this artificial antenna shall be measured.

The equivalent isotropically radiated power is then calculated from the measured value, the known antenna gain, relative to an isotropic antenna, and if applicable, any losses due to cables and connectors in the measurement system.

For Transmitter:

Wireless Keyboard

Test Conditions		-6 dB transmitter bandwidth		
		Low Freq. 2408MHz	Mid Freq. 2440MHz	High Freq. 2474MHz
T _{nor} (25℃)	V _{nor} (1.65V)	2032.52kHz	2030.18kHz	2029.64kHz

Wireless Mouse

Test Conditions		-6 dB transmitter bandwidth		
		Low Freq. 2408MHz	Mid Freq. 2440MHz	High Freq. 2474MHz
T _{nor} (25℃)	V _{nor} (1.65V)	2034.15kHz	2033.32kHz	2031.53kHz

USB Dongle Part

Test Conditions		-6 dB transmitter bandwidth		
		Low Freq. 2408MHz	Mid Freq. 2440MHz	High Freq. 2474MHz
T _{nor} (25℃)	V _{nor} (230V)	2036.40kHz	2034.25kHz	2033.08kHz

For Transmitter:

Keyboard Part

Test Conditions		Transmitter Power (Limit 10dBm) EIRP					
		Low Freq. 2408MHz		Mid Freq. 2440MHz		High Freq. 2474MHz	
T _{nor} (25℃)	V _{nor} (1.65V)	Pk	0.98	Pk	0.61	Pk	0.55
T _{min} (-10℃)	V _{nor} (1.65V)	Pk	0.95	Pk	0.58	Pk	0.71
T _{max} (+55℃)	V _{nor} (1.65V)	Pk	0.82	Pk	0.66	Pk	0.52
T _{nor} (25℃)	V _L (1.3V)	Pk	0.73	Pk	0.55	Pk	0.43
T _{min} (-20℃)	V _L (1.3V)	Pk	0.88	Pk	0.47	Pk	0.34
T _{max} (+55℃)	V _L (1.3V)	Pk	0.90	Pk	0.50	Pk	0.46

Mouse Part

Test Conditions		Transmitter Power (Limit 10dBm) EIRP					
		Low Freq. 2408MHz		Mid Freq. 2440MHz		High Freq. 2474MHz	
T _{nor} (25℃)	V _{nor} (1.65V)	Pk	0.85	Pk	0.57	Pk	0.60
T _{min} (-10℃)	V _{nor} (1.65V)	Pk	0.92	Pk	0.73	Pk	0.42
T _{max} (+55℃)	V _{nor} (1.65V)	Pk	0.76	Pk	0.68	Pk	0.53
T _{nor} (25℃)	V _L (1.3V)	Pk	0.65	Pk	0.49	Pk	0.36
T _{min} (-20℃)	V _L (1.3V)	Pk	0.83	Pk	0.51	Pk	0.47
T _{max} (+55℃)	V _L (1.3V)	Pk	0.94	Pk	0.42	Pk	0.31

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Dongle Part

Test Conditions		Transmitter Power (Limit 10dBm) EIRP					
		Low Freq. 2408MHz		Mid Freq. 2440MHz		High Freq. 2474MHz	
T _{nor} (25℃)	V _{nor} (230V)	Pk	-0.22	Pk	-0.38	Pk	-0.43
T _{min} (-10℃)	V _{nor} (230V)	Pk	-0.19	Pk	-0.46	Pk	-0.65
T _{max} (+55℃)	V _{nor} (230V)	Pk	-0.27	Pk	-0.55	Pk	-0.51
T _{nor} (25℃)	V _L (207V)	Pk	-0.13	Pk	-0.24	Pk	-0.72
T _{min} (-10℃)	V _L (207V)	Pk	-0.29	Pk	-0.53	Pk	-0.69
T _{max} (+55℃)	V _L (207V)	Pk	-0.34	Pk	-0.62	Pk	-0.83
T _{nor} (25℃)	V _H (253V)	Pk	-0.10	Pk	-0.41	Pk	-0.74
T _{min} (-10℃)	V _H (253V)	Pk	-0.25	Pk	-0.35	Pk	-0.89
T _{max} (+55℃)	V _H (253V)	Pk	-0.41	Pk	-0.60	Pk	-0.67

Note:

- (1) The EUT is a stand-alone radio device. The Keyboard/Mouse part is powered by the batteries (rechargeable or non-rechargeable batteries, a type of nickel-cadmium). The USB dongle part is powered by PC, so the ac source is the power.
- (2) The value of table is worst case during test condition, includes different combinations of transmitter rate antenna polarity and temperature.
- (3) EIRP=Reading + Loss + Antenna Gain

Limits: EN 300 440, Clause 4.2.2.4**Table 2: Maximum radiated peak power (e.i.r.p.)**

Frequency Bands	Power	Application	Notes
2 400 MHz to 2 483,5 MHz	10 mW e.i.r.p.	Non-specific short range devices	
2 400 MHz to 2 483,5 MHz	25 mW e.i.r.p.	Radio determination devices	
(a) 2 446 MHz to 2 454 MHz	500 mW e.i.r.p.	Radio Frequency Identification (RFID) devices	See also table 4 and annex D
(b) 2 446 MHz to 2 454 MHz	4 W e.i.r.p.	Radio Frequency Identification (RFID) devices	See also table 4 and annex D
5 725 MHz to 5 875 MHz	25 mW e.i.r.p.	Non-specific short range devices	
9 200 MHz to 9 500 MHz	25 mW e.i.r.p.	Radio determination devices	
9 500 MHz to 9 975 MHz	25 mW e.i.r.p.	Radio determination devices	
10,5 GHz to 10,6 GHz	500 mW e.i.r.p.	Radio determination devices	
13,4 GHz to 14,0 GHz	25 mW e.i.r.p.	Radio determination devices	
17,1 GHz to 17,3 GHz	400 mW e.i.r.p.	Radio determination devices	See annex F
24,00 GHz to 24,25 GHz	100 mW e.i.r.p.	Non-specific short range devices and Radio determination devices	

