

1.0 Reference and Address			
Report Number	240301161SHA-1	Original Issued: 15-Apr-2024	Revised: None
Standard(s)	ENERGY STAR® Program Requirements for Displays Version 8.0		
Test Methods	All Product Types and Screen Sizes	ENERGY STAR Test Method for Determining Display Energy – Rev. Nov-2021	
	Enhanced Performance Displays	International Committee for Display Metrology (ICDM) Information Display Measurements Standard – Version 1.03	
	Displays Claiming Full Network Connectivity	CTA-2037-A, Determination of Television Set Power Consumption	
	Displays Claiming High Dynamic Range (HDR)	VESA High-performance Monitor and Display Compliance Test Specification (DisplayHDR CTS) Version 1.0	
Test Materials	“IEC 62087:2011 Dynamic Broadcast-Content Signal” shall be used for testing, as specified in IEC 62087:2011, Section 11.6, “On (average) mode testing using dynamic broadcast-contentvideo signal.”		
	“VESA FPDM2” shall be used only for products that cannot display the IEC 62087:2011 Dynamic Broadcast-Content Signal.		
Reference Standard	IEC 62301:2011, “Household electrical appliances - Measurement of standby power”		
Applicant	Top Victory Electronics (Taiwan) Co.,Ltd.	Manufacturer 1	TPV Electronics(Fujian) Co., Ltd
Address	10F.,No.230,Liancheng Rd. Zhonghe City. Taipei Country 23553	Address	Rongqiao Economic and Technological Development Zone, Fuqing City, Fujian Province
Country	Taiwan	Country	P.R.China
Contact	David.Cheng	Contact	Winter.Feng
Phone	+886-2-82261668-2375	Phone	+86-591-85285555
FAX	+886-2-82261668-2375	FAX	+86-591-85285447
Email	David.cheng@tpv-tech.com	Email	winter.feng@tpv-tech.com

1.0 Reference and Address			
Manufacturer 2	TPV Display Technology (Beihai) Co.,Ltd	Manufacturer 3	TPV Display Technology (China) Co., Ltd.
Address	China Electronic Beihai Industry Park,Northeast of the Crossing between Taiwan Road and Jilin Road Beihai City,Guangxi	Address	No.106 Jinghai 3 Rd., BDA, Beijing City
Country	China	Country	China
Contact	Jiaping Chen	Contact	Nancy.Shang
Phone	86-799-3132666-8255	Phone	86(10)64326699-8312
FAX	86-779-2232270	FAX	NA
Email	jiaping.Chen@tpv-tech.com	Email	lijia.shang@tpv-tech.com
Manufacturer 4	L&T Display Technology (Fujian) Ltd.	Manufacturer 5	TPV Display Technology(Wuhan)Co.,Ltd
Address	Optoelectronic Park, Rongqiao Economic and Technological Development Zone, Fuqing City,Fujian Province	Address	Unique No.11 Zhuankou Development District of Economic Technological Development Zone Wuhan
Country	P.R.China	Country	China
Contact	Elaine Lin	Contact	Zhe.Zhou
Phone	+86-591-86515558	Phone	86(27)-6884 3822
FAX	+86-591-86515555	FAX	86(27)-6884 3822
Email	elaine.lin@Intdisplayfj.com	Email	zhe.zhou@tpv-tech.com

2.0 Product Description					
Product	Display (LCD Monitor)				
Brand Name	AOC				
Description	The product covered by this report is a Display (LCD Monitor)				
Models	24B3CA2;24B3CF2;24B3HA2				
Model Similarity	24B3CA2,24B3CF2:power board 715GC478 and main board 715GD815 24B3HA2:main board with power supply module 715GE360 24B3CA2,24B3HA2 and 24B3CF2:different pedestal				
Ratings	100-240Vac, 50/60Hz, 1.5A				
Other Ratings	NA				
Date Available	04/15/2024	Market Availability	Yes	OEM	TPV Electronics(Fujian ) Co. Ltd
Major Markets	Canada,Japan,Switzerland,Taiwan,United States				
Trans Type	Initial Certification: Model Meets ENERGY STAR Requirements				
Notes					
UPC	4038986141468,4038986141437,4038986151481				
Reason no UPC					
Other reason no UPC					
Additional Model Details (Optional)	Model Name and Number	Identifying Information			
Original Certificate Actual Issued Date for Model Tested (Only Applies to Revised Reports)					NA

3.0 Product Photographs

Photo 1 - External View (front)

