EMC TEST REPORT

For

SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD

CNC ROUTER

Test Model: SD-1325CC

Additional Model No.: SD-6090, SD-1212, SD-1313, SD-1325, SD-1325R, SD-1325 STONE SD-1530, SD-1530, STONE, SD-1631, SD-2030, SD-2131, SD-2040, SD-2140 ATC, SD-2130, SD-2130 ATC, SD-2137, S3-1328DF, J1, D1-N, D1-E, M1, S1-4E, S2, S3, S5, S6, SD-1325S, SD-V1-12, SH-32, SS280, SS330, SS380

Prepared for	:	SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD
Address	:	NO. 6-11 BINHE INDUSTRIAL ZONE HUIHE STREET JIYANG DISTRICT JINAN SHANDONG CHINA
Prepared by	:	Shenzhen AOCE Electronic Technology Service Co., Ltd
Address	:	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Tel	:	(86)755-85277785
Fax	:	(86)755-23705230
Web	:	Http://www.aoc-cert.com
Mail	:	postmaster@aoc-cert.com
Date of receipt of test sample	:	April 21, 2025
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	April 21, 2025~May 1, 2025
Date of Report	:	May 1, 2025

EMC TEST REPORT **EN IEC 61000-6-4:2019 & EN IEC 61000-6-2:2019**	
Report Reference No. ..... :	**AOC250609103E**
Date Of Issue..... :	May 1, 2025
Testing Laboratory Name..... :	**Shenzhen AOCE Electronic Technology Service Co., Ltd**
Address..... :	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Testing Location/ Procedure..... :	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name..... :	**SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO.,**
Address..... :	NO. 6-11 BINHE INDUSTRIAL ZONE HUIHE STREET JIYANG DISTRICT JINAN SHANDONG CHINA
Test Specification	
Standard..... :	EN IEC 61000-6-2:2019 EN IEC 61000-6-4:2019 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A1:2019+A2:2021+AC:2022
Test Report Form No. ..... :	AOCEMC-1.0
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Test Item Description..... :	**CNC ROUTER**
Trade Mark..... :	N/A
Test Model..... :	SD-1325CC
Ratings..... :	AC 380V
Result ..... :	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Johnson Wang/ Administrators	Joey Liu/ Technique principal	Murry Yu/ Manager

EMC -- TEST REPORT

Test Report No. : AOC250609103E	May 1, 2025 Date of issue

Test Model.....	: SD-1325CC
EUT.....	: CNC ROUTER
Applicant.....	**: SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD**
Address.....	: NO. 6-11 BINHE INDUSTRIAL ZONE HUIHE STREET JIYANG DISTRICT JINAN SHANDONG CHINA
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD**
Address.....	: NO. 6-11 BINHE INDUSTRIAL ZONE HUIHE STREET JIYANG DISTRICT JINAN SHANDONG CHINA
Telephone.....	: /
Fax.....	: /
Factory.....	**: SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD**
Address.....	: NO. 6-11 BINHE INDUSTRIAL ZONE HUIHE STREET JIYANG DISTRICT JINAN SHANDONG CHINA
Telephone.....	: /
Fax.....	: /

Test Result	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

EUT	:	CNC ROUTER
Test Model	:	SD-1325CC
Model No. List	:	SD-1325CC, SD468, SD668
Model No. difference	:	The internal structure of the product is the same, only the size and color are different.
Power Supply	:	AC 380V
Hardware Version	:	/
Software Version	:	/

1.3. Related Submittal(s)/Grant(s)

No Related Submittals.

1.4. Test Methodology

All measurements contained in this report were conducted with EN IEC 61000-6-2:2019, EN IEC 61000-6-4:2019, EN IEC 61000-3-2:2019+A1:2021 and EN 61000-3-3:2013+A1:2019+A2:2021+AC:2022.

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1.6. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
--	--	--	--	--

1.7. External I/O

I/O Port Description	Quantity	Cable
/	/	/

1.8. List Of Measuring Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	X-series USB Peak and Average Power Sensor Aglient	Agilent	U2021XA	MY54080022	2023-04-24	2024-04-23
2	4 CH. Simultaneous Sampling 14 Bits 2MS/s	Agilent	U2531A	MY54080016	2023-04-24	2024-04-23
3	Test Software	Ascentest	AT890-SW	20160630	N/A	N/A
4	RF Control Unit	Ascentest	AT890-RFB	N/A	2023-04-24	2024-04-23
5	ESA-E SERIES SPECTRUM ANALYZER	Agilent	E4407B	MY41440754	2023-04-24	2024-04-23
6	MXA Signal Analyzer	Agilent	N9020A	MY49100040	2023-04-24	2024-04-23
7	SPECTRUM ANALYZER	R&S	FSP	100503	2023-04-24	2024-04-23
8	MXG Vector Signal Generator	Agilent	N5182A	MY47071151	2023-04-24	2024-04-23
9	ESG VECTOR SIGNAL GENERATOR	Agilent	E4438C	MY42081396	2023-04-24	2024-04-23
10	PSG Analog Signal Generator	Agilent	E8257D	MY4520521	2023-04-24	2024-04-23
11	Universal Radio Communication Tester	R&S	CMU 200	105788	2023-04-24	2024-04-23
12	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW 500	103818	2023-04-24	2024-04-23
13	RF Control Unit	Tonscend	JS0806-1	N/A	2023-04-24	2024-04-23
14	DC Power Supply	Agilent	E3642A	N/A	2023-04-24	2024-04-23
15	LTE Test Software	Tonscend	JS1120-1	N/A	N/A	N/A
16	Temperature & Humidity Chamber	GUANGZHOU GOGNWEN	GDS-100	70932	7000mAh	2024-04-23
17	DC Source	CHROMA	62012P-80-60	34782951	2023-04-24	2024-04-23
18	RF Filter	Micro-Tronics	BRC50718	S/N-017	2023-04-24	2024-04-23
19	RF Filter	Micro-Tronics	BRC50719	S/N-011	2023-04-24	2024-04-23
20	RF Filter	Micro-Tronics	BRC50720	S/N-011	2023-04-24	2024-04-23
21	RF Filter	Micro-Tronics	BRC50721	S/N-013	2023-04-24	2024-04-23
22	RF Filter	Micro-Tronics	BRM50702	S/N-195	2023-04-24	2024-04-23
23	Splitter/Combiner	Micro-Tronics	PS2-15	CB11-20	2023-04-24	2024-04-23
24	Splitter/Combiner	Micro-Tronics	CB11-20	N/A	2023-04-24	2024-04-23
25	Attenuator	Micro-Tronics	PAS-8-10	S/N23466	2023-04-24	2024-04-23
26	Exposure Level Tester	Narda	ELT-400	N-0713	2023-04-24	2024-04-23
27	B-Field Probe	Narda	ELT-400	M-1154	2023-04-24	2024-04-23
28	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2023-04-24	2024-04-23
29	Positioning Controller	MF	MF-7082	/	2023-04-24	2024-04-23
30	EMI Test Software	AUDIX	E3	N/A	2023-04-24	2024-04-23
31	EMI Test Receiver	R&S	ESR 7	101181	2023-04-24	2024-04-23
32	AMPLIFIER	QuieTek	QTK-A2525G	CHM10809065	2023-04-24	2024-04-23
33	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2023-04-24	2024-04-23
34	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2023-04-24	2024-04-23
35	Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1925	2023-04-24	2024-04-23
36	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2023-04-24	2024-04-23
37	Broadband Preamplifier	SCHWARZBECK	BBV 9719	9719-025	2023-04-24	2024-04-23
38	RF Cable-R03m	Jye Bao	RG142	CB021	2023-04-24	2024-04-23
39	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2023-04-24	2024-04-23

