



# Product Specification

G156HAN05.0

AU OPTRONICS CORPORATION

( ) Preliminary Specifications

(✓) Final Specifications

|                   |   |
|-------------------|---|
| <b>Module</b>     | 15.6" FHD Color TFT-LCD                   |
| <b>Model Name</b> | G156HAN05.0                               |
| <b>Note</b>       | LED backlight with driving circuit design |

|                                  |             |
|----------------------------------|-------------|
| <b>Customer</b>                  | <b>Date</b> |
| _____                            | _____       |
| <b>Checked &amp; Approved by</b> | <b>Date</b> |
| _____                            | _____       |
| <b>Customer's sign back page</b> |             |

|   |                  |
|---|------------------|
| <b>Approved by</b>  | <b>Date</b>      |
| <u>Sean Lin</u>   | <u>05/4/2020</u> |
| <b>Prepared by</b>  | <b>Date</b>      |
| <u>CH Tsai</u>  | <u>05/4/2020</u> |
| <b>General Display Business Division / AU Optronics corporation</b> |                  |

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## Record of Revision

| Version                                     | Date (yyyy/m/d)   | Page  | Old description   | New Description |        |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|-----------------|--------|-------|-------|------------|-------|-----------------------|-------|-------|-----|-----------------|----------|--------|-------|-------|-------|------------------|--------|---------------------------------|-------|-------|-------|-------|--------|-------|-------|--------|-------|--------------------|--------|-------|-------|-------|-------|--------|--------|--------|------|---|-----------|--------|----------|-------|-------|-------|-----------------------|---|-----------|--------|-------|-------|--------|-------|------------|-------|-------|-------|---------------------------------|-------|-----------------|----------|-------|-------|-------------|-----|------------------|--------|------|------|-----|----|--|--------|--------|--------|--------|---|---|--------|----|----|----|----|----|--------|----|-----|----|----|----|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|----|--|--|--|--|--|--|--|--|--|--|--|
| 0.1   | 2020/1/31   | All   | First Edition   |                 |        |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| 1.0   | 2020/5/4  | 5   | <table border="1"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Min.</th> <th>Typ.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>LED Power Consumption</td> <td>—</td> <td>—</td> <td>122</td> <td>—</td> <td>mW</td> </tr> <tr> <td>Weight</td> <td>—</td> <td>—</td> <td>580</td> <td>—</td> <td>g</td> </tr> <tr> <td>Physical Size (without bracket)</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>mm</td> </tr> <tr> <td></td> <td></td> <td>Length</td> <td>Min.</td> <td>Typ.</td> <td>Max.</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>321.34</td> <td>321.64</td> <td>322.34</td> <td></td> </tr> </tbody> </table> | Parameter       | Symbol | Min.  | Typ.  | Max.       | Unit  | LED Power Consumption | —     | —     | 122 | —               | mW       | Weight | —     | —     | 580   | —                | g      | Physical Size (without bracket) | —     | —     | —     | —     | mm     |       |       | Length | Min.  | Typ.               | Max.   |       |       |       |       | 321.34 | 321.64 | 322.34 |      | <table border="1"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Min.</th> <th>Typ.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>LED Power Consumption</td> <td>—</td> <td>—</td> <td>122</td> <td>—</td> <td>mW</td> </tr> <tr> <td>Weight</td> <td>—</td> <td>—</td> <td>580</td> <td>—</td> <td>g</td> </tr> <tr> <td>Physical Size (without bracket)</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>mm</td> </tr> <tr> <td></td> <td></td> <td>Length</td> <td>Min.</td> <td>Typ.</td> <td>Max.</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>321.34</td> <td>321.64</td> <td>322.34</td> <td></td> </tr> </tbody> </table> | Parameter | Symbol | Min.     | Typ.  | Max.  | Unit  | LED Power Consumption | —   | —         | 122    | —     | mW    | Weight | —     | —          | 580   | —     | g     | Physical Size (without bracket) | —     | —               | —        | —     | mm    |             |     | Length           | Min.   | Typ. | Max. |     |    |  |        | 321.34 | 321.64 | 322.34 |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   |   | Parameter                                   | Symbol  | Min.            | Typ.   | Max.  | Unit  |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   |   | LED Power Consumption                       | —   | —               | 122    | —     | mW    |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Weight                                      | —   | —   | 580   | —               | g      |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Physical Size (without bracket)             | —   | —   | —   | —               | mm     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   |   | Length                                      | Min.  | Typ.            | Max.   |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   |   |   | 321.34  | 321.64          | 322.34 |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Parameter                                   | Symbol  | Min.  | Typ.  | Max.            | Unit   |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| LED Power Consumption                       | —   | —   | 122   | —               | mW     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Weight                                      | —   | —   | 580   | —               | g      |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Physical Size (without bracket)             | —   | —   | —   | —               | mm     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   |   | Length                                      | Min.  | Typ.            | Max.   |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   |   |   | 321.34  | 321.64          | 322.34 |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| 6   | <table border="1"> <thead> <tr> <th>Color / Chromaticity Coordinates (IEC 1931)</th> <th>Rx</th> <th>Ry</th> <th>Rz</th> <th>Gx</th> <th>Gy</th> <th>Gz</th> <th>Bx</th> <th>By</th> <th>Bz</th> <th>Wx</th> <th>Wy</th> <th>Wz</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>0.635</td> <td>0.332</td> <td>0.033</td> <td>0.266</td> <td>0.688</td> <td>0.046</td> <td>0.150</td> <td>0.049</td> <td>0.099</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>Green</td> <td>0.295</td> <td>0.605</td> <td>0.100</td> <td>0.635</td> <td>0.332</td> <td>0.033</td> <td>0.150</td> <td>0.049</td> <td>0.099</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>Blue</td> <td>0.150</td> <td>0.049</td> <td>0.099</td> <td>0.266</td> <td>0.688</td> <td>0.046</td> <td>0.635</td> <td>0.332</td> <td>0.033</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>White</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>Color Gamut</td> <td colspan="12">72</td> </tr> </tbody> </table> | Color / Chromaticity Coordinates (IEC 1931) | Rx  | Ry              | Rz     | Gx    | Gy    | Gz         | Bx    | By                    | Bz    | Wx    | Wy  | Wz              | Red      | 0.635  | 0.332 | 0.033 | 0.266 | 0.688            | 0.046  | 0.150                           | 0.049 | 0.099 | 0.265 | 0.313 | 0.363  | Green | 0.295 | 0.605  | 0.100 | 0.635              | 0.332  | 0.033 | 0.150 | 0.049 | 0.099 | 0.265  | 0.313  | 0.363  | Blue | 0.150   | 0.049     | 0.099  | 0.266    | 0.688 | 0.046 | 0.635 | 0.332                 | 0.033   | 0.265     | 0.313  | 0.363 | White | 0.265  | 0.313 | 0.363      | 0.265 | 0.313 | 0.363 | 0.265                           | 0.313 | 0.363           | 0.265    | 0.313 | 0.363 | Color Gamut | 72  |                  |        |      |      |     |    |  |        |        |        |        | <table border="1"> <thead> <tr> <th>Color / Chromaticity Coordinates (IEC 1931)</th> <th>Rx</th> <th>Ry</th> <th>Rz</th> <th>Gx</th> <th>Gy</th> <th>Gz</th> <th>Bx</th> <th>By</th> <th>Bz</th> <th>Wx</th> <th>Wy</th> <th>Wz</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>0.635</td> <td>0.332</td> <td>0.033</td> <td>0.266</td> <td>0.688</td> <td>0.046</td> <td>0.150</td> <td>0.049</td> <td>0.099</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>Green</td> <td>0.295</td> <td>0.605</td> <td>0.100</td> <td>0.635</td> <td>0.332</td> <td>0.033</td> <td>0.150</td> <td>0.049</td> <td>0.099</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>Blue</td> <td>0.150</td> <td>0.049</td> <td>0.099</td> <td>0.266</td> <td>0.688</td> <td>0.046</td> <td>0.635</td> <td>0.332</td> <td>0.033</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>White</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> <td>0.265</td> <td>0.313</td> <td>0.363</td> </tr> <tr> <td>Color Gamut</td> <td colspan="12">72</td> </tr> </tbody> </table> | Color / Chromaticity Coordinates (IEC 1931) | Rx     | Ry | Rz | Gx | Gy | Gz | Bx     | By | Bz  | Wx | Wy | Wz | Red      | 0.635 | 0.332 | 0.033 | 0.266 | 0.688 | 0.046 | 0.150 | 0.049 | 0.099 | 0.265 | 0.313 | 0.363 | Green | 0.295 | 0.605 | 0.100 | 0.635 | 0.332 | 0.033 | 0.150 | 0.049 | 0.099 | 0.265 | 0.313 | 0.363 | Blue | 0.150 | 0.049 | 0.099 | 0.266 | 0.688 | 0.046 | 0.635 | 0.332 | 0.033 | 0.265 | 0.313 | 0.363 | White | 0.265 | 0.313 | 0.363 | 0.265 | 0.313 | 0.363 | 0.265 | 0.313 | 0.363 | 0.265 | 0.313 | 0.363 | Color Gamut | 72 |  |  |  |  |  |  |  |  |  |  |  |
| Color / Chromaticity Coordinates (IEC 1931) | Rx  | Ry  | Rz  | Gx              | Gy     | Gz    | Bx    | By         | Bz    | Wx                    | Wy    | Wz    |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Red   | 0.635   | 0.332                                       | 0.033   | 0.266           | 0.688  | 0.046 | 0.150 | 0.049      | 0.099 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Green                                       | 0.295   | 0.605                                       | 0.100   | 0.635           | 0.332  | 0.033 | 0.150 | 0.049      | 0.099 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Blue  | 0.150   | 0.049                                       | 0.099   | 0.266           | 0.688  | 0.046 | 0.635 | 0.332      | 0.033 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| White                                       | 0.265   | 0.313                                       | 0.363   | 0.265           | 0.313  | 0.363 | 0.265 | 0.313      | 0.363 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Color Gamut                                 | 72  |   |   |                 |        |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Color / Chromaticity Coordinates (IEC 1931) | Rx  | Ry  | Rz  | Gx              | Gy     | Gz    | Bx    | By         | Bz    | Wx                    | Wy    | Wz    |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Red   | 0.635   | 0.332                                       | 0.033   | 0.266           | 0.688  | 0.046 | 0.150 | 0.049      | 0.099 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Green                                       | 0.295   | 0.605                                       | 0.100   | 0.635           | 0.332  | 0.033 | 0.150 | 0.049      | 0.099 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Blue  | 0.150   | 0.049                                       | 0.099   | 0.266           | 0.688  | 0.046 | 0.635 | 0.332      | 0.033 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| White                                       | 0.265   | 0.313                                       | 0.363   | 0.265           | 0.313  | 0.363 | 0.265 | 0.313      | 0.363 | 0.265                 | 0.313 | 0.363 |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Color Gamut                                 | 72  |   |   |                 |        |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| 18  | <p>Based on interface timing specification the 1931/1931 (IEC) manufacturing guide the timing</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Min.</th> <th>Typ.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Frame Rate</td> <td>—</td> <td>—</td> <td>60</td> <td>—</td> <td>Hz</td> </tr> <tr> <td>Clock frequency</td> <td>1/Signal</td> <td>—</td> <td>141</td> <td>—</td> <td>MHz</td> </tr> <tr> <td>Vertical Section</td> <td>Period</td> <td>120</td> <td>120</td> <td>120</td> <td>μs</td> </tr> <tr> <td></td> <td>Active</td> <td>—</td> <td>100</td> <td>—</td> <td>μs</td> </tr> <tr> <td>Horizontal Section</td> <td>Period</td> <td>—</td> <td>40</td> <td>—</td> <td>μs</td> </tr> <tr> <td></td> <td>Active</td> <td>—</td> <td>200</td> <td>—</td> <td>μs</td> </tr> <tr> <td></td> <td>Blanking</td> <td>—</td> <td>100</td> <td>—</td> <td>μs</td> </tr> </tbody> </table> <p>Note 1: For more detail</p> <p>Note 2: The maximum clock frequency is 120MHz (100MHz + 20MHz)</p> <p>Note 3: Typical value refers to VESA STANDARD</p>  | Parameter                                   | Symbol  | Min.            | Typ.   | Max.  | Unit  | Frame Rate | —     | —                     | 60    | —     | Hz  | Clock frequency | 1/Signal | —      | 141   | —     | MHz   | Vertical Section | Period | 120                             | 120   | 120   | μs    |       | Active | —     | 100   | —      | μs    | Horizontal Section | Period | —     | 40    | —     | μs    |        | Active | —      | 200  | —   | μs        |        | Blanking | —     | 100   | —     | μs                    | <p>4.3.1 Interface Timing</p> <p>Based on interface timing specification the 1931/1931 (IEC) manufacturing guide the timing</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Symbol</th> <th>Min.</th> <th>Typ.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Frame Rate</td> <td>—</td> <td>—</td> <td>60</td> <td>—</td> <td>Hz</td> </tr> <tr> <td>Clock frequency</td> <td>1/Signal</td> <td>—</td> <td>141</td> <td>—</td> <td>MHz</td> </tr> <tr> <td>Vertical Section</td> <td>Period</td> <td>110</td> <td>110</td> <td>110</td> <td>μs</td> </tr> <tr> <td></td> <td>Active</td> <td>—</td> <td>90</td> <td>—</td> <td>μs</td> </tr> <tr> <td>Horizontal Section</td> <td>Period</td> <td>—</td> <td>30</td> <td>—</td> <td>μs</td> </tr> <tr> <td></td> <td>Active</td> <td>—</td> <td>200</td> <td>—</td> <td>μs</td> </tr> <tr> <td></td> <td>Blanking</td> <td>—</td> <td>100</td> <td>—</td> <td>μs</td> </tr> </tbody> </table> <p>Note 1: For more detail</p> <p>Note 2: Typical value refers to VESA STANDARD</p> | Parameter | Symbol | Min.  | Typ.  | Max.   | Unit  | Frame Rate | —     | —     | 60    | —                               | Hz    | Clock frequency | 1/Signal | —     | 141   | —           | MHz | Vertical Section | Period | 110  | 110  | 110 | μs |  | Active | —      | 90     | —      | μs  | Horizontal Section                          | Period | —  | 30 | —  | μs |    | Active | —  | 200 | —  | μs |    | Blanking | —     | 100   | —     | μs    |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Parameter                                   | Symbol  | Min.  | Typ.  | Max.            | Unit   |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Frame Rate                                  | —   | —   | 60  | —               | Hz     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Clock frequency                             | 1/Signal  | —   | 141   | —               | MHz    |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Vertical Section                            | Period  | 120   | 120   | 120             | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   | Active  | —   | 100   | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Horizontal Section                          | Period  | —   | 40  | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   | Active  | —   | 200   | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   | Blanking  | —   | 100   | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Parameter                                   | Symbol  | Min.  | Typ.  | Max.            | Unit   |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Frame Rate                                  | —   | —   | 60  | —               | Hz     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Clock frequency                             | 1/Signal  | —   | 141   | —               | MHz    |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Vertical Section                            | Period  | 110   | 110   | 110             | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   | Active  | —   | 90  | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
| Horizontal Section                          | Period  | —   | 30  | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   | Active  | —   | 200   | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |
|   | Blanking  | —   | 100   | —               | μs     |       |       |            |       |                       |       |       |     |                 |          |        |       |       |       |                  |        |                                 |       |       |       |       |        |       |       |        |       |                    |        |       |       |       |       |        |        |        |      |   |           |        |          |       |       |       |                       |   |           |        |       |       |        |       |            |       |       |       |                                 |       |                 |          |       |       |             |     |                  |        |      |      |     |    |  |        |        |        |        |   |   |        |    |    |    |    |    |        |    |     |    |    |    |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |             |    |  |  |  |  |  |  |  |  |  |  |  |

