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. ……..……..:	AOC250415032ER-R1
Compiled by (print+ signature) …….:	Bruce Lin
Reviewed by (print+ signature) ……..:	Joey Liu
Approved by (print+ signature) ……..…:	Robin Liu
Date of issue……...:	2025-05-29

Lab Supervisor

Testing Laboratory.....:	Shenzhen AOCE Electronic Technology Service Co., Ltd
Address……:	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Testing location/address……...:	Same as above
Applicant's name.....:	Shenzhen Oscan Electronics Co., Ltd.
Address……:	Room 301, Building D, Baoying Industrial Zone, LongxiCommunity, Longgang Street, Longgang District, Shenzhen
Manufacturer name……..:	Shenzhen Oscan Electronics Co., Ltd.
Address……:	Room 301, Building D, Baoying Industrial Zone, LongxiCommunity, Longgang Street, Longgang District, Shenzhen
Test Object……..:	MONITOR LED7
Trade Mark……..:	N/A
Model / Type reference……..:	OVM-7000
Rating (s)……..……..:	External power supply input: 100-240V~, 50/60Hz, 0.5A Max External power supply output: DC 12V, 1A Main body input: DC 12V, 1A

Test specification:

Standard .....:	COMMISSION REGULATION (EU) 2019/2021 laying down ecodesign requirements for electronic displays pursuant to Directive 2009/125/EC of the European Parliament and of the Council, amending Commission Regulation (EC) No 1275/2008 and repealing Commission Requlation (EC) No 642/2009. COMMISSION REGULATION (EU) 2021/341 amending Regulations (EU) 2019/2021 with regard to ecodesign requirements for electronic displays COMMISSION DELEGATED REGULATION (EU) 2019/2013 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of electronic displays and repealing Commission Delegated Regulation (EU) No 1062/2010. COMMISSION DELEGATED REGULATION (EU) 2021/340 amending Delegated Regulations (EU) 2019/2013 with regard to energy labelling

	requirements for electronic displays Test method: Audio, video and related equipment – Determination of power consumption
	EN 62087-1:2016 - Part 1: General EN 62087-2:2016 - Part 2: Signals and media EN 62087-3:2016 - Part 3: Television sets EN 50564:2011 Electrical and electronic household and office equipment - Measurement of low power consumption
Test procedure ..... :	Test report
Non-standard test method .....:	N/A
Test Report Form No. .....:	IECEE TRF No. (EU) 2019/2021
Test Report Form(s) Originator .....:	AOCE
Master TRF.....:	2019-11-30

Summary of Testing:	
Tests performed (name of test and test clause):	**Testing location:**
The sample(s) tested complies with the requirements of COMMISSION REGULATION (EU) 2019/2021 laying down ecodesign requirements for electronic displays pursuant to Directive 2009/125/EC of the European Parliament and of the Council, amending Commission Regulation (EC) No 1275/2008 and repealing Commission Requlation (EC) No 642/2009. COMMISSION REGULATION (EU) 2021/341 amending Regulations (EU) 2019/2021 with regard to ecodesign requirements for electronic displays COMMISSION DELEGATED REGULATION (EU) 2019/2013 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of electronic displays and repealing Commission Delegated Regulation (EU) No 1062/2010. COMMISSION DELEGATED REGULATION (EU) 2021/340 amending Delegated Regulations (EU) 2019/2013 with regard to energy labelling requirements for electronic displays When determining the test conclusion. The Measurement Uncertainty of test has be enconsidered.	Shenzhen AOCE Electronic Technology Service Co., Ltd Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Summary of Compliance with National Differences:	
N/A	
Copy of Marking Plate:	
N/A	

