Extract from Test report for unit certificate: **28110272 004**
"Determination of electrical properties"

Extract No: 1 _ **Annex F.3** (VDE-AR-N 4105)

Type of System:	Solar Grid tied inverter
System Manufacturer:	POWER-ONE ITALY S.P.A. Via S. Giorgio, 642 52028 Terranuova Bracciolini. Arezzo. Italy
Reference test report:	**28110272 004**
Measuring period:	20/12/2016 – 20/01/2017
Active Power [P_{Emax}]: *(nominal power at reference conditions)*	**Model** / **Power** UNO-DM-5.0-TL-PLUS / 5000W UNO-DM-4.6-TL-PLUS / 4600W UNO-DM-4.0-TL-PLUS / 4000W UNO-DM-3.3-TL-PLUS / 3000W UNO-DM-2.0-TL-PLUS / 2000W UNO-DM-1.2-TL-PLUS / 1200W
Rated Voltage:	230 V (Phase/ Neutral)

Reactive power reference										
Active Power P/P_n [%]	10	20	30	40	50	60	70	80	90	100
Max. cos $\varphi_{underexcited}$	0.895	0.897	0.901	0.9	0.901	0.901	0.9	0.901	0.9	0.901
Max. cos $\varphi_{overexcited}$	0.904	0.9	0.898	0.9	0.899	0.899	0.899	0.899	0.899	0.9

Compliance of required displacement factor cos φ											
Default in system control	0.900 OV	0.920 OV	0.940 OV	0.960 OV	0.980 OV	1	0.980 UN	0.960 UN	0.940 UN	0.920 UN	0.900 UN
Measured value at PGU terminals	0.899	0.919	0.939	0.959	0.979	0.999	0.980	0.960	0.940	0.921	0.901

Reactive power transfer function – Standard cos φ (P) – characteristic:										
Active Power P/P_n [%]	10	20	30	40	50	60	70	80	90	100
cos φ	-	0.999	1.000	1.000	1.000	0.980	0.960	0.942	0.922	0.917

Switching actions:	
Making operation without default *Switch-on at 10% of rated active power*	k_i: 0.50
Worst case at switch over of generator sections	- - - -
Making operation at reference conditions *Switch-on at 100% of rated active power*	k_i: 0.93
Breaking operation at nominal power *Switch-off at 100% of rated active power*	k_i: 0.93
Worst-case value of all switching operations	$k_{i\,max}$: 0.93

Flickers:				
Angle of network impedance Ψ_k *Worst case condition*	32°	50°	70°	85°
Coefficient of system flicker c_ψ	1.67	-	-	-

