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**Datasheet for the decision  
of 11 November 2010**

**Case Number:** T 1856/07 - 3.5.04

**Application Number:** 02712293.6

**Publication Number:** 1359743

**IPC:** H04N 1/60

**Language of the proceedings:** EN

**Title of invention:**

Apparatus and method for adjusting output image from image data

**Applicant:**

Seiko Epson Corporation

**Opponent:**

-

**Headword:**

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**Relevant legal provisions:**

-

**Relevant legal provisions (EPC 1973):**

EPC Art. 84, 56

**Keyword:**

"Claims - clarity (yes)"

"Inventive step (yes) after amendments"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 1856/07 - 3.5.04

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.04  
of 11 November 2010

**Appellant:**

Seiko Epson Corporation  
4-1, Nishishinjuku 2-chome  
Shinjuku-ku  
Tokyo 163-0811 (JP)

**Representative:**

Winter, Brandl, Fürniss, Hübner  
Röss, Kaiser, Polte - Partnerschaft  
Alois-Steinecker-Straße 22  
D-85354 Freising (DE)

**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 29 May 2007  
refusing European patent application  
No. 02712293.6 pursuant to Article 97(1) EPC  
1973.

**Composition of the Board:**

**Chairman:** F. Edlinger  
**Members:** C. Kunzelmann  
B. Müller

## Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division to refuse European patent application No. 02 712 293.6.
- II. The application was refused on the grounds of lack of clarity (Article 84 EPC 1973) and lack of inventive step (Article 56 EPC 1973) over the prior-art document D6: US 5 805 213 A.
- III. The applicant appealed and filed claims according to a main and first to third auxiliary requests with the statement of grounds of appeal. The appellant also submitted arguments in support of the view that the claimed subject-matter involved an inventive step.
- IV. The board issued a communication dated 31 August 2010 and annexed to a summons to oral proceedings, pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA). In this communication the board raised objections under Articles 84 EPC 1973, 123(2) EPC and 56 EPC 1973.
- V. With a letter dated 11 October 2010 the appellant filed claims according to a main and first to third auxiliary requests, and comments on the opinion expressed in the summons to oral proceedings.
- VI. Oral proceedings were held on 11 November 2010. In the oral proceedings the appellant replaced the claims of all previous requests by claims 1 to 9 of a sole request. The appellant requested that the decision

under appeal be set aside and that a patent be granted on the basis of claims 1 to 9 submitted in the oral proceedings and a description to be adapted if necessary. At the end of the oral proceedings the chairman announced the board's decision.

VII. Claim 1 reads as follows:

"An output device that outputs an image using image data (GD) and image output control data (GI), the image output control data (GI) including at least light source information indicating white balance used when generating said image data (GD) and being associated with the image data (GD), said output device comprising: image quality adjustment means (30, 31) that executes automatically adjustment of image quality of said image data (GD), the adjustment of image quality including adjustment of color balance of said image data (GD) image output means (30, 31) that outputs an image using the image data (GD) for which said adjustment of image quality has been executed; light source information determination means (30, 31) which analyzes said image output control data and determines whether said light source information was set to auto white balance; and image quality adjustment control means (30, 31) that prohibits said adjustment of color balance by said image quality adjustment means (30, 31) when it is determined that said light source information was not set to auto white balance."

Claim 6 reads as follows:

"An image quality adjustment method comprising:  
obtaining image data (GD) and image output control data (GI), the image output control data (GI) including at least light source information indicating white balance used when generating said image data (GD) and being associated with the image data (GD);  
analyzing said image output control data and determining whether said light source information was set to auto white balance;  
executing automatically adjustment of image quality of said image data (GD), the adjustment of image quality including adjustment of color balance, when it is determined that the light source information was set to auto white balance;  
executing automatically adjustment of image quality of said image data (GD), prohibiting said adjustment of color balance when it is determined that said light source information was not set to auto white balance,  
and  
outputting an image using image data (GD) for which adjustment of image quality has been executed."

Claim 9 reads as follows:

"A computer readable medium that stores a program for adjusting the image quality of the image data (GD), wherein said program instructs a computer to execute functions of all the method steps of any of claims 6 to 8."

Claims 2 to 5 and 7 and 8 are dependent claims.

VIII. The reasons given in the decision under appeal can be summarised as follows, as far as they are relevant to the amended claims:

The meaning of "color balance" was not clear. From the description it was clear that "color balance" was "white balance".

D6 disclosed an output device having all the features of claim 1 with the exception of the last two (light source information determination means and image quality adjustment control means). Determining whether the light source information was set automatically and, if this was not the case, prohibiting adjustment of colour balance was considered to be advantageous because it allowed reflecting the intentional light source specification of the photographer. The examining division considered this operation to be obvious to a person skilled in the art and knowing the teaching of D6. D6 mentioned the option of the user specifying the light source. This specification reflected the photographer's intention in relation to white balance. This intention should not be overruled by an automatic colour balance adjustment. If, on the other hand, the light source determination was set to automatic white balance, colour balance should be carried out automatically.

