CONFORMANCE TEST REPORT
FOR
EN 61326-1 / EN 61326-2-2

Report No.: 18-01-MAS-058

According to:

■ **Electromagnetic Compatibility Directive: 2014/30/EU**

Client:	**Clover**
Product:	**Micro Centrifuge**
Model:	**SD-220**
Comment Issues:	**AL-220; IR-220**
Manufacturer/supplier:	**Beto Engineering and Marketing Co., Ltd**
Date test item received	2018/01/03
Date test campaign completed	2018/01/25
Date of issue	2018/02/06

The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.
Total number of pages of this test report: 26 pages
Total number of pages of this test photos: 12 pages

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❺ FCC Registration Number: 90588, 91094, 91095

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1 TEST REPORT CERTIFICATION

Client	:	Clover
Address	:	325 Main Street Delta, Ohio 43515 USA
Manufacturer	:	Beto Engineering and Marketing Co., Ltd
Address	:	18F, 696, Sec,4, Wen Xin Rd., Taichung city, Taiwan, R.O.C
EUT	:	Micro Centrifuge
Trade Name	:	Clover
Model No.	:	SD-220
Comment Issues	:	AL-220; IR-220
Test Standard	:	EN 61326-1:2013 EN 61326-2-2:2013 Emissions CISPR 11:2009 (Class A) EN 61000-3-2:2014 EN 61000-3-3:2014

Immunity
EN 61000-6-2:2005
IEC 61000-4-2:2008
IEC 61000-4-3:2006/A1:2007/A2:2010
IEC 61000-4-4:2012
IEC 61000-4-5:2014
IEC 61000-4-6: 2013
IEC 61000-4-8:2009
IEC 61000-4-11:2004

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to believe the sellers from their legal and/or contractual obligations.

2 GENERAL INFORMATIONS

2.1 Description of EUT:

Centrifuge is a piece of equipment that puts an object in rotation around a fixed axis (spins it in a circle), applying a potentially strong force perpendicular to the axis of spin (outward).

2.2 Related Information of EUT:

Power Supply : AC 230V, 50Hz

Power Line : ☐ Nonshielded ☐ Shielded ■ None, Length: 1.5 m
Data Line : ☐ Nonshielded ☐ Shielded ■ None, Length: m

***** For more detailed features, please refer to *User's Manual*.

2.3 Tested Configuration:

The EUT connected with the following peripheral devices.

Following peripheral devices and interface cables were connected during the measurement:

Product	Manufacturer	Model No.	Power/Line
N/A	N/A	N/A	N/A

2.4 Deviation Record:

(If any deviation from additions to or exclusions from test method must be stated)
N/A

2.5 Modification Record:

No modifications were required. (That is the EUT complied with the requirement as tested.)

3 SUMMARY OF TEST RESULTS

3.1 Emissions:

3.1.1 Conducted Emissions

■ **–PASS(Line)**

EMI value to the limit: -13.53 dB at 0.1734 MHz

■ **–PASS(Neutral)**

EMI value to the limit: -13.31 dB at 0.1617 MHz

3.1.2 Radiated Emissions

Limit Below 1GHz

■ **–PASS(Horizontal)**

EMI value to the limit: -6.02 dB at 171.4583 MHz

■ **–PASS(Vertical)**

EMI value to the limit: -7.84 dB at 533.6538 MHz

3.1.3 Harmonics Current Emissions

■ **-PASS**

The harmonics current values were under the limits of the non-balance equipment of the EN 61000-3-2

3.1.4 Voltage Fluctuations and Flicker

■ **-PASS**

The voltage fluctuations and flicker values were under the limits of the EN 61000-3-3 requirements.

Notes: The measured value lies in the limited range that is the limit plus or minus estimated measurement uncertainty. The judgment between pass or fail is decided by buyers.

3.2 Immunity:

3.2.1 Immunity Criteria:

The results of all of the immunity tests performed on the EUT were evaluated according to the following criteria, and according to the manufacturer's specifications for the EUT:

Performance criterion A: The EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

Performance criterion B: The EUT continued to operate as intended after the test. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended. During the test, degradation of performance was however allowed. No change of actual operating state or stored data was allowed.

Performance criterion C: Temporary loss of function was allowed, provided the function was self recoverable or could be restored by the operation of the controls.

3.2.2 Electrostatic Discharge Immunity:

Requirement: Criterion B (or better)

■ - No Degradation of Function	- Satisfies Criterion A
□ - Distortion of Function	- Satisfies Criterion B
□ - Error of Function	- Satisfies Criterion C

3.2.3 RF Radiated Fields Immunity:

Requirement: Criterion A

■ - No Degradation of Function	- Satisfies Criterion A
□ - Distortion of Function	- Satisfies Criterion B
□ - Error of Function	- Satisfies Criterion C

3.2.4 EFT/Burst Immunity:

Requirement: Criterion B (or better)

■ - No Degradation of Function	- Satisfies Criterion A
□ - Distortion of Function	- Satisfies Criterion B
□ - Error of Function	- Satisfies Criterion C

3.2.5 Surge Immunity:

Requirement: Criterion B (or better)

■ - No Degradation of Function	- Satisfies Criterion A
□ - Distortion of Function	- Satisfies Criterion B
□ - Error of Function	- Satisfies Criterion C

3.2.6 RF Common Mode Immunity:

Requirement: Criterion A

■ - No Degradation of Function	- Satisfies Criterion A
□ - Distortion of Function	- Satisfies Criterion B
□ - Error of Function	- Satisfies Criterion C

3.2.7 Power Frequency Magnetic Field Immunity:

Requirement: Criterion A

■ - No Degradation of Function	- Satisfies Criterion A
□ - Distortion of Function	- Satisfies Criterion B
□ - Error of Function	- Satisfies Criterion C

3.2.8 Voltage Interruptions and Voltage Dips Immunity:

Requirement: Criterion C (or better)

