



Shenzhen Tian Hai Test Technology Co., Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C02-C01

Report number: TH2105142-C02-R01

Shenzhen Tian Hai Test Technology Co., Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R. China
Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R. China
Product: **Frequency Converter**
Model: See models list below
Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 5A
Note: All test results are based on model PDH30-4T2R2

And, in accordance with the following applicable directives:

2014/30/EU Electromagnetic Compatibility (EMC)

This product has been assessed against the following applicable standards:

Standard(s): **EN IEC 61800-3:2018**
EN IEC 61000-3-11:2019
EN 61000-3-12:2011

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION of CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:



Thomas Wong



Date of Issued: 2021-08-30

4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guan lan street, Longhua district, Shenzhen

Tel: +86-755-86615100

Fax: +86-755-86615105

<http://www.tianhaitest.com>



Models list				
0.75kw	PDH30-4TR75	PDH30-4TR75-NP	PDH30-4TR75-E	PDH30-4TR75-E-NP
1.5kw	PDH30-4T1R5	PDH30-4T1R5-NP	PDH30-4T1R5-E	PDH30-4T1R5-E-NP
2.2kw	PDH30-4T2R2	PDH30-4T2R2-NP	PDH30-4T2R2-E	PDH30-4T2R2-E-NP



Shenzhen Tian Hai Test Technology Co., Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C06-C01

Report number: TH2105142-C06-R01

Shenzhen Tian Hai Test Technology Co., Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Product: **Frequency Converter**
Model: See models list below
Trademark: SAJ
Rating: Input: 3PH AC 380V±15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9.0A
Note: All test results are based on model PDH30-4T004

And, in accordance with the following applicable directives:

2014/30/EU Electromagnetic Compatibility (EMC)

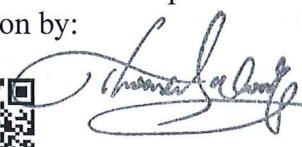
This product has been assessed against the following applicable standards:

Standard(s):
EN IEC 61800-3:2018
EN IEC 61000-3-11:2019
EN 61000-3-12:2011

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION OF CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:




Thomas Wong



Date of Issued: 2021-09-06

4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guan lan street, Longhua district, Shenzhen

Tel: +86-755-86615100

Fax: +86-755-86615105

<http://www.tianhaitest.com>



Shenzhen Tian Hai Test Technology Co.,Ltd.

Models list				
4kw	PDH30-4T004	PDH30-4T004-NP	PDH30-4T004-E	PDH30-4T004-E-NP
5.5kw	PDH30-4T5R5	PDH30-4T5R5-NP	PDH30-4T5R5-E	PDH30-4T5R5-E-NP
7.5kw	PDH30-4T7R5	PDH30-4T7R5-NP	PDH30-4T7R5-E	PDH30-4T7R5-E-NP



Shenzhen Tian Hai Test Technology Co.,Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C09-C01

Report number: TH2105142-C09-R01

Shenzhen Tian Hai Test Technology Co., Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Product: **Frequency Converter**
Model: See the table below
Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 5A
Note: All test results are based on model PDH30-4T18R5

And, in accordance with the following applicable directives:

2014/30/EU Electromagnetic Compatibility (EMC)

This product has been assessed against the following applicable standards:

**Standard(s): EN IEC 61800-3:2018, EN IEC 61000-3-11:2019
EN 61000-3-12:2011**

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION of CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:



Thomas Wong



Date of Issued: 2022-02-14

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Tel: +86-755-86615100

Fax: +86-755-86615105

<http://www.tianhaitest.com>



Shenzhen Tian Hai Test Technology Co.,Ltd.

Model List				
PDH30	PDH30-4T011	PDH30-4T011-NP	PDH30-4T011-E	PDH30-4T011-E-NP
PDH30	PDH30-4T015	PDH30-4T015-NP	PDH30-4T015-E	PDH30-4T015-E-NP
PDH30	PDH30-4T18R5	PDH30-4T18R5-NP	PDH30-4T18R5-E	PDH30-4T18R5-E-NP
PDH30	PDH30-4T022	PDH30-4T022-NP	PDH30-4T022-E	PDH30-4T022-E-NP



Shenzhen Tian Hai Test Technology Co.,Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C01-C01

Report number: TH2105142-C01-R01

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Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R. China
Product: **Frequency Converter**
Model: (See attachment)
Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 5A

And, in accordance with the following applicable directives

2014/35/EU Low Voltage Directive(LVD)

This product has been assessed against the following applicable standards:

Standards EN 61800-5-1:2007/A1:2017

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION of CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:



Thomas Wong



Date of Issued: 2021-09-06



Shenzhen Tian Hai Test Technology Co.,Ltd.

Attachment for TH2105142-C01-C01

Power	Model			
0.75kW	PDH30-4TR75	PDH30-4TR75-NP	PDH30-4TR75-E	PDH30-4TR75-E-NP
1.5kW	PDH30-4T1R5	PDH30-4T1R5-NP	PDH30-4T1R5-E	PDH30-4T1R5-E-NP
2.2kW	PDH30-4T2R2	PDH30-4T2R2-NP	PDH30-4T2R2-E	PDH30-4T2R2-E-NP



Shenzhen Tian Hai Test Technology Co.,Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C05-C01

Report number: TH2105142-C05-R01

Shenzhen Tian Hai Test Technology Co., Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R. China
Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R. China
Product: **Frequency Converter**
Model: (See attachment)
Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9.0A

And, in accordance with the following applicable directives

2014/35/EU Low Voltage Directive (LVD)

This product has been assessed against the following applicable standards:

Standards EN 61800-5-1:2007/A1:2017

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION of CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:



Thomas Wong



Date of Issued: 2021-09-06



Shenzhen Tian Hai Test Technology Co.,Ltd.

Attachment for TH2105142-C05-C01

Power	Model			
4kW	PDH30-4T004	PDH30-4T004-NP	PDH30-4T004-E	PDH30-4T004-E-NP
5.5kW	PDH30-4T5R5	PDH30-4T5R5-NP	PDH30-4T5R5-E	PDH30-4T5R5-E-NP
7.5kW	PDH30-4T7R5	PDH30-4T7R5-NP	PDH30-4T7R5-E	PDH30-4T7R5-E-NP



Shenzhen Tian Hai Test Technology Co.,Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C10-C01

Report number: TH2105142-C10-R01

Shenzhen Tian Hai Test Technology Co., Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R. China
Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R. China
Product: **Frequency Converter**
PDH30 PDH30-4T011, PDH30-4T011-NP, PDH30-4T011-E, PDH30-4T011-E-NP;
PDH30 PDH30-4T015, PDH30-4T015-NP, PDH30-4T015-E, PDH30-4T015-E-NP;
Series model: PDH30 PDH30-4T18R5, PDH30-4T18R5-NP, PDH30-4T18R5-E,
PDH30-4T18R5-E-NP;
PDH30 PDH30-4T022, PDH30-4T022-NP, PDH30-4T022-E, PDH30-4T022-E-NP
Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V, 0-50/60Hz, 5A
Note: All tests performed on model: PDH30-4T18R5.

And, in accordance with the following applicable directives

2014/35/EU Low Voltage Directive (LVD)

This product has been assessed against the following applicable standards:

Standards EN 61800-5-1:2007/A1:2017

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION of CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:



Thomas Wong



Date of Issued: 2022-02-14

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EN 61000-3-12:2011

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Models list				
0.75kw	PDH30-4TR75	PDH30-4TR75-NP	PDH30-4TR75-E	PDH30-4TR75-E-NP
1.5kw	PDH30-4T1R5	PDH30-4T1R5-NP	PDH30-4T1R5-E	PDH30-4T1R5-E-NP
2.2kw	PDH30-4T2R2	PDH30-4T2R2-NP	PDH30-4T2R2-E	PDH30-4T2R2-E-NP



EMC TEST REPORT

EN IEC 61800-3:2018
EN IEC 61000-3-11:2019
EN 61000-3-12:2011

MEASUREMENT AND TEST REPORT

For

Guangzhou Sanjing Electric Co., Ltd.

SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R.China

Model: See the Page 6

2021-08-30

This Report Concerns: ☒ Original Report	Equipment Type: Frequency Converter
Test Engineer:	Eric Tao/ <i>Eric Tao</i>
Report Number:	TH2105142-C02-R01
Test Date:	2021-08-02 to 2021-08-30
Reviewed By:	Prince Huang/ <i>Prince Huang</i>
Approved By:	Prince Huang/ <i>Prince Huang</i>
Prepared By:	Shenzhen Tian Hai Test Technology Co.,Ltd. 4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guanlan street, Longhua district, Shenzhen Tel : +86-755-86615100 Fax: +86-755-86615105

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of TianHai Compliance Testing Laboratory Ltd.



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1 - SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION				
Description of Test Item	Test Standard	Basic Standard	Requirement	Results
Conducted disturbance	EN 61800-3	EN 61800-3	First environment C2	PASS
Radiated disturbance	EN 61800-3	EN 61800-3	First environment C2	PASS
Harmonic current emissions	EN 61000-3-12	EN 61000-3-12	Class A	PASS
Voltage fluctuations & flicker	EN IEC 61000-3-11	EN IEC 61000-3-11	Clause5	PASS
IMMUNITY				
Description of Test Item	Test Standard	Basic Standard	Test configuration	Results
Electrostatic discharge (ESD)	EN 61800-3	IEC 61000-4-2	Air Discharge: $\pm 8\text{KV}$ Contact Discharge: $\pm 4\text{KV}$	PASS
Radio-frequency, Continuous radiated disturbance	EN 61800-3	IEC 61000-4-3	1%1kHz, 80% AM 3V/m 80MHz-1G 3V/m 1.4GHz-2GHz 1V/m 2GHz-2.7GHz	PASS
Electrical fast transient (EFT)	EN 61800-3	IEC 61000-4-4	Tr/Th 5/50 ns 5kHz 1KV	PASS
Surge (Input a.c. power ports)	EN 61800-3	IEC 61000-4-5	1.2/50us Tr/Td 1kV Line to Line 2kV Line to Ground	PASS
Radio-frequency, Continuous conducted disturbance	EN 61800-3	IEC 61000-4-6	3V r.m.s.: 0.15MHz- 80MHz 80%, 1kHz Amp. Mod.	PASS
Power frequency magnetic field*	EN 61800-3	IEC 61000-4-8	--	N/A
Remark: N/A is an abbreviation for Not Applicable. “*”: The EUT does not contain devices susceptible to magnetic fields; therefore the Power-Frequency Magnetic Fields test is not necessary.				



1.2 Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

1.2.1 Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment 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, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2 Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3 Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be loss.



2 - GENERAL INFORMATION

2.1 Product Description for Equipment under Test EUT

Client Information

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**

Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R. China

Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**

Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R. China

General Description of E.U.T

EUT Name: Frequency Converter

Trademark: SAJ

Model No.: See models list below

Ratings: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 5A

Test Mode: ON

Note: All test results are based on model PDH30-4T2R2

Models list				
0.75kw	PDH30-4TR75	PDH30-4TR75-NP	PDH30-4TR75-E	PDH30-4TR75-E-NP
1.5kw	PDH30-4T1R5	PDH30-4T1R5-NP	PDH30-4T1R5-E	PDH30-4T1R5-E-NP
2.2kw	PDH30-4T2R2	PDH30-4T2R2-NP	PDH30-4T2R2-E	PDH30-4T2R2-E-NP



2.2 Statement of the measurement uncertainty Test Facility

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration Limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16-4-2“Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.3 Measurement Uncertainty

Test Item	Test Items	Results	Limits
Conducted disturbance at mains terminals	Level accuracy(9kHz to 150kHz) (150kHz to 30MHz)	±2.63 dB	±3.8 dB
		±2.35 dB	±3.4 dB
Radiated disturbance	30MHz to 1GHz	±5.78dB	±6.3dB

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.



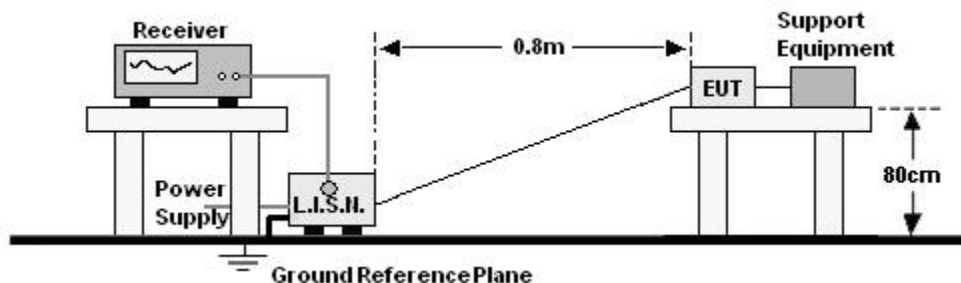
3 - TEST EQUIPMENT LIST AND DETAILS

Kind of Equipment	Manufacturer	Type	S/N	Calibrate until
Conducted Emission				
EMI Test Receiver	R&S	ESRP3	102242	2022-01-03
L.I.S.N	Schwarzbeck	NNLK 8128	5089	2022-01-03
8-Wire ISN CAT6	Schwarzbeck	NTFM 8158	231	2022-01-03
Pulse Limiter	Schwarzbeck	VTSD 9561-F	00723	2022-01-03
RS				
Signal Generator	Agilent	M5181A	MY47420649	2021/09/06
Power Meter	Agilent	E4419B	GB43312510	2021/09/06
Bi-Log Antenna	Schwarzbeck	STLP 9128 E	3142	2023/09/10
Horn Antenna	Schwarzbeck	00270	00270	2023/09/10
Power Ttansmitter	KEYSIGHT	E9301A	MY41069009	2021/09/06
Power Ttansmitter	KEYSIGHT	E9301A	MY41069011	2021/09/06
Radiated Emission (3m)				
EMI Test Receiver	R&S	ESR7	102333	2022-01-03
Bilog Antenna	Schwarzbeck	VULB 9168	01148	2022-01-20
Pre-Amplifier	Schwarzbeck	BBV 9718 B	00109	2022-01-03
Pre-Amplifier	Schwarzbeck	BBV 9743 B	00253	2022-01-03
Horn Antenna	Schwarzbeck	BBHA 9120	02379	2022-01-21
Harmonics & Flicker				
5kVA AC Power Source	AMETEK CTS	5001iX-CTS-400	2046A03237	2022-01-03
Signal Conditioning Unit	AMETEK CTS	PACS-1	2046A03238	2022-01-03
ESD				
ESD Simulator	TESEQ	NSG 437	1569	2021-11-16
EFT				
Burst Tester	3C test	EFT 500T	ES027000120015	2021-11-12
Coupling Clamp	3C test	CCC 100	CCC 20092269	2021-11-12
Surge				
Surge simulator	3C test	CWS 600CT	ES058000920005	2021-11-12
Three phases CDN	3C test	SPN 3832T	ES0911910	2021-11-12
CDN for unshielded symmetrical high-speed Telecom cable	3C test	CDN405T8A	ES064001220010	2021-11-12
CDN for Telecom cable	3C test	CDN405M40-5	ES1071910	2021-11-12
Radio-Frequency Continuous Conducted (CS)				
Conducted Immunity Test System	3C test	CST 1075	ES096000120008	2021-11-12
6dB Attenuator	3C test	DTC75-6	ES095000120006	2021-11-12
Single phase CDN	3C test	CDN M2M3	ES064002620007	2021-11-12
Three phases CDN	3C test	CDN M5-16	ES064003320004	2021-11-12
EM-Clamp	3C test	EM CL100	EM C20032811	2022-01-31
6dB Attenuator	3C test	DTC75-6	ES095000120006	2021-11-12



4 - CONDUCTED EMISSION MEASUREMENT

4.1 Block Diagram of Test Setup



4.2 Limits

Frequency (MHz)	Limit (dBuV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	79	66
0.50 ~ 30.00	73	60

NOTE: The lower limit shall apply at the transition frequencies.

4.3 Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through a Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 55014-1 regulations during conducted emission measurement.

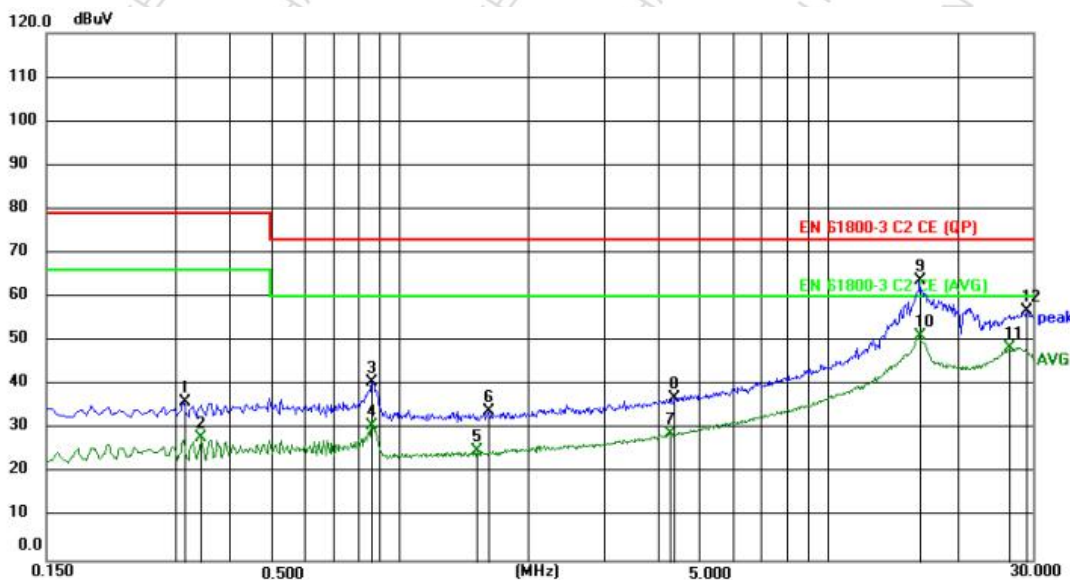
The bandwidth of the field strength meter is set at 9kHz.

