# Letter of Attestation

| | | | |
|---|---|---|---|
| **Document:** | 70042942 | **Master Contract:** | 235284 |
| **Project:** | 70042942 | **Date Issued:** | August 12, 2015 |

**Issued to:** **Huawei Technologies Co., Ltd.**
**Huawei Industrial Base**
**Bantian Town**
**Longgang District**
**Shenzhen, 518129**
**China**
**Attention: Mr. Zhengyou Zhou**

***CSA Group, Certification and Testing hereby confirms that it has completed an evaluation of Utility Interactive Inverter***

***Models SUN2000-25KTL-US and SUN2000-30KTL-US***

***CSA Group, Certification and Testing hereby attests that the products identified above and described in CSA report 70042942, dated August 12, 2015 complies with the following standards/tests, to the extent applicable:***

The testing of the subject inverters were completed according to the following sections of the test protocol entitled "Performance Test Protocol for Evaluating Inverters Used in Grid-Connected Photovoltaic Systems" prepared by "Sandia National Laboratories, Endecon Engineering, BEW Engineering, and Institute for Sustainable Technology", dated October 14, 2004 as modified by the "CEC Guideline for the use of the Performance Test Protocol for Evaluating Inverters Used in Grid-Connected Photovoltaic Systems - (draft for immediate use)" prepared by KEMA-Xenergy, and BEW Engineering, dated March 1, 2005 with deviations according to the requirements of the California Energy Commission New Solar Homes Partnership Guidebook 2nd edition (CEC-300-2007-008-CMF), Appendix 3, Section B – "Inverters":

- ***Maximum Continuous Power***
- ***Conversion Efficiency***
- ***Tare Losses***

**Notes:**

1. Units verified against CSA report 70042942, dated August 12, 2015.
2. Refer to test report (4 Pages) and Attachment A (8 pages) for test results and setup details.

Issued by: Kyle Song
Kyle Song, Certifier

Manufacturer: Huawei Technologies Co., Ltd

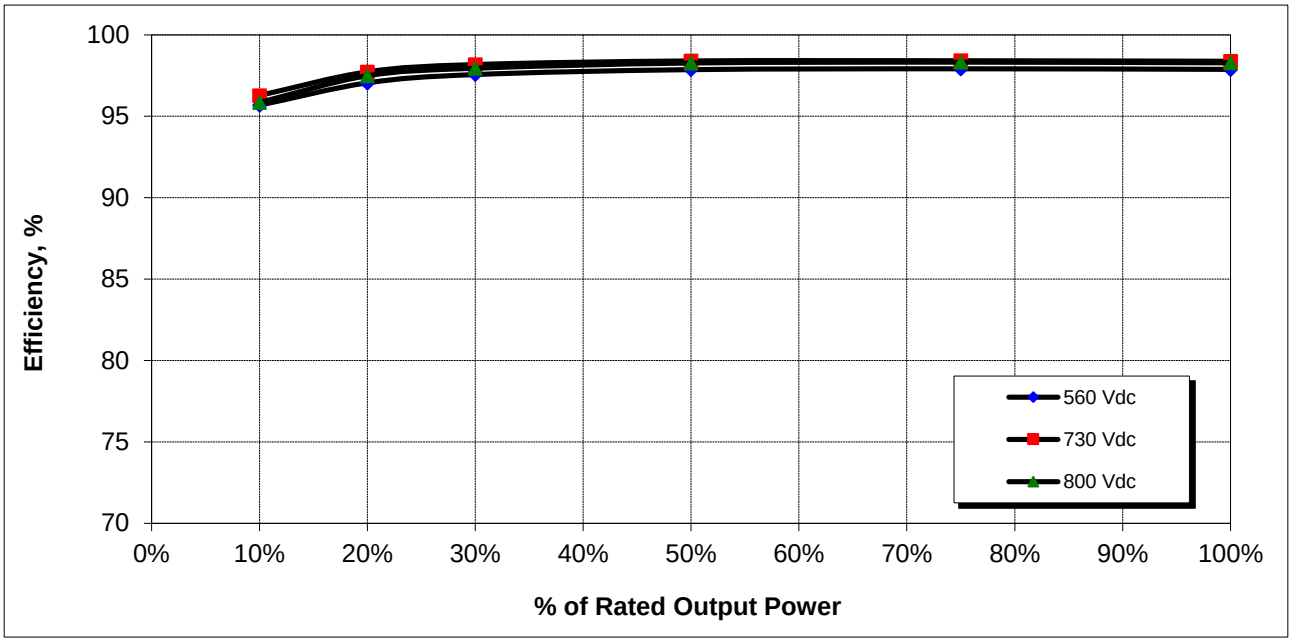
Model #: SUN2000-25KTL-US

Rated Maximum Continuous Output Power: 25.00 kW  Night Tare Loss: 1.00 W

Vmin: 560 Vdc  Vnom: 730 Vdc  Vmax: 800 Vdc

| | | Power Level (%; kW) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 10% | 20% | 30% | 50% | 75% | 100% | |
| Input Voltage (Vdc) | | 2.50 | 5.00 | 7.50 | 12.50 | 18.75 | 25.00 | Wtd |
| Vmin | 560 | 95.7 | 97.1 | 97.6 | 97.9 | 97.9 | 97.9 | 97.7 |
| Vnom | 730 | 96.3 | 97.7 | 98.2 | 98.4 | 98.4 | 98.4 | 98.3 |
| Vmax | 800 | 95.9 | 97.5 | 98.0 | 98.3 | 98.3 | 98.3 | 98.1 |

