



VESA and DisplayPort Certification

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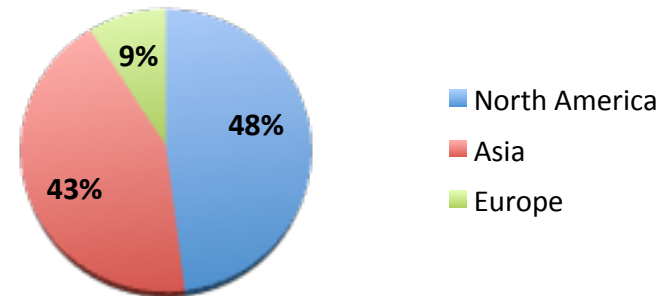




About VESA

- Global industry alliance with more than 175 member companies (750 active individuals). 40 new members in last 12 months!
- Membership responsible for more than:
 - 60% of worldwide desktop display unit shipments
 - 80% of worldwide large-area TFT-LCD unit volume
 - 90% of worldwide graphics chip unit volume

Membership by Region



VESA's Leadership: The VESA EDID and Mounting standards have an installed base in billions of displays worldwide.

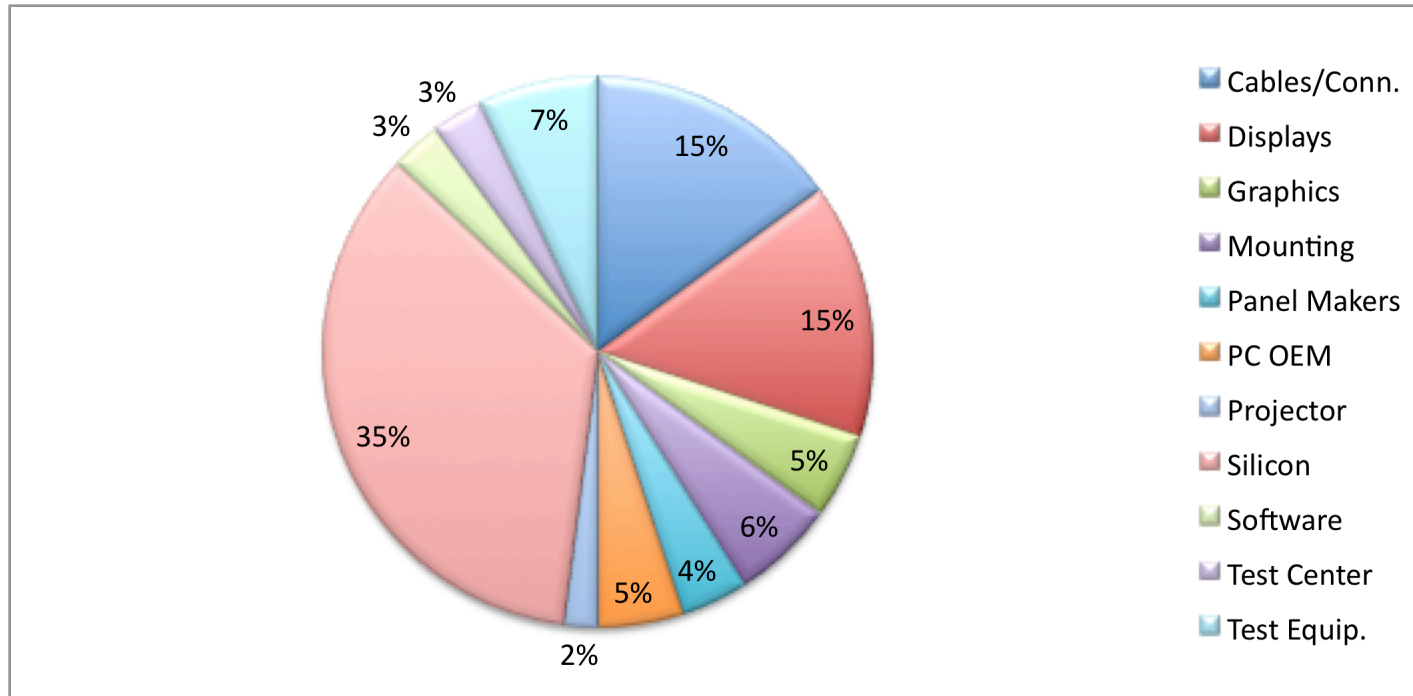
Since 1989, our mission has been to develop, promote and support an ecosystem of vendors and certified interoperable products for the electronics industry, which includes facilitating DisplayPort standards development and compliance testing, as well as promotion and marketing.





