

EMC TEST REPORT

For

MULTIBRACKETS EUROPE AB

M Motorized Swing Mount Large

Model No.: 7350022734500

Prepared for : MULTIBRACKETS EUROPE AB
Address : Döbelnsgatan 21, 11th floor, 111 40 Stockholm, Sweden

Prepared by : EMTEK (NINGBO) CO., LTD.
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Report Number : EN170411004E
Date of Test : April 11, 2017 to April 16, 2017
Date of Report : April 17, 2017


TABLE OF CONTENT

Test Report Description	Page
1. SUMMARY OF TEST RESULT	6
2. GENERAL INFORMATION	7
2.1. Description of Device (EUT)	7
2.2. Description of Test Facility	7
2.3. Support Device	7
2.4. Measurement Uncertainty	8
3. MEASURING DEVICE AND TEST EQUIPMENT	9
3.1. For Power Line Conducted Emission Measurement	9
3.2. For Disturbance Power Measurement	9
3.3. For Radiated Emission Measurement	9
3.4. For Harmonic Current / Flicker Measurement	10
3.5. For Electrostatic Discharge Immunity Test	10
3.6. For Electrical Fast Transient / Burst Immunity Test	10
3.7. For Surge Immunity Test	10
3.8. For Injected Current Susceptibility Test	10
3.9. For Voltage Dips and Interruptions Test	10
4. POWER LINE CONDUCTED EMISSION MEASUREMENT	11
4.1. Block Diagram of Test Setup	11
4.2. Measurement Standard	11
4.3. Power Line Conducted Emission Limits	11
4.4. EUT Configuration on Measurement	11
4.5. Operating Condition of EUT	11
4.6. Test Procedure	12
4.7. Measuring Results	12
5. DISTURBANCE POWER MEASUREMENT	15
5.1. Block Diagram of Test Setup	15
5.2. Disturbance Power Measurement Standard and Limits	15
5.3. Disturbance Power Limits	15
5.4. EUT Configuration on Measurement	15
5.5. Operating Condition of EUT	15
5.6. Test Procedure	16
5.7. Test Results	16
6. RADIATED EMISSION MEASUREMENT	20
6.1. Block Diagram of Test Setup	20
6.2. Measuring Standard	20
6.3. Radiated Emission Limits	20
6.4. EUT Configuration on Test	21
6.5. Operating Condition of EUT	21
6.6. Test Procedure	21
6.7. Measuring Results	21
7. HARMONIC CURRENT EMISSION MEASUREMENT	22
7.1. Block Diagram of Test Setup	22
7.2. Measuring Standard	22
7.3. Operation Condition of EUT	22
7.4. Measuring Results	22
8. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT	23
8.1. Block Diagram of Test Setup	23
8.2. Measuring Standard	23
8.3. Operation Condition of EUT	23

8.4. Measuring Results	23
9. ELECTROSTATIC DISCHARGE IMMUNITY TEST.....	25
9.1. Block Diagram of Test Setup	25
9.2. Test Standard.....	25
9.3. Severity Levels and Performance Criterion	25
9.4. Operating Condition of EUT	26
9.5. Test Procedure.....	26
9.6. Test Results	26
10. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST	28
10.1. Block Diagram of Test Setup	28
10.2. Test Standard.....	28
10.3. Severity Levels and Performance Criterion	28
10.4. Operating Condition of EUT	29
10.5. Test Procedure.....	29
10.6. Test Result.....	29
11. SURGE IMMUNITY TEST	31
11.1. Block Diagram of Test Setup	31
11.2. Test Standard.....	31
11.3. Severity Levels and Performance Criterion	31
11.4. Operating Condition of EUT	32
11.5. Test Procedure.....	32
11.6. Test Result.....	32
12. INJECTED CURRENTS SUSCEPTIBILITY TEST.....	34
12.1. Block Diagram of Test Setup	34
12.2. Test Standard.....	34
12.3. Severity Levels and Performance Criterion	34
12.4. Operating Condition of EUT	35
12.5. Test Procedure.....	35
12.6. Test Results	35
13. VOLTAGE DIPS AND INTERRUPTIONS TEST	37
13.1. Block Diagram of Test Setup	37
13.2. Test Standard.....	37
13.3. Severity Levels and Performance Criterion	37
13.4. Operating Condition of EUT	38
13.5. Test Procedure.....	38
13.6. Test Result	38
14. PHOTOGRAPH	40
14.1. Photo of Conducted Emission Measurement	40
14.2. Photo of Disturbance Power Measurement.....	40
14.3. Photo of Harmonic / Flicker Measurement	41
14.4. Photo of Electrostatic Discharge Test.....	41
14.5. Photo of Electrical Fast Transient / Burst Test.....	42
14.6. Photo of Surge Test	42

APPENDIX I (Photos of EUT) (8 Pages)

TEST REPORT DESCRIPTION

Applicant : MULTIBRACKETS EUROPE AB
 Manufacturer : MULTIBRACKETS EUROPE AB
 Trade Mark : 
 EUT : M Motorized Swing Mount Large
 Model No. : 7350022734500
 Power Supply : AC 100-240V,50/60Hz

Measurement Procedure Used:

EN 55014-1:2006+A1:2009+A2:2011
 EN 61000-3-2:2014
 EN 61000-3-3:2013
 EN 55014-2:2015
 (IEC 61000-4-2:2008, IEC 61000-4-4:2012, IEC 61000-4-5:2014,
 IEC 61000-4-6:2013, IEC 61000-4-11:2004)

The device described above is tested by EMTEK (NINGBO) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (NINGBO) CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the EN55014-1, EN61000-3-2, EN61000-3-3 and EN55014-2 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (NINGBO) CO., LTD.

Date of Test : April 11, 2017 to April 16, 2017

Prepared by : *Sophia*
(Engineer)

Reviewer : *Kuki*
(Quality Manager)

Approved & Authorized Signer : *Tomy Wei*
(Manager)



Modified History

Version	Report No.	Revision data	Summary
Ver.1.0	EN170411004E	/	Original Report

1. SUMMARY OF TEST RESULT

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted Disturbance at Mains Terminals	EN 55014-1:2006+ A1:2009+A2:2011	Table 1	Pass
Click	EN 55014-1:2006+ A1:2009+A2:2011	Section 4	N/A
Disturbance Power	EN 55014-1:2006+ A1:2009+A2:2011	Table 2a	Pass
Radiated Emission	EN 55014-1:2006+ A1:2009+A2:2011	Table 3	N/A
Harmonic Current Emission	EN 61000-3-2:2014	Class A	N/A
Voltage Fluctuation and Flicker	EN 61000-3-3:2013	Section 5	Pass
IMMUNITY (EN 55014-2:2015)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge	IEC 61000-4-2:2008	B	Pass
Electrical Fast Transient/Burst	IEC 61000-4-4:2012	B	Pass
Surge	IEC 61000-4-5:2014	B	Pass
Injected currents	IEC 61000-4-6:2013	A	Pass
Voltage Dips, 60% Reduction	IEC 61000-4-11:2004	C	Pass
Voltage Dips, 30% Reduction		C	Pass
Voltage Interruptions		C	Pass
Note: N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: M Motorized Swing Mount Large
Model Number	: 7350022734500
AC Adapter	: Model: TDX-1201000 Input: 100-240VAC, 50/60Hz, 0.5A Output: 12V, 1.0A
Highest Frequency	: 11.0592MHz
Applicant	: MULTIBRACKETS EUROPE AB
Address	: Döbelnsgatan 21, 11th floor, 111 40 Stockholm, Sweden
Manufacturer	: MULTIBRACKETS EUROPE AB
Address	: Döbelnsgatan 21, 11th floor, 111 40 Stockholm, Sweden
Date of Received	: April 11, 2017
Date of Test	: April 11, 2017 to April 16, 2017

2.2. Description of Test Facility

Site Description EMC Lab.	: Accredited by CNAS, 2016.12.20 The certificate is valid until 2023.1.20 The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005) The Certificate Registration Number is L6666. Accredited by FCC, valid until 2017.07.12 The Certificate Registration Number is 463622. Accredited by Industry Canada, November 14, 2016 The Certificate Registration Number is 46405-9469.
Name of Firm	: EMTEK (NINGBO) CO., LTD.
Site Location	: 1F Building 4, 1177#, Lingyun Road, National Hi-Tech Zone, Ningbo, Zhejiang, China

2.3. Support Device

N/A

2.4. Measurement Uncertainty

Conducted Emission Uncertainty : 3.06dB (9K-150KHz)
2.44dB (150K-30MHz)

Power Clamp Uncertainty : 3.20dB

Radiated Emission Uncertainty : 3.44 (Polarize: H)
(3m Chamber) 3.78 (Polarize: V)

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For Power Line Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101108	July 17, 2016	1 Year
2.	L.I.S.N	Rohde & Schwarz	ENV216	101193	July 17, 2016	1 Year
3.	L.I.S.N	Schwarzbeck	NSLK 8126	8126-462	July 17, 2016	1 Year
4.	Pulse Limiter	MTS-systemtechnik	IMP-136	2611115-001-0033	July 17, 2016	1 Year
5.	RF Switching unit	CD	RSU-M2	38400	July 17, 2016	1 Year

