

HDMI®

HIGH-DEFINITION MULTIMEDIA INTERFACE



HDMI Over USB Type-C

HDMI Licensing, LLC
September 2016

Agenda

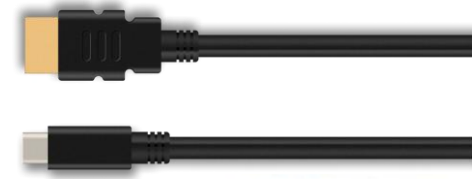
- Announcement Key Points
- HDMI Market Overview
- Features and Benefits
- Questions





HDMI Alt Mode for USB Type-C Connector Specification

Key Points of the Announcement

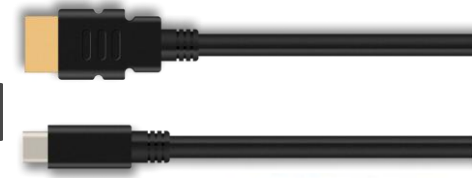


- HDMI Alt Mode for USB Type-C Connector specification release
- Enables two of the most popular connectivity solutions to come together
- Allows HDMI enabled sources with USB Type-C to connect directly to HDMI enabled displays
- Enables native HDMI and HDCP features to be utilized in source devices with USB Type-C connectors
- Uses a simple USB Type-C to HDMI cable with no adapters or converters

HDMI Market Overview

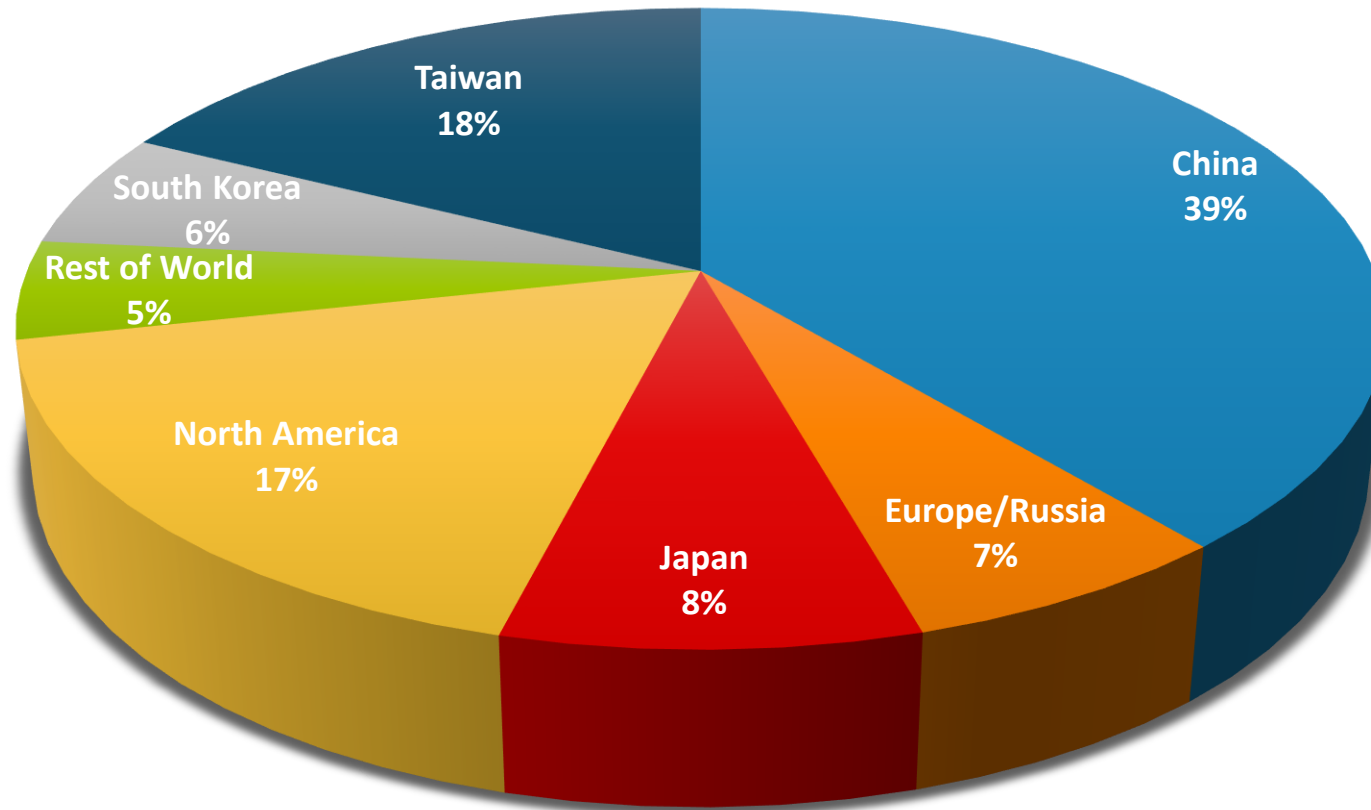
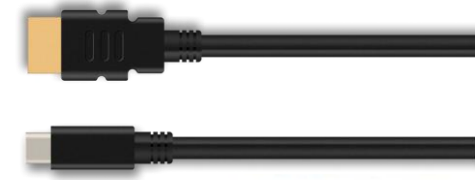