■ - No Degradation of Function	- Satisfies Criterion A
■ - Distortion of Function	- Satisfies Criterion B
□ - Error of Function	- Satisfies Criterion C

4 TEST DATA & RELATED INFORMATIONS

4.1 Emissions:

4.1.1 Conducted Emissions Test:

4.1.1.1 Conducted Emissions Test Data:

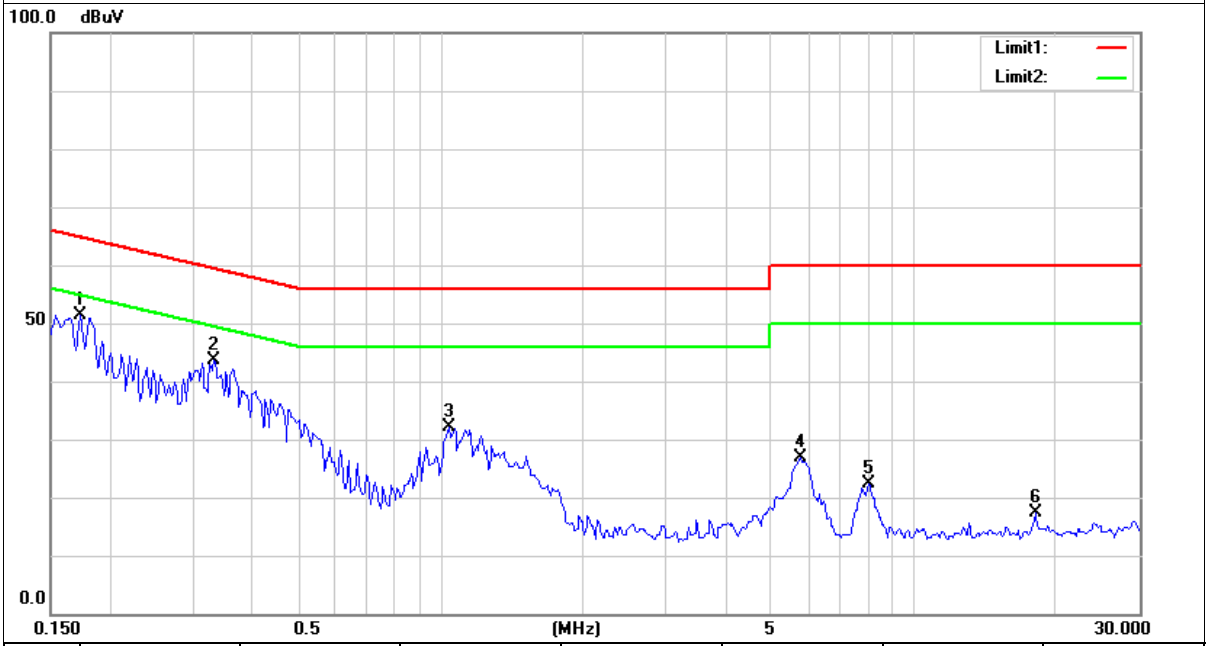
A. Operating Conditions of The EUT: Operation Mode

Test Date: Jan. 12, 2018

Test Specification	EN 55011
Climatic Condition	Ambient Temperature: 20°C Relative Humidity: 58 % RH
Power Supply System	AC Power: 230 Vac 50 Hz

Test data see the next pages.

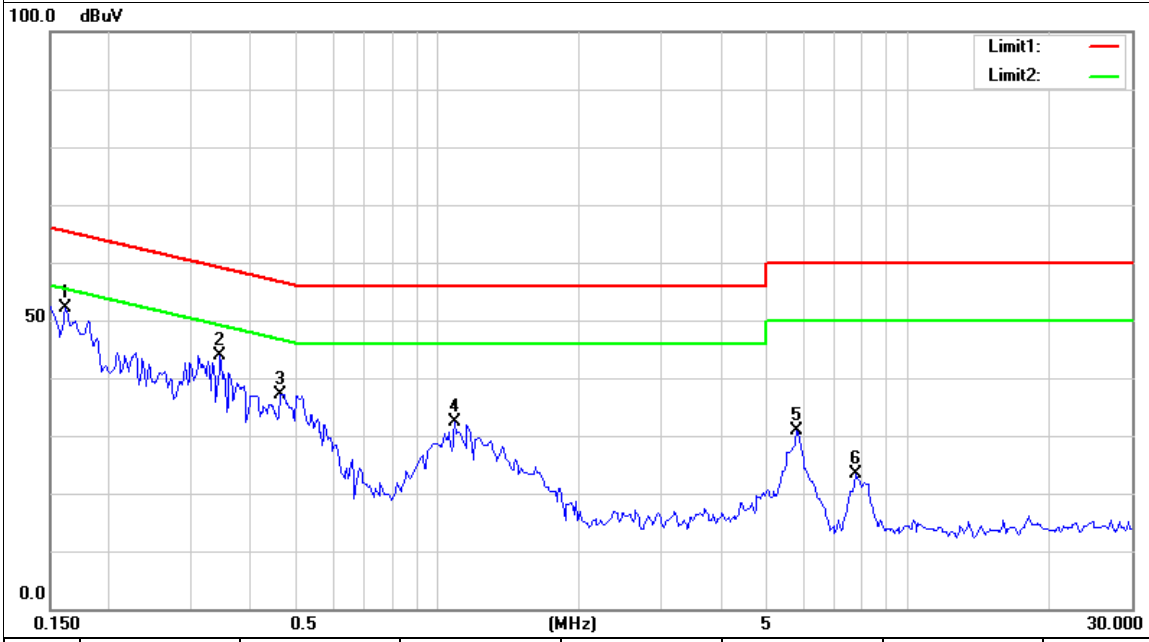
Condition : Line 1



No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected dB	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1734	51.20	QP	0.07	51.27	64.80	-13.53
2	0.3336	43.44	QP	0.08	43.52	59.36	-15.84
3	1.0484	32.00	QP	0.11	32.11	56.00	-23.89
4	5.7733	26.68	QP	0.25	26.93	60.00	-33.07
5	8.0391	22.00	QP	0.31	22.31	60.00	-37.69
6	18.1016	16.68	QP	0.58	17.26	60.00	-42.74

