



HARMONIZED SYSTEM
COMMITTEE

-
27th Session
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NC0389E1
+ Annex
O. Eng.

Brussels, 27 April 2001.

CLASSIFICATION OF DVD STORAGE UNITS

(Item VIII.6 on Agenda)

Reference documents :

42.448 (HSC/22)
42.508 (HSC/22)
NC0160E2, Annex G/17, para. 7 (ii) (HSC/24 – Report)
NC0221E1 (HSC/25)
NC0250E2, Annex IJ/11 (HSC/25 – Report)
NC0302E1, (HSC/26)
NC0340E2, Annex G/19 (HSC/26 – Report)

I. BACKGROUND

1. At its 26th Session, the Harmonized System Committee continued its discussion on the classification of DVD drives (see Doc. NC0302E1 and Annex G/19 to Doc. NC0340E2 – HSC/26 Report).
2. One delegate felt that, on the basis of the information given in Doc. NC0302E1, there existed three types of DVD drives : (i) DVD-ROM/Recordable drives which could operate solely in conjunction with automatic data processing machines, (ii) standalone DVD players and (iii) “mixed” or “dual use” DVD drives, as the information on page 3 of Annex I to the working document implied.
3. That delegate also noted that according to Canada and the Secretariat, DVD-ROM drives which could operate solely in conjunction with automatic data processing machines should be classified in heading 84.71; however, this “sole use” criterion was not the only criterion provided in the legal texts. As indicated in paragraph 9.3 of Doc. NC0302E1, this type of DVD drive could perform the functions described by headings 85.19 and 85.21, and if this was the case, they would fall outside heading 84.71 by application of Note 5 (E) to Chapter 84. In his opinion, it was also not clear whether DVD-Recordable drives could record from external sources other than automatic data processing machines (e.g., video or audio reproducers through an appropriate interface). The second type of DVD drive, i.e., standalone DVD players, could reproduce video or audio or both, but the information available so far was not clear enough to determine what their principal function was. Finally, “mixed” or “dual-use” DVD drives could be used either in conjunction with automatic data

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processing machines or in conjunction with audio or video reproducers and they should therefore be classified by application of the General Interpretative Rules.

4. The Committee agreed to consider the classification of specific products but it needed information about "mixed" or "dual use" DVD drives, if they existed at all. The Representative of the International Chamber of Commerce (ICC) stated that, if the Committee agreed, the ICC would volunteer to provide more information about the types of DVD drives and players being discussed by the HS Committee and would arrange for a demonstration of these products at the next session of the Committee.
5. The ICC and interested administrations were invited to submit additional information about the types of DVD drives and players. The Secretariat was instructed to prepare a new document on the classification of specific products which were representative of the types of DVD drives (including "mixed" or "dual use" DVD drives) and players on the market for examination by the Committee at its next session.

II. SECRETARIAT'S ACTION AND COMMENTS

6. On 19 December 2000, the Secretariat invited the ICC and interested administrations to submit additional information about the types of DVD drives and players on the market.

Note from the Canadian Administration

7. On 23 February 2001, the Secretariat received the following note from Canada :
 - 7.1 "...During the 26th Session of the HSC, discussions continued on the classification of DVD drives. Arising from these discussions was an issue regarding the types of DVD drives. In particular, one delegate suggested that there might be in existence a "mixed" or "dual use" DVD drive (Annex G/19 to document NC0340E1). In this regard, member administrations were invited to submit additional information on these types of DVD drives.
 - 7.2. The Canadian administration has conducted a further review of the types of DVD drives currently in the market and has concluded that there are only two types of DVD drives namely :
 - DVD-ROM/Recordable drives that can operate solely in conjunction with automatic data processing (ADP) machines (i.e. computers).
 - Standalone DVD units that are designed to be connected to television sets and video monitors.
 - 7.3. These findings are consistent with our early position that appeared in paragraphs 9 and 10 of Doc. NC0302E1.
 - 7.4. During the course of the review, no references to "mixed" or "dual use" DVD drives that could be used either in conjunction with ADP machines or in conjunction with audio or video reproducers, were found..."