## 1. Handling Precautions

- 1) Since front polarizer is easily damaged, please be cautious and not to scratch it.
- 2) Be sure to turn off power supply when inserting or disconnecting from input connector.
- 3) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
- 4) When the panel surface is soiled, wipe it with absorbent cotton or soft cloth.
- 5) Since the panel is made of glass, it may be broken or cracked if dropped or bumped on hard surface.
- 6) To avoid ESD (Electro Static Discharge) damage, be sure to ground yourself before handling TFT-LCD Module.
- 7) Do not open nor modify the module assembly.
- 8) Do not press the reflector sheet at the back of the module to any direction.
- 9) In case if a module has to be put back into the packing container slot after it was taken out from the container, do not press the center of the LED light bar edge. Instead, press at the far ends of the LED light bar edge softly. Otherwise the TFT Module may be damaged.
- 10) At the insertion or removal of the Signal Interface Connector, be sure not to rotate nor tilt the Interface Connector of the TFT Module.
- 11) TFT-LCD Module is not allowed to be twisted & bent even force is added on module in a very short time. Please design your display product well to avoid external force applying to module by end-user directly.
- 12) Small amount of materials having no flammability grade is used in the LCD module. The LCD module should be supplied by power complied with requirements of Limited Power Source (IEC60950 or UL1950), or be applied exemption.
- 13) Severe temperature condition may result in different luminance, response time and lamp ignition voltage.
- 14) Continuous operating TFT-LCD display under low temperature environment may accelerate lamp exhaustion and reduce luminance dramatically.
- 15) The data on this specification sheet is applicable when LCD module is placed in landscape position.
- 16) Continuous displaying fixed pattern may induce image sticking. It's recommended to use screen saver or shuffle content periodically if fixed pattern is displayed on the screen.

## 2. General Description

G156HAN05.0 is a Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel, a driver circuit, and LED backlight system. The screen format is intended to support the 16:9 FHD, 1920(H) x 1080(V) screen and 16.2M colors (RGB 6-bits+2FRC data driver) with LED backlight driving circuit. All input signals are eDP(Embedded DisplayPort) interface compatible.

G156HAN05.0 is designed for a display unit of notebook style personal computer and industrial machine.

### 2.1 General Specification

The following items are characteristics summary on the table at 25 °C condition:

| Items                            | Unit      | Specifications         |            |        |        |
|----------------------------------|-----------|------------------------|------------|--------|--------|
| Screen Diagonal                  | [mm]      | 15.6"                  |            |        |        |
| Active Area                      | [mm]      | 344.16 x 193.59        |            |        |        |
| Resolution                       |           | 1920 x 3(RGB) x 1080   |            |        |        |
| Pixel Pitch                      | [mm]      | 0.17925 x 0.17925      |            |        |        |
| Pixel Arrangement                |           | R.G.B. Vertical Stripe |            |        |        |
| Display Mode                     |           | AHVA, Normally Black   |            |        |        |
| Nominal Input Voltage VDD        | [Volt]    | +3.3 (Typ.)            |            |        |        |
| LCD Power Consumption            | [Watt]    | 0.8 (Max.)             |            |        |        |
| LED Power Consumption            | [Watt]    | 12.0 (Max.)            |            |        |        |
| Weight                           | [Grams]   | 580 (Max.)             |            |        |        |
| Physical Size<br>Include bracket | [mm]      |                        | Min.       | Typ.   | Max.   |
|                                  |           | Length                 | 351.34     | 351.84 | 352.34 |
|                                  |           | Width                  | 208.38     | 208.88 | 209.38 |
|                                  |           | Thickness              | --         | 6.0    | 6.5    |
| Electrical Interface             |           | 2 Lane eDP1.2          |            |        |        |
| Surface Treatment                |           | HC, 3H                 |            |        |        |
| Support Color                    |           | 16.2M colors           |            |        |        |
| Temperature Range                |           |                        |            |        |        |
|                                  | Operating | [°C]                   | -10 to +60 |        |        |
| Storage (Non-Operating)          | [°C]      | -20 to +70             |            |        |        |
| RoHS Compliance                  |           | Yes                    |            |        |        |

## 2.2 Optical Characteristics

The optical characteristics are measured under stable conditions at 25°C (Room Temperature) :

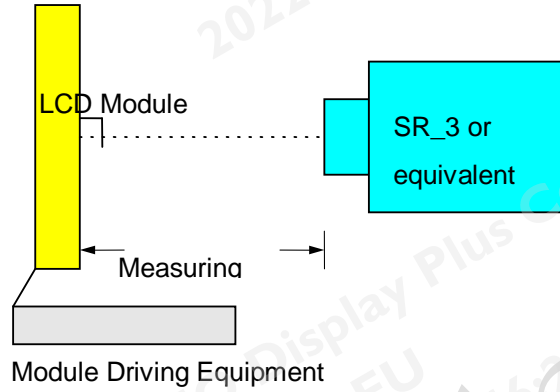
| Item   | Unit              | Conditions                               | Min.  | Typ.  | Max.  | Note    |
|--|-------------------|--|-------|-------|-------|---------|
| White Luminance                                      | cd/m <sup>2</sup> | I <sub>LED</sub> =60mA<br>Center average | 400   | 500   | -     | 1, 2    |
| Luminance Uniformity                                 | %                 | 5 Points                                 | 75    | 80    | -     | 1, 2, 3 |
| Contrast Ratio                                       | --                |  | 700   | 1000  | -     | 1, 4    |
| Response Time  | msec              | Rising + Falling                         | -     | 25    | 35    | 1, 5    |
| Viewing Angle  | degree            | Horizontal (Right)<br>CR = 10 (Left)     | 80    | 89    | -     | 1, 6    |
|  |                   | Vertical (Upper)<br>CR = 10 (Lower)      | 80    | 89    | -     |         |
|  |                   |  | 80    | 89    | -     |         |
|  |                   |  | 80    | 89    | -     |         |
| Color /<br>Chromaticity<br>Coordinates<br>(CIE 1931) | Red               | Rx                                       | 0.596 | 0.646 | 0.696 | 4       |
|  |                   | Ry                                       | 0.283 | 0.333 | 0.383 |         |
|  | Green             | Gx                                       | 0.249 | 0.299 | 0.349 |         |
|  |                   | Gy                                       | 0.582 | 0.632 | 0.682 |         |
|  | Blue              | Bx                                       | 0.103 | 0.153 | 0.203 |         |
|  |                   | By                                       | 0.000 | 0.049 | 0.099 |         |
|  | White             | Wx                                       | 0.263 | 0.313 | 0.363 |         |
|  |                   | Wy                                       | 0.279 | 0.329 | 0.379 |         |
| Color Gamut  |                   | %  | -     | 72    | -     |         |



