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Certification body of BV CPS GmbH  
Accredited according to EN 45011 -  
ISO / IEC Guide 65

## Certificate of compliance

**Applicant:** KACO new energy GmbH  
Carl-Zeiss-Straße 1  
74172 Neckarsulm  
Germany

**Product:** Grid-tied photovoltaic (PV) inverter

**Model:** Powador 6.0 TL3 – INT – A;  
Powador 7.8 TL3 – INT – A;  
Powador 9.0 TL3 – INT – A;  
Powador 10.0 TL3 – INT;  
Powador 12.0 TL3 – INT;  
Powador 14.0 TL3 – INT;  
Powador 18.0 TL3 – INT;  
Powador 20.0 TL3 – INT;  
Blueplanet 20.0 TL3 M2 WM OD IIG0

**Use in accordance with regulations:**

The inverters are tested according the IEC 61683 procedure for measuring efficiency.  
For detailed information please see certificate annex or corresponding test report.

**Applied rules and standards:**

IEC 61683:1999, EN 61683:2000, DIN EN 61683:2000  
Photovoltaic systems – Power conditioners – Procedure for measuring efficiency

At the time of issue of this certificate the safety concept of an aforementioned representative product corresponds to the valid safety specifications for the specified use in accordance with regulations.

**Report number:** 10TH0306-IEC61683\_6;  
21175445\_002

**Certificate number:** U16-0554

**Date of issue:** 2016-11-03

**Certification body**

Dieter Zitzmann



**Measuring of efficiency**

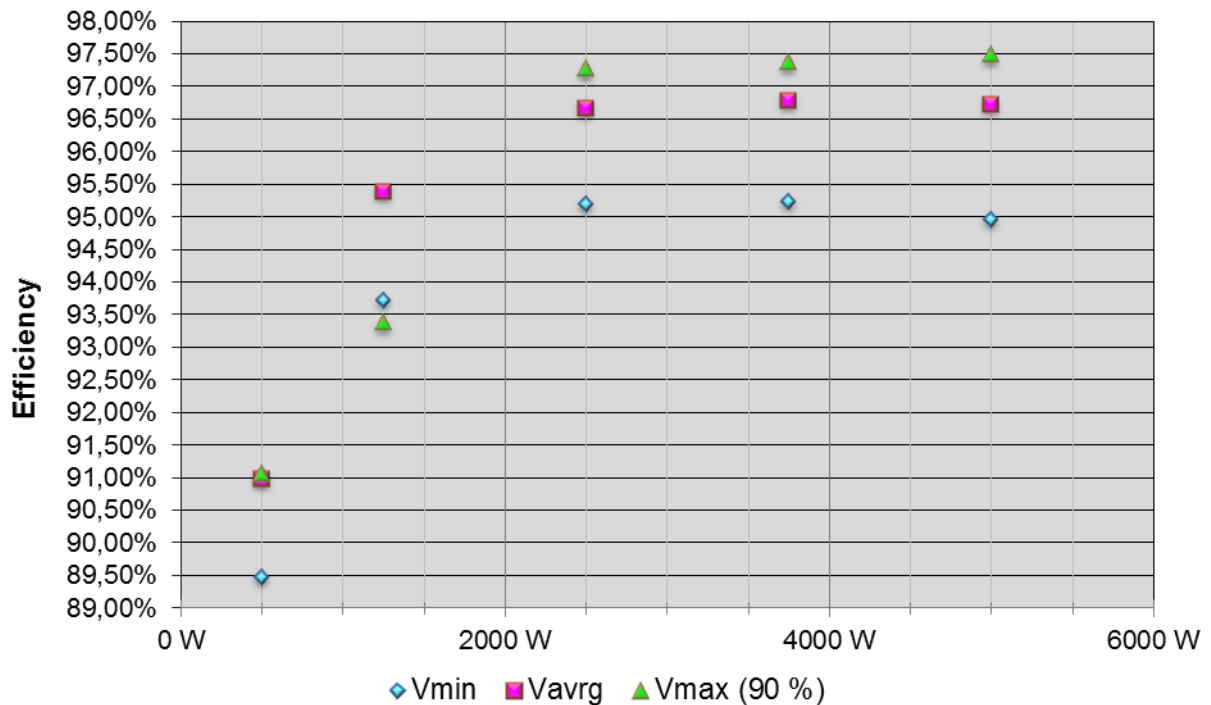
Extract from test report according the IEC 61683

