

CERTIFICATE OF EMC

CERTIFICATE NO.: SET2015-01563

Product: Group control landing call board
Model: BL2000-HQK-V* (*=9-9.99, indicate the different customer or/and Software function number)
Applicant: ShenYang Bluelight Automatic Technology Co., Ltd.
Address: No. 37 Shiji Road, Hunnan New District, Shenyang, China

This is to certify that, on the basis of the tests undertaken as per Report No. SET2015-01563, the submitted sample of the above item complies with:

EN61000-6-4:2007+A1:2011
EN61000-6-2:2005

and fulfils testing requirement of the EMC directive 2004/108/EC

Signed for and on behalf of
CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd.

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EMC TEST REPORT

Report No.! SET2015-01563

Product! Gopro nbl landing all board

Model No! BL2000-HQK-V* (*=9-9.99, indicate the decant corner
of and some mcbn nmber)

Applicant! ShenYang Blalgt Automat Technology Co., Ltd.

Address! No. 37 Shi Road, Hunan New District, Shenyang China

Issued by! CCIC Shenzhen Electronic Product Testing (Shenzhen) CO., Ltd.

Lab location! Building 28/29, Shigong Xili Industrial Area, Xili Street
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test results in the report may only be used for the test sample. The test results shall be invalid in total
the test results of the engineer. The test results and approval of any object should be used to
CCIC-SET within 15 days since the date when the test results are received. It will not be taken into
consideration beyond this limit.

查询码: 6PA7ZR5b

Report

Product.: Group control landing call board
 Model No.: BL2000-HQK-V* (*=9-9.99, indicate the different customer or/and Software function number)
 Brand Name.....: /
 Applicant.....: ShenYang Bluelight Automatic Technology Co., Ltd.
 Applicant Address.....: No. 37 Shiji Road, Hunnan New District, Shenyang, China
 Manufacturer.....: ShenYang Bluelight Automatic Technology Co., Ltd.
 Manufacturer Address.....: No. 37 Shiji Road, Hunnan New District, Shenyang, China
 Test Standards.....: EN61000-6-4:2007+A1:2011 Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments
 EN61000-6-2:2005 Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments
 Test Result.....: Pass
 Tested by: _____ Feb. 06. 2015
 Signature, Date
 Reviewed by.....: _____ Feb. 06. 2015
 Signature, Date
 Approved by.....: _____ Feb. 06. 2015
 Signature, Date

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1 General Information

1.1 Description of EUT

Product: Gopro nbl landing all board
Model No.: BL2000-HQK-V9
Brand Name: /
Serial No.: /
Rating: Inp24V DC
Accessories: /

NOTE:

1. For more detailed easdespn about the EUT, please refer to User Manual.
2. Apitabn model is BL2000-HQK-V* (*=9-9.99, indicate the different corner of and Some mcbn nmber). Model sdienccsdo not aect the pormance o EMC. All tes we pormed on Model BL2000-HQK-V9 and ed tpsed othemodels
3. The hgtsequncy of the internal one o the EUT is below 108 MHz o the added emsn measment shall be made p 1GHz

1.2 Objective

Perom ElectbMagnet Inteeence (EMI) an d ElectbMagnet Saeplty(EMS) tes
 orCE Marking

2 Test Facilities and Configuration

2.1 Environmental Conditions

During the measment the environmental c ondbnses in the lab are as follows:

- Tempat: 15-35°C
- Hmdty: 30-60 %
- Amopet ps: 86-106 kPa

2.2 Measurement Uncertainty

The uncertainty calculated in the methods used in the Guide to the Expression of Uncertainty in Measurement (GUM) published by ISO.

- Uncertainty to Radiated Emission, $U_c = 4.7\text{dB}$

2.3 Test Standards and Results

The EUT has been tested according to the following standards

2.4 List of Equipments Used

Description	Manufacturer	Model No.	Calibration Date	Serial No.
Test Receiver ROHDE&SCHWARZ	ROHDE&SCHWARZ	ESCI	Jun.10, 2015	A0902601
Broadband Ant Anechoic Broadba5	ROHDE&SCHWARZ	VULB 09160	Jun.10, 2015	A0805560

3 Emission Test

3.1 EUT Setup and Operating Conditions

The EUT is powered by 24V DC mains. The EUT is continuously operated during the test.

