TEST REPORT

ENERGY STAR® Program Requirements for Computers (Version 8.0)

Product Manufacturer (Partner) Name……:	**Acer Incorporated**
Address of Partner……:	**8F., No.88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181, Taiwan**
Primary Contact Name of Partner……..:	**Alan Tsai**
Primary Contact E-mail of Partner……..:	**Alan.CL.Tsai@acer.com**
OEM Name (if different)..……..:	**Quanta Computer Inc.**
Address……:	**No.211, Wenhua 2nd Rd., Guishan Dist., Taoyuan City, Taiwan**
Name of Testing Laboratory…..:	**International Standards Laboratory Corp. (LT Lab.)**
Address……:	**No.120, Lane 180, Hsin Ho Road, Lung-Tan Dist., Tao Yuan City 325, Taiwan** **Tel：+886 3 2638888** **Fax：+886 3 2638899**
Accreditation Body……..:	**Taiwan Accreditation Foundation (TAF)**
Accreditation Body Online Directory URL……..:	**https://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=0997&language=ZHTW#zhtw-tab**
Accreditation Certificate Number/ID of LAB...……..:	**0997**
EPA-Recognized Laboratories Online Directory URL……..:	**http://www.energystar.gov/index.cfm?fuseaction=recognized_bodies_list.show_RCB_search_form**
Test specification……:	**ENERGY STAR® Program Requirements for Computers Version 8.0 - (Rev. July 2022)**
Report Number……..:	**ISL-23LF0099ES**
Date of issue……..:	**2023-12-26**
Total number of pages……..:	**26**

Testing Laboratory
0997

Tested by……..:	Kelly lin	
	Signature	Date
	Kelly YI Lin / Engineer	2023-12-26
	Name in block letters	
Approved by……..:	Irene Wei	
	Signature	Date
	Irene SP Wei / Sr. Manager	2023-12-26
	Name in block letters	

The uncertainty of the measurement does not include in consideration of the test result unless the customer required the determination of uncertainty via the agreement, regulation or standard document specification.

Digitally signed by Savcenco Oleg
Date: 2024.04.26 17:21:43 EEST
Reason: MoldSign Signature
Location: Moldova

Test item description…….:	**Notebook Computer**
Brand Name or Trade Mark….:	**acer**
Model Name…….:	**N24Q6**
Model Number…….:	**TMP216-41; TMP216-41-TCO**
Rating and principal characteristics……..:	**20Vdc, 3.25A**

General Product Information：

- Product Description：

This test report covers the evaluation and testing of the Unit under test (UUT) as submitted by the applicant, according to the specified test requirements. The unit is described by the applicant as a Notebook Computer.

- UUT Condition：

1) The N24Q6 / TMP216-41 including CPU type: AMD, octa core, Ryzen 7 PRO 7735U, 2.7GHz, Total memory 32GB with External Power Type: Chicony / A20-065N3A and has Integrated Graphics.

- Testing：

Date of receipt of test item…….: **2023-12-14**

Date(s) of performance of tests….: **2023-12-19**

- Model Differences：

All models are identical except for model designation and marketing purpose.

- Internal or External Power Supply list：

Manufacturer	Brand Name	Type/Model	Technical data	Note
Chicony	Chicony	A20-065N3A	Input: 100-240Vac, 1.6A, 50-60Hz Output: 5.0Vdc, 3.0A; 15.0W; 9.0Vdc, 3.0A; 12.0Vdc, 3.0A; 15.0Vdc, 3.0A; 20Vdc, 3.25A (65W)	--

Attachments to this Report:

1. Typical Energy Consumption (TEC) Requirements
2. Photographs
3. Calibration Data for Test Instruments

Description of change(s):

N/A

History of amendments and modifications:

N/A

Other Comments:

N/A

Verdict Definition Description:

- test case does not apply to the test object..... : N/A
- test object does meet the requirement ..... : Pass
- test object does not meet the requirement..... : Fail

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
Section 1	**Definitions**		**--**
	1) Computer	Meets definition	Pass
	2) Desktop Computer	--	N/A
	a) Integrated Desktop Computer	--	N/A
	3) Notebook Computer	Meets definition	Pass
	a) Mobile Thin Client	--	N/A
	b) Two-In-One Notebook	--	N/A
	c) Mobile Workstation	--	N/A
	d) Multi-Screen Notebook	--	N/A
	4) Slate/Tablet	--	N/A
	5) Portable All-In-One Computer	--	N/A
	6) E-Reader	--	N/A
	7) Small-scale Server	--	N/A
	8) Thin Client	--	N/A
	a) Integrated Thin Client	--	N/A
	b) Ultra-thin Client	--	N/A
	9) Workstation	--	N/A
	10) Rack-mounted Workstation	--	N/A
	Computer Components		--
	1) Graphics Processing Unit (GPU)	--	Pass
	2) Discrete Graphics (dGfx)	--	N/A
	3) Integrated Graphics (iGfx)	--	Pass
	4) Display for Enhanced-performance Integrated Display	--	N/A
	a) A contrast ratio of at least 60:1 at a horizontal viewing angle of at least 85°, with or without a screen cover glass	--	N/A
	b) A native resolution greater than or equal to 2.3 megapixels (MP)	--	N/A
	c) A color gamut of at least sRGB as defined by IEC 61966-2-1. Shifte in color space are allowable as long as 99% or more of defined sRGB colors are supported.	--	N/A
	5) External Power Supply (EPS)	Meets definition	Pass
	6) Internal Power Supply (IPS)	--	N/A
	7) System Memory Bandwidth	--	N/A
	Operational mode		--
	1) Active State	--	Pass
	2) Idle state	Provided	Pass
	a) Long Idle	--	N/A
	b) Short Idle	Provided	Pass