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
40	Artificial Mains	R&S	ENV216	101288	2023-04-24	2024-04-23
41	Power Analyzer Test System	Voltech	PM6000	20000670053	2023-04-24	2024-04-23
42	ESD Simulator	SCHLODER	SESD 230	604035	2023-04-24	2024-04-23
43	RF POWER AMPLIFIER	OPHIR	5225R	1052	2023-04-24	2024-04-23
44	RF POWER AMPLIFIER	OPHIR	5273F	1019	2023-04-24	2024-04-23
45	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	2023-04-24	2024-04-23
46	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-482	2023-04-24	2024-04-23
47	Electric field probe	Narda S.TS./PMM	EP601	611WX80208	2023-04-24	2024-04-23
48	Power Meter	Agilent	E4419B	MY45104493	2023-04-24	2024-04-23
49	Power Sensor	Agilent	E9301H	MY41495234	2023-04-24	2024-04-23
50	Power Sensor	Agilent	E4412A	MY41500229	2023-04-24	2024-04-23
51	Sound Level meter	BK Precision	735	73500873100	2023-04-24	2024-04-23
52	Audio Analyzer	R&S	UPV	1146.2003K0	2023-04-24	2024-04-23
53	Mouse Simulation	Bruel & Kjaer	4227	A0304216	2023-04-24	2024-04-23
54	Ear Simulation and supply	Bruel & Kjaer	2669.4182.5935	A0305284	2023-04-24	2024-04-23
55	Acoustical Calibrators	Bruel & Kjaer	4231	A0304215	2023-04-24	2024-04-23
56	Immunity Simulative Generator	EM TEST	UCS500-M4	0101-34	2023-04-24	2024-04-23
57	Simulator	FRANKONIA	CIT-10	A126A1195	2023-04-24	2024-04-23
58	CDN	FRANKONIA	CDN-M2	5100100100	2023-04-24	2024-04-23
59	CDN	FRANKONIA	CDN-M3	0900-11	2023-04-24	2024-04-23
60	Attenuator	FRANKONIA	ATT6	0010222A	2023-04-24	2024-04-23
61	Infuse tongs	EM TEST	EM-Clamp	0513A031201	2023-04-24	2024-04-23
62	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2023-04-24	2024-04-23

1.9. Measurement Uncertainty

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	0.01ppm	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2℃	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

1.10. Description Of Test Modes

There was 3 test Modes. TM1 to TM3 were shown below:

TM1 **:** Operate in normal work mode;
TM2 **:** Power on mode;
TM3 **:** Idle mode

***Note:
1. All test modes were tested, but we only recorded the worst case in this report.

2. SUMMARY OF TEST RESULTS

Rule	Description of Test Items	Result
§11	EN 61000-6-4 Conducted Emission (AC mains input/output port)	Compliant
§11	EN 61000-6-4 Conducted Emission (DC power input/output port)	N/A*
§11	EN 61000-6-4 Conducted Emission (Wired network port)	N/A*
§11	EN 61000-6-4 Radiated Emission (Enclosure of ancillary equipment)	Compliant
§	Harmonic current emissions (AC mains input port)	Compliant
§	Voltage fluctuations and flicker (AC mains input port)	Compliant
§8	EN 61000-6-2 Electrostatic discharge (Enclosure port) (EN 61000-4-2)	Compliant
§8	EN 61000-6-2 RF electromagnetic field (80MHz to 1000MHz) (Enclosure port) (EN 61000-4-3)	Compliant
§8	EN 61000-6-2 Fast transients common mode (signal, wired network and control ports, DC and AC power ports) (EN 61000-4-4)	Compliant
§8	EN 61000-6-2 Surges, line to line and line to ground (AC mains power input ports, wired network ports) (EN 61000-4-5)	Compliant
§8	EN 61000-6-2 RF common mode 0.15MHz to 80MHz (signal, wired network and control ports, DC and AC power ports) (EN 61000-4-6)	Compliant
§8	EN 61000-6-2 Voltage dips and interruptions (AC mains power input ports) (EN 61000-4-11)	Compliant

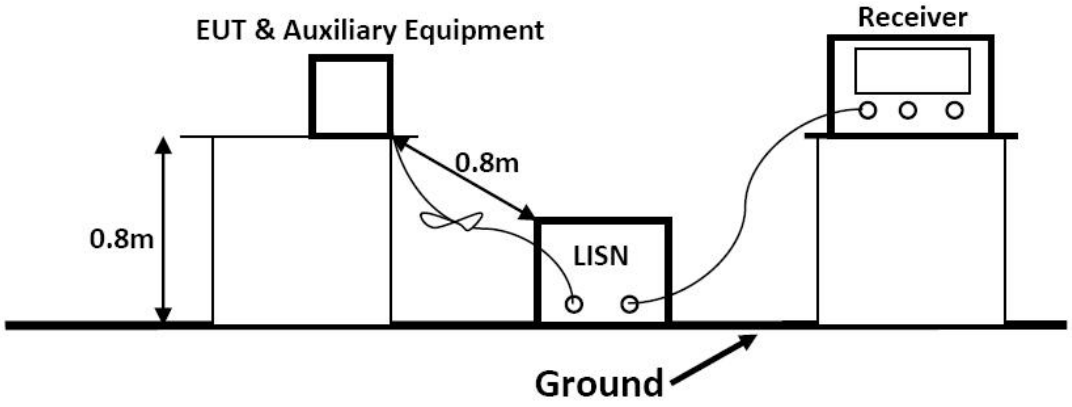
3. LINE CONDUCTED EMISSION

3.1. Conducted Emission Limit

Relevant Standard(s): EN IEC 61000-6-2:2019 /CISPR 11:2009

Limits for Line Conducted Emission		
Frequency (MHz)	Limit (dBμV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	79 *	66 *
0.50 ~ 30.00	73.0	60
NOTE1-The lower limit shall apply at the transition frequencies. NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

3.2. Test Configuration



The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

The EUT received charging power from the Adapter which received power through a LISN supplying power of AC 380V/50Hz.

3.3. EMI Test Receiver Setup

During the conducted emission test, the EMI test receiver was set with the following configurations:

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	150KHz ~ 30MHz
(IF)RBW	9kHz

All data was recorded in the Quasi-peak and average detection mode.

3.4. Test Procedure

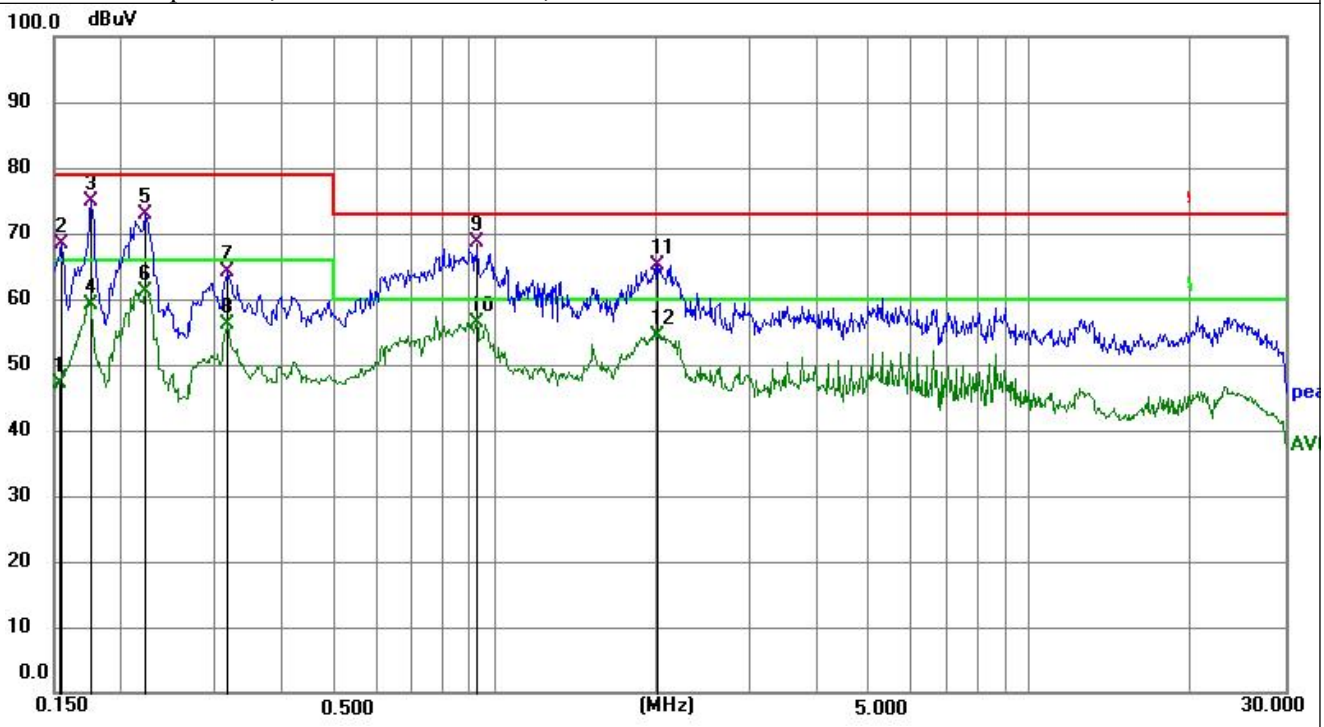
Power on the EUT, the EUT begins to work. Make sure the EUT operates normally during the test.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

