



TEST REPORT

Applicant: HNC ELECTRIC LIMITED
Address of Applicant: Unit 04, 7/F., Bright Way Tower, No. 33 Mong Kok Road. Kl,
Hongkong

Equipment Under Test (EUT)

Product Name: AC SERVO MOTOR
Brand Name: HNC Electric
Model No.: Please refer to pages 6 to 7
Applicable standards: EN IEC 61000-6-4:2019
EN IEC 61000-6-2:2019
EN IEC 61000-3-2:2019
EN 61000-3-3:2013+A1:2019

Date of sample receipt: July 17, 2020
Date of Test: July 17, 2020 To August 4, 2020
Date of report issued: May 25, 2021
Test Result : PASS *

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

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

Authorized Signature

Kevin Wang
Laboratory Manager





2 Version

Version No.	Date	Description
00	August 4, 2020	Original
01	August 13, 2020	New report* (Change Model No.)
02	September 22, 2020	Report 2 (Change Model No.)
03	May 25, 2021	New report (add Model)

Prepared By:

Gang Wang

Project Engineer

Date:

May 25, 2021



Reviewed By:

Kevin Wang

Reviewer

Date:

May 25, 2021

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4 Test Summary

Test Item	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission	EN IEC 61000-6-4	CISPR 11	Table 1	PASS
Conducted Emission	EN IEC 61000-6-4	CISPR 11	Table 2	PASS
Harmonic Current Emission	EN IEC 61000-3-2	EN IEC 61000-3-2	Class A	PASS
Voltage Fluctuations and Flicker	EN 61000-3-3	EN 61000-3-3	Clause 5 of EN 61000-3-3	PASS
Electrostatic discharges	EN IEC 61000-6-2	EN 61000-4-2	Contact ± 4 kV Air ± 8 kV	PASS
Radiated Immunity	EN IEC 61000-6-2	EN 61000-4-3	10V/m, 80%, 1kHz Amp. Mod. 3V/m, 80%, 1kHz Amp. Mod. 1V/m, 80%, 1kHz Amp. Mod.	PASS
Electrical Fast Transients	EN IEC 61000-6-2	EN 61000-4- 4	± 2.0 kV	PASS
Surges	EN IEC 61000-6-2	EN 61000-4-5	1kV Line to Line 2kV Line to Ground	PASS
Conducted Immunity	EN IEC 61000-6-2	EN 61000-4-6	10Vrms (emf), 80%, 1kHz Amp. Mod.	PASS
Voltage Dips and Interruptions	EN IEC 61000-6-2	EN 61000-4-11	0 % U_T^* for 1per 40 % U_T^* for 10per 70 % U_T^* for 25per	PASS

Remark:

Pass: Comply with the essential requirements in the standard.

U_T^ is the nominal supply voltage.*



5 General Information

5.1 Client Information

Applicant:	HNC ELECTRIC LIMITED
Address of Applicant:	Unit 04, 7/F., Bright Way Tower, No. 33 Mong Kok Road. KI, Hongkong
Manufacturer:	HNC ELECTRIC LIMITED
Address of Manufacturer:	Unit 04, 7/F., Bright Way Tower, No. 33 Mong Kok Road. KI, Hongkong

5.2 General Description of E.U.T

Product Name:	AC SERVO MOTOR
Brand Name:	HNC Electric
Model No.:	Please refer to pages 6 to 7
Test Model No.:	S60-2-006M30
Power Supply:	Input: AC 220-240V, 50Hz, 6A

5.3 Test mode

On mode:	Keep the EUT in the operation status.
----------	---------------------------------------

5.4 Description of Support Units

None.

5.5 Deviation from Standards

None.

5.6 Abnormalities from Standard Conditions

None.

5.7 Monitoring of EUT for All Immunity Test

Visual:	Monitor the EUT operating status.
Audio:	N/A



Model No.:

S60-2-006M30	Sx40-2-013M30x-xx	Sx40-2-033M30x-xx
Sx60-2-006M30x-xx	Sx60-2-013M30x-xx	Sx60-2-019M30x-xx
Sx80-2-013M30x-xx	Sx80-2-024M30x-xx	Sx80-2-032M30x-xx
Sx80-2-033M30x-xx	Sx80-2-035M20x-xx	Sx80-2-035M30x-xx
Sx80-2-040M25x-xx	Sx90-2-024M30x-xx	Sx90-2-035M20x-xx
Sx90-2-040M25x-xx	Sx110-2-020M30x-xx	Sx110-2-040M20x-xx
Sx110-2-042M20x-xx	Sx110-2-042M30x-xx	Sx110-2-040M30x-xx
Sx110-2-050M30x-xx	Sx110-2-054M20x-xx	Sx110-2-054M30x-xx
Sx110-2-060M20x-xx	Sx110-2-064M20x-xx	Sx110-2-064M25x-xx
Sx110-2-060M30x-xx	Sx110-2-075M20x-xx	Sx110-2-100M20x-xx
Sx130-2-040M25x-xx	Sx130-2-048M20x-xx	Sx130-2-050M20x-xx
Sx130-2-050M25x-xx	Sx130-2-054M15x-xx	Sx130-2-054M30x-xx
Sx130-2-064M15x-xx	Sx130-2-060M25x-xx	Sx130-2-064M30x-xx
Sx130-2-075M15x-xx	Sx130-2-075M20x-xx	Sx130-2-075M30x-xx
Sx130-2-077M20x-xx	Sx130-2-077M25x-xx	Sx130-2-077M30x-xx
Sx130-2-084M15x-xx	Sx130-2-084M30x-xx	Sx130-2-096M15x-xx
Sx130-2-096M20x-xx	Sx130-2-096M25x-xx	Sx130-2-100M10x-xx
Sx130-2-100M15x-xx	Sx130-2-100M25x-xx	Sx130-2-115M15x-xx
Sx130-2-115M20x-xx	Sx130-2-146M15x-xx	Sx130-2-146M20x-xx
Sx130-2-150M15x-xx	Sx130-2-150M25x-xx	Sx150-2-150M20x-xx
Sx150-2-150M25x-xx	Sx150-2-180M20x-xx	Sx150-2-230M20x-xx
Sx150-2-270M20x-xx	Sx180-2-172M15x-xx	Sx180-2-172M25x-xx
Sx180-2-175M30x-xx	Sx180-2-190M15x-xx	Sx180-2-215M20x-xx
Sx180-2-270M10x-xx	Sx180-2-270M15x-xx	Sx180-2-270M20x-xx
Sx180-2-350M10x-xx	Sx180-2-350M15x-xx	Sx180-2-480M10x-xx
Sx180-2-480M15x-xx	Sx130-4-040M25x-xx	Sx130-4-050M25x-xx
Sx130-4-060M25x-xx	Sx130-4-077M25x-xx	Sx130-4-100M10x-xx
Sx130-4-100M15x-xx	Sx130-4-100M25x-xx	Sx130-4-150M15x-xx
Sx130-4-150M25x-xx	Sx150-4-015M25x-xx	Sx150-4-018M20x-xx
Sx150-4-023M20x-xx	Sx150-4-027M20x-xx	Sx180-4-017M15x-xx
Sx180-4-019M15x-xx	Sx180-4-021M20x-xx	Sx180-4-027M10x-xx
Sx180-4-027M15x-xx	Sx180-4-035M10x-xx	Sx180-4-035M15x-xx
Sx180-4-048M15x-xx	Sx180-4-172M15x-xx	Sx180-4-175M30x-xx
Sx180-4-190M15x-xx	Sx180-4-215M20x-xx	Sx180-4-270M10x-xx
Sx180-4-270M15x-xx	Sx180-4-350M10x-xx	Sx180-4-350M15x-xx
Sx180-4-480M15x-xx	Sx190-4-019M15x-xx	Sx190-4-019M20x-xx
Sx190-4-019M25x-xx	Sx190-4-019M30x-xx	Sx190-4-026M15x-xx
Sx190-4-026M20x-xx	Sx190-4-026M25x-xx	Sx190-4-026M30x-xx
Sx190-4-035M15x-xx	Sx190-4-035M20x-xx	Sx190-4-035M25x-xx
Sx190-4-035M30x-xx	Sx190-4-048M15x-xx	Sx190-4-048M17x-xx
Sx190-4-048M20x-xx	Sx190-4-070M15x-xx	Sx190-4-070M17x-xx
Sx190-4-070M20x-xx	Sx190-4-096M15x-xx	Sx190-4-096M17x-xx
Sx190-4-096M20x-xx	Sx190-4-118M15x-xx	Sx190-4-118M17x-xx
Sx190-4-118M20x-xx	Sx190-4-140M15x-xx	Sx190-4-140M17x-xx
Sx190-4-140M20x-xx	Sx215-4-011M17x-xx	Sx215-4-013M17x-xx
Sx215-4-015M17x-xx	Sx215-4-019M17x-xx	Sx215-4-022M17x-xx
Sx215-4-021M50x-xx	Sx215-4-025M50x-xx	Sx215-4-042M50x-xx
Sx215-4-058M50x-xx	Sx215-4-071M50x-xx	Sx215-4-096M50x-xx
Sx260-4-140M15x-xx	Sx260-4-140M17x-xx	Sx260-4-140M20x-xx
Sx260-4-190M15x-xx	Sx260-4-190M17x-xx	Sx260-4-190M20x-xx
Sx260-4-236M15x-xx	Sx260-4-236M17x-xx	Sx260-4-236M20x-xx