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
	3) Off Mode	Provided	Pass
	4) Sleep mode	--	N/A
	5) Alternative Low Power Mode (ALPM)	Provided	Pass
	Networking and Additional Capabilities		--
	1) Additional Internal Storage	--	Pass
	2) Energy Efficient Ethernet (EEE)	--	Pass
	3) Full Network Connectivity	--	N/A
	a) Network Proxy – Base Capability	--	N/A
	b) Network Proxy – Full Capability	--	N/A
	c) Network Proxy – Remote Wake	--	N/A
	d) Network Proxy – Service Discovery / Name Services.	--	N/A
	4) Constant Network Connectivity	Provided	Pass
	5) Network Interface	Provided Ethernet & Wi-Fi	Pass
	6) Wake Event	Considered	Pass
	7) Wake On LAN (WOL)	--	Pass
	8) Switchable Graphics	--	N/A
	Marketing and Shipment Channels		--
	1) Enterprise Channels	--	Pass
	2) Model Number	Refer to Page 2	--
	3) Model Name	Refer to Page 2	--
	Product Family		--
	Sharing one chassis or motherboard	Refer to General Product Information	Pass

Section 2	**Scope**		**--**
2.1	**Included Products**		--
	i. Desktop Computers and Integrated Desktop Computers	--	N/A
	ii. Notebook Computers	--	Pass
	iii. Slated/Tablets	--	N/A
	iv. Portable All-In-One Computers	--	N/A
	v. Workstations	--	N/A
	vi. Thin Clients	--	N/A

Section 3	**Certification Criteria**		--
3.1	**Significant Digits and Rounding**		--
3.1.1	All calculations shall be carried out with directly measured (unrounded) values.	--	Pass
3.1.2	Unless otherwise specified, compliance with	--	Pass

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
	specification limits shall be evaluated using directly measured or calculated values without any benefit from rounding.		
3.1.3	Directly measured or calculated values that are submitted for reporting on the ENERGY STAR website shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.	--	Pass
3.2	**General Requirements**		**--**
3.2.1	Power supply test data and test reports from testing entities recognized by EPA to perform power supply testing shall be accepted for the purpose of certifying the ENERGY STAR product.	See below	Pass
3.2.2	Internal Power Supply (IPS) Requirements: IPSs used in Computers eligible under this specification must meet the following requirements when tested using the Generalized Internal Power Supply Efficiency Test Protocol, Rev. 6.7.1		N/A
3.2.3	External Power Supply (EPS) Requirements: Single- and Multiple-voltage EPSs shall meet the Level VI or higher performance requirements under the International Efficiency Marking Protocol when tested according to the Uniform Test Method for Measuring the Energy Consumption of External Power Supplies, Appendix Z to 10 CFR Part 430.	The External power supply meets the Level VI performance requirements under the International Efficiency Marking Protocol	Pass
3.2.4	All products which contain one or more Ethernet ports with a bandwidth of 1Gb/s or higher shall have EEE supported in each of these ports in their as-shipped configuration.	--	Pass
3.3	**Power Management Requirements**		**--**
3.3.1	Products shall include power management features in their “as-shipped” condition as specified in Table 3, subject to the following conditions:	--	Pass
	i. For Thin Clients, the Wake-on-LAN (WOL) requirement shall apply for products designed to receive software updates from a centrally managed network while in Sleep Mode or in Off Mode. Thin Clients whose standard software upgrade framework does not require off-hours scheduling are exempt from the WOL requirement.	--	N/A
	ii. For Notebooks, WOL may be automatically disabled when the product is disconnected from ac mains power.	--	Pass
	iii. For all products with WOL, directed packet filters shall be enabled and set to an industry standard default configuration.	--	Pass
	iv. Products that do not support Sleep Mode by default are only subject to the Display Sleep Mode requirement.	--	Pass
	System Sleep / Alternative Low Power Mode (1) Sleep / Alternative Low Power Mode shall be set to activate after no more than 30 minutes of user inactivity (2) The speed of any active 1 Gb/s or faster Ethernet network links shall be reduced when	10 minutes	Pass

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
	transitioning to Sleep Mode or Off Mode Or the links shall enter Energy Efficient Ethernet state when transitioning to Alternative Low Power Mode		
	Display Sleep Mode (1) Display Sleep Mode shall be set to activate after no more than 15 minutes of user inactivity	10 minutes	Pass
	Wake on LAN (WOL) (1) Computers with Ethernet capability shall provide users with an option to enable and disable WOL for Sleep Mode.	--	Pass
	(2) Computers with Ethernet capability that are shipped through enterprise channels shall either: (a) be shipped with WOL enabled by default for Sleep Mode, when the computer is operating on ac mains power; or (b) provide users with the ability to enable WOL that is accessible from both the client operating system user interface and over the network.	--	Pass
	Wake Management (1) Computers with Ethernet capability that are shipped through enterprise channels shall: (a) be capable of both remote (via network) and scheduled (via real-time clock) wake events from Sleep Mode, and (b) Provide clients with the ability to centrally manage (via vendor tools) any wake management settings that are configured through hardware settings if the manufacturer has control over such features.	--	Pass
3.4	**User Information Requirements**		**--**
3.4.1	Products shall be shipped with informational materials to notify customers of the following: i. A description of power management settings that have been enabled by default ii. A description of the timing settings for various power management features, and iii. Instructions for properly waking the product from Sleep Mode	--	Pass
3.4.2	Products shall be shipped with one or more of the following: i. A list of default power management settings ii. A note stating that default power management settings have been selected for compliance with ENERGY STAR (within 15 min of user inactivity for the display, within 30 min for the computer, if applicable per Table 2), and are recommended by the ENERGY STAR program for optimal energy savings. iii. Information about ENERGY STAR and the benefits of power management, to be located at or near the beginning of the hard copy or electronic user manual, or in a package or box insert.	--	Pass
3.4.3	Provisions 3.4.1 and 3.4.2 may be met through use of either electronic or printed product documentation, provided it adheres to all of the	--	Pass