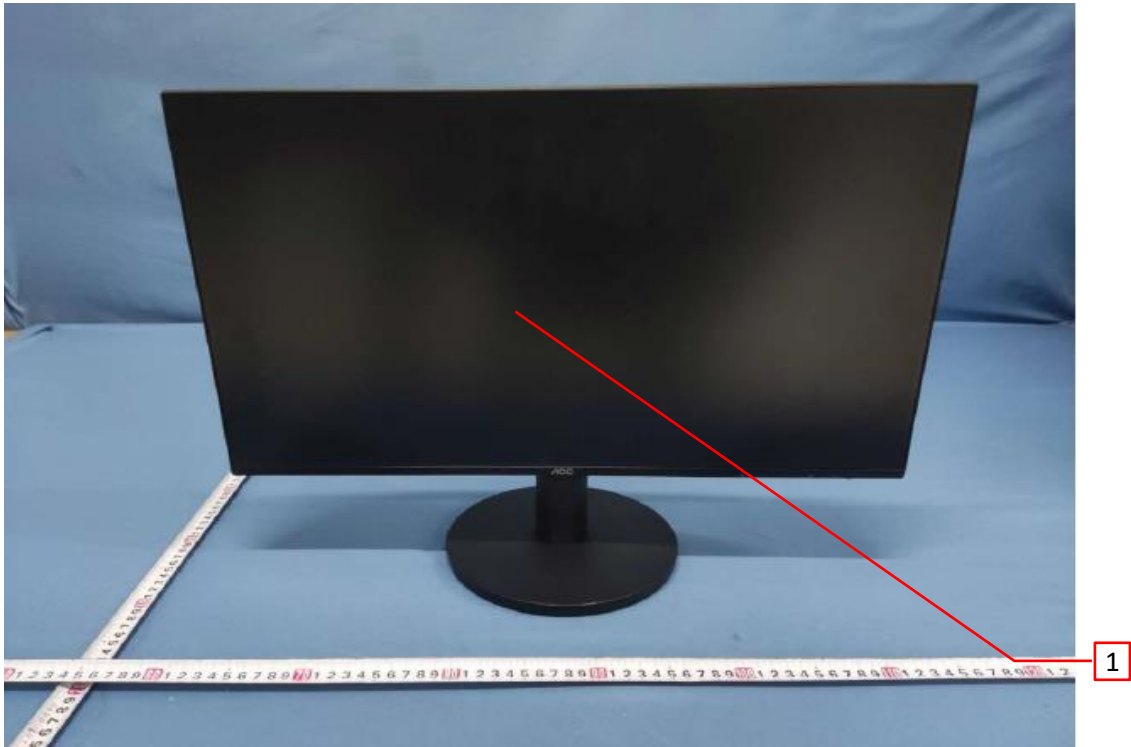


Photo 2 - External View (back)



3.0 Product Photographs

Photo 3 - Main Board (TPV/L&T/ 715GD815)

