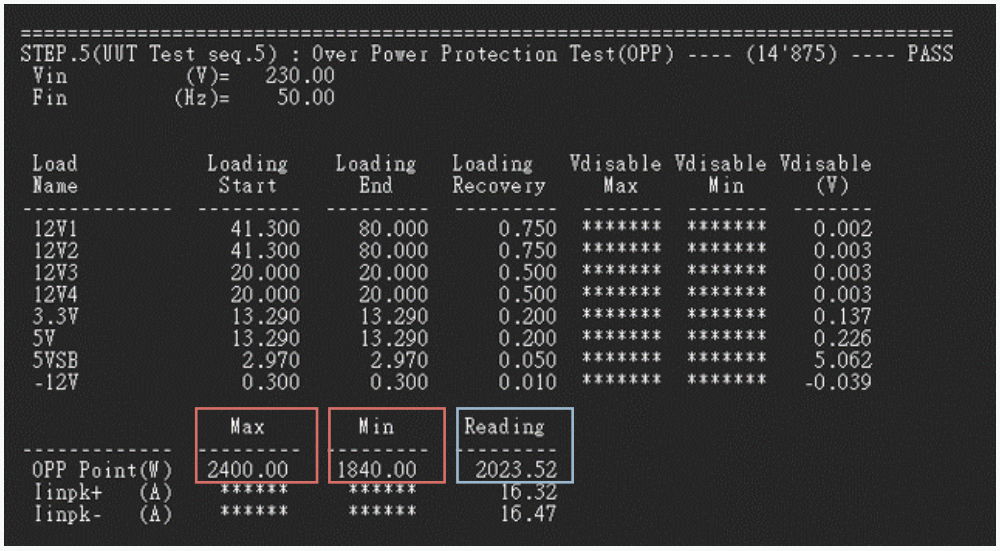
How to read the MEG Ai1600T PCIE's report

This document presents a detailed overview of the performance and reliability testing conducted on the MEG Ai1600T PCIE5 power supply unit. The report outlines the purpose and methodology for each testing parameter.

OVER POWER PROTECTION

This test determines whether the PSU can automatically activate its protection mechanisms when the load exceeds its rated power, preventing damage to GPU and others.

- OPP value too low : Power protection mechanisms activate too early.
- OPP value too high : The risk of damage to other components rises.



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STEP.5(UUT Test seq.5) : Over Power Protection Test(OPP) ---- (14'875) ---- PASS
 Vin          (V)=   230.00
 Fin         (Hz)=    50.00

 Load          Loading    Loading    Loading   Vdisable Vdisable Vdisable
 Name           Start        End     Recovery     Max      Min      (V)
------------  ---------  ---------  ---------  -------  -------  -------
 12V1            41.300     80.000      0.750  *******  *******    0.002
 12V2            41.300     80.000      0.750  *******  *******    0.003
 12V3            20.000     20.000      0.500  *******  *******    0.003
 12V4            20.000     20.000      0.500  *******  *******    0.003
 3.3V            13.290     13.290      0.200  *******  *******    0.137
 5V              13.290     13.290      0.200  *******  *******    0.226
 5VSB             2.970      2.970      0.050  *******  *******    5.062
 -12V             0.300      0.300      0.010  *******  *******   -0.039

                   Max        Min      Reading
------------  ---------  ---------  ---------
 OPP Point(W)  2400.00    1840.00     2023.52
 Iinpk+   (A)  ******     ******        16.32
 Iinpk-   (A)  ******     ******        16.47
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Spec Value

Testing Value

How to Read the Table

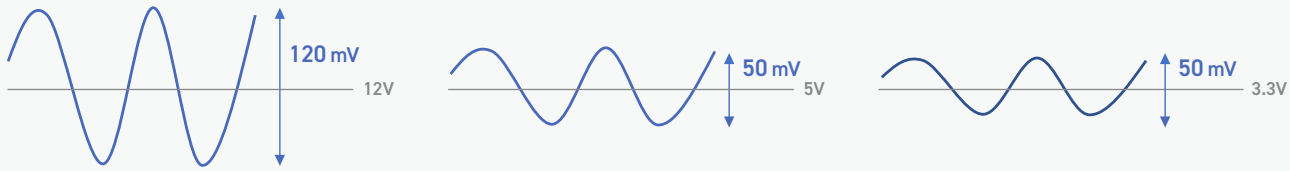
Find the test name "Over Power Protection", the red mark is the spec of OPP value, the test result value please find the blue mark.

For example : The protection mechanism will be activated if the wattage exceeds the OPP value of 2023.

RIPPLE NOISE LEVEL

This test ensures the PSU's output voltage remains stable, preventing issues that could affect system stability and hardware longevity. Prolonged exposure to high ripple noise can shorten the lifespan of GPU, CPU and power supply capacitors.