The frequency range from 150kHz to 30MHz is investigated. The scanning waveform please refer to the next page.



4.4 Test Results And Data

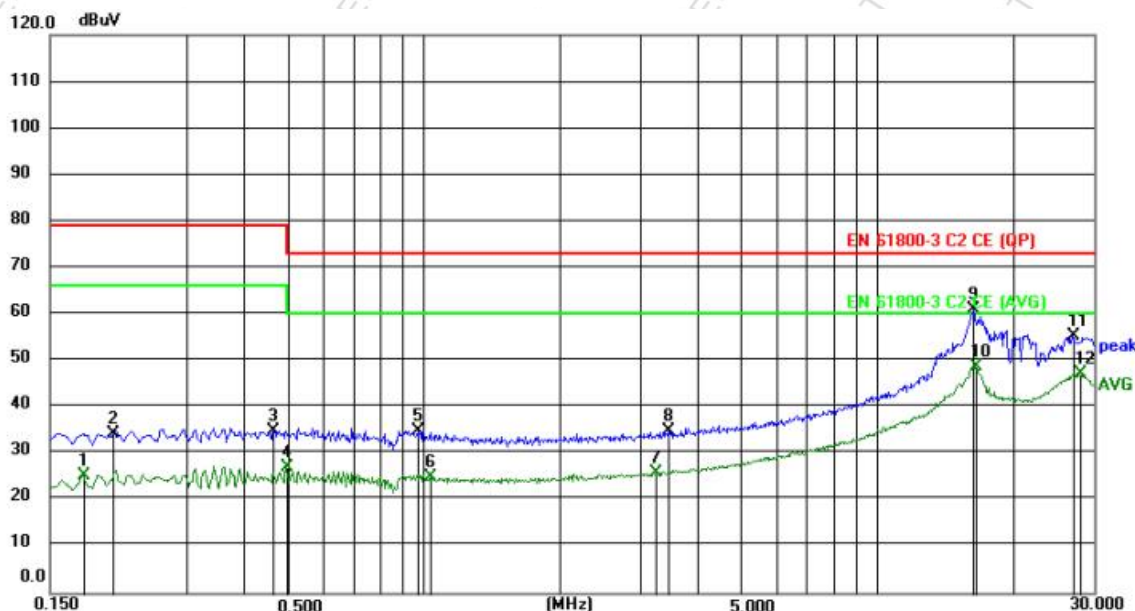
EUT: Frequency Converter
M/N: PDH30-4T2R2
Test Mode: ON
Ratings: Input: 3PH AC 380V±15%,50/60Hz
Output:3PH AC 0-380V 0-50/60Hz 5A
Phase: L1
Temperature: 23°C
Humidity: 55%
Atmosphere pressure: 101Kpa
Test Results Pass



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.3120	29.79	6.30	36.09	79.00	-42.91	peak	P
2	0.3435	21.78	6.30	28.08	66.00	-37.92	AVG	P
3	0.8655	34.42	6.34	40.76	73.00	-32.24	peak	P
4	0.8655	24.50	6.34	30.84	60.00	-29.16	AVG	P
5	1.5135	18.58	6.37	24.95	60.00	-35.05	AVG	P
6	1.6125	27.67	6.37	34.04	73.00	-38.96	peak	P
7	4.2630	22.41	6.43	28.84	60.00	-31.16	AVG	P
8	4.3935	30.68	6.43	37.11	73.00	-35.89	peak	P
9	16.3315	57.00	6.62	63.62	73.00	-9.38	peak	P
10 *	16.3315	44.47	6.62	51.09	60.00	-8.91	AVG	P
11	26.4430	41.87	6.72	48.59	60.00	-11.41	AVG	P
12	29.1655	50.25	6.72	56.97	73.00	-16.03	peak	P



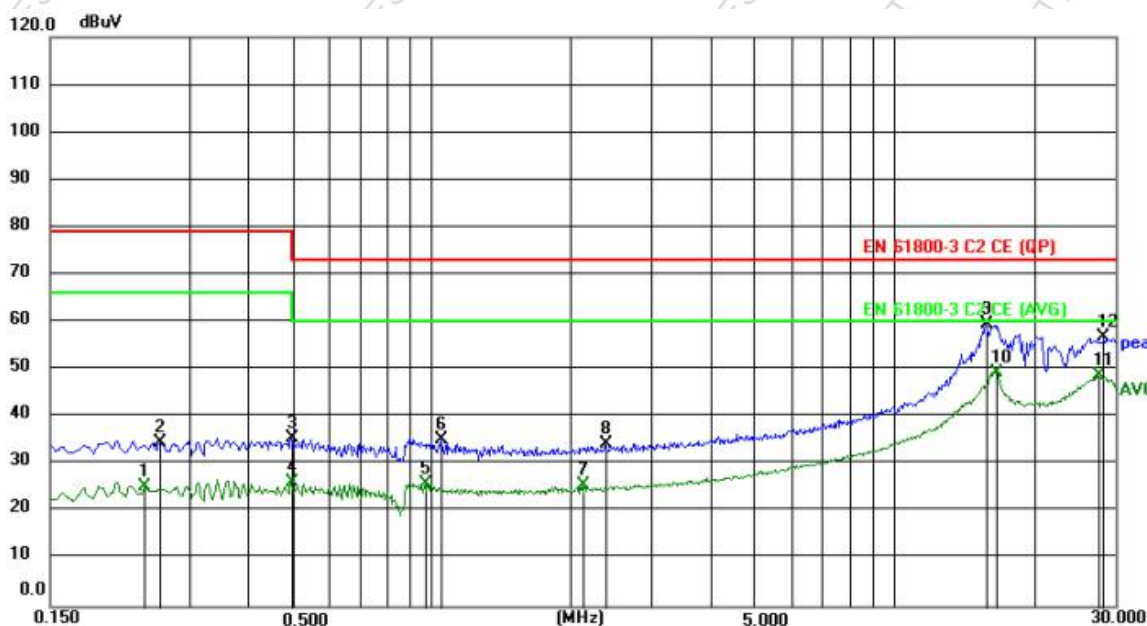
EUT: Frequency Converter
M/N: PDH30-4T2R2
Test Mode: ON
Ratings: Input: 3PH AC 380V±15%,50/60Hz
Output:3PH AC 0-380V 0-50/60Hz 5A
Phase: L2
Temperature: 23°C
Humidity: 55%
Atmosphere pressure: 101Kpa
Test Results: Pass



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1770	19.14	6.30	25.44	66.00	-40.56	AVG	P
2	0.2061	28.02	6.30	34.32	79.00	-44.68	peak	P
3	0.4650	28.70	6.33	35.03	79.00	-43.97	peak	P
4	0.4965	20.69	6.33	27.02	66.00	-38.98	AVG	P
5	0.9690	28.74	6.35	35.09	73.00	-37.91	peak	P
6	1.0320	18.76	6.35	25.11	60.00	-34.89	AVG	P
7	3.2550	19.63	6.42	26.05	60.00	-33.95	AVG	P
8	3.4665	28.54	6.42	34.96	73.00	-38.04	peak	P
9	16.3134	54.28	6.64	60.92	73.00	-12.08	peak	P
10 *	16.4260	42.08	6.64	48.72	60.00	-11.28	AVG	P
11	26.9245	48.83	6.67	55.50	73.00	-17.50	peak	P
12	27.9730	40.62	6.65	47.27	60.00	-12.73	AVG	P



EUT: Frequency Converter
M/N: PDH30-4T2R2
Test Mode: ON
Ratings: Input: 3PH AC 380V±15%,50/60Hz
Output:3PH AC 0-380V 0-50/60Hz 5A
Phase: L3
Temperature: 23°C
Humidity: 55%
Atmosphere pressure: 101Kpa
Test Results: Pass

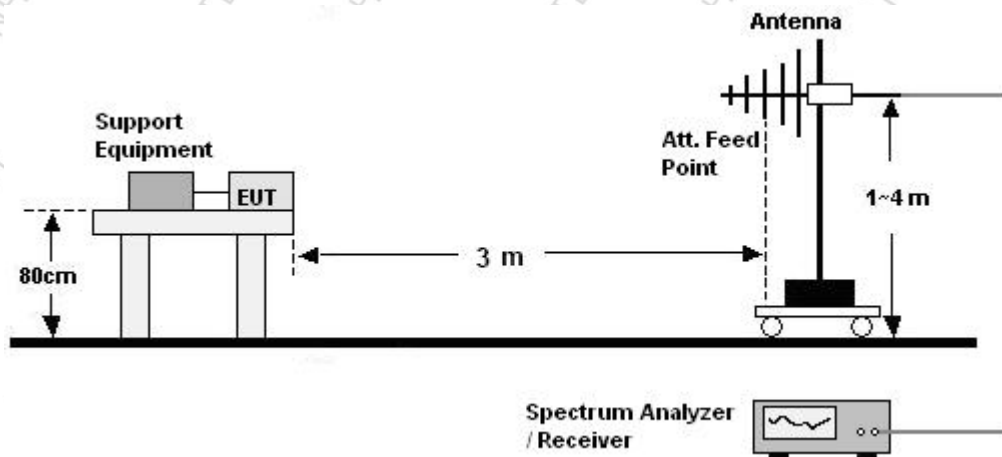


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2400	19.03	6.32	25.35	66.00	-40.65	AVG	P
2	0.2580	28.25	6.32	34.57	79.00	-44.43	peak	P
3	0.4965	29.33	6.33	35.66	79.00	-43.34	peak	P
4	0.4965	19.99	6.33	26.32	66.00	-39.68	AVG	P
5	0.9690	19.57	6.36	25.93	60.00	-34.07	AVG	P
6	1.0500	28.93	6.36	35.29	73.00	-37.71	peak	P
7	2.1210	19.27	6.39	25.66	60.00	-34.34	AVG	P
8	2.3775	27.99	6.40	34.39	73.00	-38.61	peak	P
9	15.7645	52.84	6.60	59.44	73.00	-13.56	peak	P
10 *	16.6375	42.87	6.60	49.47	60.00	-10.53	AVG	P
11	27.4960	42.20	6.58	48.78	60.00	-11.22	AVG	P
12	28.3600	50.14	6.57	56.71	73.00	-16.29	peak	P



5- RADIATED DISTURBANCE MEASUREMENT

5.1 Block Diagram of Test Setup



5.2 Limits

Frequency (MHz)	Quasi-peak Limits at 3m dB(μ V/m)
30-230	50
230-1000	57

NOTE: The lower limit shall apply at the transition frequencies.

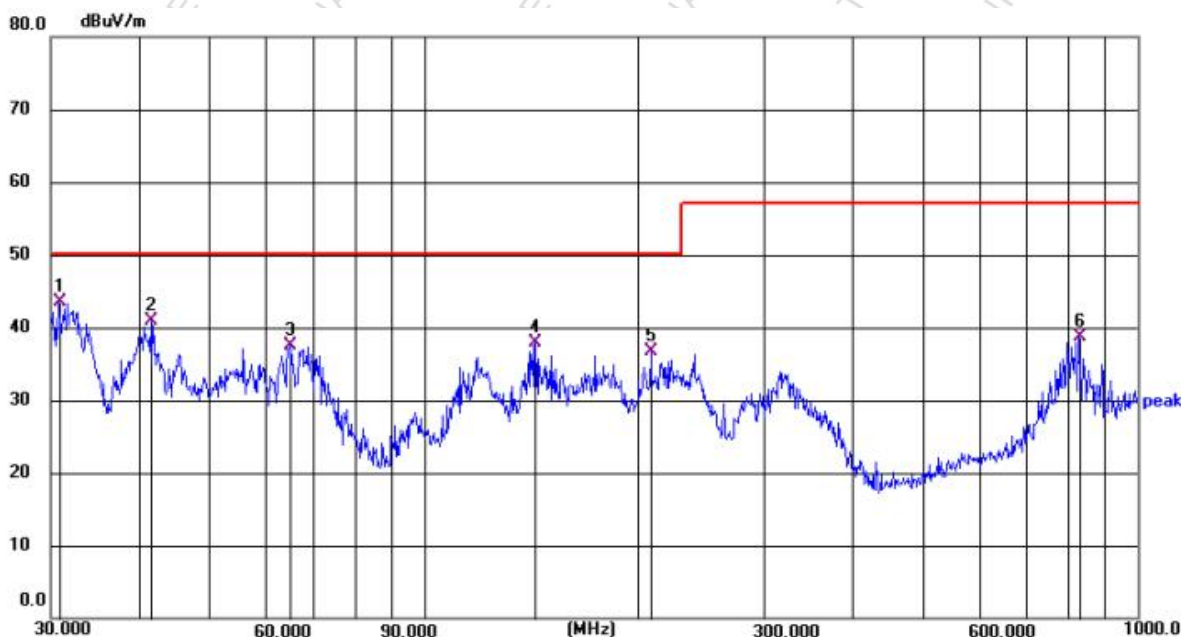
5.3 Test Procedure

- The Product was placed on the non-conductive turntable 0.8/0.1 m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value



5.4 Test Results and Data

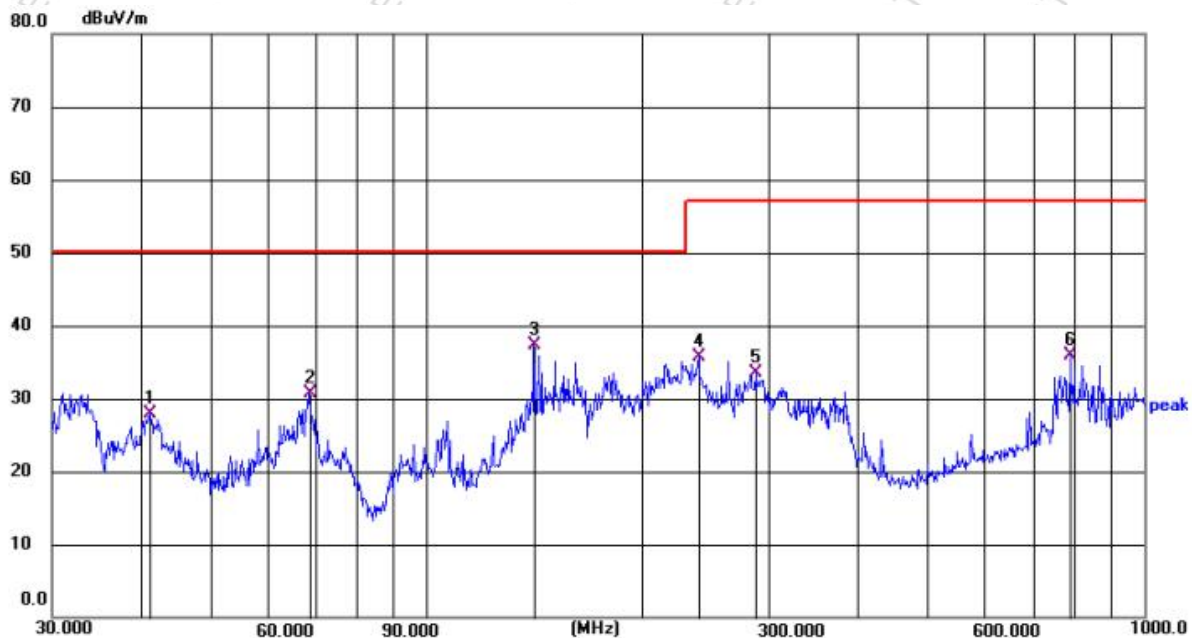
EUT: Frequency Converter
M/N: PDH30-4T2R2
Test Mode: ON
Ratings: Input: 3PH AC 380V $\pm$ 15%,50/60Hz
Output:3PH AC 0-380V 0-50/60Hz 5A
Polarization: Horizontal
Temperature: 24°C
Humidity: 60%
Atmosphere pressure: 101Kpa
Test Results: Pass



No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1 *	30.789	59.65	-16.21	43.44	50.00	6.56	QP			P
2	41.480	55.95	-14.96	40.99	50.00	9.01	QP			P
3	64.932	54.60	-17.12	37.48	50.00	12.52	QP			P
4	143.401	53.90	-16.05	37.85	50.00	12.15	QP			P
5	208.032	55.19	-18.45	36.74	50.00	13.26	QP			P
6	829.091	44.20	-5.50	38.70	57.00	18.30	QP			P



EUT: Frequency Converter
M/N: PDH30-4T2R2
Test Mode: ON
Ratings: Input: 3PH AC 380V±15%,50/60Hz
Output:3PH AC 0-380V 0-50/60Hz 5A
Polarization: Vertical
Temperature: 24°C
Humidity: 60%
Atmosphere pressure: 101Kpa
Test Results: Pass

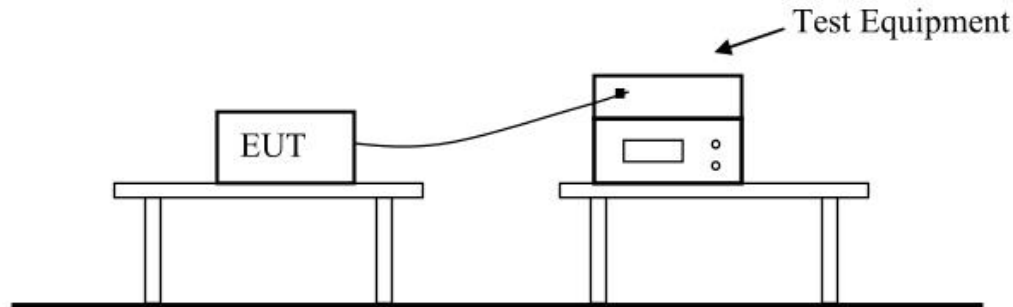


No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1	41.204	42.76	-14.94	27.82	50.00	22.18	QP			P
2	68.511	48.29	-17.53	30.76	50.00	19.24	QP			P
3 *	141.082	53.45	-16.11	37.34	50.00	12.66	QP			P
4	239.399	52.44	-16.73	35.71	57.00	21.29	QP			P
5	287.284	48.49	-15.06	33.43	57.00	23.57	QP			P
6	788.957	41.94	-6.11	35.83	57.00	21.17	QP			P



6 - HARMONIC CURRENT EMISSION MEASUREMENT

6.1 Block Diagram of Test Setup



6.2 Test Standard

Please refer to EN 61000-3-12:2011

6.3 Test procedure

- The Product was placed on the top of a non-conductive table above the ground and operated to produce the maximum harmonic components under normal Test Modes for each successive harmonic component in turn.
- The correspondent test program of test instrument to measure the current harmonics emanated from Product was chosen. The measure time shall be not less than the time necessary for the Product to be exercised.