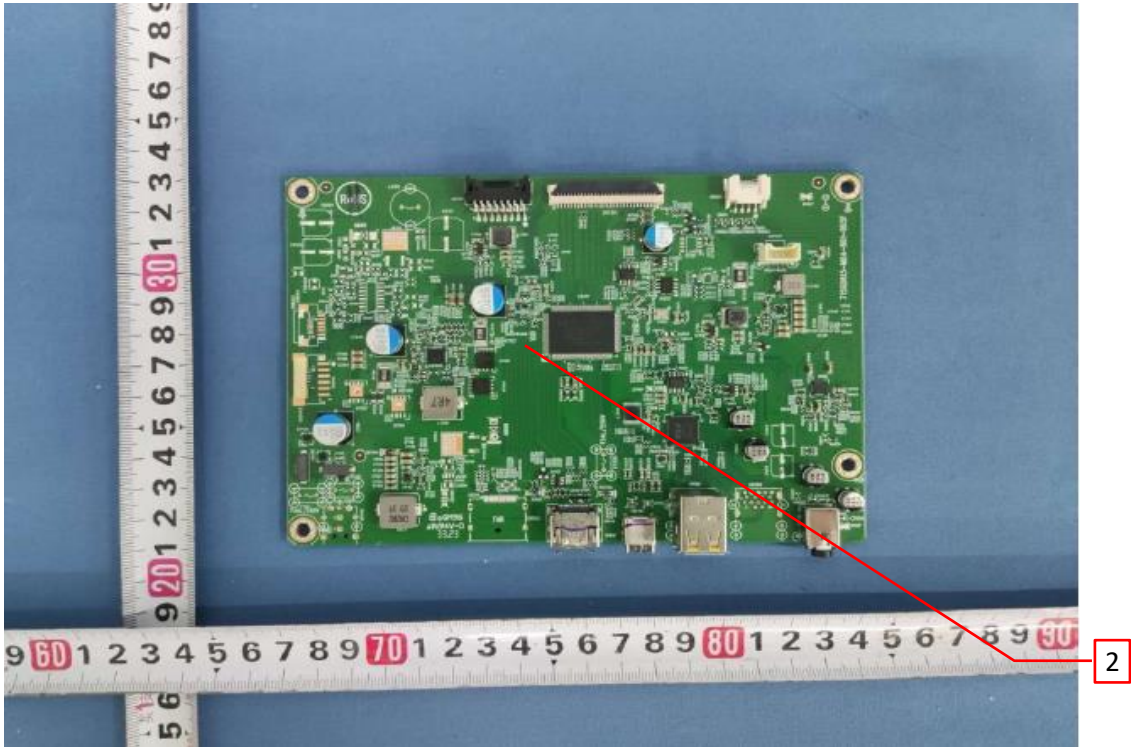
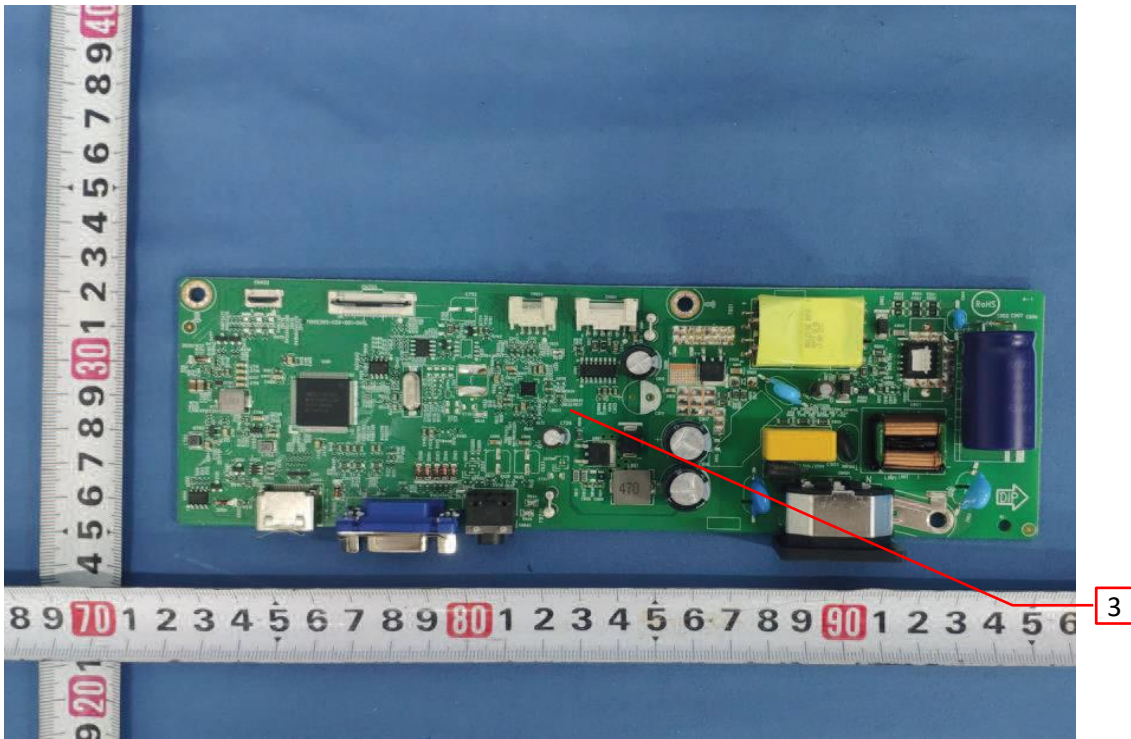


Photo 4 - Main Board with power supply module (TPV/L&T/ 715GE360)