**CEC Efficiency = 98.0%**



Inverter Efficiency Data

Minimum of 5 samples required

| Specified | | Sample #1 | | | Sample #2 | | | Sample #3 | | | Sample #4 | | | Sample #5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output Power | Input Voltage | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency |
| (% of rated) | (Vdc) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) |
| 10% | Vmin | 2416.63 | 568.29 | 95.60 | 2415.57 | 572.08 | 95.72 | 2415.27 | 566.45 | 95.66 | 2414.63 | 568.69 | 95.62 | 2417.40 | 569.56 | 95.64 |
| 20% | Vmin | 4923.03 | 574.48 | 97.13 | 4906.93 | 568.41 | 97.01 | 4906.17 | 572.27 | 97.04 | 4906.47 | 568.31 | 97.04 | 4906.27 | 572.30 | 97.08 |
| 30% | Vmin | 7398.03 | 568.31 | 97.55 | 7398.00 | 572.30 | 97.57 | 7399.60 | 568.36 | 97.49 | 7398.97 | 572.31 | 97.59 | 7397.57 | 568.42 | 97.64 |
| 50% | Vmin | 12272.43 | 569.35 | 97.88 | 12264.27 | 572.37 | 97.84 | 12269.70 | 568.45 | 97.86 | 12262.70 | 572.40 | 97.86 | 12270.33 | 568.41 | 97.87 |
| 75% | Vmin | 18314.83 | 568.54 | 97.91 | 18297.77 | 572.42 | 97.92 | 18313.20 | 568.60 | 97.91 | 18298.70 | 564.47 | 97.92 | 18308.60 | 566.51 | 97.91 |
| 100% | Vmin | 24491.13 | 569.17 | 97.87 | 24480.13 | 572.58 | 97.90 | 24486.73 | 568.71 | 97.90 | 24478.93 | 572.49 | 97.88 | 24485.00 | 568.78 | 97.87 |
| 10% | Vnom | 2445.67 | 729.75 | 96.26 | 2445.33 | 733.84 | 96.28 | 2445.77 | 729.74 | 96.46 | 2445.57 | 733.81 | 96.48 | 2445.77 | 729.77 | 96.03 |
| 20% | Vnom | 5098.63 | 733.89 | 97.70 | 5097.87 | 729.76 | 97.79 | 5098.90 | 733.85 | 97.72 | 5092.43 | 735.84 | 97.74 | 5098.60 | 733.91 | 97.75 |
| 30% | Vnom | 7645.27 | 729.76 | 98.20 | 7652.00 | 733.77 | 98.19 | 7646.83 | 729.80 | 98.18 | 7647.30 | 733.92 | 98.20 | 7644.80 | 729.79 | 98.20 |
| 50% | Vnom | 12968.73 | 736.04 | 98.40 | 12974.83 | 738.07 | 98.40 | 12969.97 | 736.03 | 98.41 | 13167.67 | 738.19 | 98.39 | 12969.10 | 736.00 | 98.40 |
| 75% | Vnom | 18974.67 | 735.36 | 98.40 | 18982.30 | 740.28 | 98.43 | 18980.30 | 736.38 | 98.43 | 18980.97 | 740.34 | 98.38 | 18978.23 | 736.35 | 98.43 |
| 100% | Vnom | 25366.67 | 730.38 | 98.37 | 25379.63 | 734.60 | 98.40 | 25365.23 | 730.39 | 98.40 | 25378.03 | 730.37 | 98.38 | 25366.57 | 730.37 | 98.40 |
| 10% | Vmax | 2484.73 | 786.41 | 95.74 | 2481.63 | 787.44 | 95.98 | 2488.53 | 786.43 | 96.04 | 2473.00 | 786.38 | 95.61 | 2441.90 | 791.16 | 95.77 |
| 20% | Vmax | 5078.10 | 793.36 | 97.42 | 5072.97 | 789.57 | 97.39 | 5077.40 | 793.33 | 97.45 | 5075.50 | 789.46 | 97.60 | 5078.70 | 793.37 | 97.49 |
| 30% | Vmax | 7460.90 | 789.37 | 97.97 | 7477.03 | 785.90 | 98.00 | 7463.13 | 789.44 | 97.86 | 7460.03 | 787.34 | 97.94 | 7461.53 | 789.26 | 97.97 |
| 50% | Vmax | 12632.67 | 787.15 | 98.27 | 12632.30 | 787.43 | 98.26 | 12632.00 | 785.07 | 98.28 | 12637.67 | 787.26 | 98.30 | 12634.67 | 785.45 | 98.22 |
| 75% | Vmax | 18832.73 | 789.73 | 98.30 | 18833.43 | 789.52 | 98.34 | 18841.73 | 789.57 | 98.29 | 18833.40 | 791.53 | 98.32 | 18842.03 | 791.42 | 98.32 |
| 100% | Vmax | 25261.43 | 791.31 | 98.26 | 25284.17 | 787.45 | 98.32 | 25279.93 | 787.81 | 98.29 | 25264.23 | 793.78 | 98.28 | 25277.97 | 791.72 | 98.27 |

