



Danfoss Solar Inverters A/S
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Introduction

The Danfoss inverters ULX 1800, ULX 3000, ULX 3600 and ULX 5400 have been tested in accordance with EN61000-3-2 and EN61000-3-12. The tests were conducted on a Spitzenberger grid simulator.

Conclusion

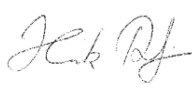
The inverters have passed the tests.

Test conditions

Date	Inverter parameter Serial no.
2004-11-16	1.5 kw 001310H1404
2004-02-06	3 kw No.203
2004-11-16	4.5 kw 020700H2904

Test Equipment

No.	Equipment	Manufacturer
1	Grid simulator - Danfoss Drives	Spitzenberger

Date	Approved by
2010-09-14	 Henrik Raunkjær Vice President Danfoss Solar Inverters A/S

Result

Date:	2004-11-16		
Device:	Danfoss		
Type:	ULX 1800, 240V, max. 8A		
Voltage:	230.78 Vrms	THDv:	0.01%
Current:	7.526 Arms	THDi:	5.01%
Power:	-1721.2 W		
Power factor:	-0.991		
Test:	Harmonic Analysis EN 61000-3-2		
Result:	Passed		

Harmonic	EN61000-3-2 Class A	Worst 2.5 min avg	PASS	FAIL
DC	-	0.0289 A	X	
1	-	7.4728 A	X	
2	1.0800 A	0.0356 A	X	
3	2.3000 A	0.2585 A	X	
4	0.4300 A	0.0172 A	X	
5	1.1400 A	0.1930 A	X	
6	0.3000 A	0.0180 A	X	
7	0.7700 A	0.1244 A	X	
8	0.2300 A	0.0178 A	X	
9	0.4000 A	0.0651 A	X	
10	0.1840 A	0.0096 A	X	
11	0.3300 A	0.0496 A	X	
12	0.1533 A	0.0069 A	X	
13	0.2100 A	0.0552 A	X	
14	0.1314 A	0.0051 A	X	
15	0.1500 A	0.0453 A	X	
16	0.1150 A	0.0051 A	X	
17	0.1324 A	0.0404 A	X	
18	0.1022 A	0.0030 A	X	
19	0.1184 A	0.0316 A	X	
20	0.0920 A	0.0032 A	X	
21	0.1071 A	0.0319 A	X	
22	0.0836 A	0.0020 A	X	
23	0.0978 A	0.0271 A	X	
24	0.0767 A	0.0025 A	X	
25	0.0900 A	0.0225 A	X	
26	0.0708 A	0.0018 A	X	
27	0.0833 A	0.0211 A	X	
28	0.0657 A	0.0019 A	X	
29	0.0776 A	0.0201 A	X	
30	0.0613 A	0.0012 A	X	
31	0.0726 A	0.0151 A	X	
32	0.0575 A	0.0013 A	X	
33	0.0682 A	0.0114 A	X	
34	0.0541 A	0.0010 A	X	
35	0.0643 A	0.0080 A	X	
36	0.0511 A	0.0014 A	X	
37	0.0608 A	0.0060 A	X	
38	0.0484 A	0.0484 A	X	
39	0.0577 A	0.0577 A	X	
40	0.0460 A	0.0460 A	X	

Result

Date:	2004-02-06		
Device:	Danfoss		
Type:	ULX 3000 / ULX 3600, 240V, max. 13A		
Voltage:	231.17 Vrms	THDv:	0.01%
Current:	12.217 Arms	THDi:	4.68%
Power:	-2814.9 W		
Power factor:	-0.997		
Test:	Harmonic Analysis EN 61000-3-2		
Result:	Passed		

