



EUROFINS PRODUCT TESTING SERVICE (SHANGHAI) CO., LTD.

EMC TEST- REPORT

TEST REPORT NUMBER: EFSH16011522-IE-01-E01



Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Zhabei District, Shanghai,
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2 General Information

2.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter "Description of test item" and are not transferable to any other test items.

Eurofins Product Testing Service (Shanghai) is not responsible for any generalisations and conclusions drawn from this report. Any modification of the test item can lead to invalidity of test results and this test report may therefore be not applicable to the modified test item.

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Operator:

2016-02-03

Stefan Zhao / Project Engineer



Date

Eurofins-Lab.

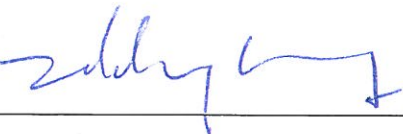
Name / Title

Signature

Technical responsibility for area of testing:

2016-02-03

Teddy Wang / Technical Manager



Date

Eurofins

Name / Title

Signature

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2.2 Testing laboratory

Eurofins Product Testing Service (Shanghai) Co., Ltd.
No.395 West Jiangchang Road, Shanghai, 200436, P.R. China
Telephone : +86-21-61819181
Telefax : +86-21-61819180

Test location, where different:

Subcontractor	
Name	: BUREAU VERITAS ADT (SHANGHAI) CORPORATION.
Address	: 2F, Building C, No. 1618 Yishan Road SHANGHAI
Telephone	: + 86-21-6465 9091
Fax	: + 86-21-6465 9092

Radiated emission was performed by Stefan Zhao at BUREAU VERITAS ADT (SHANGHAI) CORPORATION.

2.3 Details of approval holder

Name : Xindao B.V.
Address : P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands
Telephone : ./.
Fax : ./.

2.4 Application details

Date of receipt of application : 2016-01-26
Date of receipt of test item : 2016-01-27
Date of test : 2016-01-28 to 2016-02-03

2.5 EUT Information

Product Type : Electric pepper and salt mill set
Model Name : P262.32
Brand Name : XINDAO
Serial number : ./.
Ratings : DC 6V(1.5V AA battery*4)
Test voltage : DC 6V
Additional information :

The products covered by this report are kitchen electric pepper and salt mill set with two kinds of color for general appearance.

2.6 Test standards

EN 55014-1:2006+A1:2009+A2:2011

EN 55014-2:1997+A1:2001+A2:2008

3 Technical test

3.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.



or

The deviations as specified were ascertained in the course of the tests performed.



3.2 Test environment

Temperature : 20 ... 25°C
 Relative humidity content : 30 ... 60%
 Air pressure : 100 ... 103kPa

BUREAU VERITAS ADT (SHANGHAI) CORPORATION.

Temperature : 24°C
 Relative humidity content : 41%
 Air pressure : 101kPa

3.3 Test equipment utilized

Measurement Equipment List				
No.	Name	Model	Manufacturer	Cal. due date
1	ESD Gun	NSG 437	TESEQ	2016-11-27
2	EMI Test Spectrum	E4403B	Agilent	2016-08-24
3	EMI test receiver	ESCS30	R&S	2016-04-13
4	Broadband Antenna	VULB9168	Schwarzbeck	2016-03-26
5	Amplifier	8447D	Agilent	2016-11-06

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3.4 Test results

☒ 1st test

☐ test after modification

☐ production test

Test case	Subclause	Required	Test passed	Test failed
Conducted Emission	Clause 4.1.1 of EN 55014-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disturbance power	Clause 4.1.2 of EN 55014-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated disturbance	Clause 4.1.2 of EN 55014-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Discontinuous disturbance	Clause 4.2 of EN 55014-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harmonic Current Emissions	EN 61000-3-2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Voltage Changes, Voltage Fluctuations and Flicker	EN 61000-3-3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electrostatic Discharge	Clause 5.1 of EN 55014-2 & IEC 61000-4-2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Electrical Fast Transients	Clause 5.2 of EN 55014-2 & IEC 61000-4-4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injected currents (RF continues conducted)	Clause 5.3 & 5.4 of EN 55014-2 & IEC 61000-4-6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radio frequency electromagnetic fields	Clause 5.5 of EN 55014-2 & IEC 61000-4-3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surge immunity	Clause 5.6 of EN 55014-2 & IEC 61000-4-5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Voltage dips and Interruption	Clause 5.7 of EN 55014-2 & IEC 61000-4-11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note 1: The EUT belongs to Category III, so the Radio frequency electromagnetic fields test is not required.