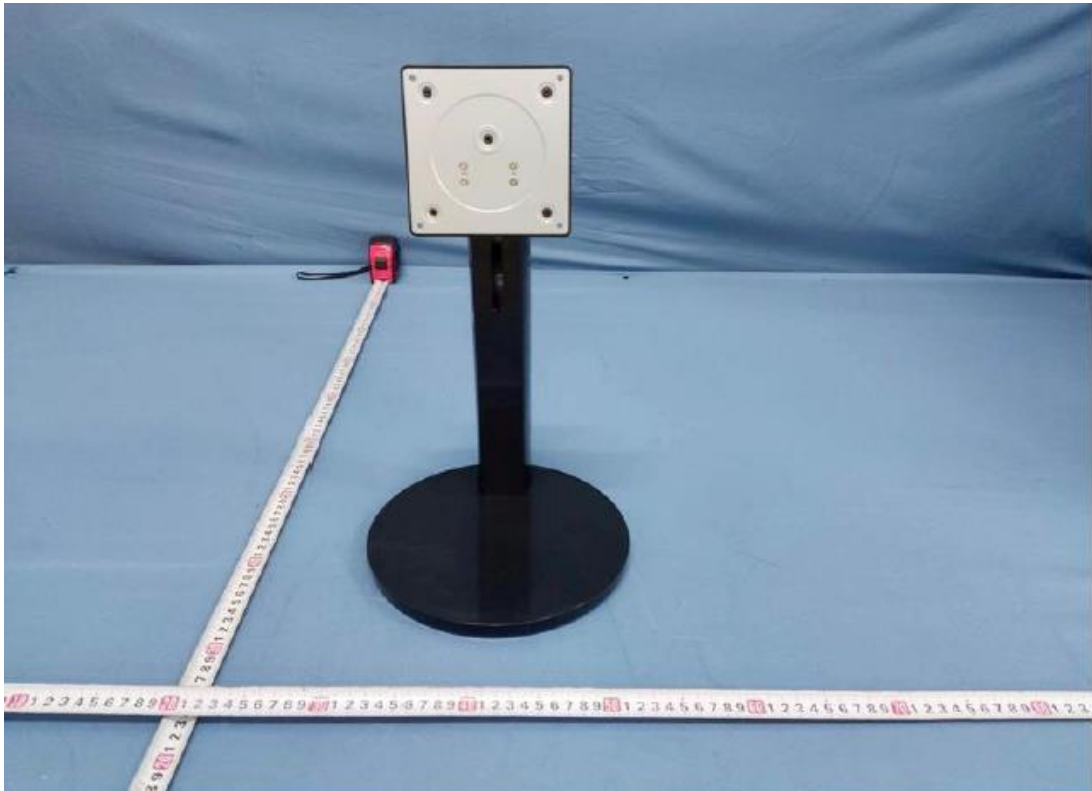


3.0 Product Photographs

Photo 5 - Power Board (TPV/L&T/ 715GC478)



Photo 6 - Pedestal



4.0 Critical Components						
Photo #	Item no. <sup>1</sup>	Name	Manufacturer/ trademark <sup>2</sup>	Type / model <sup>2</sup>	Technical data and securement means	Mark(s) of conformity <sup>3</sup>
1	1	LCD Panel	L&T	LM238*****(* can be 0~9,A~Z, " ", "-" or blank)	23.8 inches, LED backlighting. LM238WF2 is tested as a representation.	NR
			LGD	LM238*****(* can be 0~9,A~Z, " ", "-" or blank)	23.8 inches, LED backlighting.	NR
3	2	Main Board	TPV/L&T	715GD815	I/P: Max 11.5-20.5Vdc 1.5A This is tested model.	NR
4	3	Main board with power supply module	TPV/L&T	715GE360	I/P:100-240Vac,50/60Hz,1.5A O/P:19Vdc/2A max	NR
5	4	Power Board	TPV/L&T	715GC478	I/P: 100-240Vac, 50/60Hz, 1.5A; O/P: Max 11.5-20.5Vdc 1.5A This is tested model.	NR
NOTES:						
1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.						
2) "Various" means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.						
3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates: a) Unlisted and only visual examination is necessary or b) marks are not required to be verified.						

**5.0 Critical Unlisted CEC Components**

Periodic Evaluation of Critical Unlisted Components by the Intertek Component Evaluation Centers (CEC) is not required under the INTERTEK ENERGY STAR Program.