Notes:
1) Place of Measurement: ETC EMC LAB. (1F)
2) The estimated measurement uncertainty of the result measurement is ±2.5dB.
3) Class A Limits.
4) Single Device test

Condition : Line 2



No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected dB	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1617	52.00	QP	0.07	52.07	65.38	-13.31
2	0.3453	43.90	QP	0.08	43.98	59.07	-15.09
3	0.4625	37.10	QP	0.09	37.19	56.65	-19.46
4	1.0914	32.18	QP	0.11	32.29	56.00	-23.71
5	5.8242	30.64	QP	0.25	30.89	60.00	-29.11
6	7.7383	23.08	QP	0.30	23.38	60.00	-36.62

Notes:
1) Place of Measurement: ETC EMC LAB. (1F)
2) The estimated measurement uncertainty of the result measurement is ±2.5dB.
3) Class A Limits.
4) Single Device test

4.1.2 Radiated Emissions Test:

4.1.2.1 Radiated Emissions Test Data:

A. Operating Conditions of The EUT: Operation Mode

Limit Below 1GHz Test Date : Jan. 24, 2018

Test Specification	EN 55011
Climatic Condition	Ambient Temperature: 26 °C Relative Humidity: 60 % RH
Power Supply System	AC Power: 230 Vac 50 Hz

Test data see the next pages.

Horizontal

Emission Frequency (MHz)	Meter Reading (dBuV)	Detector	CORR'd Factor (dB/m)	Results (dBuV/m)	Limit @10m (dBuV/m)	Margins (dB)
53.3173	42.47	QP	-20.01	22.46	30.00	-7.54
171.4583	43.10	QP	-19.12	23.98	30.00	-6.02
255.4006	35.91	QP	-15.56	20.35	37.00	-16.65
361.1058	34.36	QP	-12.21	22.15	37.00	-14.85
399.9680	36.61	QP	-11.16	25.45	37.00	-11.55
934.7115	32.48	QP	-2.23	30.25	37.00	-6.75

Vertical

Emission Frequency (MHz)	Meter Reading (dBuV)	Detector	CORR'd Factor (dB/m)	Results (dBuV/m)	Limit @10m (dBuV/m)	Margins (dB)
31.5545	36.97	QP	-16.33	20.64	30.00	-9.36
107.7244	34.60	QP	-16.67	17.93	30.00	-12.07
182.3397	40.22	QP	-19.69	20.53	30.00	-9.47
508.7821	36.15	QP	-9.37	26.78	37.00	-10.22
533.6538	38.35	QP	-9.19	29.16	37.00	-7.84
569.4071	36.01	QP	-9.03	26.98	37.00	-10.02
681.3301	32.35	QP	-6.78	25.57	37.00	-11.43

Notes: 1) Place of measurement: EMC LAB. of the ETC (1F)
2) Measurement Distance: 10 m(30MHz~1GHz)
3) Height of Receiving Antenna: 1 - 4 m
4) Example Calculation: result for 31.5545 MHz 36.97 + (-16.33) = 20.64 dB μ V/m
5) ① If the data table appeared symbol of "***" means the value was too low to be measured.
② If the data table appeared symbol of "----" means the Q.P value is under the limit for AVG. so, the AVG. value doesn't need to be measured.
③ If the data table appeared symbol of "#" means the noise was low, so record the peak value.
6) The estimated measurement uncertainty of the result measurement is
+ 4.5dB / - 4.6dB (30MHz $\leqq f \leqq$ 300MHz)
+ 4.3dB / - 4.3dB (300MHz $\leqq f \leqq$ 1GHz

4.1.3 Harmonics Current Emissions Test:

4.1.3.1 Harmonics Current Emissions Test Data:

A. Operating Conditions of The EUT: Operation Mode

Test Date : Jan. 23, 2018

Test Specification	EN 61000-3-2
Climatic Condition	Ambient Temperature: 25 °C Relative Humidity: 62 %RH
Power Supply System	AC Power: 230 Vac 50 Hz

Test data see the next page.

Current Test Result Summary (Run time)

EUT: Equipment under test
Test category: Class-A per Ed. 4.0 (2014) (European limits)
Test date: 1/23/2018 Start time: 11:36:21 AM End time: 11:39:44 AM
Test duration (min): 3 Data file name: CTSMXL_H-000755.cts_data
Comment: Comment
Customer: Customer information

Tested by: Tested by
Test Margin: 100

Test Result: Pass Source qualification: Normal
THC(A): 0.015 I-THD(%): 33.4 POHC(A): 0.000 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	230.200	Frequency(Hz):	50.00
I_Peak (Amps):	0.150	I_RMS (Amps):	0.049
I_Fund (Amps):	0.046	Crest Factor:	3.103
Power (Watts):	8.3	Power Factor:	0.745