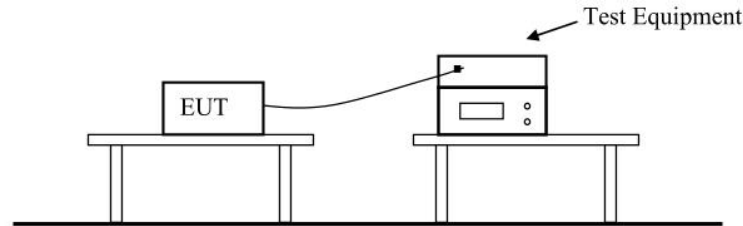
6.4 Test Results

PASS



7 - VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

7.1 Block Diagram of Test Setup



7.2 Test Standard

Please refer to EN IEC 61000-3-11:2019

7.3 Test procedure

- The Product was placed on the top of a non-conductive table above the ground and operated to produce the most unfavorable sequence of voltage changes under normal Test Modes.
- During the flick test, the measure time shall include that part of whole operation cycle in which the Product procedure the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

7.4 Test Results

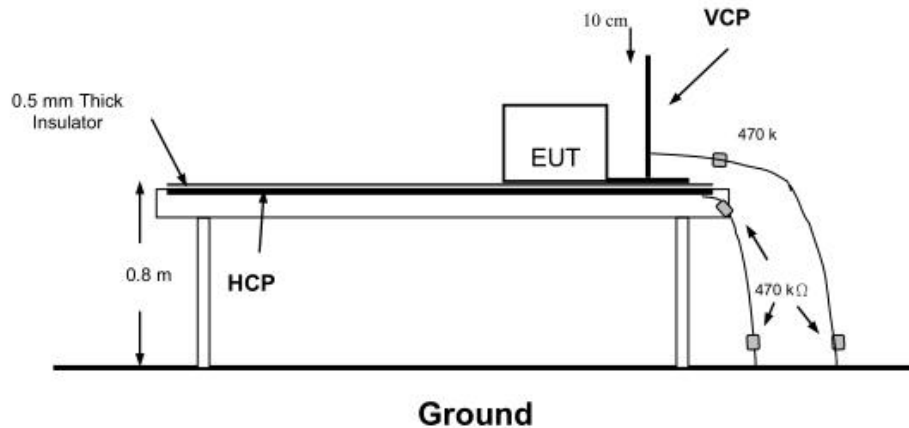
PASS



8 - IMMUNITY TEST

8.1 ELECTROSTATIC DISCHARGE IMMUNITY TEST

8.1.1 Block Diagram of Test Setup



8.1.2 Test Specification

Basic Standard	: IEC 61000-4-2
Test Port	: Enclosure port
Discharge Impedance	: 330 ohm / 150 pF
Discharge Mode	: Single Discharge
Discharge Period	: one second between each discharge

8.1.3 Test Procedure

8.1.3.1. 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.

8.1.3.2. Contact Discharge

All the procedure shall be same as Section 9.3.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.1.3.3. 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.



8.1.3.4. 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.

8.1.4 Test Results

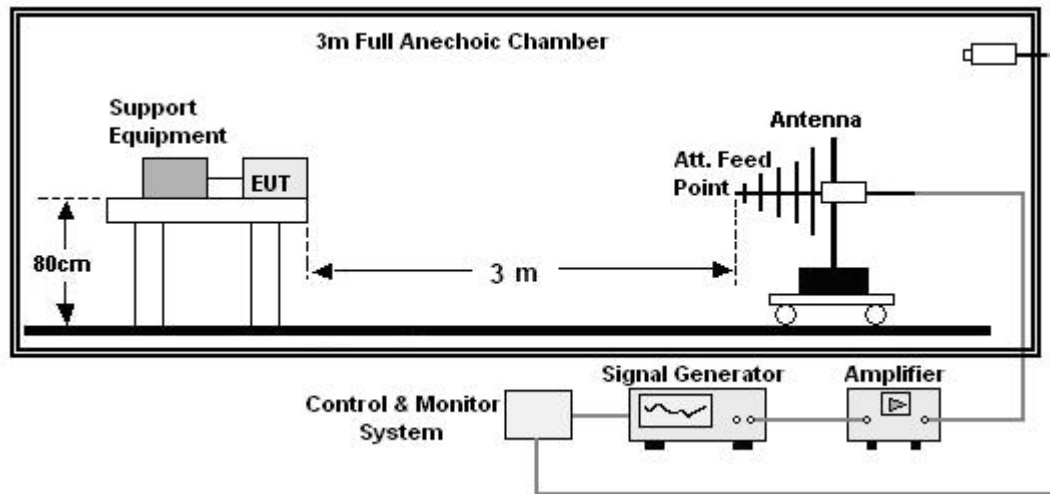
Electrostatic Discharge	
Basic Standard	IEC 61000-4-2
EUT	Frequency Converter
M/N	PDH30-4T2R2
Test Mode	ON
Temperature:	25°C
Humidity:	58%
Atmosphere pressure:	101Kpa
Criterion:	B
Results	Pass

Discharge Method	Discharge Position	Voltage (±kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	4	10	B	A
	Indirect Discharge HCP	4	10	B	A
	Indirect Discharge VCP	4	10	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	8	10	B	A



8.2 Radio frequency electromagnetic fields

8.2.1 Block Diagram of Test Setup



8.2.2 Test Specification

Basic Standard	: IEC 61000-4-3
Test Port	: Enclosure port
Step Size	: 1%
Modulation	: 1kHz, 80% AM
Dwell Time	: 1 second
Polarization	: Horizontal & Vertical

8.2.3 Test Procedure

- The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.
- The frequency range is swept from 80MHz to 1000MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1%.
- The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.



8.2.4 Test Results

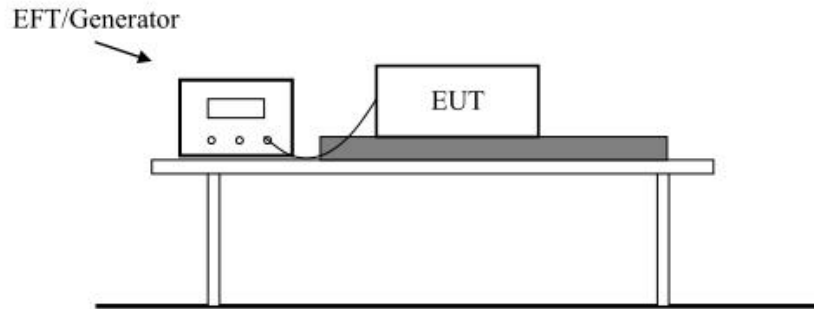
Radio frequency electromagnetic fields	
Basic Standard	IEC 61000-4-3
EUT	Frequency Converter
M/N	PDH30-4T2R2
Test Mode	ON
Temperature:	24°C
Humidity:	60%
Atmosphere pressure:	101Kpa
Criterion:	A

Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Performance Criterion
80 - 1000	Front, Right, Back, Left	3	A	A
1400-2000	Front, Right, Back, Left	3	A	A
2000-2700	Front, Right, Back, Left	1	A	A



8.3 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

8.3.1 Block Diagram of Test Setup



8.3.2 Test Specification

Basic Standard	: IEC 61000-4-4
Test Port	: input a.c. / d.c. power port signal lines and control lines
Impulse Frequency	: 5 kHz
Impulse Wave-shape	: 5/50 ns
Burst Duration	: 15 ms
Burst Period	: 300 ms
Test Duration	: 2 minutes per polarity

8.3.3 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.

8.3.3.1. 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 mins.

8.3.3.2. For signal lines and control lines ports:

No I/O ports. It's unnecessary to test.

8.3.3.3. For DC output line ports:

No DC output ports. It's unnecessary to test.



8.3.4 Test Results

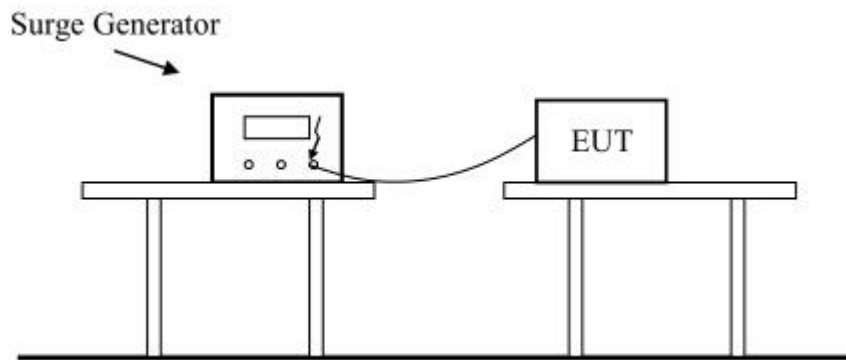
Electrical Fast Transient/Burst			
Basic Standard	IEC 61000-4-4		
EUT	Frequency Converter		
M/N	PDH30-4T2R2		
Test Mode	ON		
Temperature:	24°C		
Humidity:	60%		
Atmosphere pressure:	101Kpa		
Criterion:	B		

Line	Test Voltage	Polarity	Result
L+N+PE	1kv	±	Pass



8.4 SURGE IMMUNITY TEST

8.4.1 Block Diagram of Test Setup



8.4.2 Test Specification

Basic Standard	IEC 61000-4-5
Test Port	input a.c. power port
Wave-Shape	Open Circuit Voltage - 1.2 / 50 us Short Circuit Current - 8 / 20 us
Pulse Repetition Rate	1 pulse / min.
Test Events	Five positive polarity pulses at the 90° phase angel Five negative polarity pulses at the 270° phase angle

8.4.3 Test Procedure

- 8.4.3.1. Set up the EUT and test generator as shown on Section 8.4.1.
- 8.4.3.2. For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 8.4.3.3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test
- 8.4.3.4. Different phase angles are done individually.
- 8.4.3.5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.



8.4.4 Test Results

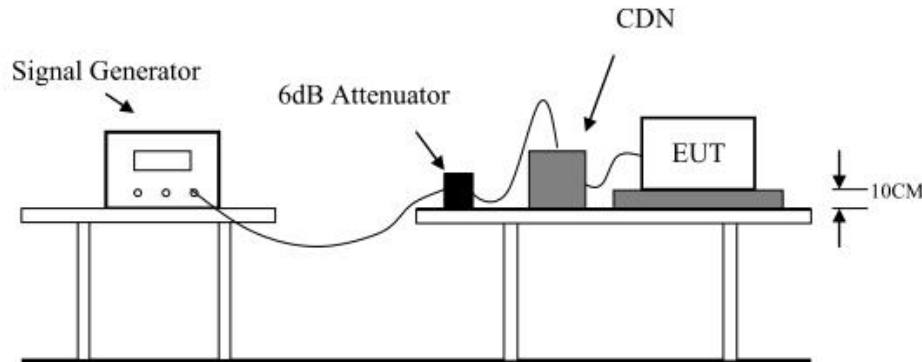
SURGE IMMUNITY	
Basic Standard	IEC 61000-4-5
EUT	Frequency Converter
M/N	PDH30-4T2R2
Test Mode	ON
Temperature:	24°C
Humidity:	60%
Atmosphere pressure:	101Kpa
Criterion:	B

Coupling Line	Voltage (kV)	Phase Angle	Required Level	Performance Criterion
L - N	±1KV	0°,90°,180°,270°	B	A
L - PE	±2KV	0°,90°,180°,270°	B	A
N - PE	±2KV	0°,90°,180°,270°	B	A



8.5 INJECTED CURRENTS SUSCEPTIBILITY TEST

8.5.1 Block Diagram of Test Setup



8.5.2 Test Specification

Basic Standard	: IEC 61000-4-6
Test Port	: input a.c. / d.c. power port signal lines and control lines
Step Size	: 1%
Modulation	: 1kHz,80% AM
Dwell Time	: 1 second

8.5.3 Test Procedure

8.5.3.1. Set up the EUT, CDN and test generators as shown on Section 8.5.1.

8.5.3.2. Let the EUT work in test mode and measure it.

8.5.3.3. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

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

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

8.5.3.6. The frequency range is swept from 150kHz to 230MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

8.5.3.7. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

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



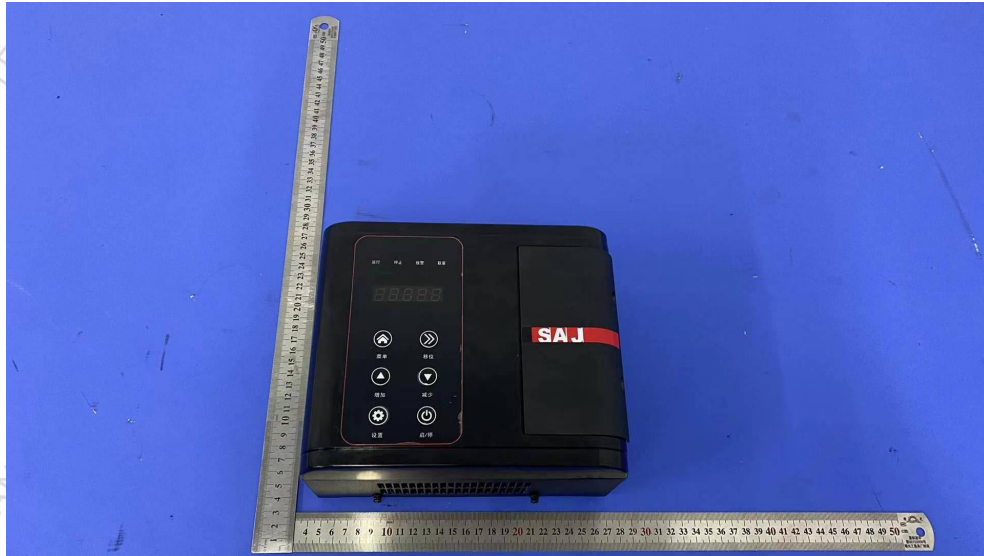
8.5.4 Test Results

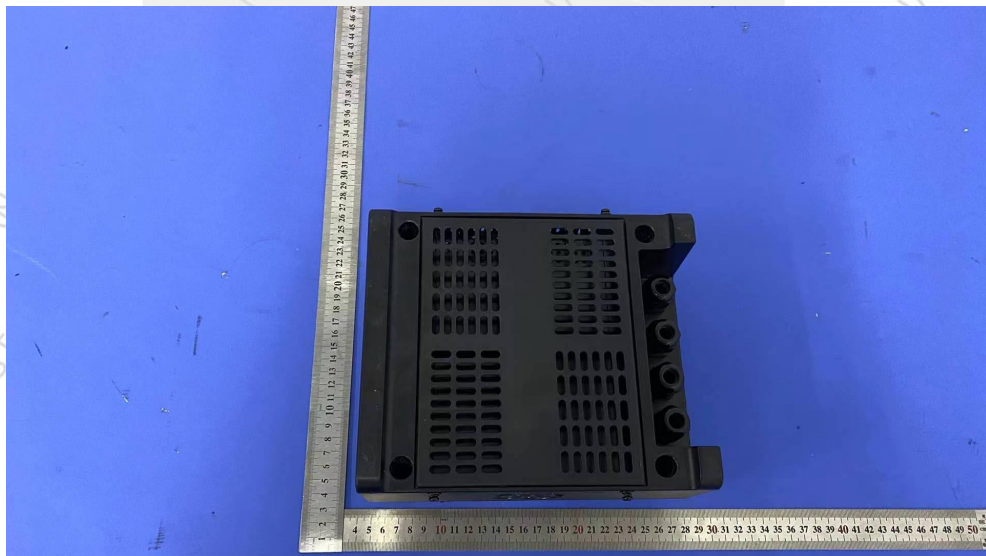
INJECTED CURRENTS SUSCEPTIBILITY	
Basic Standard	IEC 61000-4-6
EUT	Frequency Converter
M/N	PDH30-4T2R2
Test Mode	ON
Temperature:	24°C
Humidity:	60%
Atmosphere pressure:	101Kpa
Criterion:	A

