Video Electronics Standards Association

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VESA ENHANCED EXTENDED DISPLAY IDENTIFICATION DATA – Implementation Guide

Version 1.0

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Purpose

This document provides guidance in implementing the Enhanced EDID Standard.

Summary

The VESA Enhanced EDID Standard defines a data structure used to carry configuration information for optimal use of a display. While the Standard contains the necessary information to create compliant EDID data, in practice there are often many questions when implementing the standard. These questions are both from the perspective of monitor manufactures that are creating EDID and from the perspective of system/graphics board/software manufactures that are interpreting EDID read from a monitor.

This document provides guidance for both writing and interpreting EDID data in accordance with the standard. It includes answers to Frequently Asked Questions (FAQ) as well as warnings about common mistakes in creating and interpreting EDID. The document is not a standard. It is a companion document supporting the E-EDID Standard and not a substitute for the standard. It provides guidance only and cannot be used to measure full compliance to the E-EDID Standard.

Preface

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Support for this Document

Clarifications and updates to this document may be written. To obtain the latest documentation, contact VESA.

If you have a product, which incorporates EDID, you should ask the company that manufactured your product for assistance. If you are a manufacturer, VESA can assist you with any clarification you may require. All comments or reported errors should be submitted in writing to VESA using one of the following methods.

- Fax: 408-957 9270, *direct this note to Technical Support at VESA*
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1. OVERVIEW

1.1 Summary

The VESA Enhanced EDID Standard defines a data structure used to carry configuration information for optimal use of a display. While the Standard contains the necessary information to create compliant EDID data, in practice there are often many questions when implementing the standard. These questions are both from the perspective of monitor manufactures who are creating EDID and from perspective of system/graphics board/software manufactures that are interpreting EDID read from a monitor.

This document provides guidance for both writing and interpreting EDID data in accordance with the standard. It includes answers to Frequently Asked Questions (FAQ) as well as warnings about common mistakes in creating and interpreting EDID.

The document is not a standard. It is a companion document supporting the E-EDID standard and not a substitute for the standard. It provides guidance only and cannot be used to measure full compliance to the E-EDID Standard.

This document focuses on creation of data using EDID structure version 1 revision 3 as defined in the E-EDID standard. It may also include explanation of interpreting data using previous revisions to the version 1 data structure. It does not discuss implementation of EDID data structure version 2.

The information in this document applies to the base 128-byte EDID version 1 structure. It does not discuss implementation of specific E-EDID extensions.

1.2 Background

1.3 Standard Objectives

2. DATA FORMATS

2.1 Description of present and earlier EDID data formats

2.1.1 EDID 1.0

EDID structure 1.0 was the original 128-byte data format introduced in the DDC Standard Version 1.0 Revision 0 issued in August 1994. EDID 1.0 shall not be used in new monitor designs released after January 1, 2000.

2.1.2 EDID 1.1

EDID structure 1.1 added definitions for monitor descriptors as an alternate use of the space originally reserved for detailed timings, as well as definitions for previously unused fields. Structure 1.1 was introduced in the EDID Standard Version 2 Revision 0 issued in April 1996. EDID 1.1 shall not be used in new monitor designs released after January 1, 2000.

2.1.3 EDID 1.2

EDID structure 1.2 added definitions to existing data fields. Structure 1.2 was introduced in EDID Standard Version 3. EDID 1.2 is not recommended in new monitor designs released after January 1, 2000.

2.1.4 EDID 1.3

EDID structure 1.3 is introduced for the first time in this document and adds definitions for secondary GTF curve coefficients. EDID 1.3 is based on the same core as all other EDID 1.x structures. EDID 1.3 is intended to be the new baseline for EDID data structures. EDID 1.3 is recommended for all new monitor designs.

Structure 1.3 is a super set of structure 1.2. The main difference between the two is that 1.3 allows the Monitor Range Limits descriptor to define coefficients for a secondary GTF curve, and mandates a certain set of monitor descriptors.