INTEL ATX 3.1 Spec for Power Supply

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STEP.17(UUT Test seq.17) : Static & Noise Test((115Vac) 12VMax Load Voltage PASS
 Vin          (V)=   115.00
 Fin         (Hz)=    60.00

 Load          Loading     Vout      Vout      Vout      Vpp Noise    Vpp Noise    Vpp Noise
 Name        (A/Ohm/V)     Max       Min       (V)       Max (mV)     Min (mV)     ( mV )
------------ ---------- ------- --------- --------- --------- --------- ---------
 12V1           46.660    12.600    11.400    12.023     50.000       0.010      17.260
 12V2           46.660    12.600    11.400    12.034     50.000       0.010      16.390
 12V3           20.000    12.600    11.400    12.057     50.000       0.010      15.810
 12V4           20.000    12.600    11.400    11.972     50.000       0.010      15.050
 3.3V            0.000     3.460     3.140     3.349     30.000       0.010       4.590
 5V              0.000     5.250     4.750     5.099     30.000       0.010       6.140
 5VSB            0.000     5.250     4.750     5.054     30.000       0.000       5.040
 -12V            0.000   -13.200   -10.800   -11.937     80.000       0.010      12.390
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Spec Value Testing Value

How to Read the Table

Find the test name "Static & Noise Test", the red mark is the spec value of MEG Ai1600T PCIE5, the blue mark is the actual testing result.

For example : 12V1 actual value is 17.26 mV < 50 mV

POWER-ON TIME (T1)

When a computer exits standby mode and restarts, the PSU must quickly switch to full-power output.

- T1 time too long: computer's wake-up process may feel slow.
- T1 time too short: cause to awake up system abnormality.

INTEL ATX 3.1 Spec for Power Supply

	Description	Legacy Timings	Required	Recommended
T1	Power-on time	< 500ms	< 200ms	< 150ms

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STEP.18(UUT Test seq.18) : Extra Timing Test(Ton(Ps#on)) ---- (4'719) ----- PASS
 Vin          (V)=    115.00
 Fin         (Hz)=     60.00

 Load          Loading     ExtTime    ExtTime    ExtTime
 Name        (A/V/Ohm)       Max        Min        (ms)
------------ ---------- ---------- -------- ---------
 12V1           41.300     150.00  ********     96.81
 12V2           41.300     150.00  ********     96.80
 12V3           20.000     150.00  ********     96.80
 12V4           20.000     150.00  ********     96.83
 3.3V           13.290     150.00  ********    110.22
 5V             13.290     150.00  ********    107.81
 5VSB            2.970  ********  ********
 -12V            0.300     150.00  ********     94.71
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Spec Value

Testing Value

How to Read the Table

Find the test name "Extra Timing Test", the red mark is the spec value, the blue mark is the actual testing result.

For example :
12V1 actual value is 96.81 ms < Intel recommended value: 150 ms

- The value lower is better.

HOLD-UP TIME

This test evaluates the PSU by measuring how long the output voltage remains after the power input is cut off.

- T5 time higher: Power supply can stay longer during input is cut off.

INTEL ATX 3.1 Spec for Power Supply

	Description	Legacy Timings	Required	Recommended
T5	Hold-up time	-	> 11 ms[3]	> 16ms[4]

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STEP.11(UUT Test seq.11) : Hold Up & Sequence Test(100%Thd) ---- (2'703) -- PASS
 Vin            (V)=    115.00
 Fin           (Hz)=     60.00

 Load          Loading      Tholdup    Tholdup    Tholdup
 Name        (A/Ohm/V)        Max        Min        (ms)
-------------  ----------   --------   --------   --------
 12V1            41.300    ********      12.00      19.84
 12V2            41.300    ********      12.00      19.93
 12V3            20.000    ********      12.00      19.93
 12V4            20.000    ********      12.00      19.45
 3.3V            13.290    ********      12.00      20.96
 5V              13.290    ********      12.00      20.96
 5VSB             2.970    ********    ********   --------
 -12V             0.300    ********      12.00      22.66
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Spec Value

Testing Value

How to Read the Table

Find the test name "Hold Up & Sequence Test", the red mark is the spec value of MEG Ai1600T PCIE5, the blue mark is the actual testing result.

For example :
12V1 actual value is 19.84 ms[4] > Intel required value : 16 ms

- The value lower is better.

EFFICIENCY TEST

This test ensures the PSU meets energy-saving standards (e.g., 80 PLUS certification) while delivering stable performance.

- High-efficiency: minimize energy waste.

