

**Technical Report No.: 60.850.14.070.02E****Dated: 2016-06-26****CLIENT:**

Company Name: I.R.I.S.s.a
Address: I.R.I.S. s.a rue du bosquet 10 1348 Louvain-La-Neuve Belgium

MANUFACTURING PLACE:

Company Name: Systech Electronic Ltd.
Address: Unit 802, 8/F, Sunbeam Centre, 27 Shing Yip Street, Kwun Tong, Kowloon, Hong Kong.

TEST SUBJECT:

Product: Mouse scanner
Test Model: IRIScan™ Mouse Wifi

TEST SPECIFICATION: EN 301 489-1 V1.9.2 (2011-09)
EN 301 489-17 V2.2.1 (2012-09)

PRUPOSE OF EXAMINATION:

EN 301489-1: ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;
Part 1: Common technical requirements.

EN 301489-17: ElectroMagnetic Compatibility (EMC) standard for radio equipment;
Part 17: Specific conditions for Broadband Data Transmission Systems.

Positive: The results show that the presented product is in compliance with the specified requirements.

Negative: The present test results show that after removal of the points of non-compliance as listed in the report and an appropriate retest the product is in compliance with specified requirements. A retest of a modified product is necessary. A certification can be recommended at a positive result.

This report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.

TEST RESULTS: POSITIVE

TÜV SÜD South Region Report Template No. (TEL_SR_F_12.24E)

This test report has total number of pages is 40 .

Prepared by: Simon Wang

Project Engineer
Date: 2016-06-26



Approved by: John Zhi

Section Manager
Date: 2016-06-26



LIST OF MEASUREMENTS

TEST REPORT SUMMARY	3
GENERAL INFORMATIONS	4
1. Description of EUT.....	4
2. Related Information of EUT	4
3. Equipment Type.....	4
4. Classification of Equipment.....	4
5. Tested Configuration.....	4
6. Deviations Record	4
7. Modification Record.....	4
TEST DATA & RELATED INFORMATIONS	5
8. Emissions	5
8.1 Radiated Emissions Test	5
8.1.1 Radiated Emissions Test Setup Photos.....	7
8.2 Conducted Emissions Test	8
8.3 Harmonics Current Emissions Test.....	9
8.4 Voltage Fluctuations and Flicker Test.....	10
9. Immunity	11
9.1 Electrostatic Discharge	11
9.1.1 Electrostatic Discharge Test Setup Photos	12
9.2 Radio Frequency Electromagnetic Field (80 MHz ~2700MHz).....	13
9.2.1 Radio Frequency Electromagnetic Field Test Setup Photos.....	14
9.3 EFT/Burst Immunity Test.....	15
9.4 Surge Immunity Test.....	16
9.5 RF Common Mode Immunity Test.....	17
9.6 Voltage Interruptions and Voltage Dips Immunity Test	18
APPENDIX – PHOTOS OF EUT	19



TEST REPORT SUMMARY

Applicant : I.R.I.S.s.a

Address : I.R.I.S. s.a rue du bosquet 10 1348 Louvain-La-Neuve Belgium

Manufacturer : Systech Electronic Ltd.

Address : Unit 802, 8/F, Sunbeam Centre, 27 Shing Yip Street, Kwun Tong, Kowloon, Hong Kong.

Test Model : IRIScan™ Mouse Wifi

Date of Test Item Received : 2014-12-09

Date of Test Started : 2014-12-10

Date of Test Completed : 2016-06-26

Test specifications : Emissions
EN 55022:2010
EN 61000-3-2:2006/A2:2009
EN 61000-3-3:2008

Immunity
EN 61000-4-2:2009
EN 61000-4-3:2006/A1:2008/A2:2010
EN 61000-4-4:2012
EN 61000-4-5:2006
EN 61000-4-6:2009
EN 61000-4-11:2004

Regulations applied : EN 301 489-1 V1.9.2 (2011-09)
EN 301 489-17 V2.2.1 (2012-09)

Test Location : 1) T02

Test Conditions : Normal temperature under testing : 24°C
Relative Humidity : 55%

The data shown in this report were made in accordance with the procedures given in EN 301 489-1/17. The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

Notes:

1. The results of the testing report only related to the tested item.
2. The testing report shall not be reproduced except in full, without the written approval of the test lab.
3. The manufacturer has the sole responsibility of continued compliance of the devices.
4. The result of the testing report shown as the worst case.