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
	following: i. Documentation is shipped with the product (e.g., in a printed manual or insert, on included optical media, in a file installed with the software load shipped to the customer) or available electronically on the manufacturer's website. In the latter case, instructions for accessing the information on the website shall be provided in the product package or on the Desktop or home screen; and ii. Documentation is included either (a) only with ENERGY STAR certified Computers; or (b) as part of the standard documentation if and only if accompanied by EPA-approved customer guidance on how to identify if their computer configuration is ENERGY STAR certified.		
3.5	**Requirements for Desktop, Integrated Desktop, and Notebook Computers**		**--**
3.5.1	Resume Time Requirement: a) Notebook computers are required to wake from sleep or an alternative low power mode with a latency of less than or equal to 5 seconds from initiation of wake event to system becoming fully usable including rendering of display. b) Desktop and Integrated Desktop Computers shall meet this same requirement, but with a latency of less than or equal to 10 seconds.	Notebook meet less than 5 seconds	Pass
3.5.2	Calculated Typical Energy Consumption (E_{TEC}) for Desktop, Integrated Desktop, and Notebook Computers per Equation 1 shall be less than or equal to the maximum TEC requirement (E_{TEC_MAX}) per Equation 2, subject to the following requirements:	--	Pass
	i. The Additional Internal Storage adder allowance ($TEC_{STORAGE}$) shall be applied if there are more than one internal storage devices present in the product, in which case it shall only be applied once.	--	Pass
	ii. The Integrated Display adder allowance ($TEC_{INT\_DISPLAY}$) applies only for Integrated Desktops and Notebooks and may be applied for each display.	--	Pass
	For Enhanced-performance Integrated Displays, the adder is calculated as presented in Table 9 and Equation 3.	--	N/A
	iii. For a product to certify for the Full Network Connectivity mode weighting, one of the following sets of criteria shall be satisfied:	--	N/A
	Option 1: - Products shall meet ECMA 393. - Notebook Computer products shall have the applied level of functionality in Table 5 enabled and configured by default upon shipment. - Desktop and Integrated Desktop products shall apply the appropriate $ALLOWANCE_{PREOXY}$ incentive addressed in Equation 2 below.		N/A
	Option 2: - Products shall be capable of Sleep Mode or an		N/A

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
	Alternative Low Power Mode which maintains constant network connectivity with energy consumption less than or equal to 2.5 watts for Notebook or Integrated Desktop Computers in order to qualify for the Full Capability mode weighting and applicable incentives in Table 7 respectively The same requirement applies for Desktop Computers, but with an energy consumption less than or equal to 3.0 watts.		
	iv. For Notebooks, Desktops, and Integrated Desktops that use an alternative low power mode in place of System Sleep Mode and long Idle mode, power in alternative Low power mode (P_{ALPM}) may be used in place of both the power in sleep (P_{SLEEP}) and the power in Long Idle (P_{LONG_IDLE}) in Equation 1 if the alternative low power mode measured power is less than or equal to 10 watts. In such instances, ($P_{SLEEP} \times T_{SLEEP}$) and ($P_{LONG\_IDLE} \times T_{LONG\_IDLE}$) are replaced by ($P_{ALPM} \times T_{SLEEP}$) and ($P_{ALPM} \times T_{LONG\_IDLE}$); Equation 1 remains otherwise unchanged.	--	Pass
	v. Desktop and Integrated Desktop systems providing Switchable Graphics and enabling it by default, an allowance equal to 14.4 watts	--	N/A
3.6	**Requirements for Slates/Tablets and Portable All-In-One Computers**		**--**
3.6.1	Slates/Tablets and Portable All-In-One Computer shall follow all of the requirements for Notebook Computers in Section 3.5	--	N/A
	i. Calculated Typical Energy Consumption (E_{TEC}), using Equation 1 with the Notebook Computer Mode Weightings from Table 5.	--	N/A
	ii. Calculated Maximum Allowed Typical Energy Consumption (E_{TEC_MAX}), using Equation 2 with the appropriate base Notebook Computer allowance from Table 10, and applicable Notebook Computer functional adder allowances from Table 11.	--	N/A
3.7	**Requirements for Workstations**		**--**
3.7.1	Weighted power consumption (P_{TEC}) as calculated per Equation 4 shall be less than or equal to the maximum weighted power consumption requirement (P_{TEC_MAX}) as calculated per Equation 5.	--	N/A
3.7.2	Active State Benchmark: To be ENERGY STAR certified, a Workstation must be submitted for certification with the following information disclosed in full: i. LINPAC benchmark test results, compiler optimizations, and total energy consumed over the duration of the test; and ii. SPECviewperf benchmark test results, configuration options, total duration of the test, and total energy consumed over the duration of the test.	--	N/A
3.7.3	Desktop Workstations: Products marketed as workstations may be ENERGY STAR certified under the Desktop requirements in Section 3.5	--	N/A

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
	instead of the Workstation requirements in Section 3.7, at the Partner's option. EPA will identify Workstations certified as Desktops as "Desktops" in all ENERGY STAR marketing materials, on certified product lists, etc.		
3.8	**Requirements for Thin Clients**		**--**
3.8.1	Calculated Typical Energy Consumption (E_{TEC}) per Equation 1 shall be less than or equal to the Maximum TEC Requirement (E_{TEC_MAX}), as calculated per Equation 6, subject to the following requirements. i. Allowances can only be applied if the corresponding adders are enabled by default. ii. Thin Clients can utilize the proxy weightings in Table 13 when calculating E_{TEC}. iii. For Thin Clients that lack a discrete System Sleep Mode, Long Idle State power (P_{LONG_IDLE}) may be used in place of Sleep Mode Power (P_{SLEEP}) in Equation 1 so long as the system meets the Thin Client TEC allowance. In such instances, ($P_{SLEEP} \times T_{SLEEP}$), is replaced by ($P_{LONG\_IDLE} \times T_{SLEEP}$); Equation 1 remains otherwise unchanged.	--	N/A

