

<b>Anlagentyp:</b>	Netzgekoppelte Photovoltaik Wechselrichter				
<b>Hersteller:</b>	<b>Power-One Italy S.p.A. (a member of the ABB group)</b>  Via S. Giorgio 642, 52028 Terranuova Bracciolini (AR) - Italy				
<b>Referenzreport:</b>	<b>28112188 015 rev.01</b>				
<b>Messzeitraum:</b>	vom 20. August 2018 bis 13. November 2018				
<b>Wirkleistung [<math>P_{E_{max}}</math>]:</b> (Nominale Leistung unter Referenzbedingungen)	<table> <tr> <td><b>Models</b></td> <td><b><math>P_{E_{max}}</math></b></td> </tr> <tr> <td><b>PVS-175-TL</b></td> <td><b>185 KW</b></td> </tr> </table>	<b>Models</b>	<b><math>P_{E_{max}}</math></b>	<b>PVS-175-TL</b>	<b>185 KW</b>
<b>Models</b>	<b><math>P_{E_{max}}</math></b>				
<b>PVS-175-TL</b>	<b>185 KW</b>				
<b>Nominale Ausgangsspannung:</b>	800 V (Phase-Phase). Neutral nicht geliefert				
<b>Note :</b> Das getestete Objekt ist nicht mit der Neutralverbindung ausgestattet (es ist nicht beabsichtigt, direkt an das öffentliche Niederspannungsnetz angeschlossen zu werden) und daher waren einige Messungen nicht möglich. Das Produkt darf nicht direkt an das öffentliche Niederspannungsnetz angeschlossen werden und fällt daher nicht in den Anwendungsbereich dieser Norm.					

<b>Blindleistungsbezug</b>										
<b>Wirkleistung</b> <b><math>P/S_n</math> [%]</b>	10	20	30	40	50	60	70	80	90	100
<b>Max. <math>\cos \varphi_{\text{untererregt}}</math></b>	0.905	0.903	0.902	0.902	0.901	0.901	0.901	0.901	0.901	0.901
<b>Max. <math>\cos \varphi_{\text{übererregt}}</math></b>	0.898	0.899	0.900	0.900	0.900	0.900	0.900	0.900	0.900	0.900

<b>Einhaltung eines fest vorgegebenen Verschiebungsfaktors <math>\cos \varphi</math></b>											
<b>Vorgabewert</b>	0,900 <sub>OV</sub>	0,920 <sub>OV</sub>	0,940 <sub>OV</sub>	0,960 <sub>OV</sub>	0,980 <sub>OV</sub>	1	0,980 <sub>UN</sub>	0,960 <sub>UN</sub>	0,940 <sub>UN</sub>	0,920 <sub>UN</sub>	0,900
<b>Messwert an den Klemmen</b>	0,9020	0,9217	0,9407	0,9600	0,9792	1,0000	0,9800	0,9600	0,9400	0,9199	0,9002

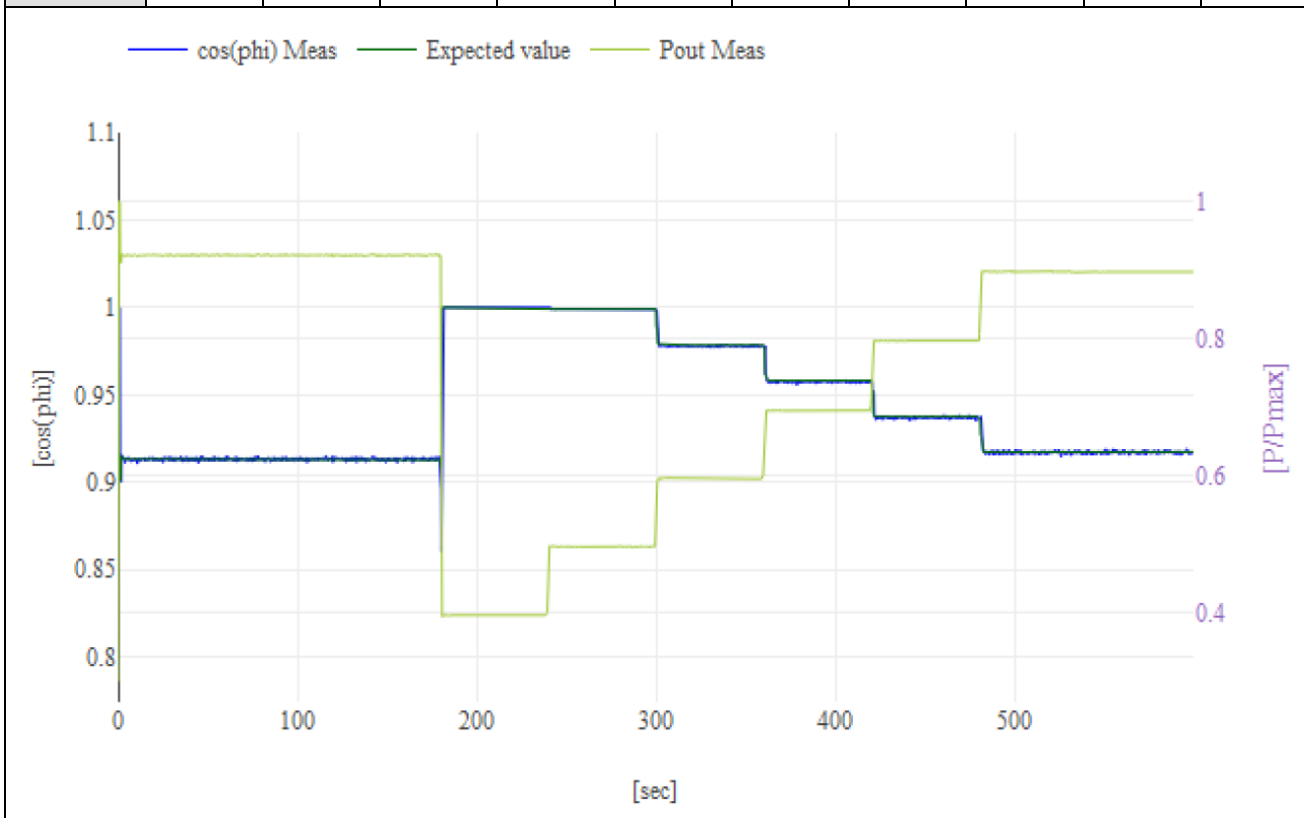
**Auszug aus dem Prüfbericht 28112188 015 rev.01**  
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Auszug Nr.: 1 \_ **Annex F.3** (VDE-AR-N 4105)

