EMC EMISSION - TEST REPORT

Report Number	:	**64.710.19.03708.02-E**	Date of Issue:	2021-03-03
Model / Serial No.	:	Steelforce Pro 60x90 SLS BIFMA (other models refer to model list)		
Product Type	:	Electric Height Adjustable Frame for Table		
Applicant	:	Actiforce Mechatronics Technology(M) Sdn Bhd		
Manufacturer	:	Actiforce Mechatronics Technology(M) Sdn Bhd		
Trade Name	:	Actiforce		
Address	:	No. 5 & 7, Lorong Perindustrian Bukit Minyak 3, Taman Perindustrian Bukit Minyak, 14100 Simpang Ampat, Penang, Malaysia		
Test Result	:	■ **Positive** ☐ **Negative**		
Total pages including Appendices	:	**78**		

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TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch issued reports.

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EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to the following regulations:

■ - EMC - Directive 2014/30/EU and its amendments

■ - EN 55014-1:2017
■ - EN 55014-1:2017+A11:2020

■ - Household appliances and similar
☐ - Portable tools
☐ - Semiconductor devices

■ - EN IEC 61000-3-2:2019

■ - EN 61000-3-3:2013+A1:2019

Note: For undated references, the latest edition of the publication at the time of testing (including amendments) was applied.

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Environmental Conditions In The Laboratory:

	Actual
Temperature:	: 24.1-25.1 °C
Relative Humidity:	: 47.0-48.0 %
Atmospheric Pressure:	: 101.0 kPa

Power Rating of EUT:

Voltage	: 110-240V (For adaptor)
Frequency	: 50/60Hz (For adaptor)

STATEMENT OF MEASUREMENT UNCERTAINTY

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 that can account for a nominal measurement error (please refer to each test item). 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.

Symbol Definitions:

■ - Applicable
☐ - Not Applicable

Test laboratory:

■ - JIANYAN TEST GROUP CO., LTD (JYT)
Add: No.760, Fengling Road, Tong' an District, Xiamen City

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Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

☐ - Test not applicable

■ - Test Area (JYT) –Shielded room

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
■ -	ESR 3	Rohde & Schwarz	EMI Receiver	102330	2021-08-04
■ -	ENV216	Rohde & Schwarz	LISN	102240	2021-08-04

Measurement Uncertainty: ±1.6dB (9kHz-150kHz), ±2.2dB (150kHz-30MHz)
Remarks: All test equipments used are calibrated on a regular basis.

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Emissions Test Conditions: INTERFERENCE POWER

The *INTERFERENCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location :

■ - Test not applicable

☐ - Test Area (JYT) - Shield room

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
☐ -	ESR 3	Rohde & Schwarz	EMI Test Receiver	102330	2021-08-04
☐ -	MDS 21B	TESEQ	Absorbing Clamp	46573	2021-10-15

Measurement Uncertainty: ± 4.1 dB (30-300MHz)
Remarks: All test equipments used are calibrated on a regular basis.

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Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location :

☐ **- Test not applicable**

■ - Test Area (JYT) – Anechoic ferrite lined shielded room

Testing was performed at a test distance of:

■ - 3 meters
☐ - 10 meters

Test Equipment Used:

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
■ -	ESR 3	Rohde & Schwarz	EMI Test Receiver	102329	2021-08-05
■ -	VULB 9163	Schwarzbeck	Trilog Super Broadband Test Antenna	1105	2021-01-04

Measurement Uncertainty: JYT: Horizontal: ±4.4dB; Vertical: ±4.4dB;
Remarks: All test equipments used are calibrated on a regular basis.

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Emissions Test Conditions: CONDUCTED EMISSIONS (Harmonics and Flicker)

The *Harmonic Current Emissions and Voltage Fluctuations and Flicker* measurements were performed at the following test location :

☐ - Test not applicable

■ - Test Area (JYT) – Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
■ -	3001iX-CTS-413	California Instrument	AC Power	1724A02283	2021-08-05
■ -	100-CTS-115	California Instrument	Analyzer	1724A02283	2021-08-04

Remarks: All test equipments used are calibrated on a regular basis.

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Equipment Under Test (EUT) Test Operation Mode - Emissions Tests :

The equipment under test was operated under the following conditions during emissions testing:

☐ - Standby

☐ - Test Program (H - Pattern)

☐ - Test Program (Color Bar)

☐ - Test Program (Customer Specified)

■ - Normal Operating Mode

☐ - _____

_____

Configuration of the equipment under test:

■ - See Constructional Data Form in Appendix B

■ - See Product Information Form(s) in Appendix B

The following peripheral devices and interface cables were connected during the testing:

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

■ - unshielded power cable

☐ - unshielded cables

☐ - shielded cables TÜV SÜD.No.: _____

☐ - customer specific cables

☐ - _____

☐ - _____

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Emissions Test Results:

Conducted Emissions, 150 kHz - 30 MHz

■ - PASS ☐ - FAIL ☐ - NOT APPLICABLE

Minimum limit margin _____ dB at _____ MHz

Maximum limit exceeding _____ dB at _____ MHz

Remarks: _____

Interference Power at the Mains and Interface Cables, 30 MHz - 300 MHz

☐ - PASS ☐ - FAIL ■ - NOT APPLICABLE

Minimum limit margin _____ dB at _____ MHz

Maximum limit exceeding _____ dB at _____ MHz

Remarks: _____

Radiated Emissions (Electric Field), 30 MHz - 1000 MHz

■ - PASS ☐ - FAIL ☐ - NOT APPLICABLE

Minimum limit margin _____ dB at _____ MHz

Maximum limit exceeding _____ dB at _____ MHz

Remarks: _____

Harmonic Current Emissions and Voltage Fluctuations and Flicker

■ - PASS ☐ - FAIL ☐ - NOT APPLICABLE

Harmonic measurement exceeding limit _____ Above at _____ Harmonic

Flicker measurement exceeding limit _____ Above the _____ Requirement

Remarks: _____

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GENERAL REMARKS:

The report is issued because of the following change:

1. Adding three adapters for the products, these three adapters are with different schematics and PCB Layouts. Model ControlForce 2 with Gyro is with sensor chip and relay, model ControlForce 2 Pro is with sensor chip and MOS, model ControlForce 2 is with MOS.

Based on above change and engineering judgments, we selected models: refer to test models to conduct full tests

Test models:

Model 1: Steelforce Pro 60x90 SLS BIFMA + Adapter (ControlForce 2 with Gyro)

Model 2: Steelforce Pro 60x90 SLS BIFMA + Adapter (ControlForce 2)

Model 3: Steelforce Pro 60x90 SLS BIFMA + Adapter (ControlForce 2 Pro)

SUMMARY:

All tests according to the regulations cited on page 3 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements cited on page 3.

☐ - **Does not** fulfill the general approval requirements cited on page 3.

Sample Received Date:	2020-11-03
Testing Start Date:	2020-11-04
Testing End Date:	2020-11-12

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Reviewed by: Peter Jia

Prepared by: Tim Pang

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Appendix A

Test Setup
and

Test Data Sheets

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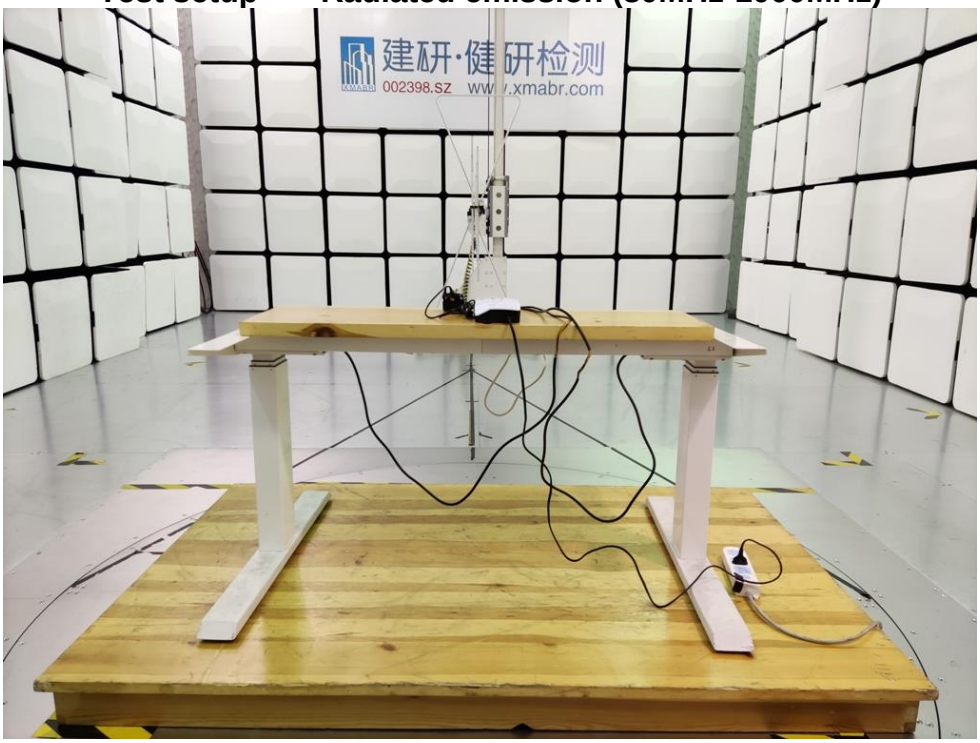
Test setup Conducted Emission (150kHz-30MHz)

Test setup Radiated emission (30MHz-1000MHz)



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Test setup Harmonic Current Emissions and Flicker

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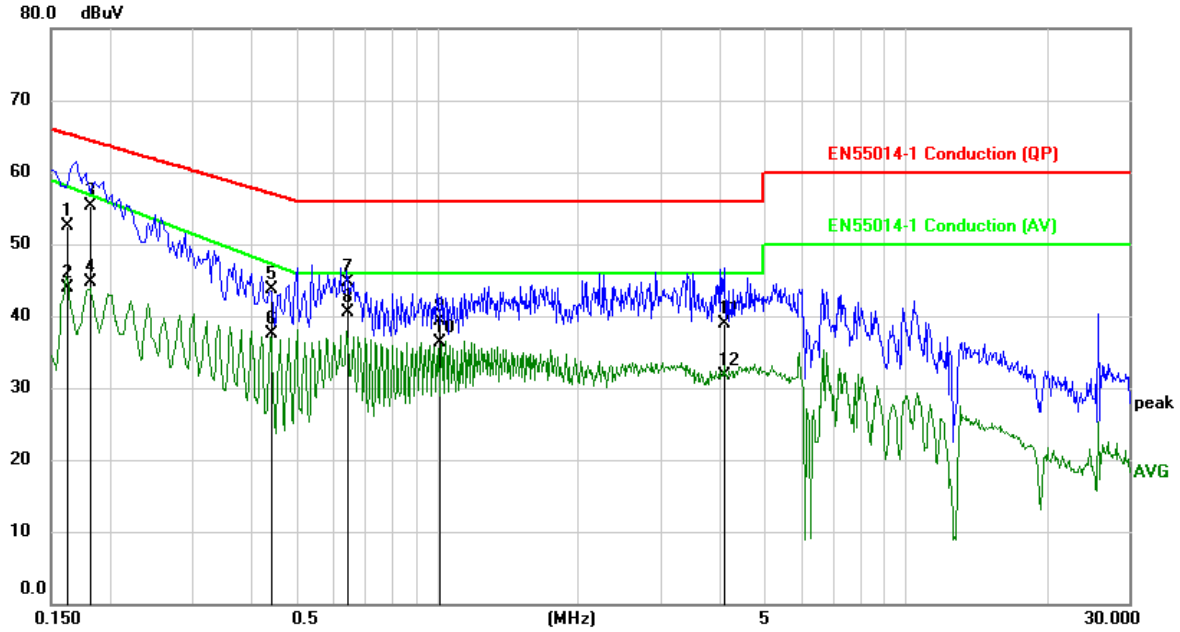
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1620	42.94	9.65	52.59	65.36	-12.77	QP
2		0.1620	34.23	9.65	43.88	58.17	-14.29	AVG
3		0.1814	45.60	9.65	55.25	64.42	-9.17	QP
4		0.1814	35.08	9.65	44.73	56.95	-12.22	AVG
5		0.4416	33.98	9.65	43.63	57.03	-13.40	QP
6		0.4416	27.85	9.65	37.50	47.34	-9.84	AVG
7		0.6423	35.14	9.66	44.80	56.00	-11.20	QP
8	*	0.6423	30.78	9.66	40.44	46.00	-5.56	AVG
9		1.0063	29.69	9.70	39.39	56.00	-16.61	QP
10		1.0063	26.56	9.70	36.26	46.00	-9.74	AVG
11		4.0856	29.25	9.72	38.97	56.00	-17.03	QP
12		4.0856	21.97	9.72	31.69	46.00	-14.31	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	L (230Vac, 50Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 with Gyro)

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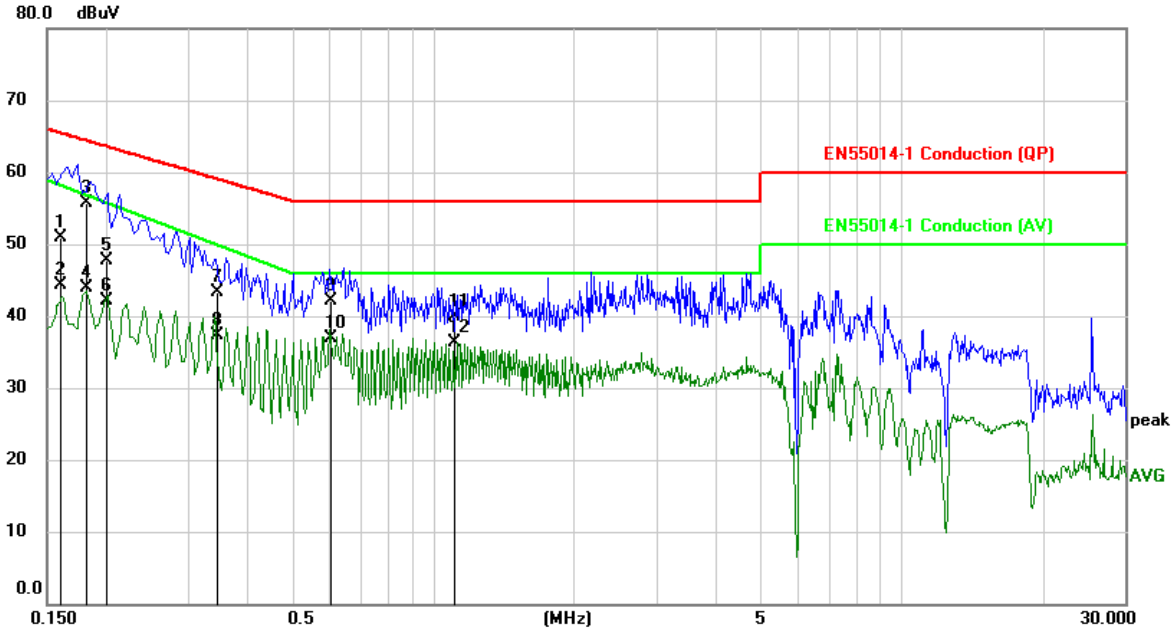
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1602	41.18	9.64	50.82	65.45	-14.63	QP
2		0.1602	34.59	9.64	44.23	58.29	-14.06	AVG
3	*	0.1821	45.99	9.64	55.63	64.39	-8.76	QP
4		0.1821	34.21	9.64	43.85	56.91	-13.06	AVG
5		0.2006	38.02	9.64	47.66	63.59	-15.93	QP
6		0.2006	32.39	9.64	42.03	55.86	-13.83	AVG
7		0.3456	33.64	9.64	43.28	59.07	-15.79	QP
8		0.3456	27.59	9.64	37.23	49.99	-12.76	AVG
9		0.6017	32.49	9.66	42.15	56.00	-13.85	QP
10		0.6017	27.31	9.66	36.97	46.00	-9.03	AVG
11		1.1060	30.20	9.69	39.89	56.00	-16.11	QP
12		1.1060	26.62	9.69	36.31	46.00	-9.69	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	N (230Vac, 50Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 with Gyro)

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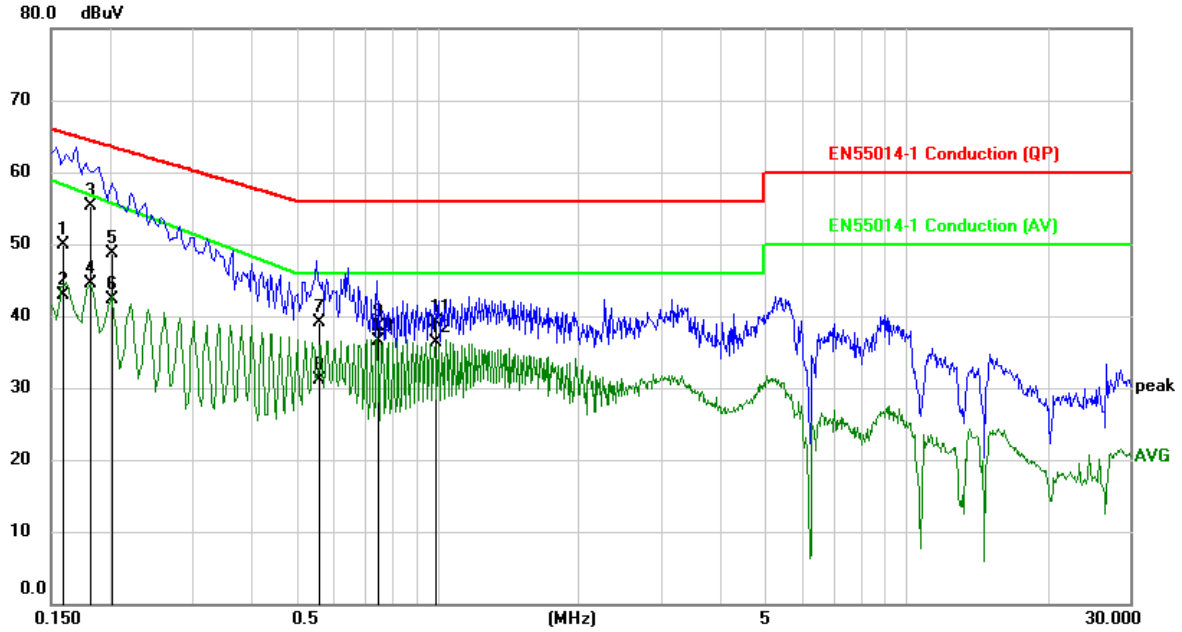
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1582	40.26	9.64	49.90	65.56	-15.66	QP
2		0.1582	33.33	9.64	42.97	58.43	-15.46	AVG
3	*	0.1815	45.68	9.64	55.32	64.42	-9.10	QP
4		0.1815	34.96	9.64	44.60	56.94	-12.34	AVG
5		0.2012	39.15	9.64	48.79	63.56	-14.77	QP
6		0.2012	32.58	9.64	42.22	55.83	-13.61	AVG
7		0.5555	29.54	9.65	39.19	56.00	-16.81	QP
8		0.5555	21.41	9.65	31.06	46.00	-14.94	AVG
9		0.7448	28.74	9.68	38.42	56.00	-17.58	QP
10		0.7448	26.81	9.68	36.49	46.00	-9.51	AVG
11		0.9859	29.52	9.68	39.20	56.00	-16.80	QP
12		0.9859	26.59	9.68	36.27	46.00	-9.73	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	L (120Vac, 60Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 with Gyro)

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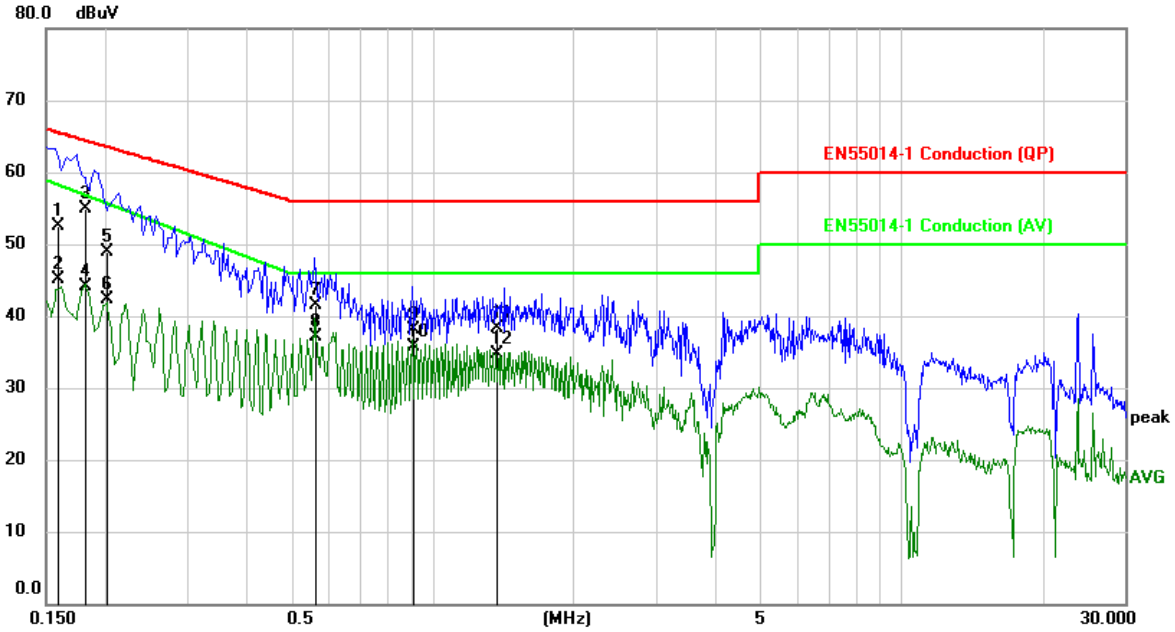
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1583	42.83	9.64	52.47	65.55	-13.08	QP
2		0.1583	35.48	9.64	45.12	58.42	-13.30	AVG
3		0.1816	45.22	9.64	54.86	64.41	-9.55	QP
4		0.1816	34.40	9.64	44.04	56.94	-12.90	AVG
5		0.2023	39.25	9.64	48.89	63.52	-14.63	QP
6		0.2023	32.65	9.64	42.29	55.77	-13.48	AVG
7		0.5626	31.76	9.65	41.41	56.00	-14.59	QP
8	*	0.5626	27.54	9.65	37.19	46.00	-8.81	AVG
9		0.9061	28.39	9.68	38.07	56.00	-17.93	QP
10		0.9061	26.01	9.68	35.69	46.00	-10.31	AVG
11		1.3691	28.59	9.69	38.28	56.00	-17.72	QP
12		1.3691	24.99	9.69	34.68	46.00	-11.32	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	N (120Vac, 60Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 with Gyro)

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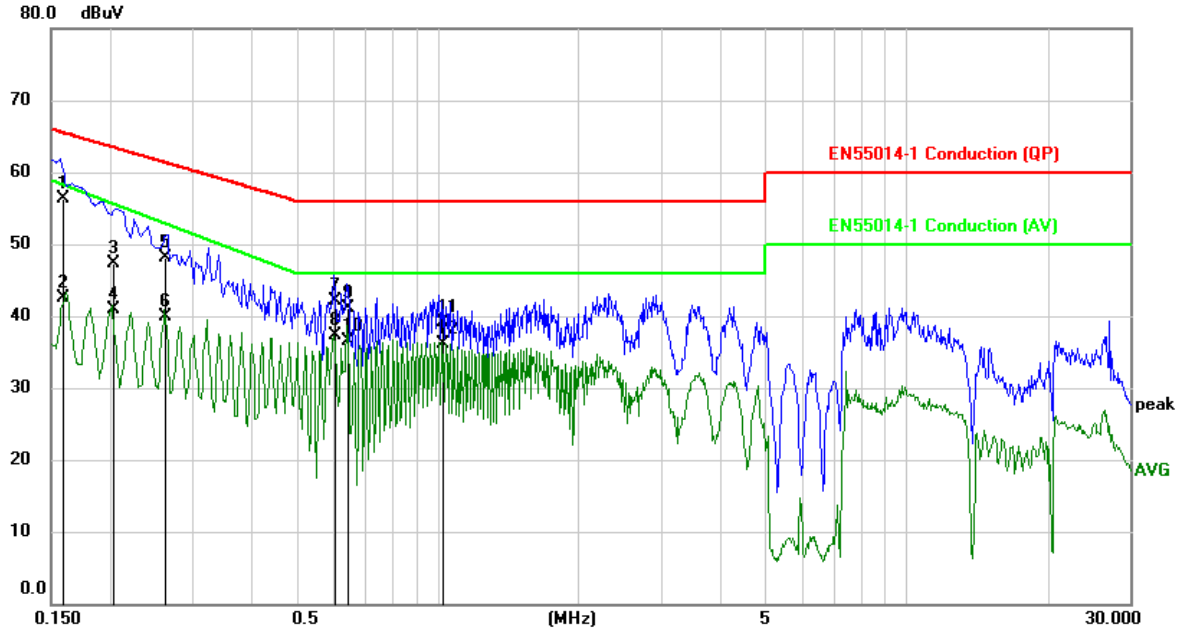
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1586	46.61	9.64	56.25	65.54	-9.29	QP
2		0.1586	32.92	9.64	42.56	58.40	-15.84	AVG
3		0.2031	37.75	9.64	47.39	63.48	-16.09	QP
4		0.2031	31.17	9.64	40.81	55.73	-14.92	AVG
5		0.2627	38.44	9.64	48.08	61.35	-13.27	QP
6		0.2627	30.26	9.64	39.90	52.95	-13.05	AVG
7		0.6023	32.38	9.66	42.04	56.00	-13.96	QP
8	*	0.6023	27.63	9.66	37.29	46.00	-8.71	AVG
9		0.6422	31.42	9.66	41.08	56.00	-14.92	QP
10		0.6422	26.90	9.66	36.56	46.00	-9.44	AVG
11		1.0265	29.49	9.70	39.19	56.00	-16.81	QP
12		1.0265	26.37	9.70	36.07	46.00	-9.93	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	L (230Vac, 50Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2)

