



HARMONIZED SYSTEM
COMMITTEE

-
27th Session

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NC0397E1
(+ Annex)
O. Fr.

H11-3

Brussels, 23 April 2001.

CLASSIFICATION OF THE PALM V™

(Item VIII.14 on Agenda)

Reference documents :

NC0310E1 (HSC/26)
NC0340E2, Annex H/6 (HSC/26 - Report)

I. BACKGROUND

1. At its 26th Session, in November 2000, the Committee held a preliminary discussion on the classification of the PALM V™.
2. The Committee decided that more details were required, particularly as regards the device's programmability. Moreover, it considered that, for classification purposes, it would be useful to have further information concerning, among other things, the type of hardware, the nature of the software, and the nature of the product as presented to Customs.
3. On 15 February 2001, at its request, the Secretariat was given a technical presentation on the device, organized by the ICC.

II. SECRETARIAT COMMENTS

4. At the demonstration of the Palm V™, it was explained that the device incorporates a processor (16 MHz - 24 MHz), 2MB of Flash-ROM memory and 2MB of RAM. Externally, it takes the form of a plastic case with a liquid-crystal touch-screen, various function buttons and an infrared port, which enables it to transfer data to other IR-enabled devices (see the Annex to this document for detailed information on the PALM V™).

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5. Moreover, the Secretariat noted that the device's various functions are not tied to its mechanical structure. The applications correspond to the execution programmes which must be loaded into the device's RAM. It follows that the Palm V is freely programmable.
6. According to the information obtained by the Secretariat, if the device's lithium-ion battery remains discharged for too long, all the data are irretrievably lost, apart from the operating system, which is stored in the flash memory.
7. In this connection, it should be noted that the **calculator** function, like the device's other **standard** applications, such as office tasks : date book, address book, to do list, expense record keeper, etc., must be installed from the Palm Desktop software delivered with the device on CD-ROM.
8. As far as the cradle is concerned, the Secretariat continues to be of the opinion that it can only be regarded as an accessory, since it is not permanently attached.
9. In the light of the additional information obtained, the Secretariat considers that the Palm V™ fulfils the conditions laid down in Note 5 (A) (a) to Chapter 84 for it to be classified as an automatic data processing machine.
10. Consequently, the Secretariat recognises that its opinion to the effect that the Palm V™ could be classified in subheading 8470.10 (cf. Doc. NC0310E1 - HSC/26) needs to be reconsidered in favour of classification in subheading 8471.30 as a portable digital automatic data processing machine. The software should be classified separately in heading 85.24 by application of Note 6 to Chapter 85.
11. The Secretariat, of course, leaves it to the Committee to take the final decision on the classification of the device in question.
12. Finally, the Secretariat notes that all the information gathered concerning the Palm V™ will be placed at the disposal of delegates in the meeting room. Moreover, delegates will be given a demonstration of how the device works during the HSC's 27th Session.

III. CONCLUSION

13. The Committee is invited to rule on the classification of the Palm V™.

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PALM V™

(Information provided during the presentation on 15/2/2001)

➤ **TECHNICAL CHARACTERISTICS**

The Palm V/VX is a second-generation Palm handheld computing product. The Palm V/VX is compact and light, weighing approximately 115 grams (4 oz) and measuring 11.5 cm (4.7") X 7.7 cm (3.2") x 1 cm (0.4"). It includes a 160 x 240 pixel LCD screen with 16 gray levels.

The Palm V/VX is delivered with the following hardware components :

- a central processing unit (CPU);
- memory to store the operating system (OS), application programmes and data;
- input and output devices to allow programmes and data to be loaded and the results of processing operations to be displayed or transferred.

• **Central unit :**

The Palm V/Vx is built around a MC68EZ/VZ238 or «Dragonball» microprocessor (speed 16MHz to 24MHz). This processor is based on the Motorola 68000 32-bit microprocessor used, in particular, in the Apple Macintosh product line and in most UNIX systems in the 1980s. The Dragonball supports the full Motorola 68000 instruction set. It also integrates the input/output and memory control circuitry in a single chip and delivers a computing power of 2.7 to 4.1 million instructions per second (MIPs). The Palm V's Dragonball EZ operates at 16 MHz, while the Dragonball VZ in the Palm Vx operates at 24 MHz and incorporates a few marginal improvements.