**Blindleistungsübergangsfunktion – Standard  $\cos \varphi$  (P) - Kurve**

Wirkleistung P/S <sub>n</sub> [%]	10	20	30	40	50	60	70	80	90	100
<b>cos <math>\varphi</math></b>	-	1.000	1.000	1.000	0.998	0.977	0.957	0.936	0.916	-



<b>Switching actions:</b>	
<b>Making operation without default</b>	k <sub>i</sub> : 0.97
<b>Worst case at switch over of generator sections</b>	k <sub>i</sub> : 0.97
<b>Making operation at reference conditions</b>	k <sub>i</sub> : 0.46
<b>Breaking operation at nominal power</b>	k <sub>i</sub> : 0,96
<b>Worst-case value of all switching operations</b>	K <sub>i max</sub> : <b>0.97</b>

<b>Flickers:</b>						
<b>Phase 1 33%</b>						
<b>Observation</b>	<b>PSTmeas</b>	<b>PSTreal</b>	<b>PSTcub</b>	<b>PLT</b>	<b>dc</b>	<b>dmax</b>
1	0.130	<b>0.200</b>	0.008		<b>0.10%</b>	<b>1.02%</b>
2	0.133	<b>0.205</b>	0.009		<b>0.10%</b>	<b>1.02%</b>
3	0.129	<b>0.199</b>	0.008		<b>0.10%</b>	<b>1.02%</b>
4	0.136	<b>0.210</b>	0.009		<b>0.10%</b>	<b>1.02%</b>
5	0.146	<b>0.225</b>	0.011		<b>0.10%</b>	<b>1.02%</b>
6	0.150	<b>0.231</b>	0.012		<b>0.10%</b>	<b>1.02%</b>
7	0.146	<b>0.225</b>	0.011		<b>0.10%</b>	<b>1.02%</b>
8	0.154	<b>0.237</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
9	0.156	<b>0.241</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
10	0.147	<b>0.227</b>	0.012		<b>0.10%</b>	<b>1.02%</b>
11	0.150	<b>0.231</b>	0.012		<b>0.10%</b>	<b>1.02%</b>
12	0.159	<b>0.245</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
			0.127	<b>0.220</b>		
<b>Phase 2 33%</b>						
<b>Observation</b>	<b>PSTmeas</b>	<b>PSTreal</b>	<b>PSTcub</b>	<b>PLT</b>	<b>dc</b>	<b>dmax</b>
1	0.132	<b>0.204</b>	0.008		<b>0.10%</b>	<b>1.02%</b>
2	0.137	<b>0.211</b>	0.009		<b>0.10%</b>	<b>1.02%</b>
3	0.126	<b>0.194</b>	0.007		<b>0.10%</b>	<b>1.02%</b>
4	0.126	<b>0.194</b>	0.007		<b>0.10%</b>	<b>1.02%</b>
5	0.142	<b>0.219</b>	0.010		<b>0.10%</b>	<b>1.02%</b>
6	0.152	<b>0.234</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
7	0.154	<b>0.237</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
8	0.161	<b>0.248</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
9	0.154	<b>0.237</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
10	0.156	<b>0.241</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
11	0.142	<b>0.219</b>	0.010		<b>0.10%</b>	<b>1.02%</b>
12	0.150	<b>0.231</b>	0.012		<b>0.10%</b>	<b>1.02%</b>
			0.135	<b>0.224</b>		
<b>Phase 3 33%</b>						
<b>Observation</b>	<b>PSTmeas</b>	<b>PSTreal</b>	<b>PSTcub</b>	<b>PLT</b>	<b>dc</b>	<b>Dmax</b>
1	0.133	<b>0.205</b>	0.009		<b>0.10%</b>	<b>1.02%</b>
2	0.143	<b>0.220</b>	0.011		<b>0.10%</b>	<b>1.02%</b>
3	0.120	<b>0.185</b>	0.006		<b>0.10%</b>	<b>1.02%</b>

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4	0.144	<b>0.222</b>	0.011		<b>0.10%</b>	<b>1.02%</b>
5	0.139	<b>0.214</b>	0.010		<b>0.10%</b>	<b>1.02%</b>
6	0.141	<b>0.217</b>	0.010		<b>0.10%</b>	<b>1.02%</b>
7	0.146	<b>0.225</b>	0.011		<b>0.10%</b>	<b>1.02%</b>
8	0.162	<b>0.250</b>	0.016		<b>0.10%</b>	<b>1.02%</b>
9	0.156	<b>0.241</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
10	0.155	<b>0.239</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
11	0.141	<b>0.217</b>	0.010		<b>0.10%</b>	<b>1.02%</b>
12	0.151	<b>0.233</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
			0.134	<b>0.224</b>		

