

High-Definition Multimedia Interface

Specification Version 1.3

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Philips Consumer Electronics, International B.V.

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Sony Corporation

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Preface

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Document Revision History

- | | | |
|------|------------|--|
| 1.3 | 2006/06/22 | <p>Significant new features:</p> <ul style="list-style-type: none"> - Type C "Mini-Connector" (4.1.9.5, 4.1.9.6) - Cable Categories 1 and 2 (4.2.6) - Deep Color [4:4:4] (6.5, 8.3.2) - Reference Cable Equalizer (4.2.3.2, 4.2.5, 4.2.6) - Higher-speed single-link (4.1.2, 4.2.3, through 4.2.6, 8.3.2) - xvYCC Enhanced Colorimetry (6.7.2.3) - Gamut Metadata transmission (5.3.12, 6.7.3, Appendix E) - DST audio format (5.3.10, 7.6.3) - High-bitrate compressed audio formats (5.3.11, 7.2.4, 7.3.3, 7.6.2) - Auto-Lipsync Correction feature (8.3.2, 8.9) <p>Updated normative reference from CEA-861-B to –D (1.2, throughout).
 Updated Overview for new features (3)
 Several minor editorial (throughout)</p> |
| 1.2a | 2005/12/14 | <p>Changes to CEC supplement (see supplement for details)
 Eliminated I_{OFF} and made V_{OFF} normative (4.2.4)
 Changed CEC resistance to 5 ohms (4.2.10)
 Clarified DVI device discrimination (8.3.3)
 Several minor editorial (throughout)</p> |
| 1.2 | 2005/08/22 | <p>Removed limitations on Type A connector usage (4.1.2, 6.1)
 Required new connector mechanical features, optional in 1.1 (4.1.9)
 Required Sink support for future AC-coupled Sources (4.2.5)
 Add note regarding maximum ratings of Sink (4.2.5)
 Clarified Cable Assembly use of +5V Power (4.2.7)
 Removed incorrect testing method for DDC capacitance (4.2.8)
 Clarified when separate CEC lines on inputs are allowed (4.2.10)
 Add maximum resistance spec for interconnected CEC line (4.2.10)
 Remove CEC leakage current limit while in standby (4.2.10)
 Relaxed $Y_{C_B C_R}$ output requirement for RGB devices (6.2.3)
 Added support for additional video formats (6.2.4, and 7.3.3, 8.2.1)
 Corrected sample rate requirement from 1000 ppm to ± 1000 ppm (7.2.6)
 Clarified use of Speaker Allocation Data Block (7.4)
 Added support for One Bit audio (7.9, and throughout)
 Clarified exception for 640x480p (VGA) declaration in EDID (8.3.4)
 Loosened requirement for duplicated DTD declarations (8.3.4)
 Added recommendation for setting Supports_AI (9.2)
 Clarified the behavior of Repeater to Sink with Supports_AI (9.3.2)
 Clarified rule for DVD-Audio ACP Packet transmission (9.3.5)
 Additional minor editorial (throughout)</p> |
| 1.1 | 2004/05/20 | <p>Permitted multi-rate native format support on Type A Sinks (4.1.2)
 Changed connector mechanical spec (4.1.9)
 Changed connector electrical spec (4.1.7)
 Removed CEC / +5V Power dependency for Source (4.2.7)
 Loosened regulation requirements for +5V Power (4.2.7)</p> |

- Made HPD voltages consistent with new +5V Power (4.2.9)
- Clarified CEC connection requirements (4.2.10)
- Restricted CTLx values allowed in non-Preamble periods (5.2.1)
- Added new Packet Types (5.3.1)
- Clarified InfoFrame Packet requirements (5.3.5)
- Added ACP and ISRC Packet definitions and usage (5.3.7, 8.8, 9.3)
- Specified recommended handling of non-Subpacket 0 CS blocks (7.1)
- Clarified audio sample rate requirements (7.2.6)
- Disallowed Layout 1 2-channel (7.6)
- Clarified AVI transmission requirements (8.2.1)
- Added extension fields and clarified HDMI VSDB (8.3.2)
- Clarified DVI/HDMI device discrimination (8.3.3)
- Clarified HPD behavior (8.5)
- Clarified EDID values of Physical Addresses (8.7)
- Made minor editorial changes (throughout)

1.0 2002/12/09 Initial Release

HDMI 1.3 版規範出來了！

親愛的客戶您好，HDMI 協會為因應市場的需要及功能的強化，已於 **2006/6/22 發佈 HDMI 1.3 版** 的新規範，其中主要增加了以下內容：

- 傳輸資料速度更快：** HDMI 1.2 規範單鏈最高頻寬為 **4.95Gbps(165 MHz Pixel Clock)**→HDMI 1.3 規範單鏈最高頻寬提升為 **10.2 Gbps (340 MHz Pixel Clock)** 以支持將來 HD 顯示設備的需要。
- 更高的色深：** HDMI 1.2 的色深最高為 **24 位元**→HDMI 1.3 規範支持 **30 位元、36 位元和 48 位元 (RGB 或 YCbCr) 色深**，可極好地表現十億種顏色的空前細緻的畫面。
- 色彩空間更寬：** HDMI 1.3 新增了對 “xvYCC” 色彩標準的支持，它去除了現有色彩空間的限制并使得人眼可以觀看任何色彩的顯示。
- 新型迷你接口：** 隨著 HD 攝錄一體機和數碼照相機等小型便携式設備需要 HDTV 的無縫連通性，**HDMI 1.3 提供新型、更小的接口選項——此小型接頭，現定義為 TYPE C(俗稱 mini HDMI)**。
- 唇型同步：** HDMI 1.3 加入了自動音頻同步的功能，使設備能完全精確且自動地執行同步。
- 新型 HD 無損音頻格式：** HDMI 1.3 新增了對新型無損壓縮數字音頻格式 **Dolby TrueHD** 和 **DTS-HD Master Audio™** 的支持。

