

TEST REPORT

Report No.: S24102902705001

Product: LCD Monitor / LED Monitor / Gaming Monitor

Model No.: H24T7, **24***** (The symbol “*” can be 0-9, A-Z, a-z, “/”, “\”, “_”, “-”, “(”, “)”, “,”, “.” or blank for the marketing purpose, only differences model names and appearance color. No safety or EMC concern.)

Applicant: Shenzhen KTC Technology Co., Ltd.

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Issued by: Shenzhen NTEK Testing Technology Co., Ltd.

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ERP

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TEST REPORT**COMMISSION REGULATION (EU) 2019/2021**

Implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for electronic displays

COMMISSION DELEGATED REGULATION (EU) 2019/2013

Implementing Directive (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of electronic displays

Report reference No.: S24102902705001

Date of issue: 2025-01-13

Testing laboratory: Shenzhen NTEK Testing Technology Co., Ltd.

Address: Room 501, 5/F. of Building C, Room 112~115, 1/F. of Building C, Room 111~116, 1/F. of Building E, 2/F. of Building E, Fenda High-Tech Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Testing location: as above

Applicant: Shenzhen KTC Technology Co., Ltd.

Address: Floor 1-5, Building 1, No. 4023 Wuhe Avenue, Gangtou Community, Bantian, Longgang District, Shenzhen City, Guangdong Province, P.R. China

Standard: ☒ COMMISSION REGULATION (EU) 2019/2021
☒ COMMISSION DELEGATED REGULATION (EU) 2019/2013
☒ EN 50564: 2011; BS EN 50564: 2011
☐ EN 50563: 2018; BS EN 50563: 2018
☒ EN 62087-3:2016 used in conjunction with EN 62087-1:2016 & EN 62087-2:2016; BS EN 62087-3:2016 used in conjunction with BS EN 62087-1:2016 & BS EN 62087-2:2016

TRF originated by: Shenzhen NTEK Testing Technology Co., Ltd.

TRF No.: ErP_2019/2021_A

Mater TRF: Dated 2019-10

Test procedure: Energy label test report

Non-standard test method: None

National deviations: None

Number of pages (Report): 28

Number of pages (Attachments): 1 page of label for LED monitor with energy efficiency classes
1 page of test equipment list
4 pages of Picture of the product

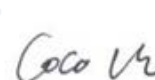
Compiled by: Elvis Chen

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Approved by: Coco Li

(+ signature)



Type of test object.....	LCD Monitor / LED Monitor / Gaming Monitor
Model and/or type reference.....	H24T7, **24***** (The symbol “*” can be 0-9, A-Z, a-z, “/”, “\”, “_”, “-”, “(”, “)”, “,”, “.” or blank for the marketing purpose, only differences model names and appearance color. No safety or EMC concern.)
Trade Mark	
Rating(s)	12V  4A (Supplied by external power supply, and it's complied with COMMISSION REGULATION (EU) 2019/1782. and it's required Efficiency Level “VI”.)
Manufacturer	Shenzhen KTC Technology Co., Ltd.
Address	Floor 1-5, Building 1, No. 4023 Wuhe Avenue, Gangtou Community, Bantian, Longgang District, Shenzhen City, Guangdong Province, P.R. China
Factory	N/A
Address	N/A
Sub-contractors/ tests (clause).....	N/A
Address	N/A
Order description.....	N/A
Testing:	
Date of receipt of test item	2024-11-28
Date(s) of performance of test.....	2024-12-09
Test item particulars:	
Classification of installation and use	☒ Desk-top; ☒ Wall mounted; ☐ Portable;
Supply Connection	Connect to AC mains via an external power supply
Power supply type.....	☐ Internal; ☒ External; ☐ Standardised external
Screen size.....	15.6dm ² (5.27dm*2.96dm)
Screen diagonal	60.0cm / 23.8inch
Resolution (H X V, pixels)	2560*1440, 3.7MP
Image refresh frequency rate	180Hz
Nominal aspect ratio	16:9
Screen technology	TFT-LCD
Tuner type	No
Availability of off mode	Yes
Availability of standby mode	Yes
Availability of display function in standby mode	No
Networked electronic displays	No
Electronic displays with HiNA functionality:	No
Availability of networked standby mode	No

Availability of easily visible switch	Yes
Availability of automatic power-down	Yes
Availability of forced menu	No
Availability of Automatic Brightness Control (ABC)	No
ABC enabled by default	No
Availability of touch functionality	No
Availability of room presence sensor/detection sensor/occupancy sensor:	No
Availability of voice recognition sensor	No
Availability of High Dynamic Range (HDR) :	Yes
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P(Pass)
- test object does not meet the requirement	F(Fail)
General remarks:	
"(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a dot is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory.	
General product information and other remarks:	
Product Description –	
The equipment covered in this report is an LCD Monitor / LED Monitor / Gaming Monitor. All the test results carried on model H24T7 in the report. External power supply model: YD-ZN1200400-A01 is tested in the test report. For details of the external power supplies, see “Page 7”. The external power supply is complied with (EC) No 2019/1782. All the tests are together with approved external power adapters and they require Efficiency Level “VI”. (See separate test report: CA21090150E00101, issued by DongGuan Anci Electronic Technology Co., Ltd.)	
Model Differences –	
All the models are same except differences model names and appearance color. No safety or EMC concern.	

Summary of testing:

The product meets the requirements of the implementation measure in the following directive(s):

- ☒ The sample(s) tested complies with the requirements of COMMISSION REGULATION (EU) 2019/2021;
- ☒ The sample(s) tested complies with the requirements of COMMISSION DELEGATED REGULATION (EU) 2019/2013

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

For On mode:

Measurements of power of 0.50 W or greater was made with an uncertainty of less than or equal to 2 % at the 95 % confidence level.

Measurements of power of less than 0.50 W was made with an uncertainty of less than or equal to 0.01 W at the 95 % confidence level.

For standby mode:

The maximum permitted uncertainty of measurement depends on the size of the load and the characteristics of the load. The key characteristic of the load used to determine the maximum permitted uncertainty is the Maximum Current Ratio (MCR), which is calculated as follows:

$$\text{Maximum Current Ratio (MCR)} = \frac{\text{Crest Factor (CF)}}{\text{Power Factor (PF)}}$$

where

- the Crest Factor (CF) is the measured peak current drawn by the product divided by the measured r.m.s. current drawn by the product;
- the Power Factor (PF) is a characteristic of the power consumed by the product. It is the ratio of the measured real power to the measured apparent power.

a) Permitted uncertainty for values of MCR ≤ 10

For measured power values of greater than or equal to 1.0 W, the maximum permitted relative uncertainty introduced by the power measurement equipment, U_{mr} , shall be equal to or less than 2 % of the measured power value at the 95 % confidence level.

For measured power values of less than 1.0 W, the maximum permitted absolute uncertainty introduced by the power measurement equipment, U_{ma} , shall be equal to or less than 0.02 W at the 95 % confidence level.

b) Permitted uncertainty for values of MCR > 10

The value of U_{pc} shall be determined using the following equation:

$$U_{pc} = 0,02 \times [1 + (0,08 \times \{MCR - 10\})]$$

where U_{pc} is the maximum permitted relative uncertainty for cases where the MCR is > 10.

