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Datasheet for the decision of 23 October 2007

Case Number: T 0617/05 - 3.5.04

Application Number: 98302306.0

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IPC: H04N 5/782

Language of the proceedings: EN

Title of invention:
Method for recording television program in video recording apparatus

Applicant:
SAMSUNG ELECTRONICS CO., LTD.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 84, 56

Keyword:
"Main request - clarity (no)"
"Auxiliary request - inventive step (no)"

Decisions cited:
-

Catchword:
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Case Number: T 0617/05 - 3.5.04

D E C I S I O N
of the Technical Board of Appeal 3.5.04
of 23 October 2007

Appellant: SAMSUNG ELECTRONICS CO., LTD.
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Suwon-City, Kyungki-do (KR)

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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 7 December 2004 refusing European application No. 98302306.0 pursuant to Article 97(1) EPC.**

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. 98 302 306.0.

II. The decision under appeal referred *inter alia* to documents

D1: EP 0 584 991 A2 and
D2: US 5 594 598 A.

The examining division was of the opinion that the subject-matter of claims 1 and 2 comprised a juxtaposition of obvious features and did not involve an inventive step in view of the prior art disclosed in D2 and common general knowledge.

III. With the statement of grounds of appeal the appellant filed amended sets of claims according to a main and an auxiliary request.

IV. In a communication annexed to a summons to attend oral proceedings the board referred to document CA 2 130 691 A, mentioned in the European search report.

V. The appellant filed amended claims in oral proceedings held on 23 October 2007.

VI. Claim 1 of the main request reads as follows.

"A method for recording a television program in a video recording apparatus, comprising the steps of:

receiving broadcasting program information transmitted from a broadcasting station;
detecting a running time of the television program to be recorded from the broadcasting program information;
detecting a residual quantity of a recording medium on which the television program is to be recorded;
comparing said running time of the television program and said residual quantity of the recording medium to evaluate an optimal image compression ratio,
and estimating, using the optimal image compression ratio, whether the residual quantity of the recording medium is sufficient to record the television program;
characterised by:
recognising that the residual quantity is not sufficient to record the television program, displaying a warning message and asking the user whether to record the television program or not; or
recognising that the residual quantity is suffient [sic] to record the television program and asking the user whether or not to record the television program at a high quality, and recording the television program."

VII. Claim 1 of the auxiliary request reads as follows.

"A method for recording a television program in a video recording apparatus, comprising the steps of:
receiving broadcasting program information transmitted from a broadcasting station;
detecting, from the broadcasting program information, a running time of the television program to be recorded;
detecting a residual quantity of a recording medium on which the television program is to be recorded;
characterised by:

comparing said running time of the television program and said residual quantity of the recording medium to determine a bit rate for an image compression ratio; wherein said determined bit rate is compared with predetermined first and second bit rates, said predetermined second bit rate being higher than said predetermined first bit rate, and if said determined bit rate is at least equal to the predetermined second bit rate, asking a user whether to record said television program, and if said determined bit rate is between the predetermined first and second bit rates, warning a user about degradation and asking whether he wishes to record the television program; and
if the user responds accordingly, recording, on the recording medium, the television program at the determined bit rate."

VIII. The appellant's arguments can be summarized as follows.

Concerning claim 1 of the main request, the expression "optimal image compression ratio" related to an image compression ratio which was determined as specified in claim 1 and which also corresponded to an acceptable image quality. For instance, in relation to the second branch of the characterising portion, an image compression ratio which led to a very high image quality but also to an unacceptable waste of the recording medium would not be considered as optimal. Figure 2 of the application only related to a specific embodiment. The claim however related to a situation in which the user was given the opportunity to select between a high quality recording and an intermediate, acceptable quality recording if there was sufficient residual quantity for a high quality recording, and in

which the user was also given an opportunity to record the television program for instance with bad quality even though there was not sufficient residual quantity for recording at the intermediate, acceptable quality.

