



HARMONIZED SYSTEM
COMMITTEE
-
25th Session
-

NC0221E1
(+ Annex)
O. Fr.

H11-3

Brussels, 3 March 2000.

CLASSIFICATION OF DVD STORAGE UNITS

(Item IX.11 on Agenda)

Reference documents :

42.448 (HSC/22)
42.508 (HSC/22)
NC0160E2, Annex G/17, paragraph 7 (ii) (HSC/24 – Report)

I. BACKGROUND

1. At its 24th Session in October 1999, the Harmonized System Committee examined Doc. 42.448, "Possible amendments to the Explanatory Note to Heading 84.71". Following its discussion, the Committee requested the Secretariat to prepare separate documents for the classification of twelve products of which DVD storage units was one (see Annex G/17 to Doc. NC0160E2). The Secretariat requested and received information on these products through the assistance of International Chamber of Commerce (ICC). Having received no input from administrations, the Secretariat presents its own views on the classification of "DVD storage units" below.

II. SECRETARIAT COMMENTS

2. In the first place, the Secretariat points out that the term "DVD", initially derived from Digital Video Disc, now refers to a new generation of discs optically read by laser called "Digital Versatile Discs".
3. According to the information provided by the ICC (see the Annex to this document), DVD storage units are optical storage media with improved capacity and bandwidth compared to CDs.

File No. 2568

4. In addition, as the Secretariat understands it, the expression “DVD storage units” refers to the following apparatus :

DVD drives designed to operate solely in conjunction with automatic data processing machines via an interface. Unlike DVD drives designed to be connected to apparatus other than automatic data processing (ADP) machines (e.g., televisions, sound reproducers) DVD drives for ADP machines do not themselves have any device for recording or reproducing sound or image.

5. According to some other information obtained by the Secretariat, there are three types of drives :
- (a) DVD-ROM drives : these can only retrieve signals from (read) the disc and transmit them to the central processor for processing.
 - (b) DVD-R drives : these read discs and also write to a disc, but only once. DVD-R (R for “recordable”) discs can of course be recorded in several stages, but once written the data can no longer be corrected or deleted.
 - (c) DVD-RAM drives : these use Phase-Change-Technology (PCT) enabling DVD discs to be used like magnetic discs or diskettes. With these drives the discs can be read, erased and re-recorded.
6. The Secretariat understands that in data processing circles these drives are regarded as mass memory units.
7. Based on the, admittedly limited, information provided by the ICC and the information developed by the Secretariat as indicated in paragraph 5 above, the Secretariat is of the view that these storage units are classifiable in subheading 8471.70 as storage units. The Secretariat would apply the same classification rationale as for CD-ROM drives (see Classification Opinion 8471.70/1).
8. As to their mention in the Explanatory Notes to heading 84.71, the Secretariat leaves it to the Committee to decide whether the information developed to date (with regard to DVD storage units) is sufficient for that purpose.

III. CONCLUSION

9. The Committee is invited to examine the classification of the articles described in paragraph 4, taking account of the Secretariat’s comments above and to decide what further action to take with regard to this matter.

* * *

DVD Storage Units

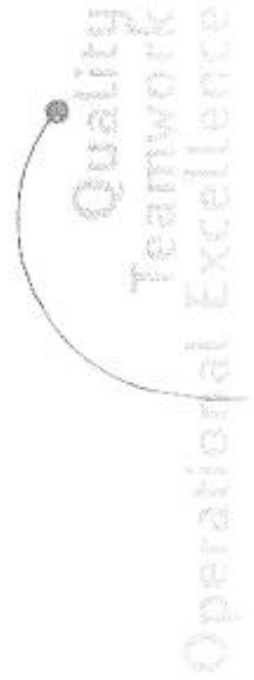
DVD (No longer an acronym, after being referred to as Digital Versatile Disc) storage units: An optical storage medium with improved capacity and bandwidth over the CD (Compact Disc). DVD drives for computers started as read-only drives ("DVD-ROM"). DVD's provide over 7 times the storage capacity (4.7GBytes) of CD-ROMS. Dual-layer discs increase the disc capacity to 8.5GB. Double-sided, dual-layer discs increase the capacity to 17GB. DVD-ROM drives will also read existing CD-ROMS. Rewritable DVD-RAM drives currently read and write to a 2.6GB DVD-RAM disc and read a 3.9GB, 4.7GB and 8.5GS DVD-ROM disc. Dimensions W x H x D: 148 mm x 41 mm x 207 (varies) mm. Weight. =/- 1 kg

*Note: In general, the acronym "DVD" is used in reference to the technology and is not usually defined in terms of spelling out what DVD stands for. If the long-version of DVD is required, it is generally defined as "Digital Versatile Disk." When referring to the actual drive, it is customary to say "DVD-ROM drive" or "DVD-RAM drive," etc.