Clause 4.2.3 Permitted Range of Operating Frequencies

For Transmitter:

Keyboard Part

Test Conditions		Frequency(MHz) at which-30 dBm occurs	
		Low Frequency (f _L) 2408MHz	High Frequency (f _H) 2474MHz
T _{nor} (25℃)	V _{nor} (1.65V)	2406.46273	2475.72516
T _{min} (-10℃)	V _{nor} (1.65V)	2406.46285	2475.72524
T _{max} (+55℃)	V _{nor} (1.65V)	2406.46242	2475.72505
T _{nor} (25℃)	V _L (1.3V)	2406.46237	2475.72548
T _{min} (-10℃)	V _L (1.3V)	2406.46255	2475.72552
T _{max} (+55℃)	V _L (1.3V)	2406.46264	2475.72530

Mouse Part

Test Conditions		Frequency(MHz) at which-30 dBm occurs	
		Low Frequency (f _L) 2408MHz	High Frequency (f _H) 2474MHz
T _{nor} (25℃)	V _{nor} (1.65V)	2406.46355	2475.72622
T _{min} (-10℃)	V _{nor} (1.65V)	2406.46371	2475.72654
T _{max} (+55℃)	V _{nor} (1.65V)	2406.46332	2475.72635
T _{nor} (25℃)	V _L (1.3V)	2406.46348	2475.72660
T _{min} (-10℃)	V _L (1.3V)	2406.46325	2475.72673
T _{max} (+55℃)	V _L (1.3V)	2406.46316	2475.72649

USB Dongle Part

Test Conditions		Frequency(MHz) at which-30 dBm occurs	
		Low Frequency (f _L) 2408MHz	High Frequency (f _H) 2474MHz
T _{nor} (25℃)	V _{nor} (230V)	2406.47035	2475.72582
T _{min} (-10℃)	V _{nor} (230V)	2406.47021	2475.72543
T _{max} (+55℃)	V _{nor} (230V)	2406.47058	2475.72556
T _{nor} (25℃)	V _L (207V)	2406.47074	2475.72531
T _{min} (-10℃)	V _L (207V)	2406.47049	2475.72510
T _{max} (+55℃)	V _L (207V)	2406.47062	2475.72574
T _{nor} (25℃)	V _H (253V)	2406.47080	2475.72565
T _{min} (-10℃)	V _H (253V)	2406.47052	2475.72547
T _{max} (+55℃)	V _H (253V)	2406.47067	2475.72526

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Note:

(1) The EUT is a stand-alone radio device. The Keyboard/Mouse part is powered by the batteries (rechargeable or non-rechargeable batteries, a type of nickel-cadmium). The USB dongle part is powered by PC, so the ac source is the power.

(2) The value of table is worst case during test condition, includes different combinations of transmitter rate antenna polarity and temperature.

Limits EN 300 440 Clause 4.2.3.5

Under Normal Test Conditions	$F_L > 2400\text{MHz}$, $f_H < 2483.5$
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Clause 4.2.4 Spurious Emissions**(Radiated)**

Product	Wireless Keyboard & Mouse set	Test Mode	Low and High Channel
Test Item	Spurious Emissions data	Temperature	25°C
Test Voltage	DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)	Humidity	56%RH
Test Result	Pass	Model:	CS1000G

Note:

1. Measurements were done on low & high channels, the worst case are submitted in the report.
2. The spurious emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges.
3. The test frequency range is from 25M-25G and please see clause 4.2.4.3.3 of EN 300 440 for the test method.

Low Channel (2408MHz) for Keyboard Part

Lowest Frequency			Highest Frequency		
F(MHz)	Band-Width(kHz)	Level (dBm)	F(MHz)	Band-Width(kHz)	Level(dBm)
93.6	100	-63.4	--	--	--
Measurement Uncertainty		4. 7dB			

High Channel (2474MHz) for Keyboard Part

Lowest Frequency			Highest Frequency		
F(MHz)	Band-Width(kHz)	Level (dBm)	F(MHz)	Band-Width(kHz)	Level(dBm)
167.8	100	-66.1	--	--	--
Measurement Uncertainty		4. 7dB			

Low Channel (2408MHz) for Mouse Part

Lowest Frequency			Highest Frequency		
F(MHz)	Band-Width(kHz)	Level (dBm)	F(MHz)	Band-Width(kHz)	Level(dBm)
77.2	100	-62.6	--	--	--
Measurement Uncertainty		4. 7dB			

High Channel (2474MHz) for Mouse Part

Lowest Frequency			Highest Frequency		
F(MHz)	Band-Width(kHz)	Level (dBm)	F(MHz)	Band-Width(kHz)	Level(dBm)
39.8	100	-65.5	--	--	--
Measurement Uncertainty		4. 7dB			

Low Channel (2408MHz) for USB Dongle Part

Lowest Frequency			Highest Frequency		
F(MHz)	Band-Width(kHz)	Level (dBm)	F(MHz)	Band-Width(kHz)	Level(dBm)
238.5	100	-63.9	-	-	NF
Measurement Uncertainty		4. 7dB			

High Channel (2474MHz) for USB Dongle Part

Lowest Frequency			Highest Frequency		
F(MHz)	Band-Width(kHz)	Level (dBm)	F(MHz)	Band-Width(kHz)	Level(dBm)
62.9	100	-64.1	-	-	NF

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Measurement Uncertainty	4. 7dB
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Note: NF = No Significant Peak was Found.