Nr. 10TH0306-IEC61683\_6; 21175445\_002

**Efficiency measurement conditions test results**

**Powador 6.0 TL3 – INT – A**

Input voltage (Vdc)		P <sub>AC</sub> (nom. 5000 W)				
		10%	25%	50%	75%	100%
		500 W	1250 W	2500 W	3750 W	5000 W
		$\eta$				
Vmin	240	89,47%	93,72%	95,20%	95,25%	94,96%
Vnominal	575	91,00%	95,40%	96,67%	96,79%	96,74%
Vmax (90%)	720	91,05%	93,38%	97,26%	97,36%	97,49%



**Measuring of efficiency**

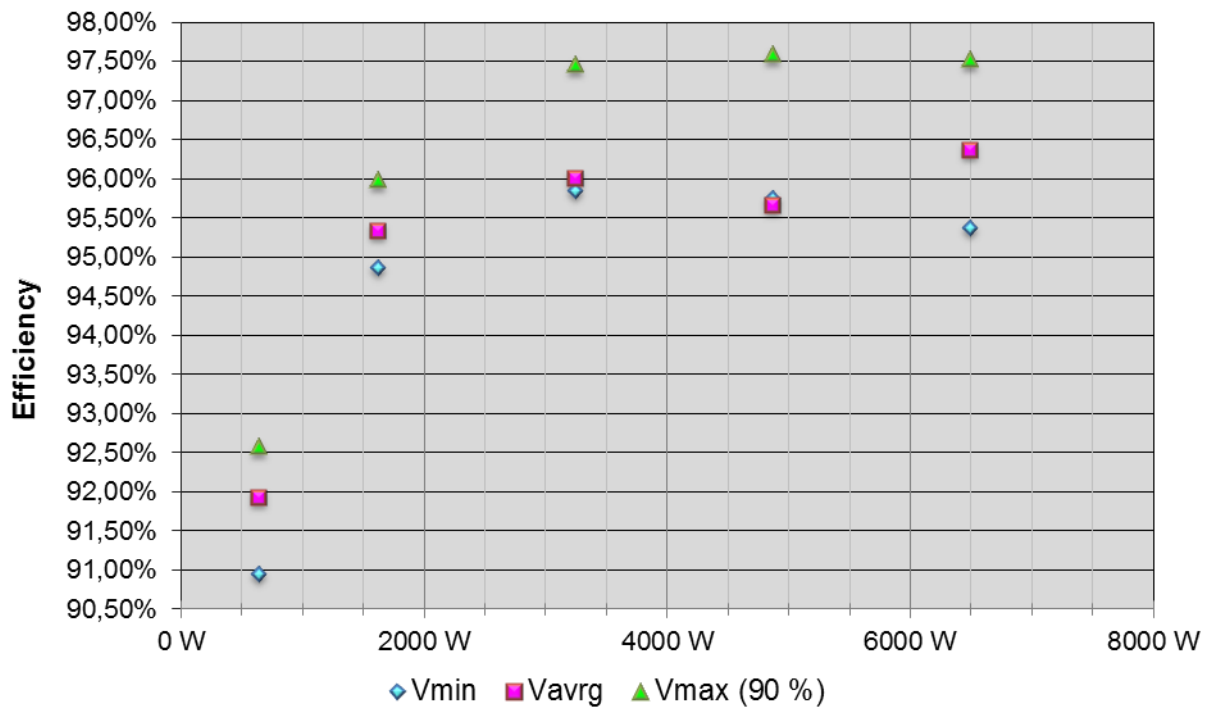
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**Efficiency measurement conditions test results**

