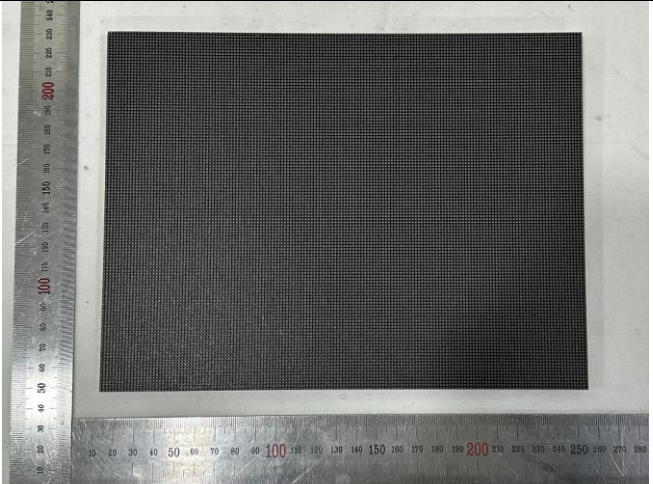


|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                   |                                                                                     |                                                         |                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test report no.:</b><br>Prüfbericht-Nr.:                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>KR23UW0Y 003</b>                                                                                                                                               | <b>Order No.:</b><br>Auftragsnr.:                                                   | 156160605                                               | <b>Page 1 of 17</b><br>Seite 1 von 17                                                                                                               |
| <b>Client reference no.:</b><br>Kunden-Referenz-Nr.:                                                                                                                                                                                                                                                                                                                                                                                                          | <b>2003090</b>                                                                                                                                                    | <b>Order date:</b><br>Auftragsdatum:                                                | 2024-01-15                                              |                                                                                                                                                     |
| <b>Client:</b><br>Auftraggeber:                                                                                                                                                                                                                                                                                                                                                                                                                               | Samsung Electronics Co., Ltd.                                                                                                                                     |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Test item:</b><br>Prüfgegenstand:                                                                                                                                                                                                                                                                                                                                                                                                                          | LED Display                                                                                                                                                       |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Identification / Type no.:</b><br>Bezeichnung / Typ-Nr.:                                                                                                                                                                                                                                                                                                                                                                                                   | See page 3 for details                                                                                                                                            |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Order content:</b><br>Auftrags-Inhalt:                                                                                                                                                                                                                                                                                                                                                                                                                     | TÜV Rheinland Q mark approval                                                                                                                                     |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Test specification</b><br>Prüfgrundlage:                                                                                                                                                                                                                                                                                                                                                                                                                   | 2 PfG Q2498/09.19 Eye Comfort 2.0<br>Evaluation                                                                                                                   |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Date of sample receipt:</b><br>Wareneingangsdatum:                                                                                                                                                                                                                                                                                                                                                                                                         | 2024-01-15                                                                                                                                                        |  |                                                         |                                                                                                                                                     |
| <b>Test sample no:</b><br>Prüfmuster-Nr.:                                                                                                                                                                                                                                                                                                                                                                                                                     | A003643941-001                                                                                                                                                    |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Testing period:</b><br>Prüfzeitraum:                                                                                                                                                                                                                                                                                                                                                                                                                       | 2024-01-17 - 2024-01-18                                                                                                                                           |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Place of testing:</b><br>Ort der Prüfung:                                                                                                                                                                                                                                                                                                                                                                                                                  | TÜV Rheinland Korea Ltd.                                                                                                                                          |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Testing laboratory:</b><br>Prüflaboratorium:                                                                                                                                                                                                                                                                                                                                                                                                               | TÜV Rheinland Korea Ltd.                                                                                                                                          |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Test result*:</b><br>Prüfergebnis*:                                                                                                                                                                                                                                                                                                                                                                                                                        | Pass                                                                                                                                                              |                                                                                     |                                                         |                                                                                                                                                     |
| <b>tested by:</b><br>geprüft von:                                                                                                                                                                                                                                                                                                                                                                                                                             | <br><b>Date:</b> 2024-01-31<br><b>Datum:</b>                                   |                                                                                     | <b>authorized by:</b><br>genehmigt von:                 | <br><b>Issue date:</b> 2024-01-31<br><b>Ausstellungsdatum:</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Eun-Hye Park / PE                                                                                                                                                 |                                                                                     | Hyun-Seok Oh /Reviewer<br>Wendy Tu / Technical reviewer |                                                                                                                                                     |
| <b>Position / Stellung:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Position / Stellung:</b>                                                                                                                                       |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Other:</b><br>Sonstiges:                                                                                                                                                                                                                                                                                                                                                                                                                                   | This report is based on previous report KR23UW0Y 001-002 to re-evaluate certified model with additional LED chip.<br>All applicable test conducted on new sample. |                                                                                     |                                                         |                                                                                                                                                     |
| <b>Condition of the test item at delivery:</b><br>Zustand des Prüfgegenstandes bei Anlieferung:                                                                                                                                                                                                                                                                                                                                                               | Test item complete and undamaged<br>Prüfmuster vollständig und unbeschädigt                                                                                       |                                                                                     |                                                         |                                                                                                                                                     |
| * Legend:                                                                                                                                                                                                                                                                                                                                                                                                                                                     | P(ass) = passed a.m. test specification(s)                                                                                                                        | F(ail) = failed a.m. test specification(s)                                          | N/A = not applicable                                    | N/T = not tested                                                                                                                                    |
| * Legende:                                                                                                                                                                                                                                                                                                                                                                                                                                                    | P(ass) = entspricht o.g. Prüfgrundlage(n)                                                                                                                         | F(ail) = entspricht nicht o.g. Prüfgrundlage(n)                                     | N/A = nicht anwendbar                                   | N/T = nicht getestet                                                                                                                                |
| <b>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</b><br>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. |                                                                                                                                                                   |                                                                                     |                                                         |                                                                                                                                                     |

V05

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**Remarks**  
*Anmerkungen*

- |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <p>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</p> <p><i>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</i></p> <p><i>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i></p>                                                                                                                                                                                                                                                                                                                                                                             |
| 2 | <p>As contractually agreed, this document has been signed digitally only. TÜV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TÜV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following link: <a href="#">Introduction to Digital Signature</a></p> <p><i>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie über folgenden Link: <a href="#">Einführung in digitale Signaturen</a></i></p> |
| 3 | <p>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</p> <p><i>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4 | <p>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</p> <p><i>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</i></p>                                                                                                                                                                                                                       |