| Specified | | Sample #6 | | | Sample #7 | | | Sample #8 | | | Sample #9 | | | Sample #10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output Power | Input Voltage | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency |
| (% of rated) | (Vdc) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) |
| 10% | Vmin | 2418.23 | 569.29 | 95.78 | 2420.43 | 569.77 | 95.75 | | | | | | | | | |
| 20% | Vmin | 4905.83 | 568.31 | 97.05 | 4907.67 | 572.29 | 97.02 | | | | | | | | | |
| 30% | Vmin | 7399.33 | 572.39 | 97.54 | 7400.10 | 568.35 | 97.57 | | | | | | | | | |
| 50% | Vmin | 12264.93 | 572.34 | 97.89 | 12268.87 | 568.41 | 97.86 | | | | | | | | | |
| 75% | Vmin | 18298.90 | 566.45 | 97.93 | 18313.23 | 568.55 | 97.94 | | | | | | | | | |
| 100% | Vmin | 24475.57 | 572.26 | 97.88 | 24480.13 | 569.27 | 97.88 | | | | | | | | | |
| 10% | Vnom | 2445.97 | 733.89 | 96.19 | 2443.83 | 729.80 | 96.26 | | | | | | | | | |
| 20% | Vnom | 5095.80 | 729.87 | 97.69 | 5102.10 | 732.50 | 97.72 | | | | | | | | | |
| 30% | Vnom | 7647.37 | 733.87 | 98.12 | 7645.57 | 729.78 | 98.15 | | | | | | | | | |
| 50% | Vnom | 12974.63 | 738.11 | 98.40 | 12969.27 | 735.98 | 98.41 | | | | | | | | | |
| 75% | Vnom | 18979.50 | 740.32 | 98.42 | 18978.33 | 736.37 | 98.41 | | | | | | | | | |
| 100% | Vnom | 25377.03 | 734.47 | 98.35 | 25361.90 | 730.55 | 98.38 | | | | | | | | | |
| 10% | Vmax | 2444.27 | 789.41 | 95.97 | 2441.90 | 793.31 | 95.86 | | | | | | | | | |
| 20% | Vmax | 5078.73 | 789.54 | 97.60 | 5078.73 | 793.35 | 97.49 | | | | | | | | | |
| 30% | Vmax | 7459.10 | 789.55 | 97.95 | 7462.20 | 787.10 | 97.96 | | | | | | | | | |
| 50% | Vmax | 12635.67 | 787.47 | 98.29 | 12635.57 | 785.47 | 98.29 | | | | | | | | | |
| 75% | Vmax | 18843.97 | 791.71 | 98.34 | 18841.17 | 786.02 | 98.36 | | | | | | | | | |
| 100% | Vmax | 25264.90 | 793.75 | 98.26 | 25277.10 | 789.78 | 98.31 | | | | | | | | | |

