SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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TEST REPORT

Application No.:	SHEM1807005603TX
Applicant:	Changzhou Nuomi Electronic Technology Co.,Ltd
Address of Applicant:	No. 8, Shangde Road, Xinbei Dist., Changzhou,,China
Manufacturer:	Changzhou Nuomi Electronic Technology Co.,Ltd
Address of Manufacturer:	No. 8, Shangde Road, Xinbei Dist., Changzhou,,China
Factory:	Changzhou Nuomi Electronic Technology Co.,Ltd
Address of Factory:	No. 8, Shangde Road, Xinbei Dist., Changzhou,,China
Equipment Under Test (EUT):	
EUT Name:	Laser Rangefinder
Model No.:	Q600+, LR0600P, LR0900P, LR1000P, LR1200P, LR1500P, LM600, LM900, LM1000, LM1200, LM1500, LM600H, LM900H, LM1000H, LM1200H, LM1500H, Q900+, Q1200+, Q1500+, Q900S+,Q1500S+ 5-600P,5-900P,5-1000P,5-1200P,5-1500P 5-600H5-900H,5-1000H,5-1200H,5-1500H, LR0600H, LR0900H, LR1000H LR1200H, LR1500H CT44038,CT44039，M750,M1200S¤
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) :	EN 61326-1:2013
Date of Receipt:	2018-07-11
Date of Test:	2018-07-12 to 2018-07-16
Date of Issue:	2018-07-23
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2018-07-23	/

Authorized for issue by:				
				
		Leo Xu / Project Engineer		
				
		Zenger Zhang / Reviewer		

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Radiated Emissions (30MHz-1GHz)	EN 61326-1:2013	EN 55011:2016+A1:2017	Group 1 Class B	Pass

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	EN 61326-1:2013	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Power Frequency Magnetic Field	EN 61326-1:2013	EN 61000-4-8:2010	50Hz 3A/m	Pass
Radiated Immunity(80MHz-2.7GHz)	EN 61326-1:2013	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod. 3V/m, 80%, 1kHz Amp. Mod. 1V/m, 80%, 1kHz Amp. Mod.	Pass

Note1: Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model Q600+was tested since their differences are model number and appearance

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply: DC3V 3V*1 CR2 battery

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	3.2dB (9kHz to 150kHz)
		3.0dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	1.9 dB(9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	2.4 dB(150kHz to 30MHz)
4	Radiated Power	3.5dB
5	Radiated emission	4.4dB (30MHz-1GHz)
		4.6dB (1GHz-6GHz)

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 Test Facility

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

• CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Industry Canada (IC) – IC Assigned Code: 8617A

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: working status

5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21

Electrostatic Discharge					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-1	2017-09-26	2018-09-25

Power Frequency Magnetic Field					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19
Motorised Variac	MV2616	MV2616	SHEM026-6	N/A	N/A
Current transformer for magnetic field coil	EM test	MC2630	SHEM026-7	2017-12-20	2018-12-19
Current transformer for magnetic field coil	EM test	MC26100	SHEM026-8	2017-12-20	2018-12-19
Magnetic field coil	EM test	MS100	SHEM026-9	2017-12-20	2018-12-19

Radiated Immunity(80MHz-2.7GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A
Antenna	SCHWARZBECK	STLP9149	SHEM131-1	N/A	N/A
Amplifier	MILMEGA	80RF1000-250	SHEM132-1	N/A	N/A
Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	N/A	N/A
Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2019-01-24
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2017-09-13	2018-09-12
Digital Multimeter	FLUKE	17B	SHEM043-3	2017-09-11	2018-09-10
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2017-12-20	2018-12-19