Phase 1 60%						
Observation	PSTmeas	PSTreal	PSTcub	PLT	dc	dmax
1	0.160	<b>0.247</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
2	0.167	<b>0.257</b>	0.017		<b>0.10%</b>	<b>1.02%</b>
3	0.160	<b>0.247</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
4	0.153	<b>0.236</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
5	0.159	<b>0.245</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
6	0.166	<b>0.256</b>	0.017		<b>0.10%</b>	<b>1.02%</b>
7	0.164	<b>0.253</b>	0.016		<b>0.10%</b>	<b>1.02%</b>
8	0.159	<b>0.245</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
9	0.168	<b>0.259</b>	0.017		<b>0.10%</b>	<b>1.02%</b>
10	0.173	<b>0.267</b>	0.019		<b>0.10%</b>	<b>1.02%</b>
11	0.174	<b>0.268</b>	0.019		<b>0.10%</b>	<b>1.02%</b>
12	0.176	<b>0.271</b>	0.020		<b>0.10%</b>	<b>1.02%</b>
			0.183	<b>0.248</b>		
Phase 2 60%						
Observation	PSTmeas	PSTreal	PSTcub	PLT	dc	dmax
1	0.151	<b>0.233</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
2	0.169	<b>0.261</b>	0.018		<b>0.10%</b>	<b>1.02%</b>
3	0.152	<b>0.234</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
4	0.155	<b>0.239</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
5	0.154	<b>0.237</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
6	0.160	<b>0.247</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
7	0.170	<b>0.262</b>	0.018		<b>0.10%</b>	<b>1.02%</b>
8	0.156	<b>0.241</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
9	0.176	<b>0.271</b>	0.020		<b>0.10%</b>	<b>1.02%</b>
10	0.179	<b>0.276</b>	0.021		<b>0.10%</b>	<b>1.02%</b>
11	0.165	<b>0.254</b>	0.016		<b>0.10%</b>	<b>1.02%</b>
12	0.168	<b>0.259</b>	0.017		<b>0.10%</b>	<b>1.02%</b>
			0.192	<b>0.252</b>		
Phase 3 60%						
Observation	PSTmeas	PSTreal	PSTcub	PLT	dc	Dmax
1	0.164	<b>0.253</b>	0.016		<b>0.10%</b>	<b>1.02%</b>
2	0.166	<b>0.256</b>	0.017		<b>0.10%</b>	<b>1.02%</b>
3	0.163	<b>0.251</b>	0.016		<b>0.10%</b>	<b>1.02%</b>

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4	0.154	<b>0.237</b>	0.013		<b>0.10%</b>	<b>1.02%</b>
5	0.165	<b>0.254</b>	0.016		<b>0.10%</b>	<b>1.02%</b>
6	0.156	<b>0.241</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
7	0.156	<b>0.241</b>	0.014		<b>0.10%</b>	<b>1.02%</b>
8	0.160	<b>0.247</b>	0.015		<b>0.10%</b>	<b>1.02%</b>
9	0.163	<b>0.251</b>	0.016		<b>0.10%</b>	<b>1.02%</b>
10	0.177	<b>0.273</b>	0.020		<b>0.10%</b>	<b>1.02%</b>
11	0.168	<b>0.259</b>	0.017		<b>0.10%</b>	<b>1.02%</b>
12	0.172	<b>0.265</b>	0.019		<b>0.10%</b>	<b>1.02%</b>
			0.194	<b>0.253</b>		

Phase 1 100%						
Observation	PSTmeas	PSTreal	PSTcub	PLT	dc	dmax
1	0.220	<b>0.339</b>	0.039		<b>0.10%</b>	<b>1.02%</b>
2	0.229	<b>0.353</b>	0.044		<b>0.10%</b>	<b>1.02%</b>
3	0.228	<b>0.352</b>	0.043		<b>0.10%</b>	<b>1.02%</b>
4	0.218	<b>0.336</b>	0.038		<b>0.10%</b>	<b>1.02%</b>
5	0.217	<b>0.335</b>	0.037		<b>0.10%</b>	<b>1.02%</b>
6	0.221	<b>0.341</b>	0.040		<b>0.10%</b>	<b>1.02%</b>
7	0.223	<b>0.344</b>	0.041		<b>0.10%</b>	<b>1.02%</b>
8	0.228	<b>0.352</b>	0.043		<b>0.10%</b>	<b>1.02%</b>
9	0.222	<b>0.342</b>	0.040		<b>0.10%</b>	<b>1.02%</b>
10	0.212	<b>0.327</b>	0.035		<b>0.10%</b>	<b>1.02%</b>
11	0.202	<b>0.311</b>	0.030		<b>0.10%</b>	<b>1.02%</b>
12	0.211	<b>0.325</b>	0.034		<b>0.10%</b>	<b>1.02%</b>
			0.426	<b>0.329</b>		
Phase 2 100%						
Observation	PSTmeas	PSTreal	PSTcub	PLT	dc	dmax
1	0.232	<b>0.358</b>	0.046		<b>0.10%</b>	<b>1.02%</b>
2	0.226	<b>0.348</b>	0.042		<b>0.10%</b>	<b>1.02%</b>
3	0.228	<b>0.352</b>	0.043		<b>0.10%</b>	<b>1.02%</b>
4	0.223	<b>0.344</b>	0.041		<b>0.10%</b>	<b>1.02%</b>
5	0.218	<b>0.336</b>	0.038		<b>0.10%</b>	<b>1.02%</b>
6	0.215	<b>0.331</b>	0.036		<b>0.10%</b>	<b>1.02%</b>
7	0.238	<b>0.367</b>	0.049		<b>0.10%</b>	<b>1.02%</b>
8	0.213	<b>0.328</b>	0.035		<b>0.10%</b>	<b>1.02%</b>
9	0.217	<b>0.335</b>	0.037		<b>0.10%</b>	<b>1.02%</b>
10	0.205	<b>0.316</b>	0.032		<b>0.10%</b>	<b>1.02%</b>
11	0.217	<b>0.335</b>	0.037		<b>0.10%</b>	<b>1.02%</b>
12	0.215	<b>0.331</b>	0.036		<b>0.10%</b>	<b>1.02%</b>
			0.474	<b>0.341</b>		
Phase 3 100%						
Observation	PSTmeas	PSTreal	PSTcub	PLT	dc	Dmax
1	0.220	<b>0.339</b>	0.039		<b>0.10%</b>	<b>1.02%</b>
2	0.239	<b>0.368</b>	0.050		<b>0.10%</b>	<b>1.02%</b>
3	0.229	<b>0.353</b>	0.044		<b>0.10%</b>	<b>1.02%</b>