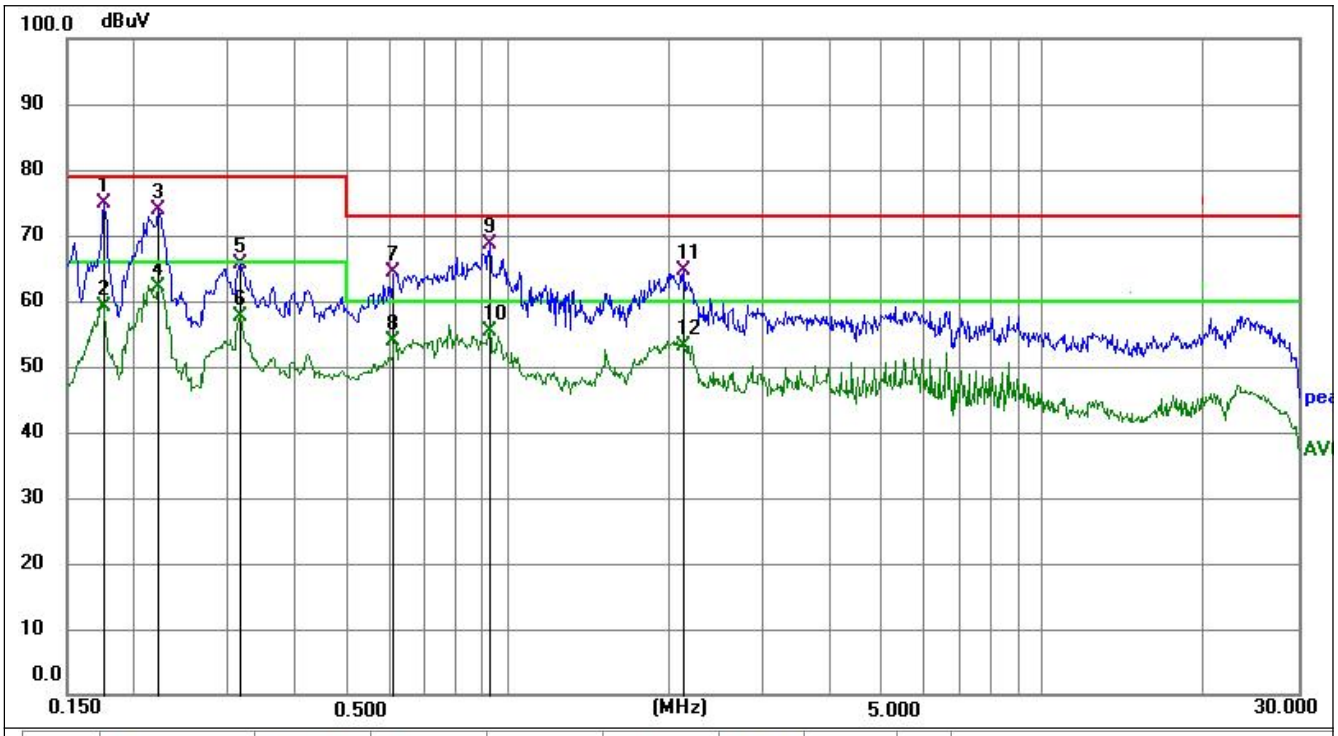
All data was recorded in the Quasi-peak and average detection mode.

3.5. Test Data

***Note: For pre-scan, the worst case is TM1, and the test data was shown as follow:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1539	27.14	20.08	47.22	66.00	-18.78	AVG	P	
2	0.1544	48.38	20.08	68.46	79.00	-10.54	QP	P	
3	0.1758	54.89	20.09	74.98	79.00	-4.02	QP	P	
4	0.1758	39.01	20.09	59.10	66.00	-6.90	AVG	P	
5	0.2220	52.88	20.10	72.98	79.00	-6.02	QP	P	
6	0.2220	41.13	20.10	61.23	66.00	-4.77	AVG	P	
7	0.3165	43.92	20.12	64.04	79.00	-14.96	QP	P	
8	0.3165	35.91	20.12	56.03	66.00	-9.97	AVG	P	
9	0.9240	48.24	20.28	68.52	73.00	-4.48	QP	P	
10 *	0.9240	36.15	20.28	56.43	60.00	-3.57	AVG	P	
11	2.0130	44.83	20.37	65.20	73.00	-7.80	QP	P	
12	2.0130	33.90	20.37	54.27	60.00	-5.73	AVG	P	



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1758	54.89	20.09	74.98	79.00	-4.02	QP	P	
2	0.1758	39.01	20.09	59.10	66.00	-6.90	AVG	P	
3	0.2220	53.88	20.10	73.98	79.00	-5.02	QP	P	
4 *	0.2220	42.13	20.10	62.23	66.00	-3.77	AVG	P	
5	0.3165	45.42	20.12	65.54	79.00	-13.46	QP	P	
6	0.3165	37.41	20.12	57.53	66.00	-8.47	AVG	P	
7	0.6134	44.27	20.19	64.46	73.00	-8.54	QP	P	
8	0.6134	33.58	20.19	53.77	60.00	-6.23	AVG	P	
9	0.9240	48.24	20.28	68.52	73.00	-4.48	QP	P	
10	0.9240	35.15	20.28	55.43	60.00	-4.57	AVG	P	
11	2.1433	44.19	20.37	64.56	73.00	-8.44	QP	P	
12	2.1433	32.74	20.37	53.11	60.00	-6.89	AVG	P	