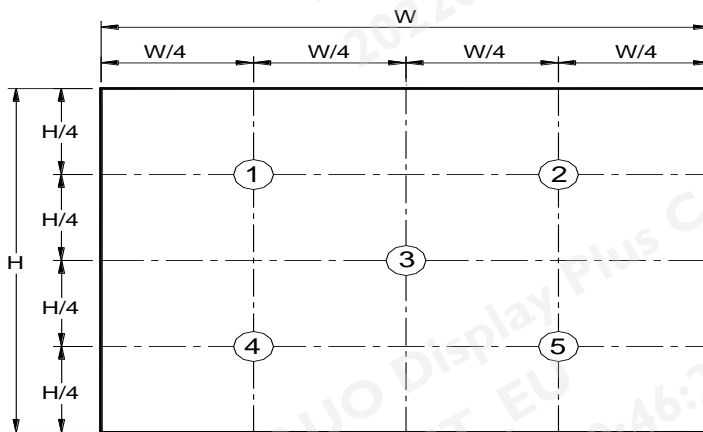
**Note 1:** Measurement method

Equipment Pattern Generator, Power Supply, Digital Voltmeter, Luminance meter (SR\_3 or equivalent)

- Aperture 1° with 50cm viewing distance
- Test Point Center
- Environment < 1 lux



**Note 2:** Definition of 5 points position



**Note 3:** The luminance uniformity of 5 points is defined by dividing the minimum luminance values by the maximum test point luminance

$$\delta_{w5} = \frac{\text{Minimum Brightness of five points}}{\text{Maximum Brightness of five points}}$$

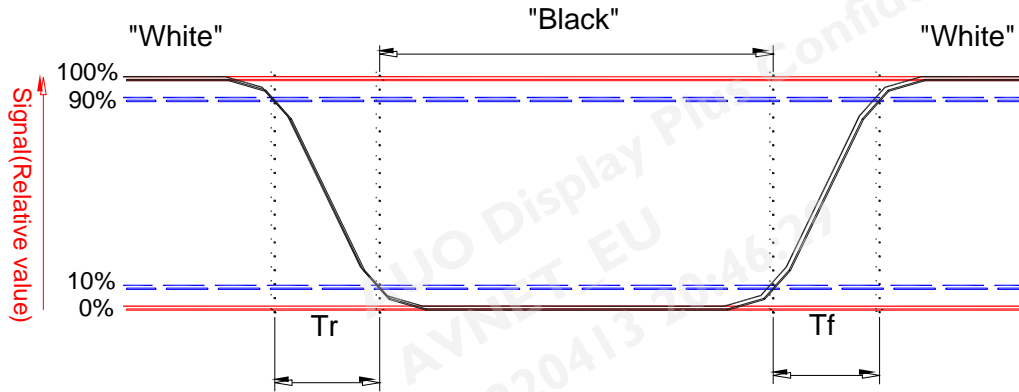
**Note 4 :** Definition of contrast ratio:

Contrast ratio is calculated with the following formula.

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "White" state}}{\text{Brightness on the "Black" state}}$$

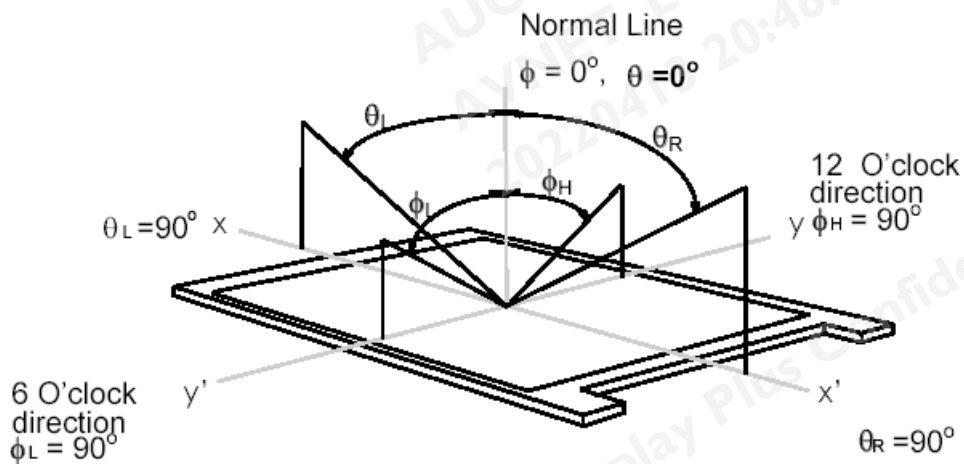
**Note 5:** Definition of response time:

The output signals of BM-7 or equivalent are measured when the input signals are changed from "Black" to "White" (falling time) and from "White" to "Black" (rising time), respectively. The response time interval between the 10% and 90% of amplitudes. Refer to figure as below.



**Note 6:** Definition of viewing angle

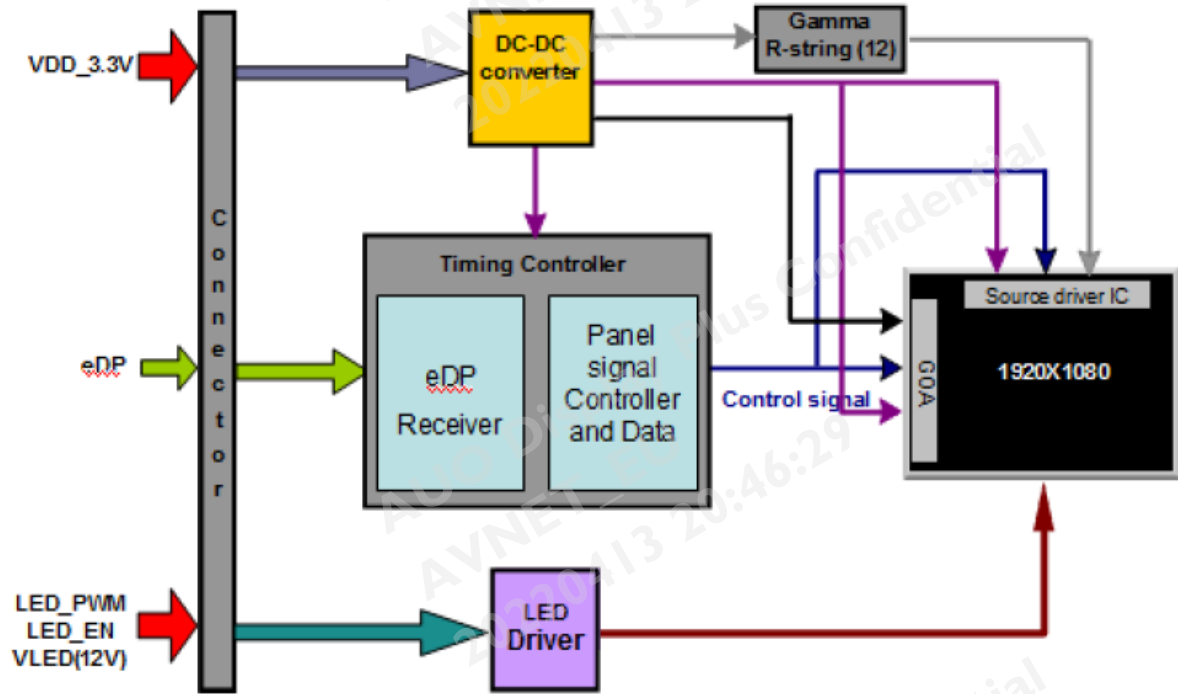
Viewing angle is the measurement of contrast ratio  $\geq 10$ , at the screen center, over a  $180^\circ$  horizontal and  $180^\circ$  vertical range (off-normal viewing angles). The  $180^\circ$  viewing angle range is broken down as follows;  $90^\circ$  ( $\theta$ ) horizontal left and right and  $90^\circ$  ( $\phi$ ) vertical, high (up) and low (down). The measurement direction is typically perpendicular to the display surface with the screen rotated about its center to develop the desired measurement viewing angle.





## 3. Functional Block Diagram

The following diagram shows the functional block of the 15.6 inches wide Color TFT/LCD module.



## 4. Absolute Maximum Ratings

An absolute maximum rating of the module is as following:

### 4.1 Absolute Ratings of TFT LCD Module

| Item            | Symbol | Min  | Max  | Unit   | Conditions |
|-----------------|--------|------|------|--------|------------|
| Logic/LCD Drive | Vin    | -0.3 | +4.0 | [Volt] | Note 1,2   |

### 4.2 Absolute Ratings of Environment

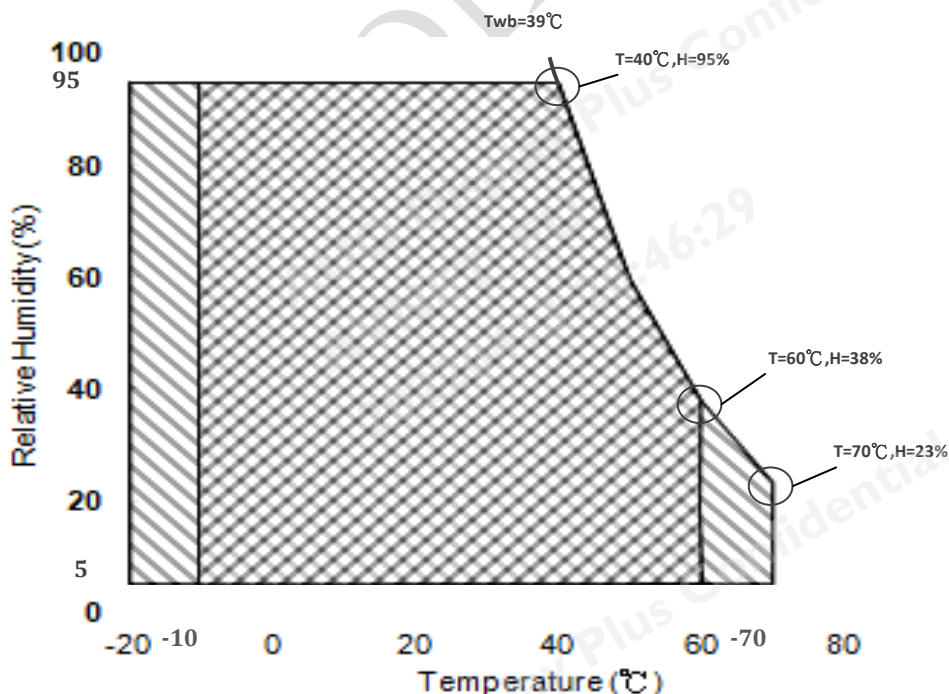
| Item                | Symbol | Min | Max | Unit  | Conditions |
|---------------------|--------|-----|-----|-------|------------|
| Operating           | TOP    | -10 | +60 | [°C]  | Note 4     |
| Operation Humidity  | HOP    | 5   | 95  | [%RH] | Note 4     |
| Storage Temperature | TST    | -20 | +70 | [°C]  | Note 4     |
| Storage Humidity    | HST    | 5   | 95  | [%RH] | Note 4     |

