

**TEST REPORT**  
**ETSI EN 301 489-1 V2.2.2 (2019-09)**  
**ETSI EN 301 489-3 V2.1.1 (2019-03)**  
**EN 55032:2015/EN55035:2017**  
**EN 61000-3-2:2014/EN 61000-3-3:2013**

**Report Reference No.**..... : 19ITC1231137E2

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Date of issue.....: Dec.31, 2019



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**Testing Laboratory Name**.....: **Shenzhen iTC Product Testing Co., Ltd.**

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**Applicant's name**.....: **ONARAN ELEKTRONIK SAAT VE DAYANIKLI TUK.MALL.**

**ITH.IHR.SAN.TIC.LTD.STI.**

Address.....: 1369 Sk.No:29a Cankaya Izmir Turkiye Kemeralti Vd V No:642 003 3200

**Test specification**..... :

Standard.....: **ETSI EN 301 489-1 V2.2.2 (2019-09)**  
**ETSI EN 301 489-3 V2.1.1 (2019-03)**  
**EN 55032:2015/EN55035:2017**  
**EN 61000-3-2:2014/EN 61000-3-3:2013**

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**Test item description**.....: Wireless mouse and keyboard

Trade Mark.....: N/A

**Manufacturer**.....: **Shenzhen Ruiaili Electronics Co.Ltd.**

1A buliding shenyuan industrial garden ,donghuan road,shajing, baoan district,shenzhen ,China

**Model/Type reference**.....: RAYNOX

**List Model**.....: RX-K12,RX-W08,RX-W09,RX-W10,RX-W11,RX-W12,RX-W13,  
RX-W14,RX-W15,RX-W16,RX-W17,RX-W18,RX-W19,RX-W20,  
RX-W21,RX-W22,RX-W23,RX-W24,RX-W25,RX-W26,RX-W27,  
RX-W28,RX-W29,RX-W30,RX-XXXX

**Ratings**.....: For keyboard: DC3.0V $\frac{---}{---}$  (2 x 1.5V AAA batteries), 0.5A  
For mouse: DC1.5V $\frac{---}{---}$  ( AAA batteries), 0.25A

**Result**.....: **PASS**

## TEST REPORT

Test Report No. :	19ITC1231137E2	Dec.31, 2019
		Date of issue

Equipment under Test : Wireless mouse and keyboard

Model /Type : RAYNOX

Listed Models : RX-K12,RX-W08,RX-W09,RX-W10,RX-W11,RX-W12,RX-W13,RX-W14,  
RX-W15,RX-W16,RX-W17,RX-W18,RX-W19,RX-W20,RX-W21,RX-W22,  
RX-W23,RX-W24,RX-W25,RX-W26,RX-W27,RX-W28,RX-W29,RX-W30,  
RX-XXXX

Applicant : ONARAN ELEKTRONIK SAAT VE DAYANIKLI TUK.MALL.  
ITH.IHR.SAN.TIC.LTD.STI.

Address : 1369 Sk.No:29a Cankaya Izmir Turkiye Kemeralti Vd V No:642 003 3200

Manufacturer : Shenzhen Ruiaili Electronics Co.Ltd.

Address : 1A buliding shenyuan indrustrial garden ,donghuan road,shajing,baoan  
district,shenzhen ,China

Test Result	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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## 1. TEST STANDARDS

The tests were performed according to following standards:

[ETSI EN 301 489-1 V2.2.2 \(2019-09\)](#)—ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility  
[ETSI EN 301 489-3 V2.1.1 \(2019-03\)](#)—ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

[EN55032:2015](#) Electromagnetic compatibility of multimedia equipment - Emission Requirements

[EN 55035:2017](#) Electromagnetic compatibility of multimedia equipment - Immunity requirements

[EN 61000-3-2: 2014](#) Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)

[EN 61000-3-3: 2013](#) Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection

## 2. SUMMARY

### 2.1. General Remarks

Date of receipt of test sample	:	Dec.23, 2019
Testing commenced on	:	Dec.23, 2019
Testing concluded on	:	Dec.31, 2019

### 2.2. Product Description

Product Name:	Wireless mouse and keyboard
Trade Mark:	N/A
Model/Type reference:	RAYNOX
List Model:	RX-K12,RX-W08,RX-W09,RX-W10,RX-W11,RX-W12,RX-W13,RX-W14, RX-W15,RX-W16,RX-W17,RX-W18,RX-W19,RX-W20,RX-W21,RX-W22, RX-W23,RX-W24,RX-W25,RX-W26,RX-W27,RX-W28,RX-W29,RX-W30, RX-XXXX
Power supply:	For keyboard: DC3.0V $\frac{1.5}{1.5}$ (2 x 1.5V AAA batteries), 0.5A For mouse: DC1.5V $\frac{1.5}{1.5}$ ( AAA batteries), 0.25A
Adapter information(Auxiliary test)	N/A
Antenna Type	Internal
Antenna Gain	2.10 dBi
Operation frequency	2420~2461MHz
Number of Channels	30
Modulation Type	GFSK
Remark: The EUT only has trasmitting without receiving	

### 2.3. EUT operation mode

Test mode	GFSK
1	■

Note:

- is operation mode.
- Pre-scan above all test mode, found below test mode which it was worse case mode.
- We tested EUT with two Battery and recorded the worst case

Test item	Test mode (Worse case mode)
Conducted emission	Mode 1
Radiated emission	Mode 1
EMS	Mode 1

### 2.4. Modifications

No modifications were implemented to meet testing criteria

### 3. TEST ENVIRONMENT

#### 3.1. Address of the test laboratory

**Shenzhen iTC Product Testing Co., Ltd.**

Room 502, Floor 5, Fuong buliding, No. 3, Dayang road, Qiaotou community, Fuhai street, Baoan district, Shenzhen, China

#### 3.2. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Lative Humidity	55 %
Air Pressure	989 hPa

#### 3.3. Test Description

Emission Measurement		
Radiated Emission	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN 55032:2015	PASS
Conducted Emission( AC Mains)	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN 55032:2015	N/A
Harmonic Current Emissions	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN 61000-3-2:2014	N/A
Voltage Fluctuations and Flicker	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN 61000-3-3:2013	N/A
Immunity Measurement		
Electrostatic Discharge	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN55035:2017	PASS
RF Electromagnetic Field	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN55035:2017	PASS
Fast Transients Common Mode	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN55035:2017	N/A
RF Common Mode 0,15 MHz to 80 MHz	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN55035:2017	N/A
Voltage Dips and Interruptions	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN55035:2017	N/A
Surges	ETSI EN 301 489-3 V2.1.1 (2019-03) ETSI EN 301 489-3 V2.1.1 (2019-03) EN55035:2017	N/A

Remark:1. N/A means "not applicable".

2.The measurement uncertainty is not included in the test result.

### 3.4. Statement of the measurement uncertainty

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. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen iTC Product Testing Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen iTC Product Testing Co., Ltd. is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Conducted Disturbance	0.15~30MHz	3.39 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 3.5. Equipment's Used during the Test

RADIATED EMISSION						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	R&S	FSU26	1166.1660.26	2019/07/14	1Y
2	Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	2019/07/14	1 Y
3	Double Ridged Horn Antenna	R&S	HF907	100276	2019/07/14	1 Y
4	Pre-Amplifier	R&S	SCU-01	10049	2019/07/14	1Y
5	Pre-amplifier	A.H.	PAM0-0118	360	2019/07/14	1Y
6	RF Cable	R&S	R01	10403	2019/07/14	1Y
7	RF Cable	R&S	R02	10512	2019/07/14	1Y
8	RF Cable	R&S	R01	10454	2019/07/14	1Y
9	RF Cable	R&S	R02	10343	2019/07/14	1Y

Conducted Emission						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Cal.	Cal. Interval
1	LISN	EMCO	3816/2	00042991	2019/07/14	1Y
2	LISN	EMCO	3816/2	00042990	2019/07/14	1 Y
3	Pulse Limiter	Electro-Metrics	EM-7600	112644	2019/07/14	1 Y
4	50Ω Terminator	N/A	N/A	N/A	2019/07/14	1Y
5	Test Cable	N/A	C01	N/A	2019/07/14	1Y
6	EMI Test Receiver	R&S	ESCI	100082	2019/07/14	1Y

