

EMC TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results are contained in this test report. Dongguan Nore Testing Center Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Applicant : Shenzhen Idea-fly Technology CO.LTD
Address : Room 201,2/F,Building 1,Queshan New No.2 Village industrial park, Dalang Street,longhua new District, 518000, ShenZhen,China
Manufacturer/ Factory : Shenzhen Idea-fly Technology CO.LTD
Address : Room 201,2/F,Building 1,Queshan New No.2 Village industrial park, Dalang Street,longhua new District, 518000, ShenZhen,China
E.U.T. : Waterproof UAV
Brand Name : N/A
Model No. : Poseidon-480
Measurement Standard : EN 61000-6-3: 2007+A1: 2011+AC: 2012, EN 61000-6-1: 2007 (EN 61000-4-2: 2009, EN 61000-4-3: 2006+A2: 2010)
Date of Receiver : June 15, 2017
Date of Test : June 15, 2017 to June 19, 2017
Date of Report : June 19, 2017

This Test Report is Issued Under the Authority of :

Prepared by

Approved & Authorized Signer

John Qiao / Engineer

Iori Fan / Authorized Signatory

This report shows that the E.U.T. is technically compliant with the EN 61000-6-3 and EN 61000-6-1. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

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Appendix I (Photos of E.U.T.) (4 pages)

Revision History of This Test Report

Report Number	Description	Issued Date
NTC1706665E	Initial Issue	2017-06-19

1. SUMMARY OF TEST RESULTS

The E.U.T. has been tested according to the following specifications:

EMISSION			
Standard	Test Type	Result	Remarks
EN 61000-6-3: 2007+A1: 2011+AC: 2012	Radiated Emission Test	PASS	Uncertainty: 3.4dB

IMMUNITY(EN 61000-6-1: 2007)			
Standard	Test Type	Result	Remarks
EN 61000-4-2: 2009	Electrostatic discharge immunity test	PASS	Meets the requirements of Performance Criterion B
EN 61000-4-3: 2006+A2: 2010	Radio-frequency, electromagnetic field immunity test	PASS	Meets the requirements of Performance Criterion A

2. GENERAL INFORMATION

2.1 Details of E.U.T.

E.U.T.	: Waterproof UAV
Model No.	: Poseidon-480
Brand Name	: N/A
Rating	: DC 6V
Test Voltage	: DC 6V (Internal Battery)
Description of model difference	: N/A
Remark	: N/A

2.2 Description of Support Device

None

2.3 Block Diagram of Test Setup

Block diagram of connection between the E.U.T. and simulators

EUT

2.4 Test Facility

Site Description

EMC Lab

: Listed by CNAS, November 02, 2016
The certificate is valid until August 13, 2018
The Laboratory has been assessed and proved to
be in compliance with CNAS/CL01
The Certificate Registration Number is L5795.

Listed by FCC, July 03, 2014
The Certificate Number is 665078.

Listed by Industry Canada, June 08, 2017
The Certificate Registration Number. Is 46405-9743

Name of Firm

: Dongguan Nore Testing Center Co., Ltd.
(Dongguan NTC Co., Ltd.)

Site Location

: Building D, Gaosheng Science & Technology Park,
Zhouxi Longxi Road, Nancheng District,
Dongguan City, Guangdong Province, China

2.5 Abnormalities from Standard Conditions

None

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 08, 2017	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 08, 2017	1 Year
3.	Positioning Controller	UC	UC 3000	N/A	N/A	N/A
4.	Color Monitor	SUNSPO	SP-140A	N/A	N/A	N/A
5.	Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
6.	3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
7.	DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
8.	Cable	Huber+Suhner	CBL3-NN-9M	21490001	Mar. 08, 2017	1 Year
9.	Cable	Huber+Suhner	RG223U	N/A	Mar. 08, 2017	1 Year
10.	Power Amplifier	HP	HP 8447D	1145A00203	Mar. 08, 2017	1 Year