# MAXIMUM CONTINUOUS OUTPUT POWER

**Manufacturer: Huawei Technologies Co., Ltd**

**Model: SUN2000-25KTL-US**

| Samples | Time | Vin( Vdc | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (av | Iout (a) | Iout (b) | Iout (c) | Iout (avg | Freq (Hz | Pout (W | HS1 (C) | HS2 (C) | Amb (C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Averages | | | | | | | | | | | | | | | | |
| 1 | **5** | 731.6 | 35.0 | 25600.6 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25171.0 | 64.8 | 62.8 | 41.4 |
| 2 | **10** | 731.6 | 35.0 | 25604.5 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25172.2 | 63.2 | 61.9 | 41.2 |
| 3 | **15** | 731.2 | 35.0 | 25593.4 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25163.3 | 62.5 | 61.0 | 41.2 |
| 4 | **20** | 730.8 | 35.0 | 25596.1 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25167.6 | 62.4 | 60.8 | 41.4 |
| 5 | **25** | 730.2 | 35.1 | 25587.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25153.8 | 62.8 | 61.0 | 41.2 |
| 6 | **30** | 729.4 | 35.1 | 25587.5 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25150.9 | 61.9 | 60.4 | 41.3 |
| 7 | **35** | 729.2 | 35.1 | 25592.9 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25158.6 | 62.0 | 60.2 | 41.2 |
| 8 | **40** | 729.2 | 35.1 | 25595.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25161.1 | 62.2 | 60.4 | 41.1 |
| 9 | **45** | 729.2 | 35.1 | 25592.1 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25160.5 | 61.7 | 60.0 | 41.2 |
| 10 | **50** | 727.6 | 35.2 | 25577.9 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25143.4 | 60.9 | 59.6 | 41.2 |
| 11 | **55** | 726.1 | 35.2 | 25573.5 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25147.7 | 61.1 | 59.6 | 41.1 |
| 12 | **60** | 726.1 | 35.2 | 25573.7 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25148.0 | 61.5 | 59.8 | 41.3 |
| 13 | **65** | 726.1 | 35.2 | 25575.8 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25149.2 | 61.1 | 59.6 | 41.2 |
| 14 | **70** | 726.2 | 35.2 | 25570.5 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25150.0 | 60.7 | 59.7 | 41.0 |
| 15 | **75** | 726.2 | 35.2 | 25575.0 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25149.6 | 60.7 | 59.3 | 41.2 |
| 16 | **80** | 726.2 | 35.2 | 25574.7 | 277.8 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25149.6 | 60.7 | 59.1 | 41.2 |
| 17 | **85** | 726.3 | 35.2 | 25574.9 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25151.3 | 61.2 | 59.3 | 41.2 |
| 18 | **90** | 726.4 | 35.2 | 25576.0 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25151.5 | 60.8 | 59.2 | 41.2 |
| 19 | **95** | 726.4 | 35.2 | 25577.1 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25151.7 | 60.4 | 58.9 | 41.1 |
| 20 | **100** | 726.3 | 35.2 | 25578.0 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25151.9 | 61.1 | 59.2 | 41.2 |
| 21 | **105** | 726.3 | 35.2 | 25573.4 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25151.0 | 60.5 | 59.1 | 41.2 |
| 22 | **110** | 726.3 | 35.2 | 25578.9 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25151.1 | 60.2 | 58.9 | 41.1 |
| 23 | **115** | 726.4 | 35.2 | 25577.4 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25152.3 | 60.7 | 58.9 | 41.1 |
| 24 | **120** | 727.0 | 35.2 | 25581.7 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25153.5 | 60.6 | 59.1 | 41.3 |
| 25 | **125** | 727.1 | 35.2 | 25581.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25157.6 | 61.2 | 58.9 | 41.1 |
| 26 | **130** | 727.6 | 35.2 | 25581.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25163.5 | 61.0 | 59.1 | 41.2 |
| 27 | **135** | 727.8 | 35.2 | 25582.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25158.3 | 60.7 | 58.8 | 41.2 |
| 28 | **140** | 727.8 | 35.2 | 25579.0 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25158.0 | 61.0 | 58.7 | 41.1 |
| 29 | **145** | 728.9 | 35.1 | 25594.2 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25167.1 | 60.0 | 58.6 | 41.0 |
| 30 | **150** | 729.3 | 35.1 | 25595.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25163.1 | 60.5 | 58.9 | 41.3 |
| 31 | **155** | 729.3 | 35.1 | 25595.2 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25163.9 | 61.2 | 58.8 | 41.1 |
| 32 | **160** | 729.4 | 35.1 | 25596.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25174.2 | 61.0 | 58.7 | 41.2 |
| 33 | **165** | 730.1 | 35.1 | 25609.9 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.3 | 30.2 | 30.2 | 60.0 | 25197.3 | 60.7 | 58.7 | 41.1 |
| 34 | **170** | 731.2 | 35.0 | 25612.3 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.3 | 30.2 | 30.2 | 60.0 | 25199.4 | 61.0 | 58.8 | 41.2 |
| 35 | **175** | 732.4 | 35.0 | 25604.1 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25175.2 | 60.0 | 58.6 | 41.3 |
| 36 | **180** | 732.3 | 35.0 | 25606.5 | 277.9 | 277.7 | 277.8 | 277.8 | 30.2 | 30.2 | 30.2 | 30.2 | 60.0 | 25174.8 | 60.5 | 58.5 | 41.0 |

| **Max Continuous AC Output Power (W)** | | | | **25,143** |
|---|---|---|---|---|

# TARE LOSSES

**Manufacturer: Huawei Technologies Co., Ltd**
**Model: SUN2000-25KTL-US**

| Inverter Stand by Mode | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:19:10 | 0.00 | 0.06 | 0.00 | 277.14 | 277.17 | 277.29 | 277.20 | 0.11 | 0.11 | 0.14 | 0.12 | 60.01 | -1.00 | 26.30 |

| Minimum Array Voltage | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:21:34 | 568.01 | 0.09 | -8.00 | 277.14 | 277.17 | 277.32 | 277.21 | 0.14 | 0.15 | 0.16 | 0.15 | 60.00 | -1.00 | 26.30 |

| Nominal Array Voltage | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:34:22 | 730.85 | 0.12 | -16.00 | 277.14 | 277.16 | 277.32 | 277.21 | 0.16 | 0.18 | 0.18 | 0.17 | 60.00 | -0.90 | 26.30 |

