

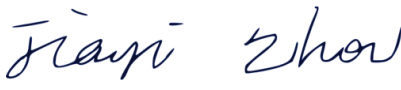


Prüfbericht-Nr.: <i>Test Report No.:</i>	50267001 001	Auftrags-Nr.: <i>Order No.:</i>	244149489	Seite 1 von 39 <i>Page 1 of 39</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	696875	Auftragsdatum: <i>Order date.:</i>	11.06.2019	
Auftraggeber: <i>Client:</i>	EVOLVE ENERGY GROUP CO., LIMITED RM 702, 7/F FU FAI COMM CTR 27 HILLIER ST SHEUNG WAN, Hong Kong			
Prüfgegenstand: <i>Test item:</i>	Grid-connected PV Inverter			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	EVVO 3000TL3P, EVVO 4000TL3P, EVVO 4800TL3P, EVVO 5000TL3P, EVVO 6000TL3P, EVVO 8000TL3P, EVVO 10000TL3P, EVVO 12000TL3P			
Auftrags-Inhalt: <i>Order content:</i>	EMC test			
Prüfgrundlage: <i>Test specification:</i>	EN 61000-6-1:2007	EN 61000-6-3:2007+A1		
	EN 61000-6-2:2005	EN 61000-6-4:2007+A1		
Wareneingangsdatum: <i>Date of receipt:</i>	29.05.2019			
Prüfmuster-Nr.: <i>Test sample No.:</i>	SF1ES012H38001			
Prüfzeitraum: <i>Testing period:</i>	N/A			
Ort der Prüfung: <i>Place of testing:</i>	N/A			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 27.06.2019 Jimmy Qian/Assistant project manager		 27.06.2019 Jiayi Zhou/Senior manager		
Datum	Name/Stellung	Unterschrift	Datum	Name/Stellung
<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>	<i>Date</i>	<i>Name/Position</i>
Sonstiges / Other:				
Refer to next page.				
The requirements of EN 61000-6-3:2007+A1 and EN 61000-6-2:2005 are stricter than that of EN 61000-6-4:2007+A1 and EN 61000-6-1:2007 respectively, so the EMC tests were performed according to EN 61000-6-3:2007+A1 and EN 61000-6-2:2005.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet		Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested		
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.				
<i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

Type designation	EVVO 3000TL 3P	EVVO 4000TL 3P	EVVO 4800TL 3P	EVVO 5000TL 3P	EVVO 6000TL3 P	EVVO 8000TL 3P	EVVO 10000TL 3P	EVVO 12000TL 3P
PV DC input port								
Max. input voltage	1000V							
MPP voltage range	160-960V							
Max. input current	2×11A							
AC output port								
Rated voltage	3/N/PE, AC 230/400V							
Max. output current	3×4.8 A	3×6.4A	3×8.0 A	3×8.0 A	3×9.6A	3×12.8 A	3×15.9A	3×19.1A
Rated frequency	50Hz							
Rated output power	3kW	4kW	5kW	5kW	6kW	8kW	10kW	12kW
Power factor	>0.99(adjustable +/- 0.8)							
Protective class	I							

Identities and differences:

In electrical characteristics, the above models have same circuit diagram. The main differences among them are the software setting, inverter inductor and BUS capacitor. Therefore, with the consideration of the differences, all the EMC tests were performed on EVVO 12000TL3P and EMI test were performed on EVVO 6000TL3P.

TEST SUMMARY

4.1.1 HARMONICS ON AC MAINS

Result:

Passed

4.1.2 VOLTAGE FLUCTUATIONS ON AC MAINS

Result:

Passed

4.1.3 MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE

Result:

Passed

4.2.1 RADIATED EMISSION

Result:

Passed

5.1.1 ELECTROSTATIC DISCHARGE

Result:

Passed

5.1.2 RF RADIATED IMMUNITY TEST

Result:

Passed

5.1.3 POWER FREQUENCY MAGNETIC FIELD

Result:

Passed

5.2.1 ELECTRICAL FAST TRANSIENTS AND BURSTS

Result:

Passed

5.2.2 SURGES

Result:

N/A

5.2.3 CONDUCTED DISTURBANCES, INDUCED BY RF FIELDS

Result:

Passed

5.2.4 VOLTAGE DIPS AND INTERRUPTIONS TO AC POWER PORT

Result:

N/A

Contents

1	TEST SITES	5
1.1	TEST FACILITIES.....	5
1.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
2	GENERAL PRODUCT INFORMATION	7
2.1	PRODUCT FUNCTION AND INTENDED USE	7
2.2	RATINGS AND SYSTEM DETAILS.....	7
2.3	INDEPENDENT OPERATION MODES.....	7
2.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	7
2.5	SUBMITTED DOCUMENTS	7
3	TEST SET-UP AND OPERATION MODES	8
3.1	PRINCIPLE OF CONFIGURATION SELECTION.....	8
3.2	PHYSICAL CONFIGURATION FOR TESTING	8
3.3	TEST OPERATION AND TEST SOFTWARE.....	8
3.4	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	8
3.5	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	8
4	TEST RESULTS EMISSION.....	9
4.1	EMISSION IN THE FREQUENCY RANGE ABOVE 30 MHz	9
4.1.1	<i>Harmonics on AC Mains.....</i>	9
4.1.2	<i>Voltage Fluctuations on AC Mains.....</i>	14
4.1.3	<i>Mains Terminal Continuous Disturbance Voltage</i>	16
4.2	EMISSION IN THE FREQUENCY RANGE ABOVE 30 MHz	25
4.2.1	<i>Radiated Emission</i>	25
5	TEST RESULTS I M M U N I T Y.....	30
5.1	ENCLOSURE.....	31
5.1.1	<i>Electrostatic Discharge</i>	31
5.1.2	<i>RF radiated immunity test.....</i>	32
5.1.3	<i>Power frequency magnetic field.....</i>	33
5.2	POWER PORT, SIGNAL AND INTERCONNECTING CABLE.....	34
5.2.1	<i>Electrical fast transients and bursts.....</i>	34
5.2.2	<i>Surges</i>	35
5.2.3	<i>Conducted disturbances, induced by RF fields.....</i>	36
5.2.4	<i>Voltage dips and interruptions to AC Power Port.....</i>	37
6	PHOTOGRAPHS OF THE TEST SET-UP.....	38
7	LIST OF TABLES.....	39
8	LIST OF FIGURES.....	39

1 Test Sites

1.1 Test Facilities

Laboratory A: Shenzhen Balun Technology Co., Ltd.

Address: Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, ShenZhen, Guangdong Province 518055, P.R. China

Laboratory B: SHENZHEN EMTEK CO., LTD. (EMTEK)

Address: Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

The used test equipment is in accordance with CISPR 16-1 series standards for measurement of radio interference.

The EMC tests except RF radiated immunity have been conducted in laboratory A by “Shenzhen Balun Technology Co., Ltd.” under supervision of TÜV Rheinland’s engineer.

The RF radiated immunity test has been conducted in laboratory B by “SHENZHEN EMTEK CO., LTD. (EMTEK)” under supervision of TÜV Rheinland’s engineer.

1.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

No.	Equipment	Model	Serial no.	Cal. due date
Laboratory A				
1.	HARMONICS,FLICKER coupling network	FI-75A	172101	21.03.2018
2.	ANALYSER	435II	37143115	21.03.2018
3.	power analyzer	PW6001	150901722	21.03.2018
4.	EMI Receiver	ESRP	101036	04.07.2017
5.	LISN	NNLK 8129	8129-462	13.09.2017
6.	Shielded enclosure	CN-130701	130703	04.07.2017
7.	EMI Receiver	ESRP	101036	04.07.2017
8.	Coaxial Amplifier	ZHL-42W(+)	M129211	21.07.2017
9.	Wideband Amplifier	ZVA-213+	M127054	21.07.2017
10.	Test Antenna-Bi-Log	VULB 9163	9163-977	21.07.2017
11.	Anechoic chamber	20.10*11.60*7.35m	N/A	20.02.2019
12.	ESD Test System	SESD 30000	607339	04.07.2017
13.	EFT Test System	HEFT 51	1331011	04.07.2017
14.	EFT coupling network	ECDN 51	150601	04.07.2017
15.	EFT clamp	CDN 3425	25164	04.07.2017
16.	SUEGE Generator	HCWG 70	151601	04.07.2017
17.	SURGE coupling network	SCDN303P7	151602	04.07.2017
18.	CONDUCTED	CDG 6000	126B1286	04.07.2017

Prüfbericht - Nr.: 50267001 001

Seite 6 von 39

Test Report No.:

Page 6 of 39

	DISTURBANCES TEST SYSTEM			
19.	CDN-M5	CDN-M5	A2560005	21.11.2017
20.	EM Clamp	CDN-EMCL 20	1456165	31.05.2018
Laboratory B				
21.	Signal Generator	N5181A	MY50145187	20.05.2018
22.	RF Power Meter. Dual Channel	4232A	10539	21.05.2018
23.	50ohm Diode Power Sensor	51011EMC	34236/34238	21.05.2018
24.	Reid Strength Meter	RSS1006A	10I0003 7S022	21.05.2018
25.	50ohm Diode Power Sensor	51011EMC	36164	21.05.2018
26.	Power Amplifier	80RF1000-175	1059345	20.05.2018
27.	Power Amplifier	AS0102-55	1018770	20.05.2018
28.	Power Amplifier	AS 1860-50	1059346	20.05.2018
29.	Log-Per Antenna	VULP9118E	811	21.05.2018
30.	Broad-Band Horn Antenna	STLP9149	9149-227	21.05.2018
31.	Multi-function interface system	CTR1009B	12I00250SN072	N/A
32.	Automatic switch group	RSW1004A	N/A	N/A

2 General Product Information

2.1 Product Function and Intended Use

The EUT (equipment under test) are grid-connected PV inverters. For the further information, refer to the user's manual.