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**Product description**  
*Produktbeschreibung*

**General Information**

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name &amp; Address of Client</b>         | Samsung Electronics Co., Ltd.<br>129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 16677, Republic of Korea                                                                                                                                                                                                                                                                                                                  |
| <b>Name &amp; Address of License holder</b> | Same as above                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Name &amp; Address of Manufacturer</b>   | Same as above                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Name &amp; Address of Factory(ies):</b>  | 1. SAMSUNG MEXICANA S.A. DE C.V.<br>BLVD. LOS OLIVOS #11110, PARQUE INDUSTRIAL EL FLORIDO,<br>2DA. SECCION, 22244 TIJUANA, Baja California, MEXICO<br>2. SAMSUNG ELECTRONICS HCMC CE COMPLEX CO., LTD<br>Lot I-11, D2 Road, Saigon Hi-Tech Park, Tang Nhon Phu B Ward, Thu Duc City,<br>Ho Chi Minh City 70000, Vietnam<br>3. <b>Samsung Electronics Slovakia s.r.o.</b><br><b>Hviezdoslavova 807, 924 27 Galanta, Slovakia</b> |

**List of Appendix:**

Appendix – Test Data

**List of Attachment:**

Photo Documentation (2 pages)

|                               |                                                                                                                                                                                              |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product details</b>        | Product Name: LED Display<br>Model name: IAC 130 2K<br>Model Code: LH015IAC***** (“*” in the model name can be any alphanumeric character or blank for market purpose)<br>Trademark: SAMSUNG |
| <b>Rated Input</b>            | AC 100-240 V; 50/60 Hz; 8.3 A                                                                                                                                                                |
| <b>Test sample obtaining:</b> | <input checked="" type="checkbox"/> Sending by customer <input type="checkbox"/> Sampling by TÜV Rheinland Group<br><input type="checkbox"/> others:                                         |

**Critical components information**

| Object / part No. | Manufacturer/<br>trademark                       | Type / model        | Technical data                                              |
|-------------------|--------------------------------------------------|---------------------|-------------------------------------------------------------|
| LED chip          | FOSHAN NATIONSTAR<br>OPTOELECTRONICS CO.,<br>LTD | NH-B1212RGBA-HF     | Red(Vf:1.6-2.4V)<br>Green(Vf:2.4-3.2V)<br>Blue(Vf:2.4-3.2V) |
| Alt.              | Samsung                                          | E1201               | Red(Vf:1.8-2.4V)<br>Green(Vf:2.6-3.2V)<br>Blue(Vf:2.6-3.2V) |
| Alt.              | XINDECO                                          | XD-AF1212RGL-3A1XS0 | Red(Vf:1.8-2.5V)<br>Green(Vf:2.5-3.2V)<br>Blue(Vf:2.5-3.2V) |

Supplementary information:

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**Produktbeschreibung**  
*Product description*

**Copy of marking plate**

**Product Label**

**SAMSUNG**

Model / MODELE NO / Modelo. : IAC 130 2K

Model Code : LH015IACCHS/ZA

Type No. : LH015IACC

USA/CANADA : AC100-240V~50/60Hz 8.3A 830W X2

MEXICO : 100-240V~50/60Hz 8.3A 830W X2

MFD./FABRIQUE: MAY 2023

MADE IN KOREA(SEC)  
FABRIQUE AU CORÉE(SEC)  
HECHO EN COREA(SEC)

Contains Tx FCC ID : A3LWCB734M

Contains Tx IC : 649E-WCB734M

IFT:En Trámite

Version No : XXXX / XXXXXXX

S/N / Serie No : \*\*\*\*\*Z



**Color Display Unit**



**CAUTION / PRECAUCIÓN**  
Shock hazard / Riesgo de descarga  
Disconnect all power sources / Desconecte todas las fuentes de alimentación

CAN ICES-003 (A) / NMB-003 (A)

LED Rank : \*\*\*\*\*



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



**WARNING : TO PREVENT FIRE OR SHOCK HAZARD**  
**DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE**  
AVIS : RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR



**Description of Changes:**

Addition of LED chip (see page 3).

Addition of factory, Samsung Electronics Slovakia s.r.o. (see page 3).

**History of amendments and modifications:**

Refer to KR23UW0Y 001, date 2023-05-24 (Original report).

Refer to KR23UW0Y 002, date 2023-08-01 (1<sup>st</sup> modification).

Refer to KR23UW0Y 003, date 2024-01-31 (2<sup>nd</sup> modification).

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**Produktbeschreibung**  
*Product description*

**Summary of Testing**

Test content refers to 2 PfG Q2498/09.19 standard.  
All applicable tests as described in the compliance checklist were performed. See following pages for details.  
The test samples are Engineering samples without serial numbers.

**Test Condition:**

Temp.: 21prin.1 °C RH.: 40.9 % Amb. Illumination:  
<0.1 lx

**Testing Laboratory:**

TÜV Rheinland Korea Ltd.

2F, N-Tower, Semicolon Mullaee, 25, Mullaee-ro 28-gil,  
Yeongdeungpo-gu, Seoul #07298, Rep. of Korea

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| Clause<br>Absatz | Requirements – Tests /<br>Anforderungen - Prüfungen | Measuring results – Remarks /<br>Messergebnisse – emerkungen | Result<br>Ergebnis |
|------------------|-----------------------------------------------------|--------------------------------------------------------------|--------------------|
|------------------|-----------------------------------------------------|--------------------------------------------------------------|--------------------|