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Sx260-4-286M15x-xx	Sx260-4-286M17x-xx	Sx260-4-286M20x-xx
Sx300-4-1000M3R5x-xx	Sx300-4-1500M3R5x-xx	Sx300-4-2500M3R5x-xx
Sx350-4-1000M3R5x-xx	Sx350-4-1500M3R5x-xx	Sx350-4-2500M3R5x-xx
Sx40-2-003M3060x-xx	Sx60-2-006M3060x-xx	Sx60-2-013M3060x-xx
Sx80-2-024M3050x-xx	Sx80-2-032M3050x-xx	Sx110-2-042M2030x-xx
Sx110-2-054M2030x-xx	Sx130-2-054M1530x-xx	Sx130-2-048M2030x-xx
Sx130-2-064M1530x-xx	Sx130-2-072M2030x-xx	Sx130-2-096M2030x-xx
Sx130-2-084M1530x-xx	Sx130-2-096M1530x-xx	Sx130-2-115M1520x-xx
Sx130-2-146M1520x-xx	Sx130-2-115M1530x-xx	Sx130-2-146M1530x-xx
Sx180-4-018M1530x-xx	Sx180-4-028M1530x-xx	Sx180-4-035M1530x-xx
Sx180-4-048M1530x-xx	Sx40-2-002M30-xx	Sx40-2-002M30B-xx
Sx40-2-002M30-xx	Sx40-2-002M30B-xx	Sx40-2-003M30-xx
Sx40-2-003M30B-xx	Sx40-2-003M30-xx	Sx40-2-003M30B-xx
Sx60-2-006L30-xx	Sx60-2-006L30B-xx	Sx60-2-006L30-xx
Sx60-2-006L30B-xx	Sx60-2-006H30-xx	Sx60-2-006H30B-xx
Sx60-2-006H30-xx	Sx60-2-006H30B-xx	Sx60-2-013L30-xx
Sx60-2-013L30B-xx	Sx60-2-013L30-xx	Sx60-2-013L30B-xx
Sx60-2-013H30-xx	Sx60-2-013H30B-xx	Sx60-2-013H30-xx
Sx60-2-013H30B-xx	Sx80-2-024L30-xx	Sx80-2-024L30B-xx
Sx80-2-024L30-xx	Sx80-2-024L30B-xx	Sx80-2-024H30-xx
Sx80-2-024H30B-xx	Sx80-2-024H30-xx	Sx80-2-024H30B-xx
Sx130-2-048M20-xx	Sx130-2-048M20B-xx	Sx130-2-048M20-xx
Sx130-2-048M20B-xx	Sx130-2-048H20-xx	Sx130-2-048H20B-xx
Sx130-2-048H20-xx	Sx130-2-048H20B-xx	Sx130-2-072M20-xx
Sx130-2-072M20B-xx	Sx130-2-072M20-xx	Sx130-2-072M20B-xx
Sx130-2-072H20-xx	Sx130-2-072H20B-xx	Sx130-2-072H20-xx
Sx130-2-072H20B-xx	Sx130-2-095M20-xx	Sx130-2-095M20B-xx
Sx130-2-095M20-xx	Sx130-2-095M20B-xx	Sx80-2-013M3060x-xx
Sx80-2-024M3060x-xx	Sx80-2-032M3060x-xx	Sx80-2-033M3060x-xx
Sx80-2-035M3060x-xx	Sx110-2-064M2030x-xx	Sx110-2-075M2030x-xx
Sx110-2-042M3040x-xx	Sx110-2-054M3040x-xx	Sx110-2-064M2540x-xx
Sx130-2-075M1530x-xx	Sx130-2-115M1530x-xx	Sx130-2-146M1530x-xx
Sx130-2-054M3040x-xx	Sx130-2-064M3040x-xx	Sx130-2-075M3040x-xx
Sx130-2-084M3040x-xx	Sx130-2-096M2540x-xx	Sx130-2-115M2040x-xx
Sx130-2-146M2040x-xx	Sx180-2-172M1520x-xx	Sx180-2-279M1520x-xx
Sx180-2-480M1520x-xx	GM6165-070CGDI4-01B000	GM6165-096CGDI4-01B000
GM6165-140CGDI4-01B000	GM6165-235CGDI4-01B000	GM6204-235CGDI4-00B000
GM6204-350CGDI4-00B000	GM6204-478CGDI4-00B000	GM6204-478CGDI5-00B000
GM6204-605CGDI4-00B000	GM6204-235CGDI4-00B001	GM6204-350CGDI4-00B001
GM6204-478CGDI4-00B001	GM6265-700CGDI4-01B000	GM6265-960CGDI4-01B000
GM6265-A18CGDI4-01B000	GM6265-A40CGDI4-01B000	GM6265-A91CGDI4-01B000
GM6165-070xxxxx-xxxxxx	GM6165-096xxxxx-xxxxxx	GM6165-140xxxxx-xxxxxx
GM6165-235xxxxx-xxxxxx	GM6204-350xxxxx-xxxxxx	GM6204-478xxxxx-xxxxxx
GM6204-605xxxxx-xxxxxx	GM6265-700xxxxx-xxxxxx	GM6265-960xxxxx-xxxxxx
GM6265-A18xxxxx-xxxxxx	GM6265-A40xxxxx-xxxxxx	GM6265-A91xxxxx-xxxxxx