2.2 Ratings and System Details

System input : Refer to page 2
Rated frequency : Refer to page 2
Rated power : Refer to page 2
Protection class : I

2.3 Independent Operation Modes

The basic operation modes are: "ON" or "Off".

2.4 Noise Generating and Noise Suppressing Parts

Refer to circuit diagram for further information.

2.5 Submitted Documents

Circuit diagram, rating labels and user manual.

3 Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible emission level. The test conditions were adapted accordingly in reference to the instructions for use.

Refer to the related paragraph of this report.

Immunity: The equipment under test (EUT) was configured to have its highest possible susceptibility against the tested phenomena. The test conditions were adapted accordingly in reference to the instructions for use.

Refer to the related paragraph of this report.

3.2 Physical Configuration for Testing

Refer to the related paragraph of this report.

3.3 Test Operation and Test Software

During the tests, the EUT was monitored by the software specified by the manufacturer.

3.4 Special Accessories and Auxiliary Equipment

During the tests, the auxiliary equipment was used as following.

Auxiliary equipment	Manufacture	Rated parameters
Solar IV simulator	Kewell	IVS-60KW, 602006150100159

3.5 Countermeasures to achieve EMC Compliance

No special measure is employed to achieve the requirement.

4 Test Results EMISSION

4.1 Emission in the Frequency Range above 30 MHz

4.1.1 Harmonics on AC Mains

Result:	Passed
----------------	---------------

Date of testing : 29.06.2017
Test procedure : IEC 61000-3-2:2014(for EVVO 6000TL3P)
IEC 61000-3-12:2011 (for EVVO 12000TL3P)
Test duration : 2.5min
Harmonic order : 2 – 40th
Frequency range : 0 – 2kHz
Test voltage : AC 400V, 50Hz
Ambient condition : Temperature: 25°C; Relative humidity: 55%
Test condition : Operated continuously with full load
Following are the measurement results, which were obtained via an automatic measurement system.

Table 2: Harmonic currents measurement result for L1 of EVVO 6000TL3P

Equipment category: Class A;

Harmonic order	Result (avg.) (A)	100% limit (A)	Result
2	0.30	1.08	Pass
3	0.26	2.30	Pass
4	0.17	0.43	Pass
5	0.06	1.14	Pass
6	0.04	0.30	Pass
7	0.11	0.77	Pass
8	0.10	0.23	Pass
9	0.07	0.40	Pass
10	0.03	0.18	Pass
11	0.04	0.33	Pass
12	0.06	0.15	Pass
13	0.12	0.21	Pass
14	0.03	0.13	Pass
15	0.02	0.15	Pass
16	0.02	0.12	Pass
17	0.12	0.13	Pass
18	0.07	0.10	Pass
19	0.08	0.12	Pass
20	0.00	0.09	Pass
21	0.02	0.11	Pass
22	0.03	0.08	Pass
23	0.06	0.10	Pass
24	0.01	0.08	Pass
25	0.01	0.09	Pass
26	0.02	0.07	Pass
27	0.03	0.08	Pass
28	0.02	0.07	Pass
29	0.04	0.08	Pass
30	0.02	0.06	Pass
31	0.00	0.07	Pass
32	0.03	0.06	Pass
33	0.02	0.07	Pass
34	0.02	0.05	Pass
35	0.01	0.06	Pass
36	0.01	0.05	Pass
37	0.02	0.06	Pass
38	0.02	0.05	Pass
39	0.02	0.06	Pass
40	0.01	0.05	Pass

Table 3: Harmonic currents measurement result for L2 of EVVO 6000TL3P

Equipment category: Class A;

Harmonic order	Result (avg.) (A)	100% limit (A)	Result
2	0.05	1.08	Pass
3	0.12	2.30	Pass
4	0.14	0.43	Pass
5	0.13	1.14	Pass
6	0.13	0.30	Pass
7	0.10	0.77	Pass
8	0.05	0.23	Pass
9	0.06	0.40	Pass
10	0.07	0.18	Pass
11	0.01	0.33	Pass
12	0.04	0.15	Pass
13	0.13	0.21	Pass
14	0.02	0.13	Pass
15	0.05	0.15	Pass
16	0.04	0.12	Pass
17	0.07	0.13	Pass
18	0.04	0.10	Pass
19	0.09	0.12	Pass
20	0.04	0.09	Pass
21	0.02	0.11	Pass
22	0.01	0.08	Pass
23	0.01	0.10	Pass
24	0.01	0.08	Pass
25	0.03	0.09	Pass
26	0.02	0.07	Pass
27	0.01	0.08	Pass
28	0.01	0.07	Pass
29	0.01	0.08	Pass
30	0.01	0.06	Pass
31	0.02	0.07	Pass
32	0.02	0.06	Pass
33	0.00	0.07	Pass
34	0.00	0.05	Pass
35	0.01	0.06	Pass
36	0.01	0.05	Pass
37	0.02	0.06	Pass
38	0.01	0.05	Pass
39	0.00	0.06	Pass
40	0.00	0.05	Pass

Table 4: Harmonic currents measurement result for L3 of EVVO 6000TL3P

Equipment category: Class A;

Harmonic order	Result (avg.) (A)	100% limit (A)	Result
2	0.31	1.08	Pass
3	0.18	2.30	Pass
4	0.14	0.43	Pass
5	0.18	1.14	Pass
6	0.10	0.30	Pass
7	0.01	0.77	Pass
8	0.07	0.23	Pass
9	0.07	0.40	Pass
10	0.05	0.18	Pass
11	0.03	0.33	Pass
12	0.09	0.15	Pass
13	0.03	0.21	Pass
14	0.01	0.13	Pass
15	0.05	0.15	Pass
16	0.03	0.12	Pass
17	0.10	0.13	Pass
18	0.03	0.10	Pass
19	0.11	0.12	Pass
20	0.05	0.09	Pass
21	0.02	0.11	Pass
22	0.02	0.08	Pass
23	0.06	0.10	Pass
24	0.02	0.08	Pass
25	0.03	0.09	Pass
26	0.02	0.07	Pass
27	0.02	0.08	Pass
28	0.02	0.07	Pass
29	0.04	0.08	Pass
30	0.03	0.06	Pass
31	0.02	0.07	Pass
32	0.01	0.06	Pass
33	0.01	0.07	Pass
34	0.01	0.05	Pass
35	0.02	0.06	Pass
36	0.02	0.05	Pass
37	0.03	0.06	Pass
38	0.01	0.05	Pass
39	0.02	0.06	Pass
40	0.02	0.05	Pass

Table 5: Harmonic currents measurement result for EVVO 12000TL3P

Equipment category: balanced three-phase equipment; Power Rsc: 33;

	Admissible individual harmonic current I_h/I_{ref} (note) %										Admissible harmonic parameters %	
	I_2	I_4	I_5	I_6	I_7	I_8	I_{10}	I_{11}	I_{12}	I_{13}	THC/ I_{ref}	PWHC/ I_{ref}
limit	8.0	4.0	10.7	2.7	7.2	2.0	1.6	3.1	1.3	2.0	13	22
L1	0.05	0.09	0.22	0.54	0.66	0.07	0.04	0.31	0.17	0.48	1.38	5.07
L2	0.06	0.13	0.14	0.60	0.52	0.13	0.07	0.28	0.15	0.34	1.33	4.87
L3	0.01	0.06	0.16	0.22	0.35	0.07	0.10	0.32	0.11	0.19	0.99	3.92
Verdict	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

Note: I_{ref} = reference current; I_h = harmonic current component

4.1.2 Voltage Fluctuations on AC Mains

Result:	Passed
----------------	---------------

Date of testing : 18.06.2017
 Test procedure : IEC 61000-3-3:2013 (for EVVO 6000TL3P)
 IEC 61000-3-11:2000 (for EVVO 12000TL3P)
 Ambient condition : Temperature: 25°C; Relative humidity: 55%
 Test condition : Operated continuously with full load

According to the characteristics of the sample, as specified by clause 5 of the basic standard, following limits apply:

- the value of P_{st} shall not be greater than 1.0;
- the value of P_{lt} shall not be greater than 0.65;
- T_{max} , the accumulated time value of $d(t)$ with a deviation exceeding 3.3 % during a single voltage change at the EUT terminals, shall not exceed 500 ms;
- the maximum relative steady-state voltage change d_c , shall not exceed 3.3%;
- the maximum relative voltage change d_{max} , shall not exceed 4%.

Following are the measurement results obtained via an automatic testing system.