Concerning the auxiliary request, the feature "receiving broadcasting program information transmitted from a broadcasting station" related to information which was received directly from the broadcasting station, not to information which the user input manually (as in D2) or by means of a bar code reader. Document CA 2 130 691 A disclosed an analogue video recording apparatus and was thus incompatible with the determination of the bit rate as specified in claim 1. Hence CA 2 130 691 A was not an adequate starting point for judging inventive step of the invention. Nevertheless, in view of the opinion expressed by the board, the two-part form of claim 1 was based on CA 2 130 691 A. Furthermore this known apparatus did not ask the user the questions specified in claim 1. It thus did not provide the interactivity of the invention. Moreover, the video recording apparatus of CA 2 130 691 A abruptly changed the recording speed whereas the invention specified in claim 1 used an averaged, continuously varying bit rate. Thus the invention had several differences with respect to the analogue video recording apparatus of CA 2 130 691 A and was not merely an obvious digital version thereof. Documents D1 and D2 disclosed an adaptation of the bit rate. But the programming process of D1 was iterative and required the user to restart the programming each time the recording capacity was insufficient to carry out the recording in accordance with the previous user input. D2 did not inform the user about image

degradation. Thus none of the available prior art documents, alone or in combination, suggested a method providing the interactivity implied in claim 1.

IX. Following the debate in oral proceedings the appellant requested that the decision under appeal be set aside and that a patent be granted in the following version:

Main request:
Claims 1 to 9 submitted in the oral proceedings, pages 4 and 5 of the description ("main request") filed with the statement of grounds of appeal, the remaining application documents being those specified in the decision under appeal.

Auxiliary request:
Claims 1 to 6 and pages 4 and 5 submitted in the oral proceedings, the remaining application documents being those specified in the decision under appeal.

Reasons for the Decision

1. The appeal is admissible.

2. The following pages of the description constitute the text submitted by the applicant (appellant) for consideration by the board:

pages 1 to 3 and 6 to 9 filed with letter of 23 August 2001;
page 5a filed with letter of 28 May 2003; and
pages 4 and 5 filed with the statement of grounds of appeal (main request); and alternatively

pages 4 and 5 submitted in the oral proceedings before the board (auxiliary request).

For the convenience of the reader references to the description will be followed by the number (set in square brackets) of the corresponding paragraph of the application as published.

3. *Main request: clarity of claim 1 (Article 84 EPC)*

3.1 The method of claim 1 comprises in its precharacterising portion a step of comparing the running time of the television program and the residual quantity of the recording medium "to evaluate an optimal image compression ratio" (i.e. to determine an optimal value of image compression ratio). Claim 1 does not specify the technical meaning of "optimal", but when read in the light of the description (see page 7, line 7, to page 8, line 1; [0023]), a person skilled in the art would derive that the optimal image compression ratio is such as to make the best use of the residual quantity of the recording medium. Other things being equal, a higher compression ratio (lower bit rate) reduces the quality of the recorded image but permits the desired running time of a program to be recorded using a smaller residual quantity of the recording medium. If the residual quantity is sufficient, a lower compression ratio (higher bit rate) makes it possible to enhance the quality. Thus, by varying the compression ratio (bit rate), it is possible to record the television program with an optimal quality according to the residual quantity of the recording medium (see page 9, lines 24 to 26; [0027]). Hence, when a running time and a residual quantity are

detected in accordance with the method steps of claim 1, an optimal image compression ratio (a value of bit rate) will be evaluated, based on a comparison of the running time and the residual quantity, such that the television program can be recorded with said compression ratio on the recording medium. However the evaluated compression ratio may be too high and yield an unacceptable quality or recording medium may be wasted undesirably by a very low compression ratio (see page 2, lines 1 to 20; [0004]).

3.2 Claim 1 also comprises the step of "estimating, using the optimal image compression ratio, whether the residual quantity is sufficient to record the television program" and the step of "recognising that the residual quantity is not sufficient to record the television program". Since the optimal image compression ratio is evaluated such that the television program **can** be recorded (see point 3.1 above), the step of estimating whether the residual quantity is sufficient (or not) in fact relates to a degree of image quality which results from the evaluated compression ratio on the basis of the given residual quantity and running time. This understanding of sufficient residual quantity is also confirmed by the reference to "high quality" in the characterising portion of claim 1 (see also page 8, line 28, to page 9, line 26; [0025], [0026], [0027]).