**Powador 7.8 TL3 – INT – A**

Input voltage (Vdc)		P <sub>AC</sub> (nom. 6500 W)				
		10%	25%	50%	75%	100%
		650 W	1625 W	3250 W	4875 W	6500 W
		$\eta$				
Vmin	310	90,94%	94,86%	95,84%	95,75%	95,36%
Vnominal	575	91,94%	95,34%	96,00%	95,66%	96,37%
Vmax (90%)	720	92,56%	95,97%	97,46%	97,58%	97,52%



**Measuring of efficiency**

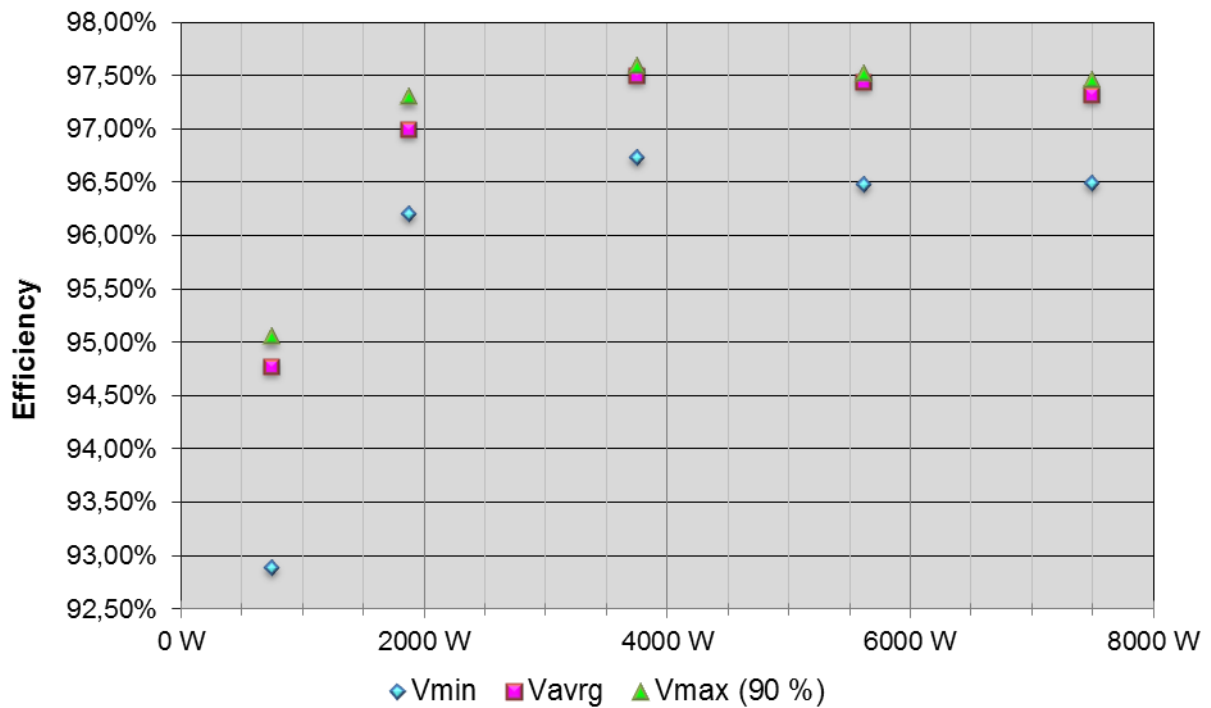
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**Efficiency measurement conditions test results**