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4	0.210	<b>0.324</b>	0.034		<b>0.10%</b>	<b>1.02%</b>
5	0.208	<b>0.321</b>	0.033		<b>0.10%</b>	<b>1.02%</b>
6	0.214	<b>0.330</b>	0.036		<b>0.10%</b>	<b>1.02%</b>
7	0.217	<b>0.335</b>	0.037		<b>0.10%</b>	<b>1.02%</b>
8	0.221	<b>0.341</b>	0.040		<b>0.10%</b>	<b>1.02%</b>
9	0.229	<b>0.353</b>	0.044		<b>0.10%</b>	<b>1.02%</b>
10	0.214	<b>0.330</b>	0.036		<b>0.10%</b>	<b>1.02%</b>
11	0.207	<b>0.319</b>	0.033		<b>0.10%</b>	<b>1.02%</b>
12	0.201	<b>0.310</b>	0.030		<b>0.10%</b>	<b>1.02%</b>
			0.455	<b>0.336</b>		

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**HARMONICS:**

Order	100%						Limits Rsce33	Result
	Phase R [A]	Phase S [A]	Phase T [A]	Phase R [%]	Phase S [%]	Phase T [%]		
0	--	--	--	--	--	--	--	--
1	132.717	132.734	132.971	99.405%	99.417%	99.594%	--	--
2	0.286	0.284	0.287	0.214%	0.213%	0.215%	0.60%	PASS
3	0.538	0.711	0.324	0.403%	0.533%	0.243%	21.60%	PASS
4	0.146	0.190	0.198	0.109%	0.142%	0.148%	0.60%	PASS
5	0.739	0.673	0.541	0.554%	0.504%	0.405%	10.70%	PASS
6	0.201	0.157	0.187	0.150%	0.118%	0.140%	0.60%	PASS
7	1.046	0.873	0.634	0.783%	0.654%	0.475%	7.20%	PASS
8	0.263	0.248	0.248	0.197%	0.186%	0.186%	0.60%	PASS
9	0.807	0.596	0.345	0.605%	0.446%	0.258%	3.80%	PASS
10	0.209	0.164	0.181	0.156%	0.123%	0.136%	0.60%	PASS
11	1.481	1.661	1.313	1.109%	1.244%	0.984%	3.10%	PASS
12	0.166	0.151	0.142	0.124%	0.113%	0.106%	0.60%	PASS
13	0.545	0.514	0.227	0.408%	0.385%	0.170%	2.00%	PASS
14	0.041	0.065	0.043	0.031%	0.049%	0.032%	0.57%	PASS
15	0.114	0.096	0.032	0.085%	0.072%	0.024%	0.70%	PASS
16	0.029	0.029	0.027	0.022%	0.021%	0.020%	0.50%	PASS
17	0.123	0.076	0.093	0.092%	0.057%	0.070%	1.20%	PASS
18	0.020	0.019	0.018	0.015%	0.014%	0.014%	0.44%	PASS
19	0.085	0.024	0.016	0.064%	0.018%	0.012%	1.10%	PASS
20	0.018	0.016	0.015	0.013%	0.012%	0.011%	0.40%	PASS
21	0.016	0.014	0.014	0.012%	0.010%	0.010%	0.60%	PASS
22	0.014	0.012	0.012	0.011%	0.009%	0.009%	0.36%	PASS
23	0.014	0.012	0.011	0.010%	0.009%	0.008%	0.90%	PASS
24	0.014	0.011	0.011	0.010%	0.009%	0.008%	0.33%	PASS
25	0.013	0.011	0.010	0.010%	0.008%	0.008%	0.80%	PASS
26	0.012	0.010	0.010	0.009%	0.008%	0.007%	0.31%	PASS
27	0.011	0.010	0.009	0.008%	0.007%	0.007%	0.60%	PASS
28	0.011	0.010	0.009	0.008%	0.007%	0.007%	0.29%	PASS
29	0.011	0.009	0.009	0.008%	0.007%	0.006%	0.70%	PASS
30	0.010	0.009	0.008	0.008%	0.007%	0.006%	0.27%	PASS
31	0.009	0.008	0.008	0.007%	0.006%	0.006%	0.70%	PASS
32	0.009	0.008	0.007	0.007%	0.006%	0.006%	0.25%	PASS
33	0.009	0.008	0.007	0.007%	0.006%	0.005%	0.60%	PASS
34	0.009	0.008	0.007	0.007%	0.006%	0.005%	0.24%	PASS
35	0.008	0.007	0.007	0.006%	0.005%	0.005%	--	--
36	0.008	0.007	0.006	0.006%	0.005%	0.005%	0.22%	PASS
37	0.008	0.007	0.006	0.006%	0.005%	0.005%	--	--

