Advanced DisplayPort Testing

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03/05/2018
Overview

Allion DisplayPort Services

Advanced DisplayPort Testing

About Allion Labs, Inc.
Allion DisplayPort Services
• Allion has been an DP ATC since 2009

• Latest CTS version:
  DP 1.4 early Certification program
  - Link Training Process, Aux Eye@HBR3, AUX Slew rate, HBR3 PHY, HBR3 IOP

• Future plan:
  Official DP 1.4 Certification program in Q3, 2018
Figure 3-12: Link Training LANEx_CR_DONE Sequence
Figure 3-13: Link Training LANEx_CHANNEL_EQ_DONE Sequence
DisplayPort Certification Services

- **Sink Certification Test (Monitors)**
  - The world’s first DP 1.4 8K Monitor Certified by Allion

- **Source Certification Test (Systems\Laptops)**
  - 2017 & 2018 DP 1.4 Reference Design Certified by Allion
DisplayPort Certification Services

- **Cable Certification Test**
  - The world’s **first** DP 8K (DP1.4) Cable Certified by Allion

- **DP over USB-C Certification Test**
  (All USB-C devices that support DP technology)
  - The world’s **first** Bi-direction C to DP Cable Certified by Allion
  - The world’s **first** DP alt mode USB-C cell phone Certified by Allion
  - The world’s **first** DP 1.4 USB-C dock Certified by Allion
DP Certification Test Update

- As of April 1st, HDCP 2.2 testing became part of DP compliance test program
- HDCP 1.4 is not part of DP compliance test program
- HBR Reference EQ vs Enhanced HBR CTLE EQ
  - ISI =160mUI, <= Set 25% to achieve ,<=Set 65% to achieve
  - Impact the existing Rx IC

New Logo for DP 1.4 Cable

- 8K slogan already surrounds end-user
- Help end-user to buy correct cables for home or office
**Compliance Test Program**

- Launched in the end of 2017
- Allion has been an ATC for DisplayHDR since 2017
- Focus on panel of HDR system performance, including All-in-One, laptops, and desktop monitors

**LOGO**

- VESA CERTIFIED DisplayHDR™ 400
- VESA CERTIFIED DisplayHDR™ 600
- VESA CERTIFIED DisplayHDR™ 1000
Advanced DisplayPort Testing
Beyond DP 1.4 CTS Testing
HDR Protocol Converter

USB-C to HDMI / DVI Adapter

Display Data

HDR Capable

亮度無法達到應有的流明度

OK NG

色彩偏差 產生色差

OK NG

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• Poor luminance performance
  
  With the poor HDR-Capable USB-C protocol converter, the monitor cannot reach to its best luminance

The best luminance = 600 nits
Poor Color Gamut performance

The monitor’s best Gamut performance (red triangle)

With the poor HDR-Capable USB-C protocol converter, the monitor cannot reach to its best Gamut performance
Advanced Testing on DP Source

- **HDR function**
  - Enabling process check
  - Packet type check
  - Time interval of HDR packet check

- **15 Meters transmission signal**
  - Perform properly at RBR
  - Data rate confirmation

- **DPCD version interoperability**
  - Flicking, no display, etc
Advanced Testing on DP Sink

- **HDR function**
  - Panel Performance Check
    - Color Gamut, Rise time, Maximum nits
  - DPCD Related Register Check

- **15 Meters transmission signal check**
  - Perform properly at RBR

- **Intra-skew tolerance test**
  - 30ps for HBR3
  - 50ps for HBR2
Allion DP Advanced Test Program can help your products get both VESA DP logo & product quality at the same time
About Allion Labs, Inc.
Global Facilities

Our global facilities provide localized support to technology suppliers and distributors

- Test Lab: Shanghai, China
- Test Lab: Seoul, Korea
- Test Lab: Shenzhen, China
- Test Lab: Taipei, Taiwan
- Test Lab: Nantou, Taiwan
- Test Lab: Tokyo, Japan
- Test Lab: Oregon, USA

ISO 17025: Accredited Laboratory

- Founded in 1991: 25+
- Qualified Engineers: 800+
- Test Equipment & Devices: 20000+
- Test Projects Performed: 3000000+
As an authority in standards compliance and product validation, Allion provides top-of-the-line test services and consulting engineering solutions.
Authorized Third-Party Test Labs of 30+ Standard Alliances

- Pre-Test
- Standard Compliance
- Issue Identification
- Root Cause Analysis
- Debugging Support
- Logo Usage Right
- 24hr Shifts
- Schedule Management
- Quick Turn Around Time
Allion can structure **customized conditions** in **various user scenarios**, helping fully validate the functionality, performance, and interoperability of your IoT products.
✓ Allion is the premier resources for all of your third party testing needs

✓ Allion’s philosophy provides “reliable, speedy, and cost-effective” services, which can assist your brand equity