Harmonic	EN61000-3-2 Class A	Worst 2.5 min avg	PASS	FAIL
DC	-	-0.0164 A		
1	-	12.1868 A	X	
2	1.0800 A	0.0345 A	X	
3	2.3000 A	0.3065 A	X	
4	0.4300 A	0.0118 A	X	
5	1.1400 A	0.2699 A	X	
6	0.3000 A	0.0082 A	X	
7	0.7700 A	0.1889 A	X	
8	0.2300 A	0.0188 A	X	
9	0.4000 A	0.2163 A	X	
10	0.1840 A	0.0145 A	X	
11	0.3300 A	0.1628 A	X	
12	0.1533 A	0.0196 A	X	
13	0.2100 A	0.0593 A	X	
14	0.1314 A	0.0235 A	X	
15	0.1500 A	0.1414 A	X	
16	0.1150 A	0.0157 A	X	
17	0.1324 A	0.0506 A	X	
18	0.1022 A	0.0091 A	X	
19	0.1184 A	0.0718 A	X	
20	0.0920 A	0.0042 A	X	
21	0.1071 A	0.0545 A	X	
22	0.0836 A	0.0039 A	X	
23	0.0978 A	0.0460 A	X	
24	0.0767 A	0.0040 A	X	
25	0.0900 A	0.0441 A	X	
26	0.0708 A	0.0030 A	X	
27	0.0833 A	0.0306 A	X	
28	0.0657 A	0.0018 A	X	
29	0.0776 A	0.0298 A	X	
30	0.0613 A	0.0017 A	X	
31	0.0726 A	0.0260 A	X	
32	0.0575 A	0.0019 A	X	
33	0.0682 A	0.0181 A	X	
34	0.0541 A	0.0014 A	X	
35	0.0643 A	0.0254 A	X	
36	0.0511 A	0.0017 A	X	
37	0.0608 A	0.0159 A	X	
38	0.0484 A	0.0010 A	X	
39	0.0577 A	0.0228 A	X	
40	0.0460 A	0.0012 A	X	

Result

Date:	2004-02-06		
Device:	Danfoss		
Type:	ULX 5400, 240V, max. 23A		
Voltage:	230.77 Vrms	THDv:	0.02%
Current:	20.832 Arms	THDi:	3.79%
Power:	-4790.3 W		
Power factor:	-0.996		
Test:	Harmonic Analysis EN 61000-3-12		
Result:	Passed		

Harmonic	EN61000-3-12 Stage 1	Worst 2.5 min avg	PASS	FAIL
DC	-	0.2080 A		
1	-	20.7248 A	X	
2	0.8309 A	0.0299 A	X	
3	4.4869 A	0.4169 A	X	
4	0.4155 A	0.0338 A	X	
5	2.2227 A	0.3613 A	X	
6	0.2770 A	0.0217 A	X	
7	1.4956 A	0.2465 A	X	
8	0.2077 A	0.0264 A	X	
9	0.7894 A	0.2251 A	X	
10	0.1662 A	0.0137 A	X	
11	0.6440 A	0.2212 A	X	
12	0.1385 A	0.0219 A	X	
13	0.4155 A	0.1733 A	X	
14	0.1187 A	0.0122 A	X	
15	----- A	0.1511 A	X	
16	0.1039 A	0.0080 A	X	
17	----- A	0.1409 A	X	
18	0.0923 A	0.0104 A	X	
19	----- A	0.1231 A	X	
20	0.0831 A	0.0055 A	X	
21	----- A	0.1043 A	X	
22	0.0755 A	0.0048 A	X	
23	----- A	0.0955 A	X	
24	0.0692 A	0.0037 A	X	
25	----- A	0.0774 A	X	
26	0.0639 A	0.0029 A	X	
27	----- A	0.0649 A	X	
28	0.0639 A	0.0028 A	X	
29	----- A	0.0534 A	X	
30	0.0554 A	0.0024 A	X	
31	----- A	0.0387 A	X	
32	0.0519 A	0.0024 A	X	
33	----- A	0.0300 A	X	
34	0.0489 A	0.0021 A	X	
35	----- A	0.0228 A	X	
36	0.0511 A	0.0022 A	X	
37	----- A	0.0205 A	X	
38	0.0437 A	0.0021 A	X	
39	----- A	0.0225 A	X	
40	0.0415 A	0.0020 A	X	