HDMI Technology—The De-facto Connectivity Standard

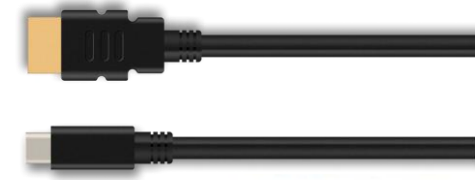


- Transmits uncompressed HD and 4K video, multi-channel surround audio, and consumer electronic control (CEC) through a single cable
- Almost **6 Billion** HDMI products have shipped worldwide
- Over **1,600** of the world's largest consumer electronics, PC and mobile device manufacturers include HDMI connectivity in their products

Geographic Distribution of HDMI Adopters

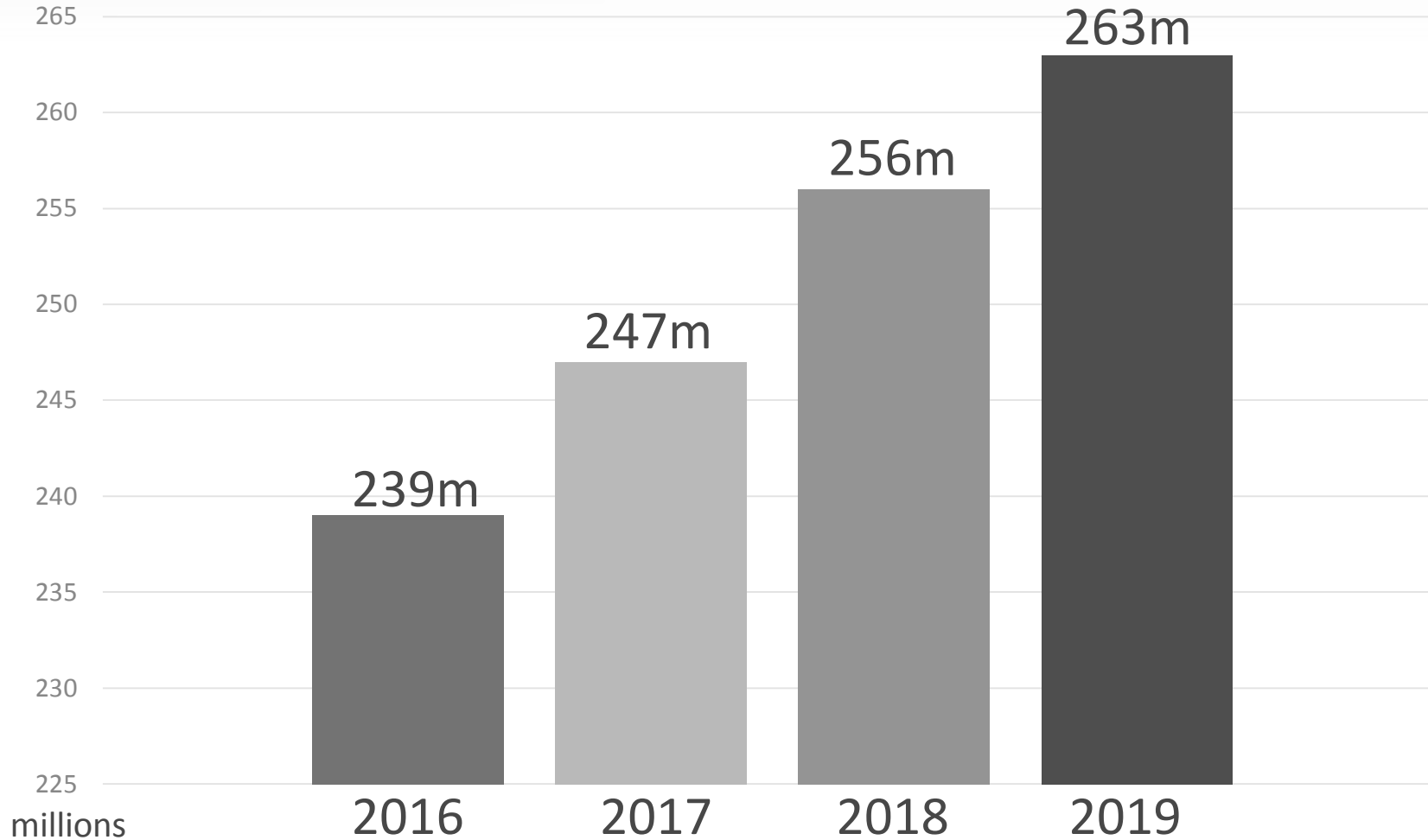
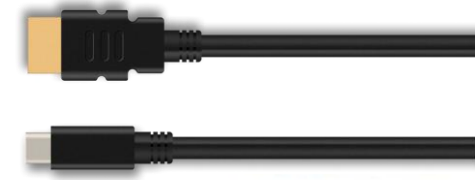


HDMI Penetration and Market Position



100% of
HD and 4K
TVs Have
HDMI

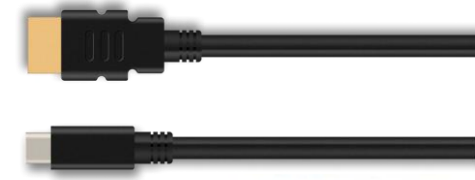
HDMI-Enabled Flat Panel Global Shipment Growth