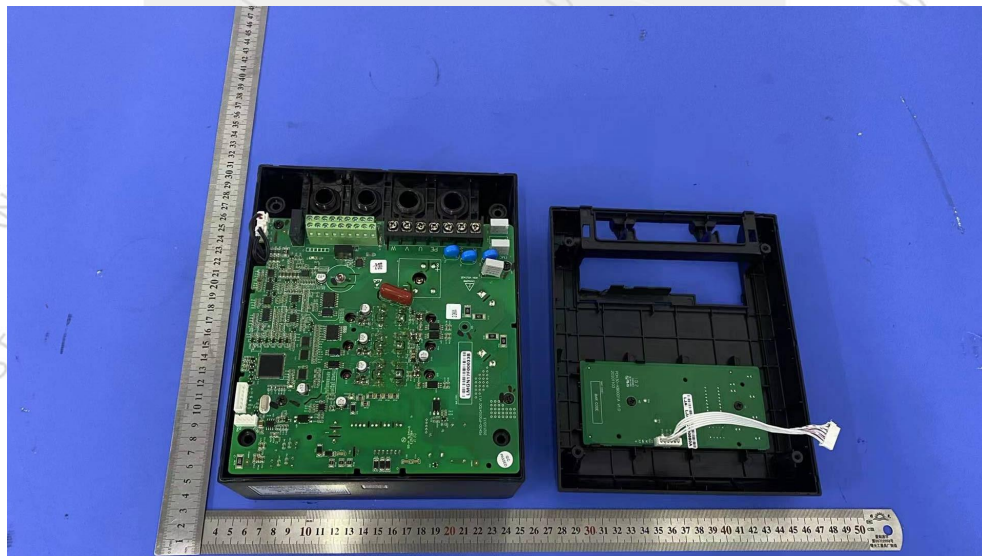
Frequency Range (MHz)	Injected Position	Strength (Non-modulated)	Criterion	Result
0.15 ~ 80	AC Mains	3V r.m.s.	A	PASS
Remark:1. Modulation Signal:1kHz 80% AM				

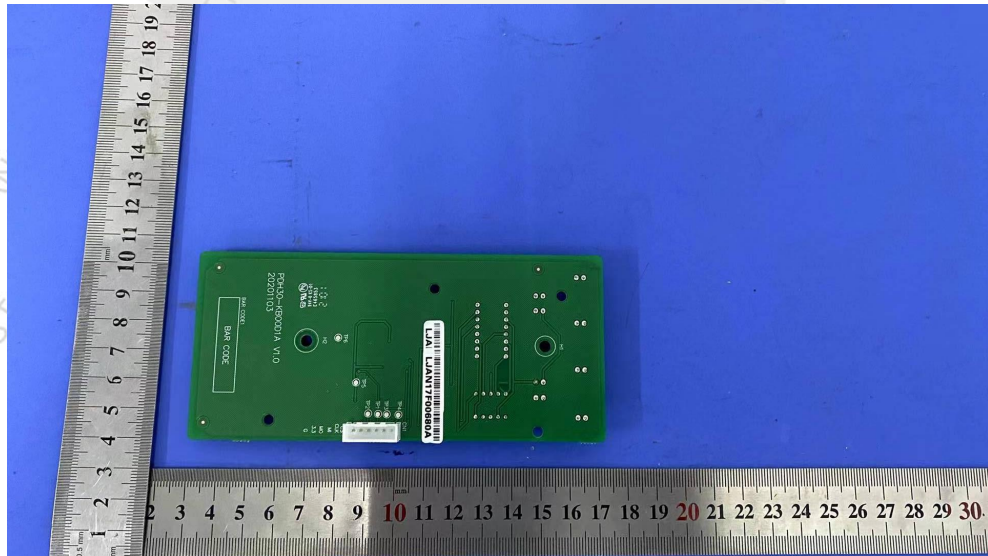
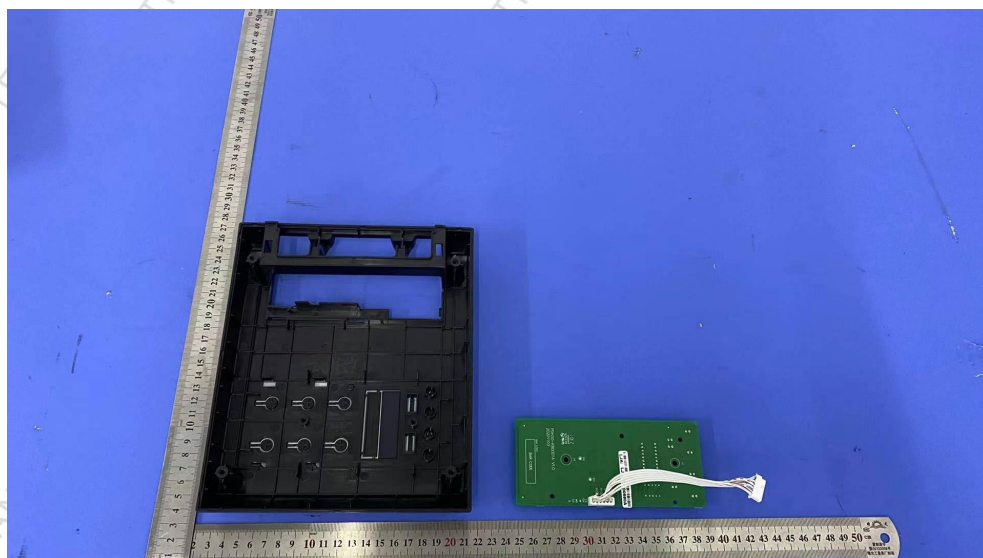


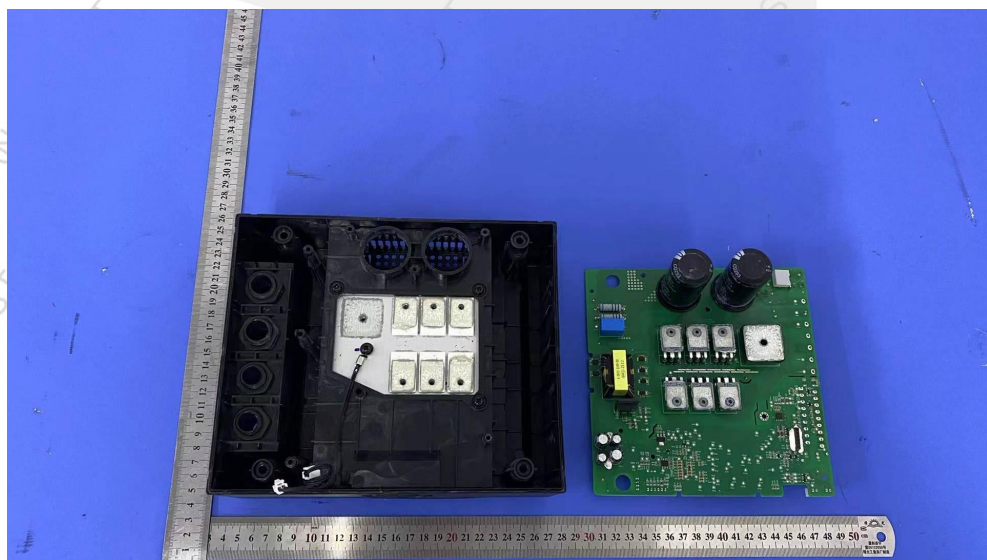
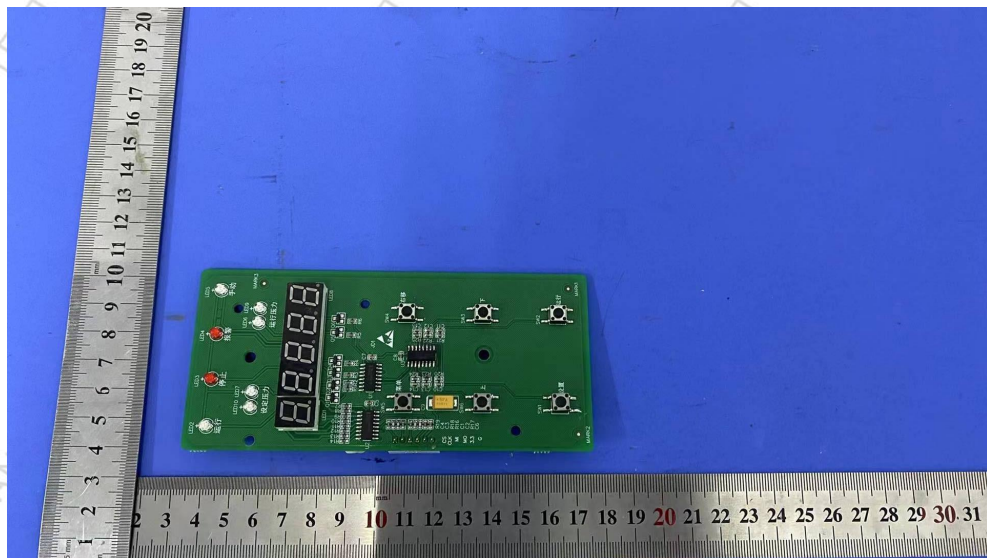
APPENDIX A - EUT PHOTOGRAPHS

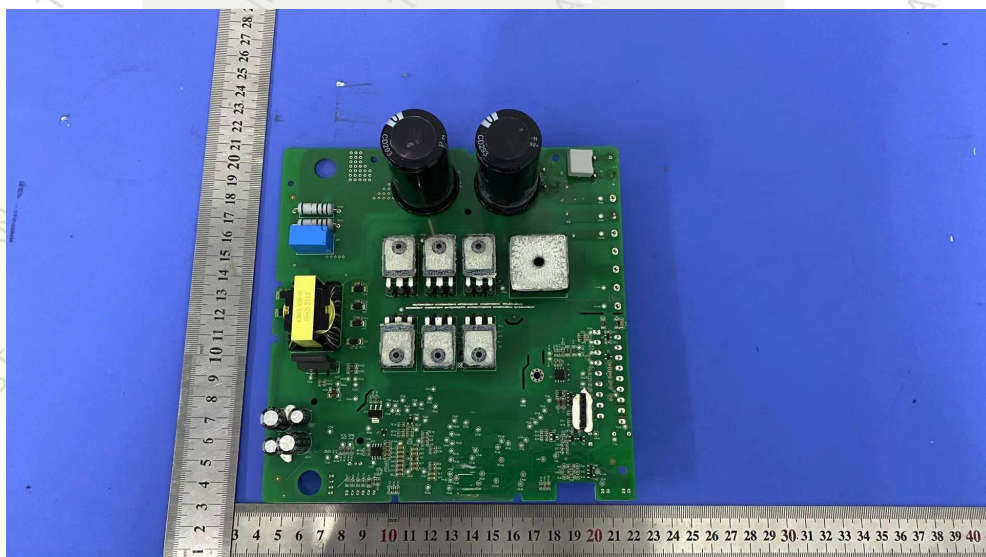
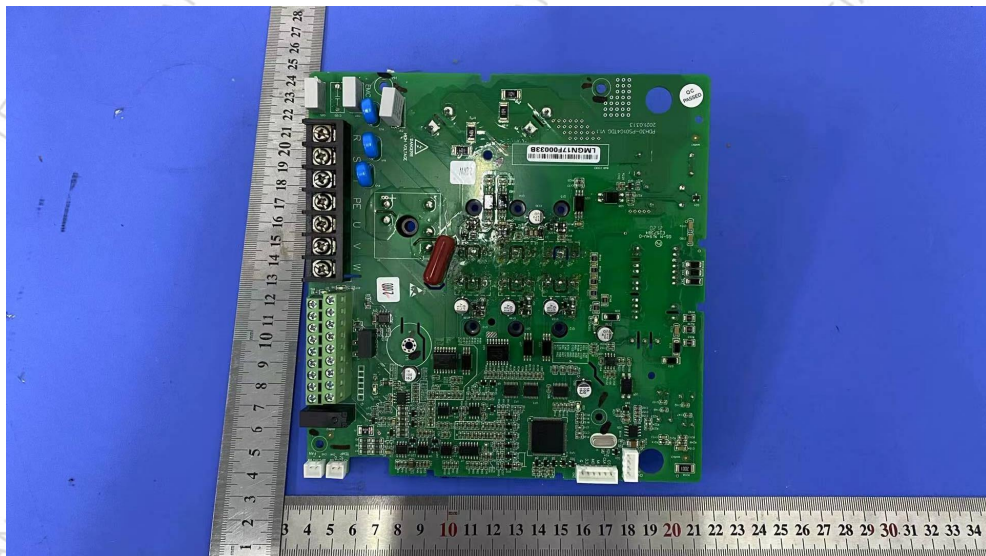








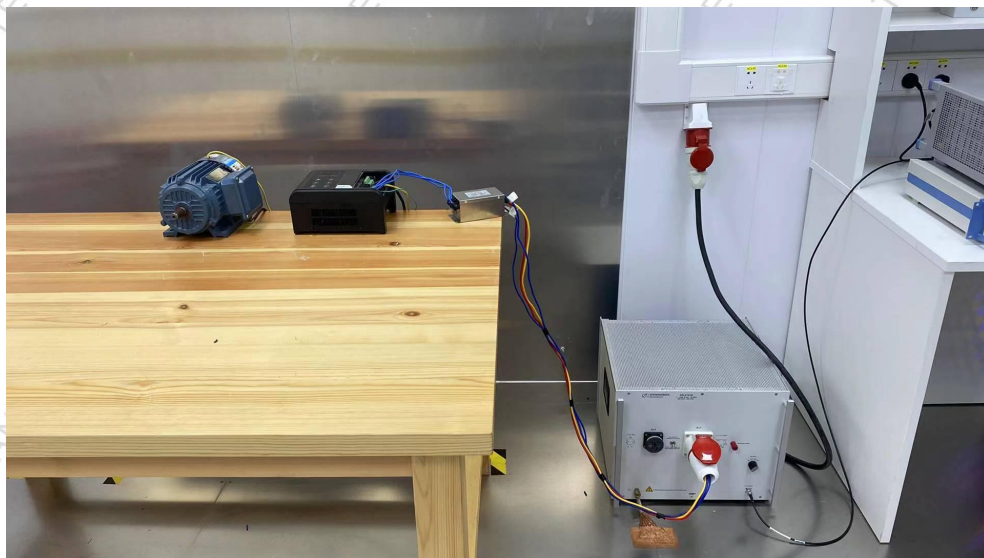




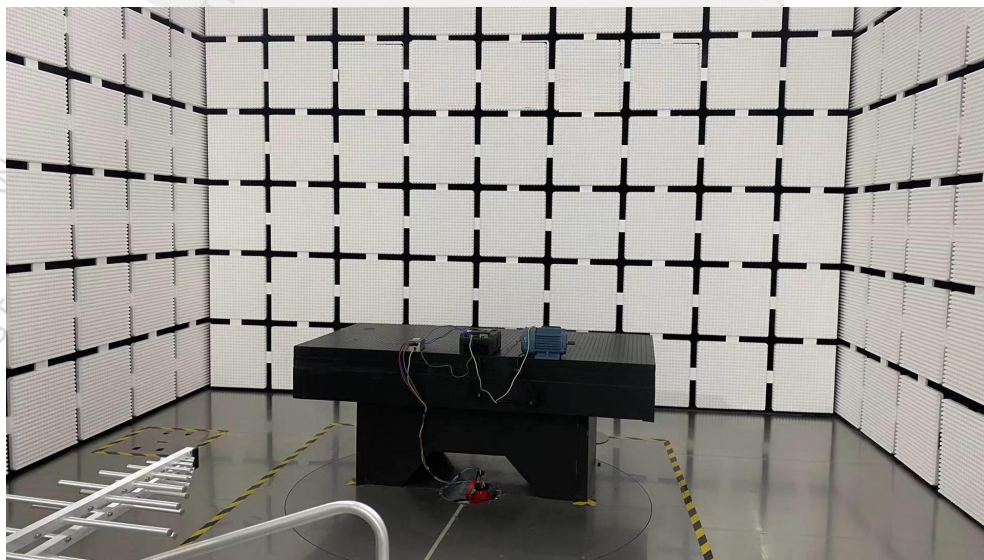


APPENDIX B - TEST SETUP PHOTOGRAPHS

CE



RE

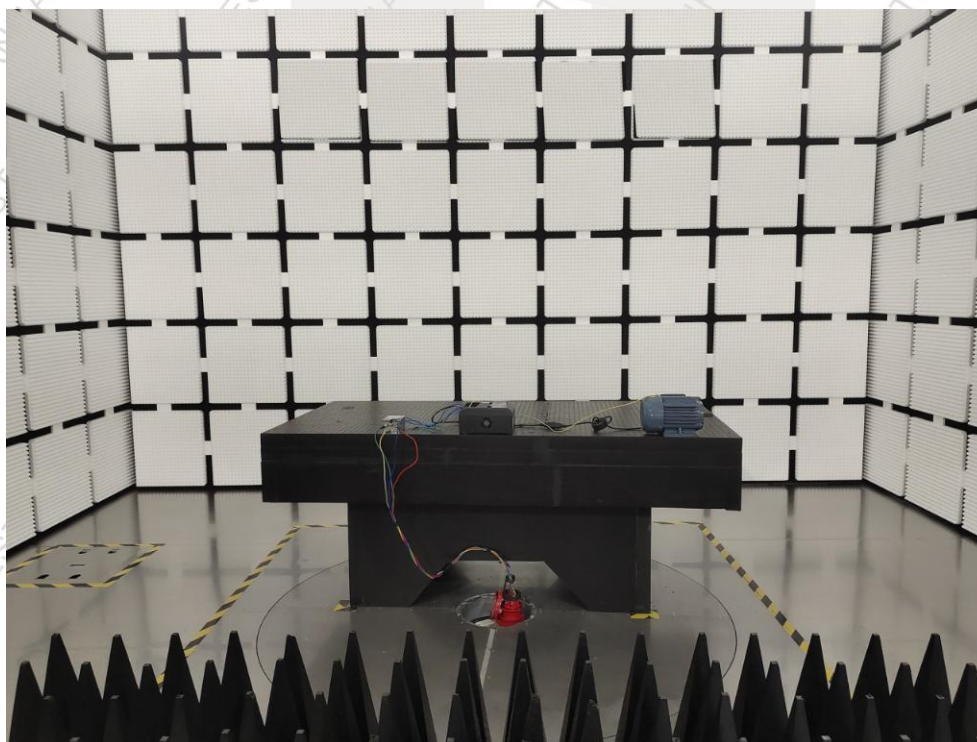




ESD



RS





EFT



Surge





CS



*****END OF THE REPORT*****



Shenzhen Tian Hai Test Technology Co., Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C06-C01

Report number: TH2105142-C06-R01

Shenzhen Tian Hai Test Technology Co., Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Product: **Frequency Converter**
Model: See models list below
Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9.0A
Note: All test results are based on model PDH30-4T004

And, in accordance with the following applicable directives:

2014/30/EU Electromagnetic Compatibility (EMC)

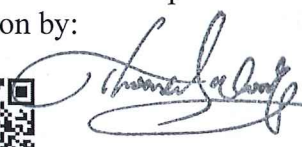
This product has been assessed against the following applicable standards:

Standard(s):
EN IEC 61800-3:2018
EN IEC 61000-3-11:2019
EN 61000-3-12:2011

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION OF CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:




Thomas Wong



Date of Issued: 2021-09-06

4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guan lan street, Longhua district, Shenzhen

Tel: +86-755-86615100

Fax: +86-755-86615105

<http://www.tianhaitest.com>



Shenzhen Tian Hai Test Technology Co.,Ltd.