Product Type and Test item particulars:	
Type of electronic displays...:	☐ Televisions ☒ Monitors ☐ Signage displays ☐ Others
Classification of installation and use……………………:	☐ Desk-top ☐ Wall mounted ☒ Other
Screen diagonal………………………………………….:	7 inch, 20.13cm
Screen size………………………………………………:	1.57dm^2 (double display panel)
Resolution (H x V, pixels) ……………………………….:	1024*600
Nominal aspect ratio……………………………….…....:	16:9
Screen technology ………………………...….….…….:	LCD
Availability of off mode………………………….....….....:	Yes
Availability of standby mode.…………………………..…:	Yes
Networked electronic displays.………………....……….:	No
Availability of HiNA functionality……………………...…..:	No
Availability of easily visible switch…………………...……....:	Yes
Availability of automatic power-down……….…………..…..:	No
Availability of forced menu……………………………....:	Yes
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)…….………:	No
Power supply type………………………...……………:	☒ External Power supply ☐ Mains switch/Directly connected to mains
Possible Test Case Verdicts:	
Test case does not apply to the test object…………:	N/A (Not Applicable)
Test object does meet the requirement……….…….:	P (Pass)
Test object does not meet the requirement…………..:	F (Fail)
Testing:	
Ambient temperature of tested ....:	25.0 ℃
Test inputs...:	230V~, 50Hz
Test sample quantity..:	1 pcs
Date of receipt of test item……………………….…….:	2025-04-07
Date (s) of performance of tests………………………:	2025-04-07 to 2025-04-16
General Remarks:	
Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen AOCE Electronic Technology Service Co., Ltd	

General product information:
This report was based on the original report AOC250415032ER, only following items are revised, when this report issued, the original report will be withdraw: 1). Update the information of the applicant and the manufacturer.

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
—	**ANNEX II Ecodesign requirements**	See below	P
A	**ENERGY EFFICIENCY REQUIREMENTS**		—
1.	**ENERGY EFFICIENCY INDEX LIMITS FOR ON-MODE** The energy efficiency index (EEI) of an electronic display shall be calculated using the following equation: corr is a correction factor of 10 for OLED electronic displays that do not $EEI = \frac{(P_{measured} + 1)}{(3 \times [90 \times tanh(0{,}02 + 0{,}004 \times (A - 11)) + 4] + 3) + 3}$ apply the ABC allowance in point B (1). This shall apply until 28 February 2023. **corr shall be zero in all other cases.** The EEI of an electronic display shall not exceed the maximum EEI (EEI_{max}) according to the limits in Table 1 from the dates indicated. *Remark:* *With Corrigendum L 50/23 date 24.2.2020*	Resolution:614400 pixels (1024*600) EEImax: 0.75 (1 March 2023) A: 1.57dm^2 corr: 0 $P_{measured}$:6.58W EEI=0.74	P
B	**ALLOWANCES AND ADJUSTMENTS FOR THE PURPOSE OF THE EEI CALCULATION AND FUNCTIONAL REQUIREMENTS**		--
1.	**Electronic displays with automatic brightness control (ABC)**		N/A

Table 1

EEI limits for on-mode

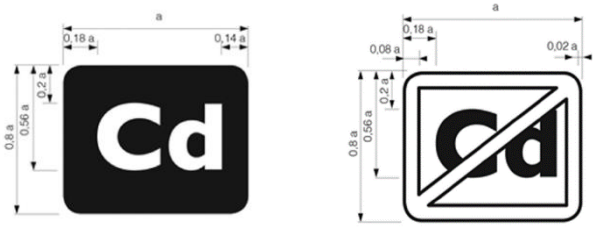
	EEI_{max} for electronic displays with resolution up to 2 138 400 pixels (HD)	EEI_{max} for electronic displays with resolution above 2 138 400 pixels (HD) and up to 8 294 400 pixels (UHD-4k)	EEI_{max} for electronic displays with resolution above 8 294 400 pixels (UHD-4k) and for MicroLED displays
1 March 2021	0,90	1,10	n.a.
1 March 2023	0,75	0,90	0,90