**Note 1:** At Ta (25°C)

**Note 2:** Permanent damage to the device may occur if exceed maximum values

**Note 3:** LED specification refer to section 5.2

**Note 4:** For quality performance, please refer to AUO IIS (Incoming Inspection Standard).



Operating Range Storage Range +

## 5. Electrical Characteristics

### 5.1 TFT LCD Module

#### 5.1.1 Power Specification

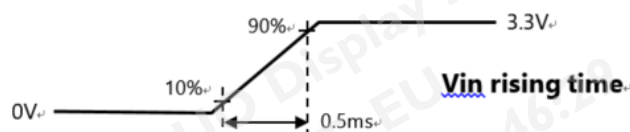
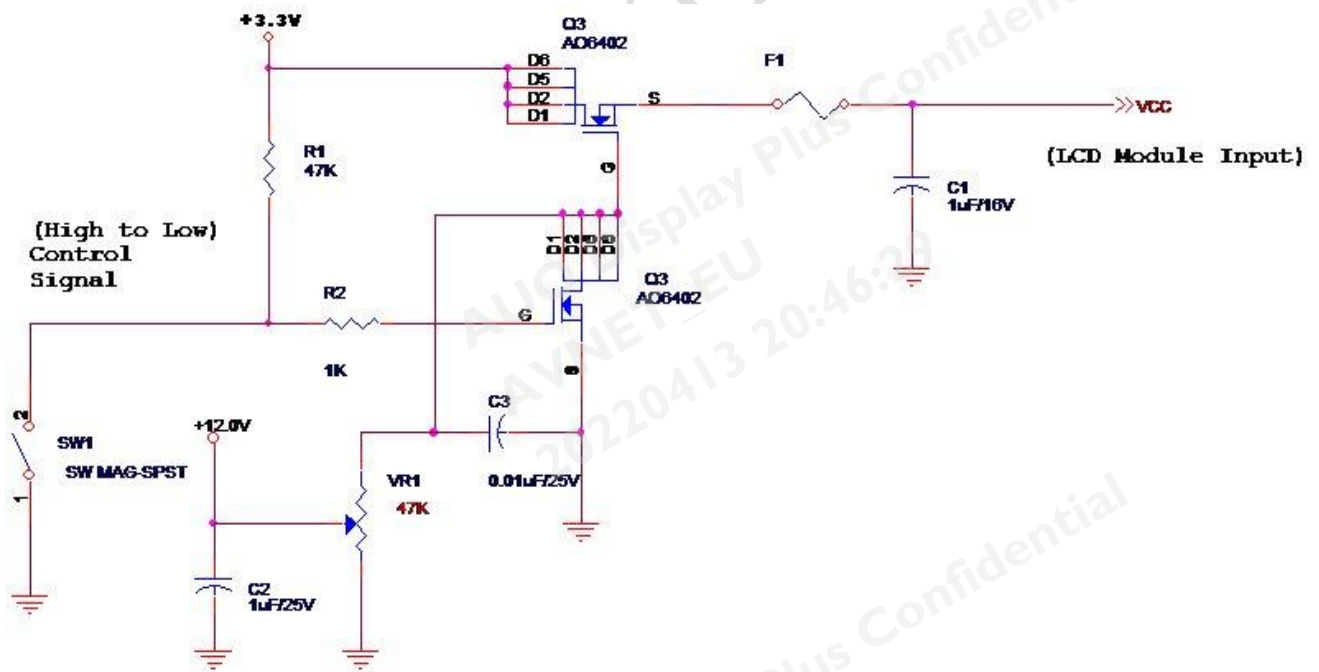
Input power specifications are as follows;

The power specification are measured under 25°C and frame frequency under 60Hz.

| Symble | Parameter                                | Min | Typ | Max  | Units       | Remark                                |
|--------|--|-----|-----|------|-------------|---------------------------------------|
| VDD    | Logic/LCD Drive Voltage                  | 3.0 | 3.3 | 3.6  | [Volt]      |                                       |
| PDD    | VDD Power                                | -   | -   | 0.8  | [Watt]      | All Black Pattern (VDD=3.3V, at 60Hz) |
| IDD    | IDD Current                              | -   | -   | 0.22 | [mA]        | All Black Pattern (VDD=3.3V, at 60Hz) |
| IRush  | Inrush Current                           | -   | -   | 2000 | [mA]        | Note 1                                |
| VDDrp  | Allowable Logic/LCD Drive Ripple Voltage | -   | -   | 100  | [mV]<br>p-p | All Black Pattern (VDD=3.3V, at 60Hz) |

Note 1 : Maximum Measurement Condition : White Pattern at 3.3V driving voltage. ( $P_{max}=V_{3.3} \times I_{white}$ )  
 Typical Measurement Condition: Mosaic Pattern

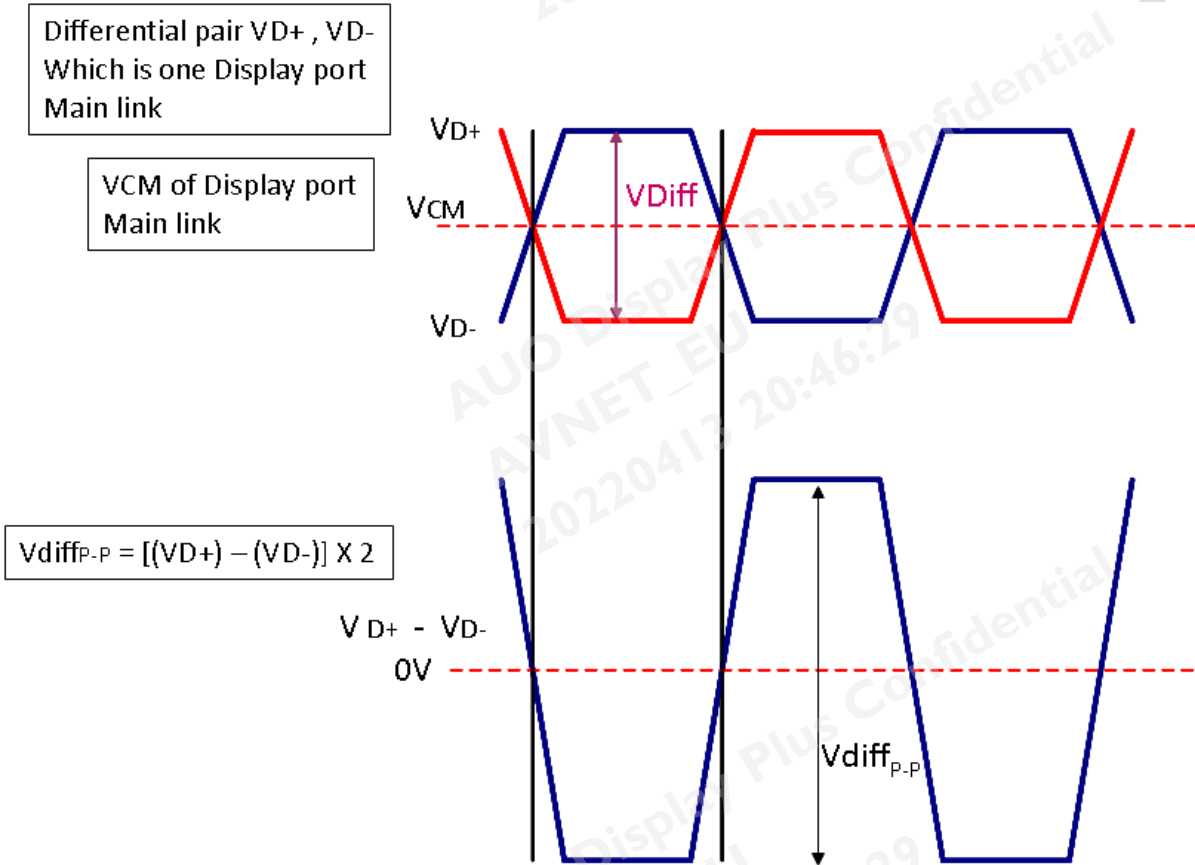
Note 2 : Measure Condition



## 5.1.2 Signal Electrical Characteristics

Input signals shall be low or High-impedance state when VDD is off. Signal electrical characteristics are as follows;

### Display Port main link signal:

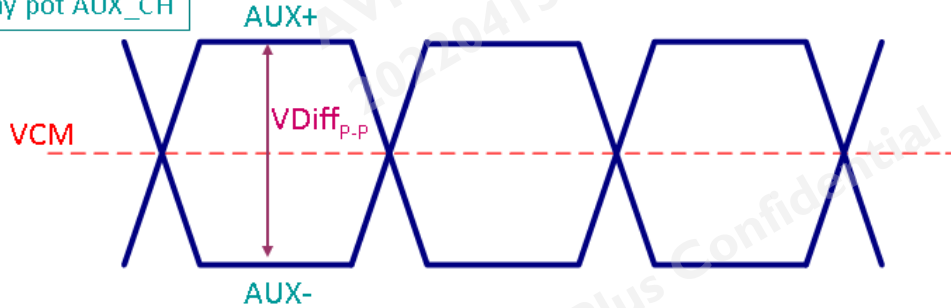


| Display port main link     |  |     |     |      |      |
|----------------------------|--|-----|-----|------|------|
|                            |  | Min | Typ | Max  | unit |
| <b>VCM</b>                 | RX input DC Common Mode Voltage            |     | 0   |      | V    |
| <b>VDiff<sub>P-P</sub></b> | Peak-to-peak Voltage at a receiving Device | 150 |     | 1320 | mV   |

Follow as VESA display port standard V1.1a

## Display Port AUX\_CH signal:

Differential AUX+ , AUX-  
Which is Display port AUX\_CH



| Display port AUX_CH        |  |     |     |     |      |
|----------------------------|--|-----|-----|-----|------|
|                            |  | Min | Typ | Max | unit |
| <b>VCM</b>                 | AUX DC Common Mode Voltage                     |     | 0   |     | V    |
| <b>VDiff<sub>P-P</sub></b> | AUX Peak-to-peak Voltage at a receiving Device | 0.4 | 0.6 | 0.8 | V    |

Fallow as VESA display port standard V1.1a.