3.2. For Disturbance Power Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101108	July 17, 2016	1 Year
2.	Absorbing Clamp	Rohde & Schwarz	MDS21	100397	July 22, 2016	1 Year
3.	RF Switching unit	CD	RSU-M2	38400	July 17, 2016	1 Year

3.3. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Rohde & Schwarz	ESCI	101107	July 17, 2016	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	101107	July 17, 2016	1 Year
3.	Pre-Amplifier	CD	PAP-0203	22015	July 17, 2016	1 Year
4.	Bilog Antenna	Schwarzbeck	VULB9163	9163-467	July 16, 2016	1 Year
5.	Cable	HUBER + SUHNER	CBL3-NN-0.5 M	101216-2140500-2	July 17, 2016	1 Year
6.	Cable	HUBER + SUHNER	CBL3-NN-3.0 M	101216-2143000-2	July 17, 2016	1 Year
7.	Cable	HUBER + SUHNER	CBL3-NN-9.0 M	101216-2149000	July 17, 2016	1 Year

3.4. For Harmonic Current / Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	AC Power source	California Instruments	5001iX-CTS-400-413	59739	July 17, 2016	1 Year
2.	Harmonic/ flicker analyzer	California Instruments	PACS-1	72795	July 17, 2016	1 Year

3.5. For Electrostatic Discharge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	EM TEST	ESD 30C	V0526100500	July 07, 2016	1 Year

3.6. For Electrical Fast Transient / Burst Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	HAEFELY	PEFT4010	173964	July 17, 2016	1 Year
2.	Coupling Clamp	HAEFELY	IP-4A	147399	July 17, 2016	1 Year

3.7. For Surge Immunity Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Surge Controller	HAEFELY	Psurge 4.1	080107-04	July 17, 2016	1 Year

3.8. For Injected Current Susceptibility Test

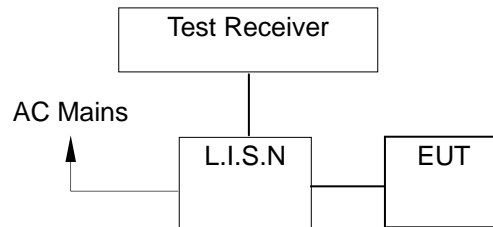
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Simulator	EMTEST	CWS500C	0900-12	May 29, 2016	1Year
2.	CDN	EMTEST	CDN-M2	5100100100	May 29, 2016	1Year
3.	CDN	EMTEST	CDN-M3	0900-11	May 29, 2016	1Year
4.	Injection Clamp	EMTEST	F-2031-23M M	368	May 29, 2016	1Year
5.	Attenuator	EMTEST	ATT6	0010222A	May 29, 2016	1Year

3.9. For Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Dips Tester	HAEFELY	Pline1610	083732-12	May 28, 2016	1 Year

4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



(EUT: M Motorized Swing Mount Large)

4.2. Measurement Standard

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

4.3. Power Line Conducted Emission Limits

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	59.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

Remark: * means decreasing linearly with logarithm of frequency.

4.4. EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet EN 55014-1 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

EUT : M Motorized Swing Mount Large
Model Number : 7350022734500

4.5. Operating Condition of EUT

4.5.1. Turn on the power of all equipments.

4.5.2. Let the EUT work in measuring mode (ON) and measure it.

4.6. Test Procedure

The EUT is placed on the plane 0.8m high above the ground by insulating support and connected to the AC mains through a Line Impedance Stabilization Network (L.I.S.N.). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission according to the EN 55014-1 regulations during conducted emission measurement. And the voltage probe had been used for the load terminals measurement according to the EN 55014-1 standard.

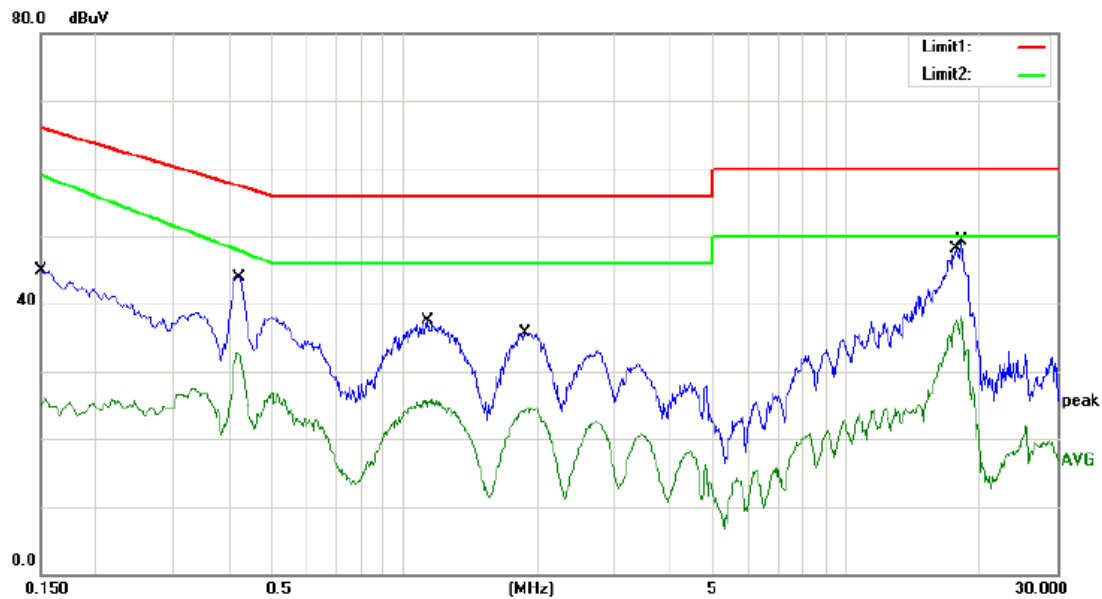
The bandwidth of the test receiver (R&S ESCI) is set at 9KHz. The frequency range from 150kHz to 30MHz is investigated. We take test at about 160kHz on a range of 0.9 to 1.1 times the rated voltage (90V to 264V), and within different supply voltage we use supply frequencies of 50Hz and 60Hz to scan. For these cases when test input voltage is 264V /50Hz, it causes the maximum disturbance.

4.7. Measuring Results

PASS.

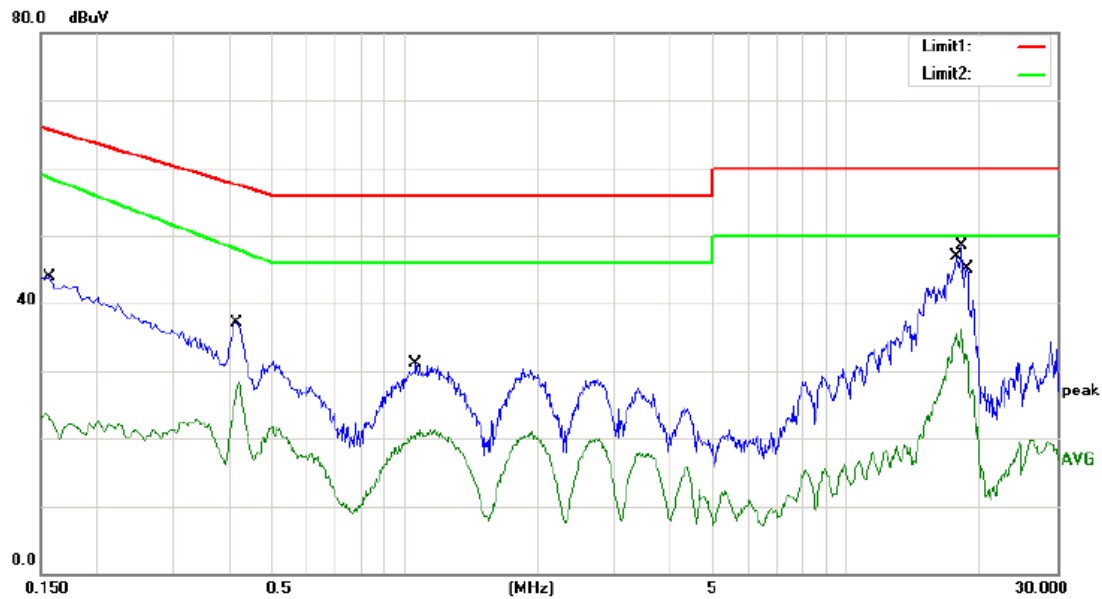
Please see the attached pages.