6 Emission Test Results

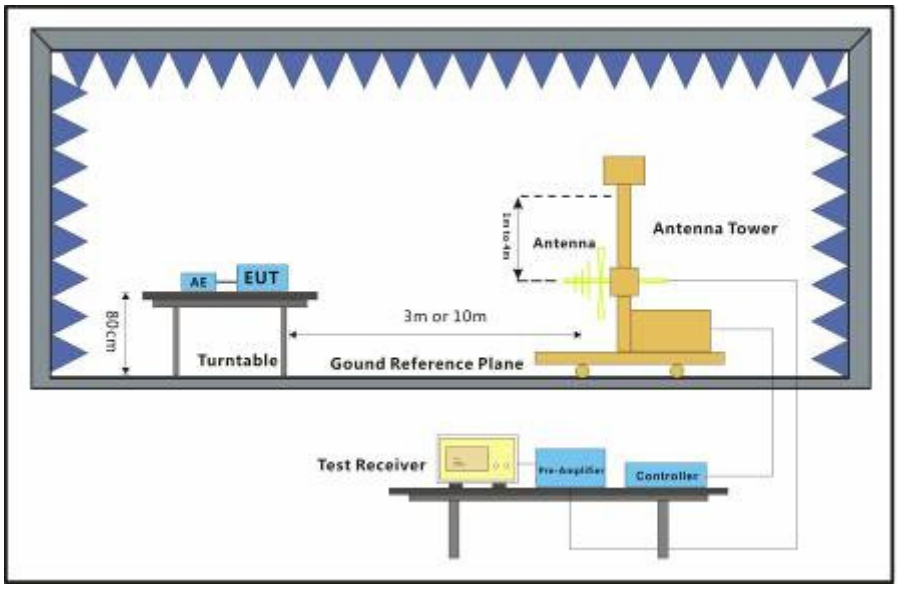
6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN 61326-1:2013
Test Method: EN 55011:2016+A1:2017
Frequency Range: 30MHz to 1GHz
Measurement Distance: 3m
Limit:
30MHz-230MHz 40 dB(μV/m) quasi-peak
230MHz-1GHz 47 dB(μV/m) quasi-peak
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar
Test mode a:Keep EUT measuring continual.

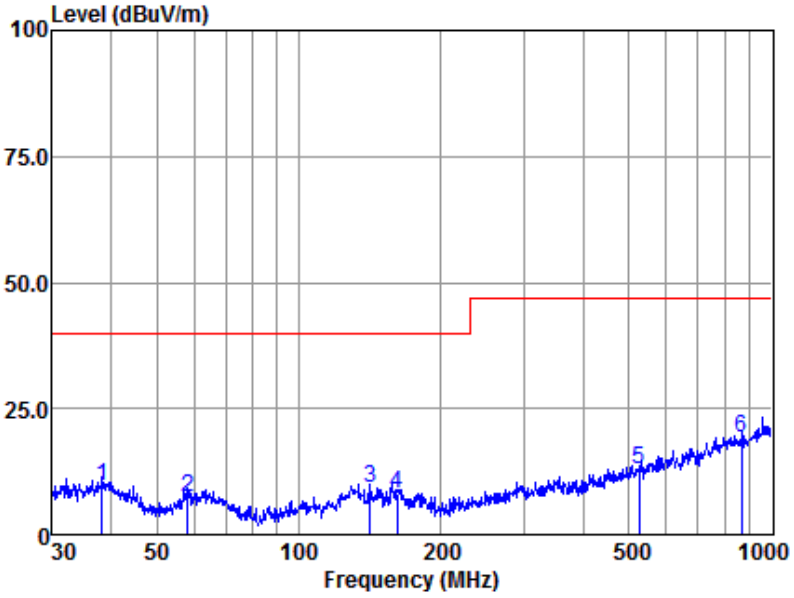
6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Mode:a; Polarization:Horizontal