For measured power values of greater than or equal to 1.0 W, the maximum permitted relative uncertainty introduced by the power measurement equipment shall be equal to or less than U_{pc} at the 95 % confidence level.

For measured power values of less than 1.0 W, the permitted absolute uncertainty shall be the greater of U_{ma} (0.02 W) or U_{pc} when expressed as an absolute uncertainty in W (U_{pc} measured value) at the 95 % confidence level.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



General product information:

Product name	LCD Monitor / LED Monitor / Gaming Monitor
Power Source	Powered by external power supply (EPS) Manufacturer: DONGGUAN YIDAI POWER TECHNOLOGY CO., LTD. Model name: YD-ZN1200400-A01 Input: 100-240V~, 50/60Hz, 1.5A Max. Output: 12.0VDC, 4.0A, 48.0W
Package	Main unit, External power supply DP cable
Model difference	All the models are same except differences model names and appearance color. No safety or EMC concern.

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement – Test	Result - Remark	Verdict
3	The requirements in points A and B of Annex II shall not apply to the some displays		N/A
4	The requirements in points A, B and C of Annex II shall not apply to the some displays:		N/A
A. ENERGY EFFICIENCY REQUIREMENTS			
1.	Energy Efficiency Index limits for On-mode		P
	Energy Efficiency Index (EEI): $EEI = \frac{(P_{measured} + 1)}{(3 \times [90 \times \tanh(0.02 + 0.004 \times (A - 11)) + 4] + 3) + corr}$ A represents the screen area in dm²; P_{measured} is the measured power in Watts in on mode in the normal configuration, in standard dynamic range (SDR); corr is a correction factor of 10 for OLED electronic displays that do not apply the ABC allowance in point B (1). This shall apply until 28 February 2023. corr shall be zero in all other cases.	See appended table 4	P
	From 1 March 2021		--
	EEI _{max} for electronic displays with resolution up to 2 138 400 pixels (HD): EEI _{max} ≤ 0.90;		N/A
	EEI _{max} for electronic displays with resolution above 2 138 400 pixels (HD) and up to 8 294 400 pixels (UHD-4k): EEI _{max} ≤ 1.10		N/A
	From 1 March 2023		--
	EEI _{max} for electronic displays with resolution up to 2 138 400 pixels (HD): EEI _{max} ≤ 0.75;		N/A
	EEI _{max} for electronic displays with resolution above 2 138 400 pixels (HD) and up to 8 294 400 pixels (UHD-4k): EEI _{max} ≤ 0.90;		P
	EEI _{max} for electronic displays with resolution above 8 294 400 pixels (UHD-4k) and for MicroLED displays: EEI _{max} ≤ 0.90		N/A
B. ALLOWANCES AND ADJUSTMENTS FOR THE PURPOSE OF THE EEI CALCULATION AND FUNCTIONAL REQUIREMENTS (From 1 March 2021)			
1.	Electronic displays with automatic brightness control (ABC)		--
	Electronic displays qualify for a 10 % reduction in P _{measured} , if they meet all of the following requirements:		--
1(a).	ABC is enabled in the normal configuration of the electronic display and persists in any other standard dynamic range configuration available to the end-user;		N/A
1(b).	the value of P _{measured} , in the normal configuration, is measured with ABC disabled or, if ABC cannot be disabled, in an ambient light condition of 100 lux measured at the ABC sensor;		N/A
1(c).	the value of P _{measured} with ABC disabled, if applicable, shall be equal to or greater than the on mode power measured with ABC enabled in an ambient light condition of 100 lux measured at the ABC sensor		N/A

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement – Test	Result - Remark	Verdict
1(d).	with ABC enabled, the measured value of the on mode power must decrease by 20 % or more when the ambient light condition, measured at the ABC sensor, is reduced from 100 lux to 12 lux; and		N/A
1(e).	the ABC control of the display screen luminance meets all of the following characteristics when the ambient light condition measured at the ABC sensor changes: - the measured screen luminance at 60 lux is between 65 % and 95 % of the screen luminance measured at 100 lux; - the measured screen luminance at 35 lux is between 50 % and 80 % of the screen luminance measured at 100 lux; and - the measured screen luminance at 12 lux is between 35 % and 70 % of the screen luminance measured at 100 lux.		N/A
2.	Forced menu and set up menu		--
	Electronic displays may be placed on the market with a forced menu on initial activation proposing alternative settings. Where a forced menu is provided, the normal configuration shall be set as default choice, otherwise the normal configuration shall be the out-of-the-box setting.		N/A
	If the user selects a configuration other than the normal configuration and this configuration results in a higher power demand than the normal configuration, a warning message about the likely increase in energy use shall appear and confirmation of the action shall be explicitly requested.		N/A
	If the user selects a setting other than those that are part of the normal configuration and this setting results in a higher energy consumption than the normal configuration, a warning message about the likely increase in energy consumption shall appear and confirmation of the action explicitly requested.		N/A
	A change by the user in a single parameter in any setting shall not trigger any change in any other energy-relevant parameter, unless unavoidable. In such a case a warning message shall appear about the change of other parameters and the confirmation of the change shall be explicitly requested.		N/A
3.	Peak white luminance ratio		--
	In the normal configuration, the peak white luminance of the electronic display in a 100 lux ambient light viewing environment shall not be less than 220 cd/m ² or, if the electronic display is primarily intended for close viewing by a single user, not less than 150 cd/m ² . If the electronic display's peak white luminance in the normal configuration is set to lower values, it shall not be	Name of default picture mode: User mode (162.0 cd/m ²) Brightest picture mode: Movie mode (352.0 cd/m ²) Ratio of the peak luminance L _{normal} / L _{brightest} :--	P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement – Test	Result - Remark	Verdict

	less than 65 % of the peak white luminance of the display, in a 100 lux ambient light viewing environment in the brightest on mode configuration.		
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C. OFF MODE, STANDBY MODE AND NETWORKED STANDBY MODE REQUIREMENTS
(From 1 March 2021)

1.	Power demand limits other than on-mode			--	
	Electronic displays shall not exceed power demand limits in standby/networked standby modes and conditions listed in Table 2		See appended table 4	P	
		Standby mode (W)			Networked standby mode (W)
	Maximum limit	0.50			2.00
	Allowances for additional functions when present and enable				
	Status display	0.20			0.20
	Deactivation using room presence detection	0.50			0.50
	Touch functionality, if usable for activation	1.00			1.00
	HiNA function	00			4.00
	Total maximum power demand with all additional functions when present and enable	2.20			7.70
2.	Availability of off, standby and networked standby mode			--	
	Electronic displays shall provide off mode or standby mode or a networked standby mode or other modes which do not exceed the applicable power demand requirements for standby mode	Off mode Standby mode	P		
	The configuration menu, instruction manuals and other documentation, if any, shall refer to off mode, standby mode or networked standby mode using those terms				
	Automatic switch to off mode and/or standby mode and/or another mode which does not exceed the applicable power demand requirements for standby mode shall be set as default, including for networked displays where the network interface is enabled when in on mode		P		
	Networked standby mode shall be disabled in 'normal configuration' of a networked television. The end user shall be prompted to confirm the activation of networked standby, if it is needed for a chosen remotely activated function, and must be able to disable it		N/A		
	Networked electronic displays shall comply with the requirements for standby mode when networked standby mode is disabled		N/A		
3.	Automatic standby in televisions			--	
	Televisions shall provide a power management function, enabled as delivered by the manufacturer that, within 4		N/A		