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

4. RADIATED DISTURBANCE

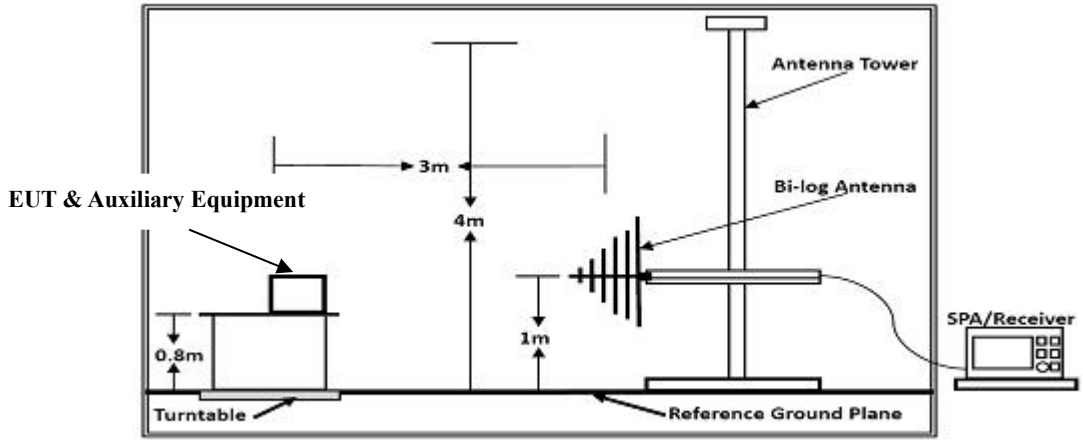
4.1. Radiated Emission Limit

Relevant Standard(s): EN IEC 61000-6-2:2019 /CISPR 11:2009

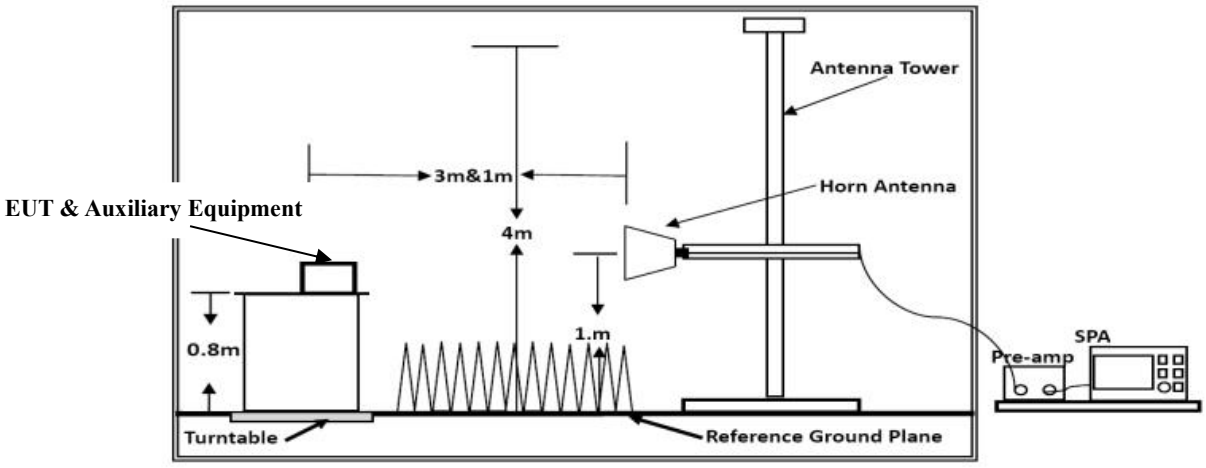
Limits for Radiated Disturbance Below 1GHz		
Frequency (MHz)	Distance (Meters)	Field Strengths Limit (dBμV/m)
30 ~ 230	3	50
230 ~ 1000	3	57
***Note: (1) The smaller limit shall apply at the combination point between two frequency bands. (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.		

Limits for Radiated Disturbance Above 1GHz			
Frequency (MHz)	Distance (Meters)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)
1000 ~ 3000	3	76	56
3000 ~ 6000	3	80	60
***Note: The lower limit applies at the transition frequency.			

4.2. Test Configuration



Below 1GHz



Above 1GHz

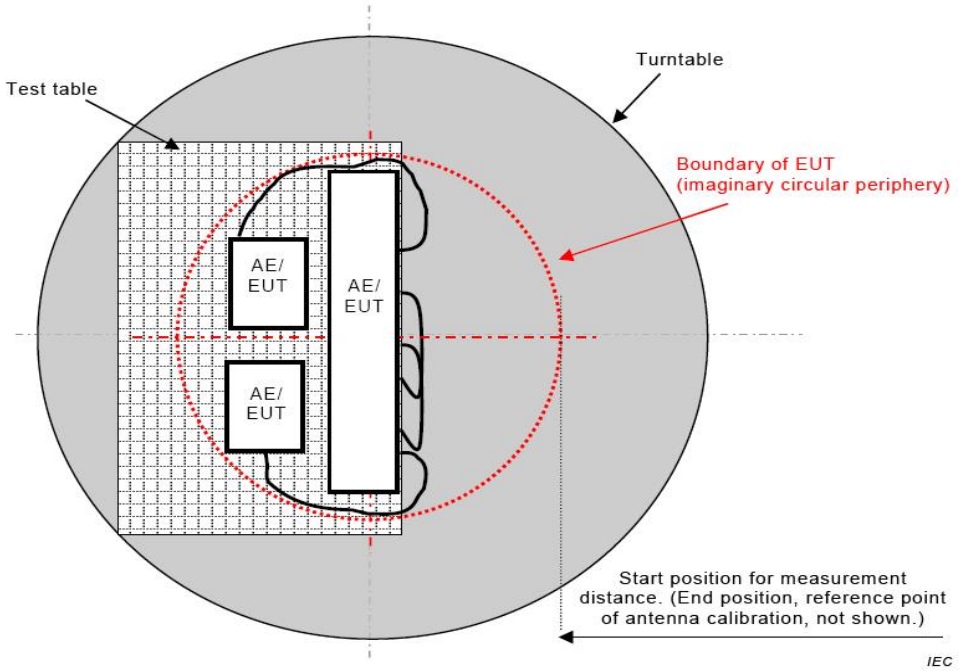


Figure C.2 – Boundary of EUT, Local AE and associated cabling

4.3. Test Procedure

1) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
--- Auxiliary equipment and cables were positioned to simulate normal operation conditions
--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
--- The measurement distance is 3 meter.
--- The EUT was set into operation.

Pre-measurement:

--- The turntable rotates from 0° to 315° using 45° steps.
--- The antenna is polarized vertical and horizontal.
--- The antenna height changes from 1 to 4 meter.
--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.
--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.
--- The final measurement will be done with QP detector with an EMI receiver.
--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre-measurement with marked maximum final measurements and the limit will be stored.

2) Sequence of testing 1 GHz to 6 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
--- Auxiliary equipment and cables were positioned to simulate normal operation conditions
--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
--- The measurement distance is 3 meter.
--- The EUT was set into operation.

Pre-measurement:

--- The turntable rotates from 0° to 315° using 45° steps.
--- The antenna is polarized vertical and horizontal.
--- The antenna height scan range is 1 meter to 4 meter.
--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.
--- According to the maximum antenna and turntable positions of pre-measurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with

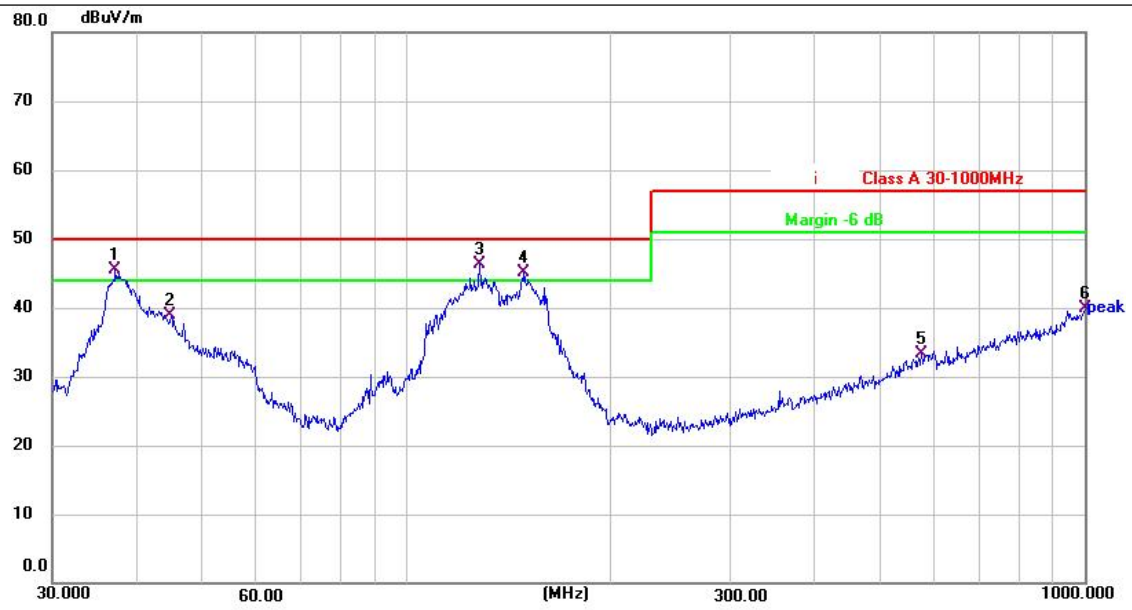
the graph of the pre-measurement with marked maximum final measurements and the limit will be stored.