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.013	2.300	0.5	0.013	3.450	0.4	Pass
4	0.001	0.430	N/A	0.002	0.645	N/A	Pass
5	0.007	1.140	0.6	0.007	1.710	0.4	Pass
6	0.001	0.300	N/A	0.002	0.450	N/A	Pass
7	0.002	0.770	N/A	0.002	1.155	N/A	Pass
8	0.001	0.230	N/A	0.001	0.345	N/A	Pass
9	0.001	0.400	N/A	0.001	0.600	N/A	Pass
10	0.001	0.184	N/A	0.001	0.276	N/A	Pass
11	0.002	0.330	N/A	0.002	0.495	N/A	Pass
12	0.001	0.153	N/A	0.001	0.230	N/A	Pass
13	0.001	0.210	N/A	0.002	0.315	N/A	Pass
14	0.002	0.131	N/A	0.002	0.197	N/A	Pass
15	0.001	0.150	N/A	0.002	0.225	N/A	Pass
16	0.002	0.115	N/A	0.002	0.173	N/A	Pass
17	0.000	0.132	N/A	0.001	0.198	N/A	Pass
18	0.001	0.102	N/A	0.001	0.153	N/A	Pass
19	0.000	0.118	N/A	0.001	0.178	N/A	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.000	0.107	N/A	0.001	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.000	0.098	N/A	0.000	0.147	N/A	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.000	0.090	N/A	0.000	0.135	N/A	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.000	0.083	N/A	0.000	0.125	N/A	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.000	0.078	N/A	0.000	0.116	N/A	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.000	0.073	N/A	0.000	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.000	0.068	N/A	0.000	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.000	0.064	N/A	0.000	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.000	0.061	N/A	0.000	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.000	0.058	N/A	0.000	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

4.1.4 Voltage Fluctuations and Flicker Test:

4.1.4.1 Voltage Fluctuations and Flicker Test Data:

A. Operating Conditions of The EUT: Operation Mode

Test Date : Jan. 23, 2018

Test Specification	EN 61000-3-3
Climatic Condition	Ambient Temperature: 25 °C Relative Humidity: 62 %RH
Power Supply System	AC Power: 230 Vac 50 Hz

	EUT values	Limit	Result
Pst	0.123	1.00	PASS
Plt	0.054	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.030	4.00	PASS
dt [s]	0.000	0.50	PASS

4.2 Immunity:

4.2.1 Electrostatic Discharge Immunity Test:

4.2.1.1 Electrostatic Discharge Immunity Test Data:

A. Operating Conditions of The EUT: Operation Mode

Test Date: Jan. 25, 2018

Test Specification	IEC 61000-4-2
Climatic Condition	Ambient Temperature: 21 °C Relative Humidity: 49 % RH
	Atmospheric Pressure: 999 mbar
Power Supply System	AC Power: 230 Vac 50 Hz

Test Points	Contact Discharge (kV) Criterion			Air Discharge (kV) Criterion			Test times and voltage at each condition	
1.EUT-VCP	■2: A	■4: A	□6: _	□2: _	□4: _	□8: _	■10..neg	■10..pos
2.EUT-HCP	■2: A	■4: A	□6: _	□2: _	□4: _	□8: _	■10..neg	■10..pos
3.EUT-8	■2: A	■4: A	□6: _	□2: _	□4: _	□8: _	■10..neg	■10..pos
4.EUT-1 – 7	□2: _	□4: _	□6: _	■2: A	■4: A	■8: A	■10..neg	■10..pos

Result:	■ Complied	□ Does not comply	
Criterion Required:	B	Criterion Met:	A

Note: ” A” means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

TEST POINTS


WARNING
MOVING PARTS
DO NOT OPEN LID UNTIL

4.2.2 RF Radiated Fields Immunity Test:

4.2.2.1 RF Radiated Fields Immunity Test Data:

A. Operating Conditions of The EUT: Operation Mode

Test Date : Jan. 25, 2018

Test Specification	IEC 61000-4-3
Climatic Condition	Ambient Temperature: 22 °C Relative Humidity: 54 %RH
Power Supply System	AC Power: 230 Vac 50 Hz

Frequency Range : 80 MHz ~ 1000 MHz 1400 MHz ~ 2000 MHz 2000 MHz ~ 2700 MHz	Field Strength: 10 V/m Strength: 3 V/m Strength: 1 V/m	Modulation (AM 1kHz 80%)
Sweep Rate: ≤ 1.5×10^{-3} decades/s	Step Size: ≤ 1 % of preceding frequency value	Dwell Time: 2.9 s

Frequency Range (MHz)	Polarization of Device	Test Result
80~1000	Vertical	A
80~1000	Horizontal	A
1400~2000	Vertical	A
1400~2000	Horizontal	A
2000~2700	Vertical	A
2000~2700	Horizontal	A

Result:	■ Complied	□ Does not comply	
Criterion Required:	A	Criterion Met:	A

Note: ” A” means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

4.2.3 EFT/Burst Immunity Test:

4.2.3.1 EFT/Burst Immunity Test Data:

A. Operating Conditions of The EUT: Operation Mode

Test Date : Jan. 24, 2018

Test Specification	IEC 61000-4-4
Climatic Condition	Ambient Temperature: 21 °C Relative Humidity: 54 %RH
	Atmospheric Pressure: 992 mbar
Power Supply System	AC Power: 230 Vac 50 Hz

Pulse: 5 /50ns Burst: 15ms /300ms		Repetition Rate: 5kHz		Test time: 1 min/each condition	
\Voltage\Polarity\		1 kV		---- kV	
\Test Point\Mode\Result\		+	+	+	-
Power Line	L	A	A	----	----
	N	A	A	----	----
	L+N	A	A	----	----

Result:	■ Complied	□ Does not comply
Criterion Required:	B	Criterion Met: A

Note: ” A” means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.
” B” means the EUT continued to operate as intended after the test. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended. During the test, degradation of performance was however allowed. No change of actual operating state or stored data was allowed.