Note:

1. x = A~Z (contain 26 letters), or x = 0~9 (contain 10 numbers) , or x is empty.
2. When two x in "-xx" are empty, the "-" before "xx" is also empty.

Remark: All models are identical in the same PCB layout, interior structure and electrical circuits. The only differences are the model name and appearance color for commercial purpose.

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6 Test Instruments List

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	Jul. 3 2016	Jul. 2 2021
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	June. 24 2020	June. 23 2021
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	June. 24 2020	June. 23 2021
5	Double-ridged horn antenna	SCHWARZBECK	9120D	GTS208	June. 24 2020	June. 23 2021
6	RF Amplifier	HP	8347A	GTS204	June. 24 2020	June. 23 2021
7	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	June. 24 2020	June. 23 2021
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	N/A	N/A
10	Coaxial Cable	GTS	N/A	GTS211	N/A	N/A
11	Thermo meter	KTJ	TA328	GTS256	June. 24 2020	June. 23 2021

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.10 2019	May.9 2024
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 24 2020	June. 23 2021
3	Pulse Limiter	R&S	ESH3-Z2	GTS224	June. 24 2020	June. 23 2021
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 24 2020	June. 23 2021
5	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 24 2020	June. 23 2021
6	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Thermo meter	KTJ	TA328	GTS233	June. 24 2020	June. 23 2021
9	ISN	EMTEST	FCC-TLISN-T8-02	GTS563	June. 24 2020	June. 23 2021

EFT, Surge, Voltage dips and Interruption:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	EMTEST system	EMTEST	UCS500N	GTS239	June. 24 2020	June. 23 2021
2	Thermo meter	KTJ	TA328	GTS233	June. 24 2020	June. 23 2021
3	Capacitive Clamp	EMTEST	HFK	GTS557	June. 24 2020	June. 23 2021

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ESD:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	ESD Simulator	KIKUSUI	KES4021A	GTS242	June. 24 2020	June. 23 2021
2	Thermo meter	KTJ	TA328	GTS243	June. 24 2020	June. 23 2021

Harmonic/ Flicker:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	HARMONIC/FLICKER ANALYZER	KIKUSUI	KHA1000	GTS235	June. 24 2020	June. 23 2021
2	AC POWER SUPPLY	KIKUSUI	PCR4000LE	GTS236	June. 24 2020	June. 23 2021
3	LINE IMPEDANCE NETWORK	KIKUSUI	LIN1020JF	GTS237	June. 24 2020	June. 23 2021
4	Thermo meter	KTJ	TA328	GTS256	June. 24 2020	June. 23 2021

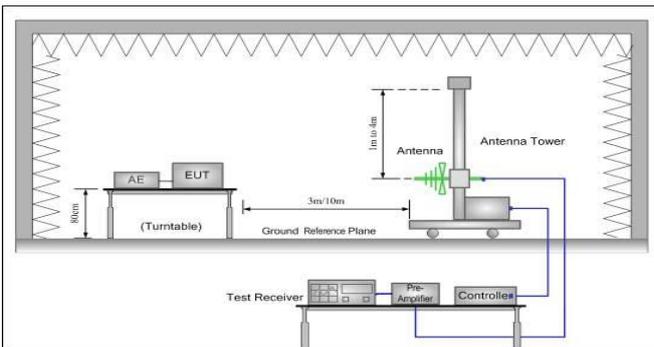
Conducted Immunity:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Signal Generator	SCHLODER	CDG-6000-25	GTS553	June. 24 2020	June. 23 2021
2	CDN	SCHLODER	CDN-M2+3	GTS554	June. 24 2020	June. 23 2021
3	EM-Clapm	SCHLODER	EMCL-20	GTS555	June. 24 2020	June. 23 2021
4	ATT	SCHLODER	ATT-6DB-100	GTS556	June. 24 2020	June. 23 2021

Radiated Immunity:						
Item	Test Equipment	Manufacturer	Model No.	Serial NO.	Cal.Date (mm-dd-yy)	Cal.Due Date (mm-dd-yy)
1	Signal Generator	Rohde & Schwarz	SMT03	100059	Jan. 16 2020	Jan. 15 2021
2	Power Amplifier	AR	150W1000	300999	Jan. 16 2020	Jan. 15 2021
3	Power Amplifier	AR	25S1G4AM1	305993	Jan. 16 2020	Jan. 15 2021
4	Power Amplifier	AR	150A220M6	305965	Jan. 16 2020	Jan. 15 2021
5	Broadband antenna	CHASE	CBL6111C	2576	Jan. 16 2020	Jan. 15 2021
6	Horn Antenna	AR	AT4002A	2783	Jan. 16 2020	Jan. 15 2021