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement – Test	Result - Remark	Verdict
	hours following the last user interaction, shall switch the television from on mode into standby mode or networked standby mode or another mode which does not exceed the applicable power demand requirements respectively for standby or networked standby mode. Before such automatic switch, televisions shall show, for at least 20 seconds, an alert message warning the user of the impending switch, with possibility of delaying or temporarily cancelling it.		
	If the television provides a function allowing the user to shorten, extend or disable the 4-hour period for automatic mode transitions detailed in (a), a warning message shall appear about a potential increase in energy use and a confirmation of the new setting must be requested when an extension beyond the 4-hour period or disabling is selected.		N/A
	If the television is equipped with a room presence sensor, the automatic transition from on mode into any mode as detailed in (a) applies if no presence is detected for no more than 1 hour.		N/A
	Televisions with various selectable input sources shall prioritise the power management protocols of the signal source selected and displayed over those default power management mechanisms described in the paragraphs (a) to (c) above.		N/A
4.	Automatic standby in displays other than televisions		--
	Electronic displays other than televisions, with various selectable input sources shall switch, as configured in the normal configuration, into standby mode, networked standby mode or another mode which does not exceed the applicable power demand requirements respectively for standby or networked standby mode when no input is detected by any input source for over 10 seconds and, for digital interactive whiteboards and for broadcast displays, for over 60 minutes.	Warning message: "Power Saving", will go standby mode. The display standby mode set to activate within 30 seconds of user inactivity.	P
	Before triggering such a switch, a warning message shall be display and the switch completed within 10 minutes.		P
D. MATERIAL EFFICIENCY REQUIREMENTS (From 1 March 2021)			
1.	Design for dismantling, recycling and recovery		--
	Manufacturers, importers or their authorised representatives shall ensure that joining, fastening or sealing techniques do not prevent the removal, using commonly available tools, of the components indicated in point 1 of Annex VII of Directive 2012/19/EU on WEEE or in Article 11 of Directive 2006/66/EC of the European Parliament and of the Council (1) on batteries and accumulators and waste batteries and accumulators, when present.		P
	Manufacturers, importers or their authorised representatives shall, without prejudice to point 1 of Article 15 of Directive 2012/19/EU, make available, on a free-access website, the dismantling information needed to access any of the products components referred to in point		P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement – Test	Result - Remark	Verdict
	1 of Annex VII of Directive 2012/19/EU.		
	This dismantling information shall include the sequence of dismantling steps, tools or technologies needed to access the targeted components.		P
	The end of life information shall be available until at least 15 years after the placing on the market of the last unit of a product model.		P
2.	Marking of plastic components		--
	Plastic components heavier than 50g.		--
2.(a)	Shall be marked by specifying the type of polymer with the appropriate standard symbols or abbreviated terms set between the punctuation marks '>' and '<' as specified in available standards. The marking shall be legible.		P
	Plastic components are exempt from marking requirements in the following circumstances: 1) The marking is not possible because of the shape or size; 2) The marking would impact on the performance or functionality of the plastic component; and 3) Marking is technically not possible because of the molding method.		--
	For the following plastic components no marking is required: 1) Packaging, tape, labels and stretch wraps; 2) Wiring, cables and connectors, rubber parts and anywhere not enough appropriate surface area is available for the marking to be of a legible size; 3) PCB assemblies, PMMA boards, optical components, electrostatic discharge components, electromagnetic interference components, speakers; 4) Transparent parts where the marking would obstruct the function of the part in question.		--
2.(b)	Components containing flame retardants shall additionally be marked with the abbreviated term of the polymer followed by hyphen, then the symbol 'FR' followed by the code number of the flame retardant in parentheses. The marking on the enclosure and stand components shall be clearly visible and readable.		P
3.	Cadmium logo		--
	Electronic displays with a screen panel in which concentration values of Cadmium (Cd) by weight in homogeneous materials exceed 0,01 % as defined in Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, shall be labelled with the 'Cadmium inside' logo. The logo shall be clearly visible durable, legible and indelible. The logo shall be in the form of the following graphic:		P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement – Test	Result - Remark	Verdict
	Cadmium inside Cadmium free The dimension of 'a' shall be greater than 9 mm and the typeface to be used is 'Gill Sans'.		
	An additional 'Cadmium inside' logo shall be firmly attached internally on the display panel or molded in a position clearly visible to workers once the external back cover bearing the external logo is removed.		P
	A 'Cadmium free' logo shall be used if concentration values of Cadmium (Cd) by weight in any homogeneous material part of the display do not exceed 0,01 % as defined in Directive 2011/65/EU.		P
4.	Halogenated flame retardants		--
	The use of halogenated flame retardants is not allowed in the enclosure and stand of electronic displays.		P
5.	Design for repair and reuse		--
5.(a)	Availability of spare parts: 1) Manufacturers, importers or authorised representatives of electronic displays shall make available to professional repairers at least the following spare parts: internal power supply, connectors to connect external equipment (cable, antenna, USB, DVD and Blue-Ray), capacitors, batteries and accumulators, DVD/Blue-Ray module if applicable and HD/SSD module if applicable for a minimum period of seven years after placing the last unit of the model on the market; 2) Manufacturers, importers or authorised representatives of electronic displays shall make available to professional repairers and end-users at least the following spare parts: external power supply and remote control for a minimum period of seven years after placing the last unit of the model on the market; 3) Manufacturers shall ensure that these spare parts can be replaced with the use of commonly available tools and without permanent damage to the appliance; 4) The list of spare parts concerned by point 1 and the procedure for ordering them shall be publicly available on the free access website of the manufacturer,		P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement – Test	Result - Remark	Verdict
	importer or authorised representative, at the latest two years after the placing on the market of the first unit of a model and until the end of the period of availability of these spare parts; and 5) The list of spare parts concerned by point 2 and the procedure for ordering them and the repair instructions shall be publicly available on the manufacturer's, the importer's or authorised representative's free access website, at the moment of the placing on the market of the first unit of a model and until the end of the period of availability of these spare parts.		
5.(b)	Access to repair and maintenance information After a period of two years after the placing on the market of the first unit of a model or of an equivalent model, and until the end of the period mentioned under (a), the manufacturer, importer or authorised representative shall provide access to the appliance repair and maintenance information to professional repairers in the following conditions: 1) The manufacturer's, importer's or authorised representative's website shall indicate the process for professional repairers to register for access to information; to accept such a request, manufacturers, importers or authorised representative may require the professional repairer to demonstrate that: a) The professional repairer has the technical competence to repair electronic displays and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point; b) The professional repairer is covered by insurance covering liabilities resulting from its activity, regardless of whether this is required by the Member State; 2) The manufacturers, importers or authorised representatives shall accept or refuse the registration within 5 working days from the date of request by the professional repairer; 3) Manufacturers, importers or authorised representatives may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates. A fee is reasonable if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information.		P
	Once registered, a professional repairer shall have access to the requested repair and maintenance information within one		P