Test Data:



Site site #1 Phase: **L1** Temperature: 22
Limit: (CE)EN55014_QP Power: AC 264V/60Hz Humidity: 50 %
Mode: ON
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	33.80	11.00	44.80	66.00	-21.20	QP	
2		0.1500	14.10	11.00	25.10	59.00	-33.90	AVG	
3		0.4220	32.90	11.00	43.90	57.41	-13.51	QP	
4		0.4220	21.50	11.00	32.50	47.83	-15.33	AVG	
5		1.1340	26.50	11.00	37.50	56.00	-18.50	QP	
6		1.1340	14.40	11.00	25.40	46.00	-20.60	AVG	
7		1.8860	24.70	11.00	35.70	56.00	-20.30	QP	
8		1.8860	13.10	11.00	24.10	46.00	-21.90	AVG	
9		17.8120	37.00	11.00	48.00	60.00	-12.00	QP	
10		17.8120	26.40	11.00	37.40	50.00	-12.60	AVG	
11	*	18.2400	38.20	11.00	49.20	60.00	-10.80	QP	
12		18.2400	27.20	11.00	38.20	50.00	-11.80	AVG	



Site site #1
Limit: (CE)EN55014_QP
Mode: ON
Note:

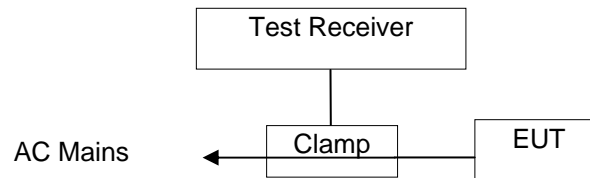
Phase: **N**
Power: AC 264V/60Hz

Temperature: 22
Humidity: 50 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	32.90	11.00	43.90	65.57	-21.67	QP	
2		0.1580	11.90	11.00	22.90	58.44	-35.54	AVG	
3		0.4180	26.00	11.00	37.00	57.49	-20.49	QP	
4		0.4180	16.00	11.00	27.00	47.93	-20.93	AVG	
5		1.0620	20.00	11.00	31.00	56.00	-25.00	QP	
6		1.0620	9.10	11.00	20.10	46.00	-25.90	AVG	
7		17.7560	35.90	11.00	46.90	60.00	-13.10	QP	
8		17.7560	24.20	11.00	35.20	50.00	-14.80	AVG	
9	*	18.2600	37.40	11.00	48.40	60.00	-11.60	QP	
10		18.2600	25.00	11.00	36.00	50.00	-14.00	AVG	
11		18.7360	34.00	11.00	45.00	60.00	-15.00	QP	
12		18.7360	21.30	11.00	32.30	50.00	-17.70	AVG	

5. DISTURBANCE POWER MEASUREMENT

5.1. Block Diagram of Test Setup



(EUT: M Motorized Swing Mount Large)

5.2. Disturbance Power Measurement Standard and Limits

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

5.3. Disturbance Power Limits

All emanations from devices or system shall not exceed the level of field strengths specified below:

5.3.1. Limits (Table 2a of standard EN55014-1:2006+A1:2009+A2:2011.)

Frequency MHz	Limits dB(pW)	
	Quasi-peak Value	Average Value
30 ~ 300	45 Increasing Linearly with Frequency to 55	35 Increasing Linearly with Frequency to 45

5.3.2. Margin when performing disturbance power measurement (Table 2b of standard EN55014-1:2006+A1:2009+A2:2011.)

Frequency MHz	Limits dB(pW)	
	Quasi-peak Value	Average Value
200 ~ 300	0 to 10 dB	-

5.4. EUT Configuration on Measurement

The EN 55014-1 Regulations test method must be used to find the maximum emission during disturbance power measurement. The configuration of the EUT is the same as used in conducted emission measurement.

5.5. Operating Condition of EUT

5.5.1. Turn on the power.

5.5.2. After that, let the EUT work in test mode (ON) and measure it.

5.6. Test Procedure

The EUT are placed on an insulating support 0.8m high above a ground reference plane and away from other metallic surface at least 0.8m. It is connected to the power mains through an extension cord of 6m min. The absorber clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord.

The bandwidth of the test receiver (R&S ESCI) is set at 120kHz. We take test at about 50MHz on a range of 0.9 to 1.1 times the rated voltage (from 90V to 264V), and within different supply voltage we use supply frequencies of 50Hz and 60Hz to scan. For these cases when test input voltage is 264V/50Hz, it causes the maximum disturbance.

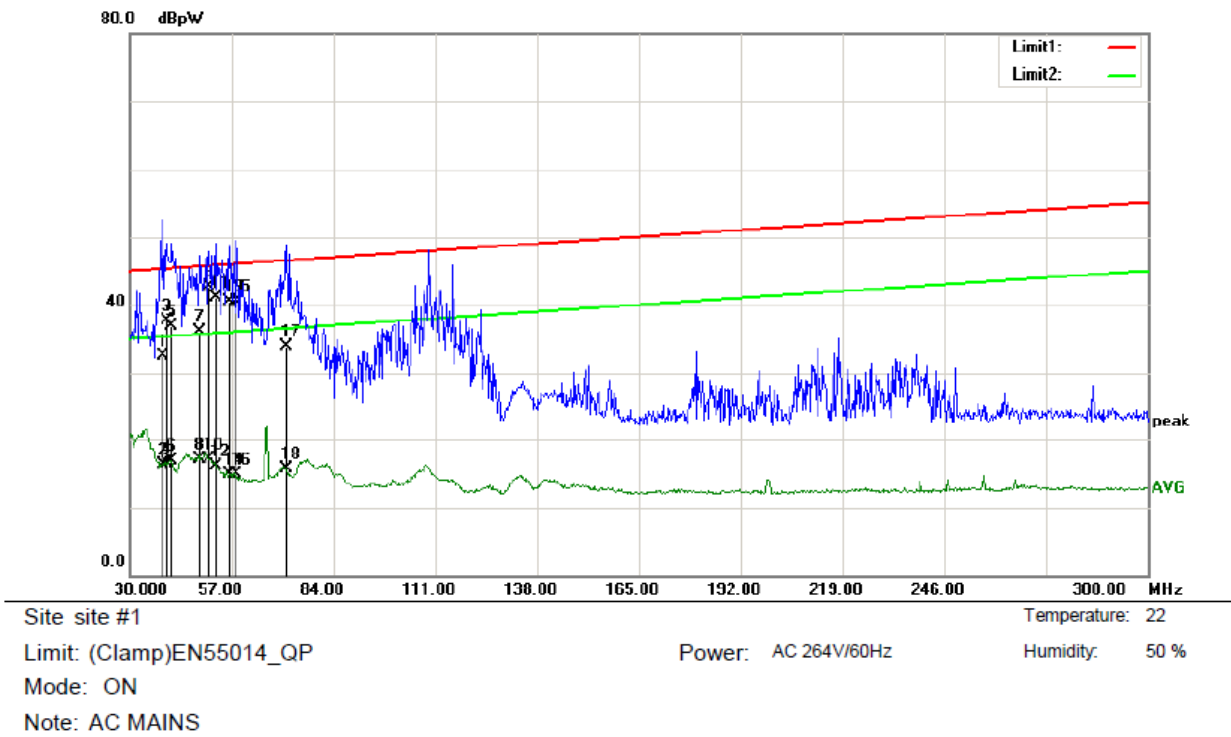
5.7. Test Results

PASS.

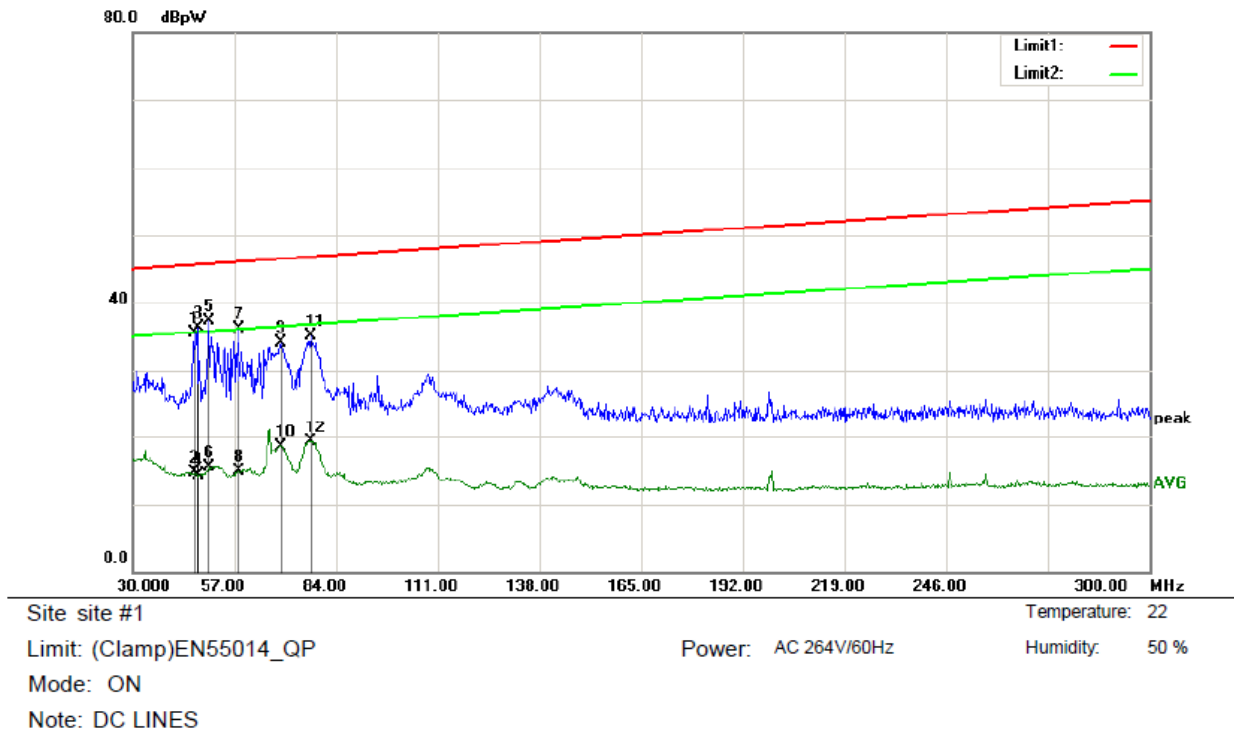
The frequency spectrum from 30 MHz to 300 MHz is investigated.