• **Memory :**

The Palm V/Vx has 2MB/8MB of RAM and 2MB of Flash « ROM ».

The Flash memory is used to store the Palm Operating System, which can be upgraded or entirely replaced electronically, without replacement of the Flash memory chip.

The RAM is mainly used to store software applications and the data to be processed. Applications may be Palm standard software, commercial packages or programmes written by the user for his own purposes.

• **Input/output :**

There are four main user interfaces for data input : touch screen, external keyboard, serial port and infrared.

- **Touch screen** : Built-in. 2 input methods available :

Software keyboard : the stylus is used to display an on-screen keyboard on which the user simply taps the characters he wants to enter.

Graffiti software : handwriting software which recognises specific characters written by hand with a stylus in the writing area. The latter is divided into character and numeric data entry areas. With a little practice, it is easy to write up to 30 error-free words per minute.

- **External keyboard** : a portable, light and compact keyboard attached to the Palm through its serial port (sold separately).
- **Serial and infrared ports** : Built-in. See below.

The Palm V/Vx has three built-in data output interfaces : LCD screen, serial port and infrared port.

- **LCD screen** : output is displayed visually on the display area (160 x 160 pixels) in character or graphic form, according to the application.
- **Serial port** : the built-in serial port allows two-way data communication, for example, with a PC to synchronize data and to download additional software by using the cradle. The serial port can also be used with most modems, portable keyboards, printers, etc. The serial port is similar to the RS232 standard, which is the TIA/EIA standard for serial transmission between computers and peripheral devices (modem, mouse, etc.).
- **Infrared port** : the built-in infrared port can transfer data, including add-on applications, to other IR-enabled devices. It can also be used for third-party infrared applications, for example, to communicate with and control printers, wireless modems, etc. This is a common feature of most portable computers today.

- **Other hardware features :**

The Palm includes a number of function buttons on the front which can be programmed by the user in the same way as the function keys on a PC.

The «Hotsync» cradle delivered with the Palm provides a means of synchronization with a PC whereby data on the Palm can be replicated on the PC. The cradle also provides for the recharging of the integrated lithium-ion battery of the Palm V/Vx, which allows the device to operate without an external power source.

The Palm is delivered with a « Getting Started Guide », a protective cover, a Handbook and a DB-9 adapter for connecting to a standard PC serial port.

➤ **PROGRAMMING**

The Palm V™ can be programmed in a number of ways :

- Programming directly on the Palm
- Using a host computer to generate a native Palm application
- Using a host computer to generate a generic application

- **Programming directly on the Palm with a third-generation language or macro-like tools**

There are various third-party solutions enabling a Palm V to be programmed directly without any host computer : Pocket C, LispMe, Quartus Forth.

- For example, a programme can be created on a Palm V by using "Pocket C" language and its C compiler loaded onto the Palm. Programmes can be written by the user in this language on the Palm Memo-Pad and then compiled using the compiler. The compiled programme is then stored to be executed as required on the Palm. Several high-level tools also support macro languages.
- The Palm Quicksheet spreadsheet package includes arithmetical and logical functions. They can be used to write algorithms to process data entered on the spreadsheet.

- **Using a host computer to generate a native Palm application**

A Palm specific programme can be developed for the Palm V with a host computer (Windows, Macintosh, Unix, etc. environment), using the appropriate development tools (CodeWarrior, GNU) and a third-generation language (C...). The programme is then compiled in machine language and downloaded onto the Palm where it is stored and retained. It can then be executed on demand to perform the task for which it has been designed.

- **Using a high-level development environment on a host computer to generate a generic application**

A programme running on Palm can be developed on a host computer using a high-level development environment (Java, for example). The programme is then generically encoded. It can next be downloaded onto a variety of computers, including Palm, where it is stored and retained. Once installed on a Palm, it can be executed on demand to perform the task required by the user.