GENERAL INFORMATION

1. Description of EUT

The EUT is the Mouse scanner with Scanner function.

2. Related Information of EUT

Power Source	: <u>Dongle</u> DC 5V (USB Port)
	<u>Mouse</u> DC 3.7V, 650mAh Li-ion Rechargeable Battery

Cables dedicated for EUT:

Power Line : [] DC Power cord Length: _____ m
Control Line : [] Nonshielded [] Shielded [X] None, Length: _____ m

Cables for interconnecting:

Frequency band	: 2400 – 2483.5 MHz
Transmitter antenna source	: PCB Antenna
Type of Modulation	: DSSS, OFDM
Channel Separation	: 1 MHz / 5 MHz (WiFi)

3. Equipment Type

- N/A

4. Classification of Equipment

[] Fixed Station [X] Mobile Device

* For more detailed features, please refer to *User's Manual*.

5. Tested Configuration

The product has been tested together with the following additional accessories:

Test together with notebook

6. Deviations Record

No deviations were found.

7. Modification Record

No modifications were required.



TEST DATA & RELATED INFORMATION

8. Emissions

8.1 Radiated Emissions Test

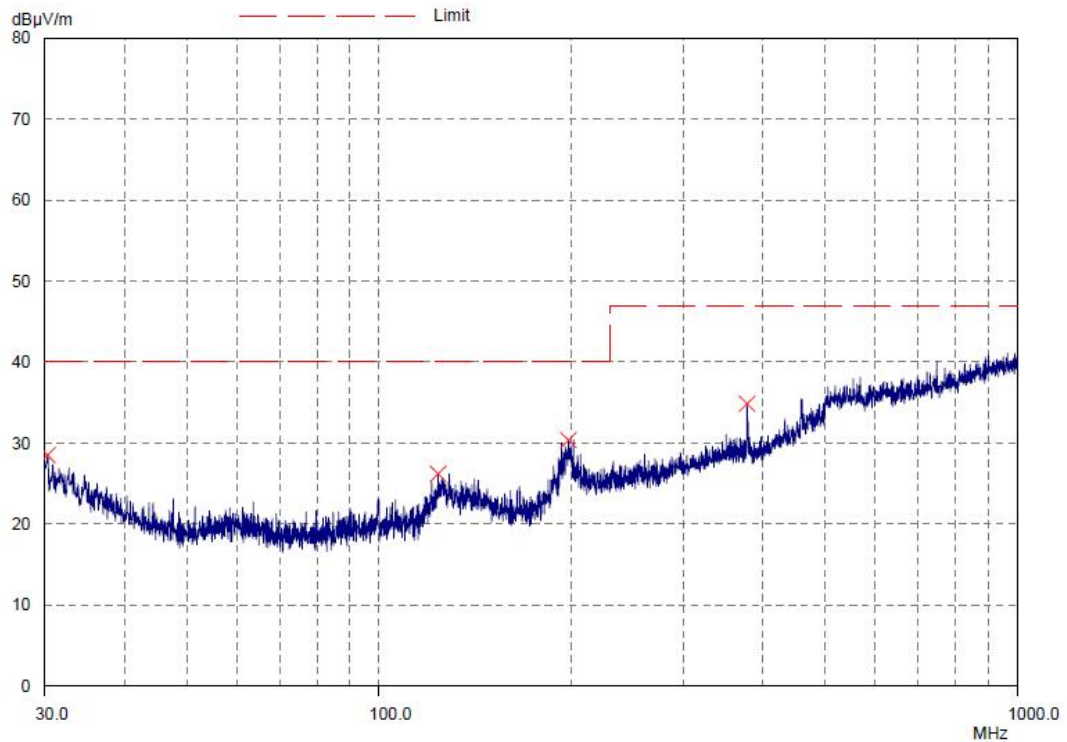
		Result: PASS
Test Regulations	EN 301489-17 V2.2.1Clause 7.1 EN 301489-1 V1.9.2Clause 8.2	
Basic Standard	EN 55022:2010	
Operating Mode	Communication Mode	
Limit	EN 301489-1 Clause 8.2.3	
Remark: No significant emissions were detected above 1GHz except the operation related frequency.		

