| | |
|---|---|
| **Test Report No.:** | **EP991224C10** |
| **Client** | |
| Name : | **AAEON Technology Inc.** |
| Address : | **5F,NO.135,Lane 235,Pao Chiao Rd. Hsin-Tien City, Taipei, Taiwan, R.O.C.** |
| **Test Item :** | **Green Embedded System** |
| **Identification :** | **TF-GES-3300F-A10-01** |
| **Testing laboratory** | |
| Name : | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch |
| Address : | No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C. |
| **Regulation** | ENERGY STAR® Program Requirements for Computer Version 5.2 |
| **Test Standard :** | IEC/EN 62301<br>ENERGY STAR® Program Requirements for Computer Version 5.2 |
| **Test Result :** | The test item passed. |
| **Prepared By :** | Brad Chen<br>Signature<br>Brad Chen / Engineer<br>December 30, 2010<br>Date |
| **Approved By :** | <br>Signature<br>Ted Wu / Manager<br>December 30, 2010<br>Date |
| **Other Aspects:**<br>The completed test report includes the following documents:<br>■ 9 pages | ilac-MRA TAF Testing Laboratory 2021 |

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**TEST REPORT**

ENERGY STAR® Program Requirements for Computer Version 5.2

| | | |
|---|---|---|
| **Report** | | |
| Reference No. ..... | EP991224C10 | |
| Approved by (+ signature) ..... | See cover sheet | ..... |
| Reviewed by (+ signature) ..... | See cover sheet | ..... |
| Date of issue ..... | December 30, 2010 | |
| 6 | | |
| **Testing laboratory** | | |
| Name ..... | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch | |
| Address ..... | No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C. | |
| Testing location ..... | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch | |
| Address ..... | No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taipei, R.O.C. | |
| **Client** | | |
| Name ..... | AAEON Technology Inc. | |
| Address ..... | 5F,NO.135,Lane 235,Pao Chiao Rd. Hsin-Tien City, Taipei, Taiwan, R.O.C. | |
| **Test item** | | |
| Description ..... | Green Embedded System | |
| Trademark ..... | AAEON | |
| Model and/or type reference ..... | TF-GES-3300F-A10-01 | |
| Manufacturer ..... | AAEON Technology Inc. | |
| Sample..... | 1 Unit | |

# ENERGY STAR® Program TEST REPORT

## Appliance (Equipment) Detail

| | |
|---|---|
| **Brand** | AAEON |
| **Model** | TF-GES-3300F-A10-01 |
| **Type** | N/A |
| **Serial Number** | Unit 1 |
| **Product Description (as appropriate)** | Green Embedded System |
| **Rated voltage(s)** | 100-240V |
| **Frequency (frequencies)** | 50/60Hz |
| **Detail of manufacturer marked on the product (if any)** | N/A |

## Test Parameters

| | |
|---|---|
| **Ambient temperature (℃)** | 24 ℃ |
| **Humidity (%)** | 50% |
| **Air Speed (m/s)** | 0 (m/s) |
| **Test voltage (s)** | 115V/230V |
| **Frequencies (Hz)** | 60Hz/50Hz |
| **Total Harmonic distortion of the electricity supply system** | 0.17% ~ 0.53% |

## Test instruments

| Make/Model | Measurement | Calibration date | Next Calibration date |
|---|---|---|---|
| IDRC Power Analyzer CP-660 | Power Analyzer | October 15, 2010 | October 15, 2011 |
| ALL POWER APW-1100N | 10KVA AC Power Source | N/A | N/A |
| | | | |

## LAB INFORMATION

| | |
|---|---|
| **Test laboratory name** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch |
| **Test laboratory address** | No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244,<br>Taipei Hsien, Taiwan, R.O.C. |
| **Country** | Taiwan |
| **Test Report reference** | EP991224C10 |
| **Test technician(s)** | Bob Hsieh |
| **Date measured** | December 29, 2010 |
| **Test Standard used** | ENERGY STAR® Program Requirements for Computer Version 5.2, IEC/EN 62301 |

**General conditions for measurements**

**1.Test Room**

The tests shall be carried out in a room that has an air speed close to the appliance under test of ≦0.5 m/s. The ambient temperature shall be maintained at (23 ± 5) ℃ throughout the test.

**2.Power supply**

Where this standard is referenced by an external standard or regulation that specifies a test voltage and frequency, the test voltage and frequency so defined shall be used for all tests. Where the test voltage and frequency are not defined by an external standard, the test voltage and the test frequency shall be the nominal voltage and the nominal frequency of the country for which the measurement is being determined ±1 %.

**3. Supply voltage waveform**

The total harmonic content of the supply voltage when supplying the appliance under test in the specified mode shall not exceed 2 % (up to and including the 13th harmonic); harmonic content is defined as the root-mean-square (r.m.s.) summation of the individual components using the fundamental as 100 %.