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COMMISSION REGULATION (EU) 2019/2021
ANNEX II Ecodesign requirements

Clause	Requirement – Test	Result - Remark	Verdict
	working day after requesting it. The available repair and maintenance information shall include: 1) The unequivocal appliance identification; 2) A disassembly map or exploded view; 3) List of necessary repair and test equipment; 4) Component and diagnosis information (such as minimum and maximum theoretical values for measurements); 5) Wiring and connection diagrams; 6) Diagnostic fault and error codes (including manufacturer-specific codes, where applicable); and 7) Data records of reported failure incidents stored on the electronic display (where applicable).		
5.(c)	Maximum delivery time of spare parts 1) during the period mentioned under point 5(a)(1) and point 5(a)(2), the manufacturer, importer or authorised representatives shall ensure the delivery of the spare parts for electronic displays within 15 working days after having received the order; 2) in the case of spare parts available only to professional repairers, this availability may be limited to professional repairers registered in accordance with point (b).		P
E. INFORMATION AVAILABILITY REQUIREMENTS (From 1 March 2021)			
	The product manufacturer, importer or authorised representative shall make available the information set out below when placing on the market the first unit of a model or of an equivalent model. The information shall be provided free of charge to third parties dealing with professional repair and reuse of electronic displays (including third party maintenance actors, brokers and spare parts providers).		N/A
1.	Availability of software and firmware updates		--
1.(a)	The latest available version of the firmware shall be made available for a minimum period of eight years after the placing on the market of the last unit of a certain product model, free of charge or at a fair, transparent and non-discriminatory cost. The latest available security update to the firmware shall be made available until at least eight years after the placing on the market of the last product of a certain product model, free of charge.		N/A
1.(b)	Information on the minimum guaranteed availability of software and firmware updates, availability of spare parts and product support shall be indicated in the product information sheet as from Annex V of Regulation (EU) 2019/2013.		N/A

COMMISSION DELEGATED REGULATION (EU) 2019/2013
ANNEX II Energy labelling requirements

Clause	Requirement – Test	Result - Remark	Verdict
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A. Energy efficiency classes

1.	The energy efficiency class of an electronic display shall be determined on the basis of its energy efficiency index for labelling (EEl_{label}) as set out in Table 1. The EEl_{label} of an electronic display shall be determined in accordance with part B of this Annex. Table 1 Energy efficiency classes of electronic displays <table><tr><th>Energy Efficiency Class</th><th>Energy Efficiency Index (EEl_{label})</th></tr><tr><td>A</td><td>$EEl_{label} < 0,30$</td></tr><tr><td>B</td><td>$0,30 \leq EEl_{label} < 0,40$</td></tr><tr><td>C</td><td>$0,40 \leq EEl_{label} < 0,50$</td></tr><tr><td>D</td><td>$0,50 \leq EEl_{label} < 0,60$</td></tr><tr><td>E</td><td>$0,60 \leq EEl_{label} < 0,75$</td></tr><tr><td>F</td><td>$0,75 \leq EEl_{label} < 0,90$</td></tr><tr><td>G</td><td>$0,90 \leq EEl_{label}$</td></tr></table>	Energy Efficiency Class	Energy Efficiency Index (EEl_{label})	A	$EEl_{label} < 0,30$	B	$0,30 \leq EEl_{label} < 0,40$	C	$0,40 \leq EEl_{label} < 0,50$	D	$0,50 \leq EEl_{label} < 0,60$	E	$0,60 \leq EEl_{label} < 0,75$	F	$0,75 \leq EEl_{label} < 0,90$	G	$0,90 \leq EEl_{label}$	Based on measured value: SDR mode: E HDR mode: G Based on declared value: SDR mode: F HDR mode: G	P
Energy Efficiency Class	Energy Efficiency Index (EEl_{label})																		
A	$EEl_{label} < 0,30$																		
B	$0,30 \leq EEl_{label} < 0,40$																		
C	$0,40 \leq EEl_{label} < 0,50$																		
D	$0,50 \leq EEl_{label} < 0,60$																		
E	$0,60 \leq EEl_{label} < 0,75$																		
F	$0,75 \leq EEl_{label} < 0,90$																		
G	$0,90 \leq EEl_{label}$																		

B. Energy Efficiency Index (EEI_{label})

1

The Energy Efficiency Index (EEI_{label}) shall be calculated using the following equation:

$$EEI_{label} = \frac{(P_{measured} + 1)}{(3 \times [90 \times \tanh(0,025 + 0,0035 \times (A - 11)) + 4] + 3) + corr_1}$$

A represents the screen area in dm^2 ;

$P_{measured}$ is the measured power in on mode in Watts in the normal configuration and set as indicated in table 2

corr is a correction factor set as indicated in table 3

Table 2
Measurement of $P_{measured}$

Dynamic Range level	$P_{measured}$
Standard Dynamic Range (SDR): $P_{measured_{SDR}}$	Power demand in Watts (W) in on mode, measured when displaying standardised test sequences of moving picture from dynamic broadcast content. Where allowances are applicable according to part C of this Annex, they should be deducted from $P_{measured}$.
High Dynamic Range (HDR) $P_{measured_{HDR}}$	Power demand in Watts (W) in on mode, measured as for $P_{measured_{SDR}}$ but with the HDR functionality activated by metadata in the standardised HDR test sequences. Where allowances are applicable according to part C of this Annex, they should be deducted from $P_{measured}$.

Table 3
 $corr_1$ value

Electronic Display type	$corr_1$ value
Television	0,0
Monitor	0,0
Digital signage	$0,00062 \cdot (\text{lum} - 500) \cdot A$ where 'lum' is the peak white luminance, in cd/m^2 , of the brightest on mode configuration of the electronic display and A is the screen area in dm^2

Calculation based on measured value:

SDR mode: F
 $EEI_{label} = 0.668$,

HDR mode: G
 $EEI_{label} = 1.298$,

Calculation based on declared value:

SDR mode: F
 $EEI_{label} = 0.843$,

HDR mode: G
 $EEI_{label} = 1.418$,

corr = 0

P

C. Allowances and adjustments for the purpose of the EEI_{label} calculation

1.	Electronic displays with automatic brightness control (ABC) shall qualify for a 10 % reduction in $P_{measured}$, if they meet all of the following		N/A
----	--	--	-----

Report No.: S24102902705001

COMMISSION DELEGATED REGULATION (EU) 2019/2013
ANNEX II Energy labelling requirements