Section 4	**Testing**		**Pass**
4.1	Test Methods	ENERGY STAR Test Method for Computers, Rev. July-2022	Pass
4.2	Number of Units Required for Testing	1 Unit for each one Category	Pass
4.2.1	Representative Models shall be selected for testing per the following requirements:	--	Pass
	i. For certification of an individual product configuration, the unique configuration that is intended to be marketed and labelled as ENERGY STAR is considered the Representative Model.	--	Pass
	ii. For certification of a Product Family of all product types, with the exception of Workstations, product configurations that represent the worst-case power consumption for each product category within the family are considered Representative Models. When submitting Product Families, manufacturers continue to be held accountable for any efficiency claims made about their products, including those not tested or for which data were not reported. This includes ensuring that all models shipped as ENERGY STAR certified within the product family maintain the same power management settings when testing the Representative Model(s).	--	Pass
	iii. For systems that meet the definition for multiple categories (as defined in Section 1.B) depending on the specific configuration, manufacturers will have to submit the highest power configuration for each category under which they would like the system to be ENERGY STAR certified. For example, a system that could be configured as either a Category I1 or D1 Desktop, as defined in	--	Pass

ENERGY STAR® Program Requirements for Computers Eligibility criteria Version 8.0 - (Rev. July 2022)			
Section	**Requirement / Test**	**Remark**	**Verdict**
	Table 7 would require submittal of the highest power configuration for both categories in order to be ENERGY STAR certified. If a product could be configured to meet all categories, it would then have to submit data for the highest power configuration in all categories.		
	iv. For certification of a Product Family of Workstations under the Workstation or Desktop product type, the product configuration that represents the worst-case power consumption with a single GPU within the family is considered the Representative Model.	--	N/A
4.2.2	A single unit of each Representative Model shall be selected for testing.	--	Pass
4.2.3	All units/configurations for which a Partner is seeking ENERGY STAR qualification, must meet the ENERGY STAR requirements. However, if a Partner wishes to certify configurations of a model for which non-ENERGY STAR certified alternative configurations exist, the Partner must assign the certified configurations an identifier in the model name/number that is unique to ENERGY STAR certified configurations. This identifier must be used consistently in association with the certified configurations in marketing/sales materials and on the ENERGY STAR list of certified products (e.g. model A1234 for baseline configurations and A1234-ES for ENERGY STAR certified configurations).	--	Pass
4.3	International Market Qualification	--	Pass
4.3.1	Products shall be tested for qualification at the relevant input voltage/frequency combination for each market in which they will be sold and promoted as ENERGY STAR.	--	Pass
4.4	Customer Software and Management Service Pre-Provisioning	--	N/A

Section 5	**User Interface**	--	Pass
5.1.1	Use standard IEEE 1621 design for Electronic Devices Employed in Office/Consumer Environments.	--	Pass

Section 6	**Effective Date**	Oct.15, 2020	Pass

ENERGY STAR® Program Requirements for Computers Final Test Method Rev. July-2022			
Section	**Requirement / Test**	**Remark**	**Verdict**
1	**Overview**	--	Pass
2	**Applicability**	--	Pass
	The procedure in Section 6 shall be conducted on all eligible products that are covered under the scope as defined in Section 2 of the ENERGY STAR Final Draft Eligibility Criteria for Computers.	--	Pass
	The procedure in Section 7 shall be conducted only on eligible Workstation Computer products.	--	Pass
3	**Definitions**	--	Pass
4	**Test Setup**	--	Pass
	A) Input Power	100.0Vac, 50.0Hz 100.0Vac, 60.0Hz 115.0Vac, 60.0Hz 230.0Vac, 50.0Hz THD: ≤2.0%	Pass
	B) Ambient Temperature	18-28 °C	Pass
	C) Relative Humidity	10-80 %	Pass
	D) Light Measuring Device (LMD)	Accuracy: ±2% Acceptance Angle: ≤3 degrees	Pass
	E) Power Meter	Yokogawa / WT210	Pass
5	**Test Conduct**	--	Pass
5.1	Guidance for Implementation of IEC 62623 Ed. 1.0, 2012-10	--	Pass
5.2	Preparing Display Luminance of Notebooks, Integrated Desktops, Slates/Tablets and Portable All-In-One Computers	--	Pass
	A) Automatic brightness control (ABC)	--	N/A
	E) Display brightness for	Notebook Computers, the closest brightness setting that is at least 90 cd/m^2	Pass
5.3	Preparing External Display for Desktops	--	N/A
	A) Display Connection Priority The UUT has a port that supports switchable graphics capable of automatic switching, use that port.	--	N/A
	1) A discrete GPU is installed, connect to that GPU, except for where it conflicts with Section 5.3 (A)(1) in this test method.	--	N/A
	2) If no discrete or automatically switchable GPU is installed, choose a connection to an integrated GPU	--	N/A
	3) If multiple ports meet the requirements is Section 5.3 (A)(1) to 5.3 (A)(3) of this test method, test with the first available interface from the list below. i. Display Port ii. HDMI iii. DVI iv. VGA v. Other (i.e. Thunderbolt 3, Composite Video, etc.)	--	N/A