**Powador 9.0 TL3 – INT – A**

Input voltage (V d.c.)		P <sub>AC</sub> (nom. 7500 W)				
		10%	25%	50%	75%	100%
		750 W	1875 W	3750 W	5625 W	7500 W
		η				
<b>Vmin</b>	350	92,89%	96,20%	96,73%	96,48%	96,50%
<b>Vnominal</b>	575	94,77%	96,99%	97,50%	97,45%	97,32%
<b>Vmax (90%)</b>	720	95,05%	97,29%	97,59%	97,52%	97,45%



**Measuring of efficiency**

Extract from test report according the IEC 61683

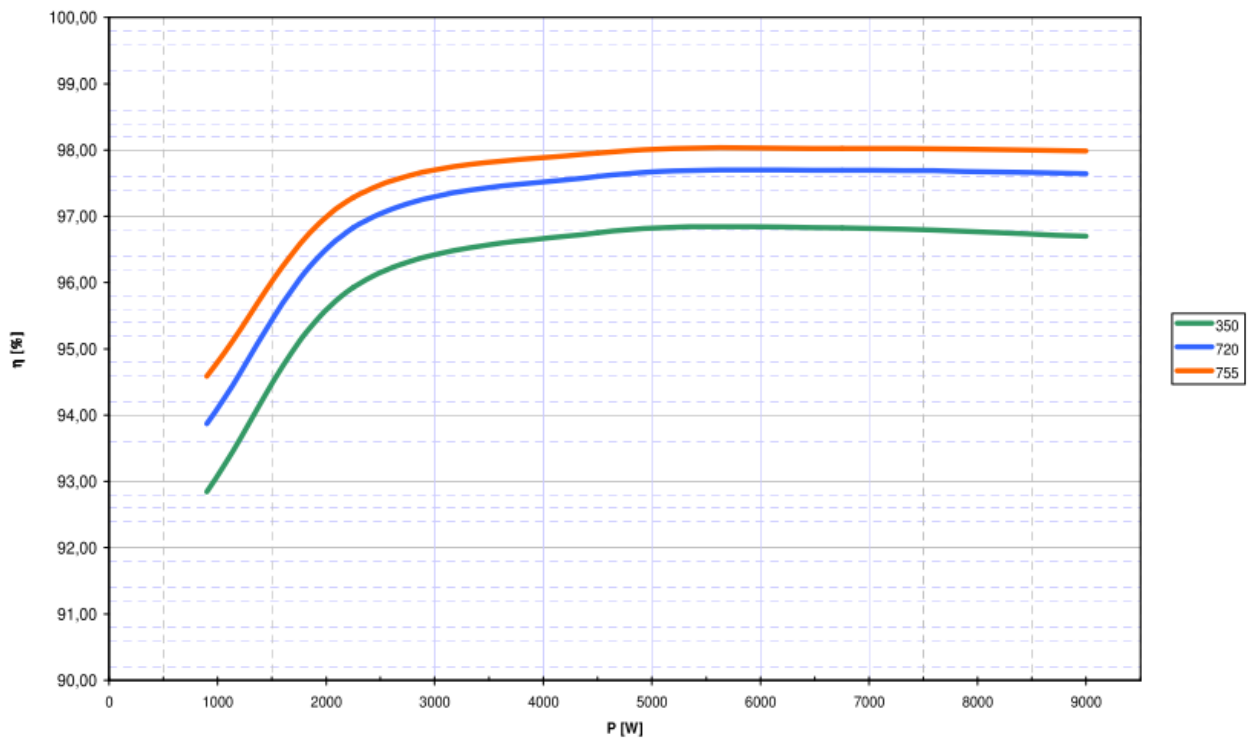
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**Efficiency measurement conditions test results**

**Powador 10.0 TL3 – INT**

Input voltage (Vdc)		P <sub>AC</sub> (nom. 9000 W)				
		10%	25%	50%	75%	100%
		900 W	2250 W	4500 W	6750 W	9000 W
		η				
Vmin	350	92,84%	95,93%	96,75%	96,82%	96,70%
Vnominal	755	94,59%	97,28%	97,95%	98,03%	97,99%
Vmax (90%)	720	93,87%	96,83%	97,60%	97,70%	97,65%