Please see the attached pages.

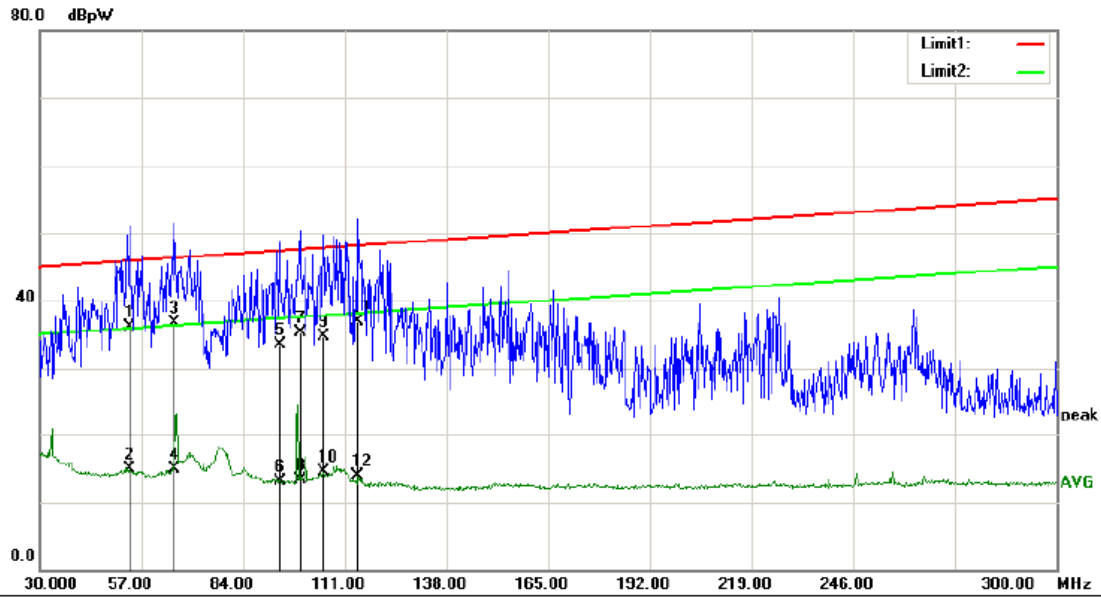
Test Data:



No.	Mk.	Freq. MHz	Reading Level dBpW	Final Correct dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector	Position cm	Comment
1		38.9600	8.20	24.22	32.42	45.33	-12.91	QP	0	
2		38.9600	-8.00	24.22	16.22	35.33	-19.11	AVG	0	
3		39.7600	13.70	23.96	37.66	45.36	-7.70	QP	0	
4		39.7600	-7.50	23.96	16.46	35.36	-18.90	AVG	0	
5		41.3200	13.20	23.77	36.97	45.42	-8.45	QP	0	
6		41.3200	-6.90	23.77	16.87	35.42	-18.55	AVG	0	
7		48.8400	12.90	23.28	36.18	45.70	-9.52	QP	0	
8		48.8400	-6.10	23.28	17.18	35.70	-18.52	AVG	0	
9	*	51.1200	19.40	23.23	42.63	45.78	-3.15	QP	0	
10		51.1200	-6.10	23.23	17.13	35.78	-18.65	AVG	0	
11		52.7600	17.80	23.25	41.05	45.84	-4.79	QP	0	
12		52.7600	-7.20	23.25	16.05	35.84	-19.79	AVG	0	
13		56.6000	17.40	23.13	40.53	45.99	-5.46	QP	0	
14		56.6000	-8.20	23.13	14.93	35.99	-21.06	AVG	0	
15		58.4400	17.50	22.97	40.47	46.05	-5.58	QP	0	
16		58.4400	-8.10	22.97	14.87	36.05	-21.18	AVG	0	
17		71.7600	10.80	23.10	33.90	46.55	-12.65	QP	0	
18		71.7600	-7.30	23.10	15.80	36.55	-20.75	AVG	0	



No.	Mk.	Freq. MHz	Reading Level dBpW	Final Correct dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector	Position cm	Comment
1		46.4400	12.20	23.39	35.59	45.61	-10.02	QP	0	
2		46.4400	-8.71	23.39	14.68	35.61	-20.93	AVG	0	
3		47.3600	12.90	23.35	36.25	45.64	-9.39	QP	0	
4		47.3600	-9.12	23.35	14.23	35.64	-21.41	AVG	0	
5	*	50.5200	14.10	23.23	37.33	45.76	-8.43	QP	0	
6		50.5200	-7.80	23.23	15.43	35.76	-20.33	AVG	0	
7		58.1600	13.20	22.99	36.19	46.04	-9.85	QP	0	
8		58.1600	-8.14	22.99	14.85	36.04	-21.19	AVG	0	
9		69.5600	10.90	23.19	34.09	46.47	-12.38	QP	0	
10		69.5600	-4.60	23.19	18.59	36.47	-17.88	AVG	0	
11		77.3600	12.30	22.80	35.10	46.75	-11.65	QP	0	
12		77.3600	-3.40	22.80	19.40	36.75	-17.35	AVG	0	



Site site #1
Limit: (Clamp)EN55014_QP
Mode: ON
Note: CONTROL LINES

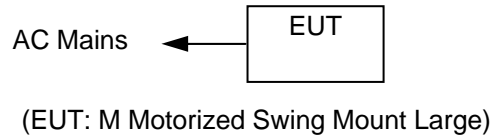
Temperature: 22
Power: AC 264V/60Hz
Humidity: 50 %

No.	Mk.	Freq. MHz	Reading Level dBpW	Final Correct dB	Measure- ment dBpW	Limit dBpW	Over dB	Detector	Position cm	Comment
1		54.0000	12.80	23.26	36.06	45.89	-9.83	QP	0	
2		54.0000	-8.40	23.26	14.86	35.89	-21.03	AVG	0	
3	*	66.0400	13.70	23.09	36.79	46.33	-9.54	QP	0	
4		66.0400	-8.10	23.09	14.99	36.33	-21.34	AVG	0	
5		93.8000	11.20	22.38	33.58	47.36	-13.78	QP	0	
6		93.8000	-9.30	22.38	13.08	37.36	-24.28	AVG	0	
7		99.1600	12.70	22.58	35.28	47.56	-12.28	QP	0	
8		99.1600	-9.20	22.58	13.38	37.56	-24.18	AVG	0	
9		105.5200	11.70	22.93	34.63	47.80	-13.17	QP	0	
10		105.5200	-8.40	22.93	14.53	37.80	-23.27	AVG	0	
11		114.7200	14.40	22.55	36.95	48.14	-11.19	QP	0	
12		114.7200	-8.70	22.55	13.85	38.14	-24.29	AVG	0	
15		70.6400	7.30	23.17	30.47	46.51	-16.04	QP	0	
16		70.6400	-7.30	23.17	15.87	36.51	-20.64	AVG	0	

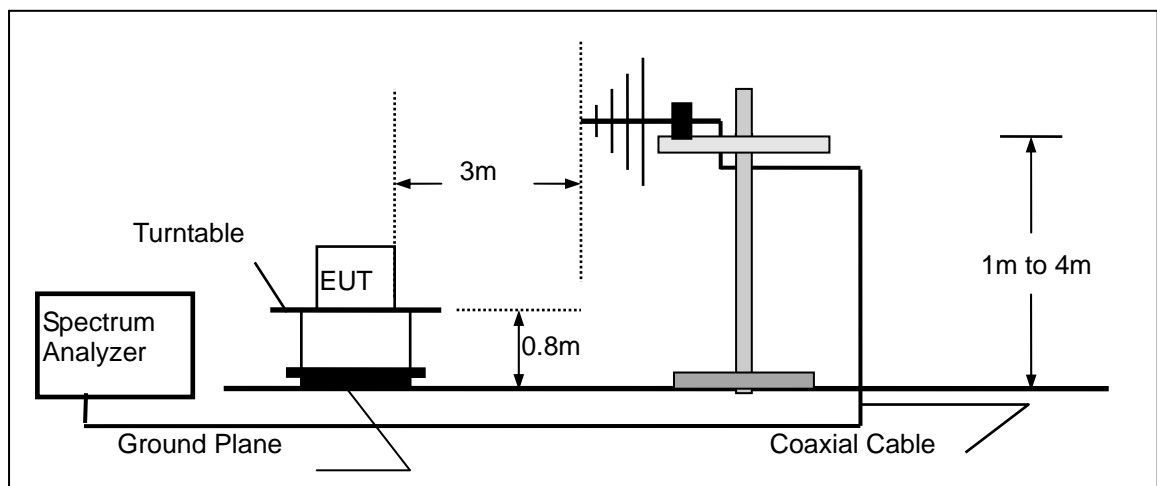
6. RADIATED EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup

6.1.1. Block diagram of connection between the EUT and simulators



6.1.2. Block diagram of test setup (In chamber)



6.2. Measuring Standard

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

6.3. Radiated Emission Limits

All emanations from a device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

6.4. EUT Configuration on Test

The EN 55014-1 regulations test method must be used to find the maximum emission during radiated emission measurement.