**4. Power measurement accuracy**

Measurements of power of 0.5 W or greater shall be made with an uncertainty of less than or equal to 2 % at the 95 % confidence level. Measurements of power of less than 0,5 W shall be made with an uncertainty of less than or equal to 0,01 W at the 95 % confidence level.

**5. Testing Setup**

The EUT shall be prepared and set up in accordance with the manufacturer's instructions, except where these conflict with the requirements of this standard. If no instructions are given, then factory or "default" setting shall be used, or where there are no indications for such setting, the appliance is tested as supplied.
(Note: The EUT was working under the 100% loading condition at least 30mins or more for warming-up.)

## Test Data & Information

| Idle Mode Consumption | | |
|---|---|---|
| a.c. input. Nominal Voltage (V) | 115.00V | |
| a.c. input. Maximum Voltage (V) | 115.03V | |
| a.c. input. Minimum Voltage (V) | 114.98V | |
| Voltage Regulation (< 5% ) | 0.03% | |
| a.c. input. Maximum Current (A) | 0.21A | |
| a.c. input. Average Current (A) | 0.20A | |
| | | |
| a.c. input Maximum Power (W) | 22.17W | "The idle mode in which the operating system and other software have completed loading, a user profile has been created, the machine is not asleep, and activity is limited to those basic applications that the system starts by default. Also, use the power management settings to set the display to power down after 1 minute. |
| a.c. input Average Power (W) | 20.97W | |

| Sleep Mode Consumption | | |
|---|---|---|
| a.c. input. Nominal Voltage (V) | 115.00V | |
| a.c. input. Maximum Voltage (V) | 115.06V | |
| a.c. input. Minimum Voltage (V) | 115.02V | |
| Voltage Regulation (< 5% ) | 0.05% | |
| a.c. input. Maximum Current (A) | 0.07A | |
| a.c. input. Average Current (A) | 0.07A | |
| | | |
| a.c. input Maximum Power (W) | 4.88W | "The Green Embedded System was placed into "off" power mode for testing by using the mouse pointer to select <Start>, then select <Shut Down>, then select <Sleep> " |
| a.c. input Average Power (W) | 4.84W | |

| Off Mode Consumption | | |
|---|---|---|
| a.c. input. Nominal Voltage (V) | 115.00V | |
| a.c. input. Maximum Voltage (V) | 115.06V | |
| a.c. input. Minimum Voltage (V) | 115.02V | |
| Voltage Regulation (< 5% ) | 0.05% | |
| a.c. input. Maximum Current (A) | 0.06A | |
| a.c. input. Average Current (A) | 0.06A | |
| | | |
| a.c. input Maximum Power (W) | 4.35W | "The Green Embedded System was placed into "off mode" for testing by using the mouse pointer to select <Start>, then select <Shut Down>, then select <Shut down> " |
| a.c. input Average Power (W) | 4.32W | |

## Test Data & Information

| Idle Mode Consumption | | |
|---|---|---|
| a.c. input. Nominal Voltage (V) | 230.00V | |
| a.c. input. Maximum Voltage (V) | 230.90V | |
| a.c. input. Minimum Voltage (V) | 229.68V | |
| Voltage Regulation (< 5% ) | 0.14% | |
| a.c. input. Maximum Current (A) | 0.14A | |
| a.c. input. Average Current (A) | 0.14A | |
| | | |
| a.c. input Maximum Power (W) | 22.89W | "The idle mode in which the operating system and other software have completed loading, a user profile has been created, the machine is not asleep, and activity is limited to those basic applications that the system starts by default. Also, use the power management settings to set the display to power down after 1 minute. |
| a.c. input Average Power (W) | 21.6W | |

| Sleep Mode Consumption | | |
|---|---|---|
| a.c. input. Nominal Voltage (V) | 230.00V | |
| a.c. input. Maximum Voltage (V) | 229.92V | |
| a.c. input. Minimum Voltage (V) | 229.69V | |
| Voltage Regulation (< 5% ) | 0.13% | |
| a.c. input. Maximum Current (A) | 0.06A | |
| a.c. input. Average Current (A) | 0.06A | |
| | | |
| a.c. input Maximum Power (W) | 4.49W | "The Green Embedded System was placed into "off" power mode for testing by using the mouse pointer to select <Start>, then select <Shut Down>, then select <Sleep> " |
| a.c. input Average Power (W) | 4.43W | |

| Off Mode Consumption | | |
|---|---|---|
| a.c. input. Nominal Voltage (V) | 230.00V | |
| a.c. input. Maximum Voltage (V) | 229.91V | |
| a.c. input. Minimum Voltage (V) | 229.68V | |
| Voltage Regulation (< 5% ) | 0.14% | |
| a.c. input. Maximum Current (A) | 0.08A | |
| a.c. input. Average Current (A) | 0.08A | |
| | | |
| a.c. input Maximum Power (W) | 3.98W | "The Green Embedded System was placed into "off mode" for testing by using the mouse pointer to select <Start>, then select <Shut Down>, then select <Shut down> " |
| a.c. input Average Power (W) | 3.93W | |