3.3 The first of the two branches in the characterising portion of claim 1 does not specify how it is recognised that the residual quantity is not sufficient to record the television program. In this context, the description (see page 8, line 28, to page 9, line 13;

[0025], [0026]) makes clear that there is a range of compression ratios which may be considered, such as not sufficient, degraded quality and high quality. It is not clear from claim 1 which criterion triggers a warning message asking the user whether to record or not.

3.4 This is also true for the second branch in the characterising portion of claim 1. The criterion that the residual quantity is sufficient does not imply a specific level of quality which can be clearly determined. The appellant's argument that the expression "at a high quality" meant that the user was given an opportunity (not shown in figure 2) to select between a high quality recording and an acceptable quality recording did not convince the board. The application does not disclose any criterion used for distinguishing a high quality from the acceptable quality. In this context, the description instead states that "if the residual quantity of the recording medium 14 is sufficient compared to the running time of the television program to be recorded, the video recording apparatus may display a message notifying a sufficiency of the recording medium 14 and inquire the user whether or not to record the television program with the high quality" (see page 9, lines 7 to 13; [0026]). Hence it is not clear whether the expression "high quality" in claim 1 is merely a paraphrase for an (unspecified) acceptable quality or whether it defines a higher quality (for instance one where recording medium may be wasted undesirably).

3.5 Hence claim 1 does not make clear whether the two "recognising" steps specified in the characterising portion concern the distinction between two possible categories of image quality (unacceptable image quality and acceptable image quality) or between three such categories (unacceptable image quality, acceptable image quality, and high image quality) and which features distinguish the different categories of image quality. The board therefore judges that claim 1 of the main request is not clear (Article 84 EPC).

4. *Auxiliary request: inventive step (Article 56 EPC)*

4.1 Claim 1 of the auxiliary request distinguishes between a category of degraded image quality ("between the predetermined first and second bit rates") and a category of better than degraded image quality ("at least equal to the predetermined second bit rate"). Once the first and second bit rates are fixed for a given usage to define a range which is considered as degraded quality, it can be easily determined whether the bit rate which is determined in the step comparing the running time and the residual quantity falls in one of these categories (see, for instance, page 9, lines 1 to 13; [0026]). The board therefore has no objection against the clarity of claim 1 of the auxiliary request.

4.2 *The closest prior art*

It is uncontested that merely providing a digital version of the apparatus of CA 2 130 691 A would not involve an inventive step. But what is more important is the disclosure of CA 2 130 691 A about the usage of the residual quantity, the adaptation of the

compression ratio (and therewith the quality) of the recorded image and the disclosure about information messages provided to the user. Thus the disclosure of CA 2 130 691 A is an appropriate starting point for assessing whether the method of claim 1 involves an inventive step.

CA 2 130 691 A discloses a method for recording a television program having the features of the preamble of claim 1. The appellant has not contested this. CA 2 130 691 A further discloses recording in a standard speed mode and recording in a 1/3 speed mode. In the 1/3 speed mode the television program is recorded onto a length of tape which is 1/3 of the tape length required in standard speed mode, and it is implicit that the image quality is degraded when compared to recording in the standard speed mode. The different speed modes thus have the same effect in respect of the running time and the residual quantity, as different compression ratios or bit rates in digital video recording. Furthermore it is uncontested that CA 2 130 691 A discloses the comparing of the running time of the television program and the residual quantity of the recording medium (see figure 10, step 34, and page 20, last complete paragraph) to determine the point in time R_a (see figure 10, step 37) at which the recording must change from the standard speed mode to the 1/3 speed mode so that the television program can be recorded on the residual quantity of the recording medium (see page 22, first complete paragraph). Thus the video recorder of CA 2 130 691 A makes the best use of the residual quantity of the recording medium by adapting the recording mode of an analogue video recorder. Moreover the video recorder of

CA 2 130 691 A displays an error message "Cannot record the whole program" if it is impossible to record the whole program even in the 1/3 speed mode. Thereafter the recording starts in the 1/3 speed mode and is terminated when there is no more tape or the program ends (see page 22, lines 2 to 6 and figure 10). The user is not given an opportunity to react to the error message. (He may of course switch off the video recorder and use a different tape, etc.)