3.2. For Electrostatic Discharge Immunity Test

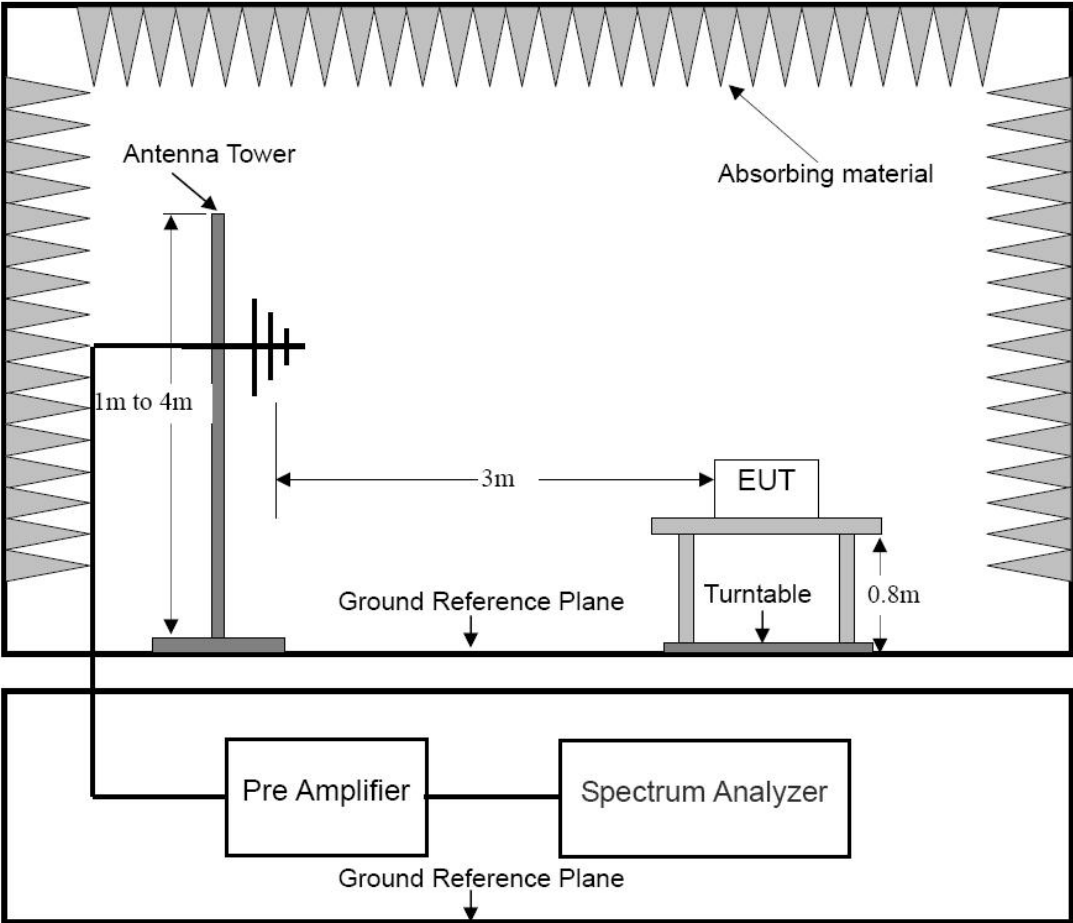
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	TESEQ	NSG 437	432	Mar. 08, 2017	1 Year

3.3. For RF Electromagnetic Field Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	Agilent	N5181A	MY50142530	Nov. 01, 2016	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 22, 2017	1 Year
3.	RF Power Meter	ESE	4242	13984	Nov. 04, 2016	1 Year
4.	Power Amplifier	TESEQ	CBA 1G-150	T44029	N/A	N/A
5.	Power Sensor	ESE	51011EMC	35716	Nov. 04, 2016	1 Year