| Maximum Array Voltage | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:23:57 | 797.72 | 0.08 | -13.00 | 277.15 | 277.17 | 277.29 | 277.20 | 0.13 | 0.14 | 0.16 | 0.14 | 60.00 | -0.90 | 26.30 |

| Input power before Start-up | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:35:54 | 729.98 | 0.30 | 86.10 | 277.15 | 277.23 | 277.26 | 277.21 | 0.14 | 0.15 | 0.16 | 0.15 | 60.00 | -0.90 | 26.30 |

| Input power after Start-up | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:36:04 | 726.28 | 1.98 | 1350.50 | 277.18 | 277.25 | 277.29 | 277.24 | 1.62 | 1.62 | 1.60 | 1.61 | 60.00 | 1238.60 | 26.30 |

Manufacturer: Huawei Technologies Co., Ltd

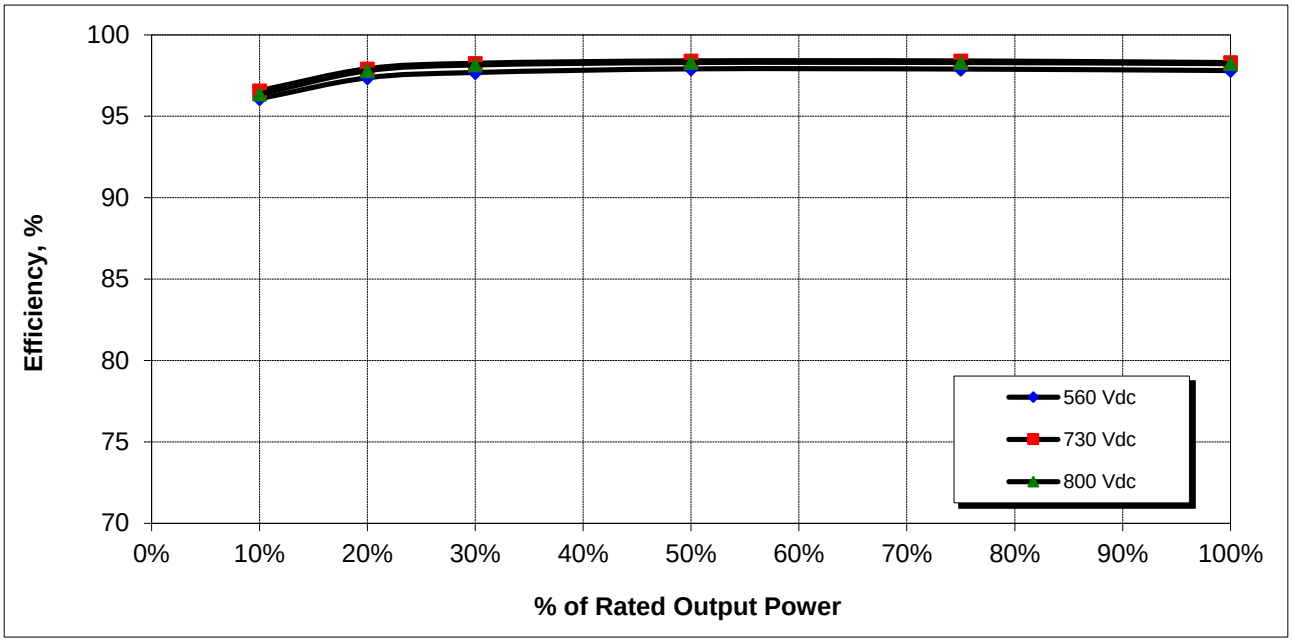
Model #: SUN2000-30KTL-US

Rated Maximum Continuous Output Power: 30.00 kW  Night Tare Loss: 1.00 W

Vmin: 560 Vdc  Vnom: 730 Vdc  Vmax: 800 Vdc

| | | Power Level (%; kW) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 10% | 20% | 30% | 50% | 75% | 100% | |
| Input Voltage (Vdc) | | 3.00 | 6.00 | 9.00 | 15.00 | 22.50 | 30.00 | Wtd |
| Vmin | 560 | 96.1 | 97.4 | 97.7 | 97.9 | 97.9 | 97.8 | 97.8 |
| Vnom | 730 | 96.6 | 97.9 | 98.3 | 98.4 | 98.4 | 98.3 | 98.3 |
| Vmax | 800 | 96.4 | 97.8 | 98.2 | 98.3 | 98.3 | 98.2 | 98.2 |