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	30MHz~1000MHz / RBW 100kHz for QP

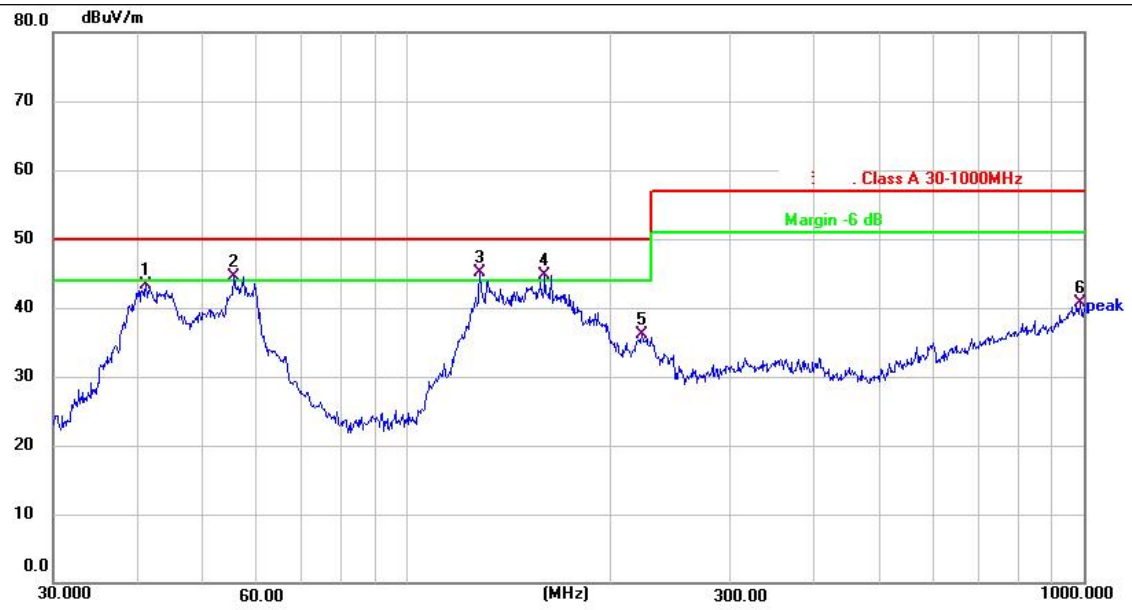
Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	6000 MHz
RBW / VBW	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

4.4. Test Data

The worst test mode of the EUT was TM1, and its test data was showed as the follow:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	37.1550	62.77	-17.19	45.58	50.00	-4.42	QP	100	209	P	
2	44.9004	56.76	-17.86	38.90	50.00	-11.10	QP	300	165	P	
3 *	128.1130	64.47	-18.26	46.21	50.00	-3.79	QP	200	198	P	
4 !	148.9624	61.96	-16.86	45.10	50.00	-4.90	QP	200	133	P	
5	574.6258	45.75	-12.37	33.38	57.00	-23.62	QP	100	220	P	
6	1000.0000	46.67	-6.71	39.96	57.00	-17.04	QP	200	54	P	



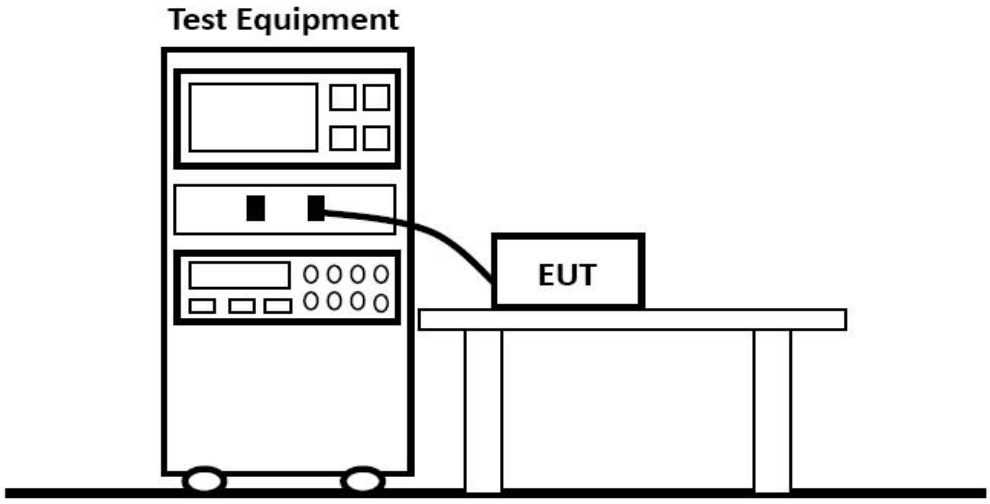
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	41.1320	60.34	-17.09	43.25	50.00	-6.75	QP	100	25	P	
2 !	55.4147	62.38	-17.89	44.49	50.00	-5.51	QP	199	147	P	
3 *	128.1130	63.32	-18.26	45.06	50.00	-4.94	QP	199	129	P	
4 !	159.7844	62.00	-17.23	44.77	50.00	-5.23	QP	100	265	P	
5	222.1697	56.04	-19.94	36.10	50.00	-13.90	QP	299	38	P	
6	986.0715	47.56	-6.86	40.70	57.00	-16.30	QP	299	325	P	

Test Mode: TM1 (Above 1GHz)				**Test Distance:** 3m			
Test Voltage: AC 380V/50Hz				**Test Results:** Passed			
Detector Function: Peak + AV							
Polarization	Frequency (MHz)	Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
Horizontal	1350.63	50.09	37.90	76.00	56.00	-19.91	-12.10
	1884.93	47.85	36.33	76.00	56.00	-22.15	-13.67
	2188.83	49.02	31.69	76.00	56.00	-24.98	-22.31
	3290.43	56.29	31.63	80.00	60.00	-17.71	-22.37
	4332.04	51.33	34.55	80.00	60.00	-22.67	-19.45
	5886.54	53.77	36.46	80.00	60.00	-20.23	-17.54
Vertical	1350.31	50.01	36.54	76.00	56.00	-19.99	-13.46
	1884.74	47.84	36.12	76.00	56.00	-22.16	-13.88
	2191.17	48.03	30.57	76.00	56.00	-25.97	-23.43
	3294.60	57.43	33.09	80.00	60.00	-16.57	-20.91
	4328.72	50.94	35.04	80.00	60.00	-23.06	-18.96
	5884.18	55.10	36.79	80.00	60.00	-18.90	-17.21

1. Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
2. Measurements above show only up to 6 maximum emissions noted.
3. Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