	Harmonics [%]									
Order	10% P/Pn	20% P/Pn	30% P/Pn	40% P/Pn	50% P/Pn	60% P/Pn	70% P/Pn	80% P/Pn	90% P/Pn	100% P/Pn
1	10.154%	20.684%	30.095%	39.728%	49.271%	60.483%	69.748%	78.749%	87.677%	96.670%
2	0.112%	0.116%	0.117%	0.146%	0.152%	0.200%	0.209%	0.236%	0.336%	0.374%
3	0.361%	0.384%	0.409%	0.619%	0.629%	0.631%	0.640%	0.676%	0.719%	0.785%
4	0.048%	0.052%	0.056%	0.057%	0.063%	0.072%	0.086%	0.089%	0.113%	0.137%
5	0.246%	0.219%	0.216%	0.153%	0.243%	0.239%	0.202%	0.152%	0.133%	0.123%
6	0.003%	0.003%	0.013%	0.012%	0.012%	0.018%	0.028%	0.025%	0.051%	0.065%
7	0.249%	0.141%	0.172%	0.139%	0.144%	0.221%	0.243%	0.245%	0.233%	0.216%
8	0.003%	0.006%	0.007%	0.016%	0.009%	0.013%	0.023%	0.023%	0.036%	0.051%
9	0.159%	0.210%	0.123%	0.230%	0.188%	0.201%	0.226%	0.239%	0.241%	0.225%
10	0.018%	0.012%	0.015%	0.022%	0.036%	0.036%	0.041%	0.050%	0.063%	0.076%
11	0.082%	0.145%	0.120%	0.132%	0.170%	0.133%	0.136%	0.139%	0.145%	0.142%
12	0.004%	0.006%	0.004%	0.017%	0.015%	0.018%	0.021%	0.037%	0.031%	0.025%
13	0.178%	0.176%	0.174%	0.151%	0.201%	0.193%	0.185%	0.189%	0.196%	0.206%
14	0.026%	0.013%	0.034%	0.032%	0.018%	0.044%	0.030%	0.034%	0.035%	0.018%
15	0.036%	0.008%	0.106%	0.078%	0.102%	0.133%	0.113%	0.084%	0.064%	0.057%
16	0.000%	0.001%	0.001%	0.002%	0.003%	0.007%	0.009%	0.015%	0.011%	0.009%
17	0.106%	0.004%	0.051%	0.034%	0.026%	0.122%	0.122%	0.078%	0.036%	0.030%
18	0.000%	0.000%	0.000%	0.003%	0.005%	0.003%	0.002%	0.011%	0.006%	0.008%
19	0.004%	0.001%	0.007%	0.003%	0.009%	0.041%	0.104%	0.083%	0.021%	0.017%
20	0.000%	0.004%	0.001%	0.003%	0.004%	0.002%	0.004%	0.009%	0.008%	0.007%
21	0.003%	0.001%	0.006%	0.003%	0.008%	0.014%	0.046%	0.064%	0.029%	0.009%
22	0.000%	0.005%	0.004%	0.000%	0.004%	0.005%	0.002%	0.005%	0.002%	0.001%
23	0.044%	0.014%	0.007%	0.006%	0.002%	0.010%	0.011%	0.035%	0.021%	0.009%
24	0.000%	0.001%	0.000%	0.004%	0.000%	0.001%	0.006%	0.007%	0.002%	0.001%
25	0.006%	0.032%	0.010%	0.003%	0.014%	0.010%	0.013%	0.025%	0.017%	0.013%
26	0.000%	0.003%	0.005%	0.004%	0.004%	0.003%	0.003%	0.007%	0.004%	0.000%
27	0.031%	0.009%	0.006%	0.008%	0.007%	0.014%	0.014%	0.025%	0.013%	0.006%
28	0.000%	0.002%	0.000%	0.001%	0.001%	0.003%	0.000%	0.005%	0.002%	0.003%
29	0.013%	0.000%	0.003%	0.001%	0.002%	0.010%	0.013%	0.020%	0.008%	0.004%
30	0.000%	0.002%	0.000%	0.003%	0.004%	0.004%	0.004%	0.004%	0.003%	0.002%
31	0.010%	0.000%	0.006%	0.016%	0.003%	0.019%	0.013%	0.009%	0.006%	0.000%
32	0.000%	0.000%	0.004%	0.004%	0.005%	0.001%	0.005%	0.002%	0.002%	0.001%
33	0.014%	0.000%	0.005%	0.019%	0.005%	0.014%	0.020%	0.014%	0.004%	0.005%
34	0.000%	0.001%	0.005%	0.002%	0.000%	0.003%	0.004%	0.001%	0.004%	0.001%
35	0.001%	0.001%	0.007%	0.002%	0.000%	0.005%	0.011%	0.011%	0.004%	0.002%
36	0.000%	0.005%	0.001%	0.003%	0.002%	0.002%	0.002%	0.003%	0.005%	0.003%
37	0.000%	0.003%	0.002%	0.001%	0.002%	0.003%	0.012%	0.008%	0.000%	0.000%
38	0.000%	0.001%	0.002%	0.003%	0.002%	0.005%	0.001%	0.001%	0.000%	0.003%
39	0.000%	0.000%	0.004%	0.004%	0.004%	0.001%	0.009%	0.002%	0.006%	0.002%
40	0.000%	0.005%	0.001%	0.004%	0.000%	0.003%	0.001%	0.002%	0.003%	0.001%