Note from the ICC

8. On 23 March 2001, the Secretariat received the following note from the ICC :

- 8.1. "...With respect to the classification of DVD storage units and the invitation to the International Chamber of Commerce (ICC) to submit additional information (per Annex G/19 to Doc. NC0340E2, HSC/26/November 2000), I am enclosing information about DVD drives and players from ICC member companies. In this submission, you will find technical data on different types of DVD drives and basic facts about DVD player technology. ICC member companies supplying this information have indicated that they are not aware of any hybrid products ("mixed" or "dual-use" DVD drives) currently available on the market.

DVD Drive Technology

Overview - Types of Drives and How They Operate

- 8.2. DVD drives come in various formats - DVD-ROM / Recordable / Rewritable (e.g.: DVD-R, DVD-RAM, DVD+RW, and DVD-RW) and they operate exactly like CD-ROM/Recordable/Rewritable drives (e.g.: CD-R and CD-RW) and hard drives. In other words, they allow users to access (read and/or write) large quantities of data in the range from 7 to 28 times that of conventional CDs (650 MegaBytes). They cannot operate as a "stand alone" apparatus, and must be connected to an ADP machine to control all the functions of the drive (stop, start, search, data transfer). The ADP machine determines any and all information that it needs from the disc. The DVD-ROM drive simply retrieves the digital information (1s and 0s) on the disc from the location specified by the ADP and then passes that information back to the ADP machine. During this process, the DVD-ROM drive requires no knowledge of the content of the digital information that it passes back and forth. DVD-ROM drives lack all of the necessary components (hardware and software) needed to convert the information on the disc into viewable text or images. The drives lack all of the necessary processing software and hardware (including decryption, MPEG-2 decoding, creation of video images, and the necessary output ports like Composite Video, S-video, and/or Component Video) that are normally included in a DVD player.
- 8.3. In principle, the drives are relatively unintelligent devices designed to pass the requested digital information back and forth to the ADP machine.

DVD-ROM/DVD-Recordable Drive

- 8.4. Can operate only in conjunction with an ADP machine.

DVD-ROM drives are connected to the ADP through a standard computer interface, such as IDE (Integrated Drive Electronics), SCSI (Small Computer System Interface) and USB (Universal Serial Bus), just like a hard drive and other ADP storage devices.

- 8.5. Acts as a transport mechanism for information
- a. ADP requests a number of blocks of information starting at a location. The DVD-ROM drive reads the information and passes the information (1s and 0s) unmodified to the ADP.
 - b. The DVD-ROM drive(s) has no understanding of file systems. It simply passes "blocks" of digital information back and forth. The file management resides in the ADP machine.
- 8.6. DVD-ROM drives do not include the additional hardware and software needed to process/convert the information from the disc into video images.
- a. No video ports.
 - b. No video decoders.
 - c. No MPEG-2 video/audio decompression (hardware/software).
 - d. No software or hardware to control navigation (fast forward, reverse, pause, zoom, etc.).

- 8.7. DVD-ROM does no additional processing on the data. These are relatively unintelligent devices that pass data back and forth.
- 8.8. Additionally, DVD-ROM drives are primarily designed for computer data where data transfer speed is paramount. As such, we now see the standard DVD-ROM being a 12X to 16X drive while the mechanism contained in a DVD player transfers information from the disc at a speed of 1X.
- 8.9. DVD drives have a "front end" module, which has the laser pickup, mechanism and initial disc error correction, and can exist generally in two forms :
 - a. An element to be used in an ADP machine, which supplies power and additional processing and decoding.
 - b. An accessory to be connected to an ADP machine, which supplies power and additional processing and decoding.
- 8.10. As referenced above, DVD drives are specifically optimized for ADP machine or system use rather than video and audio use, in terms of disc playback.