4.2.4 Surge Immunity Test:

4.2.4.1 Surge Immunity Test Data:

A. Operating Conditions of The EUT: Operation Mode

Test Date : Jan. 24, 2018

Test Specification	IEC 61000-4-5
Climatic Condition	Ambient Temperature: 22 °C Relative Humidity: 54 %RH
	Atmospheric Pressure: 998 mbar
Power Supply System	AC Power: 230 Vac 50 Hz

Waveform: 1.2/50μs (8/20μs) Repetition rate: 60 sec Times: 5 times/each condition

\Voltage \Mode \Polarity \Phase \Result			**0°**	**90°**	**180°**	**270°**
1kV	L – N	+	A	A	A	A
		–	A	A	A	A

Result:	■ Complied	□ Does not comply	
Criterion Required:	B	Criterion Met:	A

Note: ” A” means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

4.2.5 RF Common Mode Immunity Test:

4.2.5.1 RF Common Mode Immunity Test Data:

A. Operating Conditions of The EUT: Operation Mode

Test Date : Jan. 24, 2018

Test Specification	IEC 61000-4-6
Climatic Condition	Ambient Temperature: 23 °C Relative Humidity: 56 %RH
Power Supply System	AC Power: 230 Vac 50 Hz

Frequency Range: 0.15 MHz ~ 80 MHz	Test Voltage: 3 V	Modulation (AM 1KHz 80%)
Sweep Rate: ≤ 1.5×10^{-3} decades/s	Step Size: ≤ 1 % of preceding frequency value	Dwell Time: 2.9 s

Frequency Range (MHz)	Tested Line	Test Result
0.15~80	AC (M2)	A

Result:	■ Complied	□ Does not comply
Criterion Required:	A	Criterion Met: A

Note: ” A” means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

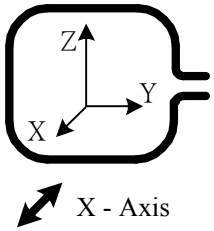
4.2.6 Power Frequency Magnetic Field Immunity Test:

4.2.6.1 Power Frequency Magnetic Field Immunity Test Data:

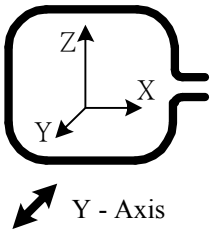
A. Operating Conditions of the EUT: Operation Mode

Test Date : Jan. 25, 2018

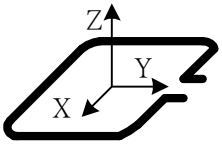
Test Specification	IEC 61000-4-8
Climatic Condition	Ambient Temperature: 23 °C Relative Humidity: 60 % RH
Power Supply System	AC Power: 230 Vac 50 Hz



X - Axis



Y - Axis



Z - Axis

Magnetic field frequency : 50 /60 Hz	Continuous magnetic field strength : 100 A/m
Magnetic field direction	Testing result
X - Axis	A
Y - Axis	A
Z - Axis	A

Result:	■ Complied	□ Does not comply	
Criterion Required:	A	Criterion Met:	A

Note: " **A**" means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

4.2.7 Voltage Dips and Interruptions Test:

4.2.7.1 Voltage Dips and Interruptions Test Data:

A. Operating Conditions of the EUT: Operation Mode

Test Date : Jan. 26, 2018

Test Specification	IEC 61000-4-29
Climatic Condition	Ambient Temperature: 21 °C Relative Humidity: 54 %RH
	Atmospheric Pressure: 998 mbar
Power Supply System	AC Power: 230 Vac 50 Hz

Test mode	Voltage reduction	Number of periods	Interval (s)	Times	Phase	Result
Voltage interruptions	100%	250	10	20	0° / 180°	B
Voltage dips in $\%U_T$	100%	0.5	10	3	0° / 180° /270°	A
	100%	1	10	20	0° / 180° /270°	A
	60%	10	10	20	0° / 180° /270°	A
	30%	25	10	20	0° / 180° /270°	A