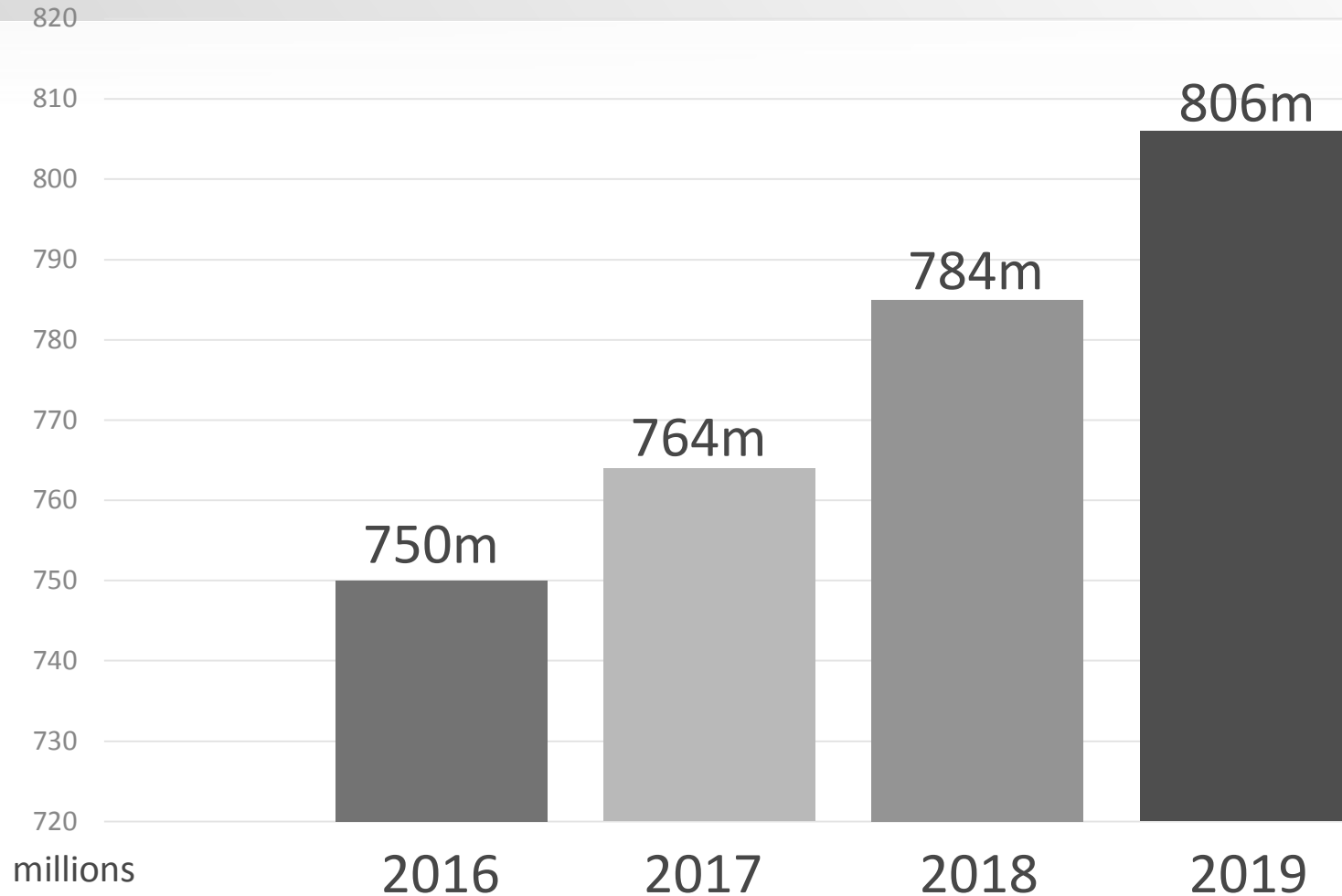
4K TV Shipments Are Growing Too

Annual worldwide 4K shipments to grow 719% from 2014-2019 to 96 million units

IHS Technology 2016



HDMI-Enabled Device Global Shipment Growth



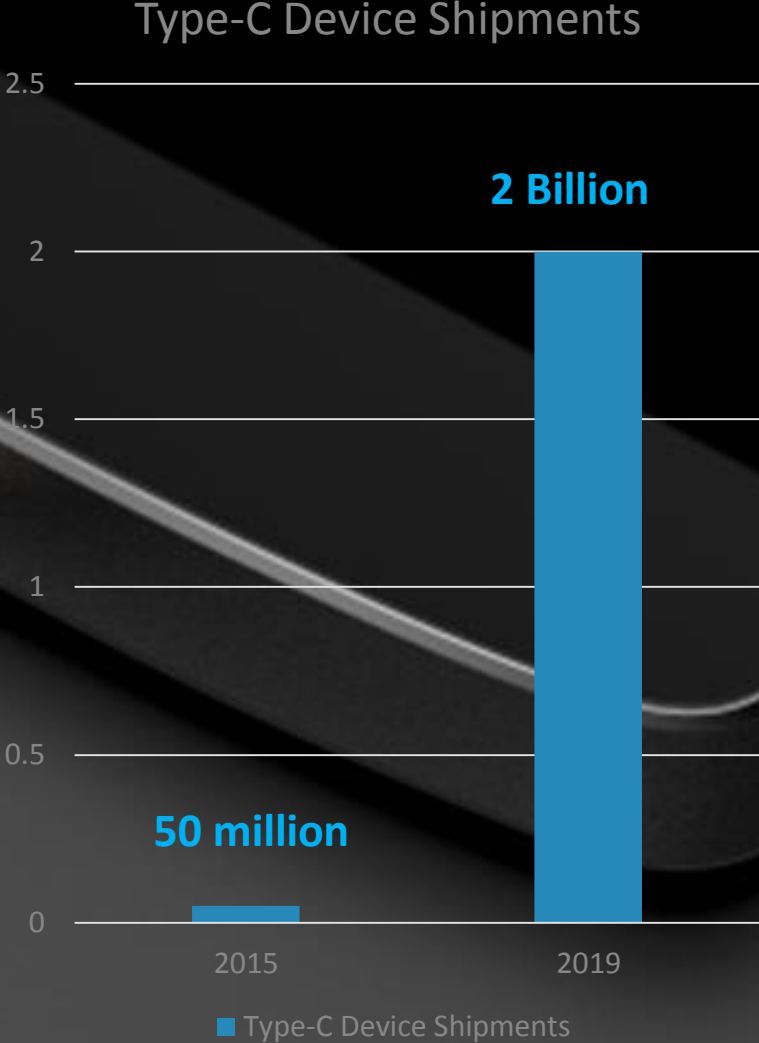
HDMI-enabled devices include:

- Flat panel TV
- DVD & Blu-ray player/recorder
- Projector
- AV Receiver
- Media Stick
- Desktop PC
- Laptop/Notebook PC
- PC/Media Tablets
- Smart Phone
- LCD PC Monitor
- Video game Console
- Set Top Box
- Digital Camera/Camcorder/Wearable
- Discrete Adapter
- Docking Station

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“USB Type-C connector adoption in the wireless, CE and PC segments should grow rapidly over the next several years, with over 2 billion Type-C devices expected to ship in 2019 alone.

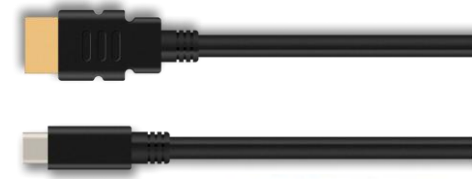
HDMI Alt Mode over Type-C makes perfect sense in the CE segment, where HDMI has traditionally been dominant in many applications, especially TVs” said Brian O’Rourke, Sr. Principal Analyst at IHS Markit.



A close-up photograph of a laptop's side panel, focusing on a USB-C port. The laptop is dark grey or black with a matte finish. The USB-C port is centrally located in the lower half of the frame. To the right, a hinge mechanism is visible, showing the connection between the laptop's body and the lid. The background is blurred, showing the keyboard area. The text 'HDMI Alt Mode Features' is overlaid in the upper left quadrant in a yellow, sans-serif font.