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7 Emission Test Results

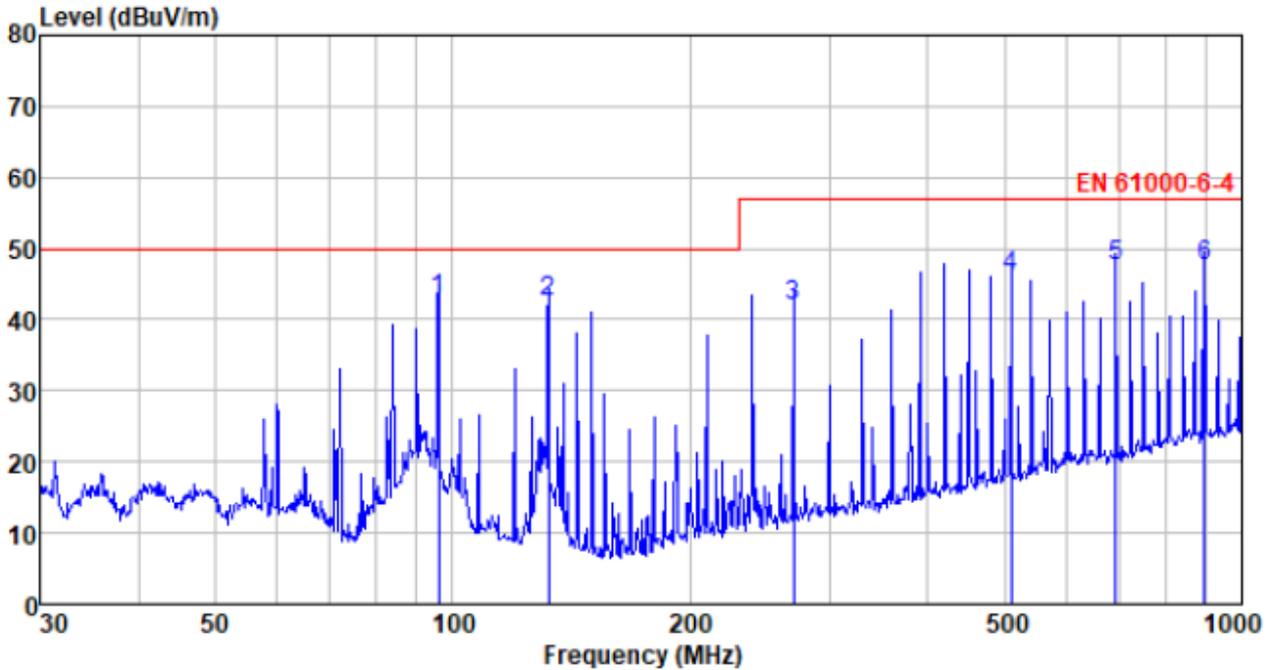
7.1 Radiated Emission

Test Requirement:	EN IEC 61000-6-2		
Test Method:	CISPR 11		
Test Frequency Range:	30MHz to 1GHz		
Measurement Distance:	3m		
Limit:	Frequency	Limit (dB μ V/m @3m)	Value
	30MHz-230MHz	50.00	Quasi-peak
	230MHz-1GHz	57.00	Quasi-peak
Test setup:			
Test Procedure:	<ol style="list-style-type: none"> 1. The radiated emissions test was conducted in a semi-anechoic chamber. 2. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation. 3. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT. 4. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization. 		
Test environment:	Temp.: 25 °C	Humid.: 52%	Press.: 1 012mbar
Measurement Record:	Uncertainty: \pm 4.50dB		
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		



Measurement Data

Test mode:	On mode	Polarization:	Horizontal
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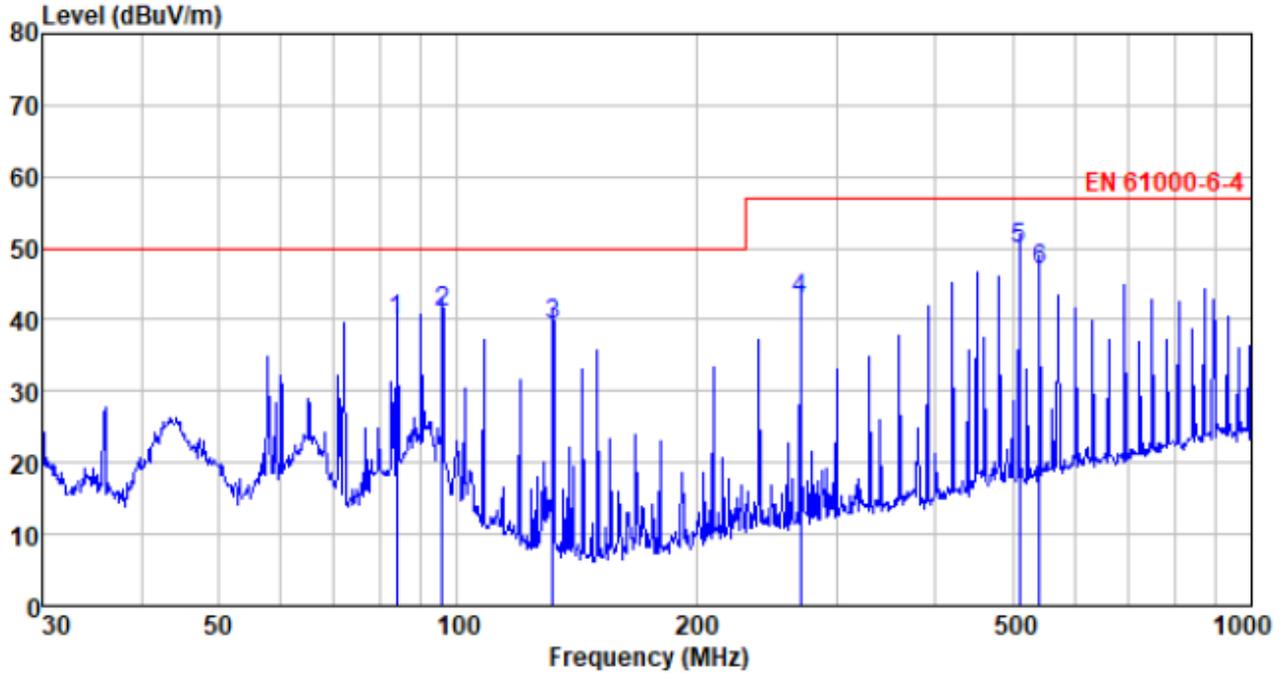
Freq MHz	Reading level dBUV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBUV/m	Limit level dBUV/m	Over limit dB	Remark
96.099	66.63	11.65	1.16	36.69	42.75	50.00	-7.25	QP
132.221	69.91	8.01	1.45	36.97	42.40	50.00	-7.60	QP
270.375	64.47	12.76	2.22	37.40	42.05	57.00	-14.95	QP
510.044	62.60	17.52	3.35	37.51	45.96	57.00	-11.04	QP
691.987	61.35	19.59	4.06	37.62	47.38	57.00	-9.62	QP
896.997	58.07	22.27	4.83	37.60	47.57	57.00	-9.43	QP

Remarks: level = Reading level + Antenna factor + Cable loss - Preamp Factor

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Test mode:	On mode	Polarization:	Vertical
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Freq MHz	Reading level dBUV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBUV/m	Limit level dBUV/m	Over limit dB	Remark
83.816	66.59	8.67	1.06	36.58	39.74	50.00	-10.26	QP
95.762	65.02	11.59	1.16	36.69	41.08	50.00	-8.92	QP
131.758	66.64	8.06	1.45	36.96	39.19	50.00	-10.81	QP
270.375	65.18	12.76	2.22	37.40	42.76	57.00	-14.24	QP
510.044	66.54	17.52	3.35	37.51	49.90	57.00	-7.10	QP
541.373	62.82	18.23	3.49	37.52	47.02	57.00	-9.98	QP