80 PLUS Titanium Definition

80 PLUS TITANIUM

Load : 20%	Load : 50%	Load : 100%
Efficiency : > 92%	Efficiency : > 94%	Efficiency : > 90%

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STEP.20(UUT Test seq.20) : Input/output With Noise Test((115Vac) 50%Load  P PASS
 Vin          (V)=     115.00
 Fin         (Hz)=      60.00

 Load          Loading      Vout      Vout      Vout     Vpp Noise  Vpp Noise  Vpp Noise
 Name          (A/Ohm/V)    Max       Min       (V)      Max (mV)   Min (mV)     (mV)
-------------  ----------  -------   -------   -------   --------   ---------  ---------
 12V1            15.330    12.360    11.640    12.042     50.000     0.010      15.770
 12V2            15.330    12.360    11.640    12.047     50.000     0.010      15.110
 12V3            15.330    12.360    11.640    12.039     50.000     0.010      15.090
 12V4            15.330    12.360    11.640    11.973     50.000     0.010      14.950
 3.3V             6.650     3.400     3.200     3.322     30.000     0.010       3.170
 5V               6.650     5.150     4.850     5.066     30.000     0.010       3.810
 5VSB             1.480     5.150     4.850     5.060     30.000     0.000       3.640
 -12V             0.150    -12.960   -11.040   -11.930     80.000     0.010      11.910

                  Max       Min       Reading
-------------  ---------  --------  ---------
 PF      (0~1)   1.0000    0.9500    0.9984
 Eff       (%)   99.00     94.00     94.36
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Spec Value Testing Value

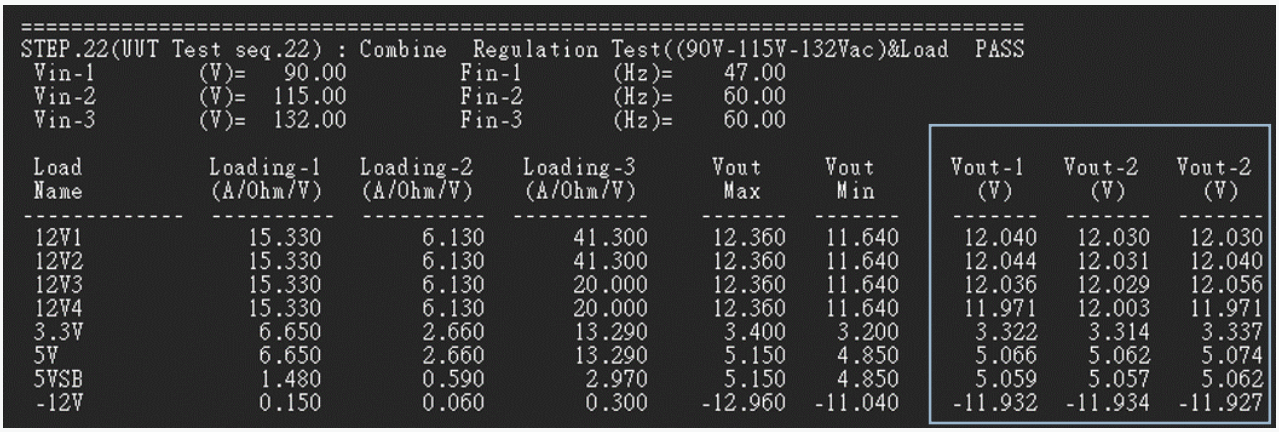
How to Read the Table

Find the test name "Input/output with noise test", show the power supply under 20%/ 50%/ 100% load testing result of "Efficiency Test", please find the highlighted in the blue mark, content show the efficiency under 20%/ 50%/ 100% loading.

For example : Under 50 % load, actual value is 94.36% > spec value 94%

CROSS LOAD TEST

To simulate the actual load of the computer during gaming or computationally intensive tasks, confirming the PSU's ability to provide stable output.



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STEP.22(UUT Test seq.22) : Combine  Regulation Test((90V-115V-132Vac)&Load  PASS
 Vin-1        (V)=   90.00         Fin-1        (Hz)=    47.00
 Vin-2        (V)=  115.00         Fin-2        (Hz)=    60.00
 Vin-3        (V)=  132.00         Fin-3        (Hz)=    60.00

 Load          Loading-1   Loading-2    Loading-3      Vout      Vout      Vout-1    Vout-2    Vout-2
 Name          (A/Ohm/V)   (A/Ohm/V)    (A/Ohm/V)      Max       Min       (V)       (V)       (V)
------------  ----------  ----------  -----------  -------  -------  -------  -------  -------
 12V1            15.330       6.130       41.300     12.360   11.640   12.040   12.030   12.030
 12V2            15.330       6.130       41.300     12.360   11.640   12.044   12.031   12.040
 12V3            15.330       6.130       20.000     12.360   11.640   12.036   12.029   12.056
 12V4            15.330       6.130       20.000     12.360   11.640   11.971   12.003   11.971
 3.3V             6.650       2.660       13.290      3.400    3.200    3.322    3.314    3.337
 5V               6.650       2.660       13.290      5.150    4.850    5.066    5.062    5.074
 5VSB             1.480       0.590        2.970      5.150    4.850    5.059    5.057    5.062
 -12V             0.150       0.060        0.300    -12.960  -11.040  -11.932  -11.934  -11.927
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Testing Value

How to Read the Table

Find the test name “Combine Regulation Test”, show the testing result of power supply output under low/medium/heavy loading, no matter under which situation, The differences in the baseline values are under Intel spec.

For example : (12.04-12)/12=0.0033, 0.0033 x 100 = 0.3%