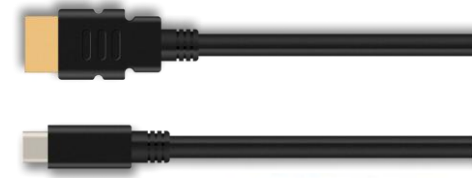
HDMI Alt Mode Features

Supports All HDMI 1.4b Features



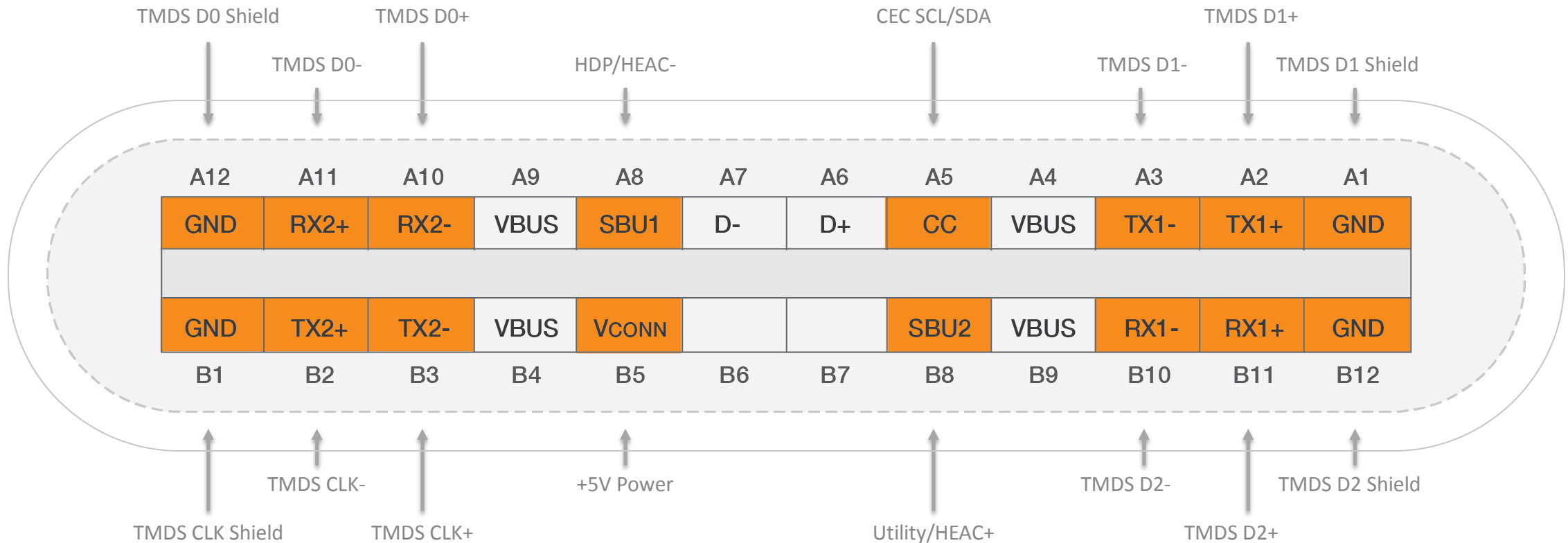
- Resolutions up to 4K
- Audio Return Channel (ARC)
- Surround Sound
- 3D (4K and HD)
- HDMI Ethernet Channel
- Consumer Electronic Control (CEC)
- Deep color, x.v.Color, and content types
- High-Bandwidth Digital Content Protection (HDCP 1.4 and HDCP 2.2)

HDMI Alt Mode for USB Type-C



- Follows all necessary Alt Mode USB Type-C specification requirements
- Auto-detects HDMI Alt Mode source devices and HDMI-enabled displays
- Requires no adapters to connect from an HDMI source to an HDMI display