Models list				
4kw	PDH30-4T004	PDH30-4T004-NP	PDH30-4T004-E	PDH30-4T004-E-NP
5.5kw	PDH30-4T5R5	PDH30-4T5R5-NP	PDH30-4T5R5-E	PDH30-4T5R5-E-NP
7.5kw	PDH30-4T7R5	PDH30-4T7R5-NP	PDH30-4T7R5-E	PDH30-4T7R5-E-NP



EMC TEST REPORT

EN IEC 61800-3:2018
EN IEC 61000-3-11:2019
EN 61000-3-12:2011

MEASUREMENT AND TEST REPORT

For

Guangzhou Sanjing Electric Co., Ltd.

SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R.China

Model: See the Page 6

2021-09-06

This Report Concerns: ☒ Original Report	Equipment Type: Frequency Converter
Test Engineer:	Eric Tao/ <i>Eric Tao</i>
Report Number:	TH2105142-C06-R01
Test Date:	2021-08-02 to 2021-09-06 <i>检测报告专用章</i>
Reviewed By:	Prince Huang/ <i>Prince Huang</i>
Approved By:	Prince Huang/ <i>Prince Huang</i>
Prepared By:	Shenzhen Tian Hai Test Technology Co.,Ltd. 4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guanlan street, Longhua district, Shenzhen Tel : +86-755-86615100 Fax: +86-755-86615105

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of TianHai Compliance Testing Laboratory Ltd.



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1 - SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION				
Description of Test Item	Test Standard	Basic Standard	Requirement	Results
Conducted disturbance	EN 61800-3	EN 61800-3	First environment C2	PASS
Radiated disturbance	EN 61800-3	EN 61800-3	First environment C2	PASS
Harmonic current emissions	EN 61000-3-12	EN 61000-3-12	Class A	PASS
Voltage fluctuations & flicker	EN IEC 61000-3-11	EN IEC 61000-3-11	Clause5	PASS
IMMUNITY				
Description of Test Item	Test Standard	Basic Standard	Test configuration	Results
Electrostatic discharge (ESD)	EN 61800-3	IEC 61000-4-2	Air Discharge: $\pm 8\text{KV}$ Contact Discharge: $\pm 4\text{KV}$	PASS
Radio-frequency, Continuous radiated disturbance	EN 61800-3	IEC 61000-4-3	1%1kHz, 80% AM 3V/m 80MHz-1G 3V/m 1.4GHz-2GHz 1V/m 2GHz-2.7GHz	PASS
Electrical fast transient (EFT)	EN 61800-3	IEC 61000-4-4	Tr/Th 5/50 ns 5kHz 1KV	PASS
Surge (Input a.c. power ports)	EN 61800-3	IEC 61000-4-5	1.2/50us Tr/Td 1kV Line to Line 2kV Line to Ground	PASS
Radio-frequency, Continuous conducted disturbance	EN 61800-3	IEC 61000-4-6	3V r.m.s.: 0.15MHz- 80MHz 80%, 1kHz Amp. Mod.	PASS
Power frequency magnetic field*	EN 61800-3	IEC 61000-4-8	--	N/A
Remark: N/A is an abbreviation for Not Applicable. “*”: The EUT does not contain devices susceptible to magnetic fields; therefore the Power-Frequency Magnetic Fields test is not necessary.				



1.2 Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

1.2.1 Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment 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, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2 Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3 Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be loss.



2 - GENERAL INFORMATION

2.1 Product Description for Equipment under Test EUT

Client Information

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**

Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R. China

Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**

Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone
Guangdong, P.R. China

General Description of E.U.T

EUT Name: Frequency Converter

Trademark: SAJ

Model No.: See models list below

Ratings: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9A

Test Mode: ON

Note: All test results are based on model PDH30-4T004

Models list

4kw	PDH30-4T004	PDH30-4T004-NP	PDH30-4T004-E	PDH30-4T004-E-NP
5.5kw	PDH30-4T5R5	PDH30-4T5R5-NP	PDH30-4T5R5-E	PDH30-4T5R5-E-NP
7.5kw	PDH30-4T7R5	PDH30-4T7R5-NP	PDH30-4T7R5-E	PDH30-4T7R5-E-NP



2.2 Statement of the measurement uncertainty Test Facility

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration Limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16-4-2“Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.3 Measurement Uncertainty

Test Item	Test Items	Results	Limits
Conducted disturbance at mains terminals	Level accuracy(9kHz to 150kHz) (150kHz to 30MHz)	±2.63 dB	±3.8 dB
		±2.35 dB	±3.4 dB
Radiated disturbance	30MHz to 1GHz	±5.78dB	±6.3dB

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.



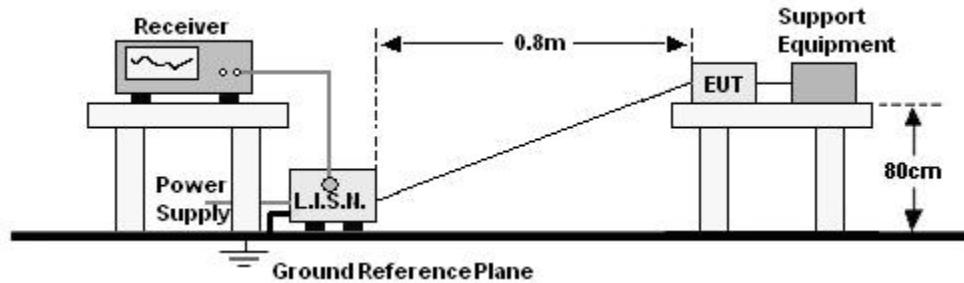
3 - TEST EQUIPMENT LIST AND DETAILS

Kind of Equipment	Manufacturer	Type	S/N	Calibrate until
Conducted Emission				
EMI Test Receiver	R&S	ESRP3	102242	2022-01-03
L.I.S.N	Schwarzbeck	NNLK 8128	5089	2022-01-03
8-Wire ISN CAT6	Schwarzbeck	NTFM 8158	231	2022-01-03
Pulse Limiter	Schwarzbeck	VTSD 9561-F	00723	2022-01-03
RS				
Signal Generator	Agilent	M5181A	MY47420649	2021/09/06
Power Meter	Agilent	E4419B	GB43312510	2021/09/06
Bi-Log Antenna	Schwarzbeck	STLP 9128 E	3142	2023/09/10
Horn Antenna	Schwarzbeck	00270	00270	2023/09/10
Power Ttansmitter	KEYSIGHT	E9301A	MY41069009	2021/09/06
Power Ttansmitter	KEYSIGHT	E9301A	MY41069011	2021/09/06
Radiated Emission (3m)				
EMI Test Receiver	R&S	ESR7	102333	2022-01-03
Bilog Antenna	Schwarzbeck	VULB 9168	01148	2022-01-20
Pre-Amplifier	Schwarzbeck	BBV 9718 B	00109	2022-01-03
Pre-Amplifier	Schwarzbeck	BBV 9743 B	00253	2022-01-03
Horn Antenna	Schwarzbeck	BBHA 9120	02379	2022-01-21
Harmonics & Flicker				
5kVA AC Power Source	AMETEK CTS	5001iX-CTS-400	2046A03237	2022-01-03
Signal Conditioning Unit	AMETEK CTS	PACS-1	2046A03238	2022-01-03
ESD				
ESD Simulator	TESEQ	NSG 437	1569	2021-11-16
EFT				
Burst Tester	3C test	EFT 500T	ES027000120015	2021-11-12
Coupling Clamp	3C test	CCC 100	CCC 20092269	2021-11-12
Surge				
Surge simulator	3C test	CWS 600CT	ES058000920005	2021-11-12
Three phases CDN	3C test	SPN 3832T	ES0911910	2021-11-12
CDN for unshielded symmetrical high-speed Telecom cable	3C test	CDN405T8A	ES064001220010	2021-11-12
CDN for Telecom cable	3C test	CDN405M40-5	ES1071910	2021-11-12
Radio-Frequency Continuous Conducted (CS)				
Conducted Immunity Test System	3C test	CST 1075	ES096000120008	2021-11-12
6dB Attenuator	3C test	DTC75-6	ES095000120006	2021-11-12
Single phase CDN	3C test	CDN M2M3	ES064002620007	2021-11-12
Three phases CDN	3C test	CDN M5-16	ES064003320004	2021-11-12
EM-Clamp	3C test	EM CL100	EM C20032811	2022-01-31
6dB Attenuator	3C test	DTC75-6	ES095000120006	2021-11-12



4 - CONDUCTED EMISSION MEASUREMENT

4.1 Block Diagram of Test Setup



4.2 Limits

Frequency (MHz)	Limit (dBuV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	79	66
0.50 ~ 30.00	73	60

NOTE: The lower limit shall apply at the transition frequencies.

4.3 Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through a Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 55014-1 regulations during conducted emission measurement.

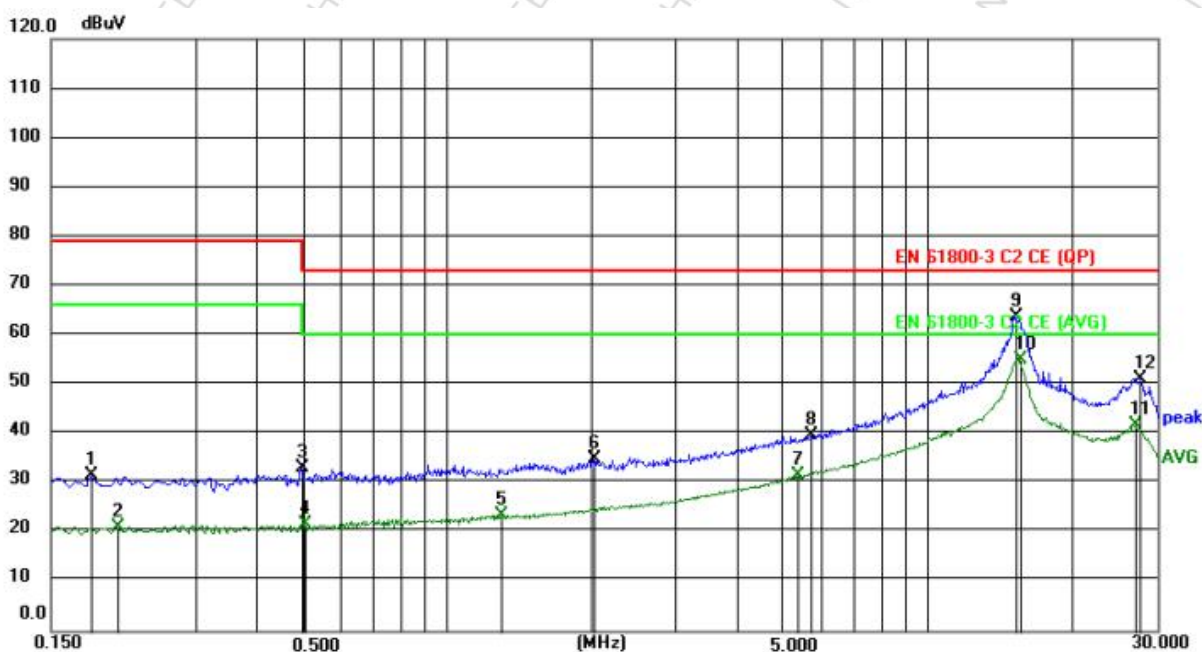
The bandwidth of the field strength meter is set at 9kHz.

The frequency range from 150kHz to 30MHz is investigated. The scanning waveform please refer to the next page.



4.4 Test Results And Data

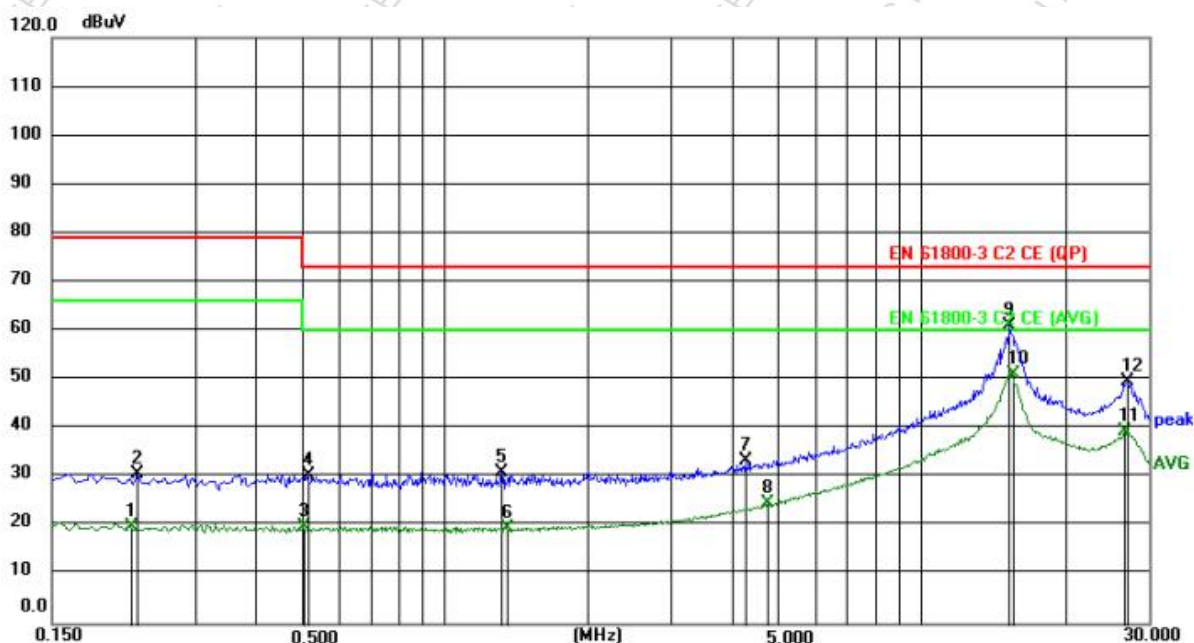
EUT: Frequency Converter
M/N: PDH30-4T004
Test Mode: ON
Ratings: Input: 3PH AC 380V $\pm 15\%$, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9A
Phase: L1
Temperature: 23°C
Humidity: 55%
Atmosphere pressure: 101Kpa
Test Results: Pass



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1815	25.41	6.29	31.70	79.00	-47.30	peak	P
2	0.2040	14.98	6.29	21.27	66.00	-44.73	AVG	P
3	0.4965	26.70	6.32	33.02	79.00	-45.98	peak	P
4	0.5055	15.31	6.32	21.63	60.00	-38.37	AVG	P
5	1.2975	17.27	6.35	23.62	60.00	-36.38	AVG	P
6	2.0220	28.63	6.37	35.00	73.00	-38.00	peak	P
7	5.3780	25.18	6.46	31.64	60.00	-28.36	AVG	P
8	5.7290	33.40	6.46	39.86	73.00	-33.14	peak	P
9	15.2020	57.16	6.61	63.77	73.00	-9.23	peak	P
10 *	15.4810	48.47	6.61	55.08	60.00	-4.92	AVG	P
11	27.0910	35.24	6.72	41.96	60.00	-18.04	AVG	P
12	27.7615	44.54	6.72	51.26	73.00	-21.74	peak	P