**2 PfG Q2498/09.19**

|                                          |                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                             |     |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----|
| <b>5</b>                                 | <b>Preparations, considerations and perquisite</b>                                                                                                                                                                                                                                                                                                                                     |                                                                                                                             |     |
| <b>5.1</b>                               | <b>Prerequisite-safety</b><br>The product must be safe to be operated during normal operation as well as in single fault condition including foreseeable misuse. Evidence that this is considered must be given in an internationally recognized form e.g. TÜV-Rheinland GS-Mark (or CB) etc.<br>A test report from an accredited laboratory or a certificate as evidence is required. | IEC 62368-1:2018 CB report 077-2207822-300 issued by TUV SUD, Certificate No.: SG PSB-IV-06228M3                            | P   |
| <b>6</b>                                 | <b>Requirements</b>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                             |     |
| <b>A.1,<br/>B.1,<br/>C.1</b>             | <b>Image Quality</b>                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                             |     |
| <b>A.1.1,<br/>B.1.1,<br/>C.1.1</b>       | <b>Pixel density</b><br>The calculated pixel density shall be greater than 80 Pixels per inch(PPI) for Monitor and AIO PC; 100 Pixels per inch(PPI) for Notebook computer; 80 Pixels per inch(PPI) or 100 Pixels per degree(PPD) for Television and Signage display.                                                                                                                   | Screen size is not fixed.                                                                                                   | N/A |
| <b>A.1.2,<br/>B.1.2,<br/>C.1.2</b>       | <b>Luminance Uniformity:</b><br>$L_{min} / L_{max} \geq 75\%$<br><b>Coloro Uniformity:</b><br>$\Delta u'v' \leq 0.02$                                                                                                                                                                                                                                                                  | Screen size is not fixed.                                                                                                   | N/A |
| <b>A.1.3,<br/>B.1.3,<br/>C.1.3</b>       | <b>Freedom of movement</b>                                                                                                                                                                                                                                                                                                                                                             | Screen size is not fixed.                                                                                                   | N/A |
| <b>A.1.4,<br/>B.1.4,<br/>C.1.4</b>       | <b>Color accuracy</b>                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                             | P   |
| <b>A.1.4.1,<br/>B.1.4.1,<br/>C.1.4.1</b> | <b>White balance <math>\Delta E_{2000}</math></b><br>Limit: White balance $\Delta E_{2000}$ (avg.) $\leq 4$                                                                                                                                                                                                                                                                            | <b>Test condition:</b> Default<br>Refer to Appendix Table 1<br>$\Delta E_{2000}$ (avg.) = 1.91 (for sample A003643941-001); | P   |
| <b>A.1.4.2,<br/>B.1.4.2,<br/>C.1.4.2</b> | <b>Color difference <math>\Delta E_{2000}</math></b><br>Limit: Color difference $\Delta E_{2000}$ : $\leq 3$                                                                                                                                                                                                                                                                           | <b>Test condition:</b> Default<br>Refer to Appendix Table 2<br>$\Delta E_{2000}$ (avg.) = 1.59 (for sample A003643941-001); | P   |
| <b>A.1.4.3,<br/>B.1.4.3,<br/>C.1.4.3</b> | <b>Gamma difference</b><br>Gamma Deviation Limit: $\leq \pm 0.2$                                                                                                                                                                                                                                                                                                                       | <b>Test condition:</b> Default<br>Refer to Appendix Table 3                                                                 | P   |

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| Clause<br>Absatz                | Requirements – Tests /<br>Anforderungen - Prüfungen                                                                                                                                                                                                                                                                                                                     | Measuring results – Remarks /<br>Messergebnisse – emerkungen                                                                     | Result<br>Ergebnis |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------|
| A.1.5,<br>B.1.5,<br>C.1.5       | <b>Wide color gamut</b><br>For product with sRGB color mode: $\geq 95\%$ of CIE 1931;<br>For product with Adobe RGB color mode: $\geq 95\%$ of CIE 1931;<br>For product with DCI-P3 color mode: $\geq 85\%$ of CIE 1931;<br>For product with NTSC color mode: $\geq 72\%$ of CIE 1931                                                                                   | <b>Test condition:</b> Default<br>Refer to Appendix Table 4<br>Gamut coverage ratio:<br>98.29% sRGB (for sample A003643941-001); | P                  |
| A.2,<br>B.2,<br>C.2             | <b>Ambient light management</b>                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                  |                    |
| A.2.1,<br>B.2.1,<br>C.2.1       | <b>Disturbing reflection</b>                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                  |                    |
| A.2.1.1,<br>B.2.1.1,<br>C.2.1.1 | <b>Gloss</b><br>The product front frame, stand, hinge, keyboard shall have a gloss value $G(60^\circ) \leq 30$ gloss units.<br>For any part that has GU above 30 GU, the user manual should provide a reminder that this high glossy part may arise unwanted reflection, adjust the display position, lighting condition or viewing direction may reduce the reflection | It is not applicable for LED signage product.                                                                                    | N/A                |
| A.2.2,<br>B.2.2,<br>C.2.2       | <b>Screen reflection characteristics</b>                                                                                                                                                                                                                                                                                                                                | It is not applicable for LED signage product.                                                                                    | N/A                |
| A.2.2.1,<br>B.2.2.1,<br>C.2.2.1 | <b>Total reflection ratio</b><br>Limit: Total reflection ratio shall be less than 6.0%                                                                                                                                                                                                                                                                                  |                                                                                                                                  | N/A                |
| A.2.2.2,<br>B.2.2.2,<br>C.2.2.2 | <b>Indirect reflection ratio</b><br>Limit: Indirect reflection ratio shall be less than 3.0%                                                                                                                                                                                                                                                                            |                                                                                                                                  | N/A                |
| A.2.3,<br>B.2.3,<br>C.2.3       | <b>Color gamut space shift</b><br>Limit: For each different ambient lighting condition, the ratio between measured color gamut area to the color gamut area under default condition shall be greater than 0.75.                                                                                                                                                         |                                                                                                                                  | N/A                |
| A.2.4,<br>B.2.4,<br>C.2.4       | <b>Ambient light sensor performance</b>                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                  | N/A                |
| A.2.4.1,<br>B.2.4.1,<br>C.2.4.1 | <b>Illuminance detectors and display luminance settings</b><br>The EUT is subjected to typical lighting conditions (0-750 lux) with different illuminance settings at illuminance detector. The minimum contrast ratio within 0 - 750 Lux shall be 50:1                                                                                                                 |                                                                                                                                  | N/A                |

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| Clause<br>Absatz | Requirements – Tests /<br>Anforderungen - Prüfungen | Measuring results – Remarks /<br>Messergebnisse – merkmale | Result<br>Ergebnis |
|------------------|-----------------------------------------------------|------------------------------------------------------------|--------------------|
|------------------|-----------------------------------------------------|------------------------------------------------------------|--------------------|