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
Rohde & Schwarz	EMI Test Receiver	ESIB26	100388	10 Jun 2015
ETS. LINDGREN	Biconilog Antenna	3142C	00060439	29 Nov 2015
ETS.LINDGREN	Double-Ridged Waveguide	3117	00075933	15 Nov 2015
Chengdu AINFO Inc.	Standard Gain Horn Antenna (18GHz-26.5GHz)	JXTXLB-42-15-C-KF	J2021100721001	25 Jan 2015

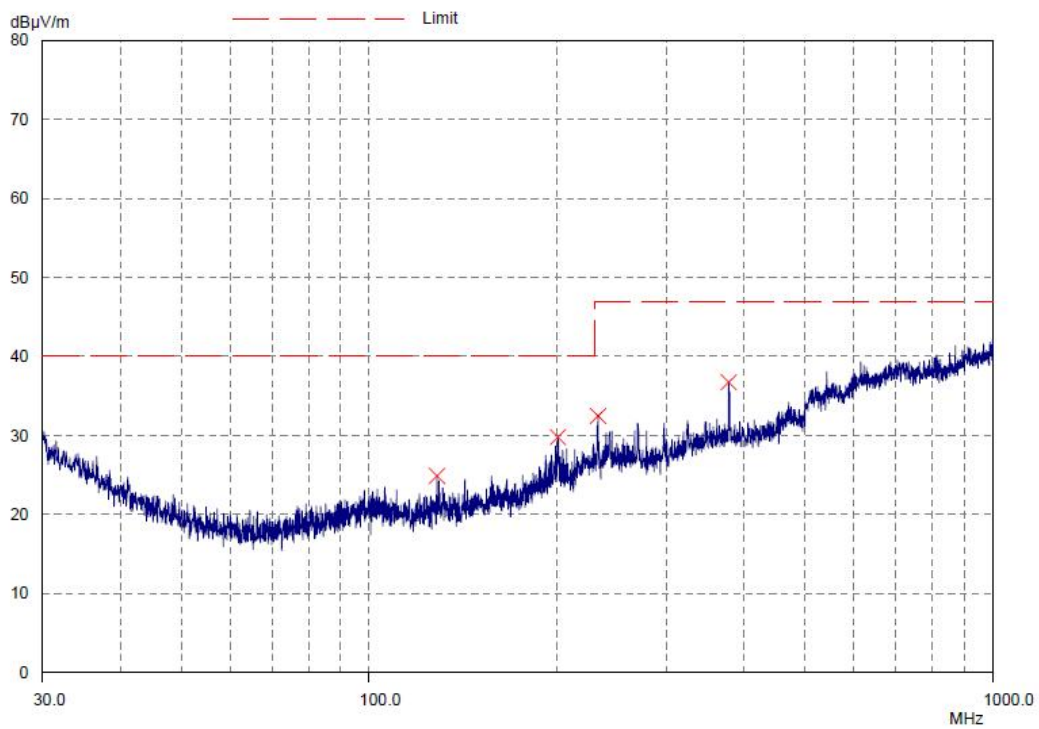
Refer to the following table and diagram for the result details

Frequency (MHz)	Detector Type	Antenna	Result (dBμV/m)	Limit (dBμV/m)	Margin
30.25	QP	V	28.51	40.00	-11.49
123.81	QP	V	26.19	40.00	-13.81
198.19	QP	V	30.37	40.00	-9.63
377.50	QP	V	34.85	47.00	-12.15
128.63	QP	H	24.88	40.00	-15.12
200.88	QP	H	29.79	40.00	-10.21
233.13	QP	H	32.47	47.00	-14.53
377.50	QP	H	36.74	47.00	-10.26