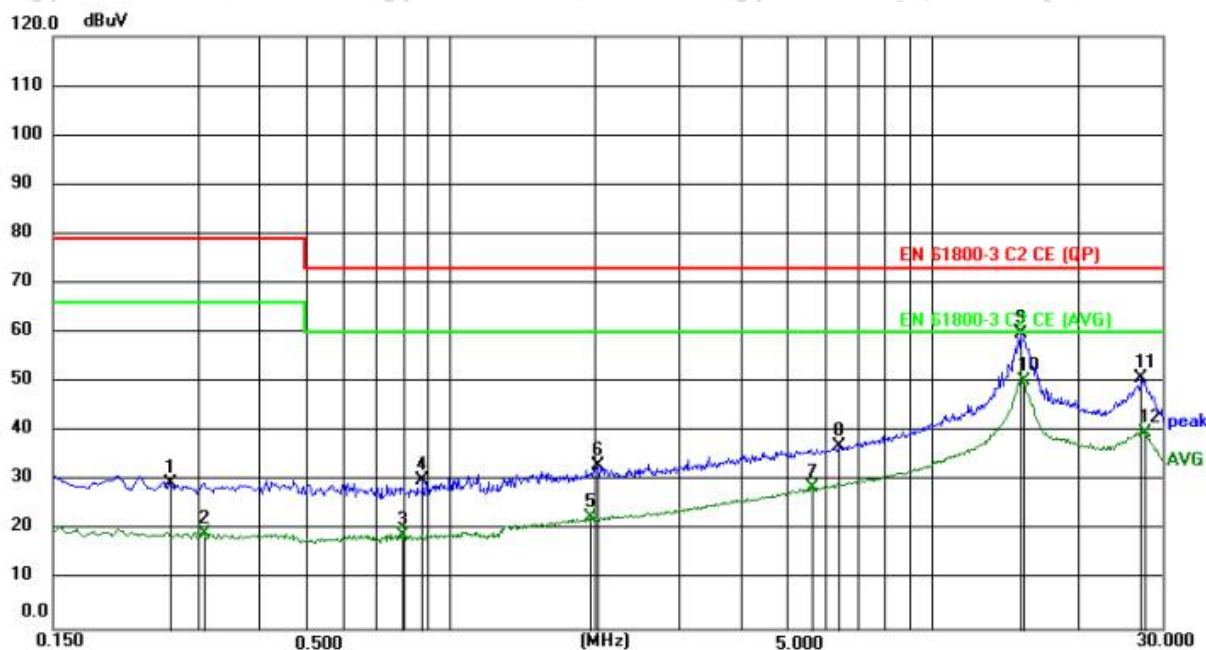
EUT: Frequency Converter
M/N: PDH30-4T004
Test Mode: ON
Ratings: Input: 3PH AC 380V $\pm 15\%$, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9A
Phase: L2
Temperature: 23°C
Humidity: 55%
Atmosphere pressure: 101Kpa
Test Results: Pass



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2175	13.79	6.30	20.09	66.00	-45.91	AVG	P
2	0.2265	24.30	6.30	30.60	79.00	-48.40	peak	P
3	0.5055	13.71	6.33	20.04	60.00	-39.96	AVG	P
4	0.5144	24.23	6.33	30.56	73.00	-42.44	peak	P
5	1.3200	24.76	6.36	31.12	73.00	-41.88	peak	P
6	1.3470	13.44	6.36	19.80	60.00	-40.20	AVG	P
7	4.2810	27.06	6.44	33.50	73.00	-39.50	peak	P
8	4.7715	18.17	6.46	24.63	60.00	-35.37	AVG	P
9	15.3640	54.42	6.61	61.03	73.00	-11.97	peak	P
10 *	15.4765	44.43	6.61	51.04	60.00	-8.96	AVG	P
11	26.8165	32.70	6.67	39.37	60.00	-20.63	AVG	P
12	27.0415	42.95	6.67	49.62	73.00	-23.38	peak	P



EUT: Frequency Converter
M/N: PDH30-4T004
Test Mode: ON
Ratings: Input: 3PH AC 380V $\pm 15\%$, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9A
Phase: L3
Temperature: 23°C
Humidity: 55%
Atmosphere pressure: 101Kpa
Test Results: Pass

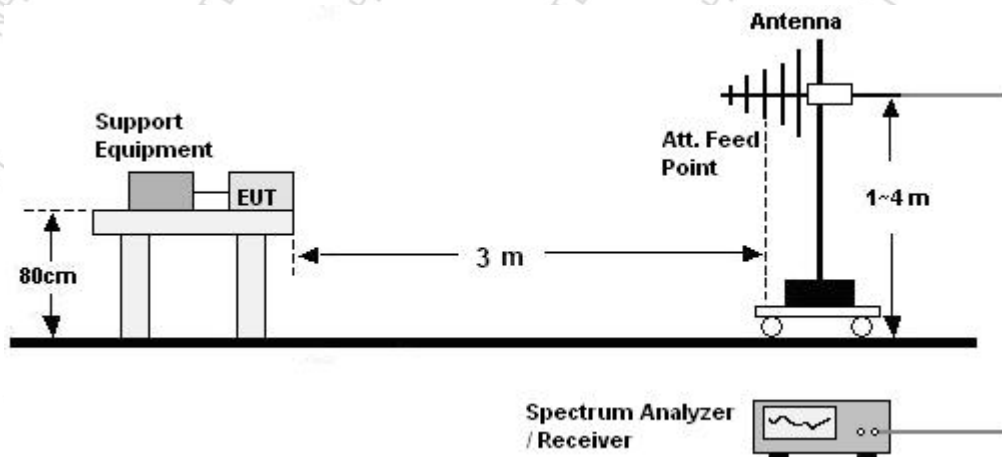


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2625	23.32	6.32	29.64	79.00	-49.36	peak	P
2	0.3075	13.12	6.32	19.44	66.00	-46.56	AVG	P
3	0.7935	12.82	6.35	19.17	60.00	-40.83	AVG	P
4	0.8790	23.81	6.35	30.16	73.00	-42.84	peak	P
5	1.9635	16.36	6.39	22.75	60.00	-37.25	AVG	P
6	2.0264	26.76	6.39	33.15	73.00	-39.85	peak	P
7	5.6525	22.18	6.47	28.65	60.00	-31.35	AVG	P
8	6.4175	30.57	6.49	37.06	73.00	-35.94	peak	P
9	15.2425	53.16	6.57	59.73	73.00	-13.27	peak	P
10 *	15.4270	43.58	6.58	50.16	60.00	-9.84	AVG	P
11	27.2575	44.20	6.58	50.78	73.00	-22.22	peak	P
12	27.4870	33.32	6.58	39.90	60.00	-20.10	AVG	P



5- RADIATED DISTURBANCE MEASUREMENT

5.1 Block Diagram of Test Setup



5.2 Limits

Frequency (MHz)	Quasi-peak Limits at 3m dB(μ V/m)
30-230	50
230-1000	57

NOTE: The lower limit shall apply at the transition frequencies.

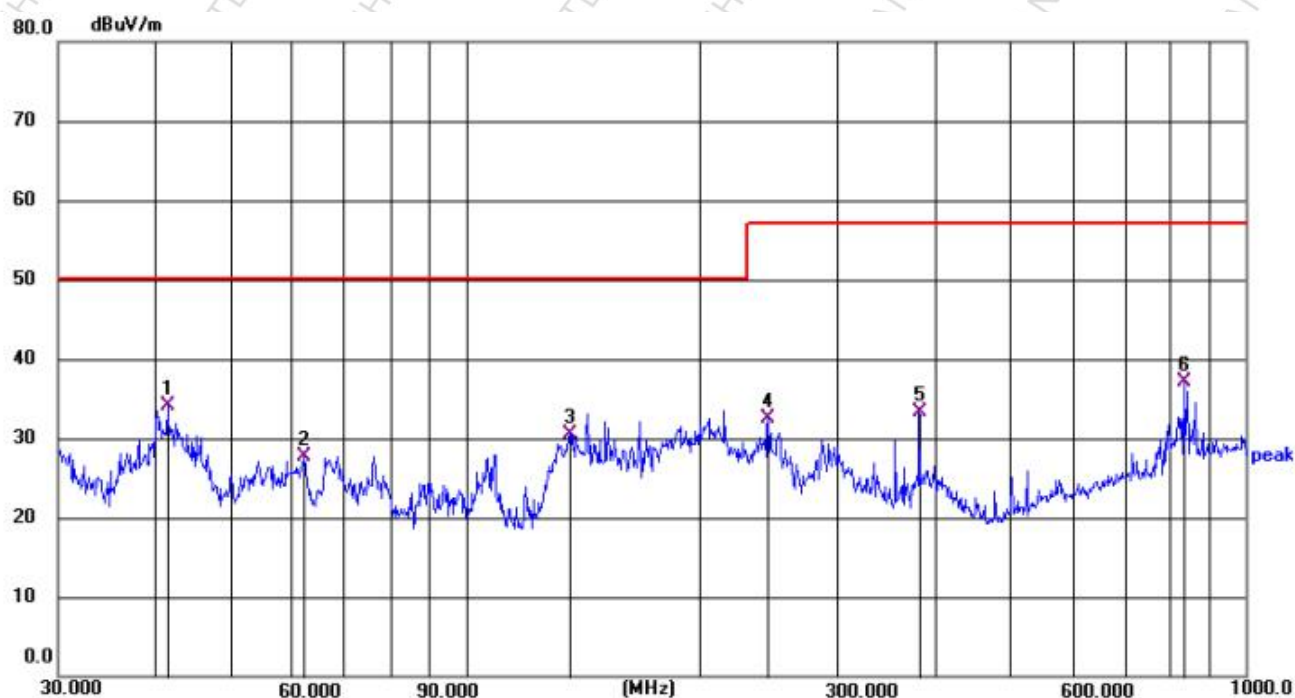
5.3 Test Procedure

- The Product was placed on the non-conductive turntable 0.8/0.1 m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value



5.4 Test Results and Data

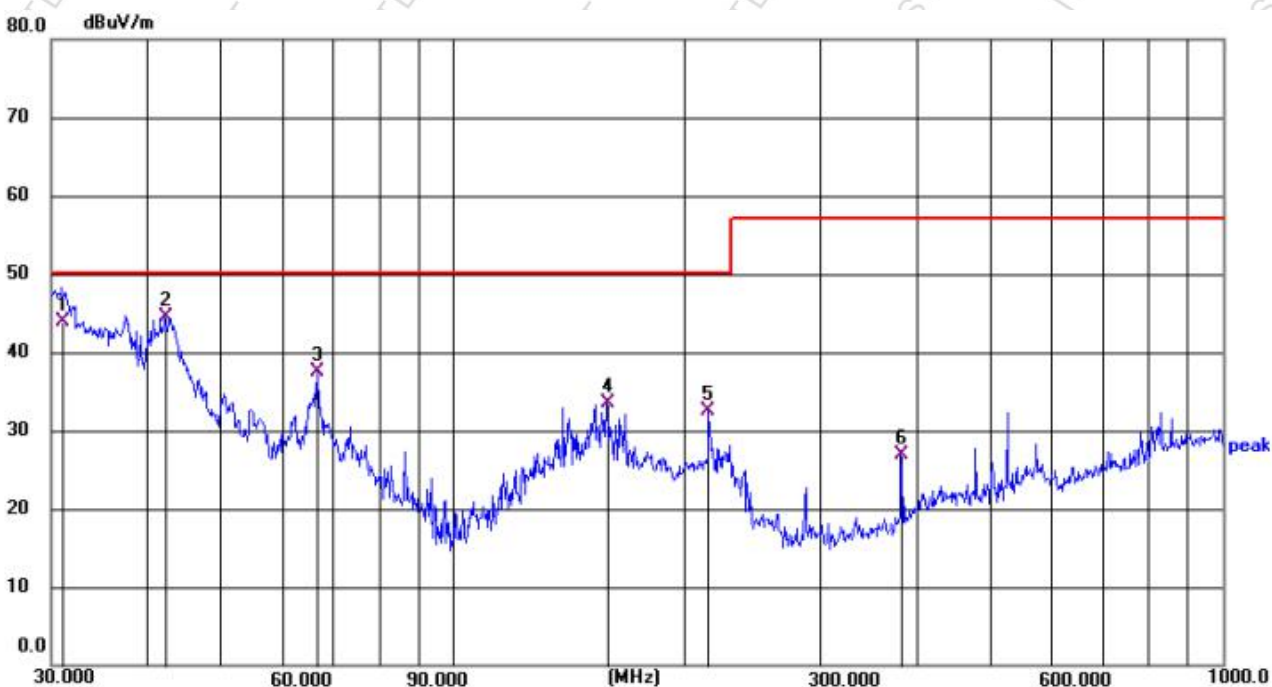
EUT: Frequency Converter
M/N: PDH30-4T004
Test Mode: ON
Ratings: Input: 3PH AC 380V $\pm 15\%$, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9A
Polarization: Horizontal
Temperature: 24°C
Humidity: 60%
Atmosphere pressure: 101Kpa
Test Results: Pass



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1 *	41.472	48.81	-14.64	34.17	50.00	15.83	QP			P
2	62.060	44.12	-16.42	27.70	50.00	22.30	QP			P
3	136.149	46.38	-15.84	30.54	50.00	19.46	QP			P
4	244.446	48.23	-15.80	32.43	57.00	24.57	QP			P
5	382.253	45.59	-12.25	33.34	57.00	23.66	QP			P
6	835.219	41.03	-3.95	37.08	57.00	19.92	QP			P



EUT: Frequency Converter
M/N: PDH30-4T004
Test Mode: ON
Ratings: Input: 3PH AC 380V $\pm 15\%$, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 9A
Polarization: Vertical
Temperature: 24°C
Humidity: 60%
Atmosphere pressure: 101Kpa
Test Results: Pass

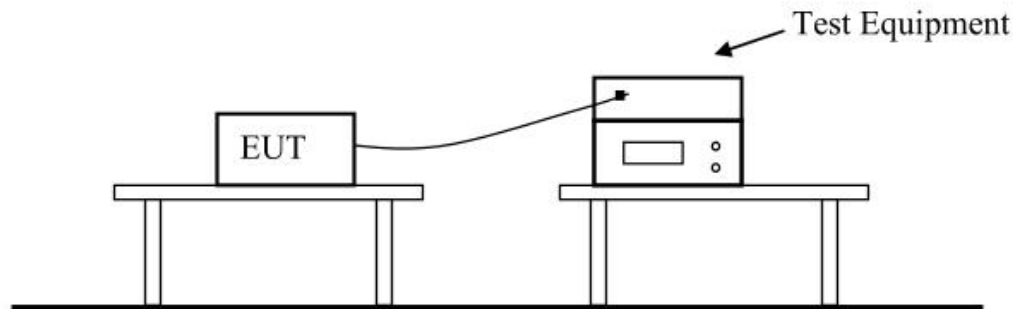


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1	31.060	59.80	-15.90	43.90	50.00	6.10	QP			P
2 *	42.184	59.28	-14.68	44.60	50.00	5.40	QP			P
3	66.674	54.35	-16.93	37.42	50.00	12.58	QP			P
4	158.501	48.63	-15.06	33.57	50.00	16.43	QP			P
5	215.230	49.86	-17.44	32.42	50.00	17.58	QP			P
6	382.521	39.18	-12.24	26.94	57.00	30.06	QP			P



6 - HARMONIC CURRENT EMISSION MEASUREMENT

6.1 Block Diagram of Test Setup



6.2 Test Standard

Please refer to EN 61000-3-12:2011

6.3 Test procedure

- The Product was placed on the top of a non-conductive table above the ground and operated to produce the maximum harmonic components under normal Test Modes for each successive harmonic component in turn.
- The correspondent test program of test instrument to measure the current harmonics emanated from Product was chosen. The measure time shall be not less than the time necessary for the Product to be exercised.

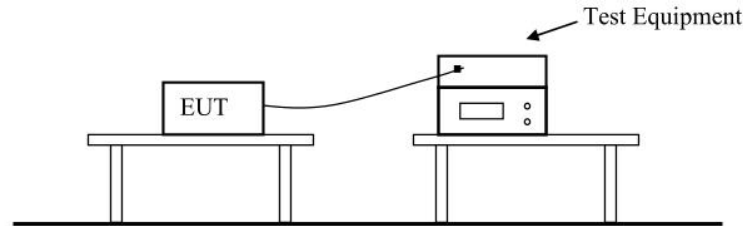
6.4 Test Results

PASS



7 - VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

7.1 Block Diagram of Test Setup



7.2 Test Standard

Please refer to EN IEC 61000-3-11:2019

7.3 Test procedure

- The Product was placed on the top of a non-conductive table above the ground and operated to produce the most unfavorable sequence of voltage changes under normal Test Modes.
- During the flick test, the measure time shall include that part of whole operation cycle in which the Product procedure the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

7.4 Test Results

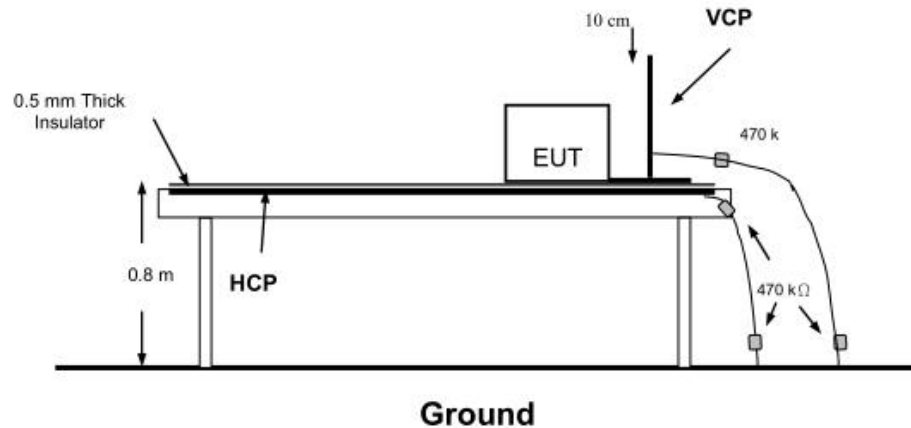
PASS



8 - IMMUNITY TEST

8.1 ELECTROSTATIC DISCHARGE IMMUNITY TEST

8.1.1 Block Diagram of Test Setup



8.1.2 Test Specification

Basic Standard	: IEC 61000-4-2
Test Port	: Enclosure port
Discharge Impedance	: 330 ohm / 150 pF
Discharge Mode	: Single Discharge
Discharge Period	: one second between each discharge

8.1.3 Test Procedure

8.1.3.1. 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.