6.5. Operating Condition of EUT

6.5.1. Turn on the power of all equipments.

6.5.2. Let the EUT work in measuring mode (ON) and measure it.

6.6. Test Procedure

The EUT is placed on a turntable which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna that is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the Receiver is set at 120kHz.

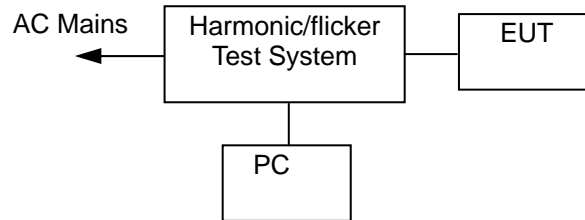
6.7. Measuring Results

N/A

According to EN 55014-1: 2006+A1: 2009+A2:2011 4.1.2, test data of disturbance power is lower than the applicable limits (Table 2a) reduced by the margin (Table 2b), and the maximum clock frequency is less than 30 MHz, so the radiated measurements in the frequency range from 300 MHz to 1 000 MHz is unnecessary to test.

7. HARMONIC CURRENT EMISSION MEASUREMENT

7.1. Block Diagram of Test Setup



(EUT: M Motorized Swing Mount Large)

7.2. Measuring Standard

EN 61000-3-2:2014, CLASS A

7.3. Operation Condition of EUT

7.3.1. Turn on the power.

7.3.2. After that, let the EUT work in test mode (ON) and measure it.

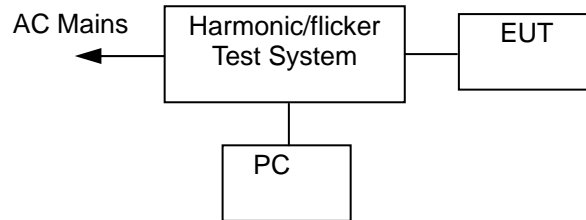
7.4. Measuring Results

N/A

Because power of EUT is less than 75W, according to standard EN 61000-3-2, Harmonic current is unnecessary to test.

8. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

8.1. Block Diagram of Test Setup



(EUT: M Motorized Swing Mount Large)

8.2. Measuring Standard

EN 61000-3-3:2013

8.3. Operation Condition of EUT

8.3.1. Turn on the power.

8.3.2. After that, let the EUT work in test mode (ON) and measure it.

8.4. Measuring Results

PASS.

Please see the attached page.

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

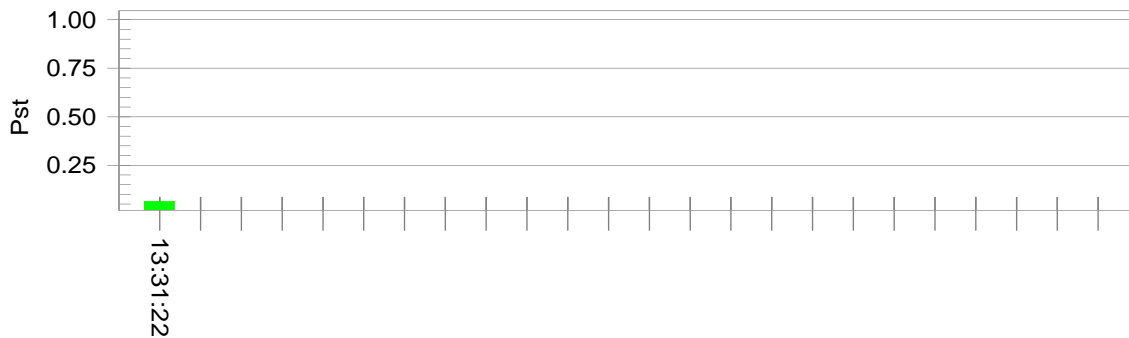
EUT: M Motorized Swing Mount Large (7350022734500) Tested by: CX
 Test category: dt,dmax,dc and Pst (European limits) Test Margin: 100
 Test date: 2017-04-12 Start time: 13:21:02 End time: 13:31:23
 Test duration (min): 10 Data file name: F-000071.cts_data
 Comment: ON
 Customer: LUMI

Test Result: Pass

Status: Test Completed

Pst_t and limit line

European Limits



Plt and limit line



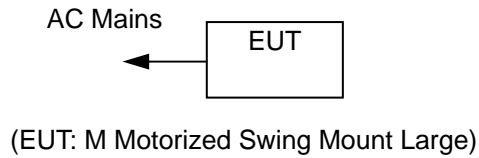
Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.79		
Highest dt (%):	0.00	Test limit (%):	3.30 Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000 Pass

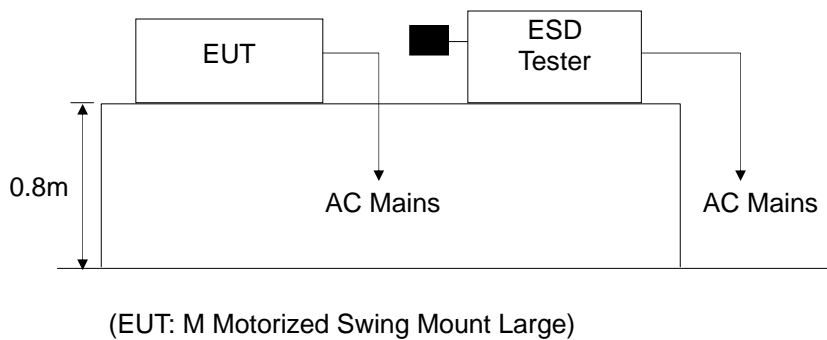
9. ELECTROSTATIC DISCHARGE IMMUNITY TEST

9.1. Block Diagram of Test Setup

9.1.1. Block diagram of connection between the EUT and simulators



9.1.2. Block diagram of ESD test setup



9.2. Test Standard

EN 55014-2:2015

(IEC 61000-4-2:2008 Severity Level: 3 / Air Discharge: $\pm 8\text{kV}$
Level: 2 / Contact Discharge: $\pm 4\text{kV}$)

9.3. Severity Levels and Performance Criterion

9.3.1. Severity level

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

9.3.2. Performance criterion: B

9.4. Operating Condition of EUT

9.4.1. Turn on the power.

9.4.2. After that, let the EUT work in test mode (ON) and measure it.

9.5. Test Procedure

9.5.1. 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 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 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

9.5.2. Contact Discharge:

All the procedure shall be same as Section 9.5.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

9.5.3. 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 EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

9.5.4. Indirect discharge for vertical coupling plane

At least 10 singles 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 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.

9.6. Test Results

PASS.

Please refer to the following pages.