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
—	Electronic displays qualify for a 10 % reduction in $P_{measured}$, if they meet all of the following requirements: (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; (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; (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; (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 (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.	No ABC function	N/A
2.	**Forced menu and set up menus**		P
	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.	Forced menu-normal configuration	P
	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.	Warning message: “The change will result in highter energy consumption. Do you wish leave Home mode?”	P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
	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.	Warning message: "The change will result in highter energy consumption. Do you want to set it?"	P
	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.	Warning message: "The change will result in highter energy consumption. Do you want to set it?"	P
3.	**Peak white luminance ratio**		P
	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/m2 or, if the electronic display is primarily intended for close viewing by a single user, not less than 150 cd/m2.	Measured peak white luminance: See Test data and results	P
	If the electronic display's peak white luminance in the normal configuration is set to lower values, it shall not be 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.	Measured peak white luminance: See Test data and results	P
C	**OFF MODE, STANDBY AND NETWORKED STANDBY MODE REQUIREMENTS (From 1 March 2021)**		P
1.	**Power demand limits other than on-mode** Electronic displays shall not exceed power demand limits in the different modes and conditions listed in Table 2:		P
--	Off mode: $P_{off} \leq 0.30$ W (Max. limit)	See Test Data Table	P
--	Standby mode: $P_{Standby} \leq 0.50$ W (Max. limit)	See Test Data Table	P
	Allowances for additional functions when present and enabled		P
	- Status display: $P_{Standby\_adder} = 0.20$ W		N/A
	- Deactivation using room presence detection: $P_{Standby\_adder} = 0.50$ W		N/A
	- Touch functionality, if usable for activation: $P_{Standby\_adder} = 1.00$ W		N/A
	Total maximum power demand with all additional functions when present and enabled ≤ 2.20 W	See Test Data Table	P
--	**Networked standby mode: $P_{nsb} \leq 2.00$ W (Max. limit)**		N/A
	Allowances for additional functions when present and enabled		N/A
	-Status display: $P_{nsb\_adder} = 0.20$ W		N/A
	-Deactivation using room presence detection: $P_{nsb\_adder} = 0.50$ W		N/A

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
	-Touch functionality, if usable for activation: P_{nsb_adder} = 1.00 W		N/A
	-HiNA function: P_{nsb_adder} = 4.00 W		N/A
	Total maximum power demand with all additional functions when present and enabled: $P_{nsb} \leq 7.70$ W		N/A
2.	**Availability of off, standby and networked standby modes**		P
	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.	Standby mode and off 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.		P
	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**		N/A
	(a) Televisions shall provide a power management function, enabled as delivered by the manufacturer that, within 4 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.	Auto Standby: 240min	N/A
	(b) 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.	Warning message: "The change will result in highter energy consumption. Do you want to set it?"	N/A

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
	(c) 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.	No such function	N/A
	(d) 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
4.4	**Automatic standby in displays other than televisions**		**P**
	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.		P
	Before triggering such a switch, a warning message shall be displayed and the switch completed within 10 minutes.		P
D.	**MATERIAL EFFICIENCY REQUIREMENTS**		**P**
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 1 of Annex VII of Directive 2012/19/EU.		P
	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 50 g:		--

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
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		P
	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: Cadmium inside Cadmium free  		P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
	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.		N/A
	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, 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.		P

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

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
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).		
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).		P
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.	Refer to product information sheet.	P
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.	Refer to product information sheet.	P
--	ANNEX III Measurement methods and calculations For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards the reference numbers of which have been published for this purpose in the Official Journal of the European Union or other reliable, accurate and reproducible methods, which take into account the generally recognised state-of-the-art, and in line with the following provisions.	Following test method were refered: EN 62087-1:2016 EN 62087-2:2016 EN 62087-3:2016 (TV) EN 50564:2011 EN 50643:2018	P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
--	Measurements and calculations shall meet the technical definitions, conditions, equations and parameters set out in this Annex. Electronic displays which can operate in both 2D and 3D modes shall be tested when they operate in 2D mode.		N/A
--	An electronic display which is split into two or more physically separate units, but placed on the market in a single package, shall, for checking the conformity with the requirements of this Annex, be treated as a single electronic display. Where multiple electronic displays that can be placed on the market separately are combined in a single system, the individual electronic displays shall be treated as single displays.		N/A
1.	General conditions Measurements shall be made at an ambient temperature of 23 °C +/- 5 °C		P
2.	Measurements of on mode power demand Measurements of the power demand referred to in Annex II, point A (1) shall fulfil all of the following conditions: (a) measurements of power demand (Pmeasured) shall be made in the normal configuration; (b) measurements shall be made using a dynamic broadcast-content video signal representing typical broadcast content for electronic displays in standard dynamic range (SDR). The measurement shall be the average power consumed over 10 consecutive minutes; (c) measurements shall be made after the electronic display 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. For electronic displays that are known to stabilise within 1 hour, these durations may be reduced if the resulting measurement can be shown to be within 2 % of the results that would otherwise be achieved using the durations described here; (d) where ABC is available, measurements shall be made with it switched off. If ABC cannot be switched off, then the measurements shall be performed in an ambient light condition of 100 lux measured at the ABC sensor.		P

