

Keywords:
 Category 2
 HDMI®
 High Speed
 Premium Certified
 EMI / RFI Shielding

Premium Certified HDMI®

What is the difference between a High Speed (Category 2) HDMI cable and a Premium Certified HDMI cable? This technical note will point out some of the differences so you can choose the right HDMI cable for your application.

Description

The HDMI forum is developing future versions of the HDMI specification. HDMI 2.0b, which is backwards compatible with earlier versions of the HDMI specification, is the most recent update of the HDMI specification. Key features enabled by HDMI 2.0b are:

- Enables transmission of High Dynamic Range (HDR) video
- Bandwidth up to 18Gbps
- 4K @ 50/60 (2160p), which is 4 times the clarity of 1080p/60 video resolution
- Up to 32 audio channels for a multi-dimensional immersive audio experience
- Up to 1536 kHz audio sample frequency for the highest audio fidelity
- Simultaneous delivery of dual video streams to multiple users on the same screen
- Simultaneous delivery of multi-stream audio to multiple users (Up to 4)
- Support for the wide angle theatrical 21:9 video aspect ratio
- Dynamic synchronization of video and audio streams
- CEC extensions provide more expanded command and control of consumer electronics devices through a single control point

HDMI 2.0b does not define new cables or new connectors. Current High Speed cables (Category 2 cables) are capable of carrying the increased bandwidth **under most conditions**. However some unanticipated technical characteristics affect reliability of these Category 2 HDMI cable assemblies, though these were found to perform reliably at speeds of 10.2 Gbps. Premium HDMI specifies a more stable and efficient signaling method than regular High Speed and Standard HDMI cables. Minimum EMI / RFI shielding is also specified.

Parameter	Standard HDMI (1.4b)	High Speed (2.0b)	Premium High Speed (2.0b)
Signal Speed (Gbps)	≤ 10.2	≤ 10.2 reliably ≤ 18 unreliably	≤ 18
EMI / RFI Shielding	n/a	n/a	CISPR 22 @ IEC 2008 standard - Class B for 30 to 230 MHz, 230 to 6000 MHz
TMDS (&Enhanced) Eye Diagram Clock	165 MHz, 340 MHz	165 MHz, 340 MHz	165 MHz, 340 MHz, 600 MHz

Choose the Right HDMI Cable for the Job

Selecting the right HDMI cable depends on the level of video resolution and features you intend to support, and whether or not you want Ethernet connectivity. Genuine HDMI cables are clearly labeled to make this process easy:

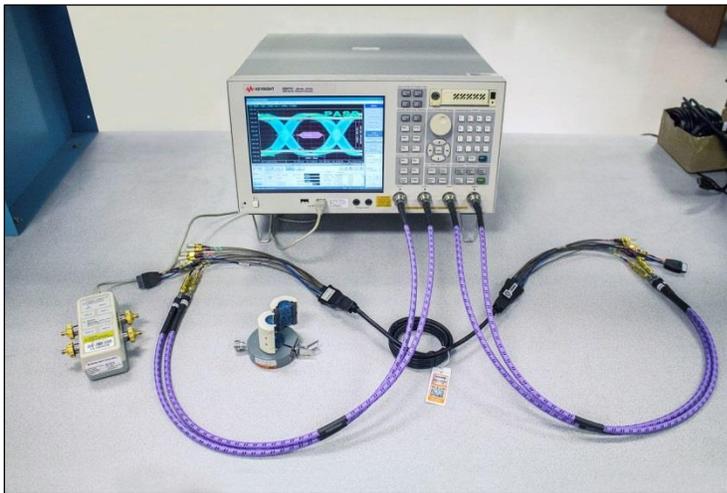
Built for most home applications, the Standard HDMI Cable can reliably transmit 1080i or 720p video.

Here are the five (5) HDMI cable types used in homes and businesses, and how to tell them apart:

	Premium High Speed HDMI Cable and Premium High Speed HDMI Cable with Ethernet: Designed for ultra-reliable performance for 4K and advanced features such as higher frame rates, HDR, expanded color spaces including BT.2020 colorimetry, 4:4:4 chroma sampling, and are identified with the Premium Certified Cable Label.		Standard HDMI Cable: Built for most home applications, the Standard HDMI Cable can reliably transmit 1080i or 720p video.
			Standard HDMI Cable with Ethernet: Standard HDMI Cable performance, plus a dedicated Ethernet channel for Internet connection sharing and device networking.
			High Speed HDMI Cable: Designed to support video resolutions of 1080p and beyond, including advanced display technologies like 3D and 4K.
			High Speed HDMI Cable with Ethernet: High Speed HDMI cable performance, plus a dedicated Ethernet channel.

PCT Lab Testing Capability

As a manufacturer of HDMI cables, and one of the first certified premium HDMI cable participants, PCT has completed an extensive upgrade of our testing capabilities. Due to the higher clock speeds of HDMI 2.0b, to verify Premium HDMI performance PCT purchased upgrades to its Agilent Vector Network Analyzer and calibration standards. We also purchased new EMI test equipment to verify shielding performance. PCT International's lab is fully capable of premium performance verification.



Item	Description	Value (USD)
N4433A	Ecal 300kHz - 20GHz	14,269
E5071CU	Analyzer upgrade	19,110
F-2000-32mm-2	EMC Probe for SE	5,950
RFC-20	Ferrite Core for SE	25
		39,354

PCT manufactures both High Speed (with Ethernet) and Premium High Speed (with Ethernet) HDMI cables of the highest quality. Look for the Premium Certified label whenever you need reliable performance with signal speeds of 18 Gbps.