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 Auszug Nr.: 1 \_ **Annex F.3** (VDE-AR-N 4105)

38	0.009	0.007	0.006	0.006%	0.005%	0.005%	0.21%	PASS
39	0.008	0.007	0.006	0.006%	0.005%	0.005%	--	--
40	0.008	0.007	0.006	0.006%	0.005%	0.004%	0.20%	PASS
41	0.008	0.007	0.006	0.006%	0.005%	0.004%	--	--
42	0.008	0.007	0.006	0.006%	0.005%	0.005%	0.19%	PASS
43	0.008	0.007	0.006	0.006%	0.005%	0.004%	--	--
44	0.007	0.006	0.006	0.005%	0.005%	0.004%	0.18%	PASS
45	0.007	0.007	0.006	0.005%	0.005%	0.004%	--	--
46	0.008	0.007	0.006	0.006%	0.005%	0.004%	0.17%	PASS
47	0.008	0.006	0.006	0.006%	0.005%	0.004%	--	--
48	0.007	0.006	0.005	0.005%	0.005%	0.004%	0.17%	PASS
49	0.007	0.006	0.005	0.005%	0.005%	0.004%	--	--
50	0.007	0.006	0.005	0.005%	0.005%	0.004%	0.16%	PASS
THDi	1.74%	1.74%	1.29%					

60%								
Order	Phase R	Phase S	Phase T	Phase R	Phase S	Phase T	Limits	Result
	[A]	[A]	[A]	[%]	[%]	[%]	R <sub>sce33</sub>	
0	--	--	--	--	--	--	--	--
1	79.514	79.555	79.687	59.556%	59.586%	59.685%	--	--
2	0.153	0.146	0.111	0.115%	0.109%	0.083%	0.60%	PASS
3	0.583	0.629	0.350	0.437%	0.471%	0.262%	21.60%	PASS
4	0.154	0.105	0.132	0.115%	0.079%	0.099%	0.60%	PASS
5	0.761	0.560	0.442	0.570%	0.419%	0.331%	10.70%	PASS
6	0.231	0.104	0.176	0.173%	0.078%	0.132%	0.60%	PASS
7	0.807	0.519	0.591	0.604%	0.389%	0.443%	7.20%	PASS
8	0.226	0.233	0.137	0.169%	0.175%	0.102%	0.60%	PASS
9	0.635	0.413	0.205	0.476%	0.310%	0.154%	3.80%	PASS
10	0.186	0.170	0.064	0.139%	0.127%	0.048%	0.60%	PASS
11	0.988	0.988	0.700	0.740%	0.740%	0.524%	3.10%	PASS
12	0.140	0.102	0.091	0.105%	0.076%	0.068%	0.60%	PASS
13	0.618	0.572	0.557	0.463%	0.428%	0.417%	2.00%	PASS
14	0.063	0.072	0.051	0.047%	0.054%	0.038%	0.57%	PASS
15	0.116	0.097	0.030	0.087%	0.073%	0.022%	0.70%	PASS
16	0.026	0.022	0.021	0.020%	0.017%	0.016%	0.50%	PASS
17	0.108	0.184	0.111	0.081%	0.137%	0.083%	1.20%	PASS
18	0.019	0.015	0.016	0.014%	0.011%	0.012%	0.44%	PASS
19	0.067	0.104	0.014	0.050%	0.078%	0.010%	1.10%	PASS
20	0.015	0.012	0.012	0.011%	0.009%	0.009%	0.40%	PASS
21	0.014	0.011	0.011	0.010%	0.008%	0.008%	0.60%	PASS
22	0.013	0.010	0.010	0.010%	0.008%	0.008%	0.36%	PASS
23	0.012	0.009	0.010	0.009%	0.007%	0.007%	0.90%	PASS
24	0.011	0.009	0.009	0.008%	0.007%	0.007%	0.33%	PASS



**Auszug aus dem Prüfbericht 28112188 015 rev.01**  
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 Auszug Nr.: 1 \_ **Annex F.3** (VDE-AR-N 4105)

25	0.010	0.008	0.008	0.008%	0.006%	0.006%	0.80%	PASS
26	0.010	0.008	0.008	0.007%	0.006%	0.006%	0.31%	PASS
27	0.010	0.007	0.008	0.007%	0.006%	0.006%	0.60%	PASS
28	0.009	0.007	0.008	0.007%	0.005%	0.006%	0.29%	PASS
29	0.009	0.007	0.007	0.007%	0.005%	0.005%	0.70%	PASS
30	0.008	0.007	0.007	0.006%	0.005%	0.005%	0.27%	PASS
31	0.008	0.007	0.007	0.006%	0.005%	0.005%	0.70%	PASS
32	0.008	0.006	0.006	0.006%	0.005%	0.005%	0.25%	PASS
33	0.008	0.006	0.006	0.006%	0.004%	0.005%	0.60%	PASS
34	0.008	0.006	0.006	0.006%	0.004%	0.005%	0.24%	PASS
35	0.007	0.006	0.006	0.005%	0.004%	0.004%	--	--
36	0.007	0.006	0.006	0.006%	0.004%	0.004%	0.22%	PASS
37	0.007	0.006	0.006	0.005%	0.004%	0.004%	--	--
38	0.007	0.005	0.006	0.005%	0.004%	0.004%	0.21%	PASS
39	0.007	0.005	0.005	0.005%	0.004%	0.004%	--	--
40	0.007	0.005	0.005	0.005%	0.004%	0.004%	0.20%	PASS
41	0.007	0.005	0.005	0.005%	0.004%	0.004%	--	--
42	0.007	0.005	0.005	0.005%	0.004%	0.004%	0.19%	PASS
43	0.007	0.005	0.005	0.005%	0.004%	0.004%	--	--
44	0.006	0.005	0.005	0.005%	0.004%	0.004%	0.18%	PASS
45	0.006	0.005	0.005	0.005%	0.004%	0.004%	--	--
46	0.007	0.005	0.005	0.005%	0.004%	0.004%	0.17%	PASS
47	0.007	0.005	0.005	0.005%	0.004%	0.004%	--	--
48	0.006	0.005	0.005	0.005%	0.004%	0.004%	0.17%	PASS
49	0.006	0.005	0.005	0.005%	0.004%	0.003%	--	--
50	0.006	0.005	0.005	0.005%	0.004%	0.004%	0.16%	PASS
THDi	1.42%	1.22%	0.95%					