4. RADIATED EMISSION MEASUREMENT

4.1 Block Diagram of Test



4.2 Limit of Radiated Emission Measurement

Test Standard: EN 61000-6-3

Limits for radiated disturbance at a measuring distance of 3m

Frequency range MHz	Quasi-peak limits dB(uV/m)
30 to 230	40
230 to 1000	47
Note 1 The lower limit shall apply at the transition frequency.	
Note 2 If the internal emission source is operating at a frequency below 9KHz, then measurements need only to be performed up to 230MHz	

4.3 Test Procedure

E.U.T. and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. E.U.T. is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to EN 61000-6-3 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCI7) is set at 120 KHz.
The frequency range from 30 MHz to 1000 MHz is checked.

4.4 Operating Condition of E.U.T.

- 5.4.1 Setup the E.U.T. and simulators as shown in Section 2.3.
- 5.4.2 Turn on the power of all equipments.
- 5.4.3 Let the E.U.T. work in test modes (On) and test it.

4.5 Radiated Emission Measurement Result

PASS.

Please refer to the following pages.

E.U.T :	Waterproof UAV	Model Name :	Poseidon-480
Temperature :	26°C	Relative Humidity :	55 %
Pressure :	1006 hPa	Test Voltage :	DC 6V
Test Mode :	On Mode	Phase:	Vertical



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	373.3110	-2.66	43.29	40.63	47.00	-6.37	QP			P	
2	169.0053	-7.12	42.53	35.41	40.00	-4.59	QP			P	
3	706.6997	2.23	40.59	42.82	47.00	-4.18	QP			P	
4	468.8761	-0.84	40.86	40.02	47.00	-6.98	QP			P	
5	684.7453	1.96	39.82	41.78	47.00	-5.22	QP			P	
6	605.6592	1.12	36.51	37.63	47.00	-9.37	QP			P	

E.U.T :	Waterproof UAV	Model Name :	Poseidon-480
Temperature :	26°C	Relative Humidity :	55 %
Pressure :	1006 hPa	Test Voltage :	DC 6V
Test Mode :	On Mode	Phase:	Horizontal



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	245.9507	-4.44	45.34	40.90	47.00	-6.10	QP			P	
2	168.4137	-7.10	42.86	35.76	40.00	-4.24	QP			P	
3	191.7450	-7.93	41.63	33.70	40.00	-6.30	QP			P	
4	677.5797	1.88	39.75	41.63	47.00	-5.37	QP			P	
5	364.2595	-2.79	41.27	38.48	47.00	-8.52	QP			P	
6	281.9945	-3.88	43.40	39.52	47.00	-7.48	QP			P	

5. PERFORMANCE CRITERIA FOR IMMUNITY

The performance criteria are referred to the test standard: EN 61000-6-1

The variety and the diversity of the apparatus within the scope of this standard makes it difficult to define precise criteria for the evaluation of the immunity test results. If, as a result of the application of the tests defined in this standard, the apparatus becomes dangerous or unsafe, the apparatus shall be deemed to have failed the test. A functional description and a definition of performance criteria, during or as a consequence of the EMC testing, shall be provided by the manufacturer and noted in the test report.

Performance Criterion A:

The apparatus 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 apparatus is used as 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 apparatus if used as intended.

Performance Criterion B:

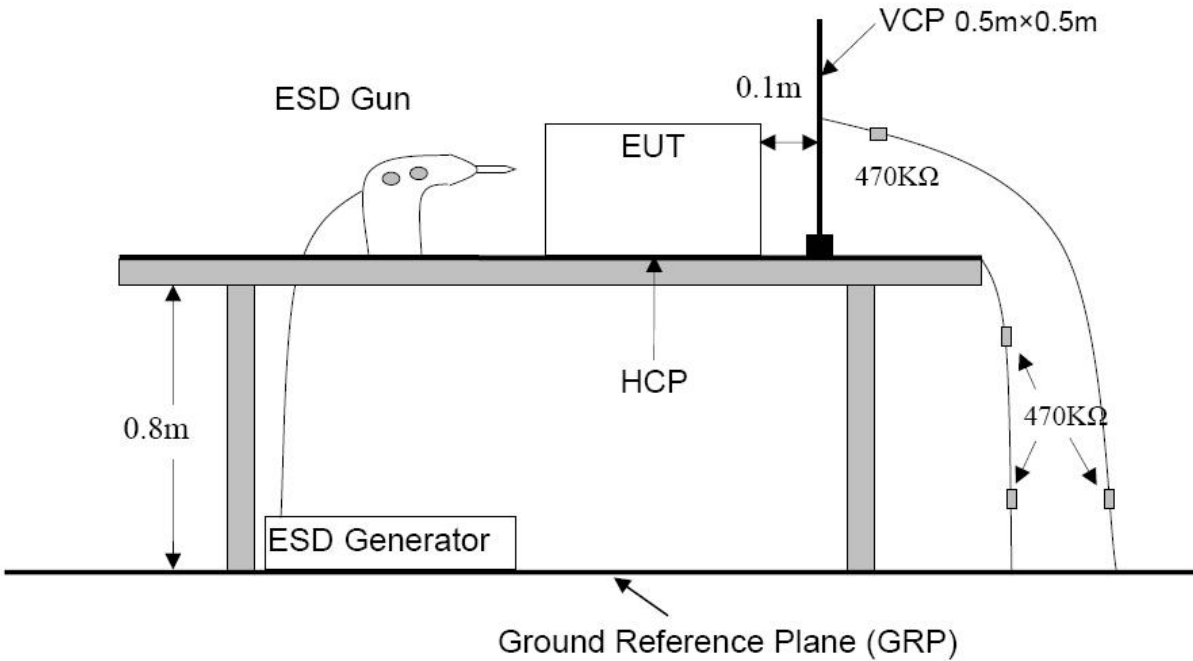
The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operation state or stored data is allowed. 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 apparatus if used as intended.

Performance Criteria C

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

6. ELECTROSTATIC DISCHARGE TEST

6.1 Block Diagram of Test Setup



6.2 Test Standard and Severity Levels

6.2.1 Test Standard:
EN 61000-6-1
(EN 61000-4-2 Air Discharge: Severity Level: 3, ± 8KV;
Contact Discharge: Level: 2, ± 4KV)

6.2.2 Severity Levels:

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

6.3 Test Procedure

6.3.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the E.U.T.. After each discharge, the discharge electrode shall be removed from the E.U.T.. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

6.3.2 Contact Discharge:

All the procedure shall be same as Section 9.3.1. except that the tip of the discharge electrode shall touch the E.U.T..

6.3.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges(in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit(if applicable) of the E.U.T. and 0.1m from the front of the E.U.T.. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

6.3.4 Indirect discharge for vertical coupling plane

At least 10 single discharge (in the most sensitive polarity) 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 E.U.T.. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the E.U.T. are completely illuminated.

6.4 Test Results

PASS.