Table 6: Voltage fluctuations and flicker measurement results for L1 of EVVO 6000TL3P

	d_c	d_{max}	T_{max}	P_{st}	P_{lt}
Limits	3.3%	4%	500ms	1.000	0.650
Result	0.011%	0.022%	0ms	0.193	0.212

Table 7: Voltage fluctuations and flicker measurement results for L2 of EVVO 6000TL3P

	d_c	d_{max}	T_{max}	P_{st}	P_{lt}
Limits	3.3%	4%	500ms	1.000	0.650
Result	0.010%	0.018%	0ms	0.192	0.212

Table 8: Voltage fluctuations and flicker measurement results for L3 of EVVO 6000TL3P

	d_c	d_{max}	T_{max}	P_{st}	P_{lt}
Limits	3.3%	4%	500ms	1.000	0.650
Result	0.009%	0.018%	0ms	0.196	0.219

Table 9: Voltage fluctuations and flicker measurement results for L1 of EVVO 12000TL3P

	d_c	d_{max}	T_{max}	P_{st}	P_{lt}
Limits	3.3%	4%	500ms	1.000	0.650
Result	0.002%	0.0068%	0ms	0.070	0.085

Table 10: Voltage fluctuations and flicker measurement results for L2 of EVVO 12000TL3P

	d_c	d_{max}	T_{max}	P_{st}	P_{lt}
Limits	3.3%	4%	500ms	1.000	0.650
Result	0.002%	0.0066%	0ms	0.069	0.085

Table 11: Voltage fluctuations and flicker measurement results for L3 of EVVO 12000TL3P

	d_c	d_{max}	T_{max}	P_{st}	P_{lt}
Limits	3.3%	4%	500ms	1.000	0.650
Result	0.002%	0.0068%	0ms	0.074	0.086

4.1.3 Mains Terminal Continuous Disturbance Voltage

Result:	Passed
----------------	---------------

Date of testing	: 27.06.2017
Test procedure	: EN 61000-6-3:2007+A1, CISPR 16-2-1:2008 and CISPR 16-1 series standards
Frequency range	: 0.15 - 30MHz
Limit	: Table 2 of EN 61000-6-3:2007+A1
Kind of test site	: shielded room
Ambient condition	: Temperature: 25°C; Relative humidity: 55%
Expanded measurement uncertainty ($k=2$)	: 3.23dB

Test Setup

Input voltage	: PV input port: DC 600V; AC output port: AC 400V, 50Hz
Operational mode	: Operated continuously with full load
Artificial hand	: N/A
Earthing	: Earthing by power cord. (as class I equipment)

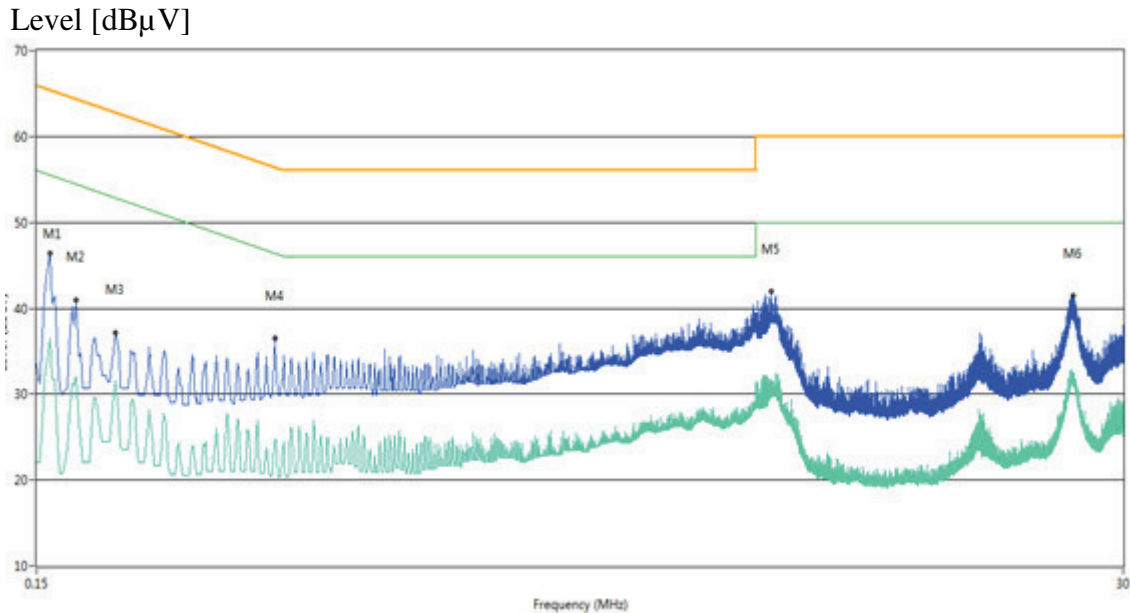
The measurement setup was made according to CISPR 16-2-1:2008 in a shielded room.

The measurement equipment like test receivers, quasi-peak detector and Artificial Mains Network (AMN) are in compliance with CISPR 16-1 series standards.

The tested object was setup on a 0.4m high wooden table. The EUT was placed 0.8m away from the AMN. The part of the cord longer than necessary to be connected to the AMN was folded forth and back parallel so as to form a bundle with a length between 0.3m and 0.4m.

The following figures and tables were those measured by an automatic measuring system. Both Quasi-Peak and Average Value were measured. A previous test was firstly performed with Peak detector and Average detector. The final test was performed with Quasi-peak detector and Average detector at those critical frequencies during the previous test. In the Figures, “●” means Quasi-Peak Value and “•” means Average Value which was measured in final measurement.

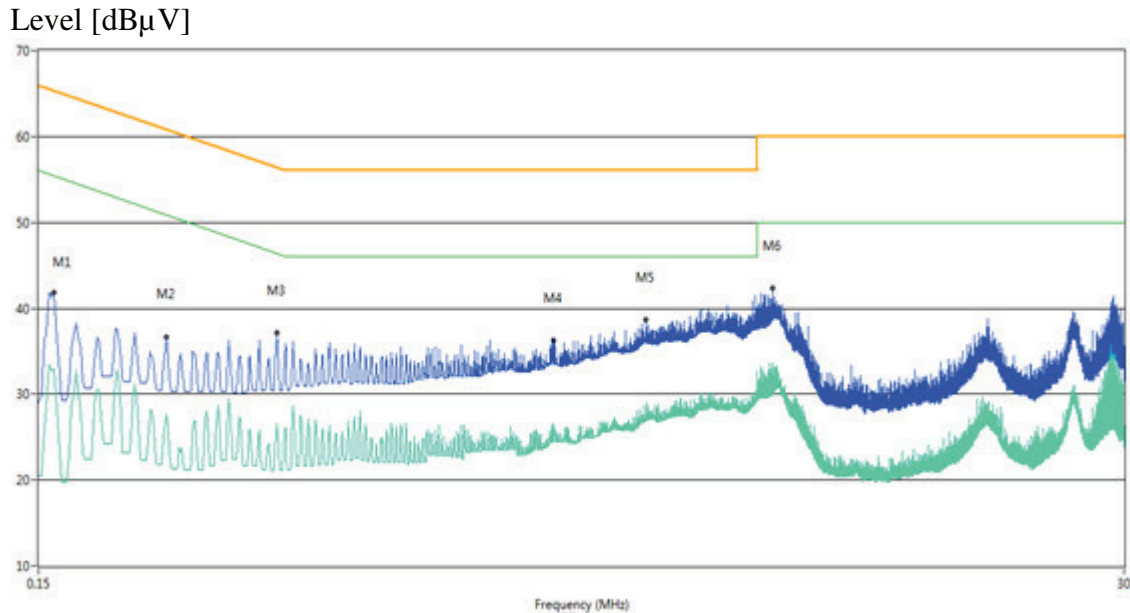
Figure 1: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L1 for EVVO 6000TL3P



Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dBµV)	Factor (dB)	Limit (dBµV)	MargiL1 (dB)	Detector	Line	Verdict
1	0.160	46.5	10.29	65.5	19.00	QP	L1 Line	Pass
1**	0.160	36.6	10.29	55.5	18.90	AV	L1 Line	Pass
2	0.182	41.0	10.46	64.4	23.40	QP	L1 Line	Pass
2**	0.182	32.0	10.46	54.4	22.40	AV	L1 Line	Pass
3	0.220	37.2	11.35	62.8	25.60	QP	L1 Line	Pass
3**	0.220	31.6	11.35	52.8	21.20	AV	L1 Line	Pass
4	0.480	36.5	11.23	56.3	19.80	QP	L1 Line	Pass
4**	0.480	24.9	11.23	46.3	21.40	AV	L1 Line	Pass
5	5.390	41.9	10.03	60.0	18.10	QP	L1 Line	Pass
5**	5.390	31.4	10.03	50.0	18.60	AV	L1 Line	Pass
6	23.516	41.5	11.50	60.0	18.50	QP	L1 Line	Pass
6**	23.516	31.0	11.50	50.0	19.00	AV	L1 Line	Pass

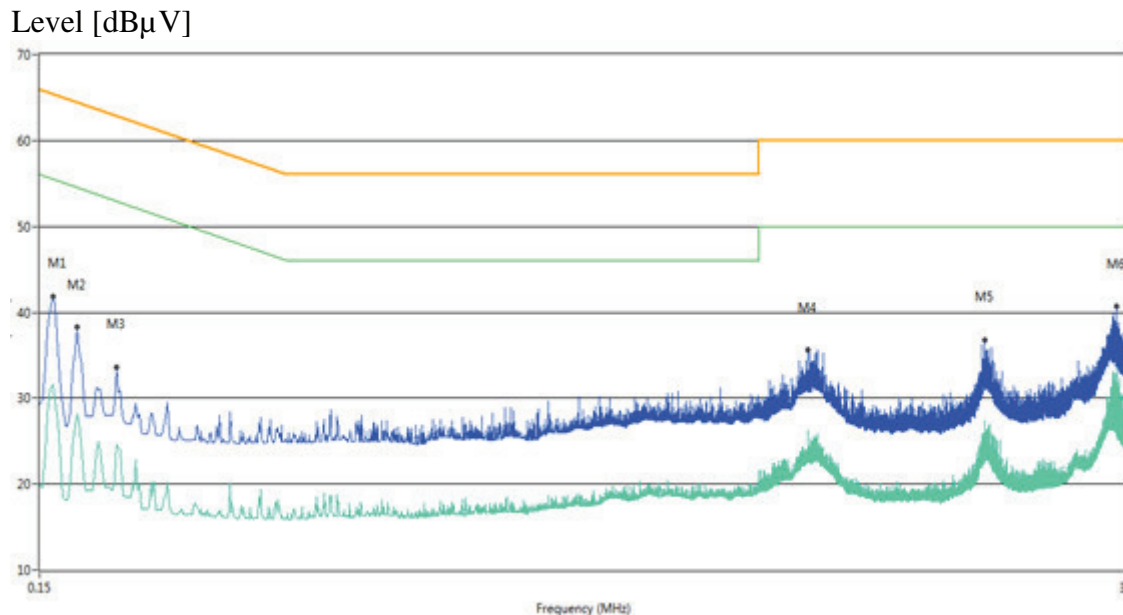
Figure 2: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L2 for EVVO 6000TL3P



Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dBµV)	Factor (dB)	Limit (dBµV)	MargiL2 (dB)	Detector	Line	Verdict
1	0.162	41.9	9.85	65.4	23.50	QP	L2 Line	Pass
1**	0.162	33.0	9.85	55.4	22.40	AV	L2 Line	Pass
2	0.280	36.7	10.51	60.8	24.10	QP	L2 Line	Pass
2**	0.280	27.7	10.51	50.8	23.10	AV	L2 Line	Pass
3	0.480	37.1	11.23	56.3	19.20	QP	L2 Line	Pass
3**	0.480	26.7	11.23	46.3	19.60	AV	L2 Line	Pass
4	1.854	36.2	10.41	56.0	19.80	QP	L2 Line	Pass
4**	1.854	25.9	10.41	46.0	20.10	AV	L2 Line	Pass
5	2.900	38.6	10.84	56.0	17.40	QP	L2 Line	Pass
5**	2.900	27.5	10.84	46.0	18.50	AV	L2 Line	Pass
6	5.398	42.3	9.98	60.0	17.70	QP	L2 Line	Pass
6**	5.398	31.7	9.98	50.0	18.30	AV	L2 Line	Pass

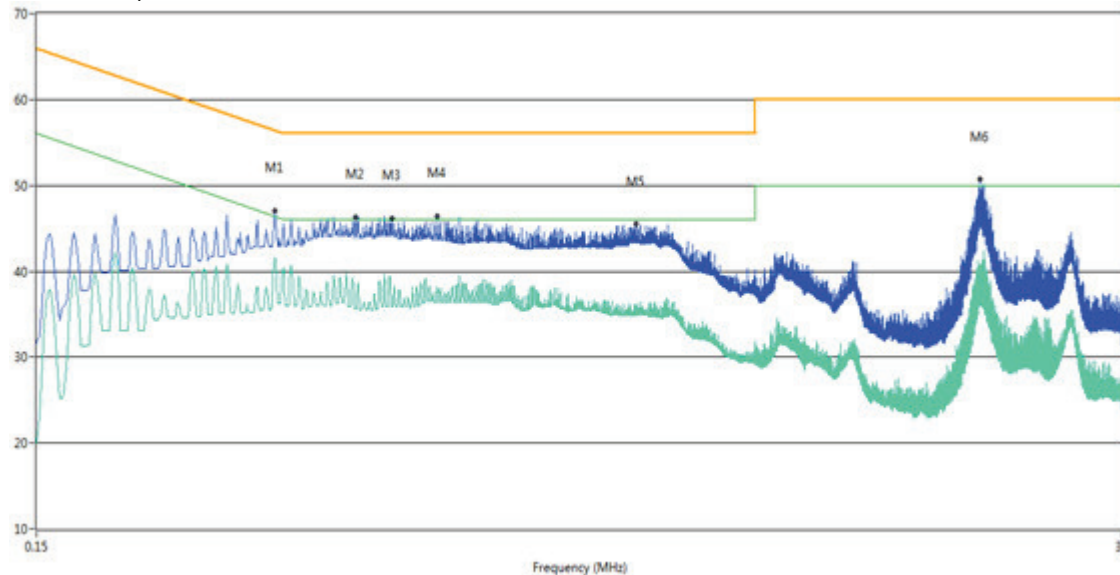
Figure 3: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L3 for EVVO 6000TL3P



Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dBµV)	Factor (dB)	Limit (dBµV)	MargiL3 (dB)	Detector	Line	Verdict
1	0.160	41.8	10.29	65.5	23.70	QP	L3 Line	Pass
1**	0.160	31.5	10.29	55.5	24.00	AV	L3 Line	Pass
2	0.180	38.3	10.47	64.5	26.20	QP	L3 Line	Pass
2**	0.180	28.1	10.47	54.5	26.40	AV	L3 Line	Pass
3	0.218	33.7	11.34	62.9	29.20	QP	L3 Line	Pass
3**	0.218	24.6	11.34	52.9	28.30	AV	L3 Line	Pass
4	6.368	35.6	10.19	60.0	24.40	QP	L3 Line	Pass
4**	6.368	26.3	10.19	50.0	23.70	AV	L3 Line	Pass
5	15.050	36.8	11.40	60.0	23.20	QP	L3 Line	Pass
5**	15.050	27.3	11.40	50.0	22.70	AV	L3 Line	Pass
6	28.670	40.7	11.59	60.0	19.30	QP	L3 Line	Pass
6**	28.670	33.6	11.59	50.0	16.40	AV	L3 Line	Pass

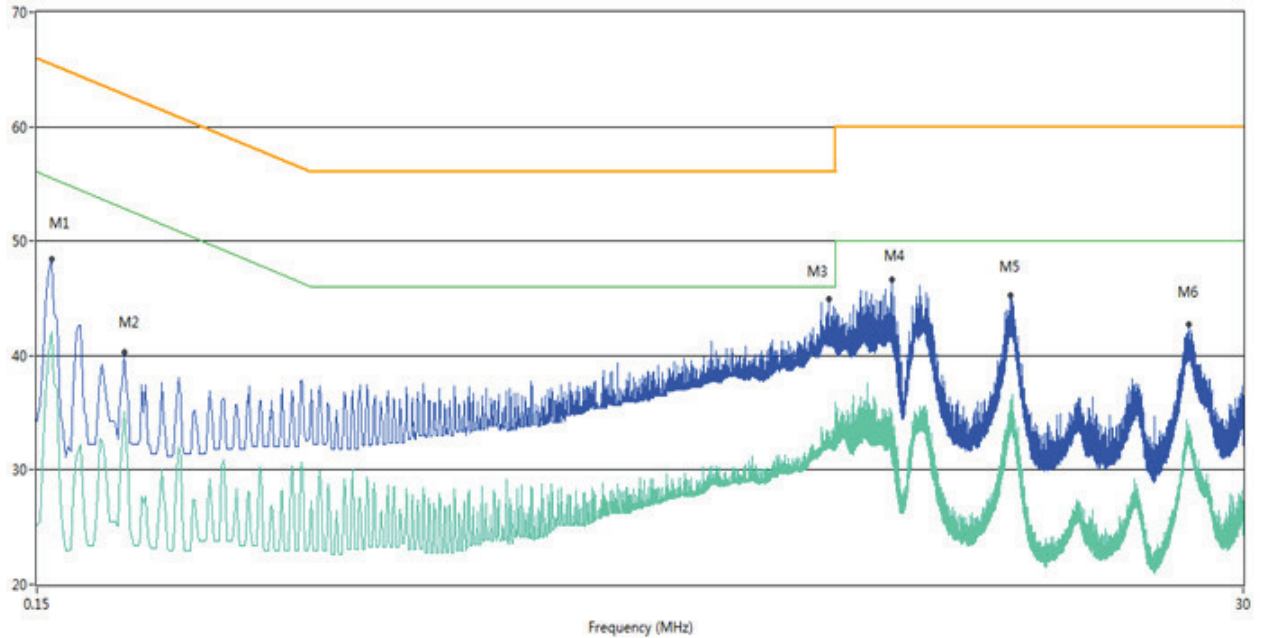
Figure 4: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N for EVVO 6000TL3P
Level [dB μ V]



Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dB μ V)	Factor (dB)	Limit (dB μ V)	MargiN (dB)	Detector	Line	Verdict
1	0.480	47.0	11.23	56.3	9.30	QP	N Line	Pass
1**	0.480	41.6	11.23	46.3	4.70	AV	N Line	Pass
2	0.710	46.3	10.53	56.0	9.70	QP	N Line	Pass
2**	0.710	35.4	10.53	46.0	10.60	AV	N Line	Pass
3	0.850	46.2	10.30	56.0	9.80	QP	N Line	Pass
3**	0.850	35.3	10.30	46.0	10.70	AV	N Line	Pass
4	1.060	46.4	10.72	56.0	9.60	QP	N Line	Pass
4**	1.060	37.5	10.72	46.0	8.50	AV	N Line	Pass
5	2.800	45.5	10.79	56.0	10.50	QP	N Line	Pass
5**	2.800	36.0	10.79	46.0	10.00	AV	N Line	Pass
6	15.012	50.7	11.33	60.0	9.30	QP	N Line	Pass
6**	15.012	40.5	11.33	50.0	9.50	AV	N Line	Pass