**CEC Efficiency = 98.0%**



Inverter Efficiency Data

Minimum of 5 samples required

| Specified | | Sample #1 | | | Sample #2 | | | Sample #3 | | | Sample #4 | | | Sample #5 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output Power | Input Voltage | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency |
| (% of rated) | (Vdc) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) |
| 10% | Vmin | 2842.03 | 571.12 | 96.26 | 2841.57 | 570.88 | 96.05 | 2842.33 | 574.97 | 96.10 | 2847.33 | 576.16 | 96.11 | 2841.00 | 568.25 | 96.04 |
| 20% | Vmin | 5997.63 | 575.92 | 97.37 | 5991.87 | 568.35 | 97.37 | 5996.47 | 572.19 | 97.37 | 5993.73 | 568.41 | 97.39 | 5995.83 | 572.03 | 97.38 |
| 30% | Vmin | 8912.77 | 568.37 | 97.74 | 8919.40 | 572.23 | 97.68 | 8912.00 | 568.37 | 97.69 | 8919.57 | 572.30 | 97.67 | 8913.00 | 568.32 | 97.71 |
| 50% | Vmin | 14726.23 | 568.40 | 97.89 | 14727.30 | 572.39 | 97.91 | 14727.13 | 568.43 | 97.89 | 14727.50 | 572.37 | 97.92 | 14726.30 | 568.39 | 97.92 |
| 75% | Vmin | 21972.30 | 572.56 | 97.91 | 21970.97 | 568.54 | 97.89 | 21974.17 | 572.50 | 97.91 | 21969.47 | 568.52 | 97.91 | 21973.40 | 572.52 | 97.91 |
| 100% | Vmin | 29171.97 | 568.63 | 97.82 | 29184.33 | 572.55 | 97.81 | 29201.83 | 568.70 | 97.82 | 29178.93 | 572.62 | 97.80 | 29196.40 | 568.72 | 97.80 |
| 10% | Vnom | 2875.83 | 732.72 | 96.73 | 2876.20 | 736.54 | 96.49 | 2874.77 | 732.67 | 96.75 | 2875.43 | 736.50 | 96.72 | 2871.77 | 742.40 | 96.47 |
| 20% | Vnom | 6121.90 | 740.29 | 97.91 | 6120.77 | 734.70 | 97.92 | 6123.60 | 736.69 | 97.89 | 6123.13 | 732.70 | 97.91 | 6132.93 | 736.77 | 97.98 |
| 30% | Vnom | 9094.03 | 736.68 | 98.21 | 9097.53 | 732.73 | 98.27 | 9094.03 | 738.58 | 98.27 | 9088.67 | 732.74 | 98.26 | 9092.57 | 736.66 | 98.28 |
| 50% | Vnom | 15513.00 | 735.26 | 98.39 | 15516.60 | 734.76 | 98.42 | 15505.13 | 733.43 | 98.38 | 15512.27 | 736.78 | 98.43 | 15518.37 | 732.74 | 98.42 |
| 75% | Vnom | 22549.33 | 732.86 | 98.42 | 22542.10 | 730.90 | 98.39 | 22548.47 | 732.78 | 98.41 | 22535.60 | 734.30 | 98.41 | 22548.27 | 732.85 | 98.42 |
| 100% | Vnom | 30250.60 | 737.82 | 98.31 | 30251.07 | 737.82 | 98.32 | 30251.10 | 737.82 | 98.32 | 30252.77 | 737.60 | 98.28 | 30255.97 | 737.60 | 98.28 |
| 10% | Vmax | 2978.97 | 789.90 | 96.35 | 2985.60 | 786.36 | 96.33 | 2983.70 | 790.29 | 96.27 | 2984.10 | 788.29 | 96.41 | 2982.73 | 788.42 | 96.41 |
| 20% | Vmax | 6304.00 | 786.29 | 97.76 | 6299.40 | 788.24 | 97.79 | 6312.67 | 786.40 | 97.82 | 6303.57 | 790.19 | 97.74 | 6304.70 | 784.33 | 97.83 |
| 30% | Vmax | 9586.93 | 789.42 | 98.14 | 9600.37 | 787.83 | 98.26 | 9589.63 | 788.22 | 98.09 | 9595.57 | 789.31 | 98.22 | 9591.23 | 790.01 | 98.09 |
| 50% | Vmax | 14976.77 | 790.42 | 98.29 | 14976.00 | 790.22 | 98.28 | 14970.87 | 786.39 | 98.33 | 14978.93 | 789.75 | 98.29 | 14967.93 | 786.28 | 98.29 |
| 75% | Vmax | 22088.73 | 790.59 | 98.29 | 22082.77 | 792.43 | 98.29 | 22087.50 | 788.58 | 98.31 | 22083.20 | 792.46 | 98.30 | 22087.50 | 788.73 | 98.31 |
| 100% | Vmax | 28537.53 | 792.69 | 98.25 | 28535.73 | 788.93 | 98.23 | 28532.93 | 792.79 | 98.24 | 28535.37 | 788.86 | 98.23 | 28530.93 | 792.84 | 98.21 |