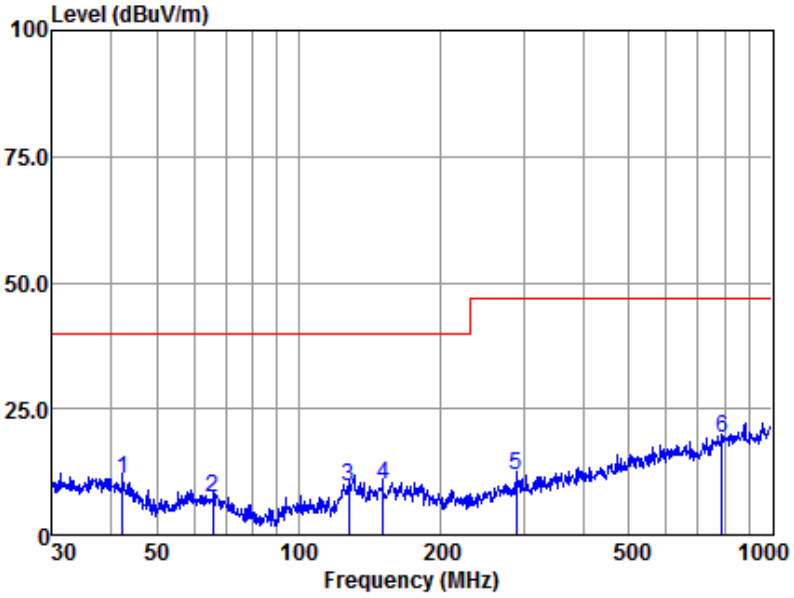


Antenna Polarity :HORIZONTAL
EUT/Project :5603TX
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	38.35	35.74	16.15	0.22	42.62	9.49	40.00	-30.51	QP
2	58.20	37.43	12.25	0.29	42.65	7.32	40.00	-32.68	QP
3	141.83	39.73	11.42	0.61	42.63	9.13	40.00	-30.87	QP
4	161.47	37.04	12.85	0.64	42.59	7.94	40.00	-32.06	QP
5	526.40	35.86	17.83	1.23	42.16	12.76	47.00	-34.24	QP
6	866.09	36.51	22.44	2.31	42.15	19.11	47.00	-27.89	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL
EUT/Project :5603TX
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	42.30	38.55	14.88	0.23	42.63	11.03	40.00	-28.97	QP
2	65.80	37.92	11.89	0.32	42.66	7.47	40.00	-32.53	QP
3	127.22	39.56	12.07	0.57	42.66	9.54	40.00	-30.46	QP
4	150.54	40.13	11.97	0.62	42.61	10.11	40.00	-29.89	QP
5	287.99	40.49	12.81	0.83	42.41	11.72	47.00	-35.28	QP
6	787.85	37.78	21.72	2.01	42.47	19.04	47.00	-27.96	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7 Immunity Test Results

7.1 Performance Criteria Description in EN 61326-1:2013

Criterion A The equipment shall continue to operate as intended during and after the test. 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. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

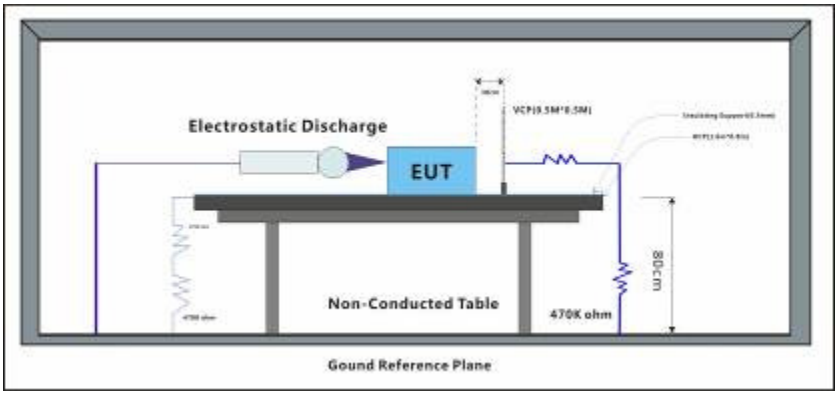
Criterion B The equipment shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment 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.

7.2 Electrostatic Discharge

Test Requirement: EN 61326-1:2013
Test Method: EN 61000-4-2:2009
Performance Criterion: B
Discharge Impedance: 330Ω/150pF
Number of Discharge: Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
Test mode: a:Keep EUT measuring continual.