2.1.5 EDID 2.0

Version 2 Revision 0 data structure defined a completely new EDID data structure based on 256-byte records. This structure was designed to provide additional information that is required for displays that follow the original VESA Plug & Display (P&D) and Flat Panel Display Interface-2 (FPDI-2) Standards.

NOTE: In the future, EDID structure 2.0 will be treated as an allowed, but not mandatory, EDID extension under Enhanced EDID.

NOTE: this document does discuss use of the EDID 2.0 data structure.

2.2 Enhanced EDID

E-EDID is based on EDID structure 1.3 and allows additional data stored as EDID Extensions. In the minimum configuration, E-EDID consists of one data structure--EDID structure 1.3

Compatibility with monitors and systems that require EDID structure 2 is achieved by allowing EDID structure 2 to be included in E-EDID as two extensions residing at fixed locations.

2.3 EDID Format Overview

Address	No. bytes		Description	Format
00h	**8**	**Bytes**	**Header**	**See Section 3.3**
00h		1	00h	
01h		1	FFh	
02h		1	FFh	
03h		1	FFh	
04h		1	FFh	
05h		1	FFh	
06h		1	FFh	
07h		1	00h	
08h	**10**	**Bytes**	**Vendor / Product Identification**	**See Section 3.4**
08h		2	ID Manufacturer Name	EISA 3-character ID
0Ah		2	ID Product Code	Vendor assigned code
0Ch		4	ID Serial Number	32-bit serial number
10h		1	Week of Manufacture	Week number
11h		1	Year of Manufacture	Year
12h	**2**	**Bytes**	**EDID Structure Version / Revision**	**See Section 3.5**
12h		1	Version #	Binary
13h		1	Revision #	Binary
14h	**5**	**Bytes**	**Basic Display Parameters / Features**	**See Section 3.6**
14h		1	Video Input Definition	
15h		1	Max. Horizontal Image Size	cm.
16h		1	Max. Vertical Image Size	cm.
17h		1	Display Transfer Characteristic (Gamma)	Binary
18h		1	Feature Support	See Table 3.11
19h	**10**	**Bytes**	**Color Characteristics**	**See Section 3.7**
19h		1	Red/Green Low Bits	Rx1 Rx0 Ry1 Ry0 Gx1 Gx0 Gy1Gy0
1Ah		1	Blue/White Low Bits	Bx1 Bx0 By1 By0 Wx1 Wx0 Wy1 Wy0
1Bh		1	Red-x	Red-x Bits 9 - 2
1Ch		1	Red-y	Red-y Bits 9 - 2
1Dh		1	Green-x	Green-x Bits 9 - 2
1Eh		1	Green-y	Green-y Bits 9 - 2
1Fh		1	Blue-x	Blue-x Bits 9 - 2
20h		1	Blue-y	Blue-y Bits 9 - 2
21h		1	White-x	White-x Bits 9 - 2
22h		1	White-y	White-y Bits 9 - 2
23h	**3**	**Bytes**	**Established Timings**	**See Section 3.8**
23h		1	Established Timings 1	
24h		1	Established Timings 2	
25h		1	Manufacturer's Reserved Timings	
26h	**16**	**Bytes**	**Standard Timing Identification**	**See Section 3.9**
26h		2	Standard Timing Identification # 1	
28h		2	Standard Timing Identification # 2	
2Ah		2	Standard Timing Identification # 3	
2Ch		2	Standard Timing Identification # 4	
2Eh		2	Standard Timing Identification # 5	
30h		2	Standard Timing Identification # 6	
32h		2	Standard Timing Identification # 7	
34h		2	Standard Timing Identification # 8	