## Display Port VHPD signal:

| Display port VHPD |             |      |     |     |      |
|-------------------|-------------|------|-----|-----|------|
|                   |             | Min  | Typ | Max | unit |
| <b>VHPD</b>       | HPD Voltage | 2.25 |     | 3.6 | V    |

Fallow as VESA display port standard V1.1a.

## 5.2 Backlight Unit

### 5.2.1 LED characteristics

| Parameter                   | Symbol | Min    | Typ  | Max  | Units  | Condition                     |
|-----------------------------|--------|--------|------|------|--------|-------------------------------|
| Backlight Power Consumption | PLED   | -      | 10.8 | 12.0 | [Watt] | (Ta=25°C), Note 1<br>Vin =12V |
| LED Life-Time               | N/A    | 50,000 |      | -    | Hour   | (Ta=25°C), Note 2,3           |

**Note 1:** Ta means ambient temperature of TFT-LCD module. Calculator value for reference PLED = VF (Normal Distribution) \* IF (Normal Distribution) / Efficiency

**Note 2:** If G156HAN05.0 module is driven at high ambient temperature & humidity condition. The operating life will be reduced.

**Note 3:** Operating life means brightness goes down to 50% initial brightness. Min. operating life time is estimated data.

### 5.2.2 Backlight input signal characteristics

| Parameter                   | Symbol  | Min  | Typ  | Max  | Units  | Remark                                  |
|-----------------------------|---------|------|------|------|--------|---|
| LED Power Supply            | VLED    | 10.8 | 12.0 | 13.2 | [Volt] | Define as Connector Interface (Ta=25°C) |
| LED Enable Input High Level | VLED_EN | 2.5  | -    | -    | [Volt] |   |
| LED Enable Input Low Level  |         | -    | -    | 0.8  | [Volt] |   |
| PWM Logic Input High Level  | VPWM_EN | 2.5  | -    | -    | [Volt] |   |
| PWM Logic Input Low Level   |         | -    | -    | 0.8  | [Volt] |   |
| PWM Input Frequency         | FPWM    | 200  | 1K   | 10K  | Hz     |   |
| PWM Duty Ratio              | Duty    | 5    | -    | 100  | %      |   |

**Note 1 :** Recommended system pull up/down resistor no bigger than 10kohm.

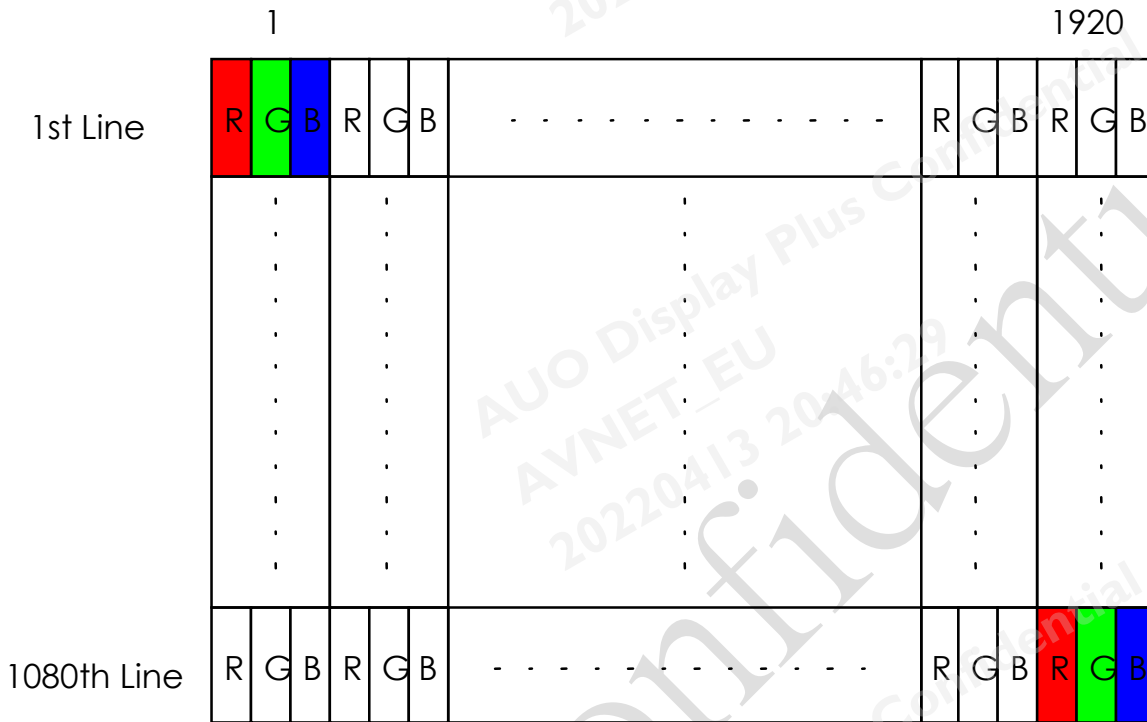
**Note 2 :** If the PWM duty ratio(min) is set between 5% to 1% , the PWM input frequency should be set below 1KHz . The brightness-duty characteristic might not be able to keep in it's linearity if the dimming control is operated in 1% to 5% range.



## 6. Signal Interface Characteristic

### 6.1 Pixel Format Image

Following figure shows the relationship of the input signals and LCD pixel format.



## 6.2 Integration Interface Requirement

### 6.2.1 Connector Description

Physical interface is described as for the connector on module.  
 These connectors are capable of accommodating the following signals and will be following components.

| Connector Name / Designation | For Signal Connector              |
|------------------------------|-----------------------------------|
| Manufacturer                 | IPEX or compatible                |
| Type / Part Number           | IPEX 20765-030E-11A or compatible |
| Mating Housing/Part Number   | IPEX 20453-030T-11 or compatible  |

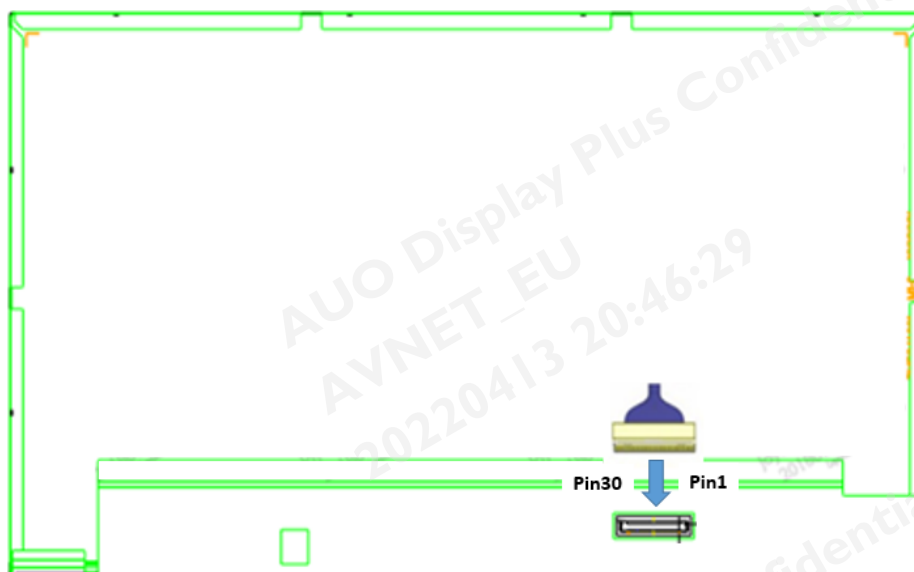
### 6.2.2 Pin Assignment (2 Lane)

eDP lane is a differential signal technology for LCD interface and high speed data transfer device.

| PIN No | Symbol     | Function   |
|--------|------------|--|
| 1      | NC         | No Connect (Reserved for CM)                         |
| 2      | BL_PWR     | Backlight power                                      |
| 3      | BL_PWR     | Backlight power                                      |
| 4      | BL_PWR     | Backlight power                                      |
| 5      | BL_PWR     | Backlight power                                      |
| 6      | NC         | No connect (Reverse for AUO TEST only)               |
| 7      | NC         | No connect (Reverse for AUO TEST only)               |
| 8      | BL PWM DIM | System PWM signal Input                              |
| 9      | BL_Enable  | Backlight On / Off                                   |
| 10     | BL_GND     | Backlight_ground                                     |
| 11     | BL_GND     | Backlight_ground                                     |
| 12     | BL_GND     | Backlight_ground                                     |
| 13     | BL_GND     | Backlight_ground                                     |
| 14     | HPD        | HPD signal pin                                       |
| 15     | LCD GND    | LCD logic and driver ground                          |
| 16     | LCD GND    | LCD logic and driver ground                          |
| 17     | NC         | No connect ( Reverse for LCD Panel Self Test Enable) |
| 18     | LCD_VCC    | LCD logic and driver power                           |
| 19     | LCD_VCC    | LCD logic and driver power                           |
| 20     | H_GND      | High Speed Ground                                    |
| 21     | AUX_CH_N   | Comp Signal Auxiliary Ch.                            |
| 22     | AUX_CH_P   | True Signal Auxiliary Ch.                            |
| 23     | H_GND      | High Speed Ground                                    |
| 24     | Lane0_P    | True Signal Link Lane 0                              |
| 25     | Lane0_N    | Comp Signal Link Lane 0                              |
| 26     | H_GND      | High Speed Ground                                    |
| 27     | Lane1_P    | True Signal Link Lane 1                              |

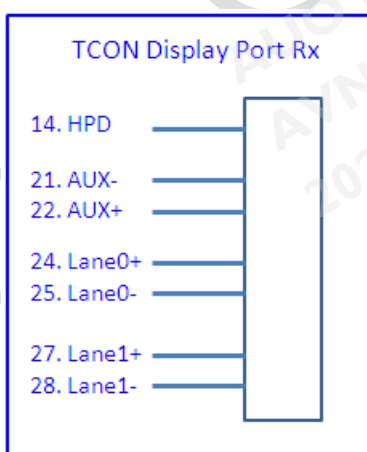
|    |         |                         |
|----|---------|-------------------------|
| 28 | Lane1_N | Comp Signal Link Lane 1 |
| 29 | H_GND   | High Speed Ground       |
| 30 | NC      | No Connect              |

## 6.2.3 Connector Illustration



**Note1** : Input signals shall be low or High-impedance state when VDD is off.  
Internal circuit of eDP inputs are as following.