7.2.3 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	2,4	+	2	A
Contact Discharge	2,4	-	2	A
Horizontal Coupling	2,4	+	3	A
Horizontal Coupling	2,4	-	3	A
Vertical Coupling	2,4	+	3	A
Vertical Coupling	2,4	-	3	A

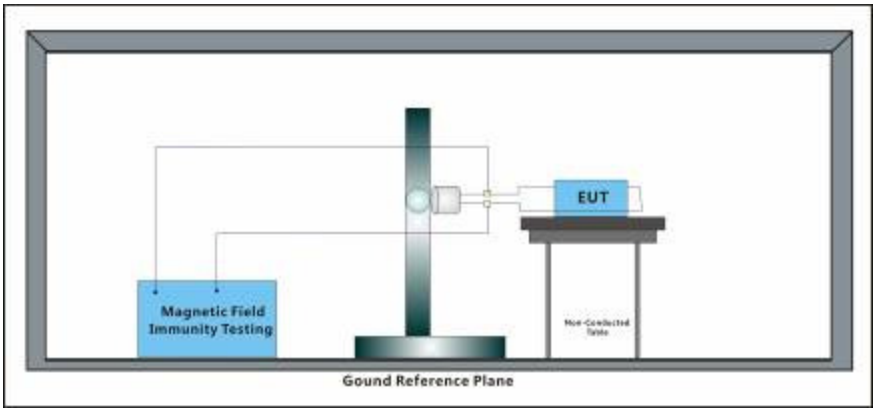
Results:

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

7.3 Power Frequency Magnetic Field

Test Requirement: EN 61326-1:2013
Test Method: EN 61000-4-8:2010
Performance Criterion: A

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
Test mode: a:Keep EUT measuring continual.

7.3.3 Test Results:

Frequency	Level (A/m)	Axial	Magnetic Field Type	Result / Observations
50Hz	3	X	Continuous filed	A
50Hz	3	Y	Continuous filed	A
50Hz	3	Z	Continuous filed	A

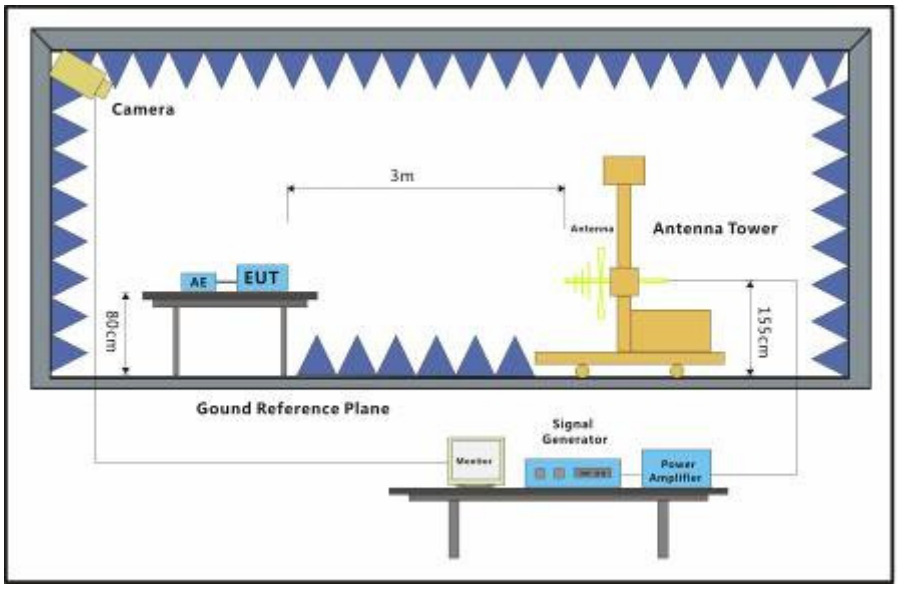
Results:

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

7.4 Radiated Immunity(80MHz-2.7GHz)

Test Requirement: EN 61326-1:2013
Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010
Performance Criterion: A
Frequency Range: 80MHz to 1GHz, 1.4GHz to 2GHz, 2GHz to 2.7GHz
Antenna Polarisation: Vertical and Horizontal
Modulation: 1kHz,80% Amp. Mod,1% increment

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:
Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar
Test mode: a:Keep EUT measuring continual.