	B) Display Resolution: An external monitor used in the testing of the UUT shall have a minimum native resolution of 1920 x 1080 pixels with progressive scanning (1080p)	--	N/A
6	**Test Procedures for All Products**	--	Pass
6.1	UUT Preparation	--	Pass
6.2	Sleep Mode Testing		N/A
	ALPM in place of System Sleep Mode		Pass
6.3	Long Idle Mode Testing		N/A
	ALPM in place of System Long Idle Mode		Pass
6.4	Short Idle Mode Testing	--	Pass
6.5	Off Mode Testing	--	Pass
6.6	Additional Testing For Reporting For Notebook Computers, repeat the Short Idle test with the display brightness set to the closest setting that is at least 150 cd/m^2 for all displays.	--	Pass
7	**Test Procedures for Workstations**	--	N/A
7.1	**Maximum Power Test**	--	N/A
	For Workstations test shall be repeated three times on the same UUT, and all three measurements shall fall within a ± 2% tolerance relative to the average of the three measured maximum power values. The average power should be used for qualification and/or TEC calculations.	--	N/A
	A) UUT Preparation	--	N/A
	B) Maximum Power Testing	--	N/A
7.2	**Benchmark Test**	--	N/A
	A) UUT Preparation	--	N/A
	B) Benchmark Configurations	--	N/A
	C) Benchmark Testing	--	N/A

PRODUCT REFERENCE PAGE

Model Name / Number.……:	N24Q6 / TMP216-41						
Product Name……..:	Notebook Computer						
Product Family……..:	Refer to General Product Information						
Electrical Ratings:							
Voltage ☐AC ☒DC	20	Current ☒A ☐mA	3.25	Frequency, Hz:	--	Power, Watts:	65
Definitions of Product Classification							
☐ Desktop Computer	☒ Notebook Computer	☐ Integrated Desktop Computer					
☐ Portable All-In-One Computer	☐ Slate/Tablet	☐ Thin Client					
Product Category							
Desktops Computer..……..:	☐ Category I1	☐ Category I2	☐ Category D1	☐ Category D2			
Integrated Desktops..……..:	☐ Category I	☐ Category 2					
Notebooks Computer..……...:	☐ Category 0	☐ Category 1	☒ Category 2				
Slate/Tablet..…….....:	☐ Category 0	☐ Category 1	☐ Category 2				
Network Connectivity Type:							
☒ Conventional	☐ Network Proxy – Full Capability						
Product Information:							
Processor Type and Speed…:	AMD / Ryzen 7 PRO 7735U / 2.7GHz						
CPU Cores...……..:	8						
Performance Score, P……..…:	21.6						
Graphics Brand /Model……:	N/A						
Graphics Capability: ……:	☐ Discrete Graphics (dGfx)	☒ Integrated Graphics (iGfx)	☐ Switchable Graphics				
DW (bit) / DR (MHz)……..….:	N/A						
FB_BW (GB/s)……..:	N/A						
Ethernet port / Gb/s……..:	Yes*1，> 1Gb/s						
Operating System……:	Windows 11 Pro						
Storage (GB / Type)……..:	1024GB NVMe SSD*1 + 1024GB NVMe SSD*1						
System Memory (GB)……..:	32GB (16GB*2)						
System Memory Bandwidth:	N/A						
WOL Enabled from Sleep…...:	Disabled						
WOL Enabled from Off……..:	Disabled						
Screen Size (inches)……..:	16”						
Panel Resolution (r)...……..:	2.304 (1920*1200)						
Active Area (A)……..:	115.0 (345*215)						
Others……:	(Data Rate [Mhz] × Frame Buffer Data Width [bits]) / (8 × 1000)						

POWER SUPPLY REFERENCE PAGE

Product Type:	☐ Internal	☒ External
Manufacturer:	Chicony	
Brand Name:	Chicony	
Model Number/Designation:	A20-065N3A	
Nameplate Rating:	Input: 100-240Vac, 1.6A, 50-60Hz	
	Output: 5.0Vdc, 3.0A; 15.0W; 9.0Vdc, 3.0A; 12.0Vdc, 3.0A; 15.0Vdc, 3.0A; 20Vdc, 3.25A (65W)	

Photographs for IPS or EPS:

☐ IPS with maximum rated output power less than 75 watts shall meet minimum efficiency requirements as specified in Table 1

☐ IPS with maximum rated output power greater than or equal to 75 watts shall meet both minimum efficiency requirements and minimum power factor requirements, as specified in Table 1 or Table 2 as applicable.

☐ Single-voltage EPSs shall include the Level VI or higher marking.

☒ Multiple-voltage EPS meet level VI or higher shall include the Level VI or higher marking.

Power Consumption Test Results

Ambient Temperature : 23.1°C Relative Humidity : 60.6% Air Speed : ≦0.5 m/s

Wake On LAN (WOL) Enabled from Sleep……...: Disabled

Wake On LAN (WOL) Enabled from Off……: Disabled

Power Supply……: Chicony / A20-065N3A

Other……...: Category Name: 2

Item	Required		Measured					
OFF Mode	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P_{OFF} Watts*
	100	50	100.66	49.99	0.028	0.046	5	0.552
	100	60	100.60	59.99	0.028	0.047	5	0.564
	115	60	115.88	59.98	0.036	0.047	5	0.564
	230	50	230.63	49.99	0.027	0.052	5	0.624
SLEEP Mode	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P_{SLEEP} Watts*
	100	50	--	--	--	--	5	--
	100	60	--	--	--	--	5	--
	115	60	--	--	--	--	5	--
	230	50	--	--	--	--	5	--
ALPM Mode	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P_{ALPM} Watts*
	100	50	100.65	49.99	0.059	0.192	5	2.304
	100	60	100.59	59.98	0.059	0.189	5	2.268
	115	60	115.87	59.99	0.052	0.196	5	2.352
	230	50	230.55	49.99	0.052	0.204	5	2.448
LONG IDLE Mode	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	$P_{LONG\ IDLE}$ Watts*
	100	50	--	--	--	--	5	--
	100	60	--	--	--	--	5	--
	115	60	--	--	--	--	5	--
	230	50	--	--	--	--	5	--
SHORT IDLE Mode	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	$P_{SHORT\ IDLE}$ Watts*
	100	50	100.58	49.99	0.143	0.458	5	5.496
	100	60	100.59	59.99	0.142	0.458	5	5.496
	115	60	115.78	59.98	0.113	0.460	5	5.520
	230	50	230.55	49.98	0.073	0.483	5	5.796