**Note3** : Connector Illustration



## 6.3 Interface Timing

### 6.3.1 Timing Characteristics

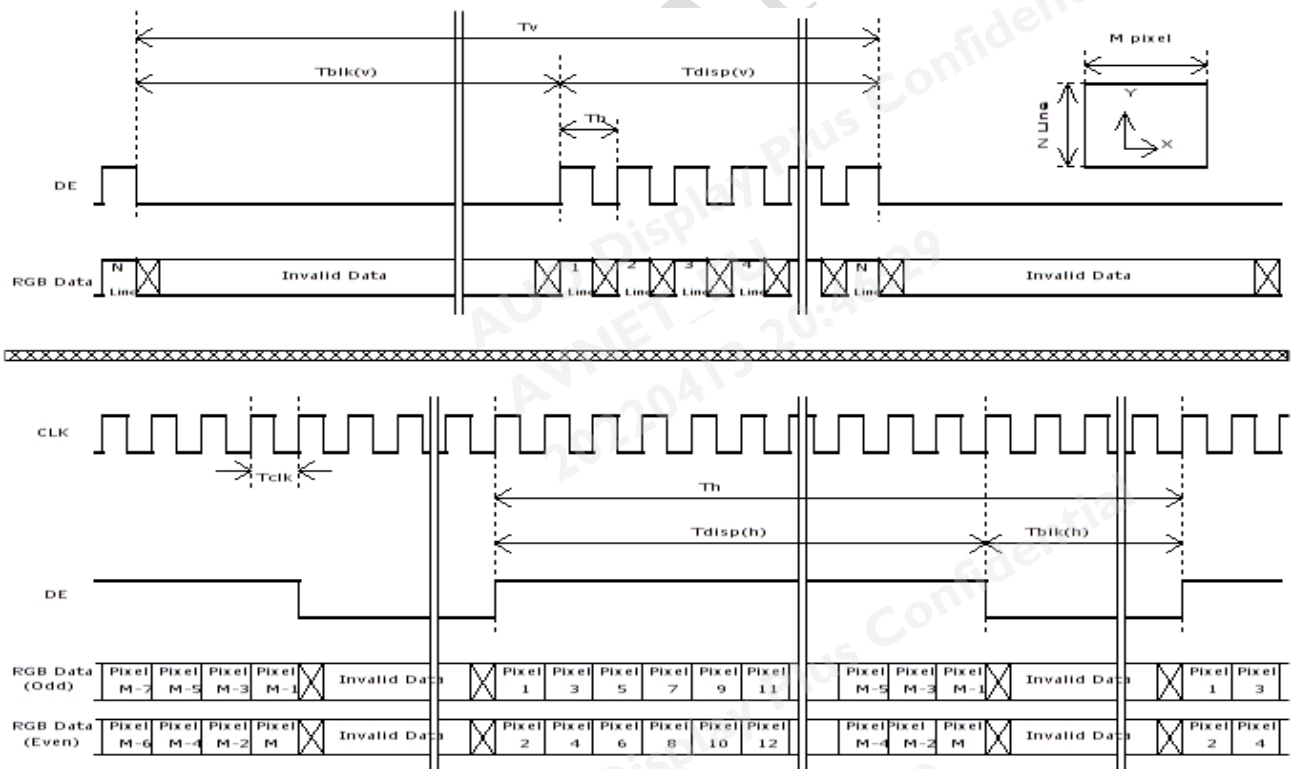
Basically, interface timings should match the 1920x1080 /60Hz manufacturing guide line timing.

| Parameter          | Symbol        | Min.     | Typ. | Max.  | Unit        |
|--------------------|---------------|----------|------|-------|-------------|
| Frame Rate         | -             | -        | 60   | -     | Hz          |
| Clock frequency    | $1/T_{Clock}$ | 138.9    | 141  | 143.2 | MHz         |
| Vertical Section   | Period        | $T_V$    | 1112 | 1122  | $T_{Line}$  |
|                    | Active        | $T_{VD}$ | 1080 |       |             |
|                    | Blanking      | $T_{VB}$ | 32   | 36    |             |
| Horizontal Section | Period        | $T_H$    | 2080 | 2126  | $T_{Clock}$ |
|                    | Active        | $T_{HD}$ | 1920 |       |             |
|                    | Blanking      | $T_{HB}$ | 160  | 184   |             |

**Note 1 :** DE mode only

**Note 2 :** Typical value refer to VESA STANDARD

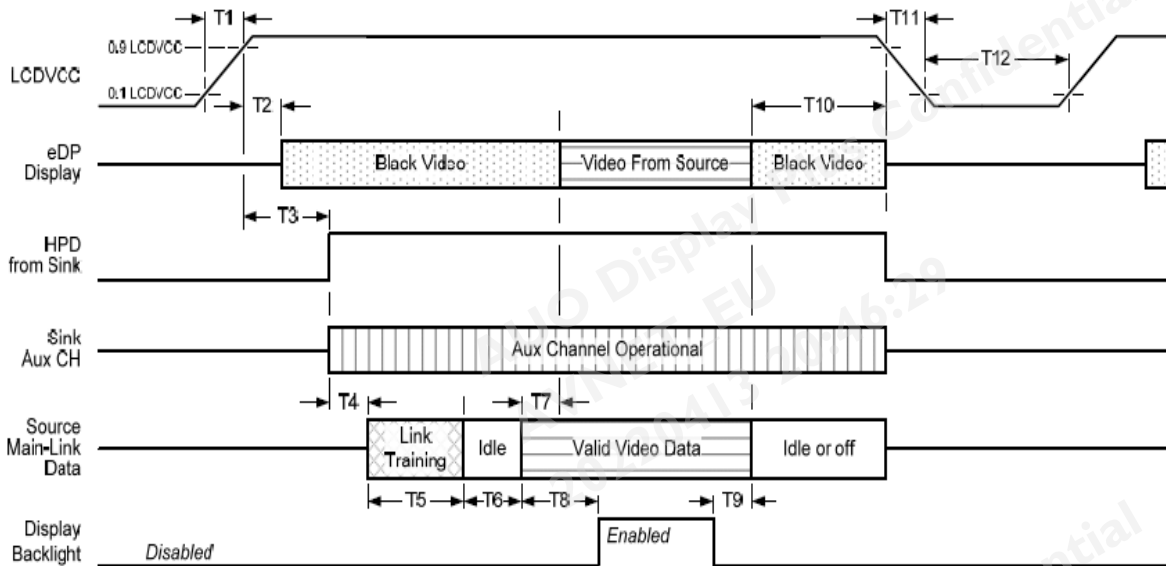
### 6.3.2 Input Timing Diagram



### 6.4 Power ON/OFF Sequence

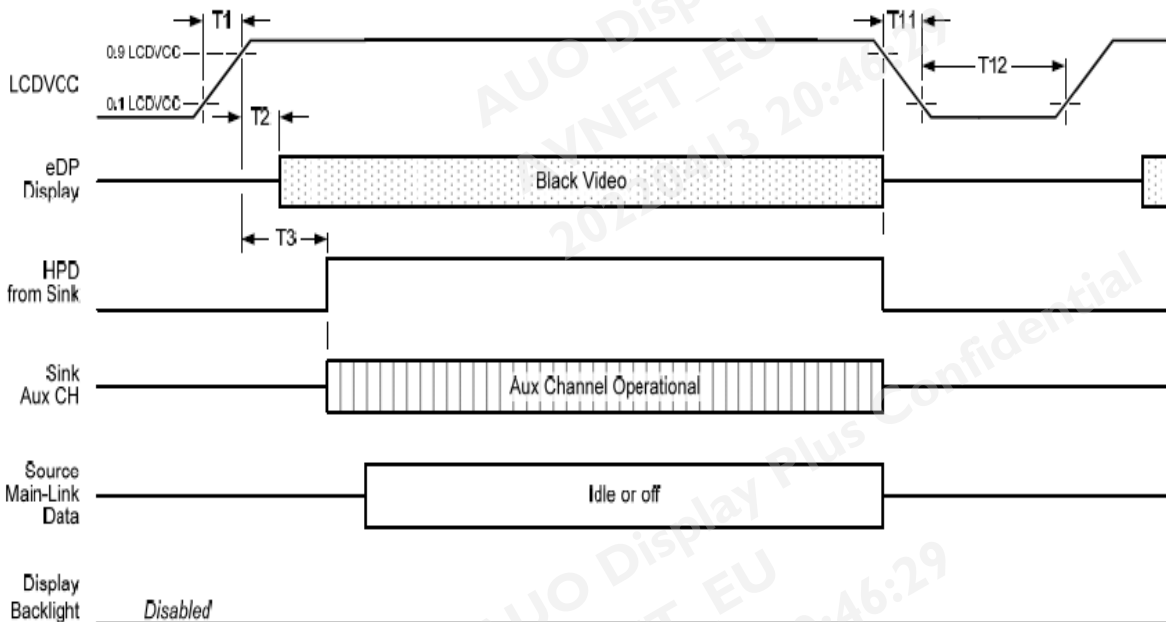
Power on/off sequence is as follows. Interface signals and LED on/off sequence are also shown in the chart. Signals from any system shall be Hi-Z state or low level when VDD is off

#### Display Port panel power sequence:



Display port interface power up/down sequence, normal system operation

#### Display Port AUX\_CH transaction only:



Display port interface power up/down sequence, AUX\_CH transaction only

**Display Port panel power sequence timing parameter:**

| Timing parameter | Description   | Reqd. by | Limits |      |       | Notes  |
|------------------|---|----------|--------|------|-------|--|
|                  |   |          | Min.   | Typ. | Max.  |  |
| T1               | power rail rise time, 10% to 90%                            | source   | 0.5ms  |      | 10ms  |  |
| T2               | delay from LCDVDD to black video generation                 | sink     | 0ms    |      | 200ms | prevents display noise until valid video data is received from the source                  |
| T3               | delay from LCDVDD to HPD high                               | sink     | 0ms    |      | 200ms | sink AUX_CH must be operational upon HPD high.   |
| T4               | delay from HPD high to link training initialization         | source   |        |      |       | allows for source to read link capability and initialize.                                  |
| T5               | link training duration                                      | source   |        |      |       | dependant on source link to read training protocol.  |
| T6               | link idle   | source   |        |      |       | Min accounts for required BS-Idle pattern.<br>Max allows for source frame synchronization. |
| T7               | delay from valid video data from source to video on display | sink     | 0ms    |      | 50ms  | max allows sink validate video data and timing.  |
| T8               | delay from valid video data from source to backlight enable | source   |        |      |       | source must assure display video is stable.  |
| T9               | delay from backlight disable to end of valid video data     | source   |        |      |       | source must assure backlight is no longer illuminated.                                     |
| T10              | delay from end of valid video data from source to power off | source   | 0ms    |      | 500ms |  |
| T11              | power rail fall time, 90% to 10%                            | source   |        |      | 10ms  |  |
| T12              | power off time  | source   | 500ms  |      |       |  |

**Note 1:** The sink must include the ability to generate black video autonomously. The sink must automatically enable black video under the following conditions:

- upon LCDVDD power on (with in T2 max)-when the "Novideostream\_Flag" (VB-ID Bit 3) is received from the source (at the end of T9).