Conducted disturbances induced by radio-frequency fields						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Conducted Disturbances test system	SCHLODER	CDG 6000	335625	2019/07/14	1Y
2	CDN	SCHLODER	CDN M2+M3	A2210225/2013	2019/07/14	1 Y
3	Radio Communication Tester	Rohde&Schwarz	CMW500	115406	2019/07/14	1 Y

RF Field Strength Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	SIGNAL GENERATOR	IFR	2032	203002/100	2019/07/14	Cal. Interval
2	AMPLIFIER	AR	150W1000	301584	2019/07/14	1Y
3	DUAL DIRECTIONAL COUPLER	AR	DC6080	301508	2019/07/14	1 Y
4	POWER HEAD	AR	PH2000	301193	2019/07/14	1 Y
5	POWER METER	AR	PM2002	302799	2019/07/14	1Y
6	TRANSMITTING AERIAL	AR	AT1080	28570	2019/07/14	1Y
7	POWER AMPLIFIER	AR	25S1G4A	0325511	2019/07/14	1Y
8	DUAL DIRECTIONAL COUPLER	AR	DC7144A	0325100	2019/07/14	1Y
9	TRANSMITTING AERIAL	AR	AT4002A	0324848	2019/07/14	1Y
10	Radio Communication Tester	Rohde&Schwarz	CMW500	115406	2019/07/14	1 Y
11	Audio Analyzer	Rohde&Schwarz	UPL	SB3439	2019/07/14	1 Y

ESD						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Cal.	Cal. Interval
1	ESD Simulator	Thermo	MZ-15/EC	0502184	2019/07/14	1Y

SURGE, EFT/BURST, VOLTAGE INTERRUPTION/DIPS						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Cal.	Cal. Interval
1	EMC Immunity Test System	Thermo	EMCPRO PLUS	0502176	2019/07/14	1Y

The calibration interval is 1 year.



## 4. TEST CONDITIONS AND RESULTS

### 4.1. EMISSION

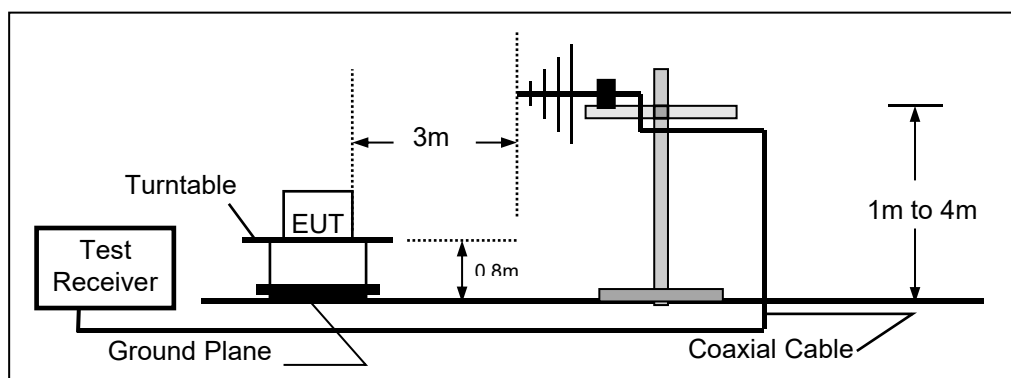
#### 4.1.1. Radiated Emission

##### LIMIT

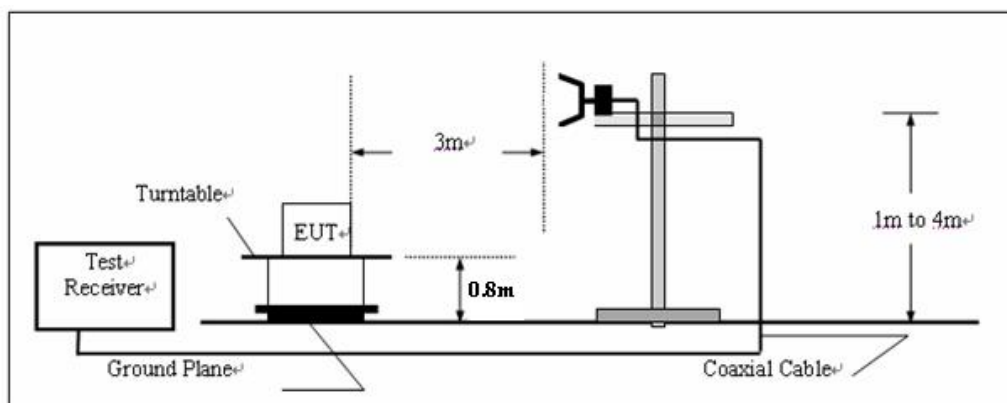
Please refer to ETSI EN301489-1 Clause 8.2.3, Table 4 and EN55032 Annex A, Table A.2,A.3, and Class B

##### TEST CONFIGURATION

- a) Radiated emission test set-up, frequency below 1000MHz:



- b) Radiated emission test set-up, frequency above 1000MHz



##### TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 8.2.3 and EN55032 Annex A for the measurement methods

##### TEST RESULTS

**Passed**

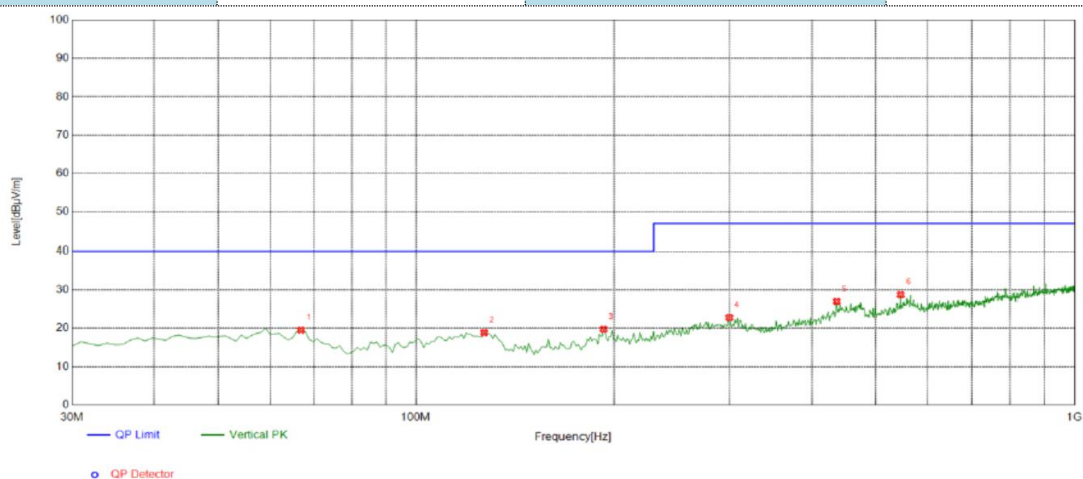
Please refer to the below test data:

Test mode:

Mode 2

Polarization

Horizontal



#### Suspected List

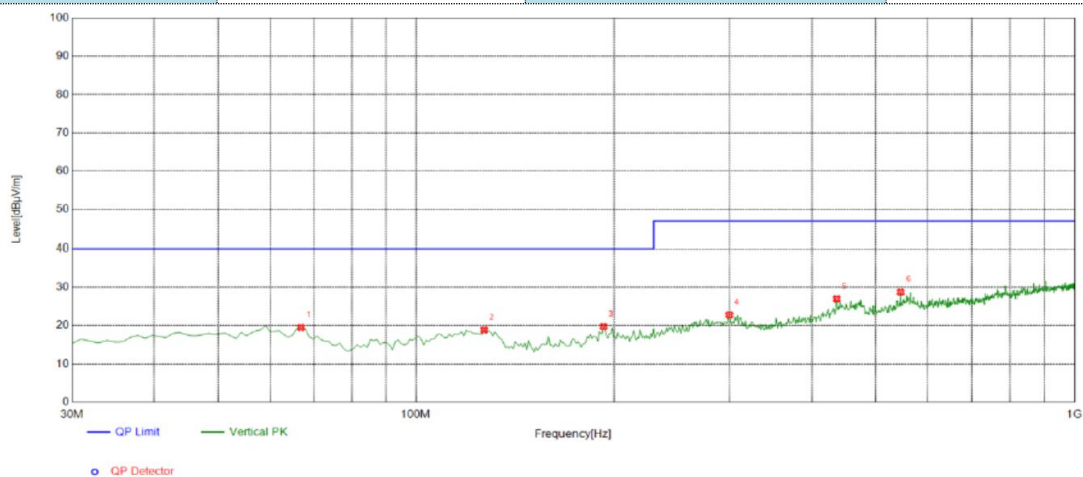
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	123.120	16.78	-17.56	40.00	23.22	100	339	Horizontal
2	201.690	23.64	-15.02	40.00	16.36	100	244	Horizontal
3	242.430	27.08	-13.74	47.00	19.92	100	60	Horizontal
4	311.300	26.20	-12.54	47.00	20.80	100	85	Horizontal
5	397.630	23.58	-10.46	47.00	23.42	100	250	Horizontal
6	500.450	25.54	-8.29	47.00	21.46	100	79	Horizontal

Test mode:

Mode 2

Polarization

Vertical



#### Suspected List

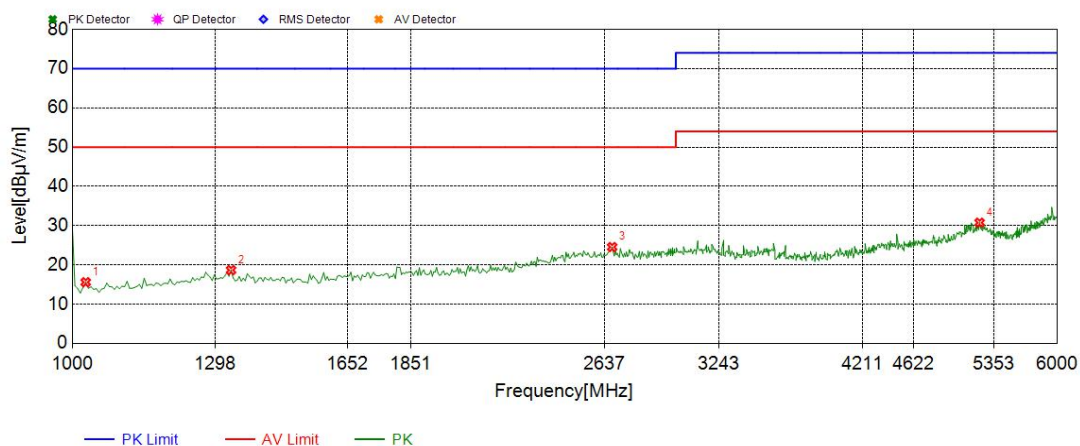
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	66.8600	19.52	-16.88	40.00	20.48	100	174	Vertical
2	127.000	18.84	-18.13	40.00	21.16	100	110	Vertical
3	192.960	19.73	-15.73	40.00	20.27	100	161	Vertical
4	299.660	22.78	-12.74	47.00	24.22	100	113	Vertical
5	436.430	26.98	-9.57	47.00	20.02	100	15	Vertical
6	546.040	28.73	-7.06	47.00	18.27	100	192	Vertical

Test mode:

Mode 1

Polarization

Horizontal



### Suspected List

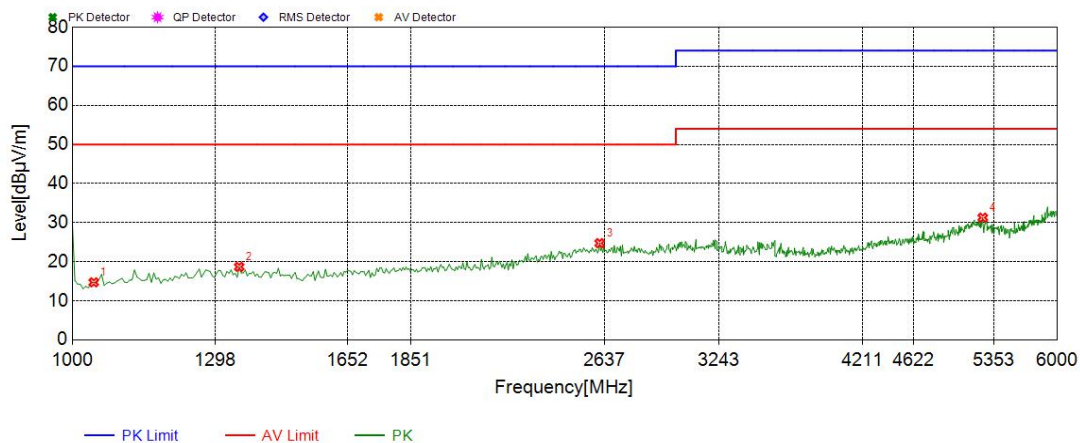
NO.	Freq. [MHz]	Result Level [dBμV/m]	Factor [dB]	Limit [dBμV]	Margin [dB]	Height [cm]	Angle[°]	Polarity
1	1025.025	15.38	-19.43	70.00	54.62	100	67	Horizontal
2	1335.335	18.81	-16.99	70.00	51.19	100	68	Horizontal
3	2671.672	24.62	-12.27	70.00	45.38	100	152	Horizontal
4	5214.214	30.79	-5.58	74.00	54.62	100	256	Horizontal

Test mode:

Mode 1

Polarization

Vertical



### Suspected List

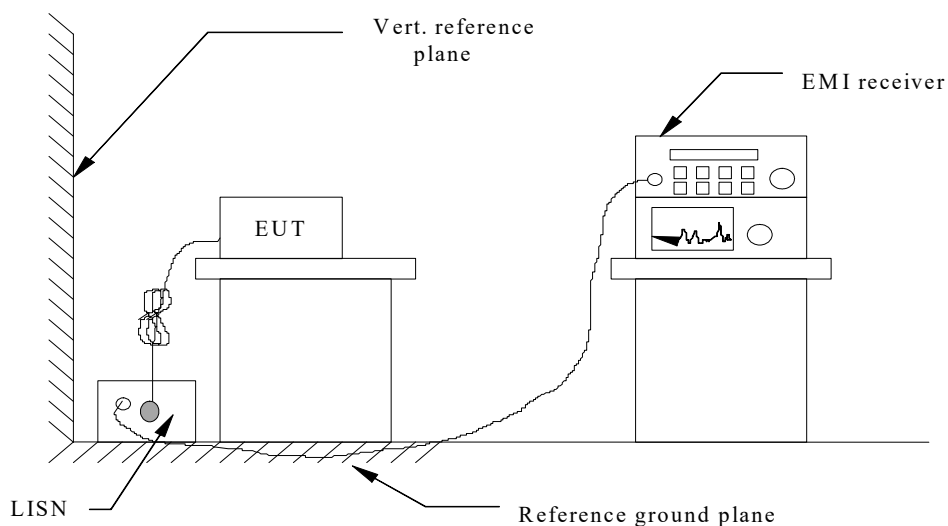
NO.	Freq. [MHz]	Result Level [dBμV/m]	Factor [dB]	Limit [dBμV]	Margin [dB]	Height [cm]	Angle[°]	Polarity
1	1040.040	14.69	-19.28	70.00	55.31	100	38	Vertical
2	1355.355	18.71	-17.04	70.00	51.29	100	42	Vertical
3	2611.612	24.68	-12.21	70.00	45.32	100	182	Vertical
4	5244.244	31.32	-5.63	74.00	55.31	100	186	Vertical

## 4.1.2. Conducted Emission

### LIMIT

Please refer to ETSI EN301489-1 Clause 8.4.3, Table 8 and EN55032 Annex A, Table A.10, A.12