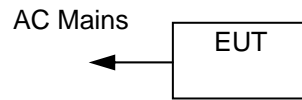
Electrostatic Discharge Test Result

Standard: <input checked="" type="checkbox"/> IEC 61000-4-2		Result: <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL																													
<table style="width: 100%; border: none;"> <tr> <td style="width: 20%;">Applicant</td> <td style="width: 40%;">: <u>MULTIBRACKETS EUROPE AB</u></td> <td style="width: 20%;">Test Date</td> <td style="width: 20%;">: <u>April 13, 2017</u></td> </tr> <tr> <td>EUT</td> <td>: <u>M Motorized Swing Mount Large</u></td> <td>Temperature</td> <td>: <u>23°C</u></td> </tr> <tr> <td>M/N</td> <td>: <u>7350022734500</u></td> <td>Humidity</td> <td>: <u>52%</u></td> </tr> <tr> <td>Input Voltage</td> <td>: <u>AC 230V/50Hz</u></td> <td>Criterion</td> <td>: <u>B</u></td> </tr> <tr> <td>Air discharge</td> <td>: <u>± 8.0KV</u></td> <td>Test Engineer</td> <td>: <u>LH</u></td> </tr> <tr> <td>Contact discharge</td> <td>: <u>± 4.0KV</u></td> <td></td> <td></td> </tr> <tr> <td>Test Mode</td> <td>: <u>ON</u></td> <td></td> <td></td> </tr> </table>				Applicant	: <u>MULTIBRACKETS EUROPE AB</u>	Test Date	: <u>April 13, 2017</u>	EUT	: <u>M Motorized Swing Mount Large</u>	Temperature	: <u>23°C</u>	M/N	: <u>7350022734500</u>	Humidity	: <u>52%</u>	Input Voltage	: <u>AC 230V/50Hz</u>	Criterion	: <u>B</u>	Air discharge	: <u>± 8.0KV</u>	Test Engineer	: <u>LH</u>	Contact discharge	: <u>± 4.0KV</u>			Test Mode	: <u>ON</u>		
Applicant	: <u>MULTIBRACKETS EUROPE AB</u>	Test Date	: <u>April 13, 2017</u>																												
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M/N	: <u>7350022734500</u>	Humidity	: <u>52%</u>																												
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Contact discharge	: <u>± 4.0KV</u>																														
Test Mode	: <u>ON</u>																														
Location	Kind A-Air Discharge C-Contact Discharge	Result																													
HCP/VCP	C	A																													
Non-Conducted Enclosure	A	A																													
Conducted Enclosure	C	A																													
Button	A	A																													
Screw	C	A																													
LED	A	A																													
All slots of the EUT	A	A																													
/	/	/																													
Note:																															

10. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

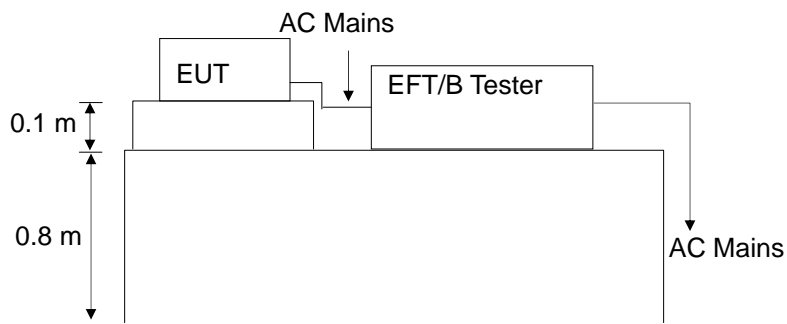
10.1. Block Diagram of Test Setup

10.1.1. Block Diagram of the EUT



(EUT: M Motorized Swing Mount Large)

10.1.2. EFT Test Setup



(EUT: M Motorized Swing Mount Large)

10.2. Test Standard

EN 55014-2:2015
(IEC 61000-4-4:2012, Severity Level: 2, 1kV)

10.3. Severity Levels and Performance Criterion

10.3.1. Severity level

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

10.3.2. Performance criterion: B

10.4.Operating Condition of EUT

10.4.1.Turn on the power.

10.4.2.After that, let the EUT work in test mode (ON) and measure it.

10.5.Test Procedure

The EUT is put on the table that is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.5.1.For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device that couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

10.5.2.For signal lines and control lines ports:

It's unnecessary to test.

10.5.3.For DC output line ports:

It's unnecessary to test.

10.6.Test Result

PASS.

Please refer to the following page.

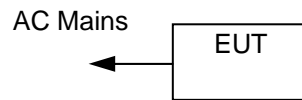
Electrical Fast Transient/Burst Test Results

Standard: <input checked="" type="checkbox"/> IEC 61000-4-4		Result: <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL			
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> Applicant : <u>MULTIBRACKETS EUROPE AB</u> EUT : <u>M Motorized Swing Mount Large</u> M/N: : <u>7350022734500</u> Input Voltage : <u>AC 230V/50Hz</u> Test Mode : <u>ON</u> Test Engineer : <u>LH</u> </td> <td style="width: 50%; vertical-align: top;"> Test Date : <u>April 13, 2017</u> Temperature : <u>23°C</u> Humidity : <u>51%</u> Criterion : <u>B</u> </td> </tr> </table>				Applicant : <u>MULTIBRACKETS EUROPE AB</u> EUT : <u>M Motorized Swing Mount Large</u> M/N: : <u>7350022734500</u> Input Voltage : <u>AC 230V/50Hz</u> Test Mode : <u>ON</u> Test Engineer : <u>LH</u>	Test Date : <u>April 13, 2017</u> Temperature : <u>23°C</u> Humidity : <u>51%</u> Criterion : <u>B</u>
Applicant : <u>MULTIBRACKETS EUROPE AB</u> EUT : <u>M Motorized Swing Mount Large</u> M/N: : <u>7350022734500</u> Input Voltage : <u>AC 230V/50Hz</u> Test Mode : <u>ON</u> Test Engineer : <u>LH</u>	Test Date : <u>April 13, 2017</u> Temperature : <u>23°C</u> Humidity : <u>51%</u> Criterion : <u>B</u>				
Line : <input checked="" type="checkbox"/> AC Mains		Line : <input type="checkbox"/> Signal <input type="checkbox"/> I/O Cable			
Coupling : <input checked="" type="checkbox"/> Direct		Coupling : <input type="checkbox"/> Capacitive			
Test Time : 120s					
Line	Test Voltage	Result(+)	Result(-)		
L	1KV	A	A		
N	1KV	A	A		
PE	/	/	/		
L、N	1KV	A	A		
L、PE	/	/	/		
N、PE	/	/	/		
L、N、PE	/	/	/		
Signal Line	/	/	/		
DC Line	/	/	/		
Note:					
Test Equipment					

11. SURGE IMMUNITY TEST

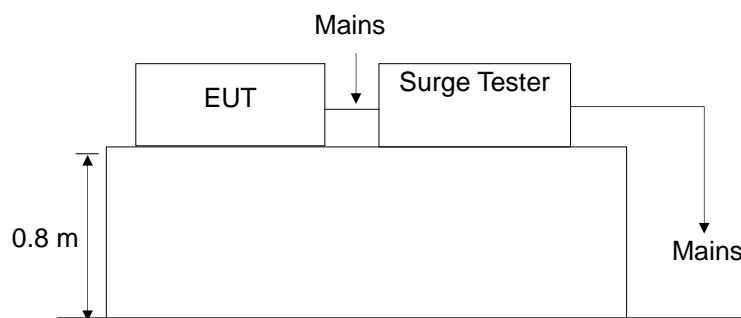
11.1. Block Diagram of Test Setup

11.1.1. Block Diagram of the EUT



(EUT: M Motorized Swing Mount Large)

11.1.2. Surge Test Setup



(EUT: M Motorized Swing Mount Large)

11.2. Test Standard

EN 55014-2:2015

(IEC 61000-4-5:2014, Severity Level: Line to Line: Level 2, 1.0kV)

11.3. Severity Levels and Performance Criterion

11.3.1. Severity level

Severity Level	Open-Circuit Test Voltage kV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

11.3.2. Performance criterion: B

11.4. Operating Condition of EUT

11.4.1. Turn on the power.

11.4.2. After that, let the EUT work in test mode (ON) and measure it.

11.5. Test Procedure

- 1) Set up the EUT and test generator as shown on Section 11.1.2.
- 2) For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (At open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.6. Test Result

PASS.

Please refer to the following page.

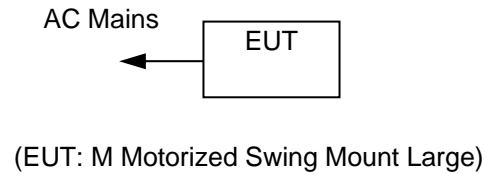
Surge Immunity Test Result

[illegible]

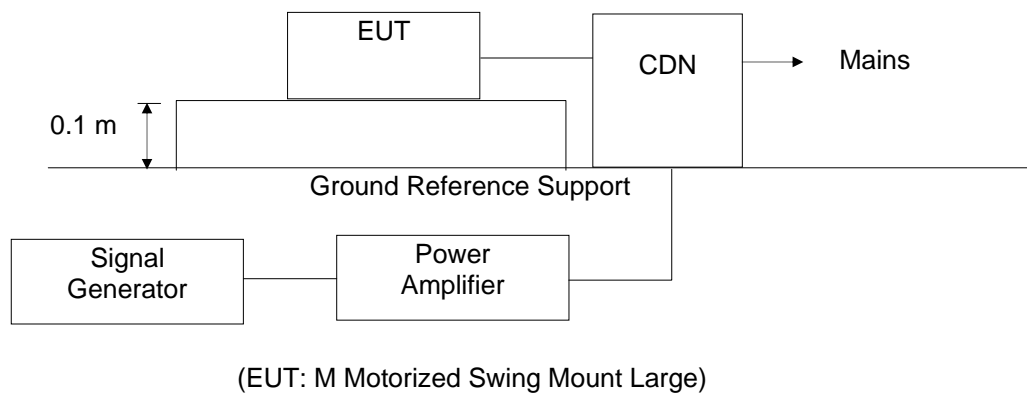
12. INJECTED CURRENTS SUSCEPTIBILITY TEST

12.1. Block Diagram of Test Setup

12.1.1. Block Diagram of the EUT



12.1.2. Block Diagram of Test Setup



12.2. Test Standard

EN 55014-2:2015
(IEC 61000-4-6:2013, Severity Level: Level 2, 3V (r.m.s.), 0.15MHz ~ 230MHz)

12.3. Severity Levels and Performance Criterion

12.3.1. Severity level

Level	Field Strength V
1	1
2	3
3	10
X	Special

12.3.2. Performance criterion: A

12.4. Operating Condition of EUT

12.4.1. Turn on the power.

12.4.2. After that, let the EUT work in test mode (ON) and measure it.

12.5. Test Procedure

- 1) Set up the EUT, CDN and test generators as shown on Section 12.1.2.
- 2) Let the EUT work in test mode and measure it.
- 3) The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
- 7) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.6. Test Results

PASS.