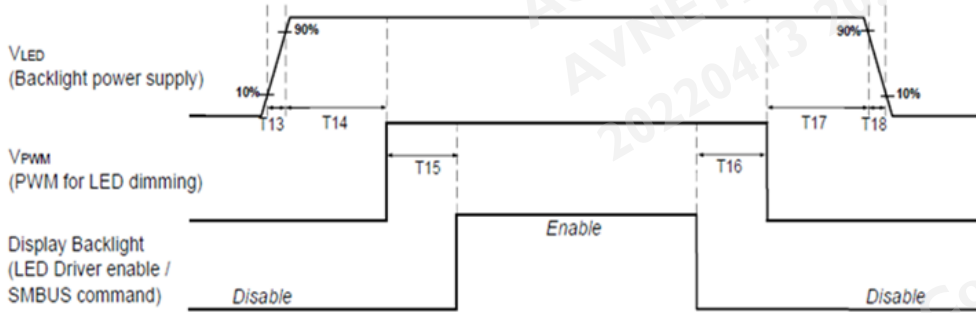
- when no main link data, or invalid video data, is received from the source. Black video must be displayed within 64ms (typ) from the start of either condition. Video data can be deemed invalid based on MSA and timing information, for example.

**Note 2:** The sink may implement the ability to disable the black video function, as described in Note 1, above, for system development and debugging purpose.

**Note 3:** The sink must support AUX\_CH polling by the source immediately following LCD VDD power on without causing damage to the sink device (the source can re-try if the sink is not ready). The sink must be able to respond to an AUX\_CH transaction with the time specified within T3 max.

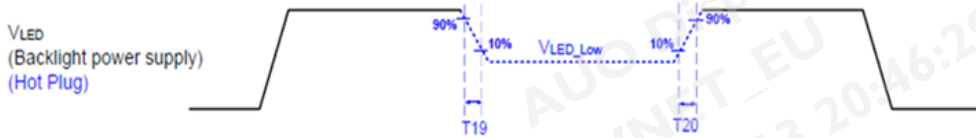


## Display Port panel B/L power sequence timing parameter:



|     | Min (ms) | Max (ms) |
|-----|----------|----------|
| T13 | 0.5      | 10       |
| T14 | 10       | -        |
| T15 | 10       | -        |
| T16 | 10       | -        |
| T17 | 10       | -        |
| T18 | 0.5      | 10       |
| T19 | 1*       | -        |
| T20 | 1*       | -        |

Note : When the adapter is hot plugged, the backlight power supply sequence is shown as below.



Seamless change:  $T19/T20 = 5 \times T_{PWM}^*$

\* $T_{PWM} = 1/PWM \text{ Frequency}$

## 7. Panel Reliability Test

| Items                      | Required Condition   | Note     |
|----------------------------|--|----------|
| Temperature Humidity Bias  | Ta= 40°C, 90%RH, 300h  | Note 1,2 |
| High Temperature Operation | Ta= 60°C, Dry, 300h  |          |
| Low Temperature Operation  | Ta= 0°C, 300h  |          |
| High Temperature Storage   | Ta= 70°C, 35%RH,300h   |          |
| Low Temperature Storage    | Ta= -20°C, 50%RH, 300h   |          |
| Thermal Shock Test         | Ta= -20°C to 60°C, Duration at 30 min, 100 cycles  |          |
| Vibration                  | Test method: Non-Operation<br>Acceleration: 1.5 G<br>Frequency: 10 - 200Hz Random<br>Sweep: 30 minutes each axis (X, Y, Z)             |          |
| Mechanical Shock           | Test method: Non-Operation<br>Acceleration: 220 G; Wave: Half-sine<br>Active time: 2ms<br>Direction: ±X,±Y,±Z (one time for each axis) |          |
| ESD                        | Contact : ±8 KV / Operation, Class B<br>Air : ±15 KV / Operation, Class B  | Note 1   |

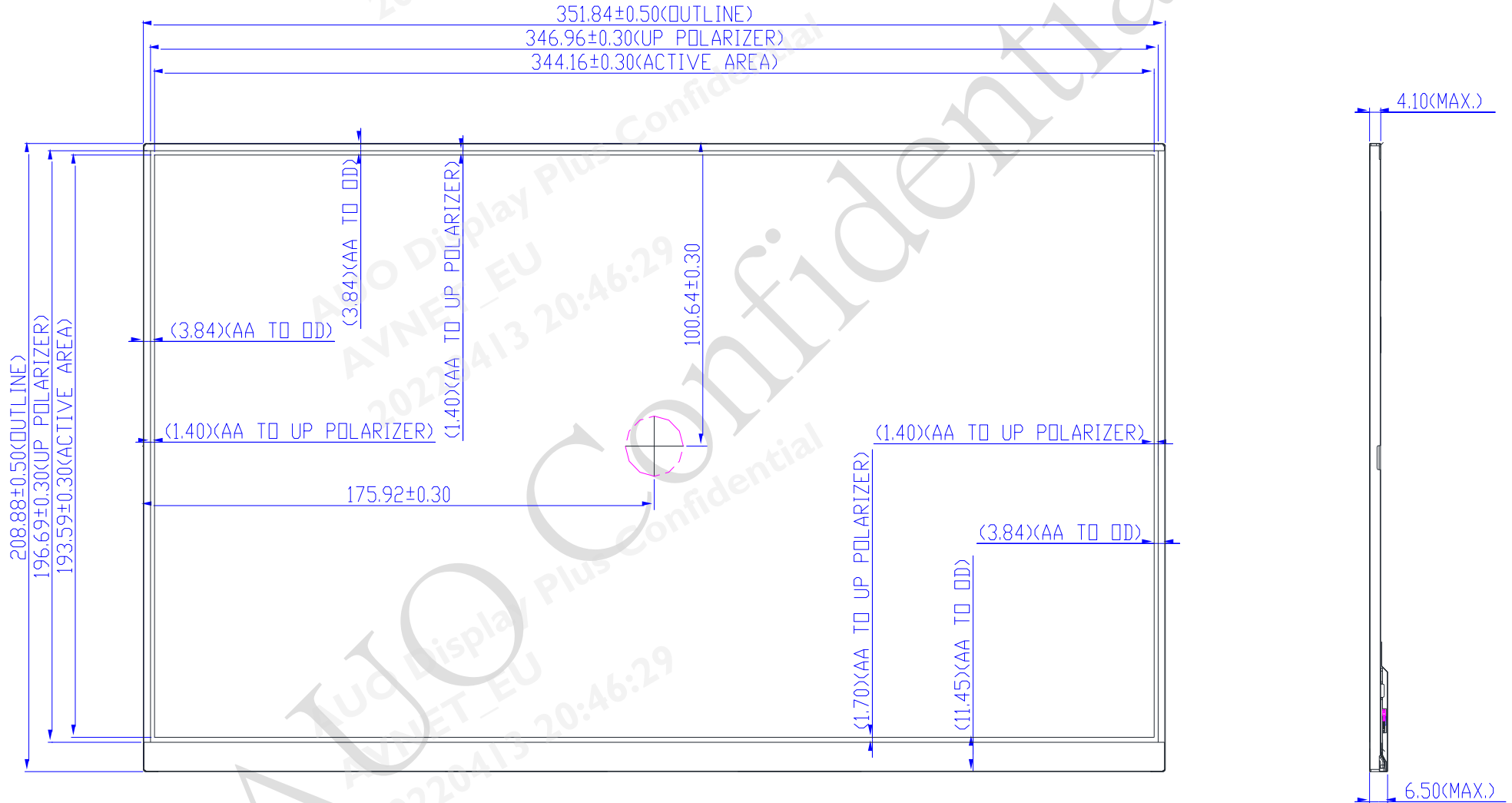
**Note 1:** According to EN 61000-4-2 , ESD class B: Some performance degradation allowed. Self-recoverable. No data lost, No hardware failures.

**Note 2:**

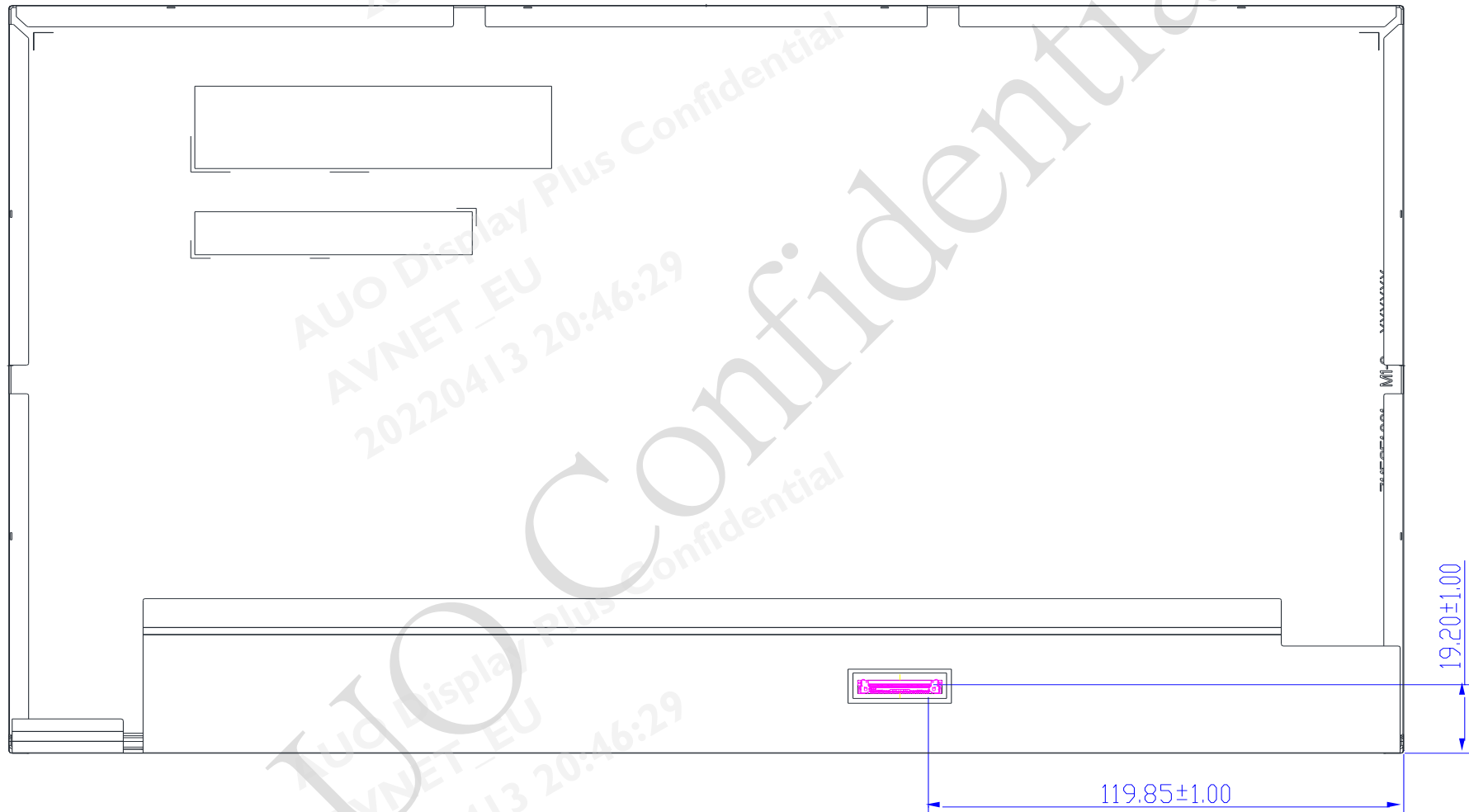
- Water condensation is not allowed for each test items.
- Each test is done by new TFT-LCD module. Don't use the same TFT-LCD module repeatedly for reliability test.
- The reliability test is performed only to examine the TFT-LCD module capability.
- To inspect TFT-LCD module after reliability test, please store it at room temperature and room humidity for 24 hours at least in advance.
- No function failure occurs. Mura shall be ignored after high temperature reliability test