VESA Membership is Diverse

Membership by Sector





Benefits of Membership

- Ability to use the DisplayPort Logos.
- Access to all Standards and Specifications.
- Decrease costs, increase reliability by participating in members-only PlugTests and Workshops.
- Maintain competitive edge by learning new technology standards as they are developed. Participate in development of new standards.
- Network with industry experts from 175 leading PC and consumer electronics companies at PlugTests and Workshops.
- Promotional opportunities by linking to VESA's web sites (www.vesa.org) and (displayport.org).
- Be a member of an organization that establishes the future direction of the display industry. **Join VESA Today at www.vesa.org!**





New DisplayPort Logo Policy

Why Are We Changing the Logo Policy?

- VESA's DisplayPort standard is entering a critical stage in its evolution toward achieving wide-spread adoption
- Increasingly important that DisplayPort fulfill the brand's promise in interoperability and that it "just works"
- Changes are aimed at providing assurance to the global consumer base that products marked with the DisplayPort, DisplayPort ++ and Active Cable logos will perform as advertised and promised by the member organization

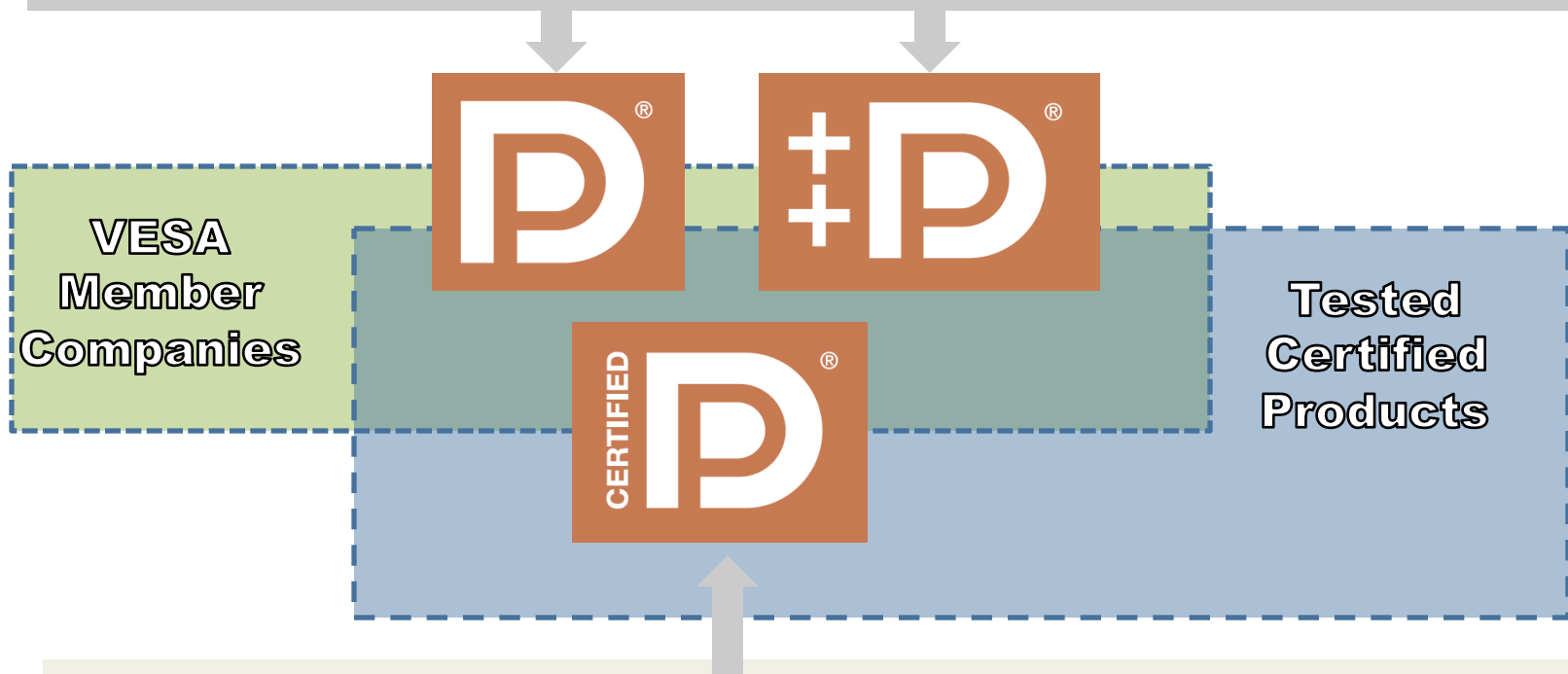




Previous DisplayPort Logo Policy

- **Ends Today!**

The **DP** and **DP++** Icons can be used on both Certified and Non-Certified products. They can be used by both VESA Member Companies and Non-Members, through the DisplayPort Icon license agreements.



The **Certified DP** Logo is only used on Certified DisplayPort products tested at ATCs. It is used by both VESA Member Companies and Non-Members, under license.