8.1.3.2. Contact Discharge

All the procedure shall be same as Section 9.3.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.1.3.3. 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.



8.1.3.4. 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.

8.1.4 Test Results

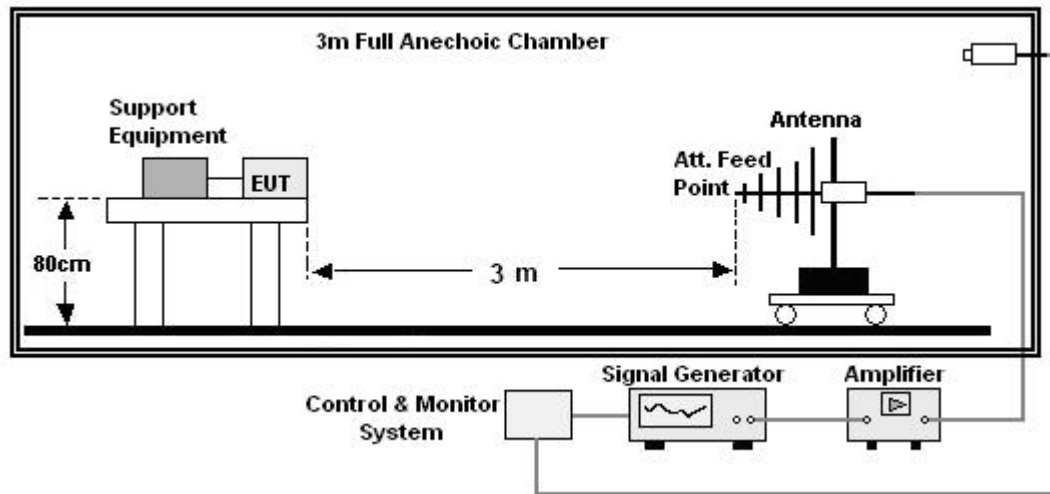
Electrostatic Discharge	
Basic Standard	IEC 61000-4-2
EUT	Frequency Converter
M/N	PDH30-4T004
Test Mode	ON
Temperature:	25°C
Humidity:	58%
Atmosphere pressure:	101Kpa
Criterion:	B
Results	Pass

Discharge Method	Discharge Position	Voltage (±kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	4	10	B	A
	Indirect Discharge HCP	4	10	B	A
	Indirect Discharge VCP	4	10	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	8	10	B	A



8.2 Radio frequency electromagnetic fields

8.2.1 Block Diagram of Test Setup



8.2.2 Test Specification

Basic Standard	: IEC 61000-4-3
Test Port	: Enclosure port
Step Size	: 1%
Modulation	: 1kHz, 80% AM
Dwell Time	: 1 second
Polarization	: Horizontal & Vertical

8.2.3 Test Procedure

- The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.
- The frequency range is swept from 80MHz to 1000MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1%.
- The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.



8.2.4 Test Results

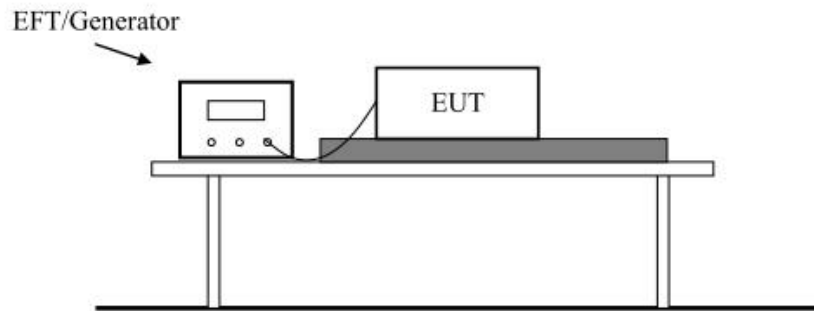
Radio frequency electromagnetic fields	
Basic Standard	IEC 61000-4-3
EUT	Frequency Converter
M/N	PDH30-4T004
Test Mode	ON
Temperature:	24°C
Humidity:	60%
Atmosphere pressure:	101Kpa
Criterion:	A

Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Performance Criterion
80 - 1000	Front, Right, Back, Left	3	A	A
1400-2000	Front, Right, Back, Left	3	A	A
2000-2700	Front, Right, Back, Left	1	A	A



8.3 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

8.3.1 Block Diagram of Test Setup



8.3.2 Test Specification

Basic Standard	: IEC 61000-4-4
Test Port	: input a.c. / d.c. power port signal lines and control lines
Impulse Frequency	: 5 kHz
Impulse Wave-shape	: 5/50 ns
Burst Duration	: 15 ms
Burst Period	: 300 ms
Test Duration	: 2 minutes per polarity

8.3.3 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.

8.3.3.1. 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 mins.

8.3.3.2. For signal lines and control lines ports:

No I/O ports. It's unnecessary to test.

8.3.3.3. For DC output line ports:

No DC output ports. It's unnecessary to test.



8.3.4 Test Results

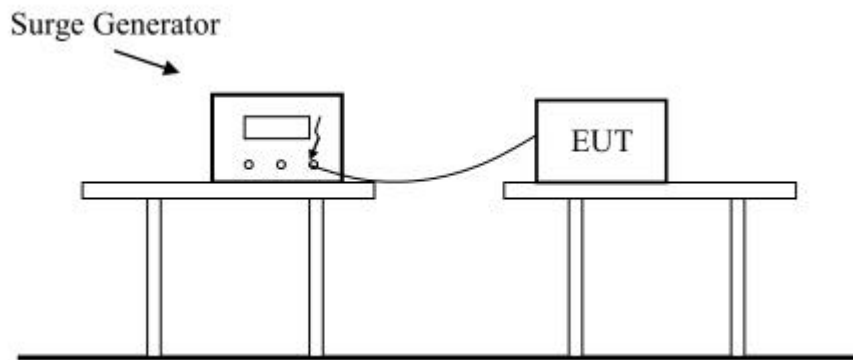
Electrical Fast Transient/Burst			
Basic Standard	IEC 61000-4-4		
EUT	Frequency Converter		
M/N	PDH30-4T004		
Test Mode	ON		
Temperature:	24°C		
Humidity:	60%		
Atmosphere pressure:	101Kpa		
Criterion:	B		

Line	Test Voltage	Polarity	Result
L+N+PE	1kv	±	Pass



8.4 SURGE IMMUNITY TEST

8.4.1 Block Diagram of Test Setup



8.4.2 Test Specification

Basic Standard	IEC 61000-4-5
Test Port	input a.c. power port
Wave-Shape	Open Circuit Voltage - 1.2 / 50 us Short Circuit Current - 8 / 20 us
Pulse Repetition Rate	1 pulse / min.
Test Events	Five positive polarity pulses at the 90° phase angel Five negative polarity pulses at the 270° phase angle

8.4.3 Test Procedure

8.4.3.1. Set up the EUT and test generator as shown on Section 8.4.1.

8.4.3.2. For line to line coupling mode, provide a 1.0 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.

8.4.3.3. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test

8.4.3.4. Different phase angles are done individually.

8.4.3.5. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.



8.4.4 Test Results

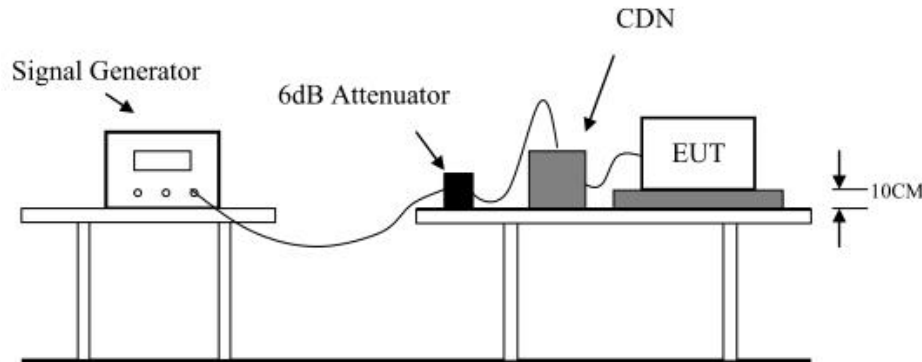
SURGE IMMUNITY	
Basic Standard	IEC 61000-4-5
EUT	Frequency Converter
M/N	PDH30-4T004
Test Mode	ON
Temperature:	24°C
Humidity:	60%
Atmosphere pressure:	101Kpa
Criterion:	B

Coupling Line	Voltage (kV)	Phase Angle	Required Level	Performance Criterion
L - N	±1KV	0°,90°,180°,270°	B	A
L - PE	±2KV	0°,90°,180°,270°	B	A
N - PE	±2KV	0°,90°,180°,270°	B	A



8.5 INJECTED CURRENTS SUSCEPTIBILITY TEST

8.5.1 Block Diagram of Test Setup



8.5.2 Test Specification

Basic Standard	: IEC 61000-4-6
Test Port	: input a.c. / d.c. power port signal lines and control lines
Step Size	: 1%
Modulation	: 1kHz,80% AM
Dwell Time	: 1 second

8.5.3 Test Procedure

8.5.3.1. Set up the EUT, CDN and test generators as shown on Section 8.5.1.

8.5.3.2. Let the EUT work in test mode and measure it.

8.5.3.3. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

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

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

8.5.3.6. The frequency range is swept from 150kHz to 230MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

8.5.3.7. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

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



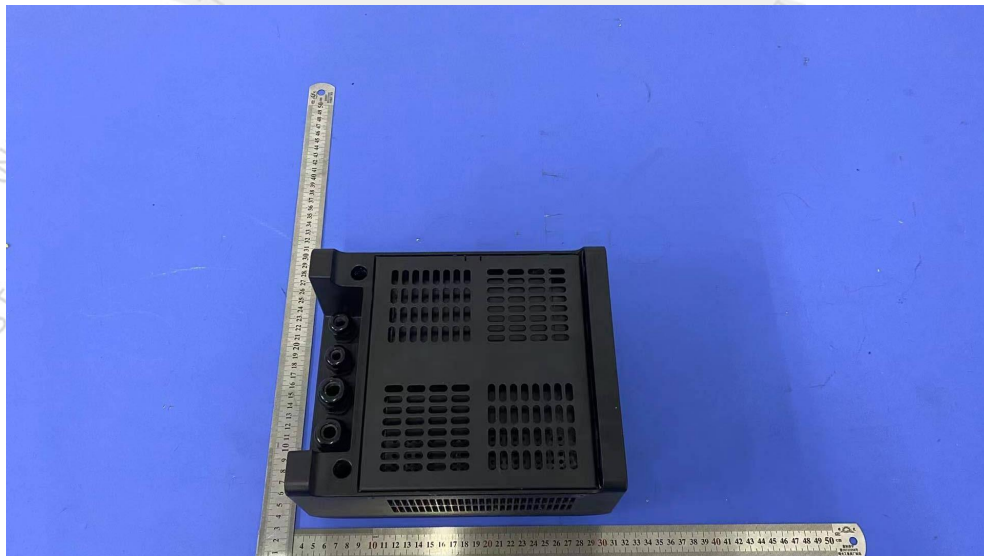
8.5.4 Test Results

INJECTED CURRENTS SUSCEPTIBILITY	
Basic Standard	IEC 61000-4-6
EUT	Frequency Converter
M/N	PDH30-4T004
Test Mode	ON
Temperature:	24°C
Humidity:	60%
Atmosphere pressure:	101Kpa
Criterion:	A

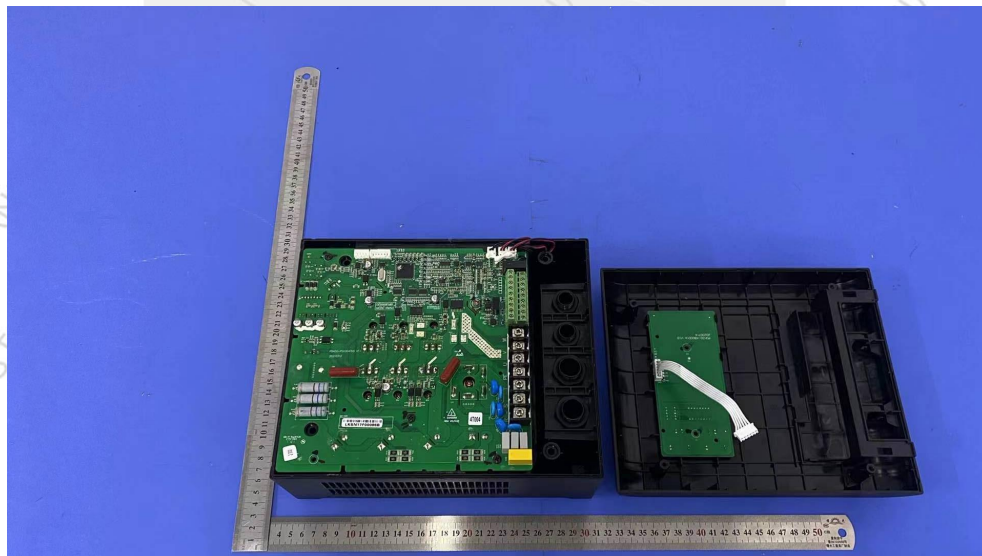
Frequency Range (MHz)	Injected Position	Strength (Non-modulated)	Criterion	Result
0.15 ~ 80	AC Mains	3V r.m.s.	A	PASS
Remark:1. Modulation Signal:1kHz 80% AM				

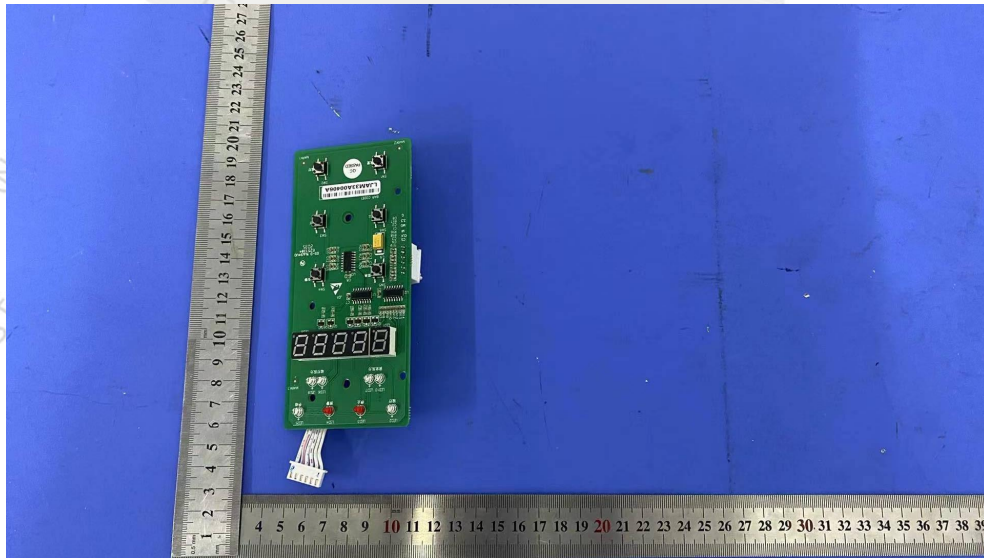
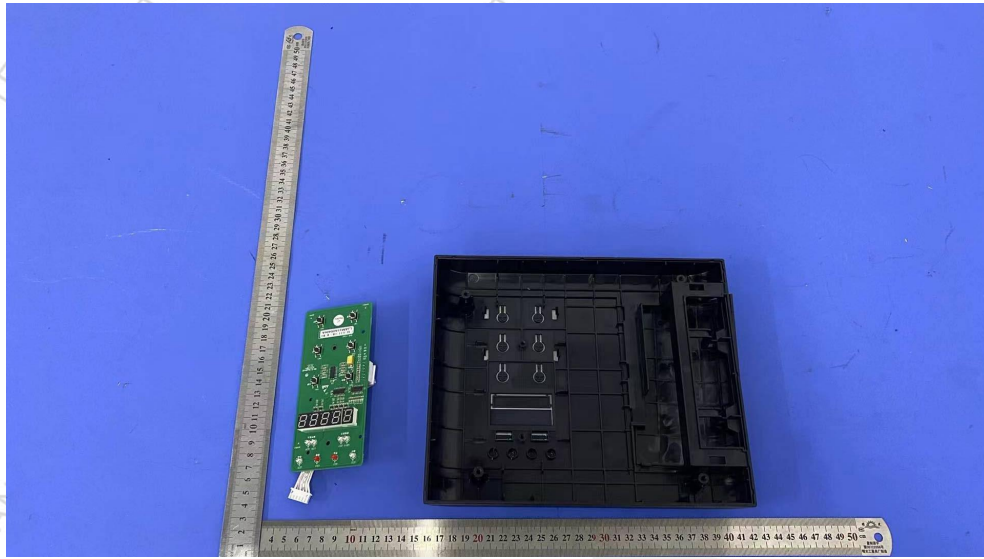