5. HARMONIC CURRENT EMISSIONS

5.1. Test Configuration



5.2. Test Standard

According to EN IEC 61000-6-2:2019 & EN 61000-3-2: 2014

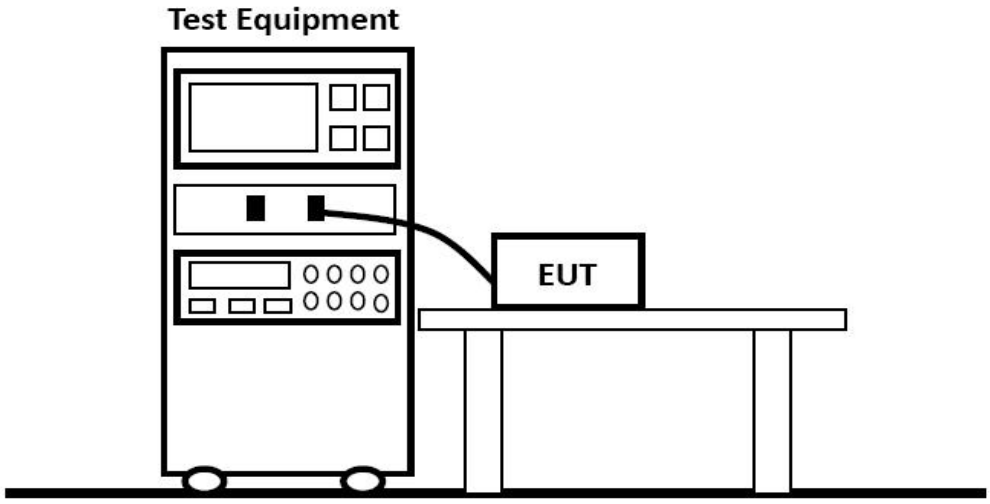
5.3. Test Data

Test Model	SD-1325CC	**Test Engineer**	Jason Li
Environmental Conditions	24.6℃, 52.6% RH	**Test Voltage**	AC 380V/50Hz

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

6. VOLTAGE FLUCTUATION AND FLICKER

6.1. Test Configuration



6.2. Test Standard

According to EN IEC 61000-6-2:2019 & EN 61000-3-3: 2013

6.3. Test Data

PASS.

7. GENERAL PERFORMANCE CRITERIA FOR IMMUNITY TEST

Performance criteria for EN IEC 61000-6-2

A functional description and a definition of specific performance criteria, during or as a consequence of immunity testing of equipment under test (EUT), shall be provided by the manufacturer and noted in the test report. They shall be consistent with one of the following general criteria for each test as specified in Table 1 to Table 4:

a) Performance criterion A: The EUT 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 EUT is used as intended. If the performance level is not specified by the manufacturer, this may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

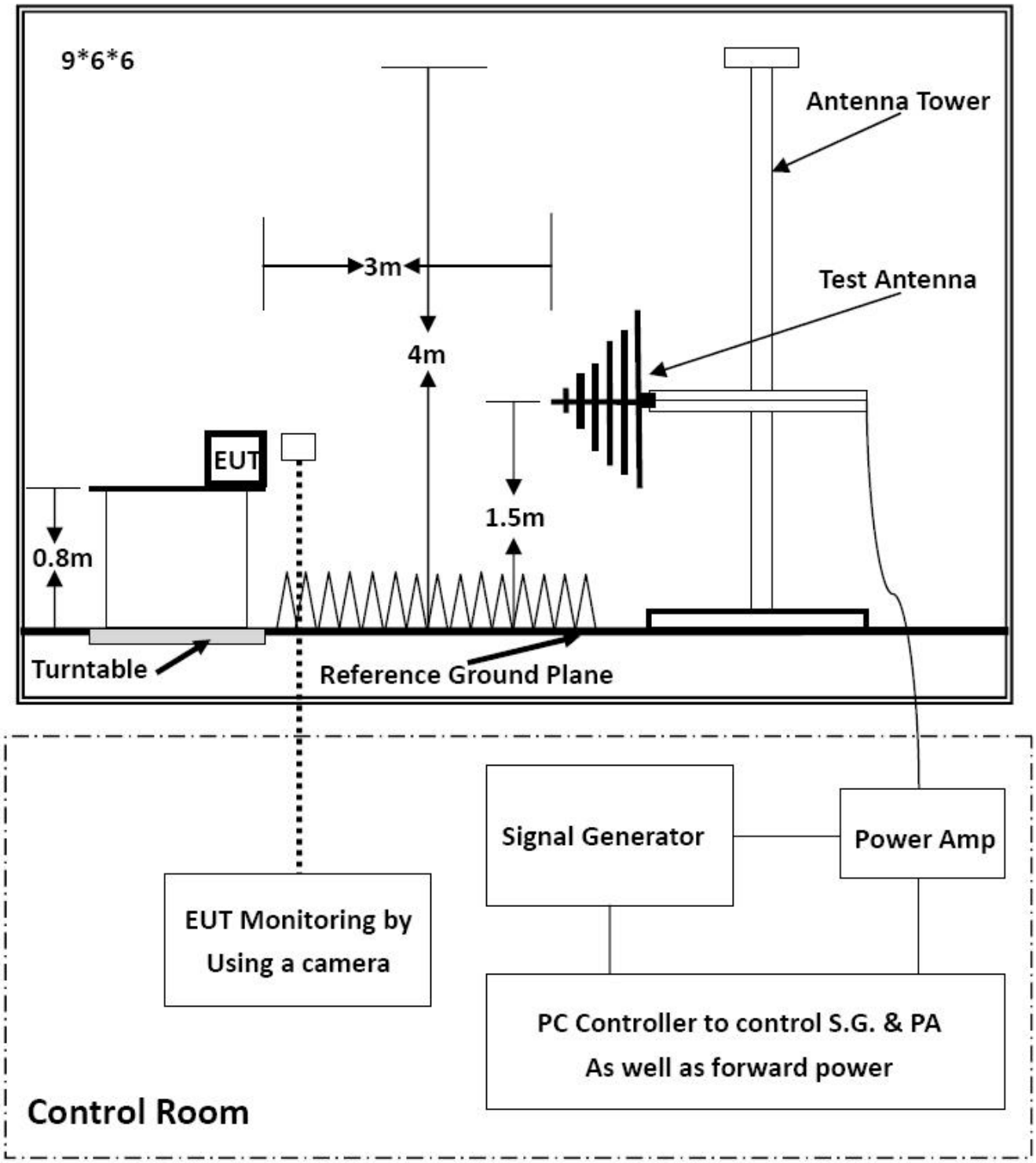
b) Performance criterion B: The EUT shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However, during the test degradation of performance is allowed but 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 equipment if used as intended.

c) Performance criterion C: Temporary loss of function is allowed during the test, provided the function is self-recoverable or can be restored by the operation of the controls.

If, as a result of the application of the tests defined in this standard, the EUT becomes dangerous or unsafe, it shall be deemed to have failed the test.

8. RF ELECTROMAGNETIC FIELD (80 MHz - 1000 MHz)

8.1. Test Configuration



8.2. Test Standard

EN 61000-6-2, EN61000-4-3

Test level 3 at 10V/m.

8.3. Severity Level

Level	Field Strength (V/m)
1	1
2	3
3	10
X	Special
Performance Criterion: **A**	

8.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remark
Fielded Strength	10 V/m (Severity Level 2)
Radiated Signal	Unmodulated
Scanning Frequency	80-1000MHz
Dwell time of radiated	0.0015 decade/s
Waiting Time	3 Sec.