### TEST CONFIGURATION



### TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 8.4.3 and EN55032 Annex A for the measurement methods.

### TEST RESULTS

**Passed**

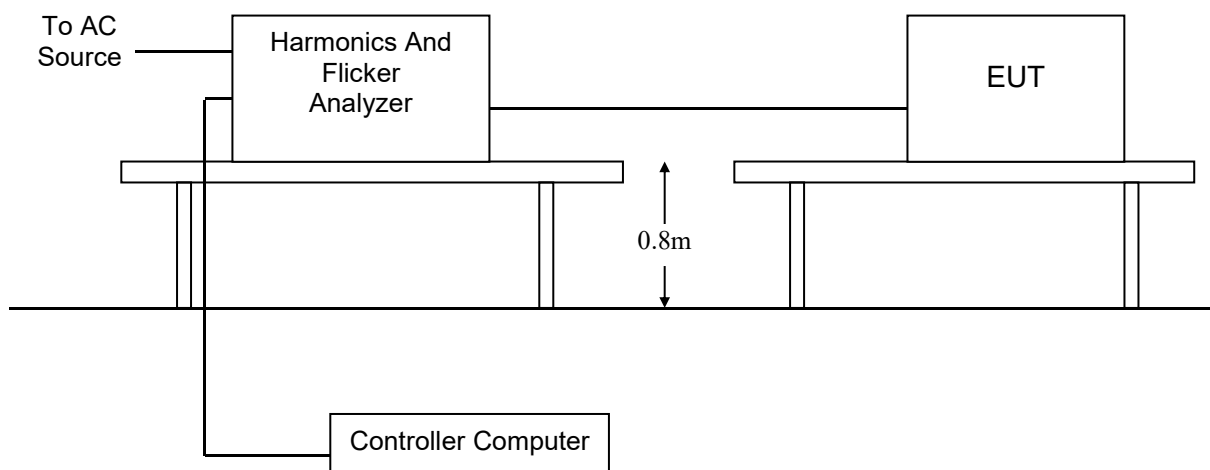
Please refer to the below test data: N/A

### 4.1.3. Harmonic Current Emission

#### LIMIT

Please refer to EN 61000-3-2

#### TEST CONFIGURATION



#### TEST PROCEDURE

Please refer to EN 61000-3-2 for the measurement methods.

#### TEST RESULTS

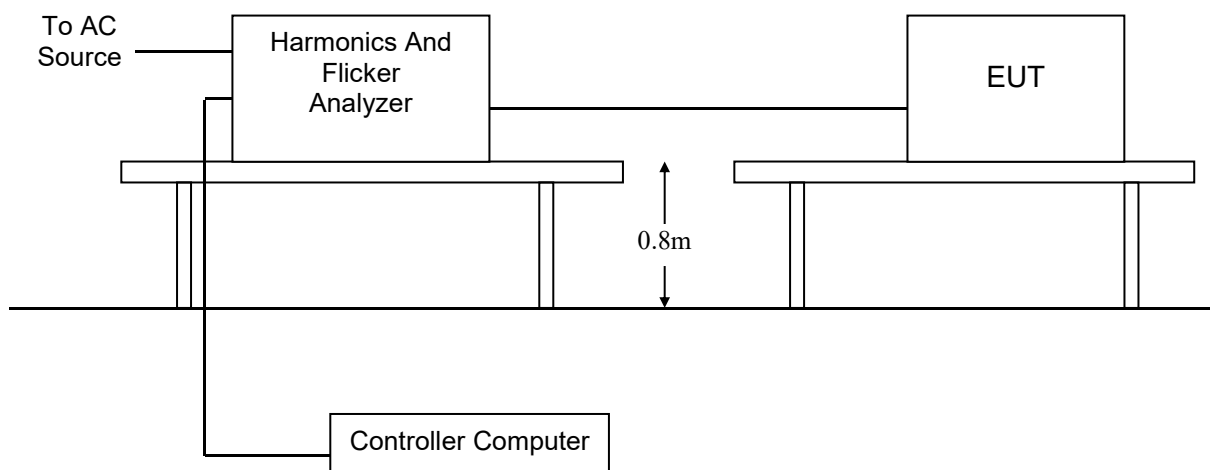
*The power of the Adpter is less than 75W, So this test item is not applicable for the EUT.*

#### 4.1.4. Voltage Fluctuation and Flicker

##### LIMIT

Please refer to EN 61000-3-3

##### TEST CONFIGURATION



##### TEST PROCEDURE

Please refer to EN 61000-3-3 for the measurement methods.

##### TEST RESULTS

*The maximum input power of the EUT is less than 20W, which unlikely to produce significant voltage fluctuation. Therefore this test item is not applicable for the EUT.*

## 4.2. IMMUNITY

### 4.2.1. Performance criteria

#### ■ ETSI EN301489-3

In the table below:

performance criterion A applies for immunity tests with phenomena of a continuous nature;

performance criterion B applies for immunity tests with phenomena of a transient nature.

NOTE: Whether a phenomenon is considered transient, continuous or otherwise is indicated in the test procedures for the phenomenon in ETSI EN 301 489-1 [1], clause 9.

Table 2: Performance Requirements

Criterion	During test	After test
A	Operate as intended No loss of function No unintentional responses	Operate as intended No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May show loss of function No unintentional responses	Operate as intended Lost function(s) shall be self-recoverable No degradation of performance No loss of stored data or user programmable functions

Where "operate as intended" or "no loss of function" is specified, the EUT shall demonstrate correct functioning as described in clause 5.

Where the EUT has more than one mode of operation (see clause 4.5.2), an unplanned transition from one mode to another is considered as an unintentional response. The EUT shall be tested in sufficient modes to confirm there are no such unintentional responses.

#### ■ Performance Criterion of EN55035

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

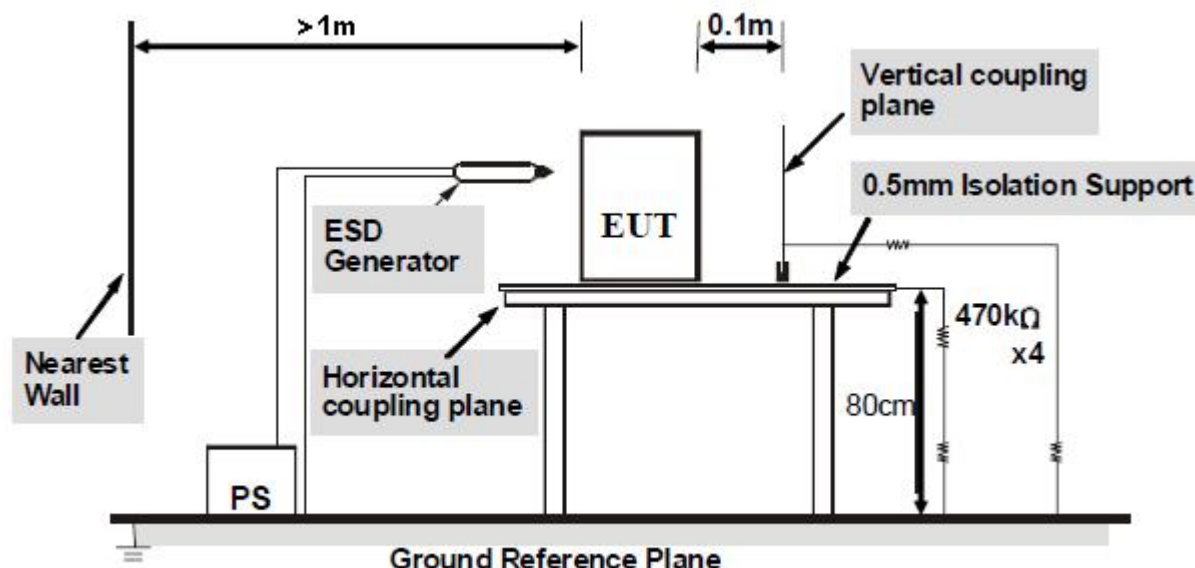
## 4.2.2. Electrostatic Discharge

### LIMIT

### SEVERITY LEVELS OF ELECTROSTATIC DISCHARGE

Test level: Contact Discharge at  $\pm 2\text{KV}$ ,  $\pm 4\text{KV}$  Air Discharge at  $\pm 2\text{KV}$ ,  $\pm 4\text{KV}$ ,  $\pm 8\text{KV}$

### TEST CONFIGURATION



### TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.3.2 , EN 55035 and EN 61000-4-2 for the measurement methods.

#### **Contact Discharge:**

The ESD generator is held perpendicular to the surface to which the discharge is applied and the tip of the discharge electrode touch the surface of EUT. Then turn the discharge switch. The generator is then re-triggered for a new single discharge and repeated at least 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

#### **Air Discharge:**

Air discharge is used where contact discharge can't be applied. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated at least 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

#### **Indirect discharge for horizontal coupling plane:**

At least 10 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT.