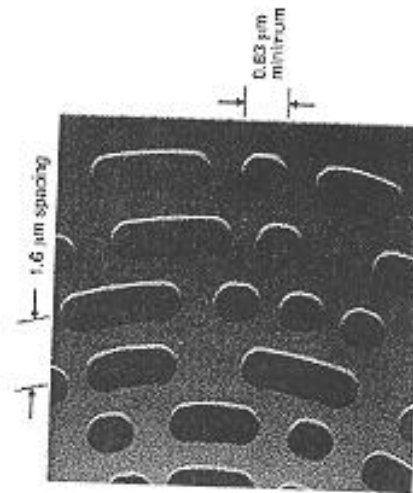
What is DVD ?



DVD versus CD comparison

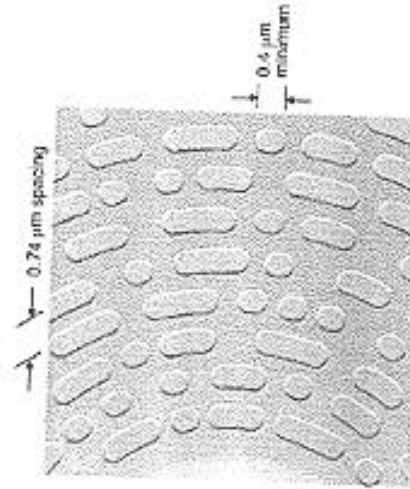
CD (in Gigabyte)

0.650



DVD (in Gigabyte)

- 4.7 (12 cm Single Layer)
- 8.54 (12 cm Double Layer)
- 1.46 (8 cm Single Layer)
- 2.66 (8 cm Double Layer)





Basics

DVD -> Digital Versatile Disc

Next generation of optical disc storage technology

DVD has different formats (Read only)

- DVD ROM (Computer Data -> main target for PC)

- DVD Video

- DVD Audio

DVD Re writable (TBD)

- DVD-R, DVD-RAM, DVD-RW, DVD+RW



Operational Excellence
Quality
Teamwork

Business
Desktop
BDD
Division

DVD Video Techno

- Up to **17GB** capacity (dual layer and dual side)
- Video format: **MPEG-2**
- Audio format: **AC-3** (Dolby Digital) or **MPEG-2**
- Navigation format: **DVD 1.0**





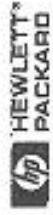
DVD Audio

6 channels at sample rates of 48/96/192 kHz (also 44.1/88.2/176.4 kHz) and sample sizes of 16/20/24 bits. This allows theoretical frequency response of up to 96 kHz and dynamic range of up to 144 dB.

2 channel 16bits 44.1kHz CD format

DVD-Audio allows up to 16 still graphics per track, with a set of limited transitions. On-screen displays can be used for synchronized lyrics ..





Application for DVD on PCs

Software distribution :

if data exceeds the 650 Mbytes of CD ROM

Operating systems

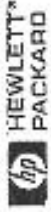
Application Software

Database

Archiving and Backup :

archives, backup made on DVD RAM





DVD Playback devices on PC

PCs : DVD ROM drives very similar to CD ROM drives

Transfer rate on DVD -> X rate (1X = 1.3 Mbytes/s)
(CD 1x 150 Kbytes/s)

Current generation : 6X, 8X, 12X

Dimension : Half Height : 148 mm x 41 mm x 207 mm approx.

Slim DVD: 129mm x 128 mm x 12.7 mm
(Notebook and Small Form Factor PCs)

Interface : IDE (predominant) + SCSI

Improved Reliability on DVD : less sensitive to scratches due to improved
Error Code correction





DVD ROM the super CD

- Up to **17GB** capacity (dual layer and dual side) for storing computer data on a PC
- Forward compatibility with all existing CD ROM formats

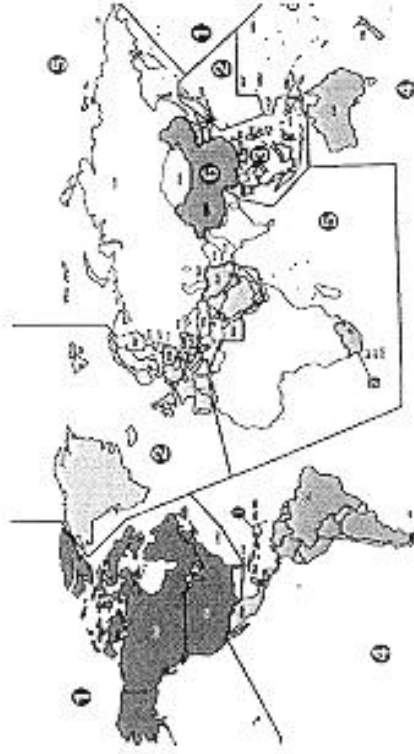
CD-Audio
CD-ROM (mode 1 and mode 2)
CD-ROM XA (mode 2 , form 1 and form 2)
CD-I (mode 2 , form 1 and form 2)
CD-I Ready
CD-I Bridge
CD-R
CD-RW
Photo CD
Video CD





Region Protection Code

- **RPC1 DVD Drive :**
 - Region code is soft-coded in the OS and Player
 - 1 time setting at first play
- **RPC2 DVD Drive :**
 - Region code is hard-coded in the DVD Drive
 - 5 changes allowed through playing different region titles
 - **Mandatory starting December 1999**



Operational Excellence
Quality Teamwork
Business Desktop
BDD
DIVISION