Address	No. bytes		Description	Format
36h	**72**	**Bytes**	**Detailed Timing Descriptions**	**See Section 3.10**
36h		18	Detailed Timing Description # 1	EDID structure Version 1, Revisions 1 and 2, allowed this space to be used for Monitor Descriptors. Host SW using this data should be prepared to detect Monitor Descriptors also in this location even though displays conforming to later revisions of EDID structure only use this space for Detailed Timing Description.
48h		18	Detailed Timing Description # 2 or Monitor Descriptor	
5Ah		18	Detailed Timing Description # 3 or Monitor Descriptor	
6Ch		18	Detailed Timing Description # 4 or Monitor Descriptor	
7Eh	**1**	**Byte**	**Extension Flag**	**Number of (optional) 128-byte EDID extension blocks to follow.**
7Fh	**1**	**Byte**	**Checksum**	**The 1-byte sum of all 128 bytes in this EDID block shall equal zero**

Table 2.1 - EDID Structure Version 1

The following sections provide details on each byte of the EDID Version 1 data structure.

2.4 Data Format Conventions

The EDID data structures are designed to be compact in their representation of data in order to fit the most information into a limited space. To accommodate this, many data lengths have been used according to the needs of the particular data. These include fields from a single bit up to two bytes in length. In all cases, except where explicitly stated, the following conventions are used:

Data length	Convention used	Example
1 to 7 bits	stored in order stated	
8 bits (1 byte)	stored at location stated	
9 to 15 bits	location of bits stated in field definition	
16 bits (2 bytes)	Bytes are a binary format (not BCD) stored in locations specified with least significant byte (LSB) stored in first location.	1280 decimal = 0500h Stored 00 at first location 50 next location
Character string (More than 2 bytes)	Bytes are ASCII, stored in order they appear in the string.	"ACED" Stored 41h at first location, 43h at the next location, 45h at the next location and 44h at the next location.

Table 2.2 - Data Format Conventions

3. Criteria for Creating EDID

These criteria primarily target version 1 revision 3 of the EDID data structure. Use of previous versions for the creation of new data is strongly discouraged. To assist those that are making the transition to the newest revision, items that are new to version 1 revision 3 of the data structure are highlighted.

3.1 Header: 8 bytes - offset 00h-07h

The header provides an eight byte fixed data pattern that is used to easily identify the data as EDID

3.1.1 Exact match of defined header data

- ❑ Header data must match the pattern defined in the E-EDID standard (00h, FFh, FFh, FFh, FFh, FFh, FFh, 00h)

3.2 Vendor/Product ID: 10 bytes – offset 08h-11h

3.2.1 Manufacture ID is valid

- ❑ The 2-byte manufacturer ID (offset 08h-09h) must be valid. These IDs are assigned by Microsoft. Information about obtaining IDs is available in the E-EDID standard.

3.2.2 Product ID is valid

- ❑ The 2-byte Product ID (offset 0Ah-0Bh) is assigned by the manufacturer. Manufacturers self certify that the product ID is valid.

3.2.3 Serial Number

- CHANGE for Version 1 Revision 3 -

- ❑ Version 1, revision 3 of the EDID data structure has no requirement for the format or content of the serial number field (offset 0Ch-0Fh).

  Those that are interested in maintaining compatibility with previous requirements for the field should set at least one byte of the field to be non-zero if an ASCII serial number descriptor is provided in the detailed timing section.

3.2.4 Week of manufacture in valid range

- ❑ The value of this field (offset 10h) must be in the range of 1 to 54. A value of 0 or any value greater than 54 is invalid

  Encoding of Week Number is determined by the manufacturer. One method is to count each 7-day period from January 1 without regard to the days of the week. Another method is to count the weeks based on Sunday to Saturday periods. Either way yields a maximum week value between 53 and 54.

3.2.5 Year of Manufacture in valid range

- ❑ The value of this field (offset 11h) must be greater than 3 and less than or equal to the current year minus 1990. A value of 3 or less would indicate that the display was manufactured before the EDID standard was defined. A value greater than (current year – 1990) would indicate that the display has not yet been manufactured.