33%								
Order	Phase R	Phase S	Phase T	Phase R	Phase S	Phase T	Limits	Result
	[A]	[A]	[A]	[%]	[%]	[%]	Rsce33	
0	--	--	--	--	--	--	--	--
1	39.398	39.439	39.492	29.509%	29.539%	29.579%	--	--
2	0.171	0.181	0.154	0.128%	0.136%	0.115%	0.60%	PASS
3	0.436	0.406	0.308	0.326%	0.304%	0.230%	21.60%	PASS
4	0.190	0.140	0.158	0.142%	0.105%	0.119%	0.60%	PASS
5	0.499	0.420	0.288	0.374%	0.314%	0.215%	10.70%	PASS
6	0.192	0.121	0.145	0.144%	0.090%	0.108%	0.60%	PASS
7	0.710	0.499	0.518	0.532%	0.374%	0.388%	7.20%	PASS
8	0.236	0.208	0.115	0.177%	0.156%	0.086%	0.60%	PASS
9	0.488	0.339	0.160	0.365%	0.254%	0.120%	3.80%	PASS
10	0.085	0.085	0.054	0.064%	0.064%	0.040%	0.60%	PASS
11	0.804	0.863	0.668	0.602%	0.646%	0.501%	3.10%	PASS

**Auszug aus dem Prüfbericht 28112188 015 rev.01**  
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 Auszug Nr.: 1 \_ **Annex F.3** (VDE-AR-N 4105)

12	0.108	0.079	0.072	0.081%	0.060%	0.054%	0.60%	PASS
13	0.587	0.582	0.497	0.440%	0.436%	0.372%	2.00%	PASS
14	0.044	0.050	0.040	0.033%	0.038%	0.030%	0.57%	PASS
15	0.038	0.033	0.023	0.029%	0.025%	0.017%	0.70%	PASS
16	0.016	0.021	0.017	0.012%	0.015%	0.012%	0.50%	PASS
17	0.016	0.022	0.015	0.012%	0.017%	0.011%	1.20%	PASS
18	0.012	0.015	0.012	0.009%	0.011%	0.009%	0.44%	PASS
19	0.010	0.013	0.011	0.008%	0.010%	0.008%	1.10%	PASS
20	0.010	0.012	0.010	0.007%	0.009%	0.008%	0.40%	PASS
21	0.009	0.011	0.009	0.007%	0.008%	0.007%	0.60%	PASS
22	0.008	0.010	0.008	0.006%	0.007%	0.006%	0.36%	PASS
23	0.008	0.009	0.008	0.006%	0.007%	0.006%	0.90%	PASS
24	0.007	0.008	0.007	0.005%	0.006%	0.005%	0.33%	PASS
25	0.007	0.008	0.007	0.005%	0.006%	0.005%	0.80%	PASS
26	0.007	0.008	0.007	0.005%	0.006%	0.005%	0.31%	PASS
27	0.006	0.007	0.006	0.005%	0.005%	0.005%	0.60%	PASS
28	0.006	0.007	0.006	0.004%	0.005%	0.005%	0.29%	PASS
29	0.006	0.007	0.006	0.004%	0.005%	0.004%	0.70%	PASS
30	0.005	0.006	0.006	0.004%	0.005%	0.004%	0.27%	PASS
31	0.005	0.006	0.006	0.004%	0.005%	0.004%	0.70%	PASS
32	0.005	0.006	0.005	0.004%	0.005%	0.004%	0.25%	PASS
33	0.005	0.006	0.005	0.004%	0.004%	0.004%	0.60%	PASS
34	0.005	0.006	0.005	0.004%	0.004%	0.004%	0.24%	PASS
35	0.005	0.006	0.005	0.004%	0.004%	0.004%	--	--
36	0.005	0.006	0.005	0.003%	0.004%	0.004%	0.22%	PASS
37	0.005	0.006	0.005	0.003%	0.004%	0.004%	--	--
38	0.005	0.005	0.004	0.003%	0.004%	0.003%	0.21%	PASS
39	0.004	0.005	0.004	0.003%	0.004%	0.003%	--	--
40	0.004	0.005	0.005	0.003%	0.004%	0.003%	0.20%	PASS
41	0.004	0.005	0.004	0.003%	0.004%	0.003%	--	--
42	0.004	0.005	0.004	0.003%	0.004%	0.003%	0.19%	PASS
43	0.004	0.005	0.004	0.003%	0.004%	0.003%	--	--
44	0.004	0.005	0.004	0.003%	0.004%	0.003%	0.18%	PASS
45	0.004	0.005	0.004	0.003%	0.004%	0.003%	--	--
46	0.004	0.005	0.004	0.003%	0.004%	0.003%	0.17%	PASS
47	0.004	0.005	0.004	0.003%	0.003%	0.003%	--	--
48	0.004	0.005	0.004	0.003%	0.004%	0.003%	0.17%	PASS
49	0.004	0.005	0.004	0.003%	0.004%	0.003%	--	--
50	0.004	0.005	0.004	0.003%	0.003%	0.003%	0.16%	PASS
THDi	1.15%	1.04%	0.84%					