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                          |     |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----|
| A.3,<br>B.3,<br>C.3       | Eye Care Technology Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                          |     |
| A.3.1,<br>B.3.1,<br>C.3.1 | <b>Blue light management</b><br>The blue light mode shall meet TÜV Rheinland Low Blue Light either Software solution or Hardware solution.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The product complied to software solution.                                                               | P   |
|                           | <b>TUV Low Blue Light Software solution</b><br>Ratio Blue to Irradiance: $\leq 20\%$ of total power emitted<br><br>Ratio Blue to other wavelengths:<br>The irradiance in other color ranges is not allowed to be less than 50% as the irradiance in blue range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Hardware solution compliance.                                                                            | N/A |
|                           | <b>TUV Low Blue Light Hardware solution</b><br>The ratio of light in the range from 415nm - 455nm compared to 400nm – 500nm shall be less than 50%.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Test condition:</b> Default<br>Refer to Appendix Table 5<br>Ratio: 13.51% (for sample A003643941-001) | P   |
| A.3.2,<br>B.3.2,<br>C.3.2 | <b>Flicker management</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | The product complied to flicker reduced.                                                                 | P   |
|                           | <b>TUV Rheinland Flicker Free Synchronous Flicker</b><br>The Devices under test must not exhibit any flicker. Calculations obtained from the test results shall meet the requirement $E_{obs,n} \leq E_{pred,n}$<br>Over that an experienced engineer with proven ability to see flicker has to confirm the Device under test is free of flicker.<br><br><b>Asynchronous Flicker</b><br>If the Devices under test is able to deliver different luminance information to each eye of the observer, calculations obtained from the test results shall meet the requirement $1.8 * E_{obs,n} \leq E_{pred,n}$<br>Over that an experienced engineer with proven ability to see flicker has to confirm the Device under test is free of asynchronous flicker. | Flicker Reduced compliance                                                                               | N/A |
|                           | <b>TUV Rheinland Flicker Reduced Synchronous Flicker</b><br>The Devices under test must not exhibit any flicker. Calculations obtained from the test results shall meet the requirement $E_{obs,n} \leq E_{pred,n}$<br>Over that an experienced engineer with proven ability to                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Test condition:</b> Default<br><br>Refer to Appendix Table 6                                          | P   |

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|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------|
|                                     | <p>see flicker has to confirm the Device under test is free of flicker.</p> <p><b>Asynchronous Flicker</b><br/>If the Devices under test is able to deliver different luminance information to each eye of the observer, calculations obtained from the test results shall meet the requirement <math>1.8 \cdot E_{obs,n} \leq E_{pred,n}</math><br/>Over that an experienced engineer with proven ability to see flicker has to confirm the Device under test is free of asynchronous flicker.</p> |                                                            |                    |
| <b>A.4,<br/>B.4,<br/>C.4</b>        | <b>Health &amp; Comfort Use</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                            |                    |
| <b>A.4.1,<br/>B.4.1<br/>C.4.1</b>   | <b>Health &amp; comfort guide</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Shall be investigated in the end system                    | N/A                |
|                                     | <b>Environment [A] [B]</b><br>Glare reduction<br>Lighting condition<br>Reflection                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                            | N/A                |
|                                     | <b>Eye Strain [A] [B][C]</b><br>Break times<br>Look at distance objects<br>Eye Exercises<br>Neck Exercises                                                                                                                                                                                                                                                                                                                                                                                          |                                                            | N/A                |
|                                     | <b>Working Posture [A] [B][C]</b><br>Seating position<br>Viewing angle                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            | N/A                |
|                                     | <b>Flicker Free or flicker reduced</b><br>Advantages of reduced flicker                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                            | N/A                |
|                                     | <b>Low Blue Light</b><br>How to enable low blue light mode.<br>Use of low blue light mode can help improve sleep quality in the evening.                                                                                                                                                                                                                                                                                                                                                            |                                                            | N/A                |
| <b>A.4.2,<br/>B.4.2,<br/>C.4.2,</b> | <b>Screen use time management</b><br>Daily on-screen time<br>Frequency<br>Personalized screen management                                                                                                                                                                                                                                                                                                                                                                                            |                                                            | N/A                |
| <b>A.4.3,</b>                       | <b>Artificial intelligent interface</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                            | N/A                |

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|                      |                                                                                                                                                                                                                                                                                                                               |  |     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----|
| B.4.3,<br>C.4.3,     | Application or Content based screen adjustment                                                                                                                                                                                                                                                                                |  |     |
| A.5,<br>B.5,<br>C.5, | <b>Display adjustability</b><br>Tilt must be adjustable for displays having a weight below 3kg (weight measured without stand).<br>Height must be adjustable for monitors below 24 inch (panel spec display size rounded to integer) in order to achieve a screen centre height of $\geq 30$ cm (either with or without tilt) |  | N/A |

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*[Appendix 1] Test data*

| Table 1:                                             | White balance |     |     |         |        |        |        | P    |
|------------------------------------------------------|---------------|-----|-----|---------|--------|--------|--------|------|
| Percentage                                           | R             | G   | B   | Pattern | L      | x      | y      | ΔE   |
| 100%                                                 | 255           | 255 | 255 |         | 511.61 | 0.3244 | 0.3363 | 3.28 |
| 90%                                                  | 230           | 230 | 230 |         | 407.64 | 0.3241 | 0.3359 | 3.11 |
| 80%                                                  | 204           | 204 | 204 |         | 312.72 | 0.3255 | 0.3383 | 2.32 |
| 70%                                                  | 179           | 179 | 179 |         | 234.73 | 0.3259 | 0.3397 | 1.66 |
| 60%                                                  | 153           | 153 | 153 |         | 166.14 | 0.325  | 0.3392 | 1.26 |
| 50%                                                  | 128           | 128 | 128 |         | 111.99 | 0.3237 | 0.3367 | 1.60 |
| 40%                                                  | 102           | 102 | 102 |         | 68.23  | 0.3249 | 0.3381 | 1.21 |
| 30%                                                  | 77            | 77  | 77  |         | 36.68  | 0.3251 | 0.3379 | 1.12 |
| 20%                                                  | 51            | 51  | 51  |         | 14.82  | 0.3257 | 0.3365 | 1.67 |
| 10%                                                  | 26            | 26  | 26  |         | 3.35   | 0.3264 | 0.3396 | 1.91 |
| Max                                                  |               |     |     |         |        |        |        | 3.28 |
| Min                                                  |               |     |     |         |        |        |        | 1.12 |
| Average                                              |               |     |     |         |        |        |        | 1.91 |
| Supplementary information: for sample A003643941-001 |               |     |     |         |        |        |        |      |