4 Emission Test

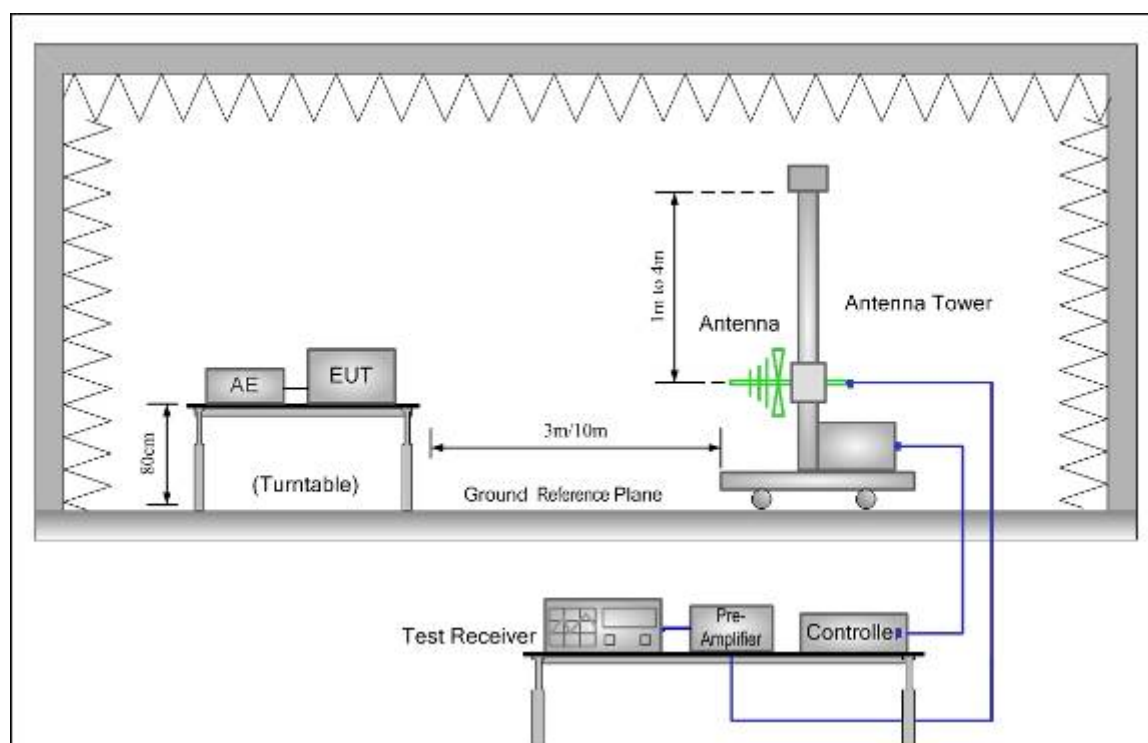
4.1 Radiated disturbance

This clause lays down the general requirements for the measurement of Radiated disturbance produced at the space of apparatus.

4.1.1 Limits

Frequency range	Quasi-peak limits at 10m	Quasi-peak limits at 3m
MHz	dB (μ V/m)	dB (μ V/m)
30 to 230	30	40
230 to 1000	37	47
At transitional frequencies the lower limit applies.		

4.1.2 Measurement procedure



1. The radiated emissions test was conducted in a semi-anechoic chamber. The EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
2. Before get the final emission results with quasi-peak(QP) detector, a pre-scan was performed with the peak(PK) detector to find out the maximum emission data plots of the EUT.
3. The frequencies of maximum emission were determined in the final radiated emissions measurement, the physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. At each frequency, the EUT was rotated 360°.