Limits EN 300 440, Clause 42.4.4

Table 3: Spurious emissions

Frequency ranges	47 MHz to 74 MHz 87,5 MHz to 108 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz	Other frequencies $\leq 1\,000$ MHz	Frequencies > 1 000 MHz
State			
Operating	4 nW	250 nW	1 μ W
Standby	2 nW	2 nW	20 nW

Clause 4.2.5 Duty Cycle For Transmitter

The EUT is wireless Keyboard intends to use in household and office or related application, It's declared by the manufacturer as a duty ratio up to 100%

Product	Wireless Keyboard & Mouse set	Test Mode	Low , High and Middle Channel
Test Item	Duty Cycle	Temperature	25°C
Test Voltage	DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)	Humidity	56%RH
Test Result	Pass	Model:	CS1000G

X = Duty Cycle Ratio, Up to 100%

Limits EN 300 440-1, Clause 4.2.5.4

Table 4: Duty cycle limits

Frequency Band	Duty cycle	Application	Notes
2 400 MHz to 2 483,5 MHz	No Restriction	Generic use	
2 400 MHz to 2 483,5 MHz	No Restriction	Detection, movement and alert applications	
(a) 2 446 MHz to 2 454 MHz	No Restriction	RFID	Limits shown in annex D shall apply
(b) 2 446 MHz to 2 454 MHz	≤ 15 %	RFID	Limits shown in annex D shall apply
5 725 MHz to 5 875 MHz	No Restriction	Generic use	
9 200 MHz to 9 500 MHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
9 500 MHz to 9 975 MHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
10,5 GHz to 10,6 GHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
13,4 GHz to 14,0 GHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
17,1 GHz to 17,3 GHz	DAA or equivalent techniques	Radiodetermination: GBSAR detecting and movement and alert applications	Limits shown in annex F shall apply
24,00 GHz to 24,25 GHz	No Restriction	Generic use and for Radiodetermination: radar, detection, movement and alert applications	

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Clause 4.3 Receiver Requirements**For Receiver****Receiver Classification, Table 2 of EN300 440****Table 5: Receiver categories**

Receiver category	Relevant receiver clauses	Risk assessment of receiver performance
1	4.3.3, 4.3.4 and 4.3.5	Highly reliable SRD communication media; e.g. serving human life inherent systems (may result in a physical risk to a person).
2	4.3.4 and 4.3.5	Medium reliable SRD communication media e.g. causing inconvenience to persons, which cannot simply be overcome by other means.
3	4.3.5	Standard reliable SRD communication media e.g. Inconvenience to persons, which can simply be overcome by other means (e.g. manual).

Note: The EUT (Rx Part) belongs to Class 3

Clause 4.3.3 Adjacent Band Selectivity For Receiver

Product	Wireless Keyboard & Mouse set	Test Mode	Low and High Channel
Test Item	Adjacent Band Selectivity	Temperature	25°C
Test Voltage	DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)	Humidity	56%RH
Test Result	Pass	Model:	CS1000G

Keyboard under receiving mode

Low Channel-2408MHz

Adjacent channel selectivity	Limit
-30.3	-40.70

High Channel-2474MHz

Adjacent channel selectivity	Limit
-30.2	-40.92

Mouse under receiving mode

Low Channel-2408MHz

Adjacent channel selectivity	Limit
-30.6	-40.70

High Channel-2474MHz

Adjacent channel selectivity	Limit
-30.8	-40.93

Dongle under receiving mode

Low Channel-2408MHz

Adjacent channel selectivity	Limit
-29.7	-40.71

High Channel-2474MHz

Adjacent channel selectivity	Limit
-30.1	-40.93

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Limit

The adjacent channel selectivity of the equipment under specified conditions shall not be less than the levels of the unwanted signal as stated in table 6.

Table 6: Limit for adjacent channel selectivity

Receiver category	Limit
1	-30 dBm + k
2	No limit
3	No limit

The correction factor, k, is as follows:

$$k = -20\log f - 10\log BW$$

Where:

- f is the frequency in GHz;
- BW is the channel bandwidth in MHz.

The factor k is limited within the following:

$$0 < k < 40 \text{ dB.}$$

Clause 4.3.4 Blocking or Desensitization

For Receiver

Product	Wireless Keyboard & Mouse set	Test Mode	Low and High Channel
Test Item	Blocking or Desensitization	Temperature	25°C
Test Voltage	DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)	Humidity	56%RH
Test Result	Pass	Model:	CS1000G

Keyboard under receiving mode

Low Channel-2408MHz

Wanted Signal (MHz)	Unwanted Signal (MHz)	Blocking Level (dBm)	Limit	Result
2405	2405-10	-29.6	-40.70	Pass
2405	2405-20	-28.3	-40.70	Pass
2405	2405-50	-27.9	-40.70	Pass

High Channel-2474MHz

Wanted Signal (MHz)	Unwanted Signal (MHz)	Blocking Level (dBm)	Limit	Result
2470	2470+10	-29.3	-40.92	Pass
2470	2470+20	-28.1	-40.92	Pass
2470	2470+50	-27.3	-40.92	Pass

Note: the receive channel bandwidth is 1MHz

Mouse under receiving mode

Low Channel-2408MHz

Wanted Signal (MHz)	Unwanted Signal (MHz)	Blocking Level (dBm)	Limit	Result
2405	2405-10	-30.2	-40.70	Pass
2405	2405-20	-28.8	-40.70	Pass
2405	2405-50	-27.6	-40.70	Pass

High Channel-2474MHz

Wanted Signal (MHz)	Unwanted Signal (MHz)	Blocking Level (dBm)	Limit	Result
2470	2470+10	-29.9	-40.93	Pass
2470	2470+20	-28.7	-40.93	Pass
2470	2470+50	-27.3	-40.93	Pass

Note: the receive channel bandwidth is 1MHz

Dongle under receiving mode

Low Channel-2408MHz

Wanted Signal (MHz)	Unwanted Signal (MHz)	Blocking Level (dBm)	Limit	Result
2405	2405-10	-30.1	-40.71	Pass
2405	2405-20	-28.0	-40.71	Pass
2405	2405-50	-27.2	-40.71	Pass

High Channel-2474MHz

Wanted Signal (MHz)	Unwanted Signal (MHz)	Blocking Level (dBm)	Limit	Result
2470	2470+10	-30.3	-40.93	Pass
2470	2470+20	-28.2	-40.93	Pass
2470	2470+50	-27.5	-40.93	Pass

Note: the receive channel bandwidth is 1MHz

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Limit

The blocking level, for any frequency within the specified ranges, shall not be less than the values given in table 7, except at frequencies on which spurious responses are found.