7.4.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	2s	A
80MHz-1GHz	3	Back	2s	A
80MHz-1GHz	3	Left	2s	A
80MHz-1GHz	3	Right	2s	A
80MHz-1GHz	3	Top	2s	A
80MHz-1GHz	3	Underside	2s	A
1.4GHz-2GHz	3	Front	2s	A
1.4GHz-2GHz	3	Back	2s	A
1.4GHz-2GHz	3	Left	2s	A
1.4GHz-2GHz	3	Right	2s	A
1.4GHz-2GHz	3	Top	2s	A
1.4GHz-2GHz	3	Underside	2s	A
2GHz-2.7GHz	1	Front	2s	A
2GHz-2.7GHz	1	Back	2s	A
2GHz-2.7GHz	1	Left	2s	A

2GHz-2.7GHz	1	Right	2s	A
2GHz-2.7GHz	1	Top	2s	A
2GHz-2.7GHz	1	Underside	2s	A

Results:

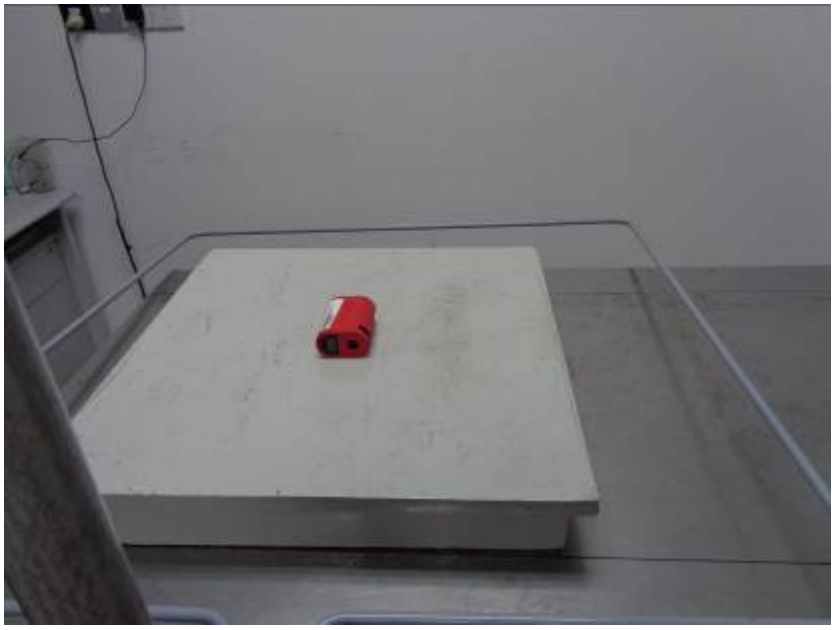
A: No degradation in the performance of the EUT was observed.