3.2 Radiated Disturbance Measurement

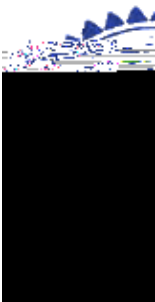
3.2.1 Limits of Radiated Disturbance

Frequency range (MHz)	Quasi peak limits(dB μ V/m), at 10m measurement distance
30 -230	40
230 - 1000	47

Notes:

- (1) The low limit shall apply at the antenna frequency
- (2) Additional points may be added if or as interference occurs

3.2.2 Test Setup



1. Electromagnetic radiation chances max

4 Immunity Test

4.1 EUT Setup and Operating Conditions

Same as 3.1.

4.2 Performance Criteria

Criterion A	The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the apparatus is 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 specified by the manufacturer when the apparatus is intended.
Criterion C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operator in the course of normal operation.

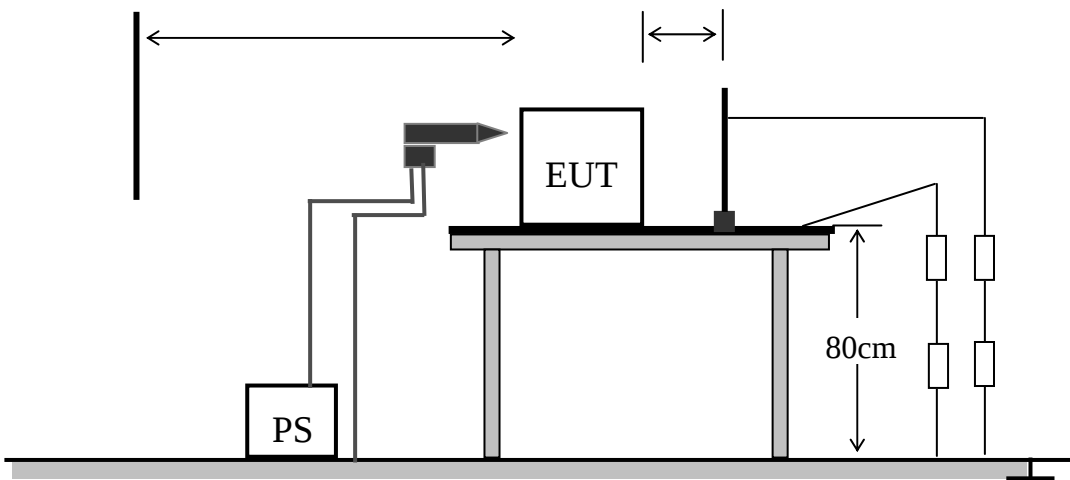
4.3 Electrostatic Discharge Immunity Test

4.3.1 Test Specification

B1000-4-2 Period:

Basic Standard:	IEC 61000-4-2
Discharge Impedance	330 Ω / 150 Ω
Discharge Voltage:	Air Discharge: 8 kV Contact Discharge: 4 kV
Polarity:	Positive / Negative
Number of Discharge:	Minimum 20 times at each test point
Discharge Mode:	Single discharge
Discharge Period:	1-second minimum

4.3.2 Test Setup



For the actual test condition, please refer to Appendix II Photographs of the Test Condition.

4.3.3 Test Result

Test Points	Discharge Level (kV)	Discharge Mode	Observation	Comply with Criterion
Screen	2, 4, 6, 8	Air	Note(1)	A
HCP	f 2, 4	Contact	Note(1)	A
VCP	f 2, 4	Contact	Note(1)	A