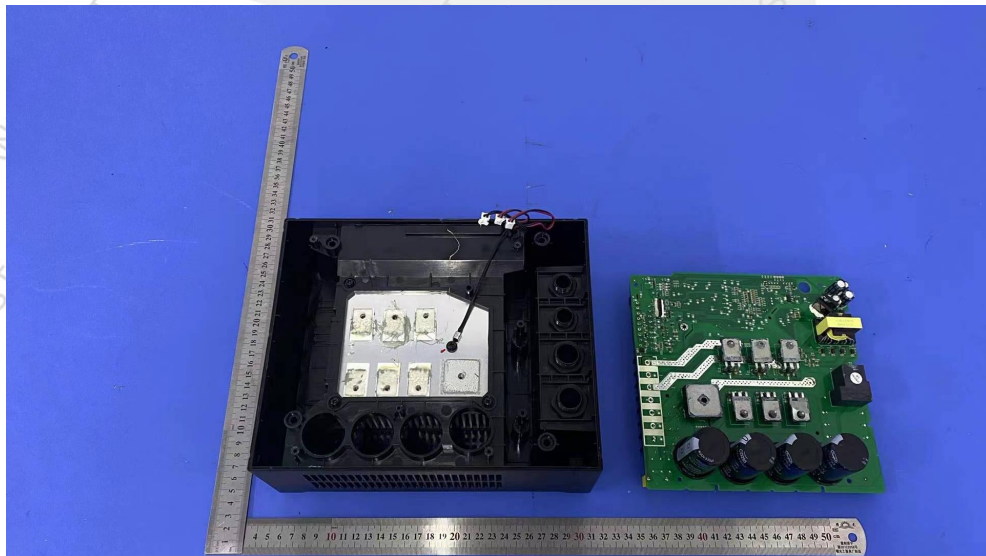
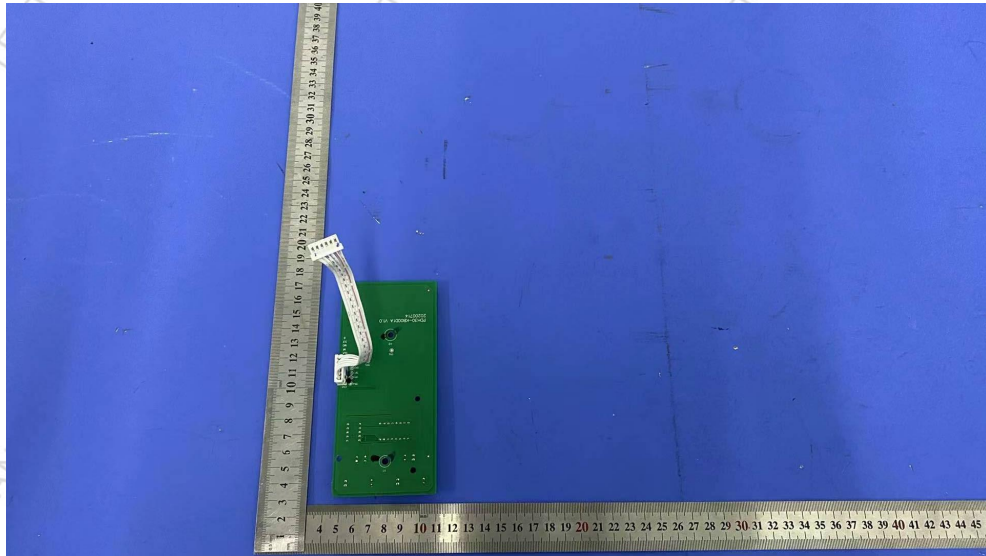
APPENDIX A - EUT PHOTOGRAPHS

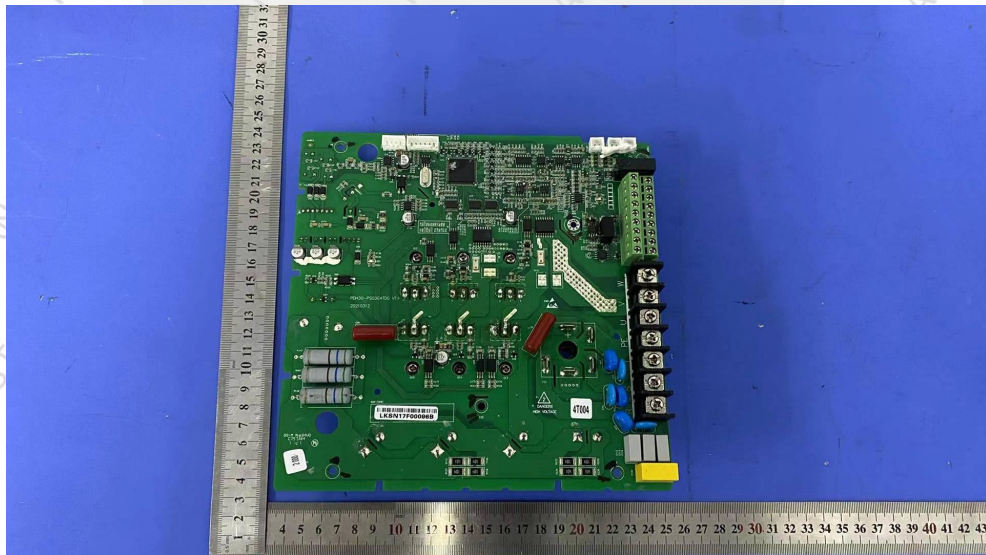
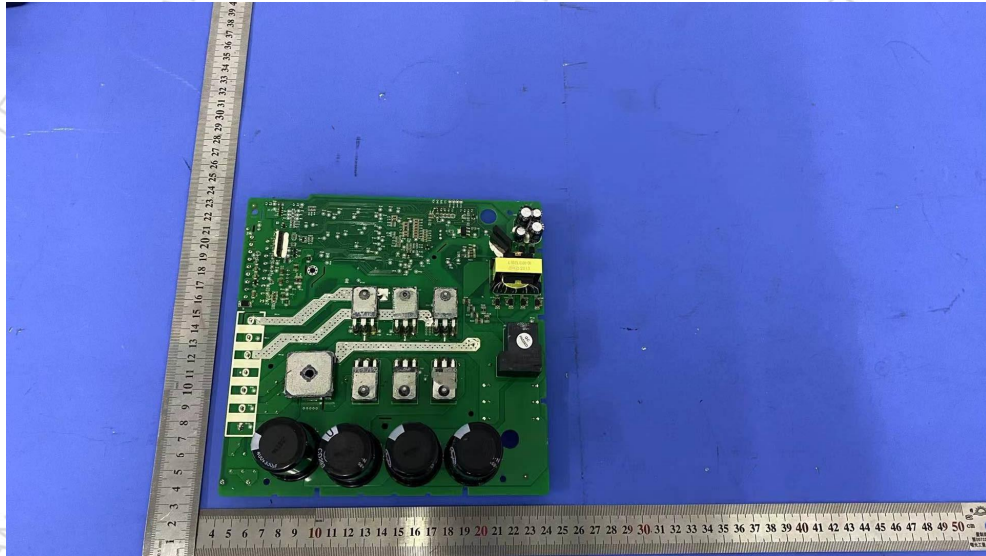








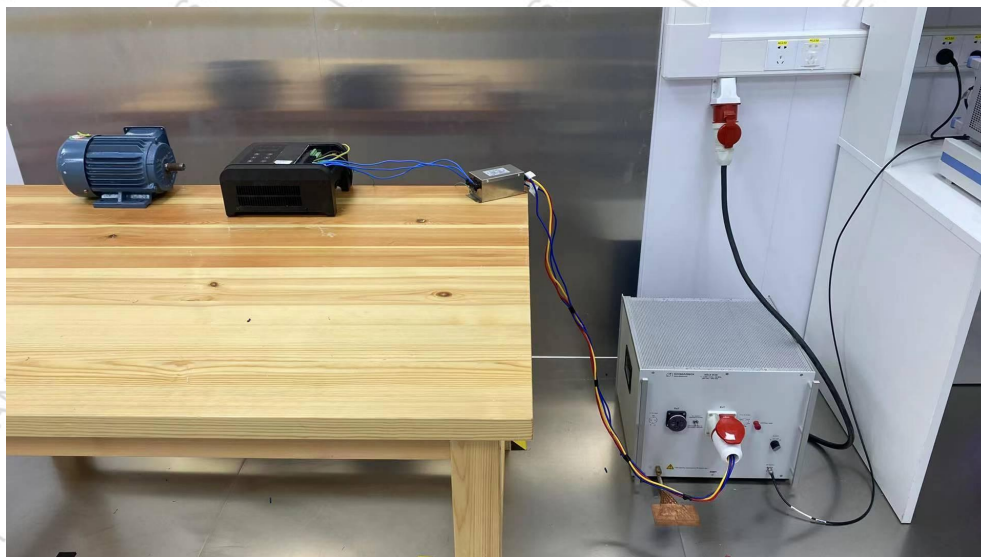




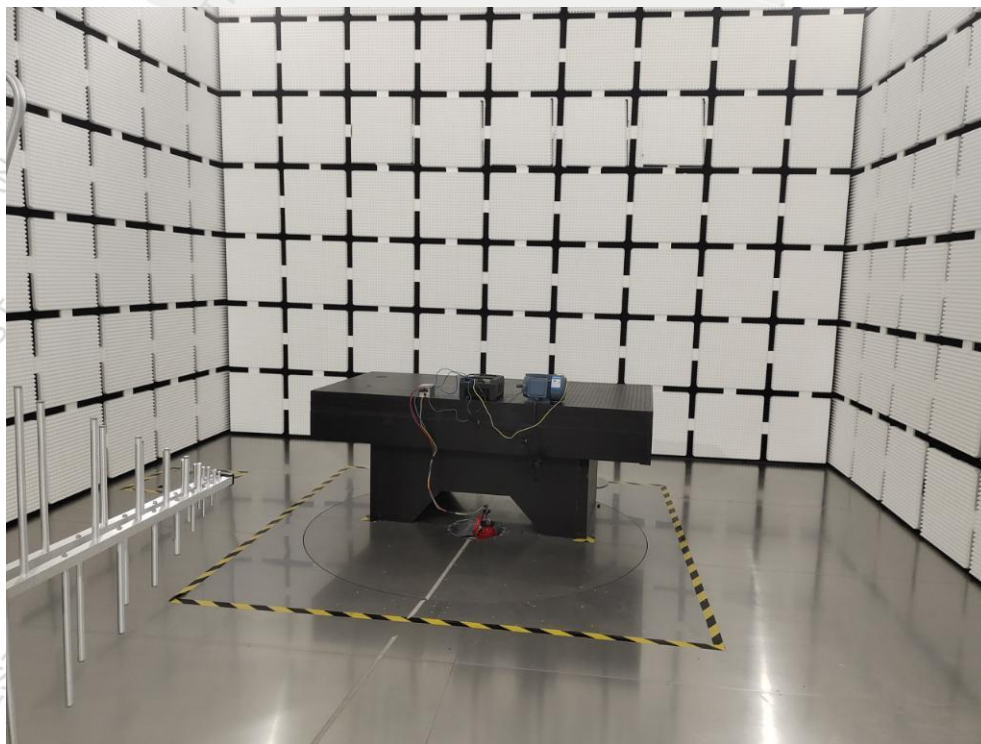


APPENDIX B - TEST SETUP PHOTOGRAPHS

Set-up for Conducted Emission



Set-up for Radiated Emission

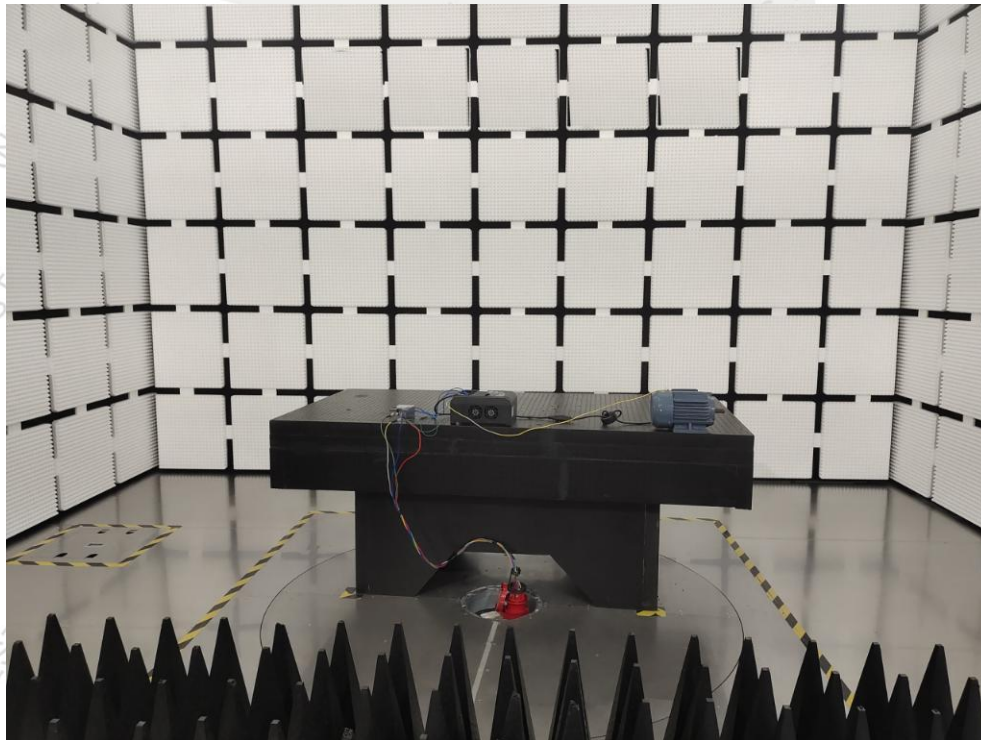




Set-up for Electrostatic Discharge



Set-up for Radio Frequency Electromagnetic Fields





Set-up for Electrical Fast Transient/Burst



Set-up for Surge





Set-up for Injected Currents Susceptibility



*****END OF THE REPORT*****



Shenzhen Tian Hai Test Technology Co.,Ltd.

CE Certificate of Conformity

Certification number: TH2105142-C09-C01

Report number: TH2105142-C09-R01

Shenzhen Tian Hai Test Technology Co., Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Manufacturer: **Guangzhou Sanjing Electric Co., Ltd.**
Address: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone Guangdong, P.R.China
Product: **Frequency Converter**
Model: See the table below
Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 5A
Note: All test results are based on model PDH30-4T18R5

And, in accordance with the following applicable directives:

2014/30/EU Electromagnetic Compatibility (EMC)

This product has been assessed against the following applicable standards:

**Standard(s): EN IEC 61800-3:2018, EN IEC 61000-3-11:2019
EN 61000-3-12:2011**

Therefore, Shenzhen Tian Hai Test Technology Co., Ltd. hereby acknowledges that the applicant may issue a DECLARATION of CONFORMITY and apply the CE marking in accordance with European Union Rules.

Attestation by:



Thomas Wong



Date of Issued: 2022-02-14

4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guan lan street, Longhua district, Shenzhen

Tel: +86-755-86615100

Fax: +86-755-86615105

<http://www.tianhaitest.com>



Shenzhen Tian Hai Test Technology Co.,Ltd.

Model List				
PDH30	PDH30-4T011	PDH30-4T011-NP	PDH30-4T011-E	PDH30-4T011-E-NP
PDH30	PDH30-4T015	PDH30-4T015-NP	PDH30-4T015-E	PDH30-4T015-E-NP
PDH30	PDH30-4T18R5	PDH30-4T18R5-NP	PDH30-4T18R5-E	PDH30-4T18R5-E-NP
PDH30	PDH30-4T022	PDH30-4T022-NP	PDH30-4T022-E	PDH30-4T022-E-NP



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Trademark: SAJ
Rating: Input: 3PH AC 380V $\pm$ 15%, 50/60Hz
Output: 3PH AC 0-380V 0-50/60Hz 5A
Note: All test results are based on model PDH30-4T18R5

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Tel: +86-755-86615100

Fax: +86-755-86615105

<http://www.tianhaitest.com>



Shenzhen Tian Hai Test Technology Co.,Ltd.

Model List				
PDH30	PDH30-4T011	PDH30-4T011-NP	PDH30-4T011-E	PDH30-4T011-E-NP
PDH30	PDH30-4T015	PDH30-4T015-NP	PDH30-4T015-E	PDH30-4T015-E-NP
PDH30	PDH30-4T18R5	PDH30-4T18R5-NP	PDH30-4T18R5-E	PDH30-4T18R5-E-NP
PDH30	PDH30-4T022	PDH30-4T022-NP	PDH30-4T022-E	PDH30-4T022-E-NP