Vertical

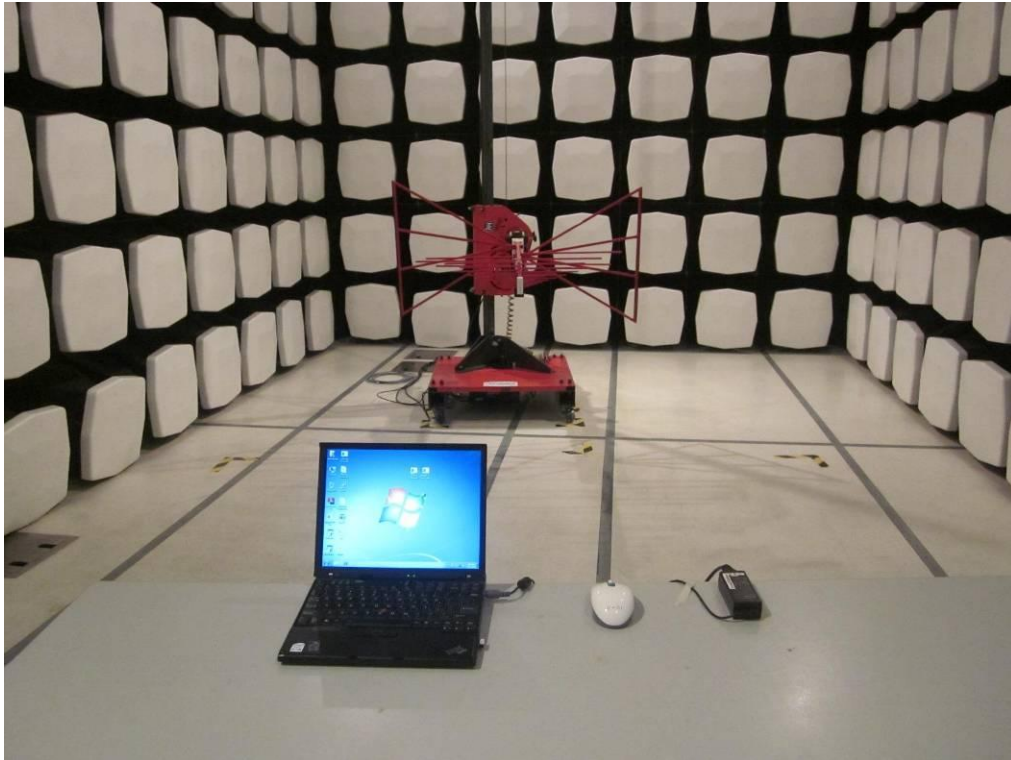


Horizontal



Remark: Calculated measurement uncertainty: ± 3.2 dB

8.1.1 Radiated Emissions Test Setup Photos





8.2 Conducted Emissions Test

		Result: N/A
Test Regulations	EN 301489-17 V2.2.1 Clause 7.1 EN 301489-1 V1.9.2 Clause 8.4	
Basic Standard	EN 55022:2010	
Operating Mode	---	
Limit	EN 301489-1 Clause 8.4.3	
Remark: This test is not applicable for the battery-operated device		

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
Rohde & Schwarz	Impulsegrenzer Pulse Limiter	ESH3-Z2	100071	21 Mar 2015
Rhode & Schwarz	Zweileiter-V-Netznachbildung Two Line V-Network	ESH3-Z5	100102	21 Mar 2015
Rohde & Schwarz	EMI Test Receiver	ESIB26	100388	10 Jun 2015
Rohde & Schwarz	Two-Line V-Network	ENV216	100261	10 Jun 2015



8.3 Harmonics Current Emissions Test

		Result: N/A
Test Regulations	EN 301489-17 V2.2.1Clause 7.1 EN 301489-1 V1.9.2Clause 8.5	
Basic Standard	EN 61000-3-2:2006/A2: 2009	
Operating Mode	Communication mode	
Limit	Class A	
Remark: This test is not applicable for the battery-operated device		

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
Schaffner	Signal Conditioning Unit	CCN1000-1	72431	16 Aug 2015
Schaffner	AC Source	NSG1007	56825	16 Aug 2015