Clause	Requirement – Test	Result - Remark	Verdict
	requirements:		
1.(a)	ABC is enabled in the normal configuration of the electronic display and persists in any other standard dynamic range configuration available to the end-user;		N/A
1.(b)	the value of P_{measured} , in the normal configuration, is measured, with ABC disabled or if ABC cannot be disabled, in an ambient light condition of 100 lux measured at the ABC sensor;		N/A
1.(c)	if applicable, the value of P_{measured} with ABC disabled shall be equal to or greater than the on mode power measured with ABC enabled in an ambient light condition of 100 lux measured at the ABC sensor		N/A
1.(d)	with ABC enabled, the measured value of the on mode power must decrease by 20 % or more when the ambient light condition, measured at the ABC sensor, is reduced from 100 lux to 12 lux; and		N/A
1.(e)	the ABC control of the display screen luminance meets all of the following characteristics when the ambient light condition measured at the ABC sensor changes: - the measured screen luminance at 60 lux is between 65 % and 95 % of the screen luminance measured at 100 lux; - the measured screen luminance at 35 lux is between 50 % and 80 % of the screen luminance measured at 100 lux; and - the measured screen luminance at 12 lux is between 35 % and 70 % of the screen luminance measured at 100 lux.		N/A

Table 1	Test parameters for measurements		
Ambient temperature (°C):	21.5	Test voltage in V:	230V~
Humidity(%RH):	59.9	Test frequency in Hz:	50 Hz
Air speed (m/s):	0.1	Total harmonic distortion (THD) of the electricity supply system:	1.068%
Input terminal for the audio and video test signals:	☐ HDMI terminal; ☒ DisplayPort; ☐ DVI; ☐ VGA; ☐ Audio-Video in; ☐ SCART; ☐ RF in; ☐ Thunderbolt; ☐ Others: Earphone		
Audio and video signals for test:	For on mode power test: ☐ SDR Dynamic Broadcast test video sequence ("SD dynamic video power.mp4") according to table 3a in Annex V of the Commission Regulation (EU) 2021/341 (Resolution: 720 x576) ☒ SDR Dynamic Broadcast test video sequence ("HD dynamic video power.mp4") according to table 3a in Annex V of the Commission Regulation (EU) 2021/341 (Resolution: 1920 x1080) ☒ HDR Dynamic Broadcast test video sequence ("HDR_HDR10 Power.mp4" & "HDR_HLG Power.mp4") according to table 3a in Annex V of the Commission Regulation (EU) 2021/341 (Resolution: 1920 x1080) For peak luminance test: ☐ A new variant of the "box and outline" dynamic test pattern providing a dynamic format with colour ("PeakLumMotionSD50i.mp4") according to clause 1.2.4 in Annex IIIa of the Commission Regulation (EU) 2021/341 ☒ A new variant of the "box and outline" dynamic test pattern providing a dynamic format with colour ("PeakLumMotionHD25p.mp4") according to clause 1.2.4 in Annex IIIa of the Commission Regulation (EU) 2021/341 ☐ A new variant of the "box and outline" dynamic test pattern providing a dynamic format with colour ("PeakLumMotionUHD25p.mp4") according to clause 1.2.4 in Annex IIIa of the Commission Regulation (EU) 2021/341		
Standby / Off / Network standby / another mode power consumption was determined by:	☐ Sampling method; ☒ Average reading method		
Electronic displays setting selected:	☐ Force menu, normal configuration; ☒ Out-of-the-box setting, normal configuration.		

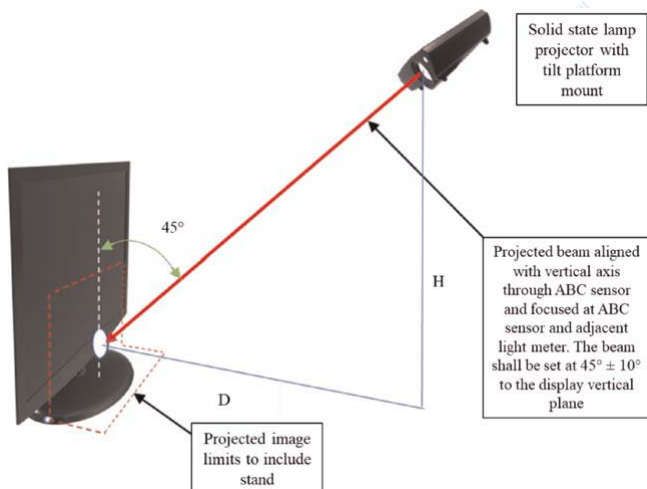
Table 2	Light source configuration:
 Solid state lamp projector with tilt platform mount Projected beam aligned with vertical axis through ABC sensor and focused at ABC sensor and adjacent light meter. The beam shall be set at $45^\circ \pm 10^\circ$ to the display vertical plane H Projected image limits to include stand D 45°	

Table 3 Set-up and circuits used for electrical testing in accordance with EN 50564:2011 Annex B.4:

Where the connection arrangement can be configured, it is selected as below:

1, Lower powers: $I_m \leq V_s \times \sqrt{\frac{1}{(R_a \times R_v)}}$ then use the connection arrangement in B.1;

2, Higher powers: $I_m > V_s \times \sqrt{\frac{1}{(R_a \times R_v)}}$ then use the connection arrangement in B.2;

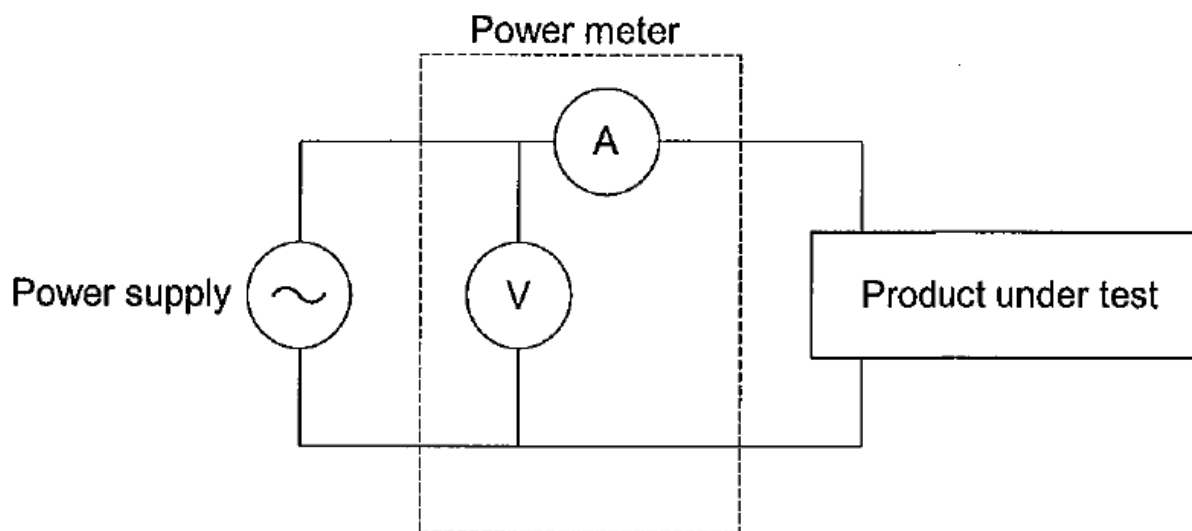
where

- I_m is the measured r.m.s. current of the load in amps (A);
- V_s is the supply voltage (V);
- R_a is the resistance of the current shunt for the selected current range (in ohm);
- R_v is the resistance of the voltmeter (in ohm);