#### **Indirect discharge for vertical coupling plane:**

At least 10 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.



## TEST MODE

Please reference to the section 2.3

## TEST RESULTS

Direct discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
Contact discharge	±2	No degradation in performance of the EUT was observed (A)	B	Pass
	±4		B	
Air discharge	±2	A	B	
	±4	A	B	
	±8	A	B	
Indirect discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
HCP (6 sides)	±2	A	B	Pass
	±4	A	B	
VCP (4 sides)	±2	A	B	
	±4	A	B	

Remark: The ancillary equipment's specification for an acceptable level of performance or degradation of performance during and/or after the ESD tests.

### 4.2.3. RF Electromagnetic Field

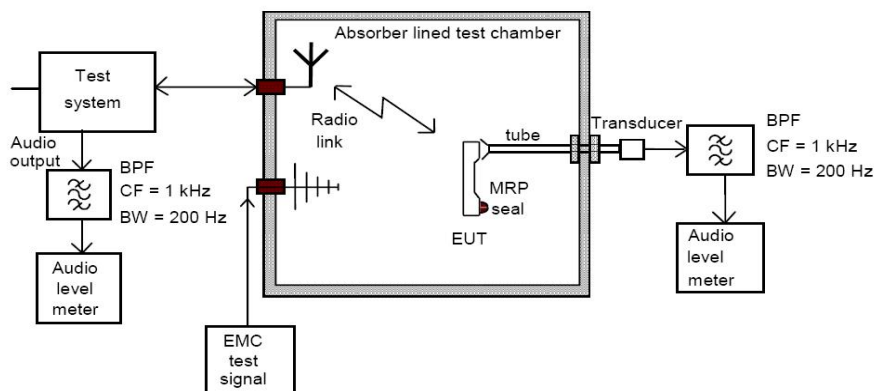
#### PERFORMANCE CRITERION

Criteria A

#### TEST LEVEL

3V/m (80%, 1kHz Amplitude Modulation)

#### TEST CONFIGURATION



#### TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.2.2 and EN 61000-4-3 for the measurement methods.

#### TEST MODE

Please reference to the section 2.3

#### TEST RESULTS

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	Result
80MHz-6GHz	3 V/m	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=3seconds	V	Front	A	Pass
			H		A	Pass
			V	Rear	A	Pass
			H		A	Pass
			V	Left	A	Pass
			H		A	Pass
			V	Right	A	Pass
			H		A	Pass
			V	Top	A	Pass
			H		A	Pass
			V	Bottom	A	Pass
			H		A	Pass

Remark: A: No degradation in performance of the EUT was observed.

#### 4.2.4. Surges

##### **PERFORMANCE CRITERION**

Criteria B

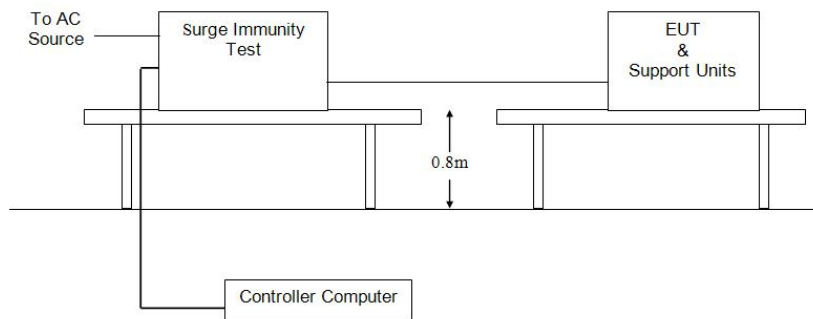
##### **TEST LEVEL**

1kV Line to Line: Differential mode

2kV Line to Ground: Common mode

(Voltage Waveform: 1.2/50 us; Current Waveform: 8/20 us)

##### **TEST CONFIGURATION**



##### **TEST PROCEDURE**

Please refer to ETSI EN 301 489-1 Clause 9.8.2 and EN 61000-4-5 for the measurement methods.

##### **TEST MODE**

Please reference to the section 2.3

##### **TEST RESULTS N/A**

#### 4.2.5. RF- Common Mode 0.15MHz to 80MHz

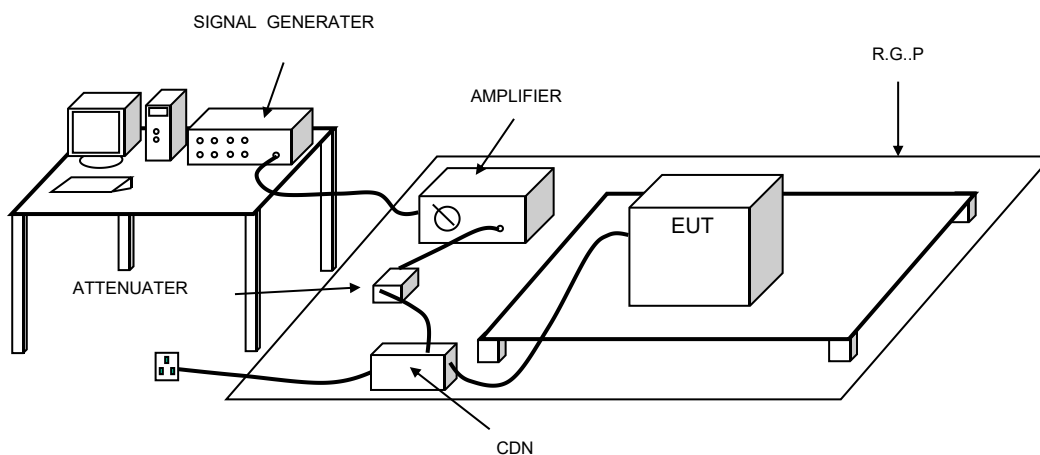
##### PERFORMANCE CRITERION

Criteria A

##### TEST LEVEL

3Vrms on AC main port (80%, 1kHz Amplitude Modulation)

##### TEST CONFIGURATION



##### TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.5.2 and EN 61000-4-6 for the measurement methods.

##### TEST MODE

Please reference to the section 2.3

##### TEST RESULTS

Frequency	Injected Position	Level	Modulation	Observations (Performance Criterion)	Result
150kHz to 80MHz	AC Mains	3Vrms	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=3seconds	A	Pass

Remark: A: No degradation in performance of the EUT was observed

## 4.2.6. Fast Transients Common Mode

### PERFORMANCE CRITERION

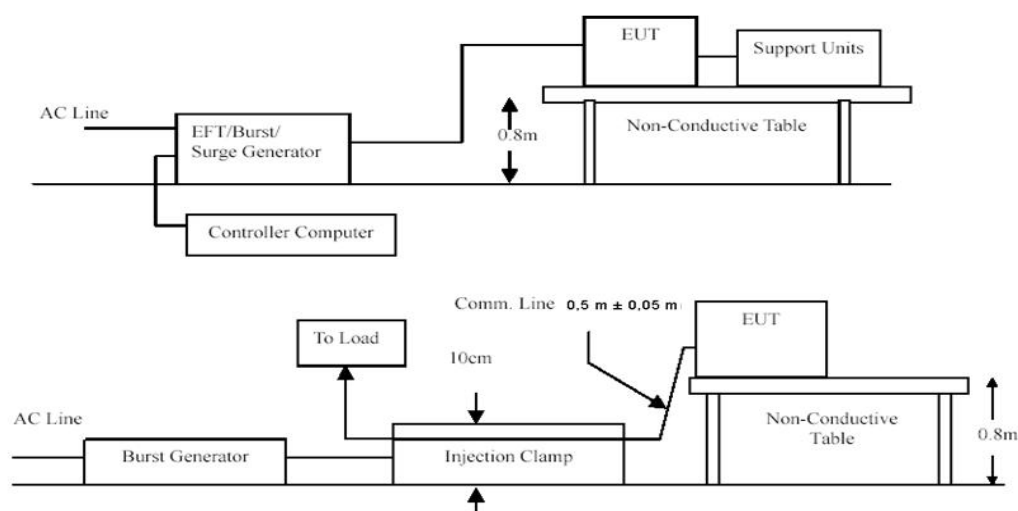
Criteria B

### TEST LEVEL

1KV for AC main port

(Impulse Frequency: 5 kHz; Tr/Th: 5/50ns; Burst Duration: 15ms; Burst Period: 3Hz)