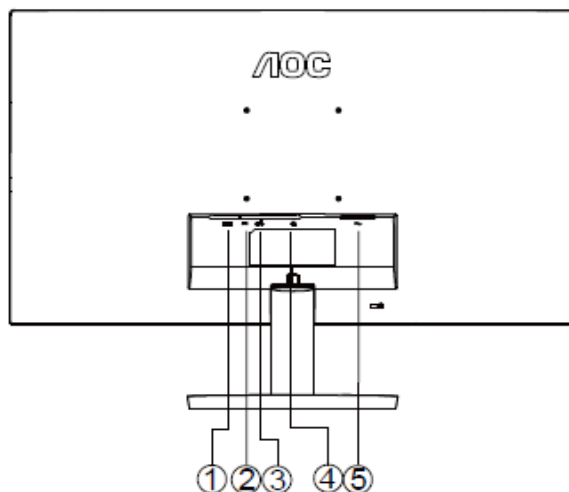
6.0 Critical Features
<u>Critical Features/Components</u> - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the ENERGY STAR® Program Requirements.
<u>Listed Component</u> - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.
<u>Recognized Component</u> - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.
<u>Unlisted Component</u> - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.
<u>Construction Details</u> - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.
1. <u>Product Safety Compliance</u> - NA
2. <u>EMI Compliance</u> - NA
3. <u>Schematics</u> - NA
4. <u>Installation, Operating and Safety Instructions</u> - Instructions for installation and use of this product are provided by the manufacturer. Refer to Illustration No(s). 1-2 for details.
5. <u>Package Markings</u> - NA
6. <u>Warranty Information</u> - NA
7. <u>Marking Label</u> - Refer to Illustration No.3 for details.

## 7.0 Illustrations

### Illustration 1 - Installation, Operating and Safety Instructions

#### Connecting the Monitor

Cable Connections In Back of Monitor:



1. HDMI
2. USB C
3. USB3.2 Gen1+charging
4. Earphone
5. Power

#### Connect to PC

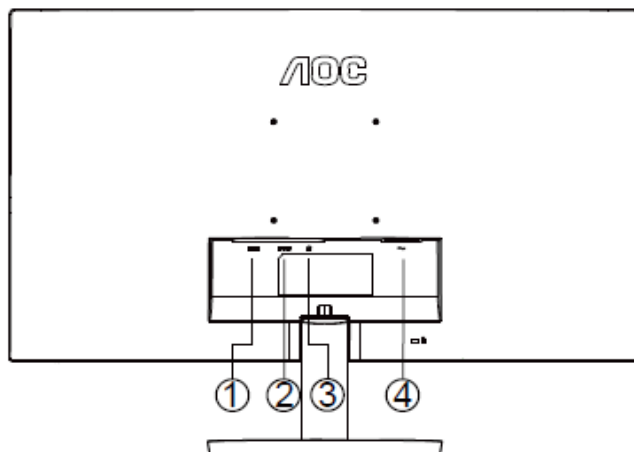
1. Connect the power cord to the back of the display firmly.
  2. Turn off your computer and unplug its power cable.
  3. Connect the display signal cable to the video connector on your computer.
  4. Plug the power cord of your computer and your display into a nearby outlet.
  5. Turn on your computer and display.
- If your monitor displays an image, installation is complete. If it does not display an image, please refer Troubleshooting.
- To protect equipment, always turn off the PC and LCD monitor before connecting.

## 7.0 Illustrations

### Illustration 2 - Installation, Operating and Safety Instructions(continue)

#### Connecting the Monitor

Cable Connections In Back of Monitor.