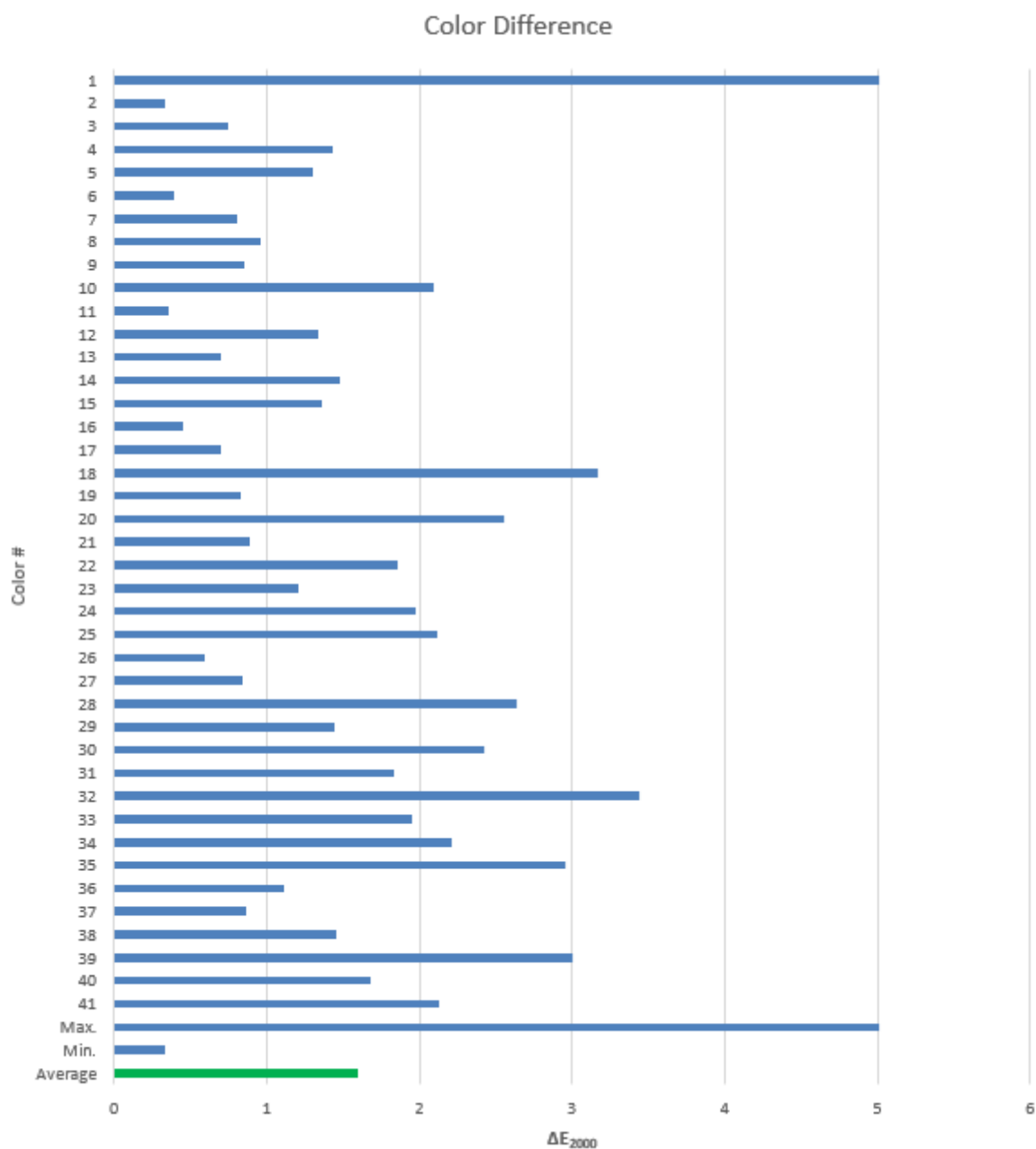
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| Table 2: | Color Difference | P    |
|----------|------------------|------|
| Max      |                  | 5.01 |
| Min      |                  | 0.34 |
| Average  |                  | 1.59 |

Illustration of Color difference:



Supplementary information: for sample A003643941-001

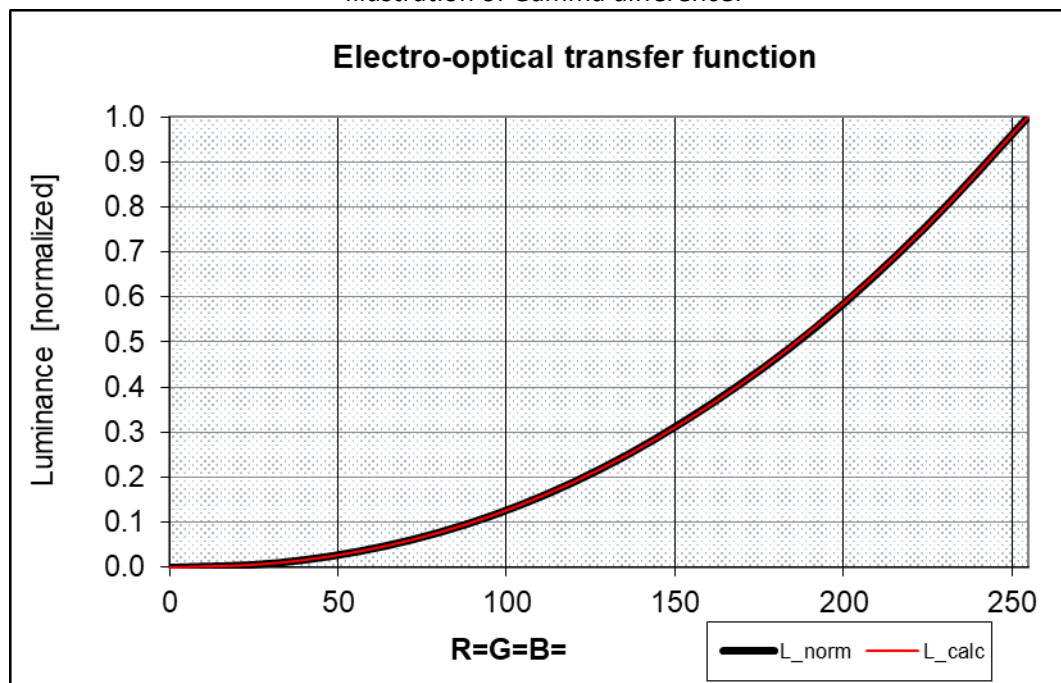
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|------------------|-----------------------------------------------------|--------------------------------------------------------------|--------------------|