Result:	■ Complied	□ Does not comply
Criterion Required:	C	Criterion Met: A

Note : " **A**" means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

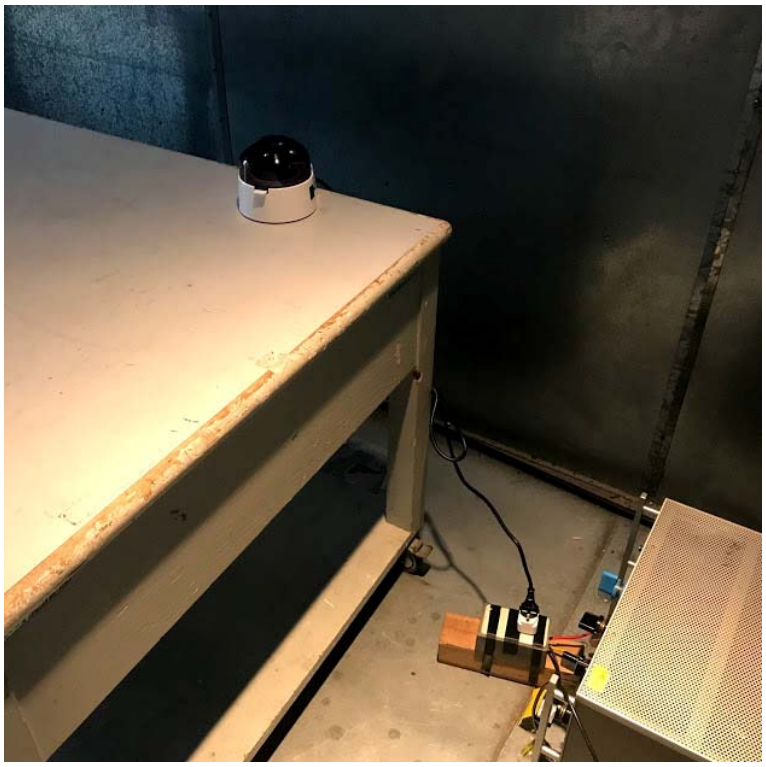
Voltage dip 30% = 70% Residual Voltage

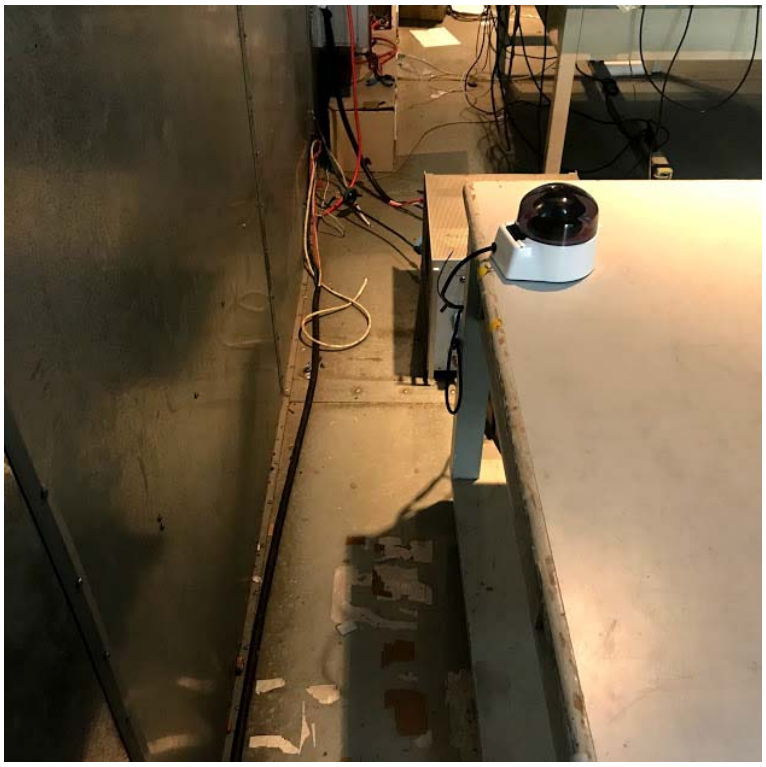
5 EQUIPMENTS LIST FOR TESTING

Name	Manufacturer	Model	ID	Calibration Date	Recommended Recal. Date
EMI Test Receiver	R&S	ESCI	13054418-001	Jan. 16, 2017	Jan. 15, 2018
LISN	Schwarzbeck	NNLK8129	8129221	Jan. 25, 2018	Aug. 08, 2018
EMI Test Receiver	R&S	ESIB7	13054417-001	Sep. 04, 2017	Sep. 03, 2018
Preamplifier	Agilent	8447D	13040715-002	Apr. 25, 2017	Apr. 24, 2018
Bilog Antenna	ETC&JYEBAO	MCTD2786B	JB-5-002	Mar. 20, 2017	Mar. 19, 2018
RF Generator	R&S	SMB100A	13051717-003	Jan. 03, 2017	Jan. 02, 2018
RF Power Amplifier	AR	25A250A	13052909-001	Aug. 21, 2017	Aug. 20, 2018
RF Voltmeter	Boonton	9200B	43054402-002	Mar. 14, 2017	Mar. 13, 2018
-6dB Attenuator	RADIALL	R415706	2.5.9	Aug. 30, 2017	Aug. 29, 2018
801-6 Coupling Network-M3	Luethi	CDNL-801-M2/32	13057720-001	Oct. 25, 2017	Oct. 24, 2018
IMS SG System	R&S	IMS	13045401-001	Oct. 26, 2016	Oct. 25, 2017
Power Amplifier	AR	250W1000A	13052908-001	Jul. 05, 2017	Jul. 04, 2018
Power Amplifier	AR	120S1G4AM1	13052911-001	Jul. 05, 2017	Jul. 04, 2018
Antenna	AR	AR5080	13057613-001	Jul. 05, 2017	Jul. 04, 2018
Electrostatic Discharge Simulator	EMTEST	DITO	13033708-001	Nov. 24, 2017	Nov. 23, 2018
50Ohm-6dB Fixed Attenuator	Broadwave	352-023-006	13050123-001	Nov. 08, 2017	Nov. 07, 2018
Digital ClampMeter	TES	3050	971210553	Jul. 17, 2017	Jul. 16, 2018
Transient Immunity Simulators	Teseq	NSG3040-DDV	13046509-001	Feb. 15, 2017	Feb. 14, 2018
Automated Variac	Teseq	VAR3005-S16	13032668-001	Feb. 15, 2017	Feb. 14, 2018
EMS Test	EMC Partner	IMU3000	13046511-001	Dec. 13, 2017	Dec. 12, 2018
CDN	EMC Partner	CDN-3000A-08-3 2	13057747-001	Dec. 13, 2017	Dec. 12, 2018