DVD Player Technology

- 8.11. A DVD player is an optical disc player specifically designed to convert digital information into video and audio signals for use by TV sets or audio systems. DVD players play DVD discs that have video information coded using the MPEG-2 compression system at a 40 to 1 ratio. These discs have different audio tracks for 5+1 multi channel systems as well as stereo use. Read-only discs (DVD Video discs) can be single layer or dual layer, single or double-sided, giving a capacity in terms of digital data from 4.7 GB up to 18 GB. Recordable discs are single layer only, but can be single or doubled sided to allow capacities of 4.7 GB and 9.4 GB respectively. This is many times the capacity of an audio CD, which can normally also be played in a DVD player.
- 8.12. Picture and sound quality is at a much higher level than a VHS video recorder and the capacity of the disc allows multi-language sound tracks and extra short features as well as a film.
- 8.13. DVD players can include multi-channel audio decoders, special improved quality video outputs such as progressive scan and many other special user convenience features in addition to basic mandatory features.
- 8.14. A DVD player works by using a laser beam to read the very high density tracks which are pressed onto the optical discs. The signal read by the laser beam goes through stages of error correction and decoding, decompression and is then transformed from a digital signal into an analog signal which can be connected to a TV set. As there is some degree of intelligence inside the decoding part of the player, through the use of powerful microprocessors, menus and some interactivity can be supported on the discs.
- 8.15. All DVD players consist of :
 - "front end" module or drive, which has the laser pickup, mechanism and initial disc error correction,
 - "back end" module, which decompresses and organizes the digital information from the front end into an analogue video and audio signal to be displayed on a TV,
 - a physical connection between the "front end" and "back end" modules,

- power supply to transform the mains supply into the right voltages for the signal processing and disc reading parts,
- casing for protection, design appearance and isolation,
- connectors for signal outputs to TV, audio system, etc.

8.16. DVD Video/Audio/Game Players also have the following attributes :

1. Acts entirely on its own (No ADP is required) to take the information from the disc, processes the information.
 - a. Video player will read the file system (UDF 1.02) to determine the location of the video files.
 - b. It will take the files from the disc and process the information to play.
 - i. It will decrypt/descramble the information.
 - ii. Separates navigation information from video/audio information.
 - iii. It will convert the MPEG-2 compressed video/audio into video/audio frames.
 - iv. Hardware (video and audio digital to analog converters called DACs) to create signal for TV/stereo.
 2. Hardware to control navigation (fast forward, reverse, pause, zoom, etc.)...".
9. The ICC also provided the Secretariat with the typical specifications of DVD-ROM drives and DVD players made by Acer, Toshiba, Pioneer, Thomson Multimedia and Sony, indicating that the difference would be in the features the user would get depending on how much money he or she would be willing to spend. These specifications are set out in the Annex to this document.
10. No further information was provided to the Secretariat from other administrations regarding :
- the existence of so called "mixed" or "dual use" DVD drives.
 - Any specific product for consideration by the Committee.
11. Additional detailed information on "DVD Definition", "DVD-ROM/DVD-Recordable Drives", "Standalone DVD Players" and on the distinction between the two types of DVD drives and players can be found in paragraphs 6 to 10 of Doc. NC0302E1. Information on the similarity of "DVD-ROM/DVD-Recordable" drives to "CD-ROM drives" can be found in paragraphs 15 to 18 of Doc. NC0302E1.
12. On the basis of the information obtained so far, the Secretariat is of the view that "DVD-ROM/DVD-Recordable/DVD-Rewritable Drives should be classified in heading 84.71. The Secretariat has no further comments on "mixed" or "dual use" DVD drives, as no information was obtained regarding the existence of such products on the market.

13. The Committee should be reminded that, at the 27th Session, the ICC would arrange for a demonstration of the types of DVD drives and players being discussed by the HS Committee.
14. The Committee is also reminded that the Canadian Administration had expressed concerns and made suggestions about classifying components of the various DVD drives and the usefulness of any classification decision on DVD drives (see subparagraphs 9.6 to 9.9 of Doc. NC0302E1).

III. CONCLUSIONS

15. Taking into account the comments provided by Canada, the ICC and the Secretariat, the Committee is invited to rule on the classification of DVD drives and to decide what further action should be taken in this regard.
16. The Committee is also invited to give its views in respect of the concerns expressed by Canada (see paragraph 14 above).

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