8.4 Voltage Fluctuations and Flicker Test

		Result: N/A
Test Regulations	EN 301489-17 V2.2.1 Clause 7.1 EN 301489-1 V1.9.2 Clause 8.6	
Basic Standard	EN 61000-3-3:2008	
Operating Mode	---	
Remark: This test is not applicable for the battery-operated device		

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
Schaffner	Signal Conditioning Unit	CCN1000-1	72431	16 Aug 2015
Schaffner	AC Source	NSG1007	56825	16 Aug 2015



9. Immunity

9.1 Electrostatic Discharge

Test Criteria	B	Result: PASS
Test Regulations	EN 301489-17 V2.2.1 Clause 7.2 EN 301489-1 V1.9.2 Clause 9.3	
Basic Standard	EN 61000-4-2:2009	
Operating Mode	Communication Mode	
Climatic Condition	Ambient Temperature : 25 °C, Relative Humidity : 50 % RH	

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
KIKUSUI	Electrostatic Discharge Simulator	KES4021	ML003016	16 Jul 2015

The result is shown as below:

Mouse and Dongle Unit

Energy-Storage Capacitor : <u>150</u> pF						Contact Discharge Times : <u>10</u> times/each condition						
Discharge Resistor : <u>330</u> Ω						Air Discharge Times : <u>10</u> times/each condition						
\ Discharge Mode	Contact Discharge						Air Discharge					
\ESD Voltage	<u>2</u> kV		<u>4</u> kV		___ kV		<u>2</u> kV		<u>4</u> kV		<u>8</u> kV	
\Points\Result\Polarity	+	−	+	−	+	−	+	−	+	−	+	−
VCP	A	A	A	A	---	---	---	---	---	---	---	---
HCP	A	A	A	A	---	---	---	---	---	---	---	---
USB Port	A	A	A	A	---	---	---	---	---	---	---	---
Charger Port	A	A	A	A	---	---	---	---	---	---	---	---
Key Pad	---	---	---	---	---	---	A	A	A	A	A	A
Plastic Enclosure	---	---	---	---	---	---	A	A	A	A	A	A
Scanner Screen	---	---	---	---	---	---	A	A	A	A	A	A

Note : “A” means the EUT was operating normally according the User Manual Instruction.

9.1.1 Electrostatic Discharge Test Setup Photos





9.2 Radio Frequency Electromagnetic Field (80 MHz ~2700MHz)

Test Criteria	A	Result: PASS
Test Regulations	EN 301489-17 V2.2.1 Clause 7.2 EN 301489-1 V1.9.2 Clause 9.2	
Basic Standard	EN 61000-4-3:2006/A1:2008/A2:2010	
Operating Mode	Communication mode	
Climatic Condition	Ambient Temperature : 24 °C, Relative Humidity : 51 % RH	

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
Rohde & Schwarz	Power meter	NRVD	102051	21 Mar 2015
Rohde & Schwarz	Signal Generator	SMB100A	1406600K02-104532-DF	10 Jun 2015
ETS.LINDGREN	Biconlog Antenna	3142C	00060445	15 Nov2015
BONN ELEKTRONIK	Power Amplifier	BLWA0840-50/30D	066454B	21 Mar 2015
BONN ELEKTRONIK	Power Amplifier	BLWA0810-250/100D	066454A	21 Mar 2015