## 8. Mechanical Characteristics

### 8.1 LCM Outline Dimension (Front View)

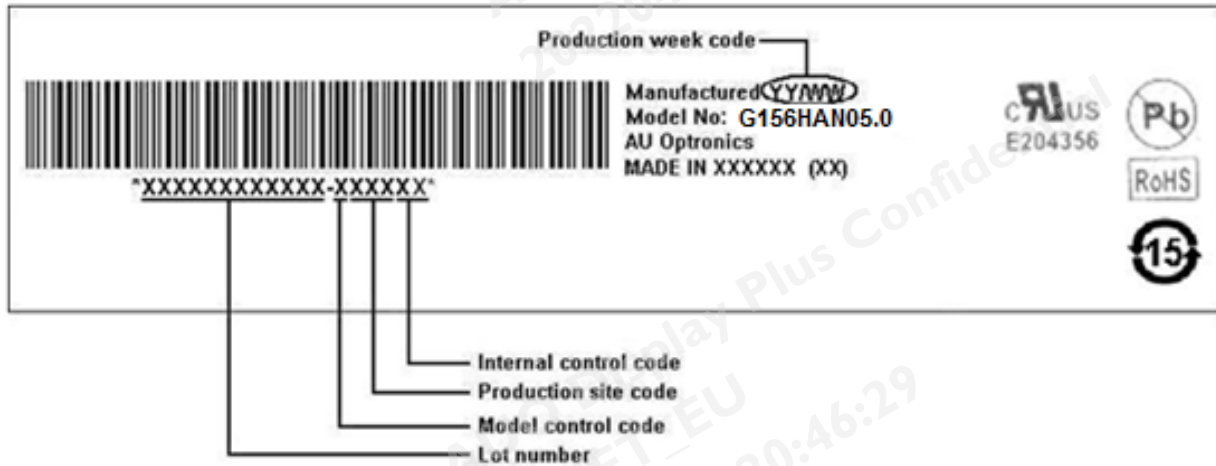


### 8.2 LCM Outline Dimension (Rear View)



## 9. Shipping and Package

### 9.1 Shipping Label (on the rear side of TFT-LCD display)



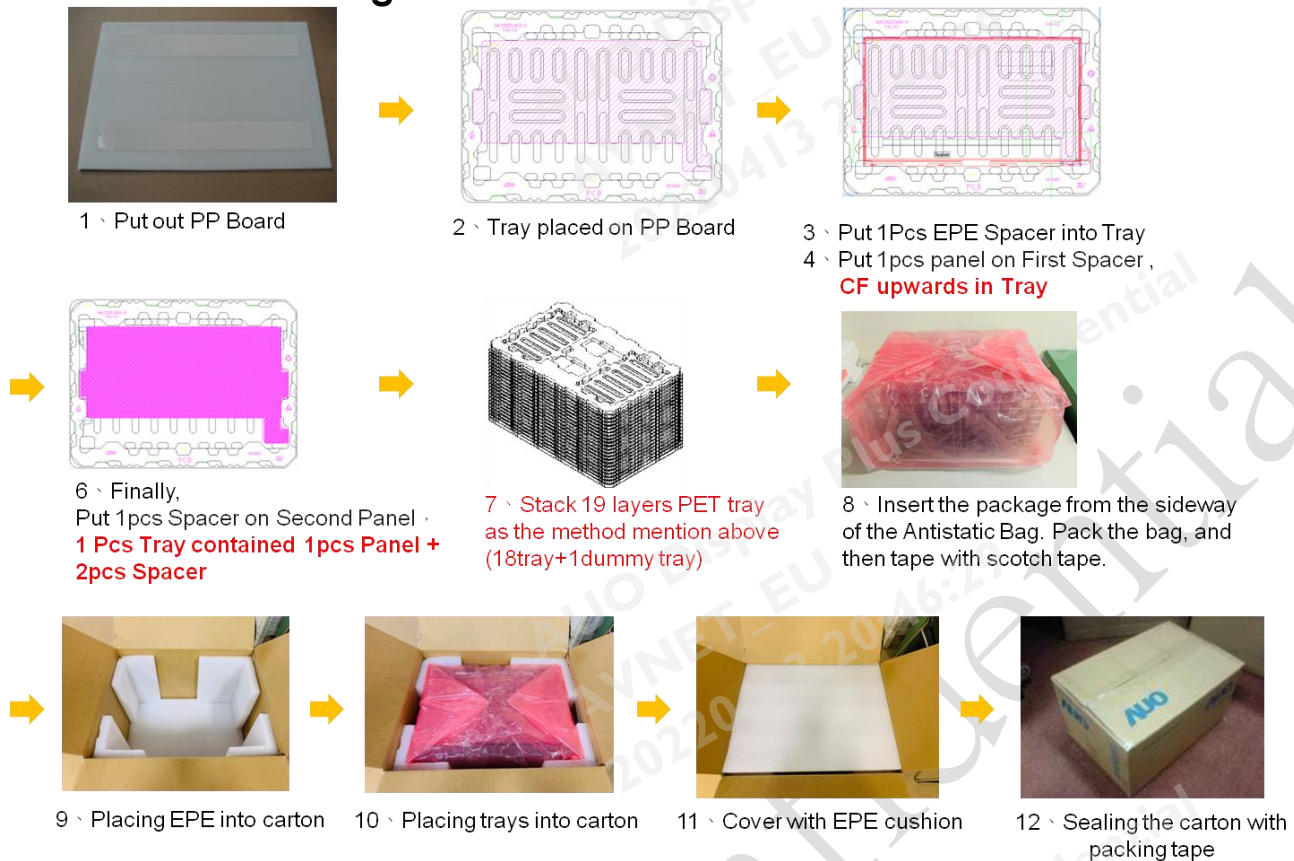
**Note 1:** For Pb Free products, AUO will add for identification.

**Note 2:** For RoHS compatible products, AUO will add for identification.

**Note 3:** For China RoHS compatible products, AUO will add for identification.

**Note 4:** The Green Mark will be presented only when the green documents have been ready by AUO Internal Green Team.

### 9.2 Carton Package



**Max capacity : 18 TFT-LCD module per carton**

Max weight: 10kg per carton

Outside dimension of carton:485mm(H)\*375mm(W)\*340mm(H)

Pallet size : 1150 mm \* 980 mm \* 132mm

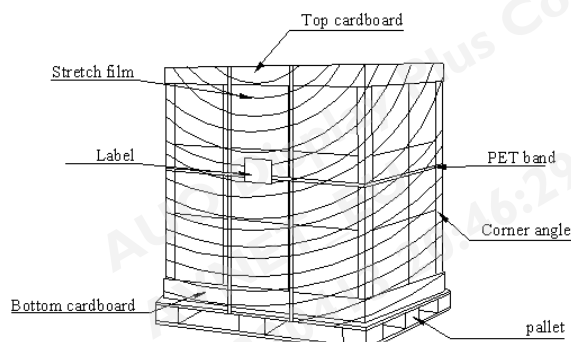
#### Box stacked

Module by air : (2\*3) \*4 layers , one pallet put 24 boxes , total 432 pcs module

Module by sea : (2\*3) \*4 layers + (2\*3) \*1 layers , two pallet put 30 boxes , total 540 pcs module

Module by sea\_HQ : (2\*3) 4 layers + (2\*3) \*2 layers , two pallet put 36 boxes , total 648 pcs module

### 9.3 Shipping Package of Palletizing Sequence





## 10. Safety

### 10.1 Sharp Edge Requirements

There will be no sharp edges or corners on the display assembly that could cause injury.

### 10.2 Materials

#### 10.2.1 Toxicity

There will be no carcinogenic materials used anywhere in the display module. If toxic materials are used, they will be reviewed and approved by the responsible AUO toxicologist.

#### 10.2.2 Flammability

All components including electrical components that do not meet the flammability grade UL94-V1 in the module will complete the flammability rating exception approval process.

The printed circuit board will be made from material rated 94-V1 or better. The actual UL flammability rating will be printed on the printed circuit board.

### 10.3 Capacitors

If any polarized capacitors are used in the display assembly, provisions will be made to keep them from being inserted backwards.

### 10.4 National Test Lab Requirement

The display module will satisfy all requirements for compliance to:

UL 60950-1 second edition

U.S.A. Information Technology Equipment

## 11. Handling guide

This is a thin and slim LCD model, and please be cautious when pulling it out of package or assembling it onto platform. Careless handlings, e.g. twist, bending, pressing, or collision, will result malfunction of LCD models.

### (1) Handling method notice



Do not lift and hold the panel with single hand at right or left side from tray.



Lift and hold the panel up with both hands from tray.

### (2) On the table notice



Do not press edge of panel to avoid glass broken.

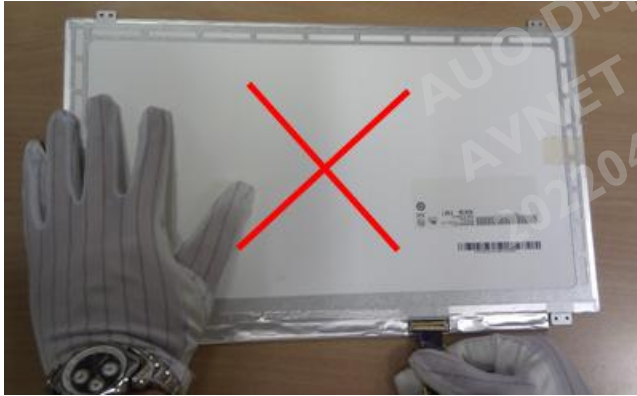


Do not press the surface of the panel to avoid the glass broken or polarizer scratch.



Do not put anything or tool on the panel to avoid the glass broken or polarizer scratch.

## (3) Cable assembly notice



Do not insert the connector with single hand and touching the PCBA.



Insert the connector by pushing right and left edge.