	Inter-Harmonics [%]									
Order	10% P/Pn	20% P/Pn	30% P/Pn	40% P/Pn	50% P/Pn	60% P/Pn	70% P/Pn	80% P/Pn	90% P/Pn	100% P/Pn
1.5	0.065%	0.081%	0.090%	0.103%	0.118%	0.168%	0.177%	0.196%	0.241%	0.283%
2.5	0.044%	0.047%	0.049%	0.050%	0.054%	0.078%	0.082%	0.099%	0.150%	0.176%
3.5	0.057%	0.061%	0.066%	0.065%	0.069%	0.077%	0.081%	0.085%	0.106%	0.126%
4.5	0.033%	0.037%	0.037%	0.037%	0.037%	0.039%	0.041%	0.042%	0.054%	0.064%
5.5	0.025%	0.030%	0.032%	0.030%	0.031%	0.033%	0.039%	0.035%	0.045%	0.057%
6.5	0.021%	0.022%	0.028%	0.024%	0.025%	0.028%	0.027%	0.029%	0.037%	0.046%
7.5	0.023%	0.022%	0.032%	0.025%	0.026%	0.030%	0.029%	0.031%	0.037%	0.046%
8.5	0.032%	0.031%	0.032%	0.033%	0.035%	0.034%	0.035%	0.036%	0.039%	0.040%
9.5	0.060%	0.065%	0.065%	0.065%	0.064%	0.067%	0.068%	0.071%	0.078%	0.087%
10.5	0.038%	0.029%	0.032%	0.030%	0.035%	0.032%	0.032%	0.034%	0.039%	0.041%
11.5	0.032%	0.023%	0.031%	0.029%	0.037%	0.030%	0.031%	0.034%	0.033%	0.034%
12.5	0.038%	0.039%	0.039%	0.039%	0.037%	0.036%	0.041%	0.041%	0.040%	0.038%
13.5	0.127%	0.122%	0.134%	0.131%	0.126%	0.129%	0.142%	0.118%	0.112%	0.088%
14.5	0.031%	0.024%	0.036%	0.038%	0.035%	0.034%	0.037%	0.037%	0.034%	0.031%
15.5	0.021%	0.014%	0.033%	0.036%	0.036%	0.026%	0.038%	0.037%	0.033%	0.029%
16.5	0.023%	0.010%	0.021%	0.018%	0.016%	0.024%	0.026%	0.029%	0.018%	0.016%
17.5	0.026%	0.008%	0.023%	0.017%	0.014%	0.030%	0.034%	0.035%	0.020%	0.017%
18.5	0.009%	0.007%	0.009%	0.008%	0.008%	0.018%	0.026%	0.030%	0.013%	0.011%
19.5	0.008%	0.006%	0.008%	0.007%	0.007%	0.020%	0.030%	0.034%	0.014%	0.011%
20.5	0.007%	0.006%	0.006%	0.006%	0.006%	0.009%	0.019%	0.026%	0.014%	0.008%
21.5	0.008%	0.005%	0.006%	0.005%	0.006%	0.009%	0.022%	0.030%	0.016%	0.008%
22.5	0.018%	0.007%	0.005%	0.005%	0.005%	0.006%	0.009%	0.017%	0.012%	0.007%
23.5	0.021%	0.008%	0.005%	0.005%	0.005%	0.006%	0.008%	0.019%	0.013%	0.007%
24.5	0.008%	0.013%	0.005%	0.004%	0.008%	0.006%	0.007%	0.012%	0.009%	0.007%
25.5	0.007%	0.015%	0.005%	0.004%	0.009%	0.006%	0.008%	0.013%	0.009%	0.007%
26.5	0.014%	0.006%	0.004%	0.005%	0.005%	0.007%	0.007%	0.012%	0.007%	0.006%
27.5	0.016%	0.005%	0.004%	0.005%	0.004%	0.008%	0.008%	0.013%	0.007%	0.006%
28.5	0.008%	0.004%	0.004%	0.004%	0.003%	0.006%	0.006%	0.010%	0.006%	0.005%
29.5	0.008%	0.003%	0.003%	0.004%	0.003%	0.007%	0.007%	0.011%	0.006%	0.005%
30.5	0.006%	0.003%	0.003%	0.007%	0.003%	0.008%	0.007%	0.007%	0.005%	0.004%
31.5	0.007%	0.003%	0.003%	0.008%	0.003%	0.009%	0.008%	0.007%	0.005%	0.004%
32.5	0.007%	0.003%	0.003%	0.008%	0.003%	0.007%	0.008%	0.007%	0.004%	0.004%
33.5	0.008%	0.003%	0.003%	0.008%	0.003%	0.007%	0.010%	0.007%	0.004%	0.004%
34.5	0.003%	0.003%	0.003%	0.004%	0.003%	0.004%	0.006%	0.006%	0.004%	0.004%
35.5	0.003%	0.003%	0.003%	0.003%	0.003%	0.004%	0.006%	0.006%	0.004%	0.004%
36.5	0.003%	0.003%	0.003%	0.003%	0.003%	0.003%	0.006%	0.005%	0.004%	0.004%
37.5	0.003%	0.002%	0.003%	0.003%	0.003%	0.003%	0.007%	0.005%	0.004%	0.004%
38.5	0.002%	0.002%	0.003%	0.003%	0.003%	0.003%	0.005%	0.004%	0.004%	0.004%
39.5	0.002%	0.002%	0.002%	0.018%	0.002%	0.003%	0.005%	0.004%	0.004%	0.004%
40.5	0.002%	0.002%	0.002%	0.012%	0.002%	0.003%	0.004%	0.003%	0.004%	0.003%