| Table 3:                | Gamma difference |     |      |         |        |        |        | P |
|-------------------------|------------------|-----|------|---------|--------|--------|--------|---|
| Percentage              | R                | G   | B    | Pattern | L      | u'     | v'     |   |
| 0.0%                    | 0                | 0   | 0    |         | 0.01   | 0.2057 | 0.4513 |   |
| 12.5%                   | 32               | 32  | 32   |         | 5.31   | 0.2046 | 0.4758 |   |
| 25.1%                   | 64               | 64  | 64   |         | 24.53  | 0.2026 | 0.4744 |   |
| 37.6%                   | 96               | 96  | 96   |         | 59.54  | 0.2029 | 0.4749 |   |
| 50.2%                   | 128              | 128 | 128  |         | 112.25 | 0.2029 | 0.474  |   |
| 62.7%                   | 160              | 160 | 160  |         | 184.2  | 0.2026 | 0.4755 |   |
| 75.3%                   | 192              | 192 | 192  |         | 273.69 | 0.2036 | 0.4759 |   |
| 87.8%                   | 224              | 224 | 224  |         | 385.51 | 0.2033 | 0.4738 |   |
| 100.0%                  | 255              | 255 | 255  |         | 512.86 | 0.2033 | 0.4739 |   |
| Product specified Gamma |                  |     | 2.20 |         |        |        |        |   |
| Measured Gamma          |                  |     | 2.20 |         |        |        |        |   |
| Gamma difference        |                  |     | 0.00 |         |        |        |        |   |

Illustration of Gamma difference:



Supplementary information: for sample A003643941-001

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|------------------|-----------------------------------------------------|--------------------------------------------------------------|--------------------|

| Table 4:         | Wide color gamut     |        |      |          |        | P    |
|------------------|----------------------|--------|------|----------|--------|------|
| Color            | Color Gamut Coverage |        |      |          |        |      |
|                  | sRGB Reference color |        |      | Measured |        |      |
|                  | x                    | y      | CCT  | x        | y      | CCT  |
| D65              | 0.3127               | 0.2390 | 6500 | 0.3238   | 0.3364 | 5906 |
| R                | 0.6400               | 0.3300 | --   | 0.6469   | 0.3256 | --   |
| G                | 0.3000               | 0.6000 | --   | 0.3054   | 0.5947 | --   |
| B                | 0.1500               | 0.0600 | --   | 0.1493   | 0.0639 | --   |
| Gamut Ratio%     | 99.63%               |        |      |          |        |      |
| Gamut Coverage % | 98.29%               |        |      |          |        |      |

Illustration of wide color gamut:

Reference CIE xyY colors

Well-known color spaces

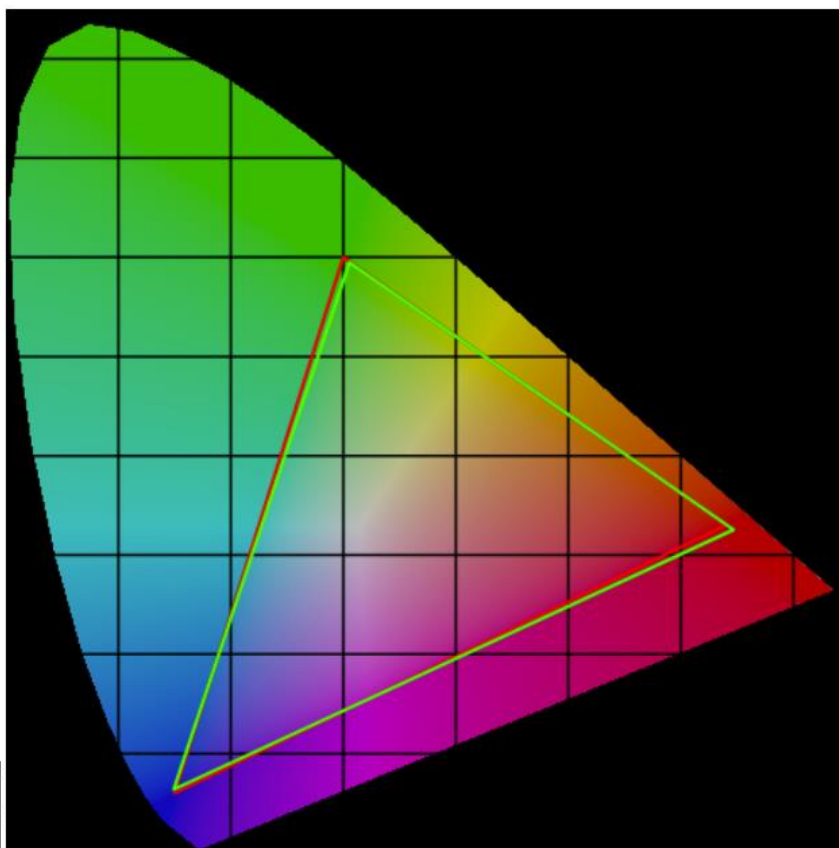
|             |                                     |                                     |
|-------------|-------------------------------------|-------------------------------------|
|             | x                                   | y                                   |
| Red         | <input type="text" value="0.6400"/> | <input type="text" value="0.3300"/> |
| Green       | <input type="text" value="0.3000"/> | <input type="text" value="0.6000"/> |
| Blue        | <input type="text" value="0.1500"/> | <input type="text" value="0.0600"/> |
| White point | <input type="text" value="0.3127"/> | <input type="text" value="0.3290"/> |