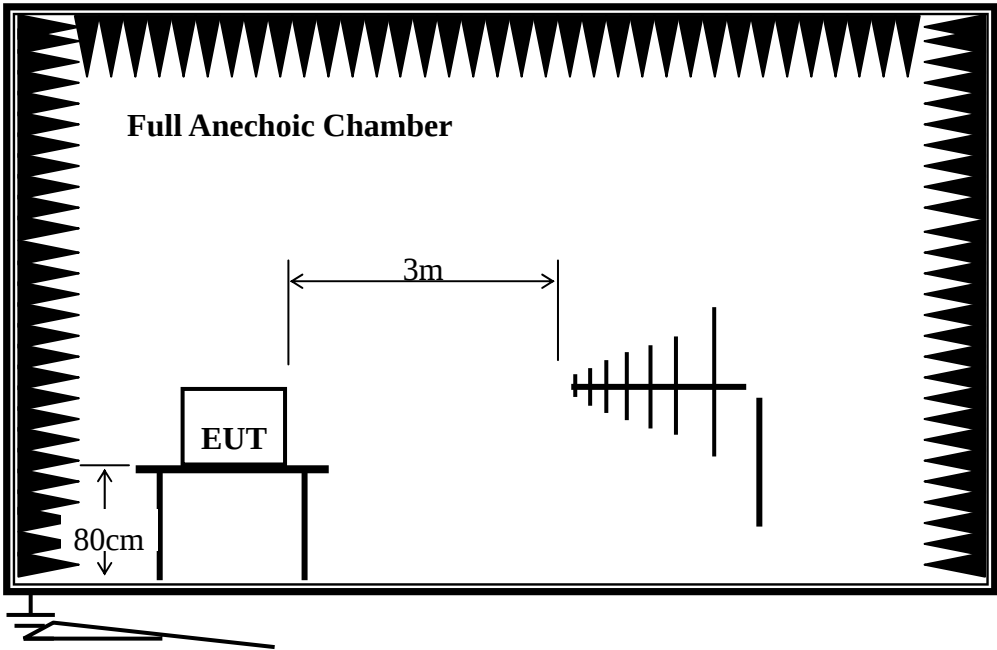
NOTE:
(1). The EUT continued to operate as intended. No degradation of performance was observed.

4.4 Radiated, Radio Frequency Electromagnetic Field Immunity Test

4.4.1 Test Specification

Basic Standard:	EN 61000-4-3		
Frequency Range:	80 MHz-1000MHz	1.4GHz-2.0GHz	2.0GHz-2.7GHz
Field Strength:	10V/m	3V/m	1V/m
Modulation:	1 kHz sine wave, 80%, AM modulation		
Frequency Step:	1% of fundamental		
Polarity of Antenna	Horizontal and Vertical		
Test Distance:	3m		
Antenna Height:	1.5m		
Dwell Time:	3 seconds		
Criterion:	A		

4.4.2 Test Setup



4.4.3 Test Result

Frequency	Polarity	Azimuth	Field Strength (V/m)	Observation	Comply with Criterion
80-1000 MHz	V&H	0,90, 80, 270	10	Note(1)	A
1.4-2.0GHz	V&H	0,90, 80, 270	3	Note(1)	A
2.0-2.7GHz	V&H	0,90, 80, 270	1	Note(1)	A

NOTE:

(1). The EUT continued to operate as intended. No degradation of performance was observed.

4.5 Electrical Fast Transient/Burst Immunity Test

4.5.1 Test Specification

Basic Standard:	IEC 61000-4-4
Test Voltage:	DC. Power pt 2 kV, Signal pt 1 kV
Polarity:	Pos/Neg
Impulse Frequency:	5 kHz
Impulse wave shape:	5/50ns
Burst Duration:	15ms
Burst Period:	300ms

For the actual test condition, please refer to Appendix II
Condition.

Photographs of the Test

4.5.3 Test Result

Test Point	Polarity	Test Level (kV)	Observation	Comply with Criterion
DC. per	+/-	2	Note (1)	A
Signal pt	+/-	1	Note (1)	A

NOTE:

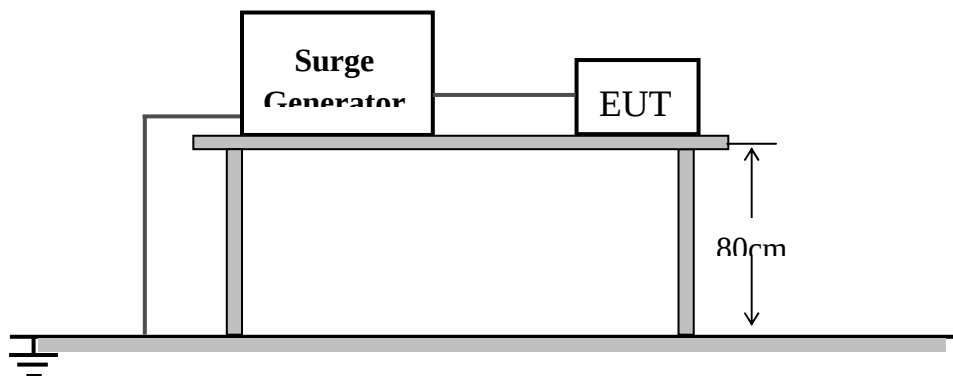
(1). The EUT continued to operate as intended. No degradation of performance was observed.