Order	Frequency	High frequency harmonics [%]									
		10% P/Pn	20% P/Pn	30% P/Pn	40% P/Pn	50% P/Pn	60% P/Pn	70% P/Pn	80% P/Pn	90% P/Pn	100% P/Pn
42	2100	0.005%	0.002%	0.001%	0.004%	0.002%	0.004%	0.004%	0.003%	0.005%	0.012%
43	2150	0.002%	0.000%	0.001%	0.006%	0.002%	0.007%	0.019%	0.005%	0.009%	0.011%
44	2200	0.001%	0.002%	0.002%	0.003%	0.004%	0.005%	0.006%	0.005%	0.009%	0.003%
45	2250	0.001%	0.000%	0.002%	0.004%	0.001%	0.006%	0.017%	0.003%	0.005%	0.006%
46	2300	0.001%	0.000%	0.001%	0.003%	0.003%	0.005%	0.006%	0.004%	0.004%	0.001%
47	2350	0.001%	0.000%	0.002%	0.004%	0.004%	0.006%	0.010%	0.006%	0.006%	0.009%
48	2400	0.001%	0.000%	0.000%	0.003%	0.004%	0.009%	0.007%	0.009%	0.009%	0.009%
49	2450	0.000%	0.001%	0.001%	0.003%	0.003%	0.011%	0.005%	0.009%	0.004%	0.005%
50	2500	0.000%	0.002%	0.001%	0.003%	0.002%	0.008%	0.007%	0.008%	0.010%	0.006%
51	2550	0.000%	0.001%	0.001%	0.002%	0.002%	0.011%	0.008%	0.017%	0.007%	0.005%
52	2600	0.000%	0.000%	0.000%	0.002%	0.001%	0.009%	0.004%	0.006%	0.007%	0.004%
53	2650	0.000%	0.000%	0.001%	0.002%	0.002%	0.010%	0.006%	0.018%	0.006%	0.002%
54	2700	0.000%	0.000%	0.000%	0.002%	0.002%	0.006%	0.005%	0.006%	0.006%	0.003%
55	2750	0.000%	0.000%	0.001%	0.001%	0.000%	0.005%	0.003%	0.005%	0.005%	0.002%
56	2800	0.000%	0.000%	0.000%	0.001%	0.000%	0.007%	0.003%	0.003%	0.004%	0.002%
57	2850	0.000%	0.000%	0.000%	0.001%	0.000%	0.005%	0.003%	0.003%	0.009%	0.002%
58	2900	0.000%	0.000%	0.000%	0.000%	0.001%	0.006%	0.004%	0.004%	0.003%	0.003%
59	2950	0.000%	0.000%	0.000%	0.000%	0.000%	0.005%	0.005%	0.003%	0.008%	0.002%
60	3000	0.000%	0.000%	0.001%	0.000%	0.001%	0.005%	0.002%	0.003%	0.002%	0.002%
61	3050	0.000%	0.000%	0.000%	0.000%	0.000%	0.005%	0.003%	0.002%	0.007%	0.002%
62	3100	0.000%	0.000%	0.000%	0.000%	0.000%	0.003%	0.000%	0.000%	0.001%	0.000%
63	3150	0.000%	0.000%	0.001%	0.001%	0.000%	0.003%	0.000%	0.003%	0.004%	0.005%
64	3200	0.000%	0.000%	0.000%	0.000%	0.000%	0.003%	0.000%	0.000%	0.000%	0.002%
65	3250	0.000%	0.000%	0.000%	0.000%	0.000%	0.004%	0.002%	0.003%	0.002%	0.006%
66	3300	0.000%	0.000%	0.000%	0.000%	0.000%	0.004%	0.001%	0.001%	0.001%	0.000%
67	3350	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	0.000%	0.003%	0.001%	0.001%
68	3400	0.000%	0.000%	0.000%	0.000%	0.000%	0.003%	0.001%	0.002%	0.001%	0.000%
69	3450	0.000%	0.000%	0.000%	0.000%	0.000%	0.004%	0.001%	0.002%	0.001%	0.000%
70	3500	0.000%	0.000%	0.000%	0.000%	0.000%	0.005%	0.001%	0.003%	0.001%	0.000%
71	3550	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	0.003%	0.003%	0.002%	0.000%
72	3600	0.000%	0.000%	0.000%	0.002%	0.000%	0.008%	0.004%	0.003%	0.002%	0.000%
73	3650	0.000%	0.000%	0.000%	0.001%	0.001%	0.004%	0.002%	0.003%	0.005%	0.000%
74	3700	0.000%	0.000%	0.001%	0.001%	0.007%	0.025%	0.013%	0.014%	0.003%	0.001%
75	3750	0.001%	0.001%	0.000%	0.005%	0.002%	0.004%	0.003%	0.008%	0.008%	0.002%
76	3800	0.000%	0.000%	0.002%	0.004%	0.012%	0.010%	0.007%	0.005%	0.011%	0.001%
77	3850	0.004%	0.002%	0.002%	0.012%	0.003%	0.004%	0.000%	0.003%	0.013%	0.000%
78	3900	0.011%	0.008%	0.024%	0.009%	0.014%	0.006%	0.000%	0.005%	0.007%	0.012%
79	3950	0.023%	0.021%	0.004%	0.007%	0.004%	0.003%	0.001%	0.003%	0.006%	0.014%
80	4000	0.054%	0.048%	0.041%	0.042%	0.036%	0.021%	0.024%	0.036%	0.042%	0.049%
81	4050	0.010%	0.008%	0.006%	0.007%	0.006%	0.005%	0.001%	0.003%	0.006%	0.011%
82	4100	0.017%	0.013%	0.009%	0.012%	0.021%	0.010%	0.004%	0.005%	0.009%	0.011%
83	4150	0.015%	0.013%	0.010%	0.006%	0.016%	0.007%	0.001%	0.003%	0.005%	0.006%
84	4200	0.016%	0.014%	0.016%	0.010%	0.030%	0.015%	0.001%	0.006%	0.007%	0.005%
85	4250	0.041%	0.038%	0.030%	0.015%	0.038%	0.021%	0.002%	0.003%	0.005%	0.002%