**INTER-HARMONICS:**

Order	Inter-Harmonics [%]										
	0% P/Pn	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	0.021%	0.030%	0.038%	0.051%	0.061%	0.078%	0.074%	0.078%	0.084%	0.082%	0.099%
2.5	0.028%	0.051%	0.066%	0.080%	0.091%	0.111%	0.097%	0.088%	0.087%	0.085%	0.100%
3.5	0.036%	0.081%	0.100%	0.117%	0.115%	0.118%	0.125%	0.128%	0.130%	0.126%	0.121%
4.5	0.051%	0.088%	0.111%	0.127%	0.133%	0.138%	0.135%	0.126%	0.131%	0.127%	0.134%
5.5	0.063%	0.093%	0.112%	0.134%	0.134%	0.128%	0.133%	0.136%	0.144%	0.138%	0.131%
6.5	0.070%	0.079%	0.111%	0.132%	0.143%	0.145%	0.142%	0.136%	0.157%	0.150%	0.152%
7.5	0.090%	0.113%	0.162%	0.212%	0.239%	0.233%	0.234%	0.236%	0.250%	0.257%	0.269%
8.5	0.086%	0.088%	0.109%	0.151%	0.150%	0.160%	0.173%	0.181%	0.172%	0.178%	0.198%
9.5	0.087%	0.085%	0.101%	0.105%	0.118%	0.126%	0.140%	0.145%	0.160%	0.175%	0.164%
10.5	0.128%	0.149%	0.144%	0.132%	0.140%	0.142%	0.151%	0.161%	0.192%	0.201%	0.196%
11.5	0.185%	0.264%	0.194%	0.192%	0.222%	0.227%	0.216%	0.238%	0.317%	0.322%	0.328%
12.5	0.095%	0.047%	0.102%	0.093%	0.092%	0.094%	0.110%	0.122%	0.136%	0.118%	0.106%
13.5	0.127%	0.036%	0.105%	0.136%	0.156%	0.162%	0.167%	0.176%	0.112%	0.088%	0.095%
14.5	0.042%	0.022%	0.028%	0.035%	0.054%	0.054%	0.049%	0.043%	0.033%	0.030%	0.038%
15.5	0.036%	0.021%	0.018%	0.024%	0.039%	0.039%	0.034%	0.029%	0.026%	0.025%	0.032%
16.5	0.028%	0.014%	0.014%	0.018%	0.031%	0.029%	0.026%	0.021%	0.019%	0.019%	0.026%
17.5	0.025%	0.015%	0.012%	0.015%	0.026%	0.025%	0.022%	0.017%	0.017%	0.017%	0.022%
18.5	0.020%	0.011%	0.010%	0.013%	0.023%	0.023%	0.019%	0.015%	0.014%	0.013%	0.017%
19.5	0.018%	0.011%	0.009%	0.011%	0.021%	0.020%	0.017%	0.013%	0.012%	0.012%	0.016%
20.5	0.016%	0.010%	0.008%	0.010%	0.020%	0.017%	0.015%	0.012%	0.011%	0.011%	0.016%
21.5	0.013%	0.009%	0.008%	0.010%	0.017%	0.017%	0.014%	0.011%	0.010%	0.010%	0.014%
22.5	0.010%	0.008%	0.007%	0.009%	0.016%	0.016%	0.014%	0.010%	0.010%	0.009%	0.012%
23.5	0.009%	0.008%	0.007%	0.008%	0.016%	0.014%	0.012%	0.009%	0.009%	0.009%	0.012%
24.5	0.008%	0.008%	0.006%	0.008%	0.015%	0.013%	0.011%	0.008%	0.009%	0.008%	0.012%
25.5	0.007%	0.006%	0.006%	0.007%	0.014%	0.013%	0.011%	0.008%	0.008%	0.008%	0.012%
26.5	0.007%	0.007%	0.005%	0.007%	0.013%	0.013%	0.011%	0.007%	0.008%	0.008%	0.011%
27.5	0.005%	0.006%	0.005%	0.007%	0.013%	0.011%	0.010%	0.007%	0.008%	0.008%	0.010%
28.5	0.006%	0.007%	0.005%	0.006%	0.013%	0.011%	0.010%	0.007%	0.008%	0.007%	0.010%
29.5	0.005%	0.005%	0.005%	0.006%	0.012%	0.011%	0.009%	0.007%	0.007%	0.007%	0.010%
30.5	0.005%	0.006%	0.005%	0.006%	0.011%	0.011%	0.009%	0.006%	0.007%	0.007%	0.010%
31.5	0.005%	0.005%	0.005%	0.006%	0.011%	0.010%	0.009%	0.006%	0.007%	0.007%	0.009%
32.5	0.005%	0.006%	0.004%	0.006%	0.011%	0.010%	0.009%	0.006%	0.007%	0.007%	0.009%
33.5	0.004%	0.005%	0.004%	0.005%	0.011%	0.010%	0.008%	0.006%	0.006%	0.007%	0.009%
34.5	0.005%	0.006%	0.004%	0.005%	0.010%	0.010%	0.008%	0.006%	0.006%	0.006%	0.008%
35.5	0.004%	0.005%	0.004%	0.005%	0.010%	0.009%	0.008%	0.005%	0.006%	0.006%	0.008%
36.5	0.005%	0.005%	0.004%	0.005%	0.010%	0.009%	0.008%	0.005%	0.006%	0.006%	0.007%
37.5	0.004%	0.005%	0.004%	0.005%	0.010%	0.009%	0.008%	0.005%	0.006%	0.006%	0.008%
38.5	0.004%	0.005%	0.004%	0.005%	0.009%	0.009%	0.007%	0.005%	0.006%	0.006%	0.008%
39.5	0.004%	0.005%	0.004%	0.005%	0.009%	0.008%	0.007%	0.005%	0.006%	0.005%	0.008%
40.5	0.004%	0.005%	0.004%	0.005%	0.010%	0.008%	0.007%	0.005%	0.005%	0.005%	0.007%