Please refer to the following page.

(The tests were carried out at: EMTEK (SHENZHEN) CO., LTD.)

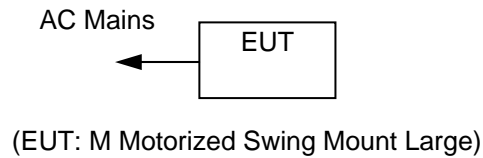
Injected Currents Susceptibility Test Results

Standard: <input checked="" type="checkbox"/> IEC 61000-4-6			Result: <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL	
<p>Applicant : : <u>MULTIBRACKETS EUROPE AB</u></p> <p>EUT : : <u>M Motorized Swing Mount Large</u> Test Date: : <u>April 14, 2017</u></p> <p>M/N : : <u>7350022734500</u> Temperature : <u>22°C</u></p> <p>Input Voltage : <u>AC 230V/50Hz</u> Humidity : <u>52%</u></p> <p>Test Engineer : <u>KY</u></p>				
Test Mode: <u>ON</u>				
Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
0.15 ~ 230	AC Mains	3V	A	A
Test Mode :				
Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Criterion	Result
Remark : 1. Modulation Signal:1KHz 80% AM Measurement Equipment : Simulator: CWS 500 (SWITZERLAND EMTEST) CDN : <input checked="" type="checkbox"/> CDN-M2 (SWITZERLAND EMTEST) <input type="checkbox"/> CDN-M3 (SWITZERLAND EMTEST)			Note:	

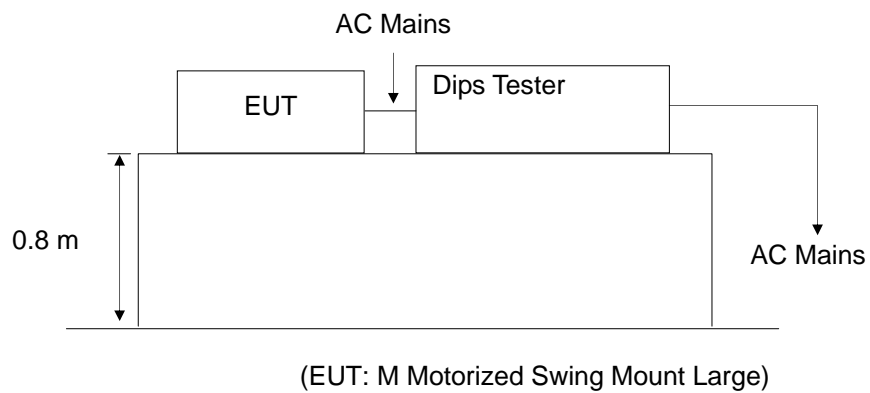
13. VOLTAGE DIPS AND INTERRUPTIONS TEST

13.1. Block Diagram of Test Setup

13.1.1. Block Diagram of the EUT



13.1.2. Dips Test Setup



13.2. Test Standard

EN 55014-2:2015 (IEC 61000-4-11:2004)

13.3. Severity Levels and Performance Criterion

13.3.1. Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5
40	60	10
70	30	25

13.3.2. Performance criterion: C

13.4.Operating Condition of EUT

13.4.1.Turn on the power.

13.4.2.After that, let the EUT work in test mode (ON) and measure it.

13.5.Test Procedure

- 1) Set up the EUT and test generator as shown on Section 13.1.2.
- 2) The interruption is introduced at selected phase angles with specified duration.
- 3) Record any degradation of performance.

13.6.Test Result

PASS.

Please refer to the following page.

(The tests were carried out at: EMTEK (SHENZHEN) CO., LTD.)

Voltage Dips and Interruptions Test Results

Standard : <input checked="" type="checkbox"/> IEC 61000-4-11			Result : <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL	
<p>Applicant : <u>MULTIBRACKETS EUROPE AB</u></p> <p>EUT : <u>M Motorized Swing Mount Large</u> Test Date : <u>April 14, 2017</u></p> <p>M/N : <u>7350022734500</u> Temperature : <u>23°C</u></p> <p>Input Voltage : <u>AC 230V/50Hz</u> Humidity : <u>52%</u></p> <p>Test Engineer : <u>KY</u></p>				
Test Mode: <u>ON</u>				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Criterion <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	Result
0	100	0.5P	C	A
40	60	10P	C	C
70	30	25P	C	C
Test Mode : <u>N/A</u>				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Criterion <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	Result
Note:				