Order	Frequency	High frequency harmonics [%]									
		10% P/Pn	20% P/Pn	30% P/Pn	40% P/Pn	50% P/Pn	60% P/Pn	70% P/Pn	80% P/Pn	90% P/Pn	100% P/Pn
86	4300	0.075%	0.067%	0.056%	0.022%	0.037%	0.031%	0.002%	0.005%	0.007%	0.005%
87	4350	0.085%	0.086%	0.071%	0.030%	0.033%	0.037%	0.003%	0.004%	0.006%	0.005%
88	4400	0.088%	0.079%	0.070%	0.038%	0.037%	0.029%	0.003%	0.005%	0.007%	0.006%
89	4450	0.062%	0.058%	0.048%	0.029%	0.041%	0.017%	0.000%	0.004%	0.005%	0.004%
90	4500	0.034%	0.026%	0.027%	0.021%	0.036%	0.007%	0.000%	0.002%	0.007%	0.006%
91	4550	0.042%	0.038%	0.031%	0.020%	0.022%	0.004%	0.000%	0.003%	0.015%	0.002%
92	4600	0.038%	0.032%	0.023%	0.018%	0.022%	0.004%	0.000%	0.004%	0.008%	0.004%
93	4650	0.030%	0.027%	0.022%	0.020%	0.012%	0.004%	0.000%	0.001%	0.007%	0.005%
94	4700	0.025%	0.022%	0.016%	0.015%	0.010%	0.002%	0.001%	0.003%	0.005%	0.004%
95	4750	0.022%	0.025%	0.016%	0.010%	0.004%	0.000%	0.000%	0.002%	0.003%	0.002%
96	4800	0.016%	0.016%	0.010%	0.010%	0.006%	0.000%	0.001%	0.001%	0.004%	0.005%
97	4850	0.013%	0.011%	0.007%	0.006%	0.003%	0.000%	0.000%	0.004%	0.004%	0.005%
98	4900	0.011%	0.009%	0.006%	0.005%	0.005%	0.000%	0.000%	0.001%	0.005%	0.005%
99	4950	0.009%	0.007%	0.004%	0.003%	0.000%	0.000%	0.000%	0.001%	0.005%	0.002%
100	5000	0.008%	0.009%	0.005%	0.004%	0.004%	0.000%	0.001%	0.005%	0.010%	0.009%
101	5050	0.002%	0.004%	0.002%	0.002%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%
102	5100	0.004%	0.002%	0.002%	0.005%	0.001%	0.000%	0.003%	0.010%	0.008%	0.006%
103	5150	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%
104	5200	0.008%	0.005%	0.005%	0.013%	0.000%	0.013%	0.015%	0.012%	0.009%	0.010%
105	5250	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%
106	5300	0.061%	0.066%	0.061%	0.053%	0.080%	0.048%	0.019%	0.020%	0.003%	0.004%
107	5350	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	0.002%	0.006%	0.003%	0.006%
108	5400	0.131%	0.133%	0.136%	0.140%	0.175%	0.213%	0.232%	0.246%	0.276%	0.291%
109	5450	0.000%	0.001%	0.002%	0.001%	0.000%	0.003%	0.002%	0.011%	0.009%	0.057%
110	5500	0.039%	0.041%	0.026%	0.011%	0.008%	0.133%	0.082%	0.121%	0.183%	0.626%
111	5550	0.001%	0.016%	0.018%	0.027%	0.024%	0.039%	0.037%	0.045%	0.053%	0.090%
112	5600	0.458%	0.474%	0.523%	0.569%	0.633%	0.859%	0.796%	0.878%	1.042%	1.823%
113	5650	0.003%	0.014%	0.010%	0.020%	0.016%	0.031%	0.036%	0.044%	0.047%	0.066%
114	5700	0.043%	0.031%	0.016%	0.077%	0.085%	0.138%	0.113%	0.126%	0.153%	0.614%
115	5750	0.000%	0.000%	0.000%	0.001%	0.002%	0.002%	0.005%	0.005%	0.005%	0.040%
116	5800	0.131%	0.133%	0.136%	0.152%	0.193%	0.216%	0.234%	0.247%	0.263%	0.247%
117	5850	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	0.001%	0.009%
118	5900	0.064%	0.060%	0.055%	0.047%	0.087%	0.051%	0.030%	0.012%	0.016%	0.009%
119	5950	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
120	6000	0.000%	0.000%	0.000%	0.000%	0.000%	0.003%	0.003%	0.001%	0.001%	0.020%
121	6050	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
122	6100	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	0.000%	0.001%	0.000%	0.000%
123	6150	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
124	6200	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
125	6250	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
126	6300	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
127	6350	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
128	6400	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
129	6450	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
130	6500	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Order	Frequency	High frequency harmonics [%]									