New DisplayPort Logo Policy

For all DisplayPort products, policy begins May 2012

The **DP, DP++ and Active Cable** Logos will only be used on compliance tested products (which can include a self-test by the OEM). They will only be used by VESA Member Companies.



The Certified DP Logo will no longer will be issued.





Advantages of the New Logo Policy

- All products bearing a DisplayPort logo will be certified
 - This will help DisplayPort to fulfill the brand image with trouble-free ease-of-use
- Membership required for all DisplayPort trademarks
 - Membership helps to support VESA technical developments and promotional infrastructure
 - Assures OEM is using latest standard
 - Encourages PlugTest participation

Getting Certified for DisplayPort

All devices can be self-tested, or tested at an Authorized Test Center

Allion (USA, ROC, PRC)

GRL (USA, ROC, Germany)

TTA (Korea)

ETC (ROC, Cables Only)

Read “Logo Test Requirements Specification”, the roadmap to DisplayPort Certification



Getting Certified - Documents

All Devices must pass PHY, Link, Interoperability and EDID Tests

Dual mode dongles PHY and Interop only

To test, you need these documents:

Specs:

PHY CTS v 1.1a

Link CTS v 1.1a

EDID CTS v 1.1

Interop CTS v 1.0

Supporting Docs:

Standard Devices for Interop Testing

Compliance Test Report (Source, Sink, Cable, Branch/Hybrid)

Interop Compliance Test Report

Dual Mode Cable Adaptor Report



All Docs in DP Logo Requirements folder in WorkZone

PHY Layer CTS

Source:

EYE,

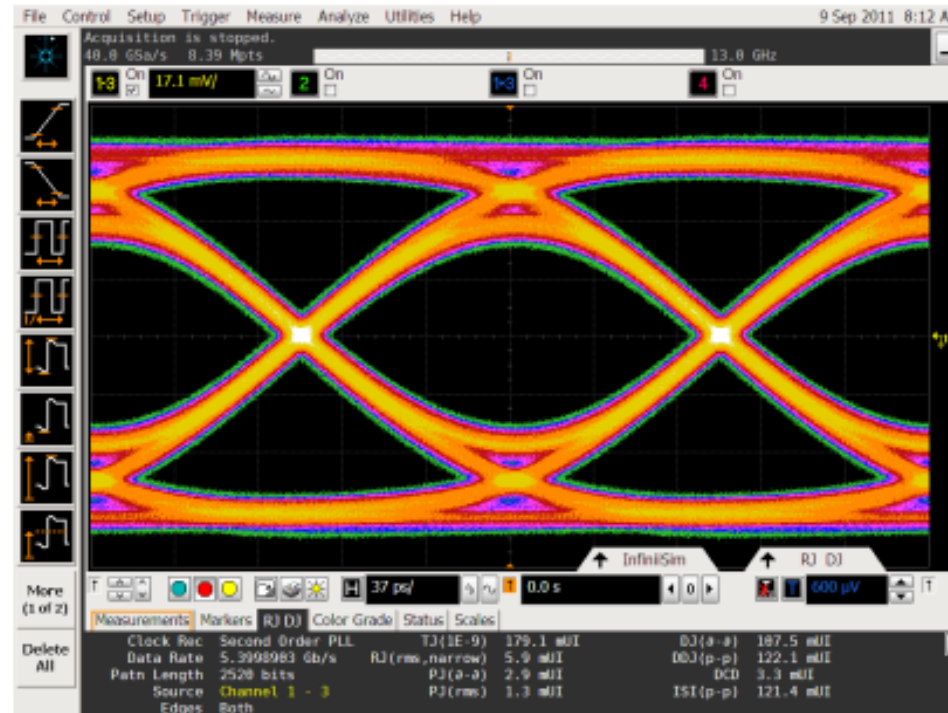
Skew

Jitter

Frequency

Amplitude

SSC



Sinks: Measure Bit Error Rate with signal impairments

PHY Layer Testing

PHY Test requires that a Source be set to certain modes i.e. 4 lanes, HBR, 600mV, 3.5dB pre-emphasis

Many Sources can be controlled via AUX Channel requests

AUX Control Devices can be integrated with a 'scope for automated measurement

Lacking AUX control, a manual tool must be used to manipulate the Source

For Sinks, access to Error Counters is needed via AUX or other means

Link Layer CTS

Source and Sink: Protocol tests for DPCD, EDID reads and writes
Link training and maintenance