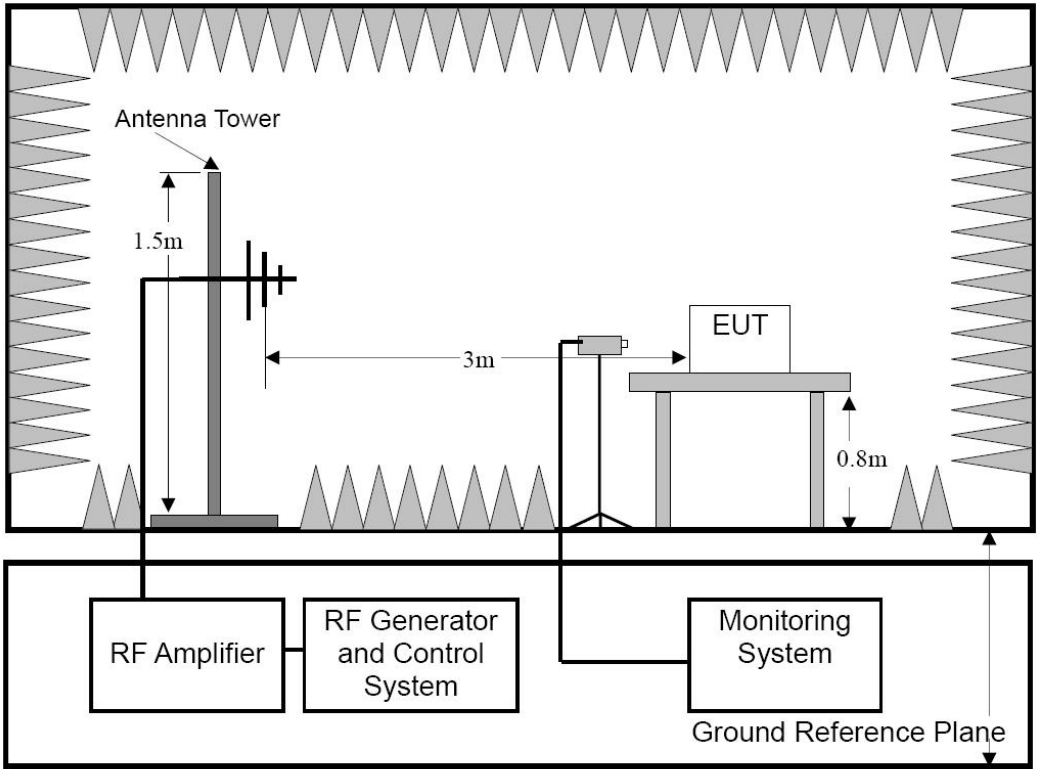
Please refer to the following page.

Electrostatic Discharge Test Results

Ambient Condition:	Temp.: 25 °C	R.H.: 51 %	Air Pressure: 101 kPa
Power Supply:	DC 6V	Required Performance Criterion: B	
Test Specifications:	±2, 4 kV Contact Discharge; ±2, 4, 8 kV Air Discharge For each point positive 10 times and negative 10 times		
Tested mode:	On		
Test Point		Kind A-Air Discharge C-Contact Discharge	Result (Performance Criterion)
Slot of EUT		A	A
Light		A	A
Indirect Discharge (HCP)		C	A
Indirect Discharge (VCP)		C	A
Note:			
Test Equipment :		ESD Tester (TESEQ, NSG 437)	Test Engineer : Stan

7. RF FIELD STRENGTH SUSCEPTIBILITY TEST

7.1 Block Diagram of Test Setup



7.2 Test Standard and Severity Levels

7.2.1 Test Standard
EN 61000-6-1
(EN 61000-4-3,
80 to 1000MHz Severity Level: 2, 3V/m;

7.2.2 Severity Levels

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

7.3 Test Procedure

The E.U.T. and its simulators are placed on a turn table which is 0.8 meter above ground. E.U.T. is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of E.U.T. must be faced this transmitting antenna and measured individually.

All the scanning conditions are as follows :

Condition of Test	Remarks
1. Fielded Strength	80 to 1000MHz Severity Level: 3, 3V/m;
2. Radiated Signal	Modulated
3. Dwell time of radiated	0.0015 decade/s
4. Waiting Time	1 Sec.

7.4 Test Results

PASS.