Supplemental Information:
(*) The average power is calculated by the following equation:
Avg. Power (Watts) = (Wh x 60 minutes/hr) / (Wh Interval, minutes)

Test Voltage	Off Mode (W)	Sleep Mode (W)	ALPM Mode (W)	Long Idle Mode (W)	Short Idle Mode (W)	E_{TEC} (kWh)
100Vac 50Hz	0.552	--	2.304	--	5.496	24.73
100Vac 60Hz	0.564	--	2.268	--	5.496	24.62
115Vac 60Hz	0.564	--	2.352	--	5.520	25.01
230Vac 50Hz	0.624	--	2.448	--	5.796	26.25

☒ Equation 1: TEC Calculation (E_{TEC}) for Desktop, Integrated Desktop, Thin Clients, Notebook Computers and Tablet

☐ $\mathbf{E_{TEC} = (8760/1000) \times (P_{OFF} \times T_{OFF} + P_{SLEEP} \times T_{SLEEP} + P_{LONG\_IDLE} \times T_{LONG\_IDLE} + P_{SHORT\_IDLE} \times T_{SHORT\_IDLE})}$

☒ $\mathbf{E_{TEC} = (8760/1000) \times (P_{OFF} \times T_{OFF} + P_{ALPM} \times T_{SLEEP} + P_{ALPM} \times T_{LONG\_IDLE} + P_{SHORT\_IDLE} \times T_{SHORT\_IDLE})}$

Where: T_{OFF}, T_{SLEEP}, T_{LONG_IDLE}, and T_{SHORT_IDLE} are mode weightings as specified in Table 4 (for Desktops, Integrated Desktops or Table 5 (for Notebooks, Tablet) or Table 13 (for Thin Clients).

For Notebooks, Desktops, and Integrated Desktops that use an Alternative Low Power Mode in place of System Sleep Mode and Long Idle Mode, power in Alternative Low Power Mode (P_{ALPM}) may be used in place of both the power in Sleep (P_{SLEEP}) and the power in Long Idle (P_{LONG_IDLE}) in Equation 1 if the Alternative Low Power Mode measured power is less than or equal to 10 watts. In such

☐ Equation 4: P_{TEC} Calculation for Workstations

$\mathbf{P_{TEC} = (P_{OFF} \times T_{OFF} + P_{SLEEP} \times T_{SLEEP} + P_{LONG\_IDLE} \times T_{LONG\_IDLE} + P_{SHORT\_IDLE} \times T_{SHORT\_IDLE})}$
Where: T_{OFF}, T_{SLEEP}, T_{LONG_IDLE}, and T_{SHORT_IDLE} are mode weightings as specified in Table 12

Calculated				
$ALLOWANCE_{PSU}$	**$ALLOWANCE_{PROXY}$**	**TEC_{BASE}**	**TEC_{MEMORY}**	**E_{TEC_MAX}**
0	**0**	**14**	**11.808**	**38.95999816**
$TEC_{GRAPHICS}$	**$TEC_{SWITCHABLE}$**	**$TEC_{STORAGE}$**	**$TEC_{INT\_DISPLAY}$**	
0	**0**	**2.6**	**10.55199816**	
$TEC_{MOBILEWORKSTATION}$	**$TEC_{>1G\ to\ <10GLAN}$**	**TEC_{10GLAN}**		
0	**0**	**0**		

For Desktops, Integrated Desktop, Thin Client, Notebook Computers and Tablet, the calculated E_{TEC}

☐ exceeded ☒ did not exceed E_{TEC_MAX}.

☒ Equation 2: E_{TEC_MAX} Calculation for Desktop, Integrated Desktop, Notebook Computers and Tablet

$\mathbf{E_{TEC\_MAX} = (1 + ALLOWANCE_{PSU} + ALLOWANCE_{PROXY}) \times (TEC_{BASE} + TEC_{MEMORY} + TEC_{GRAPHICS} + TEC_{STORAGE} + TEC_{INT\_DISPLAY} + TEC_{SWITCHABLE} + TEC_{MOBILEWORKSTATION} + TEC_{>1G\ to\ <10GLAN} + TEC_{10GLAN})}$

☒ Equation 3: Calculation of Allowance for Enhanced-performance Integrated Displays

☒ 0, No Enhanced Performance Display

☐ 0.3, Enhanced Performance Display, d <27

☐ 0.75, Enhanced Performance Display, d ≥27

☐ Equation 5: E_{TEC_MAX} Calculation for Workstations

$\mathbf{P_{TEC\_MAX} = 0.28 \times (P_{MAX} + N_{HDD} \times 5)}$

☐ Equation 6: E_{TEC_MAX} Calculation for Thin Clients

$\mathbf{E_{TEC\_MAX} = TEC_{BASE} + TEC_{GRAPHICS} + TEC_{WOL} + TEC_{INT\_DISPLAY}}$

Additional Testing Results for Notebook Computer

Brightness set……..….:	**closest setting that is at least 150 cd/m²**			**Category Name………..:**	**2**			
SHORT IDLE Mode	Required		Measured					
	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P idle Watts*
	115	60	115.76	0.13	0.13	0.54	5	6.540
	230	50	230.57	49.99	0.09	0.58	5	6.984

Brightness set……..….:				**Category Name………..:**				
SHORT IDLE Mode	Required		Measured					
	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P idle Watts*
	115	60						
	230	50						

Brightness set……..….:				**Category Name………..:**				
SHORT IDLE Mode	Required		Measured					
	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P idle Watts*
	115	60	--	--	--	--	5	--
	230	50	--	--	--	--	5	--

Brightness set……..….:				**Category Name………..:**				
SHORT IDLE Mode	Required		Measured					
	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P idle Watts*
	115	60	--	--	--	--	5	--
	230	50	--	--	--	--	5	--