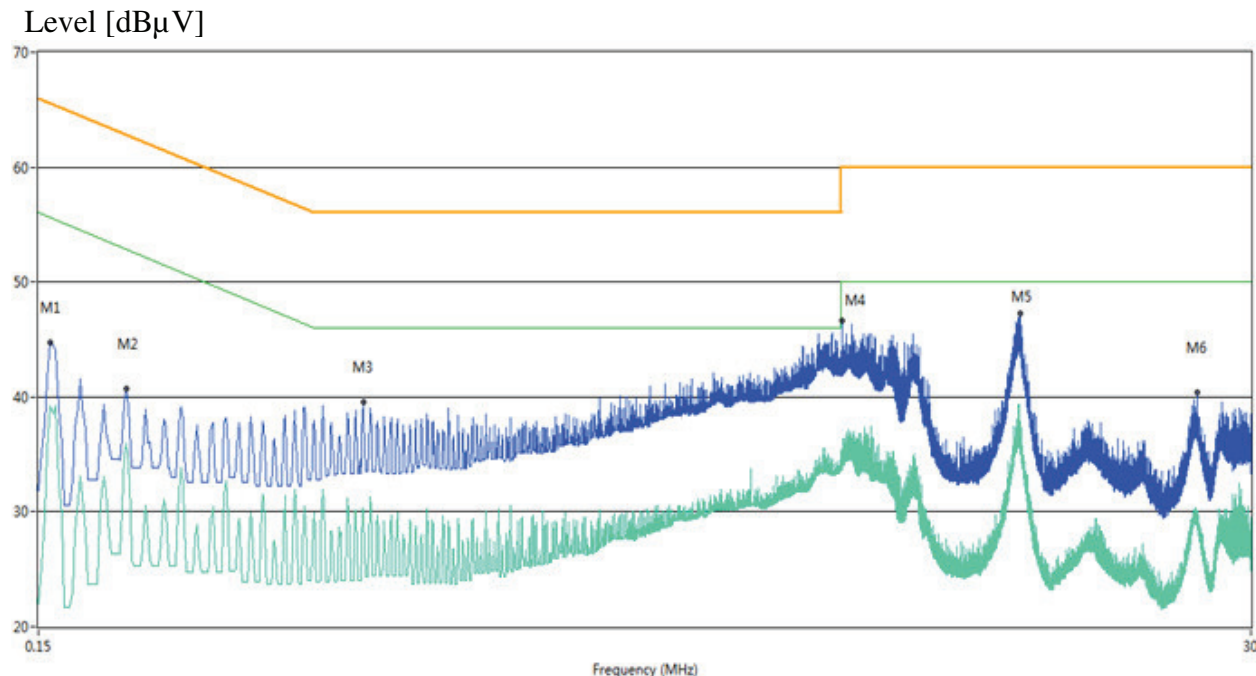
Figure 5: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L1 for EVVO 12000TL3P

 Level [dB μ V]


Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dB μ V)	Factor (dB)	Limit (dB μ V)	MargiL1 (dB)	Detector	Line	Verdict
1	0.160	48.4	10.29	65.5	17.10	QP	L1 Line	Pass
1**	0.160	42.1	10.29	55.5	13.40	AV	L1 Line	Pass
2	0.220	40.3	11.35	62.8	22.50	QP	L1 Line	Pass
2**	0.220	35.1	11.35	52.8	17.70	AV	L1 Line	Pass
3	4.860	45.0	10.11	56.0	11.00	QP	L1 Line	Pass
3**	4.860	32.0	10.11	46.0	14.00	AV	L1 Line	Pass
4	6.408	46.6	10.20	60.0	13.40	QP	L1 Line	Pass
4**	6.408	34.9	10.20	50.0	15.10	AV	L1 Line	Pass
5	10.772	45.3	10.47	60.0	14.70	QP	L1 Line	Pass
5**	10.772	33.2	10.47	50.0	16.80	AV	L1 Line	Pass
6	23.594	42.8	11.53	60.0	17.20	QP	L1 Line	Pass
6**	23.594	34.0	11.53	50.0	16.00	AV	L1 Line	Pass

Figure 6: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L2 for EVVO 12000TL3P

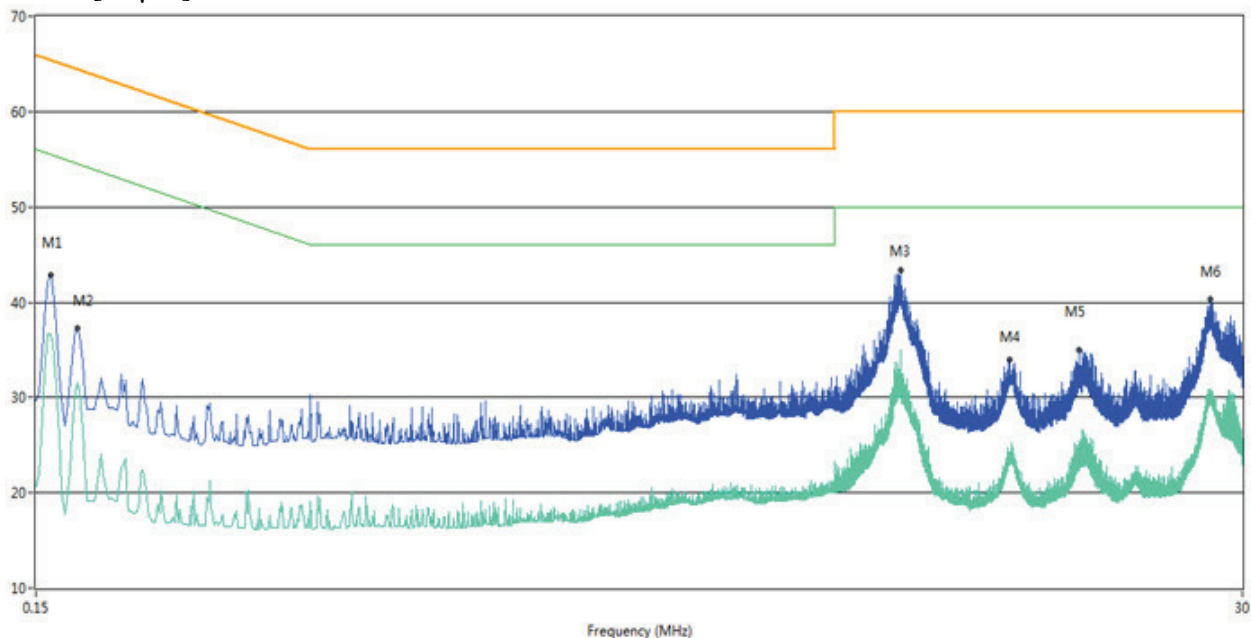


Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dBµV)	Factor (dB)	Limit (dBµV)	MargiL2 (dB)	Detector	Line	Verdict
1	0.158	44.8	10.41	65.6	20.80	QP	L2 Line	Pass
1**	0.158	39.3	10.41	55.6	16.30	AV	L2 Line	Pass
2	0.220	40.7	11.35	62.8	22.10	QP	L2 Line	Pass
2**	0.220	36.0	11.35	52.8	16.80	AV	L2 Line	Pass
3	0.620	39.6	11.05	56.0	16.40	QP	L2 Line	Pass
3**	0.620	30.0	11.05	46.0	16.00	AV	L2 Line	Pass
4	5.036	46.6	10.12	60.0	13.40	QP	L2 Line	Pass
4**	5.036	34.4	10.12	50.0	15.60	AV	L2 Line	Pass
5	10.930	47.3	10.35	60.0	12.70	QP	L2 Line	Pass
5**	10.930	36.8	10.35	50.0	13.20	AV	L2 Line	Pass
6	23.730	40.4	11.45	60.0	19.60	QP	L2 Line	Pass
6**	23.730	29.9	11.45	50.0	20.10	AV	L2 Line	Pass

Figure 7: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L3 for EVVO 12000TL3P

Level [dB μ V]

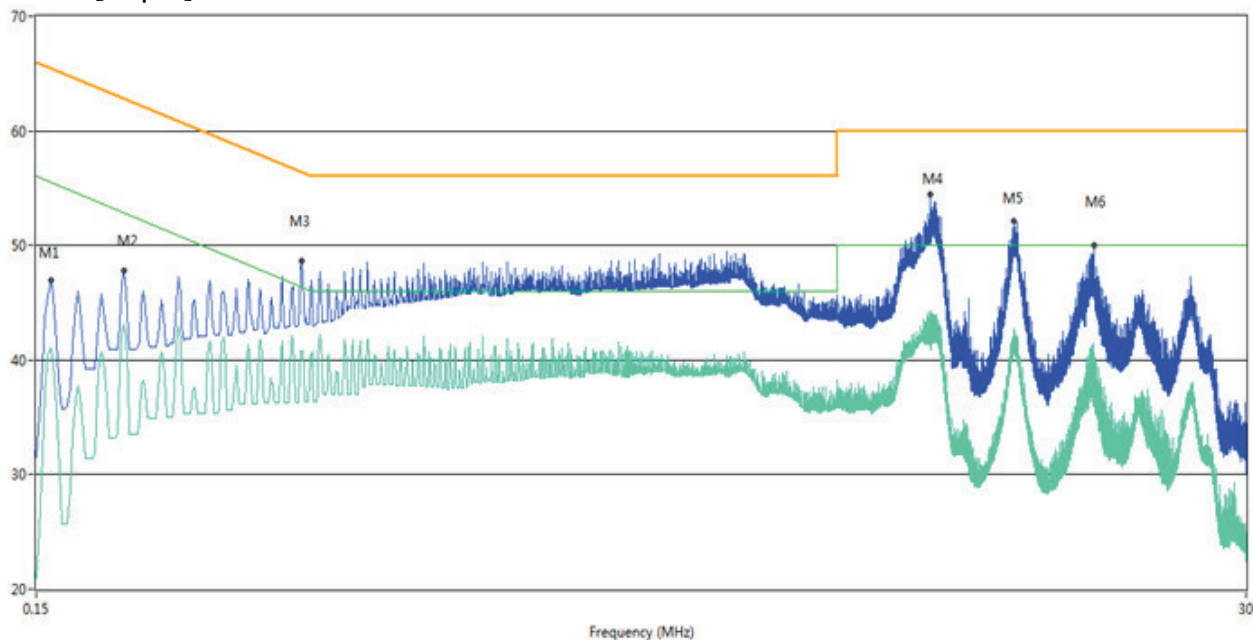


Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dB μ V)	Factor (dB)	Limit (dB μ V)	MargiL3 (dB)	Detector	Line	Verdict
1	0.160	42.8	10.29	65.5	22.70	QP	L3 Line	Pass
1**	0.160	36.7	10.29	55.5	18.80	AV	L3 Line	Pass
2	0.180	37.3	10.47	64.5	27.20	QP	L3 Line	Pass
2**	0.180	31.6	10.47	54.5	22.90	AV	L3 Line	Pass
3	6.688	43.4	10.26	60.0	16.60	QP	L3 Line	Pass
3**	6.688	31.6	10.26	50.0	18.40	AV	L3 Line	Pass
4	10.786	33.9	10.39	60.0	26.10	QP	L3 Line	Pass
4**	10.786	24.3	10.39	50.0	25.70	AV	L3 Line	Pass
5	14.672	35.0	11.29	60.0	25.00	QP	L3 Line	Pass
5**	14.672	23.8	11.29	50.0	26.20	AV	L3 Line	Pass
6	26.124	40.4	11.73	60.0	19.60	QP	L3 Line	Pass
6**	26.124	29.9	11.73	50.0	20.10	AV	L3 Line	Pass