IX. The appellant's arguments can be summarised as follows:

It was common general practice to use the expression "color balance" in the context of an image processing device and the expression "white balance" in the

context of an image pickup device such as a digital still camera.

Document D6 did not disclose an output device. Instead it disclosed an image input device, for example a digital camera. The image input device of D6 performed automatic image adjustment using light source information determined by the image input device itself. The invention concerned an image output device such as a display or a printer using image data and image output control data not generated by the output device itself but instead by an image input device. The invention solved the problem occurring when the image output device carried out automatic image quality adjustment on image data to be output which had already undergone image quality adjustment in the image input device. This problem never occurred in the device according to D6. The image output device of the invention selectively prohibited the adjustment of colour balance in case of a special light source having been selected by the photographer during generation of the image data in order not to overrule the photographer's intention. The adjustment of colour balance was a sub-point of the image quality adjustment which was carried out by the image output device.

### **Reasons for the Decision**

1. The appeal is admissible.

2. *Amendments (Article 123(2) EPC)*

2.1 The subject-matter of claim 1 is essentially disclosed in claims 1 and 2 of the translation of the originally filed application, as filed upon entry into the European phase. The feature that the output device outputs an image is disclosed for instance on page 8, lines 23 to 29 and figure 1 of the translation. That the light source information indicates white balance used when generating the image data is disclosed for instance on page 9, lines 14 to 27 of the translation. The feature of automatic adjustment of image quality is disclosed for instance on page 18, line 15 of the translation. The feature of determining whether the light source information was set to auto white balance is disclosed on page 19, lines 19 to 21 and figure 11 (step S330) of the translation. The feature of prohibiting adjustment of colour balance (when executing automatically adjustment of image quality) if the light source information was not set to auto white balance is disclosed on page 19, line 22 to page 20, line 11 in conjunction with page 21, lines 8 to 20 and figure 11 (steps S340 and S350) of the translation.

2.2 The subject-matter of claim 6 is disclosed in claim 15 of the translation of the originally filed application in conjunction with the parts of the translation referred to above in the context of claim 1.

2.3 The subject-matter of the remaining claims is disclosed in claims 4 to 7, 16 and 17 and page 5, line 28 to page 6, line 10 of the translation.



2.4 Hence the board finds that the claims filed in the appeal proceedings meet the requirements of Article 123(2) EPC.

3. *Clarity (Article 84 EPC 1973)*

3.1 The objection as to lack of clarity given in the decision under appeal is based on the fact that two different expressions ("color balance" and "white balance") are used. In the present application the expression "white balance" is used in the context of generating the image data, for example when taking a photo with a digital camera. The expression "color balance" is used in the context of image quality adjustment in the output device, such as a printer or a display. In view of the generally different colour spaces and devices used in the contexts of image data generation (such as when taking a photo) and image output (such as when printing or displaying an image), these two expressions concern two different technical concepts in this application, even though both may concern the same kind of adjustment of colour signals (and are sometimes used as synonyms, see page 19, line 25 of the application). Furthermore, both expressions have a generally accepted meaning. In the present application they are used in conformity with this generally accepted meaning. Hence in the present application these different expressions do not lead to a lack of clarity.

3.2 The board does not see any other lack of clarity in the present claims (Article 84 EPC 1973).

4. *Inventive step (Article 56 EPC 1973)*

4.1 Document D6

4.1.1 D6 is the only document of the prior art considered in the decision under appeal. It concerns colour correction of images obtained with digital cameras (see column 1, lines 6 to 8). Generally, the RGB colour signals produced by the colour sensors of a digital camera are not appropriate for display on any given colour display, such as video displays or printers. Hence a colour correction transformation is used to transform the RGB colour signals produced by the digital camera's colour sensors to form device colour signals appropriate for the intended display. To accomplish this, it is necessary to know how the RGB colour signals produced by the colour sensors correspond to the perceived colour values of the colour stimulus in the scene as perceived by a human observer, and additionally how to produce the same perceived colour on the display device (see column 1, lines 51 to 65 and figure 1). D6 describes how this transformation can be carried out using, for instance, a single matrix operation (see column 3, lines 52 to 62). The transformation should take into account light source information indicating the illumination of the scene when taking the digital image, as provided by an illuminant determining process (see column 4, lines 10 to 54). The light source information may be stored as a part of a digital image data structure used to store the camera's colour signals. The transformation is carried out in a digital image processor. The illuminant determining process may be an integral part of the digital camera or of the digital

image processor. The digital image processor may also be integrated into the digital camera (see column 8, lines 25 to 60).

4.1.2 The output device (display, printer, etc.) for the images taken by the digital camera is only briefly indicated in D6. It is clear that the colour-corrected signals resulting from the transformation are fed as device colour signals to the output device. D6 does not disclose that the transformation (or a part thereof) is carried out by the output device. D6 does not disclose that the output device may carry out another image quality adjustment on the colour-corrected signals. Nor does D6 disclose that the output device may be integrated into the digital camera.