### TEST CONFIGURATION



### TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.4.2 , EN55035 and EN 61000-4-4 for the measurement methods.

### TEST MODE

Please reference to the section 2.3

### TEST RESULTS N/A

## 4.2.7. Voltage Dips and Interruptions

### PERFORMANCE CRITERION

>95% VD, 0.5 period----Performance criterion: B

>95% VD, 1.0 period----Performance criterion: B

30% VD, 25 period----Performance criterion: C

>95% VI, 250 period----Performance criterion: C

### TEST LEVEL

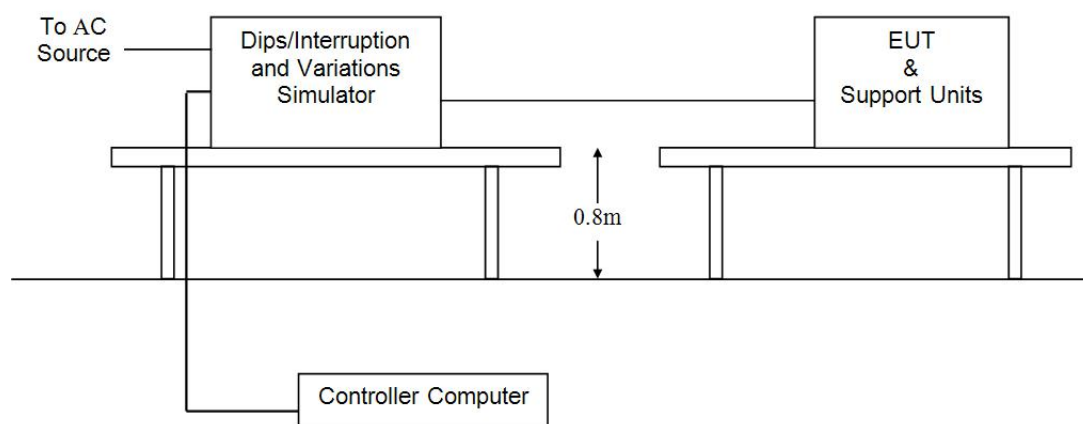
0% of VT(Supply Voltage) for 0.5 period

0% of VT(Supply Voltage) for 1.0 period

70% of VT(Supply Voltage) for 25 period

0% of VT(Supply Voltage) for 250 period

### TEST CONFIGURATION



### TEST PROCEDURE

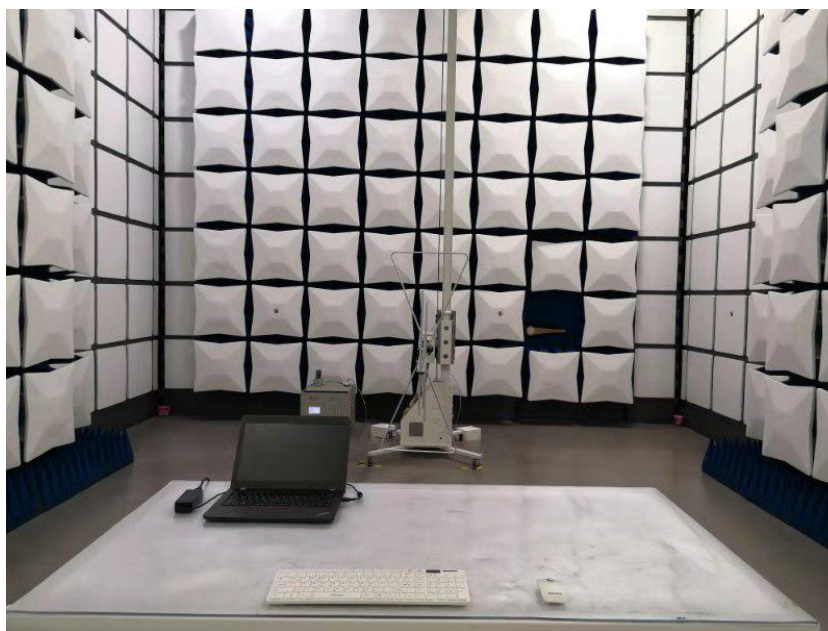
Please refer to ETSI EN 301 489-1 Clause 9.7.2 and EN 61000-4-11 for the measurement methods.