3.3 EDID Structure Version / Revision: 2 bytes – offset 12h-13h

3.3.1 EDID version number value is 1

- ❑ The value of this filed (offset 12h) must be equal to 1.

3.3.2 Revision number in valid range

- ❑ The value of this filed (offset 13h) must be greater than zero and less than or equal to the latest revision defined in the E-EDID standard. EDID structure version 1 revision 0 is not considered compliant.

3.4 Basic Display Parameters and Features: 5 bytes – offset 14h-18h

3.4.1 Digital displays must follow video input definition

- ❑ Digital displays must set bit 7 of the video input definition (offset 14h) equal to one. Bits 6-1 must be set to 0.

Common Errors: Many early digital displays set bit 7 for digital, but used the analog definitions for bits 6-0

3.4.2 Maximum Horizontal and Vertical Image Size in valid range

- ❑ The maximum Image size parameters (offset 15h-16h) must be non zero for all displays types other than projectors. Projectors shall use the 0 for both horizontal and vertical maximum image size to indicate this value is variable.

3.4.3 DPMS

- ❑ Displays which set any of bits 7-5 of the feature support byte (offset 18h) must comply with the VESA Display Power Management Signaling Standard.

3.4.4 Preferred Timing mode support in EDID Structure version 1 revision 3

- ❑ If data structure version 1 revision 3 is used then bit 1 of the feature support byte (offset 18h) must be set to one.

- CHANGE for Version 1 Revision 3 -

Previous revisions of the EDID structure supported the use of this filed but did not require its use.

3.4.5 Preferred Timing mode support in all versions

- ❑ In the feature support byte (offset 18h), if bit 1 is set to one then the display must provide a valid timing in the 1st detailed timing position (offset 36h-47h). This data area cannot be used for other types of descriptors.

3.4.6 Default GTF support

- ❑ In the feature support byte (offset 18h) if bit 0 is set to one then the display must follow the GTF standard in its frequency range.

Note: This shall be visually tested by displaying video modes using timings generated by GTF

3.4.7 sRGB

- ❑ Displays which set bit 2 of the feature support byte (offset 18h) equal to 1must use chromaticity values which correspond to the sRGB definition.

  Rx = .6400
  Ry = .3300
  Gx = .3000
  Gy = .6000
  Bx = .1500
  By = .0600
  D65x(Wh) = .3127
  D65y = .3290

  These values are stored using the formula in the E-EDID standard at offset 19h – 22h. The values at each offset must match those shown below

Offset	19h	1Ah	1Bh	1Ch	1Dh	1Eh	1Fh	20h	21h	22h
Value	EEh	91h	A3h	54h	4Ch	99h	26h	0Fh	50h	54h

3.4.8 Phosphor or Filter Chromaticity: 10 bytes – offset 19h-22h

- ❑ See section 3.4.7

3.5 Established Timings: 3 bytes – offset 23h-25h

3.5.1 Established Timings verification

- ❑ Any mode that is indicated as supported in this field (offset 23h-25h) must be a factory supported mode of the display.
  Note: this can be verified using a visual test by displaying each mode listed as supported.

3.6 Standard Timing Identification: 16 bytes – offset 26h-35h

3.6.1 EDID Standard Timings verification

- ❑ Any mode that is indicated as supported in this field (offset 26h-35h) must be a factory supported mode of the display. 2-byte standard timing identifiers that do not correspond to modes listed in the VESA Discrete Monitor Timing standard correspond to timings generated using GTF.
  Note: this can be verified using a visual test by displaying each mode listed as supported. GTF will be used to generate timings for modes that do not correspond to timings listed in the VESA DMT standard.

Avoid common mistakes: Do not use this section to indicate custom timings. There is not enough information for these to be reproduced by the system

Recommended practice: Avoid duplicating timing data in both the Established and Standard timings sections. This may be interpreted as two unique timings instead of the same timing.