Figure 8: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N for EVVO 12000TL3P

Level [dB μ V]



Final quasi-peak and average measurement results:

No.	Frequency (MHz)	Results (dB μ V)	Factor (dB)	Limit (dB μ V)	MargiN (dB)	Detector	Line	Verdict
1	0.160	46.9	10.29	65.5	18.60	QP	N Line	Pass
1**	0.160	41.1	10.29	55.5	14.40	AV	N Line	Pass
2	0.220	47.8	11.35	62.8	15.00	QP	N Line	Pass
2**	0.220	43.1	11.35	52.8	9.70	AV	N Line	Pass
3	0.480	48.7	11.23	56.3	7.60	QP	N Line	Pass
3**	0.480	40.7	11.23	46.3	5.60	AV	N Line	Pass
4	7.508	54.5	10.13	60.0	5.50	QP	N Line	Pass
4**	7.508	40.6	10.13	50.0	9.40	AV	N Line	Pass
5	10.840	52.1	10.46	60.0	7.90	QP	N Line	Pass
5**	10.840	41.9	10.46	50.0	8.10	AV	N Line	Pass
6	15.382	50.0	11.37	60.0	10.00	QP	N Line	Pass
6**	15.382	40.1	11.37	50.0	9.90	AV	N Line	Pass

4.2 Emission in the Frequency Range above 30 MHz

4.2.1 Radiated Emission

Result:	Passed
----------------	---------------

Date of testing	: 04.07.2017
Port	: Enclosure
Test procedure	: EN 61000-6-3:2007+A1 and CISPR 16-2-3:2006
Limit	: Table 1 of EN 61000-6-3:2007+A1: Quasi-peak limits (10m measurement distance): 30-230MHz, 30dB μ V/m; 230-1000MHz, 37dB μ V/m
Frequency range	: 30-1000MHz (see Note 1)
Kind of test site	: Semi-anechoic chamber
Test distance	: 10m
Input voltage	: PV input port: DC 600V; AC output port: AC 400V, 50Hz
Operational mode	: Operated continuously with full load
Earthing	: Earthing through plug cord. (as class I equipment)
Ambient condition	: Temperature: 25°C; Relative humidity: 55%
Expanded measurement uncertainty ($k=2$)	: 4.16dB

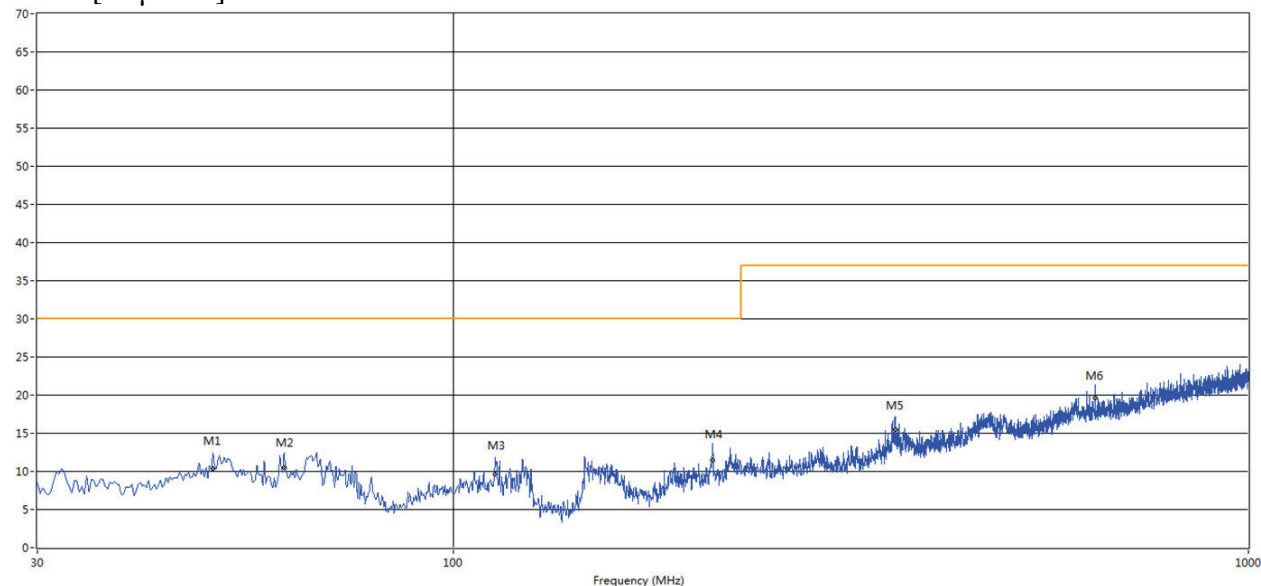
The radiated disturbance test was carried out in a semi-anechoic chamber. The test distance from the receiving antenna to the EUT is 3m. The normalized site attenuation of the semi-anechoic chamber is regularly calibrated to ensure the radiated disturbance test results are valid. During the test, the EUT was placed on a wooden table, which is 0.8m high. The wooden table was rotated 360° around and the antenna was varied from 1m to 4m to find the maximum disturbance. The test was performed with the antenna both in its horizontal and vertical polarizations.

The following figures and tables were those measured by an automatic measurement system. A preview test was firstly performed with peak detector. The final test was performed with quasi-peak detector at those critical frequencies during the preview test. In the following figure, “●” means measurement results with quasi-peak detector.

Note 1: The highest frequency of the internal sources of the EUT is less than 108 MHz, so according to Note c of Table 1 in EN 61000-6-3:2007+A1 this measurement was only performed up to 1GHz.

Figure 9: Spectral Diagrams and measurement results, horizontal polarization for EVVO 6000TL3P

Level [dB μ V/m]

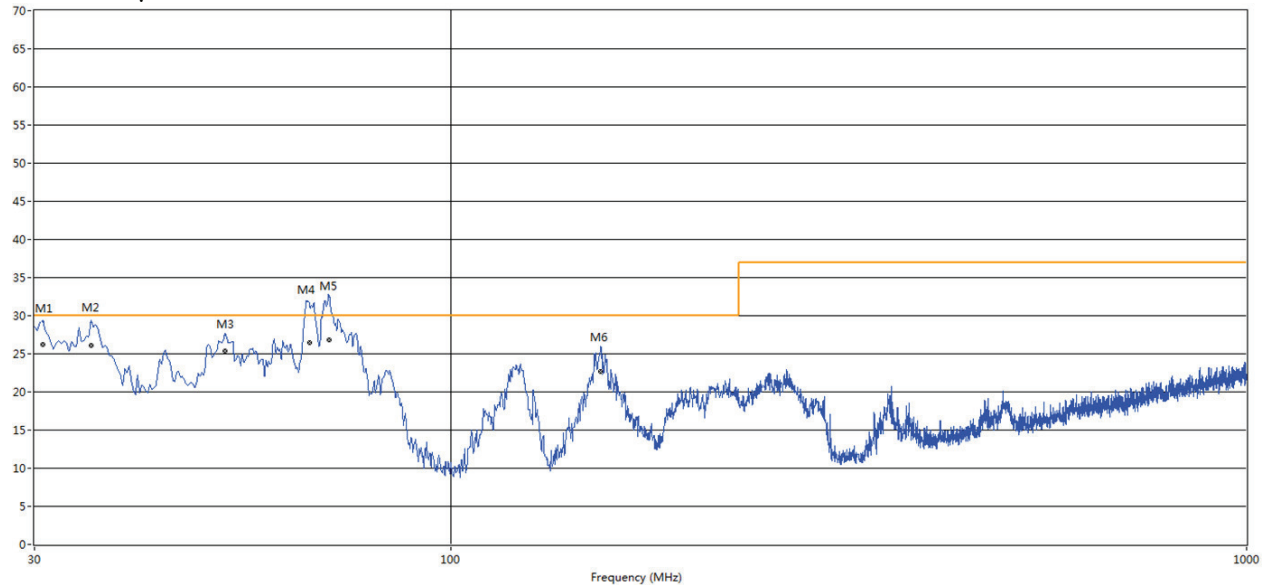


Final Quasi-peak measurement result:

No.	Frequency (MHz)	Results (dB μ V/m)	Factor (dB)	Limit (dB μ V/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	49.88	10.09	-13.37	30.0	19.91	QP	349.45	126.00	Horizontal	Pass
2	61.27	10.64	-15.16	30.0	19.36	QP	106.48	179.00	Horizontal	Pass
3	112.91	9.85	-15.90	30.0	20.15	QP	127.70	312.00	Horizontal	Pass
4	211.83	11.71	-15.12	30.0	18.29	QP	319.02	241.00	Horizontal	Pass
5	359.48	15.29	-10.60	37.0	21.71	QP	124.72	224.00	Horizontal	Pass
6	641.92	19.34	-5.03	37.0	17.66	QP	270.85	176.00	Horizontal	Pass

Figure 10: Spectral Diagrams and measurement results, vertical polarization for EVVO 6000TL3P

Level [dB μ V/m]