8 Photographs

8.1 Radiated Emissions (30MHz-1GHz) Test Setup

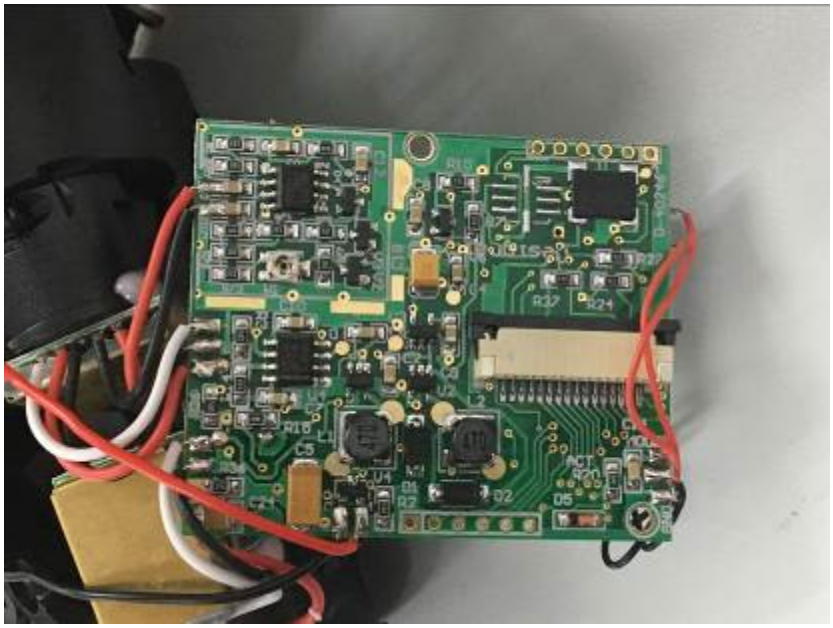
8.2 Electrostatic Discharge Test Setup

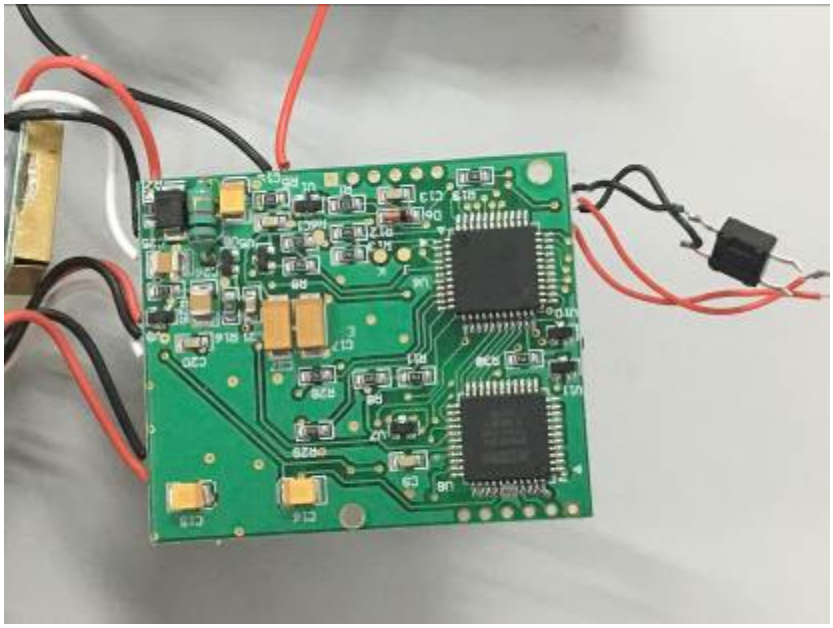
8.3 Power Frequency Magnetic Field Test Setup

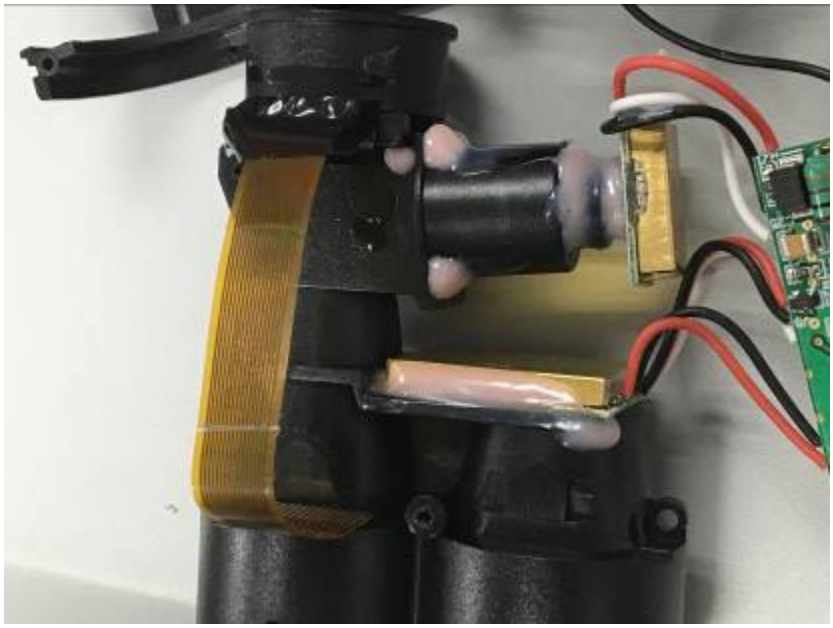


8.4 Radiated Immunity(80MHz-2.7GHz) Test Setup

8.5 EUT Constructional Details (EUT Photos)







- End of the Report -