14. PHOTOGRAPH

14.1.Photo of Conducted Emission Measurement



14.2.Photo of Disturbance Power Measurement



14.3. Photo of Harmonic / Flicker Measurement



14.4. Photo of Electrostatic Discharge Test



14.5.Photo of Electrical Fast Transient / Burst Test

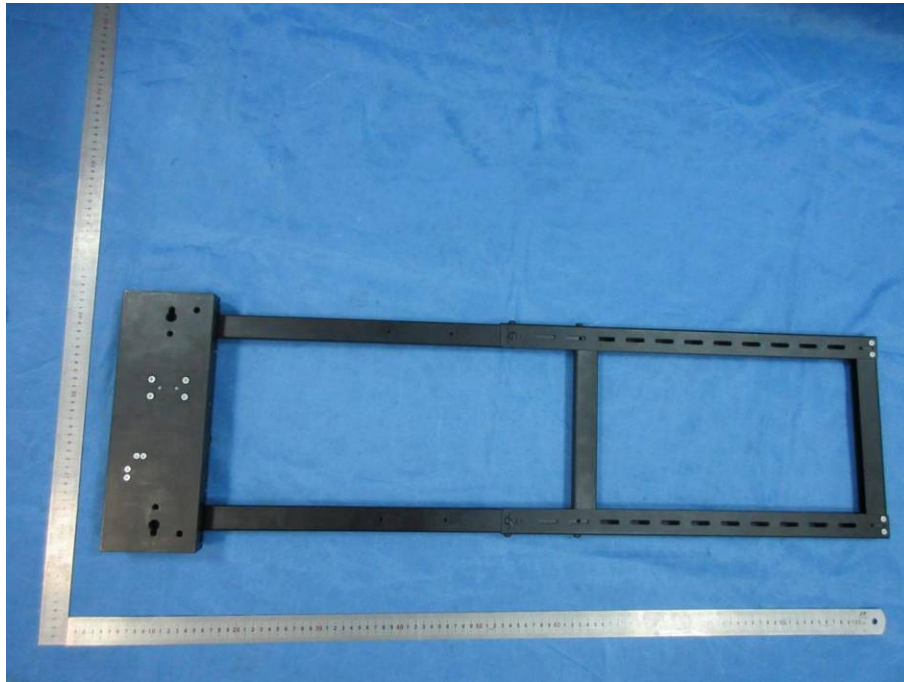


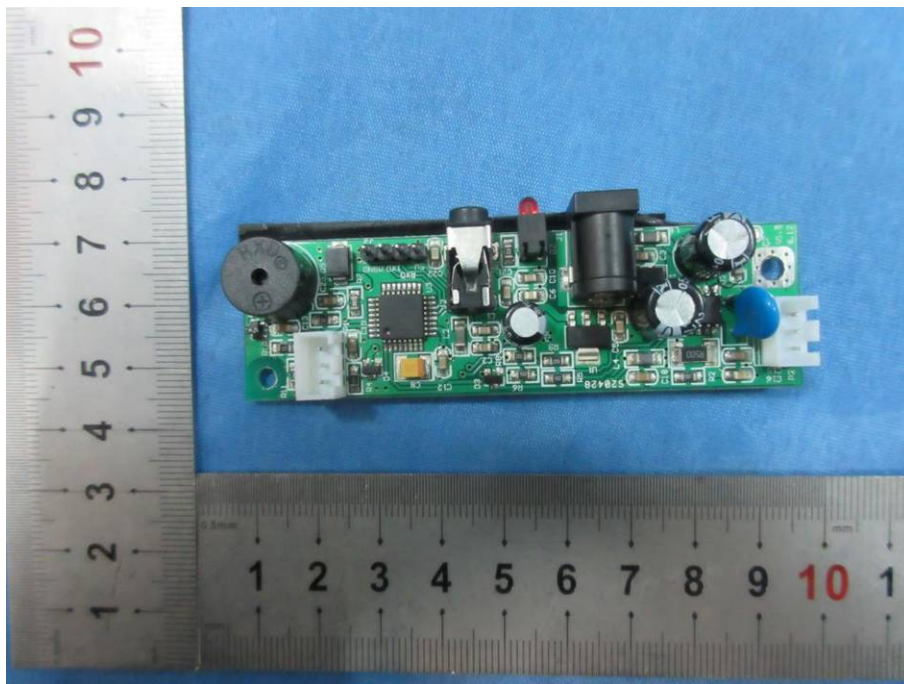
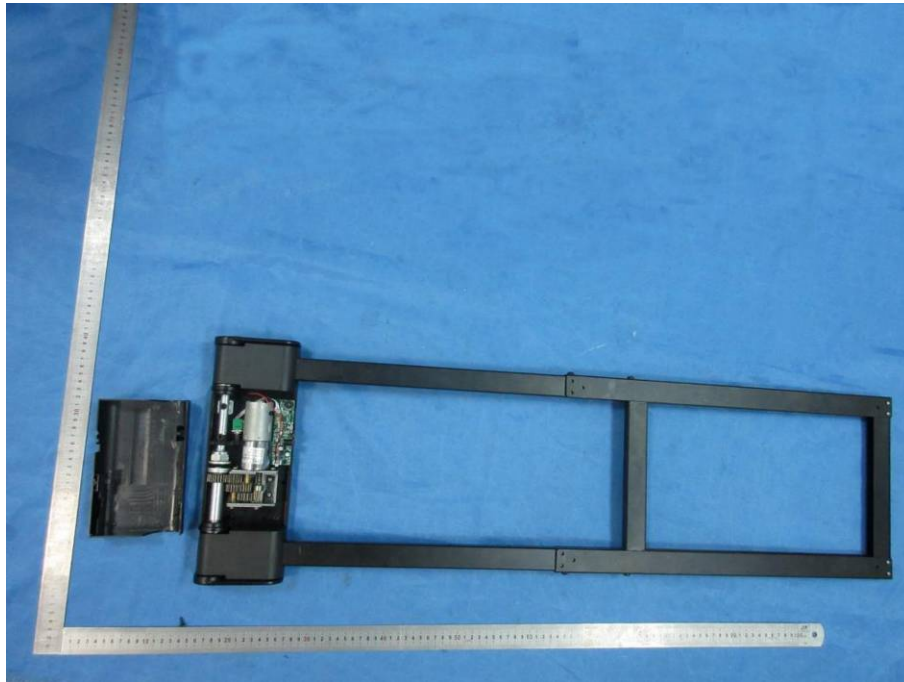
14.6.Photo of Surge Test

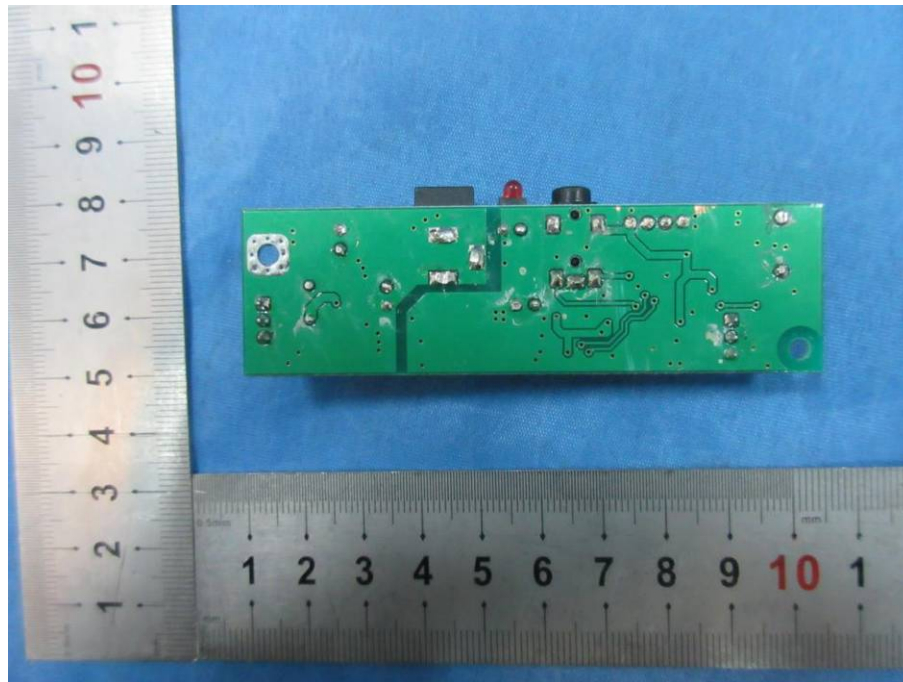


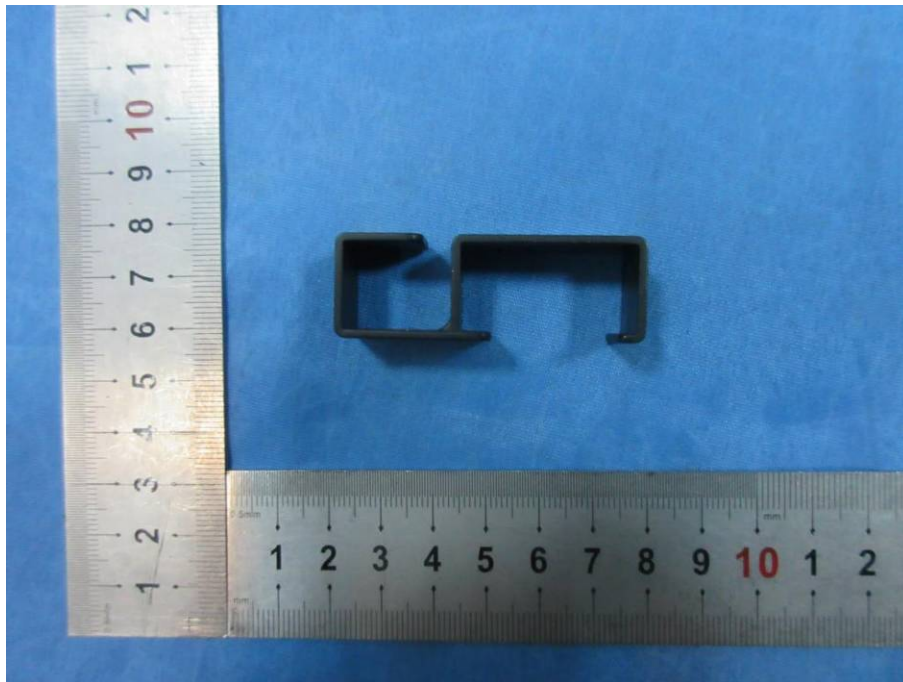
APPENDIX I (Photos of EUT)



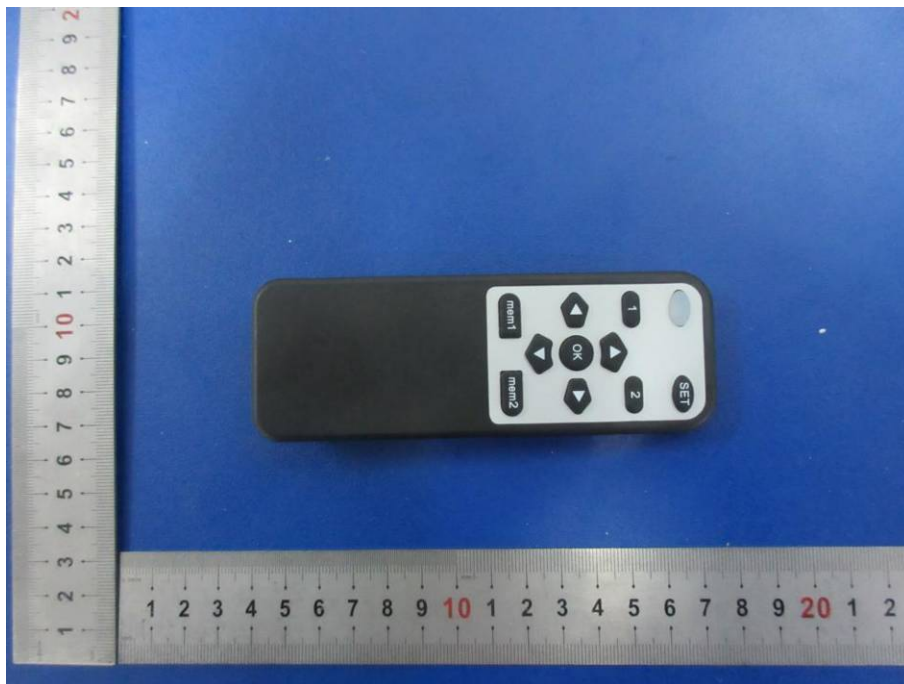














---The End---