| Specified | | Sample #6 | | | Sample #7 | | | Sample #8 | | | Sample #9 | | | Sample #10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output Power | Input Voltage | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency | Output Power | Input Voltage | Efficiency |
| (% of rated) | (Vdc) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) | (W) | (Vdc) | (%) |
| 10% | Vmin | 2846.53 | 574.19 | 96.01 | 2841.50 | 568.25 | 96.02 | | | | | | | | | |
| 20% | Vmin | 5989.47 | 568.48 | 97.34 | 5997.33 | 572.24 | 97.34 | | | | | | | | | |
| 30% | Vmin | 8915.93 | 571.48 | 97.66 | 8913.40 | 568.39 | 97.68 | | | | | | | | | |
| 50% | Vmin | 14728.00 | 572.33 | 97.93 | 14726.73 | 568.51 | 97.93 | | | | | | | | | |
| 75% | Vmin | 21970.87 | 568.54 | 97.89 | 21971.70 | 572.61 | 97.91 | | | | | | | | | |
| 100% | Vmin | 29176.90 | 572.61 | 97.81 | 29195.90 | 568.73 | 97.81 | | | | | | | | | |
| 10% | Vnom | 2874.53 | 736.34 | 96.34 | 2875.87 | 733.22 | 96.55 | | | | | | | | | |
| 20% | Vnom | 6121.60 | 732.67 | 97.99 | 6124.97 | 736.67 | 97.87 | | | | | | | | | |
| 30% | Vnom | 9094.73 | 732.72 | 98.26 | 9093.07 | 736.67 | 98.26 | | | | | | | | | |
| 50% | Vnom | 15513.77 | 736.72 | 98.41 | 15518.60 | 732.78 | 98.40 | | | | | | | | | |
| 75% | Vnom | 22534.73 | 730.02 | 98.37 | 22549.37 | 732.87 | 98.40 | | | | | | | | | |
| 100% | Vnom | 30247.47 | 737.84 | 98.29 | 30244.97 | 737.94 | 98.31 | | | | | | | | | |
| 10% | Vmax | 2983.83 | 790.10 | 96.44 | 2982.73 | 790.33 | 96.35 | | | | | | | | | |
| 20% | Vmax | 6304.13 | 790.23 | 97.77 | 6304.13 | 786.28 | 97.86 | | | | | | | | | |
| 30% | Vmax | 9592.17 | 790.28 | 98.19 | 9592.53 | 788.24 | 98.09 | | | | | | | | | |
| 50% | Vmax | 14985.23 | 789.93 | 98.35 | 14971.07 | 790.17 | 98.29 | | | | | | | | | |
| 75% | Vmax | 22083.17 | 792.33 | 98.30 | 22087.43 | 788.90 | 98.31 | | | | | | | | | |
| 100% | Vmax | 28535.90 | 788.86 | 98.23 | 28531.53 | 792.80 | 98.22 | | | | | | | | | |