3.6.2 Unused areas of the standard timing section must be filled with 01h, 01h

- ❑ If this section (offset 26h-35h) lists less than 8 standard timings, unused 2-byte pairs must contain the data 01h in each byte. Byte pairs containing 00h, 00h or 20h, 20h are not compliant.

Avoid common mistakes: Do not fill unused bytes with 00h

3.7 Detailed Timing Section - 72 bytes – offset 36h-7Dh

The detailed timing section is divided into four descriptor blocks which are 18 bytes each. Each of these blocks contains either detailed timing data or other specific types of data as described in E-EDID standard.

3.7.1 All blocks shall be filled with valid data

- ❑ Each of the four data blocks (offsets 36h-47h, 48h-59h, 5Ah-6Bh and 6Ch-7Dh) must contain data which follow definitions from the E-DID standard. Unused blocks must not be filled using 00h, 01h, 20h or any other fill data in each byte. Non timing descriptor blocks begin with a 5 byte tag identifier in the format 00h, 00h, 00h, <Tag #>, 00h. Compliant display must only use tag numbers defined in the E-EDID standard.

Avoid common mistakes: Do not fill unused bytes with 00h

3.7.2 Timing data must represent a supported mode of the display

- ❑

Note: this can be verified using a visual test by displaying each detailed timing mode listed.

3.7.3 Ordering of blocks

- ❑ Descriptor blocks shall be ordered such that all detailed timing blocks precede other types of descriptor blocks.

3.7.4 Preferred timing in first block

- ❑ The first descriptor block must be used to indicate the display's preferred timing mode. (See 3.4.4 and 3.4.5) When the preferred timing bit is set (offset 18h, bit 1) the first block (offset 36h-47h) must not contain data types other than a detailed timing.

  NOTE: LCD or other fixed pixel types of displays should use the preferred timing to indicate a format and timing that corresponds to the display's "native" format.

3.7.5 A Monitor Range Limits Descriptor provided

- ❑ One of the four descriptors must be a range limits descriptor (type FDh) . This is a requirement of EDID structure version 1 revision 3 as well as a requirement for GTF compliance.

- CHANGE for Version 1 Revision 3 -

Previous revisions of the EDID structure supported the use of this filed but did not require its use.

3.7.6 A Monitor Name Descriptor provided

- ❑ One of the four descriptors must be a monitor name ASCII string descriptor (type FCh). This is a requirement of EDID structure version1 revision 3.

- CHANGE for Version 1 Revision 3 -

Previous revisions of the EDID structure supported the use of this filed but did not require its use.

3.7.7 ASCII string descriptors terminated properly

- ❑ Descriptors identified by tag numbers FFh, FEh and FCh contain ASCII strings. The length of the string in the descriptors is limited to 13 characters. Strings that are less than 13 characters must use the line feed character (0Ah) following the final string character and the space character (20h) for all remaining bytes of the descriptor. Use of 00h or 01h to fill remaining bytes is not compliant.

Avoid common mistakes: Do not fill unused bytes with 00h

3.7.8 Manufacturer specific data types

- Manufacturer specific descriptor definitions are identified by tag numbers 01h-0Fh. VESA does not provide compliance criteria for these descriptor types

3.8 Extension Flag and Checksum: 2 bytes – offset 7Eh-7Fh

3.8.1 Extension flag

- The value of the extension flag should be equal to the number of extensions provided with the base EDID. This number does not include the base EDID. It does include the block map if that is used

  Example: If the EDID data does not include any extensions the Extension Flag value is 0

  If the EDID data includes a single extension the Extension Flag value is 1

  If the EDID data includes than 2 extensions, then the block map must also be used. In this case the value of the extension flag will be 3.

3.8.2 Checksum byte

- This byte should be programmed such that a one-byte checksum of the entire 128-byte EDID equals 00h.

4. Criteria for Interpreting EDID

This section is intended to give guidance to those that are reading and interpreting EDID data. While consistently compliant EDID would be ideal, in practice a wide variety of EDID implementations will be encountered. Non-compliant data will be encountered. The document tries to guide in interpretation compliant data and uniform treatment of non-compliant data.