		10% P/Pn	20% P/Pn	30% P/Pn	40% P/Pn	50% P/Pn	60% P/Pn	70% P/Pn	80% P/Pn	90% P/Pn	100% P/Pn
131	6550	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
132	6600	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
133	6650	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
134	6700	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
135	6750	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
136	6800	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
137	6850	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
138	6900	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
139	6950	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
140	7000	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
141	7050	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
142	7100	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
143	7150	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
144	7200	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
145	7250	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
146	7300	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
147	7350	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
148	7400	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
149	7450	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
150	7500	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
151	7550	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
152	7600	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
153	7650	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
154	7700	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
155	7750	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
156	7800	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
157	7850	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
158	7900	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
159	7950	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
160	8000	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
161	8050	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
162	8100	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
163	8150	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
164	8200	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
165	8250	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
166	8300	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
167	8350	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
168	8400	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
169	8450	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
170	8500	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
171	8550	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
172	8600	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
173	8650	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
174	8700	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
175	8750	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Extract from Test report for unit certificate: **28110272 004**
"Determination of electrical properties"

Extract No: 1 _ **Annex F.3** (VDE-AR-N 4105)

Order	Frequency	High frequency harmonics [%]									
		10% P/Pn	20% P/Pn	30% P/Pn	40% P/Pn	50% P/Pn	60% P/Pn	70% P/Pn	80% P/Pn	90% P/Pn	100% P/Pn
176	8800	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
177	8850	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
178	8900	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Remarks:

This extract from the test report is only valid in conjunction with the test report no.: **28110272 004**

20/01/2017 Antonio Somma / Tester

Datum	**Name/Stellung**	**Unterschrift**
Date	*Name/Position*	*Signature*