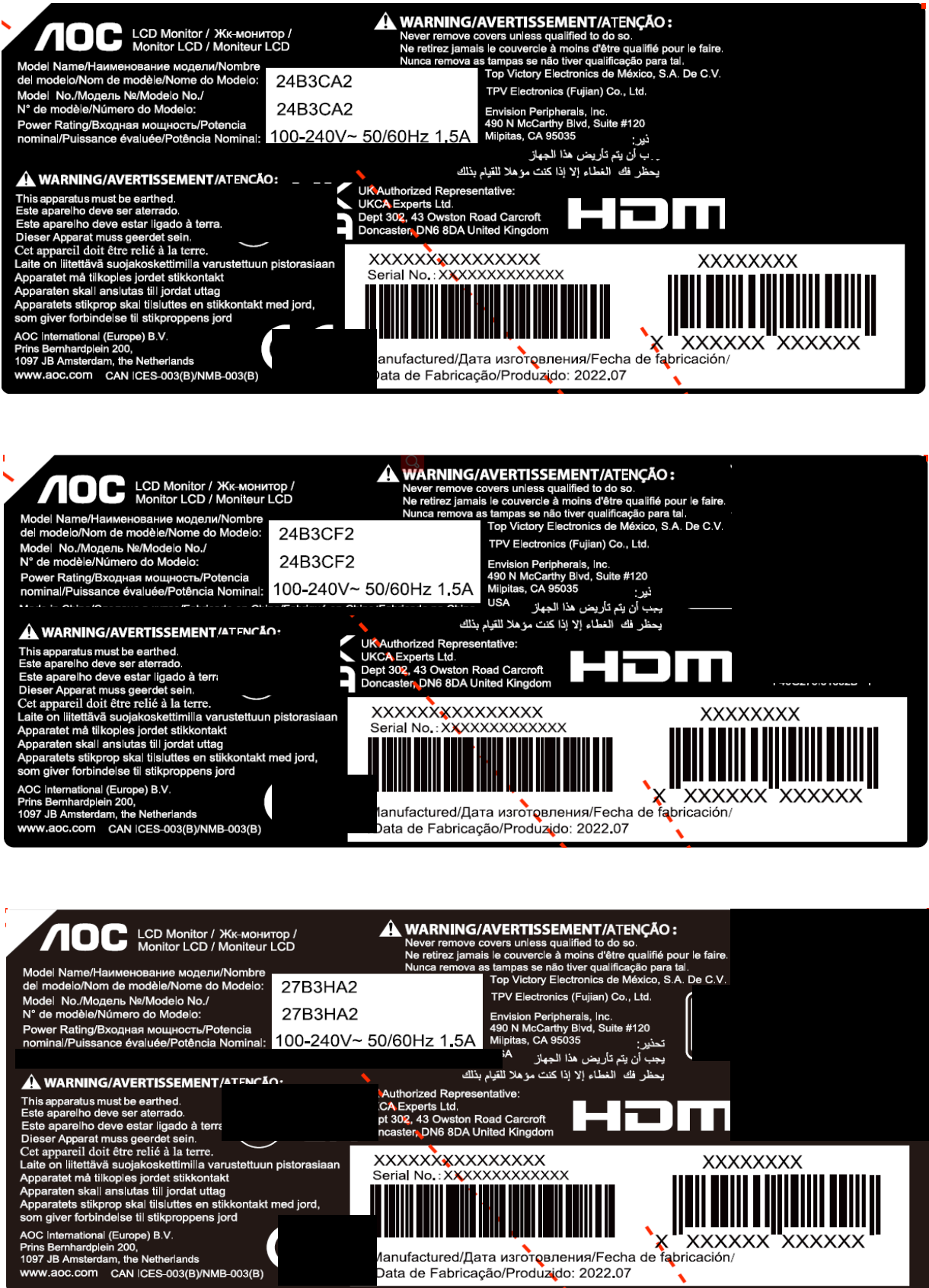
1. HDMI
2. Analog (D-Sub 15-Pin VGA cable)
3. Earphone
4. Power

#### Connect to PC

1. Connect the power cord to the back of the display firmly.
  2. Turn off your computer and unplug its power cable.
  3. Connect the display signal cable to the video connector on your computer.
  4. Plug the power cord of your computer and your display into a nearby outlet.
  5. Turn on your computer and display.
- If your monitor displays an image, installation is complete. If it does not display an image, please refer Troubleshooting.
- To protect equipment, always turn off the PC and LCD monitor before connecting.



7.0 Illustrations

Illustration 3 - Marking Label



8.0 Test Summary					
Evaluation Period	4/15/2024 - 4/15/2024		Project No.	240301161SHA	
Sample Rec. Date	12-Apr-2024	Condition	Prototype	Sample ID.	0240415-123-058
Test Location	Intertek Testing Services Shanghai Limited (1105997) Building No.86, 1198 Qinzhou Road (North), Shanghai 200233, China				
Test Procedure	Testing Lab		Test type	Qualification	
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.					
The following requirements were evaluated:					
Required Submittal Information				Submittal Data	
Model Name and/or Number tested				24B3CA2	
Date tested				04/15/2024	
Serial number of Unit tested				1 sample	
ENERGY_STAR_Specification_Version*				8.0	
Product_Type*				Monitor	
Tiled_Display_System					
Maximum_Tiled_Configuration					
Panel_Type*				IPS LCD	
Other_Panel_Type					
Diagonal_Screen_Size_in*				23.8	
Screen_Area_sq_in*				242.18	
Display_Contrast_Ratio*				1300	
Native_Vertical_Resolution_lines*				1080	
Native_Horizontal_Resolution_lines*				1920	
Total_Native_Resolution_megapixels*				2.1	
Native_Pixel_Density_Dp_pixels_sq_in*				8562	
As_Testesd_Screen_Refresh_Rate_Hz*				60	
Maximum_Screen_Refresh_Rate_Hz*				100	
Enhanced_Performance_Criteria*				No	
Color_Gamut					
Reported_Contrast_Ratio_at_85_deg_Left_Horiz_Viewing_Angle					
Reported_Contrast_Ratio_at_85_deg_Right_Horiz_Viewing_Angle					
High_Dynamic_Range_HDR*				N/A	
Other_Available_Interfaces					
Other_Features					
Signal_Interface*				USB-C	
Other_Interface					
USB_C_with_Power_Delivery_Supported*				Yes	
Maximum_Power_Delivery_W				65	
Other_Power_Source					
Does_Model_Have_a_Forced_Menu_at_Initial_Start_up*				No	
Maximum_Measured_Luminance_cd_m_2*				263.1	
Maximum_Reported_Luminance_cd_m_2*				250	
As_shipped_Luminance_cd_m_2				240.4	
As_tested_Luminance_cd_m_2*				200	
On_Mode_Power_at_12_Lux_at_115_Volts_W					
On_Mode_Power_at_300_Lux_at_115_Volts_W					
Measured_On_Mode_Power_at_115_Volts_W				14.55	
Reported_On_Mode_Power_at_115_Volts_W				14.55	
Maximum_On_Mode_Power_Limit_for_Signage_Certification_W					
Measured_Sleep_Mode_Power_at_115_Volts_W				0.24	
Reported_Sleep_Mode_Power_at_115_Volts_W				0.24	
Measured_Disconnected_Sleep_Mode_Power_at_115_Volts_W				0.24	
Maximum_Sleep_Mode_Power_Limit_for_Signage_Certification_W					
Number_of_Sleep_Modes_in_Addition_to_Default_Sleep_Mode*				0	
Other_Mechanism_for_Automatically_Entering_Sleep_or_Off_Mode					