4.1 Header: 8 bytes - offset 00h-07h

4.1.1 Exact match of defined header data

- Current EDID data structures use an 8-byte header at the beginning of the data structure. Future versions may not contain this header. As such the header should not be used to determine that the data is a valid EDID structure. The checksum is used to determine that you have successfully read a full block of data

4.2 Vendor/Product ID: 10 bytes – offset 08h-11h

4.3 EDID Structure Version / Revision: 2 bytes – offset 12h-13h

4.3.1 EDID version number value is 1

- The value of this field (offset 12h) must be equal to 1. Any other values should be treated as invalid and the remainder of the data cannot be reliably used.

  A definition for EDID data structure version 2 does exist, however that data structure is a special case not covered by this document.

4.3.2 Revision number in valid range

- The value of this field (offset 13h) must be greater than zero and less than or equal to the latest revision defined in the E-EDID standard. EDID structure version 1 revision 0 is not considered compliant.

  As new revision of EDID is defined the structure remains compatible with previous revisions. Systems that encounter revisions of EDID defined after the release of that system should interpret that data based on the latest revision that they understand

4.4 Basic Display Parameters and Features: 5 bytes – offset 14h-18h

4.4.1 Interpreting the video input definition for digital displays

- For **EDID version 1 revision 3** and future revisions of the data structure, if offset 14h bit 7 is set then bits 6-0 should be interpreted according to the definitions in the E-EDID standard.
- For **EDID version 1 revision 2 or earlier** data structures when offset 14h bit 7 is set to one, the value of bits 6-0 are undefined, and therefore cannot be interpreted to mean anything.

4.4.2 Preferred Timing mode support in all versions

- In the feature support byte (offset 18h), if bit 1 is set to one then the host should treat the data in the 1st detailed timing position (offset 36h-47h) as a preferred timing.

  This could be considered as the default timing to be used when the display is encountered for the first time.

4.4.3 Preferred Timing mode support in EDID Structure version 1 revision 3

- If data structure version 1 revision 3 is used then bit 1 of the feature support byte (offset 18h) must be set to one.

If this bit is not set to one then the first detailed timing does not necessarily represent the display's preferred timing

4.4.4 Default GTF support

- In the feature support byte (offset 18h) if bit 0 is set to one then the display supports the GTF standard in its frequency range. If the adapter produces GTF based timings, it shall signal to the display that the timing is GTF based by using the sync polarities designated by the GTF standard.
- If the GTF bit is set and a frequency range is not provided, then the monitor is not considered to be fully GTF compliant. The GTF standard has guidelines for treatment of this situation. In GTF Standard ver 1 rev 1 this is contained in section 5.4

4.4.5 sRGB

- Displays which set bit 2 of the feature support byte (offset 18h) equal to 1 must use chromaticity values which correspond to the sRGB definition.

  Rx = .6400
  Ry = .3300
  Gx = .3000
  Gy = .6000
  Bx = .1500
  By = .0600
  D65x(Wh) = .3127
  D65y = .3290

  These values are stored using the formula in the E-EDID standard at offset 19h – 22h. The values at each offset must match those shown below

Offset	19h	1Ah	1Bh	1Ch	1Dh	1Eh	1Fh	20h	21h	22h
Value	EEh	91h	A3h	54h	4Ch	99h	26h	0Fh	50h	54h

4.4.6 Phosphor or Filter Chromaticity: 10 bytes – offset 19h-22h

- See section 4.4.5

4.5 Established Timings: 3 bytes – offset 23h-25h

4.5.1 Established Timings Identification Verification

- Any mode that is indicated as supported in this field (offset 23h-25h) can be treated as a factory supported mode of the display.
- If any of bits 6-0 in byte 3 (offset 25h) are set, these indicate manufacture specific information and cannot be interpreted according to any definitions in the EEDID standard.