Table 7: Limits for blocking or desensitization

Receiver category	Limit
1	-30 dBm + k
2	-45 dBm + k
3	No limit

The correction factor, k, is as follows:

$$k = -20 \log f - 10 \log BW$$

Where:

- f is the frequency in GHz;
- BW is the channel bandwidth in MHz.

The factor k is limited within the following:

$$0 < k < 40 \text{ dB.}$$

Clause 4.3.5 Receiver Spurious Emissions

(Radiated)

Product	Wireless Keyboard & Mouse set	Test Mode	Low and High Channel
Test Item	Spurious Emissions data	Temperature	25°C
Test Voltage	DC1.5V for Tx (AAA for Keyboard, AA for Mouse) and DC5V for Rx (Host from PC)	Humidity	56%RH
Test Result	Pass	Model:	CS1000G

Note:

1. Measurements were done on low & high channels, the worst case are submitted in the test report.
2. The receiver spurious emissions were done with different settings, using the relevant and pre-amplifiers for the relevant frequency ranges.

For Receiver:

Lowest Frequency			Highest Frequency		
F(MHz)	Band-Width(kHz)	Level (dBm)	F(MHz)	Band-Width(kHz)	Level(dBm)
55.3	100	-64.7	-	-	NF
Measurement Uncertainty		4.7dB			

- Note: 1. All reading are peak; Scan form 25MHz to 25GHz; find the maximum radiation frequency to measure.
2. NF = No Significant Peak was Found.
 3. Both the Mouse/Keyboard and USB dongle under receiving mode
 4. Worse case is recorded

Limits EN 300 440, Clause 4.3.5.4

The power of any spurious emission shall not exceed 2 nW in the range 25 MHz to 1 GHz and shall not exceed 20 nW on frequencies above 1 GHz.

3.0 Product Labelling

CE Mark label specification

Text of the mark is black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.



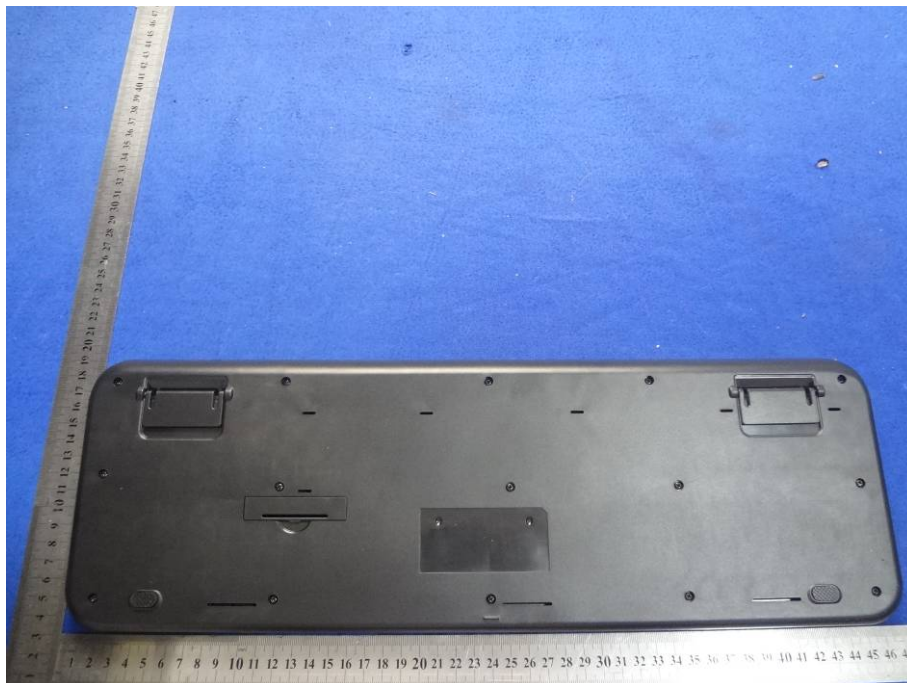
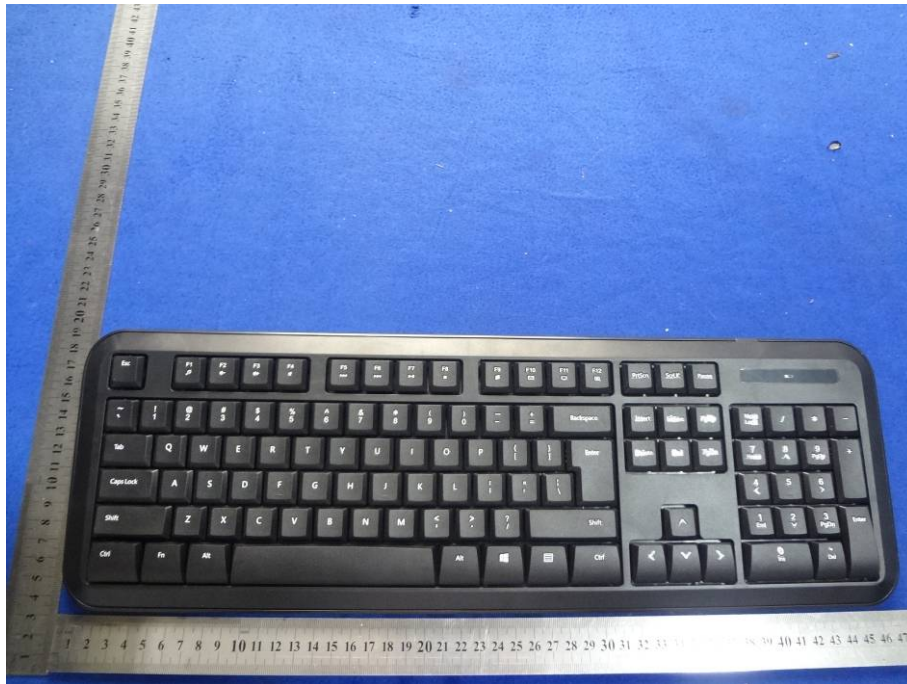
Mark Location: Rear enclosure