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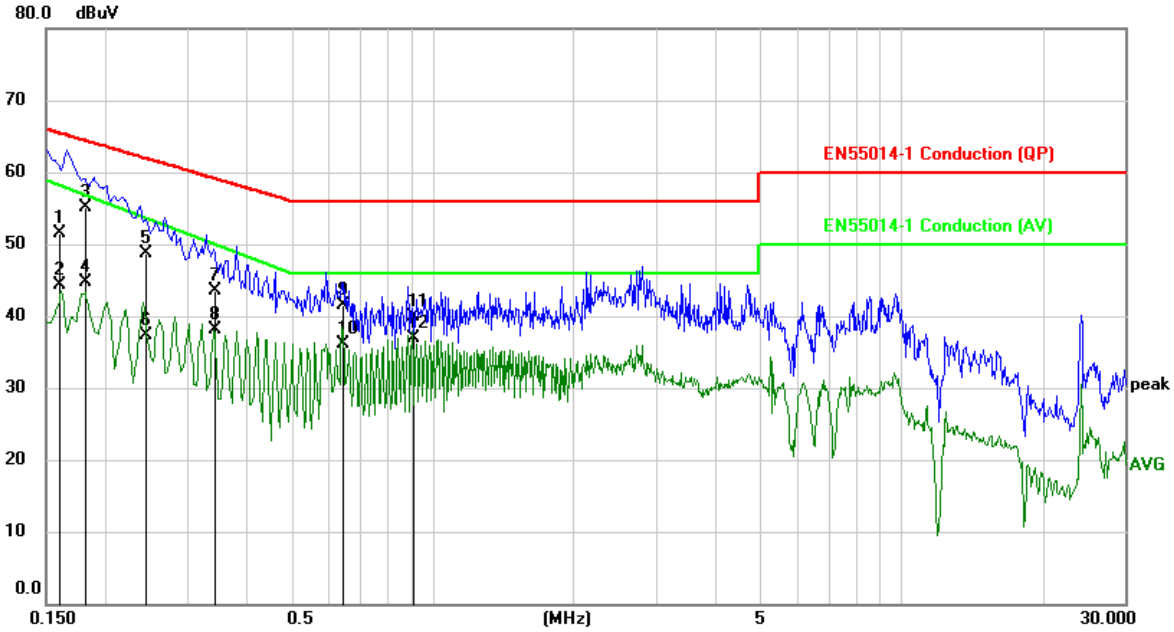
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1607	41.92	9.64	51.56	65.43	-13.87	QP
2		0.1607	34.62	9.64	44.26	58.26	-14.00	AVG
3		0.1815	45.48	9.64	55.12	64.42	-9.30	QP
4		0.1815	35.13	9.64	44.77	56.94	-12.17	AVG
5		0.2443	39.00	9.64	48.64	61.95	-13.31	QP
6		0.2443	27.73	9.64	37.37	53.73	-16.36	AVG
7		0.3417	33.78	9.64	43.42	59.16	-15.74	QP
8		0.3417	28.56	9.64	38.20	50.11	-11.91	AVG
9		0.6427	31.84	9.66	41.50	56.00	-14.50	QP
10		0.6427	26.47	9.66	36.13	46.00	-9.87	AVG
11		0.9068	30.15	9.68	39.83	56.00	-16.17	QP
12	*	0.9068	27.15	9.68	36.83	46.00	-9.17	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	N (230Vac, 50Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2)

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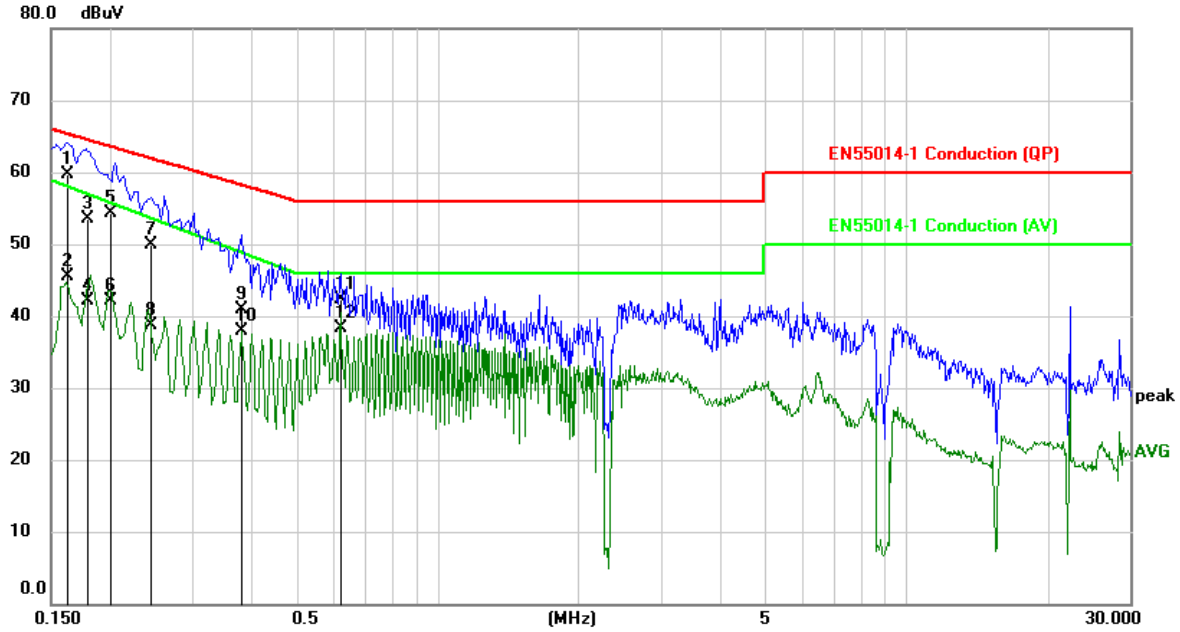
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1618	50.05	9.64	59.69	65.37	-5.68	QP
2		0.1618	35.87	9.64	45.51	58.18	-12.67	AVG
3		0.1796	43.93	9.64	53.57	64.50	-10.93	QP
4		0.1796	32.40	9.64	42.04	57.06	-15.02	AVG
5		0.1999	44.59	9.64	54.23	63.61	-9.38	QP
6		0.1999	32.47	9.64	42.11	55.90	-13.79	AVG
7		0.2447	40.36	9.64	50.00	61.94	-11.94	QP
8		0.2447	29.01	9.64	38.65	53.72	-15.07	AVG
9		0.3824	31.33	9.65	40.98	58.23	-17.25	QP
10		0.3824	28.35	9.65	38.00	48.90	-10.90	AVG
11		0.6216	32.70	9.66	42.36	56.00	-13.64	QP
12		0.6216	28.57	9.66	38.23	46.00	-7.77	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	L (120Vac, 60Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2)

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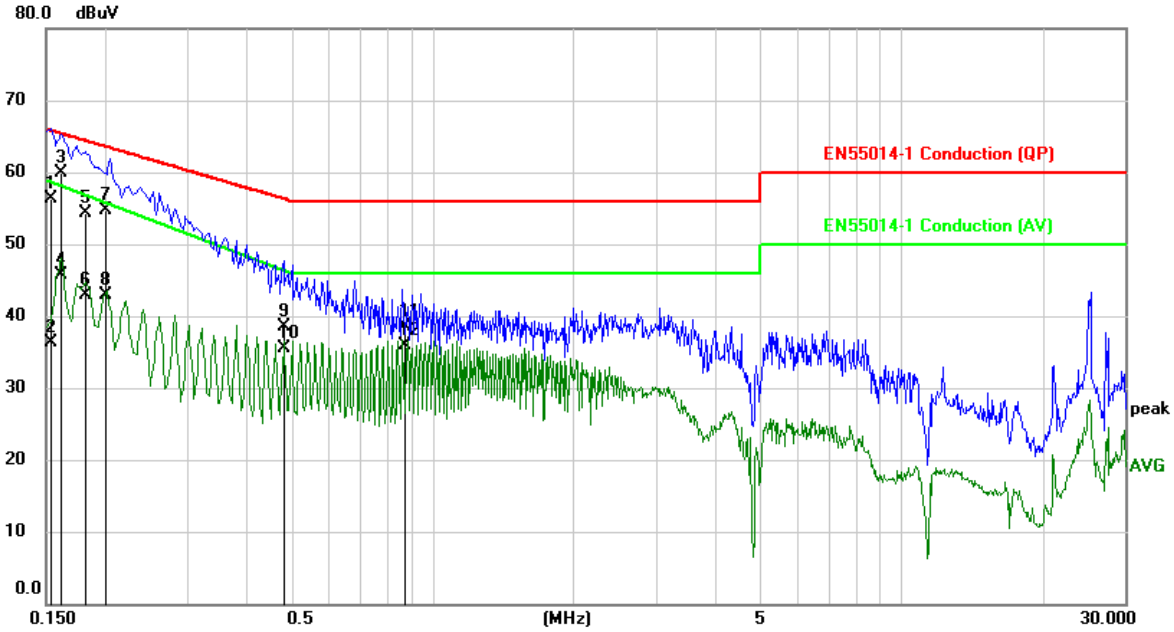
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1539	46.60	9.64	56.24	65.79	-9.55	QP
2		0.1539	26.64	9.64	36.28	58.72	-22.44	AVG
3	*	0.1613	50.35	9.64	59.99	65.40	-5.41	QP
4		0.1613	36.03	9.64	45.67	58.22	-12.55	AVG
5		0.1823	44.60	9.64	54.24	64.38	-10.14	QP
6		0.1823	33.27	9.64	42.91	56.89	-13.98	AVG
7		0.1999	45.00	9.64	54.64	63.61	-8.97	QP
8		0.1999	33.29	9.64	42.93	55.90	-12.97	AVG
9		0.4811	28.79	9.65	38.44	56.32	-17.88	QP
10		0.4811	25.79	9.65	35.44	46.42	-10.98	AVG
11		0.8670	28.87	9.68	38.55	56.00	-17.45	QP
12		0.8670	26.31	9.68	35.99	46.00	-10.01	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	N (120Vac, 60Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2)

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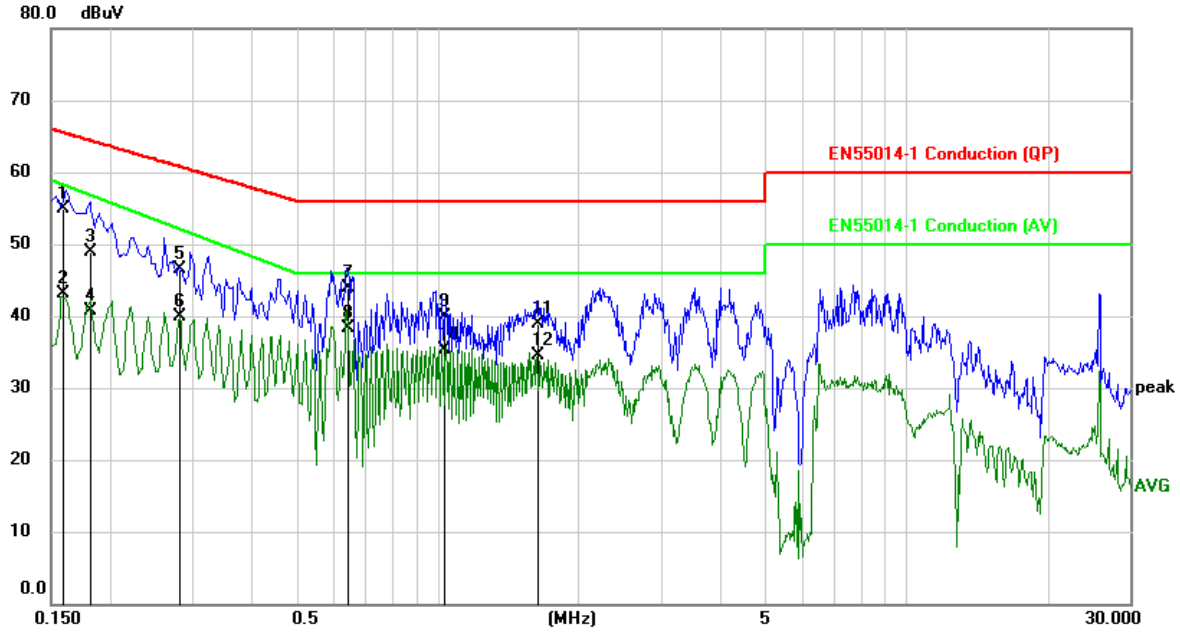
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1582	45.20	9.64	54.84	65.56	-10.72	QP
2		0.1582	33.56	9.64	43.20	58.43	-15.23	AVG
3		0.1823	39.27	9.65	48.92	64.38	-15.46	QP
4		0.1823	31.13	9.65	40.78	56.89	-16.11	AVG
5		0.2816	36.84	9.64	46.48	60.77	-14.29	QP
6		0.2816	30.36	9.64	40.00	52.20	-12.20	AVG
7		0.6428	34.26	9.66	43.92	56.00	-12.08	QP
8	*	0.6428	28.74	9.66	38.40	46.00	-7.60	AVG
9		1.0275	30.19	9.70	39.89	56.00	-16.11	QP
10		1.0275	25.60	9.70	35.30	46.00	-10.70	AVG
11		1.6286	29.11	9.71	38.82	56.00	-17.18	QP
12		1.6286	24.87	9.71	34.58	46.00	-11.42	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	L (230Vac, 50Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 Pro)

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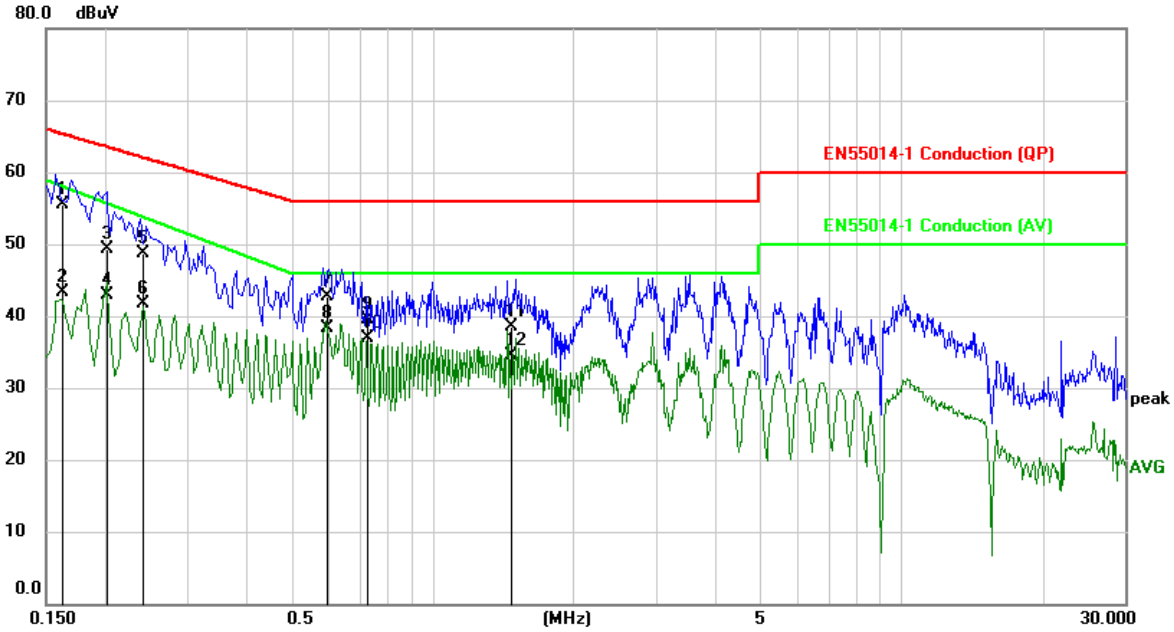
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1618	45.83	9.64	55.47	65.37	-9.90	QP
2		0.1618	33.71	9.64	43.35	58.18	-14.83	AVG
3		0.2012	39.68	9.64	49.32	63.56	-14.24	QP
4		0.2012	33.27	9.64	42.91	55.83	-12.92	AVG
5		0.2414	39.13	9.64	48.77	62.05	-13.28	QP
6		0.2414	32.03	9.64	41.67	53.86	-12.19	AVG
7		0.5934	33.08	9.66	42.74	56.00	-13.26	QP
8	*	0.5934	28.63	9.66	38.29	46.00	-7.71	AVG
9		0.7256	29.89	9.67	39.56	56.00	-16.44	QP
10		0.7256	27.22	9.67	36.89	46.00	-9.11	AVG
11		1.4697	28.75	9.69	38.44	56.00	-17.56	QP
12		1.4697	24.74	9.69	34.43	46.00	-11.57	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	N (230Vac, 50Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 Pro)

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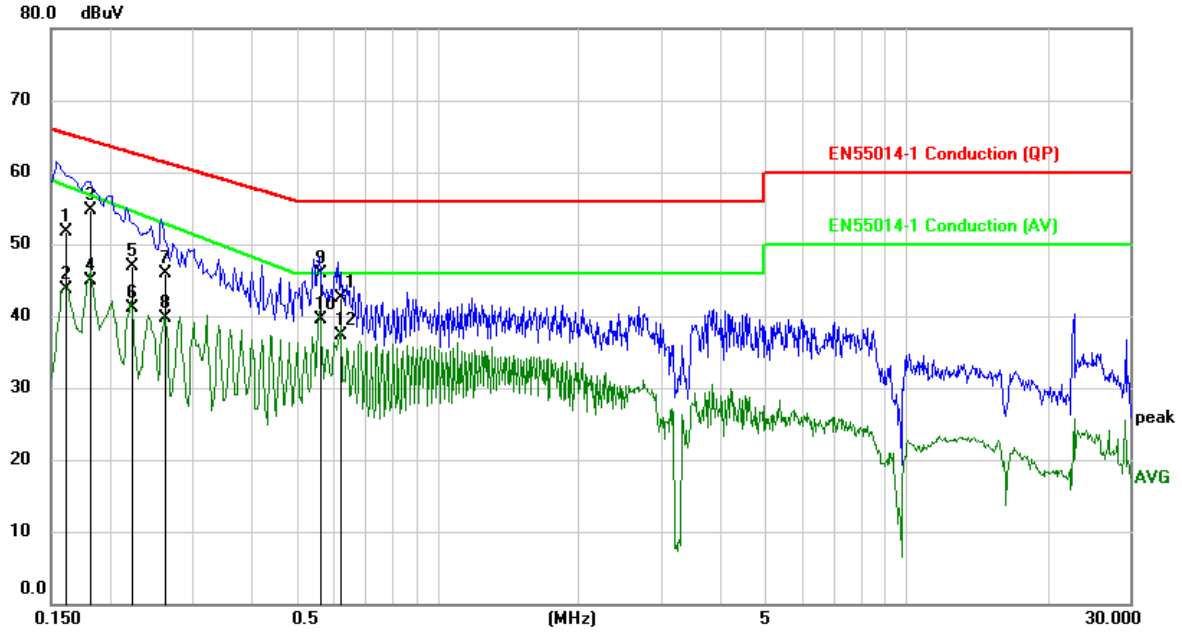
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1614	42.07	9.64	51.71	65.39	-13.68	QP
2		0.1614	34.05	9.64	43.69	58.21	-14.52	AVG
3		0.1819	45.10	9.64	54.74	64.40	-9.66	QP
4		0.1819	35.36	9.64	45.00	56.92	-11.92	AVG
5		0.2226	37.33	9.64	46.97	62.72	-15.75	QP
6		0.2226	31.41	9.64	41.05	54.74	-13.69	AVG
7		0.2628	36.31	9.64	45.95	61.34	-15.39	QP
8		0.2628	29.99	9.64	39.63	52.95	-13.32	AVG
9		0.5622	36.26	9.65	45.91	56.00	-10.09	QP
10	*	0.5622	29.95	9.65	39.60	46.00	-6.40	AVG
11		0.6212	32.89	9.66	42.55	56.00	-13.45	QP
12		0.6212	27.70	9.66	37.36	46.00	-8.64	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	L (120Vac, 60Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 Pro)

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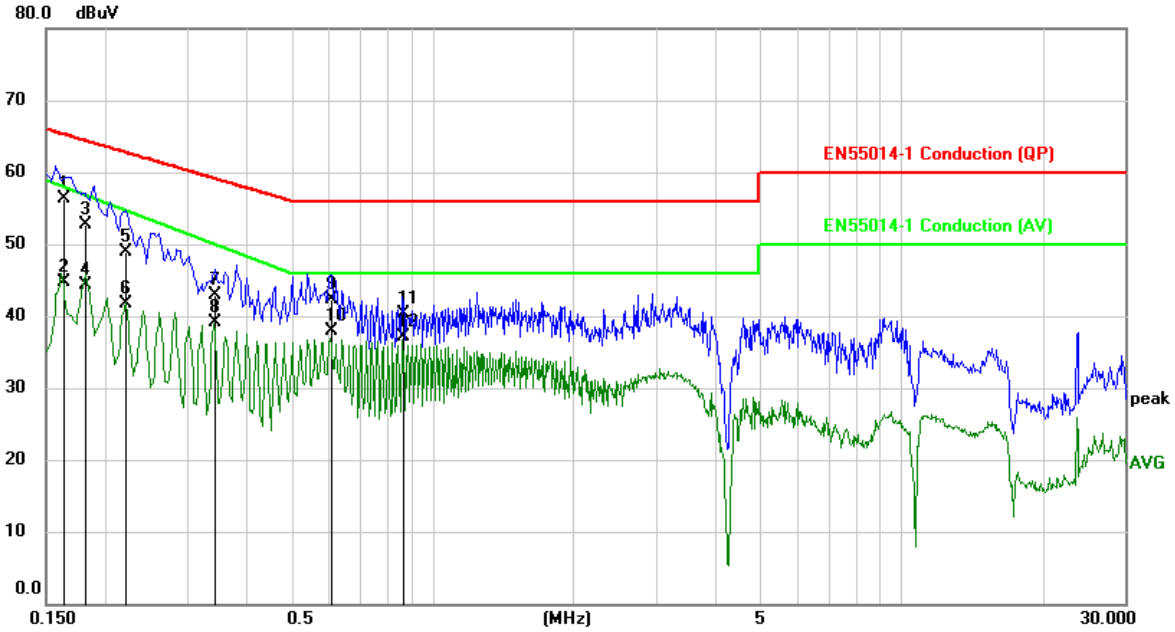
Conducted Emission (150kHz-30MHz)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1630	46.73	9.64	56.37	65.31	-8.94	QP
2		0.1630	35.00	9.64	44.64	58.10	-13.46	AVG
3		0.1824	43.01	9.64	52.65	64.38	-11.73	QP
4		0.1824	34.61	9.64	44.25	56.89	-12.64	AVG
5		0.2211	39.20	9.64	48.84	62.78	-13.94	QP
6		0.2211	32.07	9.64	41.71	54.81	-13.10	AVG
7		0.3412	33.26	9.64	42.90	59.17	-16.27	QP
8		0.3412	29.43	9.64	39.07	50.13	-11.06	AVG
9		0.6056	32.61	9.66	42.27	56.00	-13.73	QP
10	*	0.6056	28.28	9.66	37.94	46.00	-8.06	AVG
11		0.8661	30.67	9.68	40.35	56.00	-15.65	QP
12		0.8661	27.45	9.68	37.13	46.00	-8.87	AVG

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	N (120Vac, 60Hz)
Test By	:	Tim pang
Test Date	:	2020-11-04
Remark	:	Adapter (ControlForce 2 Pro)

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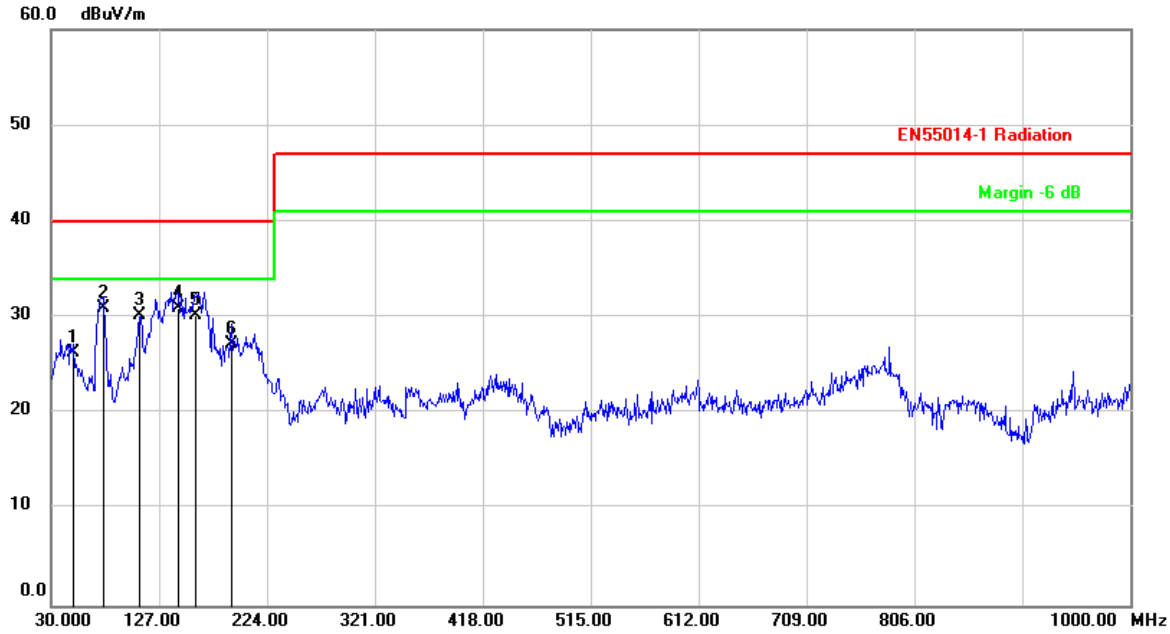
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		49.4000	39.87	-13.57	26.30	40.00	-13.70	QP
2	*	76.5600	48.85	-17.83	31.02	40.00	-8.98	QP
3		109.5400	44.30	-14.10	30.20	40.00	-9.80	QP
4		144.4600	48.72	-17.70	31.02	40.00	-8.98	QP
5		159.9800	47.07	-16.90	30.17	40.00	-9.83	QP
6		191.9900	41.90	-14.67	27.23	40.00	-12.77	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (230Vac, 50Hz)
Antenna	:	Horizontal polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 with Gyro)