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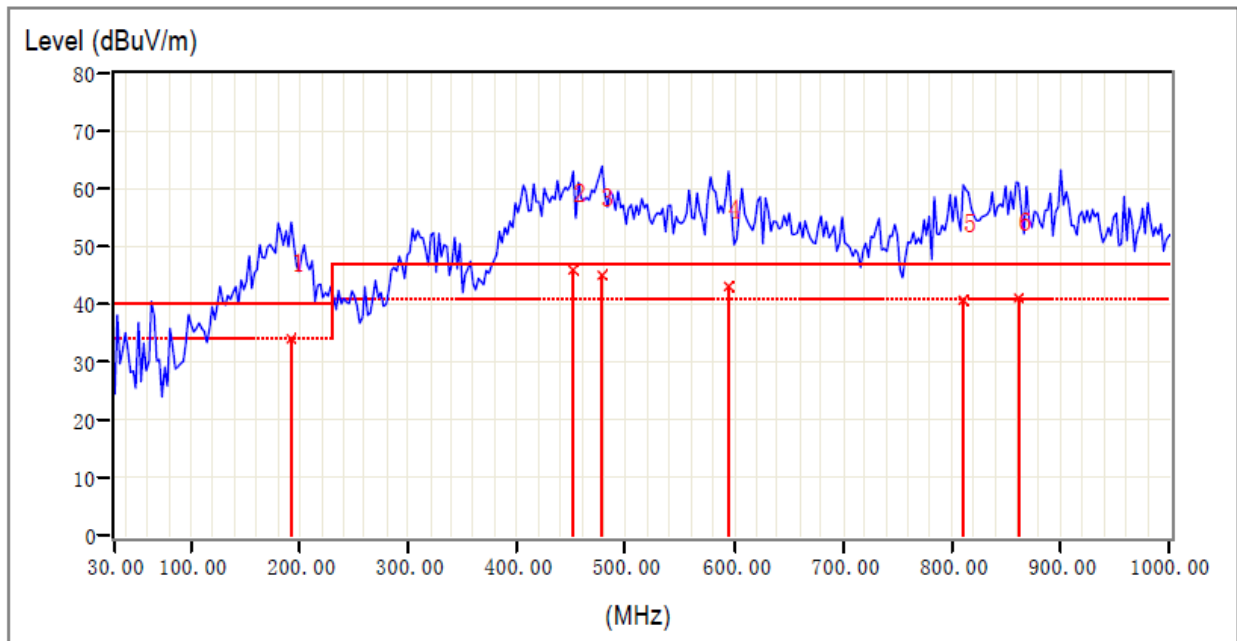
and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization. Test was performed on subcontractor.