## Test Data & Information

| Regulation | Option | Requirements | | Note |
|---|---|---|---|---|
| Energystar | ○ | Yes | ○ | ENERGY STAR® Program Requirements for Computers Version 5.2 |

**$E_{TEC}$ Requirement – Desktop and Notebooks**

| | Desktop and Integrated Computer (kWh) | Notebook Computer (kWh) |
|---|---|---|
| TEC (kWh) | Category A: ≦ 148.0<br>Category B: ≦ 175.0<br>Category C: ≦ 209.0<br>Category D: ≦ 234.0 | Category A: ≦ 40.0<br>Category B: ≦ 53.0<br>Category C: ≦ 88.5 |
| **Capability Adjustments** | | |
| Memory | 1 kWh (per GB over base)<br><br>*Base Memory*:<br>Categories A, B and C: 2 GB<br>Category D: 4 GB | 0.4 kWh (per GB over 4) |
| Premium Graphics (*for Discrete GPUs with specified Frame Buffer Widths*) | Cat. A, B: 35 kWh (FB Width ≤ 128-bit)<br>50 kWh (FB Width > 128-bit)<br>Cat. C, D: 50 kWh (FB Width > 128-bit) | Cat. B: 3 kWh (FB Width > 64-bit) |
| Additional Internal Storage | 25kWh | 3kWh |

## Information

| | | | |
|---|---|---|---|
| **Product Type** | Desktop | **Operating System Name** | Windows XP |
| **Brand** | N/A | **System Memory** | 4G |
| **Processor Brand** | Intel | **Hard Disk** | 1 Unit |
| **Processor** | Celeron M 4400 | **Sleep Mode Default Time Upon Shipment** | ≦ 30 Mins |
| **Process Speed** | 1.86 GHz | **Display Sleep Mode Default Time Upon Shipment** | ≦ 15 Mins |
| **Physical Core (s)** | 1 | **Will the speed of any active 1 Gb/s or higher Ethernet network links be reduced to less than 1 Gb/s when transitioning to Sleep or Off Mode?** | YES |
| **Category** | Category A | | |
| **Voltage Tested** | 115V/230V | | |
| **EPS meet the Energystar Requirement (Version 2.0)** | YES | | |

**Operational Mode Weighting – Desktop and Notebooks**

| Conventional | Desktop | Notebook |
|---|---|---|
| Toff | 55% | 60% |
| Tsleep | 5% | 10% |
| Tidle | 40% | 30% |

| Power Consumption (115V) | | Power Consumption (230V) | |
|---|---|---|---|
| Idle Mode | 20.97W | Idle Mode | 21.6W |
| Sleep Mode | 4.84W | Sleep Mode | 4.43W |
| Off Mode | 4.32W | Off Mode | 3.93W |

| TEC Calculations (kWh/Year) | |
|---|---|
| Category A | ≦ **148** kWh + 2kWh = 150 kWh (additional 2 GB Memory) |
| $E_{TEC}$= (8760/1000) * ($P_{off}$ * $T_{off}$ + $P_{sleep}$ * $T_{Sleep}$ + $P_{idle}$ * $T_{idle}$) | |
| $E_{TEC}$ (115V) | 96.41kWh |
| $E_{TEC}$ (230V) | 96.56kWh |

| $E_{TEC}$ **Requirement** | | |
|---|---|---|
| $E_{TEC}$ (115V) | 96.41 | kWh |
| **Compliant with the Requirements** | Pass | |
| | | |
| $E_{TEC}$ (230V) | 96.56 | kWh |
| **Compliant with the Requirements** | Pass | |

Note

Number of Units Required for TEC or Idle Testing: Manufacturers may initially test a single unit for qualification. If the initial unit tested is less than or equal to the applicable requirement for TEC or Idle but falls within 10% of that level, one additional unit of the same model with an identical configuration must also be tested. Manufacturers shall report test values for both units. To qualify as ENERGY STAR, both units must meet the maximum TEC or Idle level for that product and that product category.

For this case, A Category A Notebook must meet a TEC level of 150 kWh or less, making 135 kWh the 10% threshold for additional testing.

And the first unit (115V) is measured at 96.41 kWh, no more testing is needed and the model qualifies (96.41 kWh is 35.7% more efficient than the specification and is therefore “outside” the 10% threshold).

And the first unit (230V) is measured at 96.56 kWh, no more testing is needed and the model qualifies (96.56 kWh is 35.6% more efficient than the specification and is therefore “outside” the 10% threshold).

## EUT Photo

Green Embedded System: TF-GES-3300F-A10-01

EPS: FSP, Model: FSP135-AHAN1

## Comments

The test results presented in this report relate only to the item(s) tested.