4.3 *Differences between the method of claim 1 and that of CA 2 130 691 A and problems solved thereby*

The method of claim 1 differs from the one known from CA 2 130 691 A in that a bit rate for an image compression ratio is determined in the comparing step. This difference and the recording at the determined bit rate imply that a digital representation of the television program is compressed and recorded. Furthermore the method of claim 1 differs from the one known from CA 2 130 691 A in the steps specified in the "wherein" feature of the characterising portion.

4.3.1 In the present case, the digital form of compression and recording on its own solves the problem of providing an alternative to the analogue form of recording disclosed in CA 2 130 691 A. The characterising portion of claim 1 specifies the conditions which determine whether the user is asked a question and whether a warning message is displayed in terms of comparisons of bit rates. In the context of claim 1 the bit rates are merely representative of compression ratios corresponding to different image qualities. The questions and the warning message are

otherwise independent of the fact that digital compression and recording takes place.

4.3.2 Instead, one question the user may be asked in accordance with the characterising portion of claim 1 is "whether to record" said television program. The warning message is about degradation, and its displaying leads to the other question, namely "whether he wishes to record" said television program. These questions and the warning message, in combination with the step of "if the user responds accordingly, recording, on the recording medium, the television program at the determined bit rate", solve the problem of allowing interaction with the user.

4.3.3 Since these two individual problems are solved independently of each other, they will be dealt with individually below.

4.4 *Solutions to these problems known at the priority date*

4.4.1 Concerning the first problem, there was a general trend towards digitalisation at the priority date, and it is uncontested that digital video recorders were well-known at the priority date, examples being disclosed in D1 and D2. In particular, it was well-known that digital video recorders allow variable data compression (see for instance D2, column 1, lines 5 to 58, and column 11, lines 6 to 30, or D1, the description of figures 8 and 9).

In a digital version of the analogue video recorder of CA 2 130 691 A the limitations proper to an analogue video recorder (for example the speed modes; see

point 4.2 above) would not exist. Instead, known digital compression schemes would be used, such as those disclosed in D1 or D2, or an MPEG-2 compression module with a variable bit rate (see page 7, lines 21 to 25; [0023] of the present application). Hence, starting from CA 2 130 691 A, it would have been obvious for a person skilled in the art to provide a digital version which used known digital compression schemes to make best use of the residual quantity of the recording medium.

4.4.2 Concerning the second problem, it is clear from point 4.2 above that the user-friendliness of the recording method using the video recorder of CA 2 130 691 A was limited. A known way of improving the user-friendliness was to allow interaction with the user by displaying messages, as was common in digital apparatuses.

In this respect, both questions the user may be asked in accordance with claim 1 (see point 4.3.2 above) are confirmation requests concerning whether to record a program. Such requests giving the user an opportunity to confirm an action before it actually starts were a generally known feature of systems allowing interaction with the user.

Also warning messages were a generally known feature of systems allowing interaction with the user. In the context of recording television programs in video recording apparatus, it was clear that a very low bit rate for an image compression ratio resulted in image degradation or even unacceptable image quality, so that the warning about degradation in combination with the

question whether the user wished to record, as specified in claim 1, was a routine implementation of generally known warning messages.

4.5 Hence a person skilled in the art would have modified the recording method of CA 2 130 691 A by providing a digital version which used known digital compression schemes to make best use of the residual quantity of recording medium, and would have implemented in the digital version generally known features allowing interaction with the user, thereby arriving at the method specified in claim 1. Therefore the board judges that the method of claim 1 of the auxiliary request does not involve an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Sauter F. Edlinger