Device CIE xyY colors

|             |                                     |                                     |
|-------------|-------------------------------------|-------------------------------------|
|             | x                                   | y                                   |
| Red         | <input type="text" value="0.6469"/> | <input type="text" value="0.3256"/> |
| Green       | <input type="text" value="0.3054"/> | <input type="text" value="0.5947"/> |
| Blue        | <input type="text" value="0.1493"/> | <input type="text" value="0.0639"/> |
| White point | <input type="text" value="0.3238"/> | <input type="text" value="0.3364"/> |

Results

|                       |                                    |
|-----------------------|------------------------------------|
| Gamut ratio [%]       | <input type="text" value="99.63"/> |
| Gamut coverage [%]    | <input type="text" value="98.29"/> |
| Color temperature [K] | <input type="text" value="5903"/>  |

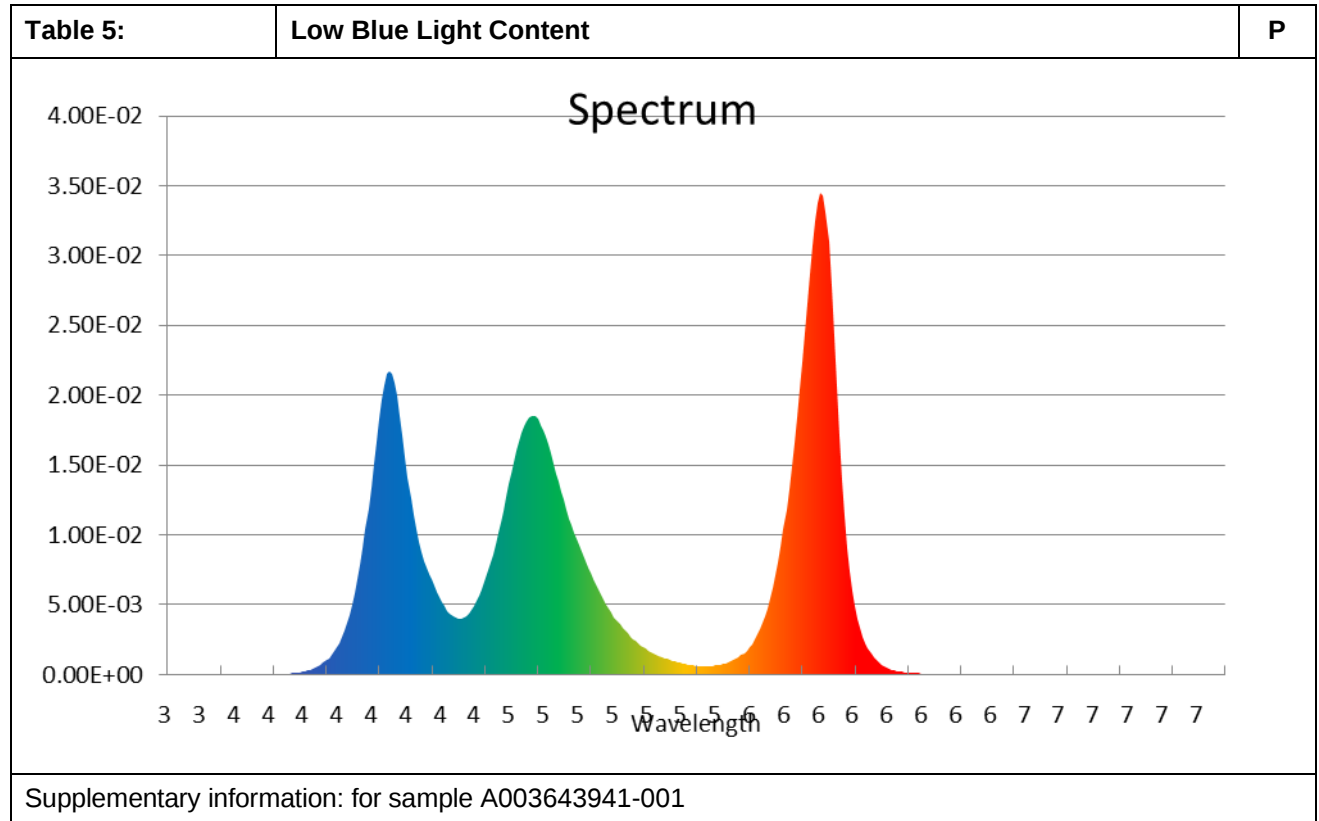


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|------------------|-----------------------------------------------------|-------------------------------------------------------------|--------------------|
|------------------|-----------------------------------------------------|-------------------------------------------------------------|--------------------|

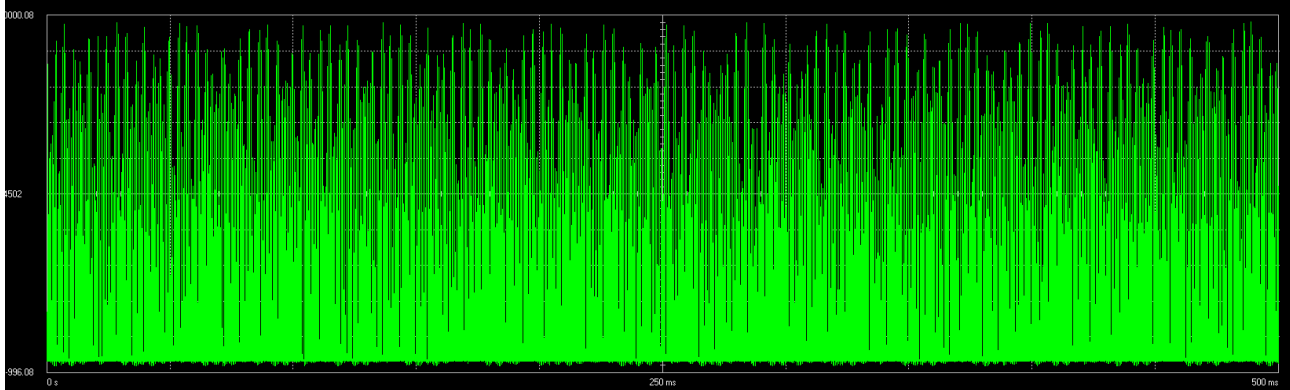


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|------------------|-----------------------------------------------------|-------------------------------------------------------------|--------------------|
|------------------|-----------------------------------------------------|-------------------------------------------------------------|--------------------|

| Table 6              | Flicker management |        |        |         | P |
|----------------------|--------------------|--------|--------|---------|---|
| Synchronous Flicker: |                    |        |        |         |   |
| n                    | 1                  | 2      | 3      | 4       |   |
| f,n [Hz]             | 30                 | 60     | 90     | 120     |   |
| AMPn [1]             | 0.0002             | 0.0286 | 0.0003 | 0.0390  |   |
| Eobs,n [td]          | 0.5                | 67.3   | 0.7    | 92.0    |   |
| Epred,n [td]         | 10.0               | 209.4  | 3858.2 | 79641.6 |   |