**Efficiency chart**



**Measuring of efficiency**

Extract from test report according the IEC 61683

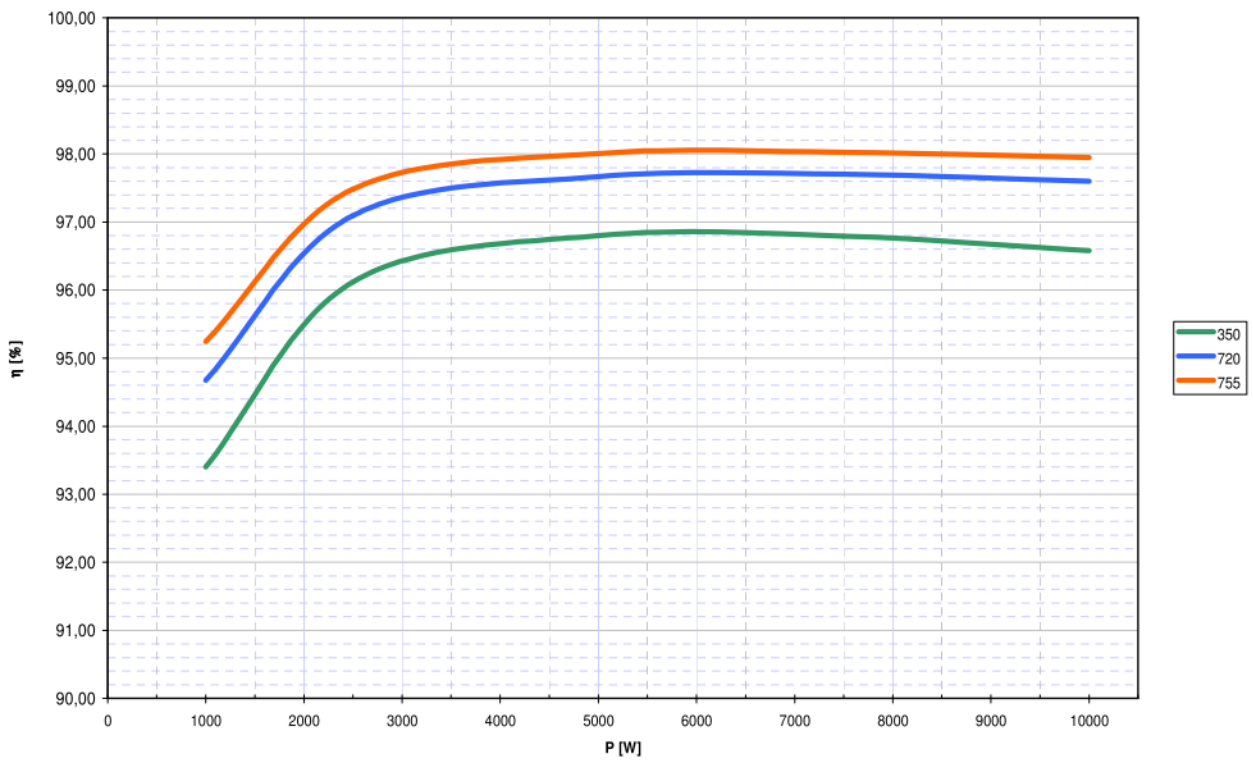
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**Efficiency measurement conditions test results**

**Powador 12.0 TL3 – INT**

Input voltage (Vdc)		P <sub>AC</sub> (nom. 10000 W)				
		10%	25%	50%	75%	100%
		1000 W	2500 W	5000 W	7500 W	10000 W
		$\eta$				
<b>Vmin</b>	350	93,40%	96,12%	96,80%	96,79%	96,58%
<b>Vnominal</b>	755	95,24%	97,48%	98,01%	98,02%	97,95%
<b>Vmax (90%)</b>	720	94,67%	97,10%	97,67%	97,70%	97,60%