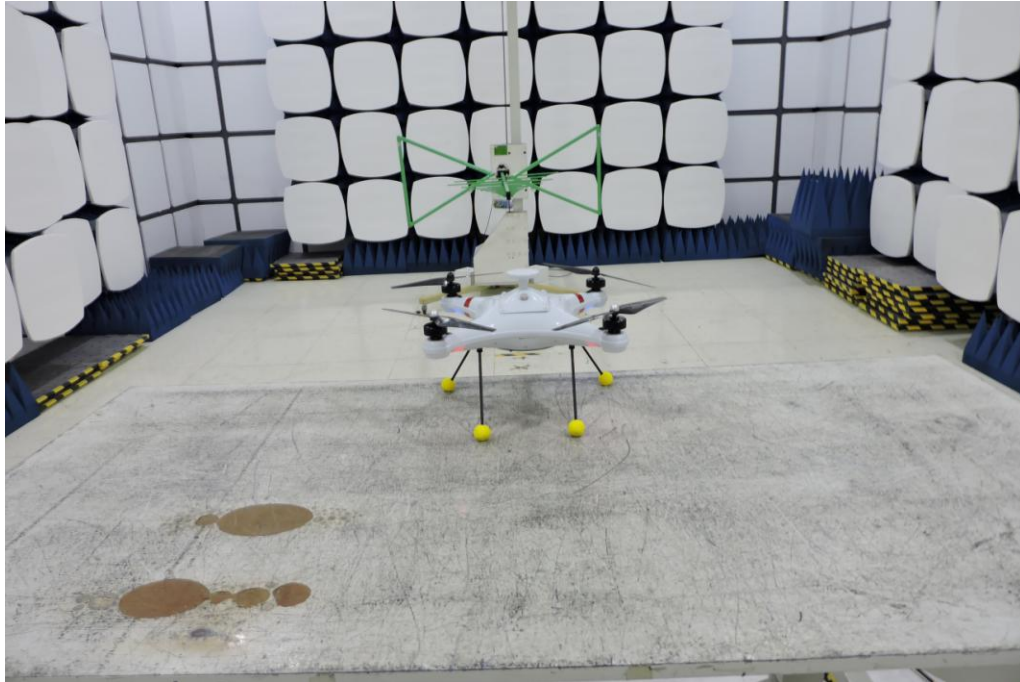
Please refer to the following page.

RF Field Strength Susceptibility Test Results

Ambient Condition:	Temp.: 25 °C	R.H.: 51 %	Air Pressure: 101 kPa	
Power Supply:	DC 6V	Required Performance Criterion: A		
Test Specifications:	Modulation: 1kHz, 80%AM; Step Size: 1%; Dwell Time: 1s			
Tested mode:	On			
Frequency (MHz)	Level (V/m)	Antenna polarity	Side	Result (Performance Criterion)
80-1000	3	Horizontal/ Vertical	Front/ Left/ Right/ Back	A
Note:				
Test Equipment : 1. RF Power Meter : 4242 (ESE) 2. Power Amplifier : CBA 1G-150 (TESEQ) 3. Power Sensor: 51011EMC(ESE) 4. Antenna: VULB9162 (Schwarzbeck)				
Test Engineer : Stan				

8. PHOTOGRAPH

8.1 Photo of Radiation Emission Measurement



8.2 Photo of Electrostatic Discharge Test



APPENDIX I

(Photos of E.U.T.)

Figure 1
General Appearance of the E.U.T.



Figure 2
General Appearance of the E.U.T.



Figure 3
General Appearance of the E.U.T.



Figure 4
General Appearance of the E.U.T.