### TEST MODE

Please reference to the section 2.3

### TEST RESULTS N/A

## **5. Test Set-up Photos of the EUT**





## 6. External and Internal Photos of the EUT

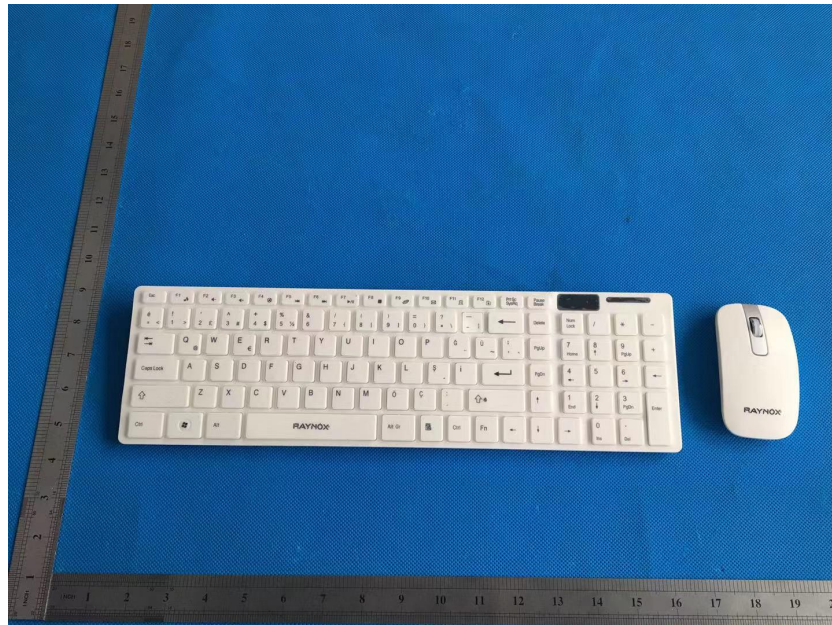


Photo 1

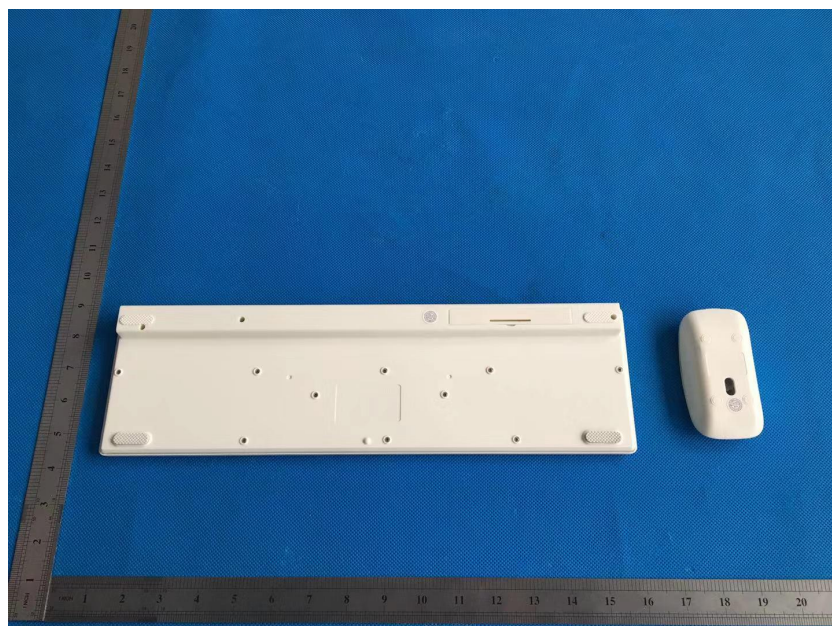


Photo 2





Photo 3

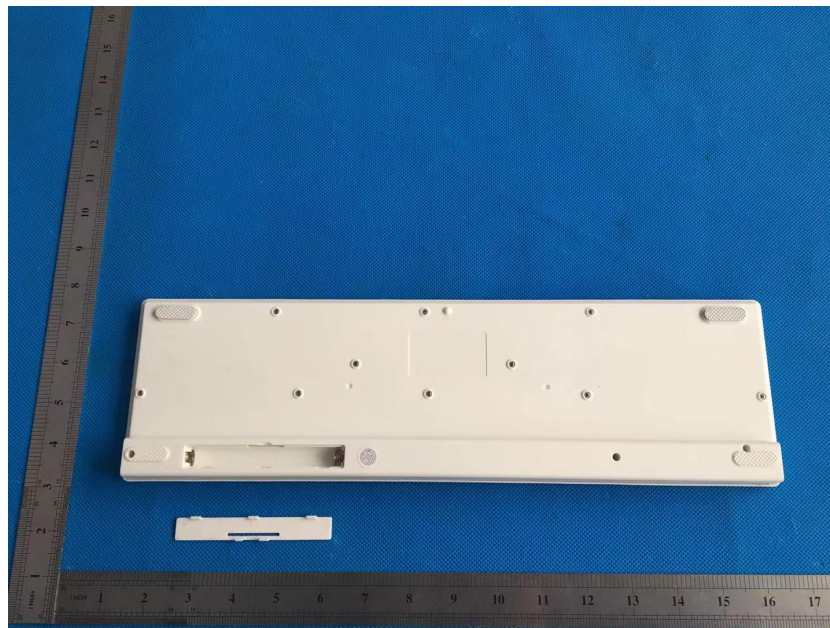


Photo 4



Photo 5

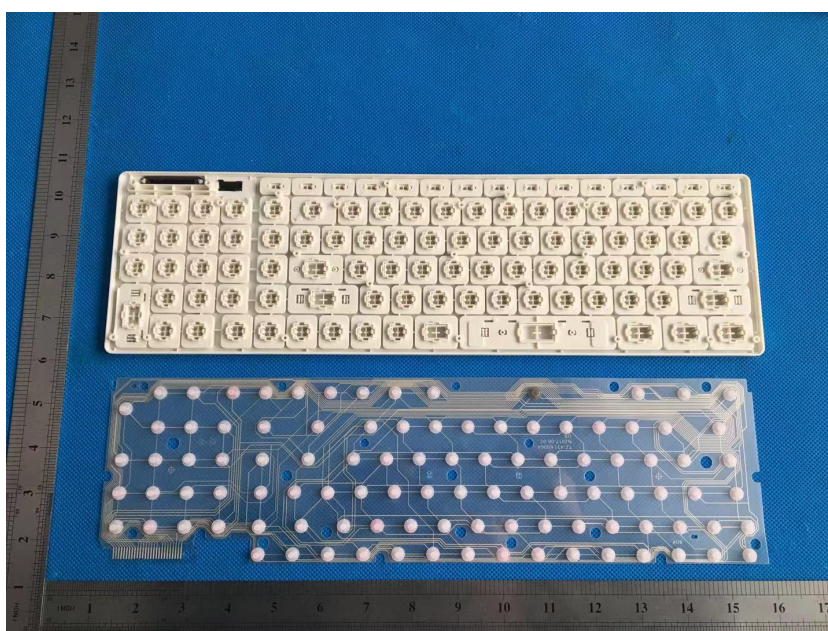


Photo 6