4.1.3 Measurement uncertainty

U_{lab}(cond) = 3.22dB at 95% level of confidence, k=2

4.1.4 Results

Horizontal: Level

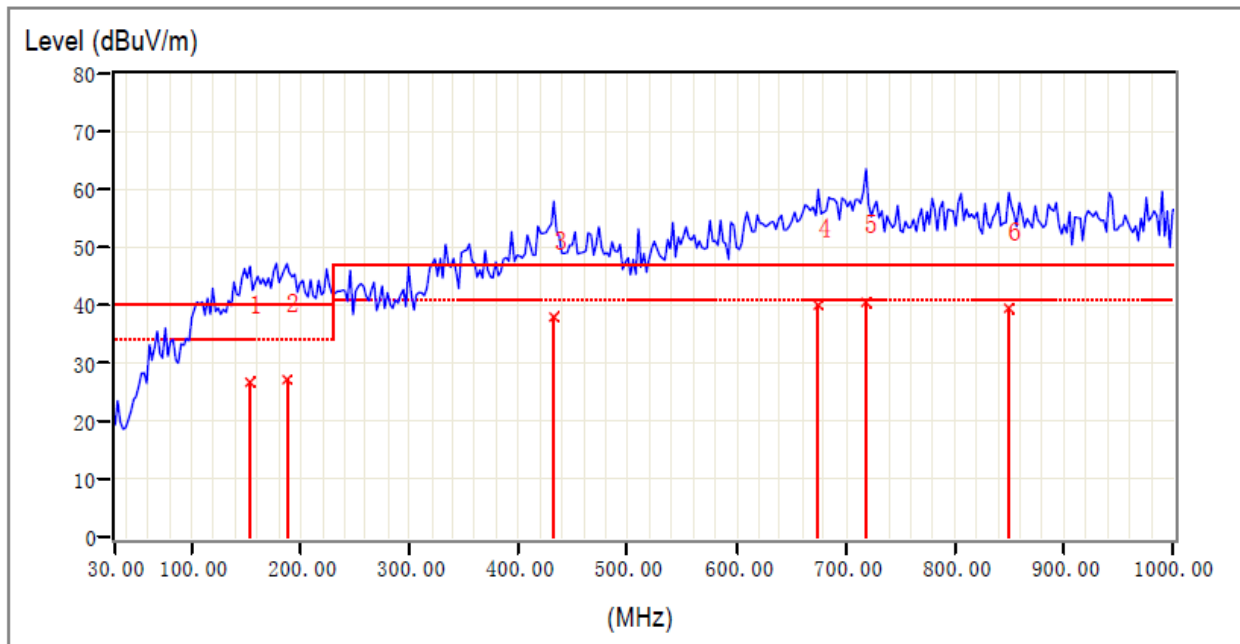


No.	Frequency MHz	Factor dB	Reading dBuV/m	Emission dBuV/m	Limit dBuV/m	Over Limit dB	Tower / Table	
							cm	deg
1	192.47	11.76	22.22	33.98	40.00	-6.02	200	97
* 2	451.95	19.15	26.78	45.93	47.00	-1.07	200	263
3	478.62	19.43	25.54	44.97	47.00	-2.03	200	272
4	595.02	22.62	20.41	43.03	47.00	-3.97	200	58
5	810.85	26.59	14.08	40.67	47.00	-6.33	200	166
6	861.77	26.82	14.20	41.02	47.00	-5.98	100	107

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Factor.

**Vertical:
Level**



No.	Frequency MHz	Factor dB	Reading dBuV/m	Emission dBuV/m	Limit dBuV/m	Over Limit dB	Power / Table cm deg	
1	153.68	14.67	12.02	26.69	40.00	-13.31	100	154
2	187.62	12.15	14.96	27.11	40.00	-12.89	100	120
3	432.55	18.47	19.45	37.92	47.00	-9.08	100	73
4	675.05	23.82	16.14	39.96	47.00	-7.04	100	24
*	5	718.70	24.95	15.53	40.48	-6.52	100	78
6	849.65	26.70	12.71	39.41	47.00	-7.59	100	48

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Emission Level = Reading Level + Factor.

5 Immunity Test

5.1 Performance Criteria Description in Clause 6 of EN 55014-2

Criterion A:	The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
Criterion B:	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and from what the user may reasonably expect from the apparatus if used as intended.
Criterion C:	Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