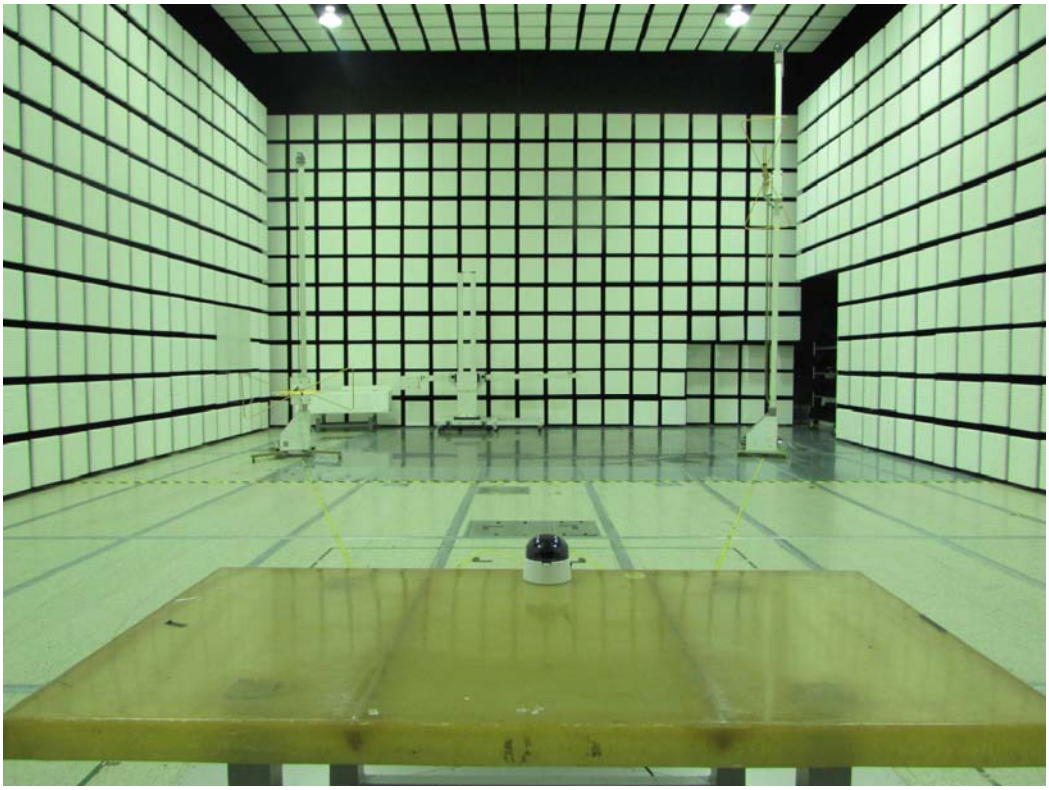
ANNEX A: PHOTOS

1. Conducted Emissions Test Setup Photos





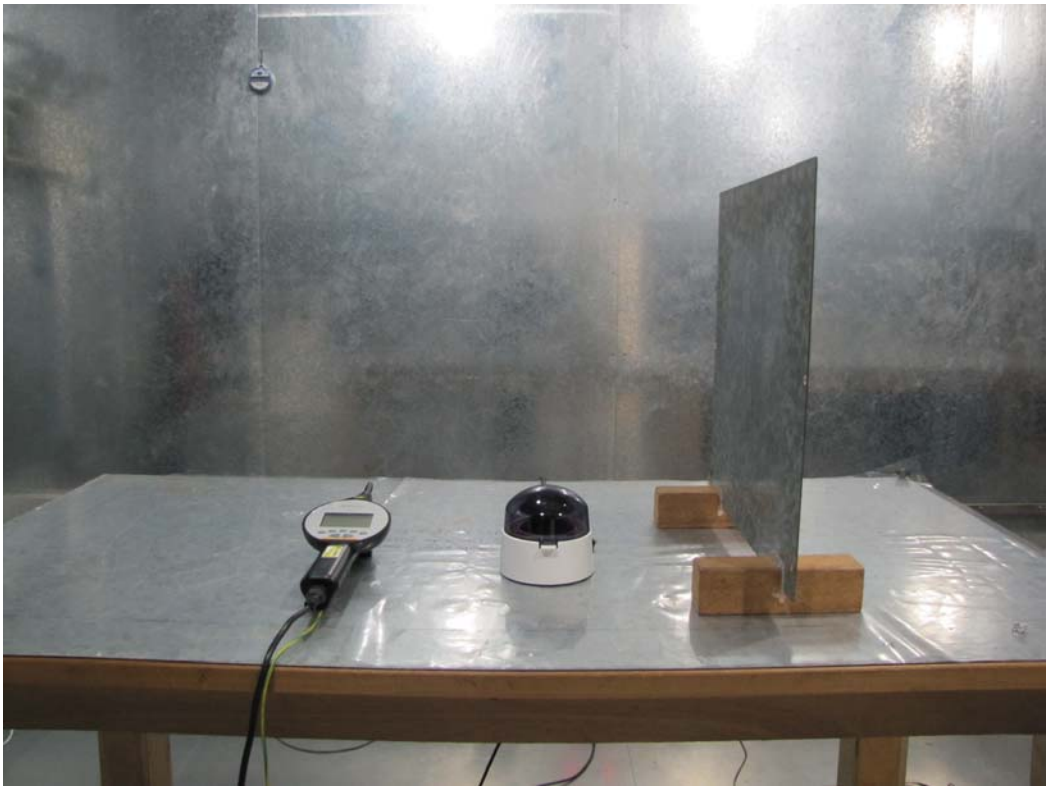
2. Radiated Emissions Test Setup Photos (Below 1GHz)