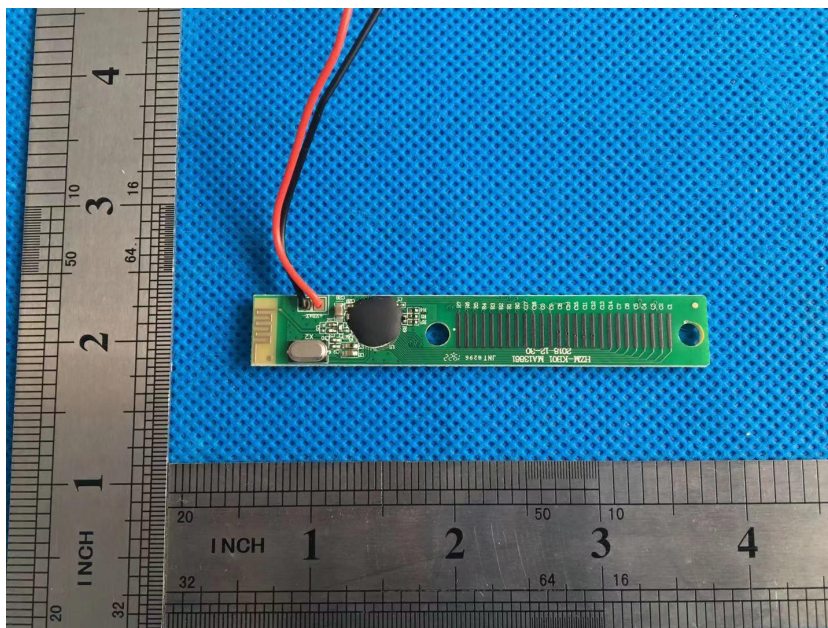


Photo 7

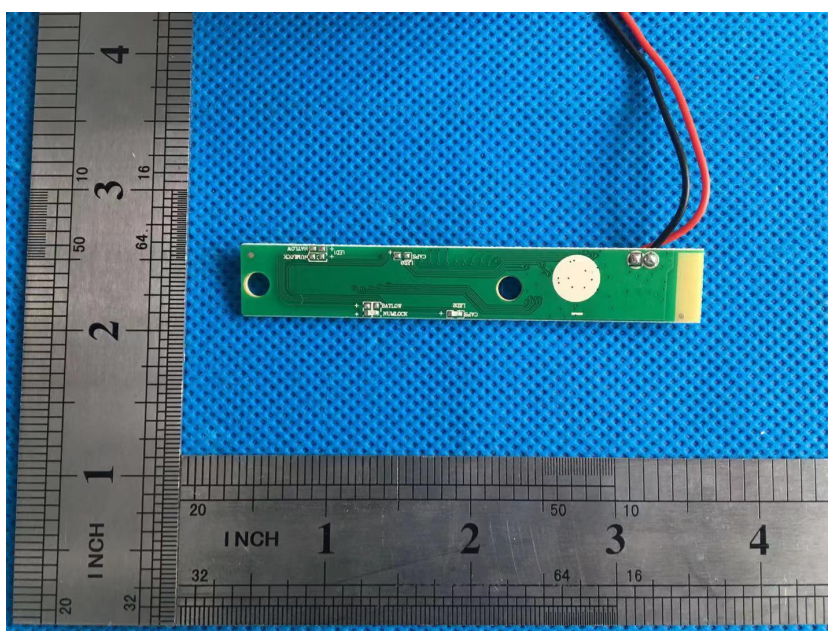


Photo 8

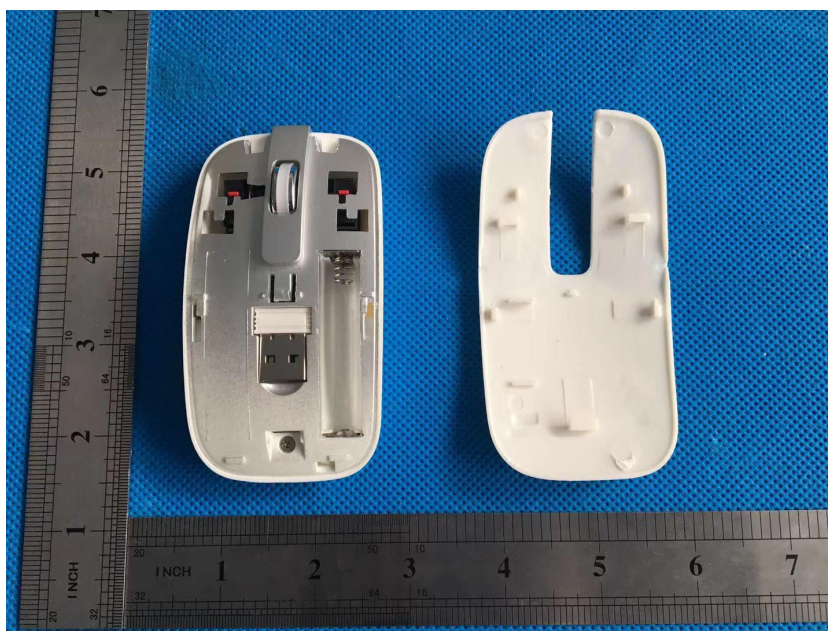


Photo 9

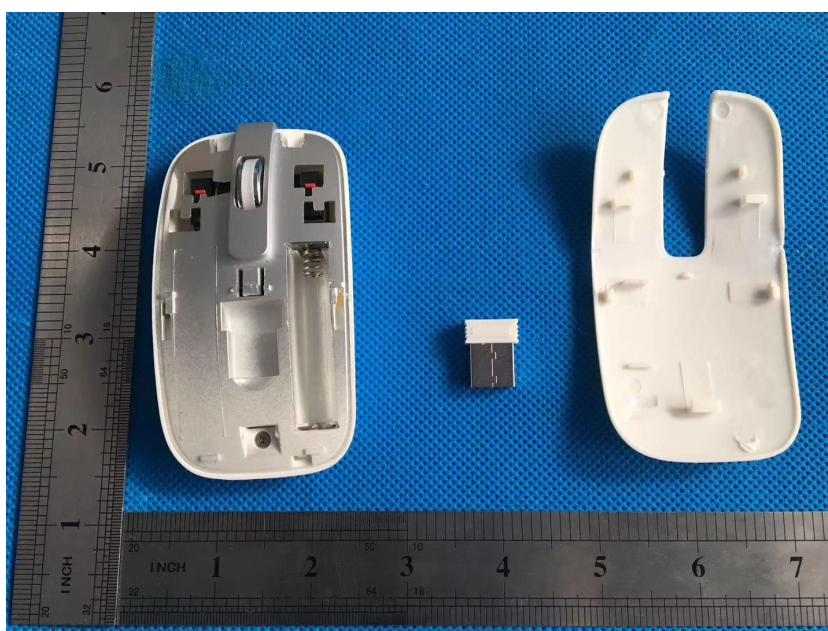


Photo 10



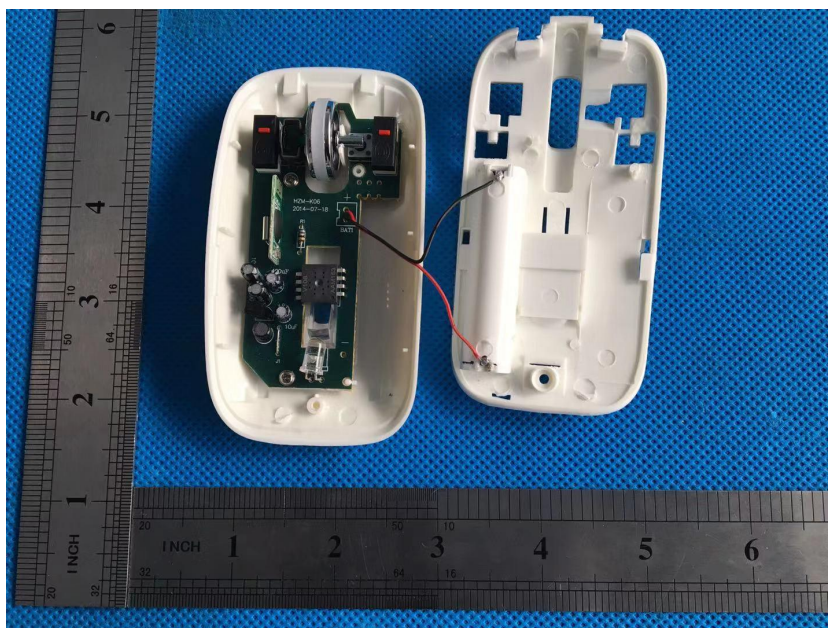


Photo 11

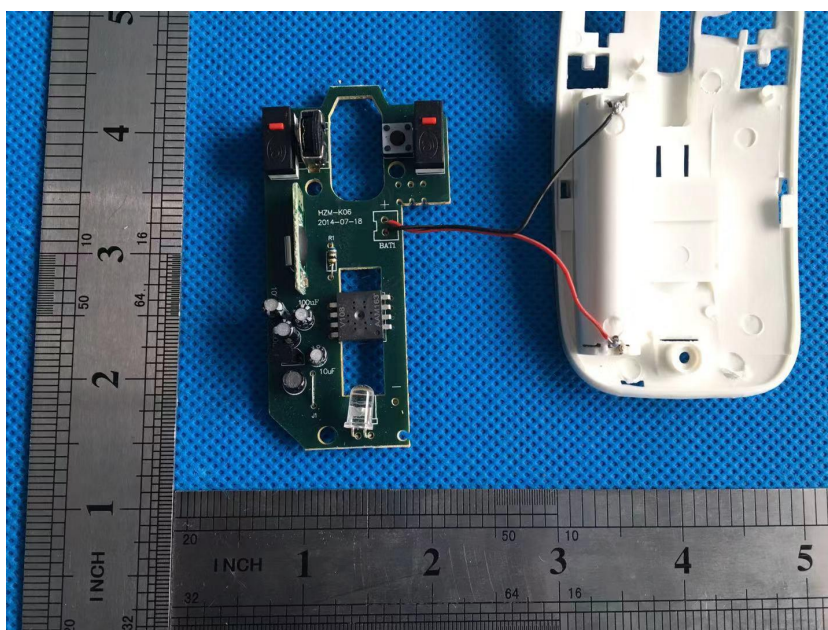


Photo 12

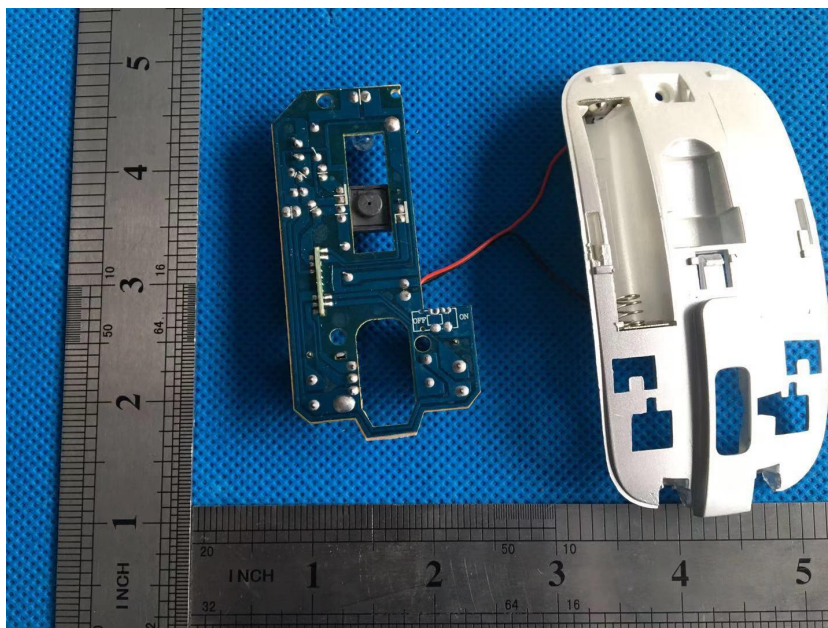


Photo 13

.....End of Report.....