其中對線材及接頭的規格部分，主要是增加 **TYPE C (mini HDMI)** 的接頭及對線材規格的分類，將線材分成**1類(Category 1 ---Pixel Clock up to 74.25MHz)**及**2類線(Category 2---- Pixel Clock >74.25MHz up to 340 MHz)**，**1類**即原來的線材規格，**2類**則為加嚴的規格：
其規定如下：

Table 4-21 Cable Assembly TMDS Parameters

Parameter	Category 1 (74.25MHz)	Category 2 (>74.25MHz)
Maximum Cable Assembly Intra-Pair Skew	151psec	111psec
Maximum Cable Assembly Inter-Pair Skew	2.42nsec	1.78nsec
Far-end Crosstalk	< -26dB	< -26dB
Attenuation	See Figure 4-22	See Figure 4-23
300kHz - 825MHz	< 8dB	< 5dB
825MHz - 2.475GHz	< 21dB	< 5dB...< 12dB
2.475GHz - 4.125GHz	< 30dB	< 12dB...< 20dB
4.125GHz - 5.1GHz	--	< 20dB...< 25dB
Differential Impedance		
Connection point and transition area: Up to 1nsec**	100 ohms ±15%	
Cable area: 1nsec - 2.5nsec:**	100 ohms ±10%	

** Measurement point for TDR measurement of impedance.

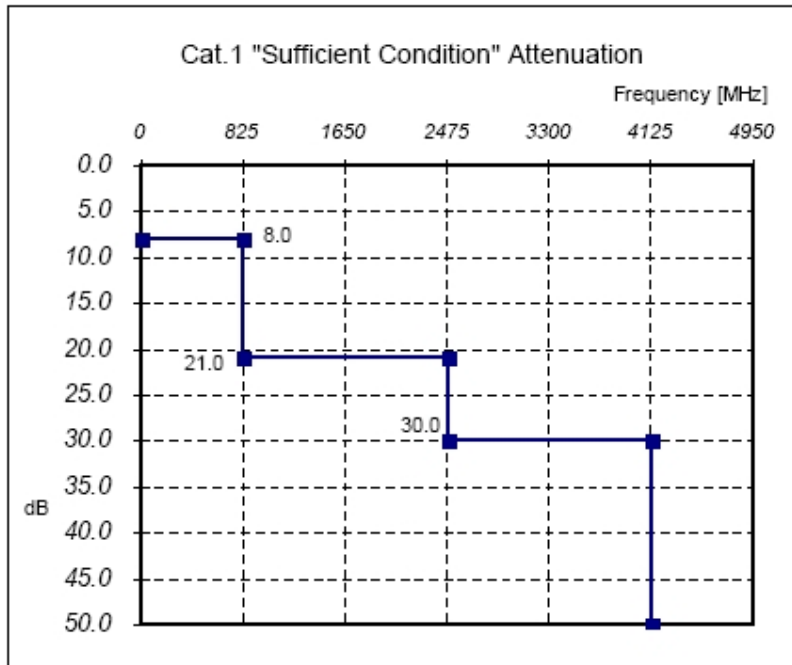


Figure 4-22 Category 1 Cable Attenuation Limits – Sufficient Condition

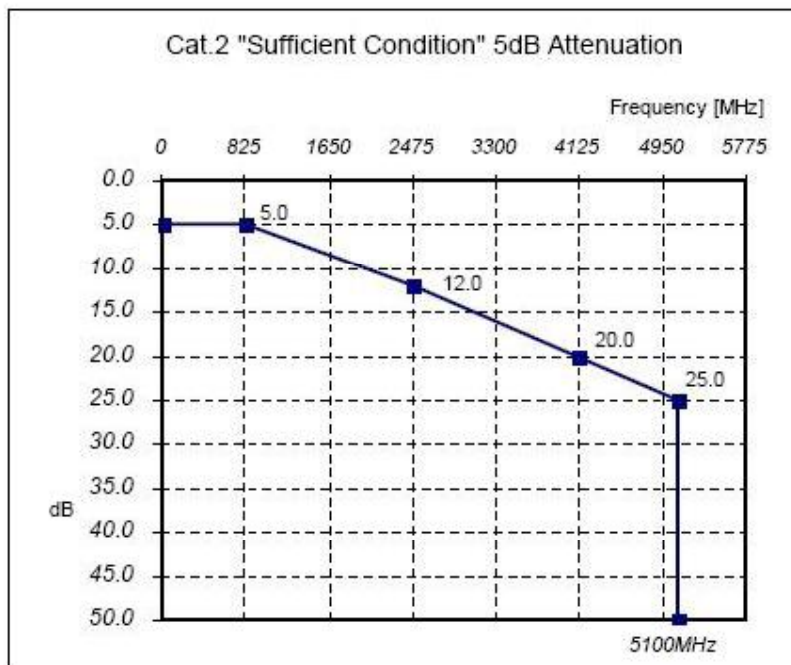


Figure 4-23 Category 2 Cable Attenuation Limits – Sufficient Condition

以上資料參考 **hdmi spec. version 1.3** 及 **HDMI** 網站 <http://www.hdmi.org>

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