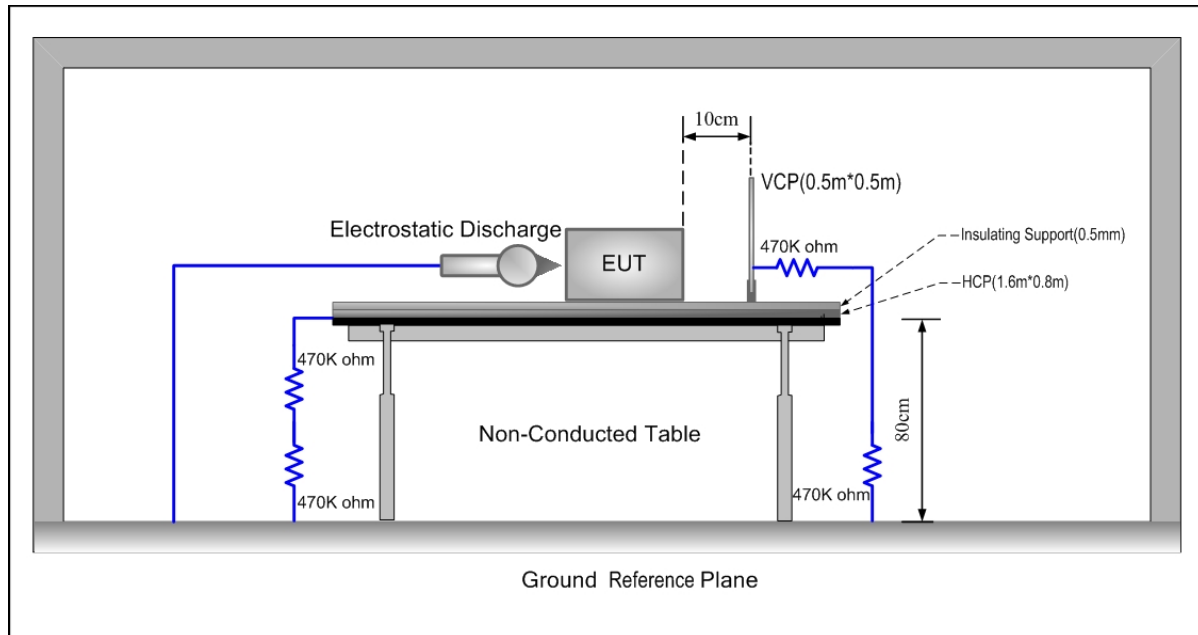
5.2 Classification of apparatus

Category I:	Apparatus containing no electronic control circuitry.
Category II:	Transformer toys, dual supply toys, mains powered motor operated appliances, tools, heating appliances and similar electric apparatus (for example . UV radiators, IR radiators and microwave ovens) containing electronic control circuitry with no internal clock frequency or oscillator frequency higher than 15 MHz.
Category III:	Battery powered apparatus (with built-in batteries or external batteries), which in normal use is not connected to the mains, containing an electronic control circuitry with no internal clock frequency or oscillator frequency higher than 15 MHz.
Category IV:	All other apparatus covered by the scope of this standard.

The EUT belongs to Category III.

5.3 ESD

5.3.1 Test Procedures



1. Contact discharge was applied only to conductive surfaces of the EUT. Air discharge was applied only to non-conducted surfaces of the EUT.
2. The EUT was put on a 0.8m high wooden table for table-top equipment or 0.1m high for floor standing equipment standing on the ground reference plane (GRP).
3. A horizontal coupling plane(HCP) 1.6m by 0.8m in size was placed on the table, and the EUT with its cables were isolated from the HCP by an insulating support thick than 0.5mm. The VCP 0.5m by 0.5m in size while HCP were constructed from the same material type and thickness as that of the GRP, and connected to the GRP via a 470kΩ resistor at each end. The distance between EUT and any of the other metallic surfaces excepted the GRP, HCP and VCP was greater than 1m.
4. During the contact discharges, the tip of the discharge electrode was touching the EUT before the discharge switch is operated. During the air discharges, the round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the ESD generator was removed from the EUT, the generator is then retriggered for a new single discharge. For ungrounded product, a discharge cable with two resistances was used after each discharge to remove remnant electrostatic voltage. 10 times of each polarity single discharge were applied to HCP and VCP.