4. Photographs - EUT

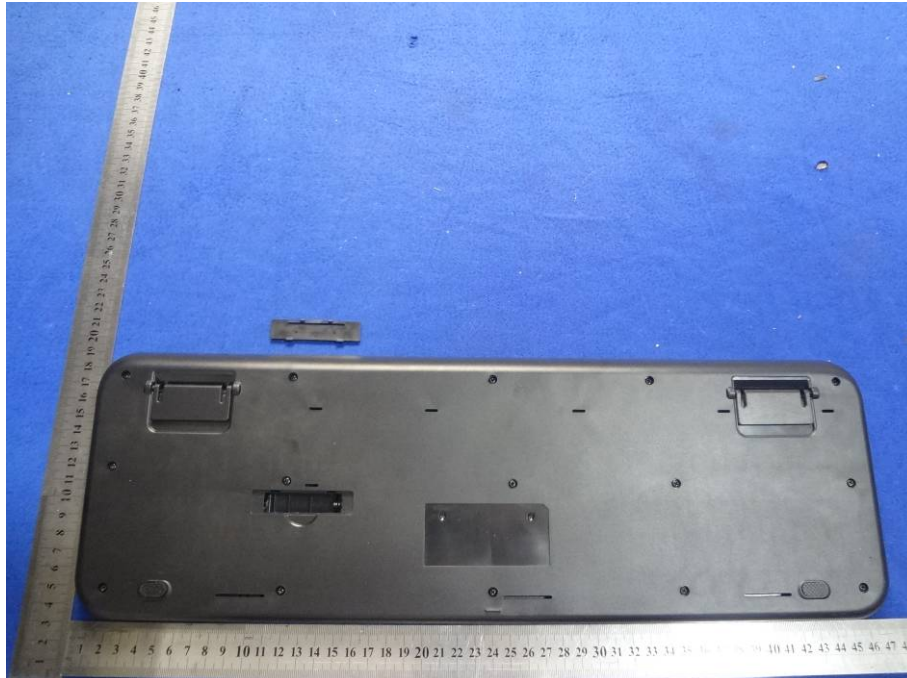
TX (Mouse + Keyboard)



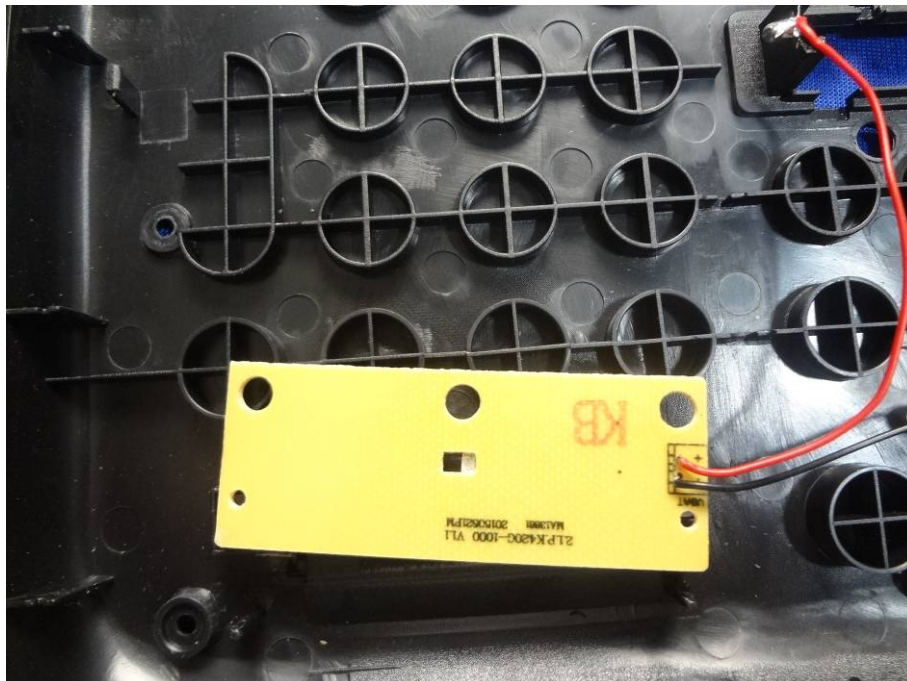
TX (Keyboard)