4.6 Surge Immunity Test

4.6.1 Test Specification

Basic Standard:	IEC 61000-4-5
Waveform:	Voltage 1.2/50 μ s, Current 8/20 μ s
Test Voltage:	DC port line to line 0.5 kV, line to earth 0.5 kV
Polarity:	Positive/Negative
Repetition Rate:	60/s
Times:	5 times/each condition.
Criterion:	B

4.6.2 Test Setup



4.6.3 Test Result

Coupling Line	Polarity	Voltage (kV)	Observation	Comply with Criterion
DC per Line-Line	+/-	0.5	Note (1)	B

NOTE:

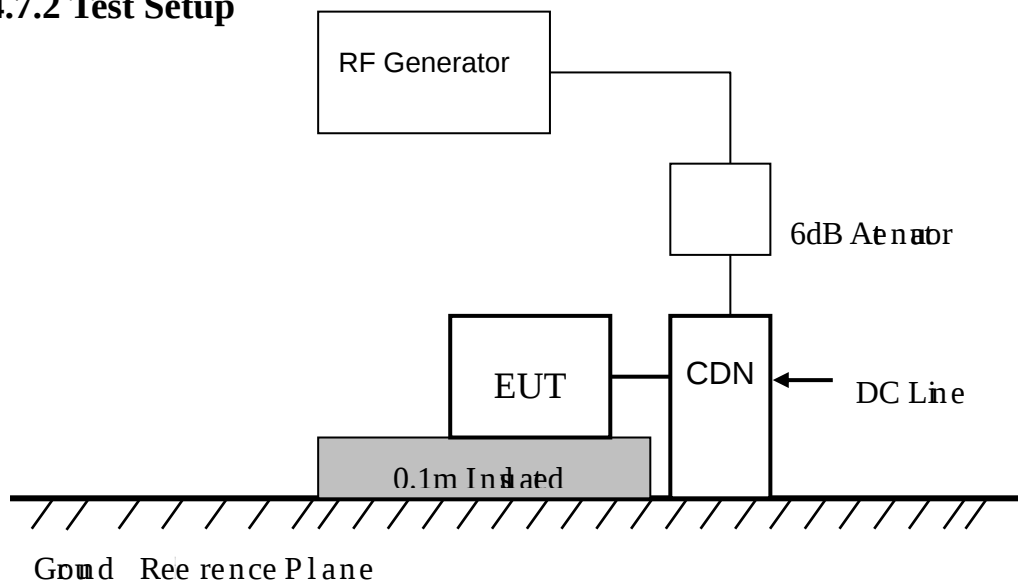
(1). The EUT continued to operate as intended. No degradation of performance was observed.

4.7 Immunity to Conducted Disturbances Induced by RF Fields

4.7.1 Test Specification

Basic Standard:	IEC 61000-4-6
Frequency Range:	0.15 MHz-80 MHz
Field Strength:	10V
Modulation:	1 kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1% of fundamental
Coupled Cable:	DC. power line
Coupling Device:	Capacitor clamp
Criterion:	A

4.7.2 Test Setup



4.7.3 Test Result

Test Point	Frequency	Field Strength (Vrms)	Observation	Comply with criterion
DC Power Line	0.15 -80 MHz	10	Note(1)	A
Signal port	0.15 -80 MHz	10	Note (1)	A

NOTE:

(1). The EUT continued to operate as intended. No degradation of performance was observed.