Brightness set……..….:				**Category Name………..:**				
SHORT IDLE Mode	Required		Measured					
	V	Hz	V	Hz	A	Wh	Wh Integration Time, min.	P idle Watts*
	115	60	--	--	--	--	5	--
	230	50	--	--	--	--	5	--

Supplemental Information:

(*) The average power is calculated by the following equation:
Avg. Power (Watts) = (Wh x 60 minutes/hr) / (Wh Interval, minutes)

Energy Star Requirements

Table 1: Requirements for Internal Power Supplies with Rated Output of 500 Watts and Below

Loading Condition (Percentage of Nameplate Output Current)	Minimum Efficiency	Minimum Power Factor
10%	0.80	
20%	0.82	-
50%	0.85	0.90
100%	0.82	-

Table 2: Requirements for Internal Power Supplies with Rated Output Above 500 Watts

Loading Condition (Percentage of Nameplate Output Current)	Minimum Efficiency	Minimum Power Factor
10%	0.80	
20%	0.87	-
50%	0.90	0.90
100%	0.87	-

Table 3: Power Management Requirements

Mode or Mode Transition	Requirement	Desktops	Integrated Desktops	Portable All-In-Ones	Notebooks	Slates/ Tablets	Thin Clients	Workstations
System Sleep[i]/Alternative Low Power Mode	(1) Sleep/Alternative Low Power Mode shall be set to activate after no more than 30 minutes of user inactivity. (2) The speed of any active 1 Gb/s or faster Ethernet network links shall be reduced when transitioning to Sleep Mode or Off Mode. Or the links shall enter Energy Efficient Ethernet state when transitioning to Alternative Low Power Mode	Yes	Yes	Yes	Yes	N/A	Yes	Yes
Display Sleep Mode	(1) Display Sleep Mode shall be set to activate after no more than 15 minutes of user inactivity	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wake on LAN (WOL)	(1) Computers with Ethernet capability shall provide users with an option to enable and disable WOL for Sleep Mode. (2) Computers with Ethernet capability that are shipped through enterprise channels shall either: (a) be shipped with WOL enabled by default for Sleep Mode, when the computer is operating on ac mains power; or (b) provide users with the ability to enable WOL that is accessible from both the client operating system user interface and over the network[ii].	Yes	Yes	Yes	Yes	N/A	Yes	Yes
Wake Management	(1) Computers with Ethernet capability that are shipped through enterprise channels shall: (a) be capable of both remote (via network) and scheduled (via real-time clock) wake events from Sleep Mode, and (b) provide clients with the ability to centrally manage (via vendor tools) any wake management settings that are configured through hardware settings if the manufacturer has control over such features.	Yes	Yes	Yes	Yes	N/A	Yes	Yes

Table 4: Mode Weightings for Desktops and Integrated Desktop Computers

Mode Weighting	Conventional
T_{OFF}	15%
T_{SLEEP}	45%
T_{LONG_IDLE}	10%
T_{SHORT_IDLE}	30%

Table 5: Mode Weightings for Notebook Computers

Mode Weighting	Conventional	Full Network Connectivity			
		Base Capability	Remote Wake	Service Discovery / Name Services	Full Capability
T_{OFF}	25%	25%	25%	25%	25%
T_{SLEEP}	35%	39%	41%	43%	45%
T_{LONG_IDLE}	10%	8%	7%	6%	5%
T_{SHORT_IDLE}	30%	28%	27%	26%	25%

Table 6: Internal Power Supply Efficiency Allowance

Power Supply Type	Computer Type	Minimum Efficiency at Specified Proportion of Rated Output Current				$Allowance_{PSU}$
		10%	20%	50%	100%	
IPS	Desktop	0.86 0.90	0.90 0.92	0.92 0.94	0.89 0.90	0.015 0.03
	Integrated Desktop	0.86 0.90	0.90 0.92	0.92 0.94	0.89 0.90	0.015 0.04

Table 7: Alternative Low Power Mode or Sleep Mode[iv]– Full Network Proxy Allowance

Computer Type	Maximum Measured Power Limit of ALPM or Sleep(Watts)	$Allowance_{PROXY}$
Desktop	2.5 3.0	0.12 0.06
Integrted Desktop	2.0 2.5	0.06 0.03

Table 8: Base TEC (TEC_{BASE}) Allowances for Desktops

Category Name	Graphics Capability[v]	Desktop	
		Performance Score, P[vi]	Base Allowance
I1	Integrated or Switchable Graphics	P ≤ 8	26.0
I2		P > 8	46.0
D1	Discrete Graphics	P ≤ 8	35.0
D2		P > 8	45.0

Table 9: Base TEC (TEC_{BASE}) Allowances for Integrated Desktops

Category Name	Integrated Desktop	
	Performance Score, P[ivo]	Base Allowance
1	P ≤ 8	9.0
2	P > 8	27.0

Table 10: Base TEC (TEC_{BASE}) Allowances for Notebooks

Category Name	IntegratedDesktop	
	Performance Score, P[iv]	Base Allowance
0	P ≤ 2	6.5
1	2 < P < 8	8.0
2	P ≥ 8	14.0

Table 11: Functional Adder Allowances for Desktop, Integrated Desktop, Thin Client, and Notebook Computers