Rating parameter for WT310 power analyzer as below:

- Voltage input resistance R_v 10 MOhm (10 000 000 ohm)
- Current shunt resistance R_a 500 MOhm (0,500 ohm) is for output, Max. 2 A

V_s $V_s \times \frac{1}{(R_a \times R_v)}$	V_s		
	100 (V)	115 (V)	230 (V)
0,500 (ohm)	0,0447 (A)	0,0514 (A)	0,1029 (A)



IEC 176/11

Figure B.1 – Connection arrangement for product powered directly from an a.c power supply for low power load

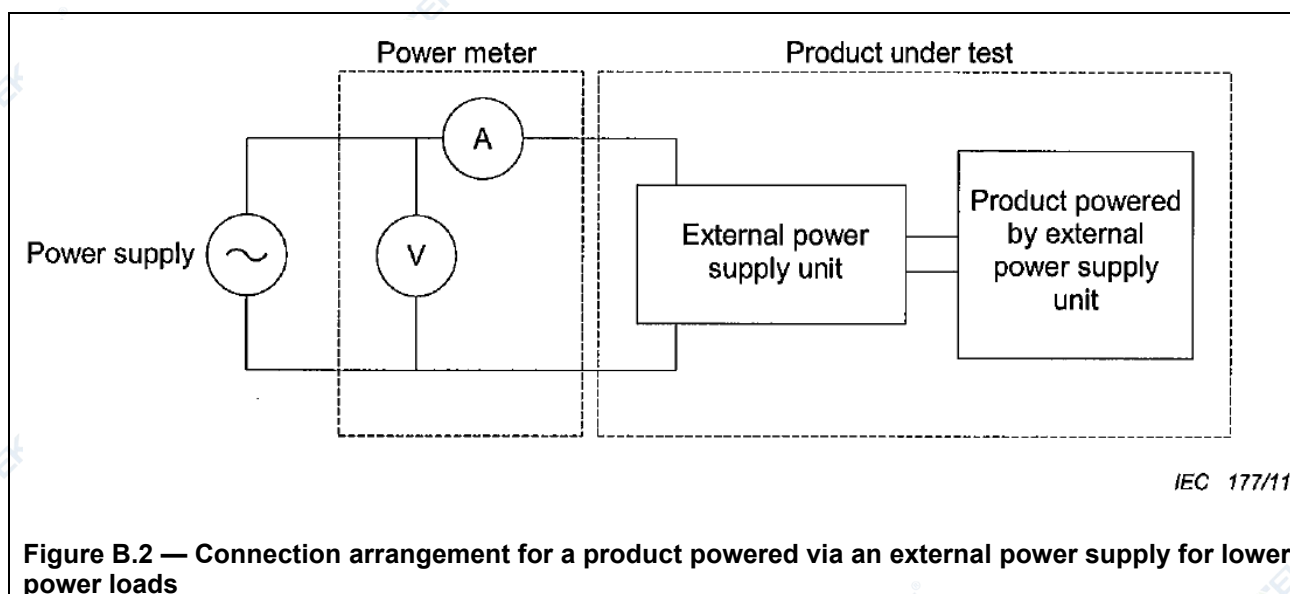
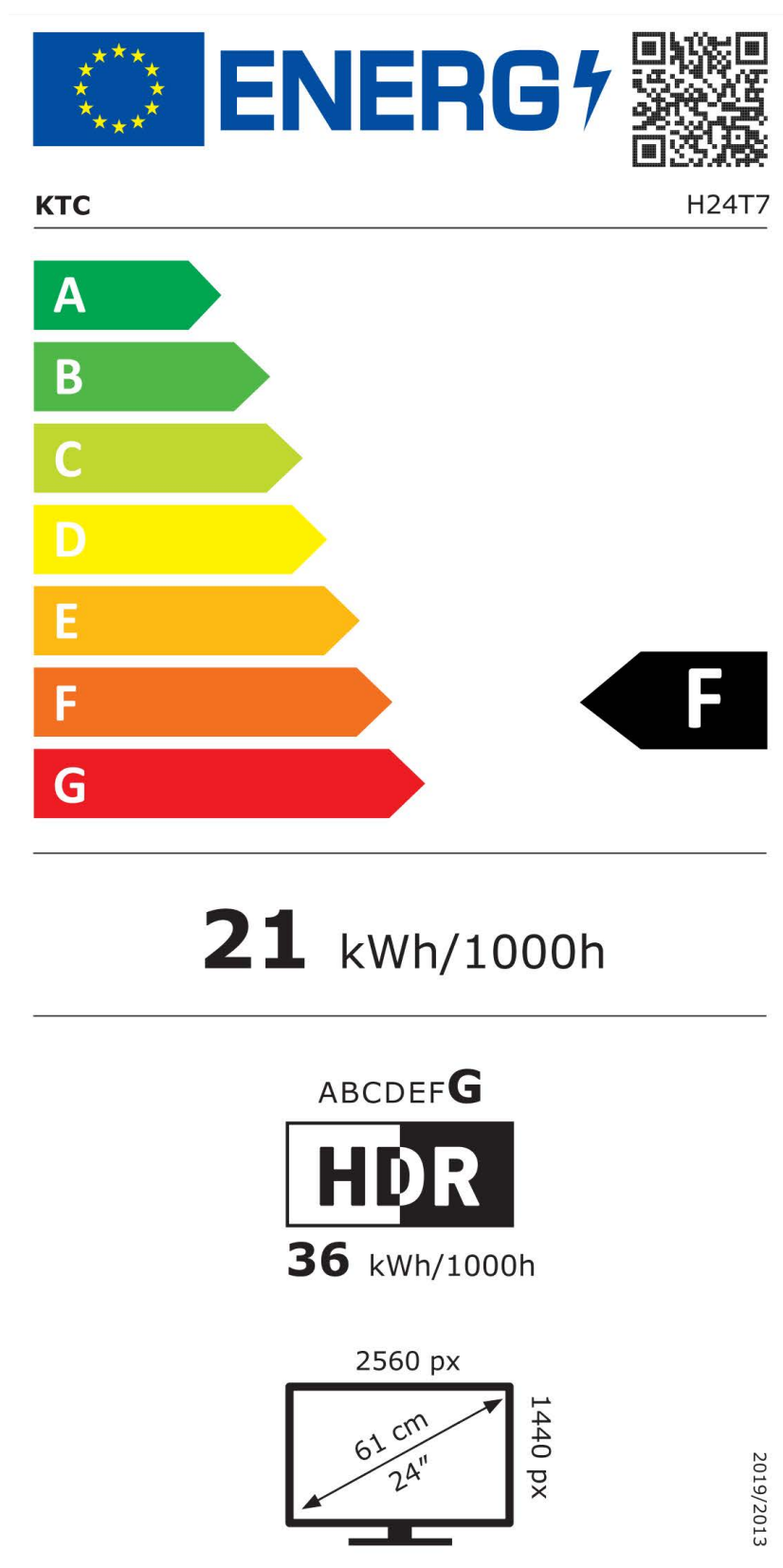