**Efficiency chart**



**Measuring of efficiency**

Extract from test report according the IEC 61683

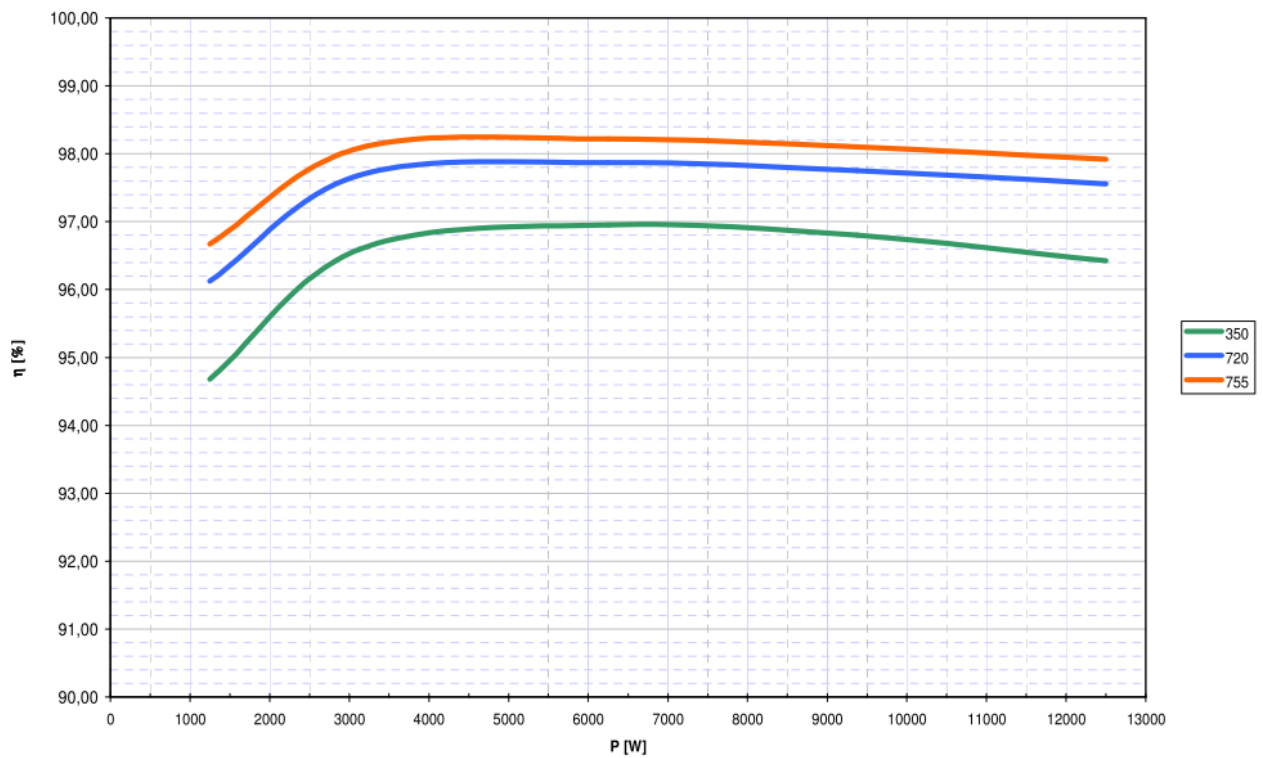
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**Efficiency measurement conditions test results**

**Powador 14.0 TL3 – INT**

Input voltage (Vdc)		P <sub>AC</sub> (nom. 12500 W)				
		10%	25%	50%	75%	100%
		1250 W	3125 W	6250 W	9375 W	12500 W
		η				
<b>Vmin</b>	350	94,68%	96,59%	96,96%	96,80%	96,42%
<b>Vnominal</b>	755	96,67%	98,09%	98,22%	98,10%	97,92%
<b>Vmax (90%)</b>	720	96,13%	97,69%	97,87%	97,75%	97,56%