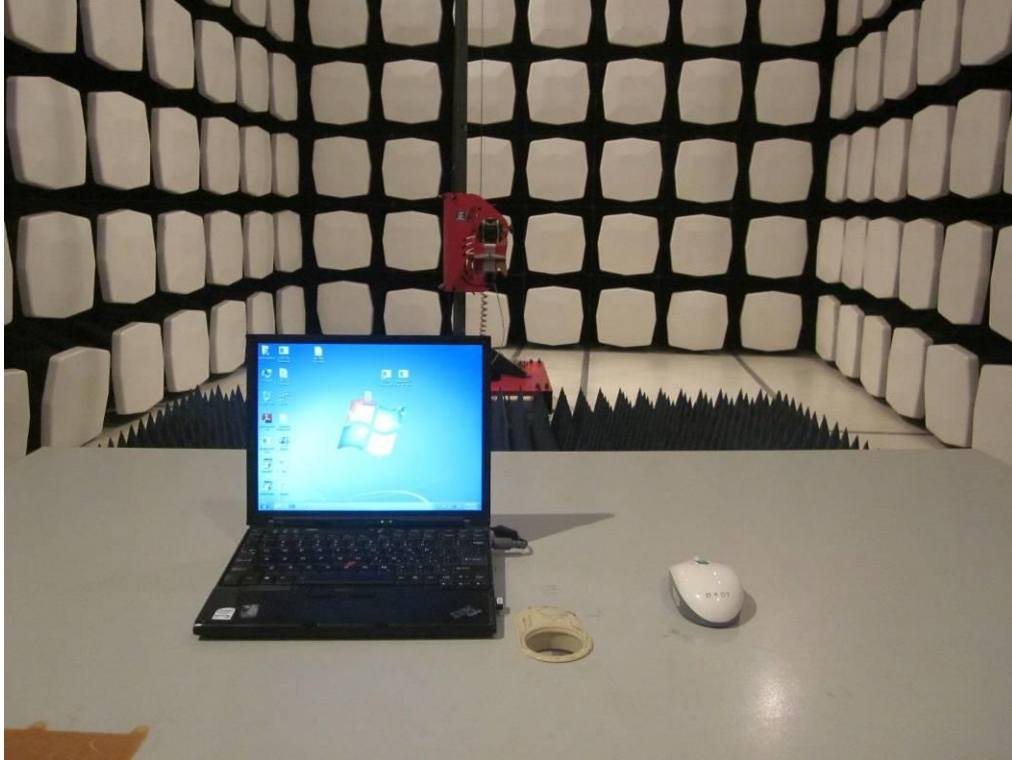
The result is shown as below:

Baby Unit and Parent Unit

Frequency Range : 80 MHz ~ 1000MHz ; 1400MHz ~2700MHz		Field Strength : 3 V/m	Modulation (AM 80%, 1kHz Sine wave)
Sweep Rate : $\leq 1.5 \times 10^{-3}$ decades/s	Step Size : ≤ 1 % of preceding frequency value		Tested Direction: 4 Faces
Frequency Range (MHz)		Polarization of Test Antenna	Test Result
80~1000	1400~2700	Horizontal	A
80~1000	1400~2700	Vertical	A

Note : "A" means the EUT was operating normally during the test

9.2.1 Radio Frequency Electromagnetic Field Test Setup Photos





9.3 EFT/Burst Immunity Test

Test Criteria	B	Result: N/A
Test Regulations	EN 301489-17 V2.2.1 Clause 7.2 EN 301489-1 V1.9.2 Clause 9.4	
Basic Standard	EN 61000-4-4:2012	
Operating Mode	---	
Climatic Condition	Ambient Temperature : 24 °C, Relative Humidity : 51 % RH	

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
HAEFELY	Surge, Burst, Voltage Interruptions Generator	ECOMPACT 4	170335	22 May 2015

The result is shown as below:

Pulse :5/50ns Burst :15m/300ms		Repetition Rate: <u>5 kHz</u>		Test time: <u>2</u> min/each condition	
Test Voltage		___ kV		_____ kV	
Polarity		+	—	+	—
AC Power Line	L	---	---	---	---
	N	---	---	---	---
	L + N	---	---	---	---
	L+N+PE	---	---	---	---
DC Power Line	Clamp	---	---	---	---

Note: This test is not applicable for the battery-operated device



9.4 Surge Immunity Test

Test Criteria	B	Result: N/A
Test Regulations	EN 301489-17 V2.2.1 Clause 7.2 EN 301489-1 V1.9.2 Clause 9.8	
Basic Standard	EN 61000-4-5:2006	
Operating Mode	---	
Climatic Condition	Ambient Temperature : 24 °C, Relative Humidity : 51 % RH	

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
HAEFELY	Surge, Burst, Voltage Interruptions Generator	ECOMPACT 4	170335	22 May 2015

The result is shown as below:

Waveform : 1.2/50μs(8/20μs)			Repetition rate : 60 sec		Times : 5 time/each condition		
\Phase \Voltage \Mode \Polarity \Result			0°	90°	180°	270°	360°
1.0 kV	Line – Line	+	---	---	---	---	---
		—	---	---	---	---	---
2.0 kV	Line – Ground	+	---	---	---	---	---
		—	---	---	---	---	---

Note: This test is not applicable for the battery-operated device



9.5 RF Common Mode Immunity Test

Test Criteria	A	Result: N/A
Test Regulations	EN 301489-17 V2.2.1 Clause 7.2 EN 301489-1 V1.9.2 Clause 9.5	
Basic Standard	EN 61000-4-6:2009	
Operating Mode	---	
Climatic Condition	Ambient Temperature : 24 °C, Relative Humidity : 51 % RH	

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
AR	Power Amplifier	75A250A	18464	16 Jul 2015
Schaffner	CDN	M016	21264	15 Aug 2015
JWF	6dB attenuator	50FHC-006-50	N/A	15 Aug 2015
Luthi	Electromagnetic Injection Clamp	EM101	35773	15 Aug 2015
R&S	Power Sensor	URV5-Z4	100124	29 Jul 2015
R&S	Power Meter	NRVD	832378/027	29 Jul 2015
R&S	Signal Generator	SML01	104228	16 Jul 2015

The result is shown as below:

Frequency Range : 0.15 - 80MHz		Field Strength : 3 Vrms	Modulation (AM 80%, 1 kHz sine wave)
Sweep Rate : $\leq 1.5 \times 10^{-3}$ decades/s	Step Size : ≤ 10 % of preceding frequency value		Dwell Time : 2.0 s
Frequency Range (MHz)	Tested Line	Test Result	
0.15 - 80	---	---	

Note: This test is not applicable for the battery-operated device



9.6 Voltage Interruptions and Voltage Dips Immunity Test

Test Criteria	B	Result: N/A
Test Regulations	EN 301489-17 V2.2.1 Clause 7.2 EN 301489-1 V1.9.2 Clause 9.7	
Basic Standard	EN 61000-4-11:2004	
Operating Mode	---	
Climatic Condition	Ambient Temperature : 24 °C, Relative Humidity : 51 % RH	

Test Equipment				
Manufacturer	Equipment	Model Number	Serial Number	Due Date
HAEFELY	Surge, Burst, Voltage Interruptions Generator	ECOMPACT 4	170335	22 May 2015

The result is shown as below:

Test mode	Voltage dips	Durations (ms)	Interval(s)	Phase	Result
Voltage interruptions	100%	5000	10	0°/180°	---
Voltage dips in %U _T	100%	10	10	0°/180°	---
Voltage dips in %U _T	100%	20	10	0°/180°	---
Voltage dips in %U _T	30%	500	10	0°/180°	---

Note: This test is not applicable for the battery-operated device

APPENDIX – PHOTOS OF EUT



Whole Part(I.R.I.S)