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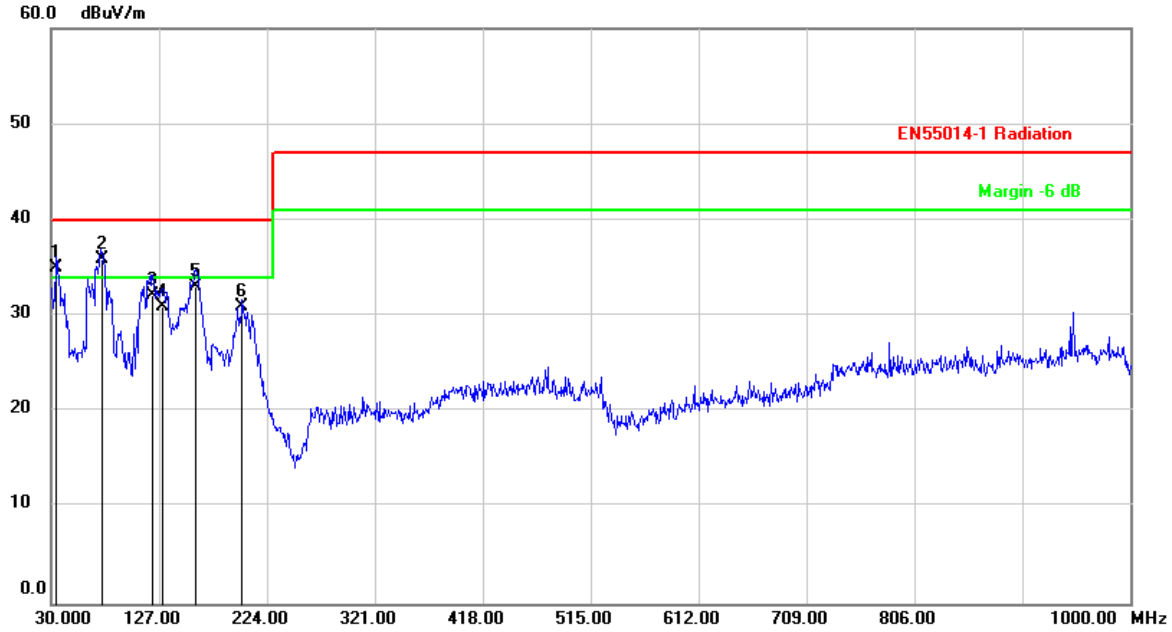
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	!	34.8500	48.88	-13.86	35.02	40.00	-4.98	QP
2	*	75.5899	53.76	-17.78	35.98	40.00	-4.02	QP
3		121.1800	48.24	-16.12	32.12	40.00	-7.88	QP
4		129.9100	48.13	-17.11	31.02	40.00	-8.98	QP
5		159.9800	49.96	-16.90	33.06	40.00	-6.94	QP
6		201.6900	45.11	-14.13	30.98	40.00	-9.02	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (230Vac, 50Hz)
Antenna	:	Vertical polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 with Gyro)

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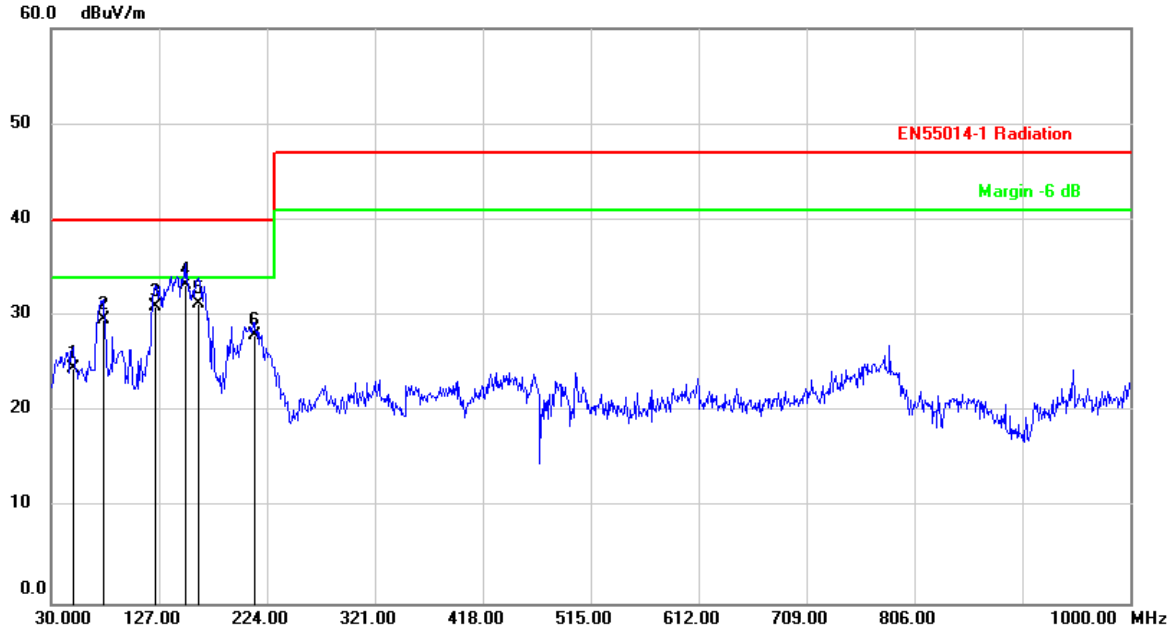
China

Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		50.3700	38.18	-13.62	24.56	40.00	-15.44	QP
2		76.5600	47.48	-17.83	29.65	40.00	-10.35	QP
3		123.1200	47.29	-16.33	30.96	40.00	-9.04	QP
4	*	150.2800	50.95	-17.75	33.20	40.00	-6.80	QP
5		161.9200	48.09	-16.81	31.28	40.00	-8.72	QP
6		212.3600	41.57	-13.59	27.98	40.00	-12.02	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (120V/60Hz)
Antenna	:	Horizontal polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 with Gyro)

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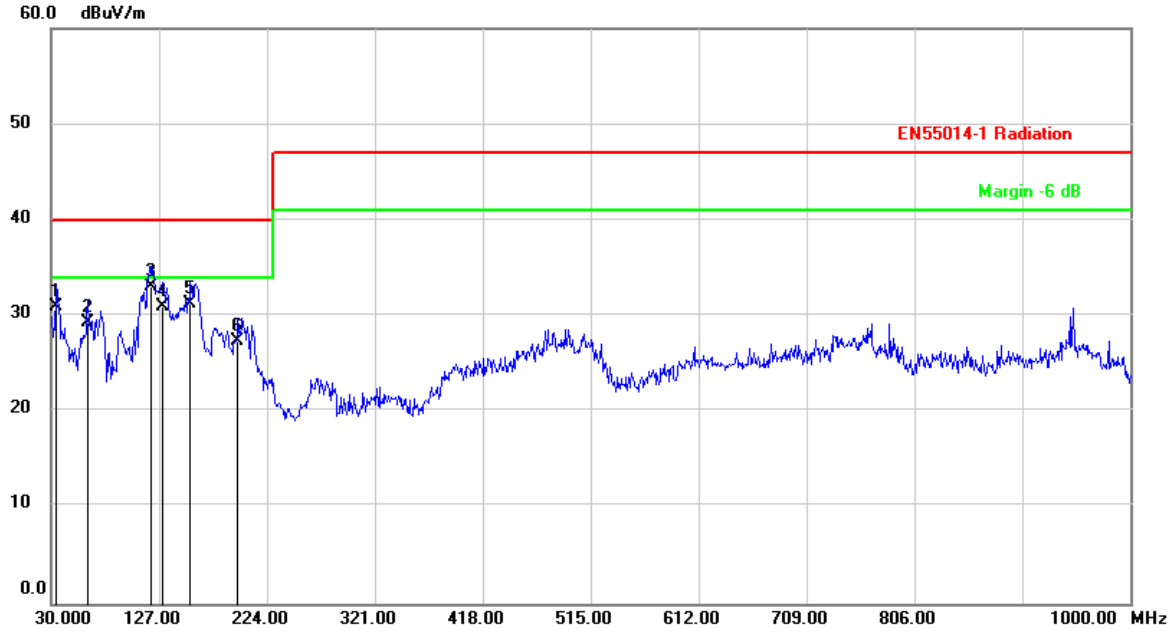
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		34.8500	44.88	-13.86	31.02	40.00	-8.98	QP
2		62.9800	44.91	-15.55	29.36	40.00	-10.64	QP
3	*	119.2400	48.85	-15.84	33.01	40.00	-6.99	QP
4		129.9100	48.14	-17.11	31.03	40.00	-8.97	QP
5		155.1300	48.57	-17.33	31.24	40.00	-8.76	QP
6		197.8100	41.65	-14.34	27.31	40.00	-12.69	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (120V/60Hz)
Antenna	:	Vertical polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 with Gyro)

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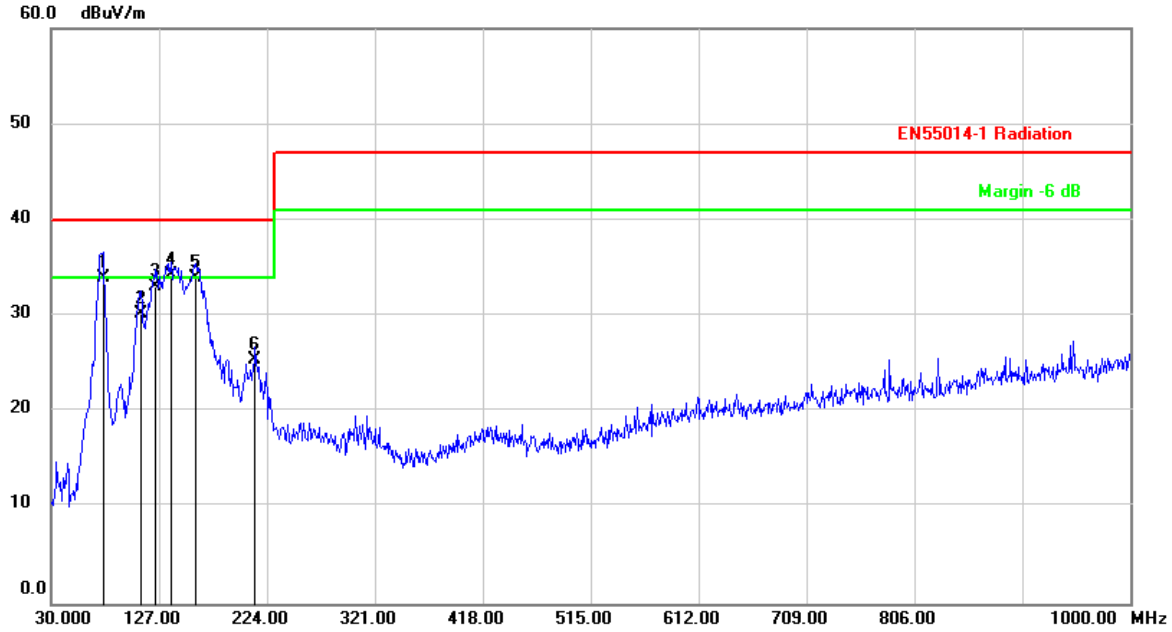
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	!	76.5600	51.85	-17.83	34.02	40.00	-5.98	QP
2		110.5100	44.41	-14.15	30.26	40.00	-9.74	QP
3		124.0900	49.47	-16.45	33.02	40.00	-6.98	QP
4	*	137.6700	51.75	-17.52	34.23	40.00	-5.77	QP
5	!	159.9800	50.91	-16.90	34.01	40.00	-5.99	QP
6		213.3300	38.89	-13.53	25.36	40.00	-14.64	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (230Vac, 50Hz)
Antenna	:	Horizontal polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2)

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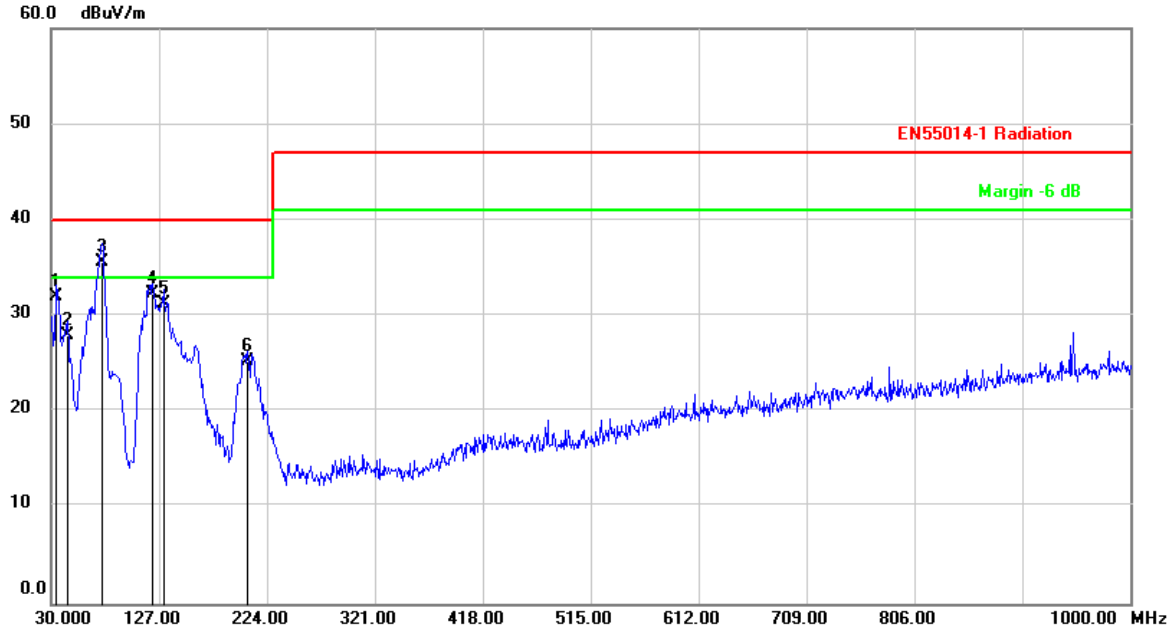
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		34.8500	45.87	-13.86	32.01	40.00	-7.99	QP
2		44.5500	41.55	-13.52	28.03	40.00	-11.97	QP
3	*	75.5899	53.47	-17.78	35.69	40.00	-4.31	QP
4		121.1800	48.38	-16.12	32.26	40.00	-7.74	QP
5		130.8800	48.41	-17.16	31.25	40.00	-8.75	QP
6		206.5399	39.18	-13.88	25.30	40.00	-14.70	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (230Vac, 50Hz)
Antenna	:	Vertical polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2)

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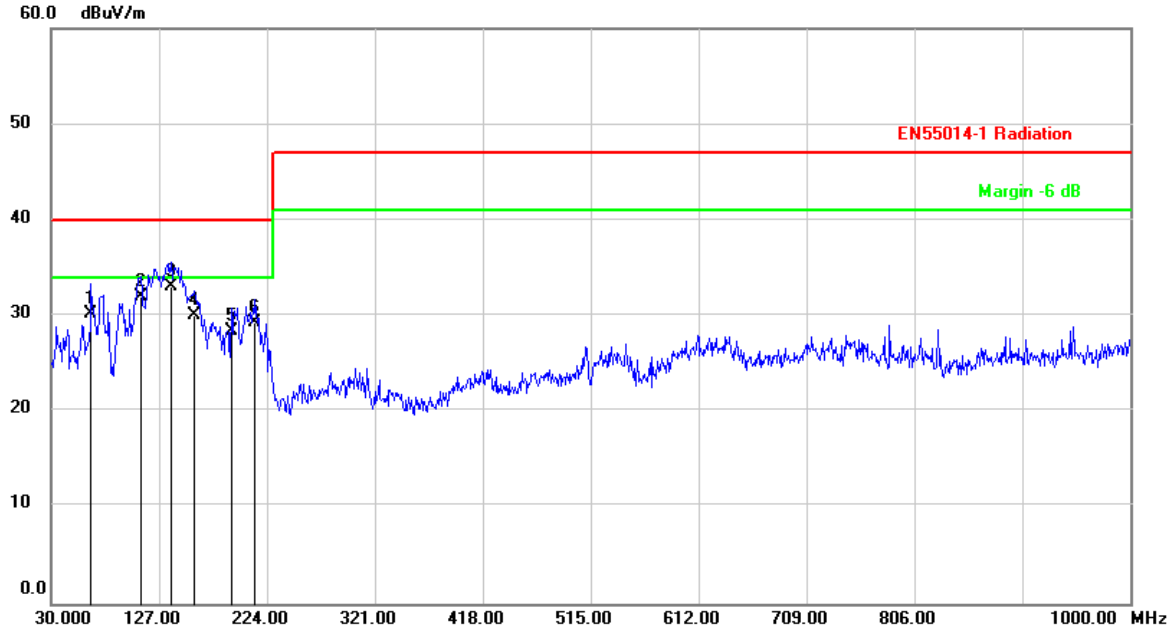
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		65.8900	46.64	-16.38	30.26	40.00	-9.74	QP
2		110.5100	46.16	-14.15	32.01	40.00	-7.99	QP
3	*	137.6700	50.55	-17.52	33.03	40.00	-6.97	QP
4		159.0100	47.01	-16.99	30.02	40.00	-9.98	QP
5		191.9900	43.03	-14.67	28.36	40.00	-11.64	QP
6		213.3300	42.89	-13.53	29.36	40.00	-10.64	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (120V/60Hz)
Antenna	:	Horizontal polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2)

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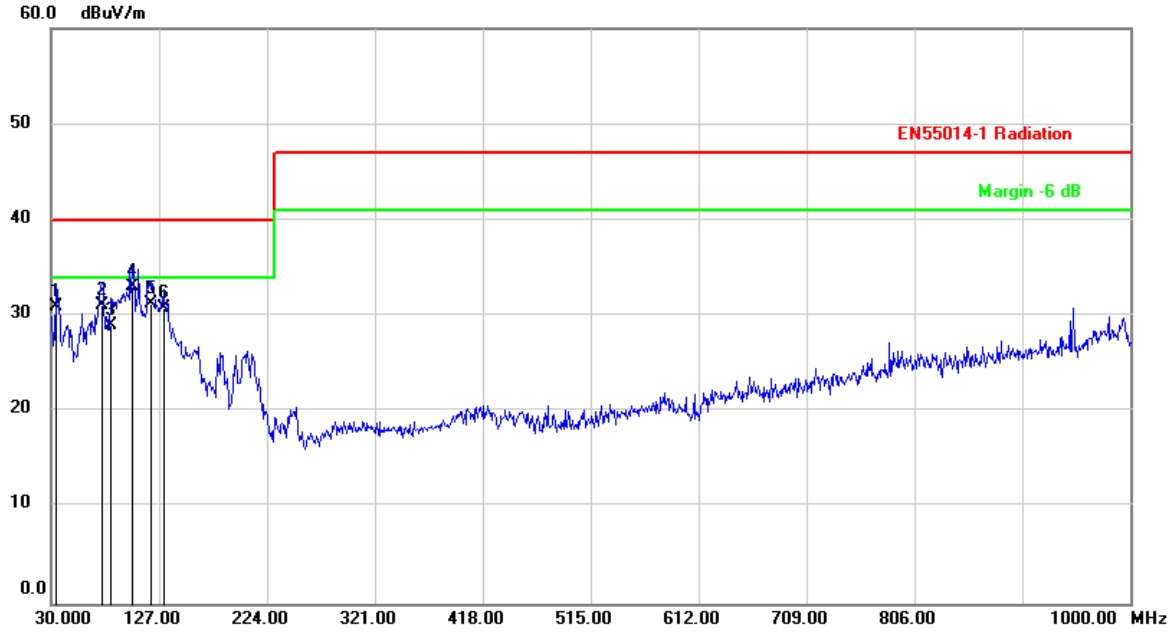
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		34.8500	44.88	-13.86	31.02	40.00	-8.98	QP
2		75.5899	48.98	-17.78	31.20	40.00	-8.80	QP
3		83.3500	46.37	-17.41	28.96	40.00	-11.04	QP
4	*	102.7500	47.75	-14.69	33.06	40.00	-6.94	QP
5		119.2400	47.10	-15.84	31.26	40.00	-8.74	QP
6		130.8800	47.94	-17.16	30.78	40.00	-9.22	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (120V/60Hz)
Antenna	:	Vertical polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2)

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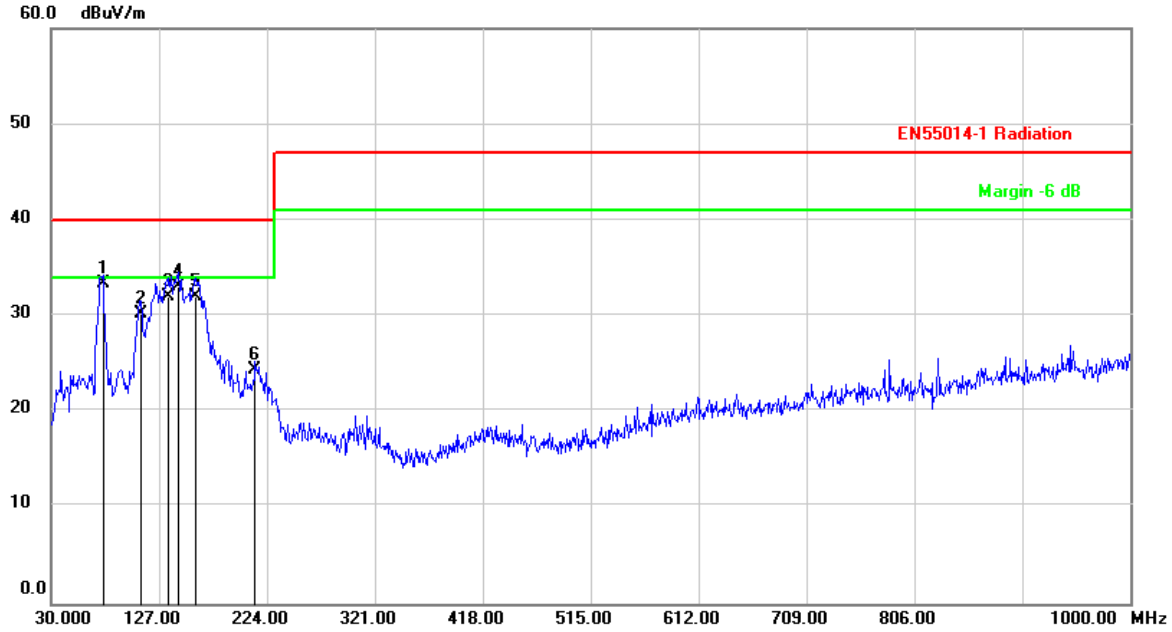
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	76.5600	51.19	-17.83	33.36	40.00	-6.64	QP
2		110.5100	44.35	-14.15	30.20	40.00	-9.80	QP
3		134.7600	49.38	-17.37	32.01	40.00	-7.99	QP
4		144.4600	50.72	-17.70	33.02	40.00	-6.98	QP
5		159.9800	48.91	-16.90	32.01	40.00	-7.99	QP
6		213.3300	37.89	-13.53	24.36	40.00	-15.64	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (230Vac, 50Hz)
Antenna	:	Horizontal polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 Pro)