**HIGHER FREQUENCY HARMONICS:**

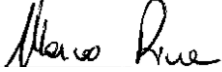
Order	Frequency	High frequency harmonics [%]										
		0% P/Pn	10% P/Pn	20% P/Pn	30% P/Pn	40% P/Pn	50% P/Pn	60% P/Pn	70% P/Pn	80% P/Pn	90% P/Pn	100% P/Pn
42	2100	0.003%	0.004%	0.003%	0.003%	0.007%	0.007%	0.005%	0.004%	0.004%	0.005%	0.006%
46	2300	0.004%	0.004%	0.003%	0.003%	0.006%	0.007%	0.005%	0.004%	0.004%	0.005%	0.006%
50	2500	0.003%	0.004%	0.003%	0.004%	0.007%	0.005%	0.005%	0.004%	0.005%	0.004%	0.006%
54	2700	0.003%	0.004%	0.003%	0.003%	0.006%	0.006%	0.005%	0.003%	0.004%	0.004%	0.006%
58	2900	0.003%	0.004%	0.003%	0.003%	0.007%	0.006%	0.006%	0.004%	0.005%	0.004%	0.006%
62	3100	0.003%	0.004%	0.002%	0.004%	0.006%	0.006%	0.005%	0.004%	0.004%	0.005%	0.006%
66	3300	0.002%	0.004%	0.003%	0.003%	0.006%	0.005%	0.005%	0.004%	0.004%	0.004%	0.006%
70	3500	0.003%	0.004%	0.003%	0.003%	0.007%	0.006%	0.005%	0.003%	0.005%	0.005%	0.006%
74	3700	0.003%	0.003%	0.003%	0.004%	0.007%	0.007%	0.005%	0.004%	0.004%	0.005%	0.005%
78	3900	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.000%	0.001%	0.001%	0.001%	0.000%
82	4100	0.001%	0.000%	0.001%	0.000%	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
86	4300	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.001%	0.000%
90	4500	0.000%	0.001%	0.001%	0.000%	0.001%	0.001%	0.001%	0.000%	0.001%	0.000%	0.001%
94	4700	0.000%	0.001%	0.001%	0.000%	0.000%	0.001%	0.001%	0.000%	0.000%	0.001%	0.001%
98	4900	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	0.001%	0.000%	0.001%	0.001%	0.000%
102	5100	0.000%	0.001%	0.001%	0.000%	0.001%	0.001%	0.000%	0.001%	0.000%	0.000%	0.000%
106	5300	0.000%	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.000%
110	5500	0.001%	0.000%	0.000%	0.000%	0.001%	0.001%	0.001%	0.000%	0.000%	0.000%	0.001%
114	5700	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.001%
118	5900	0.001%	0.001%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.001%	0.000%
122	6100	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%
126	6300	0.000%	0.001%	0.001%	0.001%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.000%
130	6500	0.000%	0.001%	0.000%	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%	0.000%	0.000%
134	6700	0.000%	0.000%	0.001%	0.001%	0.001%	0.001%	0.000%	0.000%	0.001%	0.001%	0.000%
138	6900	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	0.001%	0.001%	0.000%
142	7100	0.000%	0.000%	0.000%	0.000%	0.001%	0.000%	0.001%	0.000%	0.001%	0.001%	0.001%
146	7300	0.000%	0.000%	0.001%	0.001%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.001%
150	7500	0.000%	0.001%	0.000%	0.000%	0.001%	0.000%	0.001%	0.001%	0.001%	0.000%	0.000%
154	7700	0.001%	0.001%	0.001%	0.000%	0.001%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%
158	7900	0.001%	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.000%	0.000%	0.001%	0.000%
162	8100	0.001%	0.000%	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%
166	8300	0.001%	0.000%	0.000%	0.000%	0.001%	0.000%	0.001%	0.000%	0.001%	0.001%	0.000%
170	8500	0.001%	0.000%	0.000%	0.001%	0.000%	0.000%	0.000%	0.001%	0.001%	0.001%	0.001%
174	8700	0.000%	0.001%	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.000%	0.000%	0.000%
178	8900	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	0.000%	0.001%	0.000%	0.000%	0.000%

**Auszug aus dem Prüfbericht 28112188 015 rev.01**  
(Verbindung mit Prüfbericht N. 28112188 015 rev.01)  
**“Bestimmung der elektrischen Eigenschaften”**

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Auszug Nr.: 1 \_ **Annex F.3** (VDE-AR-N 4105)

**Reviewed by:**

05/03/2019	Marco Piva	
<b>Datum</b>	<b>Name/Stellung</b>	<b>Unterschrift</b>
<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>

**Ende der Auszug**