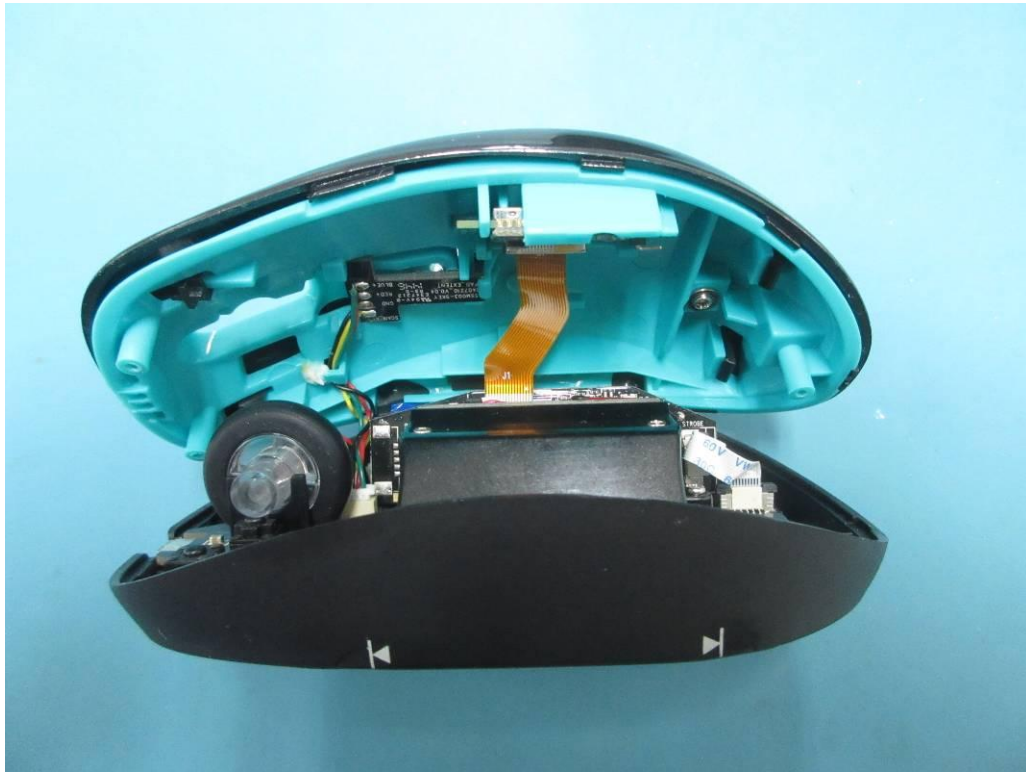


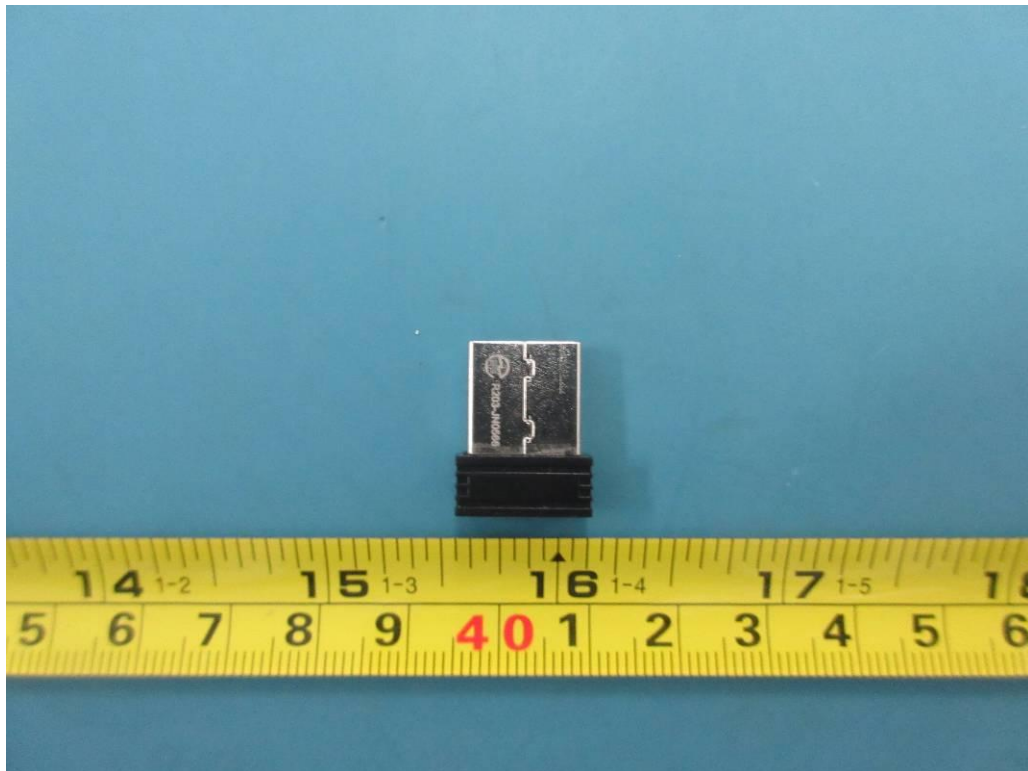


















Whole Part(System)