Remarks: level = Reading level + Antenna factor + Cable loss - Preamp Factor

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7.2 Conducted Emission

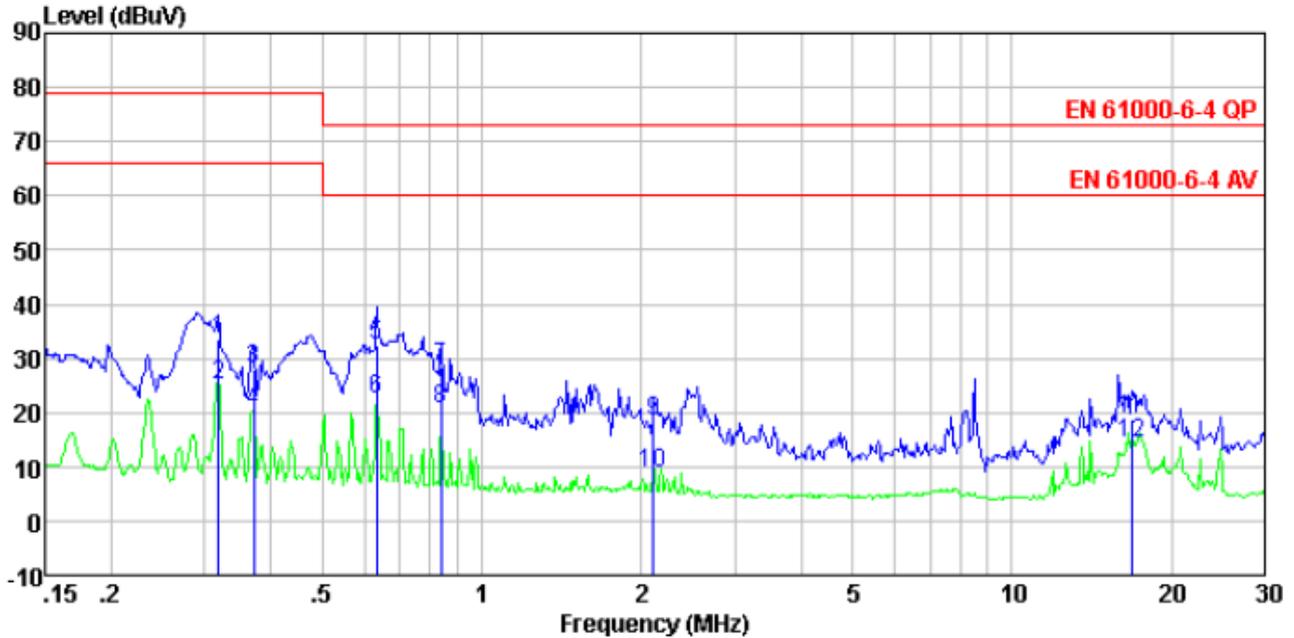
Test Requirement:	EN IEC 61000-6-4		
Test Method:	CISPR 11		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dB μ V)	
		Quasi-peak	Average
	0.15 - 0.50	79	66
	0.50 - 30	73	60
Test setup:	<p><i>Remark</i> EUT: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>		
Test procedure:	<ol style="list-style-type: none"> 1. The EUT was placed 0.4 meters from the conducting wall of shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50Ω/50μH of coupling impedance for the measuring instrument. 2. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. 3. The frequency range from 150 kHz to 30MHz was searched. Emission levels over 10dB under the prescribed limits are not reported. 		
Test environment:	Temp.: 24 °C	Humid.: 51%	Press.: 1012mbar
Measurement Record:	Uncertainty: \pm3.45dB		
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

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Measurement Data

L:

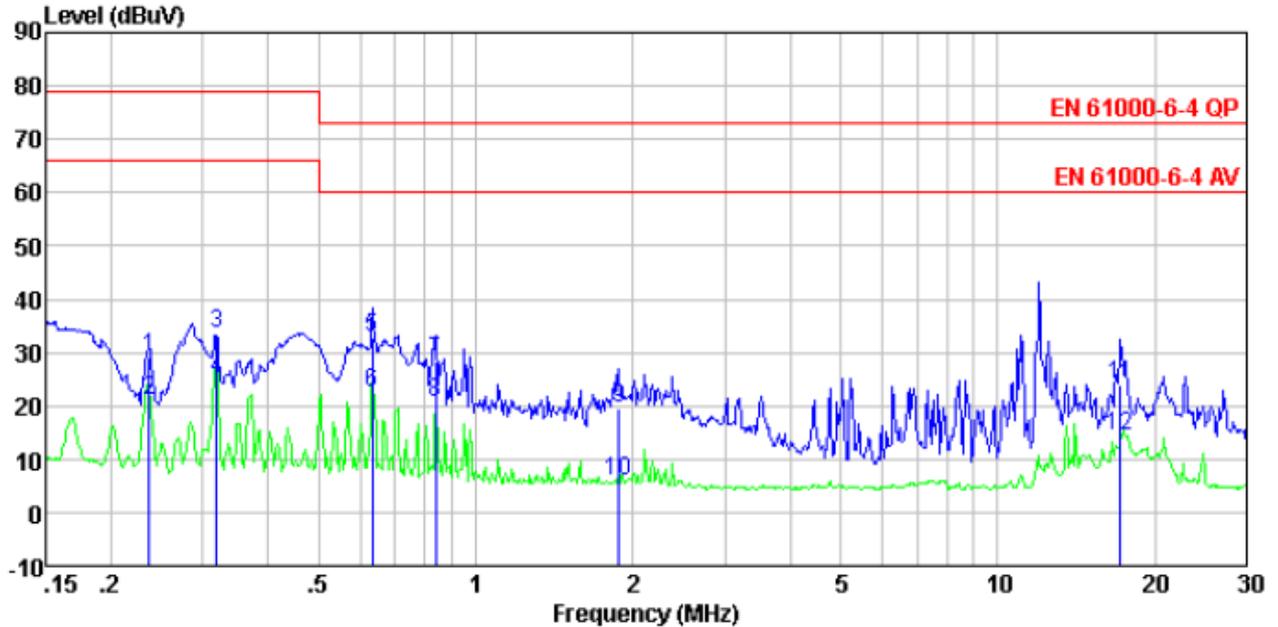


Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.32	13.02	20.39	0.10	33.51	79.00	-45.49	QP
0.32	4.47	20.39	0.10	24.96	66.00	-41.04	Average
0.37	7.63	20.36	0.10	28.09	79.00	-50.91	QP
0.37	-0.29	20.36	0.10	20.17	66.00	-45.83	Average
0.63	12.17	20.28	0.12	32.57	73.00	-40.43	QP
0.63	2.00	20.28	0.12	22.40	60.00	-37.60	Average
0.84	8.15	20.23	0.14	28.52	73.00	-44.48	QP
0.84	0.31	20.23	0.14	20.68	60.00	-39.32	Average
2.11	-2.04	20.20	0.18	18.34	73.00	-54.66	QP
2.11	-11.47	20.20	0.18	8.91	60.00	-51.09	Average
16.84	-1.75	20.24	0.22	18.71	73.00	-54.29	QP
16.84	-6.23	20.24	0.22	14.23	60.00	-45.77	Average