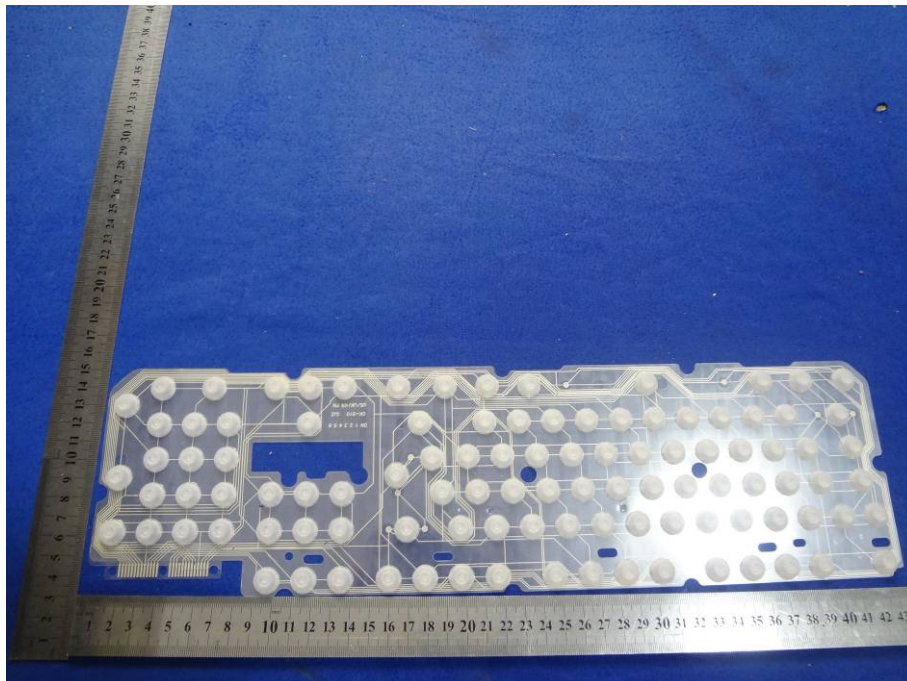
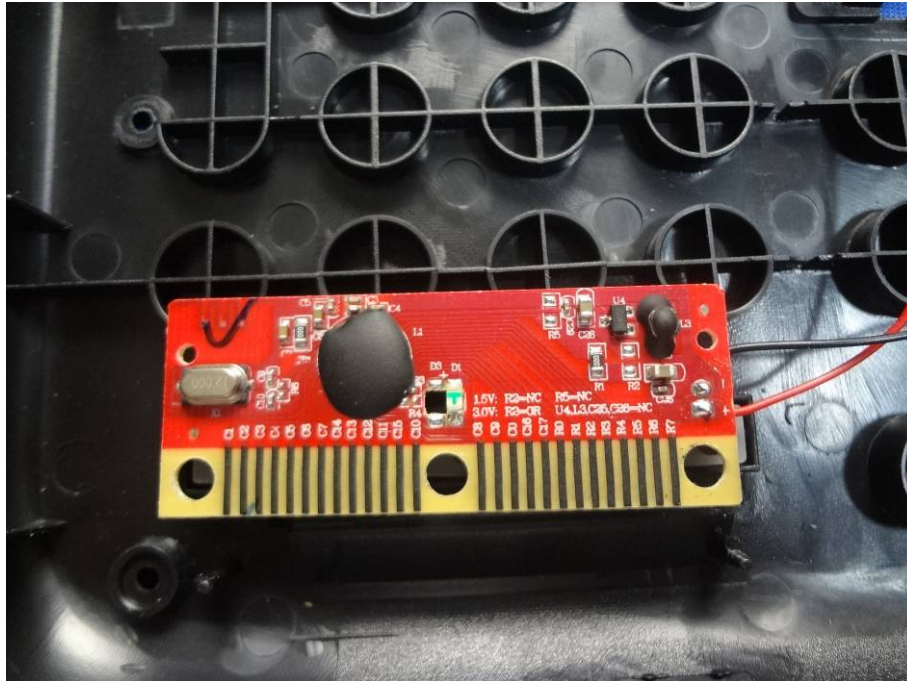
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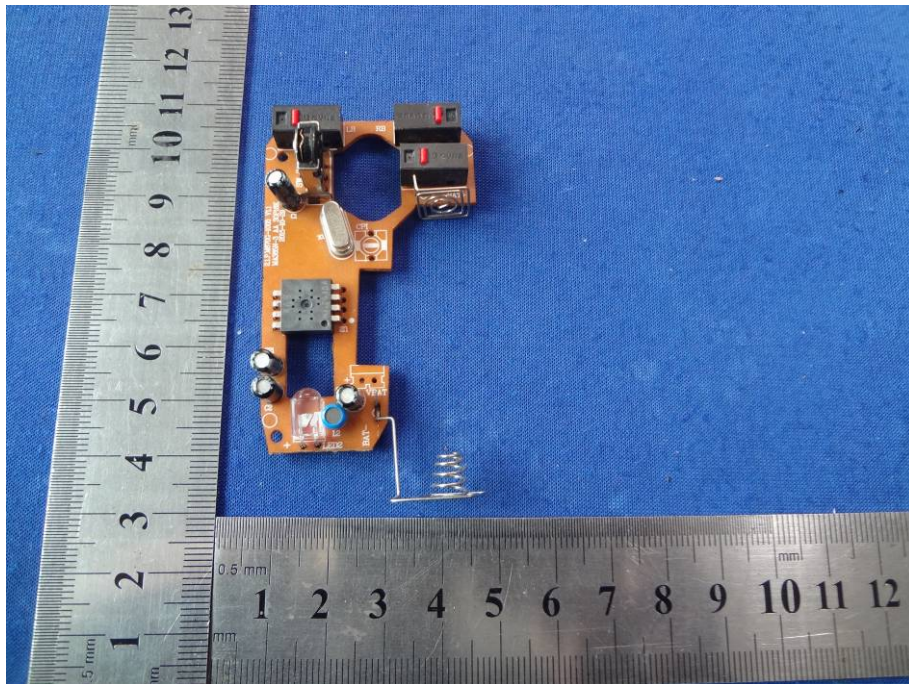
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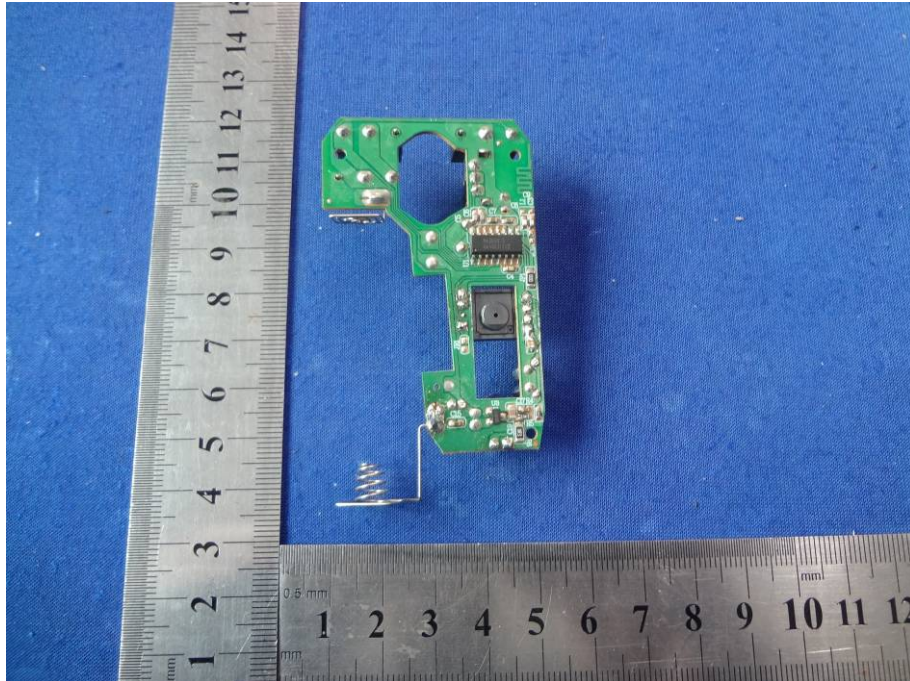