**Efficiency chart**



**Measuring of efficiency**

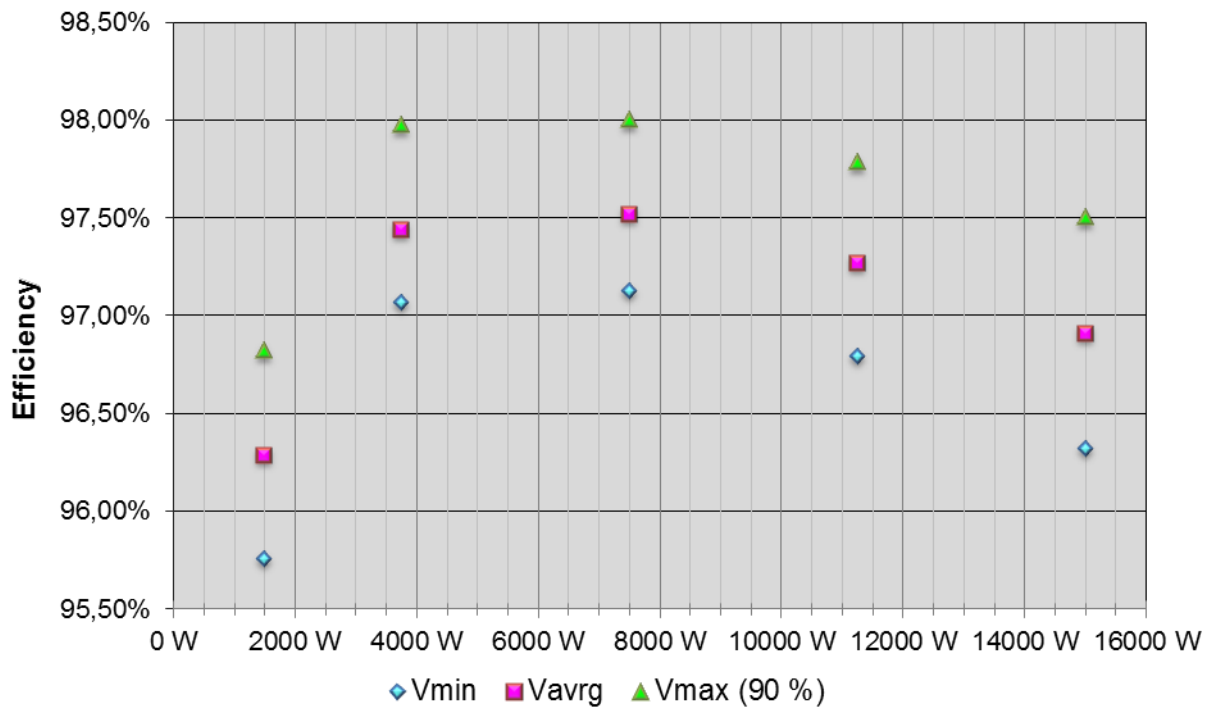
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**Efficiency measurement conditions test results**

**Powador 18.0 TL3 – INT**

Input voltage (Vdc)		P <sub>AC</sub> (nom. 15000 W)				
		10%	25%	50%	75%	100%
		1500 W	3750 W	7500 W	11250 W	15000 W
		$\eta$				
<b>Vmin</b>	420V	95,76%	97,07%	97,13%	96,79%	96,32%
<b>Vnominal</b>	575V	96,29%	97,44%	97,52%	97,27%	96,91%
<b>Vmax (90)</b>	720V	96,82%	97,97%	98,00%	97,78%	97,50%