8.0 Test Summary	
Default_Delay_Time_to_Sleep_min	
Measured_Off_Mode_Power_at_115_Volts_W	0.17
Reported_Off_Mode_Power_at_115_Volts_W	0.17
Measured_Total_Energy_Consumption_at_115_Volts_kWh	45.98
Reported_Total_Energy_Consumption_at_115_Volts_kWh	45.98
Max_Total_Energy_Consumption_Limit_for_Monitor_kWh	48.48
On_Mode_Power_at_12_Lux_at_230_Volts_W	
On_Mode_Power_at_300_Lux_at_230_Volts_W	
Measured_On_Mode_Power_at_230_Volts_W	14.52
Measured_Sleep_Mode_Power_at_230_Volts_W	0.25
Measured_Disconnected_Sleep_Mode_Power_at_230_Volts_W	0.25
Measured_Off_Mode_Power_at_230_Volts_W	0.18
Measured_Total_Energy_Consumption_at_230_Volts_kWh	45.94
True_Power_Factor_PF_During_On_Mode_Testing_at_115_Volts_W	0.88
True_Power_Factor_PF_During_On_Mode_Testing_at_230_Volts_W	0.59
Color_Spaces_Supported*	sRGB
Available_Signal_or_Data_Interfaces*	HDMI,USB
Model_Features*	Built-In Speakers,USB-C
Features_Enabled_in_Default_On_Mode*	Built-In Speakers
Features_Enabled_in_Default_Sleep_Mode*	None
Wireless_Technologies_Supported*	None
Ethernet_Supported*	None
Power_Source*	Ac to dc internal power supply
Mechanism_for_Automatically_Entering_Sleep_or_Off_Mode*	Display Power Management Signaling
On_Mode_Power_at_12_Lux_at_100_Volts_50Hz_W	
On_Mode_Power_at_300_Lux_at_100_Volts_50Hz_W	
Measured_On_Mode_Power_at_100_Volts_50Hz_W	14.56
Measured_Sleep_Mode_Power_at_100_Volts_50Hz_W	0.2
Measured_Disconnected_Sleep_Mode_Power_at_100_Volts_50Hz_W	0.2
Measured_Off_Mode_Power_at_100_Volts_50Hz_W	0.16
Measured_Total_Energy_Consumption_at_100_Volts_50Hz_kWh	45.78
On_Mode_Power_at_12_Lux_at_100_Volts_60Hz_W	
On_Mode_Power_at_300_Lux_at_100_Volts_60Hz_W	
Measured_On_Mode_Power_at_100_Volts_60Hz_W	14.57
Measured_Sleep_Mode_Power_at_100_Volts_60Hz_W	0.2
Measured_Disconnected_Sleep_Mode_Power_at_100_Volts_60Hz_W	0.2
Measured_Off_Mode_Power_at_100_Volts_60Hz_W	0.16
Measured_Total_Energy_Consumption_at_100_Volts_60Hz_kWh	45.81

