



HARMONIZED SYSTEM  
REVIEW SUB-COMMITTEE

NR0199E1

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24<sup>th</sup> Session  
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O. Eng.

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POSSIBLE AMENDMENTS TO THE NOMENCLATURE  
REGARDING THE CLASSIFICATION OF CAMERAS

(Item III.A.5 on Agenda)

Reference documents :

NC0055E1 (HSC/23)	NR0118E1 (RSC/22)
NR0072E2, Annex C, paragraph 94 (RSC/20 – Report)	NR0133E2, Annex D/8 (RSC/22 - Report)
NR0086E1 (RSC/21)	NR0141E1 (RSC/23)
NR0093E1 (RSC/21)	NR0152E1 (RSC/23)
NR0095E1 (RSC/21)	NR0165E2, Annex D/8 (RSC/23 – Report)
NR0101E2, Annex B/12 (RSC/21 – Report)	NR0173E1 (RSC/24)
NR0101E2, Annex E/15 (RSC/21 – Report)	

I. BACKGROUND

1. Subsequent to the preparation of Doc. NR0173E1, on 22 August 2001, the Secretariat received the following comments from the International Chamber of Commerce (ICC) and the Japan Electronics and Information Technology Industries Association (JEITA). Due to the late reception of the note, the Secretariat has not reproduced the documents in full but has provided the Review Sub-Committee with the following technical information which it may wish to consider in the course of its discussion on this issue. In addition, the Secretariat has provided the RSC with the general view of these associations with regard to the Canadian proposal to group all cameras in heading 90.06.
2. In this regard, both the ICC and JEITA believe that digital cameras, video camera recorders and the television camera recorders should remain classified in Section XVI based on their technical characteristics. According to the rationale of the Canadian proposal, any device which captures an image through a lens, such as television cameras, camcorders, surveillance cameras, or even satellite imaging devices would be classified in heading 90.06. It is the view of the ICC and JEITA that this is an extraordinarily broad definition which blurs the essential functional difference between digital and traditional photographic image capture devices. New devices such as Personal Digital Assistants, certain telephone sets and even some computer monitors with integrated image-capture devices could be moved wholesale

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from Chapters 84 and 85 into Chapter 90, with significant implications not only for customs administration but also for trade policy.

II. TECHNICAL INFORMATION PROVIDED BY THE ICC

3. “Digital cameras are devices that are considered “smart” devices, in that they are dependent upon computing and processing algorithms to capture a scene. Silver halide (or photographic film) cameras, on the other hand, are devices that expose a chemical based film. Embedded in photographic film are the required “imaging smarts” that captures and subsequently stores the image via a chemical process. Both the digital and film cameras have a lens, a shutter, and an aperture. Beyond that, the image capture and storage processes of film and digital cameras differ significantly. For example, in a digital camera, a Charged Couple Device (CCD) or a Complementary Metal Oxide Silicon (CMOS) image sensor is typically used to capture an image, and a solid-state storage device (Compact Flash card, Smart Media card, Memory Stick, etc.) is required to store the image after image processing algorithms are performed by a CPU in the digital camera. The typical method of viewing an image from a silver halide camera is to make a print or transparency (through chemical processing external to the camera), which can then be viewed. In the digital paradigm, images can be reviewed on the camera, on a personal computer (PC), electronically via e-mail or the Internet, on the TV, or by making a print using a digital printing device. Additional digitizing steps are required to convert an image captured on film so it can be viewed in a similar manner as a digital image.
  
4. Most digital cameras sold by major manufacturers are hand-held digital still (“point and shoot”) cameras and have a compact design that resembles a small automatic 35 mm camera. It uses a CCD to record, process and store images in digital format. The camera often contains an optical zoom lens, and usually has a built-in storage capacity as well as additional storage capacity in the form of removable media cards or strips. A camera with 16MB of Flash RAM is able to retain up to 165 images, depending on the resolution of the pictures taken. Many digital cameras have a colour Liquid Crystal Display (LCD) on the back, which can be used as a viewfinder for shooting images and a zoom that enlarges stored images and permits one to focus on a specific area of an image. The LCD lets the user view previously recorded images for examination and editing.
  
5. Most digital cameras have built-in connection ports for video and computer cables, and are capable of sending and receiving images and text to and from a personal computer (“PC”) to create business presentations, etc. This feature is possible due to accessory software included with the digital camera that allows a PC to design, arrange and edit recorded images and to add data, such as charts, to the images. The stored images may be deleted, edited or re-recorded countless times without loss of image quality. The newly edited images may be downloaded back to the camera and taken anywhere by the user. Most digital cameras also connect to any television through a “video-in” port connector displaying the digital images. Instant viewing on a PC allows for quick selection and immediate editing. Quality pictures can be shared electronically in minutes.
  
6. Comparison of Digital Cameras and Silver Halide Cameras

Digital Cameras	Silver Halide (Photographic Film) Cameras
<ul style="list-style-type: none"> <li>• Optical System – The camera has a lens, shutter and aperture.</li> </ul>	<ul style="list-style-type: none"> <li>• Optical System – The camera has a lens, shutter and aperture.</li> </ul>

<ul style="list-style-type: none"> <li>• Image Capture Method – Charged Couple Device (CCD) or a CMOS sensor converts photons from the optical system into collected electrons, which are later converted into digital numeric values. These sensors can be reused indefinitely.</li> <li>• Image Processing – Digital cameras have a processor (CPU) or digital signal processor (DSP), which performs computational algorithms on the previously collected numerical image sensor data in order to create a viewable image.</li> <li>• Storage Device – Solid-state storage is used to store processed data in a digital format (electrical). This device is re-useable.</li> <li>• Effect of Light on System – No effect after exposure. Electronic capture and storage allows the camera to be transparent if one so desires.</li> <li>• Editing – Captured images can be kept or removed from the camera at any time. No need to develop and throw away unwanted images. This is like a CDRW technology where you can both write and erase data.</li> <li>• Post Capture Viewing – Digitally recorded images can be viewed on Cameras, Liquid Crystal Displays (LCD), the TV, a computer, and other digital display devices.</li> </ul>	<ul style="list-style-type: none"> <li>• Image Capture Method – Silver halide film is used to convert photons from the optical system into chemically altered silver grains in the film. Film is not re-useable.</li> <li>• Image Processing – Silver halide film must be chemically processed (external to the camera) in order to create a viewable image.</li> <li>• Storage Device – Silver halide film stores the image. Film is not re-useable.</li> <li>• Effect of Light on System – Silver halide film is required to remain in total darkness until after the chemical processing steps, at which time the exposed and processed film is converted to a format viewable by humans in standard light conditions. This requires the camera to be “light tight”.</li> <li>• Editing – No editing possible while the film is still in the camera. It is like a WORM technology in the CD recording analogy.</li> <li>• Post Capture viewing – Traditional method is to make a print or a transparency.”</li> </ul>
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### III. CONCLUSION

7. The Sub-Committee is invited to take account of the ICC and JEITA’s comments when it examines this Agenda item.