4.1.3 In the embodiment of D6 in which the image processing device is not part of the digital camera, the image processing device receives a digital image data structure comprising the (uncorrected) image colour signals and the light source information (see column 8, lines 26 to 46). The light source information, however, does not indicate white balance used when generating the image data because the digital camera does not carry out white balance adjustment when generating the image data. Instead the light source information indicates the illumination of the scene when generating the image data and allows the colour transformation (including white balance adjustment) to be carried out at a later time in the image processing device.

4.1.4 In the embodiment of D6 in which the image processing device is part of the digital camera, the output device (display, printer, etc.) receives the corrected image

colour signals (see column 8, lines 53 to 60). But D6 does not disclose that it receives the light source information as well. In this embodiment the light source information need not be transmitted to the output device since the colour transformation has already been carried out in the digital camera and the camera outputs the desired signals. D6 is silent as to the measures taken by the output device which may receive these signals stored in this particular data structure.

4.1.5 In summary, D6 is based on the concept of a single colour correction transformation. The transformation may be subdivided into different processes (see, for instance, figure 7) but even then the image colour signals of the camera sensors are ultimately transformed to display colour signals of a given data structure. Hence D6 is not concerned with the problem underlying the invention, namely that the user's intentions are incorrectly reflected when an image output device automatically carries out image quality adjustment on image data to be output which have already undergone an intentional image quality adjustment in the image input device (see page 1, line 30 to page 2, line 8 of the translation of the application as originally filed).

4.1.6 Moreover, the teaching of D6 reflects the desire that the user's intentions when the image data are generated should not be overruled (see the argument given in the decision under appeal). According to D6 the user expresses his intentions, for instance, by choosing from a set of possible classes of illuminants (see column 6, line 66 to column 7, line 3). The colour

correction transformation is then carried out on the basis of a representative illuminant spectrum for that class of illuminants that can be assumed (see column 7, lines 42 to 45) so that the user's intentions are correctly reflected.

4.2 The output device according to claim 1

The present application acknowledges that image output devices such as printers may have a function of automatic image quality adjustment (see page 1, lines 10 to 21). A person skilled in the art would have considered using such an output device for outputting an image taken with a digital camera disclosed in one of the embodiments of D6.

4.2.1 In the case of the embodiment discussed in point 4.1.3 above, the output device would not be one in accordance with the feature of the first paragraph of claim 1, because the output device would not receive light source information indicating white balance used when generating the image data.

4.2.2 In the case of the embodiment discussed in point 4.1.4 above, this would essentially have put the person skilled in the art in the situation envisaged in the section "background art" of the present application. However, D6 does not give any indication how to modify known output devices with automatic adjustment of image quality in this situation. It seems likely that a person skilled in the art would have attempted to switch off (manually) the output device's function of automatic image quality adjustment, since the desired image quality adjustment has already taken place in the

camera (or the image processing device). This would be contrary to the invention as defined in claim 1 which specifies "image quality adjustment means (30, 31) that executes automatically adjustment of image quality", also in the case that the image quality adjustment control means prohibits the adjustment of colour balance. Furthermore the decision under appeal has not considered as common general knowledge a possibility of selectively prohibiting colour balance adjustment when executing automatically adjustment of image quality.

Furthermore, in this case there would be no reason for having, in the output device (such as a printer), the light source information determination means which analyzes the image output control data as specified in claim 1, since the light source information would normally no longer be included in the data structure received by the printer.

4.2.3 Hence, if a person skilled in the art had considered using an output device having an automatic image quality adjustment function, for outputting an image taken with a digital camera disclosed in one of the embodiments of D6, he would not have arrived in an obvious manner at the output device specified in claim 1.

4.2.4 In view of the above the board finds that the output device of claim 1 was not obvious to a person skilled in the art having regard to the different embodiments disclosed in D6 and to prior-art output devices having an automatic image quality adjustment function.

- 4.3 The image quality adjustment method according to claim 6 and the computer-readable medium according to claim 9
  - 4.3.1 The image quality adjustment method according to claim 6 corresponds to the operation of the output device according to claim 1. In particular, claim 6 explicitly specifies "outputting an image using image data (GD) for which adjustment of image quality has been executed", whereas the adjustment of colour balance is selectively prohibited when it is determined that the obtained light source information was not set to auto white balance.
  - 4.3.2 Hence the argumentation concerning inventive step having regard to the different embodiments disclosed in D6 is also valid for claim 6. The same applies to claim 9 and the dependent claims.
- 4.4 The remaining prior-art documents on file are not more relevant.
- 4.5 Thus, in the board's judgment, the subject-matter of the claims involves an inventive step (Article 56 EPC 1973).
5. The board does not see any other reason for not granting a patent on the basis of the present claims.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
  
2. The case is remitted to the first instance with the order to grant a patent with the following claims and a description to be adapted:  
Claims No. 1 to 9 received during oral proceedings of 11 November 2010.

The Registrar:

The Chairman:

L. Fernández Gómez

F. Edlinger