Figure 5
General Appearance of the PCB

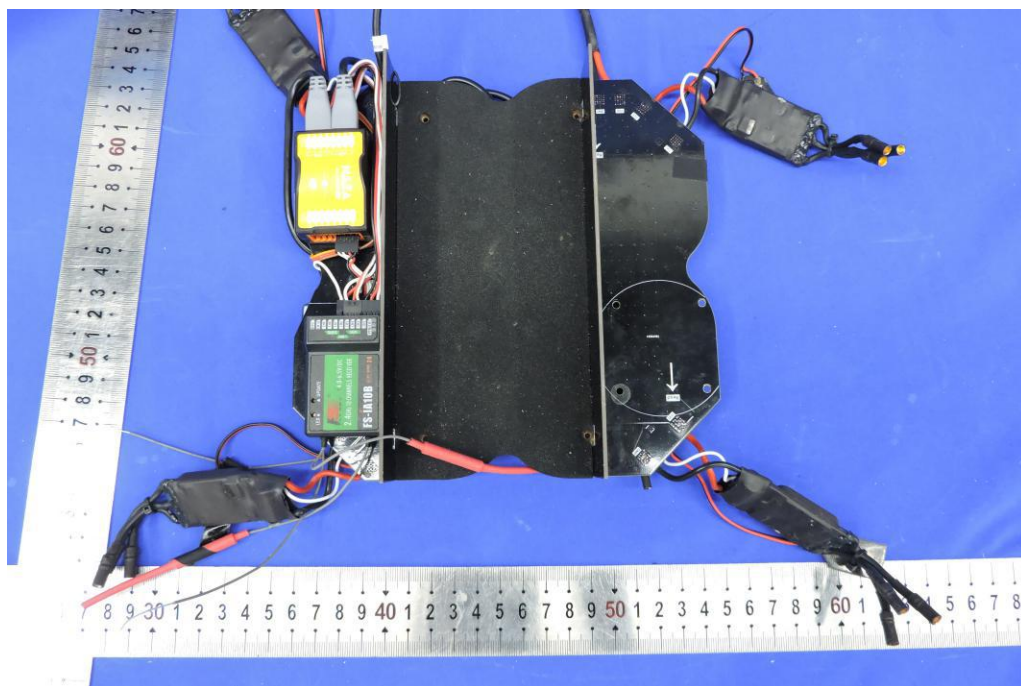


Figure 6
General Appearance of the PCB

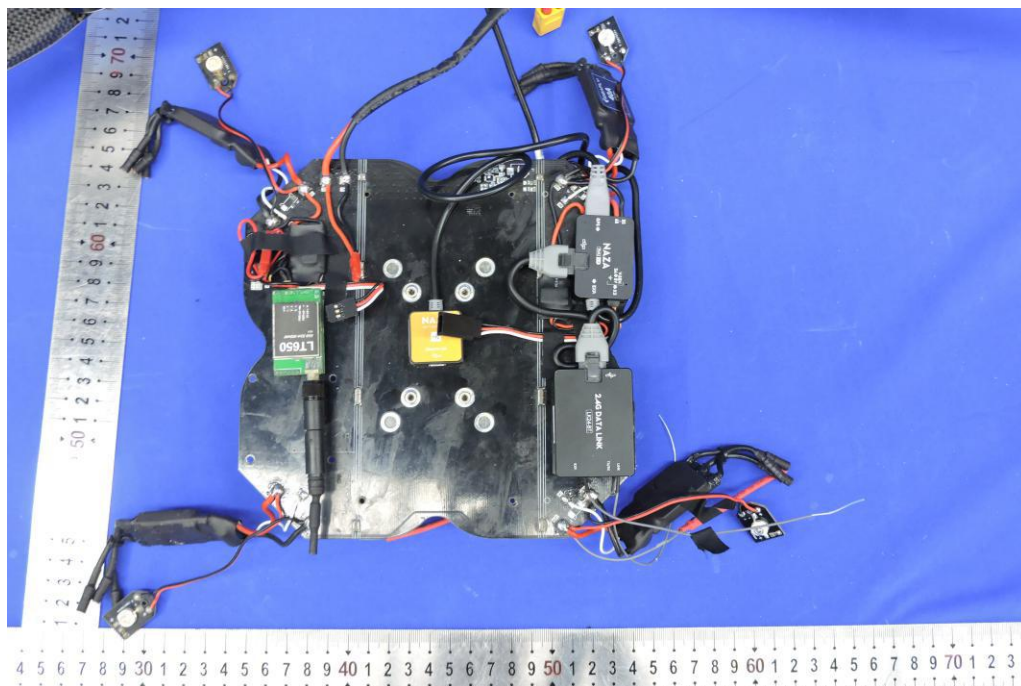


Figure 7
General Appearance of the Battery



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