COMMISSION REGULATION (EU) 2019/2021 ANNEX II Ecodesign requirements			
Clause	Requirement + Test	Result – Remark	Verdict
--	Measurements of peak white luminance Measurements of the peak white luminance referred to in Annex II, point B.3 shall be made: (a) with a luminance meter, detecting that portion of the screen exhibiting a full (100 %) white image, which is part of a 'full screen test' pattern that does not exceed the average picture level (APL) point where any power limiting or other irregularity occurs in the electronic display luminance drive system affecting the electronic display luminance; (b) without disturbing the luminance meter's detection point on the electronic display whilst switching between any of the conditions referred to in Annex II, point B.3.		P

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

Clause	Requirement + Test	Result – Remark	Verdict
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 (EEIlabel) as set out in Table 1. The EEIlabel of an electronic display shall be determined in accordance with part B of this Annex.	Energy Efficiency Class: **D** (EEI_{label}=0.59)	P
B. Energy Efficiency Index (EEIlabel)			
1.	The Energy Efficiency Index (EEIlabel) of the electronic display shall be calculated using the following equation: $EEI_{label} = \frac{(P_{measured} + 1)}{(3 \times [90 \times tanh(0{,}025 + 0{,}0035 \times (A - 11) + 4)] + 3) + corr_l}$ A represents the viewing surface 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.		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 Pmeasured if they meet all of the following requirements:		N/A

Table 1

Energy efficiency classes of electronic displays

Energy Efficiency Class	Energy Efficiency Index (EEI_{label})
A	$EEI_{label} < 0{,}30$
B	$0{,}30 \leq EEI_{label} < 0{,}40$
C	$0{,}40 \leq EEI_{label} < 0{,}50$
D	$0{,}50 \leq EEI_{label} < 0{,}60$
E	$0{,}60 \leq EEI_{label} < 0{,}75$
F	$0{,}75 \leq EEI_{label} < 0{,}90$
G	$0{,}90 \leq EEI_{label}$

Table 2

Measurement of $P_{measured}$

Dynamic Range level	$P_{measured}$
Standard Dynamic Range (SDR): $Pmeasured_{SDR}$	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) $Pmeasured_{HDR}$	Power demand in Watts (W) in on mode, measured as for $Pmeasured_{SDR}$ 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

$corr_l$ value

Electronic Display type	$corr_l$ value
Television	0,0
Monitor	0,0
Digital signage	0,00062*(lum-500)*A *where 'lum' is the peak white luminance, in cd/m², of the brightest on mode configuration of the electronic display and A is the screen area in dm²*

COMMISSION DELEGATED REGULATION (EU) 2019/2013 ANNEX II Energy labeling requirements			
Clause	Requirement + Test	Result – Remark	Verdict
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 Pmeasured, 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 Pmeasured 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;		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; - the measured screen luminance at 12 lux is between 35 % and 70 % of the screen luminance measured at 100 lux.		N/A

Table

Table 1	**Test parameters for measurements**
Ambient temperature (°C):	25.1
Luminance (Lx)	0.9
Air speed (m/s):	0.1
Test voltage in V:	230V~
Test frequency in Hz:	50Hz
Total harmonic distortion (THD) of the electricity supply system:	/
Screen area A (dm^2) :	1.57
Input terminal for the audio and video test signals:	☒ HDMI 1 terminal ☐ Display Port ☐ DVI ☒ VGA ☒ Audio-Video in ☐ SCART ☐ RF in ☐ Thunderbolt ☒ Others
Audio and video signals for test:	For on mode power test: ☒ Dynamic broadcast-content video signal (video content_BD_50) according to Clause 6.2.4 of IEC 62087-3:2015 (Resolution: 1024 x 600, frame rate: 60Hz); ☐ VESA High-performance Monitor and Display Compliance Test Specification (DisplayHDR CTS) Version 1.0 Section 5.1: Minimum-white Luminance Level Specifications. For on mode power test： ☒ Three bars of white (100 %) over a black (0 %) background image (video-content_BD) according to Clause 6.2.5 of IEC 62087-3:2015 (Resolution: 1024 x 600, frame rate: 60Hz)
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