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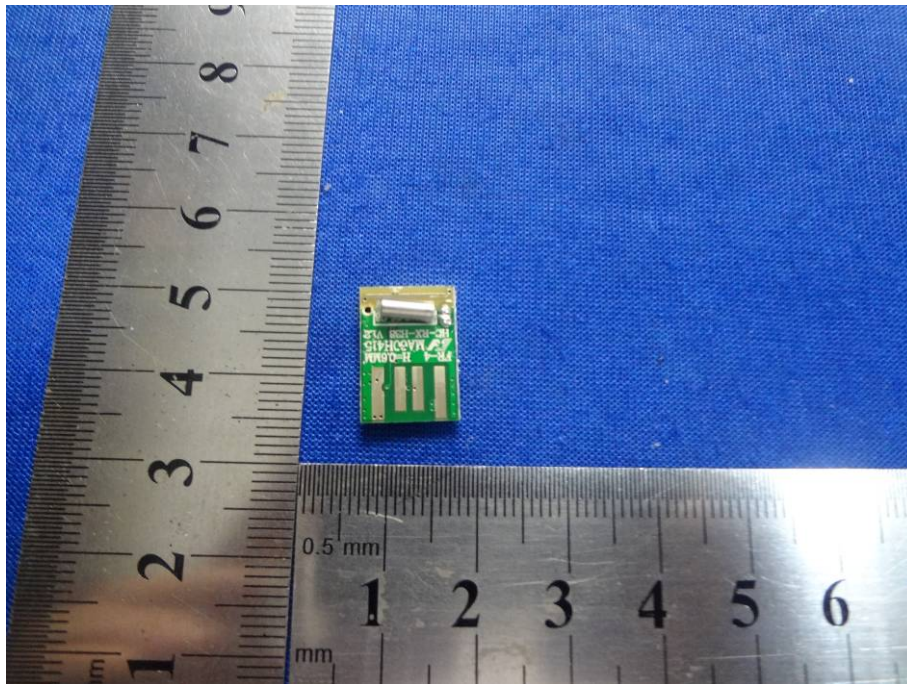
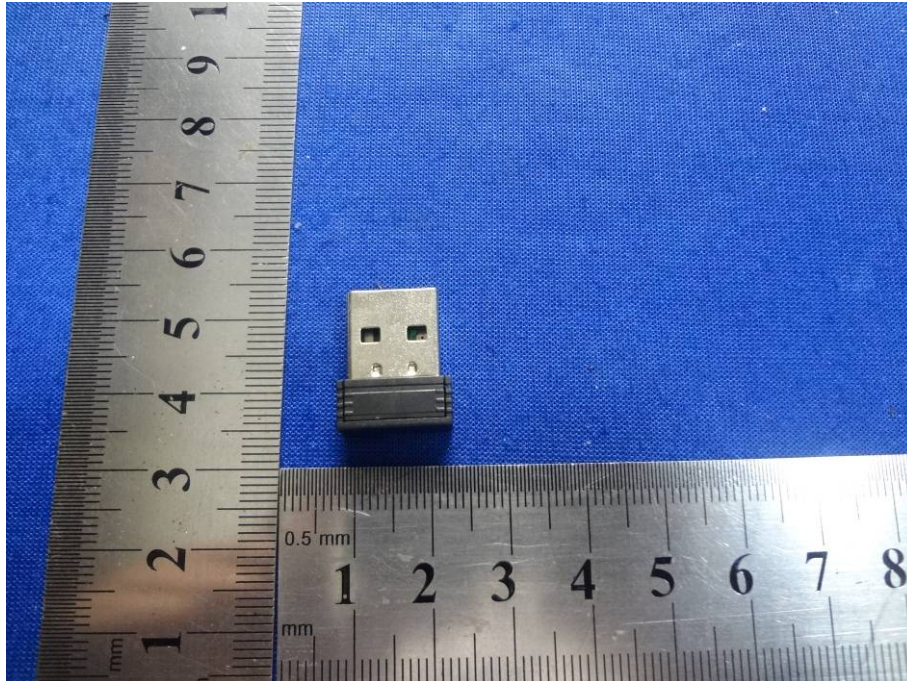
TX (Mouse)