# MAXIMUM CONTINUOUS OUTPUT POWER

**Manufacturer: Huawei Technologies Co., Ltd**

**Model: SUN2000-30KTL-US**

| Samples | Time | Vin( Vdc | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (av | Iout (a) | Iout (b) | Iout (c) | Iout (avg | Freq (Hz | Pout (W | HS1 (C) | HS2 (C) | Amb (C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Averages | | | | | | | | | | | | | | | | |
| 1 | **5** | 735.0 | 41.7 | 30635.9 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30086.9 | 65.8 | 64.0 | 41.4 |
| 2 | **10** | 735.0 | 41.7 | 30630.4 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30086.2 | 65.9 | 63.9 | 41.3 |
| 3 | **15** | 735.0 | 41.7 | 30636.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30085.3 | 65.3 | 63.9 | 41.4 |
| 4 | **20** | 735.0 | 41.7 | 30635.0 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30087.7 | 66.1 | 64.4 | 41.3 |
| 5 | **25** | 735.0 | 41.7 | 30637.5 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.5 | 65.7 | 64.1 | 41.3 |
| 6 | **30** | 735.0 | 41.7 | 30633.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30089.0 | 65.9 | 64.2 | 41.4 |
| 7 | **35** | 735.0 | 41.7 | 30638.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30091.0 | 65.6 | 63.8 | 41.3 |
| 8 | **40** | 734.9 | 41.7 | 30642.3 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30095.7 | 66.4 | 64.4 | 41.3 |
| 9 | **45** | 734.9 | 41.7 | 30645.8 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.1 | 65.9 | 64.3 | 41.2 |
| 10 | **50** | 734.9 | 41.7 | 30644.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.5 | 66.4 | 64.5 | 41.6 |
| 11 | **55** | 735.0 | 41.7 | 30639.0 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30090.6 | 66.1 | 64.5 | 41.3 |
| 12 | **60** | 735.0 | 41.7 | 30634.1 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30088.6 | 66.9 | 64.5 | 41.5 |
| 13 | **65** | 735.0 | 41.7 | 30635.9 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30086.9 | 66.5 | 64.7 | 41.4 |
| 14 | **70** | 735.0 | 41.7 | 30630.4 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30086.2 | 66.6 | 64.8 | 41.6 |
| 15 | **75** | 735.0 | 41.7 | 30636.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30085.3 | 67.0 | 64.9 | 41.4 |
| 16 | **80** | 735.0 | 41.7 | 30635.0 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30087.7 | 67.0 | 65.0 | 41.5 |
| 17 | **85** | 735.0 | 41.7 | 30637.5 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.5 | 67.0 | 64.8 | 41.6 |
| 18 | **90** | 735.0 | 41.7 | 30633.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30089.0 | 66.6 | 64.8 | 41.4 |
| 19 | **95** | 735.0 | 41.7 | 30638.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30091.0 | 66.7 | 64.7 | 41.3 |
| 20 | **100** | 734.9 | 41.7 | 30642.3 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30095.7 | 66.6 | 65.2 | 41.7 |
| 21 | **105** | 734.9 | 41.7 | 30645.8 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.1 | 66.0 | 64.3 | 41.4 |
| 22 | **110** | 734.9 | 41.7 | 30644.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.5 | 67.2 | 65.0 | 41.5 |
| 23 | **115** | 735.0 | 41.7 | 30639.0 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30090.6 | 67.0 | 65.1 | 41.5 |
| 24 | **120** | 735.0 | 41.7 | 30634.1 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30088.6 | 66.8 | 65.0 | 41.3 |
| 25 | **125** | 735.0 | 41.7 | 30635.9 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30086.9 | 67.0 | 64.8 | 41.4 |
| 26 | **130** | 735.0 | 41.7 | 30630.4 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30086.2 | 66.8 | 64.8 | 41.5 |
| 27 | **135** | 735.0 | 41.7 | 30636.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30085.3 | 66.3 | 64.7 | 41.1 |
| 28 | **140** | 735.0 | 41.7 | 30635.0 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30087.7 | 67.0 | 65.0 | 41.5 |
| 29 | **145** | 735.0 | 41.7 | 30637.5 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.5 | 67.4 | 65.0 | 41.4 |
| 30 | **150** | 735.0 | 41.7 | 30633.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30089.0 | 67.0 | 65.0 | 41.4 |
| 31 | **155** | 735.0 | 41.7 | 30638.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30091.0 | 67.6 | 65.3 | 41.4 |
| 32 | **160** | 734.9 | 41.7 | 30642.3 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30095.7 | 67.4 | 65.1 | 41.4 |
| 33 | **165** | 734.9 | 41.7 | 30645.8 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.1 | 66.4 | 64.6 | 41.3 |
| 34 | **170** | 734.9 | 41.7 | 30644.7 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30094.5 | 66.8 | 64.8 | 41.4 |
| 35 | **175** | 735.0 | 41.7 | 30639.0 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30090.6 | 67.3 | 65.2 | 41.5 |
| 36 | **180** | 735.0 | 41.7 | 30634.1 | 278.0 | 277.8 | 278.0 | 277.9 | 36.1 | 36.1 | 36.1 | 36.1 | 60.0 | 30088.6 | 66.6 | 64.6 | 41.3 |

| **Max Continuous AC Output Power (W)** | | | | **30,085** |
|---|---|---|---|---|

# TARE LOSSES

**Manufacturer: Huawei Technologies Co., Ltd**
**Model: SUN2000-30KTL-US**

| Inverter Stand by Mode | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:19:10 | 0.00 | 0.06 | 0.00 | 277.14 | 277.17 | 277.29 | 277.20 | 0.11 | 0.11 | 0.14 | 0.12 | 60.01 | -1.00 | 26.30 |

| Minimum Array Voltage | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:21:34 | 568.01 | 0.09 | -8.00 | 277.14 | 277.17 | 277.32 | 277.21 | 0.14 | 0.15 | 0.16 | 0.15 | 60.00 | -1.00 | 26.30 |

| Nominal Array Voltage | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:34:22 | 730.85 | 0.12 | -16.00 | 277.14 | 277.16 | 277.32 | 277.21 | 0.16 | 0.18 | 0.18 | 0.17 | 60.00 | -0.90 | 26.30 |

| Maximum Array Voltage | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:23:57 | 797.72 | 0.08 | -13.00 | 277.15 | 277.17 | 277.29 | 277.20 | 0.13 | 0.14 | 0.16 | 0.14 | 60.00 | -0.90 | 26.30 |

| Input power before Start-up | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:35:54 | 729.98 | 0.30 | 86.10 | 277.15 | 277.23 | 277.26 | 277.21 | 0.14 | 0.15 | 0.16 | 0.15 | 60.00 | -0.90 | 26.30 |

| Input power after Start-up | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Vin( Vdc) | Iin (Adc) | Pin (W) | Vout (a) | Vout (b) | Vout (c) | Vout (avg) | Iout (a) | Iout (b) | Iout (c) | Iout (avg) | Freq (Hz) | Pout (W) | Amb (C) |
| 2015/07/28 | 19:36:04 | 726.28 | 1.98 | 1350.50 | 277.18 | 277.25 | 277.29 | 277.24 | 1.62 | 1.62 | 1.60 | 1.61 | 60.00 | 1238.60 | 26.30 |