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N:



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.24	8.47	20.40	0.11	28.98	79.00	-50.02	QP
0.24	0.54	20.40	0.11	21.05	66.00	-44.95	Average
0.32	13.04	20.39	0.10	33.53	79.00	-45.47	QP
0.32	4.43	20.39	0.10	24.92	66.00	-41.08	Average
0.63	12.24	20.28	0.12	32.64	73.00	-40.36	QP
0.63	2.16	20.28	0.12	22.56	60.00	-37.44	Average
0.84	8.19	20.23	0.14	28.56	73.00	-44.44	QP
0.84	0.32	20.23	0.14	20.69	60.00	-39.31	Average
1.88	-0.78	20.20	0.17	19.59	73.00	-53.41	QP
1.88	-14.65	20.20	0.17	5.72	60.00	-54.28	Average
17.20	3.42	20.25	0.22	23.89	73.00	-49.11	QP
17.20	-6.27	20.25	0.22	14.20	60.00	-45.80	Average

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7.3 Harmonics Test Results

Test Requirement:	EN IEC 61000-3-2		
Test Method:	EN 61000-3-2		
Frequency range:	100Hz to 2kHz		
Measurement Time:	2.5 min		
Class/Severity:	Class A		
Detector:	As per EN 61000-3-3		
Test environment:	Temp.: 24°C	Humid.: 51%	Press.: 1012mbar
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

7.4 Flicker Test Result

Test Requirement:	EN 61000-3-3		
Test Method:	EN 61000-3-3		
Class/Severity:	Clause 5 of EN 61000-3-3		
Measurement Time:	10 min		
Detector:	As per EN 61000-3-3		
Test environment:	Temp.: 24°C	Humid.: 51%	Press.: 1012mbar
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

Measurement Data

	EUT values	Limit	Result
Pst	0.027	1.00	PASS
Plt	0.027	0.65	PASS
Dc[%]	0.000	3.30	PASS
Dmax %]	0.059	4.00	PASS
Dt [s]	0.000	0.50	PASS

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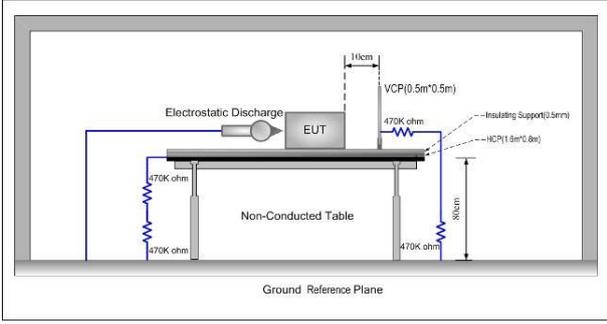


8 Immunity Test Results

8.1 Performance Criteria Description in EN IEC 61000-6-2

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 intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as 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 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 operating 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.
Criterion C:	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

8.2 Electrostatic Discharge

Test Requirement:	EN IEC 61000-6-2
Test Method:	EN 61000-4-2
Discharge Voltage:	Contact Discharge:±4kV Air Discharge: ±8kV HCP/VCP:±4kV
Polarity:	Positive & Negative
Number of Discharge:	Minimum 10 times at each test point.
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Performance Criterion:	B
Test setup:	
Test Procedure:	<ol style="list-style-type: none"> Air discharge: The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure was repeated until all the air discharge completed Contact Discharge: The test was applied on conductive surfaces of EUT. the generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated. Indirect discharge for horizontal coupling plane At least 10 single discharges shall be applied at the front edge of each HCP opposite the centre point of each unit 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. Consideration should be given to exposing all sides of the EUT. Indirect discharge for vertical coupling plane At least 10 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X



	0.5m, was placed parallel to, and positioned at a distance of 0.1 m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.		
Test environment:	Temp.: 24 °C	Humid.: 51%	Press.: 1012mbar
Test mode:	Refer to section 6 for details		
Test Instruments:	Refer to section 5.3 for details		
Test results:	Passed		

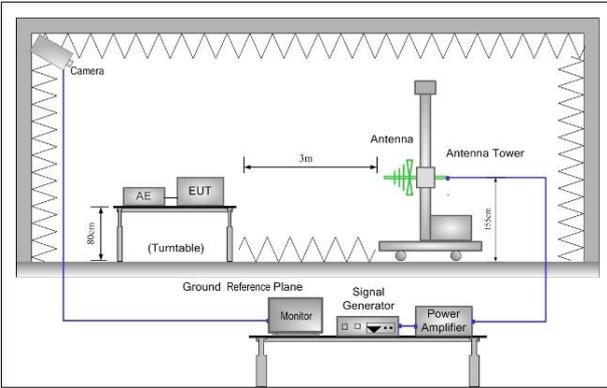
Measurement Record:

Test points:	I: Metal shell, Screw			
	II: Seams			
Direct discharge				
Discharge Voltage (KV)	Type of discharge	Test points	Observations (Performance Criterion)	Result
± 4	Contact	I	A	Pass
± 8	Air	II	A	Pass
Indirect discharge				
Discharge Voltage (KV)	Type of discharge	Test points	Observation Performance	Result
± 4	HCP-Bottom/Top/ Front/Back/Left/Right	Edge of the HCP	A	Pass
± 4	VCP-Front/Back /Left/Right	Center of the VCP	A	Pass

Remark:

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

8.3 Radiated Immunity

Test Requirement:	EN IEC 61000-6-2
Test Method:	EN 61000-4-3
Frequency range:	80MHz to 1GHz, 1.4GHz to 2GHz, 2.0 GHz to 2.7GHz
Test Level:	10 V/m, 3V/m, 1V/m
Modulation:	80%, 1kHz Amplitude Modulation
Performance Criterion:	A
Test setup:	
Test Procedure:	<ol style="list-style-type: none"> 1. For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items. 2. If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length. 3. The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area). 4. The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Were the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value. 5. The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 0,5 s. 6. The test normally was performed with the generating antenna facing each side of the EUT. 7. The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally. 8. The EUT was performed in a configuration to actual installation conditions, a video camera and/or a audio monitor were used to

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	monitor the performance of the EUT.		
Test environment:	Temp.: 25°C	Humid.: 52%	Press.: 1012mbar
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

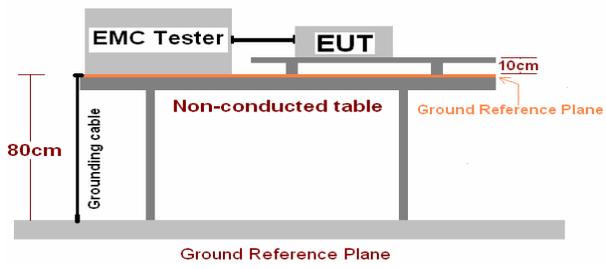
Measurement Record:

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

Remarks:

A: No degradation in the performance of the E.U.T. was observed.