8.1 Signatures			
A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0.			
Completed by:	Nyck Guan	Reviewed by:	Carl Dong
Title:	Engineer	Title:	Engineer
Signature:		Signature:	



9.0 Correlation Page For Multiple Listings				
The following products, which are identical to those identified in this report except for model number and Company name.				
BASIC LISTEE		Top Victory Electronics (Taiwan) Co., Ltd.		
Address		10F.,No.230,Liancheng Rd. Zhonghe City. Taipei Country 23553		
Country	Taiwan	EPA ID	1065104	
Product	Display (LCD Monitor)			
Contact	David.Cheng			
Phone	+886-2-82261668-2375			
FAX	+886-2-82261668-2375			
Email	David.cheng@tpv-tech.com			
MULTIPLE LISTEE 1		None		
Address				
Country		EPA ID		
Contact				
Phone				
FAX				
Email				
Brand Name				
Date Available		Market Availability		OEM
Major Markets				
Trans Type				
Notes				
UPC				
Reason no UPC				
Other reason no UPC				
ASSOCIATED MANUFACTURER				
Address				
Country				
MULTIPLE LISTEE 1 MODELS		BASIC LISTEE MODELS		
Additional Model Details (Optional)	Model Name and Number	Identifying Information		

9.0 Correlation Page For Multiple Listings

MULTIPLE LISTEE 2	None		
Address			
Country		EPA ID	
Contact			
Phone			
FAX			
Email			
Brand Name			
Date Available		Market Availability	OEM
Major Markets			
Trans Type			
Notes			
UPC			
Reason no UPC			
Other reason no UPC			
ASSOCIATED MANUFACTURER			
Address			
Country			
MULTIPLE LISTEE 2 MODELS		BASIC LISTEE MODELS	
Additional Model Details (Optional)	Model Name and Number	Identifying Information	

<div><b>10.0 General Information</b></div> <div><p>The Applicant has agreed to produce products in accordance with the requirements of this report and to maintain compliance with all ENERGY STAR Product Specification requirements.</p><p><u>Changes to Product Design / Alternate Components</u></p><p>As part of this agreement, the Applicant also has agreed to notify Intertek and to request authorization prior to making any changes to the product (including but not limited to using alternate parts, components or materials) which may effect compliance with the ENERGY STAR Product Specification. Those parts, components or materials identified as critical have been listed in Section 4.0 of this report.</p><p><u>Product Surveillance</u></p><p>Under this Program, market surveillance is conducted on an annual basis. For each Product Type defined in the EPA ENERGY STAR Program, Intertek will select 10% of those certified products for Verification Testing in accordance with the requirements of the EPA ENERGY STAR Product Specification.</p><p>The primary source for products under Verification Testing will be the retail market. Applicants whose products are selected for Verification Testing are required to provide a list of locations where the product might be obtained. The Applicant is responsible for the cost of procurement and the Verification Tests. Should products not be readily available on the retail market, the Applicant is required to provide access to distribution warehouses to allow selection of those products. Should the product not be available on the retail market or if procurement from the retail market is not feasible, then alternate arrangements for Verification Testing will be made by the Intertek Certification Body.</p><p>As a general rule under the Verification Testing requirements, the products must achieve energy values within 5% of the required Tier Limit.</p><p><u>Compliance with ENERGY STAR Product Specifications under Verification Testing</u></p><p>Products found non-compliant with ENERGY STAR Product Specification under Verification Testing, will be reported to the EPA within 48 hours and the product removed from the ENERGY STAR Program. If it is determined during Verification Testing that changes have been made to product design or critical components, the Certification Body may increase Verification Testing frequency of those products.</p></div>
<div><b>10.1 Evaluation of Unlisted Components</b></div> <div><p>Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.</p><p><b>Note to Intertek Follow Up Inspector: The Component Evaluation Center, CEC, will notify you in writing when these components must be selected and sent to the CEC for re-evaluation</b></p><div><p>Ship the samples to:</p><p>Intertek Testing Services Shanghai Limited</p><p>ETL Component Evaluation Center</p><p>Building No. 86, 1198 Qinzhou Road (North)</p><p>Shanghai 200233, China</p><p>Attn: Ms. Angela Han</p><p>Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.</p></div></div>

**11.0 Manufacturing and Production Tests**

Manufacturing and Production tests are not required under the INTERTEK ENERGY STAR Program. However, Intertek encourages the use of such ongoing product testing to ensure compliance with the EPA ENERGY STAR Product Specifications.

The following changes are in compliance with the declaration of Section 8.1:

RT-C-PD0002 (1-Aug-2022) Mandatory