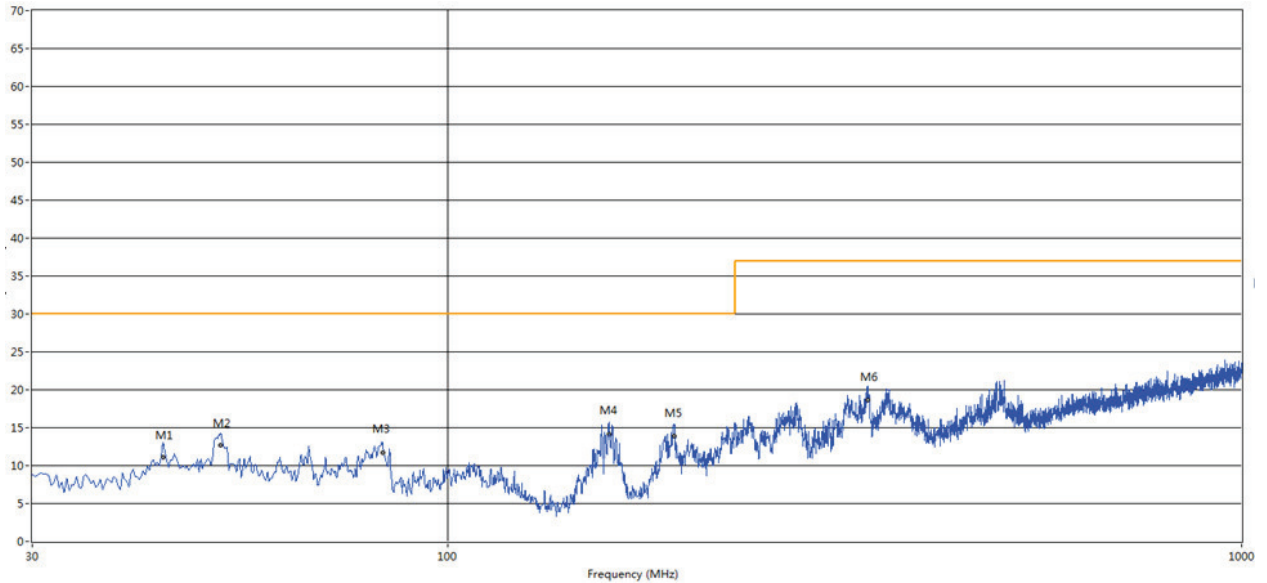


Final Quasi-peak measurement result:

No.	Frequency (MHz)	Results (dB μ V/m)	Factor (dB)	Limit (dB μ V/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	30.73	25.89	-16.71	30.0	4.11	QP	18.75	168.00	Vertical	Pass
2	35.33	25.43	-16.18	30.0	4.57	QP	118.81	176.00	Vertical	Pass
3	52.06	25.03	-13.37	30.0	4.97	QP	262.93	253.00	Vertical	Pass
4	65.88	26.18	-15.95	30.0	3.82	QP	355.28	276.00	Vertical	Pass
5	70.25	26.81	-17.62	30.0	3.19	QP	52.67	312.00	Vertical	Pass
6	154.37	23.46	-18.40	30.0	6.54	QP	7.07	171.00	Vertical	Pass

Figure 11: Spectral Diagrams and measurement results, horizontal polarization for EVVO 12000TL3P

Level [dB μ V/m]

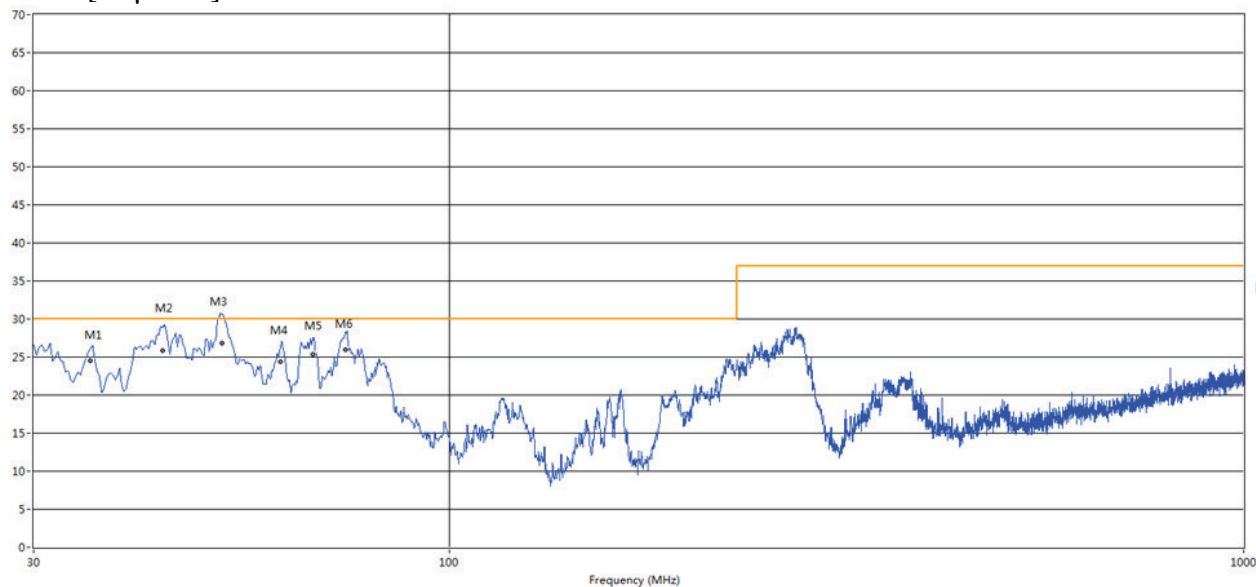


Final Quasi-peak measurement result:

No.	Frequency (MHz)	Results (dB μ V/m)	Factor (dB)	Limit (dB μ V/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	43.82	11.83	-13.41	30.0	18.17	QP	13.31	153.00	Horizontal	Pass
2	51.82	12.96	-13.37	30.0	17.04	QP	3.31	165.00	Horizontal	Pass
3	82.85	12.03	-18.93	30.0	17.97	QP	50.52	247.00	Horizontal	Pass
4	159.71	14.71	-18.08	30.0	15.29	QP	24.50	253.00	Horizontal	Pass
5	192.68	14.48	-15.62	30.0	15.52	QP	32.51	178.00	Horizontal	Pass
6	338.38	19.02	-10.95	37.0	17.98	QP	206.70	169.00	Horizontal	Pass

Figure 12: Spectral Diagrams and measurement results, vertical polarization for EVVO 12000TL3P

Level [dB μ V/m]



Final Quasi-peak measurement result:

No.	Frequency (MHz)	Results (dB μ V/m)	Factor (dB)	Limit (dB μ V/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	35.58	24.57	-16.08	30.0	5.43	QP	195.05	126.00	Vertical	Pass
2	43.82	25.51	-13.41	30.0	4.49	QP	193.79	223.00	Vertical	Pass
3	51.58	26.26	-13.37	30.0	3.74	QP	350.75	278.00	Vertical	Pass
4	61.52	24.74	-15.19	30.0	5.26	QP	263.92	215.00	Vertical	Pass
5	67.58	25.14	-16.56	30.0	4.86	QP	39.58	156.00	Vertical	Pass
6	74.12	25.97	-18.98	30.0	4.13	QP	19.07	175.00	Vertical	Pass

5 Test Results IMMUNITY

During the immunity tests, the EUT was operated under conditions specified by clause 3.1 of this report.

The particular performance criterion for the immunity tests are as listed in clause 4 of EN 61000-6-2:2005 is listed as follows:

Performance criterion A: The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of those may be derived from the product description and documentation, and from what the user may reasonably expect from apparatus if used as intended.

Performance criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of those may be derived from the product description and documentation, and from what the user may reasonably expect from apparatus if used as intended.

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

5.1 Enclosure

5.1.1 Electrostatic Discharge

Result:	Passed
----------------	---------------

The immunity against electrostatic discharge was tested in accordance with EN 61000-6-2:2005. Test setup and ESD-Generator are according to IEC 61000-4-2 which is specified by EN 61000-6-2:2005.

The EUT is placed on 0.8m wood table above the ground plane. And the minimum distance between the EUT and all other conductive structures except the ground plane beneath the EUT is more than 0.5m.

The reference ground plane is an aluminium sheet of 0.25mm minimum thickness. The reference ground plane is connected to the protective earth. The size of the ground plane is 2m x 2m.

A horizontal coupling plane (HCP), 1.6m x 0.8m, placed on the table and isolate the EUT 0.5mm thick. Vertical coupling plane of dimensions 0.5m x 0.5m is placed parallel to and positioned at a distance of 0.1m from the EUT.

Test date	: 17.06.2017
Test procedure	: IEC 61000-4-2 : Table 1 of EN 61000-6-2:2005
Test level	: ±2.0kV, ±4.0kV contact discharge; : ±2.0kV, ±4.0kV, ±8.0kV air discharge
Polarity	: Positive / Negative
Number of discharges	: 10 at each point
Input voltage	: PV input port: DC 600V; AC output port: AC 400V, 50Hz
Operational mode	: Operated continuously with light load (1kW)
Performance criteria	: B
Ambient condition	: Temperature: 25°C, Relative humidity: 55%, Pressure: 102kPa

Table 12: ESD, Positive/Negative Polarity for EVVO 12000TL3P

Position	Kind of Discharge	Result	Remarks
Plastic enclosure, display screen	Air discharge	Pass	No disturbance of function
Screws, shell	Contact discharge	Pass	No disturbance of function
Buttons, signal lines	Air discharge	Pass	No disturbance of function
AC power lines	Air discharge	Pass	No disturbance of function
DC power lines	Air discharge	Pass	No disturbance of function
Coupling plane (Both HCP and VCP)	Contact discharge	Pass	No disturbance of function

5.1.2 RF radiated immunity test

Result:

Passed

The test was performed inside a 3 m fully-anechoic chamber. The distance between the tip of the antenna and the side of system tested is 3m. The field uniformity of the 1.5mx1.5m plane where the surface of the EUT tested coincides with is regularly calibrated to ensure the 0-6dB field uniformity criterion as specified by IEC 61000-4-3 is met.