4.8 Power Frequency Magnetic Field Immunity Test

4.8.1 Test Specification

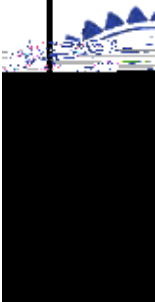
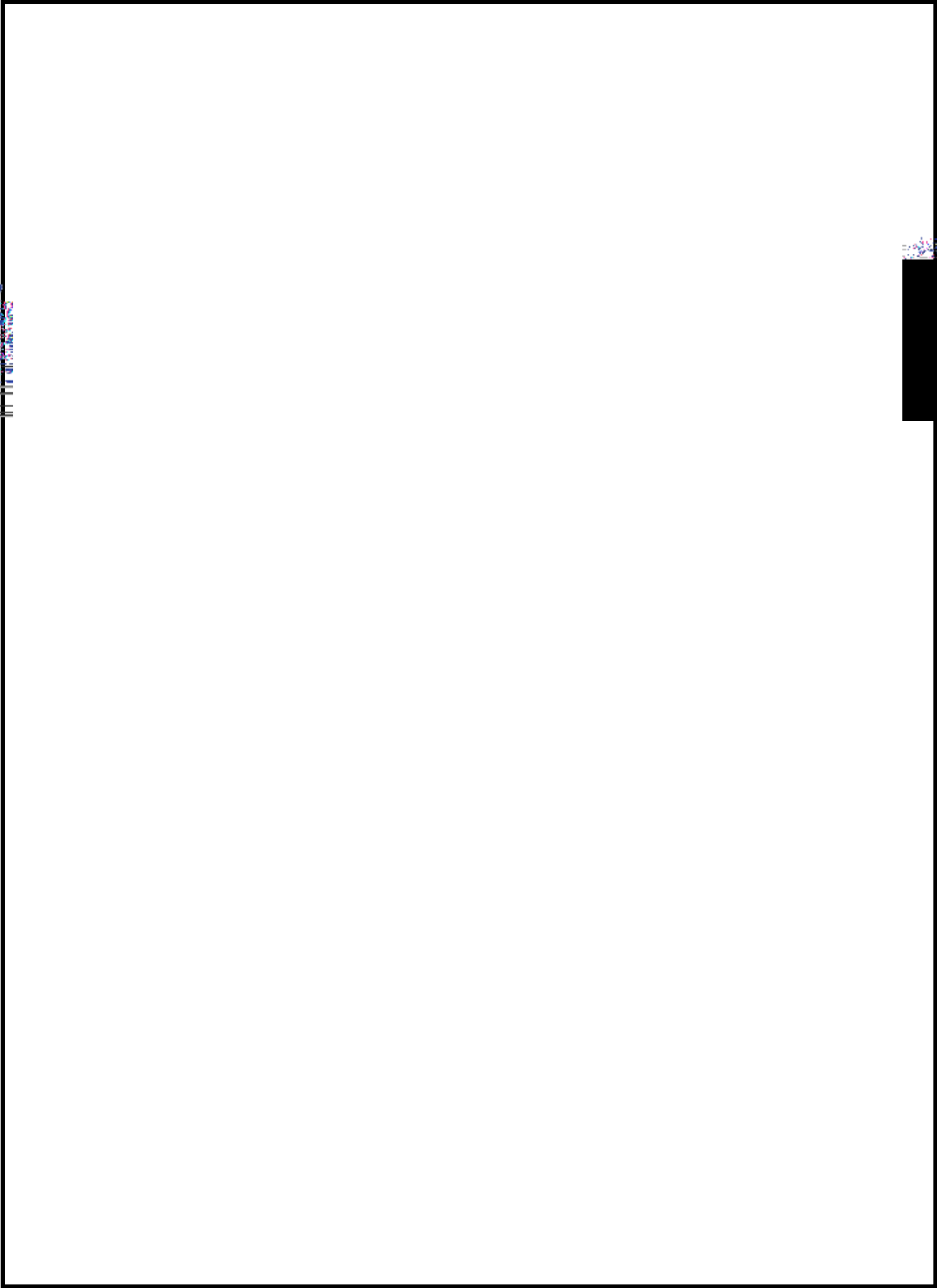
Basic Standard:	IEC 61000-4-8
Frequency Range:	50Hz

Appendix I ÖPhotographs of the EUT

Appendix II Photographs of EMC Test Configuration

1. Radiated Field Strength Measurement

2. Electrostatic Discharge Immunity Test



5. Electrical Fast Transient/Burst Immunity Test

6. Surge Immunity Test

7. Immunity to Conducted Disturbances Induced by RF Fields

STATEMENT