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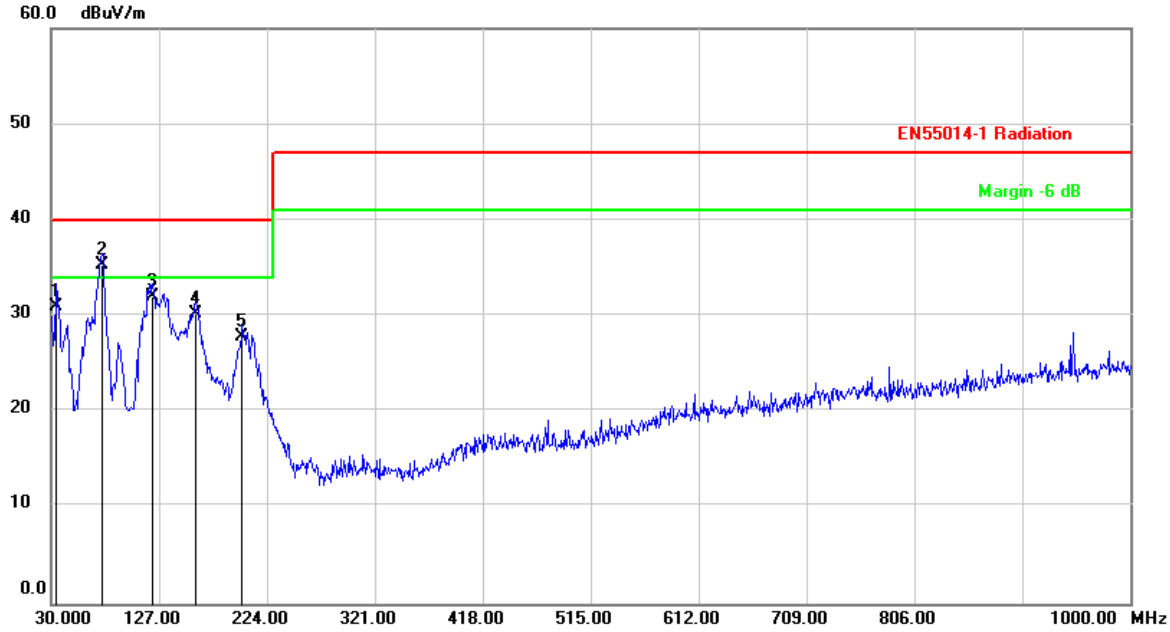
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		34.8500	44.88	-13.86	31.02	40.00	-8.98	QP
2	*	75.5899	53.04	-17.78	35.26	40.00	-4.74	QP
3		121.1800	48.13	-16.12	32.01	40.00	-7.99	QP
4		159.9800	47.15	-16.90	30.25	40.00	-9.75	QP
5		201.6900	42.02	-14.13	27.89	40.00	-12.11	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (230Vac, 50Hz)
Antenna	:	Vertical polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 Pro)

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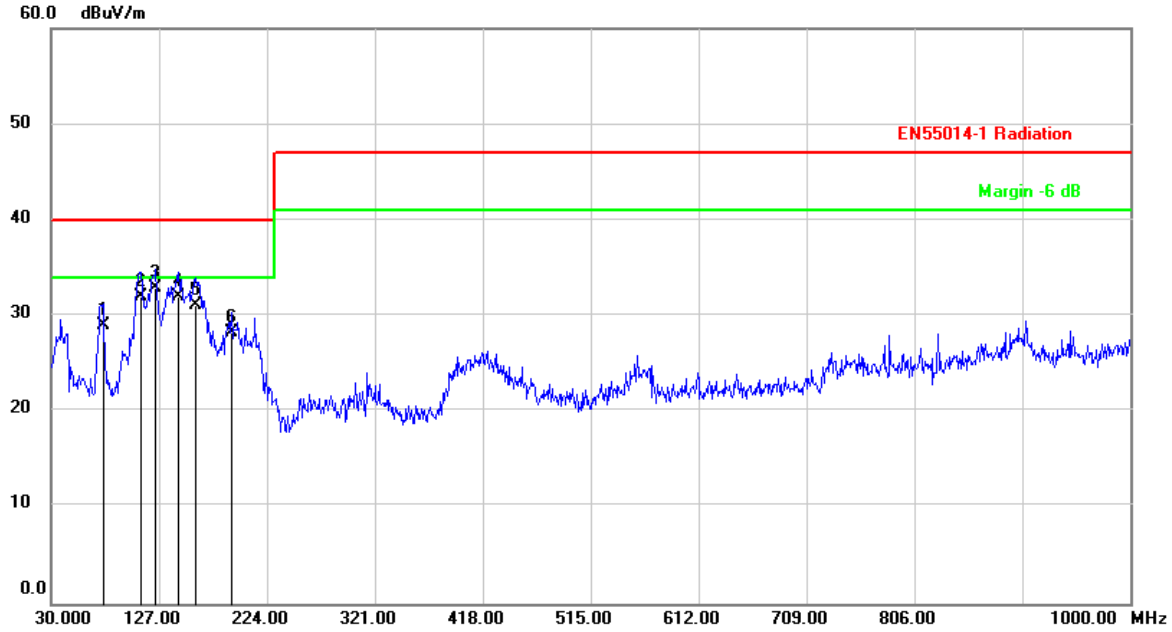
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		76.5600	46.86	-17.83	29.03	40.00	-10.97	QP
2		110.5100	46.16	-14.15	32.01	40.00	-7.99	QP
3	*	124.0900	49.43	-16.45	32.98	40.00	-7.02	QP
4		144.4600	49.71	-17.70	32.01	40.00	-7.99	QP
5		159.9800	47.96	-16.90	31.06	40.00	-8.94	QP
6		191.9900	42.88	-14.67	28.21	40.00	-11.79	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (120V/60Hz)
Antenna	:	Horizontal polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 Pro)

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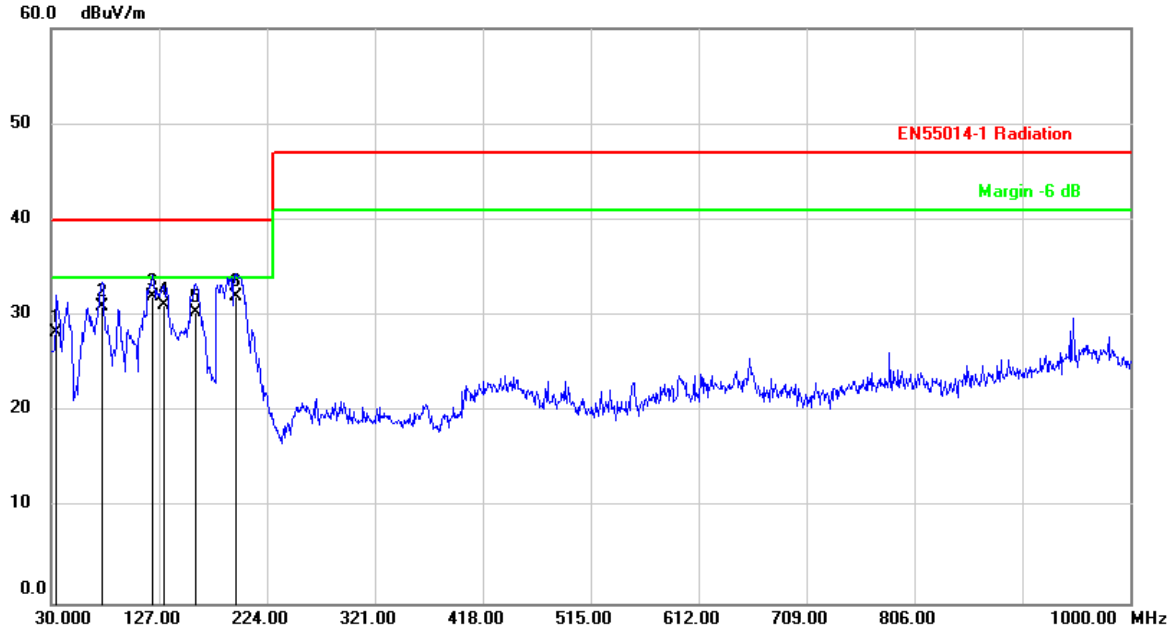
Radiated emission 30MHz-1000MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		34.8500	42.18	-13.86	28.32	40.00	-11.68	QP
2		75.5899	48.80	-17.78	31.02	40.00	-8.98	QP
3		121.1800	48.13	-16.12	32.01	40.00	-7.99	QP
4		130.8800	48.22	-17.16	31.06	40.00	-8.94	QP
5		159.9800	47.26	-16.90	30.36	40.00	-9.64	QP
6	*	195.8700	46.49	-14.45	32.04	40.00	-7.96	QP

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode (120V/60Hz)
Antenna	:	Vertical polarization
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 Pro)

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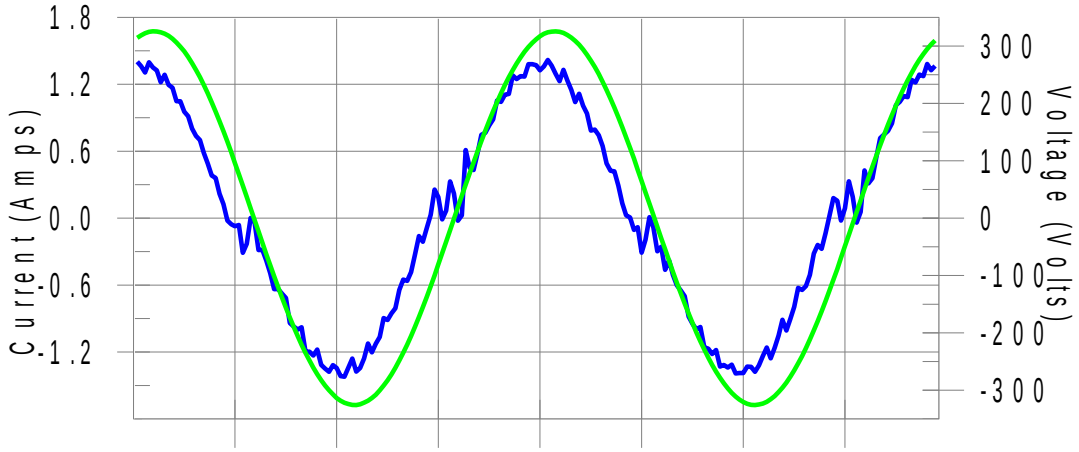
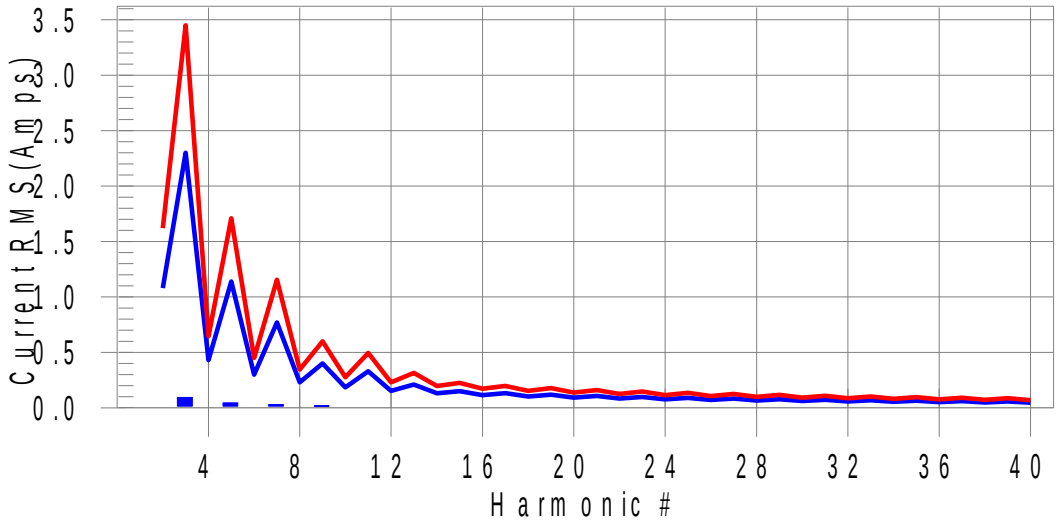
Harmonics

Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5
Test Result: Pass

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H25-4.4% of 150% limit, H25-6.3% of 100% limit

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Test duration (min): 2.5
Test Result: Pass Source qualification: Normal
THC(A): 0.112 I-THD(%): 12.3 POHC(A): 0.015 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	**230.48**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**1.475**	**I_RMS (Amps):**	**0.919**
I_Fund (Amps):	**0.909**	**Crest Factor:**	**1.607**
Power (Watts):	**203.2**	**Power Factor:**	**0.960**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.094	2.300	4.1	0.095	3.450	2.7	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.045	1.140	3.9	0.045	1.710	2.6	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.030	0.770	3.9	0.030	1.155	2.6	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.018	0.400	4.5	0.018	0.600	3.0	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.012	0.330	3.5	0.012	0.495	2.4	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.008	0.210	3.6	0.008	0.315	2.5	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.004	0.150	N/A	0.004	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.003	0.132	N/A	0.003	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.004	0.118	N/A	0.004	0.178	N/A	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.005	0.107	N/A	0.005	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.006	0.098	5.9	0.006	0.147	4.0	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.006	0.090	6.3	0.006	0.135	4.4	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.005	0.083	N/A	0.006	0.125	N/A	Pass
28	0.005	0.066	N/A	0.005	0.099	N/A	Pass
29	0.004	0.078	N/A	0.005	0.116	N/A	Pass
30	0.003	0.061	N/A	0.003	0.092	N/A	Pass
31	0.004	0.073	N/A	0.005	0.109	N/A	Pass
32	0.005	0.058	N/A	0.005	0.086	N/A	Pass
33	0.004	0.068	N/A	0.005	0.102	N/A	Pass
34	0.001	0.054	N/A	0.002	0.081	N/A	Pass
35	0.004	0.064	N/A	0.004	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.005	0.061	N/A	0.005	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 with Gyro)

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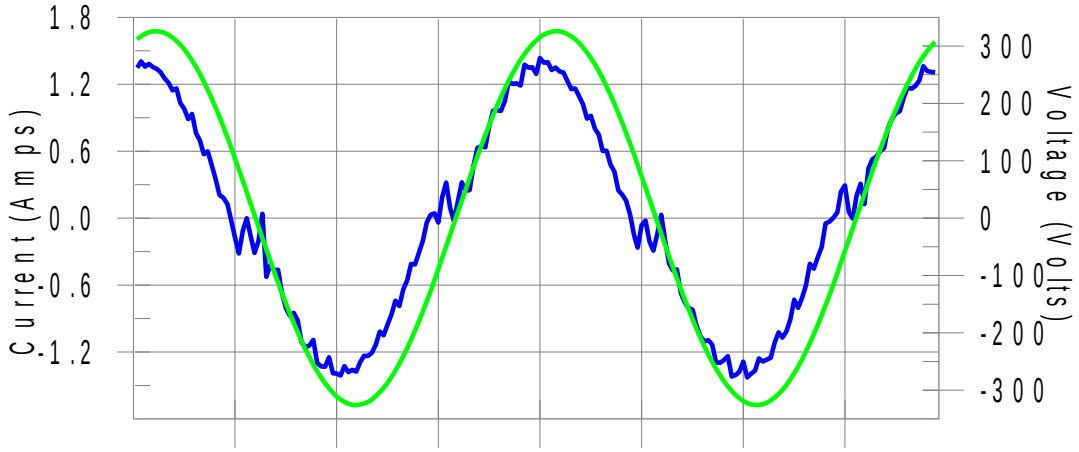
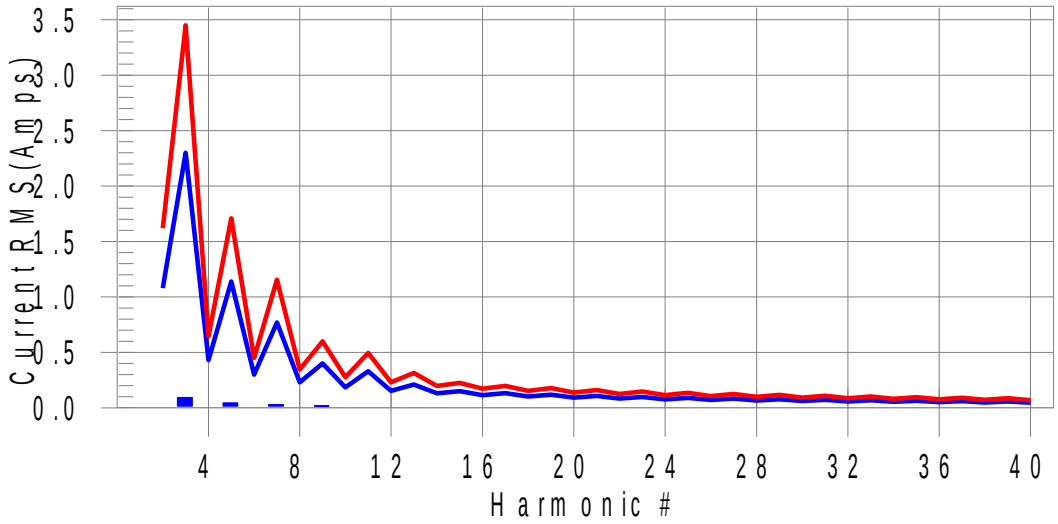
Harmonics

Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5
Test Result: Pass

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H25-4.4% of 150% limit, H25-6.3% of 100% limit

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Test duration (min): 2.5
Test Result: Pass Source qualification: Normal
THC(A): 0.112 I-THD(%): 12.3 POHC(A): 0.015 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	**230.48**	**Frequency(Hz):**	**60.00**
I_Peak (Amps):	**1.479**	**I_RMS (Amps):**	**0.920**
I_Fund (Amps):	**0.910**	**Crest Factor:**	**1.609**
Power (Watts):	**203.5**	**Power Factor:**	**0.960**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.094	2.300	4.1	0.095	3.450	2.8	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.045	1.140	3.9	0.045	1.710	2.7	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.030	0.770	3.9	0.030	1.155	2.6	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.018	0.400	4.5	0.018	0.600	3.0	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.012	0.330	3.5	0.012	0.495	2.4	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.007	0.210	3.6	0.008	0.315	2.5	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.004	0.150	N/A	0.004	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.003	0.132	N/A	0.003	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.004	0.118	N/A	0.004	0.178	N/A	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.005	0.107	N/A	0.005	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.006	0.098	5.9	0.006	0.147	4.0	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.006	0.090	6.3	0.006	0.135	4.4	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.005	0.083	N/A	0.006	0.125	N/A	Pass
28	0.005	0.066	N/A	0.005	0.099	N/A	Pass
29	0.004	0.078	N/A	0.005	0.116	N/A	Pass
30	0.003	0.061	N/A	0.003	0.092	N/A	Pass
31	0.004	0.073	N/A	0.004	0.109	N/A	Pass
32	0.005	0.058	N/A	0.005	0.086	N/A	Pass
33	0.004	0.068	N/A	0.005	0.102	N/A	Pass
34	0.002	0.054	N/A	0.002	0.081	N/A	Pass
35	0.004	0.064	N/A	0.004	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.005	0.061	N/A	0.005	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 with Gyro)

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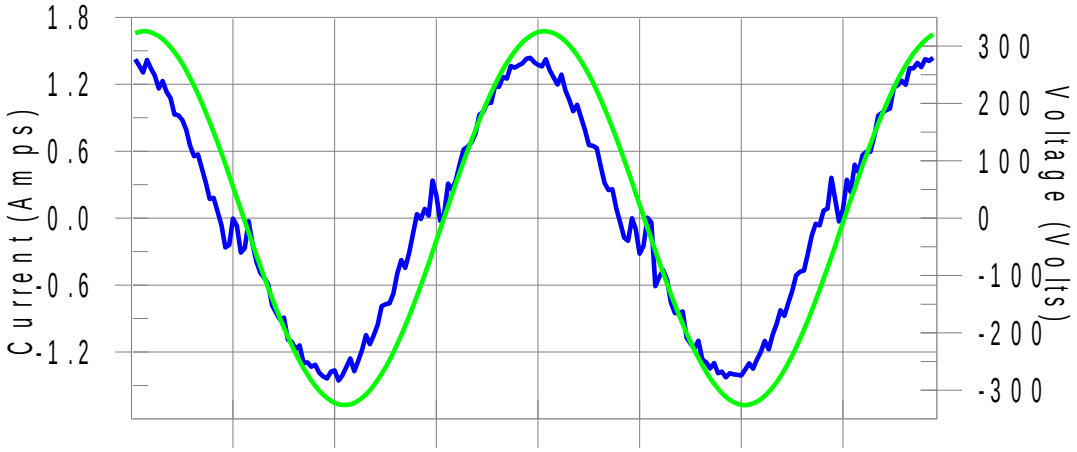
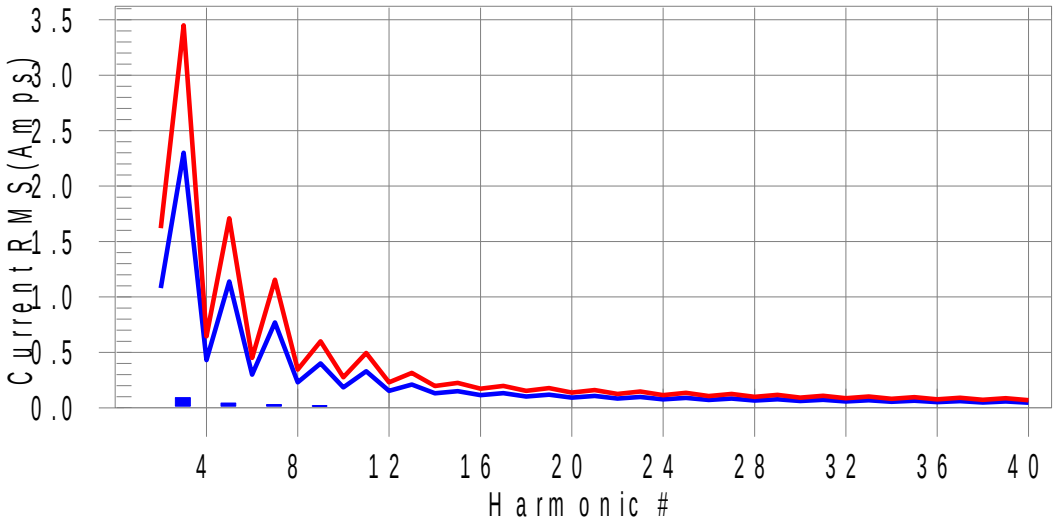
Harmonics

Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5
Test Result: Pass

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonics H27-5.8% of 150% limit, H27-6.7% of 100% limit

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Test duration (min): 2.5
Test Result: Pass Source qualification: Normal
THC(A): 0.109 I-THD(%): 11.7 POHC(A): 0.015 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	**230.49**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**1.498**	**I_RMS (Amps):**	**0.945**
I_Fund (Amps):	**0.932**	**Crest Factor:**	**1.608**
Power (Watts):	**208.6**	**Power Factor:**	**0.962**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.092	2.300	4.0	0.093	3.450	2.7	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.043	1.140	3.8	0.044	1.710	2.5	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.029	0.770	3.8	0.030	1.155	2.6	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.018	0.400	4.5	0.018	0.600	3.0	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.012	0.330	3.7	0.012	0.495	2.5	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.008	0.210	4.0	0.009	0.315	2.7	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.005	0.150	N/A	0.005	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.003	0.132	N/A	0.003	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.004	0.118	N/A	0.004	0.178	N/A	Pass
20	0.000	0.092	N/A	0.001	0.138	N/A	Pass
21	0.005	0.107	N/A	0.005	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.006	0.098	5.9	0.006	0.147	4.1	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.006	0.090	6.6	0.006	0.135	4.7	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.006	0.083	6.7	0.007	0.125	5.8	Pass
28	0.005	0.066	N/A	0.005	0.099	N/A	Pass
29	0.005	0.078	N/A	0.006	0.116	N/A	Pass
30	0.003	0.061	N/A	0.003	0.092	N/A	Pass
31	0.004	0.073	N/A	0.005	0.109	N/A	Pass
32	0.005	0.058	N/A	0.005	0.086	N/A	Pass
33	0.004	0.068	N/A	0.004	0.102	N/A	Pass
34	0.002	0.054	N/A	0.002	0.081	N/A	Pass
35	0.004	0.064	N/A	0.004	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.004	0.061	N/A	0.005	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2)

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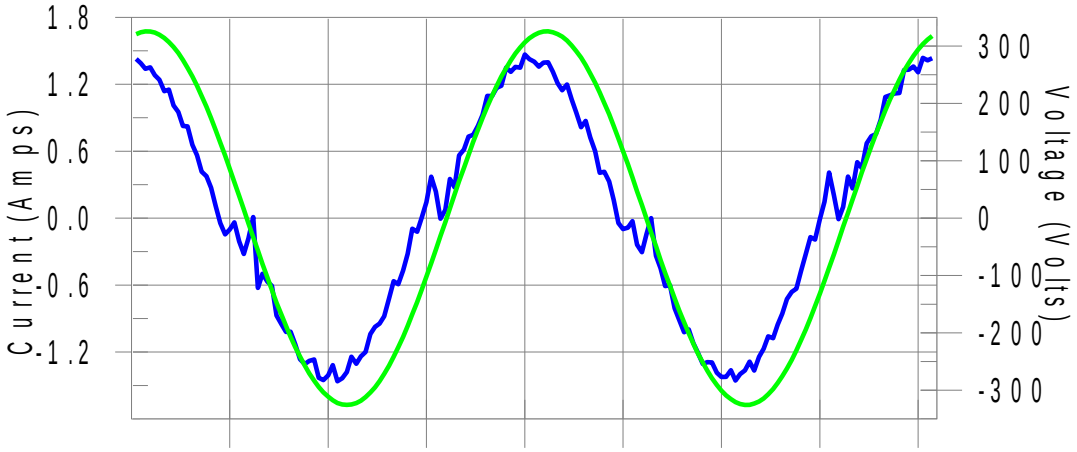
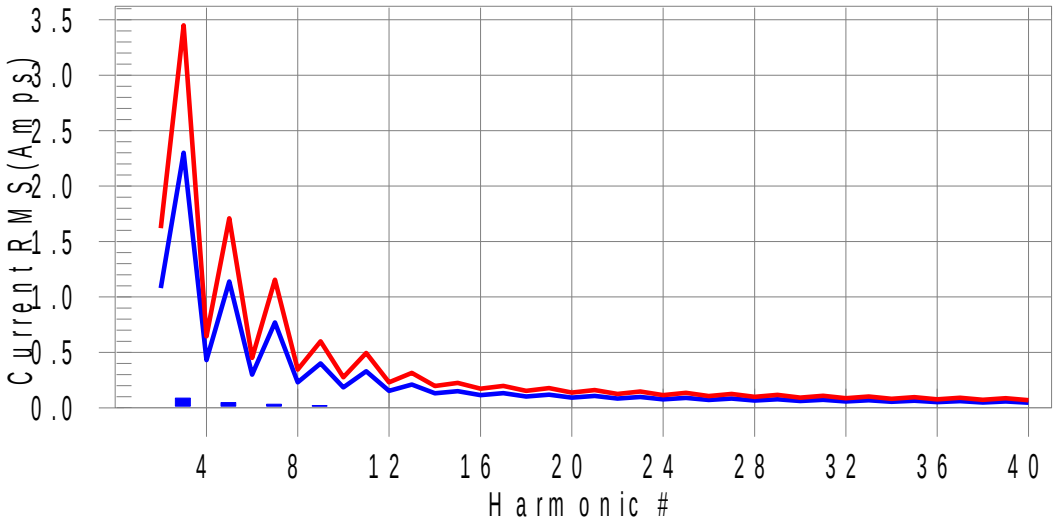
Harmonics

Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5
Test Result: Pass

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H27-6.9% of 150% limit, H37-9.4% of 100% limit

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Test duration (min): 2.5
Test Result: Pass Source qualification: Normal
THC(A): 0.110 I-THD(%): 11.7 POHC(A): 0.020 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	**230.42**	**Frequency(Hz):**	**60.00**
I_Peak (Amps):	**1.504**	**I_RMS (Amps):**	**0.951**
I_Fund (Amps):	**0.942**	**Crest Factor:**	**1.602**
Power (Watts):	**208.6**	**Power Factor:**	**0.953**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000	1.080	N/A	0.000	1.620	N/A	Pass
3	0.088	2.300	3.8	0.088	3.450	2.6	Pass
4	0.000	0.430	N/A	0.000	0.645	N/A	Pass
5	0.047	1.140	4.1	0.047	1.710	2.8	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.032	0.770	4.2	0.033	1.155	2.8	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.021	0.400	5.2	0.021	0.600	3.5	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.014	0.330	4.2	0.014	0.495	2.9	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.009	0.210	4.1	0.009	0.315	2.9	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.005	0.150	N/A	0.005	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.005	0.132	N/A	0.005	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.006	0.118	5.2	0.007	0.178	3.8	Pass
20	0.001	0.092	N/A	0.001	0.138	N/A	Pass
21	0.007	0.107	6.8	0.008	0.161	5.0	Pass
22	0.002	0.084	N/A	0.002	0.125	N/A	Pass
23	0.008	0.098	8.4	0.010	0.147	6.8	Pass
24	0.002	0.077	N/A	0.002	0.115	N/A	Pass
25	0.007	0.090	7.7	0.008	0.135	5.9	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.007	0.083	8.0	0.009	0.125	6.9	Pass
28	0.001	0.066	N/A	0.002	0.099	N/A	Pass
29	0.005	0.078	N/A	0.006	0.116	N/A	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.005	0.073	N/A	0.005	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.006	0.068	8.1	0.006	0.102	5.7	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.006	0.064	8.9	0.006	0.096	6.1	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.006	0.061	9.4	0.006	0.091	6.5	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.005	0.058	N/A	0.006	0.087	N/A	Pass
40	0.000	0.046	N/A	0.001	0.069	N/A	Pass

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2)

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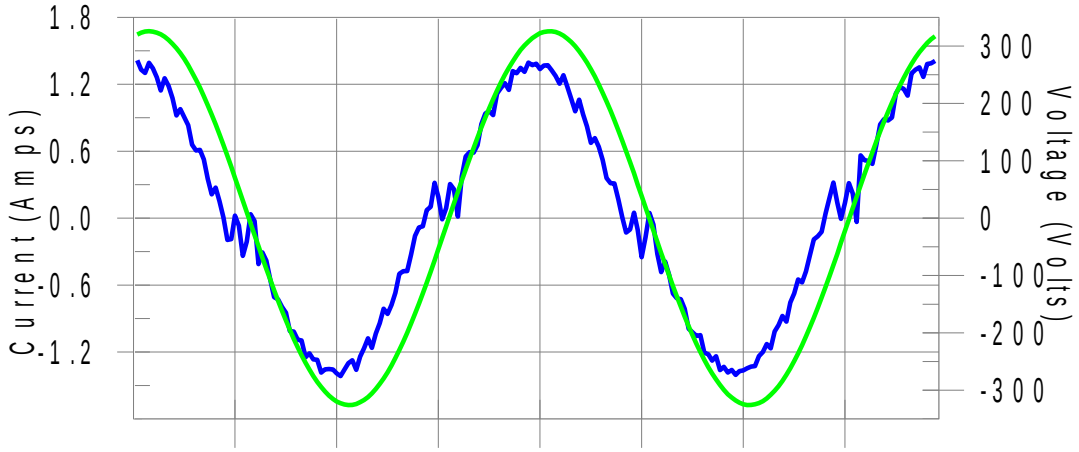
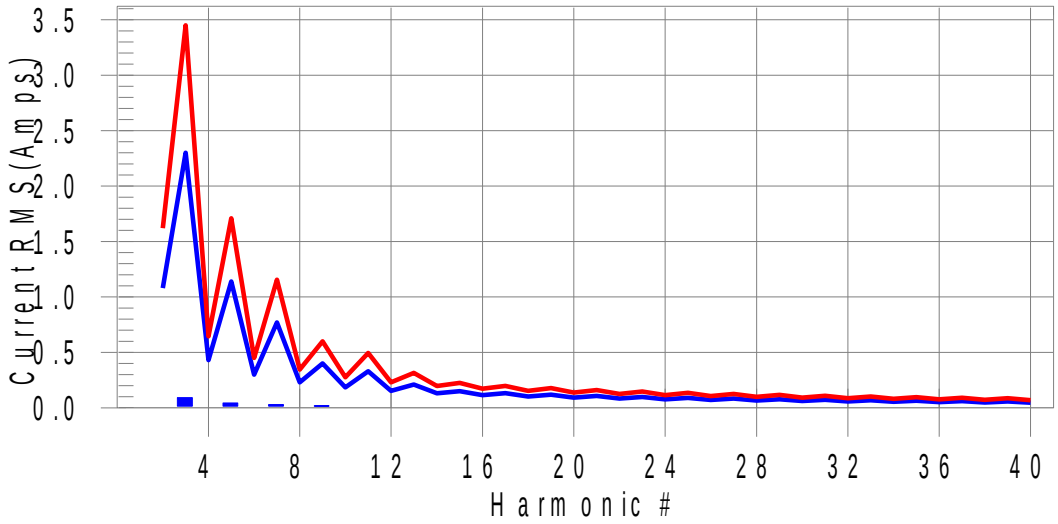
Harmonics

Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5
Test Result: Pass

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H25-4.5% of 150% limit, H25-6.3% of 100% limit

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Test duration (min): 2.5
Test Result: Pass Source qualification: Normal
THC(A): 0.110 I-THD(%): 12.1 POHC(A): 0.015 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	**230.49**	**Frequency(Hz):**	**50.00**
I_Peak (Amps):	**1.466**	**I_RMS (Amps):**	**0.919**
I_Fund (Amps):	**0.909**	**Crest Factor:**	**1.604**
Power (Watts):	**203.2**	**Power Factor:**	**0.960**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.092	2.300	4.0	0.094	3.450	2.7	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.044	1.140	3.9	0.045	1.710	2.6	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.030	0.770	3.8	0.030	1.155	2.6	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.018	0.400	4.5	0.018	0.600	3.0	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.012	0.330	3.6	0.012	0.495	2.4	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.008	0.210	3.7	0.008	0.315	2.5	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.004	0.150	N/A	0.004	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.003	0.132	N/A	0.003	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.004	0.118	N/A	0.004	0.178	N/A	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.005	0.107	N/A	0.005	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.006	0.098	5.9	0.006	0.147	4.0	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.006	0.090	6.3	0.006	0.135	4.5	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.005	0.083	N/A	0.007	0.125	N/A	Pass
28	0.005	0.066	N/A	0.005	0.099	N/A	Pass
29	0.004	0.078	N/A	0.006	0.116	N/A	Pass
30	0.003	0.061	N/A	0.003	0.092	N/A	Pass
31	0.004	0.073	N/A	0.004	0.109	N/A	Pass
32	0.005	0.058	N/A	0.005	0.086	N/A	Pass
33	0.004	0.068	N/A	0.005	0.102	N/A	Pass
34	0.001	0.054	N/A	0.002	0.081	N/A	Pass
35	0.004	0.064	N/A	0.004	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.005	0.061	N/A	0.005	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.001	0.046	N/A	0.001	0.069	N/A	Pass

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 Pro)

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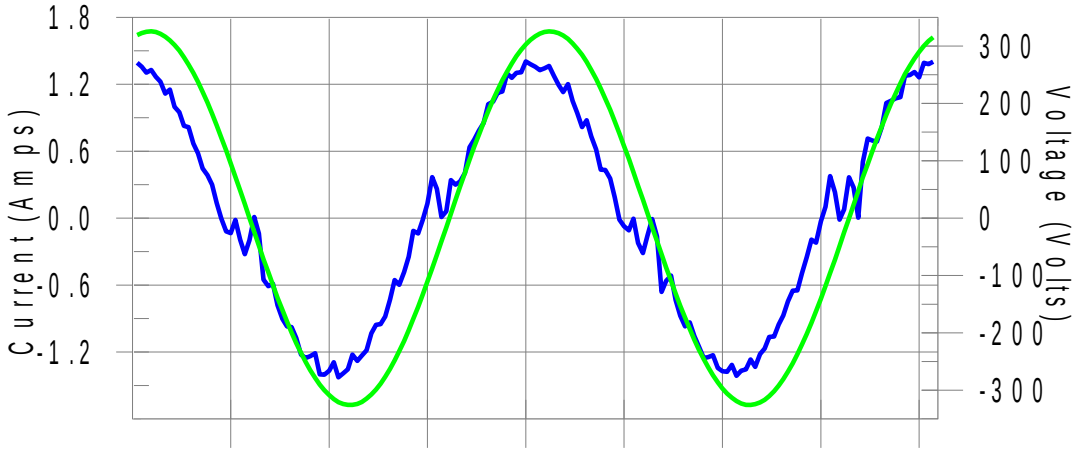
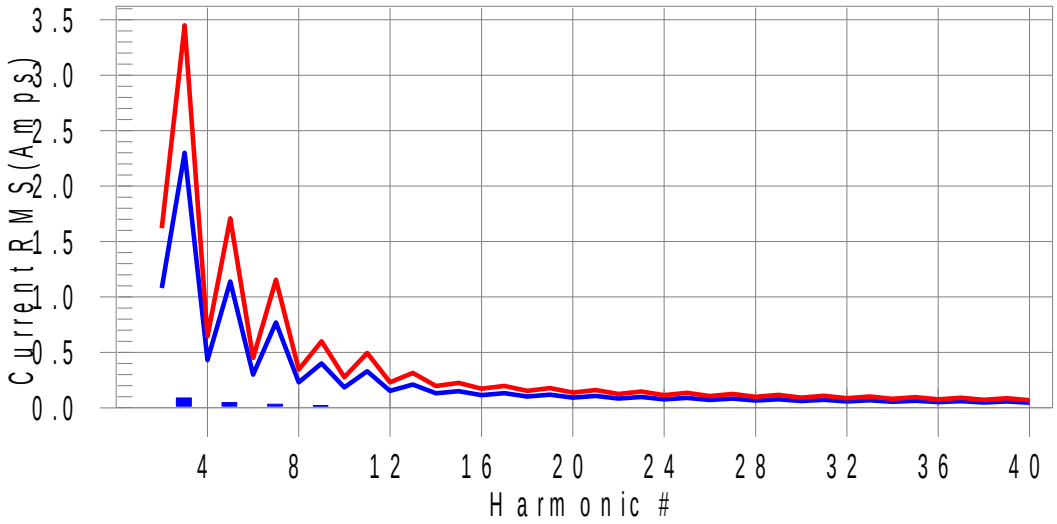
Harmonics

Test category: Class-A per Ed. 5.0 (2018) (European limits) Test Margin: 100
Test duration (min): 2.5
Test Result: Pass

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass Worst harmonics H27-7.6% of 150% limit, H37-9.2% of 100% limit

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Test duration (min): 2.5
Test Result: Pass Source qualification: Normal
THC(A): 0.111 I-THD(%): 12.1 POHC(A): 0.019 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	**230.42**	**Frequency(Hz):**	**60.00**
I_Peak (Amps):	**1.470**	**I_RMS (Amps):**	**0.924**
I_Fund (Amps):	**0.914**	**Crest Factor:**	**1.594**
Power (Watts):	**202.1**	**Power Factor:**	**0.950**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000	1.080	N/A	0.000	1.620	N/A	Pass
3	0.088	2.300	3.8	0.089	3.450	2.6	Pass
4	0.000	0.430	N/A	0.000	0.645	N/A	Pass
5	0.047	1.140	4.2	0.048	1.710	2.8	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.033	0.770	4.2	0.033	1.155	2.8	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.021	0.400	5.2	0.021	0.600	3.4	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.013	0.330	4.1	0.014	0.495	2.7	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.008	0.210	3.9	0.008	0.315	2.6	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.004	0.150	N/A	0.005	0.225	N/A	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.005	0.132	N/A	0.005	0.198	N/A	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.006	0.118	5.4	0.006	0.178	3.6	Pass
20	0.001	0.092	N/A	0.001	0.138	N/A	Pass
21	0.007	0.107	6.9	0.009	0.161	5.3	Pass
22	0.002	0.084	N/A	0.002	0.125	N/A	Pass
23	0.008	0.098	8.4	0.011	0.147	7.3	Pass
24	0.002	0.077	N/A	0.002	0.115	N/A	Pass
25	0.007	0.090	7.4	0.008	0.135	5.6	Pass
26	0.002	0.071	N/A	0.002	0.107	N/A	Pass
27	0.007	0.083	7.8	0.009	0.125	7.6	Pass
28	0.001	0.066	N/A	0.002	0.099	N/A	Pass
29	0.005	0.078	N/A	0.006	0.116	N/A	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.005	0.073	N/A	0.005	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.006	0.068	8.3	0.006	0.102	5.7	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.006	0.064	8.9	0.006	0.096	6.1	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.006	0.061	9.2	0.006	0.091	6.2	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.005	0.058	N/A	0.006	0.087	N/A	Pass
40	0.000	0.046	N/A	0.001	0.069	N/A	Pass

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 Pro)

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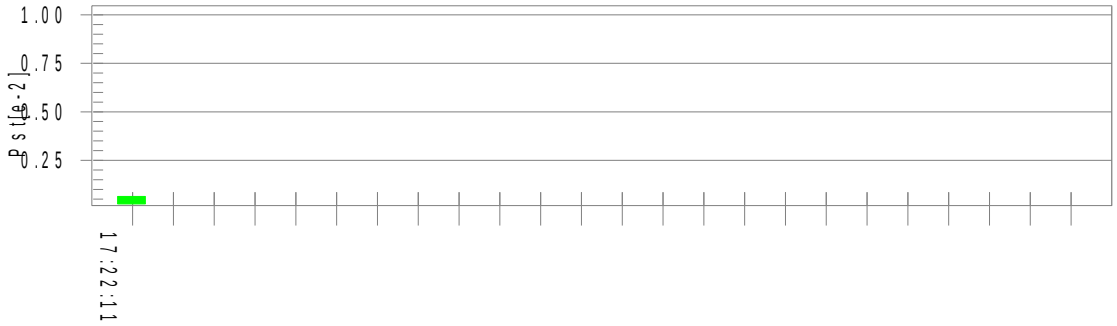
Flicker

Test duration (min): 10
Test Result: Pass

Pst_i and limit line **European Limits**



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.14**			
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.00**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.064**	**Test limit:**	**1.000**	**Pass**

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 with Gyro)

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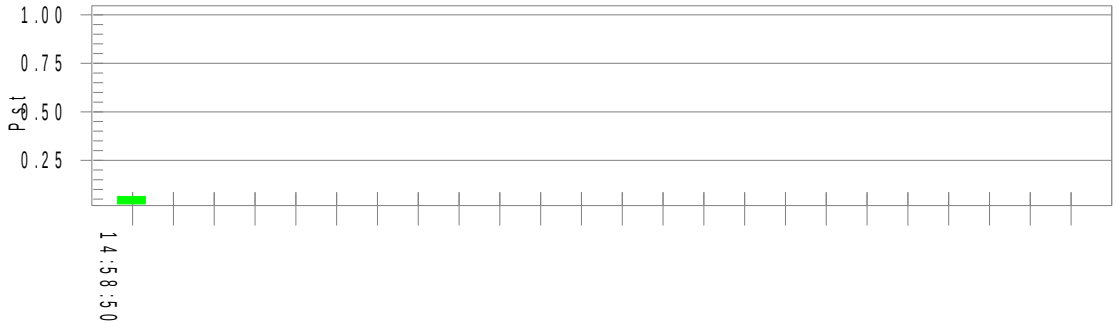
Flicker

Test duration (min): 10
Test Result: Pass

Pst_i and limit line **European Limits**



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**229.81**			
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.00**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.064**	**Test limit:**	**1.000**	**Pass**

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2)

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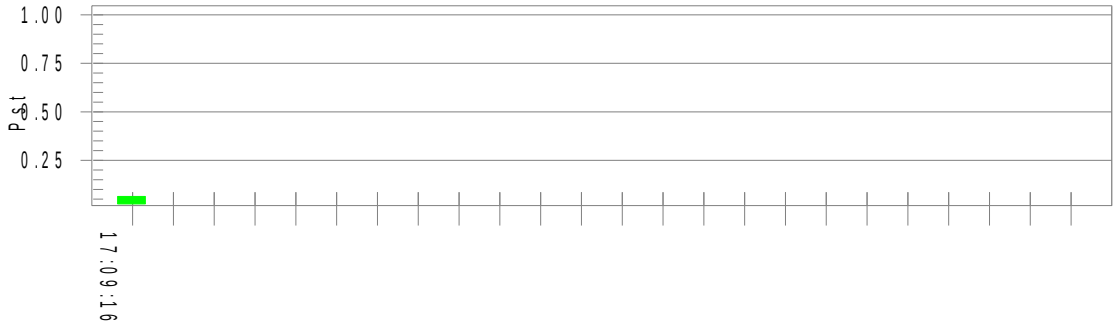
Flicker

Test duration (min): 10
Test Result: Pass

Pst_i and limit line **European Limits**



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.11**			
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.00**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.064**	**Test limit:**	**1.000**	**Pass**

Model	:	Steelforce Pro 60x90 SLS BIFMA
Operating Mode	:	Motor running mode
Conduct Line/Port	:	AC Mains
Test By	:	Tim Pang
Test Date	:	2020-11-09
Remark	:	Adapter (ControlForce 2 Pro)

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Appendix B

Constructional Data Form

and

Product Information Form(s)

Any safety relevant information or constructional aspect concerning the sample or equipment under test as submitted by the applicant / report holder / certificate holder or any authorized agent is deemed to have no adverse effect on the electromagnetic compatibility (EMC) performance. Insofar as safety or compliance with Low Voltage Directive (LVD) or any relevant directive is concerned, the applicant / report holder / certificate holder or any authorized agent is required, by virtue of the relevant EU Directive provisions, to have satisfied that the product concerned (for which a sample was tested) meets with LVD or other relevant directives before placing it on the market.

Where applicable, changes or modifications made to the original sample submitted for testing are documented herein. The applicant or manufacturer shall ensure that such changes or modifications are applied to the production units. Any further changes or modifications made to the production units may void the validity of this test report unless such changes or modifications have been formally assessed by TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch through technical evaluations or other means as appropriate and it has been confirmed that the EMC performance of such units is not adversely affected.

The enclosed, if any, circuit diagram / parts list / printed circuit board diagram / component layout / user manual are strictly for reference only. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch shall not be held responsible for any error or omission in such documents. It is the manufacturer's responsibility to ensure that production units conform to the tested sample.

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Model List

No.	Model name
1	Migration
2	Migration Bench
3	Migration SE
4	Migration SE Bench
5	Migration SE Basic
6	Migration SE Basic Bench
7	Migration SC
8	Migration 90°
9	Migration 90° XL
10	Migration 120°
11	Migration 120° XL
12	Migration 135°
13	Migration 3 Leg
14	Migration 3 Leg XL
15	Steelforce Pro 170 SLS
16	Steelforce Pro 171 90° SLS
17	Steelforce Pro 171 90° XL SLS
18	Steelforce Pro 172 120° SLS
19	Steelforce Pro 172 120° XL SLS
20	Steelforce Pro 173 135° SLS
21	Steelforce Pro 175 3 Leg SLS
22	Steelforce Pro 175 3 Leg XL SLS
23	Steelforce Pro 270 SLS EN527
24	Steelforce Pro 271 90° SLS EN527
25	Steelforce Pro 271 90° XL SLS EN527
26	Steelforce Pro 272 120° SLS EN527
27	Steelforce Pro 272 120° XL SLS EN527
28	Steelforce Pro 273 135° SLS EN527
29	Steelforce Pro 275 3 Leg SLS EN527
30	Steelforce Pro 275 3 Leg XL SLS EN527
31	Steelforce Pro 370 SLS
32	Steelforce Pro 370 SC SLS
33	Steelforce Pro 370 Bench SLS
34	Steelforce Pro 371 90° SLS
35	Steelforce Pro 371 90° XL SLS
36	Steelforce Pro 372 120° SLS
37	Steelforce Pro 372 120° XL SLS
38	Steelforce Pro 373 135° SLS
39	Steelforce Pro 375 3 Leg SLS
40	Steelforce Pro 375 3 Leg XL SLS
41	Steelforce Pro 470 SLS EN527
42	Steelforce Pro 470 Bench SLS EN527
43	Steelforce Pro 471 90° SLS EN527
44	Steelforce Pro 471 90° XL SLS EN527
45	Steelforce Pro 472 120° SLS EN527
46	Steelforce Pro 472 120° XL SLS EN527
47	Steelforce Pro 473 135° SLS EN527
48	Steelforce Pro 475 3 Leg SLS EN527
49	Steelforce Pro 475 3 Leg SLS XL EN527
50	Steelforce Pro 470 SLS BIFMA

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51	Steelforce Pro 471 90° SLS BIFMA
52	Steelforce Pro 471 90° XL SLS BIFMA
53	Steelforce Pro 472 120° SLS BIFMA
54	Steelforce Pro 472 120° XL SLS BIFMA
55	Steelforce Pro 473 135° SLS BIFMA
56	Steelforce Pro 475 3 Leg SLS BIFMA
57	Steelforce Pro 475 3 Leg XL SLS BIFMA
58	Steelforce Pro 570 (60x90) SLS
59	Steelforce Pro 570 (60x90) Bench SLS
60	Steelforce Pro 571 (60x90) 90° SLS
61	Steelforce Pro 571 (60x90) 90° XL SLS
62	Steelforce Pro 572 (60x90) 120° SLS
63	Steelforce Pro 572 (60x90) 120° XL SLS
64	Steelforce Pro 573 (60x90) 135° SLS
65	Steelforce Pro 575 (60x90) 3 Leg SLS
66	Steelforce Pro 575 (60x90) 3 Leg XL SLS
67	Steelforce Pro 670 SLS EN527
68	Steelforce Pro 671 90° SLS EN527
69	Steelforce Pro 671 90° XL SLS EN527
70	Steelforce Pro 672 120° SLS EN527
71	Steelforce Pro 672 120° XL SLS EN527
72	Steelforce Pro 673 135° SLS EN527
73	Steelforce Pro 675 3 Leg SLS EN527
74	Steelforce Pro 675 3 Leg XL SLS EN527
75	Steelforce Pro 670 SLS BIFMA
76	Steelforce Pro 671 90° SLS BIFMA
77	Steelforce Pro 671 90° XL SLS BIFMA
78	Steelforce Pro 672 120° SLS BIFMA
79	Steelforce Pro 672 120° XL SLS BIFMA
80	Steelforce Pro 673 135° SLS BIFMA
81	Steelforce Pro 675 3 Leg SLS BIFMA
82	Steelforce Pro 675 3 Leg XL SLS BIFMA
83	Steelforce Pro 670 (60x90) SLS EN527
84	Steelforce Pro 670 (60x90) Bench SLS EN527
85	Steelforce Pro 671 (60x90) 90° SLS EN527
86	Steelforce Pro 671 (60x90) 90° XL SLS EN527
87	Steelforce Pro 672 (60x90) 120° SLS EN527
88	Steelforce Pro 672 (60x90) 120° XL SLS EN527
89	Steelforce Pro 673 (60x90) 135° SLS EN527
90	Steelforce Pro 675 (60x90) 3 Leg SLS EN527
91	Steelforce Pro 675 (60x90) 3 Leg XL SLS EN527
92	Steelforce 300
93	Steelforce 400
94	Elements 270
95	Elements 570
96	Elements 670
97	Steelforce SLS 170 Planova
98	Steelforce SLS 170 Planova 90°
99	Steelforce SLS 170 Planova 135°
100	Steelforce SLS 270 Planova
101	Steelforce SLS 270 Planova 90°
102	Steelforce SLS 270 Planova 135°
103	Steelforce Pro 870 SLS EN527

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104	Steelforce Pro 870 Bench SLS EN527
105	Steelforce Pro 870 SLS BIFMA
106	Steelforce Pro 870 SLS - TopStar
107	Steelforce Pro 770 SLS
108	Steelforce Pro 770 Bench SLS
109	Steelforce Pro 370 Single Sided Bench SLS
110	Steelforce Pro 470 Single Sided Bench SLS EN527
111	Steelforce Pro Highline 370 SLS
112	Steelforce Pro Highline 570 (60x90) SLS
113	Steelforce Pro Highline 470 SLS EN527
114	Steelforce Pro Highline 670 (60x90) SLS EN527
115	Steelforce Pro Highline 670 (60x90) Bench SLS EN527
116	Steelforce Pro Highline 671 (60x90) 90º SLS EN527
117	Steelforce Pro Highline 673 (60x90) 135º SLS EN527
118	Steelforce Pro Highline 675 (60x90) 3 Leg SLS EN527
119	DESK FRAME
120	Dorel Electric Desk Frame
121	Electric Desk Frame