The four sides of the system were tested sequentially. The test was performed with the electric field in horizontal and vertical polarizations respectively.

Test date : 20.06.2017
 Basic standard : IEC 61000-4-3
 Test level : Table 1 of EN 61000-6-2:2005:
 80-1000MHz, 10V/m
 : 1.4-2.0GHz, 3V/m
 2.0-2.7GHz, 1V/m
 Step size : 1%
 Modulation : 80% AM, 1kHz
 Dwell time : 3s
 Input voltage : PV input port: DC 600V; AC output port: AC 400V, 50Hz
 Operational mode : Operated continuously with light load (1kW)
 Performance criteria : A
 Ambient condition : Temperature: 22°C, Relative humidity: 54%

Table 13: RF radiated immunity test results for EVVO 12000TL3P

Field polarization	Position	Result	Observation
Horizontal polarization	Front side	Pass	No disturbance of function.
	Rear side		
	Left side		
	Right side		
Vertical polarization	Front side	Pass	No disturbance of function.
	Rear side		
	Left side		
	Right side		

5.1.3 Power frequency magnetic field

Result:	Passed
----------------	---------------

Test date : 17.06.2017
 Test procedure : IEC 61000-4-8
 Test level : Table 1 of EN 61000-6-2:2005, 30A/m
 Field polarization : X, Y, Z
 Frequency : 50Hz & 60Hz
 Input voltage : PV input port: DC 600V; AC output port: AC 400V, 50Hz
 Operational mode : Operated continuously with light load (1kW)
 Performance criteria : A
 Ambient condition : Temperature: 25°C, Relative humidity: 55%

Table 14: Power frequency magnetic field test results for EVVO 12000TL3P

Field polarization	Result	Remarks
X	Pass	During the test, the EUT can operate as intended
Y	Pass	During the test, the EUT can operate as intended
Z	Pass	During the test, the EUT can operate as intended

5.2 Power Port, Signal and Interconnecting Cable

5.2.1 Electrical fast transients and bursts

Result:	Passed
----------------	---------------

Test setup and the fast transient noise generator was according to IEC 61000-4-4 which is specified by EN 61000-6-2:2005.

The EUT is placed on 0.1m wood support above the reference ground plane. And the minimum distance between the EUT and all other conductive structures except the ground plane beneath the EUT is more than 0.5m.

The length between the coupling device and the EUT is less than 0.5m. The excess length of the cable shall be folded to avoid a flat coil and situated at a distance of 0.1m above the ground reference plane.

The reference ground plane is an aluminium sheet of 0.25mm minimum thickness. The reference ground plane is connected to the protective earth. The size of the ground plane is 2m x 2m.

Test date	: 17.06.2017
Test procedure	: IEC 61000-4-4
Test level	: Table 2, 3, 4 of EN 61000-6-2:2005, ±1kV, 5kHz for signal port ±2kV, 5kHz for DC power port ±2kV, 5kHz for AC power port
Polarity	: +/-
Coupling duration	: 2min/polarity
Performance criteria	: B
Input voltage	: PV input port: DC 600V; AC output port: AC 400V, 50Hz
Operational mode	: Operated continuously with light load (1kW)
Ambient condition	: Temperature: 25°C, Relative humidity: 55%

Table 15: EFT/B immunity test results for EVVO 12000TL3P

Tested cable	Result	Coupling	Remarks
AC power port (L1+L2+L3+N+PE-GRP)	Pass	CDN	During and after the test, the EUT can operate as intended.
PV port (DC power port)	Pass	Capacitive coupling clamp	During and after the test, the EUT can operate as intended.

5.2.2 Surges

Result:

N/A

Test setup and test generator were according to IEC 61000-4-5 which is specified by EN 61000-6-2:2005. The EUT is placed on the reference ground plane.

Test date : 29.06.2017
 Test procedure : IEC 61000-4-5
 Test level : Table 3, 4 of EN 61000-6-2:2005
 ±0.5kV(DC power ports, line-to-earth);
 ±0.5kV(DC power ports, line-to-line)
 ±2kV(AC power ports, line-to-earth);
 ±1kV (AC power ports, line-to-line)
 T_r/T_n : 1.2/50µs (open-circuit voltage)
 8/20µs (short-circuit current)
 Polarity : Positive / Negative
 Pulse number : 5 pulses for each polarity
 Coupling phase : 0°, 90°, 180° and 270°
 Repetition rate : 1 pulse/min
 Performance criteria : B
 Input voltage : PV input port: DC 600V; AC output port: AC 400V, 50Hz
 Operational mode : Operated continuously with light load (1kW)
 Ambient condition : Temperature: 25°C, Relative humidity: 55%

Table 16: Surge immunity test results for EVVO 12000TL3P

Coupling mode	Result	Remarks
L1-L2, L1-L3, L2-L3	Pass	During and after the test, the EUT can operate as intended
L1-N, L2-N, L3-N	Pass	During and after the test, the EUT can operate as intended
L1-PE, L2-PE, L3-PE, N-PE	Pass	During and after the test, the EUT can operate as intended
PV port (DC power port)	Pass	During and after the test, the EUT can operate as intended

5.2.3 Conducted disturbances, induced by RF fields

Result:

Passed

Test setup and the test generator were according to IEC 61000-4-6 which is specified by EN 61000-6-2:2005.

The EUT is placed on a ground reference plane and shall be insulated from it by an insulating support 0.1m thick. And the minimum distance between the EUT and all other conductive structures except the ground plane beneath the EUT is more than 0.5m.

The coupling and decoupling networks was placed on the ground reference plane, making direct contact with it at about 0.1-0.3 meter from EUT. The cable between EUT and CDN is as short as possible and not bundled nor wrapped. The height of cable between the EUT and the coupling and decoupling networks above the ground reference plane was 50mm.

Test date : 17.06.2017
 Basic standard : IEC 61000-4-6
 Test level : Table 2, 3, 4 of EN 61000-6-2:2005, 10V
 Frequency range : 0.15 – 80 MHz
 Modulation : 80%AM, 1kHz
 Frequency scan speed : Frequency step: 1%; dwell time: 3s
 Performance criteria : A
 Input voltage : PV input port: DC 600V; AC output port: AC 400V, 50Hz
 Operational mode : Operated continuously with light load (1kW)
 Ambient condition : Temperature: 25°C, Relative humidity: 55%

Table 17: Injected current measurement results for EVVO 12000TL3P

Coupling mode	Result	Remarks
AC power port	Pass	During and after the test, the EUT can operate as intended
PV port (DC power port)	Pass	During and after the test, the EUT can operate as intended

5.2.4 Voltage dips and interruptions to AC Power Port

Result:

N/A

The EUT only has AC output port. According to Note c of Table 4 in EN 61000-6-2:2005, this requirement is only applicable to input ports. Therefore, this requirement is not applicable.

6 Photographs of the Test Set-Up

Refer to test report 50090472 001 for all the photographs of test set-up.

7 List of Tables

Table 1: List of Test and Measurement Equipment	5
Table 2: Harmonic currents measurement result for L1 of EVVO 6000TL3P	10
Table 3: Harmonic currents measurement result for L2 of EVVO 6000TL3P	11
Table 4: Harmonic currents measurement result for L3 of EVVO 6000TL3P	12
Table 5: Harmonic currents measurement result for EVVO 12000TL3P	13
Table 6: Voltage fluctuations and flicker measurement results for L1 of EVVO 6000TL3P	14
Table 7: Voltage fluctuations and flicker measurement results for L2 of EVVO 6000TL3P	14
Table 8: Voltage fluctuations and flicker measurement results for L3 of EVVO 6000TL3P	14
Table 9: Voltage fluctuations and flicker measurement results for L1 of EVVO 12000TL3P	14
Table 10: Voltage fluctuations and flicker measurement results for L2 of EVVO 12000TL3P	15
Table 11: Voltage fluctuations and flicker measurement results for L3 of EVVO 12000TL3P	15
Table 12: ESD, Positive/Negative Polarity for EVVO 12000TL3P	31
Table 13: RF radiated immunity test results for EVVO 12000TL3P	32
Table 14: Power frequency magnetic field test results for EVVO 12000TL3P	33
Table 15: EFT/B immunity test results for EVVO 12000TL3P	34
Table 16: Surge immunity test results for EVVO 12000TL3P	35
Table 17: Injected current measurement results for EVVO 12000TL3P	36

8 List of Figures

Figure 1: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L1 for EVVO 6000TL3P.....	17
Figure 2: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L2 for EVVO 6000TL3P.....	18
Figure 3: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L3 for EVVO 6000TL3P.....	19
Figure 4: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N for EVVO 6000TL3P	20
Figure 5: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L1 for EVVO 12000TL3P.....	21
Figure 6: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L2 for EVVO 12000TL3P.....	22
Figure 7: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, L3 for EVVO 12000TL3P.....	23
Figure 8: Spectral Diagrams, Conducted Emission, 150kHz - 30MHz, N for EVVO 12000TL3P	24
Figure 9: Spectral Diagrams and measurement results, horizontal polarization for EVVO 6000TL3P.....	26
Figure 10: Spectral Diagrams and measurement results, vertical polarization for EVVO 6000TL3P.....	27
Figure 11: Spectral Diagrams and measurement results, horizontal polarization for EVVO 12000TL3P.....	28
Figure 12: Spectral Diagrams and measurement results, vertical polarization for EVVO 12000TL3P.....	29

End of test report