8.5. Test Result

Test Model	SD-1325CC	**Test Engineer**	Jason Li
Environmental Conditions	23.5℃, 53.2% RH	**Test Voltage**	AC 380V/50Hz

2.4G TM1 Test Result:

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-1000	10	CT, CR	Front, Right, Left, Back	Pass
	Horizontal	80-1000	10	CT, CR	Front, Right, Left, Back	Pass
Idle	Vertical	80-1000	10	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-1000	10	See Note	Front, Right, Left, Back	Pass

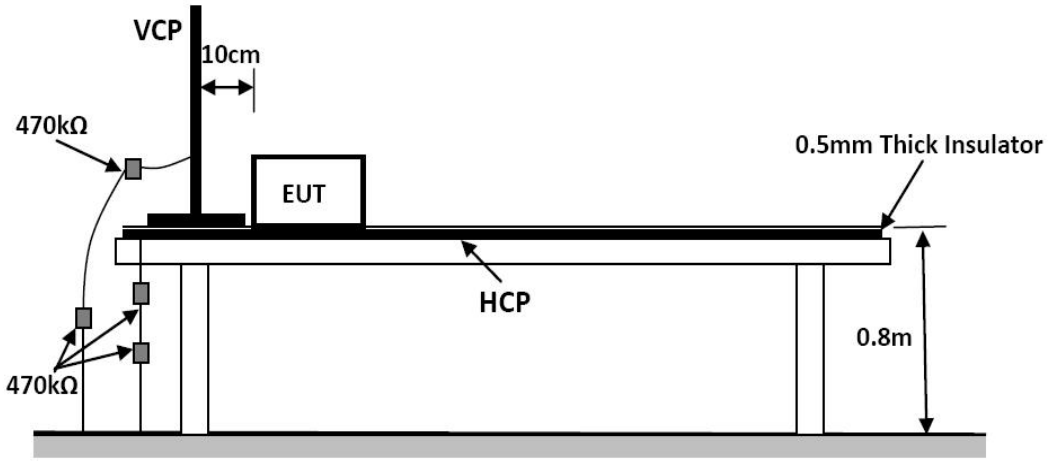
TM2-TM3 Test Result:

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-1000	10	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-1000	10	See Note	Front, Right, Left, Back	Pass
Idle	Vertical	80-1000	10	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-1000	10	See Note	Front, Right, Left, Back	Pass

9. ELECTROSTATIC DISCHARGE

Please refer to ETSI EN 301 489-1 and EN 61000-4-2.

9.1. Test Configuration



EN 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.5 by 1.0-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by 0.5-millimeter thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

9.2. Test Procedure

EN IEC 61000-6-2:2019 / EN 61000-4-2: 2009
Test level 3 for Air Discharge at ±8 kV
Test level 2 for Contact Discharge at ±4 kV

9.2.1. 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.

9.2.2. Contact Discharge

All the procedure shall be same as Section 9.2.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

9.2.3. 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.

9.2.4. Indirect Discharge For Vertical Coupling Plane

At least 10 single discharges (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.

9.3. Test Data

PASS.

Electrostatic Discharge Test Results

Standard	☐ IEC 61000-4-2 ☑ EN 61000-4-2		
Applicant	SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD		
EUT	CNC ROUTER	**Temperature**	23.5℃
M/N	SD-1325CC	**Humidity**	53.1％
Criterion	B	**Pressure**	1021mbar
Test Mode	TM1-TM3	**Test Date**	
Test Engineer	Jason Li		

TEST RESULT OF TM1

Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	CT, CR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	CT, CR	Pass
±2KV, ±4kV	Indirect Discharge HCP	CT, CR	Pass
±2KV, ±4kV	Indirect Discharge VCP	CT, CR	Pass

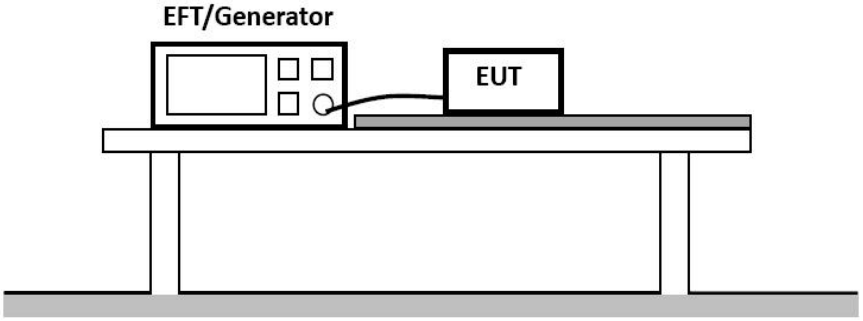
TEST RESULT OF TM2-TM3

Test Voltage	Coupling	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	Pass
±2KV, ±4kV, ±8kV	Air Discharge	Pass
±2KV, ±4kV	Indirect Discharge HCP	Pass
±2KV, ±4kV	Indirect Discharge VCP	Pass

Note: The EUT performance complied with performance criteria for CT&CR to MS Function and there is no any degradation of performance and function.

10. ELECTRICAL FAST TRANSIENT IMMUNITY

10.1. Test Configuration



10.2. Test Standard

EN IEC 61000-6-2:2019/ EN61000-4-4: 2012
Test level 2 kV

Test Level		
Open Circuit Output Test Voltage ±10%		
Level	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
Performance Criterion: B		

10.3. Test Procedure

The EUT is put on the table, which 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.

10.3.1.For input and output AC power ports:
The EUT is connected to the power mains by using a coupling device, which 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 minutes.

10.3.2.For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

10.3.3.For DC output line ports: It's unnecessary to test.

10.4. Test Data

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

Standard	☐ IEC 61000-4-4 ☑ EN 61000-4-4		
Applicant	SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD		
EUT	CNC ROUTER	**Temperature**	24.6℃
M/N	SD-1325CC	**Humidity**	52.6%
Test Mode	TM1-TM3	**Criterion**	B
Test Engineer	Jason Li		

TEST RESULT OF TM1

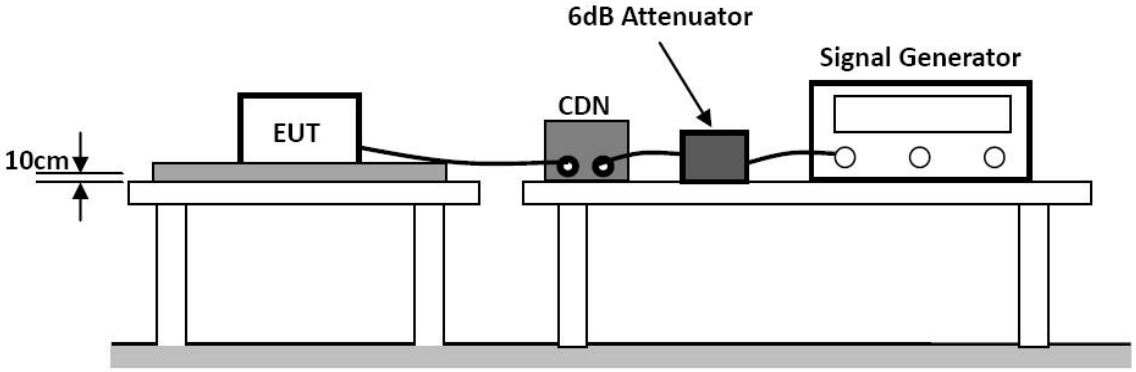
Line	Test Voltage	Polarity	Observation	Result (Pass/Fail)
L	2KV	+/-	CT, CR	Pass
N	2KV	+/-	CT, CR	Pass
L-N	2KV	+/-	CT, CR	Pass

TEST RESULT OF TM2-TM3

Line	Test Voltage	Polarity	Result (Pass/Fail)
L	2KV	+/-	Pass
N	2KV	+/-	Pass
L-N	2KV	+/-	Pass

11. RF COMMON MODE

11.1. Test Configuration



11.2. Test Standard

EN IEC 61000-6-2:2019/ EN 61000-4-6: 2014
Test level 3 at 310V (r.m.s.), 0.15 MHz ~ 80 MHz,
Modulation type: AM
Modulation depth: 80%
Modulation signal: 1 kHz

Test Level	
Level	Voltage Level (r.m.s..) (V)
1	1
2	3
3	10
X	Special
Performance Criterion: A	

11.3. Test Procedure

11.3.1. Let the EUT work in test mode and test it.

11.3.2. 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 50mm (where possible).

11.3.3. The disturbance signal described below is injected to EUT through CDN.

11.3.4. The EUT operates within its operational mode(s) under intended climatic conditions after power on.

11.3.5. 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.