8.4 Electrical Fast Transients

Test Requirement:	EN IEC 61000-6-2
Test Method:	EN 61000-4-4
Test Level:	2.0kV
Polarity:	Positive & Negative
Repetition Frequency:	5kHz
Burst Period:	300ms
Test Duration:	2 minute per level & polarity
Performance Criterion:	B
Test setup:	
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support 0.1m + 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. 2. This reference ground plane was 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 was more than 0.5m. 3. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables. 4. The length of power lines between the coupling device and the EUT is 0.5m 5. The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal. 6. Test on Signal Ports, Telecommunication Ports and Control Ports: The EUT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 2 minutes. 7. Test on power supply ports: The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal. 8. Each of the Line and Neutral conductors is impressed with burst noise for 2 minutes. 9. The length of the signal and power lines between the coupling device and the EUT is 0.5m
Test environment:	Temp.: 26 °C Humid.: 54% Press.: 1012mbar

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Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

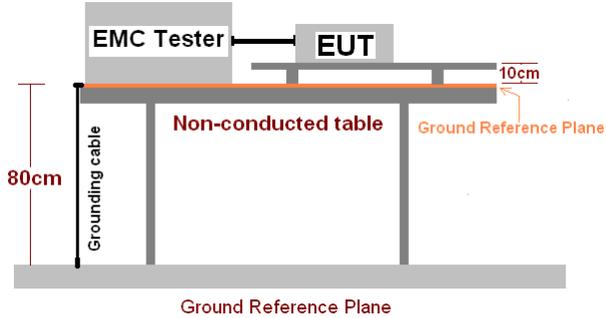
Measurement Record:

Lead under Test	Level (kV)	Coupling Direct/Clamp	Observations (Performance Criterion)	Result
L	± 2.0	Direct	A	Pass
N	± 2.0	Direct	A	Pass
L-N	± 2.0	Direct	A	Pass
PE	± 2.0	Direct	A	Pass
L-PE	± 2.0	Direct	A	Pass
N-PE	± 2.0	Direct	A	Pass

Remark:

A: No degradation in the performance of the E.U.T. was observed.

8.5 Surges

Test Requirement:	EN IEC 61000-6-2
Test Method:	EN 61000-4-5
Test Level:	1kV line to line: Differential mode 2kV line to earth: Common mode
Polarity:	Positive & Negative
Generator source impedance:	2Ω (line-line coupling) 12Ω (line-earth coupling)
Test signal specification:	Rise time=1.2us, Duration time=50us; Test Interval: 60s between each surge;
No. of surges:	5 positive, 5 negative at 0°, 90°, 180°, 270°.
Performance Criterion:	Criterion B
Test setup:	
Test Procedure:	<ol style="list-style-type: none"> 1. For line-to-line coupling mode, provide a 1kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points, and for active line / neutral lines to ground are same except test level is 2kV. 2. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test. 3. Different phase angles are done individually. 4. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.
Test environment:	Temp.: 26 °C Humid.: 53% Press.: 1012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass



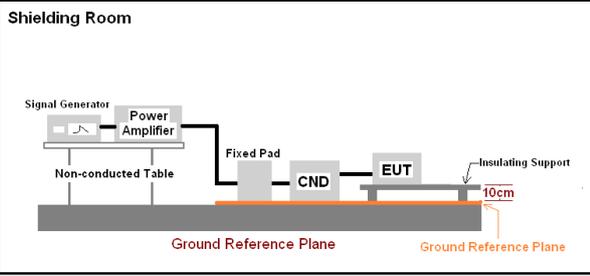
Measurement Record:

Location	Level(kV)	Pulse No	Surge Interval	Phase(deg)	Observations (Performance Criterion)
L-PE	± 2 kV	5	60s	0, 90, 180, 270	A
N-PE	± 2 kV	5	60s	0, 90, 180, 270	A
L-N	± 1 kV	5	60s	0, 90, 180, 270	A

Remark:

A: No degradation in the performance of the E.U.T. was observed.

8.6 Conducted Immunity

Test Requirement:	EN IEC 61000-6-2		
Test Method:	EN 61000-4-6		
Frequency range:	0.15MHz to 80MHz		
Test Level:	10V rms		
Modulation:	80%, 1kHz Amplitude Modulation		
Performance Criterion:	A		
Test setup:			
Test Procedure:	<ol style="list-style-type: none"> 1. Let the EUT work in test mode and test it. 2. 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). 3. The disturbance signal described below is injected to EUT through CDN. 4. The EUT operates within its operational mode(s) under intended climatic conditions after power on. 5. The frequency range is swept from 0.150MHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave. 6. 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. 7. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion. 		
Test environment:	Temp.: 24 °C	Humid.: 51%	Press.: 1012mbar
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		



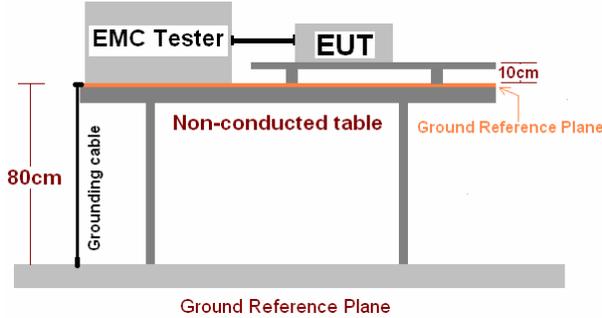
Measurement Record:

Frequency	Injected Position	Test Level	Modulation	Step Size	Dwell Time	Observations (Performance Criterion)
150kHz to 80MHz	AC Main	10Vrms	80%, 1kHz Amp. Mod.	1%	2s	A

Remark:

A: No loss of function was observed.