Table 1a	**Peak Luminance Ratio Measurement (Electronic displays without automatic brightness control (ABC))**	
On-mode power $P_{measured}$ (W):	6.58	
Peak luminance of the normal condition Lnormal (cd/m^2):	223.8	
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	223.8cd/ m^2 > 220 cd/ m^2	
Result	Pass	
Table 1b	**Peak Luminance Ratio Measurement (Electronic displays with automatic brightness control (ABC))**	
On-mode power $P_{measured}$ (W):	--	
On-mode power at ABC disabled $P_{measured\_abc\_disabled}$ (W):	--	
On-mode power at 100 lux ambient light at the ABC sensor $P_{measured\_ABC\_100}$ (W):	--	
On-mode power at 12 lux ambient light at the ABC sensor $P_{measured\_ABC\_12}$ (W):	--	
Peak luminance in normal configuration at 100 lux ambient light at the ABC sensor $L_{normal\_ABC\_100}$ (W):	--	
Peak luminance in normal configuration at 60 lux ambient light at the ABC sensor $L_{normal\_ABC\_60}$ (W):	--	
Peak luminance in normal configuration at 35 lux ambient light at the ABC sensor $L_{normal\_ABC\_35}$ (W):	--	
Peak luminance in normal configuration at 12 lux ambient light at the ABC sensor $L_{normal\_ABC\_12}$ (W):	--	
Peak luminance in brightest on mode configuration at 100 lux ambient light at the ABC sensor $L_{brightest\_ABC\_100}$ (W):	--	
Peak luminance ratio $L_{normal\_ABC\_100}$ / $L_{brightest}$	--	>65%

Table 1c	**Power Consumption Measurement**					
Operation condition	Current (mA)	Real power (W)	Limit (W)			Remark
Off mode	3.97	0.24	0.3			--
			Max.	Allowance	Total	--
Standby mode	6.99	0.39	0.5	0	0.5	--
Networked standby mode	--	--	2.0	0	2.0	--
other mode (on mode)	--	--	--	--	--	--
EEI Calculation						
For SDR:						
$P_{measured}$ (W)			6.58			
Viewing surface area, A (dm^2)			1.57			
EEI			0.74			

Table

For HDR:(for reference only)	
$P_{measured}$ (W)	--
Viewing surface area, A (dm^2)	--
EEI	--

Test Equipment List

Equipment Name	Manufacturer	Model No.	Reference No.	Calibration Due Date
Frequency Converter	OYHS	OYHS-98850-50KVA	AOC-S-001	2025-04-12
Digital Power Meter	YOKOGAWA	WT310E	AOC-S-012	2025-04-12
THERMD-HYGROGRAPH	SATO	7210-00	AOC-S-022	2025-04-12
Oscillograph	Tektronix	MDO3012	AOC-S-028	2025-04-12
Oscilloprobe	LONSA	P4100	AOC-S-029	2025-04-12
Digital multimeter	FLUKE	F15B	AOC-S-039	2025-04-12
Tape	MUTIAN	RS-319	AOC-S-057	2025-04-12
Audio signal generator	Yangzhong Guangyang Electronic Insrument Factory	TAG-101	AOC-S-065	2025-04-12
Illuminometer	TES ELECTRICAL ELECTRONIC CORP	TES-1330A	AOC-S-110	2025-04-12
Digital anemometer	SUWEI	AG598WJE14	AOC-S-135	2025-04-12

Product Photo

Fig. 1

Fig. 2

Fig. 3

Fig. 4

-- End of Report --