Table 4	Test result			P	
Operating mode(s)	Measured (W)	Declared (W)	Limit (W)		
Off-mode condition:	0.12	0.15	0.30		
			Max.	Allowance	total
Standby-mode condition:	0.15	0.17	0.50	--	0.50
Network standby-mode condition:	--	--	2.0	--	--
Another condition which does not exceed the applicable power demand requirements respectively for standby or networked standby mode:	--	--	--	--	--
Description of how the appliance mode was selected or programmed:	--				
Sequence of events to reach the mode where the equipment automatically changes modes:	--				
Test item(s)		Measured		Declared	
Electronic displays without automatic brightness control (ABC)					
On-mode (SDR) power P_{measured} (W) :		16.4		21.0	
On-mode (HDR) power P_{measured} (W) :		32.9		36.0	
Peak luminance in normal configuration L_{normal} (cd/m ²) :		162.0			
Peak luminance in brightest on mode configuration $L_{\text{brightest}}$:		352.0			
Ratio of the peak luminance $L_{\text{normal}} / L_{\text{brightest}}$		--		--	
Test item(s)		Measured		Declared	
Electronic displays with automatic brightness control (ABC)					
On-mode power P_{measured} :		--		--	
On-mode power at ABC disabled $P_{\text{measured_ABC_disabled}}$:		--		--	
On-mode power at 100 lux ambient light at the ABC sensor $P_{\text{measured_ABC_100}}$:		--		--	
On-mode power at 12 lux ambient light at the ABC sensor $P_{\text{measured_ABC_12}}$:		--		--	
Percentage of power reduction due to ABC action between the 100 lux and 12 lux ambient light condition		--		--	
		>20%			
Peak luminance in normal configuration at 100 lux ambient light at the ABC sensor $L_{\text{normal_ABC_100}}$:		--		--	
		< / $\geq 220 / 150$ cd/m ²			
Peak luminance in normal configuration at 100 lux ambient light at the ABC sensor $L_{\text{normal_ABC_60}}$:		--		--	
		$\geq 65\%$ $L_{\text{normal_ABC_60}}$ and $\leq 95\%$ $L_{\text{normal_ABC_60}}$			
Peak luminance in normal configuration at 100 lux		--		--	

ambient light at the ABC sensor $L_{normal_ABC_35}$:			$\geq 50\% L_{normal_ABC_60}$ and $\leq 80\% L_{normal_ABC_60}$	
Peak luminance in normal configuration at 100 lux ambient light at the ABC sensor $L_{normal_ABC_12}$:			--	
			$\geq 35\% L_{normal_ABC_60}$ and $\leq 70\% L_{normal_ABC_60}$	
Peak luminance in brightest on mode configuration at 100 lux ambient light at the ABC sensor $L_{brightest_ABC_100}$:			--	--
Ratio of the peak luminance $L_{normal_ABC_100} / L_{brightest_ABC_100}$			--	> 65%
Sequence of steps for achieving a stable condition with respect to power consumption:			The product has been in the off mode or, if an off-mode is not available, in standby mode, for a minimum of 1 hour immediately followed by a minimum of 1 hour in the on mode and shall be completed before a maximum of 3 hours in on-mode. The relevant video signal shall be displayed during the entire on mode duration.	
Test item(s)	Measured	Declared	Limit	
Energy Efficiency Index (EEI):	0.687	0.867	≤ 0.75 (for electronic displays with resolution up to HD)	
			≤ 0.9 (for electronic displays with resolution above HD and up to UHD)	
			≤ 0.9 (for electronic displays with resolution above UHD and for MicroLED displays)	
The energy efficiency index (EEI) of an electronic display shall be calculated using the following equation:				
$EEI = \frac{(P_{measured} + 1)}{(3 \times [90 \times \tanh(0,02 + 0,004 \times (A - 11)) + 4] + 3) + corr}$				
For the networked electronic displays only:				
The number and type of network interfaces and, except for wireless network interfaces, their position in the electronic displays, the trigger to be used to reactivate the electronic display:	No.	Type	Location	Trigger
	1	Wi-Fi	N/A	--
	2	LAN	N/A	--
	3	HDMI	N/A	--
the default time after which the power management function, switches the display into a condition providing networked standby				--
whether networked electronic display provides functionality allowing the power management function and/or the end-user to switch the electronic display from networked standby mode into standby mode, or off mode or another condition:				--
Power management				
The default period of time after which the power management function, or a similar function, switches the equipment automatically into off mode or standby mode or networked standby mode	Measured	Declared	Limit	
	--	--	≤ 240 minutes for TV	
	--	--	≤ 60 minutes for digital interactive whiteboards or broadcast displays	
	30s	30s	≤ 10 minutes for other electronic displays	

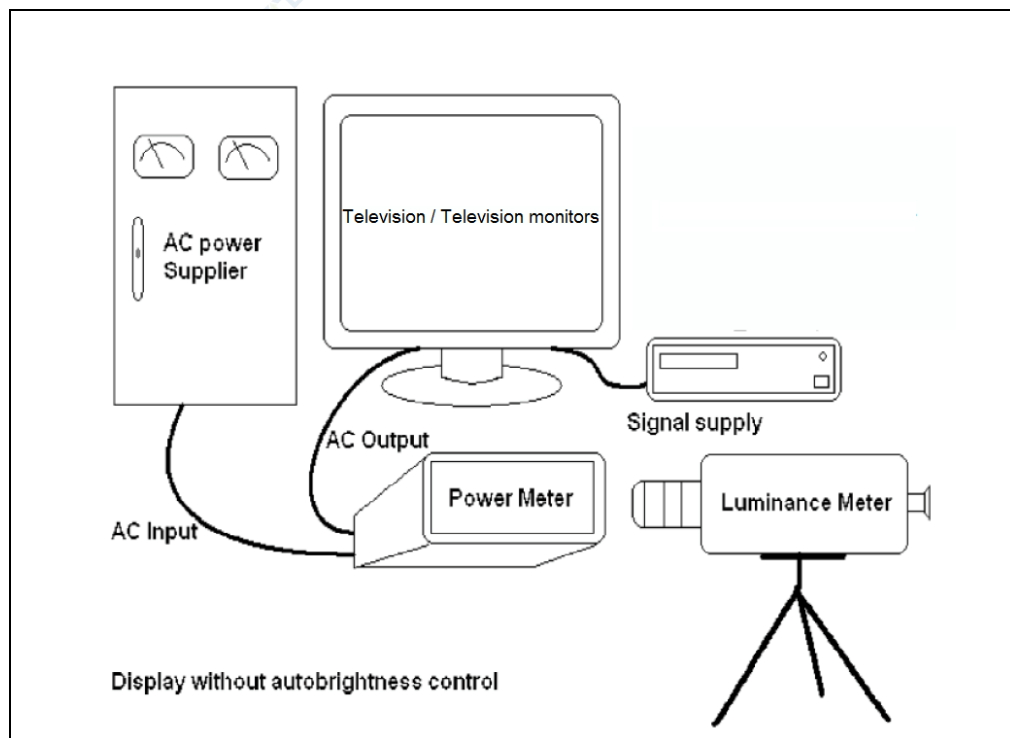
Attachment A: Label



Attachment B: Component List

Object	Manufacturer	Model	Technical data
TFT LCD	KTC	K238WL2	23.8inch TFT-LCD, LED backlight, display resolution: 2560*1440

Attachment C: Measurement set up and equipment used.