**Measuring of efficiency**

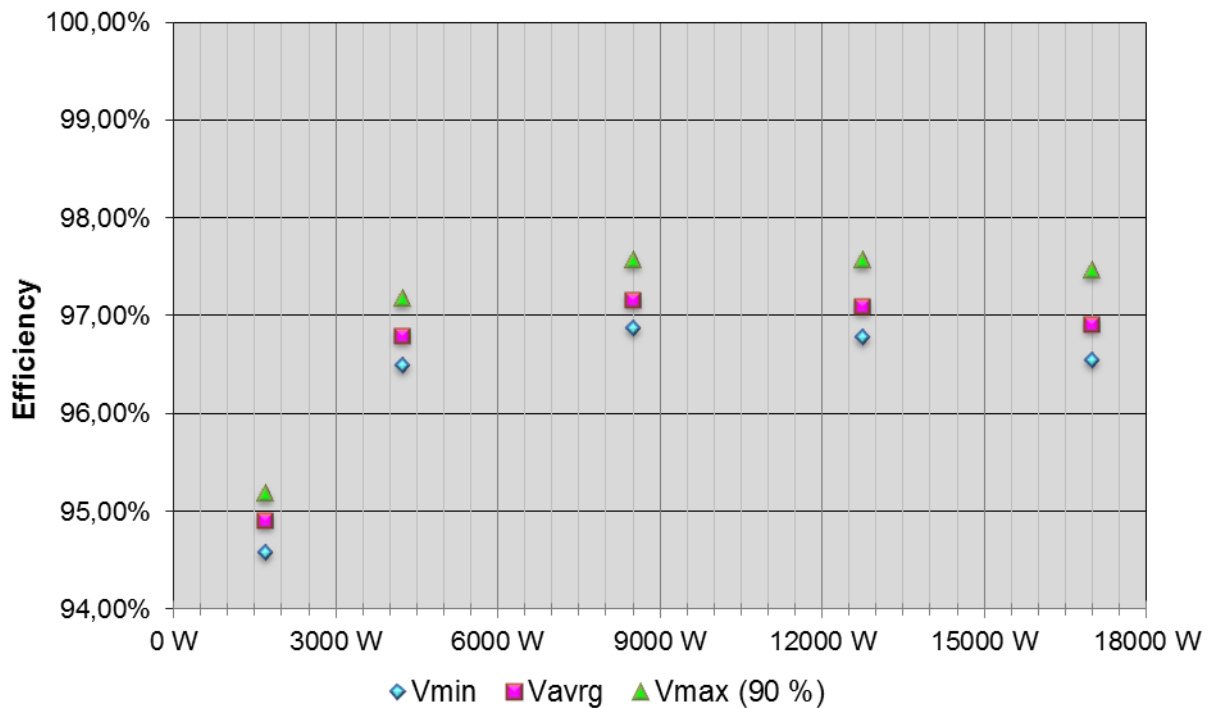
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**Efficiency measurement conditions test results**

**Powador 20.0 TL3 – INT**

Input voltage (Vdc)		P <sub>AC</sub> (nom. 17000 W)				
		10%	25%	50%	75%	100%
		1700 W	4250 W	8500 W	12750 W	17000 W
		<b>η</b>				
<b>Vmin</b>	460	94,58%	96,50%	96,87%	96,78%	96,55%
<b>Vnominal</b>	575	94,91%	96,80%	97,16%	97,10%	96,92%
<b>Vmax (90)</b>	720	95,18%	97,18%	97,57%	97,57%	97,46%



Measuring of efficiency

Extract from test report according the IEC 61683

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Efficiency measurement conditions test results

Blueplanet 20.0 TL3 M2 WM OD IIG0

Input voltage (Vdc)		P <sub>AC</sub> (nom. 20000 W)				
		10%	25%	50%	75%	100%
		2000 W	5000 W	10000 W	15000 W	20000 W
		η				
Vmin	550	95,1%	97,1%	97,6%	97,5%	97,3%
Vnominal	675	96,0%	97,6%	98,0%	97,9%	97,7%
Vmax (90)	720	95,7%	97,5%	97,9%	97,8%	97,7%

Efficiency Blueplanet 20.0 TL3 M2 WM OD IIG0