Function		Desktop	Integrated Desktop	Notebook
TEC_{MEMORY} (kWh)[vii]		1.7 + (0.24 x GB)		2.4 + (0.294 x GB)
$TEC_{GRAPHICS}$ (kWh)[viii, ix]		50.4 x tanh (0.0038 x FB_BW – 0.137) + 23		29.3 x tanh (0.0038 x FB_BW – 0.137) + 13.4
$TEC_{SWITCHABLE}$ (kWh)[x]		14.4		N/A
$TEC_{STORAGE}$ (kWh)[xi]	3.5” HDD	16.5		N/A
	2.5” HDD	2.1		2.6
	Hybrid HDD/SSD	0.8		
	SSD (including M.2 port solutions)	0.4		
$TEC_{INT\_DISPLAY}$ (kWh)[xii]	A < 190	N/A	[(3.43 x r) + (0.148 x A) + 1.30] x (1 x EP)	8.76 x 0.30 x (1+EP) x (0.43 x r + 0.0263 x A)
	190 ≤ A < 210		[(3.43 x r) + (0.018 x A) + 26.1] x (1 x EP)	
	210 ≤ A < 315		[(3.43 x r) + (0.078 x A) + 13.2] x (1 x EP)	
	A ≥ 315		[(3.43 x r) + (0.156 x A) - 11.3] x (1 x EP)	
$TEC_{MOBILEWORKSTATION}$ (kWh)[xiii]		N/A		4.0
$TEC_{<1G\ to\ <10GLAN}$ (kWh)[xiv]		4.0		N/A
TEC_{10GLAN} (kWh)[xv]		18.0		N/A

Table 12: Mode Weightings for Workstations

T_{OFF}	T_{SLEEP}	T_{LONG_IDLE}	T_{SHORT_IDLE}
10%	35%	20%	35%

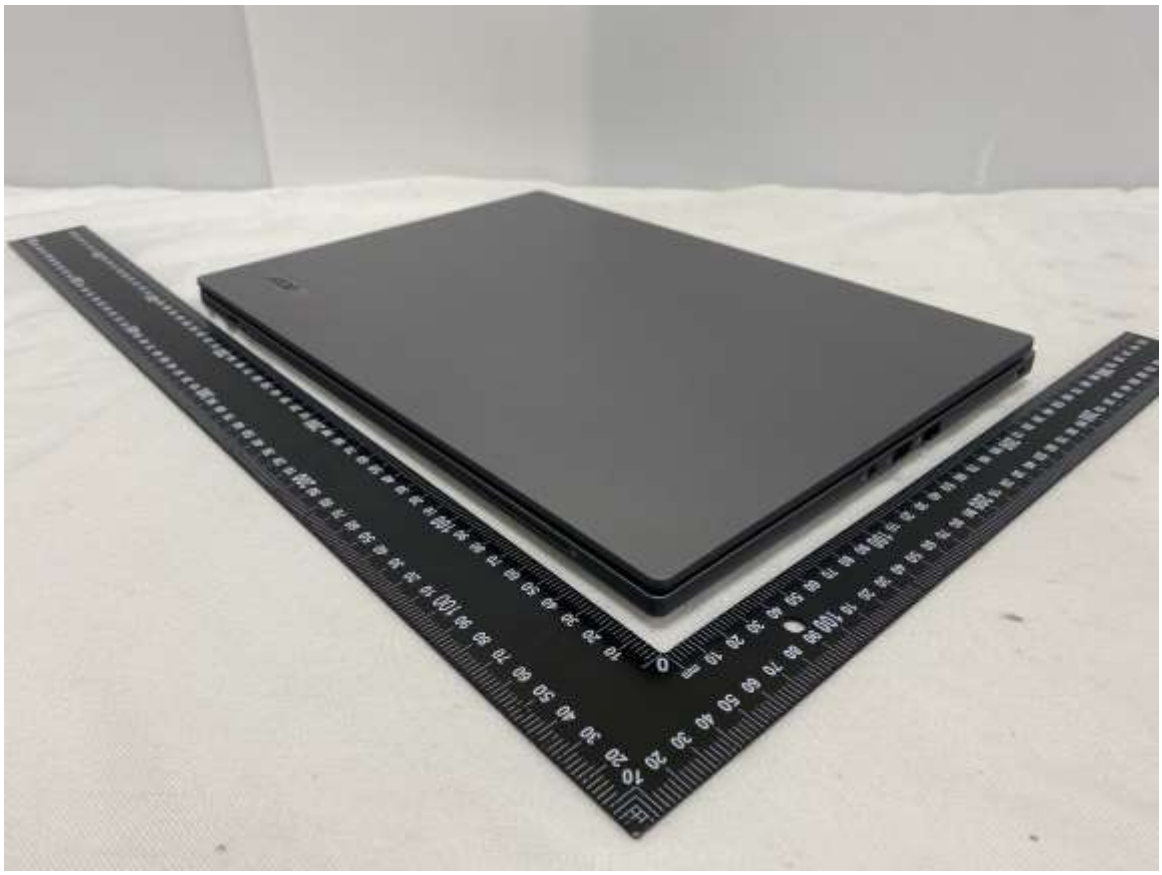
Table 13: Mode Weightings for Thin Clients

T_{OFF}	T_{SLEEP}	T_{LONG_IDLE}	T_{SHORT_IDLE}
45%	5%	15%	35%

Table 14: Adder Allowances for Thin Clients

Adder	Allowance (kWh)
TEC_{BASE}	31
$TEC_{GRAPHICS}$	36
TEC_{WOL}	2

Photographs:



Calibration Data For Test Instruments：

No.	Instrument	Manufacturer	Model	Range	Serial No.	Calibration Date	Next Calibration Date
5	Hot Wire Anemometer	TES	1340	0.1m/s ~ 68 mile/hr	100705243	04/13/2023	04/13/2024
15	Digital Timer - Alarm Clock	AVDr.AV	N/A	Timer (Full Range)	ISL-LT014	11/10/2023	11/10/2024
104	Temperature & Humidity Record	KIMO	KH-210	Temperature 15°C ~35°C Humidity 30%~90% RH.	14032262	10/04/2023	10/04/2024
121	Digital Power Meter	Yokogawa Electric Corp	WT210	0-600Vac / dc; 0-20Vdc	91M22521	11/02/2023	11/02/2024
150	Luminance Meter	Konica Minolta	LS-150	5 /10 / 90 / 150 / 1000 cd/m^2	D10002890	10/30/2023	10/30/2024

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