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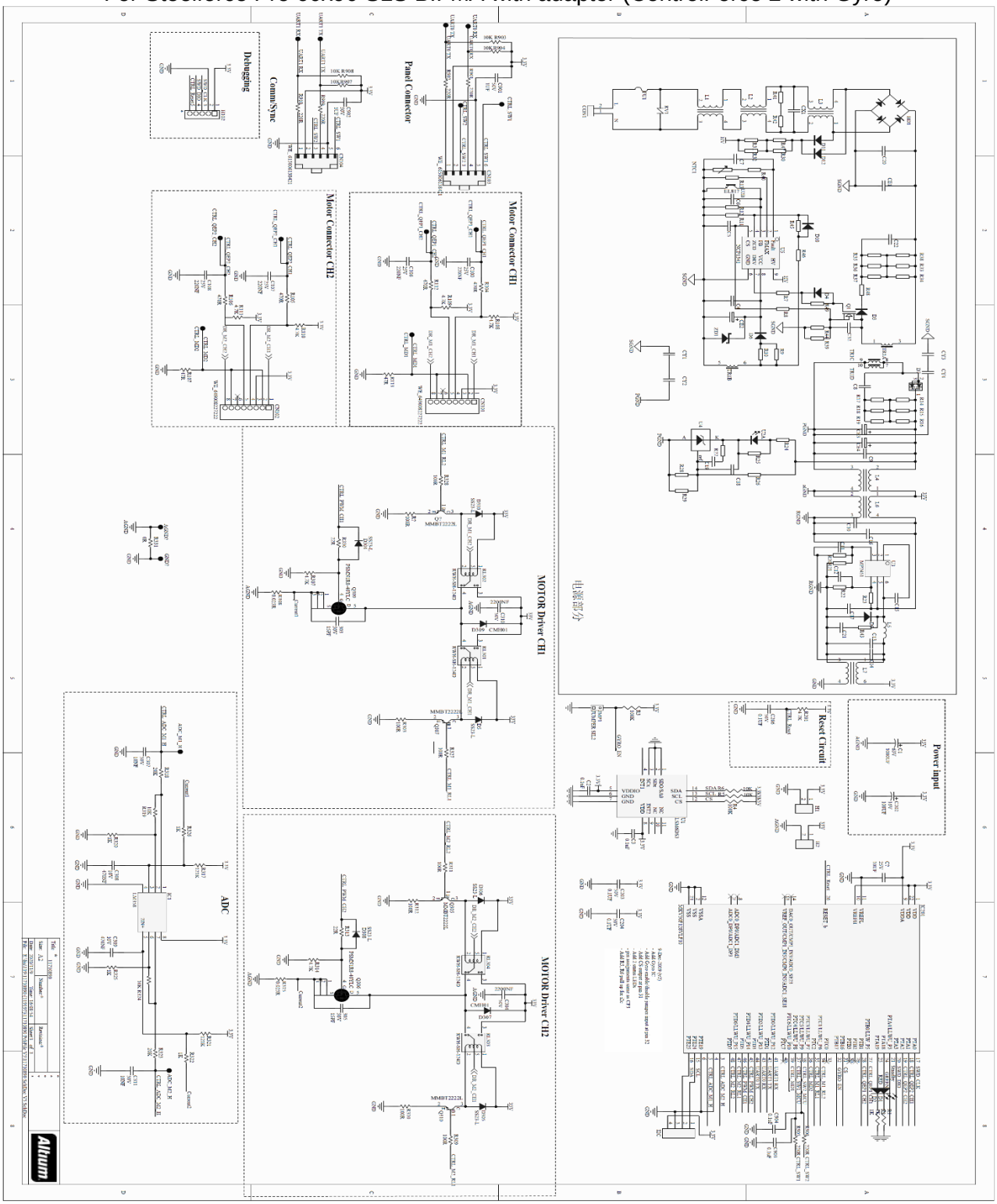
Circuit Diagram

For Steelforce Pro 60x90 SLS BIFMA with adapter (ControlForce 2 with Gyro)



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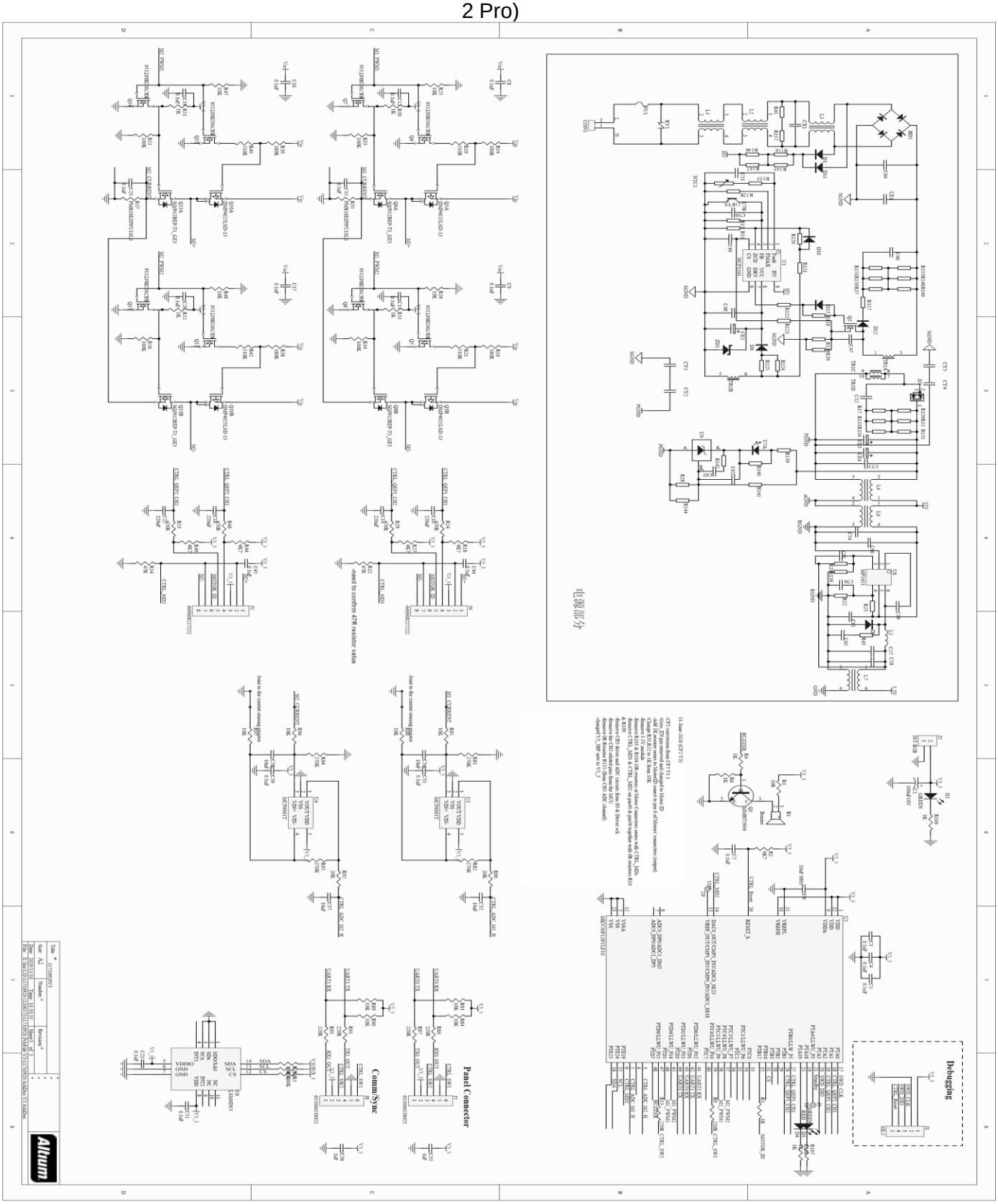

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Appendix C

Constructional Photographs
of
Equipment under test (EUT)

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Constructional Photographs

Model Steelforce Pro 60x90 SLS BIFMA

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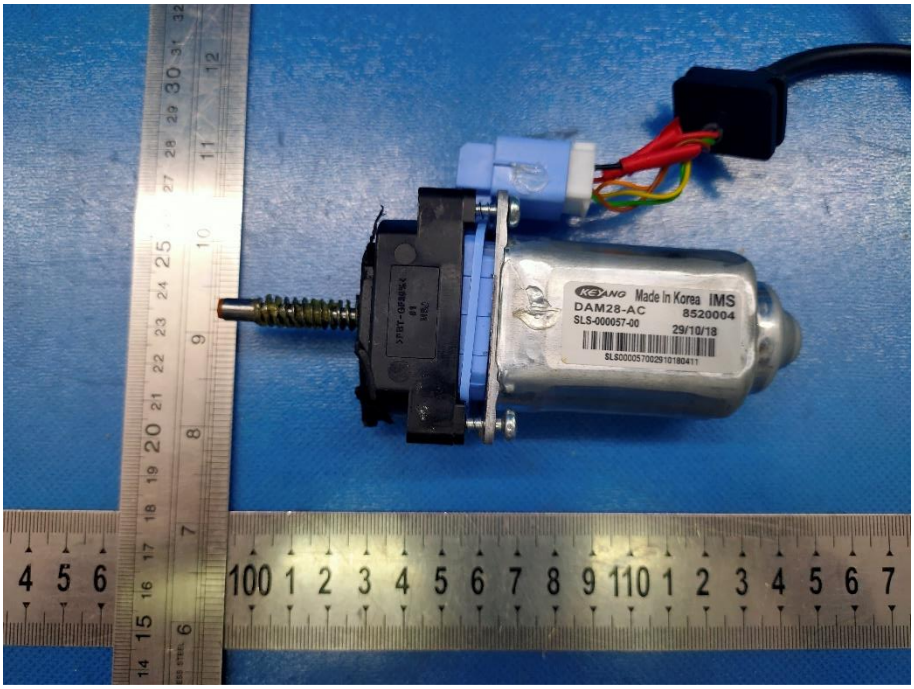
Constructional Photographs

Motor DAM28-AC



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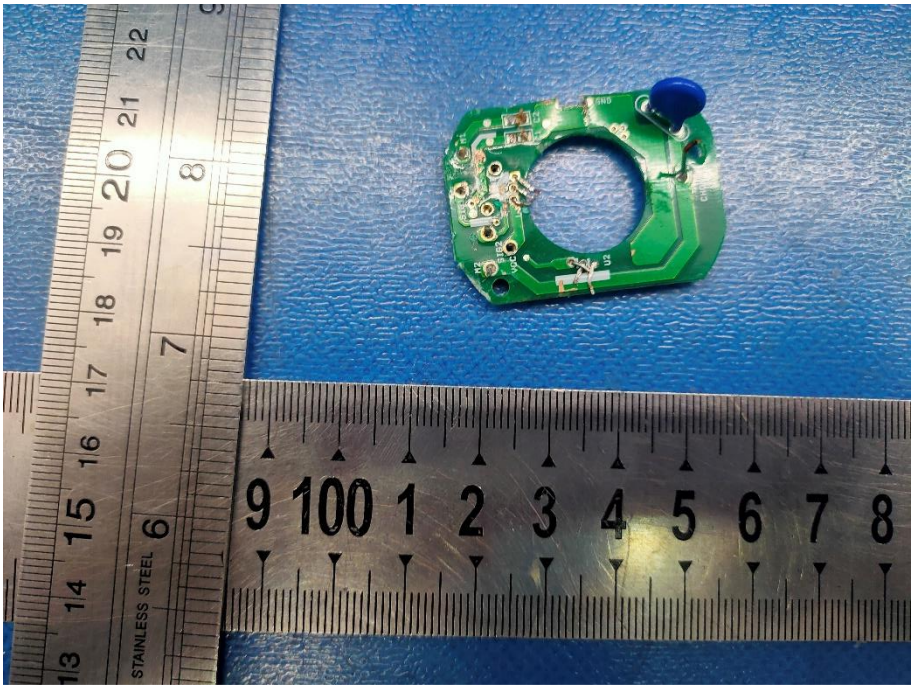
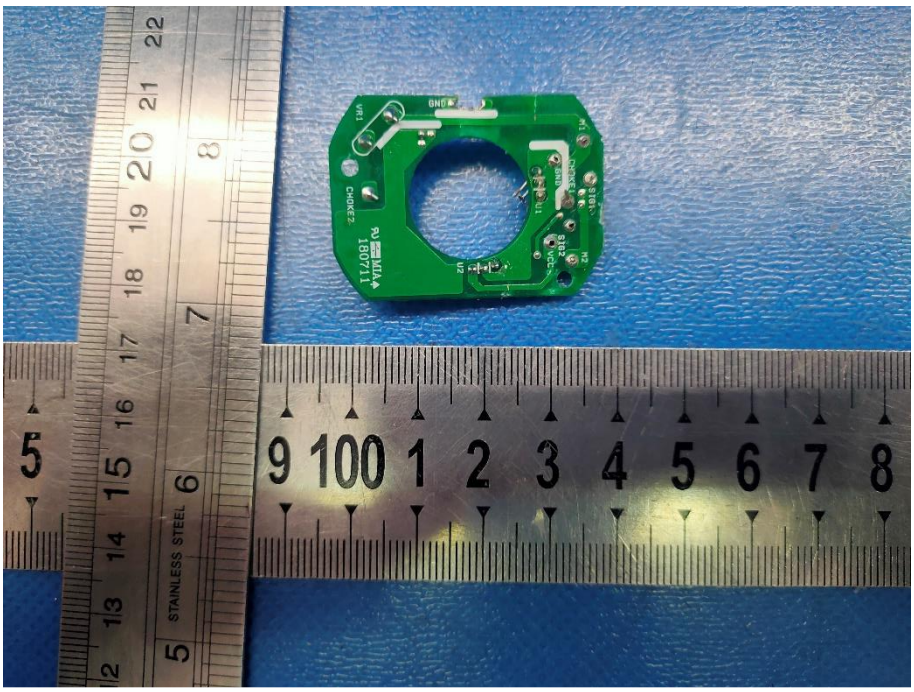
Constructional Photographs

Motor DAM28-AC





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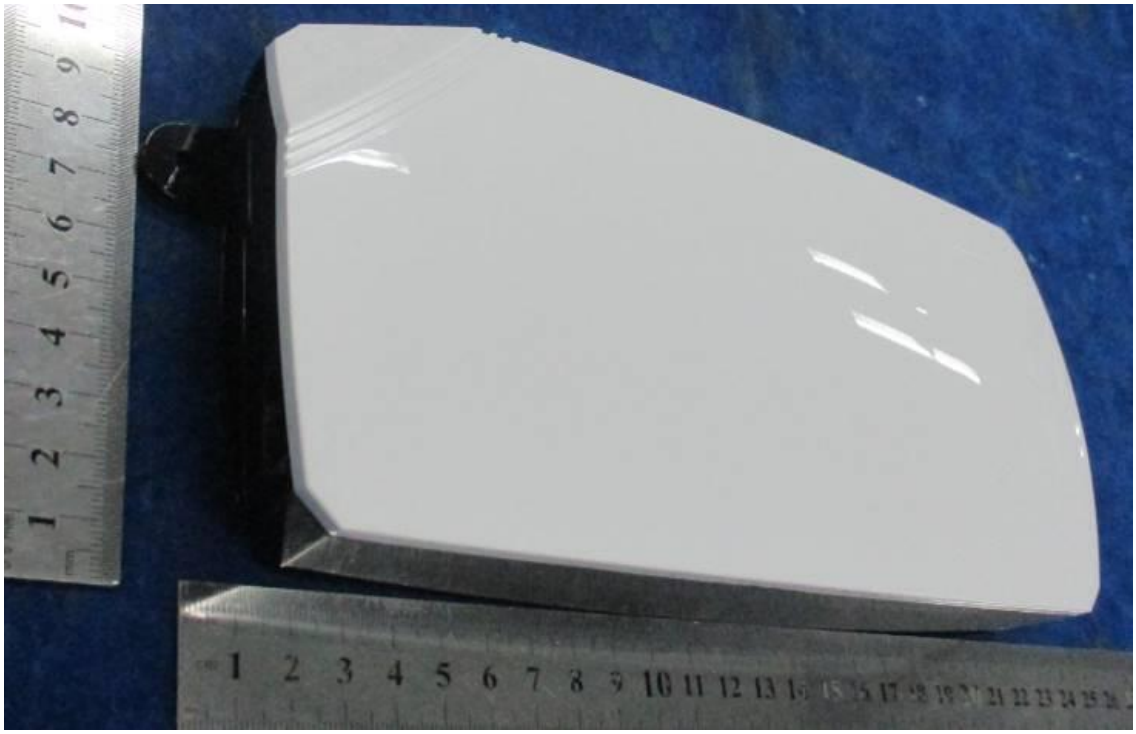
Constructional Photographs

Adaptor



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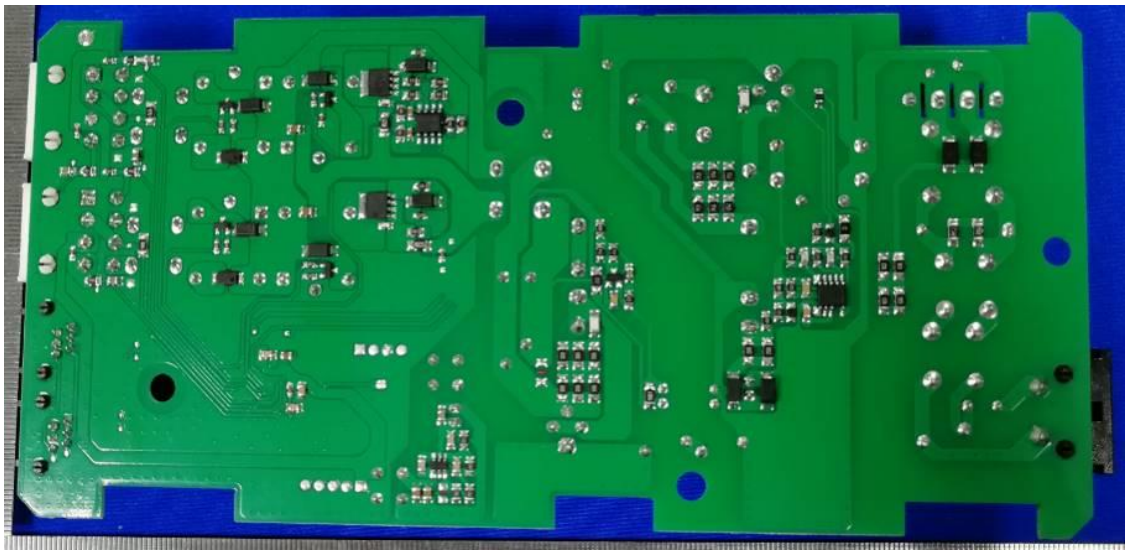
Constructional Photographs

Adaptor



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Constructional Photographs

Adaptor (ControlForce 2 with Gyro)

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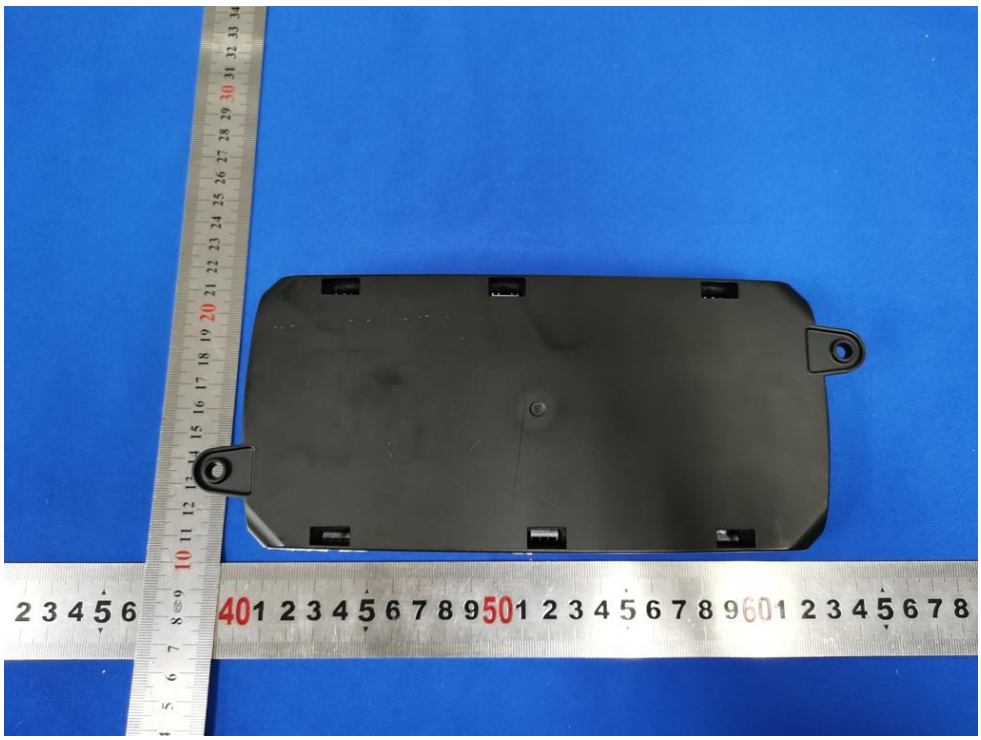
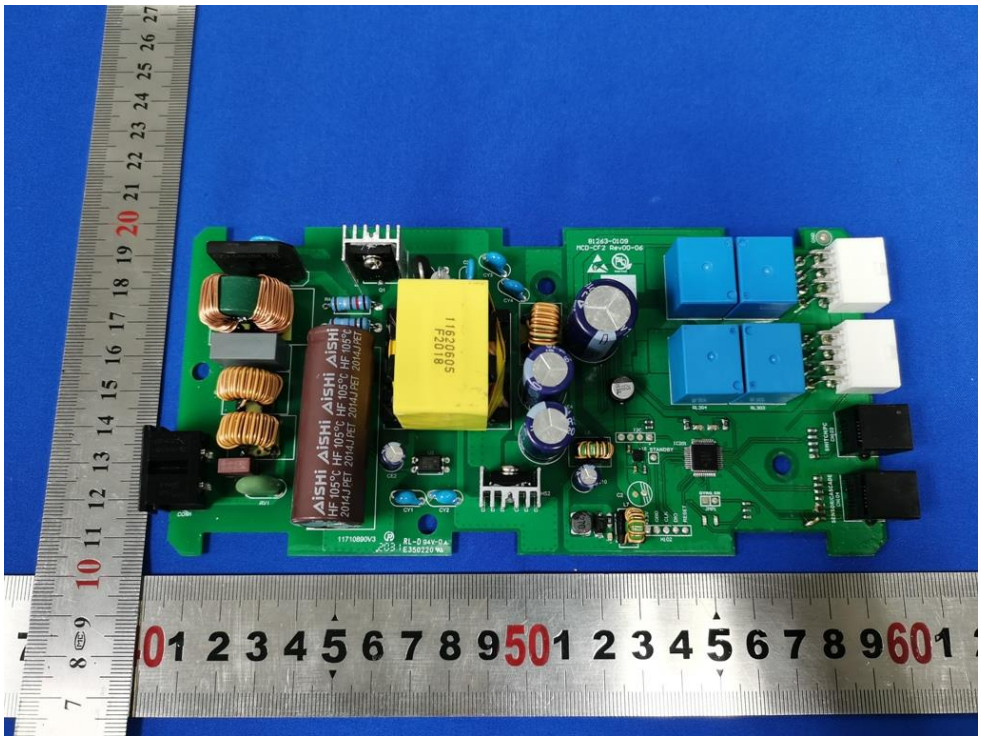
Constructional Photographs