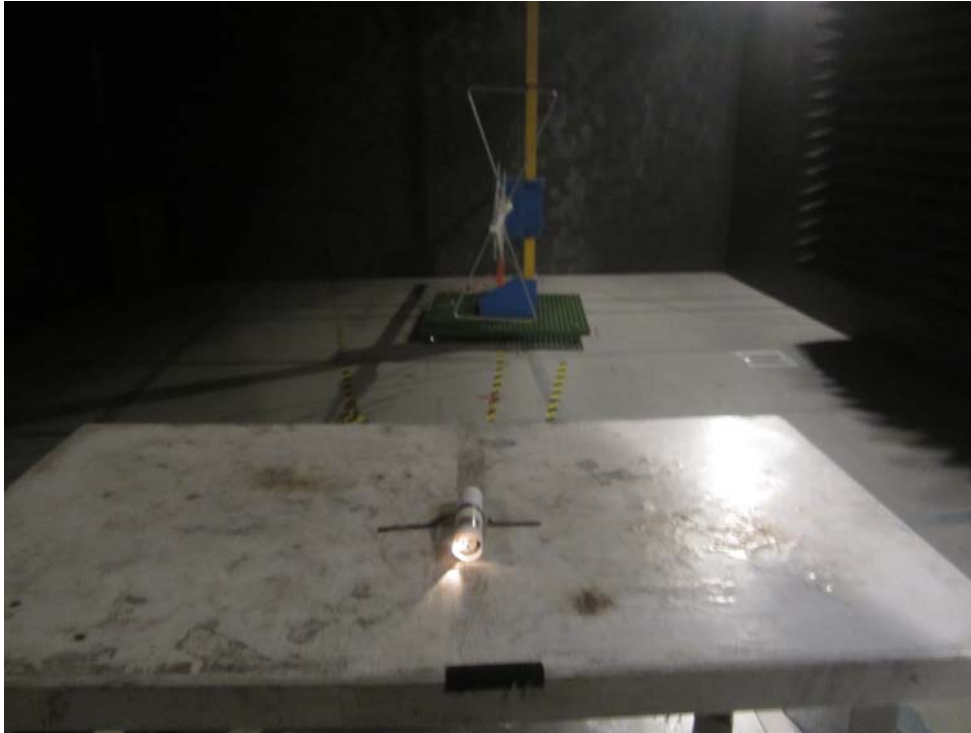
5.3.2 Results

Test point	Table (T) Floor (F)	Contact (C) Air (A)	Voltage (kV)	Number of discharge	Polarity (+ / -)	Opinion
Air contact	T	A	8	20	+ / -	A
Direct contact	T	C	4	20	+ / -	A
HCP	T	C	4	20	+ / -	A
VCP	T	C	4	20	+ / -	A

A: no loss of function.

5.4 Test Setup Photos

Radiated Emission



ESD

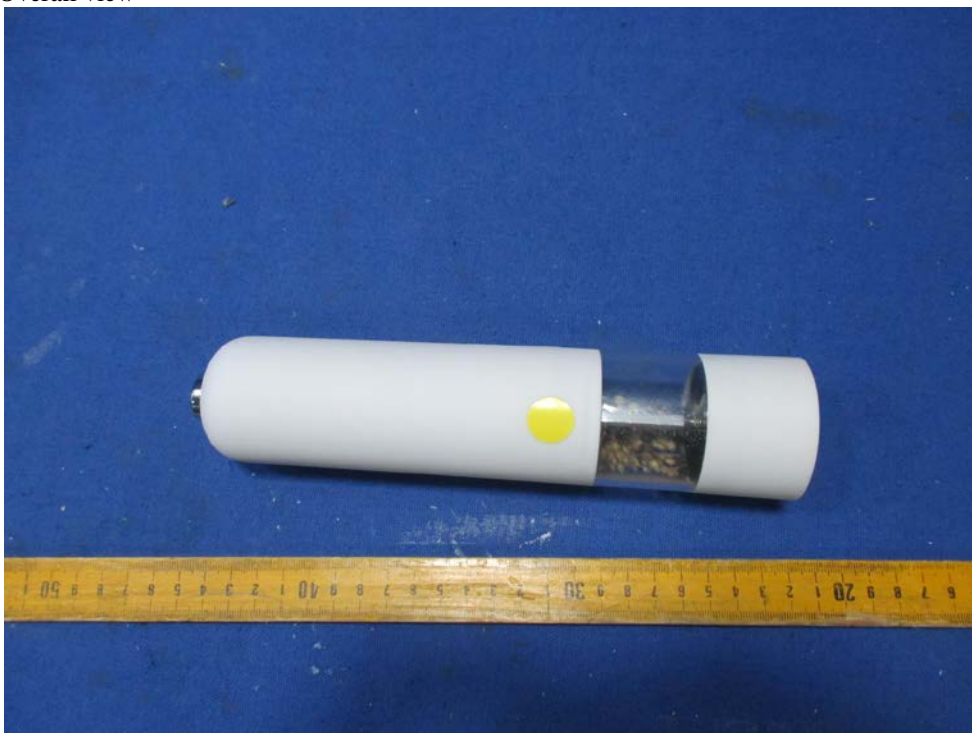


6 EUT Photos

Description: Overall view



Description: Overall view



Description: Detachable overall view



Description: Internal view



Description: Motor view