HDMI Alt Mode for USB Type-C Pin Mapping

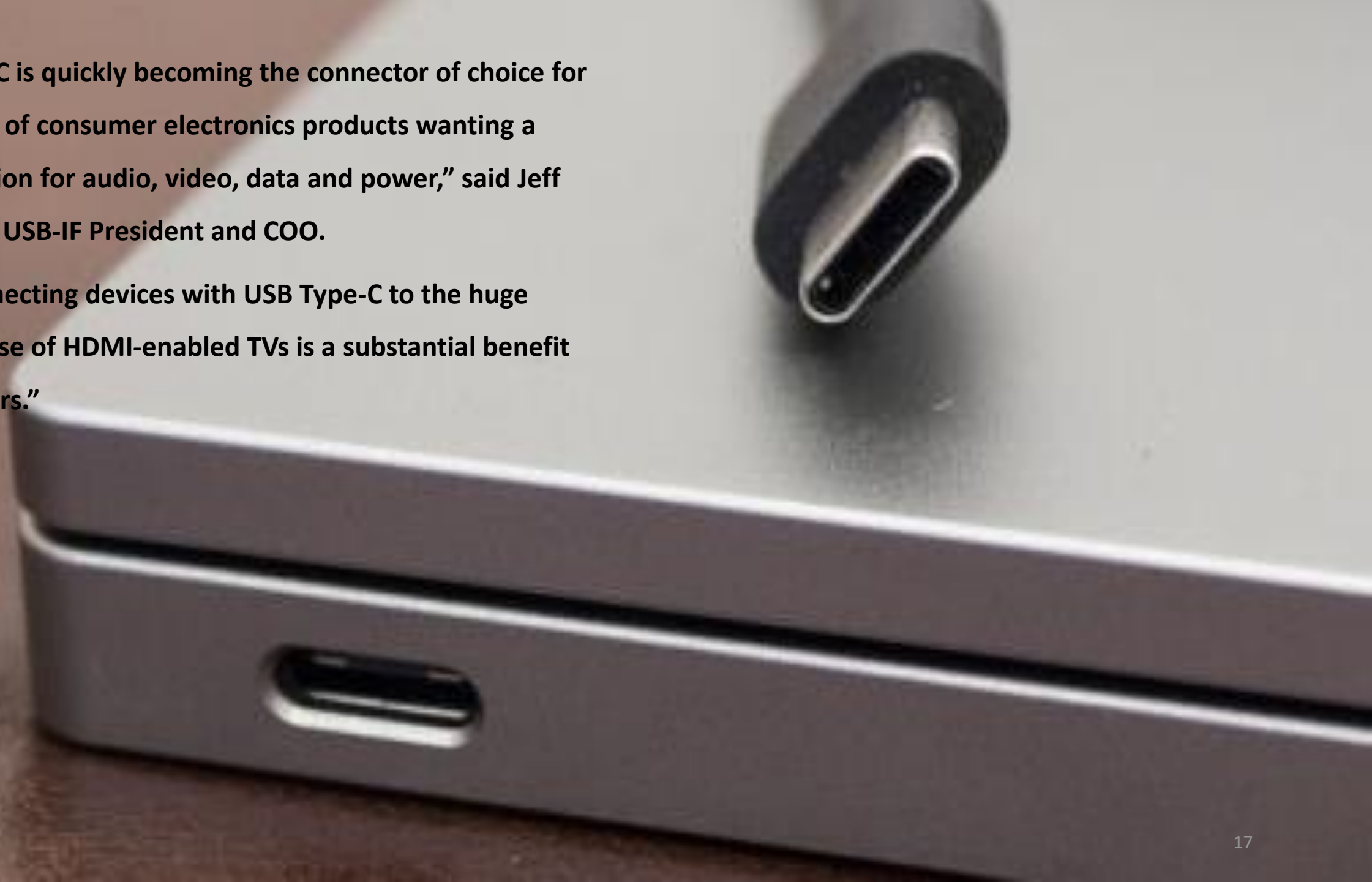


HDMI Alt Mode Benefits



“USB Type-C is quickly becoming the connector of choice for many types of consumer electronics products wanting a single solution for audio, video, data and power,” said Jeff Ravencraft, USB-IF President and COO.

“Easily connecting devices with USB Type-C to the huge installed base of HDMI-enabled TVs is a substantial benefit to consumers.”



Key Benefits to HDMI Alt Mode for USB Type-C

HDMI Alt Mode

No Adapters. No Converters.



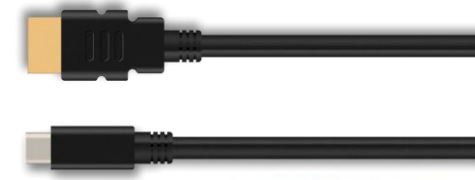
Key Benefits to HDMI Alt Mode for USB Type-C

- Enables HDMI source devices to utilize USB Type-C connector
- USB Type-C connector is reversible, small form factor, multi-purpose, and gaining penetration in the mobile and PC markets
- Source manufacturers can now utilize native HDMI and its features along with USB Type-C connectors
- More source devices will now incorporate HDMI



Questions





Thank you

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