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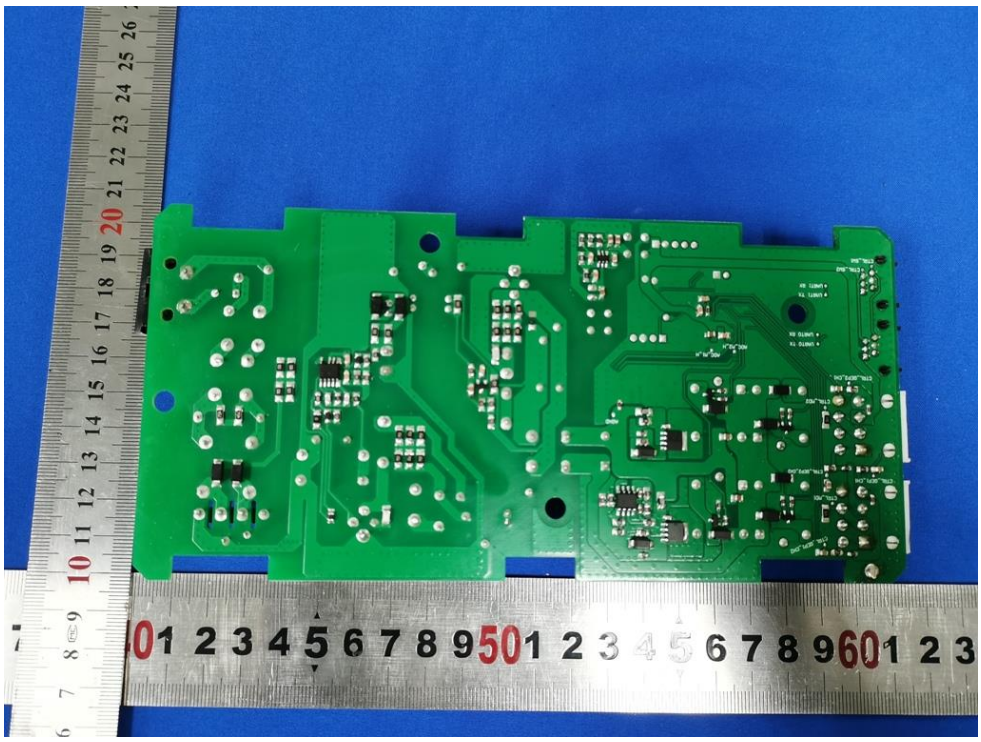
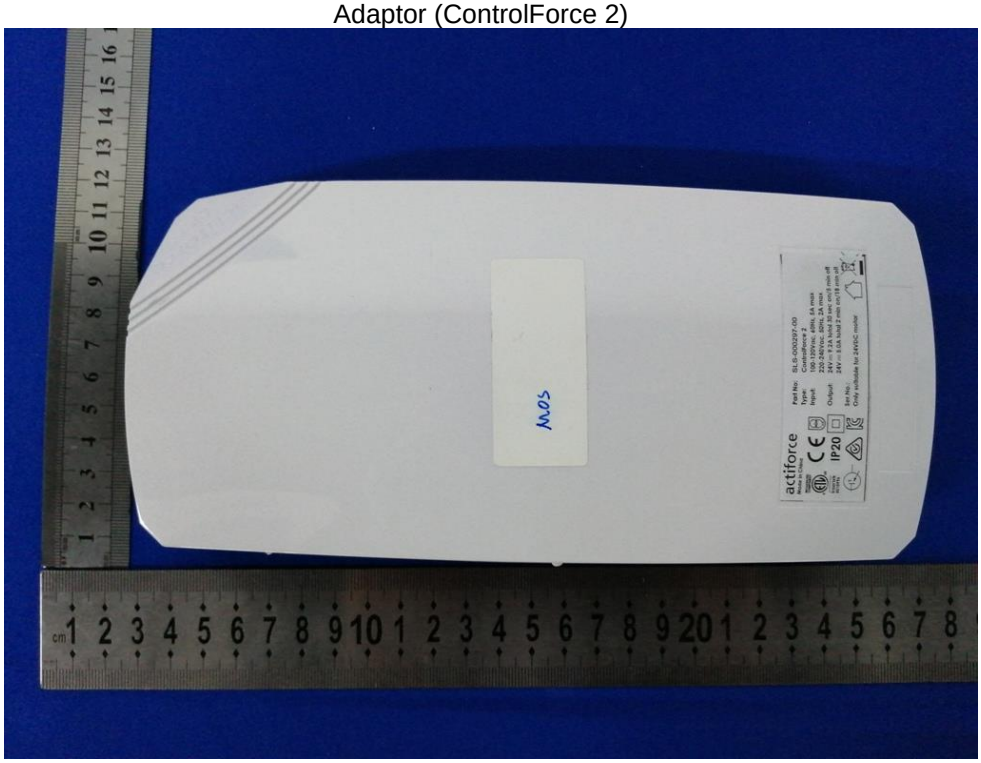
Constructional Photographs



Adaptor (ControlForce 2)



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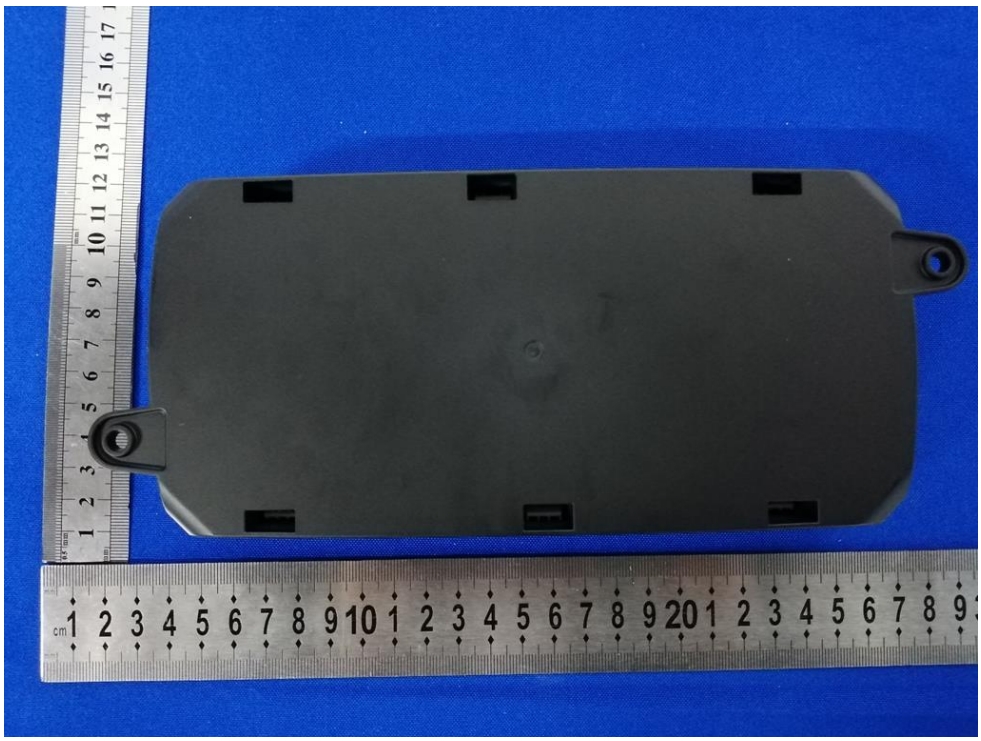
Constructional Photographs



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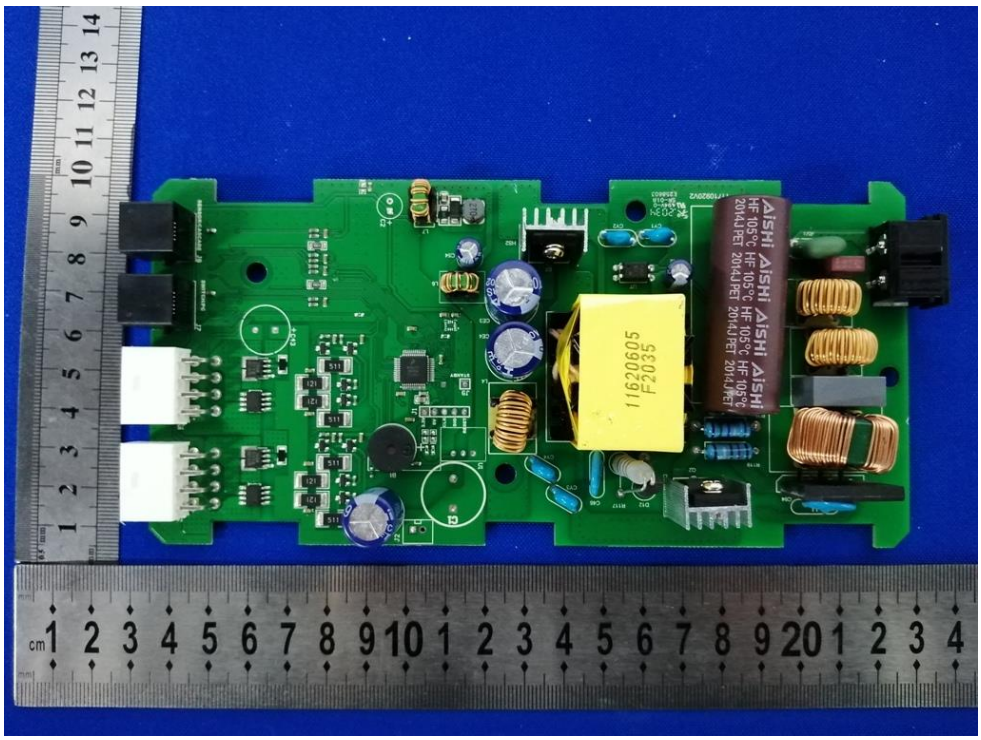
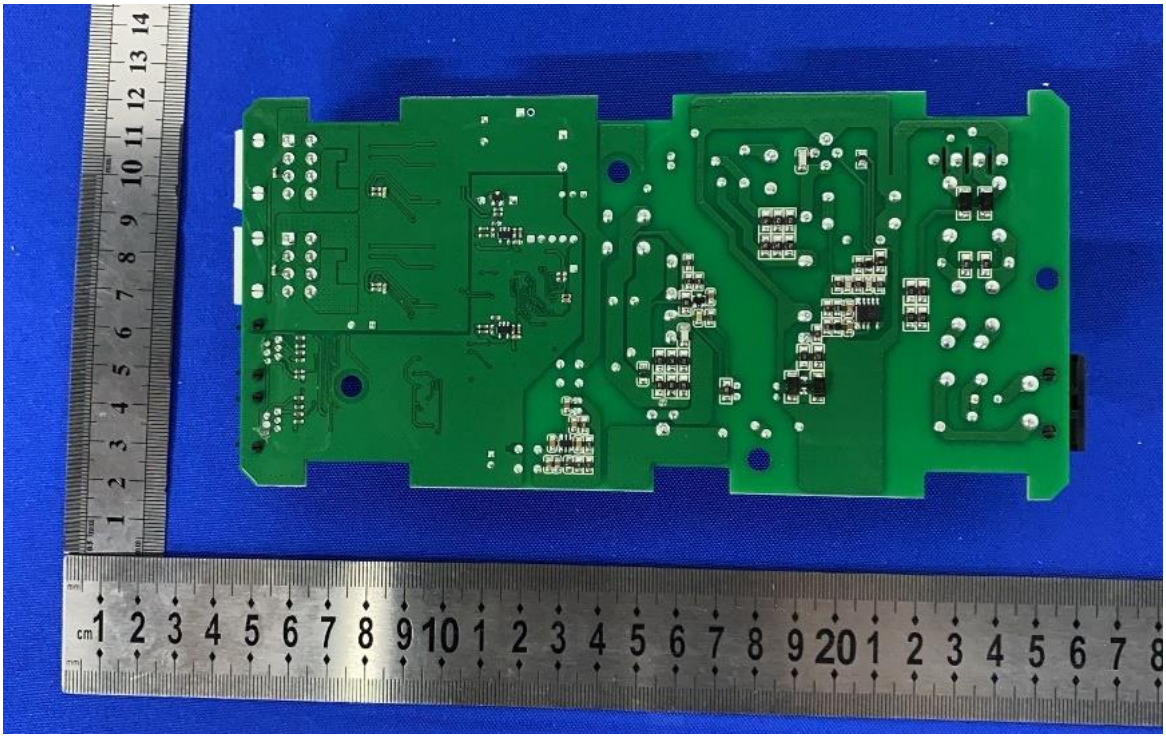
Constructional Photographs





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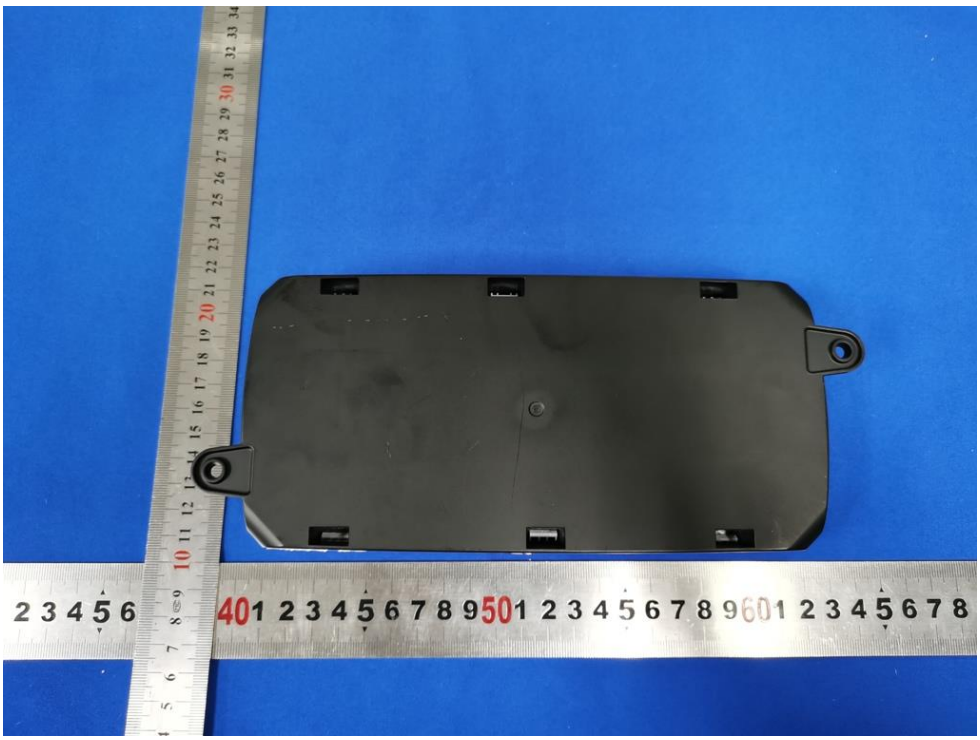
Constructional Photographs

Adaptor (ControlForce 2 Pro)



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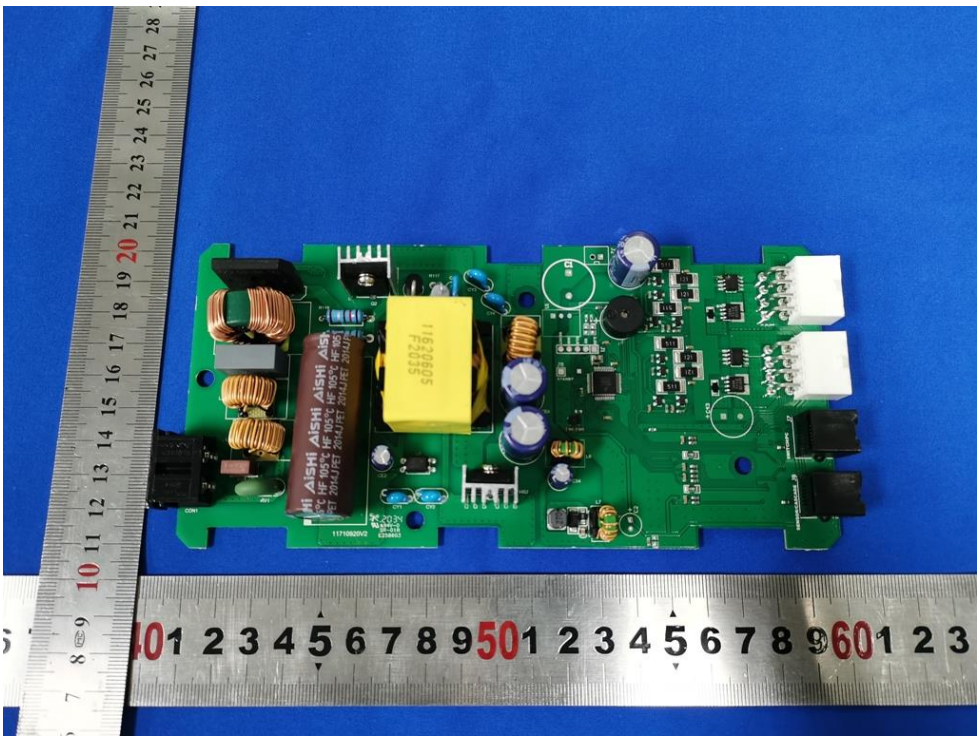
Constructional Photographs

Adaptor (ControlForce 2 Pro)



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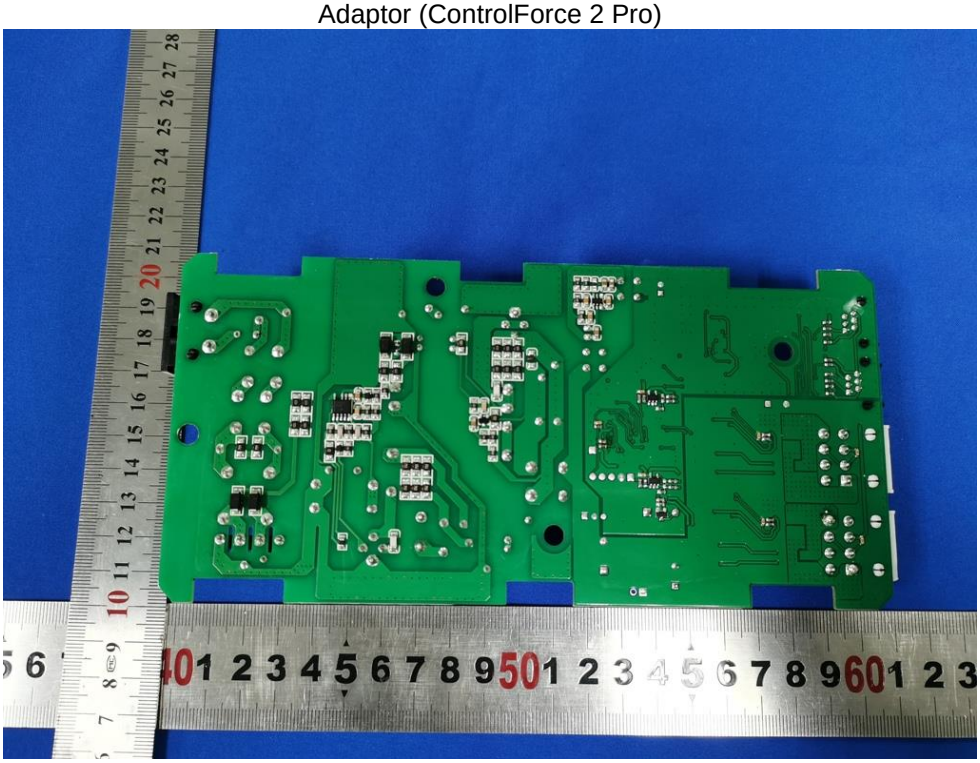
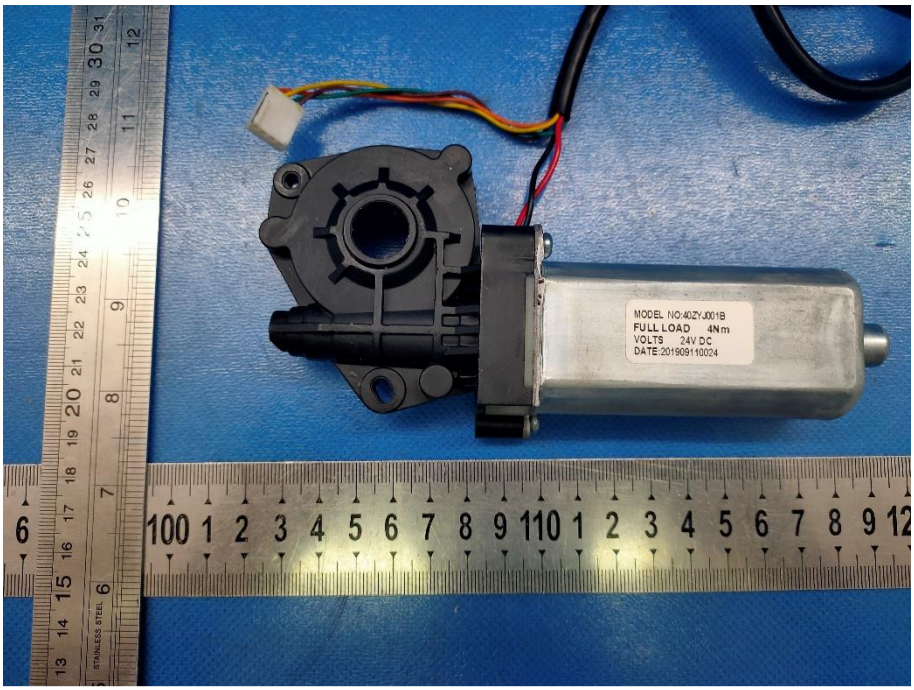
Constructional Photographs

Adaptor (ControlForce 2 Pro)



Motor 40ZYJ001B



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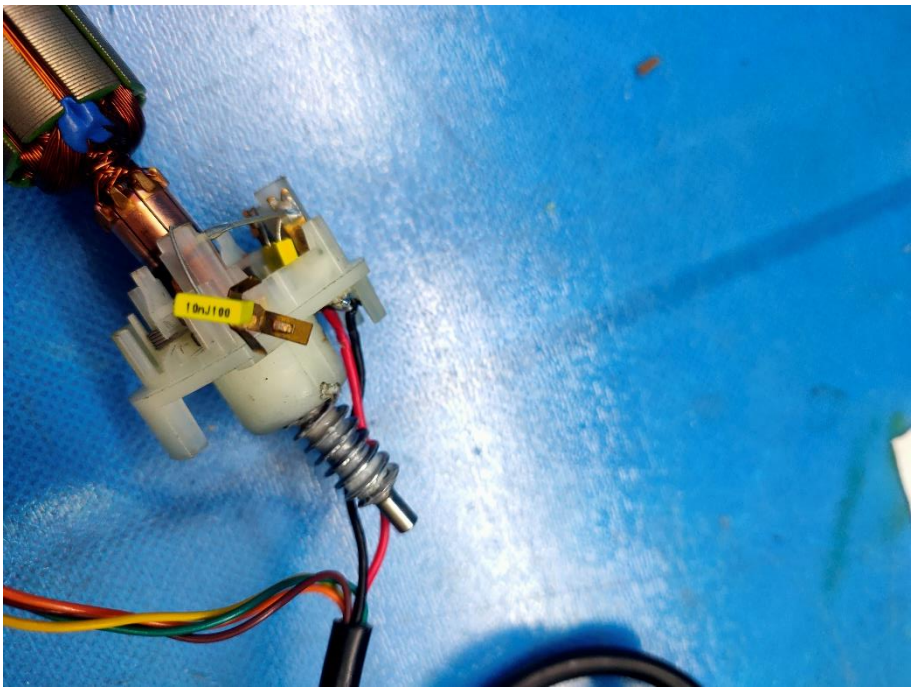
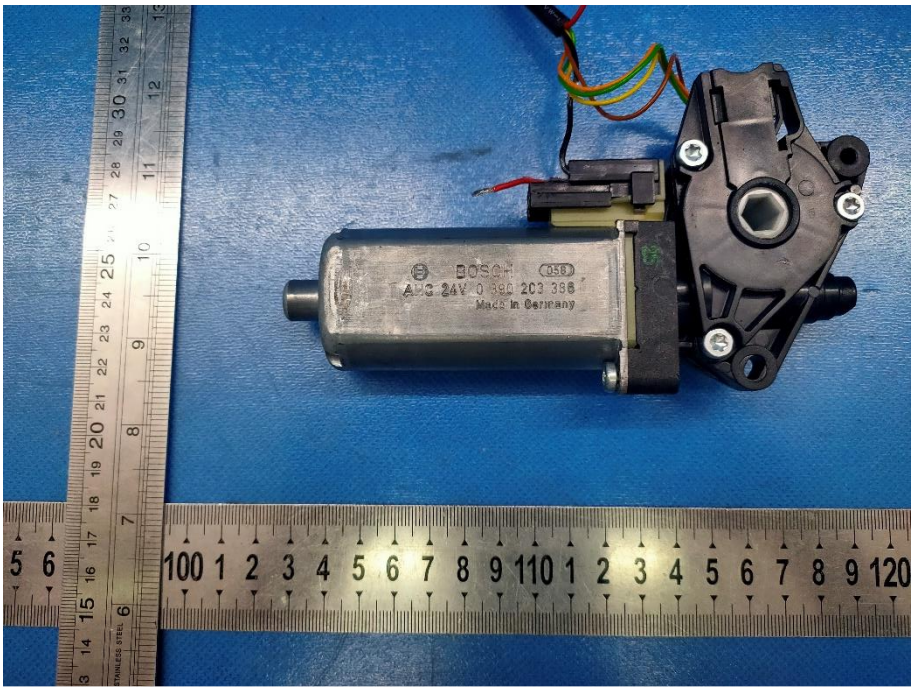
Constructional Photographs



Motor AHC 24V 0 390 203 386



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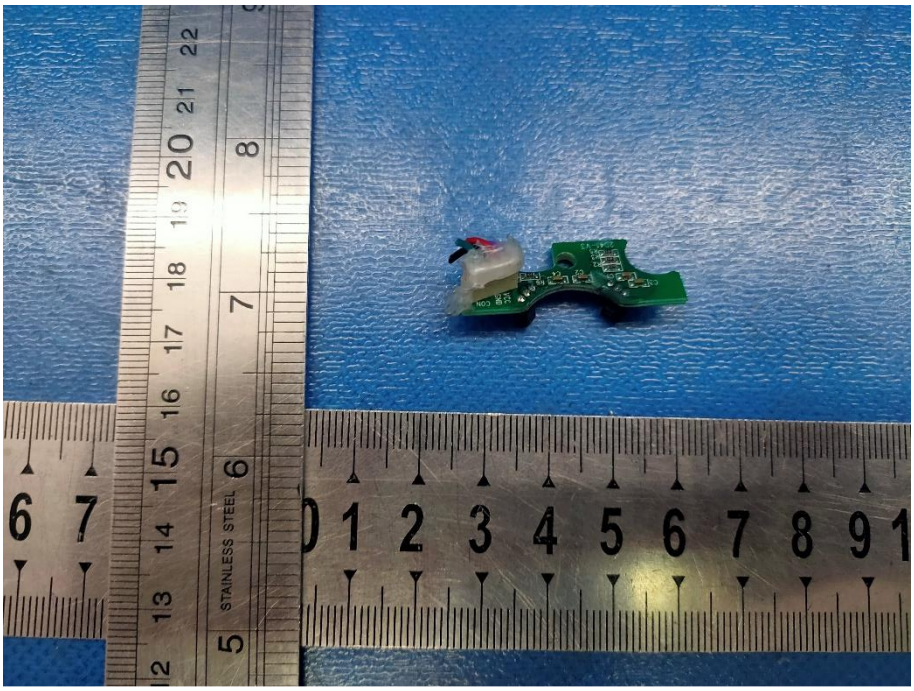
Constructional Photographs