**Flicker visibility:**

Frame rate (R) = 60 Hz,  $J_{flicker}$  = 0.03 JND

Supplementary information: for sample A003643941-001

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**PHOTO-DOCUMENTATION**  
**FOTO-DOKUMENTATION**

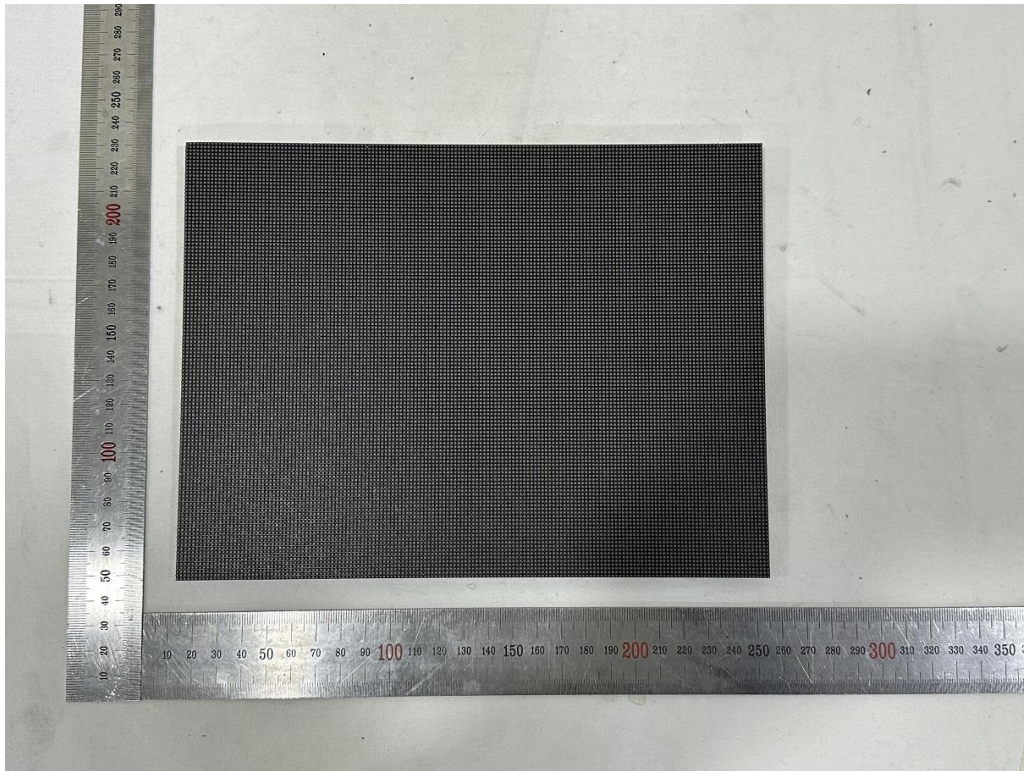


Photo 1 – Overall of product (front side)

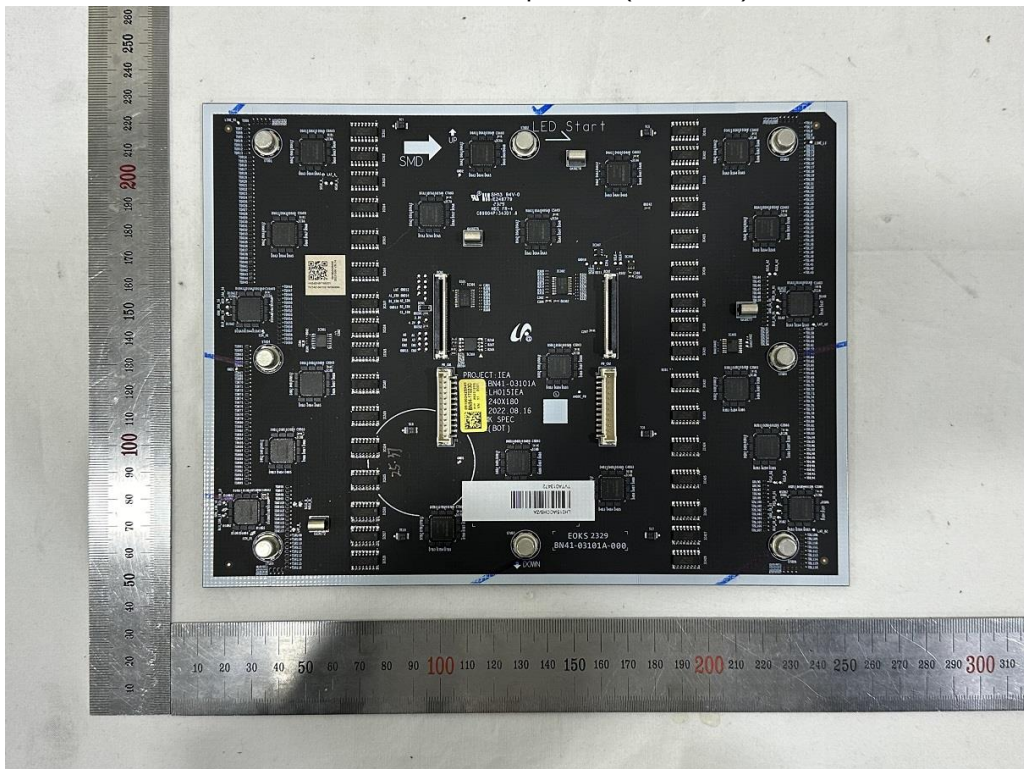


Photo 2 – Overall of product (back side)