Pixel recovery

Power Management

Audio protocol

Video Time Stamp

DisplayPort Sink Compliance Test Report

CONTENTS

Test Summary

General Information

View all test details

View details by test

- 1 - (5.2.1.1) Read One Byte from Valid DPCD Address
- 2 - (5.2.1.2) DPCD Receiver Capability Read (Read Twelve Bytes from Valid DPCD Address)
- 3 - (5.2.1.3) Write One Byte to Valid DPCD Address
- 4 - (5.2.1.4) Write Nine Bytes to Valid DPCD Addresses
- 5 - (5.2.1.5) Write EDID Offset (One Byte I2C-Over-Aux Write)
- 6 - (5.2.1.6) Read One EDID Byte (One Byte I2C-Over-Aux Read)
- 7 - (5.2.1.7) EDID Read (1 Byte I2C-Over-Aux Read)
- 8 - (5.2.1.8) Illegal Aux Request
- 9 - (5.2.1.9) Glitch Rejection

Printer Friendly

TEST SUMMARY

TEST	PASSED
1 - (5.2.1.1) Read One Byte from Valid DPCD Address	1
2 - (5.2.1.2) DPCD Receiver Capability Read (Read Twelve Bytes from Valid DPCD Address)	1
3 - (5.2.1.3) Write One Byte to Valid DPCD Address	1
4 - (5.2.1.4) Write Nine Bytes to Valid DPCD Addresses	1
5 - (5.2.1.5) Write EDID Offset (One Byte I2C-Over-Aux Write)	1
6 - (5.2.1.6) Read One EDID Byte (One Byte I2C-Over-Aux Read)	1

No special control needed for Link Layer Testing

EDID CTS

Source

Does Source send what is in EDID

Response to corrupt, out-of-range

Audio support

Sink

Is EDID structure correct

Does Sink display all formats correctly

Audio support

DisplayPort EDID Compliance Report

Nov 09 2011 [13:27:50]

Generator Information

Model = 882E
Unit Revision = A
Unit SN =
Date = 02242009
Firmware = 20.1887603

4	5	6	7	8	9	A	B	C	D	E	F
FF	FF	FF	00	38	A3	0E	68	00	00	00	00
A5	26	1E	78	E2	B7	F5	A0	58	56	9F	28
EF	80	71	4F	81	40	81	80	01	01	01	01
01	01	30	2A	00	98	51	00	2A	40	30	70
11	00	00	1E	00	00	00	FD	00	32	4C	1F
20	20	20	20	20	20	00	00	00	FC	00	45
4D	0A	20	20	20	20	20	20	00	00	00	FF

Interoperability CTS

Test for normal operation with a variety of devices in the market today



“Golden” devices in “Standard Devices for Interoperability Testing”

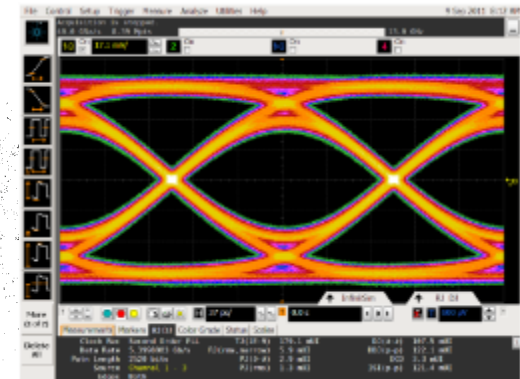
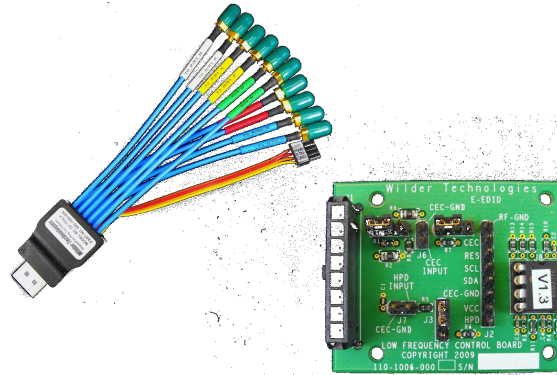
DisplayPort Dual-mode



In Dual-mode, Source sends TMDS through the DP Connector

Dual-mode adapters certified via Dual-mode CTS and Interop

Dual mode Source must meet EYE spec



Fixture images courtesy Wilder Technologies

The Process

Read the documents

Test your product

Fill out the test reports

Send the reports and logs to Compliance Program Manager dpcpm@vtm-inc.com, approval by email

Contact VESA to:

- Complete license agreement if you have not already

- Provide the information needed to get your product listed on displayport.org

Coming Soon...

Certification will soon mean that devices meet “1.2” requirements:

DP 1.2a Standard

DP PHY CTS 1.2a

Link CTS 1.2 Core

Link CTS Extensions for Multistream

Coming later – CTS for Fast AUX (FAUX)

Devices Certified as “1.1” do not need to be re-tested

What about HDCP?

HDCP is not a VESA Standard, it is owned by DCP, L.L.C.

HDCP is not required in a DP implementation (although most products support it)

The HDCP license says your device must be compliant, but does not mandate any testing

Visit www.digial-cp.com for details



Thank you for your attention



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Interoperability CTS

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Visit www.digital-cp.com for details



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