4.6 Standard Timing Identification: 16 bytes – offset 26h-35h

4.6.1 EDID Standard Timings Identification Verification

- Any mode that is indicated as supported in this field (offset 26h-35h) can be treated as a factory supported mode of the display.

4.6.2 Unused areas of the standard timing section must be filled with 01h, 01h

- If this section (offset 26h-35h) lists less than 8 standard timings, unused 2-byte pairs must contain the data 01h in each byte. While byte pairs containing 00h, 00h or 20h, 20h are compliant, in practice these data pairs (00h,00h or 20h, 20h) do not correspond to likely timing formats and should not be treated as valid timings.

4.6.3 GTF timings in Standard Timings Identification block

- 2-byte standard timing identifiers that do not correspond to modes listed in the VESA Discrete Monitor Timing standard shall be treated as timings to be generated using GTF.

4.7 Detailed Timing Section - 72 bytes – offset 36h-7Dh

The detailed timing section is divided into four descriptor blocks which are 18 bytes each. Each of these blocks contains either detailed timing data or other specific types of data as described in E-EDID standard.

4.7.1 All blocks shall be filled with valid data

- Each of the four data blocks (offsets 36h-47h, 48h-59h, 5Ah-6Bh and 6Ch-7Dh) must contain data which follow definitions from the E-EDID standard. Non timing descriptor blocks begin with a 5 byte tag identifier in the format 00h, 00h, 00h, <Tag #>, 00h. Compliant displays must only use tag numbers defined in the E-EDID standard.

  Data blocks filled with a repeated single byte fill patterns should be treated as invalid data.

4.7.2 Ordering of blocks

- By Definition in the E-EDID standard, descriptor blocks shall be ordered such that all detailed timing blocks precede other types of descriptor blocks. However, in practice EDID interpretation should not depend on fixed ordering or addressing for any particular detailed timing descriptor except the preferred timing mode

4.7.3 Preferred timing does not mean maximum addressability

- The preferred timing mode does not necessarily indicate the highest format capability of the display and should not be interpreted as such. This can only be interpreted by examining all the display modes expressed in EDID.

4.7.4 Using Monitor Range Limits Data

- One of the four descriptors must be a range limits descriptor (type FDh) . This is a requirement of EDID structure version 1 revision 3 as well as a requirement for GTF compliance.

  Range limits cannot be reliably derived from any other EDID fields than the range limits field. This field was not required in EDID data structures prior to version 1 revision 3. When encountering EDID without this data, care should be taken to warn users when possible before switching to timings not listed in the Established, Standard or Detailed timing blocks.

4.7.5 A Monitor Name Descriptor provided

- One of the four descriptors must be a monitor name ASCII string descriptor (type FCh). This is a requirement of EDID structure version1 revision 3.

4.7.6 ASCII string descriptors terminated properly

- Descriptors identified by tag numbers FFh, FEh and FCh contain ASCII strings. The length of the string in the descriptors is limited to 13 characters. Strings that are less than 13 characters must use the line feed character (0Ah) following the final string character and the space character (20h) for all remaining bytes of the descriptor.

4.7.7 Manufacturer specific data types

- Manufacturer specific descriptor definitions are identified by tag numbers 01h-0Fh. Interpretation of these requires existing knowledge of their definitions from the manufacturer providing the data. Definitions for these types may differ from manufacturer to manufacturer.

4.8 Extension Flag and Checksum: 2 bytes – offset 7Eh-7Fh

4.8.1 Extension flag

- Any non-zero value of the extension flag indicates that the display has additional EDID data beyond the first 128-bytes. The extension flag indicates the number of 128-byte extensions present. The method to access this additional data is defined in the E-DDC standard.

4.8.2 Checksum byte

- This byte is programmed such that a one-byte checksum of the entire 128-byte EDID equals 00h. If the recorded checksum does not equal the calculated checksum then the checksum is invalid.