8.7 Voltage Dips and Voltage Interruptions

Test Requirement:	EN IEC 61000-6-2		
Test Method:	EN 61000-4-11		
No. of Dips /Interruptions:	3 per Level		
Performance Criterion:	0% of UT for 1 Periods: C; 40% of UT for 10 Periods: C; 70% of UT for 25 Periods: C;		
Test setup:			
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT and test generator were setup as shown on above setup photo. 2. The interruptions are introduced at selected phase angles with specified duration. 3. Record any degradation of performance. 		
Test environment:	Temp.: 26 °C	Humid.: 53%	Press.: 1012mbar
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		



Measurement Record:

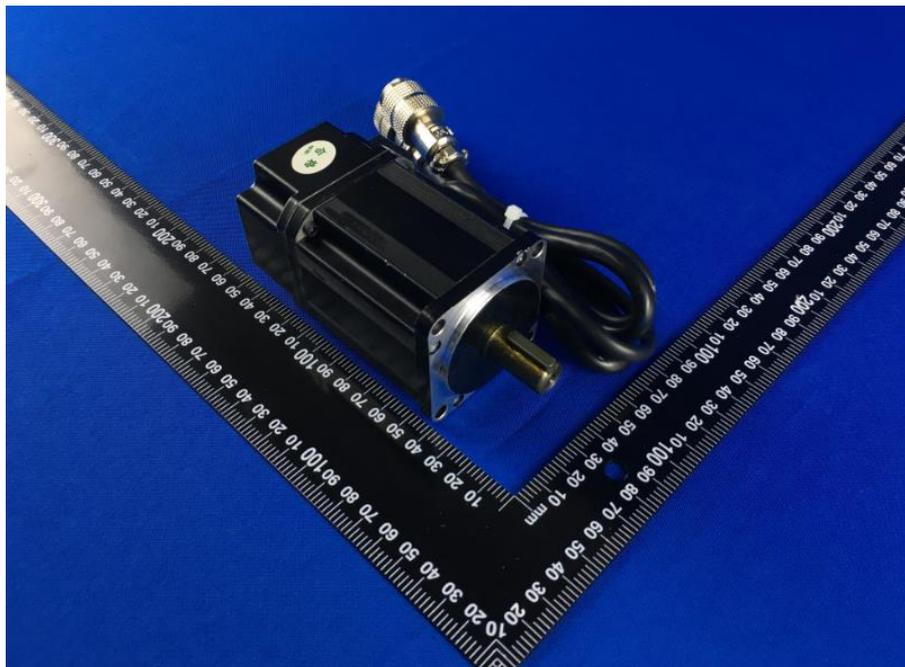
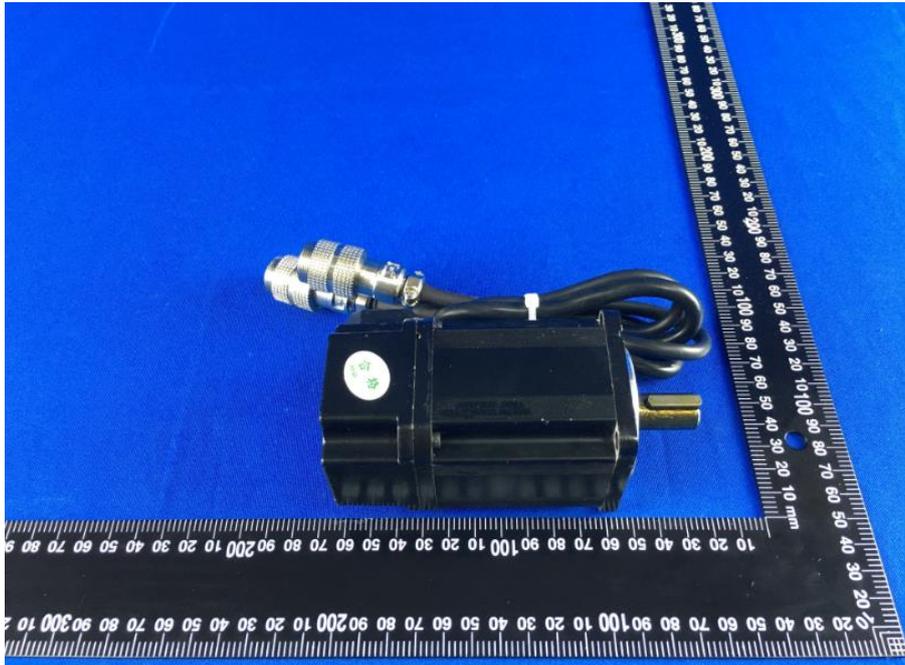
Test Level % U_T	Duration (Periods)	Phase angle	No of dropout	Observations (Performance Criterion)
0	1	0°, 90°, 180°, 270°	3	A
40	10	0°, 90°, 180°, 270°	3	A
70	25	0°, 90°, 180°, 270°	3	B

Remark:

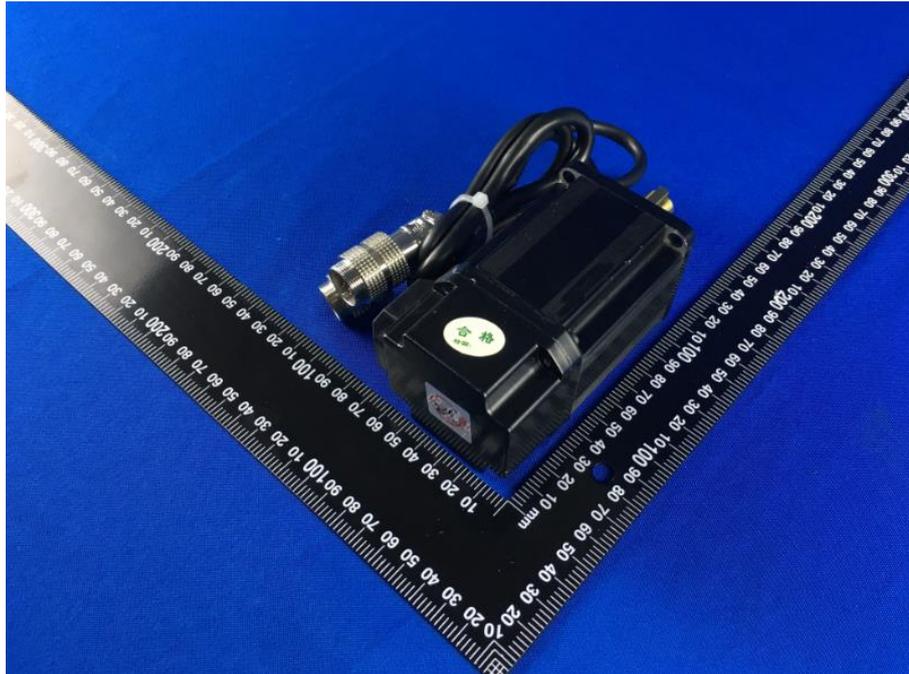
A: No loss of function was observed.

B: Dips to 0%, Duration 250P, EUT stopped operation, but it can be resumed by itself after test.

9 Photographs of the EUT



EBO assures objectivity and justness of the test, and fulfill the duty of confidentiality for applicant's information. Applicant should undertake responsibility for the authenticity of submitted sample and information. The result(s) shown in this report refer only to the sample(s) tested. The test results only reflect the evaluation of the sample under test and are not authorized for other purposes. EBO do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise. This report is invalid without signatures of approver and special seal for inspection of EBO, or it has been reproduced in full or part. This report shall not be published as advertisement without the approval of EBO. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. This document is issued by the company under its General Conditions of Service accessible at <http://www.ebotest.com/zjyb/318.html>.



Remark: Results & photo(s) of this report refer to test report EBO2007103-E160B

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