3. Harmonics Current Emissions Test Setup Photo

4. Voltage Fluctuations and Flicker Test Setup Photo

5. Electrostatic Discharge Immunity Test Setup Photo

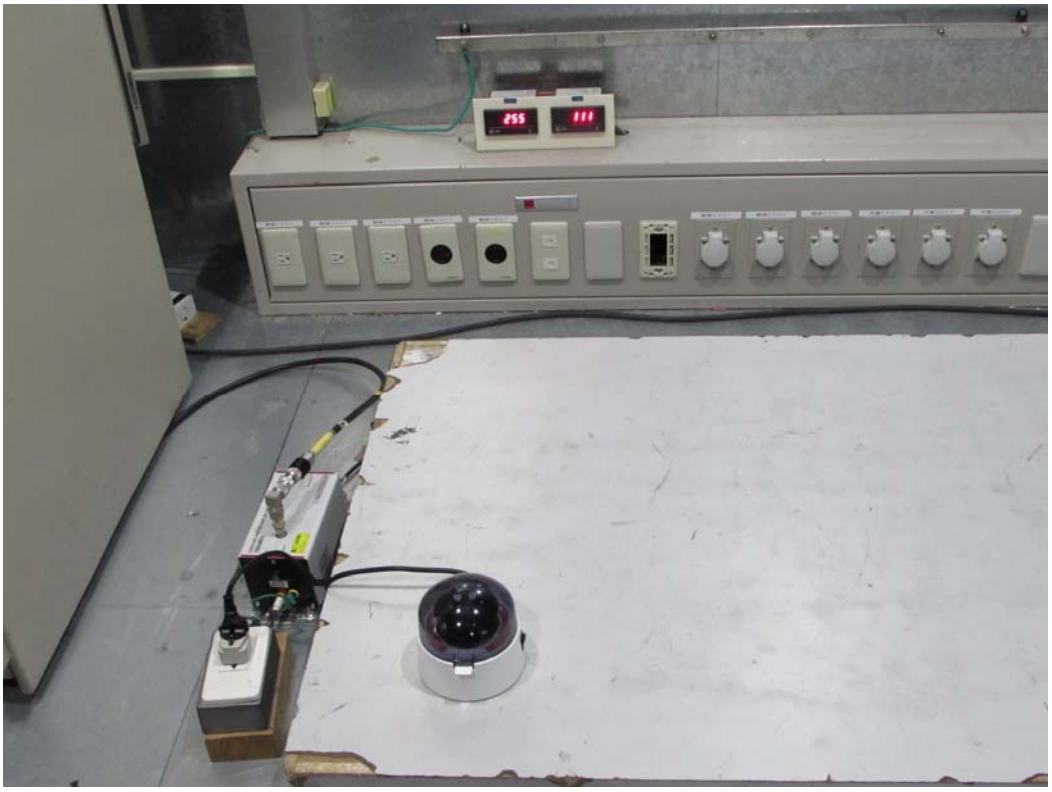


6. RF Radiated Fields Immunity Test Setup Photo

7. EFT/Burst Immunity Test Setup Photo

8. Surge Immunity Test Setup Photo

9. RF Common Mode Immunity Test Setup Photo (Power)



10. Power Frequency Magnetic Field Immunity Test Setup Photo

11. Voltage Dips and Interruptions Test Setup Photos:

1. Outside view 1 of EUT

2. Outside view 2 of EUT

3. Inside view 1 of EUT

4. Inside view 2 of EUT

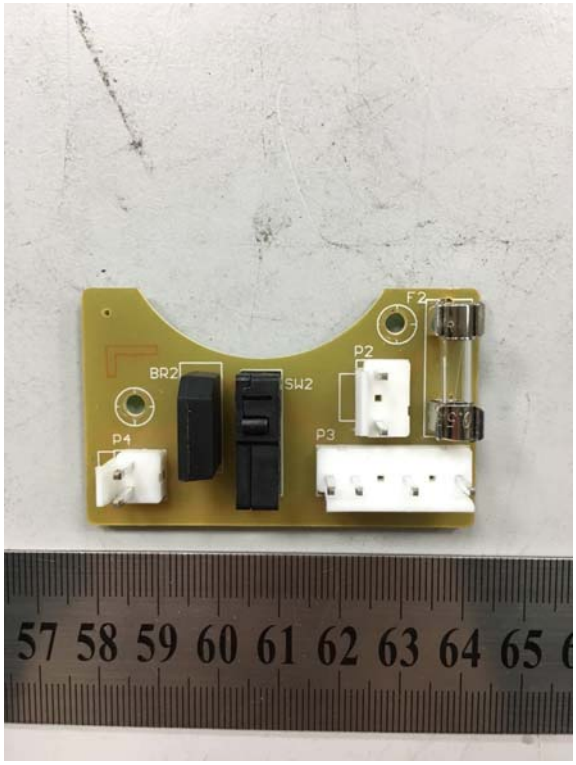
5. Inside view 3 of EUT

6. Inside view 4 of EUT

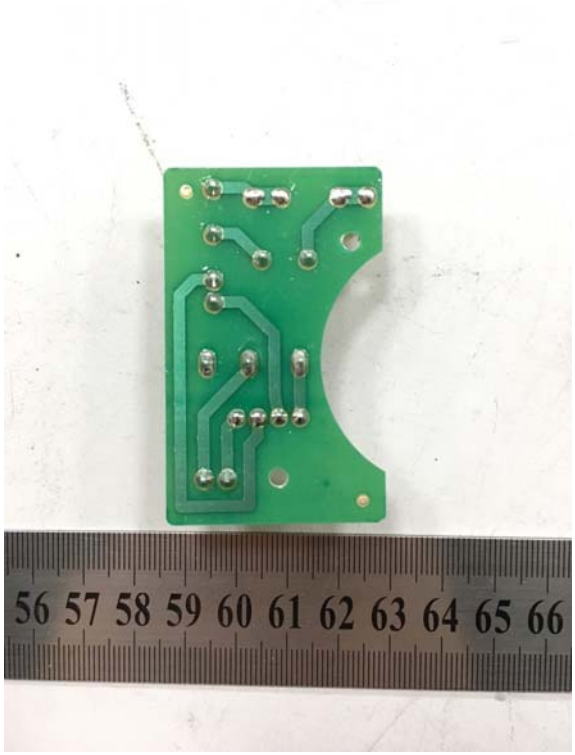
7. Inside view 7 of EUT

8. Inside view 8 of EUT

1. Component view of PCB 1



2. Solder view of PCB 1



ANNEX B: DIFFERENCE INFORMATIONS OF SERIES MODEL

1. Test Model (Main Model): SD-220
2. Test Model (Series Model):
3. The Model without test (Series Model): AL-220, IR-220

The Difference Information:

Model No. / Difference Item	Main Model SD-220	Series Model AL-220	Series Model IR-220	Series Model
PCB Layout and The Circuit Diagram	O	O	O	
Components	O	O	O	
Material	O	O	O	
Function	O	O	O	
Shape & Color	O	O	O	
Front panel	O	O	O	
Other- Accessories	X WITH ROUND ROTOR	X WITH ROUND ROTOR, BUTTERFLY ROT	X WITH ROUND ROTOR, BUTTERFLY ROT, 6-PLACE BRASS	
Notes: (1) " O " means the item is same with Main model. (2) " X "means the item is different with main model. And please explain it.				

Remark: 1. The multiple listing recognized without test basis is according to information supplied by manufacturer.
2. The manufacturer or supplier's quality system shall ensure that the tested model or apparatus is representative of the series-produced apparatus concerned.

Manufacturer / Supplier

Company Name : Beto Engineering & and Marketing Co., Ltd

Signature : Irene Chen

Name : Irene Chen Date : 2018/2/5