Motor AHC 24V 0 390 203 386



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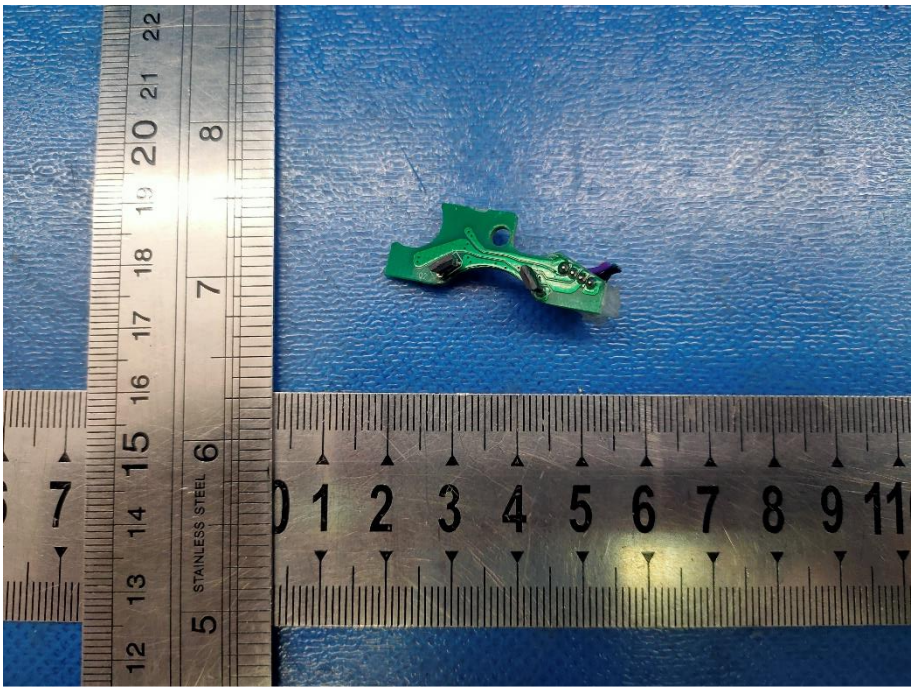
Constructional Photographs



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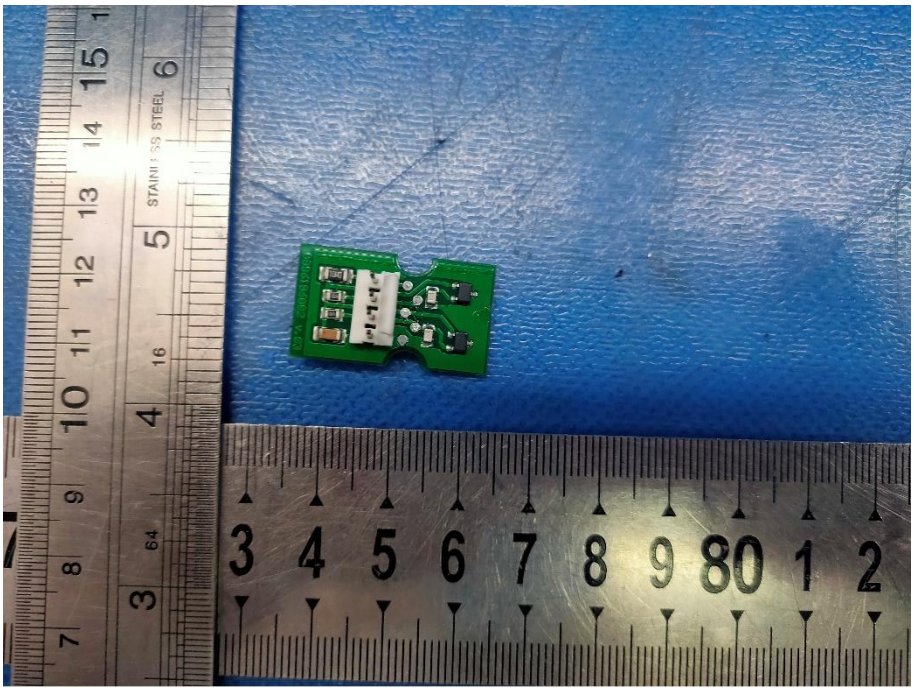

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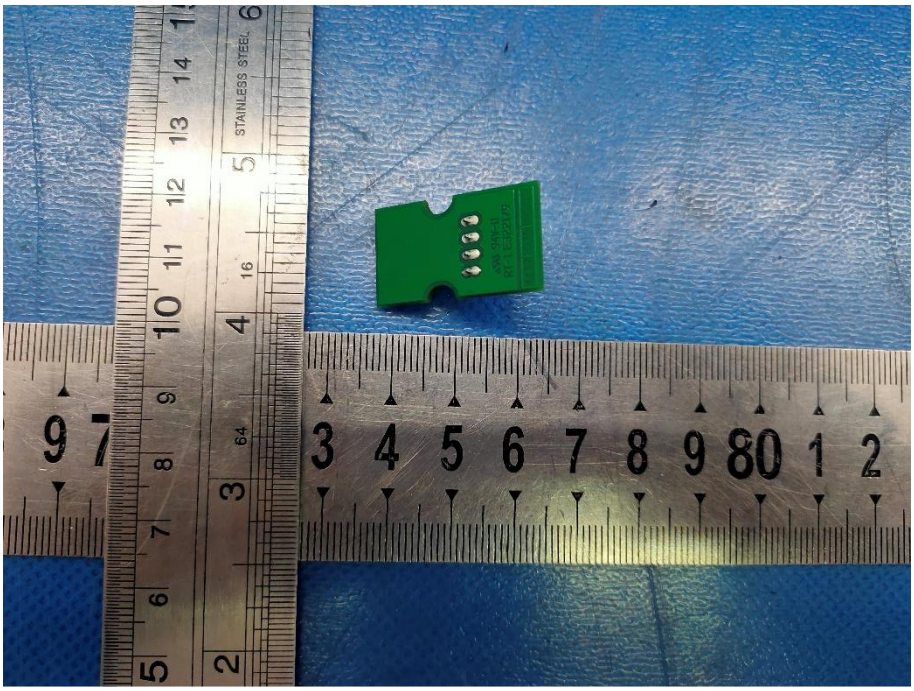
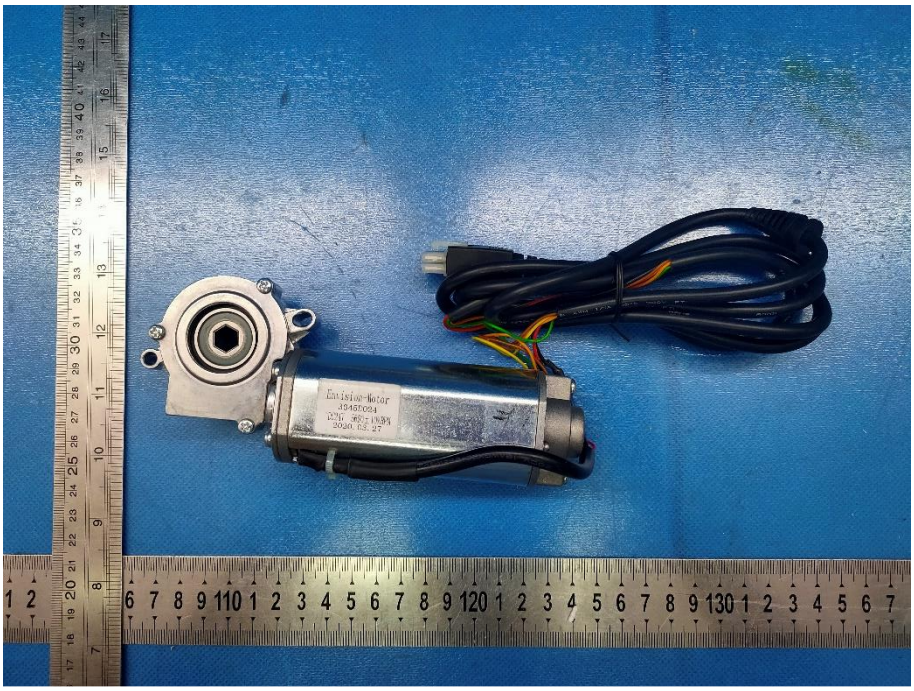
Constructional Photographs



Motor 3045D024



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Constructional Photographs

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China

EMC IMMUNITY - TEST REPORT

Report Number	:	**64.710.19.03708.02-I**	Date of Issue:	2021-03-03

Model / Serial No.	:	Steelforce Pro 60x90 SLS BIFMA (other models refer to model list)
Product Type	:	Electric Height Adjustable Frame for Table
Applicant	:	Actiforce Mechatronics Technology(M) Sdn Bhd,
Manufacturer	:	Actiforce Mechatronics Technology(M) Sdn Bhd,
Address	:	No. 5 & 7, Lorong Perindustrian Bukit Minyak 3, Taman Perindustrian Bukit Minyak, 14100 Simpang Ampat, Penang, Malaysia.
Test Result	:	■ **Positive** ☐ **Negative**
Total pages including Appendices	:	**19**

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TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch issued reports.

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DIRECTORY - IMMUNITY

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Remark:
Constructional Data Form and Product Information Form(s) and Constructional Photographs of EUT refer to emission test report.

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IMMUNITY TEST REGULATIONS:

The immunity tests were performed according to the following regulations:

■ - EMC - Directive 2014/30/EU and its amendments

■ - EN 55014-2:2015

Following basic standards were used as reference:

■ - IEC 61000-4-2:2008
■ - IEC 61000-4-3:2006+A1:2007+A2:2010
■ - IEC 61000-4-4:2012
■ - IEC 61000-4-5:2014
■ - IEC 61000-4-6:2013
■ - IEC 61000-4-11:2004

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Environmental Conditions In The Laboratory:

	Actual
Temperature:	: 24.1-25.1 °C
Relative Humidity:	: 47.0-48.0 %
Atmospheric Pressure:	: 101.0 kPa

Power Rating of EUT:

Voltage	: 110-240V (For adaptor)
Frequency	: 50/60Hz (For adaptor)

STATEMENT OF MEASUREMENT UNCERTAINTY

The tolerances for each tests are reduced by the uncertainty reported on the calibration certificate for the measurement, all the parameters are within the tolerances required by the relevant standard, reduced by the uncertainty reported on the calibration certificate, so the laboratory has confidence that all the tests compliant with the relevant standards with a 95% confidence level.
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.

Symbol Definitions:

■ - Applicable
☐ - Not Applicable

Test laboratory:

■ - JIANYAN TEST GROUP CO., LTD (JYT)
Add: No.760, Fengling Road, Tong' an District, Xiamen City

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Immunity Test Conditions: ELECTROSTATIC DISCHARGE (ESD)

The immunity against *ELECTROSTATIC DISCHARGE (ESD)* events was performed in the following location:

☐ **- Test not applicable**

■ - Test Area (JYT) – Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
■ -	NX 30.1	EMTEST	Electrostatic Discharge Simulator	11839	2021-03-25
■ -	---	JYT	H/V Coupling Plane	/	/

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Discharge Voltage (Air):
☐ - 2 kV ■ - 8 kV ☐ - 6 kV
☐- 4 kV ☐ - 15 kV ☐ - _ kV

Discharge Voltage (Contact):
☐ - 2 kV ☐ - 6 kV ☐ - _ kV
■ - 4 kV ☐ - 8 kV

Discharge Impedance:
■ - 330 Ω / 150 pF ☐ - 150 Ω / 150 pF

Discharge Repetition Rate:
■ - ≥ 1 sec.

Number of Discharges:
■ - ≥ 10 at all locations

Kind of Discharges:
■ - Air discharge ■ - Conducted discharge
■ - Direct ■ - Indirect

Polarity:
■ - Positive ■ - Negative

Location of Discharge:
■ - VCP
■ - Each location on the surface touchable by hand
☐ - See drawing in Appendix A
☐ - _____

Result :

■ - No degradation of function - Met Criterion A
☐ - Distortion of function - Met Criterion B
☐ - Error of function - Met Criterion C
☐ - Loss of function - Unrecoverable Failure

Remarks: _____

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Immunity Test Conditions: RADIATED ELECTROMAGNETIC FIELDS

The immunity against *RADIATED ELECTROMAGNETIC FIELDS* exposure was performed in the following location:

☐ **- Test not applicable**

■ - Test Area (JYT) - Anechoic ferrite lined shielded room

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. Due
■ -	SMB100A	R&S	Signal generator	114510	2021-08-06
■ -	NRP2	R&S	Power meter	106136	2021-08-05
■ -	NRP6	R&S	Power senser	101298	2021-08-05
■ -	NRP6	R&S	Power senser	101299	2021-08-05
■ -	80RF1000-175	Milmega	Power amplifier	1080399	
■ -	STLP 9128 E-N	Schwarzbeck	Log. - Per.Broadband Antenna	3143	
■ -	HI-6105-20	ETS	Field probe	214100	2021-12-24

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Frequency Range:	■ - 80 MHz - 1000 MHz	☐ - 2000 MHz - 2700 MHz
	☐ - 9 kHz - 27 MHz	☐ - 1400 MHz - 2000 MHz
Field Strength:	☐ - 1 V/m	■ - 3 V/m
	☐ - 10 V/m	☐ - _ V/m
Distance Antenna - EUT:	☐ - 1 m	■ - 3 m

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Test Specification (continued):

Modulation:	■ - AM :	80%	1kHz
	☐ - FM :	__ kHz dev.	__ kHz
	☐ - sine wave:		
	☐ - unmodulated		
	☐ - Pulse	ON/OFF	Duty Cycle: __ %
Step:	■ -≤ 0.015 decades / sec		☐ - 1%
Polarization of Antenna:	■ - Horizontal	■ - Vertical	

Result :

■ - No degradation of function	- Met Criterion A
☐ - Distortion of function	- Met Criterion B
☐ - Error of function	- Met Criterion C
☐ - Loss of function	- Unrecoverable Failure

Remarks: _____

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Immunity Test Conditions: FAST TRANSIENTS (BURST)

The immunity against *FAST TRANSIENTS (BURST)* events was performed in the following test location:

☐ - Test not applicable

■ - Test Area (JYT) – Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
■ -	IMU4000 F-S-D-V	EMC Partner	Immunity test system	106779	2021-08-04
☐ -	CN-EFT1000	EMC Partner	Coupling Clamp	103468	2021-08-05

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Pulse Amplitude - AC Power Port:	■ - 1,0 kV	☐ - 2,0 kV	
	☐ - 4,0 kV	☐ - ___ kV	
Pulse Amplitude - DC Power Port:	☐ - 1,0 kV	☐ - 2,0 kV	
	☐ - 4,0 kV	☐ - ___ kV	
Pulse Amplitude - Signal/Data Non control Port:	☐ - 0,5 kV	☐ - 1,0 kV	
	☐ - 2,0 kV	☐ - ___ kV	
Pulse Amplitude - Process: Measurement & Control Port	☐ - 0,5 kV	☐ - 1,0 kV	
	☐ - 2,0 kV	☐ - ___ kV	
Burst Frequency:	☐ - 2,5 kHz	■ - 5,0 kHz	☐ - ___ kHz
Time of Coupling:	☐ - 60 seconds	■ - 120 seconds	☐ - ___ seconds
Coupling Method:	■ - Coupling/decoupling network		☐ - Coupling clamp
Polarity:	■ - Positive	■ - Negative	

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Immunity Test Conditions: FAST TRANSIENTS (BURST), continued

Location of Coupling:

name of lines:	AC POWER CORD	
type of lines:	☐ - shielded	■ - unshielded
status of lines:	☐ - Passive	■ - active
kind of transmission:	■ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

Result :

■ - No degradation of function	- Met Criterion A
☐ - Distortion of function	- Met Criterion B
☐ - Error of function	- Met Criterion C
☐ - Loss of function	- Unrecoverable Failure

Remarks:

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Immunity Test Conditions: SURGE TRANSIENTS

The immunity against *SURGE TRANSIENTS* events was performed in the following test location:

☐ **- Test not applicable**

■ - Test Area (JYT) – Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
■ -	IMU4000 F-S-D-V	EMC Partner	Surge Immunity test system	106779	2021-08-04

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Pulse Amplitude - AC Power Port:	■ - 1,0 kV	☐ - 2,0 kV
	☐ - 4,0 kV	☐ - 0.5 kV
Pulse Amplitude - DC Power Port:	☐ - 1,0 kV	☐ - 2,0 kV
	☐ - 4,0 kV	☐ - ___ kV
Pulse Amplitude - Signal/Data	☐ - 0,5 kV	☐ - 1,0 kV
Non control Port:	☐ - 2,0 kV	☐ - ___ kV
Pulse Amplitude - Process:	☐ - 0,5 kV	☐ - 1,0 kV
Measurement & Control Port	☐ - 2,0 kV	☐ - ___ kV
Source Impedance:	■ - 2 Ω + 18 µF	☐ - 12 Ω + 9 µF
	☐ - 42 Ω + 0,1 µF	☐ - 42 Ω + 0,5 µF
Number of Surges:	■ - 5 surges/angle	☐ - ___ surges /angle
Angle:	■ - 90 °	
	■ - 270 °	
Repetition Rate:	■ - 60 sec.	☐ - ___ sec.
Polarity:	■ - Positive	■ - Negative

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Immunity Test Conditions: SURGE TRANSIENTS, continued

Location of Coupling:

name of lines:	AC POWER CORD	
type of lines:	☐ - shielded	■ - unshielded
status of lines:	☐ - Passive	■ - active
kind of transmission:	■ - analog	☐ - digital
length of lines:		

name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive e	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

Result:

■ - No degradation of function	- Met Criterion A
☐ - Distortion of function	- Met Criterion B
☐ - Error of function	- Met Criterion C
☐ - Loss of function	- Unrecoverable Failure

Remarks:

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Immunity Test Conditions: CONDUCTED DISTURBANCE

The immunity against *CONDUCTED DISTURBANCE* events, induced by radio frequency fields above 9 kHz, was performed in the following test location:

☐ **- Test not applicable**

■ - Test Area (JYT) –Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
■ -	CIT-10-75	Frankonia	Conducted Disturbance Generator	126B1412	2021-08-05
■ -	CDN M2+M3	Frankonia	Coupling Decoupling Network	A2210455&2017	2021-08-04
☐ -	EMCL	Frankonia	EM Injection Clamp	132A1314	2021-08-04
■ -	DAM 75W	Frankonia	6dB Attenuator	1404718	2021-08-04

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:

Frequency Range:	■ - 0,15 MHz - 230 MHz		☐ - 0,15 MHz - 80 MHz
Voltage Level (EMF):	☐ - 1 V	■ - 3 V	
	☐ - 10 V	☐ - __ V	
Modulation:	■ - AM :	80 %	1 kHz
	☐ - FM :	__ kHz dev.	___ kHz
	☐ - sine wave:		
	☐ - unmodulated		
	☐ - Pulse	ON/OFF	Duty Cycle: __ %
Step:	■ -≤ 1%		

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Immunity Test Conditions: CONDUCTED DISTURBANCE, continued

Location of Coupling:

name of lines:	AC POWER CORD	
type of lines:	☐ - shielded	■ - unshielded
status of lines:	☐ - Passive	■ - active
kind of transmission:	■ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		
name of lines:		
type of lines:	☐ - shielded	☐ - unshielded
status of lines:	☐ - Passive	☐ - active
kind of transmission:	☐ - analog	☐ - digital
length of lines:		

Result:

■ - No degradation of function	- Met Criterion A
☐ - Distortion of function	- Met Criterion B
☐ - Error of function	- Met Criterion C
☐ - Loss of function	- Unrecoverable Failure

Remarks:

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Immunity Test Conditions: VOLTAGE DIPS

The immunity against *VOLTAGE DIPS* was performed in the following test location:

☐ **- Test not applicable**

■ - Test Area (JYT) –Laboratory open area

Test Equipment Used :

	Model Number	Manufacturer	Description	Serial Number	Cal. due date
■ -	IMU4000 F-S-D-V	EMC Partner	EMS test system	106779	2021-08-04

Remarks: All test equipments used are calibrated on a regular basis.

Test Specification:
Nominal Mains Voltage (V_{NOM}): ■ - 230 Vac ☐ -___ Vac ☐ - ___ Vdc

Level of Reduction (dip):
■ - 25cycles at 30% of V_{NOM} 50Hz
■ - 10cycles at 60% of V_{NOM} 50Hz
■ - 30cycles at 30% of V_{NOM} 60Hz
■ - 12cycles at 60% of V_{NOM} 60Hz
■ - 0.5cycles at 0% of V_{NOM}

Result :
■- No degradation of function - Met Criterion A
☐ - Distortion of function - Met Criterion B
☐ - Error of function - Met Criterion C
☐ - Loss of function - Unrecoverable Failure

Remarks: _____

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Equipment Under Test (EUT) Test Operation Mode - Immunity Tests :

The equipment under test was operated under the following conditions during immunity testing :

☐ - Standby

☐ - Test Program (H - Pattern)

☐ - Test Program (Color Bar)

☐ - Test Program (Customer Specified)

■ - Normal Operating Mode

☐ - _____

_____

Configuration of the equipment under test:

☐ - See Constructional Data Form in Appendix B - Page B2

☐ - See Product Information Form(s) in Appendix B - Page B2

The following peripheral devices and interface cables were connected during the testing:

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

☐ - _____ Type : _____

■ - unshielded power cable

☐ - unshielded cables

☐ - shielded cables TÜV. No.: _____

☐ - customer specific cables

☐ - _____

☐ - _____

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GENERAL REMARKS:

The report is issued because of the following change:

1. Adding three adapters for the products, these three adapters are with different schematics and PCB Layouts. Model ControlForce 2 with Gyro is with sensor chip and relay, model ControlForce 2 Pro is with sensor chip and MOS, model ControlForce 2 is with MOS.

Based on above change and engineering judgments, we selected models: refer to test models to conduct full tests

Test models:

Model 1: Steelforce Pro 60x90 SLS BIFMA + Adapter (ControlForce 2 with Gyro)
Model 2: Steelforce Pro 60x90 SLS BIFMA + Adapter (ControlForce 2)
Model 3: Steelforce Pro 60x90 SLS BIFMA + Adapter (ControlForce 2 Pro)

SUMMARY:

All tests according to the regulations cited on page 3 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements cited on page 3.

☐ - **Does not** fulfill the general approval requirements cited on page 3.

Sample Received Date:	2020-11-03
Testing Start Date:	2020-11-04
Testing End Date:	2020-11-12

- TÜV SÜD CERTIFICATION AND TESTING (CHINA) CO., LTD. GUANGZHOU BRANCH -

Reviewed by: Peter Jia

Prepared by: Tina Pang

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Appendix A

Test Setup Photo(s)

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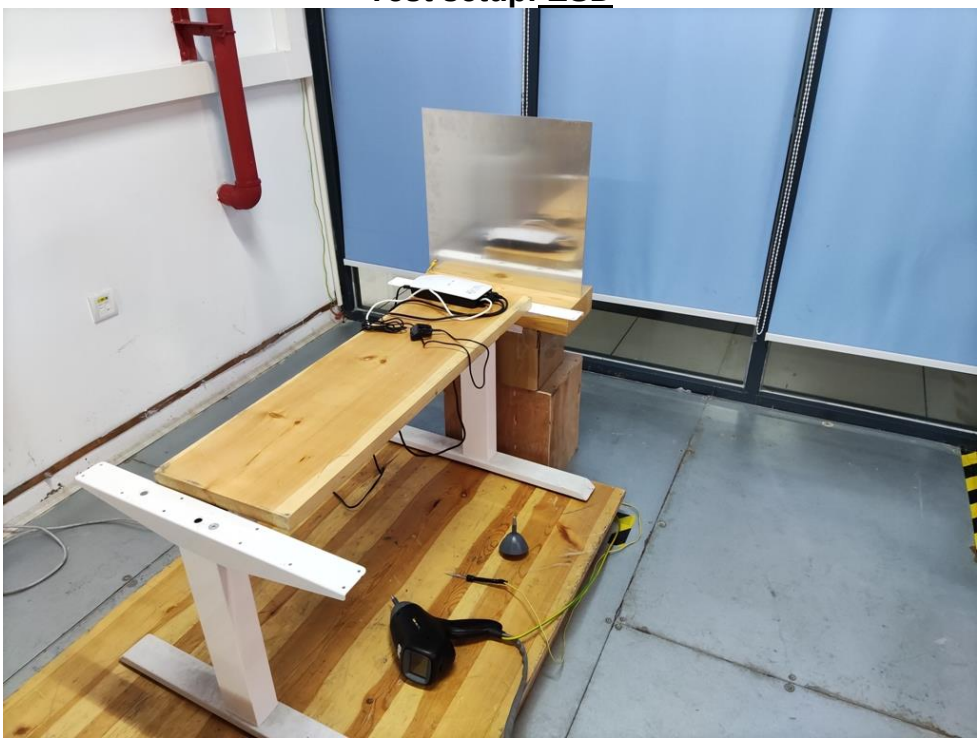
Test setup: ESD



Test setup: EFT & Voltage Dips & Surge

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Test setup: Conducted Immunity

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