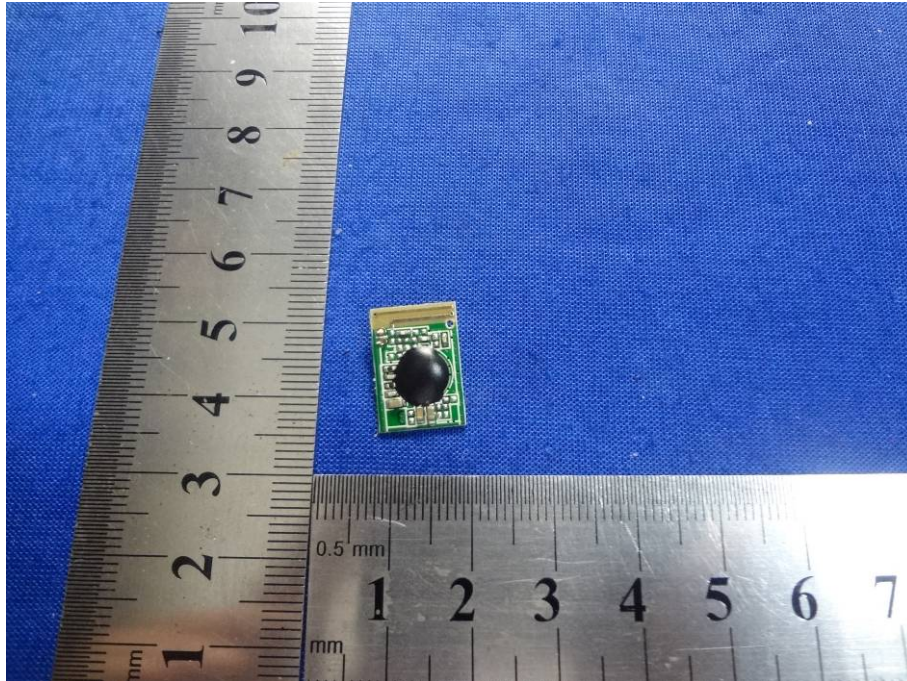






RX (Host)





5.0	Test Equipments				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2017-06-02	2018-06-01
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2017-06-02	2018-06-01
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2017-06-02	2018-06-01
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2017-06-02	2018-06-01
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2017-06-02	2018-06-01
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2017-06-02	2018-06-01
System Controller	CT	SC100	-	2017-08-22	2018-08-21
Oscillator	KENWOOD	AG-203D	3070002	2017-08-22	2018-08-21
Spectrum Analyzer	HAMEG	HM5012	-	2017-08-22	2018-08-21
Power Supply	LW	APS1502	-	2017-08-22	2018-08-21
5K VA AC Power Source	California Instruments	5001iX	56060	2017-06-02	2018-06-01
CDN	EM TEST	CDN M2/M3	-	2017-06-02	2018-06-01
Attenuation	EM TEST	ATT6/75	-	2017-06-02	2018-06-01
Resistance	EM TEST	R100	-	2017-06-02	2018-06-01
Electromagnetic Injection Clamp	LITTHI	EM101	35708	2017-06-02	2018-06-01
Inductive Components	EM TEST	MC2630	-	2017-06-02	2018-06-01
Antenna	EM TEST	MS100	-	2017-06-02	2018-06-01
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2017-08-22	2018-08-21
Power Amplifier	AR	150W1000	300999	2017-08-22	2018-08-21
Field probe	Holaday	HI-6005	105152	2017-08-22	2018-08-21
Bilog Antenna	Chase	CBL6111C	2576	2017-08-22	2018-08-21
Loop Antenna	EMCO	6502	00042960	2017-08-22	2018-08-21
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2017-08-22	2018-08-21
3m OATS	--	--	N/A	2017-08-24	2018-08-23
Vector Signal Generator	AGILENT	E4438C	MY49070163	2017.09.20	2018.09.19
Splitter	Mini-Circuits	ZAP-50W	NN256400424	2017.09.20	2018.09.19

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Directional Coupler	AGILENT	87300C	MY44300 299	2017.09.20	2018.09.19
vector Signal Generator	AGILENT	E4438C	US442719 17	2017.09.20	2018.09.19
4 Ch.Simultaneous Sampling 14 Bits 2 MS/s	AGILENT	U2531A	TW54063 507	2017.09.20	2018.09.19
4 Ch.Simultaneous Sampling 14 Bits 2 MS/s	AGILENT	U2531A	TW54063 513	2017.09.20	2018.09.19
Splitter	Mini	PS3-7	4463	2017.09.20	2018.09.19
Spectrum Analyzer	AGILENT	E7405A	US442104 71	2017.09.20	2018.09.19
Attenuator	Resnet	20dB	(n.a)	2017.09.20	2018.09.19
Signal Analyzer	AGILENT	N9010A	MY480304 94	2017.09.20	2018.09.19
Horn Antenna	ROHDE&SCHWARZ	BBHA 9120D	9120D-631	2017-08-24	2018-08-23

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6.0 Measurement Uncertainty

Test Item	Uncertainty
Radio frequency	$\pm 1 \times 10^{-7}$
RF power, conducted	$\pm 2.5\text{dB}$
Radiated emission of transmitter, valid to 26,5 GHz	$\pm 6\text{dB}$
Radiated emission of transmitter, valid between 26,5 GHz and 66 GHz	$\pm 8\text{dB}$
Radiated emission of receiver, valid to 26,5 GHz	$\pm 6\text{dB}$
Radiated emission of receiver, valid between 26,5 GHz and 66 GHz	$\pm 8\text{dB}$
RF level uncertainty for a given BER	$\pm 1.5\text{dB}$
Occupied Bandwidth	$\pm 10\%$
Temperature	$\pm 2.5^{\circ}\text{C}$
Humidity	$\pm 5\%$
Voltage (DC)	$\pm 1\%$
Voltage (AC, < 10 kHz)	$\pm 2\%$

End of the Report