11.3.6. 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.

11.3.7. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

11.4. Test Data

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

Standard	☐ IEC 61000-4-6 ☑ EN 61000-4-6		
Applicant	SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD		
EUT	CNC ROUTER	**Temperature**	22.6℃
M/N	SD-1325CC	**Humidity**	52.3％
Test Mode	TM1-TM3	**Criterion**	A
Test Engineer	Jason Li		

TEST RESULT OF TM1

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Observation	Result (Pass/Fail)
0.15 ~ 80	AC Mains	3V	CT, CR	Pass

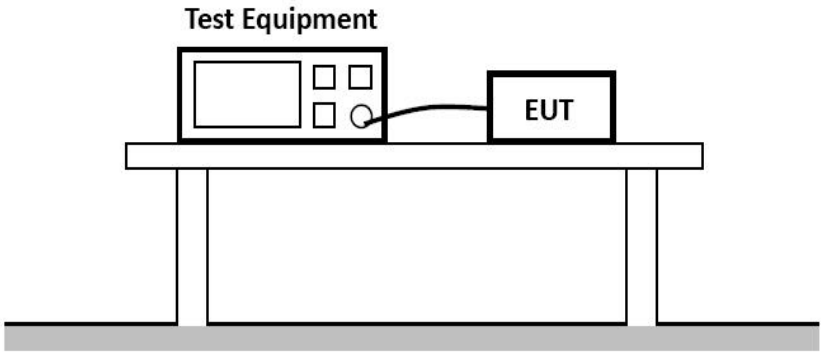
TEST RESULT OF TM2-TM3

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Result (Pass/Fail)
0.15 ~ 80	AC Mains	10V	Pass

Remark:
1. Modulation Signal:1kHz 80% AM
2. Measurement Equipment :
Simulator: CIT-10 (FRANKONIA)
CDN : ☑CDN-M2 (FRANKONIA)
☐CDN-M3 (FRANKONIA)

12. SURGES, LINE TO LINE AND LINE TO GROUND

12.1. Test Configuration



12.2. Test Standard

EN IEC 61000-6-2:2019 / EN 61000-4-5: 2014
L-N: Test level 2 at 1 kV
L-PE, N-PE Test Level 3 at 2kV

Test Level		
Open Circuit Output Test Voltage ±10%		
Level	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
Performance Criterion: B		

12.3. Test Procedure

12.3.1. For line to line coupling mode, provide a 0.5 kV 1.2/50us voltage surge (at open-circuit condition).
12.3.2. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
12.3.3. Different phase angles are done individually.
12.3.4. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

12.4. Test Data

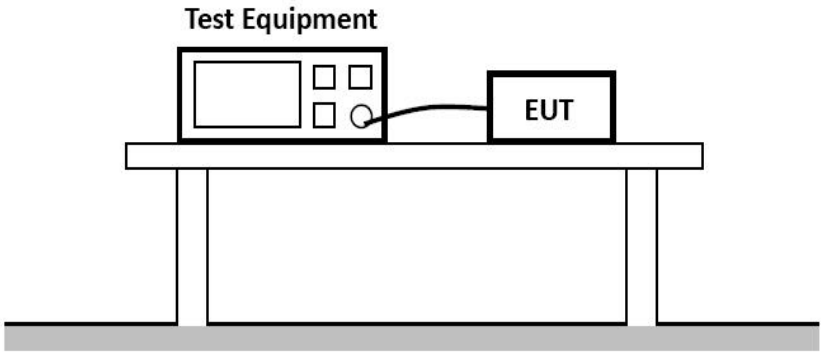
Surge Immunity Test Result			
Standard	☐ IEC 61000-4-5 ☑ EN 61000-4-5		
Applicant	SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD		
EUT	CNC ROUTER	**Temperature**	24.6℃
M/N	SD-1325CC	**Humidity**	52.6%
Test Mode	TM1-TM3	**Criterion**	A
Test Engineer	Jason Li		

TEST RESULT OF TM1						
Location	**Polarity**	**Phase Angle**	**Number of Pulse**	**Pulse Voltage (KV)**	**Observation**	**Result (Pass/Fail)**
L-N	+	0°, 90°, 180°, 270°	5	1.0	CT, CR	Pass
	-	0°, 90°, 180°, 270°	5	1.0	CT, CR	Pass

TEST RESULT OF TM2-TM3					
Location	**Polarity**	**Phase Angle**	**Number of Pulse**	**Pulse Voltage (KV)**	**Result (Pass/Fail)**
L-N	+	0°, 90°, 180°, 270°	5	1.0	Pass
	-	0°, 90°, 180°, 270°	5	1.0	Pass

13. VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

13.1. Test Configuration



13.2. Test Standard

EN IEC 61000-6-2:2019/ EN 61000-4-11: 2004
Test levels and Performance Criterion

Test Level		
Voltage Reduction $\%U_T$	Voltage Dips $\%U_T$	Duration (in Period)
100	0	0.5
100	0	1
30	70	5
Voltage Reduction $\%U_T$	Voltage Dips $\%U_T$	Duration (in Period)
100	0	250
Performance Criterion: B&C		

13.3. Test Procedure

13.3.1. The interruption is introduced at selected phase angles with specified duration.

13.3.2. Record any degradation of performance.

13.4. Test Data

Voltage Dips And Interruptions Test Results

Standard	☐ IEC 61000-4-11 ☑ EN 61000-4-11		
Applicant	SHANDONG SUDIAO INTELLIGENT EQUIPMENT CO., LTD		
EUT	CNC ROUTER	**Temperature**	24.6℃
M/N	SD-1325CC	**Humidity**	52.6%
Test Mode	TM1-TM3	**Criterion**	A
Test Engineer	Jason Li		

TEST RESULT OF TM1				
Test Level % U_T	**Voltage Dips & Short Interruptions % U_T**	**Duration (in periods)**	**Observation**	**Result (Pass/Fail)**
0	100	0.5P	CT, CR	Pass
0	100	1P	CT, CR	Pass
40	100	0.5P	CT, CR	Pass
40	100	1P	CT, CR	Pass
70	30	25P	CT, CR	Pass
0	100	250P	CT, CR	Pass

TEST RESULT OF TM2-TM3			
Test Level % U_T	**Voltage Dips & Short Interruptions % U_T**	**Duration (in periods)**	**Result (Pass/Fail)**
0	100	0.5P	Pass
0	100	1P	Pass
40	100	0.5P	Pass
40	100	1P	Pass
70	30	25P	Pass
0	100	250P	Pass

14. Setup Photographs

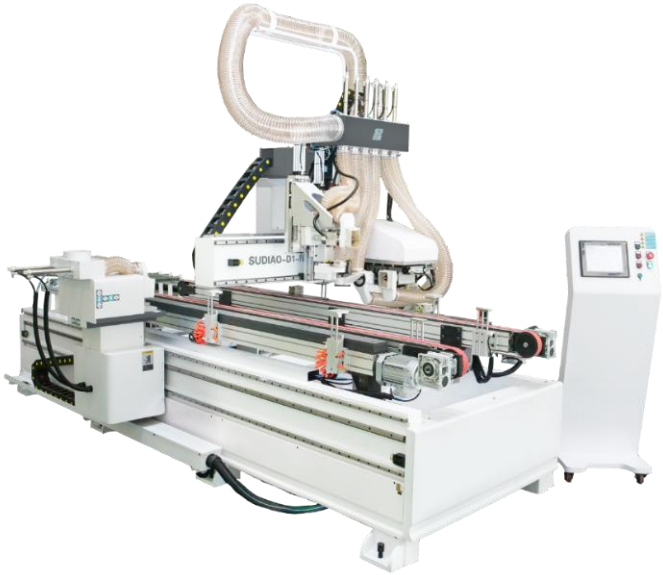


Fig.1

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