Attachment D: Test equipment list

ID No.	Equipment	Model	Brand/Manufacturer	Calibration due date
LSS-238	Luminance Meter	LS-150	KONICA MINOLTA	2025-03-24
LSS-451	AC Power source	BEST61030	BEST-POWER ELECTRONIC.,LTD	2025-03-24
LSS-020	Stop watch	PC396	HuiBo	2025-03-03
LSS-483	Microcomputer	513Z9K89RD	THUNDERBBDT	--
LSS-144	Power meter	WT310E	YOKOGAWA	2025-05-15
LSS-283	Temperature and Humidity Recorder	DWL-20	YUWESE	2025-02-26
LSS-233	Measuring Tape	DK-2041	Pro'sKit	2025-03-28
LSS-416	Thermal anemometer	AR866A	PengFengLian	2025-04-23
Remark: N/A				

Attachment E: Picture of the product



Fig. 1 – Overall view



Fig. 2 –Back view

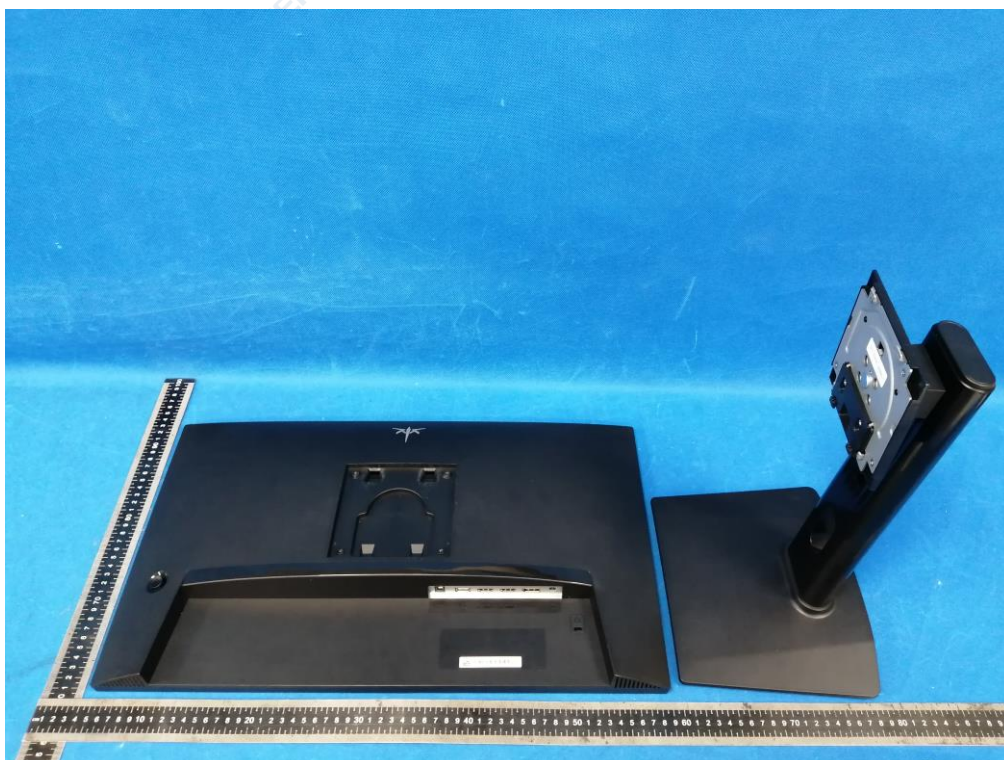


Fig. 3 – External view



Fig. 4 –Front view

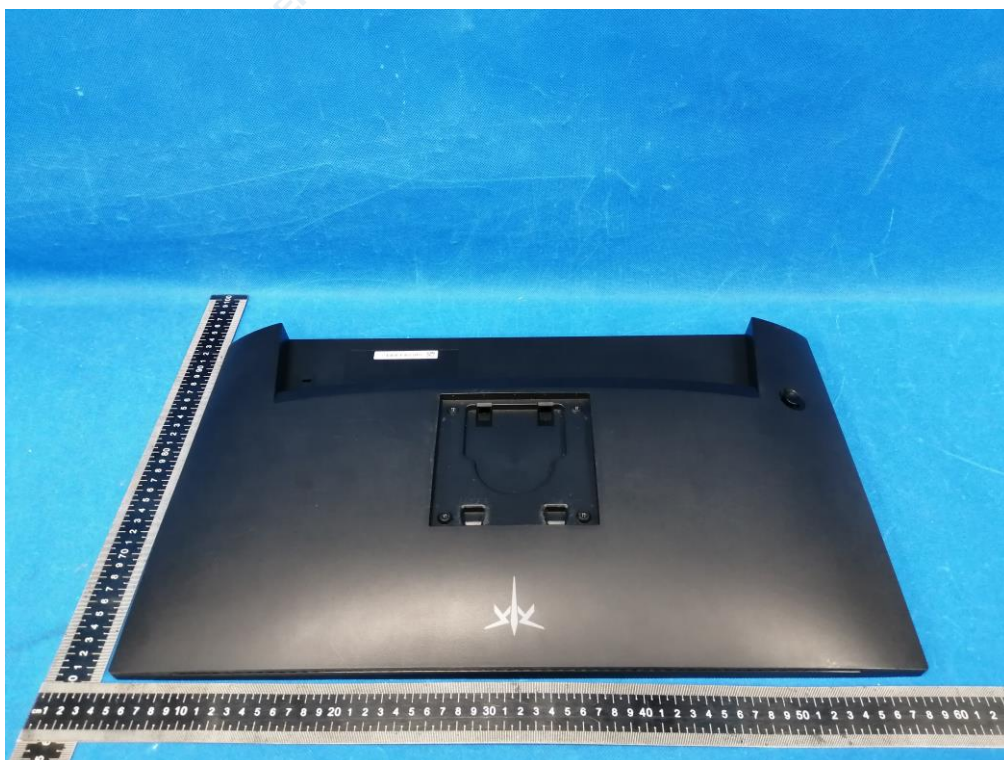


Fig. 5 – Back view



Fig. 6 –Terminal view



Fig. 7 – External power supply view

=====END OF TEST REPORT=====